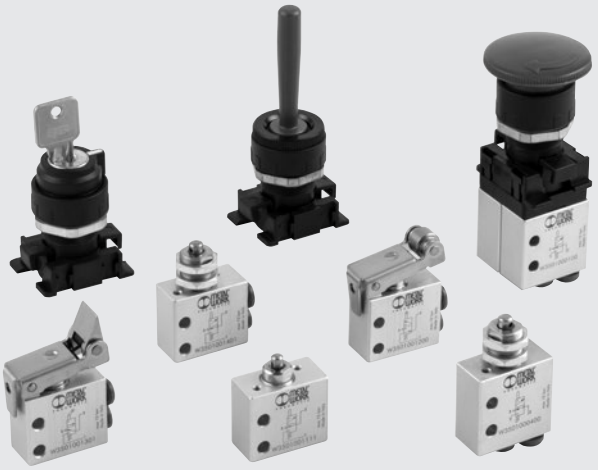
VALVES SUMMARY

METAL WORK PNEUMATIC

MINIVALVES, MECHANICALLY AND HAND OPERATED SERIES VME

- Minivalves with 3/2 NO NC poppet,
- Installation in any position
- Push-in fittings for pipe Ø 4 mm and M5 on the valve body
- Low actuation force
- Rapid, accurate signal
- Mechanical actuation
- The 2 places adapter allows manual actuation of 1 or 2 VME valves with manual Ø 22 panel actuators. Thus it is possible to obtain 3/2, 5/2, 5/3 open centre and 5/3 pressure centre pneumatic functions.
- On request, it is possible to place a NC-NO electric switch next to VME valve for mixed solenoid/pneumatic signals.

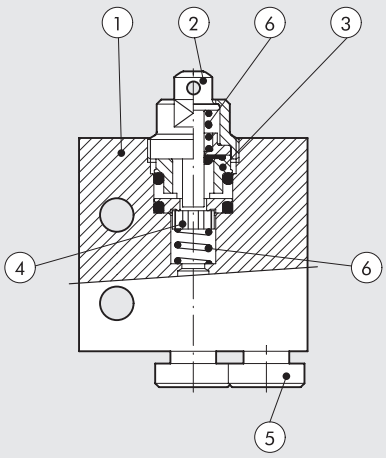


TECHNICAL DATA

Valve fitting port		Push-in fitting for pipe diam. 4 and M5 (axial or side)
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous
Type		With poppet
Versions		Mechanical and manual
Operators:		
• mechanical		With Plunger – Plunger for wall-mounting – Roller lever – Unidirectional roller lever
• manual		Depending on the type of actuation panel selected
Operating pressure	bar	0.5 to 10
Operating temperature range	°C	-10° to +60
Nominal diameter	mm	2.5
Conductance C	Nl/min · bar	16.5
Critical ratio b	bar/bar	0.03
Flow rate at 6 Bar ΔP 0.5 Bar	Nl/min	35
Flow rate at 6 Bar ΔP 1 Bar	Nl/min	60
Actuation force – Plunger at 6 Bar	N	8
Recommended lubricant		ISO and UNI FD22
Installation		In any position
Compatibility with oils		See **chapter Z1**

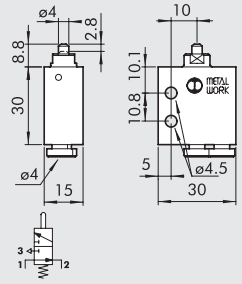
COMPONENTS

① VALVE BODY: Aluminium
② BUTTON: chemically nickel-plated brass
③ DISTANCE PLATES: Brass
④ GASKETS: NBR
⑤ PUSH-IN FITTING CARTRIDGES: stainless steel, brass and plastic
⑥ SPRINGS: stainless steel

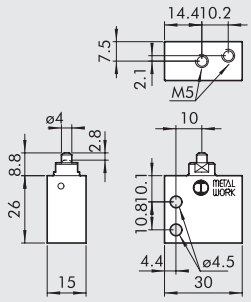


PLUNGER 3/2 NO - AXIAL FITTINGS

Ø 4



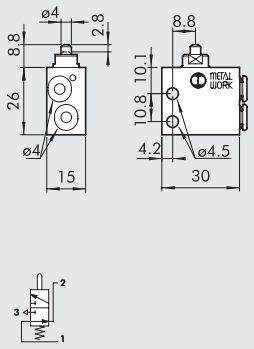
M5



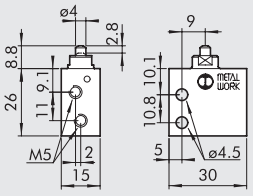
Code	Description	Weight [g]
W3501000101	VME1-10 NO Ø 4	42
W3501000110	VME1-16 NO M5	36

PLUNGER 3/2 NO - SIDE FITTINGS

Ø 4



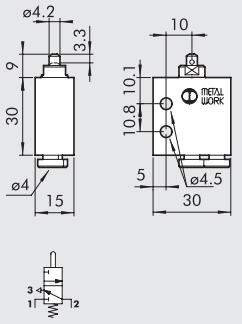
M5



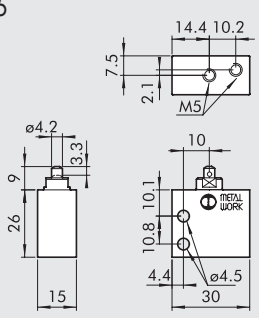
Code	Description	Weight [g]
W3501001100	VME2-00 NO Ø 4	34
W3501001110	VME2-10 NO M5	34

PLUNGER 3/2 NC - AXIAL FITTINGS

Ø 4



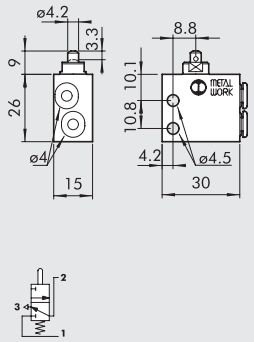
M5



Code	Description	Weight [g]
W3501000100	VME1-01 NC Ø 4	42
W3501000111	VME1-11 NC M5	36

PLUNGER 3/2 NC - SIDE FITTINGS

Ø 4



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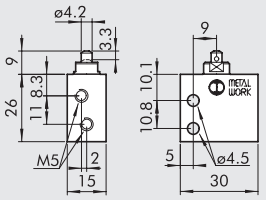
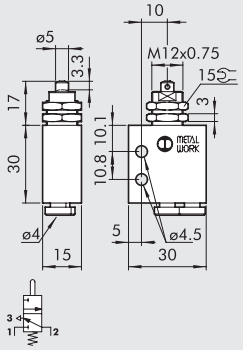


Code	Description	Weight [g]
W3501001101	VME2-01 NC Ø 4	34
W3501001111	VME2-11 NC M5	34

PLUNGER FOR WALL MOUNTING, 3/2 NC - AXIAL FITTINGS

Ø 4



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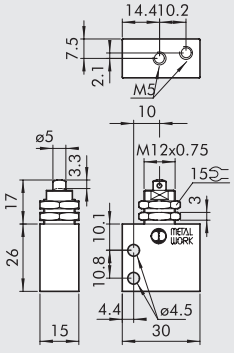
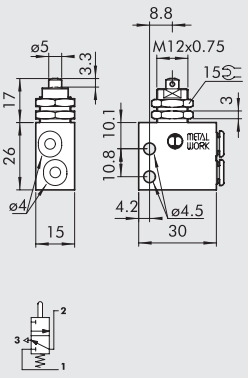


Code	Description	Weight [g]
W3501000400	VME1-04 NC Ø 4	54
W3501000411	VME1-14 NC M5	48

PLUNGER FOR WALL MOUNTING, 3/2 NC - SIDE FITTINGS

Ø 4



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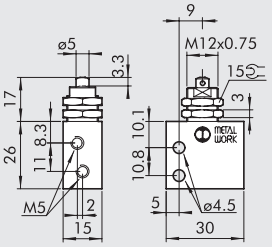
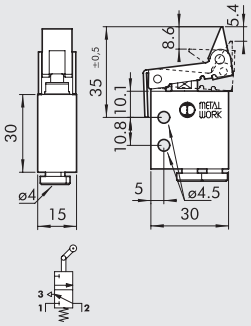


Code	Description	Weight [g]
W3501001401	VME2-04 NC Ø 4	46
W3501001411	VME2-14 NC M5	46

UNIDIRECTIONAL ROLLER LEVER, 3/2 NC - AXIAL FITTINGS

Ø 4



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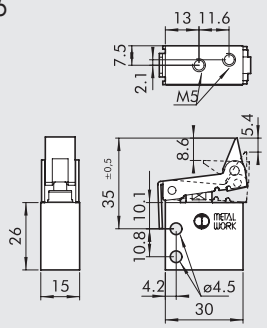
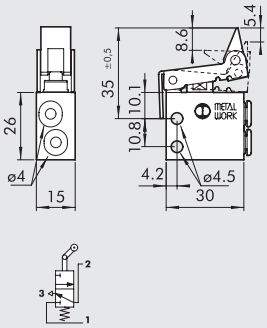


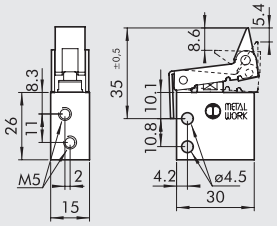
Code	Description	Weight [g]
W3501000300	VME1-03 NC Ø 4	60
W3501000311	VME1-13 NC M5	54

UNIDIRECTIONAL ROLLER LEVER, 3/2 NC - SIDE FITTINGS

Ø 4



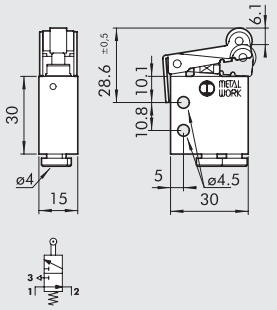
M5



Code	Description	Weight [g]
W3501001301	VME2-03 NC Ø 4	52
W3501001311	VME2-13 NC M5	52

ROLLER LEVER, 3/2 NO - AXIAL FITTINGS

Ø 4



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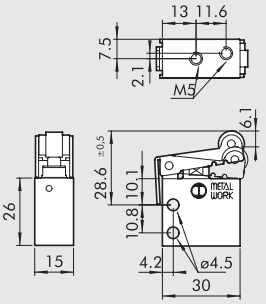
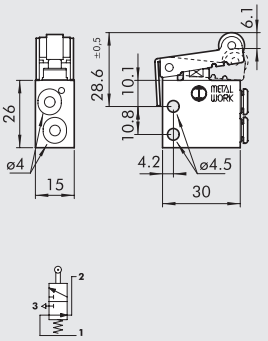


Code	Description	Weight [g]
W3501000201	VME1-05 NO Ø 4	58
W3501000210	VME1-15 NO M5	52

ROLLER LEVER, 3/2 NO - SIDE FITTINGS

Ø 4



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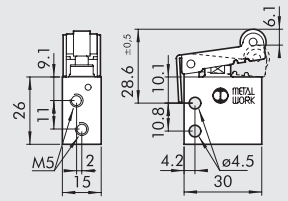
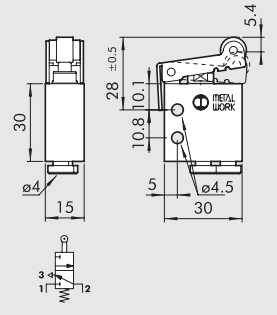


Code	Description	Weight [g]
W3501001200	VME2-05 NO Ø 4	50
W3501001210	VME2-15 NO M5	50

ROLLER LEVER, 3/2 NC - AXIAL FITTINGS

Ø 4



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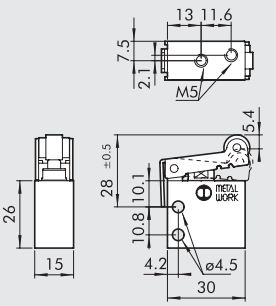
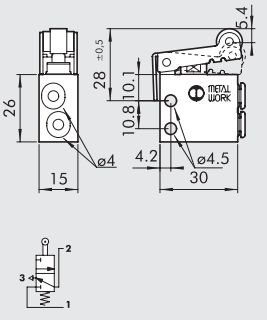


Code	Description	Weight [g]
W3501000200	VME1-02 NC Ø 4	56
W3501000211	VME1-12 NC M5	50

ROLLER LEVER, 3/2 NC - SIDE FITTINGS

Ø 4



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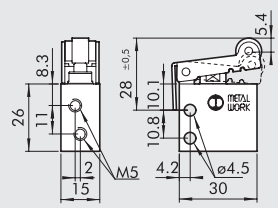


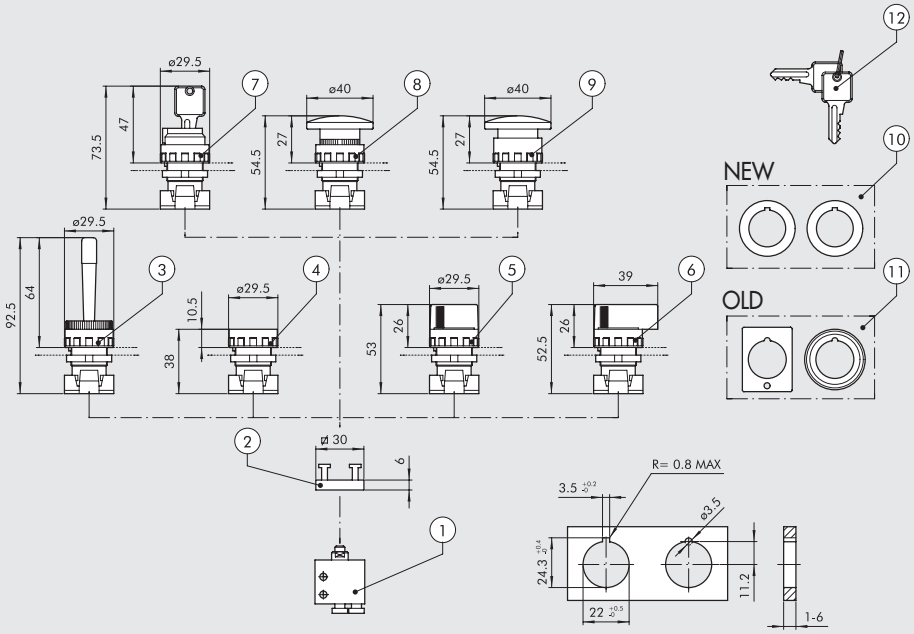
Code	Description	Weight [g]
W3501001201	VME2-02 NC Ø 4	52
W3501001211	VME2-12 NC M5	50

METAL WORK PNEUMATIC

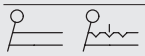
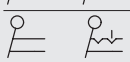
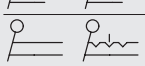
MANUAL VME VALVES – ASSEMBLY DIAGRAM

NOTES:

- For 5/2 pneumatic operation, assemble a 3/2 NC plunger valve and a 3/2 NO one on the adapter.
- For 5/3 pneumatic operation with open centres, assemble two 3/2 NC plunger valves on the adapter.
- For 5/3 pneumatic operation with pressure centres, assemble two 3/2 NO plunger valves on the adapter.



ORDERING CODES

Symbol	Reference	Code	Description	Weight [g]
	①	**W3501000100**	3/2 NC Axial fittings Ø 4	42
		W3501000111	3/2 NC Axial fittings M5	36
		W3501001101	3/2 NC Side fittings Ø 4	34
		W3501001111	3/2 NC Side fittings M5	34
	①	**W3501000101**	3/2 NO Axial fittings Ø 4	42
		W3501000110	3/2 NO Axial fittings M5	36
		W3501001100	3/2 NO Side fittings Ø 4	34
		W3501001110	3/2 NO Side fittings M5	34
	②	**0351000050**	2 places adaptor thickness 6.8 mm	5
	③	**W0351000015**	Red handler with horizontally pivoted lever	25
	④	**W0351000011**	Fat push button + 2 red/black coloured disks	15
			◆ Bistable fat push button without disk	
	⑤	**W0351000030**	Black selector short lever at 2 positions with return	20
		W0351000031	Black selector short lever at 2 positions	20
	⑤	**W0351000032**	Black selector short lever at 3 positions with return	20
		W0351000033	Black selector short lever at 3 positions	20
	⑥	**W0351000034**	Black selector long lever at 2 positions with return	26
		W0351000035	Black selector long lever at 2 positions	26
	⑥	**W0351000036**	Black selector long lever at 3 positions with return	26
		W0351000037	Black selector long lever at 3 positions	26
	⑦	**W0351000016**	2 positions key selector with extractable key in 2 positions	50
		W0351000018	2 positions key selector with extractable key in 0	50
	⑧	**W0351000013**	Red mushroom-head push button Ø 40	27
		W0351000017	Black mushroom-head push button Ø 40	27
	⑨	**W0351000014**	Red mushroom-head push button with lock Ø 40	29
	⑩	**W0351000049**	✚ Reducer from 30 to 22.5 mm	
	⑪	**W0351000050**	▲ Adapter for bore Ø 30 G2326	
	⑫	**W0351000021**	✚ Key for ESC selectors	
		W0351000056	Green disk for push button ④	

◆ It can't be supplied. As working replaced by selector with bistable short lever at 2 positions ⑤.
✚ Usable only with technopolymer body selectors.
▲ Usable only with metal body selectors.

VALVES SERIES PEV
PEDAL OPERATED

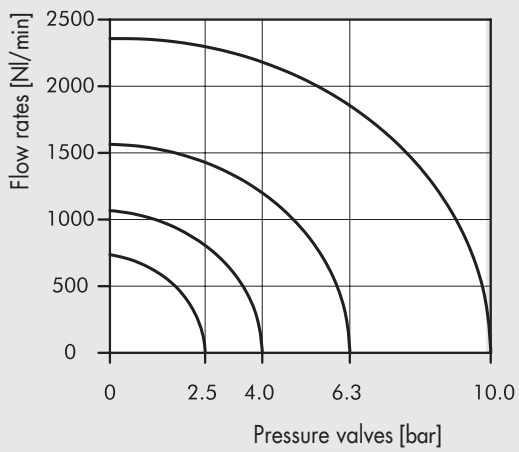
The valves series PEV with pedal are available in a wide range:
- 5/2 1/4" monostable and bistable with guarded pedal
- 3/2 M5 monostable, pedal not guarded
- 3/2 Ø 4 monostable, pedal not guarded
- 3/2 M5 in monostable and bistable configuration with guarded pedal
- 3/2 Ø 4 in monostable and bistable configuration with guarded pedal

TECHNICAL DATA

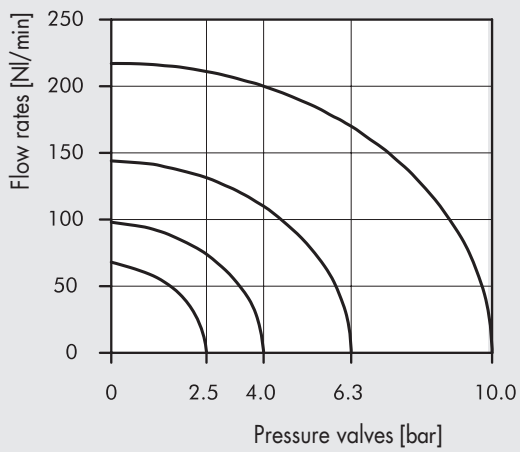
Valve fitting port		Ø 4	M5	1/4"
Type		Mono/ bistable guarded	Monostable not guarded	Mono/ bistable guarded
		Monostable not guarded	Mono/ bistable guarded	–
Operating pressure	bar	2.5 to 10		
	Mpa	0.25 to 1		
	psi	36 to 145		
Operating temperature range	°C	–10 + 60		
Nominal diameter	mm	2.5	2.5	7.5
Conductance C	Nl/min · bar	16.5	16.5	264.26
Critical ratio b	bar/bar	0.03	0.03	0.32
Flow rate at 6.3 bar ΔP 0.5 bar	Nl/min	60	60	640
Flow rate at 6.3 bar ΔP 1 bar	Nl/min	95	95	840
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous		
Compatibility with oils		See **chapter Z1**		

FLOW CHARTS

1/4"

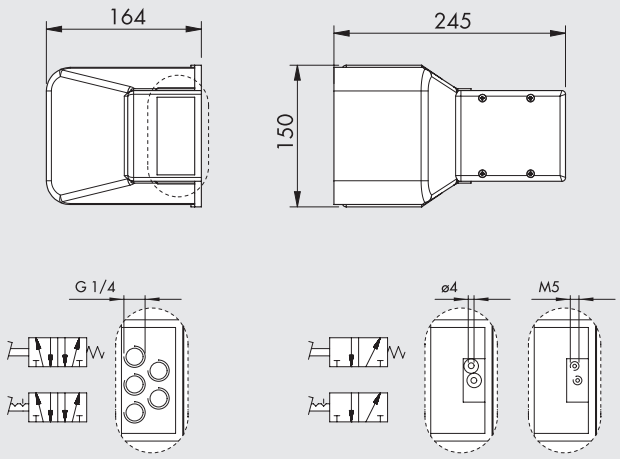


M5/Ø 4 mm



METAL WORK PNEUMATIC

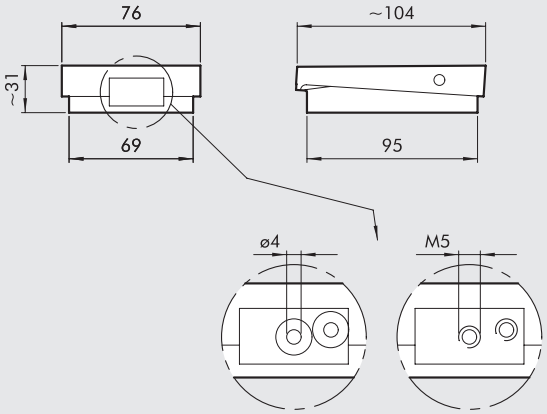
GUARDED PEDAL WITH VALVES 5/2 1/4" - 3/2 M5 - 3/2 Ø 4



Symbol	Code	Description	Abbrev.	Weight [g]
	W3120000001	5/2 - 1/4" monostable, guarded	PEV 35 PES PR	1027
	W3120000011	5/2 - 1/4" bistable, guarded ●	PEV 35 PEB PR	1035
	W3120000301	3/2 M5 monostable, guarded	PEV 03 PES PR	883
	W3120000321	3/2 Ø 4 monostable, guarded	PEV F3 PES PR	887
	W3120000331	3/2 M5 bistable, guarded ●	PEV 03 PEB PR	890
	W3120000311	3/2 Ø 4 bistable, guarded ●	PEV F3 PEB PR	914
	W3120000021	5/2 - 1/4" monostable, with mechanical block and guarden ■	PEV 35 PEC PR	1014

● The pedal-down position is maintained by a lever.
When the foot presses on the lever, the pedal releases and can rise.
■ When the foot presses on a locking lever, the pedal can be lowered.

NOT-GUARDED PEDAL WITH VALVES 3/2 M5 - 3/2 Ø 4



Symbol	Code	Description	Abbrev.	Weight [g]
	W3120000411	3/2 - M5 monostable, not guarded	PEV 03 PES WP	188
	W3120000401	3/2 Ø 4 monostable, not guarded	PEV F3 PES WP	192

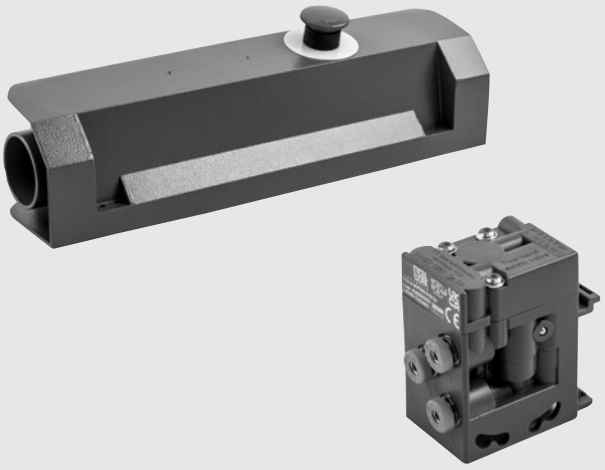
SYNOPTIC, SIZES AND VERSIONS

P E V	F	3	P E	C	W P
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING (12)	FURTHER DETAILS
PEV valve with pedal	**3** 1/4	**3** 3/2	**PE** pedal operated	**S** mechanical springs	**WP** not guarded
	0 M5	**5** 5/2		**C** mechanical block	**PR** guarded
	F Ø 4			**B** bistable	

TWO HAND SAFETY VALVE SERIES SAFE AIR®

The two hand safety valve generates an output signal only if two synchronised pneumatic input signals are received.
If one input signal is interrupted, the output signal is interrupted as well.
The most common application involves connecting a manual button-controlled valve to each of the inputs and using the output signal as a start-of-cycle control for a pneumatically-operated machine.

- The two hand safety valve can be secured with through screws or a DIN bar adaptor.
- The complete pushbutton panel includes the dual manual control valve, two manual pushbuttons, and an emergency stop valve, all housed in a metal box to be mounted on a wall or stand.
- The pushbutton housing is supplied on request for anyone wishing to get a personalised pneumatic connection or drill holes to secure the unit.



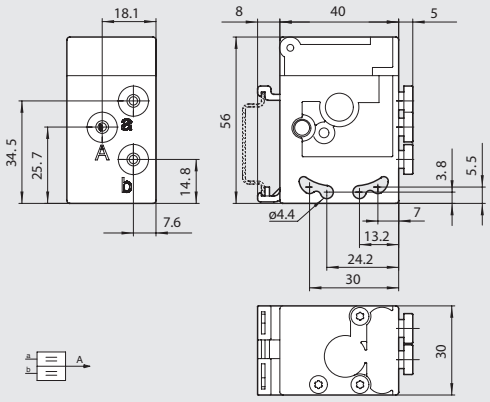
TECHNICAL DATA

Compressed air couplings	mm	Push-in fitting for Ø 4 pipe
Fluid		Filtered, unlubricated compressed air, max 50 µm
Version		Single-control – Complete pushbutton panel
Standard		• EN ISO 13851 type IIIA, TÜV approvated according to 2006/42/EC
		Certified TÜV-A-MHF/MG18-00134V (code W3605000001)
		• Certified Bureau Veritas BC-23-MAC-CV-0001 (code 0227700000)
Synchronisation, max. time between two signals	s	0.4
De-activation time, with pipe L = max 1000 mm	s	< 0.05
Actuation		pneumatic
Reset		spring operated
Operating pressure	bar	2.5 to 8
Temperature range	°C	- 10 to +60
Nominal diameter	mm	2.7
Flow rate at 6 bar (0.6 Mpa - 87 psi) ΔP 1 bar (0.1MPa -1.45 psi)	Nl/min	85
Mounting position		In any direction
Compatibility with oils		See **chapter Z1**

TWO HAND SAFETY VALVE

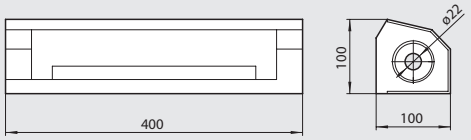
Code	Description
W3605000001	Two hand safety valve

Materials
Body: technopolymer
Internal parts: brass and technopolymer
Gaskets: NBR
Spring: alloy steel



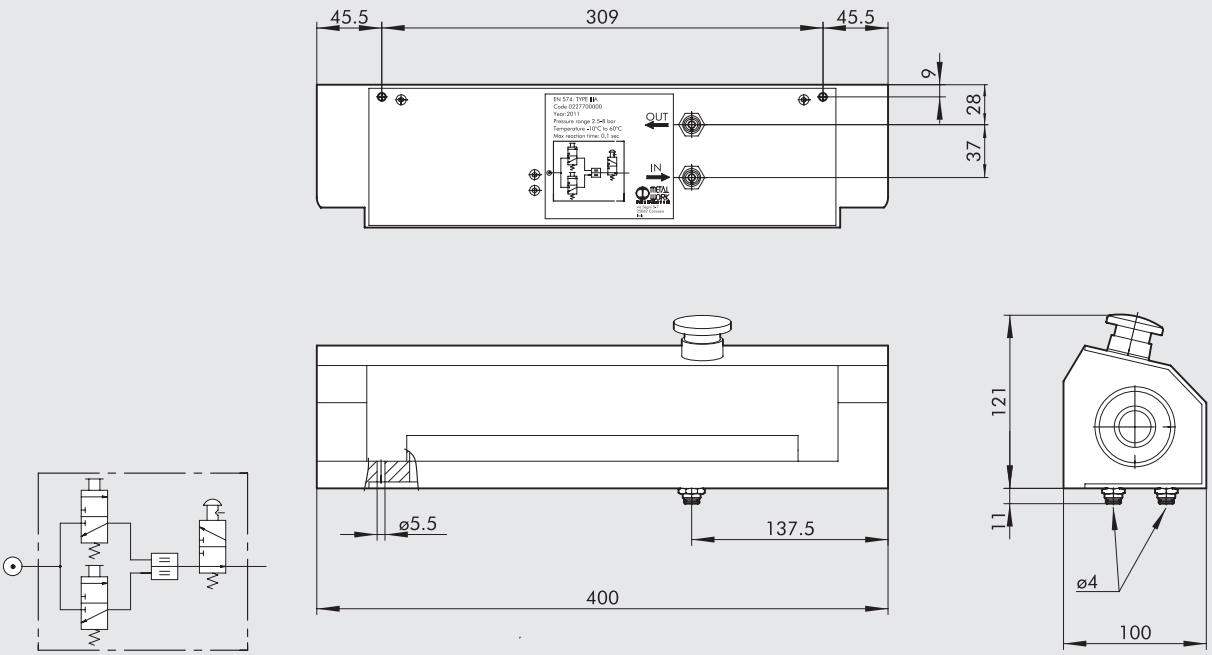
PUSHBUTTON HOUSING

Code	Description
W3120000212	Pushbutton housing



METAL WORK PNEUMATIC

COMPLETE PUSHBUTTON PANEL



Code	Description
0227700000	Complete pushbutton panel

Materials

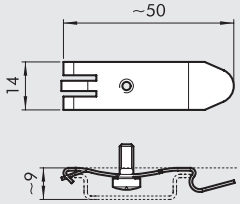
Pressure die-cast and painted aluminium alloy

MAIN COMPONENTS

Code	Description	Quantity
W3605000001	Dual manual safety valve	1
W0351000011	Monostable protected button - black disk	2
W0351000014	Emergency stop button	1
W3501000100	VME1-01 NC Ø 4	2
W3501001100	VME2-01 NO Ø 4	1
0351000050	Valve-button connecting base	3
2L11001	RL10 Ø 4	2

ACCESSORIES

CONNECTION BRACKETS ON THE BAR (DIN EN50022)

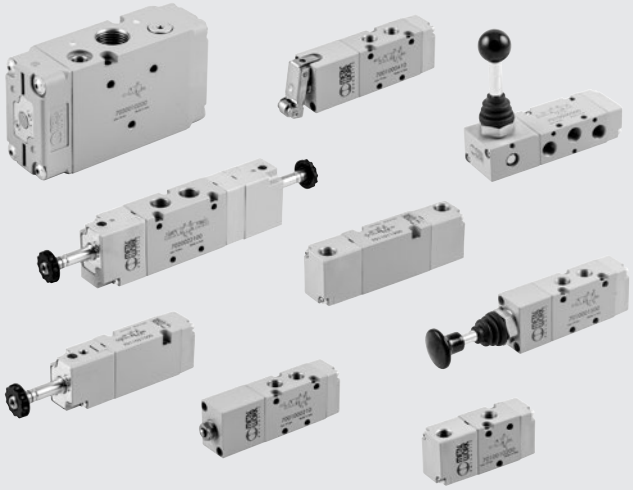


Code	Description
0227300600	Connection brackets on DIN bar

Individually packed

VALVES SERIES 70

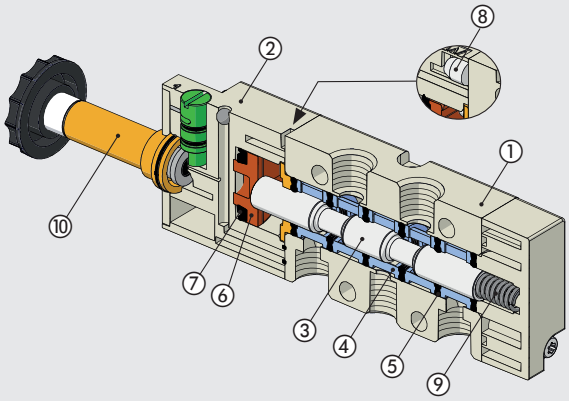
The Series 70 forms part of Metal Work's full range of traditional valves.
They are available in sizes 1/8", 1/4", 3/8" and 1/2", versions 3/2, 5/2, 5/3 and double 3/2, with mechanical, manual, pneumatic and electric drives.
They can be installed in line, onto a wall, on the cylinder (using a special bracket) or in series (on a multiple or modular base) to suit all possible applications.
A range of valves (Series 70 LT) designed using components for specific low-temperature applications is now available for the most commonly used types and sizes.
These highly reliable valves comply with the main applicable standards, including Atex, ISO 13489 and SIL, as stated in the documents and certificates available online.



TECHNICAL DATA			1/8"	1/4"	3/8"	1/2"
Thread on the valve ports			1/8"	1/4"	3/8"	1/2"
Operating pressure series 70 versions		bar				
monostable and bistable differential			2.5 to 10			
bistable			1 to 10			
asserved			vacuum to 10			
Operating pressure series 70 LT (low temperature) versions		bar				
hand operated			vacuum to 10		-	
pneumatic and solenoid/pneumatic	t = -40°C to -10°C		5 to 10		-	
	t = -10°C to +60°C		3 to 10		-	
Minimum pilot pressure		bar	2.5			
Operating temperature range		°C				
series 70 versions			−10 to +60			
series 70 LT (low temperature) versions			−40 to +60			
Nominal diameter		mm	5	7.5	13.3	15
Conductance C		Nl/min · bar	121.43	264.26	505.52	971.43
Critical ratio b		bar/bar	0.32	0.27	0.32	0.43
Flow rate at 6 bar ΔP 0.5 bar		Nl/min	400	750	1560	3200
Flow rate at 6 bar ΔP 1 bar		Nl/min	550	1100	2150	4600
Installation			In any position (vertical assembly is not recommended for bistable valves subjected to vibration)			
Fluid			Filtered air without lubrication; lubrication, if used, must be continuous.			
			For series 70 LT (low-temperature) versions, it is recommended to use of perfetamente dried air.			
Recommended lubricant			ISO and UNI FD 22			
			For series 70 LT (low-temperature) it is not expected to be used with lubricated air.			
Maximum coil nut torque		Nm	1			
Compatibility with oils			See **chapter Z1**			

COMPONENTS SERIES 70

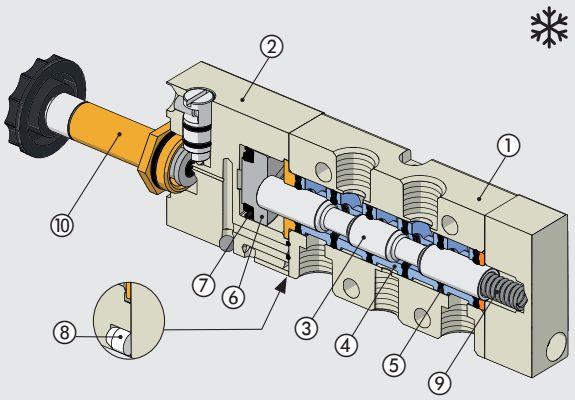
① VALVE BODY: Aluminium
② CONTROL/END CAP: plastic
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ FILTER: plastic
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe - Stainless steel core



METAL WORK PNEUMATIC

COMPONENTS SERIES 70 LT (LOW TEMPERATURE)

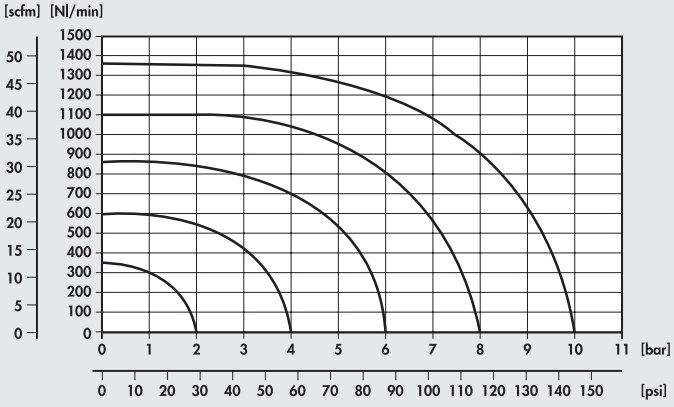
① ALVE BODY: aluminium
② CONTROL/END CAP: aluminium
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: HNBR
⑥ PISTONS: aluminium
⑦ PISTON GASKET: HNBR
⑧ FILTER: plastic
⑨ SPRINGS: special steel
⑩ OPERATOR: brass pipe - Stainless steel core
(version specific for low-temperature applications)



FLOW CHARTS

VALVES SERIES 70 1/8"

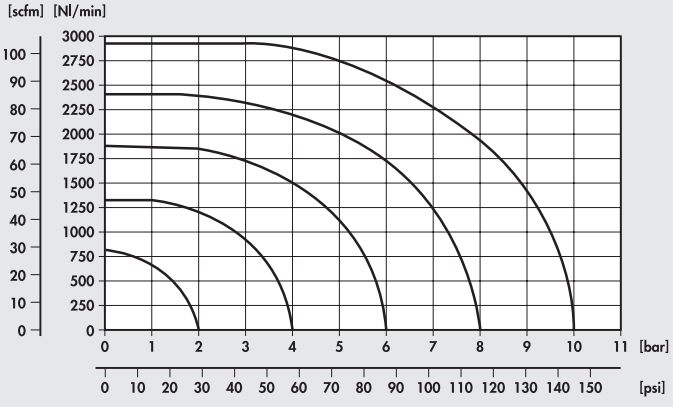
Flow rates



Pressures

VALVES SERIES 70 1/4"

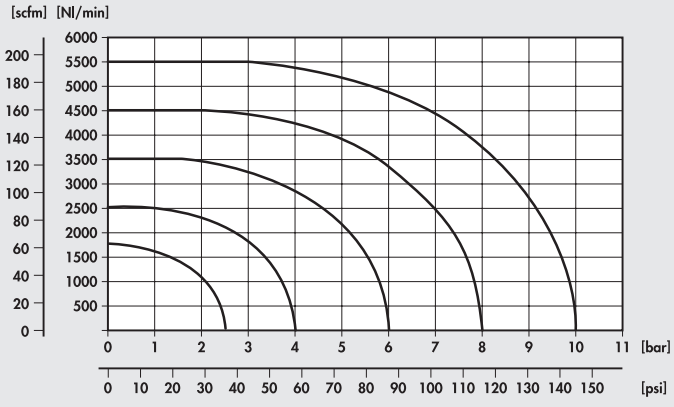
Flow rates



Pressures

VALVES SERIES 70 3/8"

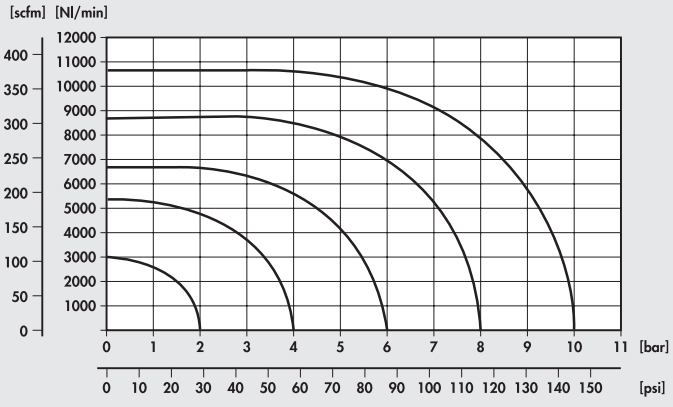
Flow rates



Pressures

VALVES SERIES 70 1/2"

Flow rates



Pressures

VALVES SERIES 70, HAND OPERATED

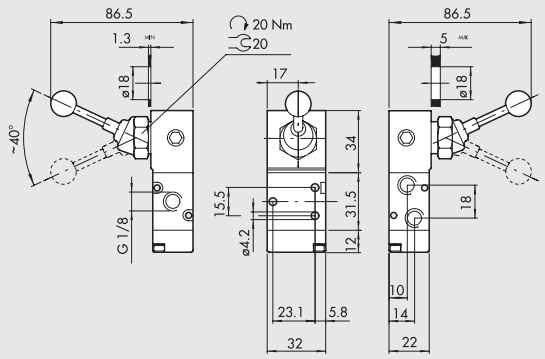
TECHNICAL DATA		1/8"	1/4"	1/2"
Operating pressure range:				
• version with direct control	bar		Vacuum to 10	
• pilot-assisted version	bar		2.5 to 10	
Operating temperature range	°C		-10 to +60	
Nominal diameter	mm	5	7.5	15
Conductance C	Nl/min · bar	121.43	264.26	971.43
Critical ratio b	bar/bar	0.32	0.27	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100	4600

SYNOPTIC, SIZES AND VERSIONS

M A V	2	3	P P	S	N C
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING (12)	FURTHER DETAILS
MAV manual valves	**2** 1/8"	**3** 3/2	**PP** drawer	**A** pneumatic/ mechanical springs*	**NC** normally closed
	3 1/4"	**5** 5/2	**VL** axial lever	**S** mechanical springs	**NO** normally open
	4 1/2"	**6** 5/3	**LE** 90° lever	**B** bistable	**OO** no indication
		8 2 x 3/2	**BRE** arranged for manual panel actuators	**D** differential	**CC** closed centres
				O stable for 5/3	**OC** open centres
				*on demand	**PC** pressure centres

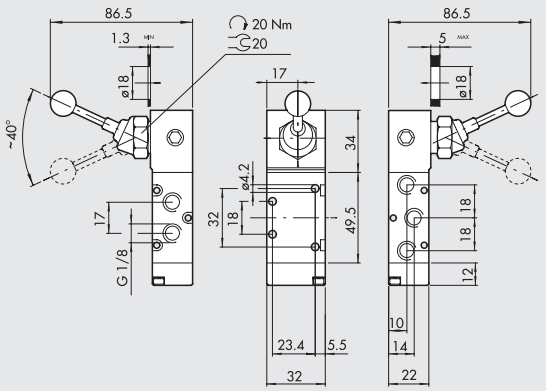
VALVES SERIES 70, HAND OPERATED, 1/8"

90° LEVER 3/2 1/8"



Symbol	Code	Abbrev.	Weight [g]
	**7010000100**	MAV 23 LES NC	168
	**7010000200**	MAV 23 LEB OO	171

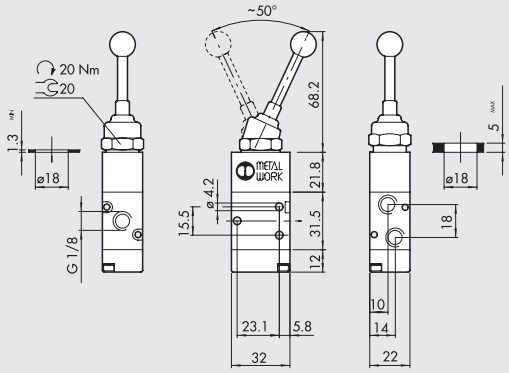
90° LEVER 5/2 1/8"



Symbol	Code	Abbrev.	Weight [g]
	**7010000300**	MAV 25 LES OO	194
	**7010000400**	MAV 25 LEB OO	197

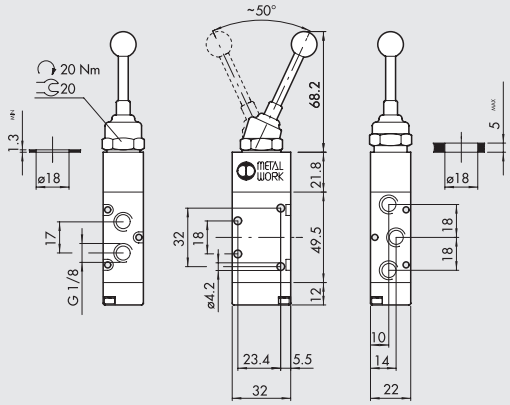
METAL WORK PNEUMATIC

FRONT LEVER 3/2, 1/8"



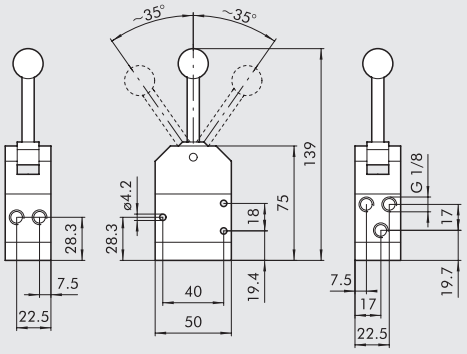
Symbol	Code	Abbrev.	Weight [g]
	7010001400	MAV 23 VLB OO	130

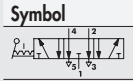
FRONT LEVER 5/2, 1/8"



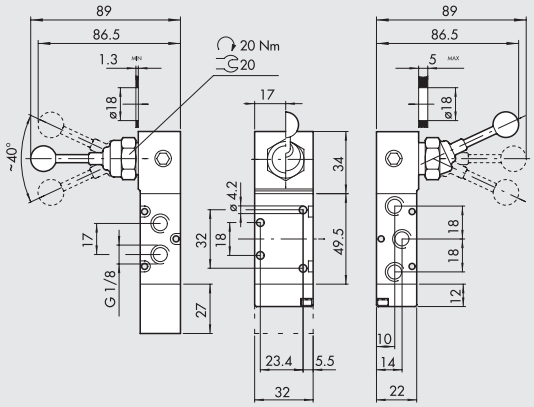
Symbol	Code	Abbrev.	Weight [g]
	7010001700	MAV 25 VLB OO	156

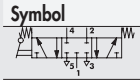
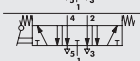
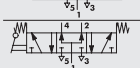
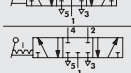
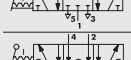
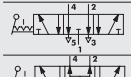
FRONT LEVER 5/3, 1/8"



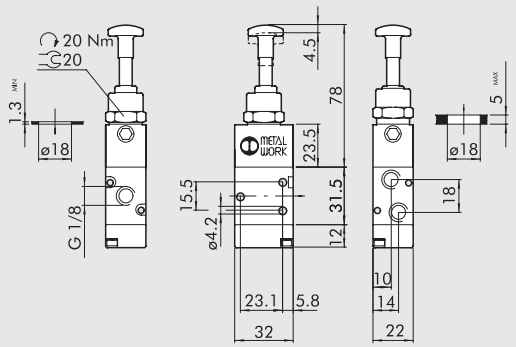
Symbol	Code	Abbrev.	Weight [g]
	7010001150	MAV 28 VLO OC	316
	7010001160	MAV 28 VLS OC	325

90° LEVER 5/3, 1/8"



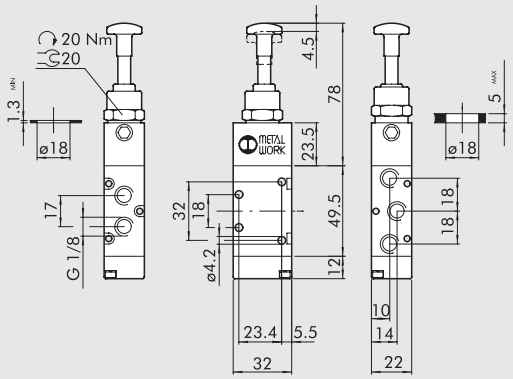
Symbol	Code	Abbrev.	Weight [g]
	7010001000	MAV 26 LES CC	242
	7010000900	MAV 26 LES OC	242
	7010001100	MAV 26 LES PC	242
	7010000500	MAV 26 LEO CC	194
	7010000600	MAV 26 LEO OC	194
	7010000700	MAV 26 LEO PC	194

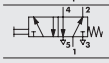
DRAWER 3/2, 1/8"



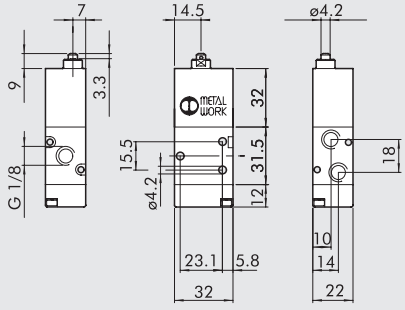
Symbol	Code	Abbrev.	Weight [g]
	7010001300	MAV 23 PPB OO	134
	7010001200	MAV 23 PPS NC	134

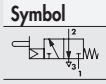
DRAWER 5/2, 1/8"



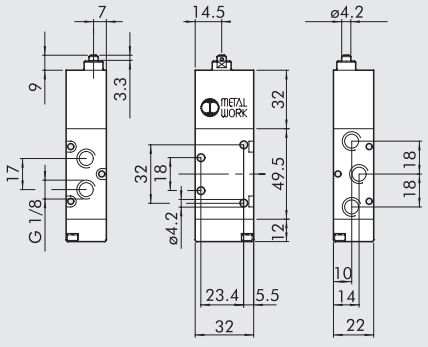
Symbol	Code	Abbrev.	Weight [g]
	7010001600	MAV 25 PPB OO	160
	7010001500	MAV 25 PPS OO	160

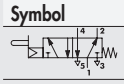
PILOT-ASSISTED PLUNGER 3/2 1/8" FOR PANEL ACTUATORS



Symbol	Code	Abbrev.	Weight [g]
	7010001800	MAV 23 BRE NC	124

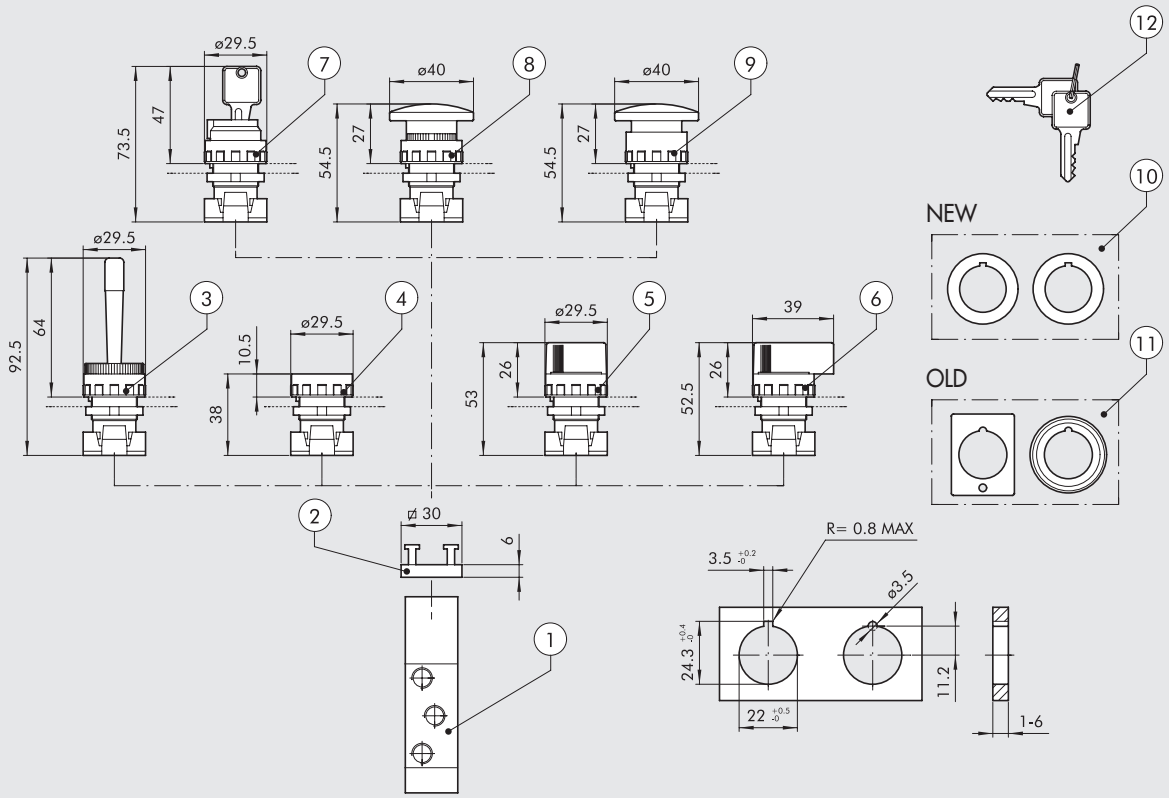
PILOT-ASSISTED PLUNGER 5/2 1/8" FOR PANEL ACTUATORS



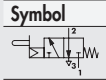
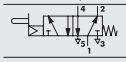
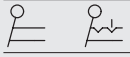
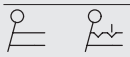
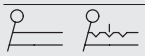
Symbol	Code	Abbrev.	Weight [g]
	7010001900	MAV 25 BRE OO	150

METAL WORK PNEUMATIC

ASSEMBLY DIAGRAM FOR PILOT-ASSISTED HAND-OPERATED VALVES SERIES 70 WITH PANEL ACTUATORS



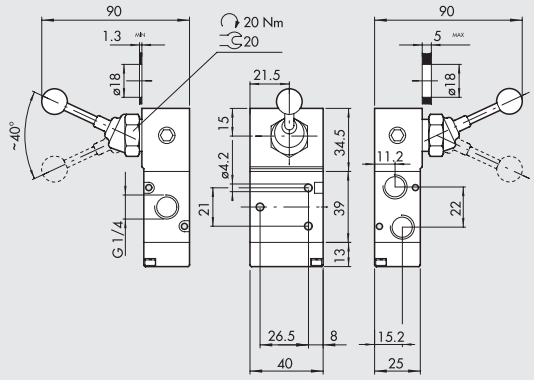
ORDERING CODES

Symbol	Reference	Code	Description	Weight [g]
	①	**7010001800**	Pilot-assisted plunger 3/2, 1/8"	124
	①	**7010001900**	Pilot-assisted plunger 5/2, 1/8"	150
	②	**0351000050**	2 places adaptor thickness 6.8 mm	5
	③	**W0351000015**	Red handler with horizontally pivoted lever	25
	④	**W0351000011**	Fat push button + 2 red/black coloured disks	15
			◆ Bistable fat push button without disk	
	⑤	**W0351000030**	Black selector short lever at 2 positions with return	20
		W0351000031	Black selector short lever at 2 positions	20
	⑤	**W0351000032**	Black selector short lever at 3 positions with return	20
		W0351000033	Black selector short lever at 3 positions	20
	⑥	**W0351000034**	Black selector long lever at 2 positions with return	26
		W0351000035	Black selector long lever at 2 positions	26
	⑥	**W0351000036**	Black selector long lever at 3 positions with return	26
		W0351000037	Black selector long lever at 3 positions	26
	⑦	**W0351000016**	2 positions key selector with extractable key in 2 positions	50
		W0351000018	2 positions key selector with extractable key in 0	50
	⑧	**W0351000013**	Red mushroom-head push button Ø 40	27
		W0351000017	Black mushroom-head push button Ø 40	27
	⑨	**W0351000014**	Red mushroom-head push button with lock Ø 40	29
	⑩	**W0351000049**	✚ Reducer from 30 to 22.5 mm	
	⑪	**W0351000050**	▲ Adapter for bore Ø 30 G2326	
	⑫	**W0351000021**	✚ Key for ESC selectors	
		W0351000056	Green disk for push button ④	

◆ It can't be supplied. As working replaced by selector with bistable short lever at 2 positions ⑤.
✚ Usable only with technopolymer body selectors.
▲ Usable only with metal body selectors.

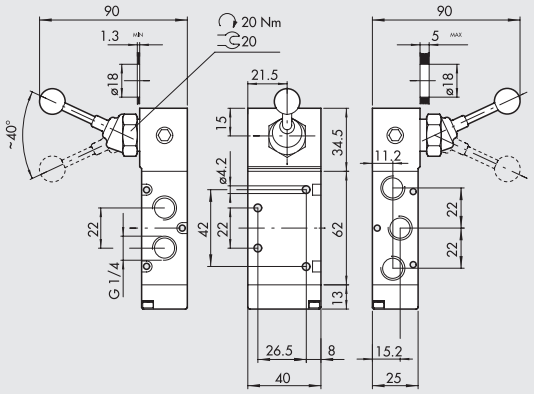
VALVES SERIES 70, HAND-OPERATED, 1/4"

90° LEVER 3/2, 1/4"



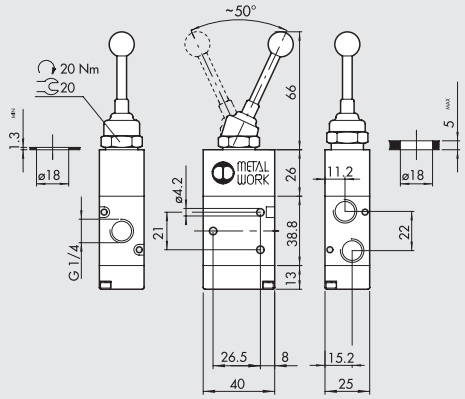
Symbol	Code	Abbrev.	Weight [g]
	7020000100	MAV 33 LES NC	244
	7020000200	MAV 33 LEB OO	244

90° LEVER 5/2, 1/4"



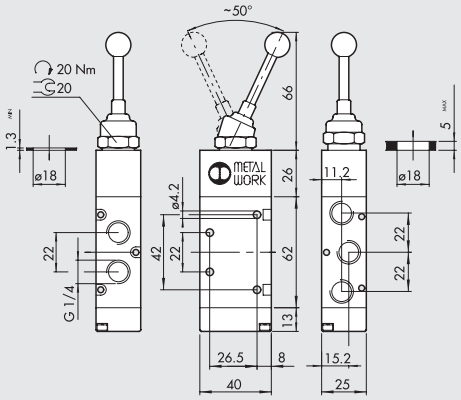
Symbol	Code	Abbrev.	Weight [g]
	7020000300	MAV 35 LES OO	290
	7020000400	MAV 35 LEB OO	290

FRONT LEVER 3/2, 1/4"



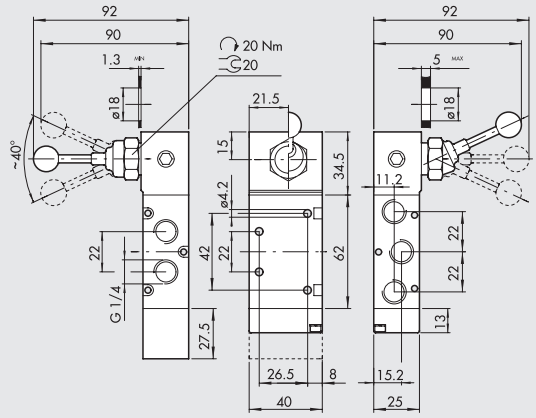
Symbol	Code	Abbrev.	Weight [g]
	7020001400	MAV 33 VLB OO	194

FRONT LEVER 5/2, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020001700	MAV 35 VLB OO	244

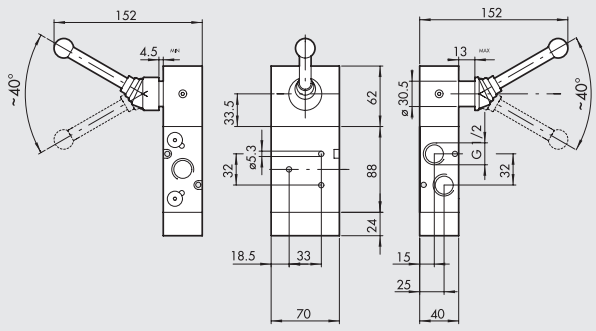
90° LEVER 5/3, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020001000	MAV 36 LES CC	354
	7020000900	MAV 36 LES OC	354
	7020001100	MAV 36 LES PC	354
	7020000500	MAV 36 LEO CC	288
	7020000600	MAV 36 LEO OC	288
	7020000700	MAV 36 LEO PC	288

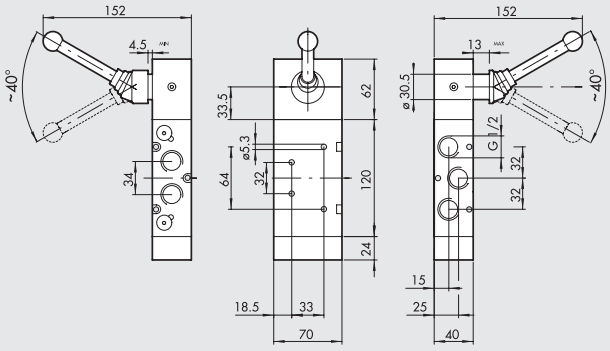
VALVES SERIES 70, HAND OPERATED, 1/2"

90° LEVER 3/2, 1/2"



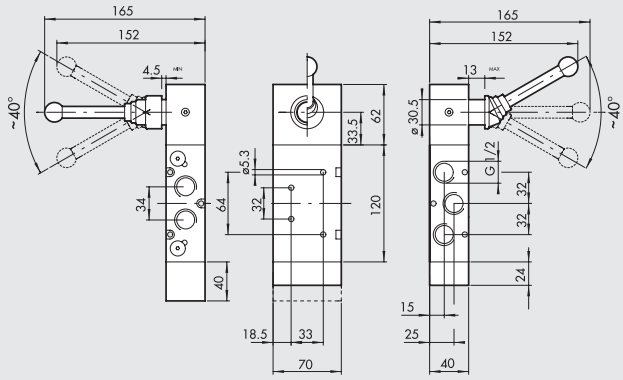
Symbol	Code	Abbrev.	Weight [g]
	7030000100	MAV 43 LES NC	1443
	7030000200	MAV 43 LEB OO	1435

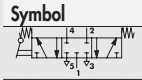
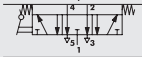
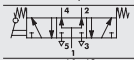
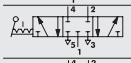
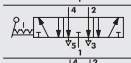
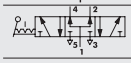
90° LEVER 5/2, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	7030000300	MAV 45 LES OO	1588
	7030000400	MAV 45 LEB OO	1630

90° LEVER 5/3, 1/2"



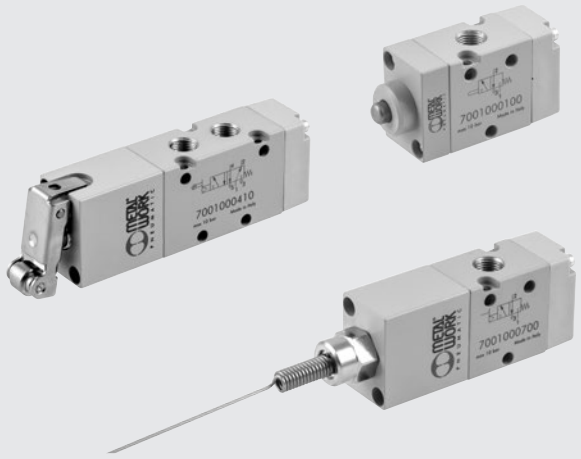
Symbol	Code	Abbrev.	Weight [g]
	7030001000	MAV 46 LES CC	1810
	7030000900	MAV 46 LES OC	1800
	7030001100	MAV 46 LES PC	1800
	7030000500	MAV 46 LEO CC	1615
	7030000600	MAV 46 LEO OC	1605
	7030000700	MAV 46 LEO PC	1605

NOTES

VALVES SERIES 70, MECHANICALLY OPERATED, 1/8"

TECHNICAL DATA

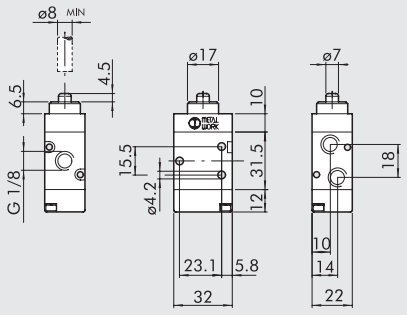
Thread at valve ports		1/8"
Operation force at 6 bar:		
• version with direct control	N	50
• pilot-assisted version	N	6
Operating pressure:		
• version with direct control	bar	Vacuum to 10
• pilot-assisted version	bar	2.5 to 10
Operating temperature range	°C	-10 to +60
Nominal diameter	mm	5
Conductance C	Nl/min · bar	121.43
Critical ratio b	bar/bar	0.32
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400
Flow rate at 6 bar ΔP 1 bar	Nl/min	550



SYNOPTIC, SIZES AND VERSIONS

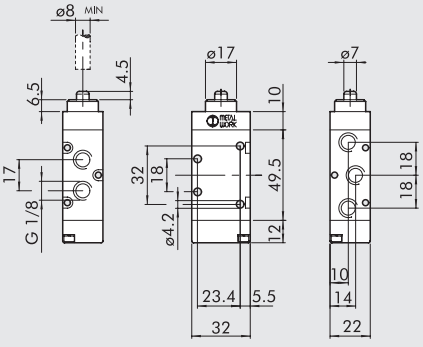
M E V	2	3	T A	S	N C
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING (12)	FURTHER DETAILS
MEV mechanically-operated valves	**2** 1/8"	**3** 3/2 **5** 5/2	**TA** plunger **BR** bidirectional roller **UR** unidirectional roller **TS** sensitive plunger **RS** sensitive roller **AS** sensitive aerial **LL** frontal roller lever	**S** mechanical springs **A** pneumatic/mechanical spring* *on demand	**NC** normally closed **OO** no indication

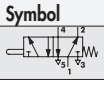
PLUNGER 3/2, 1/8"



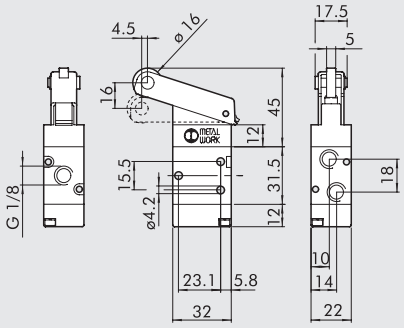
Symbol	Code	Abbrev.	Weight [g]
	7001000100	MEV 23 TAS NC	88

PLUNGER 5/2, 1/8"



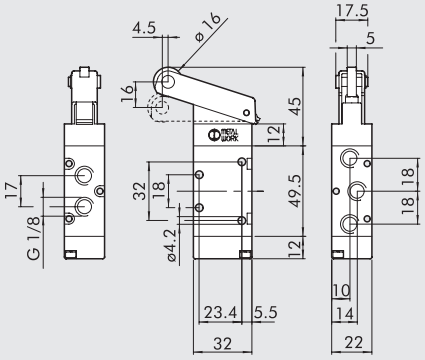
Symbol	Code	Abbrev.	Weight [g]
	7001000110	MEV 25 TAS OO	114

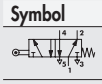
ROLLER LEVER 3/2, 1/8"



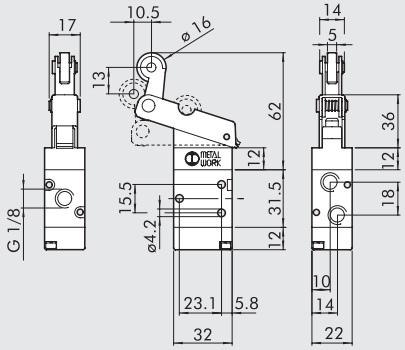
Symbol	Code	Abbrev.	Weight [g]
	7001000500	MEV 23 BRS NC	130

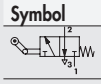
ROLLER LEVER 5/2, 1/8"



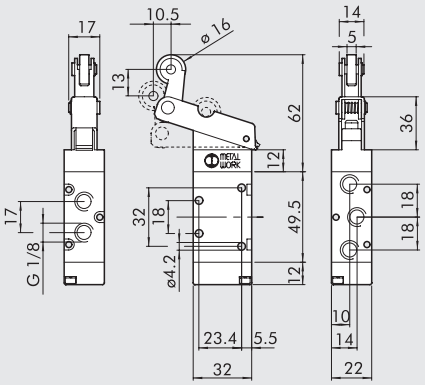
Symbol	Code	Abbrev.	Weight [g]
	7001000510	MEV 25 BRS OO	156

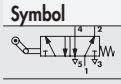
UNIDIRECTIONAL ROLLER 3/2, 1/8" LEVERS



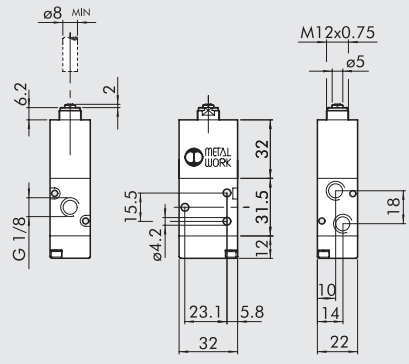
Symbol	Code	Abbrev.	Weight [g]
	7001000600	MEV 23 URS NC	136

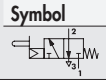
UNIDIRECTIONAL ROLLER 5/2, 1/8" LEVERS



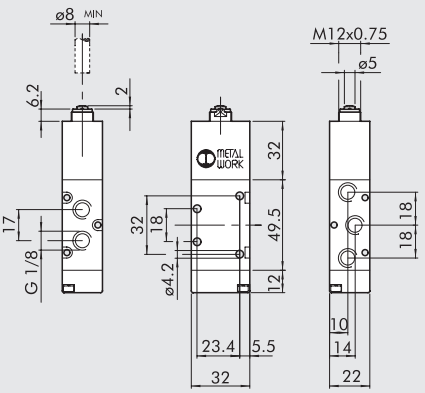
Symbol	Code	Abbrev.	Weight [g]
	7001000610	MEV 25 URS OO	162

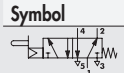
PILOT-ASSISTED PLUNGER 3/2 NC, 1/8"



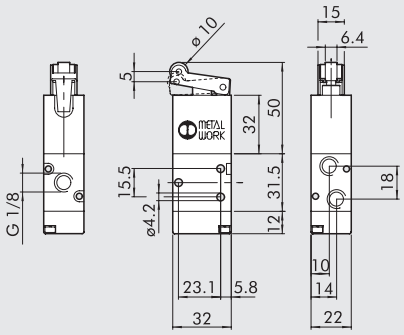
Symbol	Code	Abbrev.	Weight [g]
	7001000200	MEV 23 TSS NC	126

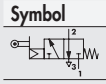
PILOT-ASSISTED PLUNGER 5/2, 1/8"



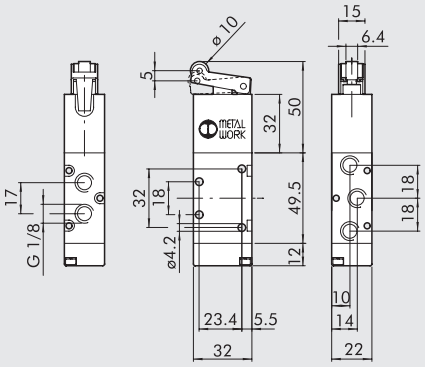
Symbol	Code	Abbrev.	Weight [g]
	7001000210	MEV 25 TSS OO	152

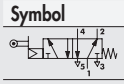
PILOT-ASSISTED ROLLER LEVER 3/2 NC, 1/8"



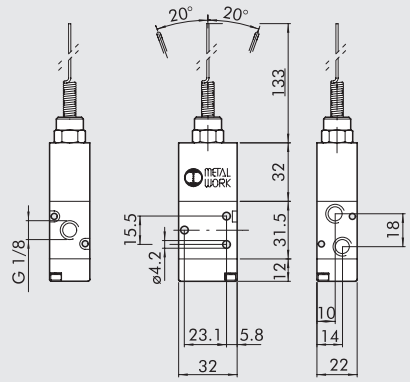
Symbol	Code	Abbrev.	Weight [g]
	7001000400	MEV 23 RSS NC	138

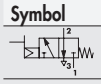
PILOT-ASSISTED ROLLER LEVER 5/2, 1/8"



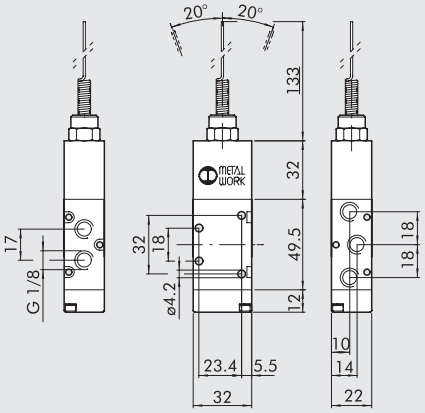
Symbol	Code	Abbrev.	Weight [g]
	7001000410	MEV 25 RSS OO	164

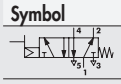
PILOT-ASSISTED AERIAL 3/2 NC, 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7001000700	MEV 23 ASS NC	142

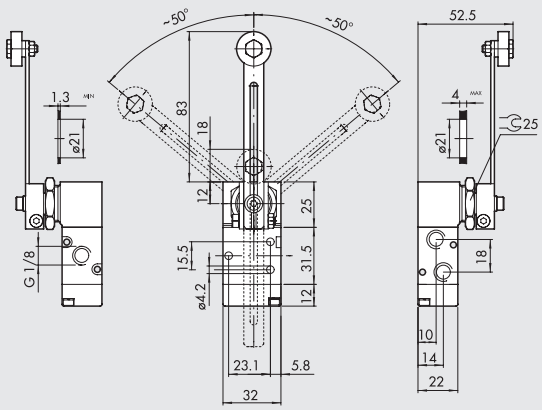
PILOT-ASSISTED AERIAL 5/2 NC, 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7001000710	MEV 25 ASS OO	168

ROLLER-LEVER 3/2 1/8"

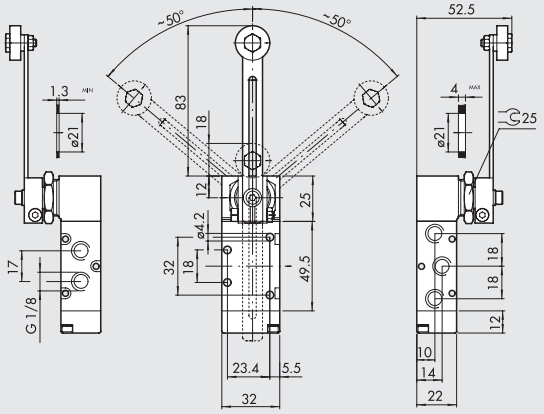
Operating torque: 0.5 Nm



Symbol	Code	Abbrev.	Weight [g]
	7001000900	MEV 23 LLS NC	189

ROLLER-LEVER 5/2 1/8"

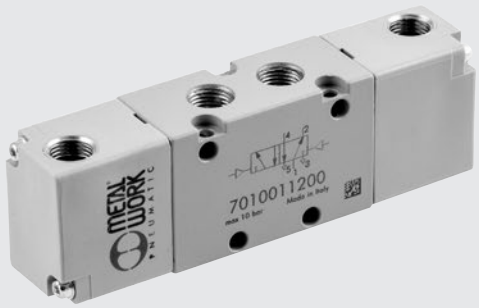
Operating torque: 0.5 Nm



Symbol	Code	Abbrev.	Weight [g]
	7001000910	MEV 25 LLS OO	216

VALVES SERIES 70, PNEUMATIC

TECHNICAL DATA		1/8"	1/4"	3/8"	1/2"
Operating pressure	bar	Vacuum to 10			
Minimum pilot pressure					
• monostable and bistable differential	bar	2.5			
• bistable	bar	1			
Operating temperature range	°C	-10 to +60			
Nominal diameter	mm	5	7.5	13.3	15
Conductance C	Nl/min · bar	121.43	264.26	505.52	971.43
Critical ratio b	bar/bar	0.32	0.27	0.32	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750	1560	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100	2150	4600
TRA / TRR monostable at 6 bar	ms	6/15	7/15	5/28	16/80
TRA / TRR bistable at 6 bar	ms	7/7	7/7	13/13	25/25



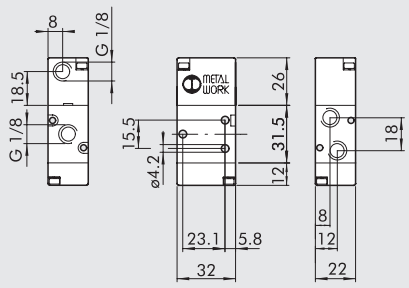
SYNOPTIC, SIZES AND VERSIONS

PNV FAMILY	2 DIMENSIONS	3 FUNCTION	PN OPERATORS 14	S RESETTING (12)	NC FURTHER DETAILS
PNV pneumatic valves	**2** 1/8" **3** 1/4" **C** 3/8" **4** 1/2"	**3** 3/2 **5** 5/2 **6** 5/3 ■ **8** 2-3/2	**PN** pneumatic	**S** mechanical springs **B** bistable **D** differential **O** stable for 5/3 ◆ **A** pneumatic/mechanical spring	**OO** no indication **NC** normally closed **NO** normally open **CC** closed centres **OC** open centres **PC** pressure centres ▲ **NC-NO** normally closed - normally open

■ Only available for size 1/8" and 1/4"
◆ On demand
▲ Only available for function 2-3/2

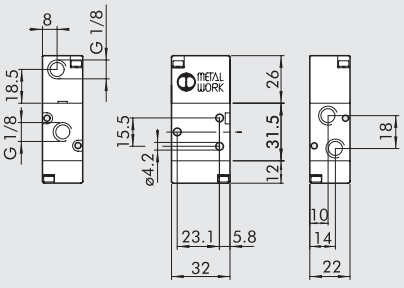
VALVES SERIES 70, PNEUMATIC, 1/8"

MONOSTABLE 3/2 NO, 1/8"



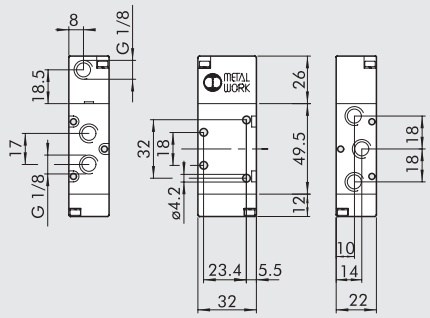
Symbol	Code	Abbrev.	Weight [g]
	7010010400	PNV 23 PNS NO	82

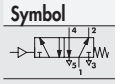
MONOSTABLE 3/2 NC, 1/8"



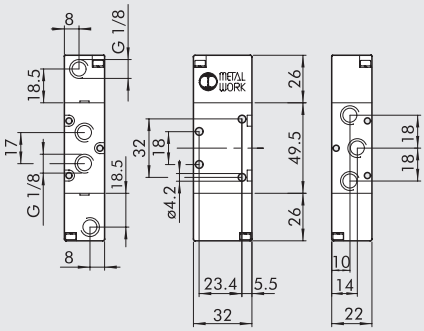
Symbol	Code	Abbrev.	Weight [g]
	7010010200	PNV 23 PNS NC	82

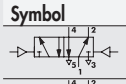
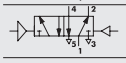
MONOSTABLE 5/2, 1/8"



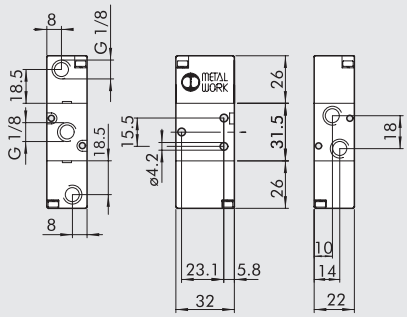
Symbol	Code	Abbrev.	Weight [g]
	7010011100	PNV 25 PNS OO	108

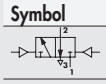
BISTABLE 5/2, 1/8"



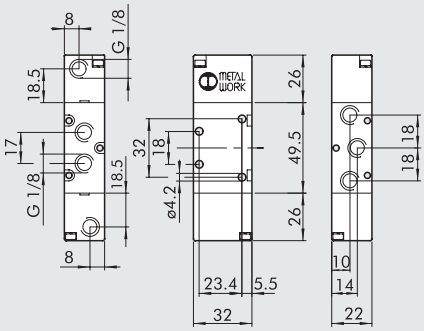
Symbol	Code	Abbrev.	Weight [g]
	7010011200	PNV 25 PNB OO	122
	7010011300	PNV 25 PND OO	128

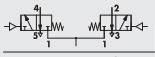
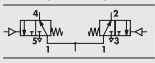
BISTABLE 3/2, 1/8"



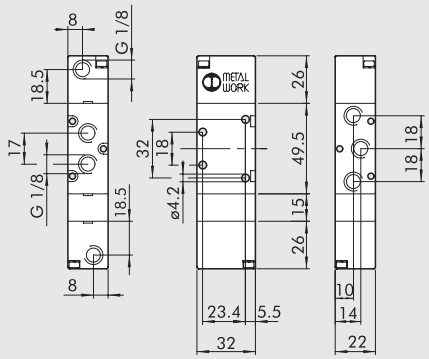
Symbol	Code	Abbrev.	Weight [g]
	7010010100	PNV 23 PNB OO	96

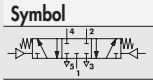
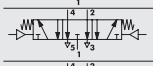
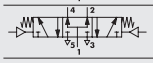
DOUBLE 3/2 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7010013100	PNV 28 PNS NC	136
	7010013200	PNV 28 PNS NO	136
	7010013300	PNV 28 PNS NC-NO	136

MONOSTABLE 5/3, 1/8"

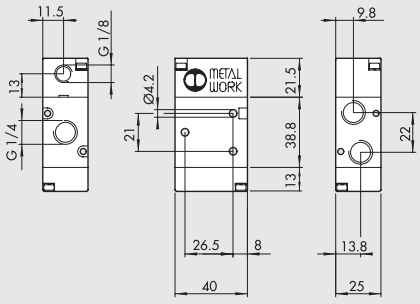


Symbol	Code	Abbrev.	Weight [g]
	7010012100	PNV 26 PNS CC	150
	7010012200	PNV 26 PNS OC	150
	7010012300	PNV 26 PNS PC	150

NOTES

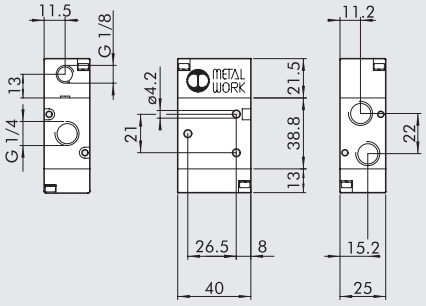
VALVES SERIES 70, PNEUMATIC, 1/4"

MONOSTABLE 3/2 NO, 1/4"



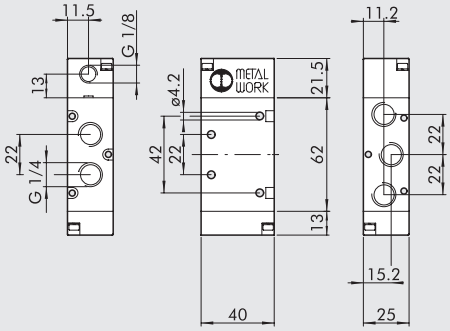
Symbol	Code	Abbrev.	Weight [g]
	7020010400	PNV 33 PNS NO	124

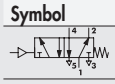
MONOSTABLE 3/2 NC, 1/4"



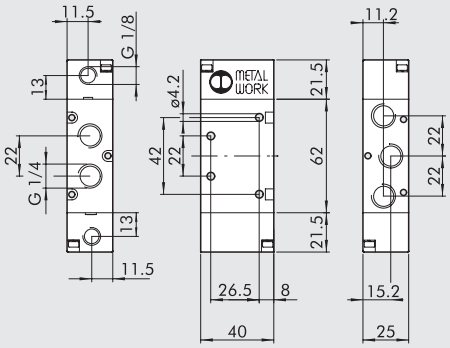
Symbol	Code	Abbrev.	Weight [g]
	7020010200	PNV 33 PNS NC	122

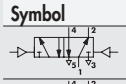
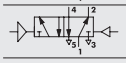
MONOSTABLE 5/2, 1/4"



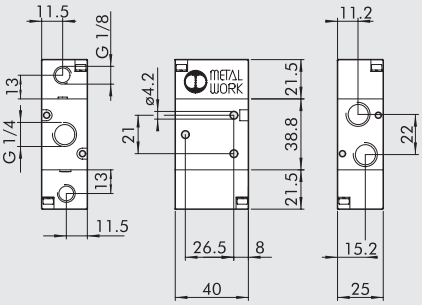
Symbol	Code	Abbrev.	Weight [g]
	7020011100	PNV 35 PNS OO	174

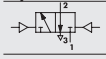
BISTABLE 5/2, 1/4"



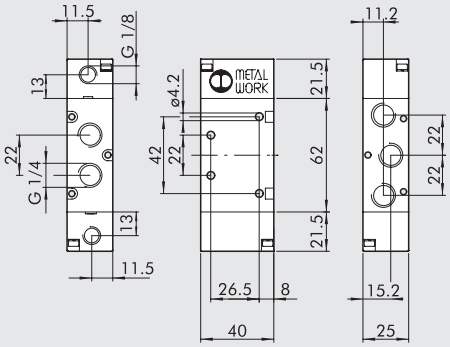
Symbol	Code	Abbrev.	Weight [g]
	7020011200	PNV 35 PNB OO	174
	7020011300	PNV 35 PND OO	198

BISTABLE 3/2, 1/4"



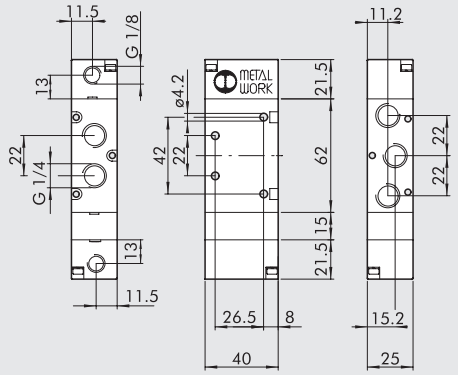
Symbol	Code	Abbrev.	Weight [g]
	7020010100	PNV 33 PNB OO	134

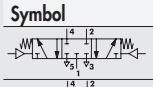
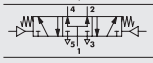
DOUBLE 3/2, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020013100	PNV 38 PNS NC	223
	7020013200	PNV 38 PNS NO	223
	7020013300	PNV 38 PNS NC-NO	223

MONOSTABLE 5/3, 1/4”

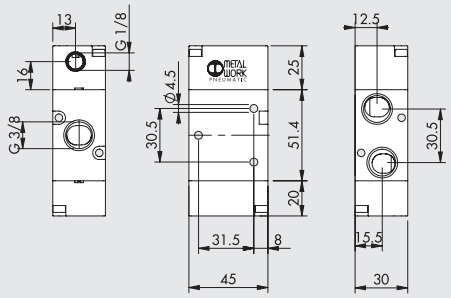


Symbol	Code	Abbrev.	Weight [g]
	7020012100	PNV 36 PNS CC	124
	7020012200	PNV 36 PNS OC	124
	7020012300	PNV 36 PNS PC	124

NOTES

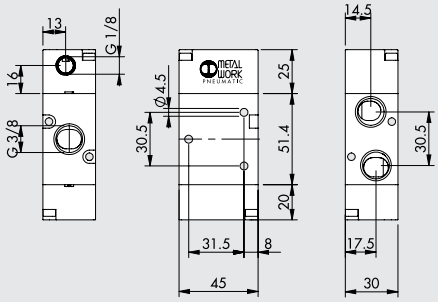
VALVES SERIES 70, PNEUMATIC, 3/8”

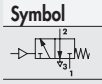
MONOSTABLE 3/2 NO, 3/8”



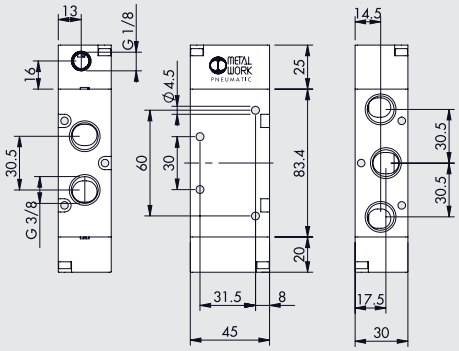
Symbol	Code	Abbrev.	Weight [g]
	7040010400	PNV C3 PNS NO	223

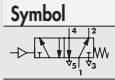
MONOSTABLE 3/2 NC, 3/2”



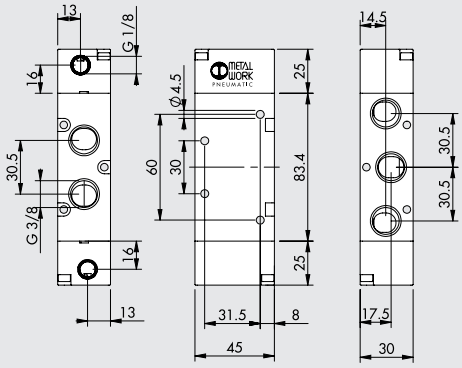
Symbol	Code	Abbrev.	Weight [g]
	7040010200	PNV C3 PNS NC	223

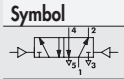
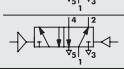
MONOSTABLE 5/2, 3/8”



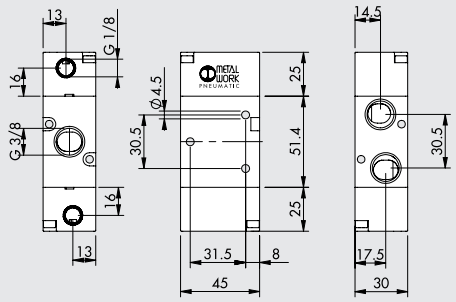
Symbol	Code	Abbrev.	Weight [g]
	7040011100	PNV C5 PNS OO	329

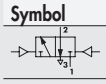
BISTABLE 5/2, 3/8”



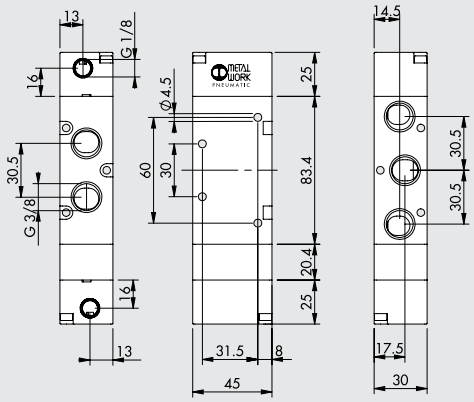
Symbol	Code	Abbrev.	Weight [g]
	7040011200	PNV C5 PNB OO	324
	7040011300	PNV C5 PND OO	360

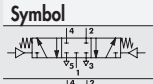
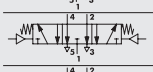
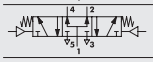
BISTABLE 3/2, 3/8”



Symbol	Code	Abbrev.	Weight [g]
	7040010100	PNV C3 PNB OO	230

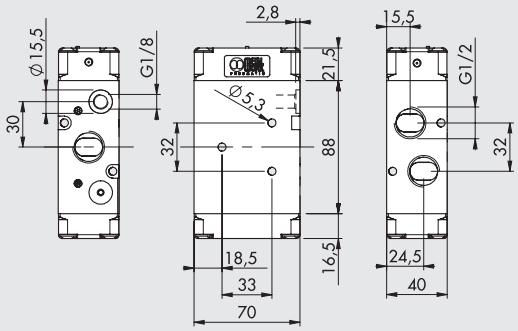
MONOSTABLE 5/3, 3/8”



Symbol	Code	Abbrev.	Weight [g]
	7040012100	PNV C6 PNS CC	411
	7040012200	PNV C6 PNS OC	409
	7040012300	PNV C6 PNS PC	409

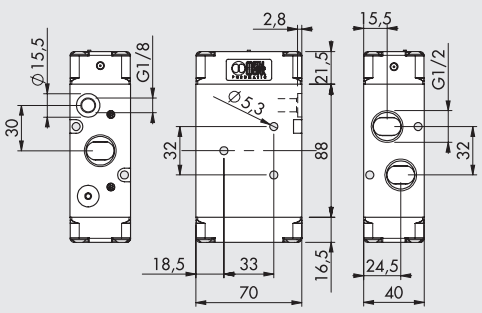
VALVES SERIES 70, PNEUMATIC, 1/2”

MONOSTABLE 3/2 NO, 1/2”



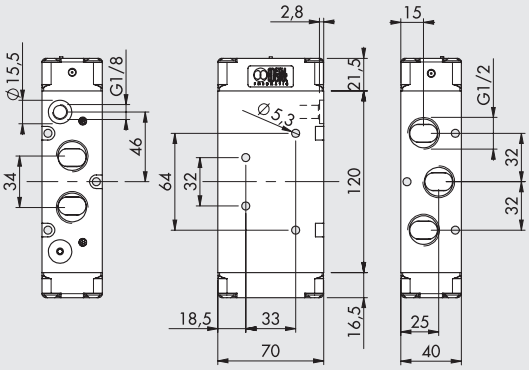
Symbol	Code	Abbrev.	Weight [g]
	7030010400	PNV 43 PNS NO	640

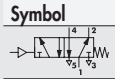
MONOSTABLE 3/2 NC, 1/2”



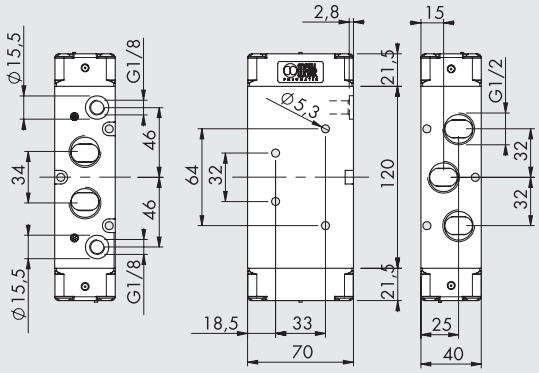
Symbol	Code	Abbrev.	Weight [g]
	7030010200	PNV 43 PNS NC	640

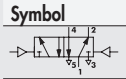
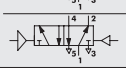
MONOSTABLE 5/2, 1/2”



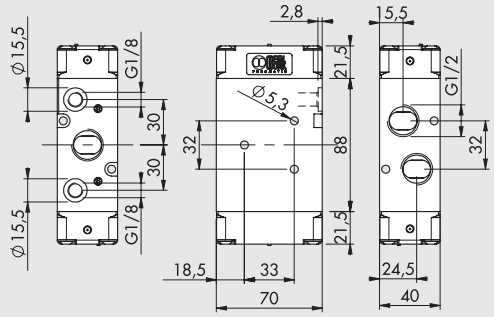
Symbol	Code	Abbrev.	Weight [g]
	7030011100	PNV 45 PNS OO	812

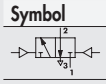
BISTABLE 5/2, 1/2”



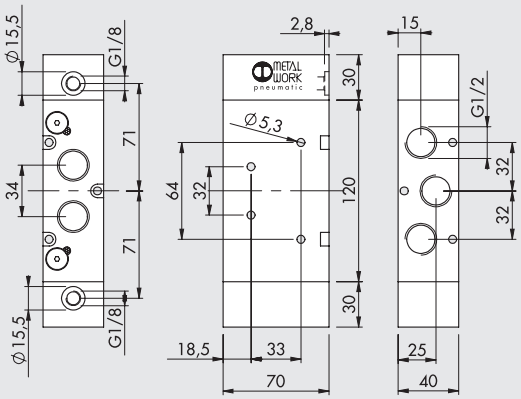
Symbol	Code	Abbrev.	Weight [g]
	7030011200	PNV 45 PNB OO	816
	7030011300	PNV 45 PND OO	828

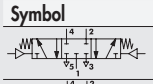
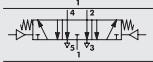
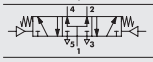
BISTABLE 3/2, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	**7030010100**	PNV 43 PNB OO	650

MONOSTABLE 5/3, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	**7030012100**	PNV 46 PNS CC	1200
	**7030012200**	PNV 46 PNS OC	1194
	**7030012300**	PNV 46 PNS PC	1196

NOTES

VALVES SERIES 70, SOLENOID/PNEUMATIC

TECHNICAL DATA		1/8"	1/4"	3/8"	1/2"
Operating pressure:					
• monostable and bistable differential	bar	2.5 to10			
• bistable	bar	1 to 10			
• asserved	bar	Vacuum to 10			
Minimum pilot pressure	bar	2.5			
Operating temperature range	°C	-10 to +60			
Nominal diameter	mm	5	7.5	13.3	15
Conductance C	Nl/min · bar	121.43	264.26	505.52	971.43
Critical ratio b	bar/bar	0.32	0.27	0.32	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750	1560	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100	2150	4600
TRA / TRR monostable at 6 bar	ms	15/35	19/45	21/72	36/100
TRA / TRR bistable at 6 bar	ms	20/20	21/21	18/18	25/25
Coil voltage values		12; 24 VDC - 24; 110; 220V AC 50/60Hz			
Power		2 W (DC) 3.5VA (AC)			
Voltage tolerance	%	-10 to +15			
Insulation class		F 155			
Maximum coil nut torque	Nm	1			
Hand operator		Bistable			

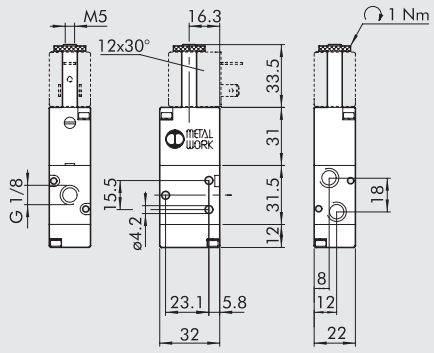
SYNOPTIC, SIZES AND VERSIONS

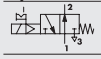
SOV FAMILY	2 DIMENSIONS	3 FUNCTION	SO OPERATORS 14	S RESETTING (12)	NC FURTHER DETAILS
SOV solenoid/ pneumatic	**2** 1/8"	**3** 3/2	**SO** solenoid	**S** mechanical springs	**OO** no indication
	3 1/4"	**5** 5/2	**SE** solenoid assisted	**B** bistable	**NC** normally closed
	C 3/8"	**6** 5/3		**D** differential	**NO** normally open
	4 1/2"	■ **8** 2-3/2		**P** pneumatic	**CC** closed centres
				◆ **A** pneumatic/mechanical spring	**OC** open centres
					PC pressure centres
					▲ **NC-NO** normally closed - normally open

■ Only available for size 1/8" and 1/4"
◆ On demand
▲ Only available for function 2-3/2

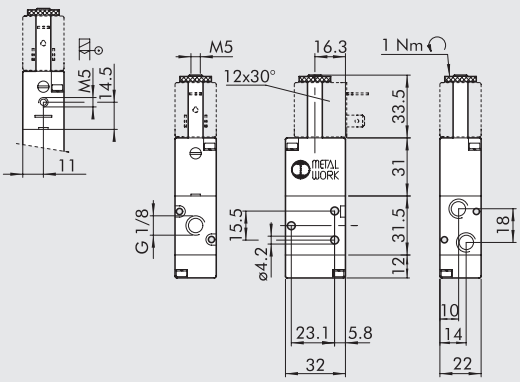
VALVES SERIES 70, SOLENOID/PNEUMATIC, PILOT-ASSISTED SOLENOID/PNEUMATIC, 1/8"

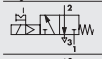
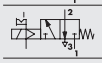
MONOSTABLE 3/2 NO, 1/8"



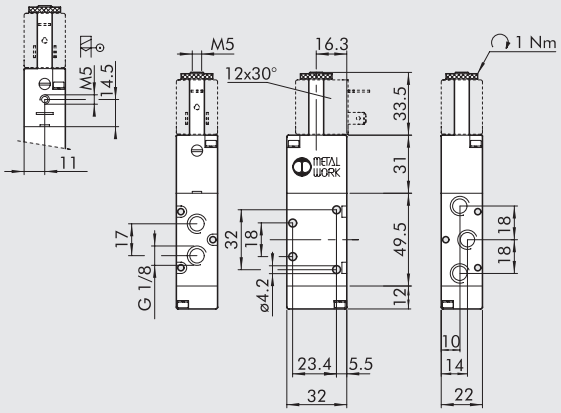
Symbol	Code	Abbrev.	Weight [g]
	**7010020400**	SOV 23 SOS NO	100

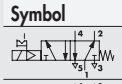
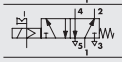
MONOSTABLE 3/2 NC, 1/8"



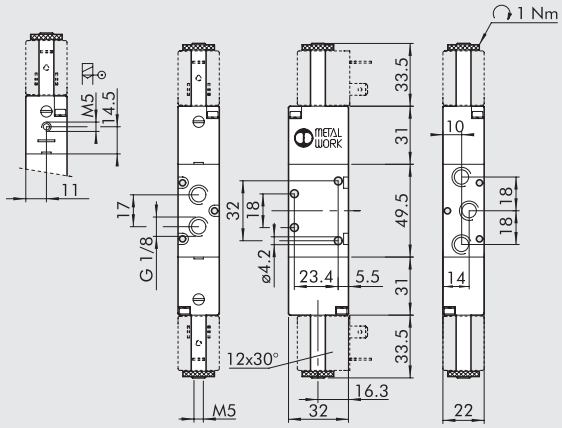
Symbol	Code	Abbrev.	Weight [g]
	**7010020200**	SOV 23 SOS NC	100
	**7010020500**	SOV 23 SES NC	100

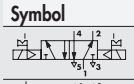
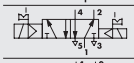
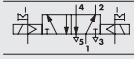
MONOSTABLE 5/2, 1/8"



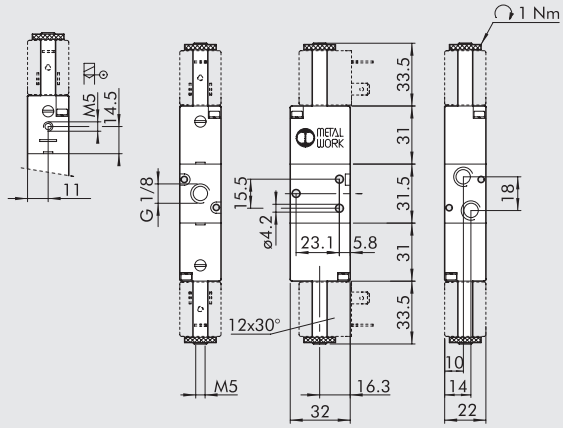
Symbol	Code	Abbrev.	Weight [g]
	7010021100	SOV 25 SOS OO	128
	7010021500	SOV 25 SES OO	129

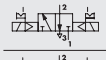
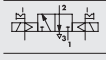
BISTABLE 5/2, 1/8"



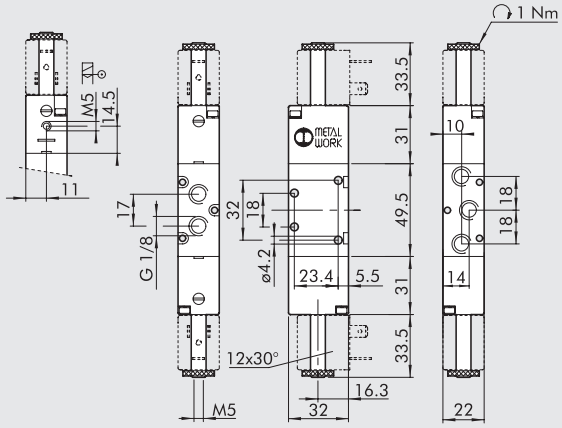
Symbol	Code	Abbrev.	Weight [g]
	7010021200	SOV 25 SOB OO	160
	7010021300	SOV 25 SOD OO	166
	7010021600	SOV 25 SEB OO	160

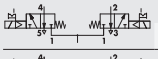
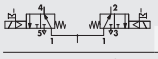
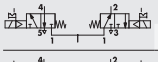
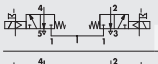
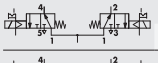
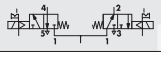
BISTABLE 3/2, 1/8"



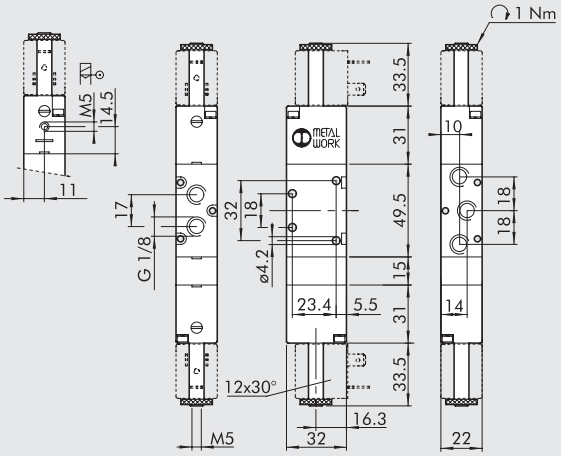
Symbol	Code	Abbrev.	Weight [g]
	7010020100	SOV 23 SOB OO	135
	7010020300	SOV 23 SEB OO	136

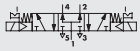
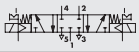
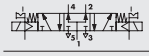
DOUBLE 3/2, 1/8"



Symbol	Code	Abbrev.	Weight [g]
	7010023100	SOV 28 SOS NC	186
	7010023200	SOV 28 SOS NO	186
	7010023300	SOV 28 SOS NC-NO	186
	7010023400	SOV 28 SES NC	186
	7010023500	SOV 28 SES NO	186
	7010023600	SOV 28 SES NC-NO	186

MONOSTABLE 5/3, 1/8”

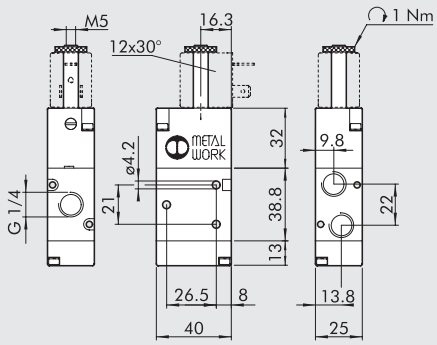


Symbol	Code	Abbrev.	Weight [g]
	7010022100	SOV 26 SOS CC	190
	7010022200	SOV 26 SOS OC	190
	7010022300	SOV 26 SOS PC	190
	7010022400	SOV 26 SES CC	188
	7010022500	SOV 26 SES OC	188
	7010022600	SOV 26 SES PC	188

NOTES

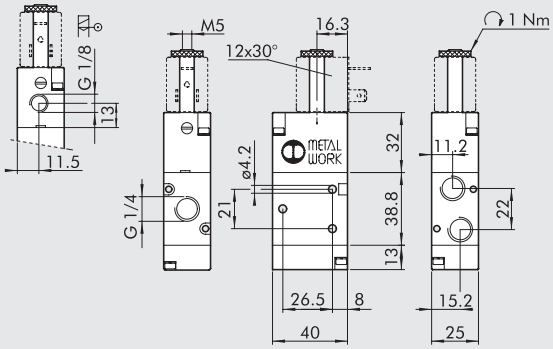
VALVES SERIES 70, SOLENOID/PNEUMATIC, PILOT-ASSISTED SOLENOID/ PNEUMATIC, 1/4”

MONOSTABLE 3/2 NO, 1/4”



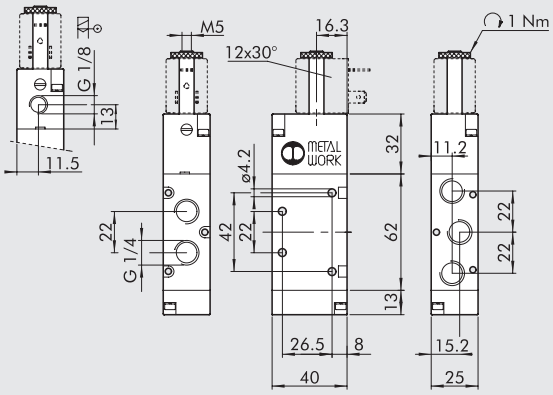
Symbol	Code	Abbrev.	Weight [g]
	7020020400	SOV 33 SOS NO	152

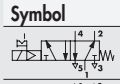
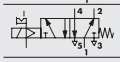
MONOSTABLE 3/2 NC, 1/4”



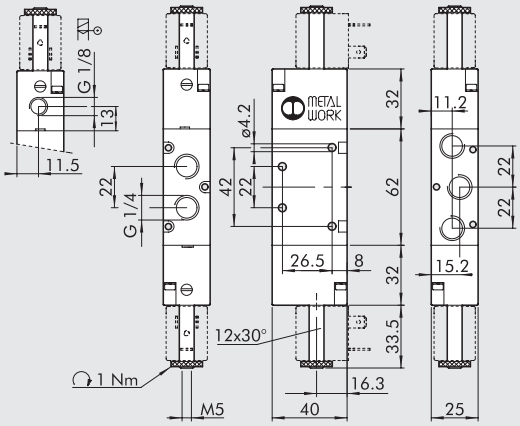
Symbol	Code	Abbrev.	Weight [g]
	7020020200	SOV 33 SOS NC	152
	7020020500	SOV 33 SES NC	152

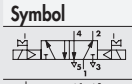
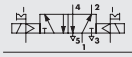
MONOSTABLE 5/2, 1/4"



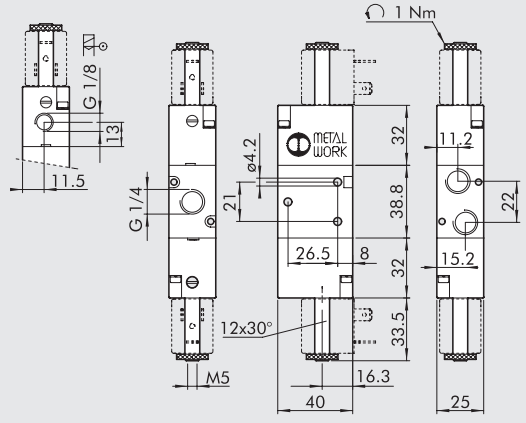
Symbol	Code	Abbrev.	Weight [g]
	7020021100	SOV 35 SOS OO	200
	7020021500	SOV 35 SES OO	200

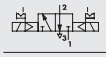
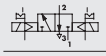
BISTABLE 5/2, 1/4"



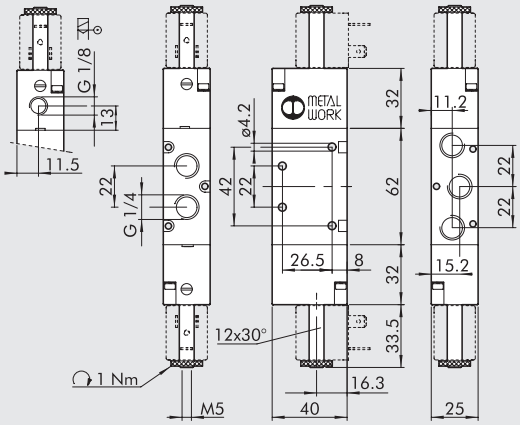
Symbol	Code	Abbrev.	Weight [g]
	7020021200	SOV 35 SOB OO	236
	7020021300	SOV 35 SOD OO	252
	7020021600	SOV 35 SEB OO	242

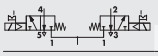
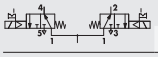
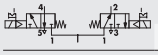
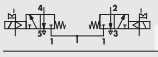
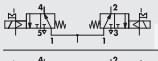
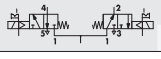
BISTABLE 3/2, 1/4"



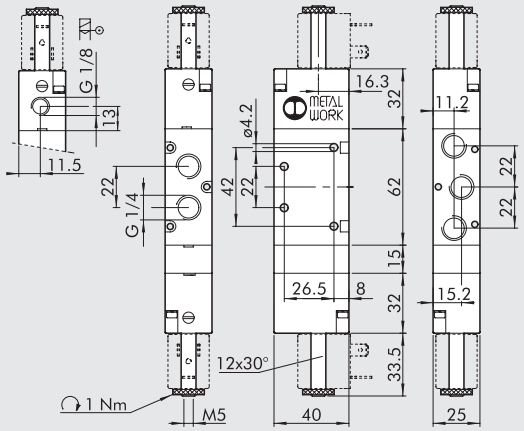
Symbol	Code	Abbrev.	Weight [g]
	7020020100	SOV 33 SOB OO	190
	7020020300	SOV 33 SEB OO	190

DOUBLE 3/2, 1/4"



Symbol	Code	Abbrev.	Weight [g]
	7020023100	SOV 38 SOS NC	286
	7020023200	SOV 38 SOS NO	286
	7020023300	SOV 38 SOS NC-NO	286
	7020023400	SOV 38 SES NC	286
	7020023500	SOV 38 SES NO	286
	7020023600	SOV 38 SES NC-NO	286

MONOSTABLE 5/3, 1/4”



Symbol	Code	Abbrev.	Weight [g]
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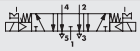
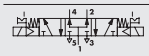
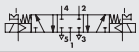
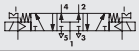
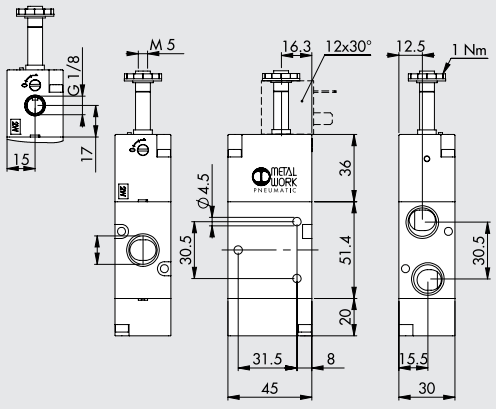
	7020022200	SOV 36 SOS OC	274
	7020022300	SOV 36 SOS PC	274
	7020022400	SOV 36 SES CC	277
	7020022500	SOV 36 SES OC	277
	7020022600	SOV 36 SES PC	277

NOTES

VALVES SERIES 70, SOLENOID/PNEUMATIC, PILOT-ASSISTED SOLENOID/ PNEUMATIC, 3/8”

MONOSTABLE 3/2 NO, 3/8”



Symbol	Code	Abbrev.	Weight [g]
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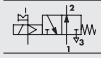
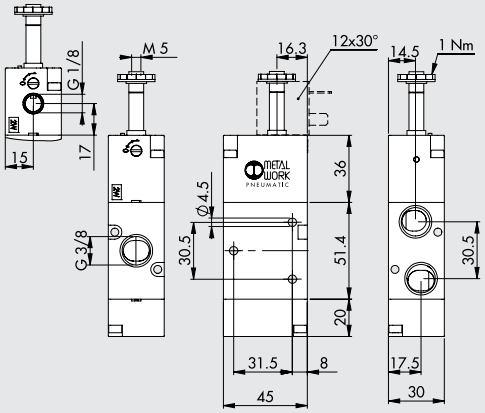
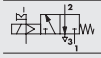
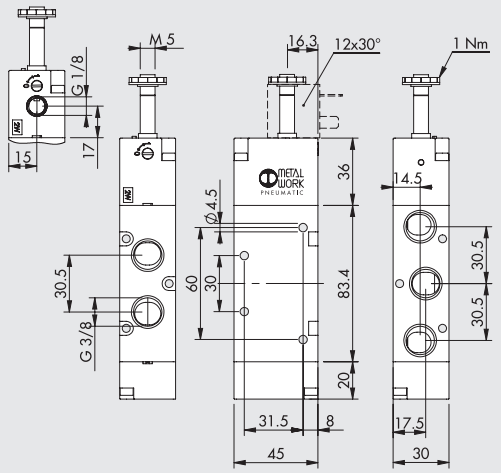
	7040020600	SOV C3 SES NO	255

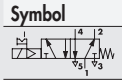
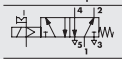
MONOSTABLE 3/2 NC, 3/8”



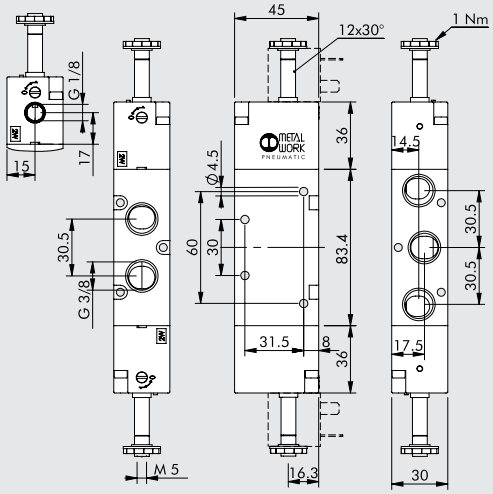
Symbol	Code	Abbrev.	Weight [g]
	7040020200	SOV C3 SOS NC	256
	7040020500	SOV C3 SES NC	255

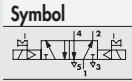
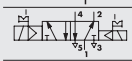
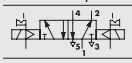
MONOSTABLE 5/2, 3/8"



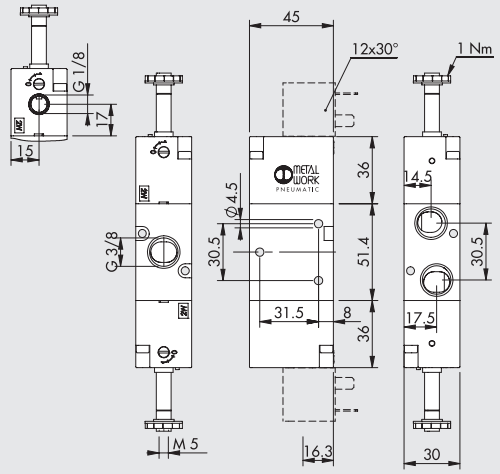
Symbol	Code	Abbrev.	Weight [g]
	7040021100	SOV C5 SOS OO	361
	7040021500	SOV C5 SES OO	361

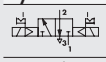
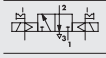
BISTABLE 5/2, 3/8"



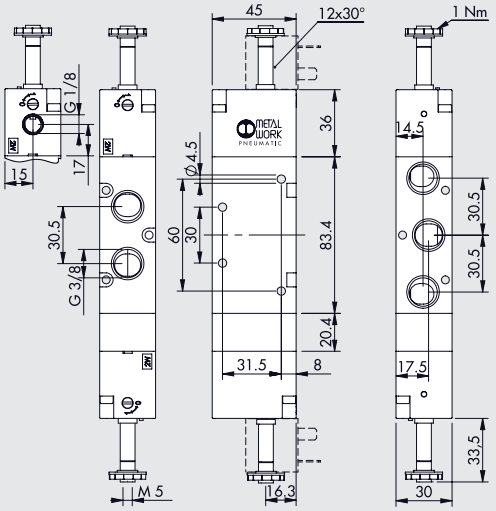
Symbol	Code	Abbrev.	Weight [g]
	7040021200	SOV C5 SOB OO	400
	7040021300	SOV C5 SOD OO	425
	7040021600	SOV C5 SEB OO	400

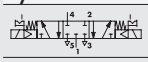
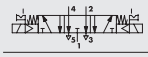
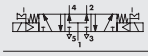
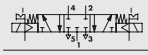
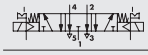
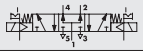
BISTABLE 3/2, 3/8"



Symbol	Code	Abbrev.	Weight [g]
	7040020100	SOV C3 SOB OO	307
	7040020300	SOV C3 SEB OO	307

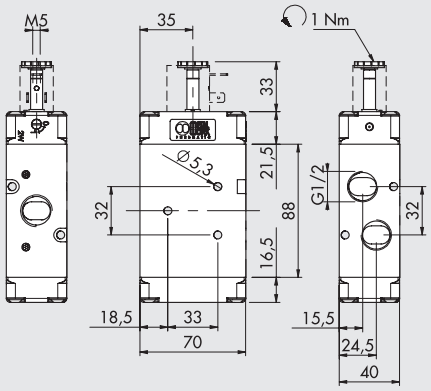
MONOSTABLE 5/3, 3/8"



Symbol	Code	Abbrev.	Weight [g]
	7040022100	SOV C6 SOS CC	476
	7040022200	SOV C6 SOS OC	474
	7040022300	SOV C6 SOS PC	474
	7040022400	SOV C6 SES CC	476
	7040022500	SOV C6 SES OC	474
	7040022600	SOV C6 SES PC	474

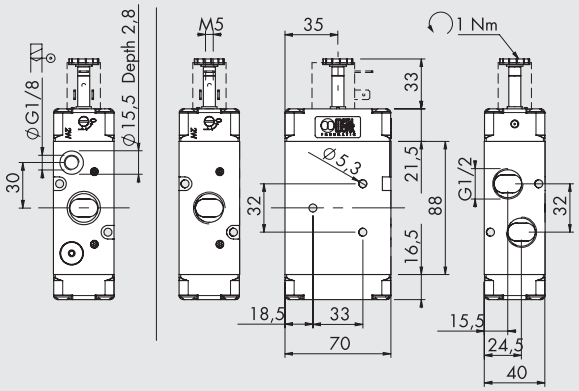
VALVES SERIES 70, SOLENOID/PNEUMATIC, PILOT-ASSISTED SOLENOID/PNEUMATIC, 1/2"

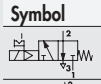
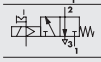
MONOSTABLE 3/2 NO, 1/2"



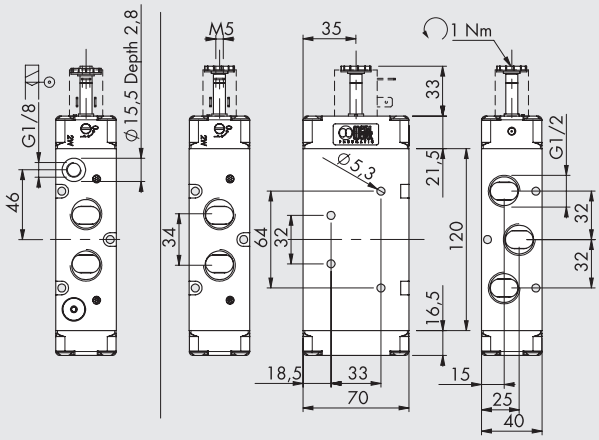
Symbol	Code	Abbrev.	Weight [g]
	7030020400	SOV 43 SOS NO	660

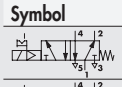
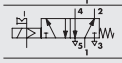
MONOSTABLE 3/2 NC, 1/2"



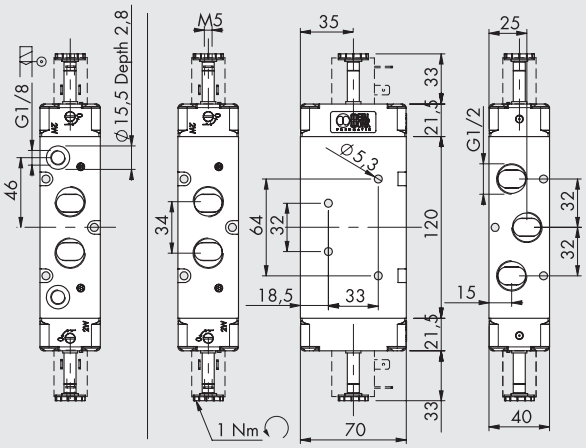
Symbol	Code	Abbrev.	Weight [g]
	7030020200	SOV 43 SOS NC	660
	7030020500	SOV 43 SES NC	654

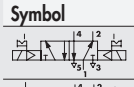
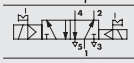
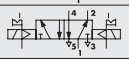
MONOSTABLE 5/2, 1/2"



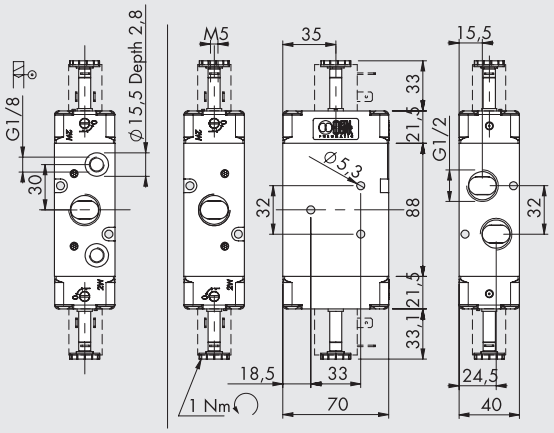
Symbol	Code	Abbrev.	Weight [g]
	7030021100	SOV 45 SOS OO	828
	7030021500	SOV 45 SES OO	830

BISTABLE 5/2, 1/2"



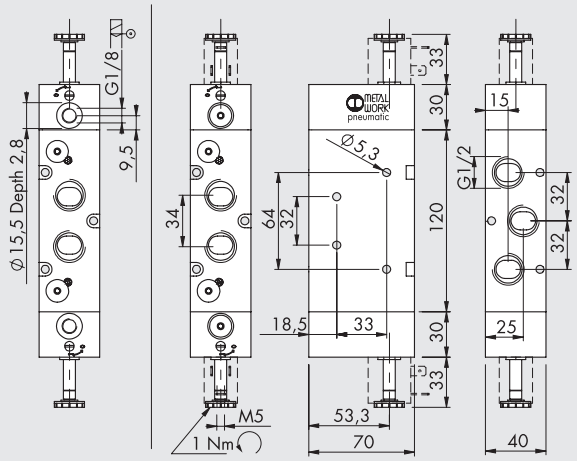
Symbol	Code	Abbrev.	Weight [g]
	7030021200	SOV 45 SOB OO	860
	7030021300	SOV 45 SOD OO	868
	7030021600	SOV 45 SEB OO	854

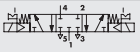
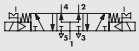
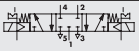
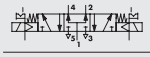
BISTABLE 3/2, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	**7030020100**	SOV 43 SOB OO	686
	**7030020300**	SOV 43 SEB OO	678

MONOSTABLE 5/3, 1/2"



Symbol	Code	Abbrev.	Weight [g]
	**7030022100**	SOV 46 SOS CC	1265
	**7030022200**	SOV 46 SOS OC	1265
	**7030022300**	SOV 46 SOS PC	1265
	**7030022400**	SOV 46 SES CC	1252
	**7030022500**	SOV 46 SES OC	1252
	**7030022600**	SOV 46 SES PC	1252

ACCESSORIES FOR SERIES 70 SOLENOID/PNEUMATIC VALVES

Refer to page **B1**.60 for coils and connectors

NOTES

VALVES SERIES 70 LT (LOW TEMPERATURE)

TECHNICAL DATA			1/8"	1/4"	3/8"
Operating pressure standard		bar			
hand operated			Vacuum to 10		
pneumatic and solenoid/pneumatic	t = -40°C to -10°C		5 to 10		
	t = -10°C to +60°C		3 to 10		
Operating temperature range		°C	–40 to +60		
Nominal diameter		mm	5	7.5	13.3
Conductance C		Nl/min · bar	121.43	264.26	505.52
Critical ratio b		bar/bar	0.32	0.27	0.32
Flow rate at 6 bar ΔP 0.5 bar		Nl/min	400	750	1560
Flow rate at 6 bar ΔP 1 bar		Nl/min	550	1100	2150
PNEUMATIC					
Minimum pilot pressure		bar			
t = -40°C to -10°C			5		
t = -10°C to +60°C			3		
TRA / TRR monostable at 6 bar (at 20°C)		ms	6/15	7/15	5/28
TRA / TRR bistable at 6 bar (at 20°C)		ms	7/7	7/7	13/13
SOLENOID/PNEUMATIC					
TRA / TRR monostable at 6 bar (at 20°C)		ms	15/35	19/45	21/72
TRA / TRR bistable at 6 bar (at 20°C)		ms	20/20	21/21	18/18
Coil voltage values			12; 24 VDC		
			24; 110; 220V AC 50/60Hz		
Power	t = -40°C to -10°C		5 W (DC) - 5 VA (AC)		
	t = -10°C to +60°C		2 W (DC) - 3.5 VA (AC)		
Voltage tolerance		%	-10 to +15		
Insulation class			F 155		
Maximum coil nut torque		Nm	1		
Hand operator			Bistable		

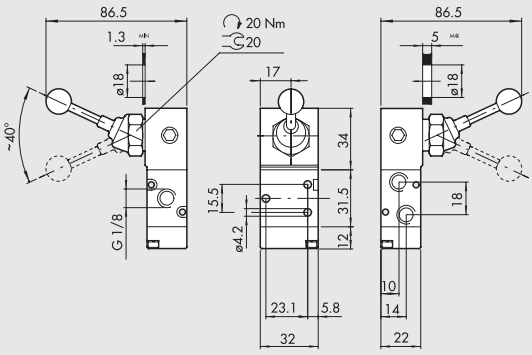
Notes: after a long stop and with very low temperatures the movement of the first drives may be slower. It recommends the use of perfectly dry air.

SYNOPTIC, SIZES AND VERSIONS

P N V	2	3	P N	S	OO	L T
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING (12)	FURTHER DETAILS	
MAV manual valves	**2** 1/8"	**3** 3/2	**LE** leva 90°	**S** mechanical springs	**OO** no indication	**LT** low temperature
PNV pneumatic valves	**3** 1/4"	**5** 5/2	**PN** pneumatic	**B** bistable	**NC** normally closed	
SOV solenoid/ pneumatic	**C** 3/8"	**6** 5/3	**SO** solenoid	**O** stable for 5/3	**NO** normally open	
					CC closed centres	
					OC open centres	
					PC pressure centres	

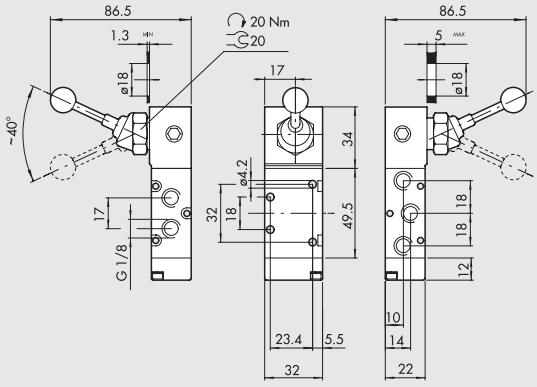
VALVES SERIES 70 LT, HAND OPERATED (LOW TEMPERATURE)

90° LEVER 3/2 1/8"



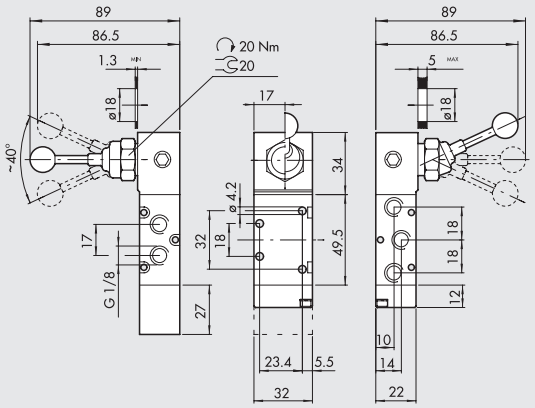
Symbol		Code	Abbrev.	Weight [g]
	❄	**70L1000100**	MAV 23 LES NC LT	184
	❄	**70L1000200**	MAV 23 LEB OO LT	187

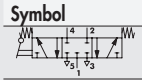
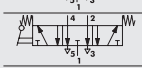
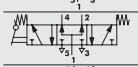
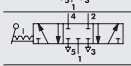
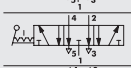
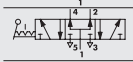
90° LEVER 5/2 1/8"



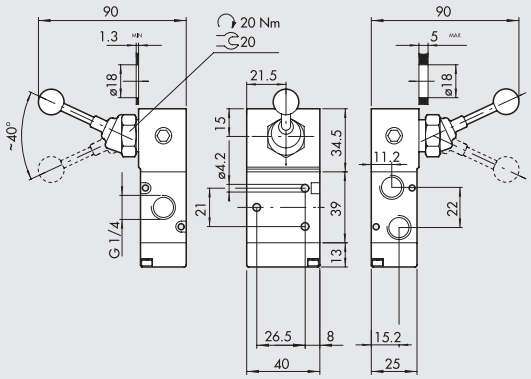
Symbol		Code	Abbrev.	Weight [g]
	❄	**70L1000300**	MAV 25 LES OO LT	210
	❄	**70L1000400**	MAV 25 LEB OO LT	213

90° LEVER 5/3, 1/8”



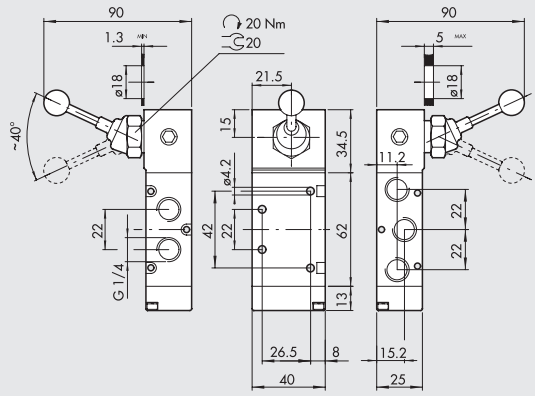
Symbol		Code	Abbrev.	Weight [g]
	❄	**70L1001000**	MAV 26 LES CC LT	242
	❄	**70L1000900**	MAV 26 LES OC LT	242
	❄	**70L1001100**	MAV 26 LES PC LT	242
	❄	**70L1000500**	MAV 26 LEO CC LT	194
	❄	**70L1000600**	MAV 26 LEO OC LT	194
	❄	**70L1000700**	MAV 26 LEO PC LT	194

90° LEVER 3/2, 1/4”



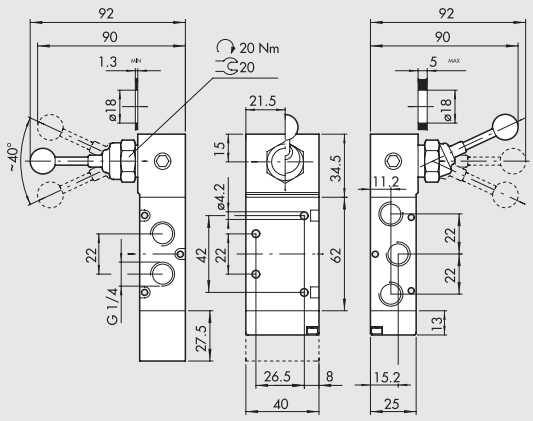
Symbol		Code	Abbrev.	Weight [g]
	❄	**70L2000100**	MAV 33 LES NC LT	272
	❄	**70L2000200**	MAV 33 LEB OO LT	272

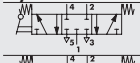
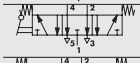
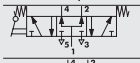
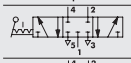
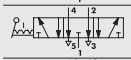
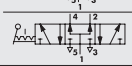
90° LEVER 5/2, 1/4”



Symbol		Code	Abbrev.	Weight [g]
	❄	**70L2000300**	MAV 35 LES OO LT	326
	❄	**70L2000400**	MAV 35 LEB OO LT	326

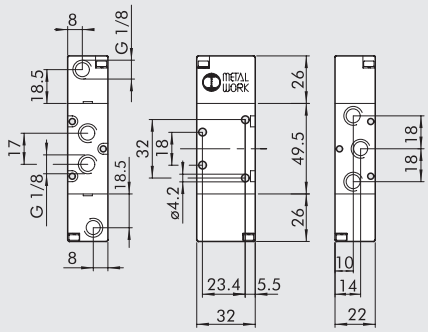
90° LEVER 5/3, 1/4”

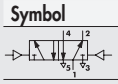


Symbol		Code	Abbrev.	Weight [g]
	❄	**70L2001000**	MAV 36 LES CC LT	354
	❄	**70L2000900**	MAV 36 LES OC LT	354
	❄	**70L2001100**	MAV 36 LES PC LT	354
	❄	**70L2000500**	MAV 36 LEO CC LT	288
	❄	**70L2000600**	MAV 36 LEO OC LT	288
	❄	**70L2000700**	MAV 36 LEO PC LT	288

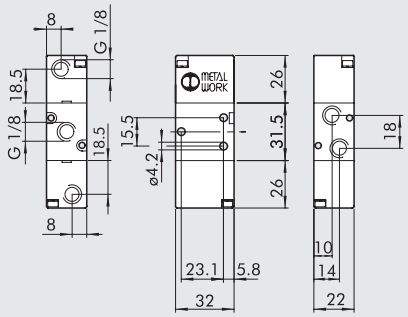
VALVES SERIES 70 LT, PNEUMATIC (LOW TEMPERATURE)

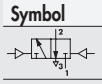
BISTABLE 5/2 1/8"



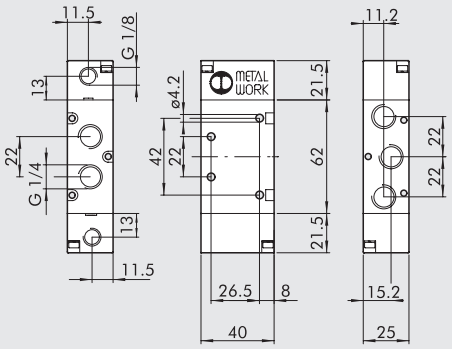
Symbol	Code	Abbrev.	Weight [g]
	❄ 70L1011200	PNV 25 PNB OO LT	176

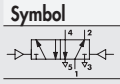
BISTABLE 3/2 1/8"



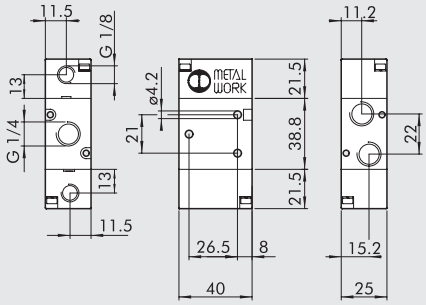
Symbol	Code	Abbrev.	Weight [g]
	❄ 70L1010100	PNV 23 PNB OO LT	150

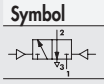
BISTABLE 5/2 1/4"



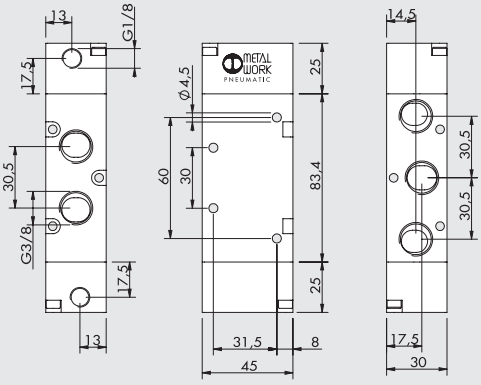
Symbol	Code	Abbrev.	Weight [g]
	❄ 70L2011200	PNV 35 PNB OO LT	233

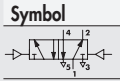
BISTABLE 3/2 1/4"



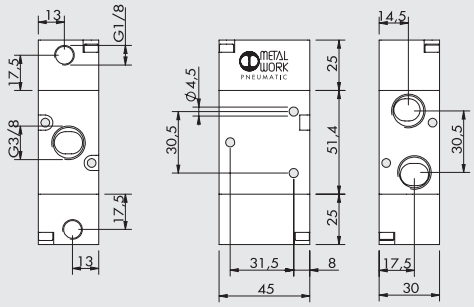
Symbol	Code	Abbrev.	Weight [g]
	❄ 70L2010100	PNV 33 PNB OO LT	194

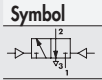
BISTABLE 5/2 3/8"



Symbol	Code	Abbrev	Weight [g]
	❄ 70L4011200	PNV C5 PNB OO LT	405

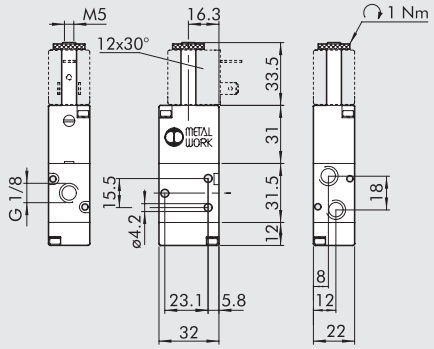
BISTABLE 3/2 3/8"

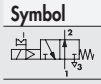


Symbol	Code	Abbrev	Weight [g]
	❄ 70L4010100	PNV C3 PNB OO LT	305

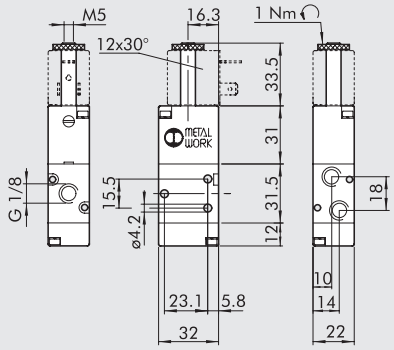
VALVES SERIES 70 LT, SOLENOID/PNEUMATIC (LOW TEMPERATURE)

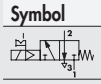
MONOSTABLE 3/2 NO 1/8"



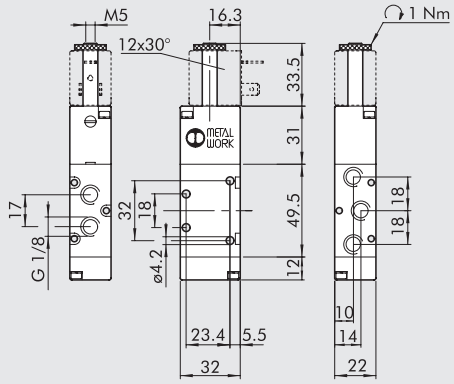
Symbol		Code	Abbrev.	Weight [g]
	❄	70L1020400	SOV 23 SOS NO LT	147

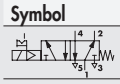
MONOSTABLE 3/2 NC 1/8"



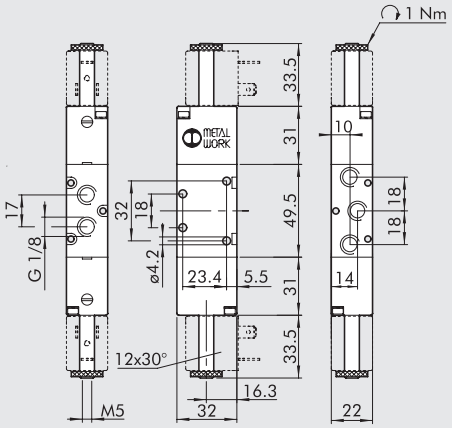
Symbol		Code	Abbrev.	Weight [g]
	❄	70L1020200	SOV 23 SOS NC LT	147

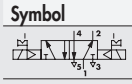
MONOSTABLE 5/2 1/8"



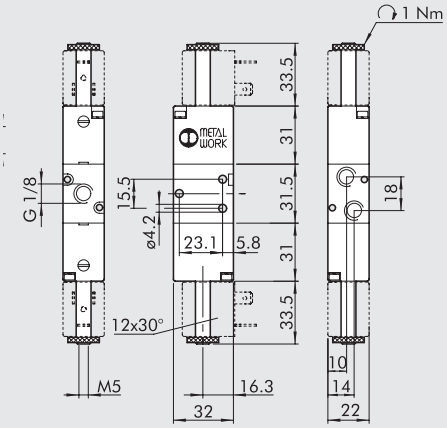
Symbol		Code	Abbrev.	Weight [g]
	❄	70L1021100	SOV 25 SOS OO LT	175

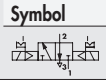
BISTABLE 5/2 1/8"



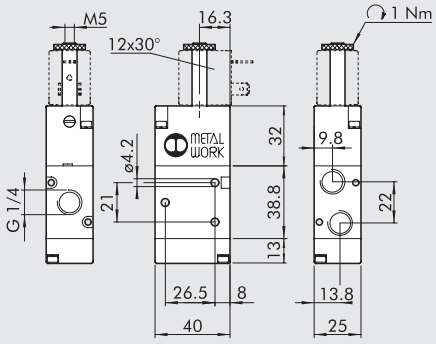
Symbol		Code	Abbrev.	Weight [g]
	❄	70L1021200	SOV 25 SOB OO LT	228

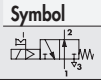
BISTABLE 3/2 1/8"



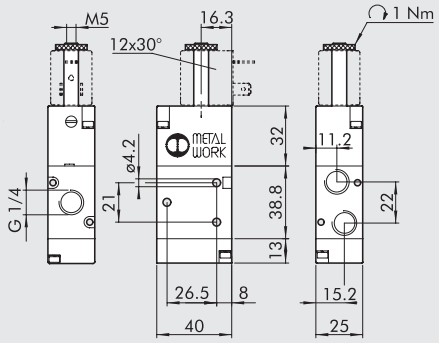
Symbol		Code	Abbrev.	Weight [g]
	❄	70L1020100	SOV 23 SOB OO LT	203

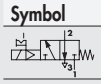
MONOSTABLE 3/2 NO 1/4"



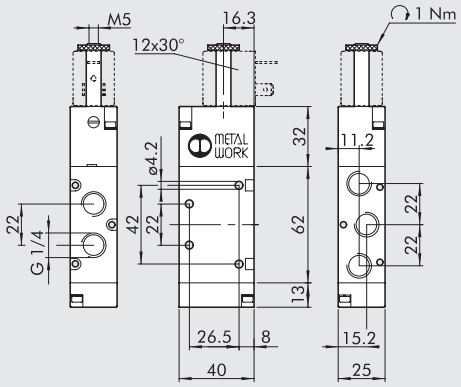
Symbol		Code	Abbrev.	Weight [g]
	❄	70L2020400	SOV 33 SOS NO LT	230

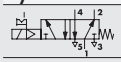
MONOSTABLE 3/2 NC 1/4"



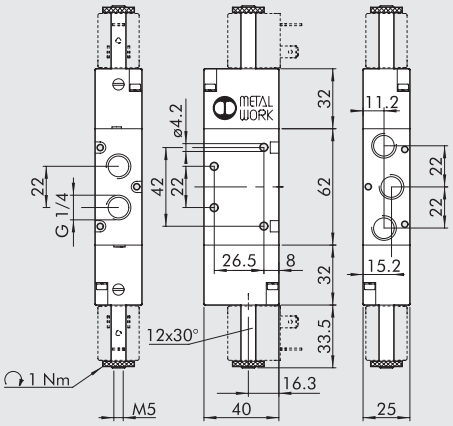
Symbol		Code	Abbrev.	Weight [g]
	❄	70L2020200	SOV 33 SOS NC LT	230

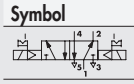
MONOSTABLE 5/2 1/4"



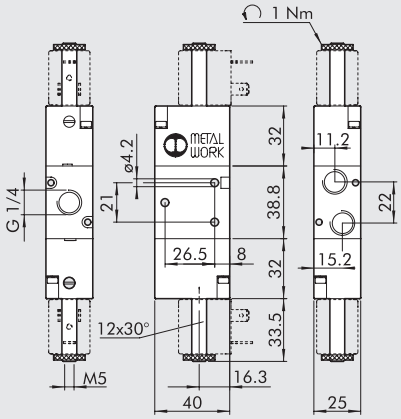
Symbol		Code	Abbrev.	Weight [g]
	❄	70L2021100	SOV 35 SOS OO LT	278

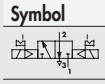
BISTABLE 5/2 1/4"



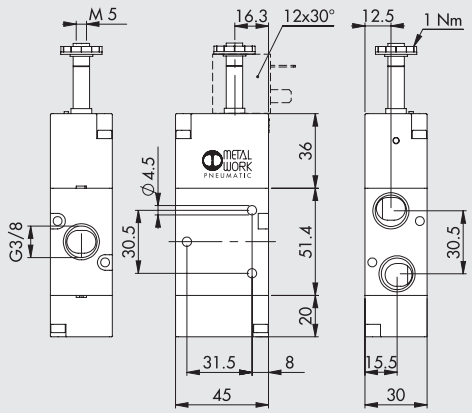
Symbol		Code	Abbrev.	Weight [g]
	❄	70L2021200	SOV 35 SOB OO LT	332

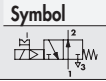
BISTABLE 3/2 1/4"



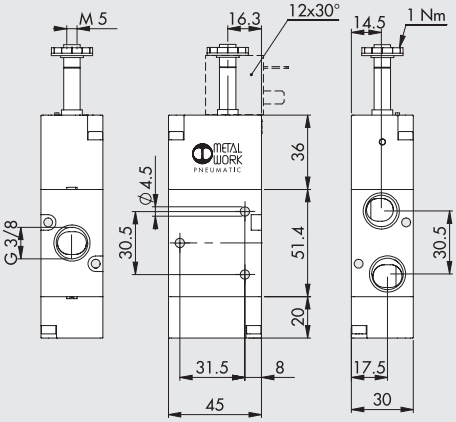
Symbol		Code	Abbrev.	Weight [g]
	❄	70L2020100	SOV 33 SOB OO LT	286

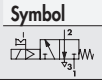
MONOSTABLE 3/2 NO 3/8"



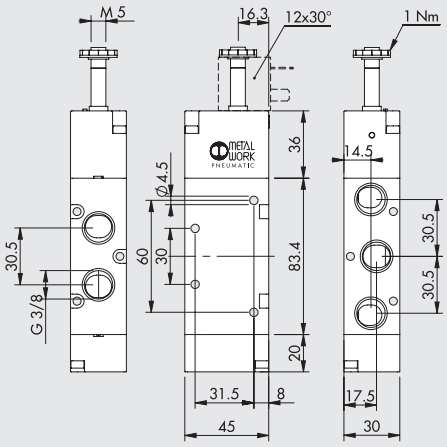
Symbol		Code	Abbrev.	Weight [g]
	❄	70L4020400	SOV C3 SOS NO LT	358

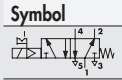
MONOSTABLE 3/2 NC 3/8"



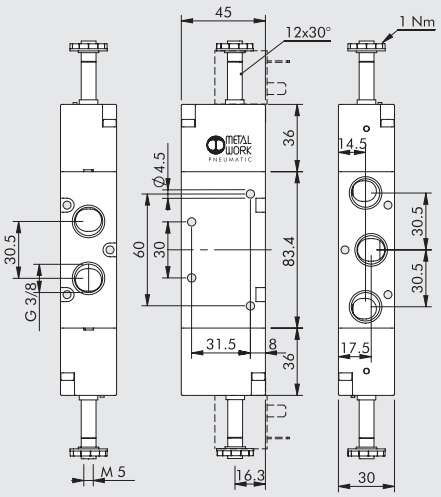
Symbol		Code	Abbrev.	Weight [g]
	❄	70L4020200	SOV C3 SOS NC LT	358

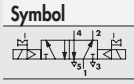
MONOSTABLE 5/2 3/8"



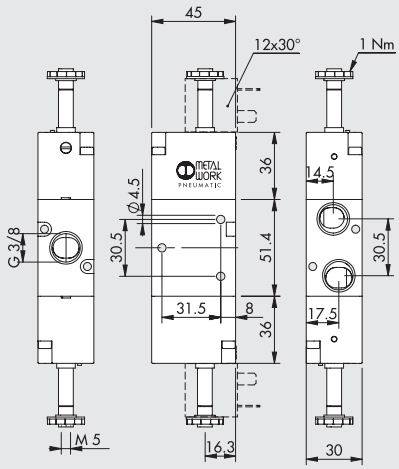
Symbol		Code	Abbrev.	Weight [g]
	❄	**70L4021100**	SOV C5 SOS OO LT	460

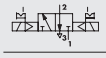
BISTABLE 5/2 3/8"



Symbol		Code	Abbrev.	Weight [g]
	❄	**70L4021200**	SOV C5 SOB OO LT	526

BISTABLE 3/2 3/8"



Symbol		Code	Abbrev.	Weight [g]
	❄	**70L4020100**	SOV C3 SOB OO LT	426

NOTES

ACCESSORIES

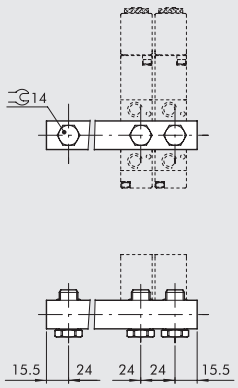
COILS AND CONNECTORS

Refer to page **B1**.60 for coils and connectors

For temperatures T <-10 ° C it is necessary to use coils side 22 mm from 5 W or 5 VA .
(see page B1.77)

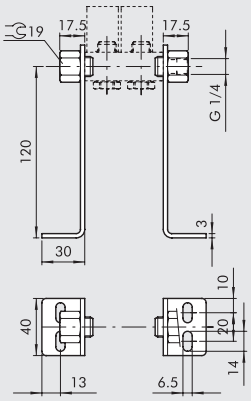
ACCESSORIES: 1/8 MANIFOLDS FOR SERIES 70 PNV-SOV AND SERIES BASIC VALVES

MANIFOLD WITH 2 TO 7 POSITIONS + FITTINGS



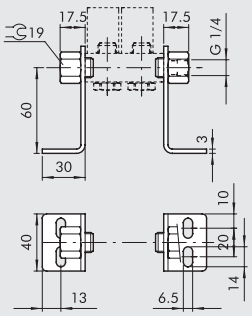
Code	Description	Weight [g]
0221000200	CSA-18-02	70
0221000300	CSA-18-03	99
0221000400	CSA-18-04	131
0221000500	CSA-18-05	162
0221000600	CSA-18-06	192
0221000700	CSA-18-07	229

BRACKET SET H120



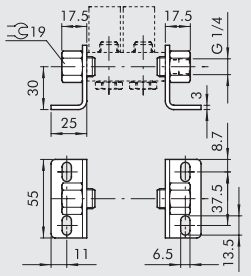
Code	Description	Weight [g]
0221000190	CSA-18-OO	309

BRACKET SET H60



Code	Description	Weight [g]
0221000191	CSA-18-OC	213

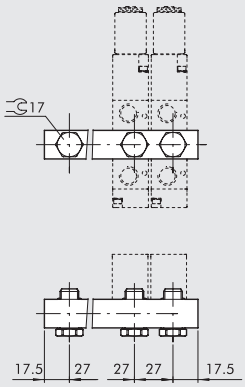
BRACKET SET H30



Code	Description	Weight [g]
0221000192	CSA-18-OE	181

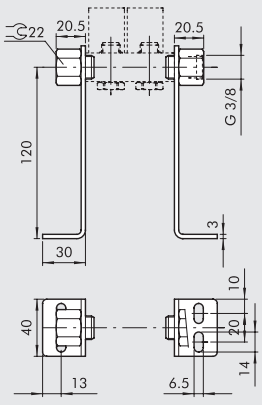
ACCESSORIES: 1/4 MANIFOLDS FOR SERIES 70 PNV-SOV AND SERIES BASIC VALVES

MANIFOLD WITH 2 TO 7 POSITIONS + FITTINGS



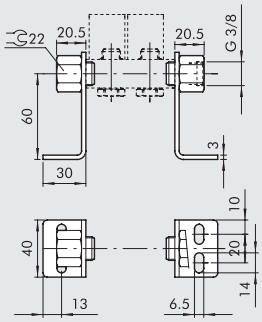
Code	Description	Weight [g]
0222000200	CSA-14-02	89
0222000300	CSA-14-03	131
0222000400	CSA-14-04	174
0222000500	CSA-14-05	213
0222000600	CSA-14-06	252
0222000700	CSA-14-07	328

BRACKET SET H120



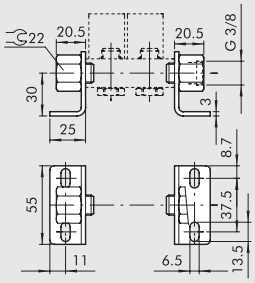
Code	Description	Weight [g]
0222000190	CSA-14-OO	338

BRACKET SET H60



Code	Description	Weight [g]
0222000191	CSA-14-OC	242

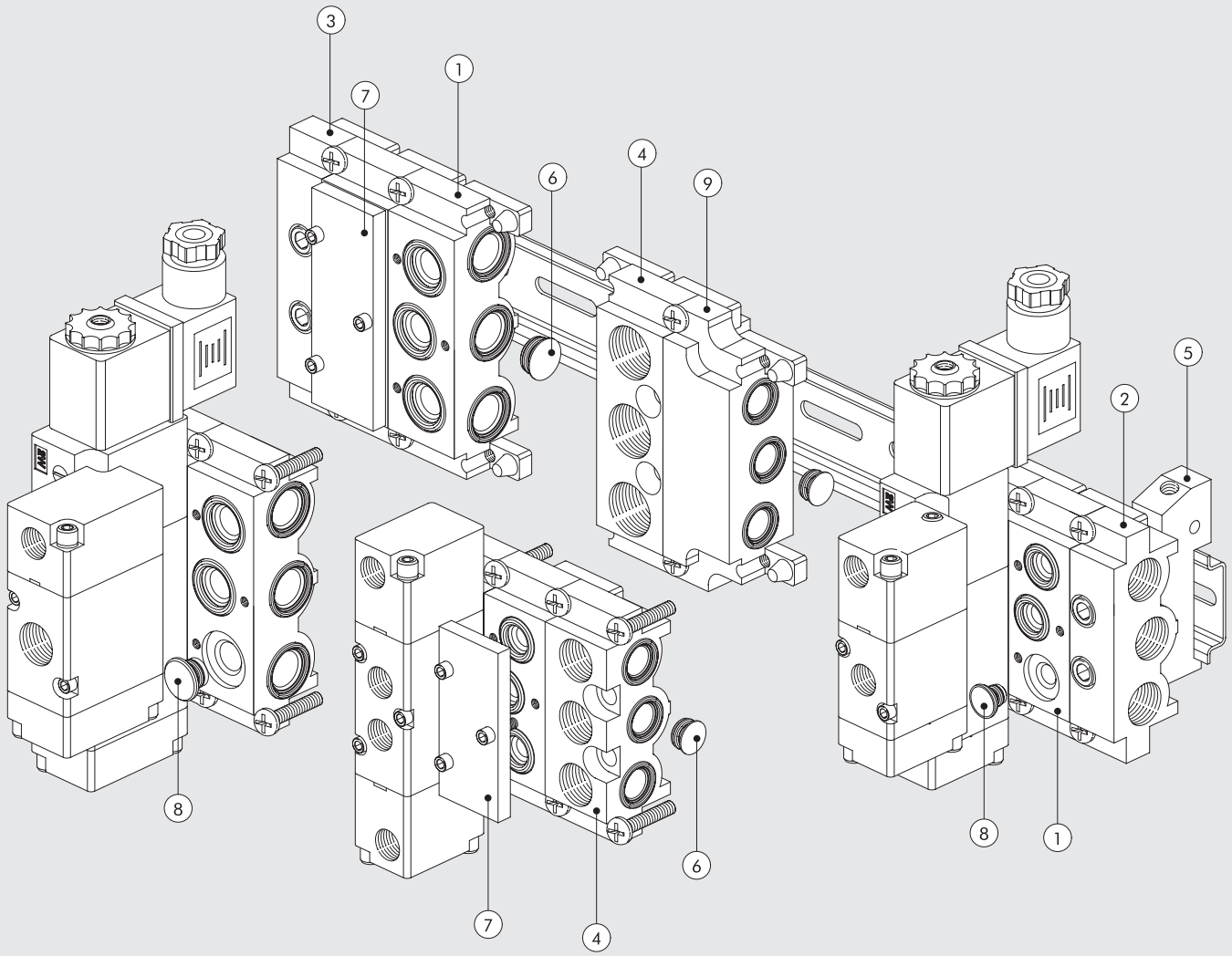
BRACKET SET H30



Code	Description	Weight [g]
0222000192	CSA-14-OE	209

ACCESSORIES: MANIFOLD BASES FOR SERIES 70 PNV-SOV AND SERIES BASIC VALVES

MODULAR BASES FOR SERIES 70 SOV-PNV VALVES

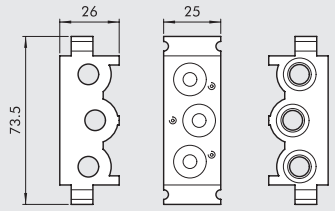


	1/8"	1/4"	
Reference	Code	Code	Description
①	0226004150	0226005150	Modular manifold base
②	0226004201	0226005201	End plate without OR
③	0226004200	0226005200	End plate with OR
④	0226004300	0226005300	Intermediate part for upper feed
⑤	0226004600	0226005600	Adapter for omega bar
⑥	0226004000	0226005000	Intermediate diaphragm
⑦	0226004500	0226005500	Blanking plate
⑧	0226004001	0226005001	3/2 cap
⑨	0226006600	–	Dimensional adapter

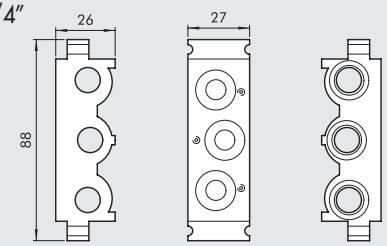
METAL WORK PNEUMATIC

① MODULAR BASE MANIFOLD

1/8″



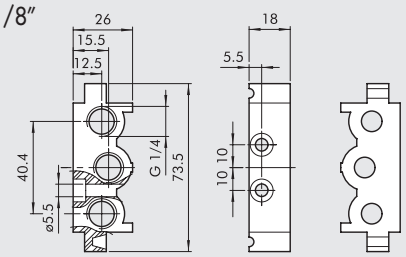
1/4″



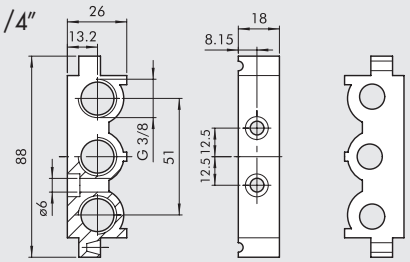
Code	Description	Weight [g]
0226004150	Modular base MANIFOLD 1/8″	110
0226005150	Modular base MANIFOLD 1/4″	131

② END PLATE WITHOUT OR

1/8″



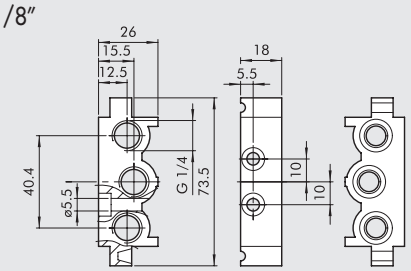
1/4″



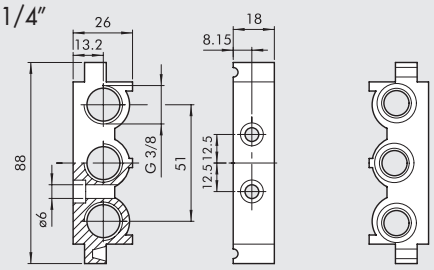
Code	Description	Weight [g]
0226004201	End plate without OR 1/8″	52
0226005201	End plate without OR 1/4″	57

③ END PLATE WITH OR

1/8″



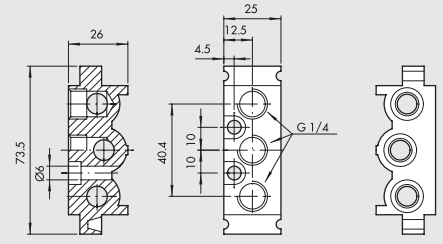
1/4″



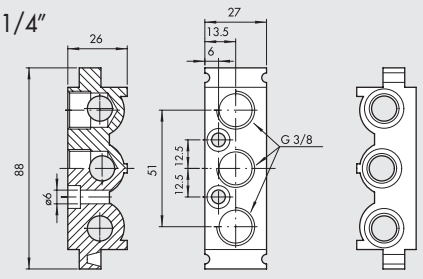
Code	Description	Weight [g]
0226004200	End plate with OR 1/8″	74
0226005200	End plate with OR 1/4″	80

④ INTERMEDIATE PART FOR UPPER FEED

1/8″



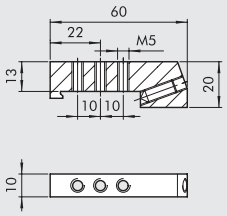
1/4″



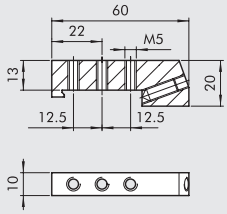
Code	Description	Weight [g]
0226004300	Intermediate part for upper feed 1/8″	93
0226005300	Intermediate part for upper feed 1/4″	109

⑤ ADAPTER FOR OMEGA BAR BASES (DIN EN 50022)

1/8″



1/4″

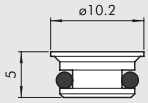


Code	Description	Weight [g]
0226004600	Adapter 1/8″	46
0226005600	Adapter 1/4″	46

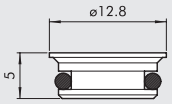
N.B.: Also for multiple bases

⑥ INTERMEDIATE DIAPHGRAM

1/8″



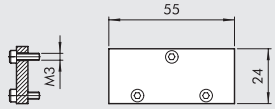
1/4″



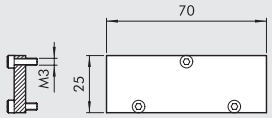
Code	Description	Weight [g]
0226004000	Intermediate diaphgram 1/8″	2
0226005000	Intermediate diaphgram 1/4″	3

⑦ BLANKING PLATE FOR UNUSED POSITIONS

1/8″



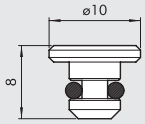
1/4″



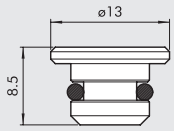
Code	Description	Weight [g]
0226004500	Blanking plate 1/8″	23
0226005500	Blanking plate 1/4″	29

⑧ PLUG FOR 3/2

1/8″

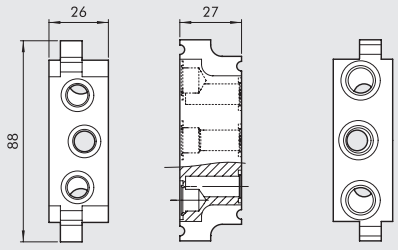


1/4″



Code	Description	Weight [g]
0226004001	Blanking plate 3/2 1/8″	2
0226005001	Blanking plate 3/2 1/4″	4

⑨ DIMENSIONAL ADAPTER 1/8″ – 1/4″

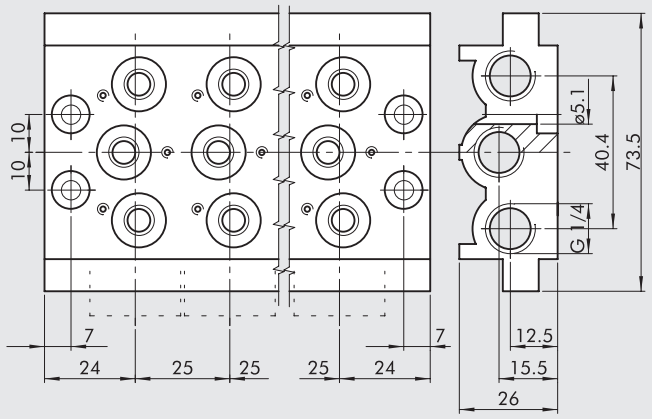


Code	Description	Weight [g]
0226006600	Adapter 1/8″, 1/4″	177

NOTES

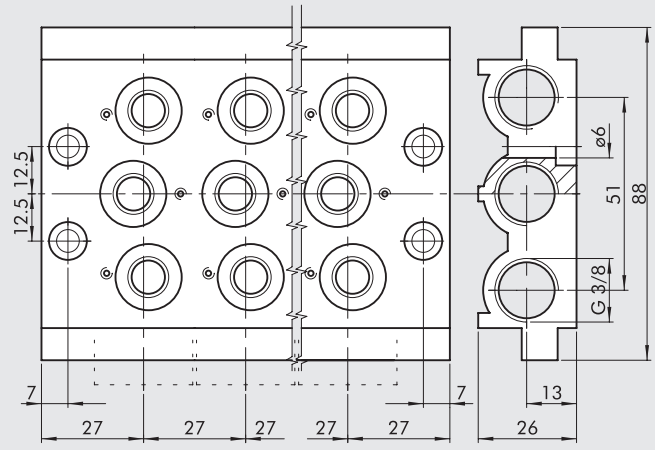
ACCESSORIES: MULTIPLE BASES FOR SERIES 70 PNV-SOV VALVES

MULTIPLE BASE 1/8"



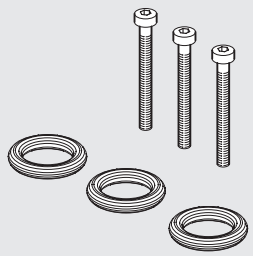
Code	Description	Abbrev.	Weight [g]
0223000201	2-position base	CVM-18-02	236
0223000301	3-position base	CVM-18-03	321
0223000401	4-position base	CVM-18-04	407
0223000501	5-position base	CVM-18-05	494
0223000601	6-position base	CVM-18-06	587
0223000701	7-position base	CVM-18-07	711
0223000801	8-position base	CVM-18-08	760
0223000901	9-position base	CVM-18-09	842
0223001001	10-position base	CVM-18-10	923

MULTIPLE BASE 1/4"



Code	Description	Abbrev.	Weight [g]
0224000201	2-position base	CVM-14-02	296
0224000301	3-position base	CVM-14-03	406
0224000401	4-position base	CVM-14-04	515
0224000501	5-position base	CVM-14-05	624
0224000601	6-position base	CVM-14-06	733
0224000701	7-position base	CVM-14-07	845
0224000801	8-position base	CVM-14-08	956
0224000901	9-position base	CVM-14-09	1055
0224001001	10-position base	CVM-14-10	1086

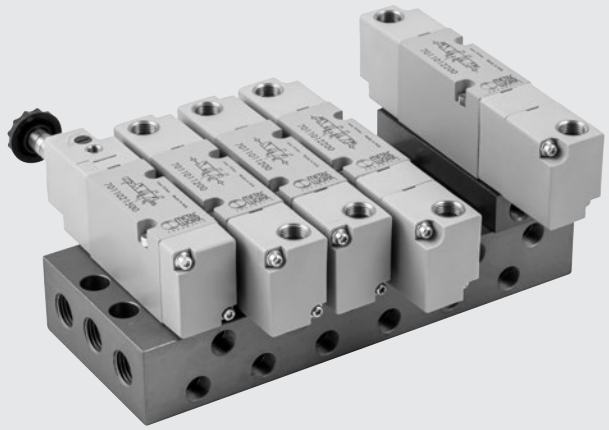
GASKET KIT



Code	Description	Weight [g]
0226004701	Gasket kit for 1/8" base	5
0226005701	Gasket kit for 1/4" base	5

VALVES SERIES 70 ON BASE

The series 70 valves on base, available in the air- and solenoid-actuated versions, is an excellent clean solution for use when it is necessary to intervene on the valves without disconnecting the pipes.
Here, the inlet, output and utility ports are in the base.

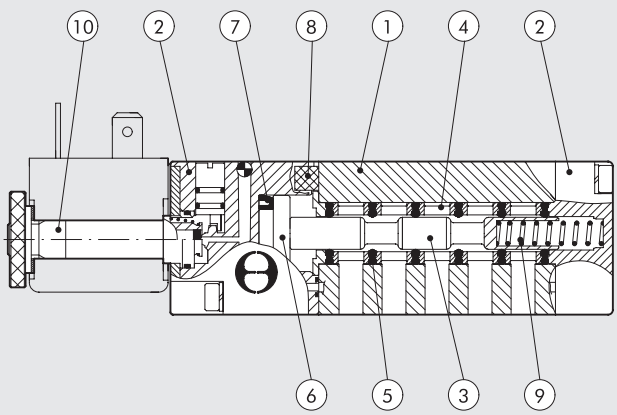


TECHNICAL DATA

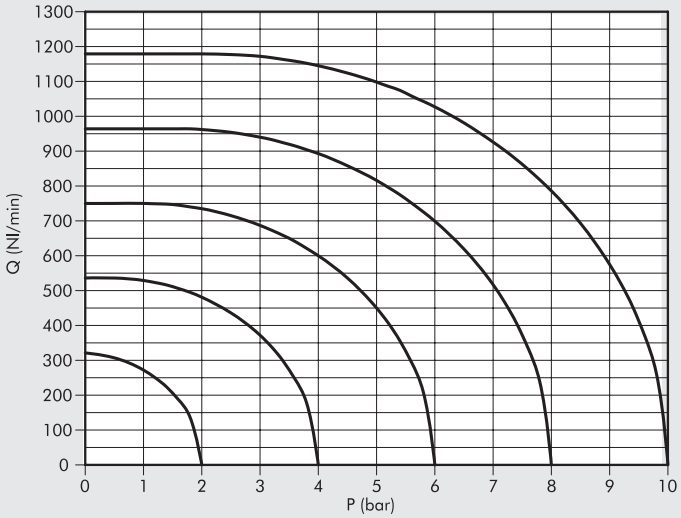
Operating pressure:		
• monostable and bistable differential	bar	2.5 to 10
• bistable	bar	1 to 10
• pilot-assisted	bar	Vacuum to 10
Minimum pilot pressure	bar	2.5
Operating temperature range	°C	-10 to +60
Nominal diameter	mm	5
Conductance C	Nl/min · bar	107.69
Critical ratio b	bar/bar	0.29
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	320
Flow rate at 6 bar ΔP 1 bar	Nl/min	450
Maximum torque coil nut	Nm	1

COMPONENTS

① VALVE BODY: Aluminium
② CONTROL/BASE: Hostaform®
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ FILTER: sintered Bronze
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe – Stainless steel core

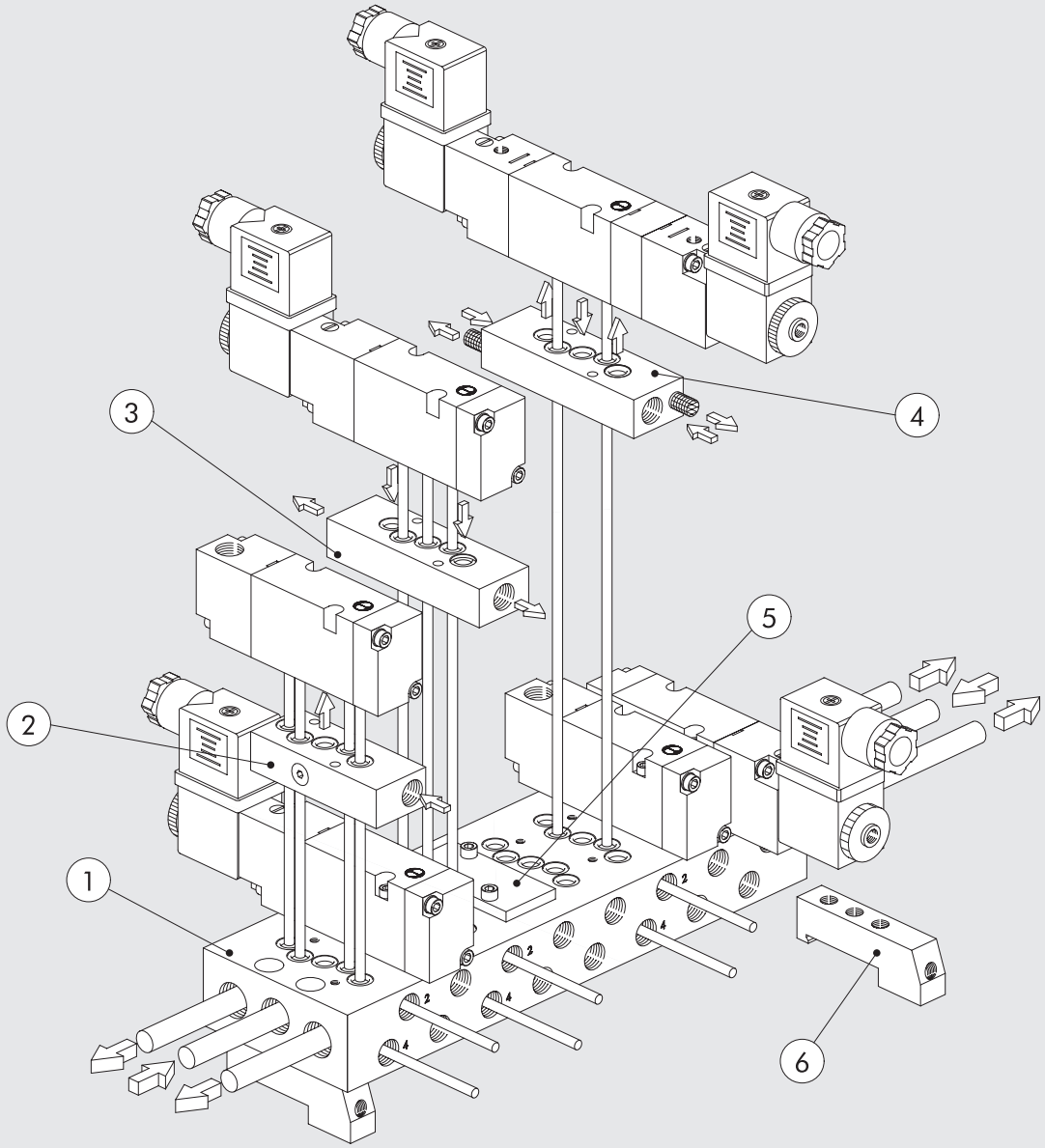


FLOW CHART



METAL WORK PNEUMATIC

MULTI-PURPOSE BASE FOR VALVES SERIES 70 ON BASE



Reference	Code	Description
①	**0223100201**	2-position base 1/8 on base
	0223100401	4-position base 1/8 on base
	0223100601	6-position base 1/8 on base
	0223100801	8-position base 1/8 on base
	0223101001	10-position base 1/8 on base
②	**0223106301**	Separate feed kit
③	**0223106303**	Exhaust regulation kit
④	**0223106302**	Exhaust feed kit
⑤	**0223106500**	Blanking plate
⑥	**0226004600**	Adapter for omega bar

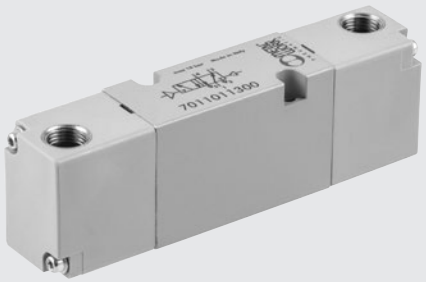
SYNOPTIC, SIZES AND VERSIONS

P N V FAMILY	B DIMENSIONS	5 FUNCTION	P N OPERATORS 14	S RESETTING (12)	O O FURTHER DETAILS
PNV pneumatic	**B** 1/8" on base	**5** 5/2	**PN** pneumatic	**S** mechanical springs	**OO** no indication
SOV elettro-pneumatic		**6** 5/3	**SO** solenoid	**B** bistable	**CC** closed centres
			SE solenoid assisted	**D** differential	**OC** open centres
					PC pressure centres

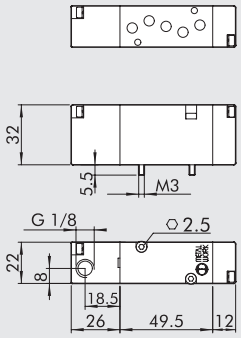
VALVES, SERIES 70, PNEUMATIC, ON BASE

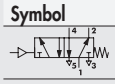
TECHNICAL DATA

Operating pressure	bar	Vacuum to 10
Minimum actuation pressure:		
• monostable and bistable differential	bar	2.5
• bistable	bar	1
Operating temperature range	°C	-10 to +60
Nominal diameter	mm	5
Conductance C	Nl/min · bar	107.69
Critical ratio b	bar/bar	0.29
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	320
Flow rate at 6 bar ΔP 1 bar	Nl/min	450
TRA / TRR monostable at 6 bar	ms	6/15
TRA / TRR bistable at 6 bar	ms	7/7

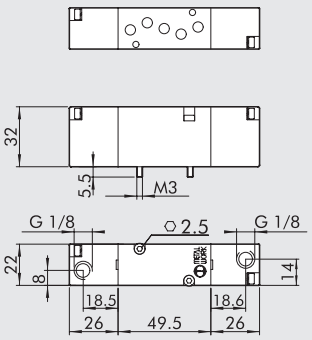


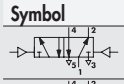
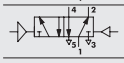
MONOSTABLE 5/2



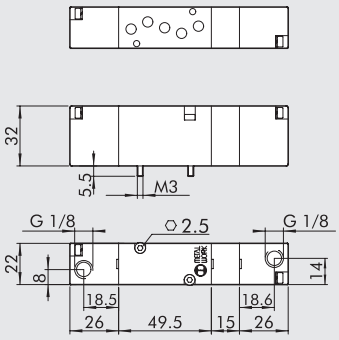
Symbol	Code	Abbrev.	Weight [g]
	7011011100	PNV B5 PNS OO	125

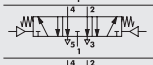
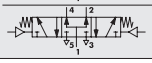
BISTABLE 5/2



Symbol	Code	Abbrev.	Weight [g]
	7011011200	PNV B5 PNB OO	136
	7011011300	PNV B5 PND OO	142

MONOSTABLE 5/3



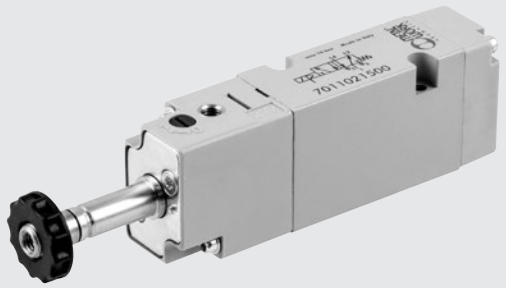
Symbol	Code	Abbrev.	Weight [g]
	7011012100	PNV B6 PNS CC	164
	7011012200	PNV B6 PNS OC	164
	7011012300	PNV B6 PNS PC	164

NOTES

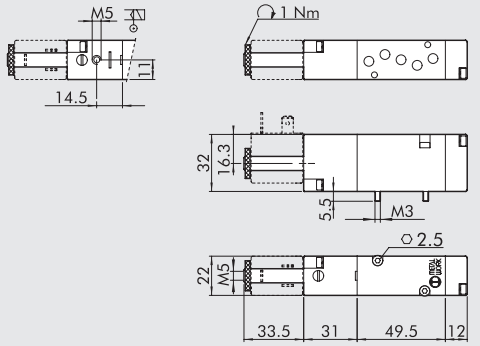
VALVES SERIES 70, SOLENOID/PNEUMATIC ON BASE

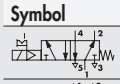
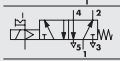
TECHNICAL DATA

Operating pressure:		
• monostable and bistable differential	bar	2.5 to 10
• bistable	bar	1 to 10
• pilot-assisted	bar	Vacuum to 10
Minimum pilot pressure	bar	2.5
Operating temperature range	°C	-10 to +60
Nominal diameter	mm	5
Conductance C	Nl/min · bar	107.69
Critical ratio b	bar/bar	0.29
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	320
Flow rate at 6 bar ΔP 1 bar	Nl/min	450
TRA / TRR monostable at 6 bar	ms	15 / 35
TRA / TRR bistable at 6 bar	ms	20 / 20
Electrical technical data		
Coil voltage values		12; 24VDC - 24; 110; 220VAC 50/60Hz
Power		2 W (DC) 3.5VA (AC)
Voltage tolerance	%	-10 to +15
Insulation class		F 155
Maximum coil nut torque	Nm	1

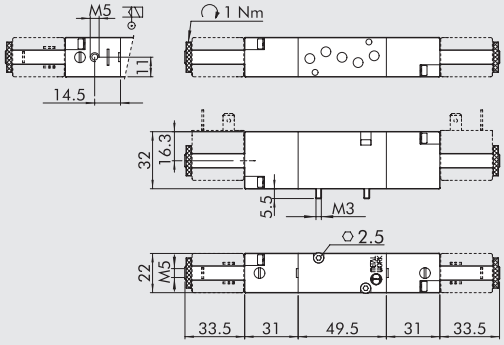


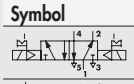
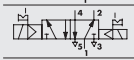
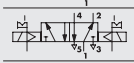
MONOSTABLE 5/2



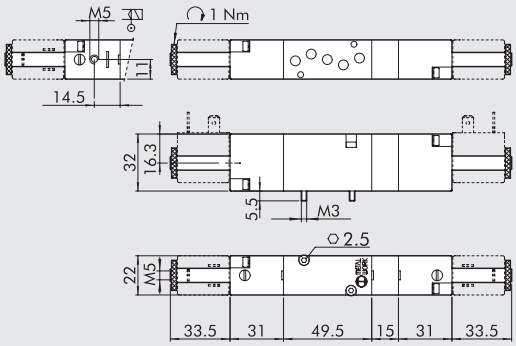
Symbol	Code	Abbrev.	Weight [g]
	**7011021100**	SOV B5 SOS OO	142
	**7011021500**	SOV B5 SES OO	143

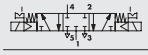
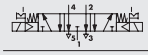
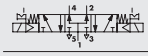
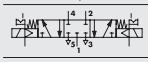
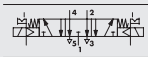
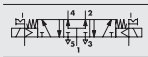
BISTABLE 5/2



Symbol	Code	Abbrev.	Weight [g]
	**7011021200**	SOV B5 SOB OO	174
	**7011021300**	SOV B5 SOD OO	180
	**7011021600**	SOV B5 SEB OO	174

MONOSTABLE 5/3



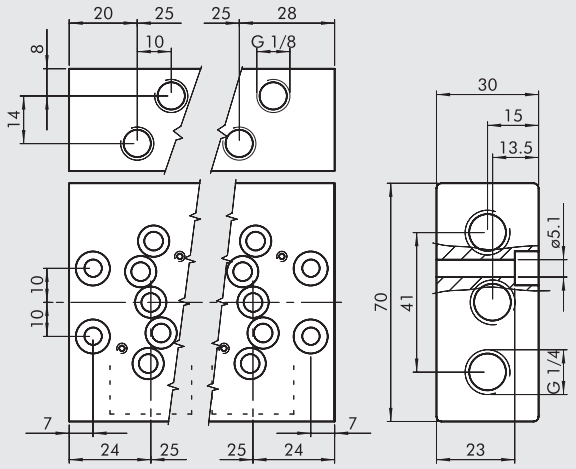
Symbol	Code	Abbrev.	Weight [g]
	**7011022100**	SOV B6 SOS CC	204
	**7011022200**	SOV B6 SOS OC	204
	**7011022300**	SOV B6 SOS PC	204
	**7011022400**	SOV B6 SES CC	202
	**7011022500**	SOV B6 SES OC	202
	**7011022600**	SOV B6 SES PC	202

ACCESSORIES

Refer to page **B1**.60 for coils and connectors

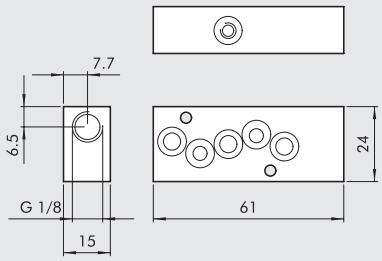
ACCESSORIES: MULTIPLE BASES

① MULTIPLE BASE



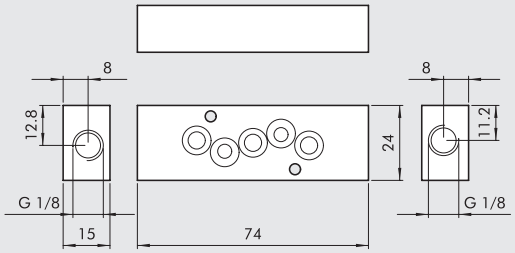
Code	Description	Weight [g]
0223100201	2-position base 1/8 on base	341
0223100401	4-position base 1/8 on base	591
0223100601	6-position base 1/8 on base	855
0223100801	8-position base 1/8 on base	1093
0223101001	10-position base 1/8 on base	1352

② SEPARATE FEED KIT



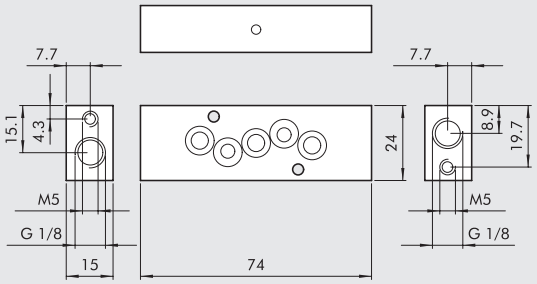
Code	Description	Weight [g]
0223106301	Separate feed kit 1/8	65

③ EXHAUST REGULATION KIT



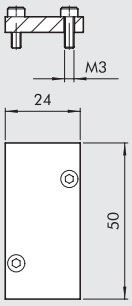
Code	Description	Weight [g]
0223106303	Exhaust regulation kit 1/8	75

④ EXHAUST FEED KIT



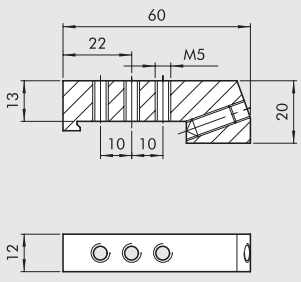
Code	Description	Weight [g]
0223106302	Exhaust feed kit 1/8	75

⑤ BLANKING PLATE



Code	Description	Weight [g]
0223106500	Blanking plate 1/8	15

⑥ ADAPTER FOR BAR OMEGA (DIN EN 50022)



Code	Description	Weight [g]
0226004600	Adapter for bar omega 1/8"	46

VALVES NAMUR

METAL WORK PNEUMATIC

TECHNICAL DATA

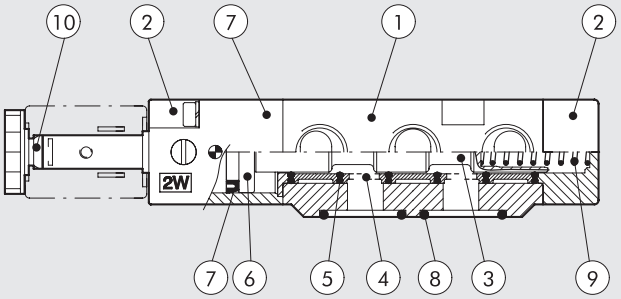
Operating pressure:		
• monostable, electric	bar	2.5 to 10
• bistable, electric	bar	1to10
• pilot-assisted, electric	bar	Vacuum to 10
Minimum actuation pressure:		
• monostable, pneumatic	bar	2.5
• bistable, pneumatic	bar	1
Operating temperature range	°C	–10 to +60
Nominal diameter	mm	7.5
Conductance C	Nl/min · bar	264.26
Critical ratio b	bar/bar	0.27
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	750
Flow rate at 6 bar ΔP 1 bar (0.1 Mpa - 14.5 psi)	Nl/min	1100
Response time at 6 bar:		
• TRA/TRR monostable, pneumatic at 6 bar	ms	7 / 15
• TRA/TRR bistable, pneumatic at 6 bar	ms	7 / 7
• TRA/TRR monostable electric at 6 bar	ms	19 / 45
• TRA/TRR bistable electric at 6 bar	ms	21 / 21
Compatibility with oils		See **chapter Z1**

SYNOPTIC, SIZES AND VERSIONS

P N V	A	5	P N	S	O O
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING (12)**	**FURTHER DETAILS**
PNV pneumatic	**A** NAMUR	**5** 5/2	**PN** pneumatic	**S** mechanical springs	**OO** no indication
SOV electro-pneumatic		**4** 4/2	**SO** solenoid	**B** bistable	**NC** normally closed

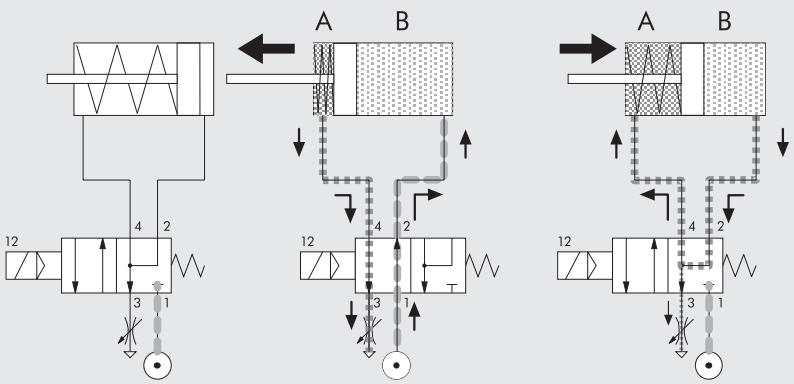
COMPONENTS

① VALVE BODY: Aluminium
② CONTROL/BASE: Hostaform®
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR nitrile rubber
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR nitrile rubber
⑧ INTERFACE GASKETS: NBR nitrile rubber
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe – Stainless steel core

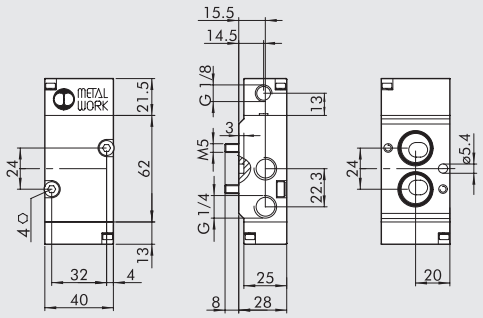


FUNCTIONING DIAGRAM 4/2 NAMUR VALVE

During the piston retraction stage, the air for chamber A is taken from the air leaving chamber B. This prevents the dirty air from getting in from the outside enviroment.

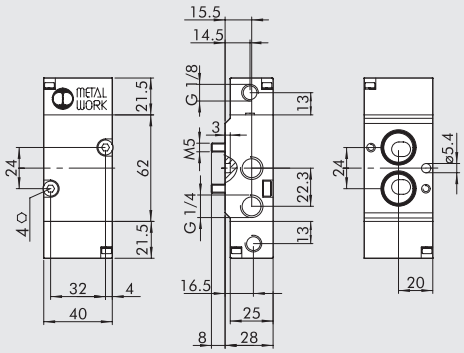


MONOSTABLE, PNEUMATIC 4/2



Symbol	Code	Abbrev.	Weight [g]
	7021010110	PNV A4 PNS NC	208

BISTABLE, PNEUMATIC 4/2



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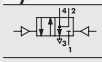
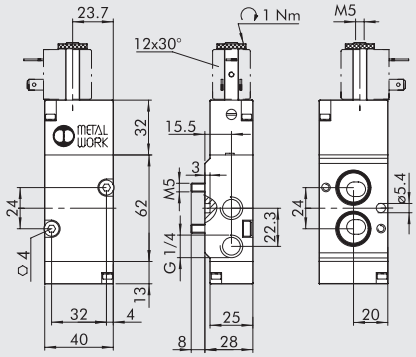
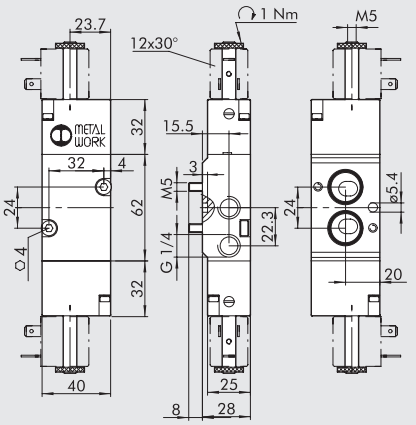
	7021010210	PNV A4 PNB OO	216

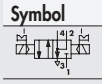
MONOSTABLE, SOLENOID/PNEUMATIC 4/2



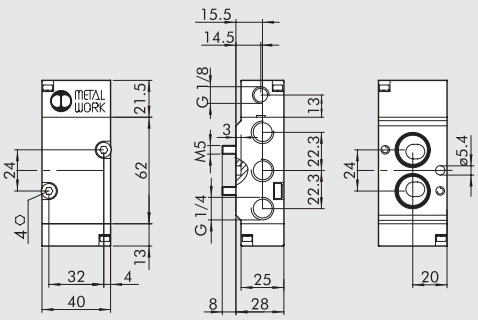
Symbol	Code	Abbrev.	Weight [g]
	7021020110	SOV A4 SOS NC	234

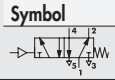
BISTABLE, SOLENOID/PNEUMATIC 4/2



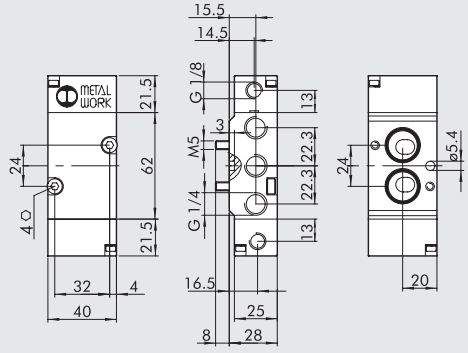
Symbol	Code	Abbrev.	Weight [g]
	7021020210	SOV A4 SOB OO	270

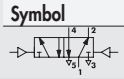
MONOSTABLE, PNEUMATIC 5/2



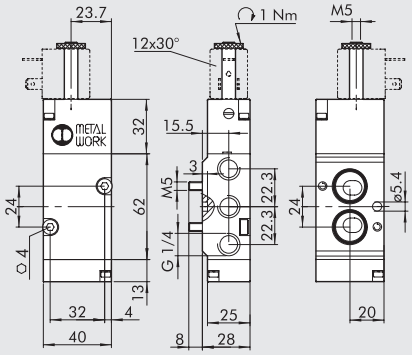
Symbol	Code	Abbrev.	Weight [g]
	7021010100	PNV A5 PNS OO	208

BISTABLE, PNEUMATIC 5/2



Symbol	Code	Abbrev.	Weight [g]
	7021010200	PNV A5 PNB OO	216

MONOSTABLE, SOLENOID/PNEUMATIC 5/2



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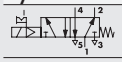
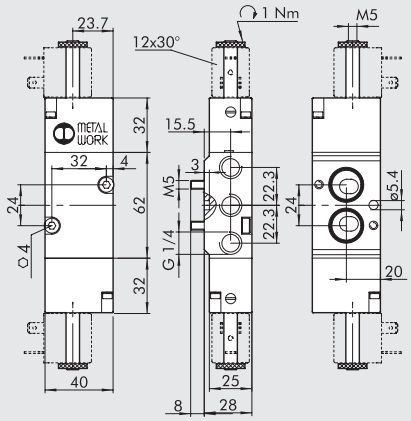
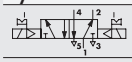
	7021020100	SOV A5 SOS OO	234

BISTABLE, SOLENOID/PNEUMATIC 5/2



Symbol	Code	Abbrev.	Weight [g]
	7021020200	SOV A5 SOB OO	270

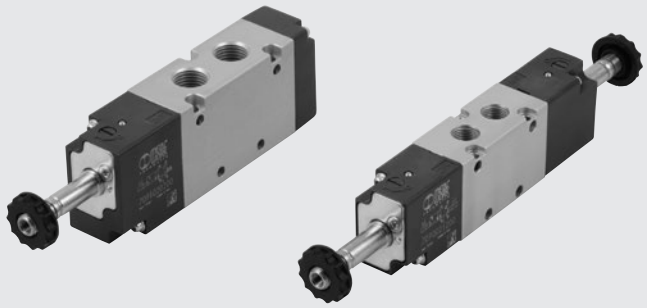
ACCESSORIES FOR NAMUR VALVES SOV, SOLENOID/PNEUMATIC

Refer to page **B1**.60 for coils and connectors

NOTES

VALVES SERIES BASIC

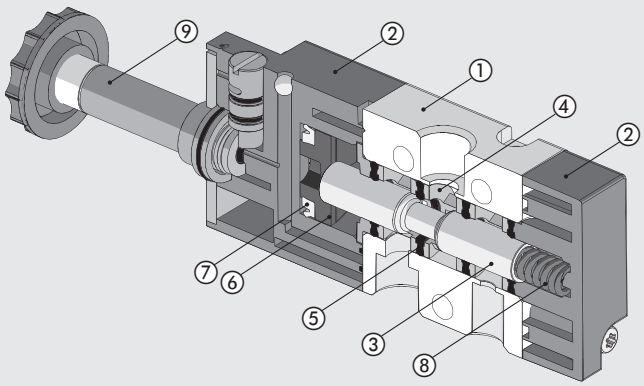
The valves in the BASIC series are a numerically-reduced selection of some types of the most commonly used solenoid valves.
They come in sizes 1/8" and 1/4" and in the 3/2 monostable, 5/2 monostable and 5/2 bistable versions.
Some production processes have been simplified, without affecting product quality and performance.
The body is made of anodized aluminium (without painting) and controls are in dark grey technopolymer.
BASIC valves can be assembled with accessories of other families of valves, in particular with 22 mm coils, a 8 mm hole and related connectors, modular bases and the multi-position connectors of the series 70 valves.



TECHNICAL DATA		1/8"	1/4"
Operating pressure:			
• monostable	bar	2.5 to 10	
• bistable	bar	1 to 10	
Operating temperature range	°C	–10 to +60	
Nominal diameter	mm	5	7.5
Conductance C	Nl/min · bar	121.43	264.26
Critical ratio b	bar/bar	0.32	0.27
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	400	750
Flow rate at 6 bar ΔP 1 bar	Nl/min	550	1100
TRA / TRR monostable at 6 bar	ms	15/35	19/45
TRA / TRR bistable at 6 bar	ms	20/20	21/21
Coil voltage values		12; 24 VDC - 24; 110; 220V AC 50/60Hz	
Power		2 W (DC) 3.5VA (AC)	
Voltage tolerance	%	-10 to +15	
Insulation class		F 155	
Maximum coil nut torque	Nm	1	
Hand operator		Bistable	
Installation		In any position (vertical assembly is not recommended for bistable valves subjected to vibration)	
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous	
Recommended lubricant		ISO and UNI FD 22	
Maximum coil nut torque	Nm	1	
Compatibility with oils		See **chapter Z1**	

COMPONENTS

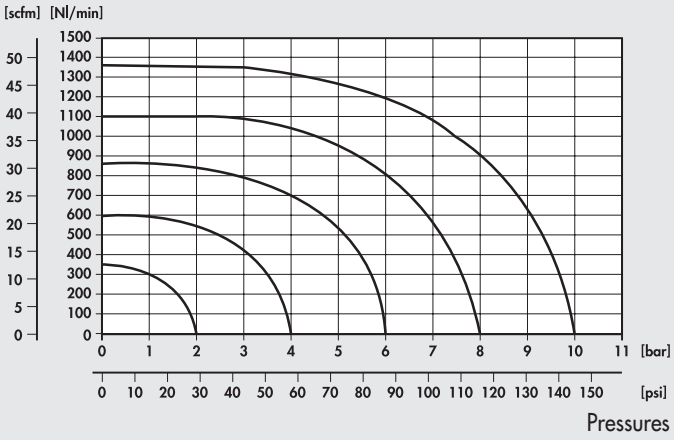
① VALVE BODY: anodized aluminium
② CONTROL/END CAP: plastic
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ SPRINGS: special steel
⑨ OPERATOR: Brass pipe - Stainless steel core



FLOW CHARTS

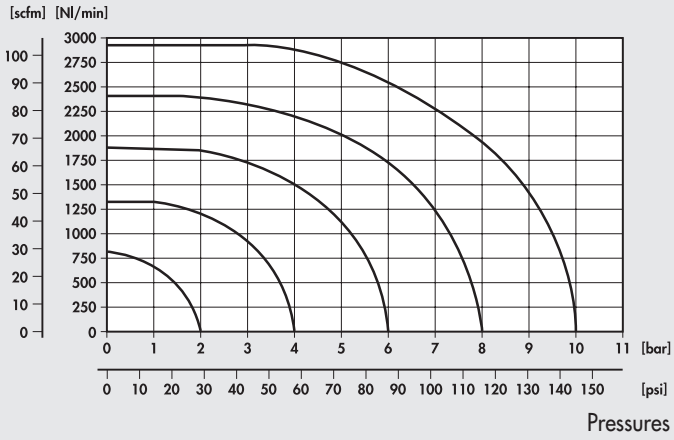
VALVES SERIES BASIC 1/8”

Flow rates



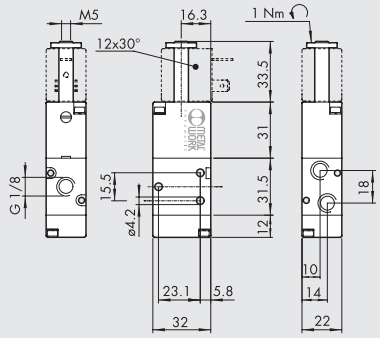
VALVES SERIES BASIC 1/4”

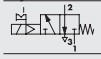
Flow rates



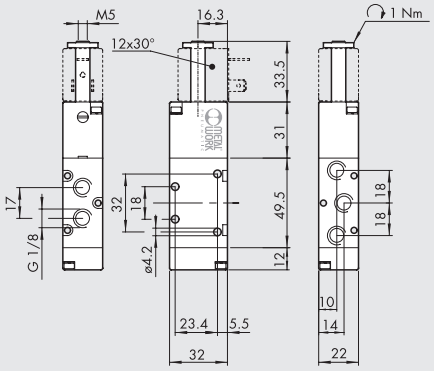
VALVES SERIES BASIC, 1/8”

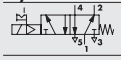
MONOSTABLE 3/2 NC 1/8”



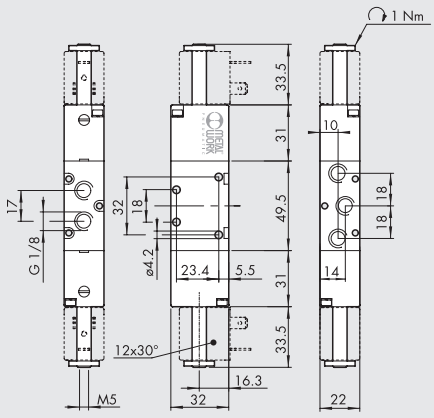
Symbol	Code	Abbrev.	Weight [g]
	7090020200	ELPN 1/8 3/2 MON NC	100

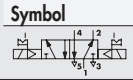
MONOSTABLE 5/2 1/8”



Symbol	Code	Abbrev.	Weight [g]
	7090021100	ELPN 1/8 5/2 MON	128

BISTABLE 5/2 1/8”

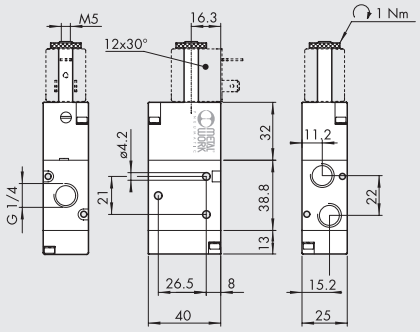


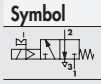
Symbol	Code	Abbrev.	Weight [g]
	7090021200	ELPN 1/8 5/2 BIS	160

NOTES

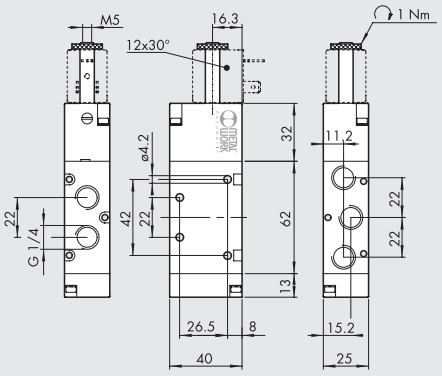
VALVES SERIES BASIC, 1/4”

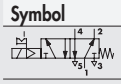
MONOSTABLE 3/2 NC 1/4”



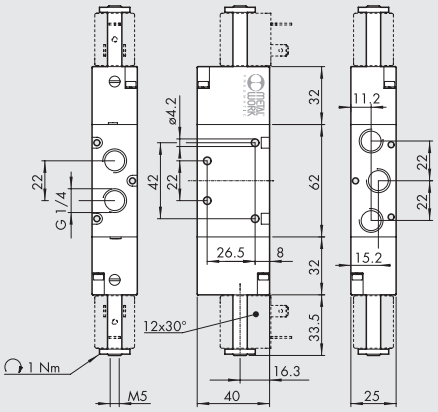
Symbol	Code	Abbrev.	Weight [g]
	**7091020200**	ELPN 1/4 3/2 MON NC	152

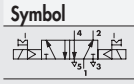
MONOSTABLE 5/2 1/4”



Symbol	Code	Abbrev.	Weight [g]
	**7091021100**	ELPN 1/4 5/2 MON	200

BISTABLE 5/2 1/4”

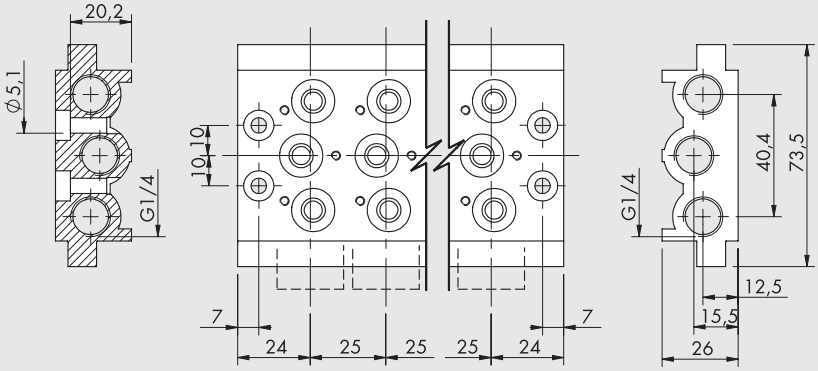


Symbol	Code	Abbrev.	Weight [g]
	**7091021200**	ELPN 1/4 5/2 BIS	236

NOTES

ACCESSORIES

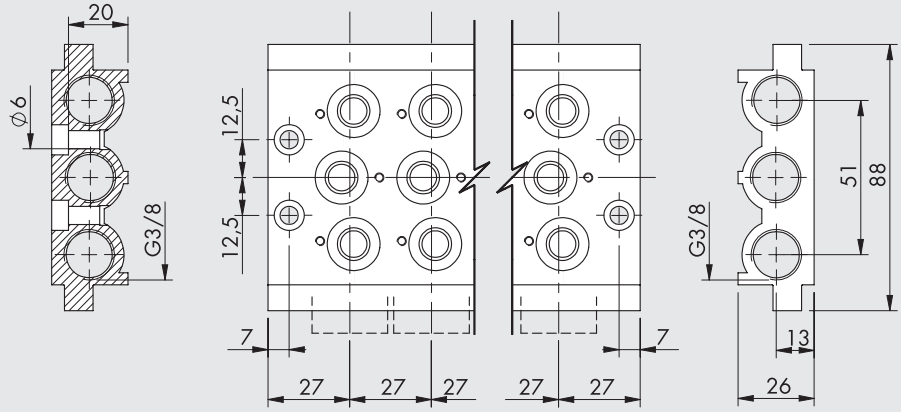
MULTIPLE BASE 1/8”



Code	Description	Weight [g]
0223200201	2 positions multiple base BASIC 1/8	236
0223200301	3 positions multiple base BASIC 1/8	321
0223200401	4 positions multiple base BASIC 1/8	407
0223200501	5 positions multiple base BASIC 1/8	494
0223200601	6 positions multiple base BASIC 1/8	587
0223200701	7 positions multiple base BASIC 1/8	711
0223200801	8 positions multiple base BASIC 1/8	760
0223200901	9 positions multiple base BASIC 1/8	842
0223201001	10 positions multiple base BASIC 1/8	923

Note: supplied complete with screws and gaskets

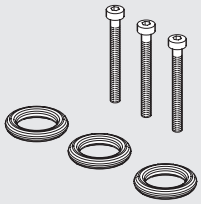
MULTIPLE BASE 1/4"



Code	Description	Weight [g]
0224200201	2 positions multiple base BASIC 1/4	296
0224200301	3 positions multiple base BASIC 1/4	406
0224200401	4 positions multiple base BASIC 1/4	515
0224200501	5 positions multiple base BASIC 1/4	624
0224200601	6 positions multiple base BASIC 1/4	733
0224200701	7 positions multiple base BASIC 1/4	845
0224200801	8 positions multiple base BASIC 1/4	956
0224200901	9 positions multiple base BASIC 1/4	1055
0224201001	10 positions multiple base BASIC 1/4	1086

Note: supplied complete with screws and gaskets

GASKET KIT



Code	Description	Weight [g]
0226004701	Gasket kit for 1/8 base	5
0226005701	Gasket kit for 1/4 base	5

MANIFOLD BASES

Refer to page **B1**.44 for manifold bases

MANIFOLDS

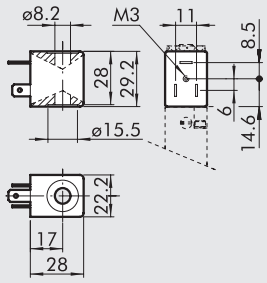
Refer to page **B1**.43 for manifolds

COILS AND CONNECTORS

Refer to page **B1**.60 for coils and connectors

COILS AND CONNECTORS FOR SERIES 70, NAMUR AND SERIES BASIC VALVES

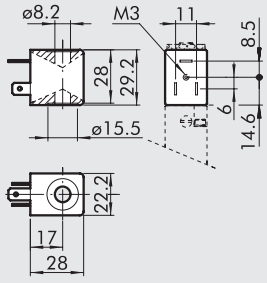
COILS SIDE 22 mm



- Voltage tolerance: -10% + 15%
- Insulation class: F155
- Degree of protection: IP65 DIN 40050 with connector
- Avoid prolonged exposure to atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000151	Coil 22 Ø 8 BA 2W-12VDC	12Vcc	2W	2W
W0215000101	Coil 22 Ø 8 BA 2W-24VDC	24Vcc	2W	2W
W0215000111	Coil 22 Ø 8 BA 3.5VA-24VAC	24V 50/60Hz	5.3VA	3.5VA
W0215000121	Coil 22 Ø 8 BA 3.5VA-110VAC	110V 50/60Hz	5.3VA	3.5VA
W0215000131	Coil 22 Ø 8 BA 3.5VA-220VAC	220V 50/60Hz	5.3VA	3.5VA

"UL" AND "CSA" COILS 22 mm

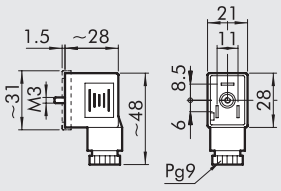


c UL us

- Voltage tolerance: –10% to + 15%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- Electrical connection DIN 43650 B-IND

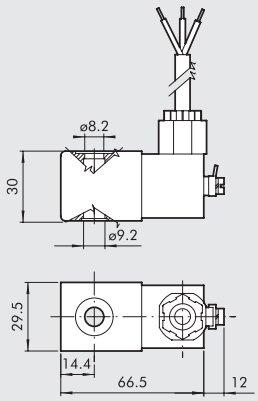
Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000251	Coil 22 Ø 8 BA 2W-12VDC UR	12Vcc	2W	2W
W0215000201	Coil 22 Ø 8 BA 2W-24VDC UR	24Vcc	2W	2W
W0215000211	Coil 22 Ø 8 BA 3.5VA-24VAC UR	24V 50/60Hz	5.3VA	3.5VA
W0215000221	Coil 22 Ø 8 BA 3.5VA-110VAC UR	110V 50/60Hz	5.3VA	3.5VA
W0215000231	Coil 22 Ø 8 BA 3.5VA-220VAC UR	220V 50/60Hz	5.3VA	3.5VA

CONNECTOR FOR COILS SIDE 22 mm DIN 43650 B-IND



Code	Tipo	Colour	Ø Cable
W0970510011	Standard	Black	PG9
W0970510012	LED 24V	Transparent	PG9
W0970510013	LED 110V	Transparent	PG9
W0970510014	LED 220V	Transparent	PG9
W0970510015	LED + VDR 24V	Transparent	PG9
W0970510016	LED + VDR 110V	Transparent	PG9
W0970510017	LED + VDR 220V	Transparent	PG9
W0970510070	Atex II 2 GD	Black	PG9

KIT COIL EEXM



Code	Description
0227606913	Kit for coil 30 24VDC EEXMT5 cable 3 m
0227606915	Kit for coil 30 24VDC EEXMT5 cable 5 m
0227608013	Kit for coil 30 24VAC EEXMT5 cable 3 m
0227608015	Kit for coil 30 24VAC EEXMT5 cable 5 m
0227608023	Kit for coil 30 110VAC EEXMT5 cable 3 m
0227608025	Kit for coil 30 110VAC EEXMT5 cable 5 m
0227608033	Kit for coil 30 230VAC EEXMT5 cable 3 m
0227608035	Kit for coil 30 230VAC EEXMT5 cable 5 m

According to Atex 2014/34/EU rule: Ⓔx II 2G Ex mb IIC T4/T5 Gb
Ⓔx II 2D Ex tb IIIC T130/T95 °C IP66 Db

N.B.: Supplied complete with adapter for Ø8 mm sleeve.

N.B.: It's not possible to mount valves having these coils on bases or on manifolds, because the width of 29.5 mm is higher than the distance between the valves. Special bases can be manufactured on request.

KIT COILS SIDE 22 IP65

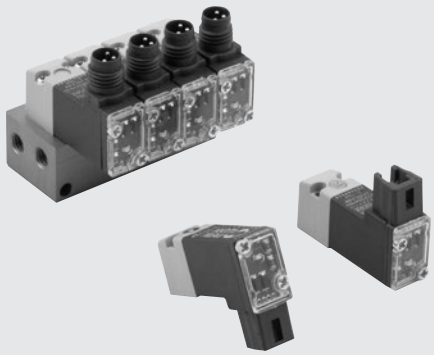
Code	Description
0222100100	Kit for coils 22 - IP65

Improved IP65 protection, even after prolonged exposure to atmospheric agents.
Applicable to valves with a technopolymer control.

10-mm SOLENOID VALVES SERIES PLT-10

METAL WORK PNEUMATIC

PLT-10 solenoid valves are the latest development in modern pneumatic design, where the main trends focus on miniaturisation, enhanced performance, reduced power and reliability.
Numerous versions are available, all with an ISO 15218 pneumatic interface. The power required to operate the PLT-10 has been greatly reduced, ranging from 0.3 to 0.8 Watts.
It is available with a LED indicating when it is active. Monostable manual control is also possible. None of the versions will get damaged if the polarity is accidentally inverted.

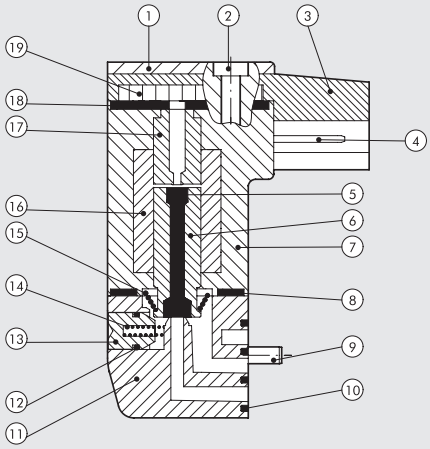


TECHNICAL DATA

Type		3/2 NC
Operating temperature range (Te)	°C	5 to 50
Fluid temperature (Tg)	°C	5 to 50
Fluid		Filtered, lubricated or unlubricated air
Operating life		Over 50 million cycles
Weight	g	12
Voltage tolerance	ΔV	± 10 %
Max operating frequency	f	30 Hz
Switching factor	ED	100 %
Insulation class		F155
Index of protection		IP51 for PLUG-IN version
		IP65 for M8 version

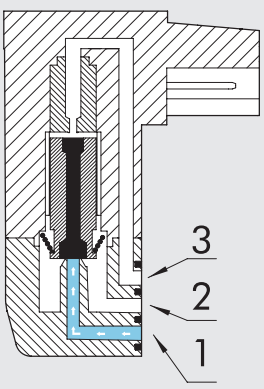
COMPONENTS

① TRANSPARENT COVER: PA612-transparent
② ASSEMBLY SCREWS: zinc-plated steel
③ COVER: PA66
④ PIN
⑤ MOBILE CORE OVER-STAMPING: FKM/FPM
⑥ MOBILE CORE: AISI 403F
⑦ COIL OVER-STAMPING: PA66
⑧ BODY-COIL GASKET: NBR70
⑨ ASSEMBLY SCREWS: zinc-plated steel
⑩ BODY GASKET: NBR
⑪ BODY: PA66
⑫ MANUAL GASKET: NBR (only for version with manual operated)
⑬ MANUAL CONTROL: AISI 303 (only for version with manual operated)
⑭ MANUAL SPRING: AISI 302 (only for version with manual operated)
⑮ SPRING: AISI 302
⑯ WINDING: PPS - Copper wire
⑰ FIXED CORE: AISI 430F
⑱ COIL-COVER GASKET: NBR
⑲ ELECTRONIC BOARD (only for version with electronic board)

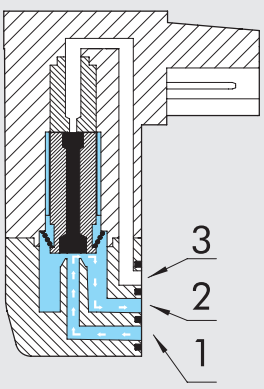


OPERATING CHART

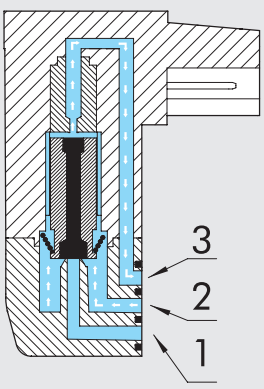
DE-ENERGIZED



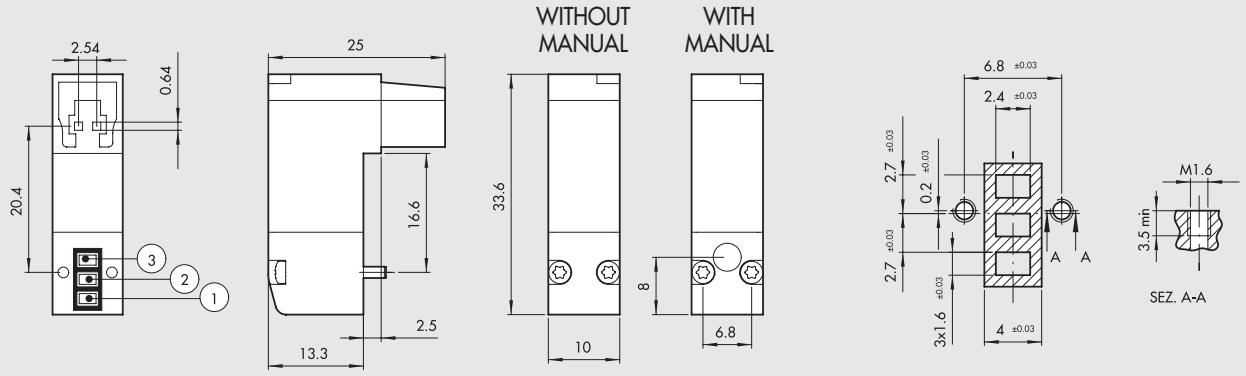
ENERGIZED



DE-ENERGIZED

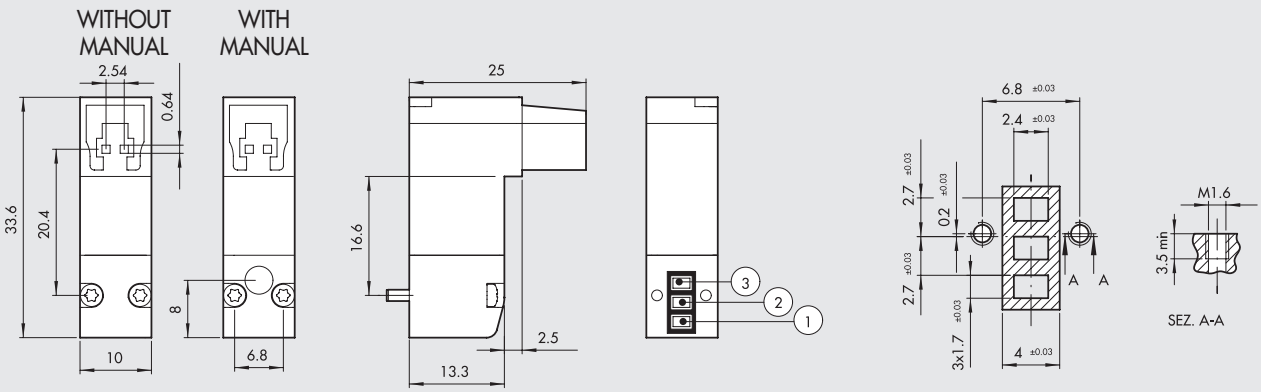


PLT-10 WITH BASE AND PLUG-IN CONNECTION ON THE SAME SIDE



Version 3/2 NC	Code	Manual	Voltage [Volt]	Power [Watt]	Through Ø [mm]	Operating press. [bar]	Flow rate at 6 bar ΔP=1 bar [Nl/min]	Tmax coil a 24VDC Te 20°C a ED100% [°C]	Weight [g]
Without LED	**722113330000**	without	12 VDC	0.7	0.6	3 to 7	9	93	12
	722113330100	with	12 VDC	0.7	0.6	3 to 7	9	93	12
	722113340000	without	24 VDC	0.7	0.6	3 to 7	9	93	12
	722113340100	with	24 VDC	0.7	0.6	3 to 7	9	93	12
With LED	**722113531000**	without	12 VDC	0.8	0.6	3 to 7	9	93	12
	722113531100	with	12 VDC	0.8	0.6	3 to 7	9	93	12
	722113541000	without	24 VDC	0.8	0.6	3 to 7	9	93	12
	722113541100	with	24 VDC	0.8	0.6	3 to 7	9	93	12
SPEED-UP and LED	**722116841000**	without	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722116841100	with	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722116941000	without	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12
	722116941100	with	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12

PLT-10 WITH BASE AND PLUG-IN CONNECTION ON OPPOSITE SIDES

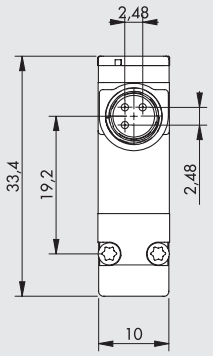


Version 3/2 NC	Code	Manuale	Voltage [Volt]	Power [Watt]	Through Ø [mm]	Operating press. [bar]	Flow rate at 6 bar ΔP=1 bar [Nl/min]	Tmax coil a 24VDC Te 20°C a ED100% [°C]	Weight [g]
Without LED	**722213330000**	without	12 VDC	0.7	0.6	3 to 7	9	93	12
	722213330100	with	12 VDC	0.7	0.6	3 to 7	9	93	12
	722213340000	without	24 VDC	0.7	0.6	3 to 7	9	93	12
	722213340100	with	24 VDC	0.7	0.6	3 to 7	9	93	12
With LED	**722213531000**	without	12 VDC	0.8	0.6	3 to 7	9	93	12
	722213531100	with	12 VDC	0.8	0.6	3 to 7	9	93	12
	722213541000	without	24 VDC	0.8	0.6	3 to 7	9	93	12
	722213541100	with	24 VDC	0.8	0.6	3 to 7	9	93	12
SPEED-UP e LED	**722216841000**	without	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722216841100	with	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722216941000	without	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12
	722216941100	with	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12

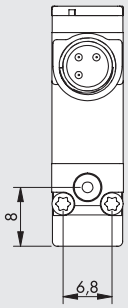
METAL WORK PNEUMATIC

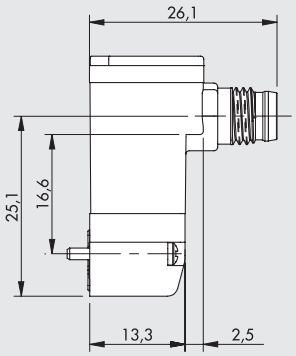
PLT-10 WITH BASE AND M8 CONNECTION ON OPPOSITE SIDES

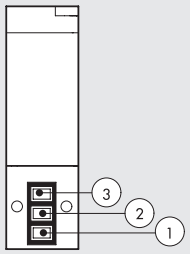
WITHOUT MANUAL

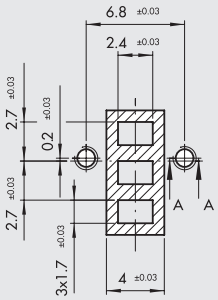


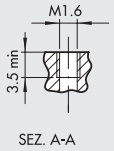
WITH MANUAL



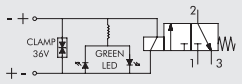
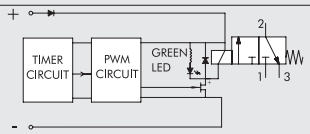








1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

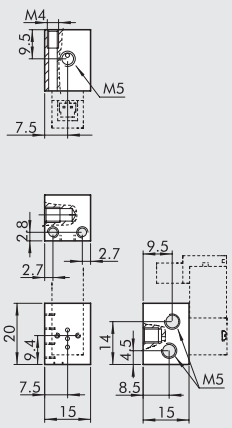
Version 3/2 NC		Code	Manual	Voltage [Volt]	Power [Watt]	Through Ø [mm]	Operating press. [bar]	Flow rate at 6 bar ΔP=1 bar [Nl/min]	Tmax coil a 24VDC Te 20°C a ED100% [°C]	Weight [g]
With LED		**7222M3541000**	without	24 VDC	0.8	0.6	3 to 7	9	93	12
		7222M3541100	with	24 VDC	0.8	0.6	3 to 7	9	93	12
SPEED-UP and LED		**7222M6941000**	without	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12
		7222M6941100	with	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12

KEY TO CODES

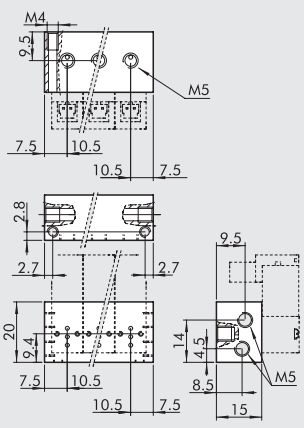
7 2 2	1	1	3	3	4	0	1	00
FAMILY	**POSITIONING**	**POWER CONNECTION**	**Ø THROUGH**	**POWER**	**VOLTAGE**	**LED**	**MANUAL CONTROL**	**VERSION**
Solenoid valves series "PLT-10"	**1** Base and connection on same side	**1** Plug-in	**3** 0.6 mm	**3** 0.7 W	**3** 12 VDC	**0** -	**0** -	**00** Standard
	2 Base and connection opposite sides		**6** 1.2 mm	**5** 0.8 W	**4** 24 VDC	**1** LED	**1** Manual monostable	
	2 Base and connection opposite sides	**M** M8x1		**8** 3/0.3 W				
				9 4.2/0.7 W				
				5 0.8 W	**4** 24 VDC	**1** LED		
				9 4.2/0.7 W				

MULTIPLE BASES FOR PLT-10

1 POSITION



+ POSITIONS

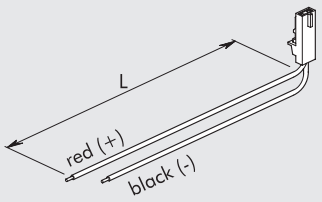


Code	Description
W0400100101	Base 1 position for PLT-10
W0400100102	Base 2 positions for PLT-10
W0400100103	Base 3 positions for PLT-10
W0400100104	Base 4 positions for PLT-10
W0400100105	Base 5 positions for PLT-10
W0400100106	Base 6 positions for PLT-10
W0400100107	Base 7 positions for PLT-10
W0400100108	Base 8 positions for PLT-10
W0400100109	Base 9 positions for PLT-10
W0400100110	Base 10 positions for PLT-10

N.B.: For multiple manifold bases with PLT-10 M8 connection, only use straight connectors code 02400A___

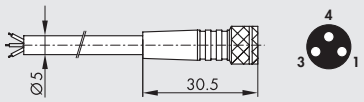
ACCESSORIES

PLUG-IN CONNECTOR



Code	Description
W0970512000	Mach 11 plug-in connector L = 300 mm
W0970512007	Mach 11 plug-in connector L = 1 m
W0970512002	Mach 11 plug-in connector L = 2 m

M8 STRAIGHT CONNECTOR WITH CABLE

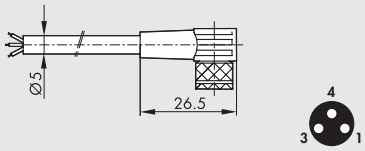


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400A0100	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m
02400A0250	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m
02400A0500	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m
02400A1000	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTOR WITH CABLE

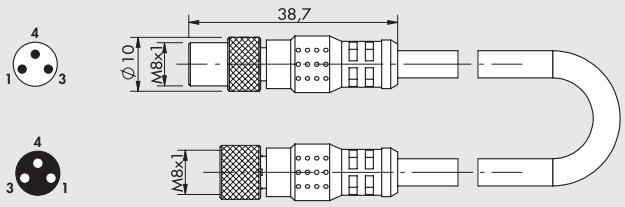


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400B0100	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m
02400B0250	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m
02400B0500	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m
02400B1000	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228
N.B.: cannot be used on multiple manifold bases W0400100__

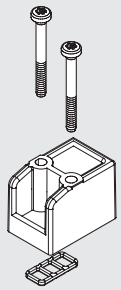
M8 M - M8 F CONNECTOR



Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Note: Can be used for direct connection to the modules with digital OUTPUT of the EB 80 valves

CAP FOR UNUSED POSITION

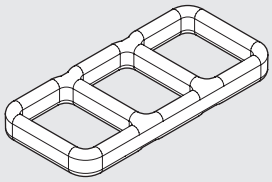


Code	Description	Weight [g]
W0400100200	Cap 10 mm	6

NOTES

SPARE PARTS

INTERFACE GASKET



Code	Description
0226009701	PLT-10 gasket

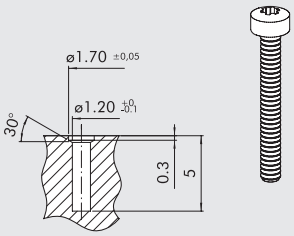
N.B.: 50 for pack

STANDARD SECURING SCREW (FOR ALUMINIUM)

Code	Description
0226009702	PLT-10 screw for aluminium

N.B.: 100 for pack

SECURING SCREWS FOR TECHNOPOLYMER



Code	Description
0226009703	Screw PLT-10 for technopolymer

N.B.: 100 for pack

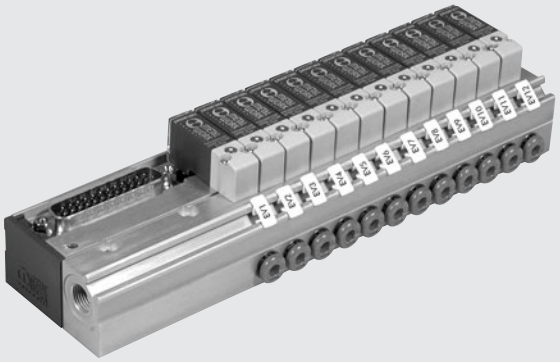
When mounting on technopolymer bodies, use these screws instead of the ones supplied with the PLT-10.

ATTENTION: approximative dimensions for not added glass plastic materials It's always advisable to effect assembling tests.

NOTES

BASES FOR PLT-10 MULTIPLE CONNECTION

Series PLT-10 solenoid valves can be mounted on bases complete with electrical and pneumatic connections, from 4 to 24 positions. The electric contacts of each valve are linked to a single multiple connector via a printed circuit board.
The connector has 9 pins or 25 pins, depending on the model and the number of valves that can be mounted. **Versions with 25-pin connectors can interface with standard field buses by means of Profibus-DP modules for Multimach (see page B2**.179).
The compressed-air supply is common to all the valves and can be provided on either side of the base by means of a 1/8" fitting.
Connection to the utilities is via automatic integrated cartridges for Ø 4 pipe.
The solenoid valve outlet is free, in a slot in the base.
The bases can be secured from above using M3 screws, or on a DIN bar using a bracket (see accessories).
The bases can mount various types of PLT-10 solenoid valves:
3/2 NC, 3/2 NO, with or without a manual actuator.
With this modular system, you can select the desired sequence of valves (NC, NO, blind) and change it at any time.

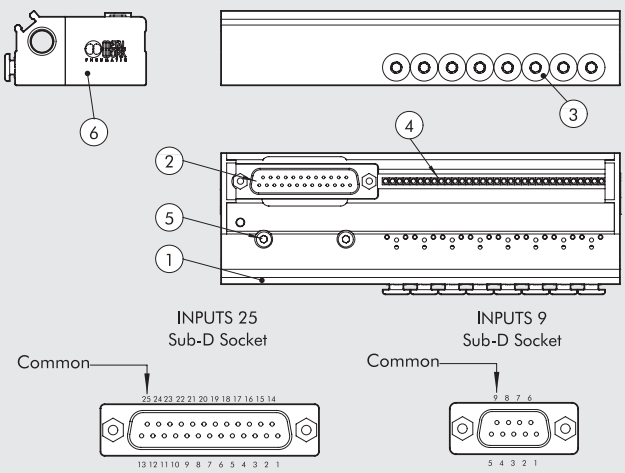


TECHNICAL DATA

Supply voltage		12 VDC or 24 VDC
Max input	W	0.7 per position for PLT-10 STD without LED
		0.9 per position for PLT-10 STD with LED
		3/0.3 per position for PLT-10 NC with Speed-up
		3/0.7 per position for PLT-10 NO with Speed-up
		4.2/0.7 per position for PLT-10 NC with Speed-up high flow
Valve actuation indicator		Led mounted on the PLT-10 (on versions of solenoid valve where envisaged)
Operating temperature range	°C	5 to 50
Protection degree (with valves and connectors mounted)		IP 40
Maximum number of mountable PLT-10s		24
Number of contacts		9, of which 1 common, for versions with 4 and 8 positions
		25, of which 1 common, for versions with 4, 8, 12, 16, 20, 24 positions

COMPONENTS

① Anodized aluminium base
② Multi-pin electrical connector
③ Automatic integrated cartridges for Ø 4 pipe
④ Electrical connectors for PLT-10 solenoid valves mounted on printed circuit board
⑤ Securing screw
⑥ Technopolymer cover



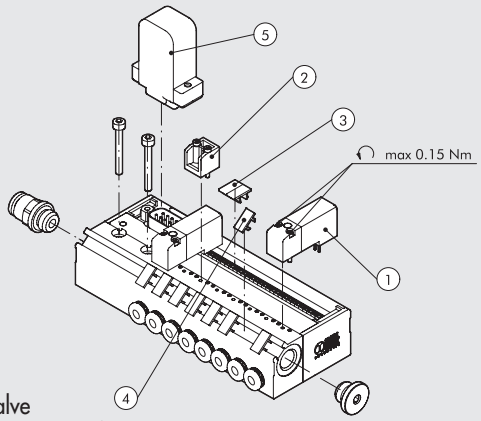
CONNECTION DIAGRAM

25 PIN		9 PIN	
Position of electrical contact	**Nr° PLT**	**Position of electrical contact**	**Nr° PLT**
1	PLT1	**1**	PLT1
2	PLT2	**2**	PLT2
3	PLT3	**3**	PLT3
4	PLT4	**4**	PLT4
5	PLT5	**5**	PLT5
6	PLT6	**6**	PLT6
7	PLT7	**7**	PLT7
8	PLT8	**8**	PLT8
9	PLT9	**9**	COMMON (-)
10	PLT10		
11	PLT11		
12	PLT12		
13	PLT13		
14	PLT14		
15	PLT15		
16	PLT16		
17	PLT17		
18	PLT18		
19	PLT19		
20	PLT20		
21	PLT21		
22	PLT22		
23	PLT23		
24	PLT24		
25	COMMON (-)		

Pilot numbering from left to right, starting from the position closest to the connection.

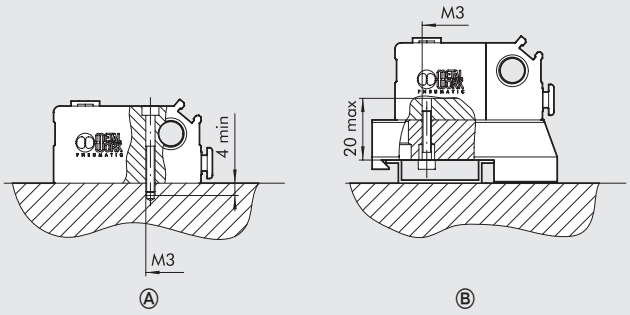
METAL WORK PNEUMATIC

ASSEMBLY OF SOLENOID VALVES AND ACCESSORIES



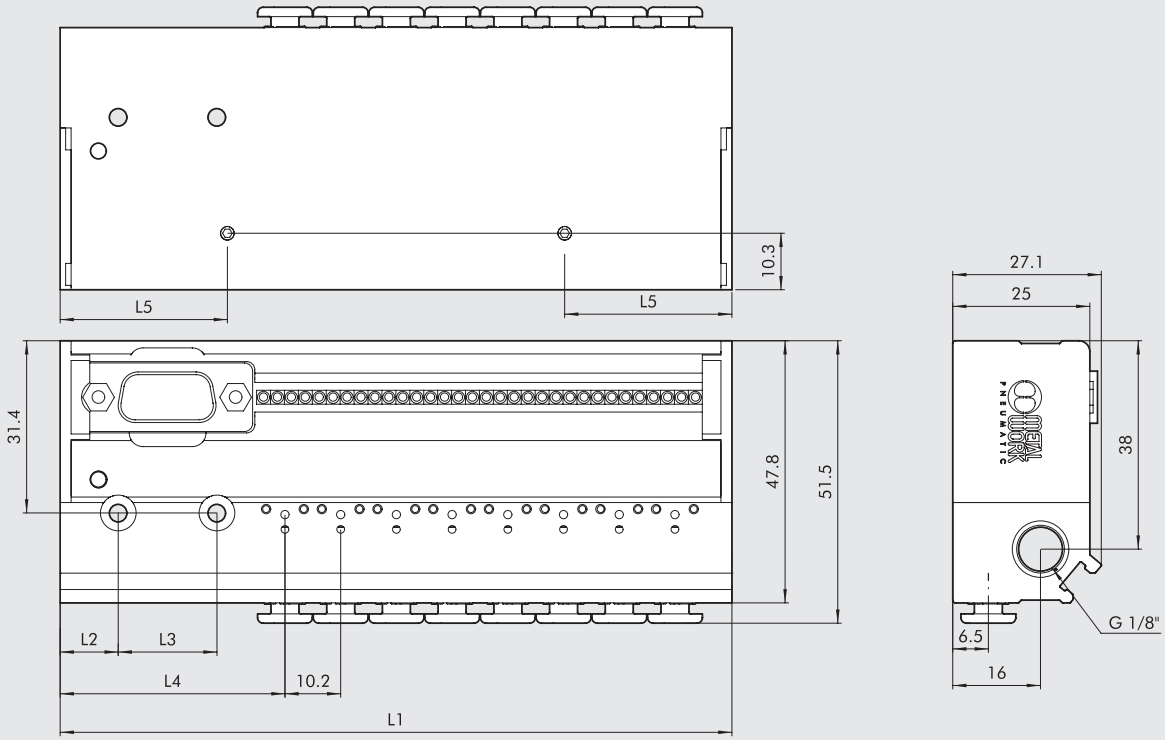
① Solenoid valve
② Pneumatic circuit cap for blind position
③ Electric circuit cap for blind position
(use two identification labels)
④ Identification label
⑤ Electrical connector

HOW TO SECURE THE BASE



Ⓐ From above using M3 screws
Ⓑ On a DIN bar, using the bracket and screws provided
The bases come with the rear holes plugged by provided dowels.

CODES AND DIMENSIONS FOR BASES 9 AND 25 PINS

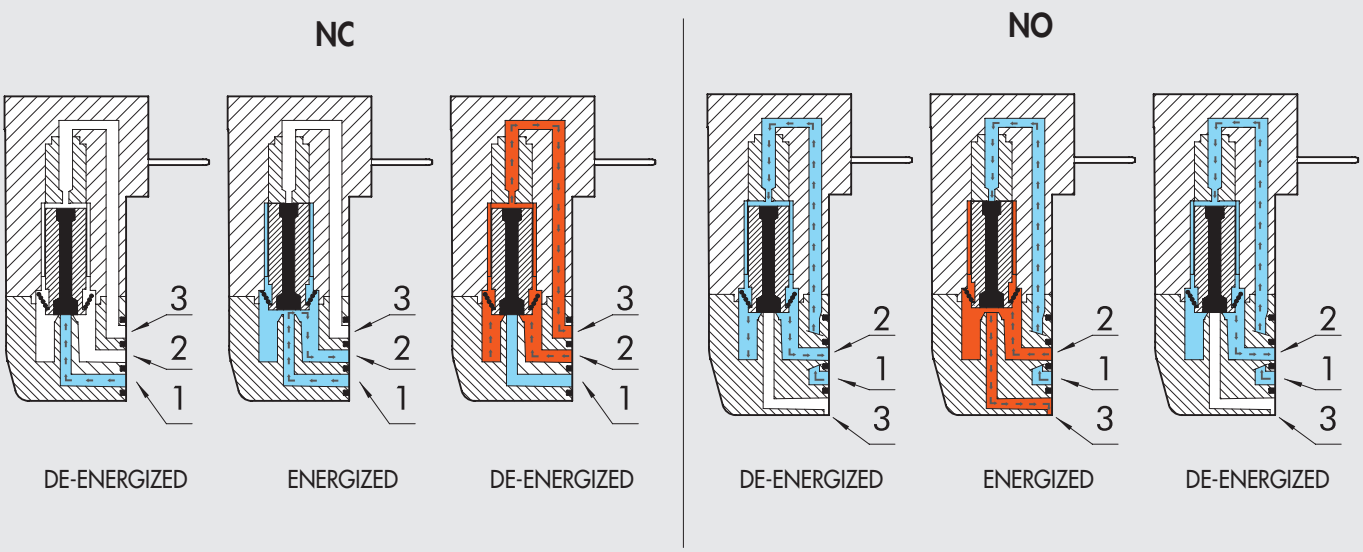


Code	Description	N° of PINS	N° of positions	L1	L2	L3	L4	L5	Weight [g]
0210040004	4-posn. base PLT 10 9-PIN mult conn.	9	4	81.9	10.6	18	41	19.6	160
0210040008	8-posn. base PLT 10 9-PIN mult conn.	9	8	122.5	10.6	18	41	19.6	235
0210240004	4-posn. base PLT 10 25-PIN mult conn.	25	4	104.8	15.5	30	63.9	30.5	210
0210240008	8-posn. base PLT 10 25-PIN mult conn.	25	8	145.4	15.5	30	63.9	30.5	280
0210240012	12-posn. base PLT 10 25-PIN mult conn.	25	12	186	15.5	30	63.9	30.5	355
0210240016	16-posn. base PLT 10 25-PIN mult conn.	25	16	226.6	15.5	30	63.9	30.5	430
0210240020	20-posn. base PLT 10 25-PIN mult conn.	25	20	267.2	15.5	30	63.9	30.5	500
0210240024	24-posn. base PLT 10 25-PIN mult conn.	25	24	307.8	15.5	30	63.9	30.5	575

PLT-10 FOR MULTIPLE ELECTRIC CONNECTION

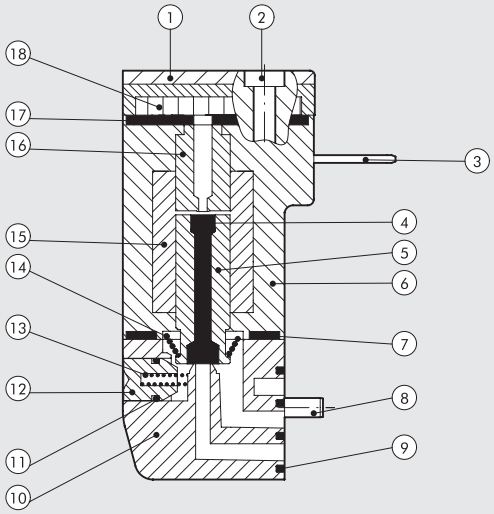
TECHNICAL DATA		NC	NO
Type		3/2 NC ed NO	
Operating temperature range (Te)	°C	5 to 50	
Fluid temperature (Tg)	°C	5 to 50	
Fluid		Filtered, lubricated or unlubricated air	
Operating life		Over 50 million cycles	
Weight	g	12	
Voltage tolerance	ΔV	± 10 %	
Max operating frequency	f	30 Hz	
Switching factor	ED	100 %	
Insulation class		F155	
Degree of protection		IP 51	IP 50

OPERATING CHART



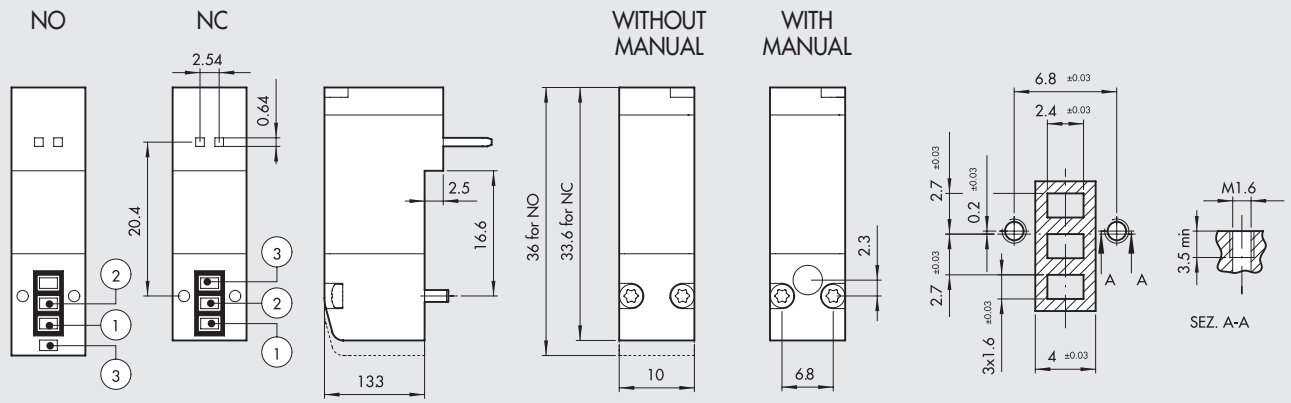
COMPONENTS

① TRANSPARENT COVER: PA612-transparent
② ASSEMBLY SCREWS: zinc-plated steel
③ PIN
④ MOBILE CORE OVER-STAMPING: FKM/FPM
⑤ MOBILE CORE: AISI 403F
⑥ COIL OVER-STAMPING: PA66
⑦ BODY-COIL GASKET: NBR70
⑧ ASSEMBLY SCREWS: zinc-plated steel
⑨ BODY GASKET: NBR
⑩ BODY: PA66
⑪ MANUAL GASKET: NBR (only for version with manual operated)
⑫ MANUAL CONTROL: AISI 303 (only for version with manual operated)
⑬ MANUAL SPRING: AISI 302 (only for version with manual operated)
⑭ SPRING: AISI 302
⑮ WINDING: PPS - Copper wire
⑯ FIXED CORE: AISI 430F
⑰ COIL-COVER GASKET: NBR
⑱ ELECTRONIC BOARD (only for version with electronic board)



METAL WORK PNEUMATIC

PLT-10 NC-NO FOR MULTIPLE ELECTRIC CONNECTION



Version (3/2 NC)	Code	Manual	Voltage [Volt]	Power [Watt]	Ø Through [mm]	Operating pressure [bar]	Flow rate at 6 ΔP=1 bar [Nl/min]	T Max coil T at 24VDC Te 20°C a ED100% [°C]	Weight [g]
Without LED	**722123330000**	without	12 VDC	0.7	0.6	3 to 7	9	93	12
	722123330100	with	12 VDC	0.7	0.6	3 to 7	9	93	12
	722123340000	without	24 VDC	0.7	0.6	3 to 7	9	93	12
	722123340100	with	24 VDC	0.7	0.6	3 to 7	9	93	12
With LED	**722123531000**	without	12 VDC	0.8	0.6	3 to 7	9	93	12
	722123531100	with	12 VDC	0.8	0.6	3 to 7	9	93	12
	722123541000	without	24 VDC	0.8	0.6	3 to 7	9	93	12
	722123541100	with	24 VDC	0.8	0.6	3 to 7	9	93	12
SPEED-UP and LED	**722126841000**	without	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722126841100	with	24 VDC	3/0.3	1.2	2 to 7	16	51	12
	722126941000	without	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12
	722126941100	with	24 VDC	4.2/0.7	1.2	2 to 7	30	51	12

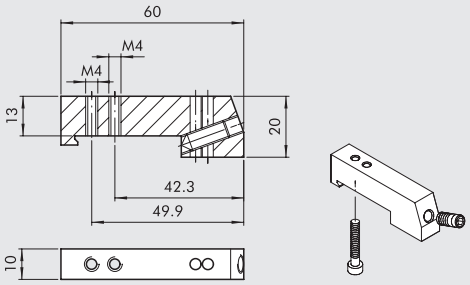
Version (3/2 NO)	Code	Manual	Voltage [Volt]	Power [Watt]	Ø Through [mm]	Operating pressure [bar]	Flow rate at 6 ΔP=1 bar [Nl/min]	T Max coil T at 24VDC Te 20°C a ED100% [°C]	Weight [g]
SPEED-UP and LED	**722126841010**	without	24 VDC	3/0.7	1.0	2 to 7	14	51	12
	722126841110	with	24 VDC	3/0.7	1.0	2 to 7	14	51	12

KEY TO CODES

7 2 2	1	2	3	3	4	0	1	0	0
FAMILY	**POSITIONING**	**POWER CONNECTION**	**Ø THROUGH**	**POWER**	**VOLTAGE**	**LED**	**MANUAL CONTROL**	**VERSION**	
Solenoid valves series "PLT-10"	**1** Base and connection on same side	**2** for multiple base	**3** 0.6 mm **6** 1.2 mm	**3** 0.7 W **5** 0.8 W **8** 3/0.3 W for NC 3/0.7 W for NO **9** 4.2/0.7 W	**3** 12 VDC **4** 24 VDC	**0** - **1** LED	**0** - **1** manual monostable	**0** NC **1** NO	**0** Standard

ACCESSORIES

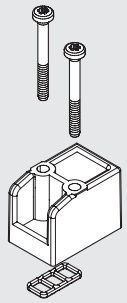
CONNECTION BRACKETS ON BAR OMEGA (DIN EN 50022)



Code	Description	Weight [g]
0227301610	Connection brackets on din BAR for bases PLT-10	30

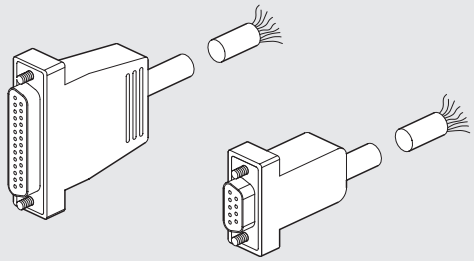
Supplied complete with one M3x20 screws and one M6 grub screw
Individually packed

CAP FOR UNUSED POSITION



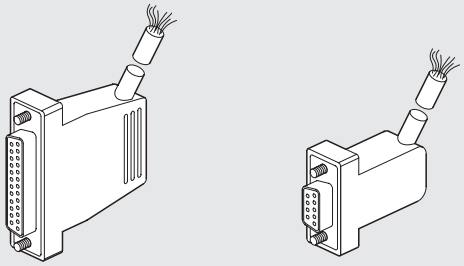
Code	Description	Weight [g]
W0400100200	Cap 10 mm	6

STRAIGHT PRE-WIRED CONNECTOR KIT



Code	Description	Weight [g]
0226900100	Straight D-Sub 9-PIN connector + cable L = 1 m	80
0226900250	Straight D-Sub 9-PIN connector + cable L = 2.5 m	170
0226900500	Straight D-Sub 9-PIN connector + cable L = 5 m	320
0226900750	Straight D-Sub 9-PIN connector + cable L = 7.5 m	470
0226901000	Straight D-Sub 9-PIN connector + cable L = 10 m	620
0226901500	Straight D-Sub 9-PIN connector + cable L = 15 m	920
0226902000	Straight D-Sub 9-PIN connector + cable L = 20 m	1220
0226905000	Straight D-Sub 9-PIN connector + cable L = 50 m	3020
0226920100	Straight D-Sub 25-PIN connector + cable L = 1 m	132
0226920250	Straight D-Sub 25-PIN connector + cable L = 2.5 m	320
0226920500	Straight D-Sub 25-PIN connector + cable L = 5 m	636

PRE-WIRED 90° CONNECTOR

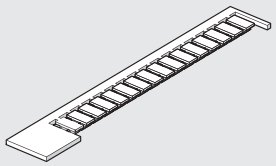


Code	Description	Weight [g]
0226910100	90° D-Sub 9-PIN connector + cable L = 1 m	80
0226910250	90° D-Sub 9-PIN connector + cable L = 2.5 m	170
0226910500	90° D-Sub 9-PIN connector + cable L = 5 m	320
0226910750	90° D-Sub 9-PIN connector + cable L = 7.5 m	470
0226911000	90° D-Sub 9-PIN connector + cable L = 10 m	620
0226911500	90° D-Sub 9-PIN connector + cable L = 15 m	920
0226930100	90° D-Sub 25-PIN connector + cable L = 1 m	132
0226930250	90° D-Sub 25-PIN connector + cable L = 2.5 m	320
0226930500	90° D-Sub 25-PIN connector + cable L = 5 m	636

WIRING DIAGRAM FOR PRE-WIRED PLUG CONNECTORS

25 PIN						9 PIN	
Position of electrical contact	Colour of the corresponding wire	Position of electrical contact	Colour of the corresponding wire	Position of electrical contact	Colour of the corresponding wire	Position of electrical contact	Colour of the corresponding wire
1	blue/black	10	brown/white	19	yellow/black	1	green/black
2	red/brown	11	red/orange	20	white	2	white
3	white/black	12	light blue	21	blue/white	3	blue/black
4	red/blue	13	yellow/white	22	brown	4	blue
5	black/orange	14	yellow	23	green/white	5	yellow/black
6	yellow/red	15	red/green	24	red	6	yellow
7	black/brown	16	orange	25	green/black	7	red/black
8	white/red	17	orange/white			8	green
9	red/black	18	green			9	white/black

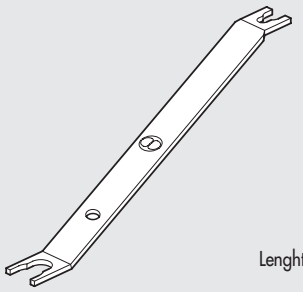
IDENTIFICATION PLATE KIT



Code	Description	Weight [g]
0226107000	Identification plate kit	30

Comes in 16-pc. packs

R17 - PIPE RELEASE SPANNER



Lenght = 140 mm

Code	Description	Ø Pipe
2L17001	RL17	from Ø 3 to Ø 10

NOTES

SOLENOID VALVES PIV.M 15-mm

- 3/2 NC/NO direct control microvalves
- Possible assembly on single and multiple bases
- Monostable manual actuation as standard
- Assembly in any position
- Operation with filtered lubricated or unlubricated air
- Maximum ambient temperature: 50°C
- Low power absorption

TECHNICAL DATA

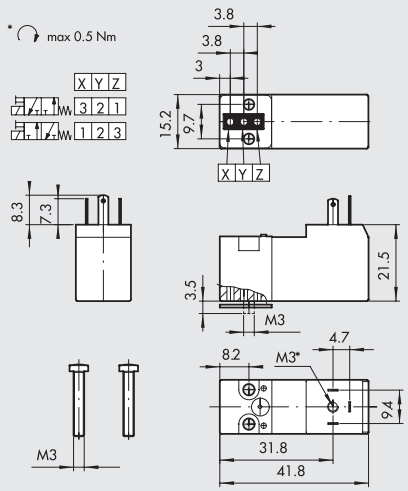
Voltage tolerance	%	–10 to +15
Alternating current frequency (AC)	Hz	50/60
Max operating frequency	Hz	30
Solenoid rating		100% ED
Response time	ms	~ 10
Type of protection		IP 65 EN 60529
Power connection		Type C industrial, 9.4 mm centre distance
Insulation class		155
Ambient temperature	°C	–10 to + 50
Fluid temperature	°C	–10 to + 50
Fluid		Filtered lubricated or unlubricated air
Operating life		100 million cycles
Materials		Body: PPS
		Spring: 302 stainless steel
		FKM/FPM gaskets
Weight	g	30
Hand operator		Monostable
Assembly position		In any position

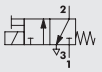
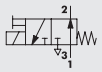
SYNOPTIC, SIZES AND VERSIONS

P I V	1	3	M	0	1	N C
FAMILY	AIR HOLE	NUMBER OF WAYS	DIMENSIONS	THREAD	VERSION	FURTHER DETAILS
	1 1 mm	**3** 3 ways	**M** 15 x 15	**0** on base	**1** 24 VDC	**NC** normally closed
	3 1.1 mm				**3** 24 VAC	**NO** normally open
	6 1.5 mm				**5** 110 VAC	
					7 220 VAC	

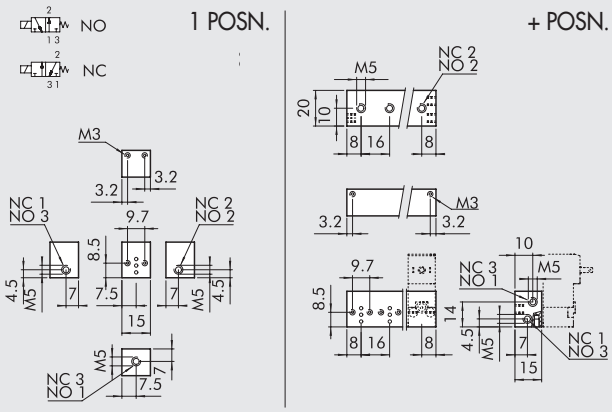
METAL WORK PNEUMATIC

PIV.M STD DIMENSIONS



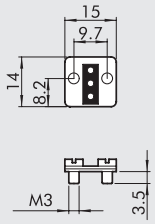
Symbol	Code	Description	Voltage [Volt]	Flow rate [Watt]	Air Ø [mm]	kv Factor	Operating press. [bar]
	W4015001000	PIV33M01 NC	24VDC	2.5W	1.1	0.42	0 to 10
	W4015001010	PIV33M03 NC	24VAC	2W - 3VA	1.1	0.42	0 to 10
	W4015001020	PIV33M05 NC	110VAC	2W - 3VA	1.1	0.42	0 to 10
	W4015001030	PIV33M07 NC	220VAC	2W - 3VA	1.1	0.42	0 to 10
	W4015001100	PIV63M01 NC	24VDC	2.5W	1.5	0.55	0 to 6
	W4015001110	PIV63M03 NC	24VAC	2W - 3VA	1.5	0.55	0 to 6
	W4015001120	PIV63M05 NC	110VAC	2W - 3VA	1.5	0.55	0 to 6
	W4015001130	PIV63M07 NC	220VAC	2W - 3VA	1.5	0.55	0 to 6
	W4015002000	PIV13M01 NO	24VDC	2.5W	1	0.33	0 to 6
	W4015002010	PIV13M03 NO	24VAC	2W - 3VA	1	0.33	0 to 6
	W4015002020	PIV13M05 NO	110VAC	2W - 3VA	1	0.33	0 to 6
	W4015002030	PIV13M07 NO	220VAC	2W - 3VA	1	0.33	0 to 6

MULTIPLE BASE FOR PIV.M



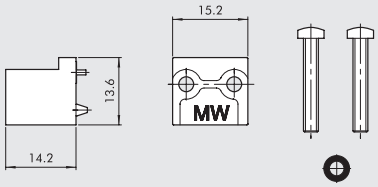
Code	Description	Abbrev.	Weight [g]
W0400101001	Single base 1 position	B5001	6
W0400101002	Multiple base 2 positions	B5002	24
W0400101003	Multiple base 3 positions	B5003	34
W0400101004	Multiple base 4 positions	B5004	46
W0400101005	Multiple base 5 positions	B5005	58
W0400101006	Multiple base 6 positions	B5006	70
W0400101007	Multiple base 7 positions	B5007	82
W0400101008	Multiple base 8 positions	B5008	98
W0400101009	Multiple base 9 positions	B5009	106
W0400101010	Multiple base 10 positions	B5010	114

END PLUG - UNUSED POSITION



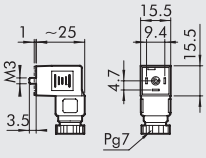
Code	Description	Weight [g]
W0400102000	End plug	6

END PLUG - PORT 1



Code	Description	Weight [g]
W0400102002	End plug – port 1	4

TYPE C INDUSTRIAL ELECTRIC CONNECTOR 15 mm



Code	Colour	Type
W0970500011	Black	Standard
W0970500012	Transparent	LED 24V
W0970500013	Transparent	LED 110V
W0970500015	Transparent	LED + VDR 24V
W0970500016	Transparent	LED + VDR 110V

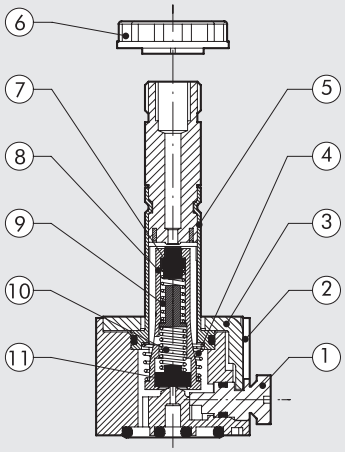
SOLENOID VALVES PIV ON BASE

- PIV.I - PIV.T and PIV.B solenoid valves
- Assembly on base
- Bistable manual actuation
- Normally closed/normally open solenoid valves 2/2 – 3/2
- Installation in any position
- Particularly suitable for high operating frequencies and low response times

TECHNICAL DATA		PIV.I ON BASE	PIV.T ON BASE	PIV.B ON BASE
Absorption		5W - 5VA	3.8W - 6.5VA	10W - 13VA
Voltage available		12-24 VDC / 24-110-220 VAC	24VDC / 24-110-220 VAC	24VDC / 24-110-220 VAC
		50/60 Hz	50/60 Hz	50/60 Hz
Voltage tolerance	%	–10 to +15	–10 to +15	–10 to +15
Max operating frequency	Hz	30	30	15
Solenoid rating	%	100	100	100
Response time	ms	8 to 15	8 to 15	10 to 15
Type of protection		IP 65	IP 65	IP 65
Type of coil		Coil side 22 Ø 8	Coil side 22 Ø 9	Coil side 30
		DIN 43650	DIN 43650	DIN 43650
Insulation class		155	155	155
Ambient temperature	°C	–15 to 50	–15 to 50	–15 to 50
Fluid temperature	°C	–15 to 50	–15 to 50	–15 to 50
Fluid		Filtered lubricated	Filtered lubricated	Filtered lubricated
		or unlubricated air	or unlubricated air	or unlubricated air
Woking life		25 million cycles	25 million cycles	–
Weight	g	80 to 120 (according to the version)	85	250
Maximum coil nut torque	Nm	1	1	1

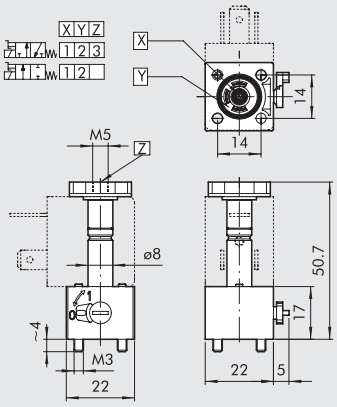
COMPONENTS

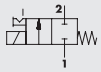
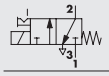
① Manual control: technopolymer
② Body: technopolymer
③ Sleeve locking plate
④ Spring: stainless steel
⑤ Sleeve: brass OT 58
⑥ Ring nut for coil fixing
⑦ Gasket: NBR
⑧ Mobile core
⑨ Spring: stainless steel
⑩ Spring: stainless steel
⑪ Gasket: NBR



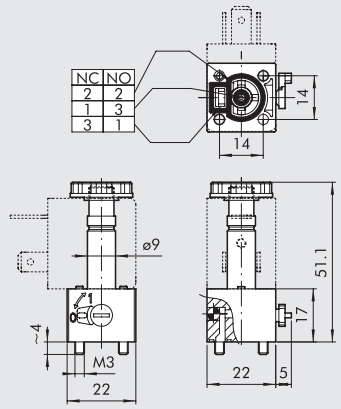
METAL WORK PNEUMATIC

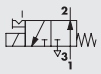
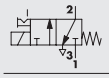
PIV.I VALVES, OPERATOR Ø 8, ON BASE



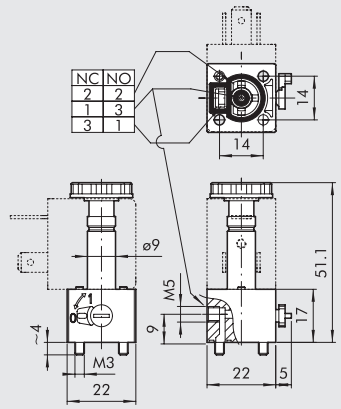
Symbol	Code	Description	Air hole Ø [mm]	kv Factor	Max oper. pressure [bar] DC 5W	AC 5VA
	W4018000200	PIV42I0S NC	1.2	0.65	10	10
	W4018000300	PIV72I0S NC	1.5	1	8	8
	W4018001200	PIV43I0S NC	1.2	0.65	10	10
	W4018001300	PIV73I0S NC	1.5	1	8	8

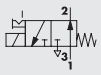
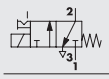
PIV.T VALVES, OPERATOR Ø 9, ON BASE



Symbol	Code	Description	Air hole Ø [mm]	kv Factor	Pressure range [bar] DC 3.8W	AC 6.5VA
	W4025002101	PIV73T0B NO	1.6	0.75	0.5 to 7	0.5 to 7
	W4025002301	PIV83T0B NO	1.8	0.85	0.5 to 6.5	0.5 to 6.5
	W4025002100	PIV73T0B NC	1.6	0.8	0.5 to 10	0.5 to 10
	W4025002300	PIV83T0B NC	1.8	1	0.5 to 8	0.5 to 8

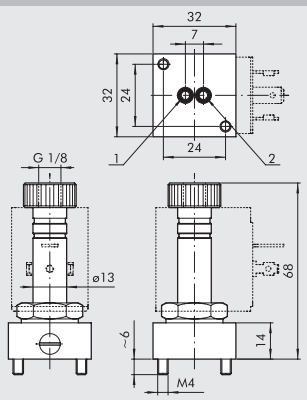
PIV.T VALVES, OPERATOR Ø 9, ON BASE WITH CONVEYED EXHAUST

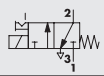


Symbol	Code	Description	Air hole Ø [mm]	kv Factor	Pressure range [bar] DC 3.8W	AC 6.5VA
	W4025002001	PIV73T00 NO	1.6	0.75	0.5 to 7	0.5 to 7
	W4025002501	PIV83T00 NO	1.8	0.85	0 to 6	0.5 to 6.5
	W4025002000	PIV73T00 NC	1.6	0.8	0.5 to 10	0.5 to 10
	W4025002500	PIV83T00 NC	1.8	1	0.5 to 8	0.5 to 8

PIV.B VALVES, OPERATOR Ø 13, ON BASE

NORMALLY CLOSED



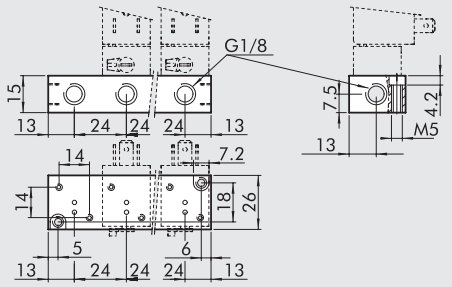
Symbol	Code	Description	Air hole Ø [mm]	kv Factor	Max oper. pressure [bar] DC 10W	AC 13VA
	W4026003000	PIVY3B0S NC	2.4	2.2	8	10

SYNOPTIC, SIZES AND VERSIONS

P I V FAMILY	7 AIR HOLE	3 NUMBER OF WAYS	T CONNECTION	0 THREAD	0 VERSION	N C FURTHER DETAILS
	4 1.2 mm **7** 1.5 / 1.6 mm **8** 1.8 mm **Y** 2.4 mm	**2** 2 ways **3** 3 ways	**I** 22x22 operator Ø 8 **T** 22x22 operator Ø 9 **B** 30x30 operator Ø 13	**0** on base	**0** on base with conveyed exhaust **B** on base **S** standard	**NC** normally closed **NO** normally open

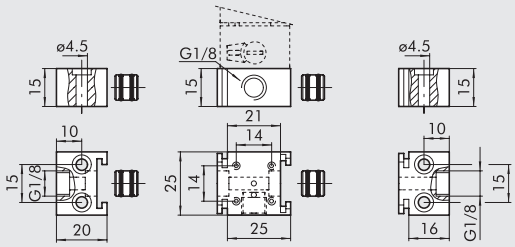
ACCESSORIES

MULTIPLE BASES FOR PIV.I SOLENOID VALVES, OPERATOR Ø 8



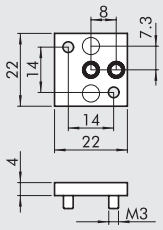
Code	Description	Abbrev.	Weight [g]
W0400111101	Base 1 position	EB 6001	22
W0400111102	Base 2 positions	EB 6002	50
W0400111103	Base 3 positions	EB 6003	76
W0400111104	Base 4 positions	EB 6004	102
W0400111105	Base 5 positions	EB 6005	128
W0400111106	Base 6 positions	EB 6006	154
W0400111107	Base 7 positions	EB 6007	180
W0400111108	Base 8 positions	EB 6008	206
W0400111109	Base 9 positions	EB 6009	232
W0400111110	Base 10 positions	EB 6010	258

MANIFOLD BASES FOR PIV.I SOLENOID VALVES, OPERATOR Ø 8



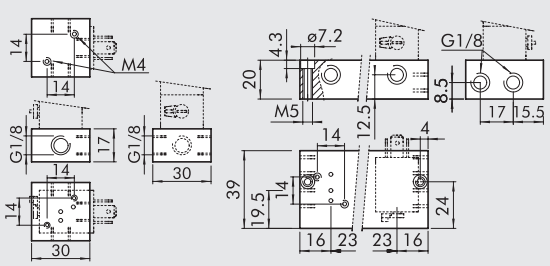
Code	Description	Abbrev.	Weight [g]
W0400111200	Manifold base	EB 8000 I	24
W0400111201	LH end plate	EB 8000 TI	17
W0400111202	RH end plate	EB 8000 T2	15

BLANKING PLATE FOR PIV.I PIV.T VALVES, UNUSED POSITION



Code	Description	Abbrev.	Weight [g]
W0400112000	Unused position	B 6000	5

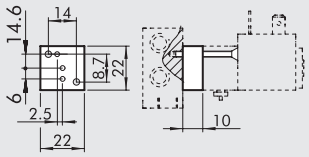
MULTIPLE BASES FOR PIV.T SOLENOID VALVES, OPERATOR Ø 9



Code	Description	Abbrev.	Weight [g]
W0400101101	Base 1 position	19001	36
W0400101102	Base 2 positions	19002	104
W0400101103	Base 3 positions	19003	148
W0400101104	Base 4 positions	19004	192
W0400101105	Base 5 positions	19005	236
W0400101106	Base 6 positions	19006	280
W0400101107	Base 7 positions	19007	324
W0400101108	Base 8 positions	19008	368
W0400101109	Base 9 positions	19009	452
W0400101110	Base 10 positions	19010	456

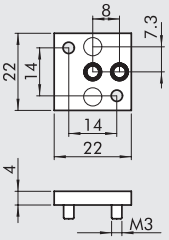
METAL WORK PNEUMATIC

NC/NO ADAPTER FOR PIV.T VALVES



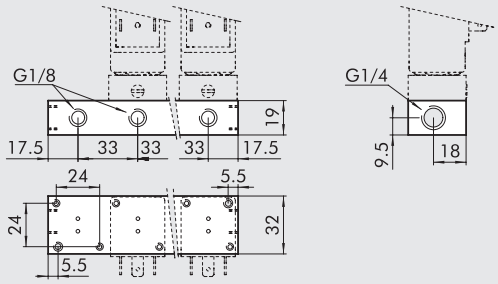
Code	Description	Abbrev.	Weight [g]
W0400101190	NC/NO adapter	I-9000	15

BASE BLANKING PLATE FOR PIV.T VALVES, UNUSED POSITIONS



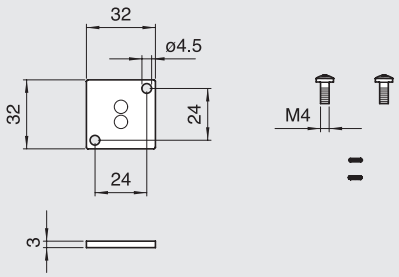
Code	Description	Abbrev.	Weight [g]
W0400112000	Blanking plate	B6000	5

MULTIPLE BASES FOR PIV.B VALVES



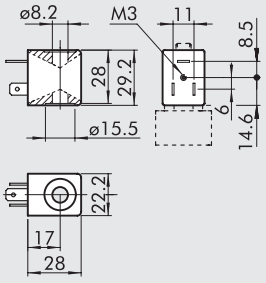
Code	Description	Abbrev.	Weight [g]
W0400101201	Base 1 position	B4001	42
W0400101202	Base 2 positions	B4002	94
W0400101203	Base 3 positions	B4003	142
W0400101204	Base 4 positions	B4004	188
W0400101205	Base 5 positions	B4005	234
W0400101206	Base 6 positions	B4006	280
W0400101207	Base 7 positions	B4007	326
W0400101208	Base 8 positions	B4008	372
W0400101209	Base 9 positions	B4009	418

BASE BLANKING PLATE FOR PIV.B VALVES, UNUSED POSITIONS



Code	Description	Weight [g]
W0400112001	Blanking plate	14

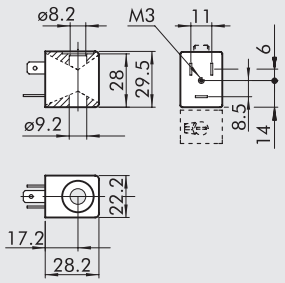
COILS, SIDE 22 mm FOR PIV.I SOLENOID VALVES, OPERATOR Ø 8



- Voltage tolerance: –10 to +15%
- Insulation class: F155
- Degree of protection: IP65 – EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents.
- Maximum coil temperature at 100% use: 70°C at 20° ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000051	Coil 22 Ø 8 5W-12VDC	12Vcc	5W	5W
W0215000001	Coil 22 Ø 8 5W-24VDC	24Vcc	5W	5W
W0215000011	Coil 22 Ø 8 5VA-24VAC	24V 50/60Hz	8VA	5VA
W0215000021	Coil 22 Ø 8 5VA-110VAC	110V 50/60Hz	8VA	5VA
W0215000031	Coil 22 Ø 8 5VA-220VAC	220V 50/60Hz	8VA	5VA

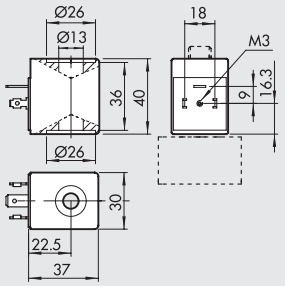
COILS, SIDE 22 mm FOR PIV.T SOLENOID VALVES, OPERATOR Ø 9



- Voltage tolerance: –10 to +15%
- Insulation class: F155
- Degree of protection: IP65 – EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Maximum coil temperature at 100% use: 70°C at 20° ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0216000001	Coil 22 Ø9 3.8W-24VDC	24Vcc	3.8W	3.8W
W0216000011	Coil 22 Ø9 6.5VA-24VAC	24V 50/60Hz	9VA	6.5VA
W0216000021	Coil 22 Ø9 6.5VA-110VAC	110V 50/60Hz	9VA	6.5VA
W0216000031	Coil 22 Ø9 6.5VA-220VAC	220V 50/60Hz	9VA	6.5VA

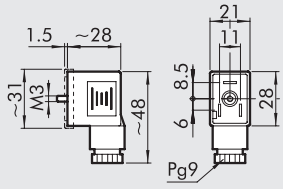
COILS, SIDE 30 mm FOR PIV.B SOLENOID VALVES



- Voltage tolerance: –10 to +15%
- Insulation class: M180
- Degree of protection: IP65 – EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 - A

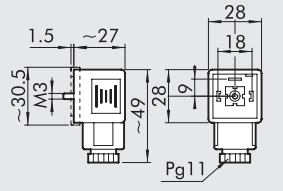
Code	Abbrev.	Nominal voltage	Power absorption (average power input)
W0216001001	Coil 30 Ø13 10W-24VDC	24Vcc	10W
W0216001011	Coil 30 Ø13 13VA-24VAC	24V 50/60Hz	13VA
W0216001021	Coil 30 Ø13 13VA-110VAC	110V 50/60Hz	13VA
W0216001031	Coil 30 Ø13 13VA-220VAC	220V 50/60Hz	13VA

CONNECTORS, SIDE 22 mm DIN 43650 B-IND FOR PIV.I-PIV.T



Code	Type	Colour	Ø Cable
W0970510011	Standard	Black	PG9
W0970510012	LED 24V	Transparent	PG9
W0970510013	LED 110V	Transparent	PG9
W0970510014	LED 220V	Transparent	PG9
W0970510015	LED + VDR 24V	Transparent	PG9
W0970510016	LED + VDR 110V	Transparent	PG9
W0970510017	LED + VDR 220V	Transparent	PG9
W0970510070	Atex II 2 GD	Black	PG9

CONNECTORS, SIDE 30 mm DIN 43650-A FOR PIV.B



Code	Type	Colour	Ø Cable
W0970520033	Standard	Black	PG11
W0970520034	LED 24V	Transparent	PG11
W0970520035	LED 110V	Transparent	PG11
W0970520036	LED 220V	Transparent	PG11
W0970520037	LED + VDR 24V	Transparent	PG11
W0970520038	LED + VDR 110V	Transparent	PG11
W0970520039	LED + VDR 220V	Transparent	PG11

SOLENOID VALVES PIV IN LINE

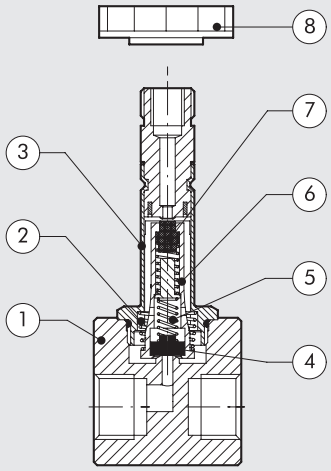
METAL WORK PNEUMATIC

- PIV.I – PIV.B in-line solenoid valves
- Threaded ports: M5, G1/8", G1/4"
- 2/2 – 3/2 solenoid valves - normally closed/normally open
- Installation in any position
- Particularly suitable for high operating frequencies and low response times.

TECHNICAL DATA		PIV.I IN LINE	PIV.B IN LINE
Absorption		5W to 5VA	10W - 13VA
Voltage available		12; 24VDC - 24; 110; 220VAC 50/60Hz	24VDC - 24; 110; 220VAC 50/60 Hz
Voltage tolerance	%	–10 to 15	–10 to 15
Max operating frequency	Hz	30	15
Solenoid rating	%	100	100
Response time	ms	8 to 15	10 to 15
Type of protection		IP 65	IP 65
Type of coil		Coil side 22 Ø 8 DIN 43650	Coil side 30 DIN 43650
Insulation class		155	155
Ambient temperature	°C	–15 to 50	–15 to 50
Fluid temperature	°C	–15 to 50	–15 to 50
Fluid		Filtered lubricated or unlubricated air	Filtered lubricated or unlubricated air
Working life		25 million cycles	–
Weight		35 to 40 (depending on version)	130
Maximum coil/nut torque	Nm	1	1
Note on use:			
The 2/2 NC and 2/2 NO valves work only			
with inlet pressure ≥ outlet pressure.			

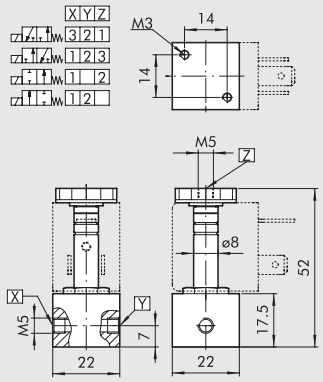
COMPONENTS

① Body: aluminium
② Springs: steel
③ Sleeve
④ Gasket: NBR
⑤ Springs: steel
⑥ Mobile core
⑦ Gasket: FKM/FPM
⑧ Coil locking ring

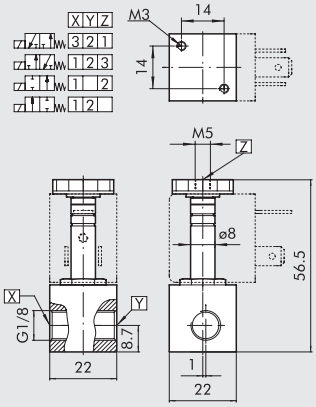


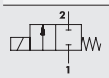
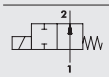
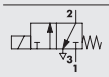
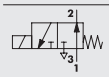
PIV.I VALVES, OPERATOR Ø 8 mm, IN LINE – M5 – 1/8"

M5

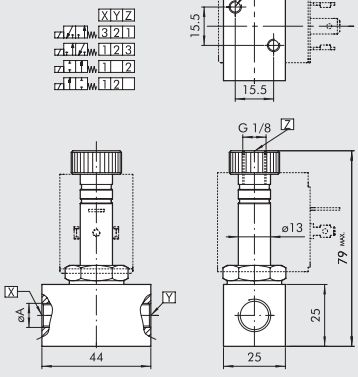


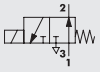
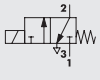
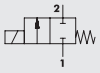
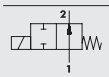
1/8"



Symbol	Code	Description	Input thread	Air hole Ø [mm]	kv Factor	Max oper. pressure [bar] DC 5W	Max oper. pressure [bar] AC 5VA
	**W4017000100**	PIV42I5S NC	M5	1.2	0.65	30	30
	W4017001300	PIV92I8S NC	G1/8"	2.4	2	6	7
	W4017001100	PIV42I8S NC	G1/8"	1.2	0.65	30	30
	W4017001200	PIV72I8S NC	G1/8"	1.6	1.2	15	14
	**W4017000101**	PIV72I5S NO	M5	1.4	0.8	10	10
	W4017001201	PIV72I8S NO	G1/8"	1.4	0.8	10	10
	**W4017003100**	PIV43I5S NC	M5	1.2	0.65	10	10
	W4017004100	PIV43I8S NC	G1/8"	1.2	0.65	10	10
	W4017004200	PIV73I8S NC	G1/8"	1.6	1	6.5	6.5
	**W4017004201**	PIV73I8S NO	G1/8"	1.4	0.7	6	7

PIV.B VALVES, OPERATOR Ø 13, IN LINE



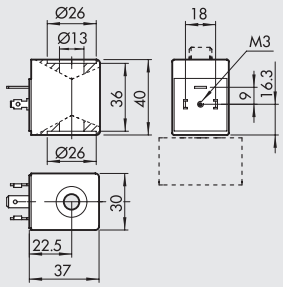
Symbol	Code	Description	Input thread	Ø Air hole [mm]	kv Factor	Max oper. pressure [bar] DC 10W	Max oper. pressure [bar] AC 13VA
	**W4026005001**	PIV73B8S NO	G1/8"	1.6	1.2	6	12
	W4026005101	PIV73B4S NO	G1/4"	1.6	1.2	6	12
	W4026005111	PIV93B4S NO	G1/4"	2.4	2	3	4
	**W4026005010**	PIV93B8S NC	G1/8"	2.4	2.8	8	10
	W4026005020	PIVW3B8S NC	G1/8"	3	4	5.5	6
	W4026005000	PIV73B8S NC	G1/8"	1.6	1.4	14	17
	W4026005100	PIV73B4S NC	G1/4"	1.6	1.4	14	17
	W4026005110	PIV93B4S NC	G1/4"	2.4	2.8	8	8
	W4026005120	PIVW3B4S NC	G1/4"	3	4	5.5	6
	**W4026004000**	PIV92B4S NC	G1/4"	2.4	3	15	30
	W4026004010	PIVX2B4S NC	G1/4"	4	7	6	12
	W4026004020	PIVZ2B4S NC	G1/4"	6	9	1.5	5
	**W4026004001**	PIV92B4S NO	G1/4"	2.4	2.6	13	15

SYNOPTIC, SIZES AND VERSIONS

P I V FAMILY	7 AIR HOLE	2 NUMBER OF WAYS	B CONNECTION	4 THREAD	S VERSION	N C FURTHER DETAILS
	4 1.2 mm **7** 1.6 mm **9** 2.4 mm **W** 3 mm **X** 4 mm **Z** 6 mm	**2** 2 ways **3** 3 ways	**I** 22 x 22 operator Ø 8 **B** 30 x 30 operator Ø 13	**5** M5 **4** G1/4" **8** G1/8"	**S** standard	**NC** normally closed **NO** normally open

ACCESSORIES

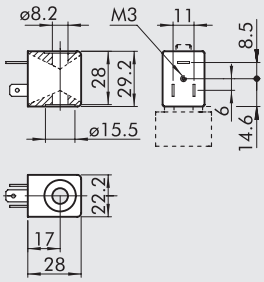
COIL, SIDE 30 mm - FOR PIV.B SOLENOID VALVES



- Voltage tolerance: –10 to +15%
- Insulation class: M180
- Degree of protection: IP65 – EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 - A

Code	Abbrev.	Nominal voltage	Absorption (average)
W0216001001	Coil 30 Ø13 10W-24VDC	24Vcc	10W
W0216001011	Coil 30 Ø13 13VA-24VAC	24V 50/60Hz	13VA
W0216001021	Coil 30 Ø13 13VA-110VAC	110V 50/60Hz	13VA
W0216001031	Coil 30 Ø13 13VA-220VAC	220V 50/60Hz	13VA

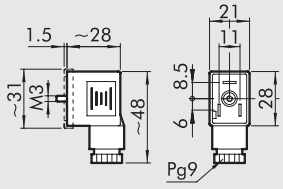
COIL, SIDE 22 mm - FOR PIV.I SOLENOID VALVES



- Voltage tolerance: –10 to +15%
- Insulation class: F155
- Degree of protection: IP65 – EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Maximum temperature of coil at 100% use: 70°C at 20° ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

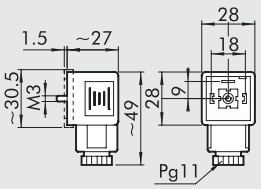
Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000051	Coil 22 Ø8 5W-12VDC	12Vcc	5W	5W
W0215000001	Coil 22 Ø8 5W-24VDC	24Vcc	5W	5W
W0215000011	Coil 22 Ø8 5VA-24VAC	24V 50/60Hz	8VA	5VA
W0215000021	Coil 22 Ø8 5VA-110VAC	110V 50/60Hz	8VA	5VA
W0215000031	Coil 22 Ø8 5VA-220VAC	220V 50/60Hz	8VA	5VA

CONNECTOR, SIDE 22 mm DIN 43650 B-IND



Code	Type	Colour	Ø Cable
W0970510011	Standard	Black	PG9
W0970510012	LED 24V	Transparent	PG9
W0970510013	LED 110V	Transparent	PG9
W0970510014	LED 220V	Transparent	PG9
W0970510015	LED + VDR 24V	Transparent	PG9
W0970510016	LED + VDR 110V	Transparent	PG9
W0970510017	LED + VDR 220V	Transparent	PG9
W0970510070	Atex II 2 GD	Black	PG9

CONNECTOR, SIDE 30 mm DIN 43650-A



Code	Type	Colour	Ø Cable
W0970520033	Standard	Black	PG11
W0970520034	LED 24V	Transparent	PG11
W0970520035	LED 110V	Transparent	PG11
W0970520036	LED 220V	Transparent	PG11
W0970520037	LED + VDR 24V	Transparent	PG11
W0970520038	LED + VDR 110V	Transparent	PG11
W0970520039	LED + VDR 220V	Transparent	PG11

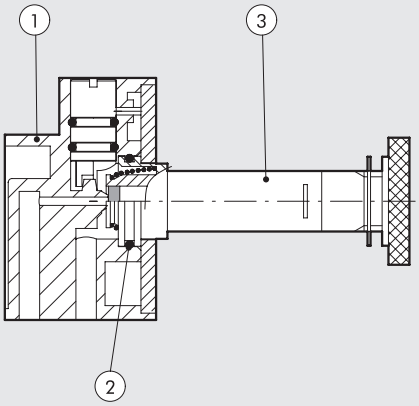
SOLENOID VALVE CNOMO

Solenoid valve to CNOMO 060580.
- 3/2 version normally closed
- Bistable and monostable manual actuation
- Assembly on manifold base

TECHNICAL DATA

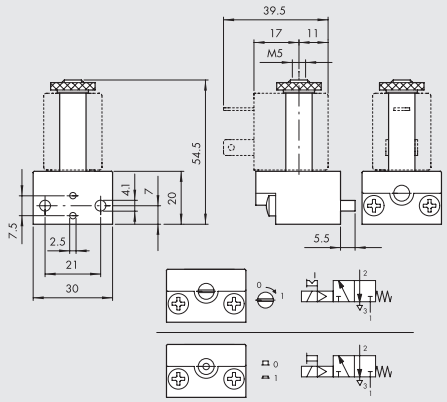
Operating pressure	bar	Max 10
Operating temperature range	°C	–10 to 60
Solenoid rating		100% ED
Fluid		Filtered lubricated or unlubricated air
System		With poppet
Nominal flow rate	Nl/min	40
TRA/TRR at 6 bar	ms	22/32
Maximum coil nut torque	Nm	1

COMPONENTS



① VALVE BODY: HOSTAFORM®
② GASKETS: NBR
③ OPERATOR: Brass pipe – Stainless steel core

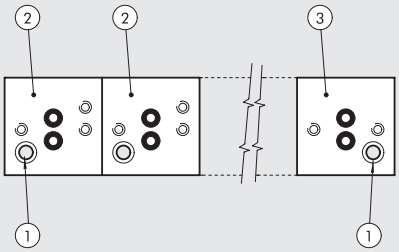
DIMENSIONS



Code	Description
9453920	Cnomo 3/2 with monostable manual actuation
9453922	Cnomo 3/2 with bistable manual actuation

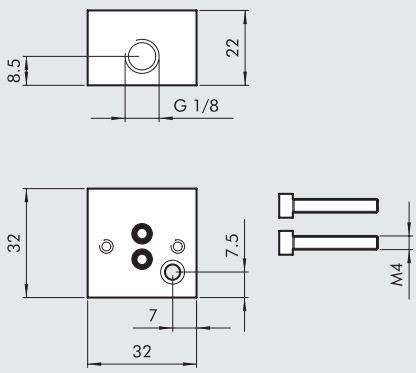
MODULAR CONFIGURATION OF CNOMO BASES

① Two fixing screws (included in input kit)
② CNOMO manifold base kit
③ CNOMO manifold base input kit



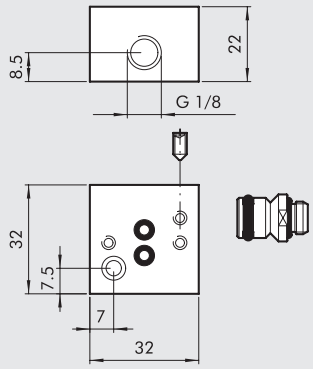
ACCESSORIES

CNOMO MANIFOLD BASE INPUT KIT



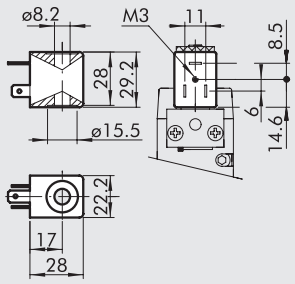
Code	Description
0227000200	Cnomo manifold base input kit

CNOMO MANIFOLD BASE KIT



Code	Description
0227000150	Cnomo manifold base kit

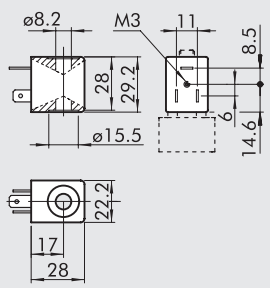
COILS SIDE 22 mm



- Voltage tolerance: –10% to + 15%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000151	Coil 22 Ø 8 BA 2W-12VDC	12Vcc	2W	2W
W0215000101	Coil 22 Ø 8 BA 2W-24VDC	24Vcc	2W	2W
W0215000111	Coil 22 Ø 8 BA 3.5VA-24VAC	24V 50/60Hz	5.3VA	3.5VA
W0215000121	Coil 22 Ø 8 BA 3.5VA-110VAC	110V 50/60Hz	5.3VA	3.5VA
W0215000131	Coil 22 Ø 8 BA 3.5VA-220VAC	220V 50/60Hz	5.3VA	3.5VA

"UL" AND "CSA" COILS 22 mm

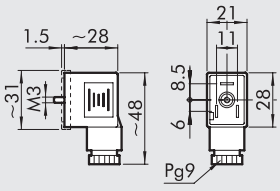


- Voltage tolerance: –10% to + 15%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000251	Coil 22 Ø 8 BA 2W-12VDC UR	12Vcc	2W	2W
W0215000201	Coil 22 Ø 8 BA 2W-24VDC UR	24Vcc	2W	2W
W0215000211	Coil 22 Ø 8 BA 3.5VA-24VAC UR	24V 50/60Hz	5.3VA	3.5VA
W0215000221	Coil 22 Ø 8 BA 3.5VA-110VAC UR	110V 50/60Hz	5.3VA	3.5VA
W0215000231	Coil 22 Ø 8 BA 3.5VA-220VAC UR	220V 50/60Hz	5.3VA	3.5VA

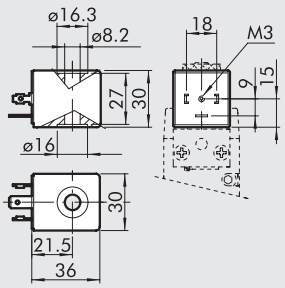
c UL us

CONNECTOR FOR COILS SIDE 22 mm DIN 43650 B-IND



Code	Type	Colour	Ø Cable
W0970510011	Standard	Black	PG9
W0970510012	LED 24V	Transparent	PG9
W0970510013	LED 110V	Transparent	PG9
W0970510014	LED 220V	Transparent	PG9
W0970510015	LED + VDR 24V	Transparent	PG9
W0970510016	LED + VDR 110V	Transparent	PG9
W0970510017	LED + VDR 220V	Transparent	PG9
W0970510070	Atex II 2 GD	Black	PG9

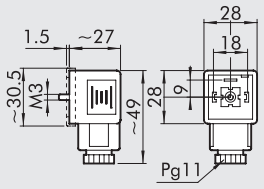
COILS, SIDE 30 mm



- Electric contact DIN 43650 Shape A - ISO 4400
- Voltage tolerance: –10% to +10%
- Insulation class: F155
- Degree of protection: IP65 EN 60529 with connector
- Solenoid rating: 100% ED
- Maximum coil temperature at 100% ED use 70°C at 20° ambient temperature
- Electrical connection DIN 43650 - A

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0210010100	Coil 30 Ø8 2W-24VDC	24Vcc	5W	2W
W0210011100	Coil 30 Ø8 3.5VA-24VAC	24V 50/60Hz	10VA	3.5VA
W0210012100	Coil 30 Ø8 3.5VA-110VAC	110V 50/60Hz	10VA	3.5VA
W0210013100	Coil 30 Ø8 3.5VA-220VAC	220V 50/60Hz	10VA	3.5VA

CONNECTOR ON SIDE 30 mm DIN 43650-A



Code	Type	Colour	Ø Cable
W0970520033	Standard	Black	PG11
W0970520034	LED 24V	Transparent	PG11
W0970520035	LED 110V	Transparent	PG11
W0970520036	LED 220V	Transparent	PG11
W0970520037	LED + VDR 24V	Transparent	PG11
W0970520038	LED + VDR 110V	Transparent	PG11
W0970520039	LED + VDR 220V	Transparent	PG11

NOTES

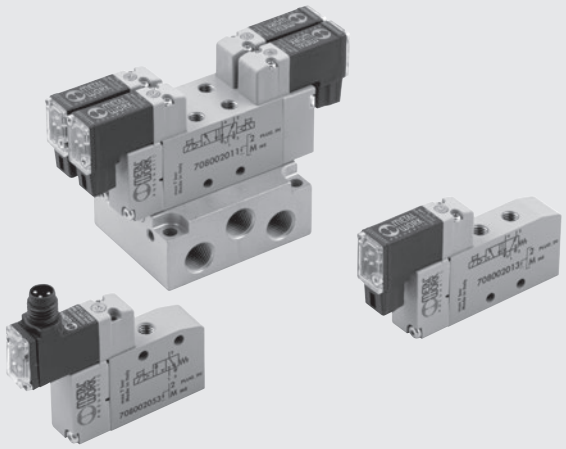
VALVES MINIMACH

METAL WORK PNEUMATIC

Space-saving valve, ideal for in industrial automation applications.
Made according to the well-proven design of the Mach series, the MINIMACH has a painted aluminium body to ensure extra sturdiness and reliable operation in even the harshest of environments.
The internal seals are made of FKM/FPM and are compatible with all oils used in compressors.
The pneumatic couplings are M5 threaded, allowing the user to choose the diameter, type and angle of the fitting.
The valve can be mounted in line or on a panel or multiple-port base.
The following versions are available:

- 3/2 normally open or normally closed
- 5/2 monostable or bistable
- 5/3 closed centres, open centres, pressure centres.

Electropneumatic actuation with a 24V DC pilot.

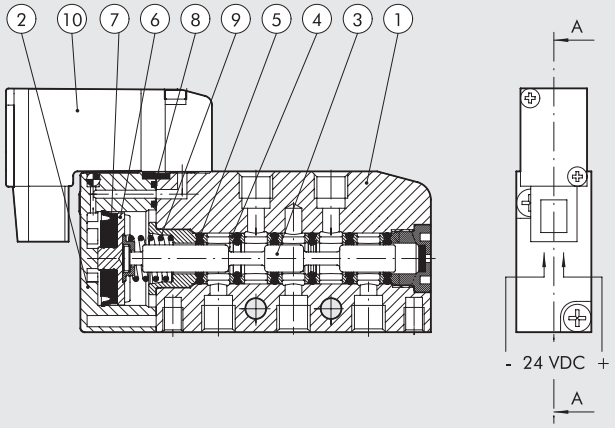


TECHNICAL DATA

Valve port thread		M5
Type of actuation		electric-pneumatic
Maximum external diameter of fittings	mm	Ø 11
Operating temperature range	°C	-10 to +60
	°F	14 to +140
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous
Pressure range	MPa	0.3 to 0.7
	bar	3 to 7
	psi	44 to 102
Flow rate at 6 bar ΔP 1 3/2	Nl/min	140
Flow rate at 6 bar ΔP 1 5/2	Nl/min	170
Flow rate at 6 bar ΔP 1 5/3	Nl/min	80
Voltage range		24 VDC ± 10%
Power	W	0.9
Solenoid rating		100% ED
Manual operator		Monostable
TRA/TRR 3/2 at 6 bar	ms	8/23
TRA/TRR 5/2 monostable at 6 bar	ms	8/30
TRA/TRR 5/2 bistable at 6 bar	ms	15/15
TRA/TRR 5/3 at 6 bar	ms	9/30
Insulation class		F155
Degree of protection		IP51 for PLUG-IN version
		IP65 for M8 version
Installation		In any position. As for the bistable ones, if subject to vibration, the vertical assembly is not advisable
Compatibility with oils		See **chapter Z1**

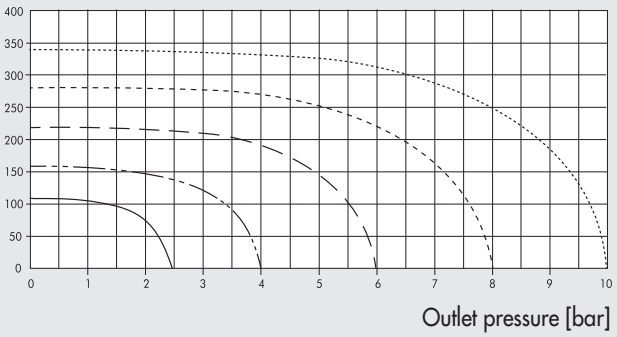
COMPONENTS

① VALVE BODY: chemically nickel-plated aluminium
② CONTROL/END CAP: Hostaform®
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: tecnopolymer
⑤ GASKETS: FKM-FPM
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: Polyurethane
⑧ FILTER: sintered bronze
⑨ SPRINGS: special steel
⑩ PILOT: with integrated coil

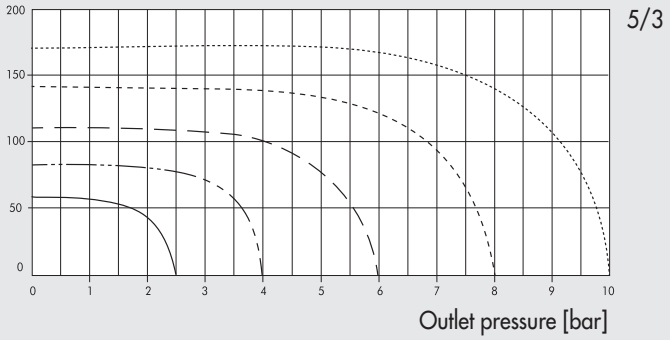


FLOW CHART

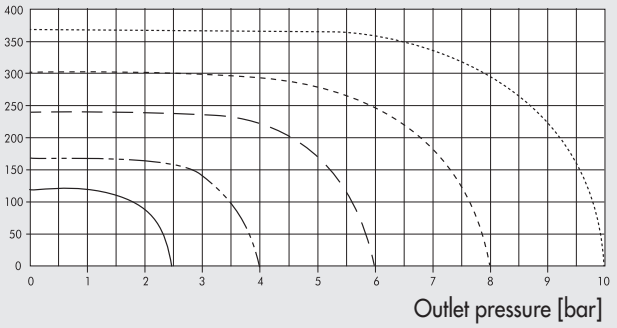
Flow rates [Nl/min]



Flow rates [Nl/min]



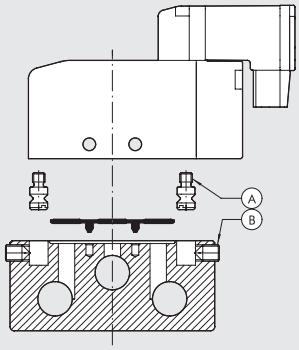
Flow rates [Nl/min]



HOW TO FIX THE VALVE TO THE BASE

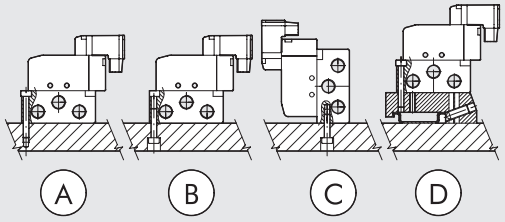
Proceed as follows:
1. screw the pins Ⓐ onto the valve
2. secure them with the ready-mounted grub screws Ⓑ on the base (0.5 Nm max)

IMPORTANT
To secure properly, press the valve down onto the base while tightening the two grub screws.
Do not tighten one grub screw completely before starting to tighten the other.



HOW TO FIX THE BASE

Ⓐ From the top using M4 screws
Ⓑ From below using M5 screws
Ⓒ From the side using M4 screws
Ⓓ From the top on the DIN bar via the M4 screws and bracket code 0225004600 (using 1 screw per bracket)



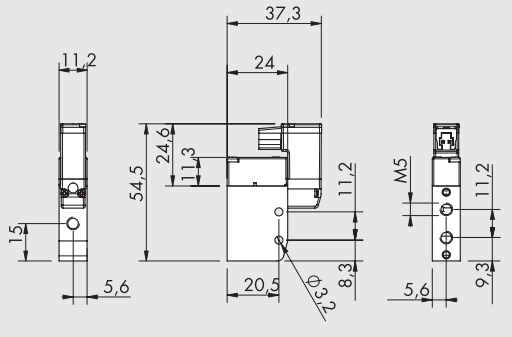
SYNOPTIC, SIZES AND VERSIONS

M S V	0	5	S O	B	O O	2 4 V D C
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING (12)	FURTHER DETAILS	
MSV minivalves solenoid	**0** M5	**3** 3/2 **5** 5/2 **6** 5/3	**SO** solenoid	**B** bistable **S** mechanical springs	**OO** no indication **NC** normally closed **NO** normally open **CC** closed centres **OC** open centres **PC** pressure centres	**24VDC** PLUG-IN 24VDC connector **M8** M8 24VDC connector

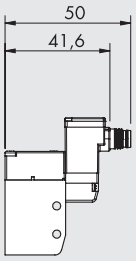
MINIMACH VALVES SOLENOID-PNEUMATIC

MONOSTABLE 3/2

PLUG-IN VERSION

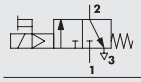
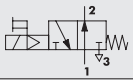


M8 VERSION



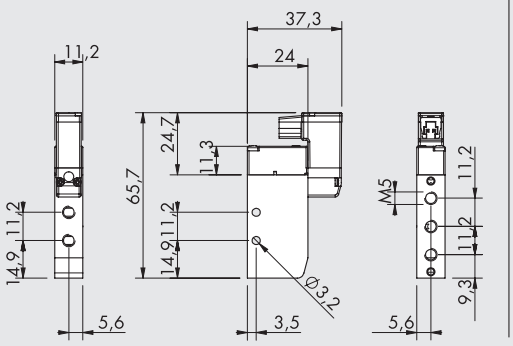
M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

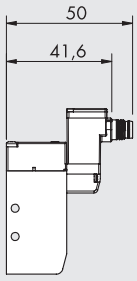
Symbol	Code	Abbrev.	Weight [g]
	**7080020532**	MSV 03 SOS NC 24VDC PLUG-IN	36.2
	708002053M	MSV 03 SOS NC 24VDC M8	36.2
	**7080020632**	MSV 03 SOS NO 24VDC PLUG-IN	36.2
	708002063M	MSV 03 SOS NO 24VDC M8	36.2

MONOSTABLE 5/2

PLUG-IN VERSION

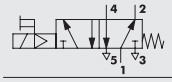


M8 VERSION



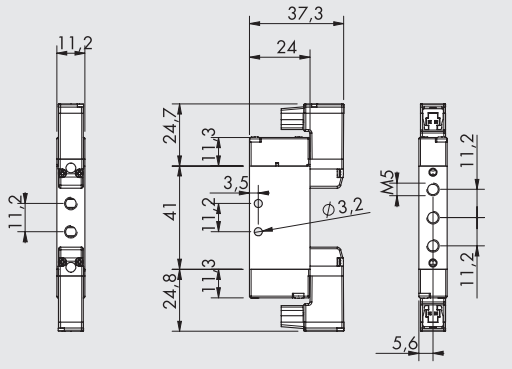
M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

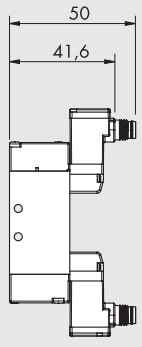
Symbol	Code	Abbrev.	Weight [g]
	**7080020132**	MSV 05 SOS OO 24VDC PLUG-IN	43.3
	708002013M	MSV 05 SOS OO 24VDC M8	43.3

BISTABLE 5/2

PLUG-IN VERSION

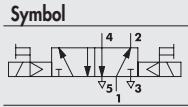


M8 VERSION



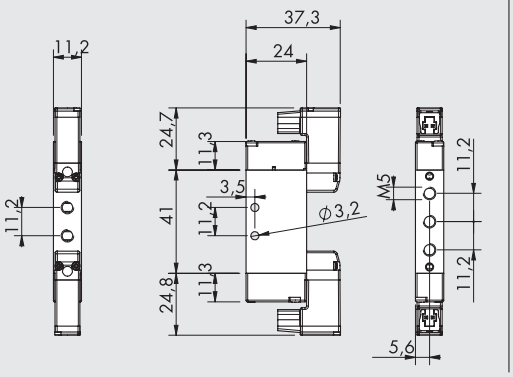
M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

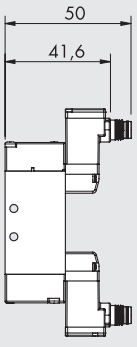
Symbol	Code	Abbrev.	Weight [g]
	**7080020112**	MSV 05 SOB OO 24VDC PLUG-IN	57
	708002011M	MSV 05 SOB OO 24VDC M8	57

MONOSTABLE 5/3

PLUG-IN VERSION

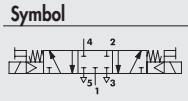
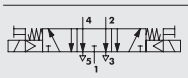
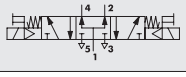


M8 VERSION



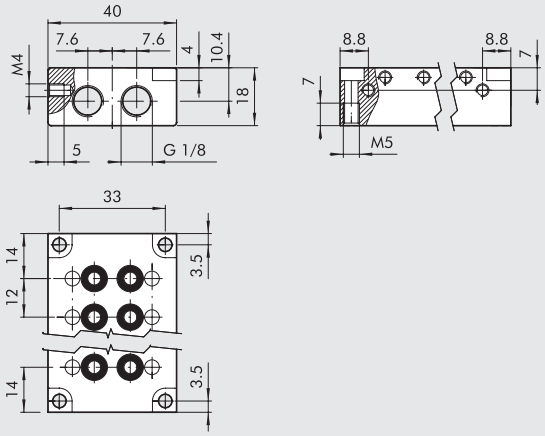
M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

Symbol	Code	Abbrev.	Weight [g]
	**7080020212**	MSV 06 SOS CC 24VDC PLUG-IN	57
	708002021M	MSV 06 SOS CC 24VDC M8	57
	**7080020312**	MSV 06 SOS OC 24VDC PLUG-IN	57
	708002031M	MSV 06 SOS OC 24VDC M8	57
	**7080020412**	MSV 06 SOS PC 24VDC PLUG-IN	57
	708002041M	MSV 06 SOS PC 24VDC M8	57

ACCESSORIES: MULTIPLE BASE

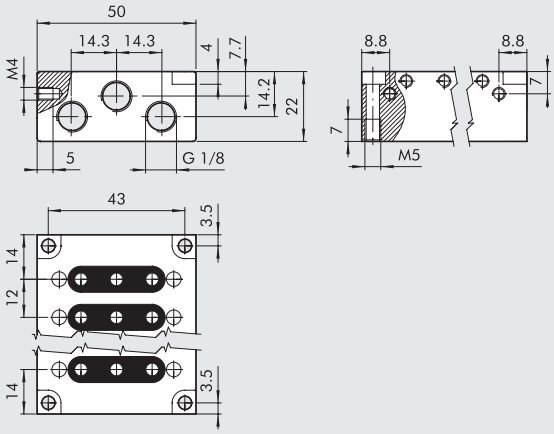
3/2 MULTIPLE BASE



Code	Description	Position	Weight [g]
0225010201	Base 2 position for 3/2 valves Minimach	2	60
0225010401	Base 4 position for 3/2 valves Minimach	4	99
0225010601	Base 6 position for 3/2 valves Minimach	6	135
0225010801	Base 8 position for 3/2 valves Minimach	8	178

N.B.: It is advisable to use straight connectors code 02400A____

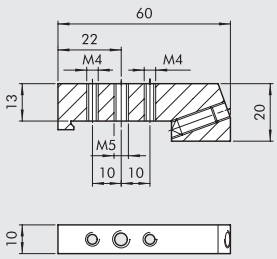
5/2 - 5/3 MULTIPLE BASE



Code	Description	Position	Weight [g]
0225020201	Base 2 position for 5/2-5/3 valves Minimach	2	95
0225020401	Base 4 position for 5/2-5/3 valves Minimach	4	154
0225020601	Base 6 position for 5/2-5/3 valves Minimach	6	211
0225020801	Base 8 position for 5/2-5/3 valves Minimach	8	270

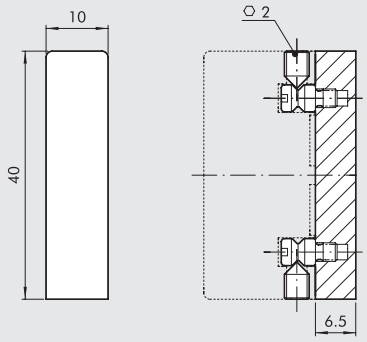
N.B.: It is advisable to use straight connectors code 02400A____

ADAPTER FOR BAR OMEGA (DIN EN 50022)



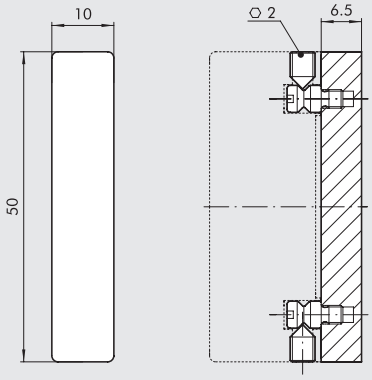
Code	Description	Weight [g]
0225004600	Omega-adapter Mach 16	46

BLANKING PLATE FOR 3/2 VALVES



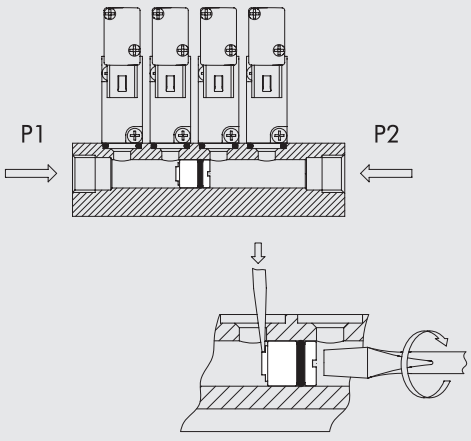
Code	Description	Weight [g]
0226009500	Blanking plate for 3/2 bases Minimach	9.5

BLANKING PLATE FOR 5/2 - 5/3 VALVES



Code	Description	Weight [g]
0226009501	Blanking plate for 5/2-5/3 bases Minimach	11

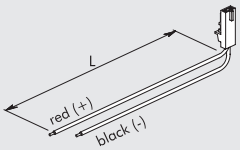
INTERMEDIATE DIAPHRAGM



Code	Description	Weight [g]
0226009010	Minimach base diaphragm	3.5

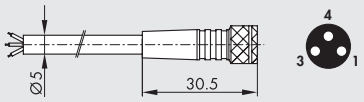
ACCESSORIES: CONNECTORS

PLUG-IN CONNECTOR



Code	Description
W0970512000	Plug-in connector for Mach 11 L = 300 mm
W0970512007	Plug-in connector for Mach 11 L = 1 m
W0970512002	Plug-in connector for Mach 11 L = 2 m

M8 STRAIGHT CONNECTOR WITH CABLE

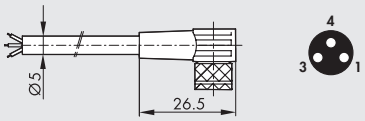


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400A0100	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m
02400A0250	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m
02400A0500	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m
02400A1000	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTOR WITH CABLE

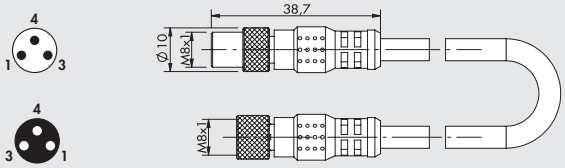


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400B0100	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m
02400B0250	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m
02400B0500	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m
02400B1000	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228
N.B.: It is inadvisable for use on multi-position bases 0225010___ and 0225020___

M8 M - M8 F CONNECTOR

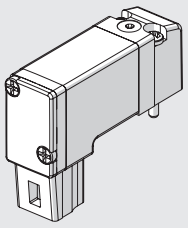


Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Note: Can be used for direct connection to the modules with digital OUTPUT of the EB 80 valves

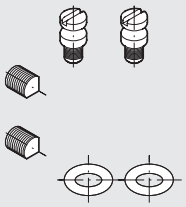
SPARE PARTS

PLUG-IN PILOT



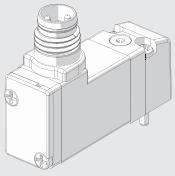
Code	Description
722113541100	PLT-10 722113541100

KIT OF SPARE GASKET BASES FOR 3/2 VALVES



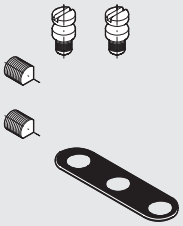
Code	Description	Weight [g]
0226009000	Gasket kit 3/2 multiple bases Minimach	2.5

M8 PILOT



Code	Description
7222M3541100	PLT-10 3/2 NC 0.8W 24VDC LED M8 with manual

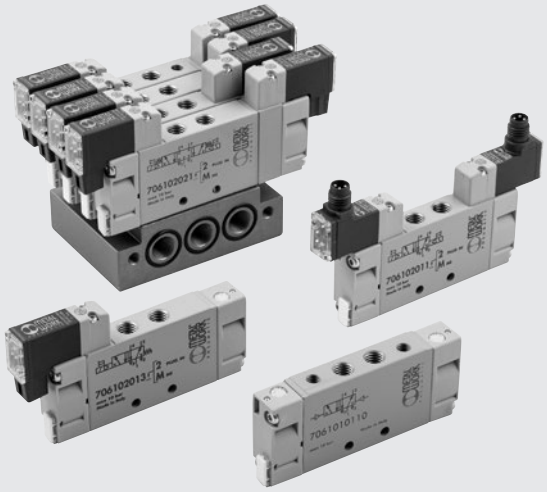
KIT OF SPARE GASKET BASES FOR 5/2 - 5/3 VALVES



Code	Description	Weight [g]
0226009001	Gasket kit 5/2-5/3 multiple bases Minimach	2.5

VALVES MACH 11

The Mach 11 in-line valves with M7 threaded connection come in the following versions:
• 5/2 monostable and bistable
• 5/3 with closed, open or pressure centres.
Control:
• pneumatic
• solenoid/pneumatic 24 V
With an exceptional compact design only 11 mm wide, and excellent high performance, these valves can be used in numerous applications in industrial automation.

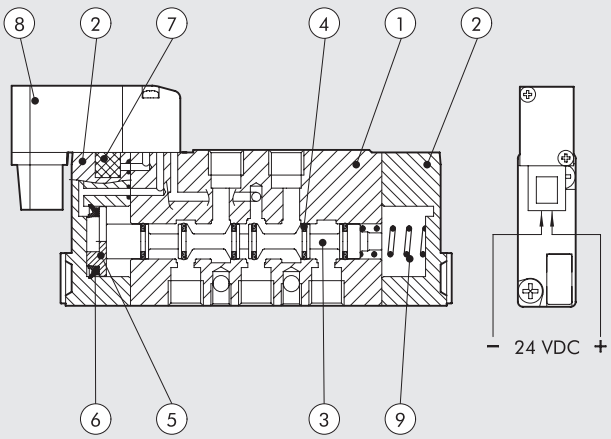


TECHNICAL DATA

Valve port thread		M7		
Pilot thread		M5		
Maximum external diameter of fittings	mm	Pneumatic: M7 = Ø 11 - M5 = Ø 9 - Electric: M7 - M5 = Ø 11		
Operating temperature range	°C	-10 to +60		
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous		
Screw for valve wall-mounting		M3		
Flow rate at 6 bar ΔP 1 bar	Nl/min	400		
Pressure range	bar	**Electric**	**Electric pilot-assisted**	**Pneumatic**
		monostable: 2 to 7	pilot pressure: 2 to 7	monostable control pres.values: 2 to 10
		bistable: 2 to 7	valve: vacuum to 10	bistable control pres. values: 1 to 10
		5/3: 2 to 7		control pressure 5/3: 2 to 10
				valve: vacuum to 10
Voltage range		24 VDC ± 10%		-
Power	W	0.9		-
Insulation class		F155		-
Degree of protection		IP51 for PLUG-IN version		-
		IP65 for M8 version		-
Solenoid rating		100% ED		-
TRA/TRR monostable at 6 bar	ms	10 / 45		4 / 9
TRA/TRR bistable at 6 bar	ms	22 / 22		4 / 4
TRA/TRR 5/3 monostable at 6 bar	ms	22 / 22		4 / 4
Compatibility with oils		See **chapter Z1**		

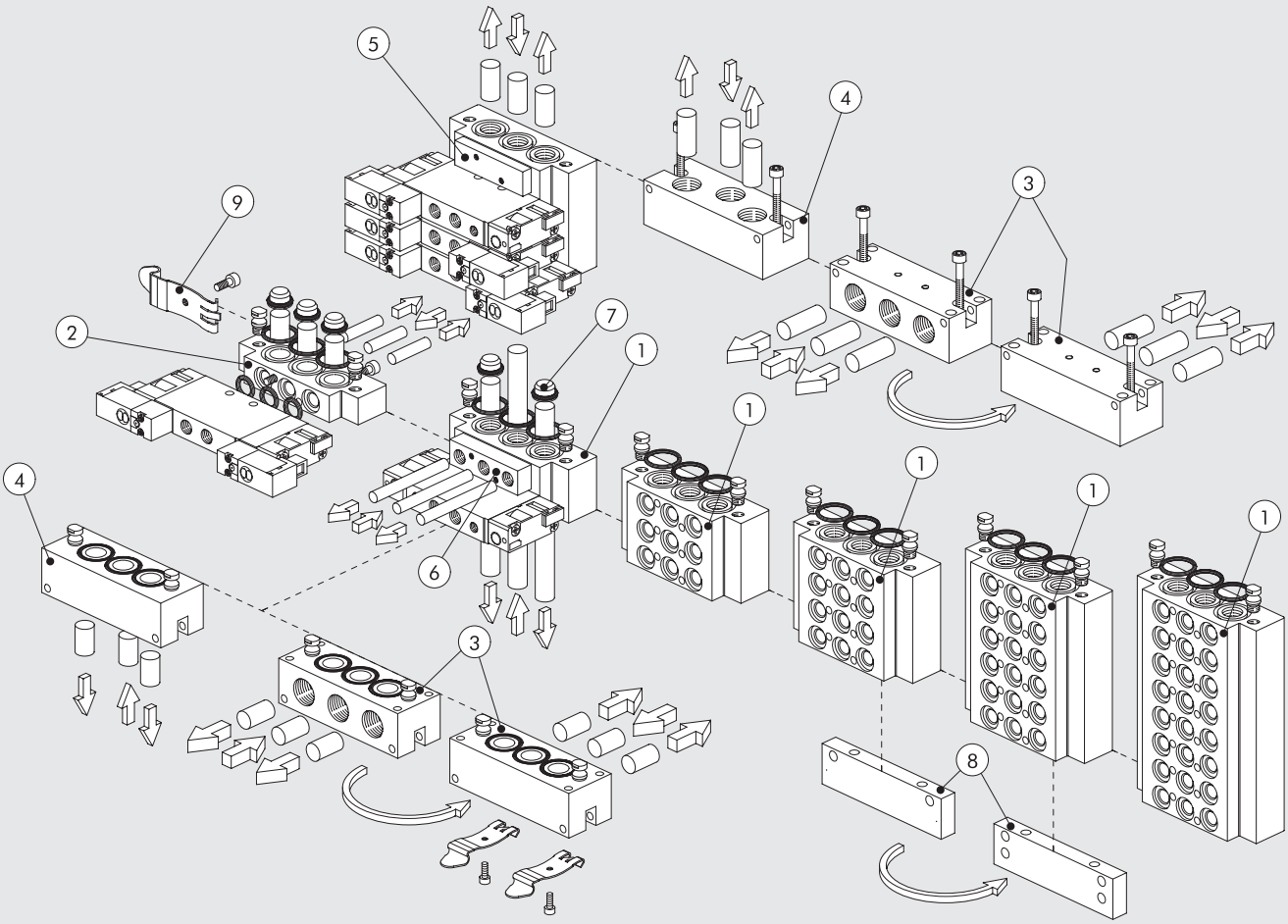
COMPONENTS

① VALVE BODY: Aluminium
② CONTROL/BASE: Hostaform®
③ SPOOL: Aluminium
④ GASKETS: Polyurethane
⑤ PISTONS: Hostaform®
⑥ PISTON GASKET: Polyurethane
⑦ FILTER: sintered bronze
⑧ PILOT: with integrated coil
⑨ SPRINGS: special steel
⑩ REMOVABLE IDENTIFICATION PLATE

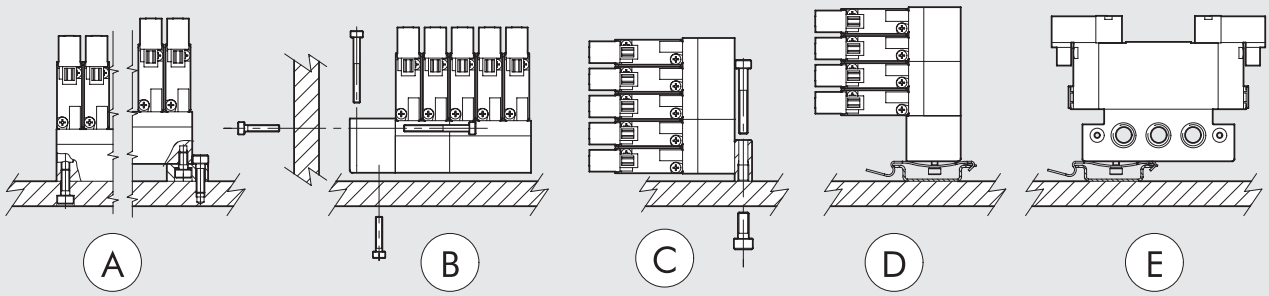


METAL WORK PNEUMATIC

MODULARITY



HOW TO FIX THE BASE

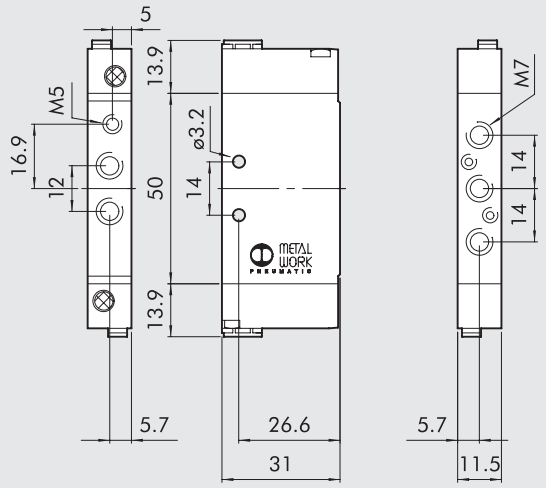


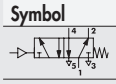
SYNOPTIC, SIZES AND VERSIONS

M S V	1	5	S O	B	O O	2 4 V D C
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING (12)**	**FURTHER DETAILS**	
MSV mini-solenoid valve	**1** M7	**5** 5/2	**SO** solenoid	**B** bistable	**OO** no indication	**24VDC** PLUG-IN 24VDC connector
MPV mini-pneumatic valve		**6** 5/3	**SE** solenoid assisted	**S** mechanical springs	**CC** closed centres	**M8** M8 24VDC connector
			PN pneumatic		**OC** open centres	
					PC pressure centres	

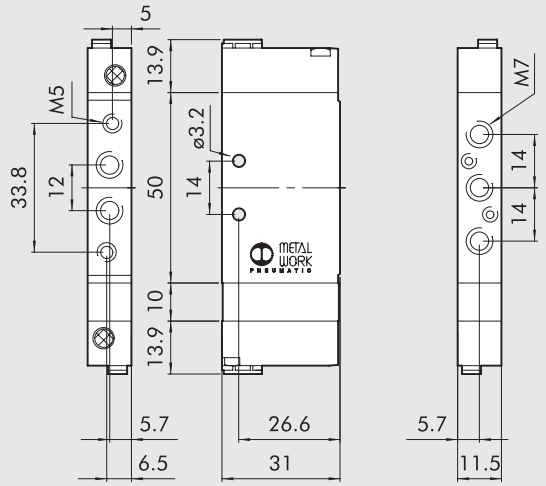
VALVES MACH 11, PNEUMATIC

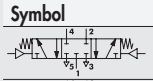
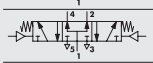
MONOSTABLE 5/2



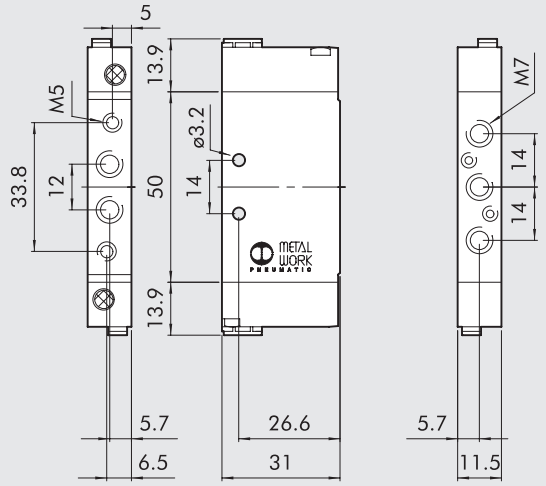
Symbol	Code	Abbrev.	Weight [g]
	7061010130	MPV 15 PNS OO	52

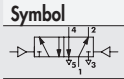
MONOSTABLE 5/3



Symbol	Code	Abbrev.	Weight [g]
	7061010210	MPV 16 PNS CC	62
	7061010310	MPV 16 PNS OC	62
	7061010410	MPV 16 PNS PC	62

BISTABLE 5/2

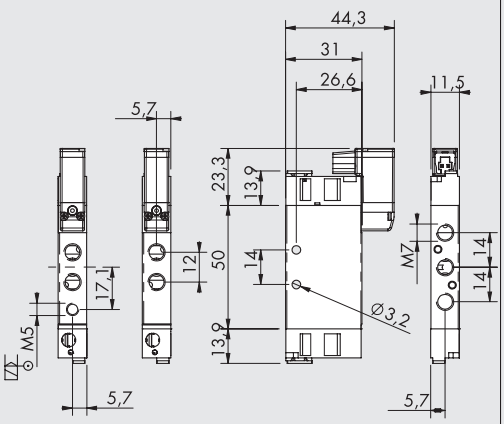


Symbol	Code	Abbrev.	Weight [g]
	7061010110	MPV 15 PNB OO	52

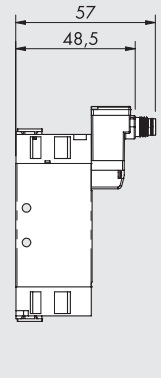
VALVES MACH 11, SOLENOID-PNEUMATIC

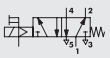
MONOSTABLE 5/2

PLUG-IN VERSION



M8 VERSION



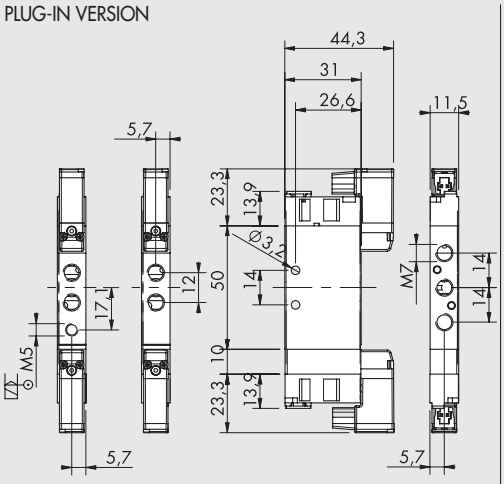
Symbol	Code	Abbrev.	Weight [g]
	**7061020132**	MSV 15 SOS OO 24VDC PLUG-IN	60
	706102013M	MSV 15 SOS OO 24VDC M8	60
	**7061030132**	MSV 15 SES OO 24VDC PLUG-IN	60
	706103013M	MSV 15 SES OO 24VDC M8	60

M8 CONNECTION

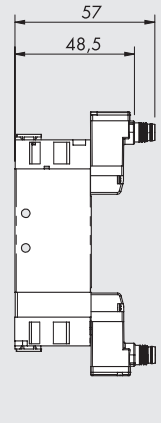
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

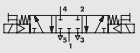
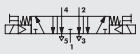
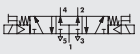
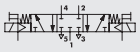
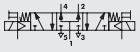
MONOSTABLE 5/3

PLUG-IN VERSION



M8 VERSION



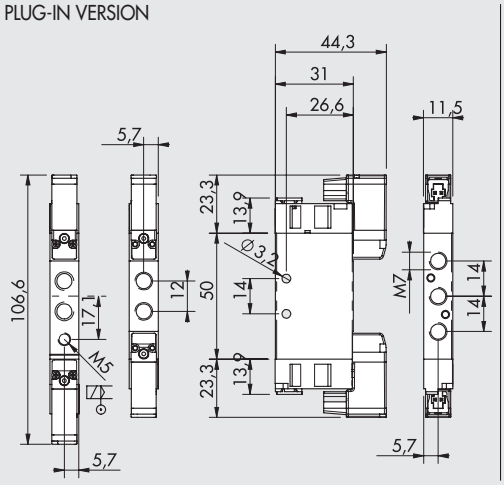
Symbol	Code	Abbrev.	Weight [g]
	**7061020212**	MSV 16 SOS CC 24VDC PLUG-IN	82
	706102021M	MSV 16 SOS CC 24VDC M8	82
	**7061020312**	MSV 16 SOS OC 24VDC PLUG-IN	82
	706102031M	MSV 16 SOS OC 24VDC M8	82
	**7061020412**	MSV 16 SOS PC 24VDC PLUG-IN	82
	706102041M	MSV 16 SOS PC 24VDC M8	82
	**7061030212**	MSV 16 SES CC 24VDC PLUG-IN	82
	706103021M	MSV 16 SES CC 24VDC M8	82
	**7061030312**	MSV 16 SES OC 24VDC PLUG-IN	82
	706103031M	MSV 16 SES OC 24VDC M8	82
	**7061030412**	MSV 16 SES PC 24VDC PLUG-IN	82
	706103041M	MSV 16 SES PC 24VDC M8	82

M8 CONNECTION

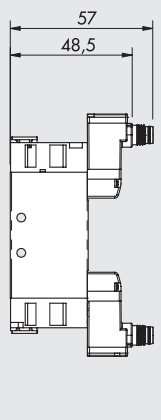
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

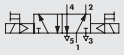
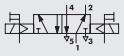
BISTABLE 5/2

PLUG-IN VERSION



M8 VERSION



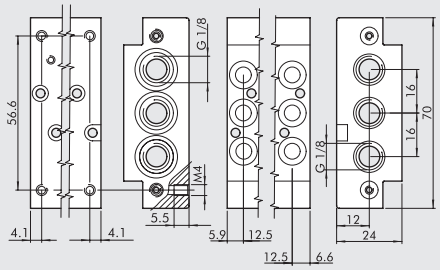
Symbol	Code	Abbrev.	Weight [g]
	**7061020112**	MSV 15 SOB OO 24VDC PLUG-IN	72
	706102011M	MSV 15 SOB OO 24VDC M8	72
	**7061030112**	MSV 15 SEB OO 24VDC PLUG-IN	88
	706103011M	MSV 15 SEB OO 24VDC M8	88

M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

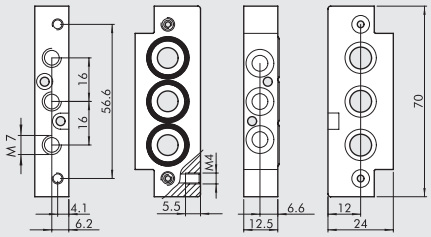
ACCESSORIES: MANIFOLD BASES

① MULTIPLE MANIFOLD BASE



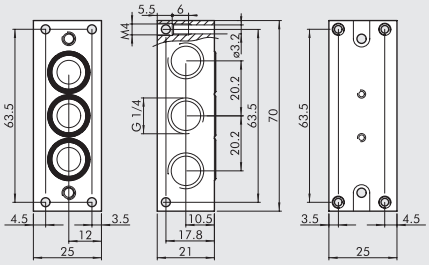
Code	Description	Weight [g]
0227400201	Base, 2 posn. for Mach 11	94
0227400301	Base, 3 posn. for Mach 11	140
0227400401	Base, 4 posn. for Mach 11	186
0227400601	Base, 6 posn. for Mach 11	282
0227400801	Base, 8 posn. for Mach 11	378

② SEPARATE FEED MANIFOLD BASE



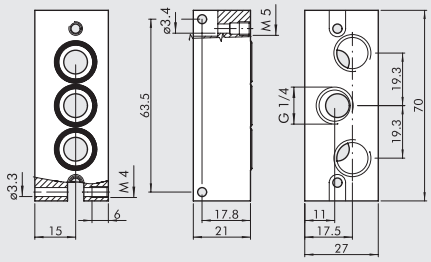
Code	Description	Weight [g]
0227400200	Separate feed manifold base for Mach 11	44

③ 90° END PLATE



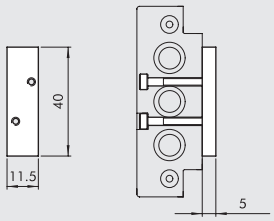
Code	Description	Weight [g]
0227400101	90° end plate 1/4 Mach 11	82

④ STRAIGHT END PLATE



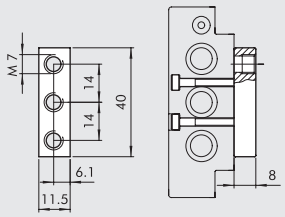
Code	Description	Weight [g]
0227400100	Straight end plate 1/4 for Mach 11	93

⑤ BLANKING PLATE



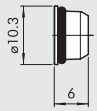
Code	Description	Weight [g]
0227400500	Blanking plate for Mach 11	13

⑥ FEED BLOCK



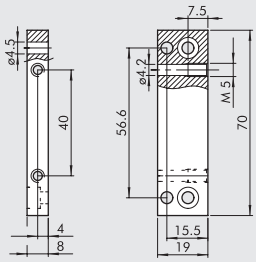
Code	Description	Weight [g]
0227400503	M7 feed block for Mach 11	11

⑦ DIAPHRAGM



Code	Description	Weight [g]
0227400000	Diaphragm for Mach 11 bases	3

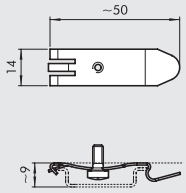
⑧ BASE FIXING PLATE



Code	Description	Weight [g]
0227400504	Fixing plate for Mach 11 bases	28

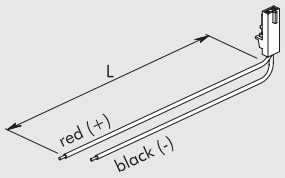
ACCESSORIES

⑨ CONNECTION BRACKET ON BAR OMEGA (DIN EN 50022)



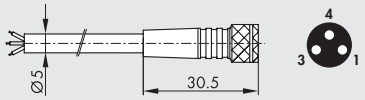
Code	Description
0227300600	Connection bracket on DIN bar

PLUG-IN CONNECTOR



Code	Description
W0970512000	Plug-in connector for Mach 11 L = 300 mm
W0970512007	Plug-in connector for Mach 11 L = 1 m
W0970512002	Plug-in connector for Mach 11 L = 2 m

M8 STRAIGHT CONNECTOR WITH CABLE

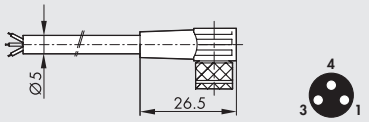


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400A0100	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m
02400A0250	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m
02400A0500	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m
02400A1000	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTOR WITH CABLE

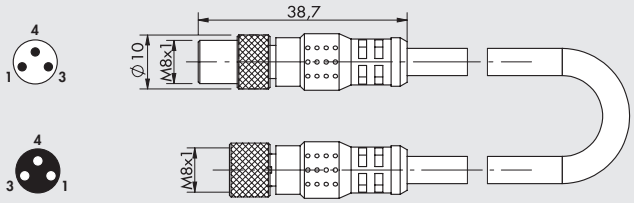


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400B0100	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m
02400B0250	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m
02400B0500	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m
02400B1000	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

M8 M - M8 F CONNECTOR



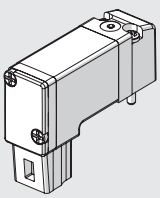
Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Note: Can be used for direct connection to the modules with digital OUTPUT of the EB 80 valves

NOTES

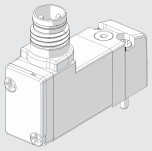
SPARE PARTS

PLUG-IN PILOT



Code	Description
722113541100	PLT-10 722113541100

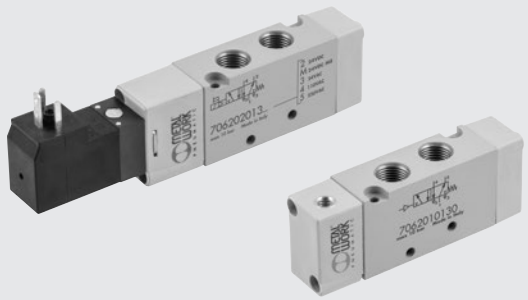
M8 PILOT



Code	Description
7222M3541100	PLT-10 3/2 NC 0.8W 24VDC LED M8 with manual

VALVES MACH 16

Available in size 1/8" only, versions 5/2 and 5/3 and with pneumatic and solenoid actuation. The Mach 16 valve is a typical small size valve, only 16 mm wide, with excellent performance 750 Nl/min flow rate at 6 bar ΔP 1 bar.
The valve can be used in line, on a panel or on a base (multiple or manifold)
The Mach design is the result of the miniaturisation concept with the same durability, sturdiness and reliability.

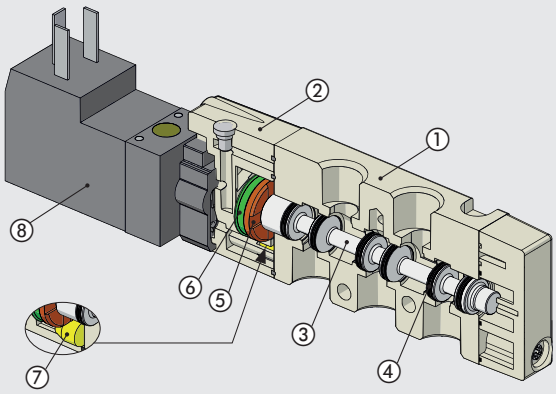


TECHNICAL DATA

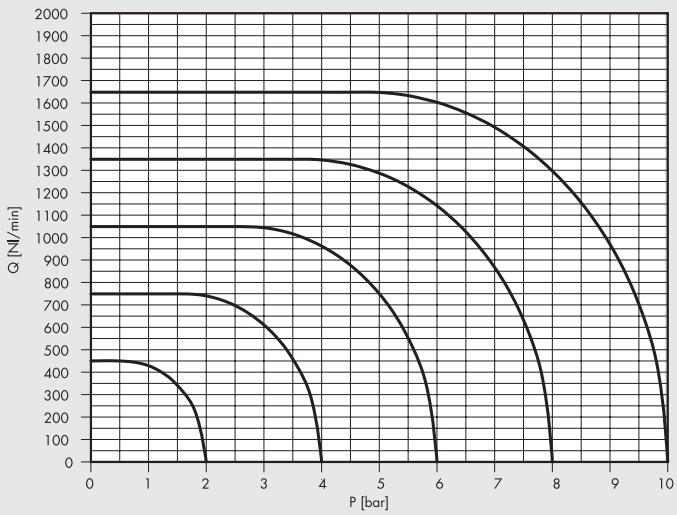
Valve port thread		1/8"
Type of control		M5 pneumatic actuation - Solenoid/pneumatic operation with integrated coil
Maximum outer diameter of gaskets for ports 1 - 3 - 5	mm	15
Maximum outer diameter for ports 2 - 4	mm	15
Operating temperature range	°C	-10 to +60
Operating pressure	bar	
• monostable - monostable 5/3		Vacuum to 10 pneumatic/1.9 to 10 solenoid/pneumatic
• bistable		Vacuum to 10 pneumatic/1 to 10 solenoid/pneumatic
• pilot-assisted		Vacuum to 10
Fluid		Filtered lubricated or unlubricated air lubrication, if used, must be continuous
Recommended lubricant		ISO e UNI FD22
Solenoid pilot with integrated coil		DIN 43650 C-shape; M8 connection (available for 24VDC voltage)
Hand operator		Monostable on solenoid pilot (with bistable manual valve on request)
Number of ways in base		1-3-5 and pilot exhaust
Screws for wall-mounting single valve		2 screws M3
Screws for base-mounting valve		2 screws M2.5x30
Installation		In any position (vertical assembly is not recommended for bistable valves subjected to vibration)
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	540
Flow rate at 6 bar ΔP 1 bar	Nl/min	750
Conductance C	Nl/min · bar	149.8
Critical ratio b	bar/bar	0.525
Compatibility with oils		See **chapter Z1**

COMPONENTS

① VALVE BODY: Aluminium
② CONTROL/BASE: Hostaform®
③ SPOOL: Aluminium
④ GASKETS: Polyurethane
⑤ PISTONS: Hostaform®
⑥ PISTON GASKET: Polyurethane
⑦ INTERFACE GASKETS: sintered HDPE
⑧ PILOT: with integrated coil

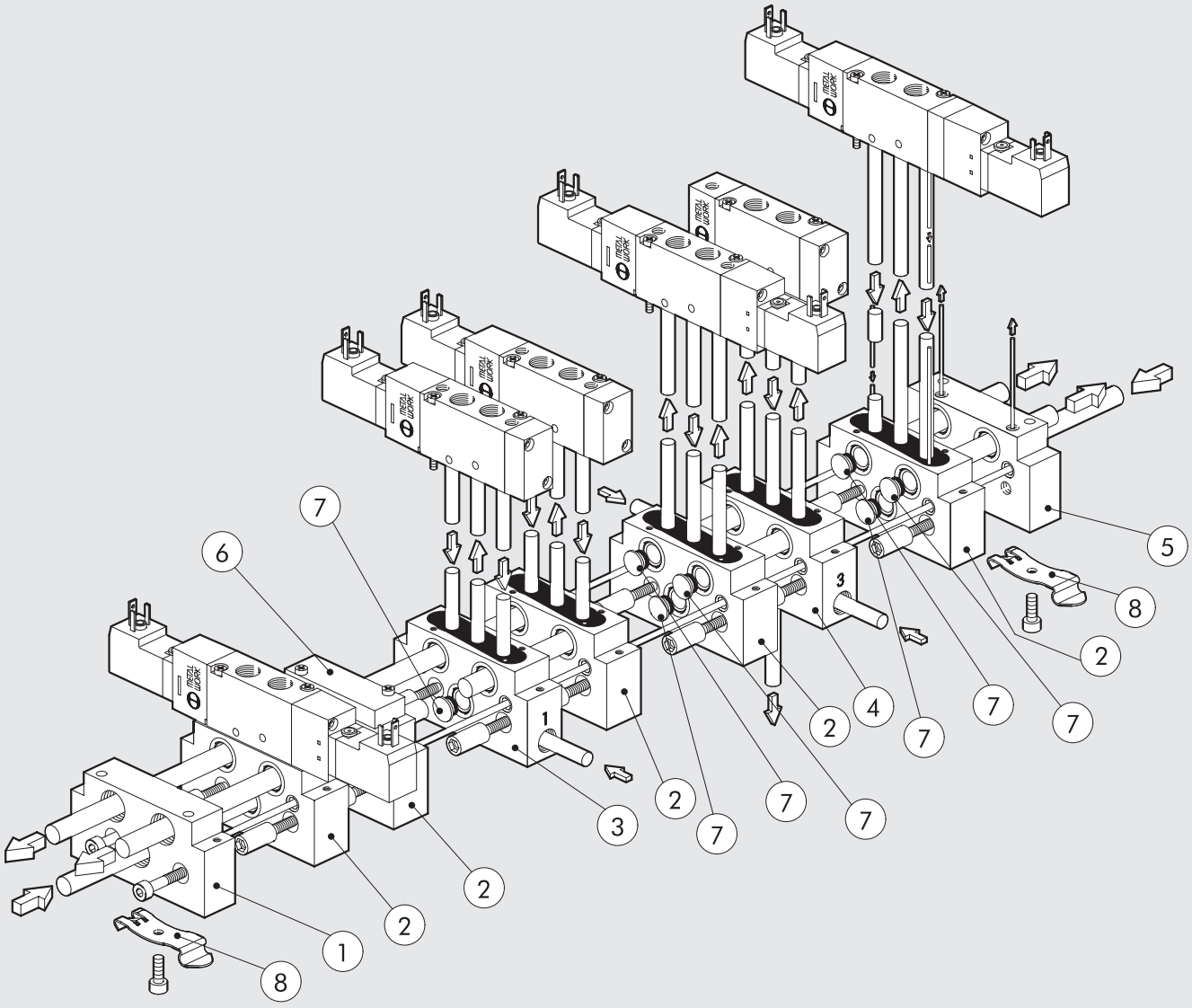


FLOW CHART



METAL WORK PNEUMATIC

MANIFOLD BASES



Reference	Code	Description
①	**0227100201**	M16/VDMA Input end-plate kit
②	**0227100150**	M16 manifold base kit
③	**0227100301**	M16 separate feed manifold base kit
④	**0227100302**	M16 exhaust feed manifold base kit
⑤	**0227100200**	M16/VDMA output end-plate kit
⑥	**0225004500**	M16 blanking plate
⑦	**0227100000**	Intermediate diaphragm
⑧	**0227300600**	Connection bracket on DIN-bar

SYNOPTIC, SIZES AND VERSIONS

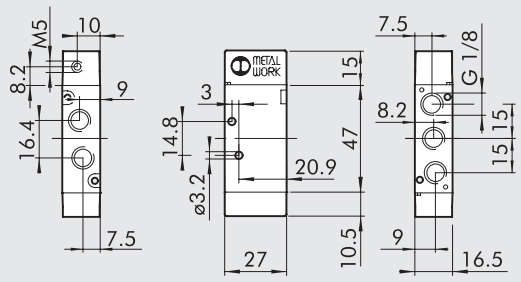
M S V	2	5	S O	B	O O	2 4 V D C
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING 12**	**FURTHER DETAILS**	**VOLTAGE**
MSV solenoid/pneumatic	**2** 1/8"	**5** 5/2	**SO** solenoid	**P** pneumatic spring	**OO** no indication	24VDC
MPV pneumatic		**6** 5/3	**SE** solenoid assisted	**S** mechanical springs	**CC** closed centres	24VDC M8
			PN pneumatic	**B** bistable	**OC** open centres	24VAC
					PC pressure centres	110VAC
						220VAC

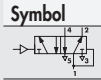
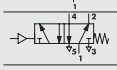
VALVES MACH 16 MPV, PNEUMATIC

TECHNICAL DATA

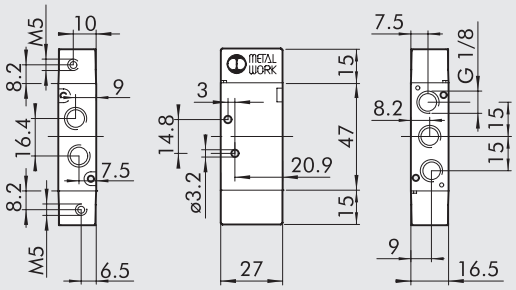
Operating pressure	bar	Vacuum to10
Minimum operating pressure:	bar	
• monostable with pneumatic spring		see graph
• monostable with mechanical spring		1.6
• monostable 5/3		1.9
• bistable		1
Conductance C	Nl/min · bar	149.8
Critical ratio b	bar/bar	0.525
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	540
Flow rate at 6 bar ΔP 1 bar	Nl/min	750
Repositioning response times at 6 bar:		
• monostable	ms	4
• bistable	ms	4
Repositioning response times at 6 bar:		
• monostable	ms	8.4
• bistable	ms	4

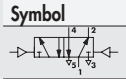
MONOSTABLE 5/2



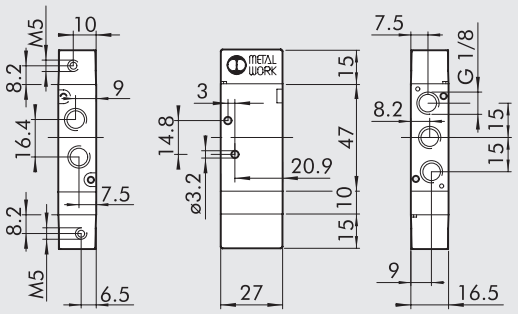
Symbol	Code	Abbrev.	Weight [g]
	**7062010100**	MPV 25 PNP OO	60
	**7062010130**	MPV 25 PNS OO	61

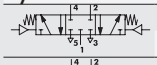
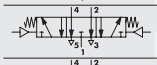
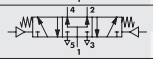
BISTABLE 5/2



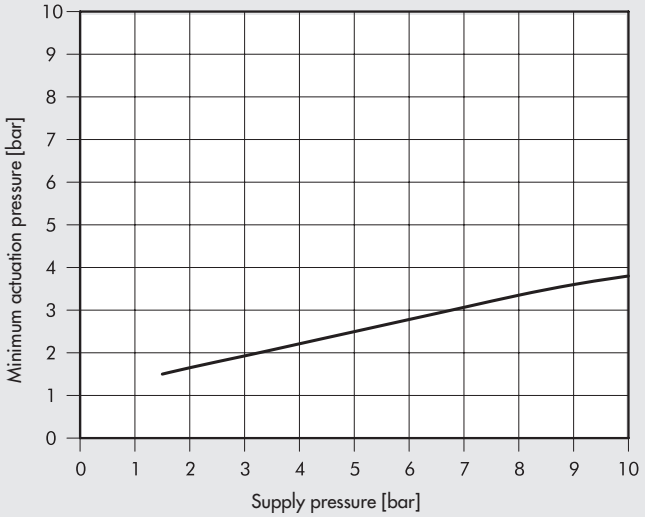
Symbol	Code	Abbrev.	Weight [g]
	**7062010110**	MPV 25 PNB OO	62

MONOSTABLE 5/3



Symbol	Code	Abbrev.	Weight [g]
	**7062010210**	MPV 26 PNS CC	73
	**7062010310**	MPV 26 PNS OC	73
	**7062010410**	MPV 26 PNS PC	73

OPERATING PRESSURE



VALVES MACH 16 MSV, SOLENOID/PNEUMATIC

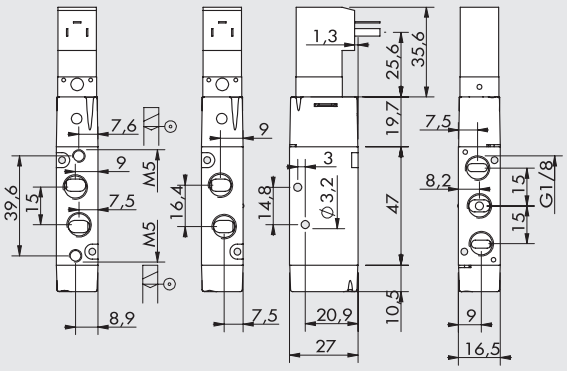
TECHNICAL DATA

Operating pressure:	bar	
• monostable, monostable 5/3		1.9 to 10
• bistable		1 to 10
• pilot-assisted		Vacuum to10
Minimum pilot pressure	bar	2
Operating temperature range	°C	-10 to +60
Conductance C	Nl/min · bar	149.8
Critical ratio b	bar/bar	0.525
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	540
Flow rate at 6 bar ΔP 1 bar	Nl/min	750
TRA / TRR monostable at 6 bar	ms	12 / 26
TRA / TRR bistable at 6 bar	ms	21 / 21
Hand operator		monostable on the solenoid pilot (also with bistable manual valve on request)
Pilot with integrated coil		24 VDC - 24 VAC - 110 VAC - 220 VAC
Power	W	1
Voltage tolerance		-10% to +15%
Insulation class		F 155
Degree of protection		IP 65 EN60529 with connector
Solenoid rating		100% ED
Electrical contacts		DIN 43650 C shape
		M8 connection*

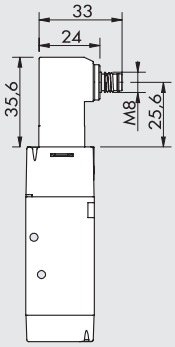
* Available for 24VDC voltage

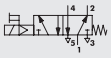
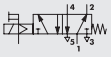
MONOSTABLE 5/2

DIN 43650-C VERSION



M8 VERSION



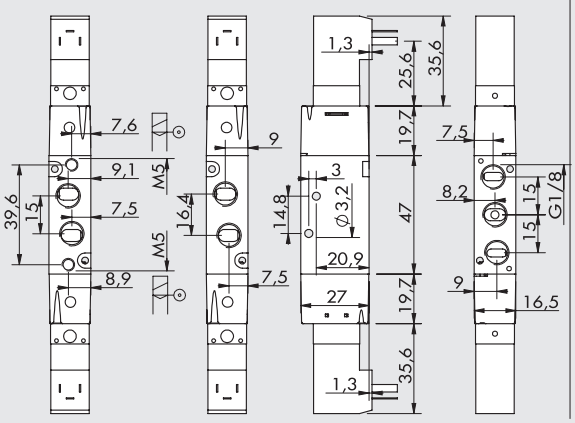
Symbol	Code	Abbrev.	Weight [g]
	7062020102	MSV 25 SOP OO 24VDC	92
	706202010M	MSV 25 SOP OO 24VDC M8	92
	7062020103	MSV 25 SOP OO 24VAC	92
	7062020104	MSV 25 SOP OO 110VAC	92
	7062020105	MSV 25 SOP OO 220VAC	92
	7062020132	MSV 25 SOS OO 24VDC	93
	706202013M	MSV 25 SOS OO 24VDC M8	93
	7062020133	MSV 25 SOS OO 24VAC	93
	7062020134	MSV 25 SOS OO 110VAC	93
	7062020135	MSV 25 SOS OO 220VAC	93
	7062030132	MSV 25 SES OO 24VDC	93
	706203013M	MSV 25 SES OO 24VDC M8	93
	7062030133	MSV 25 SES OO 24VAC	93
	7062030134	MSV 25 SES OO 110VAC	93
	7062030135	MSV 25 SES OO 220VAC	93

M8 CONNECTION

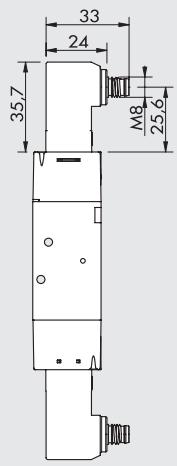
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

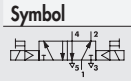
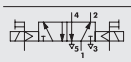
BISTABLE 5/2

DIN 43650-C VERSION



M8 VERSION



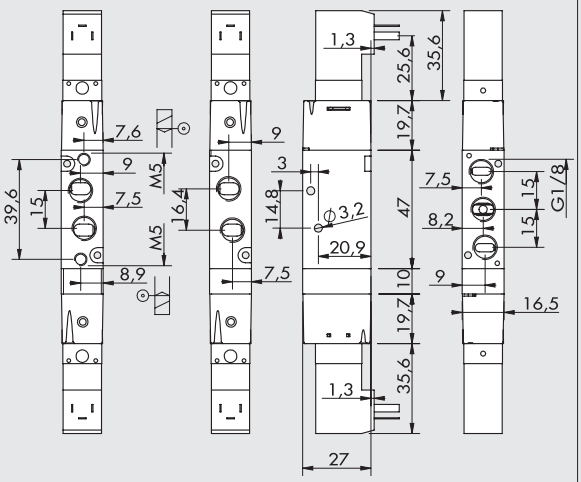
Symbol	Code	Abbrev.	Weight [g]
	7062020112	MSV 25 SOB OO 24VDC	124
	706202011M	MSV 25 SOB OO 24VDC M8	124
	7062020113	MSV 25 SOB OO 24VAC	124
	7062020114	MSV 25 SOB OO 110VAC	124
	7062020115	MSV 25 SOB OO 220VAC	124
	7062030112	MSV 25 SEB OO 24VDC	125
	706203011M	MSV 25 SEB OO 24VDC M8	125
	7062030113	MSV 25 SEB OO 24VAC	125
	7062030114	MSV 25 SEB OO 110VAC	125
	7062030115	MSV 25 SEB OO 220VAC	125

M8 CONNECTION

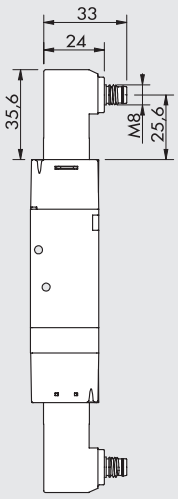
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

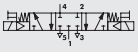
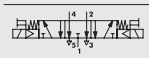
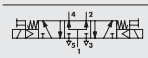
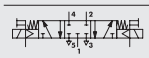
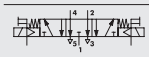
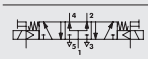
MONOSTABLE 5/3

DIN 43650-C VERSION



M8 VERSION



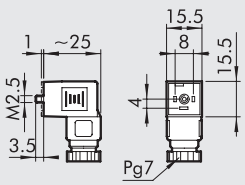
Symbol	Code	Abbrev.	Weight [g]
	**7062020212**	MSV 26 SOS CC 24VDC	142
	706202021M	MSV 26 SOS CC 24VDC M8	142
	7062020213	MSV 26 SOS CC 24VAC	142
	7062020214	MSV 26 SOS CC 110VAC	142
	7062020215	MSV 26 SOS CC 220VAC	142
	**7062020312**	MSV 26 SOS OC 24VDC	142
	706202031M	MSV 26 SOS OC 24VDC M8	142
	7062020313	MSV 26 SOS OC 24VAC	142
	7062020314	MSV 26 SOS OC 110VAC	142
	7062020315	MSV 26 SOS OC 220VAC	142
	**7062020412**	MSV 26 SOS PC 24VDC	142
	706202041M	MSV 26 SOS PC 24VDC M8	142
	7062020413	MSV 26 SOS PC 24VAC	142
	7062020414	MSV 26 SOS PC 110VAC	142
	7062020415	MSV 26 SOS PC 220VAC	142
	**7062030212**	MSV 26 SES CC 24VDC	143
	706203021M	MSV 26 SES CC 24VDC M8	143
	7062030213	MSV 26 SES CC 24VAC	143
	7062030214	MSV 26 SES CC 110VAC	143
	7062030215	MSV 26 SES CC 220VAC	143
	**7062030312**	MSV 26 SES OC 24VDC	143
	706203031M	MSV 26 SES OC 24VDC M8	143
	7062030313	MSV 26 SES OC 24VAC	143
	7062030314	MSV 26 SES OC 110VAC	143
	7062030315	MSV 26 SES OC 220VAC	143
	**7062030412**	MSV 26 SES PC 24VDC	143
	706203041M	MSV 26 SES PC 24VDC M8	143
	7062030413	MSV 26 SES PC 24VAC	143
	7062030414	MSV 26 SES PC 110VAC	143
	7062030415	MSV 26 SES PC 220VAC	143

CONNESSIONE M8

1 Non utilizzato
3 0 V (Funzionamento anche a polarità invertita)
4 +24V

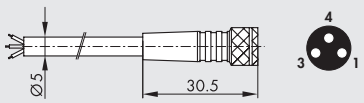
ACCESSORIES FOR VALVES MACH 16 MSV, SOLENOID/PNEUMATIC

CONNECTOR 15 mm DIN 43650 SHAPE C



Code	Description
W0970501021	Connector 15 mm shape C DIN 43650
W0970501022	Connector 15 mm shape C DIN 43650 LED 24V
W0970501025	Connector 15 mm shape C DIN 43650 LED+VDR 24V

M8 STRAIGHT CONNECTOR WITH CABLE

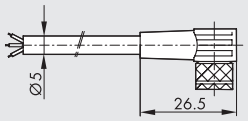


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400A0100	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m
02400A0250	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m
02400A0500	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m
02400A1000	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTOR WITH CABLE

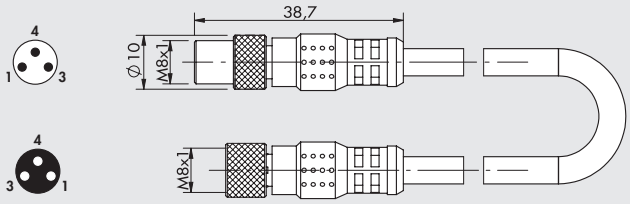


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400B0100	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m
02400B0250	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m
02400B0500	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m
02400B1000	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

M8 M - M8 F CONNECTOR

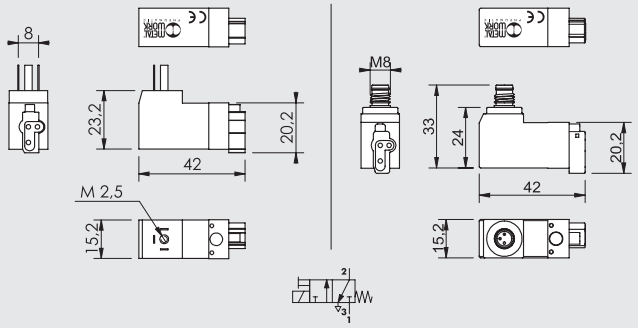


Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Note: Can be used for direct connection to the modules with digital OUTPUT of the EB 80 valves

SPARE PARTS FOR VALVES MACH 16 MSV, SOLENOID/PNEUMATIC

COIL MACH 16

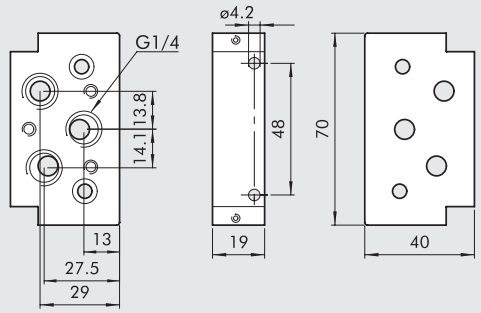


Code	Description
W4015301000	In-line pilot 24VDC
W4015301210	In-line pilot 24VDC M8
W4015301010	In-line pilot 24VAC 50/60 HZ
W4015301020	In-line pilot 110VAC 50/60 HZ
W4015301030	In-line pilot 220VAC 50/60 HZ

NOTES

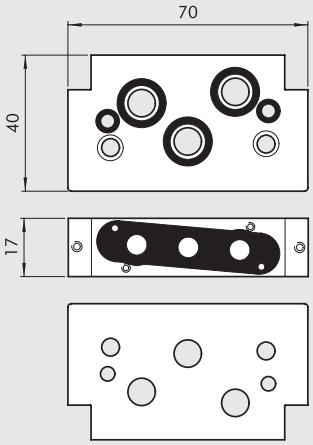
MANIFOLD BASES FOR VALVES MACH 16

① MACH 16 INPUT END-PLATE



Code	Description	Weight [g]
0227100201	Input end-plate kit M16/VDMA	125

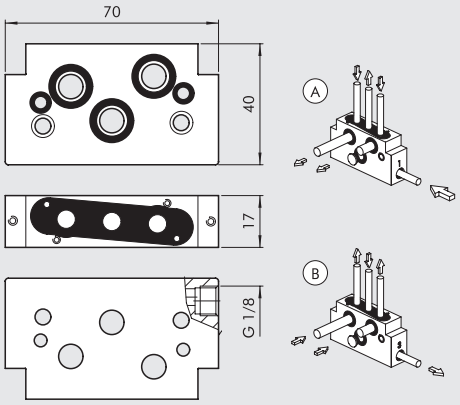
② MACH 16 MANIFOLD BASE



Code	Description	Weight [g]
0227100150	Manifold base kit M16	121

③ MACH 16 SEPARATE FEED MANIFOLD BASE

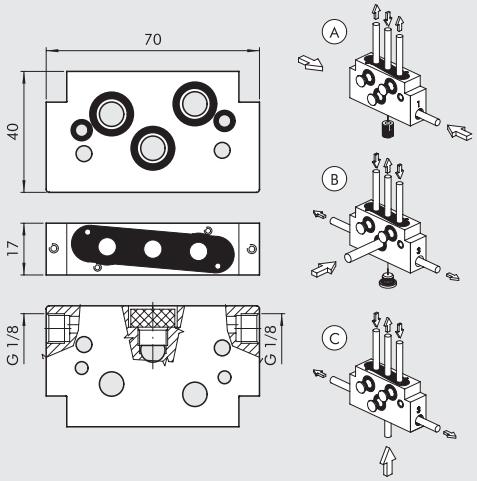
Ⓐ Separate feed
Ⓑ Separate exhaust



Code	Description	Weight [g]
0227100301	Manifold base kit-separate feed M16	119

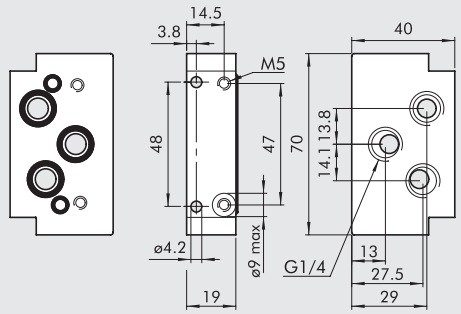
④ MACH 16 EXHAUST FEED MANIFOLD BASE

Ⓐ Exhaust feed
Ⓑ Separate exhausts
Ⓒ Separate feed/exhausts



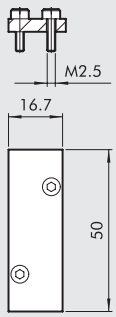
Code	Description	Weight [g]
0227100302	Manifold base kit-exhaust feed M16	113

⑤ MACH 16 OUTPUT END-PLATE



Code	Description	Weight [g]
0227100200	Output end-plate kit M16/VDMA	122

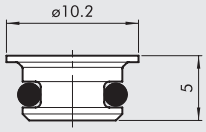
⑥ BLANKING PLATE – UNUSED POSITION



Code	Description	Weight [g]
0225004500	Accessories - blanking plate for Mach 16	18

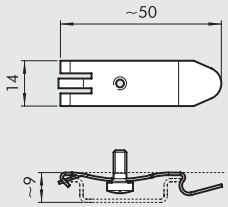
METAL WORK PNEUMATIC

⑦ INTERMEDIATE DIAPHRAGM



Code	Description	Weight [g]
0227100000	Intermediate diaphragm	1

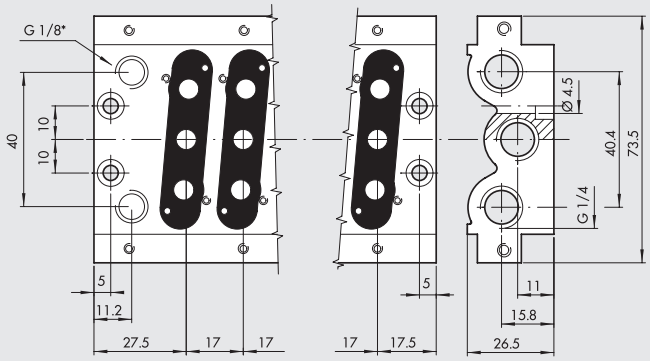
⑧ CONNECTION BRACKET ON BAR OMEGA (DIN EN 50022)



Code	Description	Weight [g]
0227300600	Connection bracket on DIN bar	7

MULTIPLE BASES FOR VALVES MACH 16

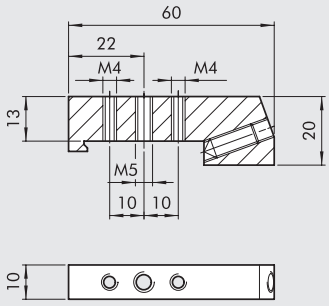
MULTIPLE BASE FOR MACH 16



* Exhaust solenoid pilots

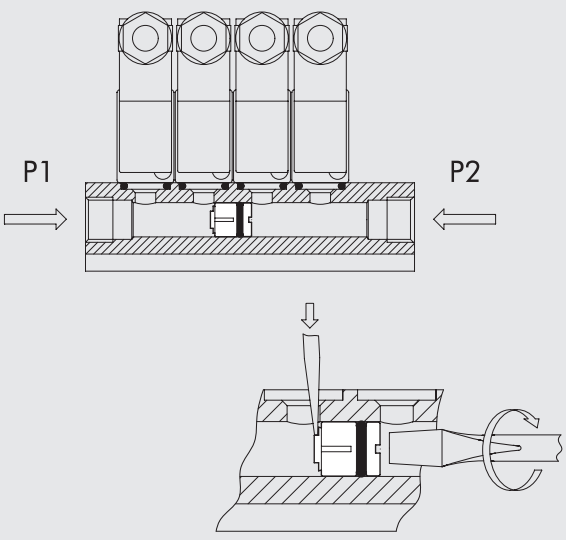
Code	Description	N° of positions	Weight [g]
0225000201	Base CVM.PN-08-02-0-000	2	180
0225000401	Base CVM.PN-08-04-0-000	4	286
0225000601	Base CVM.PN-08-06-0-000	6	390
0225000801	Base CVM.PN-08-08-0-000	8	500
0225001001	Base CVM.PN-08-10-0-000	10	613
0225001201	Base CVM.PN-08-12-0-000	12	706

ADAPTER FOR BAR OMEGA (DIN EN 50022)



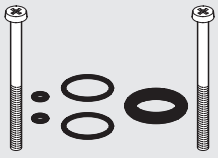
Code	Description	Weight [g]
0225004600	Omega-adapter Mach 16	46

INTERMEDIATE DIAPHRAGM



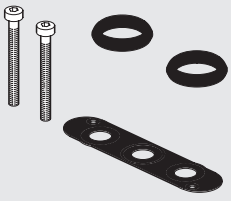
Code	Description	Weight [g]
0227100001	Acc. multiple base diaphragm	6

GASKET KIT (FOR OLD BASES)



Code	Description	Weight [g]
0226007001	M16 multiple base gasket kit	5

KIT OF SPARE INTEGRATED GASKET



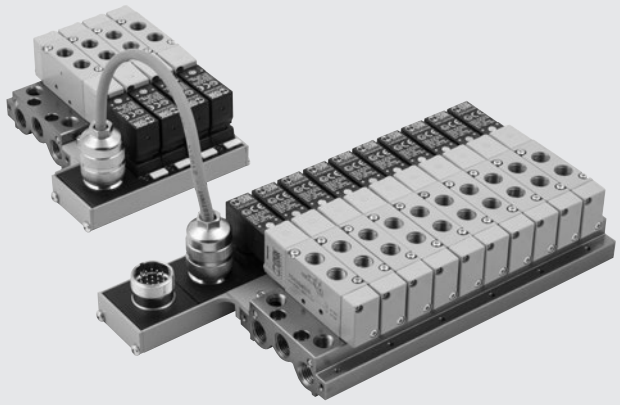
Code	Description	Weight [g]
0226007003	M16 multiple base gasket kit	5

MULTIPLE CONNECTORS MACH 16

Mach 16 valves can be mounted on bases with pneumatic or electrical connection. The electric contacts of the individual valves are connected by means of a printed circuit board in a sealed conduit to a single connection point suitable for up to 16 controls.
The number 16 was chosen because the number of outputs of most PLC output boards is 16 or a multiple of it.
The system has numerous alternatives and variants for a wide range of requirements:

- Base for monostable or bistable valves.
- Connection via a multiple connector or wired cable.
- Supply of individual parts or ready prepared bases or complete valve units
- The configuration can be modified at any time to convert bases for monostable valves into bases for bistable valves.
- The return cable can be used to connect two monostable valve units to a single multiple connector.

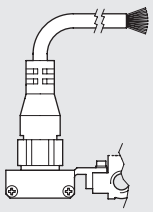
All versions are certified for electromagnetic compatibility and hence they bear the CE mark. The system is prearranged for mounting a slave for field buses, which can be added at any time. Valve units with multiple pneumatic/electrical connection are supplied complete with valves and are tested.
System modularity means that the valve sequence can be ordered to meet your own requirements (see key to codes).



TECHNICAL DATA

Supply voltage		24VDC - 24VAC
Maximum absorption		50 mA for each position
Valve actuation indicator		Yellow LED
Protection		Fuse
Operating temperature range	°C	-10 to +60
Degree of protection with valves mounted		IP65
Insulation class		In compliance with IEC 664-1and VDE 0110 Group C
Electromagnetic compatibility		In compliance with EEC 366/89
Maximum number of solenoid valves which can be applied		16
n° of contacts		19, 16 of which for solenoid valves, 2 common and 1 earth
Pre-wired version		
Cable length	m	5
n° of wires		19, 16 of which for solenoid valves, 2 common and 1 earth
Wire section	mm^2	0.22
Shielding		Tin plated – covering 80 to 90%
Cable		Outer oil-proof and flame-proof PVC sheath
Cable outside diameter	mm	8.5

WIRING DIAGRAM FOR VERSION WITH CONNECTOR

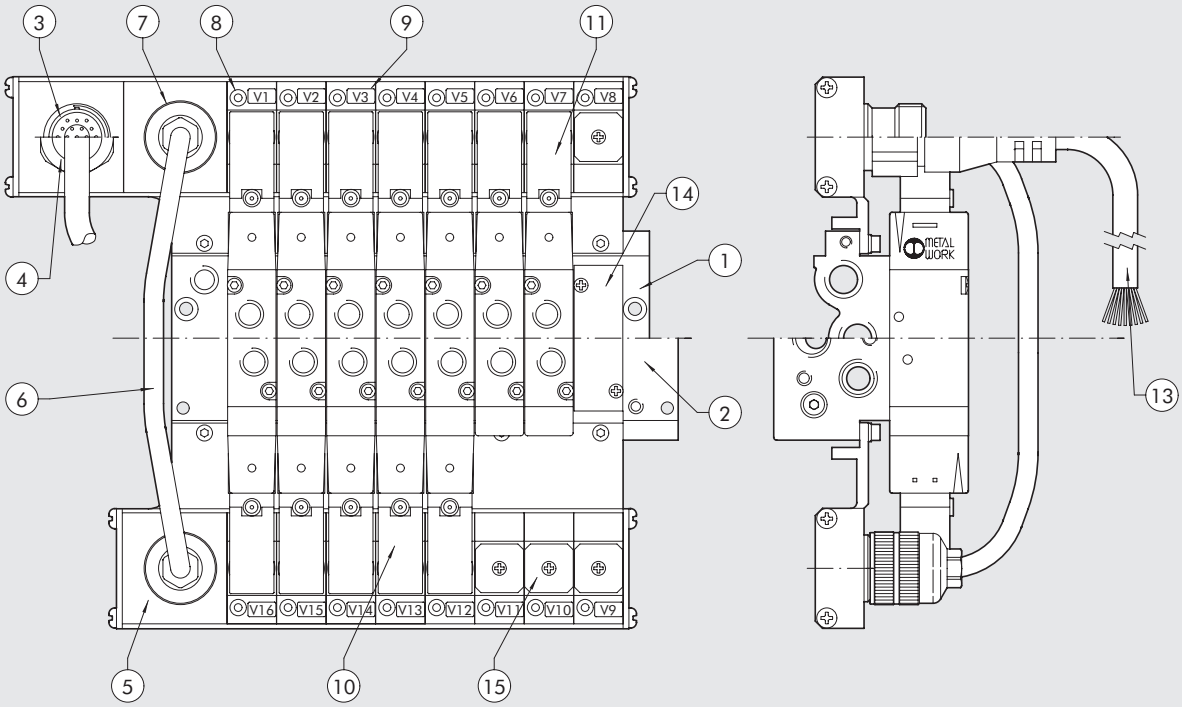


Position of electrical contact	Colour of the corresponding wire
V1	Green /black
V2	Yellow
V3	White/black
V4	Blue
V5	Red
V6	Yellow/black
V7	White
V8	Brown/red
V9	Red/white
V10	Red/black
V11	Green/red
V12	Blue/red
V13	Brown
V14	Orange/black
V15	Orange
V16	Blue/black
GROUND	Yellow/red
– COM	Brown/black
– COM	Green

NOTES

METAL WORK PNEUMATIC

COMPONENTS



① Multiple base: extruded anodized aluminium
② Modular base: anodized aluminium
③ Main assembly, version with connector
④ Main assembly, pre-wired version
⑤ Secondary unit/additional secondary unit
⑥ 10-wire return cable
⑦ Socket for 10-wire return cable
⑧ LED (LED on = Solenoid valve energised)
⑨ Identification label (for writing on)
⑩ Bistable solenoid valve MACH 16
⑪ Monostable solenoid valve MACH 16
⑬ 19-wire cable for pre-wired version
⑭ Blanking plate - pneumatic position: anodized aluminium
⑮ Small blanking plate - electric connector: painted aluminium

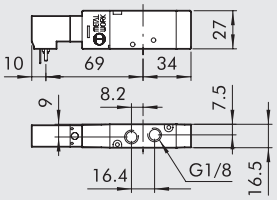
SYNOPTIC, SIZES AND VERSIONS

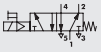
A	0 8	B	W C 5	0 8	M M V L	2 4 V D C
FAMILY	**NO. OF POSITIONS**			**SIZE**		**VOLTAGE**
A multiple base for solenoid/pneumatic connection Mach 16	**04** 4 posn.	**M** electrical connection only for monostable valves	**MCN** electrical connection	**08** G 1/8"	**M** MSV 25 SMS OO	24VDC
B manifold base for Mach 16 solenoid/pneumatic connection	**06** 6 posn.	**B** electrical connection for bistable valves	**WC5** pre-wired cable 5 m		**V** MSV 25 SCS OO	24VAC
	08 8 posn.		**ACM** additional connection for monostable battery		**L** MSV 25 SMP OO	
	10 10 posn.				**J** MSV 25 SMB OO	
	12 12 posn.				**K** MSV 25 SCB OO	
					G MSV 26 SMS CC	
					O MSV 26 SCS CC	
					E MSV 26 SMS OC	
					F MSV 26 SCS OC	
					B MSV 26 SMS PC	
					C MSV 26 SCS PC	
					A blanking plate	
					D intermediate diaphragm	

N.B.: The valve insertion order inside the descriptive key is the following, starting from the connector, from the left towards the right: the first left square corresponds to the first valve close to the connector on the base. There are 12 squares available for the description: if you order a base with less than 12 positions, complete by placing a 0 in the remaining boxes.

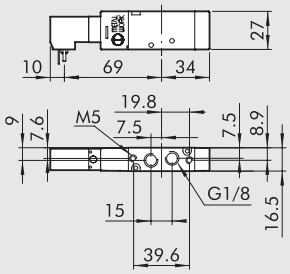
MACH 16 VALVES FOR MULTIPLE CONNECTOR

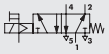
Ⓜ MONOSTABLE 5/2, SOLENOID/PNEUMATIC - MECHANICAL SPRING



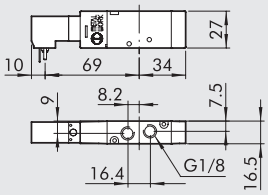
Symbol	Code	Description	Weight [g]
	**7062040132**	MSV 25 SMS OO 24VDC	92
	7062040133	MSV 25 SMS OO 24VAC	92

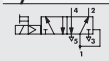
Ⓥ MONOSTABLE 5/2, SOLENOID/PNEUMATIC, PILOT-ASSISTED - MECHANICAL SPRING



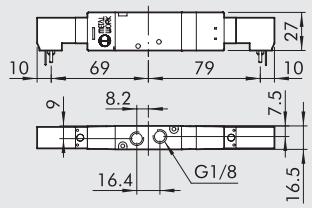
Symbol	Code	Description	Weight [g]
	**7062060132**	MSV 25 SCS OO 24VDC	93
	7062060133	MSV 25 SCS OO 24VAC	93

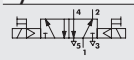
Ⓛ MONOSTABLE 5/2, SOLENOID/PNEUMATIC - PNEUMATIC SPRING



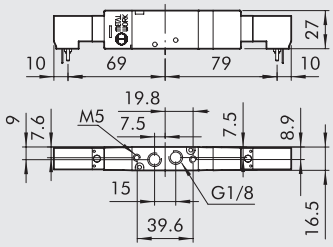
Symbol	Code	Description	Weight [g]
	**7062040102**	MSV 25 SMP OO 24VDC	93
	7062040103	MSV 25 SMP OO 24VAC	93

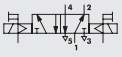
Ⓙ BISTABLE 5/2, SOLENOID/PNEUMATIC



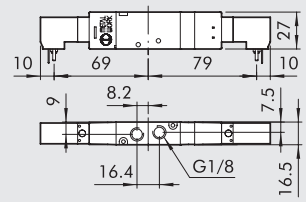
Symbol	Code	Description	Weight [g]
	**7062040112**	MSV 25 SMB OO 24VDC	139
	7062040113	MSV 25 SMB OO 24VAC	139

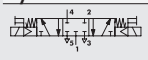
Ⓚ BISTABLE 5/2, SOLENOID/PNEUMATIC, PILOT-ASSISTED



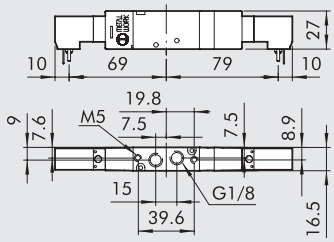
Symbol	Code	Description	Weight [g]
	**7062060112**	MSV 25 SCB OO 24VDC	140
	7062060113	MSV 25 SCB OO 24VAC	140

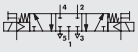
Ⓖ MONOSTABLE 5/3, SOLENOID/PNEUMATIC - CLOSED CENTRES



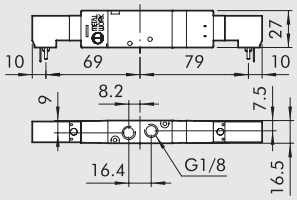
Symbol	Code	Description	Weight [g]
	**7062040212**	MSV 26 SMS CC 24VDC	142
	7062040213	MSV 26 SMS CC 24VAC	142

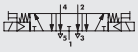
Ⓞ MONOSTABLE 5/3, SOLENOID/PNEUMATIC, PILOT-ASSISTED - CLOSED CENTRES



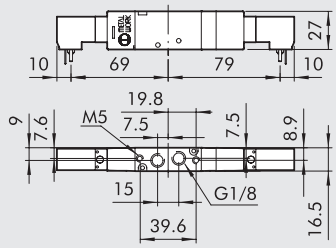
Symbol	Code	Description	Weight [g]
	**7062060212**	MSV 26 SCS CC 24VDC	143
	7062060213	MSV 26 SCS CC 24VAC	143

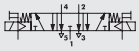
Ⓔ MONOSTABLE 5/3 SOLENOID/PNEUMATIC - OPEN CENTRES



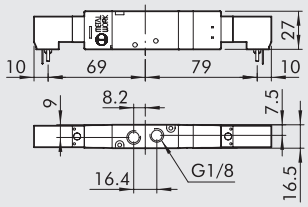
Symbol	Code	Description	Weight [g]
	**7062040312**	MSV 26 SMS OC 24VDC	142
	7062040313	MSV 26 SMS OC 24VAC	142

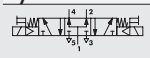
Ⓕ MONOSTABLE 5/3 SOLENOID/PNEUMATIC, PILOT-ASSISTED - OPEN CENTRES



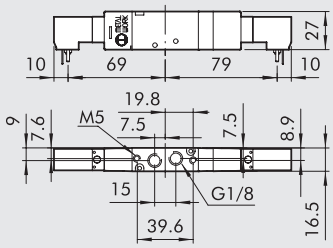
Symbol	Code	Description	Weight [g]
	**7062060312**	MSV 26 SCS OO 24VDC	143
	7062060313	MSV 26 SCS OO 24VAC	143

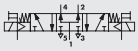
Ⓑ MONOSTABLE 5/3, SOLENOID/PNEUMATIC - PRESSURE CENTRES



Symbol	Code	Description	Weight [g]
	**7062040412**	MSV 26 SMS PC 24VDC	142
	7062040413	MSV 26 SMS PC 24VAC	142

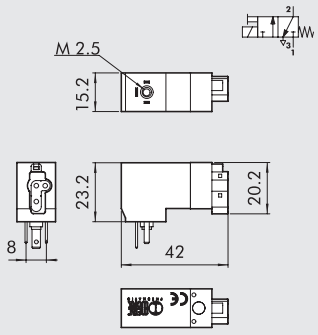
Ⓒ MONOSTABLE 5/3, SOLENOID/PNEUMATIC, PILOT-ASSISTED - PRESSURE CENTRES



Symbol	Code	Description	Weight [g]
	**7062060412**	MSV 26 SCS PC 24VDC	143
	7062060413	MSV 26 SCS PC 24VAC	143

SPARE PARTS

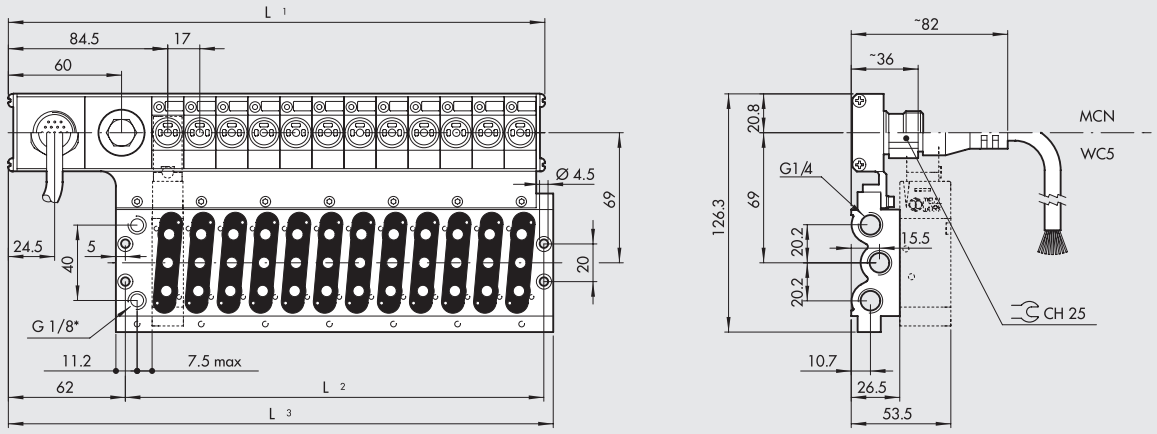
COIL MACH 16



Code	Description
W4015401000	In-line pilot 24VDC
W4015401010	In-line pilot 24VAC 50/60 Hz

BASES WITH MULTIPLE CONNECTION

MONOSTABLE SOLENOID/PNEUMATIC BASE WITH 4, 6, 8, 10, 12 POSITIONS

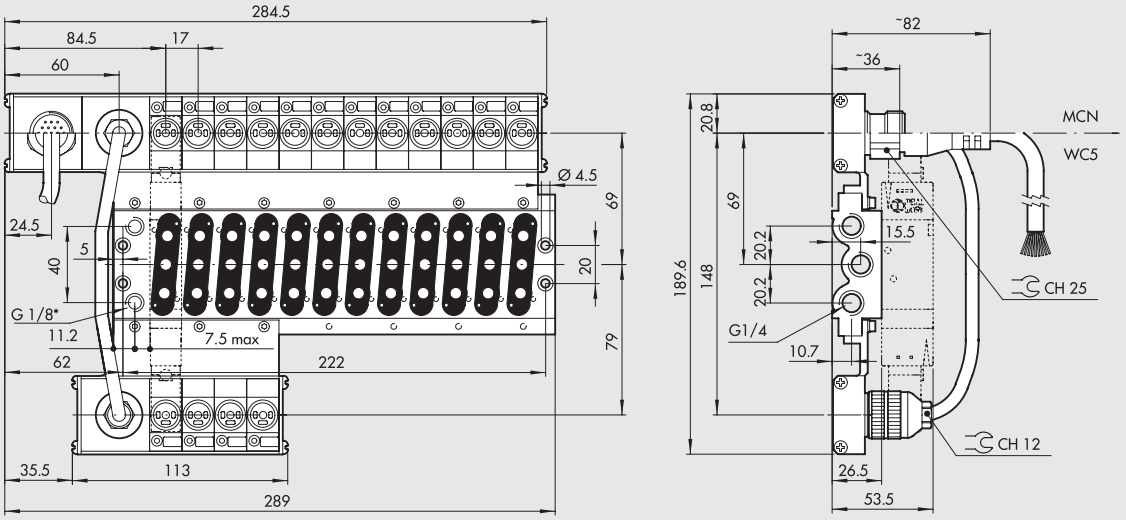


* Exhaust solenoid pilots

	Pos.-Nr.	L1	L2	L3	Description	Code 24VDC	Code 24VAC	Weight [g]
With multiple connector	4	148.5	86	153	CVM EP 08 04 M MCN	**0225100401**	**0225110401**	504
	6	182.5	120	187	CVM EP 08 06 M MCN	**0225100601**	**0225110601**	644
	8	216.5	154	221	CVM EP 08 08 M MCN	**0225100801**	**0225110801**	784
	10	250.5	188	255	CVM EP 08 10 M MCN	**0225101001**	**0225111001**	924
	12	284.5	222	289	CVM EP 08 12 M MCN	**0225101201**	**0225111201**	1264
With pre-wired cable	4	148.5	86	153	CVM EP 08 04 M WC5	**0225400401**	**0225410401**	3642
	6	182.5	120	187	CVM EP 08 06 M WC5	**0225400601**	**0225410601**	3781
	8	216.5	154	221	CVM EP 08 08 M WC5	**0225400801**	**0225410801**	3923
	10	250.5	188	255	CVM EP 08 10 M WC5	**0225401001**	**0225411001**	4070
	12	284.5	222	289	CVM EP 08 12 M WC5	**0225401201**	**0225411201**	4195

. . . . . : • 24VDC = direct current
• 24VAC = alternating current

BISTABLE SOLENOID/PNEUMATIC BASE WITH 12 POSITIONS



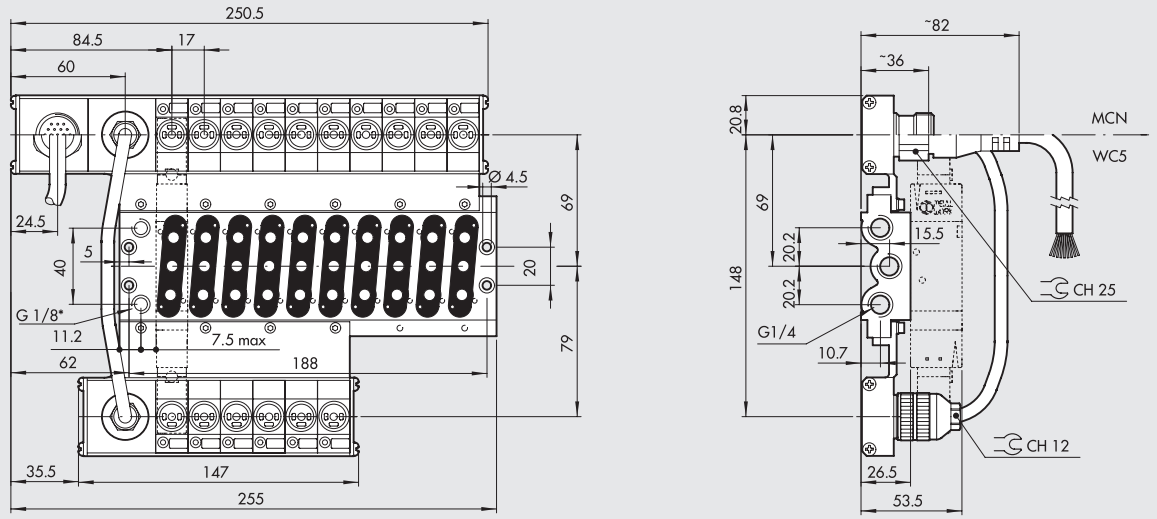
* Exhaust solenoid pilots

	Pos.-Nr.	Description	Code 24VDC	Code 24VAC	Weight [g]
With multiple connector	12	CVM EP 08 12 B MCN	**0225201201**	**0225211201**	1315
With pre-wired cable	12	CVM EP 08 12 B WC5	**0225501201**	**0225511201**	4700

. . . . . : • 24VDC = direct current
• 24VAC = alternating current

METAL WORK PNEUMATIC

BISTABLE SOLENOID/PNEUMATIC BASE WITH 10 POSITIONS

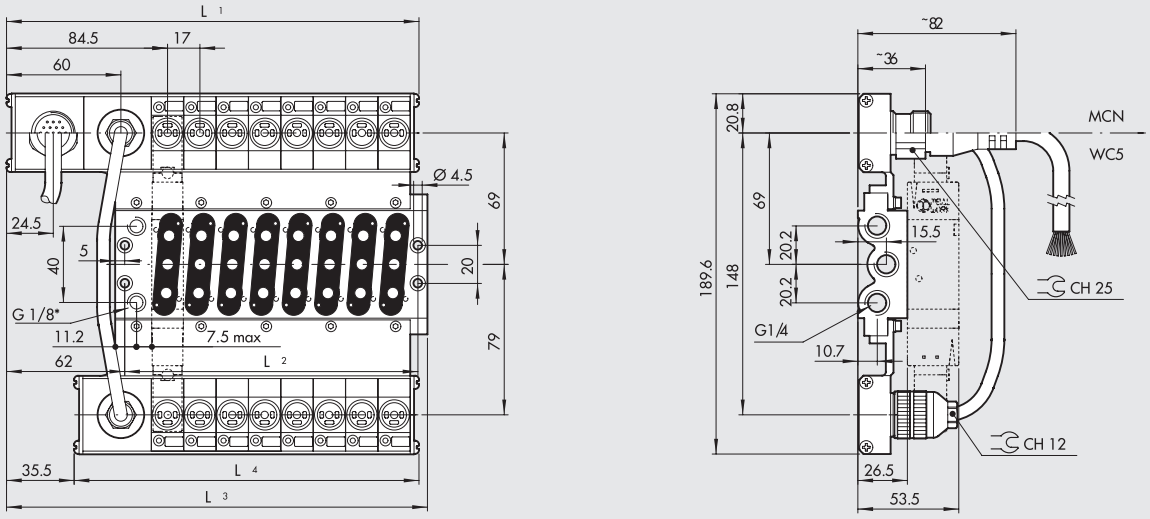


* Exhaust solenoid pilots

	Pos.-Nr.	Description	Code 24VDC	Code 24VAC	Weight [g]
With multiple connector	10	CVM EP 08 10 B MCN	**0225201001**	**0225211001**	1245
With pre-wired cable	10	CVM EP 08 10 B WC5	**0225501001**	**0225511001**	4600

. . . . . : • 24VDC = direct current
• 24VAC = alternating current

BISTABLE SOLENOID/PNEUMATIC BASE WITH 4, 6, 8 POSITIONS

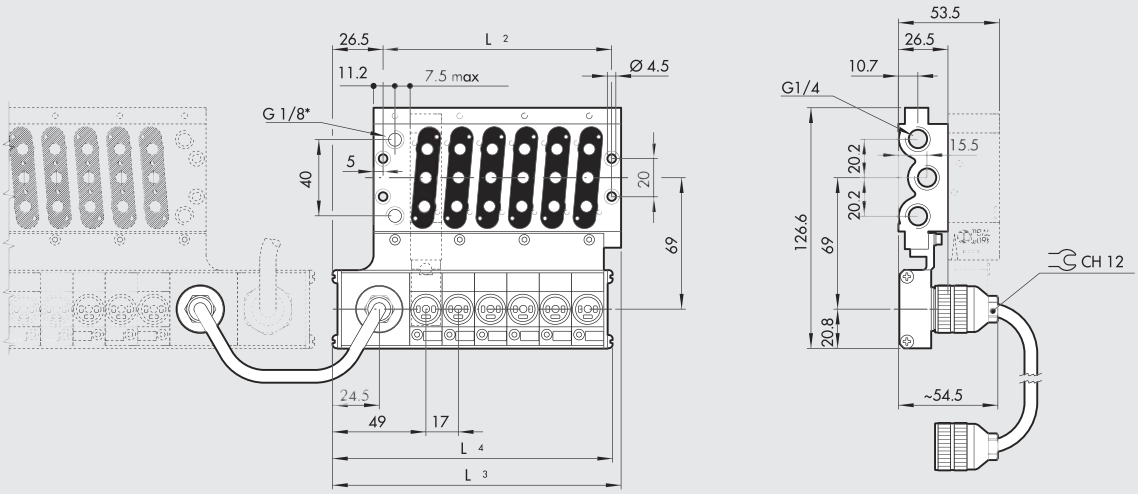


* Exhaust solenoid pilots

	Pos.-Nr.	L1	L2	L3	L4	Description	Code 24VDC	Code 24VAC	Weight [g]
With multiple connector	4	148.5	86	153	113	CVM EP 08 04 B MCN	**0225200401**	**0225210401**	770
	6	182.5	120	187	147	CVM EP 08 06 B MCN	**0225200601**	**0225210601**	965
	8	216.5	154	221	181	CVM EP 08 08 B MCN	**0225200801**	**0225210801**	1200
With pre-wired cable	4	148.5	86	153	113	CVM EP 08 04 B WC5	**0225500401**	**0225510401**	3910
	6	182.5	120	187	147	CVM EP 08 06 B WC5	**0225500601**	**0225510601**	4086
	8	216.5	154	221	181	CVM EP 08 08 B WC5	**0225500801**	**0225510801**	4264

. . . . . : • 24VDC = direct current
• 24VAC = alternating current

ADDITIONAL MONOSTABLE SOLENOID/PNEUMATIC BASE WITH 4, 6, 8 POSITIONS



* Exhaust solenoid pilots

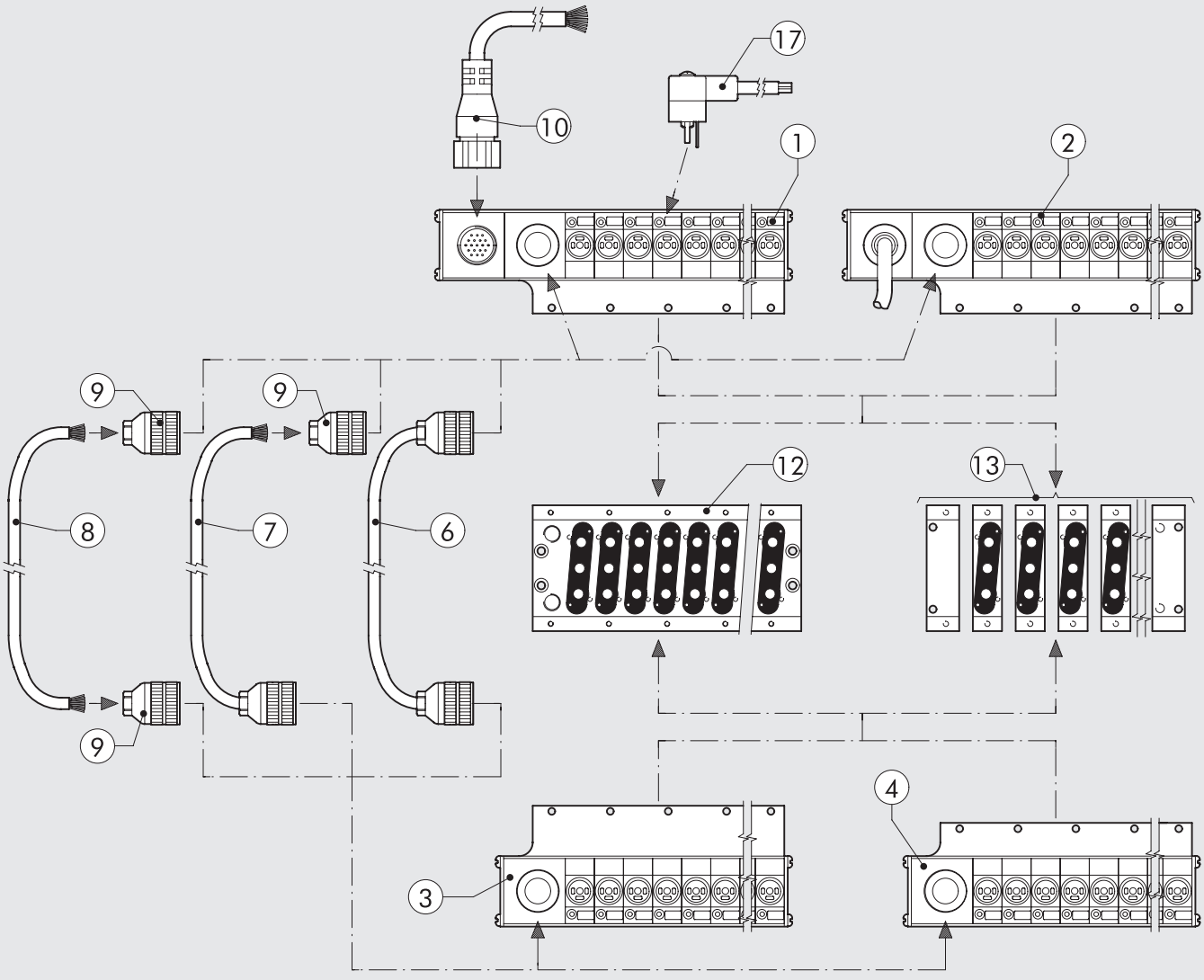
Pos.-Nr.	L2	L3	L4	Description	Code 24VDC	Code 24VAC	Weight [g]
4	86	117.5	113	CVM EP 08 04 M ACM	**0225300401**	**0225310401**	500
6	120	151.5	147	CVM EP 08 06 M ACM	**0225300601**	**0225310601**	640
8	154	185.5	181	CVM EP 08 08 M ACM	**0225300801**	**0225310801**	780

. . . . . : • 24VDC = direct current
• 24VAC = alternating current

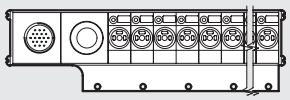
NOTES

MODULAR MULTIPLE CONNECTOR KIT

It is possible to buy the various assembly kits separately, to obtain a wide range of customised applications.
The main units of the version with connector ① or the pre-wired version ② can easily be assembled with the multiple base ⑫ or the modular manifold base ⑬. The manifold base allows particular circuits on the individual valves (feed from exhaust outlets, pressure differentiation, etc.)
Likewise, on the other side it is also simple to mount the secondary unit ③. This possibility is very interesting because it allows you to convert a base for monostable valves into a base for bistable valves.
If you fit an additional secondary unit ④ on a base, you obtain an additional solenoid base that can be connected by means of return cables to a main base for monostable valves. The only thing to remember is that in all cases the total number of positions (connection to solenoid valve coil) must not exceed sixteen.
The 10 pin return cable ⑥ is used when a main unit and a secondary unit, or only one additional secondary unit, are mounted together on the multiple (or manifold) base. It has to be connected to the sockets shown in the diagram.
For different requirements, it is also possible to have return cables with a connector at one end only ⑦, or just the 10-wire cable ⑧.
These types are available in different lengths. A 10-wire connector kit ⑨ is also available if you need to complete the wiring.
In the version with a connector, the piloting of the entire assembled base is assigned to the 19-wire connector complete with cable ⑩ which is available in various lengths.
The male connector ⑰ allows the free electrical connection of the multiple connector to be used, in order to control the valves placed in the system or to control the bistable valves by a monostable multiple electrical connection base.

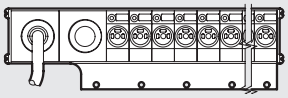


① MAIN KIT - VERSION WITH CONNECTOR



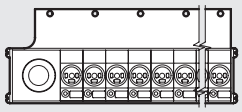
Code	Description	Weight [g]
0226500401	Main multiple connection kit, 4 positions 24VDC	245
0226510401	Main multiple connection kit, 4 positions 24VAC	245
0226500601	Main multiple connection kit, 6 positions 24VDC	280
0226510601	Main multiple connection kit, 6 positions 24VAC	280
0226500801	Main multiple connection kit, 8 positions 24VDC	308
0226510801	Main multiple connection kit, 8 positions 24VAC	308
0226501001	Main multiple connection kit, 10 positions 24VDC	344
0226511001	Main multiple connection kit, 10 positions 24VAC	344
0226501201	Main multiple connection kit, 12 positions 24VDC	396
0226511201	Main multiple connection kit, 12 positions 24VAC	396

② MAIN MULTIPLE PRE-WIRED CONNECTION KIT



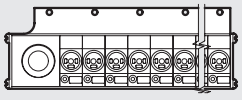
Code	Description	Weight [g]
0226400401	Pre-wired multiple main connector kit, 4 positions 24VDC	3350
0226410401	Pre-wired multiple main connector kit, 4 positions 24VAC	3350
0226400601	Pre-wired multiple main connector kit, 6 positions 24VDC	3400
0226410601	Pre-wired multiple main connector kit, 6 positions 24VAC	3400
0226400801	Pre-wired multiple main connector kit, 8 positions 24VDC	3423
0226410801	Pre-wired multiple main connector kit, 8 positions 24VAC	3423
0226401001	Pre-wired multiple main connector kit, 10 positions 24VDC	3460
0226411001	Pre-wired multiple main connector kit, 10 positions 24VAC	3460
0226401201	Pre-wired multiple main connector kit, 12 positions 24VDC	3490
0226411201	Pre-wired multiple main connector kit, 12 positions 24VAC	3490

③ SECONDARY KIT



Code	Description	Weight [g]
0226200401	Multiple secondary connector kit, 4 positions 24VDC	166
0226210401	Multiple secondary connector kit, 4 positions 24VAC	166
0226200601	Multiple secondary connector kit, 6 positions 24VDC	210
0226210601	Multiple secondary connector kit, 6 positions 24VAC	210
0226200801	Multiple secondary connector kit, 8 positions 24VDC	257
0226210801	Multiple secondary connector kit, 8 positions 24VAC	257

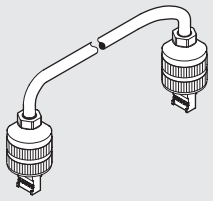
④ ADDITIONAL SECONDARY KIT



Code	Description	Weight [g]
0226300401	Multiple secondary connector kit, 4 positions 24VDC	158
0226310401	Multiple secondary connector kit, 4 positions 24VAC	158
0226300601	Multiple secondary connector kit, 6 positions 24VDC	199
0226310601	Multiple secondary connector kit, 6 positions 24VAC	199
0226300801	Multiple secondary connector kit, 8 positions 24VDC	243
0226310801	Multiple secondary connector kit, 8 positions 24VAC	243

METAL WORK PNEUMATIC

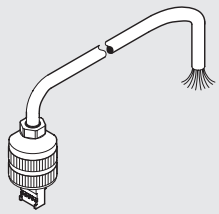
⑥ 10-WIRE RETURN CABLE



Code	Description
0226150022	10-whire return cable L = 22 cm
022615....	10-whire return cable

....Length in cm
Please contact our sales offices

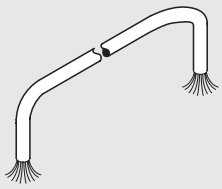
⑦ 10-WIRE RETURN CABLE - ONE END WITH CONNECTOR



Code	Description
022613....	10-wire return cable - one end with connector

....Length in cm
Please contact our sales offices

⑧ CABLE WITH 10 CONNECTORS



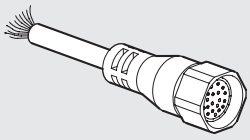
Code	Description
0226107201	10-wires cable

Please specify the desired length in metres

⑨ 10-WIRE CONNECTOR KIT

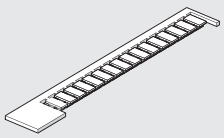
Code	Description
0226170002	10-wire connector kit

⑩ 19-WIRE CABLE, ONE END WITH CONNECTOR



Code	Description
0226140250	19-wire cable, one end with connector L = 2.5 m
0226140500	19-wire cable, one end with connector L = 5 m
0226141000	19-wire cable, one end with connector L = 10 m
0226141500	19-wire cable, one end with connector L = 15 m
0226142000	19-wire cable, one end with connector L = 20 m
0226143000	19-wire cable, one end with connector L = 30 m

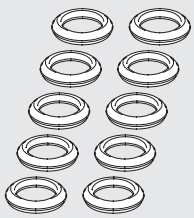
⑫ SET OF IDENTIFICATION PLATES



Code	Description
0226107000	Set of identification plates

Package: 16 pieces

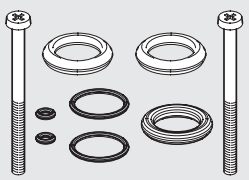
⑬ ELECTRIC CONTACT GASKETS



Code	Description
0226107001	Set of electric contact gaskets

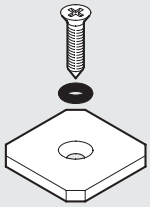
Package: 10 pieces

⑭ SET OF MULTIPLE BASE GASKETS



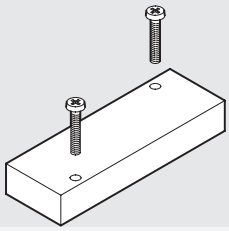
Code	Description
0226007001	Set of M16 multiple base gaskets

⑮ ELECTRIC CONNECTION BLANKING PLATE



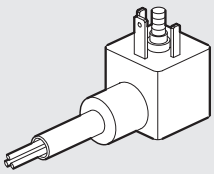
Code	Description
0225004502	Mach 16 electric connection blanking plate

⑯ BASE BLANKING PLATE



Code	Description
0225004500	Mach 16 base blanking plate

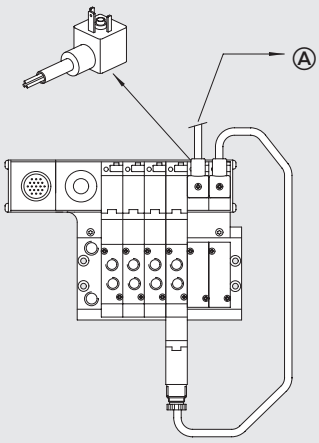
⑰ MALE CONNECTOR



Code	Description
W0970504021	Male connector 2 mm

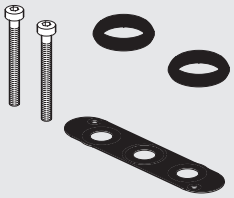
Max power for each position = 5W
Max total power of multiple connector = 36W

Example of a male connector



SOV 1/8″
SOV 1/4″
SOV 1/2″
SOV on base
MACH 16
MACH 18
ISO 1 – ISO 2
PIV valves
APR: progressive starter
V3V: circuit switching valve

⑱ KIT OF MULTIPLE BASE GASKETS



Code	Description
0226007003	Kit of M16 multiple base integrate gaskets

NOTES

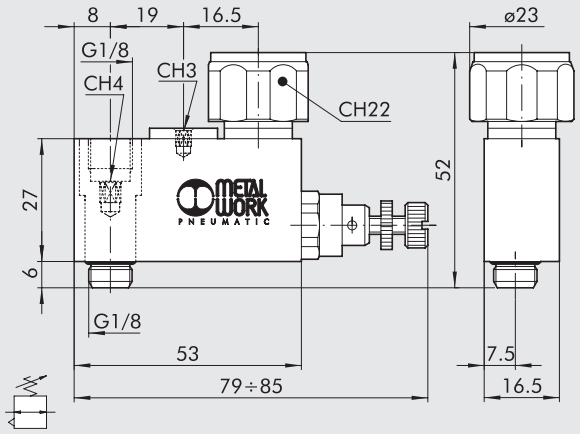
REDUCER WITH GAUGE FOR VALVES, SERIES RMV

The RMV-series miniature pressure regulator with pressure gauge for valves is specifically conceived for mounting on the outlets of valves with a 1/8" port. With limited cross dimension, it can be fitted to a series of small valves.
The body is 16.5 mm wide and fits exactly on the valves of the Mach 16 series for multiple electrical connection.
Using the RMV, it is possible to differentiate the pressure of each single output of the valves. For example, if you mount it on port 2 and not on port 4, the pressure can be reduced on port 2 only. If you mount one for each port, the pressure on port 2 will differ from that on port 4, which in turn is less than the feed pressure (outlet 1).
There are three 1/8" threaded RMV ports that are pneumatically connected in parallel. A small pressure gauge is mounted in one port; another port is plugged by an A7-type fitting and a third can take a fitting.
The user, however, can decide whether the layout of components is to be modified or not. He might, for example, decide to mount three fittings to create a three-port reduced-pressure distributor.

TECHNICAL DATA

Threaded input connection		1/8" male
Threaded output connection		1/8" female
Regulation range	bar	1 to 8
	MPa	0.1 to 0.8
	psi	14.5 to 116
Input pressure	bar	2 to 10
	MPa	0.2 to 1
	psi	29 to 145
Flow rate at 6.3 bar (0.63 MPa - 91 psi) ΔP 1 bar	Nl/min	140
Flow rate at free exhaust at 6.3 bar (0.63 MPa - 91 psi)	Nl/min	360
Fluid		Filtered lubricated or unlubricated air
Maximum temperature at 10 bar (1 MPa - 145 psi)	°C	-10 to +60
	°F	+14 to + 140
Assembly position		On valves
Use instructions		The pressure must always be regulated in increasing values

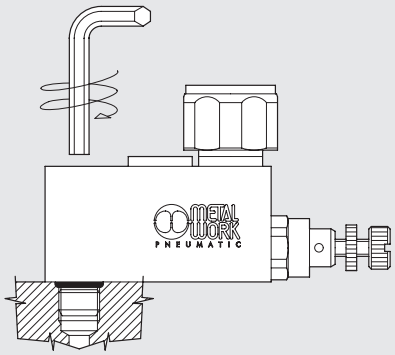
DIMENSIONES



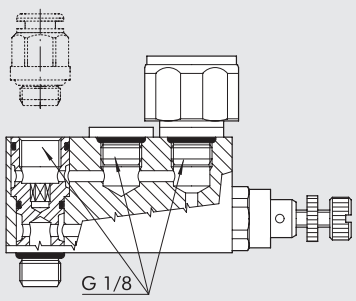
Code	Description
9061601	RMV 1/8"

APPLICATIONS - ASSEMBLY

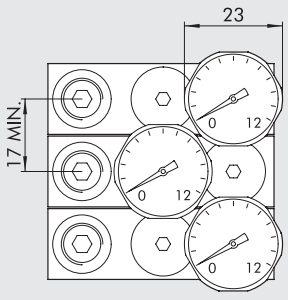
Fixing the reducer onto the valve



3 outputs with G1/8" thread

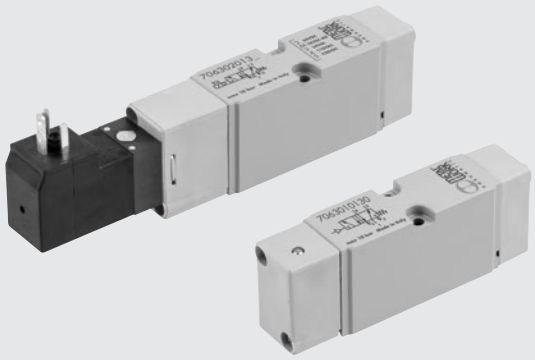


When mounting on valve units, with a pitch of less than 23 mm, alternate the gauge positions



VALVES MACH 18, ISO 15407-1/VDMA 24563-02

Mach 18 valve is manufactured according to the ISO 1507-1 standard, which in turn absorbs the VDMA 24563-02 rule. It comes in 5-way versions with 2 and 3 positions with solenoid or pneumatic actuation.

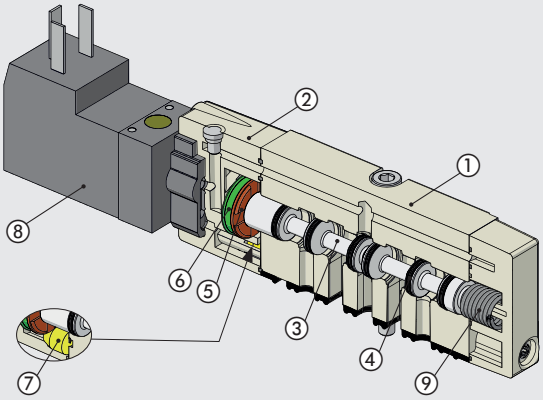


TECHNICAL DATA

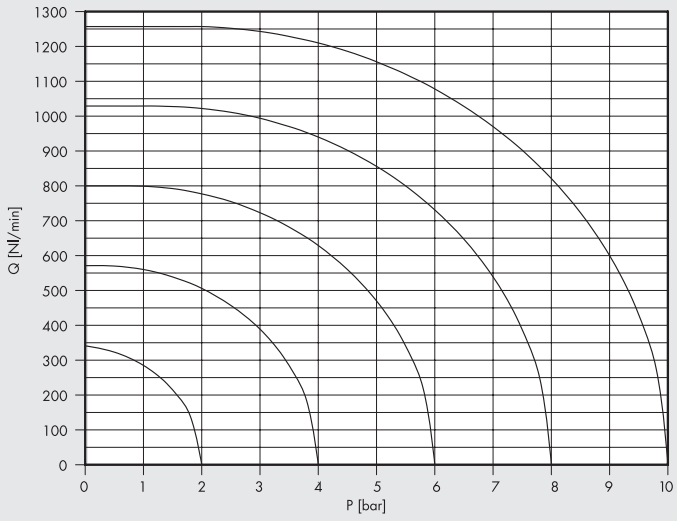
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous
Operating pressure:	bar	
• monostable		1.9 to 10
• monostable 5/3		Vacuum to 10 pneumatic/1.9 to 10 solenoid/pneumatic
• bistable		Vacuum to 10 pneumatic/1 to 10 solenoid/pneumatic
• pilot-assisted		Vacuum to 10
Minimum pilot pressure	bar	2 to 10
Operating temperature range	°C	-10 to +60
Conductance C	Nl/min · bar	114.86
Critical ratio b	bar/bar	0.25
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	340
Flow rate at 6 bar ΔP 1 bar	Nl/min	470
Installation		In any position (vertical assembly is not recommended for bistable valves subjected to vibration)
Assembly		On manifold bases
Recommended lubricant		ISO and UNI FD 22
Solenoid pilot with integrated coil		DIN 43650 C-shape; M8 threaded connection (available for 24VDC voltage)
Hand operator		Monostable on solenoid pilot (with manual monostable on request)
Compatibility with oils		See **chapter Z1**

COMPONENTS

① VALVE BODY: Aluminium
② CONTROL/END CAP: Hostaform®
③ SPOOL: Aluminium
④ GASKETS: Polyurethane
⑤ PISTONS: Hostaform®
⑥ PISTON GASKET: Polyurethane
⑦ FILTER: sintered HDPE
⑧ PILOT: with integrated coil
⑨ SPRINGS: special steel

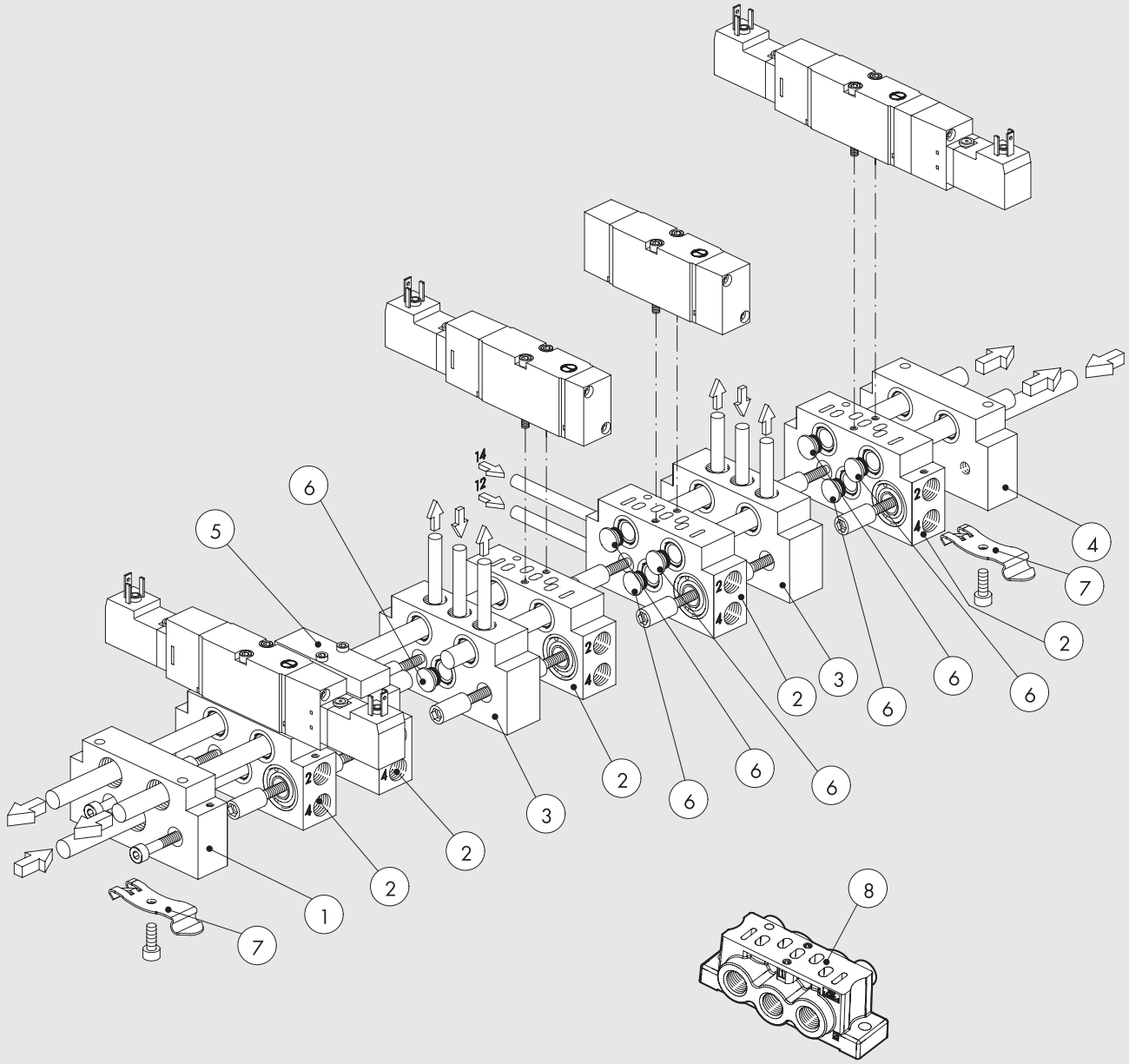


FLOW CHART



METAL WORK PNEUMATIC

MODULARITY



Reference	Code	Description
①	**0227100201**	ISO 15407-1 input end plate kit
②	**0227200150**	ISO 15407-1 manifold side base kit
③	**0227200300**	ISO 15407-1 intermediate bases
④	**0227100200**	ISO 15407-1 output end plate kit
⑤	**0227200500**	ISO 15407-1 blanking plate
⑥	**0227100000**	Intermediate diaphragm
⑦	**0227300600**	Connection bracket on DIN bar
⑧	**0227200800**	ISO 15407-1 individual base kit

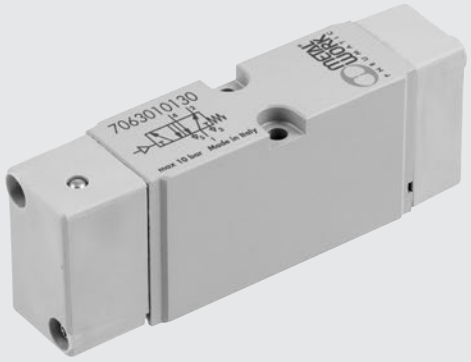
SYNOPTIC, SIZES AND VERSIONS

M S V	D	5	S O	S	O O	2 4 V D C
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING (12)**	**FURTHER DETAILS**	**VOLTAGE**
MSV solenoid/pneumatic	**D** ISO 15407-1/ VDMA 24563-02	**5** 5/2	**SO** solenoid	**S** mechanical springs	**OO** no indication	24VDC
MPV pneumatic		**6** 5/3	**SE** solenoid assisted	**B** bistable	**CC** closed centres	24VDC M8
			PN pneumatic		**OC** open centres	24VAC
					PC pressure centres	110VAC
						220VAC

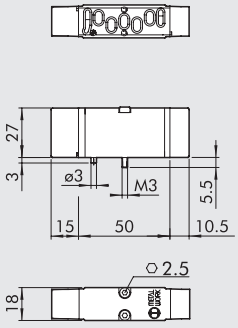
MACH 18 ISO 15407-1/VDMA 24563-02
MPV PNEUMATIC

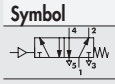
TECHNICAL DATA

Operating pressure:	bar	Vacuum to10
Minimum operating pressure:	bar	
• monostable, monostable 5/3		1.9
• bistable		1
Conductance C	Nl/min · bar	114.86
Critical ratio b	bar/bar	0.25
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	340
Flow rate at 6 bar ΔP 1 bar	Nl/min	470
Actuation response times at 6 bar:	ms	
• monostable		4
• bistable		4
Repositioning response times at 6 bar	ms	
• monostable		8.4
• bistable		4
Operating temperature range	°C	-10 to + 60

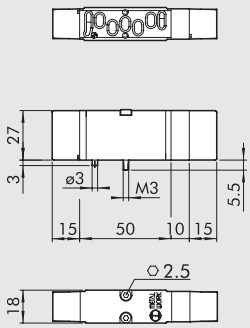


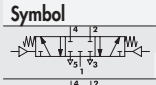
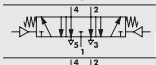
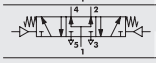
MONOSTABLE 5/2



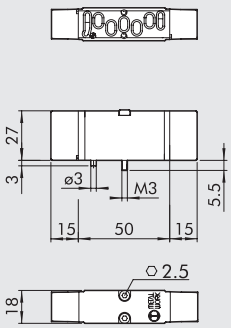
Symbol	Code	Abbrev.	Weight [g]
	7063010130	MPV D5 PNS OO	80

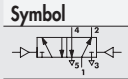
MONOSTABLE 5/3



Symbol	Code	Abbrev.	Weight [g]
	7063010210	MPV D6 PNS CC	93
	7063010310	MPV D6 PNS OC	93
	7063010410	MPV D6 PNS PC	93

BISTABLE 5/2



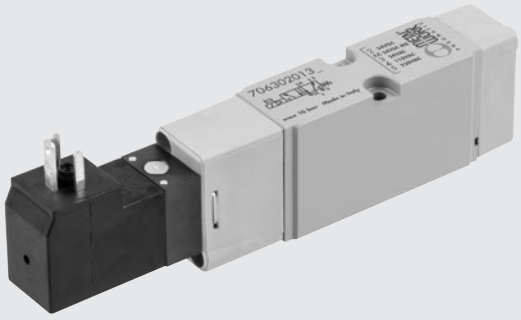
Symbol	Code	Abbrev.	Weight [g]
	7063010110	MPV D5 PNB OO	78

NOTES

MACH 18 ISO 15407-1/VDMA 24563-02
SOLENOID/PNEUMATIC MSV

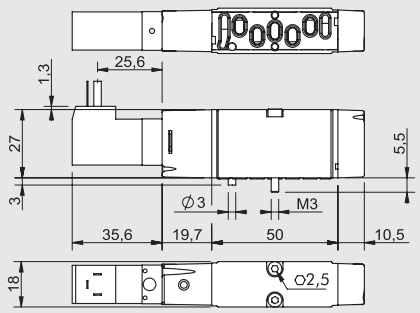
TECHNICAL DATA

Operating pressure:	bar	
• monostable, monostable 5/3		1.9 to 10
• bistable		1 to 10
• pilot-assisted		Vacuum to 10
Minimum pilot pressure	bar	2
Operating temperature range	°C	-10 to +60
Conductance C	Nl/min · bar	114.86
Critical ratio b	bar/bar	0.25
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	340
Flow rate at 6 bar ΔP 1 bar	Nl/min	470
TRA / TRR monostable at 6 bar	ms	12 / 26
TRA / TRR bistable at 6 bar	ms	21 / 21
Hand operator		Monostable on solenoid pilot (with bistable manual valve on request)
Pilot with integrated coil		24 VDC - 24 VAC - 110 VAC - 220 VAC
Power	W	1
Voltage tolerance		-10% to +15%
Insulation class		F 155
Degree of protection		IP 65 EN60529 with connector
Solenoid rating		100% ED
Electrical contacts		DIN 43650 C-shape
		M8 connection*
* Available for 24VDC voltage		

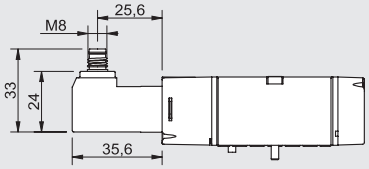


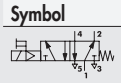
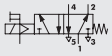
MONOSTABLE 5/2

DIN 43650-C VERSION



M8 VERSION



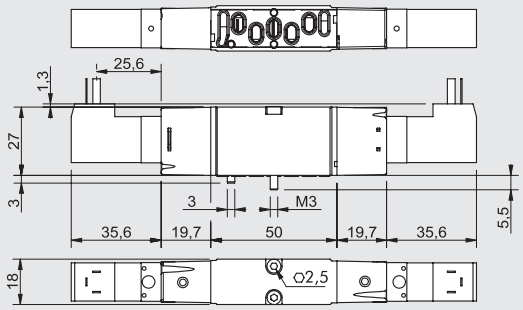
Symbol	Code	Abbrev.	Weight [g]
	7063020132	MSV D5 SOS OO 24VDC	110
	706302013M	MSV D5 SOS OO 24VDC M8	110
	7063020133	MSV D5 SOS OO 24VAC	110
	7063020134	MSV D5 SOS OO 110VAC	110
	7063020135	MSV D5 SOS OO 220VAC	110
	7063030132	MSV D5 SES OO 24VDC	110
	706303013M	MSV D5 SES OO 24VDC M8	110
	7063030133	MSV D5 SES OO 24VAC	110
	7063030134	MSV D5 SES OO 110VAC	110
	7063030135	MSV D5 SES OO 220VAC	110

M8 CONNECTION

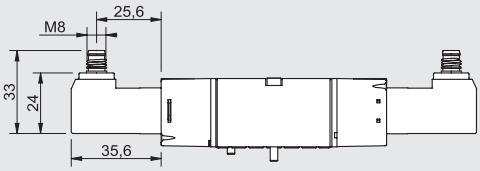
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

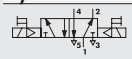
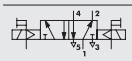
BISTABLE 5/2

DIN 43650-C VERSION



M8 VERSION



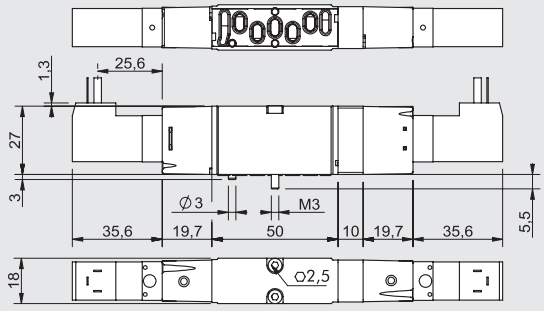
Symbol	Code	Abbrev.	Weight [g]
	7063020112	MSV D5 SOB OO 24VDC	143
	706302011M	MSV D5 SOB OO 24VDC M8	143
	7063020113	MSV D5 SOB OO 24VAC	143
	7063020114	MSV D5 SOB OO 110VAC	143
	7063020115	MSV D5 SOB OO 220VAC	143
	7063030112	MSV D5 SEB OO 24VDC	143
	706303011M	MSV D5 SEB OO 24VDC M8	143
	7063030113	MSV D5 SEB OO 24VAC	143
	7063030114	MSV D5 SEB OO 110VAC	143
	7063030115	MSV D5 SEB OO 220VAC	143

M8 CONNECTION

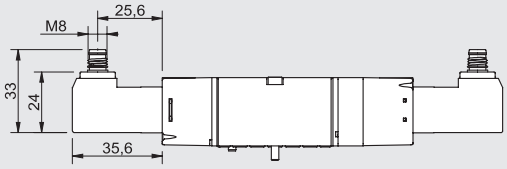
1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

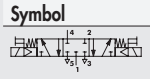
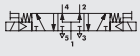
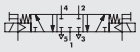
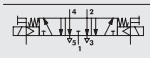
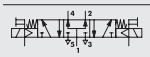
MONOSTABLE 5/3

DIN 43650-C VERSION



M8 VERSION



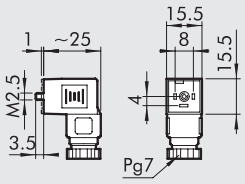
Symbol	Code	Abbrev.	Weight [g]
	**7063020212**	MSV D6 SOS CC 24VDC	156
	706302021M	MSV D6 SOS CC 24VDC M8	156
	7063020213	MSV D6 SOS CC 24VAC	156
	7063020214	MSV D6 SOS CC 110VAC	156
	7063020215	MSV D6 SOS CC 220VAC	156
	**7063020312**	MSV D6 SOS OC 24VDC	156
	706302031M	MSV D6 SOS OC 24VDC M8	156
	7063020313	MSV D6 SOS OC 24VAC	156
	7063020314	MSV D6 SOS OC 110VAC	156
	7063020315	MSV D6 SOS OC 220VAC	156
	**7063020412**	MSV D6 SOS PC 24VDC	156
	706302041M	MSV D6 SOS PC 24VDC M8	156
	7063020413	MSV D6 SOS PC 24VAC	156
	7063020414	MSV D6 SOS PC 110VAC	156
	7063020415	MSV D6 SOS PC 220VAC	156
	**7063030212**	MSV D6 SES CC 24VDC	156
	706303021M	MSVD6 SES CC 24VDC M8	156
	7063030213	MSV D6 SES CC 24VAC	156
	7063030214	MSV D6 SES CC 110VAC	156
	7063030215	MSV D6 SES CC 220VAC	156
	**7063030312**	MSV D6 SES OC 24VDC	156
	706303031M	MSV D6 SES OC 24VDC M8	156
	7063030313	MSV D6 SES OC 24VAC	156
	7063030314	MSV D6 SES OC 110VAC	156
	7063030315	MSV D6 SES OC 220VAC	156
	**7063030412**	MSV D6 SES PC 24VDC	156
	706303041M	MSV D6 SES PC 24VDC M8	156
	7063030413	MSV D6 SES PC 24VAC	156
	7063030414	MSV D6 SES PC 110VAC	156
	7063030415	MSV D6 SES PC 220VAC	156

M8 CONNECTION

1 Not used
3 0 V (Operation also with reverse polarity)
4 +24V

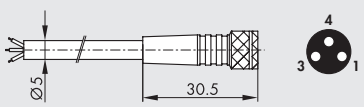
ACCESSORIES FOR VALVES MACH 18 MSV, SOLENOID/PNEUMATIC

CONNECTOR 15 mm DIN 43650 SHAPE C



Code	Description
W0970501021	Connector 15 mm C shape DIN 43650
W0970501022	Connector 15 mm C shape DIN 43650 LED 24V
W0970501025	Connector 15 mm C shape DIN 43650 LED+VDR 24V

M8 STRAIGHT CONNECTOR WITH CABLE

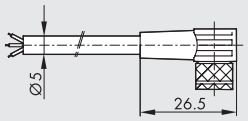


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400A0100	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 1 m
02400A0250	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 2.5 m
02400A0500	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 5 m
02400A1000	M8 female 3 PIN HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

90° M8 CONNECTOR WITH CABLE

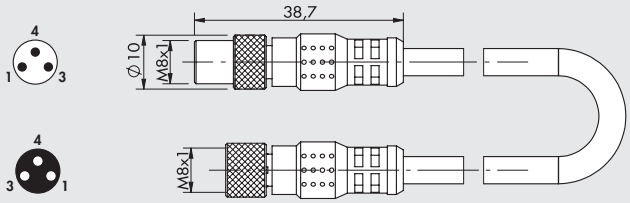


Pin	Cable color
1	Brown
3	Blue
4	Black

Code	Description
02400B0100	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 1 m
02400B0250	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 2.5 m
02400B0500	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 5 m
02400B1000	M8 female 3 PIN 90° HIGH FLEX CL6 connector with cable L = 10 m

Very flexible cables, class 6 according to IEC 60228

M8 M - M8 F CONNECTOR

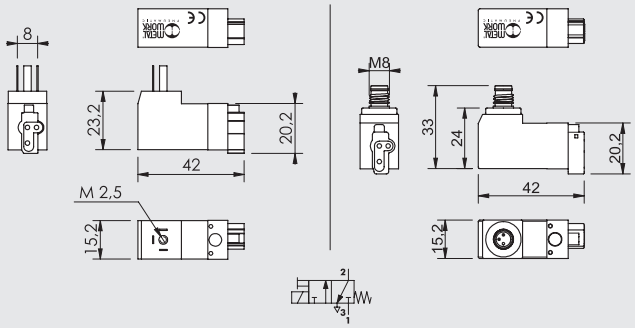


Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Note: Can be used for direct connection to the modules with digital OUTPUT of the EB 80 valves

SPARE PARTS FOR VALVES MACH 18 MSV, SOLENOID/PNEUMATIC

PILOT MACH 18

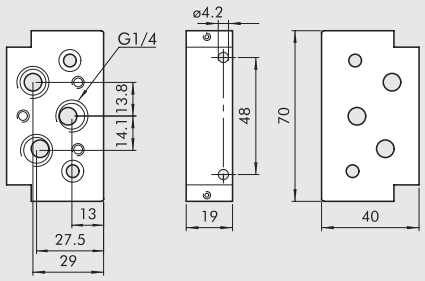


Code	Description
W4015301000	In-line pilot 24VDC
W4015301210	In-line pilot 24VDC M8
W4015301010	In-line pilot 24VAC 50/60 Hz
W4015301020	In-line pilot 110VAC 50/60 Hz
W4015301030	In-line pilot 220VAC 50/60 Hz

NOTES

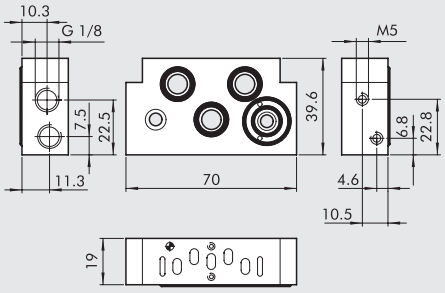
BASES TO ISO 15407-1/VDMA 24563-02 FOR MACH 18 VALVES

① INPUT END PLATE



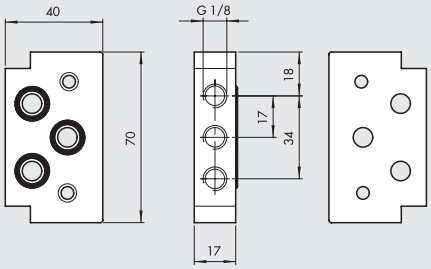
Code	Description	Weight [g]
0227100201	ISO 15407-1 input end plate kit	125

② MANIFOLD BASE, SIDE PORTS



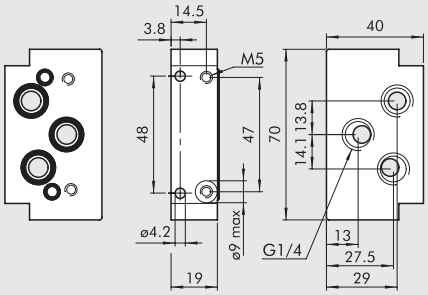
Code	Description	Weight [g]
0227200150	ISO 15407-1 manifold base, side ports kit	125

③ INTERMEDIATE UPPER PORTS



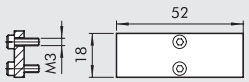
Code	Description	Weight [g]
0227200300	ISO 15407-1 intermediate upper ports kit	118

④ OUTPUT END PLATE



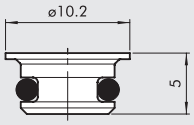
Code	Description	Weight [g]
0227100200	ISO 15407-1 output end-plate kit	122

⑤ BLANKING PLATE - UNUSED POSITION



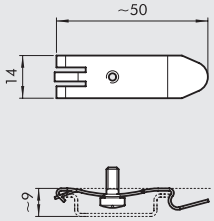
Code	Description	Weight [g]
0227200500	ISO 15407-1 blanking plate	24

⑥ INTERMEDIATE DIAPHRAGM



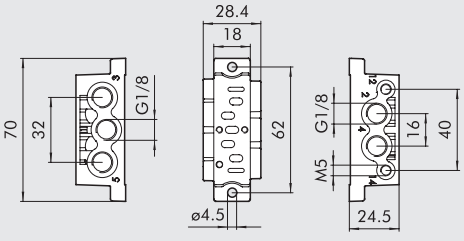
Code	Description	Weight [g]
0227100000	Intermediate diaphragm	2

⑦ CONNECTION BRACKETS ON THE BAR OMEGA (DIN EN 50022)



Code	Description	Weight [g]
0227300600	Connection brackets on DIN bar	7

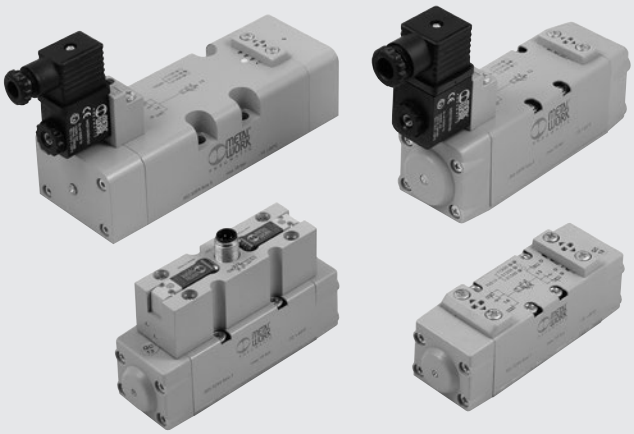
⑧ INDIVIDUAL BASE



Code	Description	Weight [g]
0227200800	ISO 15407-1 individual base kit	51

VALVES ISO 5599/1, SERIES IPV-ISV

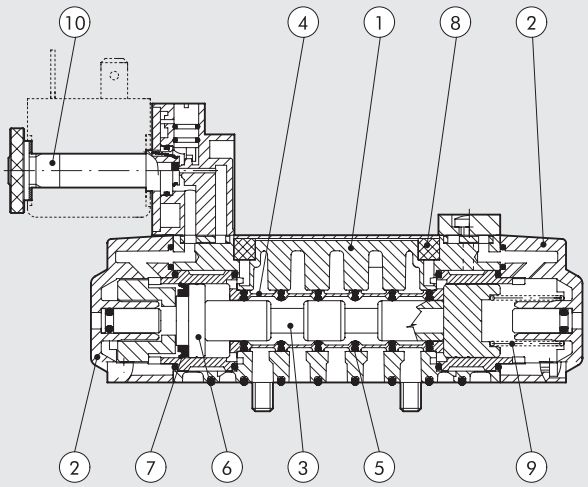
The assembly surface dimensions of ISO1, ISO2 and ISO 3 valves are to ISO5599-1. They are available in the 5-way versions with 2 and 3 positions and with pneumatic or solenoid actuation.



TECHNICAL DATA		ISO 1	ISO 2	ISO 3
Fluid		Filtered air without lubrication; lubrication, if used, must be continuous		
Operating pressure:	bar			
• monostable and bistable differential		Vacuum to 10 pneumatic / 2.5 to 10 solenoid/pneumatic		
• bistable		Vacuum to 10 pneumatic / 1 to 10 solenoid/pneumatic		
• pilot-assisted		Vacuum to 10		
Minimum pilot pressure	bar	2.5		
Operating temperature range	°C	-10 to +60		
Nominal diameter	mm	7.5	12	15
Conductance C	Nl/min · bar	250	657.14	971.43
Critical ratio b	bar/bar	0.36	0.25	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	700	1800	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	1100	2700	4600
Installation		In any position (vertical assembly is not recommended for bistable valves subjected to vibration)		
Assembly		On single and manifold bases according to ISO 5599/1		
Recommended lubricant		ISO and UNI FD 22		
Solenoid pilot		to CNOMO/in-line pilot / M12		to CNOMO
Hand operator		Bistable on solenoid pilot		
		Monostable on valve body		
Maximum coil nut torque	Nm	1		
Compatibility with oils		See **chapter Z1**		

COMPONENTS

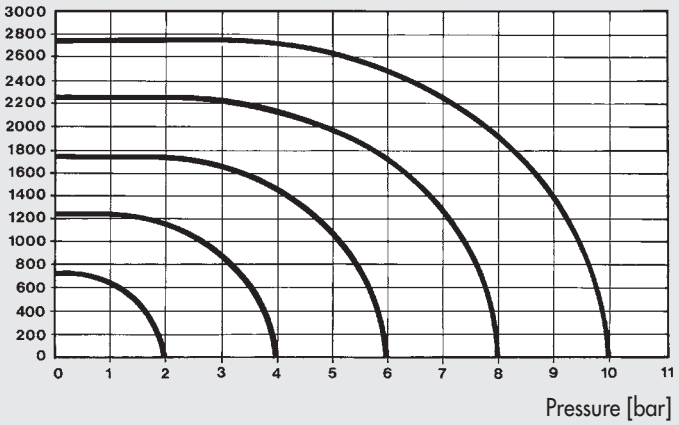
① VALVE BODY: Aluminium
② END CAP: Hostaform®
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ FILTER: sintered bronze
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe – Stainless steel core



FLOW CHART

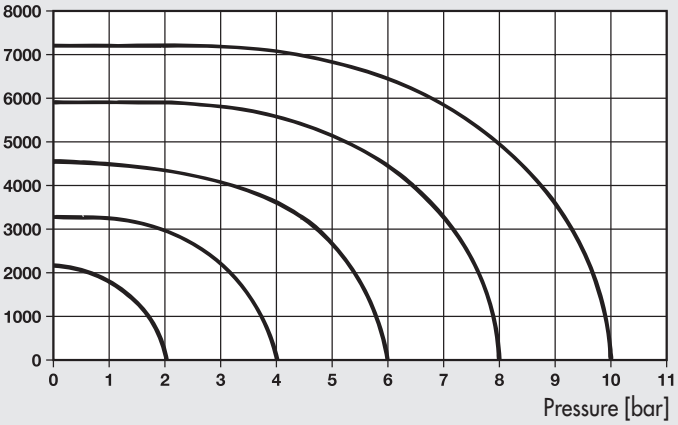
ISO 1

Flow rates [Nl/min]



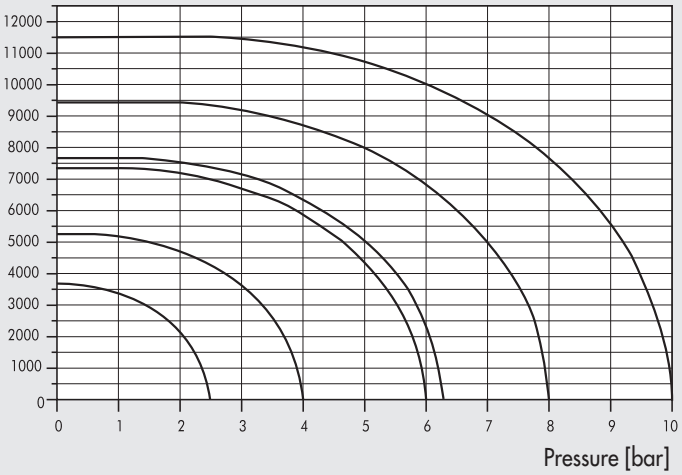
ISO 2

Flow rates [Nl/min]



ISO 3

Flow rates [Nl/min]



SYNOPTIC, SIZES AND VERSIONS

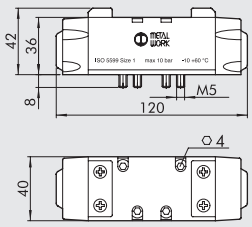
I P V	5	5	P N	S	O O
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING (12)**	**FURTHER DETAILS**
IPV ISO pneumatic	**5** ISO 1	**5** 5/2	**PN** pneumatic	**S** mechanical springs	**OO** no indication
ISV ISO solenoid/pneumatic	**6** ISO 2	**6** 5/3	**SO** solenoid	**B** bistable	**CC** closed centres
	7 ISO 3		**SE** solenoid assisted	**D** differential	**OC** open centres
			✱ **DO** solenoid in line		**PC** pressure centres
			✱ **DE** solenoid assisted in line		
			● **CO** M12 solenoid		
			● **CE** M12 solenoid assisted		

✱ Only for ISO 1
● Only for ISO 1 and ISO 2

VALVES ISO 5599/1, PNEUMATIC
SERIES IPV

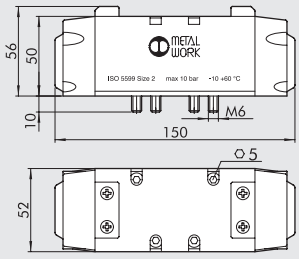
TECHNICAL DATA		ISO 1	ISO 2	ISO 3
Operating pressure	bar	Vacuum to 10		
Minimum operation pressure:				
• monostable and bistable differential	bar	2.5		
• bistable	bar	1		
Operating temperature range	°C	-10° to +60		
Nominal diameter	mm	7.5	12	15
Conductance C	Nl/min · bar	250	657.14	971.43
Critical ratio b	bar/bar	0.36	0.25	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	700	1800	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	1100	2700	4600
Response times at 6 Bar:				
• monostable	ms	12	24	35
• bistable	ms	20	30	45
Repositioning response times at 6 Bar:				
• monostable	ms	30	43	55
• bistable	ms	20	30	45
Hand operator		monostable on valve body		

PNEUMATIC ACTUATION ISO 1



Symbol	Code	Abbrev.	Weight [g]
	7051011100	IPV 55 PNS OO	310
	7051011200	IPV 55 PNB OO	310
	7051011300	IPV 55 PND OO	310
	7051012100	IPV 56 PNS CC	310
	7051012200	IPV 56 PNS OC	310
	7051012300	IPV 56 PNS PC	310

PNEUMATIC ACTUATION ISO 2



Symbol	Code	Abbrev.	Weight [g]
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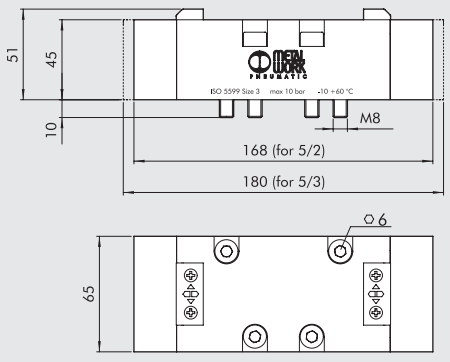
	7052011200	IPV 65 PNB OO	705
	7052011300	IPV 65 PND OO	705
	7052012100	IPV 66 PNS CC	705
	7052012200	IPV 66 PNS OC	705
	7052012300	IPV 66 PNS PC	705

PNEUMATIC ACTUATION ISO 3



Symbol	Code	Abbrev.	Weight [g]
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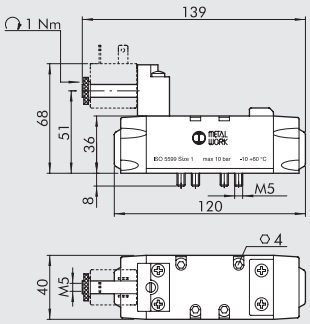
	7056011300	IPV 75 PND OO	1175
	7056012100	IPV 76 PNS CC	1290
	7056012200	IPV 76 PNS OC	1290
	7056012300	IPV 76 PNS PC	1290

VALVES ISO 5599/1, SOLENOID/PNEUMATIC, SERIES ISV

TECHNICAL DATA		ISO 1	ISO 2	ISO 3
Operating pressure:	bar			
• monostable and bistable differential			2.5 to 10	
• bistable			1 to 10	
• pilot-assisted			Vacuum to 10	
Minimum pilot pressure	bar		2.5	
Operating temperature range	°C		-10 to +60	
Nominal diameter	mm	7.5	12	15
Conductance C	Nl/min · bar	250	657.14	971.43
Critical ratio b	bar/bar	0.36	0.25	0.43
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	700	1800	3200
Flow rate at 6 bar ΔP 1 bar	Nl/min	1100	2700	4600
TRA / TRR monostable at 6 bar	ms	24 / 50	39 / 60	50 / 120
TRA / TRR bistable at 6 bar	ms	20 / 20	25 / 25	35 / 35
Solenoid pilot			Standards CNOMO	
Hand operator			Bistable on solenoid pilot	
			Monostable on valve body	
Coils			30 mm side DIN 43650 Form A – ISO 22 mm side	
Maximum coil nut torque	Nm		1	

MONOSTABLE 5/2 ISO 1



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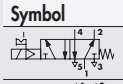
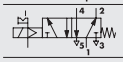
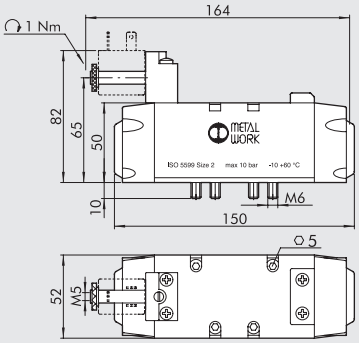
	7051021100	ISV 55 SOS OO	344
	7051021400	ISV 55 SES OO	344

MONOSTABLE 5/2 ISO 2



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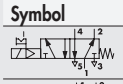
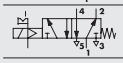
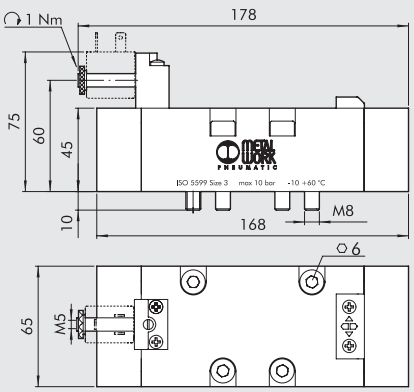
	7052021100	ISV 65 SOS OO	715
	7052021400	ISV 65 SES OO	715

MONOSTABLE 5/2 ISO 3



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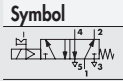
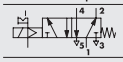
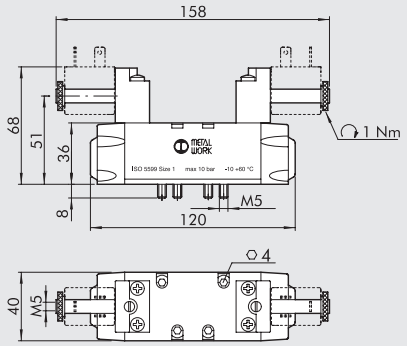
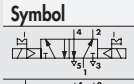
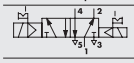
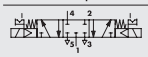
	7056021100	ISV 75 SOS OO	1207
	7056021400	ISV 75 SES OO	1207

BISTABLE 5/2 ISO 1 - MONOSTABLE 5/3 ISO 1



Symbol	Code	Abbrev.	Weight [g]
	7051021200	ISV 55 SOB OO	388
	7051021300	ISV 55 SOD OO	375
	7051022100	ISV 56 SOS CC	372
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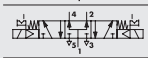
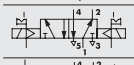
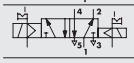
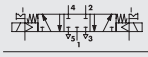
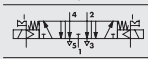
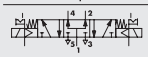
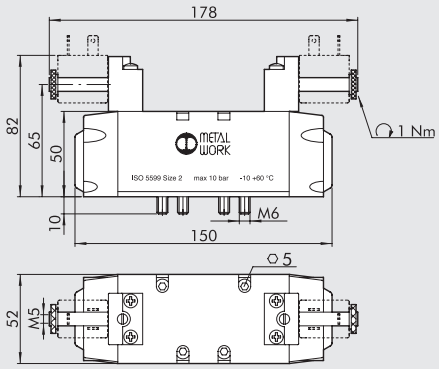
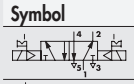
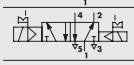
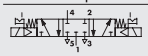
	7051022300	ISV 56 SOS PC	372
	7051021500	ISV 55 SEB OO	388
	7051021600	ISV 55 SED OO	375
	7051022400	ISV 56 SES CC	372
	7051022500	ISV 56 SES OC	372
	7051022600	ISV 56 SES PC	372

BISTABLE 5/2 ISO 2 - MONOSTABLE 5/3 ISO 2



Symbol	Code	Abbrev.	Weight [g]
	7052021200	ISV 65 SOB OO	740
	7052021300	ISV 65 SOD OO	710
	7052022100	ISV 66 SOS CC	720
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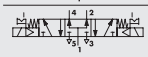	7052022300	ISV 66 SOS PC	720
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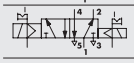
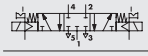
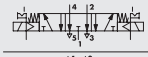
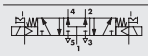
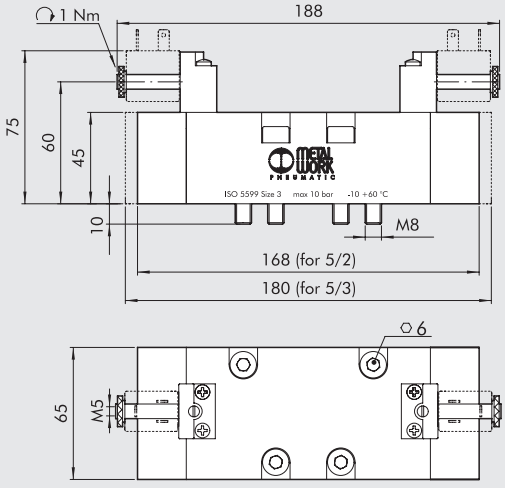
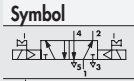
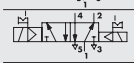
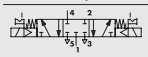
	7052021600	ISV 65 SED OO	710
	7052022400	ISV 66 SES CC	720
	7052022500	ISV 66 SES OC	720
	7052022600	ISV 66 SES PC	720

BISTABLE 5/2 ISO 3 - MONOSTABLE 5/3 ISO 3



Symbol	Code	Abbrev.	Weight [g]
	7056021200	ISV 75 SOB OO	1230
	7056021300	ISV 75 SOD OO	1230
	7056022100	ISV 76 SOS CC	1355
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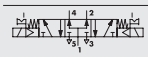
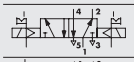
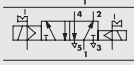
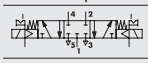
	7056022300	ISV 76 SOS PC	1355
	7056021500	ISV 75 SEB OO	1230
	7056021600	ISV 75 SED OO	1230
	7056022400	ISV 76 SES CC	1355
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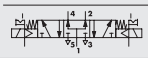
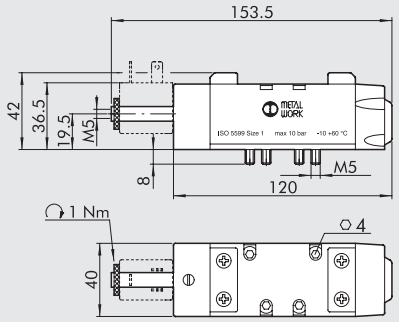
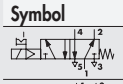
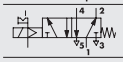
	7056022600	ISV 76 SES PC	1355

VALVES ISO 5599/1, PNEUMATIC, SERIES ISV WITH IN-LINE SOLENOID PILOT

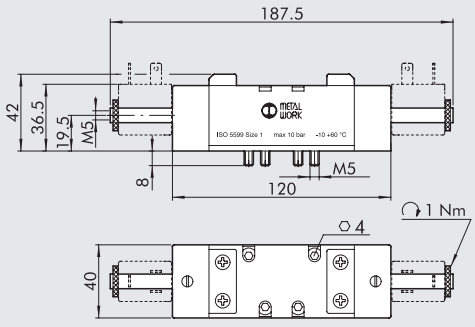
TECHNICAL DATA		ISO 1
Operating pressure:	bar	
• monostable		2.5 to 10
• bistable		1 to 10
• pilot-assisted		Vacuum to 10
Minimum pilot pressure	bar	2.5
Operating temperature range	°C	-10 to +60
Nominal diameter	mm	7.5
Conductance C	Nl/min · bar	250
Critical ratio b	bar/bar	0.36
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	700
Flow rate at 6 bar ΔP 1 bar	Nl/min	1100
TRA / TRR monostable at 6 bar	ms	24 / 50
TRA / TRR bistable at 6 bar	ms	20 / 20
Solenoid pilot		In line pilot
Hand operator		Bistable on solenoid pilot
Coils		30 mm side DIN 43650
		Form A – ISO
		22 mm side
Maximum coil nut torque	Nm	1

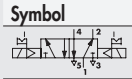
MONOSTABLE 5/2 ISO 1



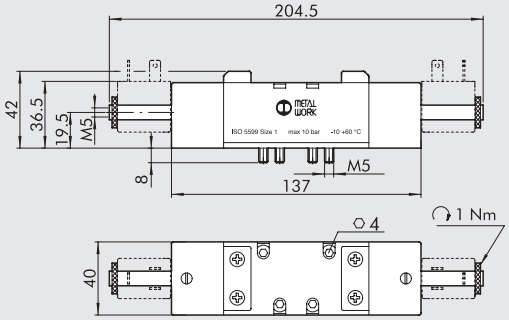
Symbol	Code	Abbrev.	Weight [g]
	7053021100	ISV 55 DOS OO	396
	7053021400	ISV 55 DES OO	396

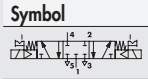
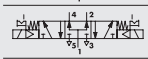
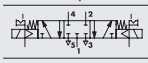
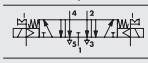
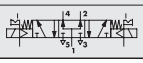
BISTABLE 5/2 ISO 1



Symbol	Code	Abbrev.	Weight [g]
	7053021200	ISV 55 DOB OO	450
	7053021500	ISV 55 DEB OO	450

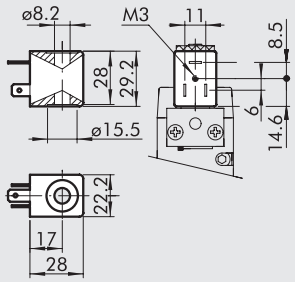
MONOSTABLE 5/3 ISO 1



Symbol	Code	Abbrev.	Weight [g]
	7053022100	ISV 56 DOS CC	517
	7053022200	ISV 56 DOS OC	516
	7053022300	ISV 56 DOS PC	516
	7053022400	ISV 56 DES CC	517
	7053022500	ISV 56 DES OC	516
	7053022600	ISV 56 DES PC	515

COILS AND CONNECTORS FOR ISO 5599/1 SOLENOID VALVES SERIES ISV

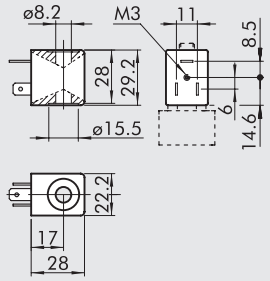
COILS SIDE 22 mm



- Voltage tolerance: –10% to + 15%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000151	Coil 22 Ø 8 BA 2W-12VDC	12Vcc	2W	2W
W0215000101	Coil 22 Ø 8 BA 2W-24VDC	24Vcc	2W	2W
W0215000111	Coil 22 Ø 8 BA 3.5VA-24VAC	24V 50/60Hz	5.3VA	3.5VA
W0215000121	Coil 22 Ø 8 BA 3.5VA-110VAC	110V 50/60Hz	5.3VA	3.5VA
W0215000131	Coil 22 Ø 8 BA 3.5VA-220VAC	220V 50/60Hz	5.3VA	3.5VA

"UL" AND "CSA" COILS 22 mm

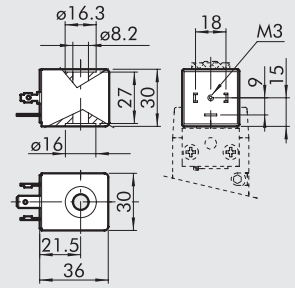


c UL us

- Voltage tolerance: –10% to + 15%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- Coil temperature 100% ED: 55°C at 20°C ambient temperature
- Electrical connection DIN 43650 B-IND

Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0215000251	Coil 22 Ø 8 BA 2W-12VDC UR	12Vcc	2W	2W
W0215000201	Coil 22 Ø 8 BA 2W-24VDC UR	24Vcc	2W	2W
W0215000211	Coil 22 Ø 8 BA 3.5VA-24VAC UR	24V 50/60Hz	5.3VA	3.5VA
W0215000221	Coil 22 Ø 8 BA 3.5VA-110VAC UR	110V 50/60Hz	5.3VA	3.5VA
W0215000231	Coil 22 Ø 8 BA 3.5VA-220VAC UR	220V 50/60Hz	5.3VA	3.5VA

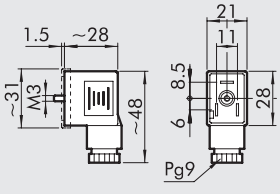
COILS SIDE 30 mm



- Electric contact DIN43650 shape A – ISO 4400
- Voltage tolerance: -10% + 10%
- Insulation class: F155
- Degree of protection: IP65 EN60529 with connector
- Avoid prolonged exposure to the atmospheric agents
- According to Atex 2014/34/EU rule, group 2, category 3 GD
- Electrical connection DIN 43650 - A

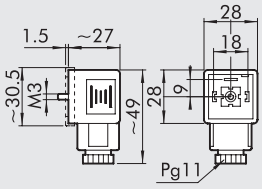
Code	Abbrev.	Nominal voltage	Absorption	
			Inrush	Holding
W0210010100	Coil 30 Ø 8 2W-24VDC	24Vcc	5W	2W
W0210011100	Coil 30 Ø 8 3.5VA-24VAC	24V 50/60Hz	10VA	3.5VA
W0210012100	Coil 30 Ø 8 3.5VA-110VAC	110V 50/60Hz	10VA	3.5VA
W0210013100	Coil 30 Ø 8 3.5VA-220VAC	220V 50/60Hz	10VA	3.5VA

CONNECTOR FOR COILS SIDE 22 mm DIN 43650 B-IND



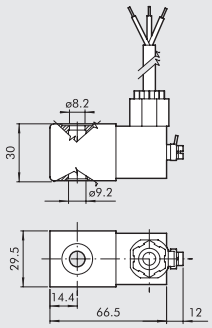
Code	Type	Colour	Ø Cable
W0970510011	Standard	Black	PG9
W0970510012	LED 24V	Transparent	PG9
W0970510013	LED 110V	Transparent	PG9
W0970510014	LED 220V	Transparent	PG9
W0970510015	LED + VDR 24V	Transparent	PG9
W0970510016	LED + VDR 110V	Transparent	PG9
W0970510017	LED + VDR 220V	Transparent	PG9
W0970510070	Atex II 2 GD	Black	PG9

CONNECTOR FOR COILS SIDE 30 mm DIN 43650-A



Code	Type	Colour	Ø Cable
W0970520033	Standard	Black	PG11
W0970520034	LED 24V	Transparent	PG11
W0970520035	LED 110V	Transparent	PG11
W0970520036	LED 220V	Transparent	PG11
W0970520037	LED + VDR 24V	Transparent	PG11
W0970520038	LED + VDR 110V	Transparent	PG11
W0970520039	LED + VDR 220V	Transparent	PG11

KIT COIL EEXM



Code	Description
0227606913	Kit for coil 30 24 VDC EEXMT5 cable 3 m
0227606915	Kit for coil 30 24 VDC EEXMT5 cable 5 m
0227608013	Kit for coil 30 24 VAC EEXMT5 cable 3 m
0227608015	Kit for coil 30 24 VAC EEXMT5 cable 5 m
0227608023	Kit for coil 30 110 VAC EEXMT5 cable 3 m
0227608025	Kit for coil 30 110 VAC EEXMT5 cable 5 m
0227608033	Kit for coil 30 230 VAC EEXMT5 cable 3 m
0227608035	Kit for coil 30 230 VAC EEXMT5 cable 5 m

According to Atex 2014/34/EU rule: Ⓔx II 2G Ex mb IIC T4/T5 Gb
Ⓔx II 2D Ex tb IIIC T130/T95 °C IP66 Db

N.B.: Supplied complete with adapter for Ø8 mm sleeve.

KIT COILS SIDE 22 IP65

Code	Description
0222100100	Kit for coil 22 - IP65

Improved IP65 protection, even after prolonged exposure to atmospheric agents.
Applicable to valves with a technopolymer control.

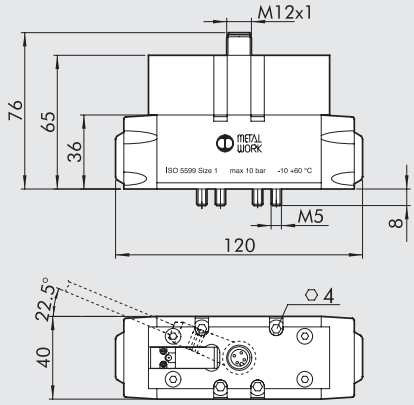
NOTES

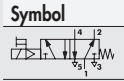
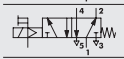
VALVES ISO 5599/1, SOLENOID/PNEUMATIC, SERIES ISV WITH M12 CONNECTOR

METAL WORK PNEUMATIC

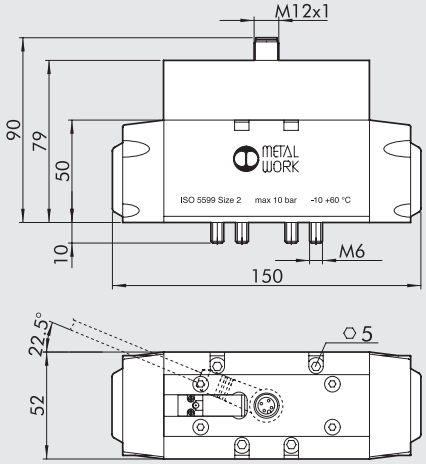
TECHNICAL DATA		ISO 1	ISO 2
Operating pressure:	bar		
• monostable and bistable differential		2.5 to 10	
• bistable		1 to1 0	
• pilot-assisted		Vacuum to 10	
Minimum pilot pressure	bar	2.5	
Operating temperature range	°C	-10 to +60	
Nominal diameter	mm	7.5	12
Conductance C	Nl/min · bar	250	657.14
Critical ratio b	bar/bar	0.36	0.25
Flow rate at 6 bar ΔP 0.5 bar	Nl/min	700	1800
Flow rate at 6 bar ΔP 1 bar	Nl/min	1100	2700
TRA / TRR monostable at 6 bar	ms	22 / 60	78 / 180
Solenoid pilot		With built-in coil	
Hand operator		Monostable on solenoid pilot	
		Monostable on valve body	
Coil power	W	1.2	
Voltage		24 VDC ±10%	
Electrical connection		M12	
Degree of protection		IP65 EN60529	
Electrical protection		Transil	

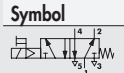
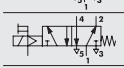
MONOSTABLE 5/2 ISO 1



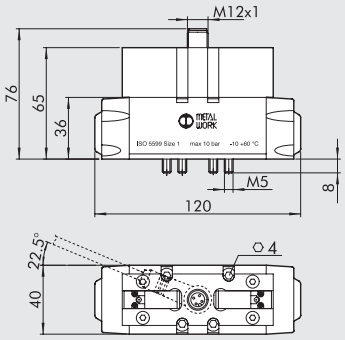
Symbol	Code	Abbrev.	Weight [g]
	7054021100	ISV 55 COS OO	508
	7054021400	ISV 55 CES OO	508

MONOSTABLE 5/2 ISO 2



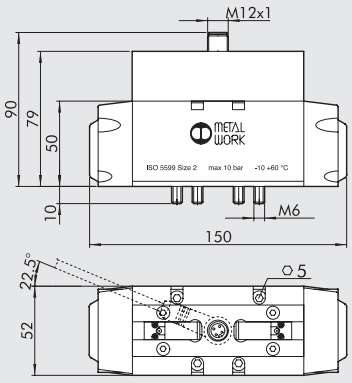
Symbol	Code	Abbrev.	Weight [g]
	7055021100	ISV 65 COS OO	901
	7055021400	ISV 65 CES OO	901

BISTABLE 5/2 ISO 1 - MONOSTABLE 5/3 ISO 1



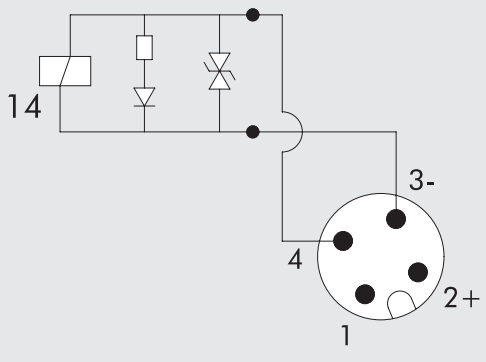
Symbol	Code	Abbrev.	Weight [g]
	7054021200	ISV 55 COB OO	512
	7054021300	ISV 55 COD OO	490
	7054022100	ISV 56 COS CC	496
	7054022200	ISV 56 COS OC	496
	7054022300	ISV 56 COS PC	496
	7054021500	ISV 55 CEB OO	512
	7054021600	ISV 55 CED OO	490
	7054022400	ISV 56 CES CC	496
	7054022500	ISV 56 CES OC	496
	7054022600	ISV 56 CES PC	496

BISTABLE 5/2 ISO 2 - MONOSTABLE 5/3 ISO 2

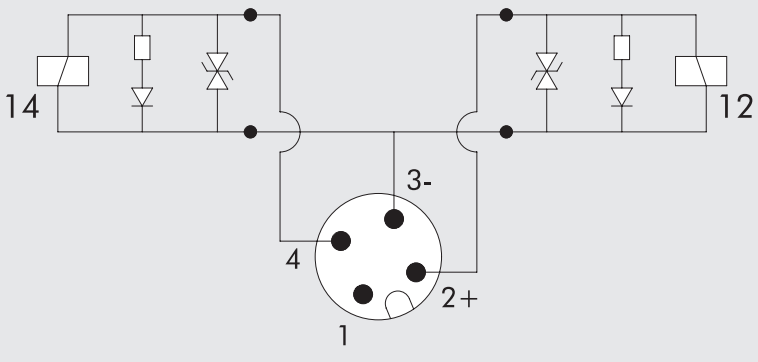


Symbol	Code	Abbrev.	Weight [g]
	7055021200	ISV 65 COB OO	860
	7055021300	ISV 65 COD OO	860
	7055022100	ISV 66 COS CC	868
	7055022200	ISV 66 COS OC	868
	7055022300	ISV 66 COS PC	868
	7055021500	ISV 65 CEB OO	860
	7055021600	ISV 65 CED OO	860
	7055022400	ISV 66 CES CC	868
	7055022500	ISV 66 CES OC	868
	7055022600	ISV 66 CES PC	868

WIRING DIAGRAM



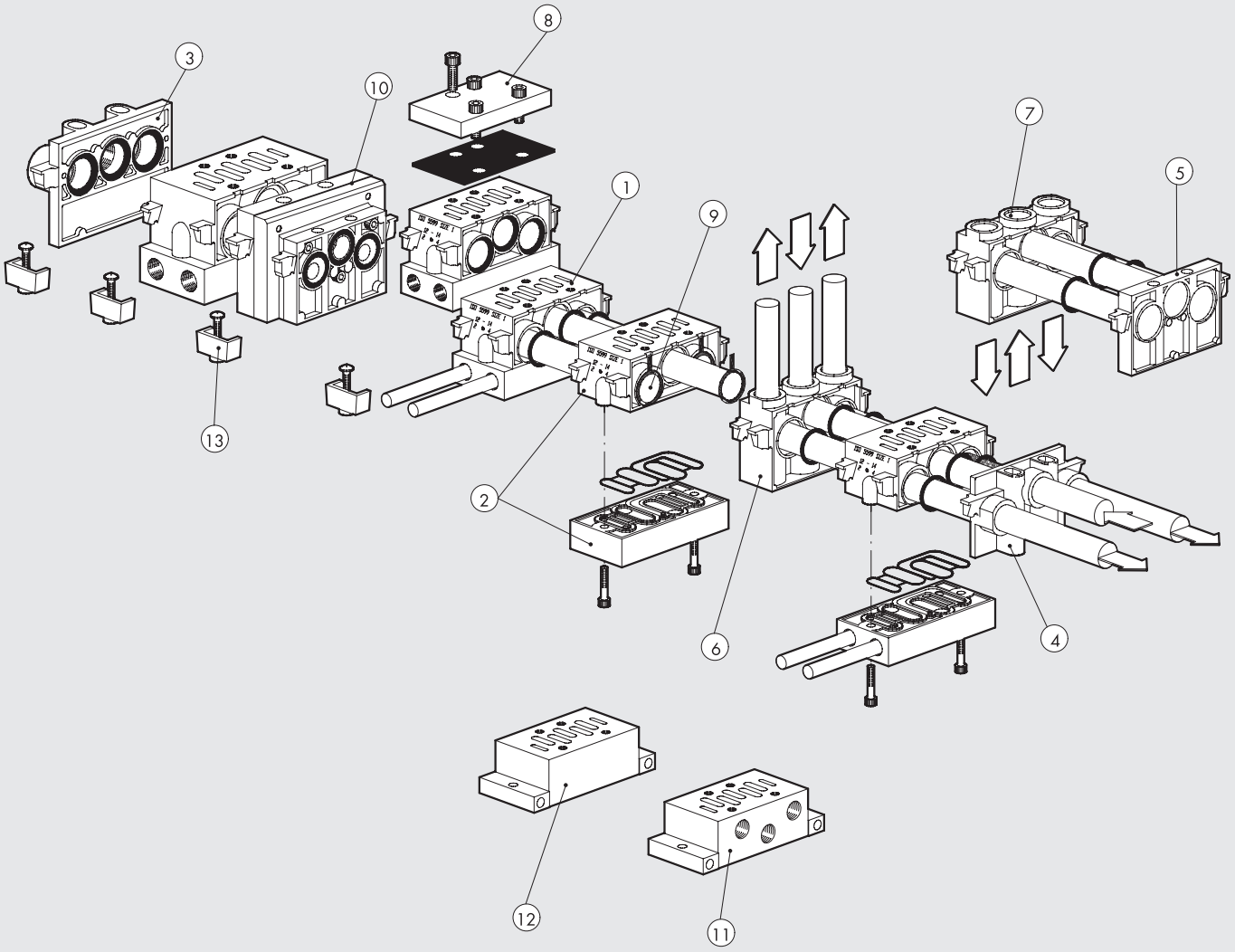
MONOSTABLE



BISTABLE

N.B.: Can be used the M12x1 connectors on page **C5**.12, without wiring the central PIN.

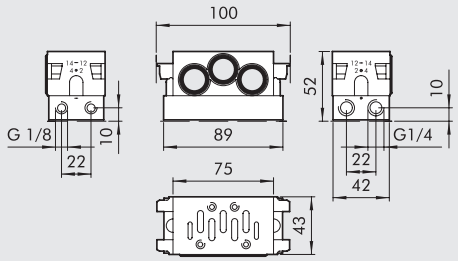
BASES ISO 5599/1 FOR VALVES SERIES IPV-ISV SIZE 1 AND 2



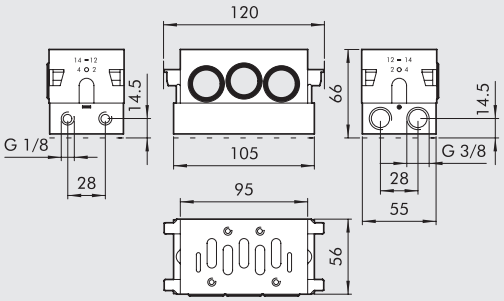
Reference	Code ISO 1	Code ISO 2	Description
①	0228000150	0228001150	Manifold base - side ports
②	0228000155	0228001155	Manifold base with bottom ports
③	0228000200	0228001200	Input end plate
④	0228000201	0228001201	Additional input end plate
⑤	0228000210	0228001210	Blind end plate
⑥	0228000300	0228001300	Intermediate - top ports
⑦	0228000301	0228001301	Intermediate - back ports
⑧	0228000500	0228001500	Blanking plate
⑨	0228000400	0228001400	Intermediate diaphragm
⑩	0228000600	–	ISO 1/ISO 2 port adapter
⑪	0228000100	0228001100	Individual base - side ports
⑫	0228000110	0228001110	Base - bottom ports
⑬	0228000700	0228001700	Assembly kit

① MANIFOLD BASE, SIDE PORTS

ISO 1



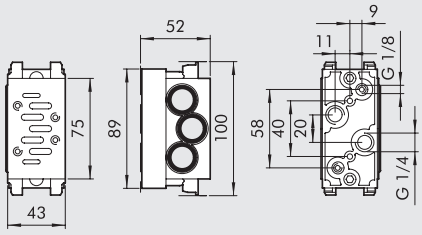
ISO 2



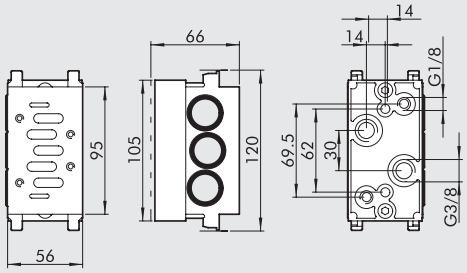
Code	Description	Weight [g]
0228000150	Manifold base, side ports, ISO 1	131
0228001150	Manifold base, side ports, ISO 2	314

② MANIFOLD BASE, BOTTOM PORTS

ISO 1



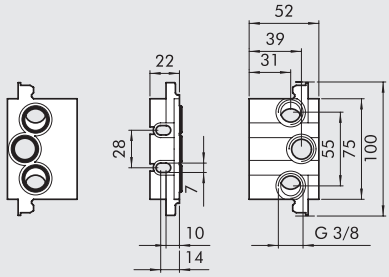
ISO 2



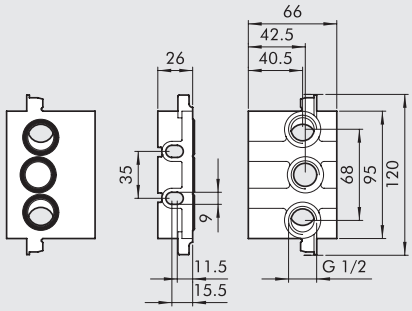
Code	Description	Weight [g]
0228000155	Manifold base, bottom ports, ISO 1	314
0228001155	Manifold base, bottom ports, ISO 2	505

③ INPUT END PLATE

ISO 1



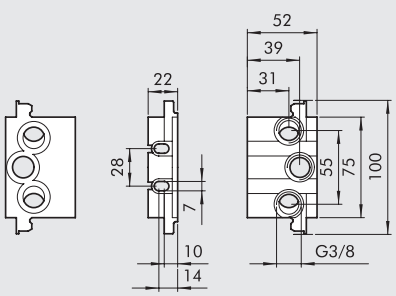
ISO 2



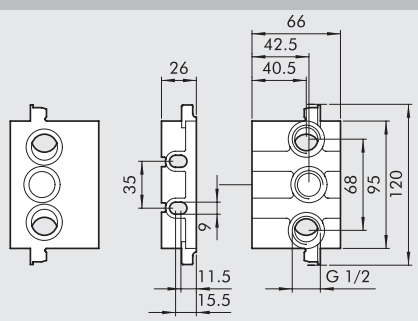
Code	Description	Weight [g]
0228000200	Input end plate ISO 1	129
0228001200	Input end plate ISO 2	206

④ ADDITIONAL INPUT END PLATE

ISO 1



ISO 2

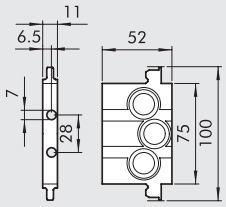


Code	Description	Weight [g]
0228000201	Additional input end plate, ISO 1	84
0228001201	Additional input end plate, ISO 2	162

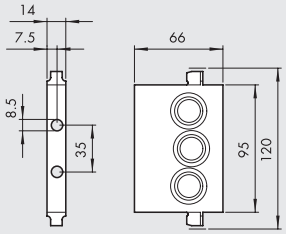
METAL WORK PNEUMATIC

⑤ BLIND END PLATE

ISO 1



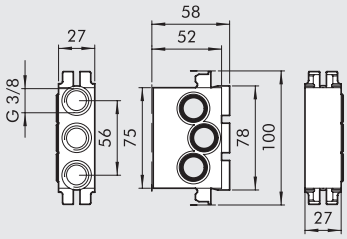
ISO 2



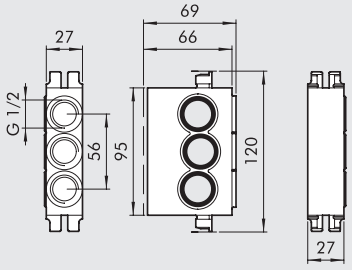
Code	Description	Weight [g]
0228000210	Blind end plate, ISO 1	79
0228001210	Blind end plate, ISO 2	130

⑥ INTERMEDIATE TOP PORTS

ISO 1



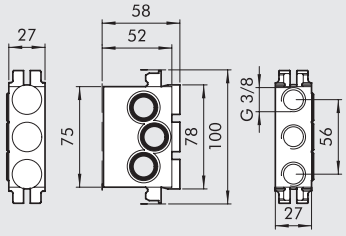
ISO 2



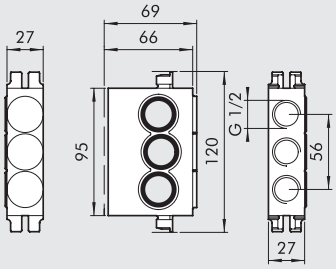
Code	Description	Weight [g]
0228000300	Intermediate top ports, ISO 1	235
0228001300	Intermediate top ports, ISO 2	299

⑦ INTERMEDIATE REAR PORTS

ISO 1



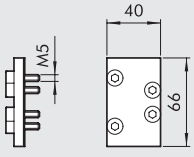
ISO 2



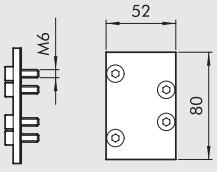
Code	Description	Weight [g]
0228000301	Intermediate rear ports, ISO 1	237
0228001301	Intermediate rear ports, ISO 2	299

⑧ BLANKING PLATE

ISO 1

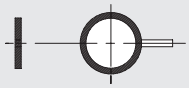


ISO 2



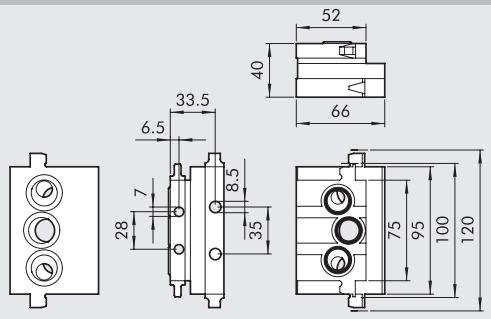
Code	Description	Weight [g]
0228000500	Blanking plate, ISO 1	47
0228001500	Blanking plate, ISO 2	96

⑨ INTERMEDIATE DIAPHRAGM



Code	Description	Weight [g]
0228000400	Intermediate diaphragm, ISO 1	4
0228001400	Intermediate diaphragm, ISO 2	7

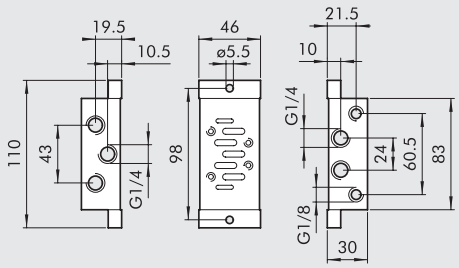
⑩ DIMENSION ADAPTER



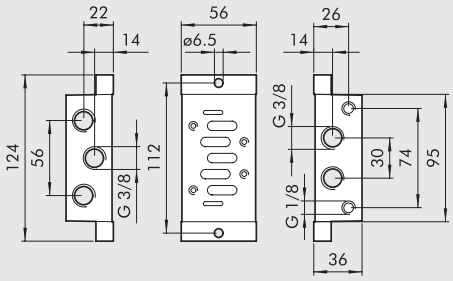
Code	Description	Weight [g]
0228000600	Dimension adapter ISO 1-2	454

⑪ INDIVIDUAL BASE SIDE PORTS

ISO 1



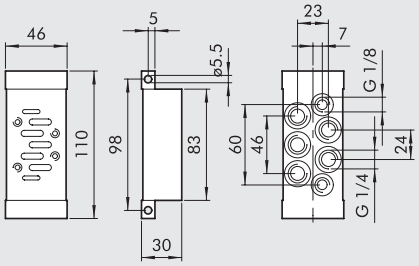
ISO 2



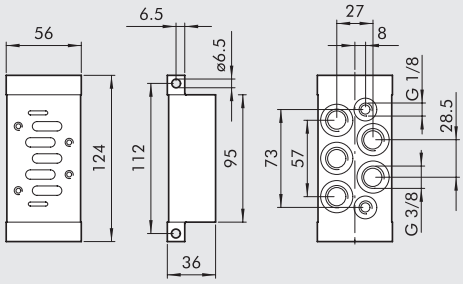
Code	Description	Weight [g]
0228000100	Individual base side ports, ISO 1	165
0228001100	Individual base side ports, ISO 2	257

⑫ INDIVIDUAL BASE BOTTOM PORTS

ISO 1



ISO 2



Code	Description	Weight [g]
0228000110	Individual base bottom ports, ISO 1	197
0228001110	Individual base bottom ports, ISO 2	304

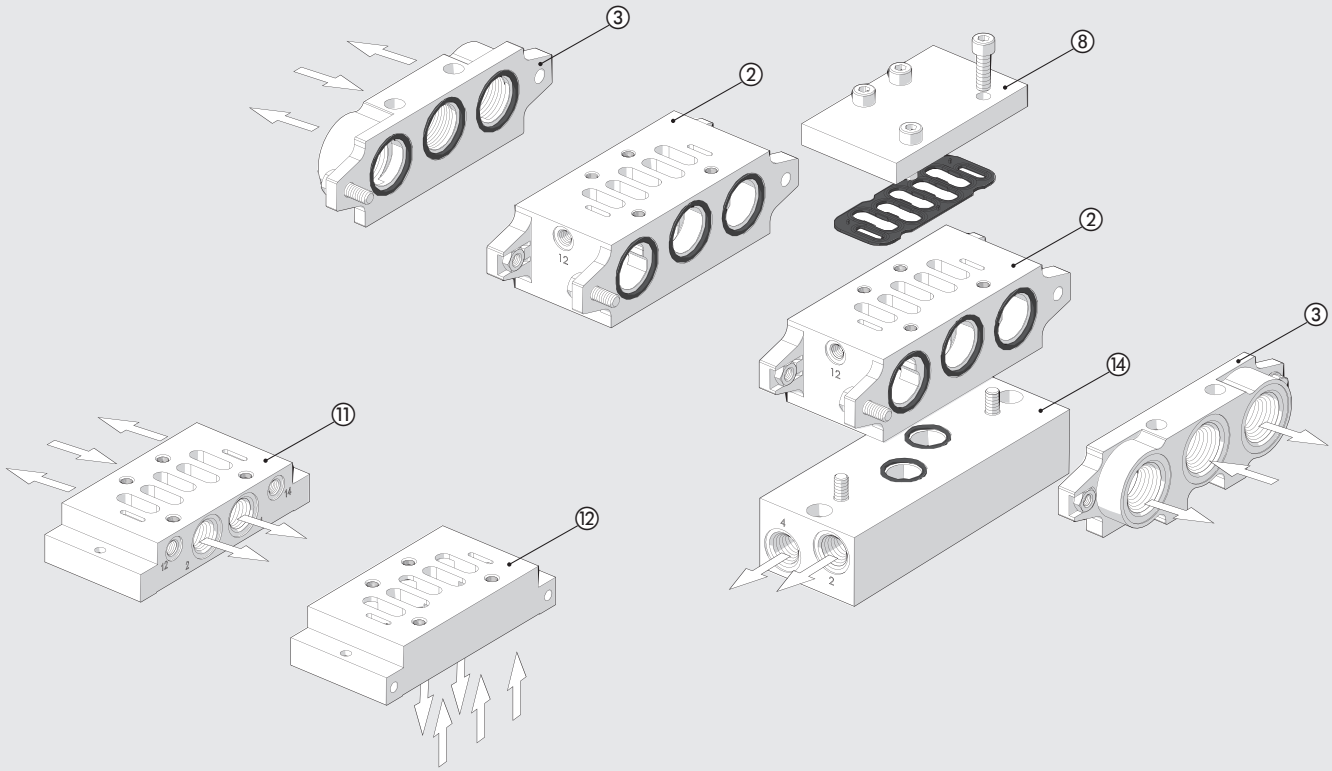
⑬ ASSEMBLY KIT

ISO 1

ISO 2

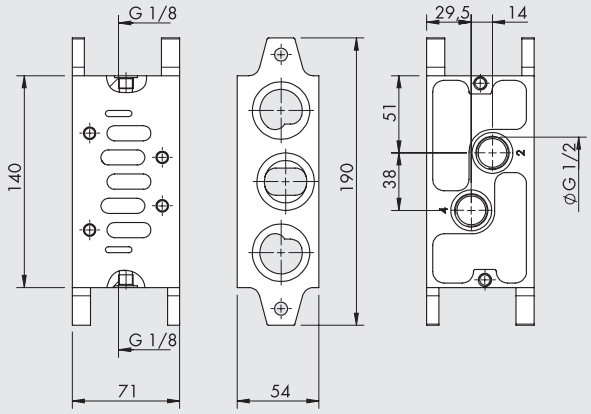
Code	Description	Weight [g]
0228000700	Assembly kit, ISO 1	47
0228001700	Assembly kit, ISO 2	47

BASES ISO 5599/1
FOR VALVES SERIES IPV-ISV SIZE ISO 3



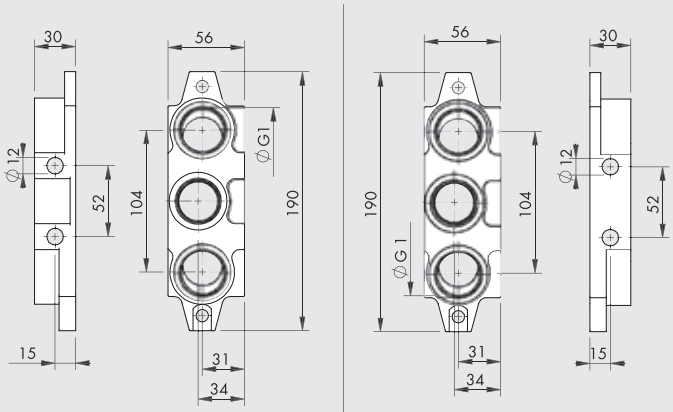
Reference	Code ISO 3	Description
②	**0228002155**	Manifold base with bottom ports
③	**0228002200**	Input end plate
⑧	**0228002500**	Blanking plate
⑪	**0228002100**	Individual base - side ports
⑫	**0228002110**	Base - bottom ports
⑭	**0228002150**	Side interface

② MANIFOLD BASE, BOTTOM PORTS



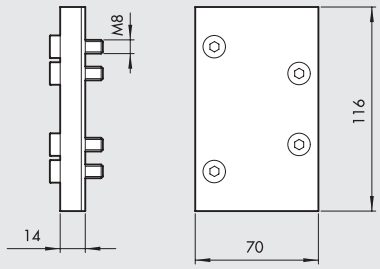
Code	Description	Weight [g]
0228002155	Manifold base, bottom ports, ISO 3	915

③ INPUT END PLATE



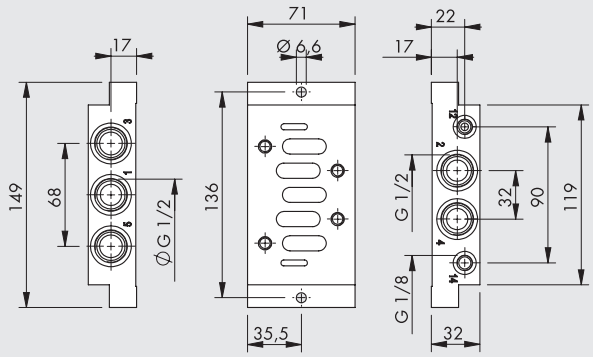
Code	Description	Weight [g]
0228002200	Input end plate, ISO 3	880

⑧ BLANKING PLATE



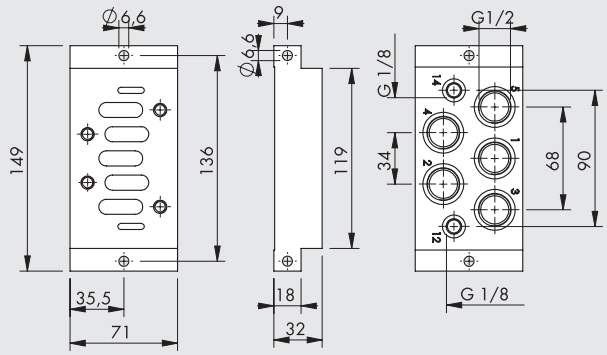
Code	Description	Weight [g]
0228002500	Blanking plate, ISO 3	350

⑪ INDIVIDUAL BASE SIDE PORTS



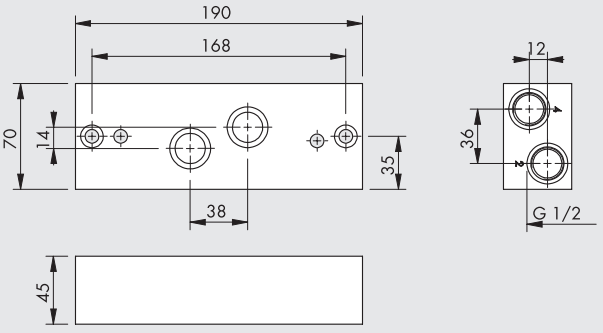
Code	Description	Weight [g]
0228002100	Individual base side ports, ISO 3	470

⑫ INDIVIDUAL BASE BOTTOM PORTS



Code	Description	Weight [g]
0228002110	Individual base bottom ports, ISO 3	655

⑭ SIDE INTERFACE



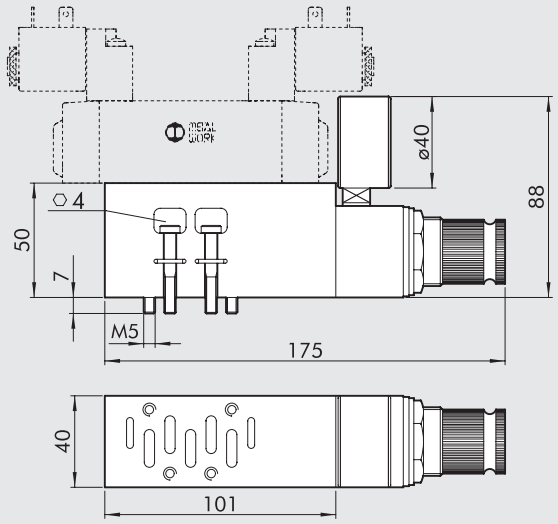
Code	Description	Weight [g]
0228002150	Side interface, ISO 3	1470

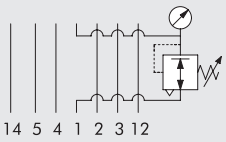
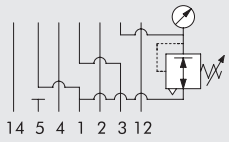
SANDWICH REGULATORS FOR ISO 5599/1 BASES ISO1-2

METAL WORK PNEUMATIC

TECHNICAL DATA		ISO 1	ISO 2
Max upstream pressure	bar	13	
Pressure range	bar	0 to 12	
Pressure gauge range	bar	0 to 12	
Flow rate at 6 bar ΔP 1 bar	Nl/min	400	550
Operating temperature range	°C	−10 to +60	
Fixing screw on ISO 5599/1 base		M5 ant-extraction	M6 anti-extraction
Installation		In any position	
Instructions for use		Downstream pressure must always be set to increasing values	

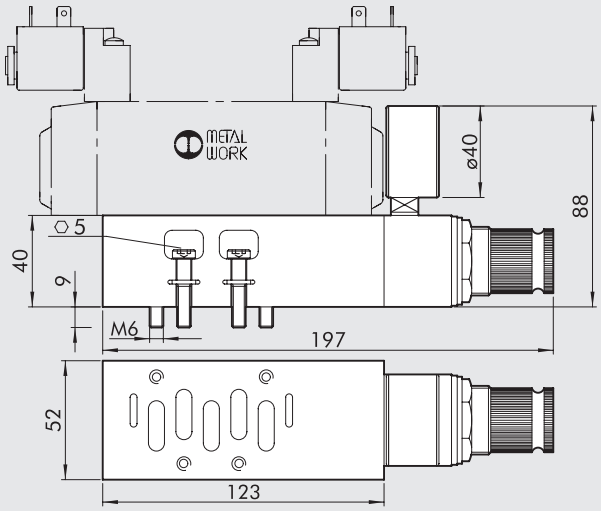
SANDWICH REGULATOR FOR ISO 1 VALVES

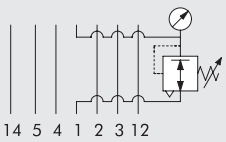
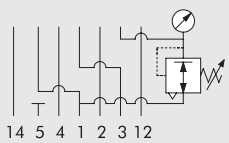


Symbol	Code	Description	Weight [g]
	0228000804	Sandwich regulator 1 0 to 12 bar ISO 1	760
	0228000814*	Sandwich regulator 3 0 to 12 bar ISO 1	760

* A pilot-assisted valve needs to be used since port 1 relieves pressure, it is not under pressure

SANDWICH REGULATOR FOR ISO 2 VALVES



Symbol	Code	Description	Weight [g]
	0228001804	Sandwich regulator 1 0 to 12 bar ISO 2	900
	0228001814*	Sandwich regulator 3 0 to 12 bar ISO 2	900

* A pilot-assisted valve needs to be used since port 1 relieves pressure, it is not under pressure

VALVES SERIES 70
SAFE AIR®

Starting from the robust and reliable valves series 70, we have added a few distinctive features, such as the presence of a valve status diagnostic system and the creation of a double communication channel guaranteeing redundancy of the architecture.

The simplest version is obtained from a pneumatically-operated 3/2 monostable valve. It is well known that when this type of valve is in the idle state (coil de-energized), port 1 is not connected to the downstream pneumatic circuit and port 2 is on relief; when the valve is operated (coil energized), port 1 is connected to port 2. When the coil is de-energized again, the valve is returned to the idle state (and hence port 2 relieves) by means of a spring that returns the spool to the home position.

In the event of a failure, the spool may remain in the actuation position, even when the coil is de-energized, thus leaving port 2 pressurized.
To offset this problem, we have added a Hall-effect sensor that reads the spool position. This means that when the valve is deactivated, the sensor is in the ON state, when the valve is activated, the sensor is in the OFF state.
A status in which the sensor is OFF state and the coil de-energized indicates that there is a problem.
To reduce the probability of risk during plant maintenance, the manual actuator mounted on the electric control is the monostable type.
The sensor inside the valve is available in the standard version with a 2.5m three-wire cable (standard or ATEX certified) or with an M8 connector and 300 mm cable.
This valve, which is available in sizes 1/8", 1/4", 3/8" and 1/2", is a category 2 component, according to ISO EN 13849, and is suitable for use in safety circuits up to PL = c.

For applications requiring higher performance levels, we have also develop a double-channel version (redundant) that requires the use of two valves series 70 with a monitored spool arranged so that port 2 of valve 1 is connected with port 1 of valve 2. If just one of the valves de-energizes, port 2 relieves, so, even if one of the two spools remains blocked, the other guarantees relief of the compressed-air circuit. In this case, too, the presence of spool position sensors can be used to monitor the status.
The double valve, which is available in the size 1/8", 1/4", 3/8" and 1/2" as well, is a category 4 component according to ISO EN 13849 and is suitable for use in safety circuits up to PL = e.
Both the single- and double-channel valves come with:
- a voluntary examination certificate no. TC1248/21/AD/ad, issued by Bureau Veritas in accordance with EN ISO 13849;
- a certificate of compliance examination to the Machinery Directive 2006/42/EC no. CV 013-12-2014 and no. CV 014-12-2014 released by Bureau Veritas.

SINGLE VALVE SERIES 70 SAFE AIR®

TECHNICAL DATA		1/8"	1/4"	3/8"	1/2"
Fluid		Filtered unlubricated air (50µm); lubrication, if used, must be continuous			
Operation		3/2 monostable			
Operating pressure:	bar				
non-assisted		from 2.5 to 10			
pilot-assisted		from vacuum to 10			
Minimum pilot pressure	bar	2.5			
Operating temperature range	°C	from -10 to +60 (from -10 to +45 for Atex version)			
Nominal diameter	mm	5	7.5	13.3	15
Conductance C	Nl/min · bar	121	264	505	969.5
Critical ratio b	bar/bar	0.32	0.27	0.32	0.5
Flow rate at 6.3 bar Δp 0.5 bar	Nl/min	390	820	1600	3525
Flow rate at 6.3 bar Δp 1 bar	Nl/min	530	1130	2200	4800
Conductance C on relief	Nl/min · bar	128	270	491	969.5
Critical ratio b on relief	bar/bar	0.23	0.29	0.40	0.62
Flow rate on free exhaust at 6.3 bar	Nl/min	900	2050	3550	7000
TRA/TRR at 6.3 bar	ms/ms	15 / 35	19 / 45	21 / 72	38 / 110
Installation		Any position			
Assembly		In-line			
Manual actuator		Monostable			
Recommended lubricant		ISO and UNI FD 22			
Compatibility with oils		See **chapter Z1**			
Coils		22 mm side, ø 8 hole – EN175301-803 connection, type B			
		Certified EN 60204.1 and VDE 0580			
		For the electrical features see page **B1**.60 *			
Class of protection		IP65 with coil and connector mounted			
Noise level		Max. 78 dBA with silenced relief			
Max coil ring nut torque	Nm	1			
CE marking		In accordance with Machinery Directive, Annex V **			
ATEX category (only for versions with an ATEX sensor)		Ⓔx II 3G Ex nA IIC T4 Gc X -10°C<Ta<45°C			
		Ⓔx II 3G Ex h IIC T4 Gc X			
		Ⓔx II 3D Ex tc IIIC T135°C Dc IP65			
Safety function		Cuts off the power supply and relieves the air circuit connected to port 2			
Type of sensor used		Hall effect (refer to page **B1**.163 for sensor details)			
B10d		50 x 10^6 cycles			
Category - ISO EN 13849		2			
DC		Low (80 %)			
PL - ISO EN 13849		Suitable for use in safety circuits up to PL=c			

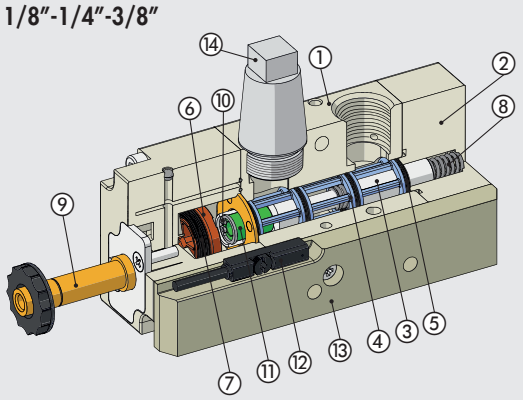
* To avoid malfunctions, we recommend using Metal Work accessories

** The declaration can be downloaded from www.metalwork.it

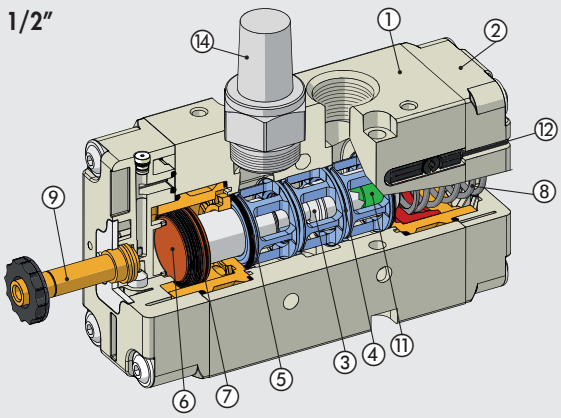
IMPORTANT: Do not mount 2 or more SAFE AIR® valves in adjacent positions. When mounting valves side by side, the minimum distance is specified in the user manual. Any ferromagnetic masses must be at least 40 mm from the sensor. Prevent magnetic fields from creating disturbance in the sensor area.

COMPONENTS

1/8"-1/4"-3/8"



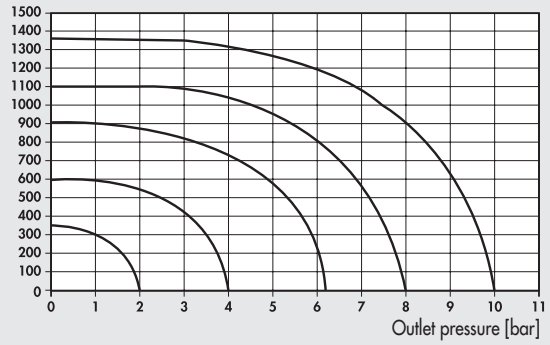
1/2"



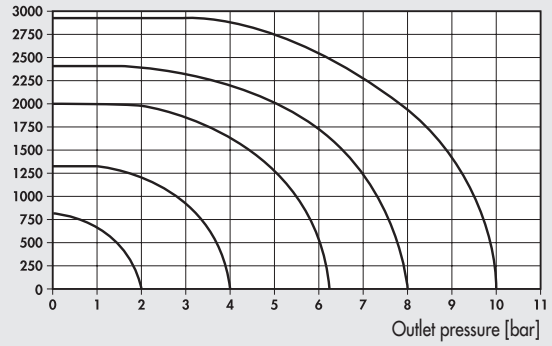
① VALVE BODY: Aluminium
② CONTROL/END CAP: plastic
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: technopolymer
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ SPRINGS: special steel
⑨ OPERATOR: Brass pipe – Stainless steel core
⑩ LOCKING RING: special steel
⑪ MAGNET: Neodymium
⑫ SENSOR: Hall effect
⑬ SENSOR SUPPORTING PLATE: Aluminium (for 1/8"-1/4"-3/8" only)
⑭ SILENCER

FLOW CHARTS ON DELIVERY - SINGLE VALVE

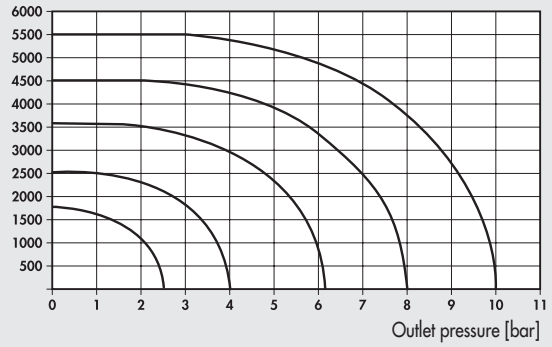
Flow rates [Nl/min] 1/8″



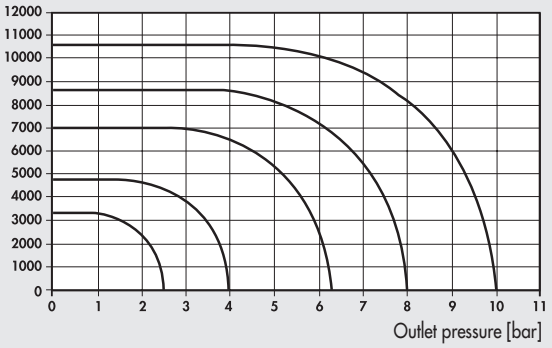
Flow rates [Nl/min] 1/4″



Flow rates [Nl/min] 3/8″

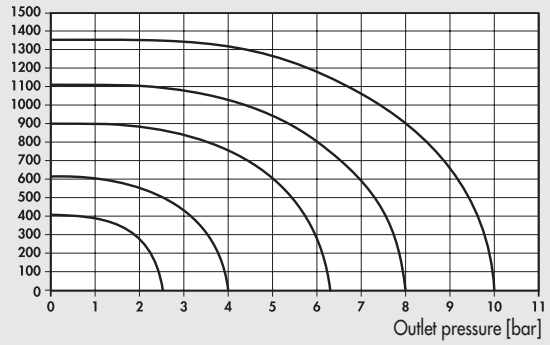


Flow rates [Nl/min] 1/2″

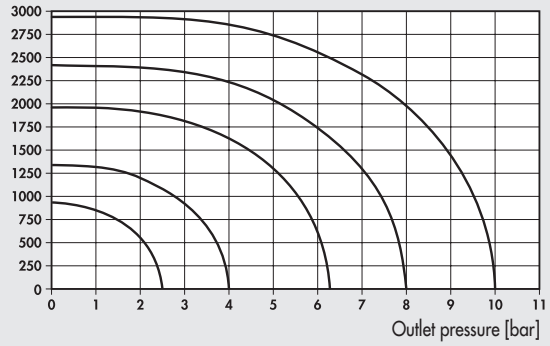


FLOW CHARTS ON RELIEF - SINGLE VALVE

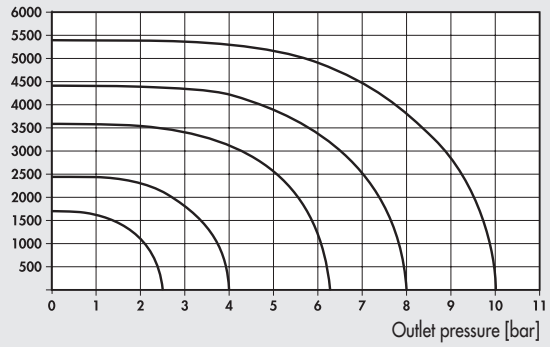
Flow rates [Nl/min] 1/8″



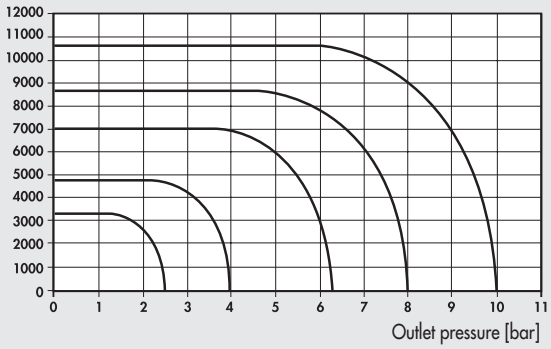
Flow rates [Nl/min] 1/4″



Flow rates [Nl/min] 3/8″



Flow rates [Nl/min] 1/2″

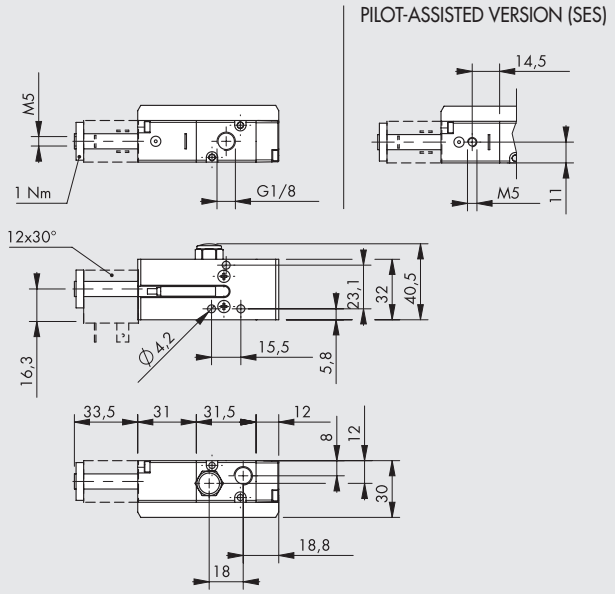


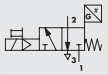
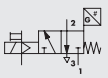
SYNOPTIC, SIZES AND VERSIONS

SOV	2	3	SO	S	NC	3F
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING 12	FURTHER DETAILS	SENSOR
SOV solenoid/ pneumatic	**2** 1/8″ **3** 1/4″ **C** 3/8″ **4** 1/2″	**3** 3/2	**SO** solenoid **SE** solenoid assisted	**S** mechanical springs	**NC** Normally-Closed	**3F** 2.5 m 3 wires **M8** 0.3 m M8 **AT** 2 m ATEX

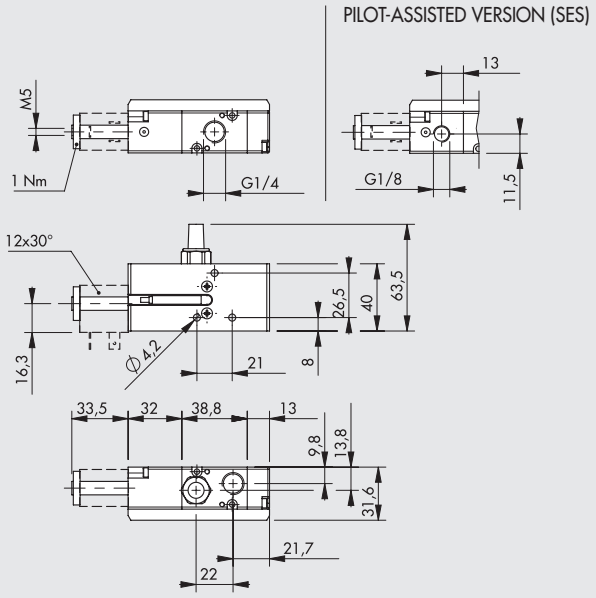
METAL WORK PNEUMATIC

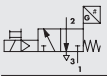
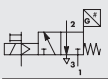
3/2 MONOSTABLE – 1/8"



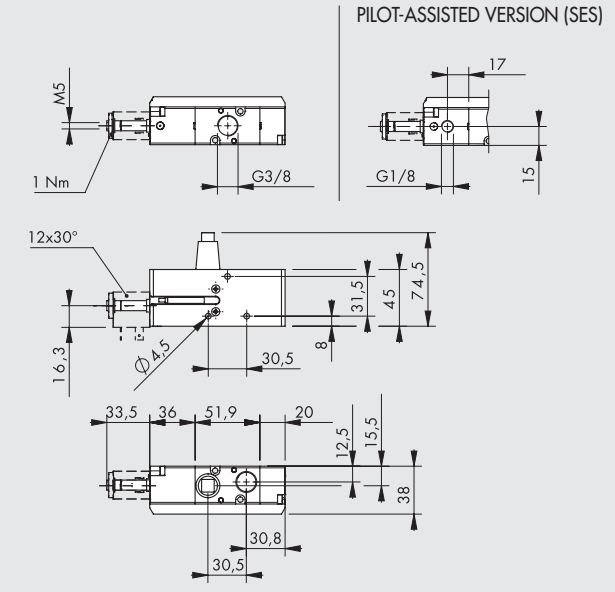
Symbol	Code	Abbrev.	Sensor	Weight [g]
	**7015020200**	SOV 23 SOS NC 3F	2.5 m 3 wires	182
	7015120200	SOV 23 SOS NC M8	0.3 m M8	178
	7015220200	SOV 23 SOS NC AT	2 m ATEX	174
	**7015020500**	SOV 23 SES NC 3F	2.5 m 3 wires	182
	7015120500	SOV 23 SES NC M8	0.3 m M8	178
	7015220500	SOV 23 SES NC AT	2 m ATEX	174

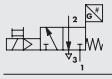
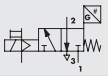
3/2 MONOSTABLE - 1/4"



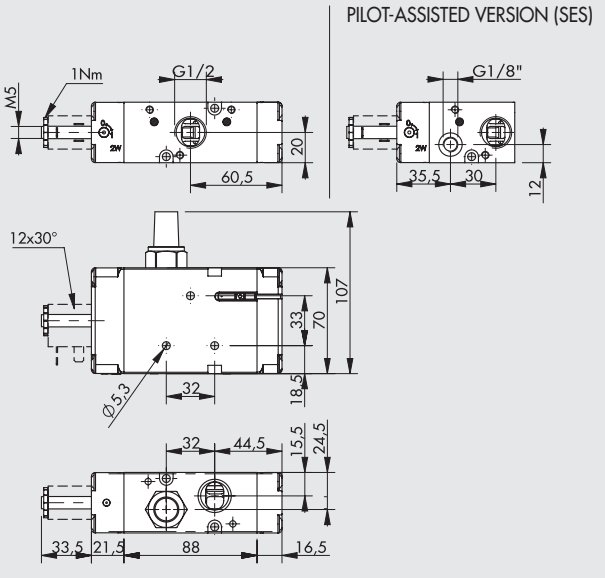
Symbol	Code	Abbrev.	Sensor	Weight [g]
	**7025020200**	SOV 33 SOS NC 3F	2.5 m 3 wires	252
	7025120200	SOV 33 SOS NC M8	0.3 m M8	248
	7025220200	SOV 33 SOS NC AT	2 m ATEX	244
	**7025020500**	SOV 33 SES NC 3F	2.5 m 3 wires	252
	7025120500	SOV 33 SES NC M8	0.3 m M8	248
	7025220500	SOV 33 SES NC AT	2 m ATEX	244

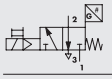
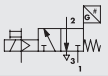
3/2 MONOSTABLE - 3/8"



Symbol	Code	Abbrev.	Sensor	Weight [g]
	**7045020200**	SOV C3 SOS NC 3F	2.5 m 3 wires	402
	7045120200	SOV C3 SOS NC M8	0.3 m M8	398
	7045220200	SOV C3 SOS NC AT	2 m ATEX	394
	**7045020500**	SOV C3 SES NC 3F	2.5 m 3 wires	402
	7045120500	SOV C3 SES NC M8	0.3 m M8	398
	7045220500	SOV C3 SES NC AT	2 m ATEX	394

3/2 MONOSTABLE - 1/2"



Symbol	Code	Abbrev.	Sensor	Weight [g]
	**7035020200**	SOV 43 SOS NC 3F	2.5 m 3 wires	705
	7035120200	SOV 43 SOS NC M8	0.3 m M8	705
	7035220200	SOV 43 SOS NC AT	2 m ATEX	705
	**7035020500**	SOV 43 SES NC 3F	2.5 m 3 wires	700
	7035120500	SOV 43 SES NC M8	0.3 m M8	700
	7035220500	SOV 43 SES NC AT	2 m ATEX	700

EXAMPLE OF A SAFETY CIRCUIT WITH A SINGLE VALVE

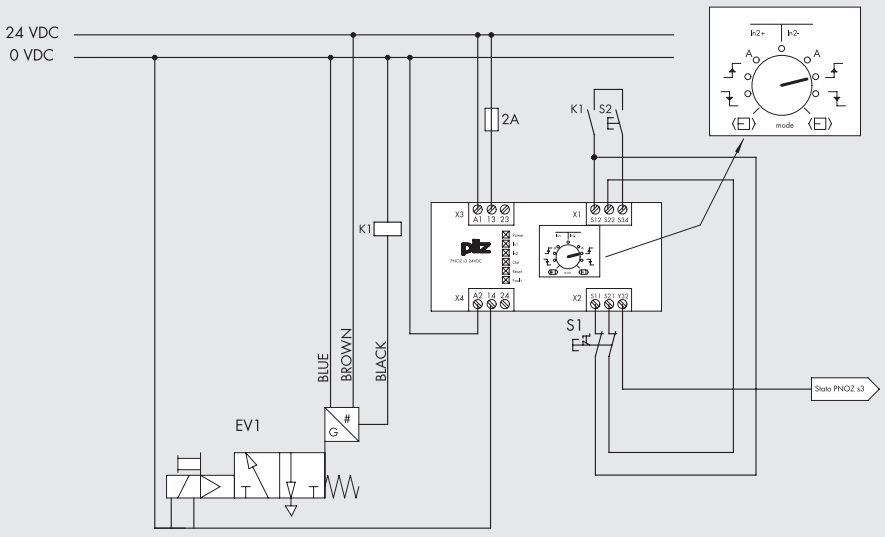
Below is an example of a wiring diagram for controlling Metal Work SAFE AIR® single valves using Pilz® components.
Circuit components:

- a Pilz® safety module PNOZ® s3 for controlling the emergency stop button; terminal Y32 indicates the status of the module, which can be relayed to the machine control logic
- an emergency stop button S1 (Pilz® - PIT® es Set) linked to terminals S11-S12-S22-S23 of the PNOZ® s3
- a Metal Work SAFE AIR® solenoid valve, the 24 VDC coil of which is fed by terminal 14 of the PNOZ® s3 (the other terminal of the coil is 0 V); the valve's Hall-effect sensor is 24 VDC
- a start/reset button S2
- a relay K1, controlled by the valve sensor; an NO contact of the relay is in series with button S2 of the PNOZ® s3.

Expected behaviour with the system operating correctly:

- system deactivated:
  - contact 14 is OFF
  - the coil is de-energized
  - the sensor is ON
  - relay K1 is energized
  - contact K1 is closed
  - contact Y32 is OFF
- with the system activated via the start/reset button S2:
  - contact 14 is ON
  - the coil is energized
  - the sensor is OFF
  - relay K1 is de-energized
  - contact K1 is open
  - contact Y32 is ON

In the event of a malfunction (e.g. spool jam), the coil is de-energized but the sensor remains OFF, relay K1 remains de-energized, contact K1 remains open (preventing subsequent restarts) and contact Y32 is OFF.
In the event of a valve fault, the circuit in the diagram below does not allow relief of the compressed air system. Sensor status must be monitored to assess valve operation. Contact Y32 indicates the status of the PNOZ® s3, not the status of the sensor.
All the electrical connections between the various components must comply with the applicable safety regulations.
If the emergency button is operated at a frequency of 1 actuation per hour, the circuit activates a safety function with PL = c (calculations made with the PAScal programme by Pilz®). Responsibility for final checking that PL lies with the person assembling the circuit.

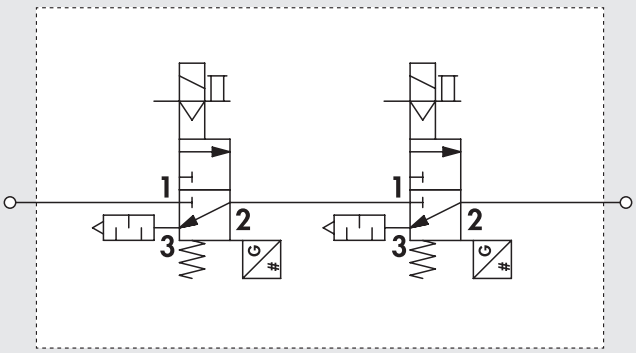


DOUBLE VALVE SERIES 70 SAFE AIR®

TECHNICAL DATA		1/8"	1/4"	3/8"	1/2"
Fluid		Filtered unlubricated air (50µm); lubrication, if used, must be continuous			
Operation		double 3/2 monostable			
Operating pressure:	bar				
non-assisted		from 2.5 to 10			
pilot-assisted		from vacuum to 10			
Minimum pilot pressure	bar	2.5			
Operating temperature range	°C	from -10 to +60 (from -10 to +45 for Atex version)			
Conductance C	Nl/min · bar	80	202	346	782.5
Critical ratio b	bar/bar	0.35	0.11	0.24	0.25
Flow rate at 6.3 bar Δp 0.5 bar	Nl/min	261	561	1038	2355
Flow rate at 6.3 bar Δp 1 bar	Nl/min	358	778	1433	3250
Conductance C on relief	Nl/min · bar	132	228	491	969.5
Critical ratio b on relief	bar/bar	0.27	0.21	0.21	0.54
Flow rate on free exhaust at 6.3 bar	Nl/min	930	1700	3550	7000
TRA/TRR a 6.3 bar	ms/ms	28 / 35	38 / 45	50 / 72	85/110
Installation		Any position			
Assembly		In-line			
Manual actuator		Monostable			
Recommended lubricant		ISO e UNI FD 22			
Compatibility with oils		See **chapter Z1**			
Coils		22 mm side, ø 8 hole – EN175301-803 connection, type B			
		Certified EN 60204.1 and VDE 0580			
		For the electrical features see page **B1**.60 *			
Class of protection		IP65 with coil and connector mounted			
Noise level		Max. 78 dBA with silenced relief			
Max coil ring nut torque	Nm	1			
CE marking		In accordance with Machinery Directive, Annex V **			
ATEX category (only for versions with an ATEX sensor)		Ⓔx II 3G Ex nA IIC T4 Gc X -10°C<Ta<45°C			
		Ⓔx II 3G Ex h IIC T4 Gc X			
		Ⓔx II 3D Ex tc IIIC T135°C Dc IP65			
Safety function		Cuts off the power supply and relieves the air circuit connected to port 2			
Type of sensor used		Hall effect (refer to page **B1**.163 for sensor details)			
B10d		50 x 10^6 cycles			
Category - ISO EN 13849		4			
DC		High (≥ 99 %)			
CCF		80			
PL - ISO EN 13849		Suitable for use in safety circuits up to PL = e			

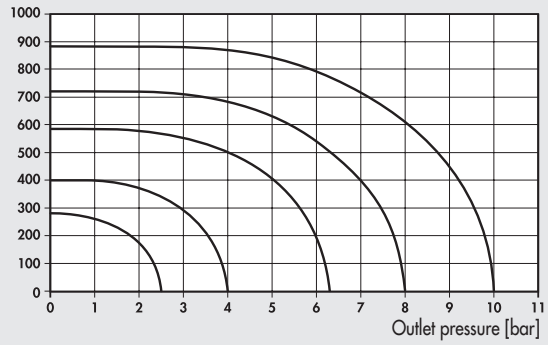
* To avoid malfunctions, we recommend using Metal Work accessories
** The declaration can be downloaded from www.metalwork.it
IMPORTANT: Any ferromagnetic masses must be at least 40 mm from the sensor.
Prevent magnetic fields from creating disturbance in the sensor area.

WIRING DIAGRAM

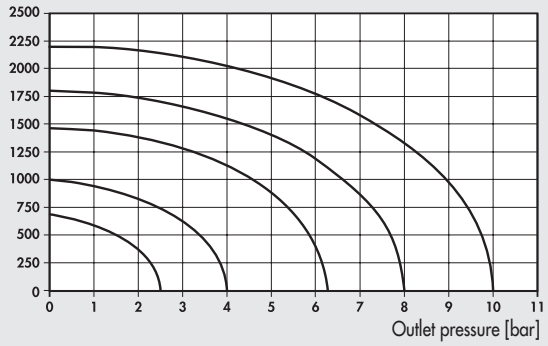


FLOW CHARTS ON DELIVERY - DOUBLE VALVE

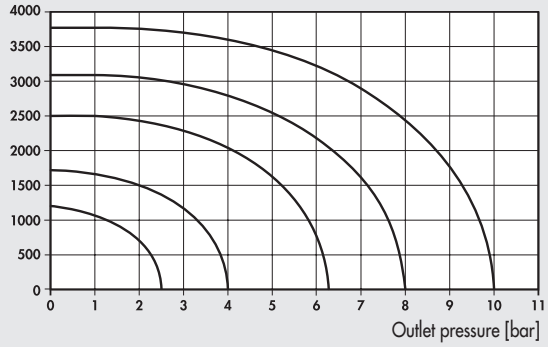
Flow rates [Nl/min] 1/8″



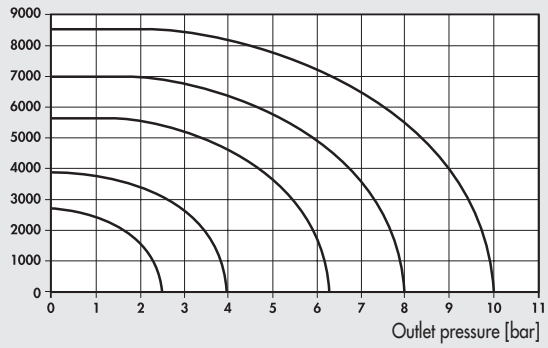
Flow rates [Nl/min] 1/4″



Flow rates [Nl/min] 3/8″

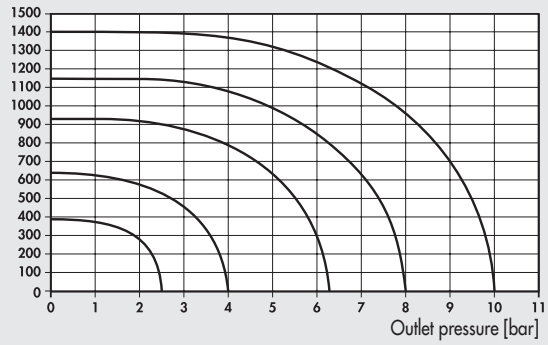


Flow rates [Nl/min] 1/2″

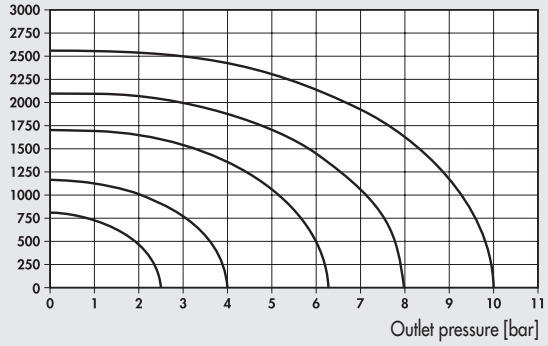


FLOW CHARTS ON RELIEF - DOUBLE VALVE

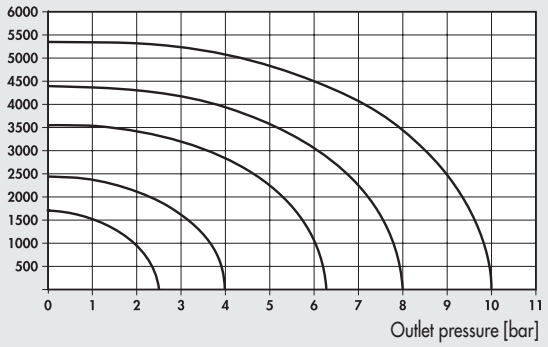
Flow rates [Nl/min] 1/8″



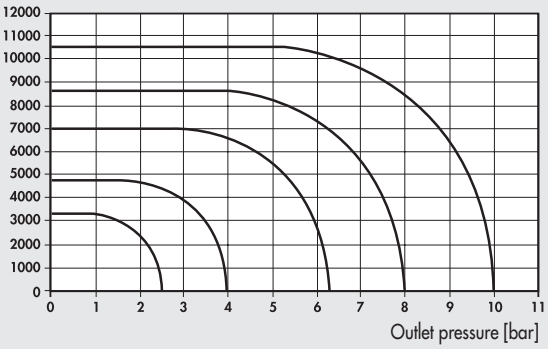
Flow rates [Nl/min] 1/4″



Flow rates [Nl/min] 3/8″



Flow rates [Nl/min] 1/2″

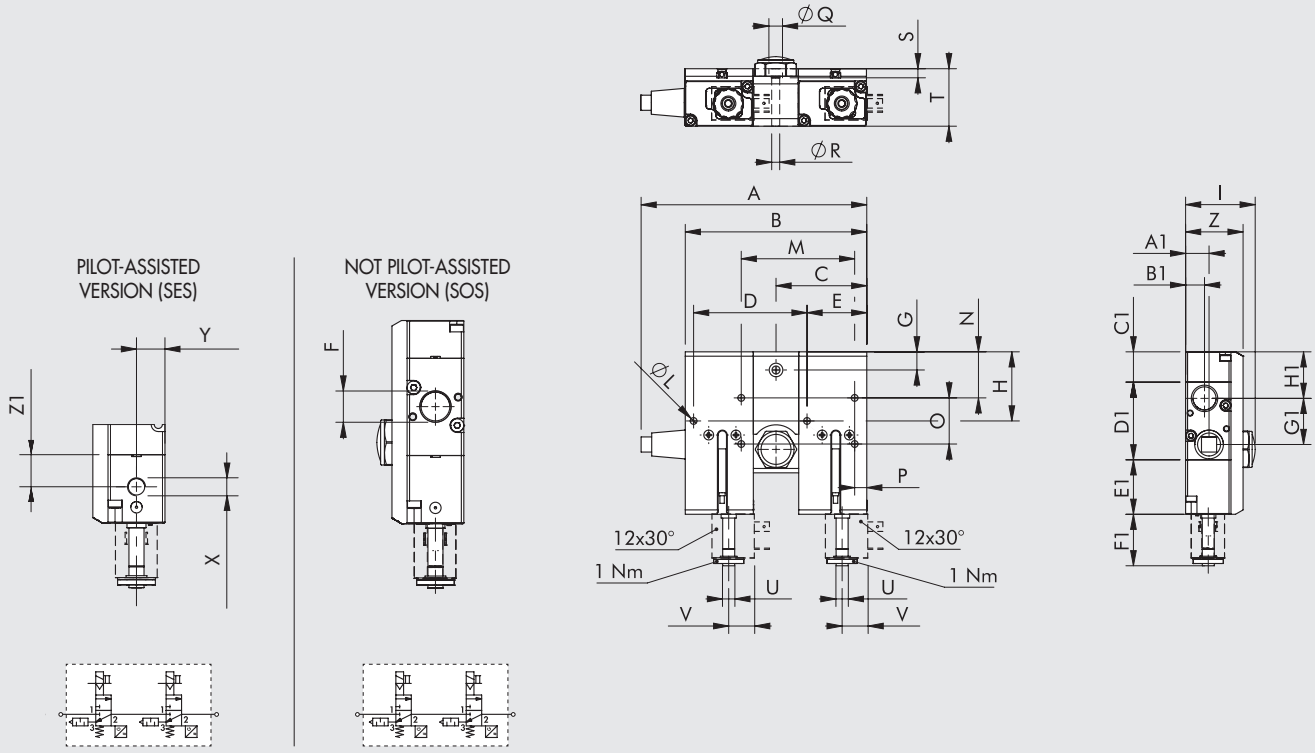


SYNOPTIC, SIZES AND VERSIONS

SOV	2	3	SO	S	DD	3F
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING 12**	**FURTHER DETAILS**	**SENSOR**
SOV solenoid/ pneumatic	**2** 1/8″ **3** 1/4″ **C** 3/8″ **4** 1/2″	**3** 3/2	**SO** solenoid **SE** solenoid assisted	**S** mechanical springs	**DD** double 3/2	**3F** 2.5 m 3 wires **M8** 0.3 m M8 **AT** 2 m ATEX

METAL WORK PNEUMATIC

DOUBLE 3/2 MONOSTABLE 1/8"-1/4"-3/8"

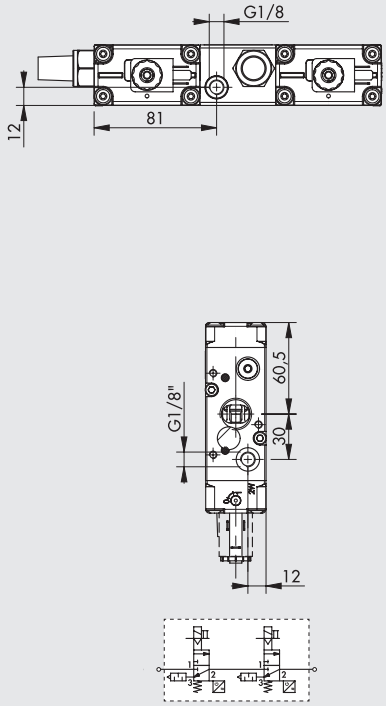


Code	Size	Abbrev.	A	B	C	D	E	F	G	H	I	ØL	M	N	O	P	ØQ	ØR	S	T
7015020210	1/8"	SOV 23 SOS DD 3F	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7015120210	1/8"	SOV 23 SOS DD M8	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7015220210	1/8"	SOV 23 SOS DD AT	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7015020510	1/8"	SOV 23 SES DD 3F	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7015120510	1/8"	SOV 23 SES DD M8	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7015220510	1/8"	SOV 23 SES DD AT	102.5	94	-	62	28.9	1/8"	-	27.8	35.5	4.2	-	-	-	-	-	-	-	-
7025020210	1/4"	SOV 33 SOS DD 3F	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7025120210	1/4"	SOV 33 SOS DD M8	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7025220210	1/4"	SOV 33 SOS DD AT	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7025020510	1/4"	SOV 33 SES DD 3F	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7025120510	1/4"	SOV 33 SES DD M8	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7025220510	1/4"	SOV 33 SES DD AT	133.5	110	55	70	34.5	1/4"	9	32.7	37.5	4.2	-	-	-	-	7.5	4.3	5	31.5
7045020210	3/8"	SOV C3 SOS DD 3F	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38
7045120210	3/8"	SOV C3 SOS DD M8	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38
7045220210	3/8"	SOV C3 SOS DD AT	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38
7045020510	3/8"	SOV C3 SES DD 3F	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38
7045120510	3/8"	SOV C3 SES DD M8	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38
7045220510	3/8"	SOV C3 SES DD AT	149.5	120	60	75	39.5	3/8"	12	45.7	46	4.5	75	30.45	30.5	8	9	5.3	6	38

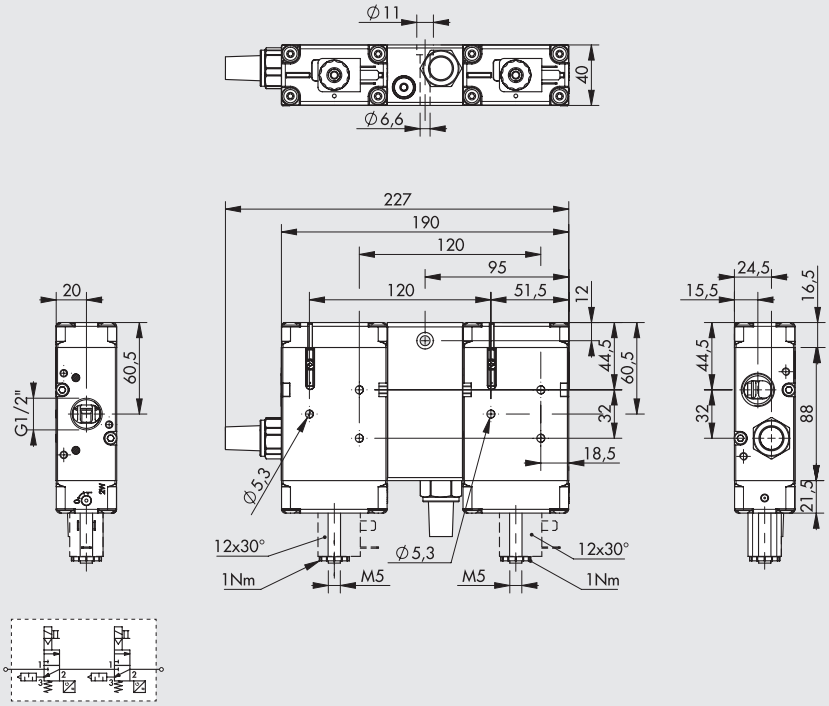
Code	Size	Abbrev.	U	V	Z	X	Y	Z1	A1	B1	C1	D1	E1	F1	G1	H1	Sensor	Weight [g]
7015020210	1/8"	SOV 23 SOS DD 3F	M5	16.3	-	-	-	14.5	12	8	12	31.6	31	33.5	18	18.8	2.5 m 3 wires	482
7015120210	1/8"	SOV 23 SOS DD M8	M5	16.3	-	-	-	14.5	12	8	12	31.6	31	33.5	18	18.8	0.3 m M8	479
7015220210	1/8"	SOV 23 SOS DD AT	M5	16.3	-	-	-	14.5	12	8	12	31.6	31	33.5	18	18.8	2 m ATEX	466
7015020510	1/8"	SOV 23 SES DD 3F	M5	16.3	30	M5	11	14.5	12	8	12	31.6	31	33.5	18	18.8	2.5 m 3 wires	482
7015120510	1/8"	SOV 23 SES DD M8	M5	16.3	30	M5	11	14.5	12	8	12	31.6	31	33.5	18	18.8	0.3 m M8	474
7015220510	1/8"	SOV 23 SES DD AT	M5	16.3	30	M5	11	14.5	12	8	12	31.6	31	33.5	18	18.8	2 m ATEX	466
7025020210	1/4"	SOV 33 SOS DD 3F	M5	16.3	-	-	-	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	2.5 m 3 wires	632
7025120210	1/4"	SOV 33 SOS DD M8	M5	16.3	-	-	-	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	0.3 m M8	624
7025220210	1/4"	SOV 33 SOS DD AT	M5	16.3	-	-	-	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	2 m ATEX	616
7025020510	1/4"	SOV 33 SES DD 3F	M5	16.3	31.6	1/8"	11.5	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	2.5 m 3 wires	632
7025120510	1/4"	SOV 33 SES DD M8	M5	16.3	31.6	1/8"	11.5	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	0.3 m M8	624
7025220510	1/4"	SOV 33 SES DD AT	M5	16.3	31.6	1/8"	11.5	13	13.8	9.8	13.25	38.9	32	33.5	22	21.7	2 m ATEX	616
7045020210	3/8"	SOV C3 SOS DD 3F	M5	16.3	-	-	-	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	2.5 m 3 wires	972
7045120210	3/8"	SOV C3 SOS DD M8	M5	16.3	-	-	-	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	0.3 m M8	964
7045220210	3/8"	SOV C3 SOS DD AT	M5	16.3	-	-	-	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	2 m ATEX	956
7045020510	3/8"	SOV C3 SES DD 3F	M5	16.3	38	1/8"	15	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	2.5 m 3 wires	972
7045120510	3/8"	SOV C3 SES DD M8	M5	16.3	38	1/8"	15	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	0.3 m M8	964
7045220510	3/8"	SOV C3 SES DD AT	M5	16.3	38	1/8"	15	17	15.5	12.5	20	51.9	36	33.5	30.5	30.8	2 m ATEX	956

DOUBLE 3/2 MONOSTABLE 1/2"

PILOT-ASSISTED VERSION (SES)



NOT PILOT-ASSISTED VERSION (SOS)



Code	Abbrev.	Sensor	Weight [g]
7035020210	SOV 43 SOS DD 3F	2.5 m 3 wires	1920
7035120210	SOV 43 SOS DD M8	0.3 m M8	1920
7035220210	SOV 43 SOS DD AT	2 m ATEX	1920
7035020510	SOV 43 SES DD 3F	2.5 m 3 wires	1915
7035120510	SOV 43 SES DD M8	0.3 m M8	1915
7035220510	SOV 43 SES DD AT	2 m ATEX	1915

NOTES

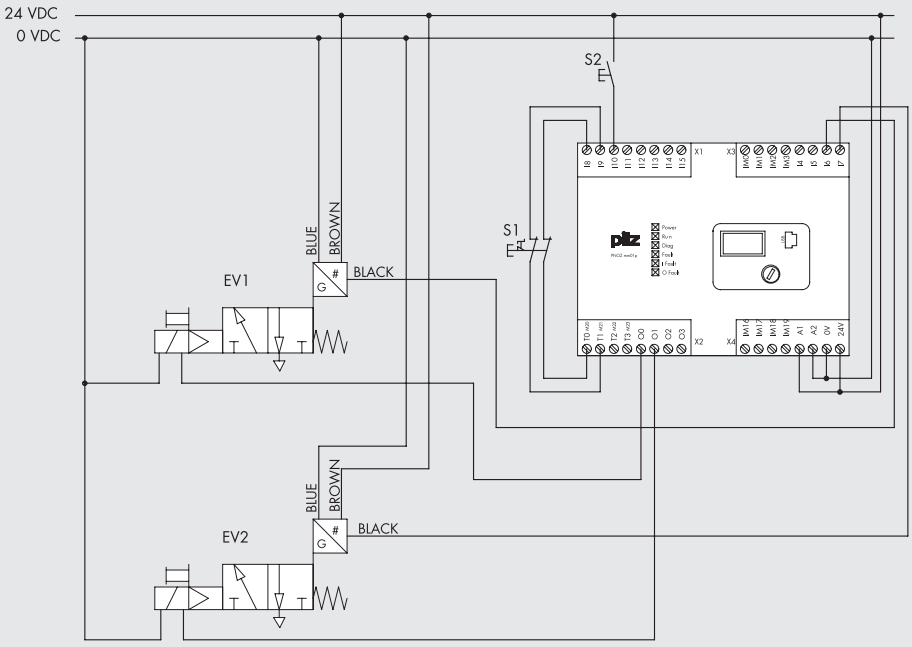
EXAMPLE OF A SAFETY CIRCUIT WITH A DOUBLE VALVE

Below is an example of a wiring diagram for controlling double valves SAFE AIR® a Metal Work using Pilz® components.
Circuit components:
- a Pilz® PNOZ® mm 0.1p modular safety system
- an emergency stop button S1 (Pilz® - PIT® es Set) linked to terminals T0-T1-I8-I9 of the PNOZ® mm 0.1p
- a Metal Work double solenoid valve SAFE AIR®, the 24 VDC coils of which are fed by terminals O0 (SV1) and O1 (SV2) of the PNOZ® mm 0.1p (the other terminals of the coils are OV); the valves' Hall-effect sensors are 24 VDC
- the sensor signals are relayed to terminals 16 (SV1) and 17 (SV2) of the PNOZ® mm 0.1p
- a start/reset button S2

Expected behaviour with the system operating correctly:
- system deactivated:
  - contacts O0 and O1 are OFF
  - the coils are de-energized
  - the sensors are ON (and hence signals to terminals 16 and 17)
  - if one of the sensors is OFF, the Pilz® module does not allow subsequent start/reset
- with the system activated via the start/reset button:
  - contacts O0 and O1 are ON
  - the coils are energized
  - the sensors are OFF (and hence signals to terminals 16 and 17)

The PNOZ® mm 0.1p module is programmed so that:
- when either sensor is OFF, and the coils are de-energized, the module does not allow subsequent restarts.
- when the valves are energized, the 2 sensors must go off within the valve actuation time (28 ms for Series 70 1/8", 38 ms for Series 70 1/4" and 50 ms for Series 70 3/8" and 85 ms Serie 70 1/2"), otherwise the 2 valves are switched off again.
  The programme can be downloaded from www.metalwork.it (the licence for programming Pilz® modules is not included).

All the electrical connections between the various components must comply with the applicable safety regulations.
If the emergency button is operated at a frequency of 1 actuation per hour, the circuit activates a safety function with PL = e (calculations made with the PAScal programme by Pilz®).
Responsibility for final checking that PL lies with the person assembling the circuit.



ACCESSORIES

COILS AND CONNECTORS

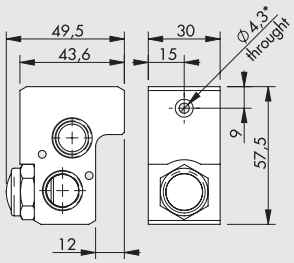
Refer to page **B1**.60 for coils and connectors

CONNECTORS FOR SENSORS M8

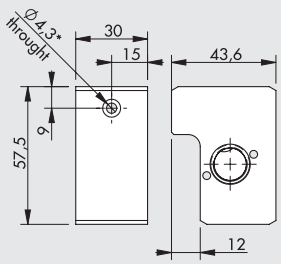
See page **A6**.9

KIT FOR CONNECTION 1/4 VALVES TO SYNTES 1

IN



OUT



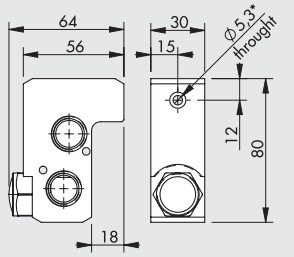
* Wall fixing

Code	Description	Weight [g]
9210015	IN 1/4 SY1 block accessory	175
9210016	OUT 1/4 SY1 block accessory	180

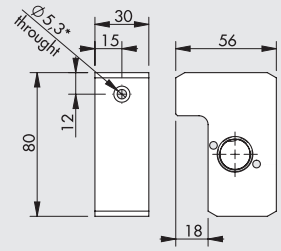
Note: Individually packed with bushing, screws and gaskets.

KIT FOR CONNECTION 3/8 VALVES TO SYNTES 1 - SYNTESI 2

IN



OUT



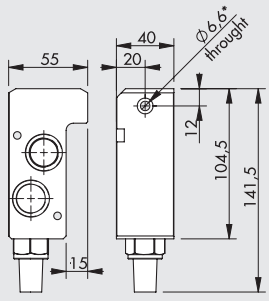
* Wall fixing

Code	Description	Weight [g]
9210022	IN 3/8 SY1 block accessory	297
9210023	OUT 3/8 SY1 block accessory	302
9210017	IN 3/8 SY2 block accessory	325
9210018	OUT 3/8 SY2 block accessory	330

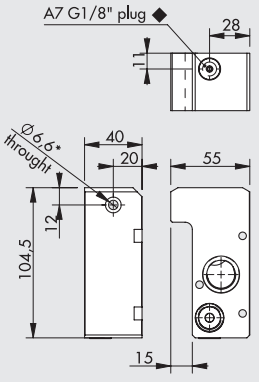
Note: Individually packed with bushing, screws and gaskets.

KIT FOR CONNECTION 1/2 VALVES TO SYNTESI 2

IN



OUT



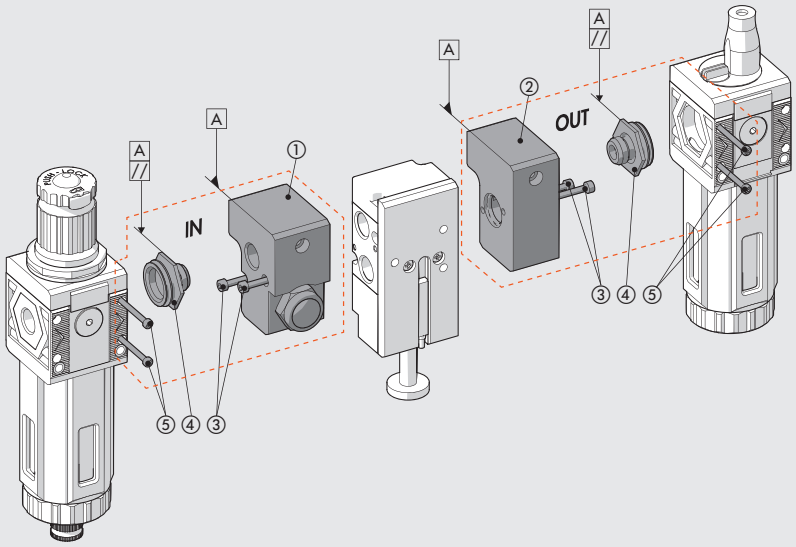
* Wall fixing
◆ For pilot assisted version remove the G1/8 plug

Code	Description	Weight [g]
9210020	IN 1/2 SY2 block accessory	515
9210021	OUT 1/2 SY2 block accessory	503

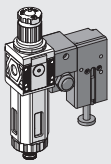
Note: Individually packed with bushing, screws and gaskets.

METAL WORK PNEUMATIC

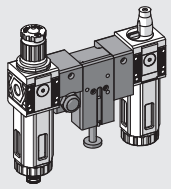
ASSEMBLY DIAGRAM WITH SYNTESI®



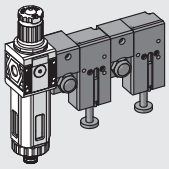
IN + SINGLE VALVE



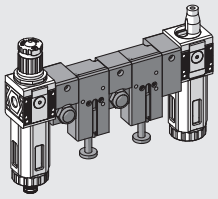
IN + SINGLE VALVE + OUT



IN + DOUBLE VALVE

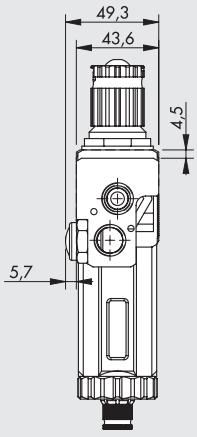


IN + DOUBLE VALVE + OUT

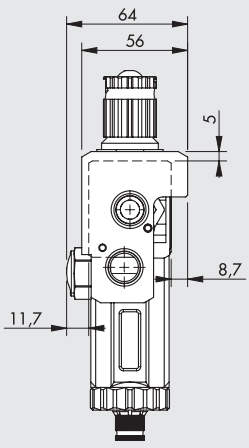


1) Connect the inlet ① or outlet ② plate to the safety component SAFE AIR® valve using the two TCE screws ③.
2) Screw the connecting bushing onto the input or output plate as far as it will go.
   (Use sealant on the G1/4", G3/8" or G1/2" thread to provide a further seal).
3) Unscrew the bushing slightly until two surfaces of the hexagon are parallel to the body of plate ① or ② (see diagram).
4) Insert the bushing ④ into the Syntesi® unit.
5) Tighten the two self-tapping screws ⑤ in the Syntesi® unit to a torque of 0.4 Nm max (SY1) and 2.5 Nm max (SY2).

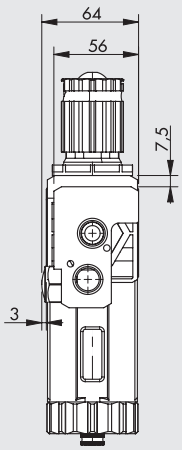
SYNTESI® 1 with valves of 1/4



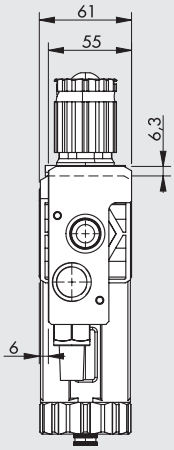
SYNTESI® 1 with valves of 3/8



SYNTESI® 2 with valves of 3/8



SYNTESI® 2 with valves of 1/2



N.B. The output accessory for Syntesi® is optional. It should be used when you intend to mount a Syntesi® component downstream the SAFE AIR® safety device. The **REG**, **FR**, **V3V**, **APR** elements **cannot be mounted** downstream the safety valves because if the elements are blocked, safety relief is not guaranteed.

VALVES ISO 5599/1 SERIES SAFE AIR®

Starting from a series of sturdy, reliable valves, such as those to ISO 5599/1, some special features have been added, such as the presence of a valve status diagnostic system and the creation of a double channel guaranteeing architecture redundancy.

The simplest version features one electropneumatically-operated 5/2 monostable valve. It is common knowledge that when this type of valve is in the idle state (coil not energized), port 1 is connected to port 2, and port 4 relieves. When the valve is operated (coil energized), port 1 is connected to port 4, and port 2 relieves. When the coil is de-energized again, the valve is returned to the idle state (so port 4 relieves) by means of a spring that returns the spool to the home position.
In the event of a failure, the spool may remain in the actuating position, even with coil de-energized, leaving port 4 pressurized.

To offset this problem, we have added a Hall-effect sensor that reads the spool position. This means that when the valve is deactivated, the sensor is on, and when the valve is activated, the sensor is off. A status in which the sensor is off and the coil de-energized indicates a problem.

To reduce the probability of risk during plant maintenance, the manual actuator mounted on the Cnomo electric control is the monostable type.
The sensor inside the valve is available in the standard version with a 2.5m three-wire cable (standard or ATEX certified) or with an M8 connector and a 300 mm cable.
This valve, which is available in 3 sizes for the ISO 5599/1 series, is a category 2 component according to ISO EN 13849 and is suitable for use in safety circuits up to PL=c.

For those requiring higher PLs, we have also developed a double-channel version (redundant) that requires the use of ISO 5599/1 valves with a monitored coil arranged so that ports 2 are in parallel and ports 4 are in series. If just one of the valves de-energizes, port 4 relieves, so, even if one of the two coils remains blocked, the other guarantees relief of the compressed-air circuit. In this case, too, the presence of spool position sensors can be used to monitor the status.

The double valve is also available in 3 sizes for the ISO 5599/1 series. It is a category 4 component according to ISO EN 13849 and is suitable for use in safety circuits up to PL=e.
Both the single- and the double-channel valve come with:
- a voluntary examination certificate no. TC1249/21/AD/ad, issued by Bureau Veritas in accordance with EN ISO 13849;
- a certificate of compliance examination to the Machinery Directive 2006/42/EC No. CV 002-10-2011 released by Bureau Veritas.

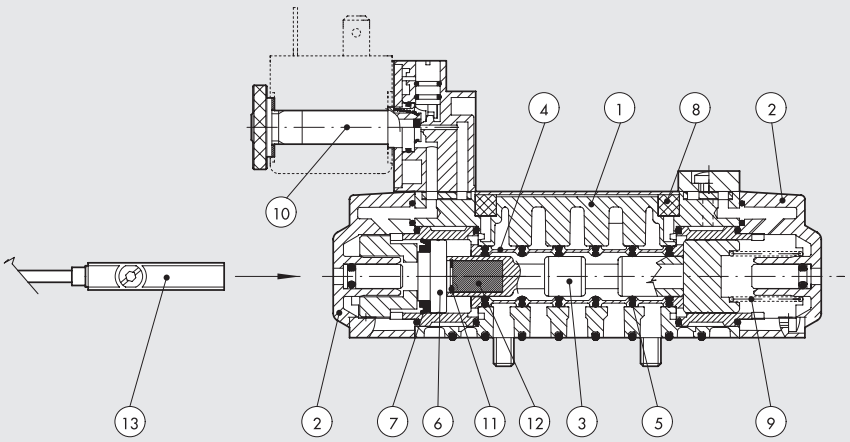
SINGLE VALVE ISO 5599/1 SERIES SAFE AIR®

TECHNICAL DATA		ISO 1	ISO 2	ISO 3
Fluid		Filtered unlubricated air (50µm); lubrication, if used, must be continuous		
Operation		5/2 monostable		
Operating pressure:	bar			
non-assisted		from 2.5 to 10		
pilot-assisted		from vacuum to 10		
Minimum pilot pressure	bar	2.5		
Operating temperature range	°C	from -10 to +60 (from -10 to +45 for Atex version)		
Nominal diameter	mm	7.5	12	15
Conductance C	Nl/min · bar	250	657	971
Critical ratio b	bar/bar	0.36	0.43	0.43
Flow rate at 6.3 bar Δp 0.5 bar	Nl/min	700	1800	3200
Flow rate at 6.3 bar Δp 1 bar	Nl/min	1100	2700	4600
Conductance C on relief	Nl/min · bar	267	817	1095
Critical ratio b on relief	bar/bar	0.34	0.24	0.56
Flow rate on free exhaust at 6.3 bar	Nl/min	1850	4900	8000
TRA/TRR a 6.3 bar	ms/ms	24 / 50	39 / 60	50 / 120
Installation		Any position		
Assembly		On single or manifold bases to ISO 5599/1 (*)		
Solenoid pilot		to CNOMO		
Manual actuator		Monostable on solenoid pilot and valve body		
Recommended lubricant		ISO e UNI FD 22		
Compatibility with oils		See **chapter Z1**		
Coils		30 mm side, Ø 8 hole – EN175301-803 connection, type A		
		22 mm side, Ø 8 hole – EN175301-803 connection, type B		
		Certified EN 60204.1 and VDE 0580		
		Refer to the Accessories section for the electrical features page **B1**.131*		
Class of protection		IP65 with coil and connector mounted		
Noise level		Max. 78 dBA with silenced relief		
Max coil ring nut torque	Nm	1		
CE marking		In accordance with Machinery Directive, Annexe V **		
ATEX category (only for versions with an ATEX sensor)		⟨Ex⟩ II 3G Ex nA IIC T4 Gc X -10°C<Ta<45°C		
		⟨Ex⟩ II 3G Ex h IIC T4 Gc X		
		⟨Ex⟩ II 3D Ex tc IIIC T135°C Dc IP65		
Safety function		Cuts off the power supply and relieves the air circuit connected to port 4		
Type of sensor used		Hall effect (refer to page **B1**.163 for sensor details)		
B10d		50 x 10^6 cycles		
Category - ISO EN 13849		2		
DC		Low (80 %)		
PL - ISO EN 13849		Suitable for use in safety circuits up to PL=c		

* To avoid malfunctions, we recommend using Metal Work accessories
** The declaration can be downloaded from www.metalwork.it
IMPORTANT: Do not mount 2 or more SAFE AIR® valves in adjacent positions.
Any ferromagnetic masses must be at least 30 mm from the sensor.
Prevent magnetic fields from creating disturbance in the sensor area.

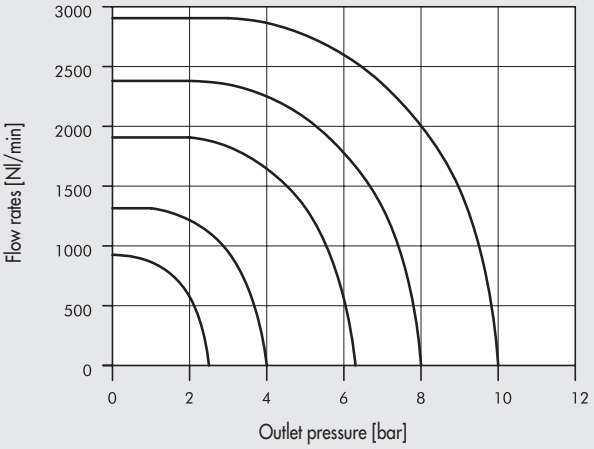
COMPONENTS

① VALVE BODY: Aluminium
② END CAP: Hostaform®
③ SPOOL: chemically nickel-plated aluminium
④ DISTANCE PLATES: plastic
⑤ GASKETS: NBR
⑥ PISTONS: Hostaform®
⑦ PISTON GASKET: NBR
⑧ FILTER: sintered bronze
⑨ SPRINGS: special steel
⑩ OPERATOR: Brass pipe – Stainless steel core
⑪ LOCKING RING: special steel
⑫ MAGNET: Neodymium
⑬ SENSOR: Hall effect

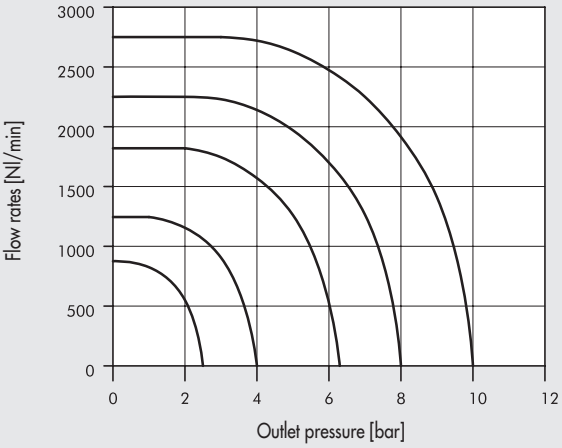


FLOW CHARTS - SINGLE VALVE

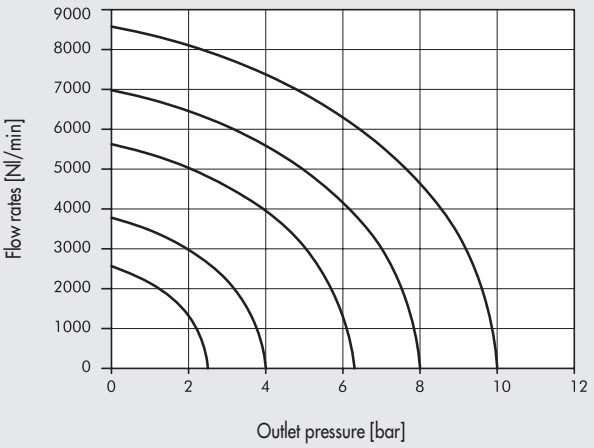
ISO 1 - ON DELIVERY



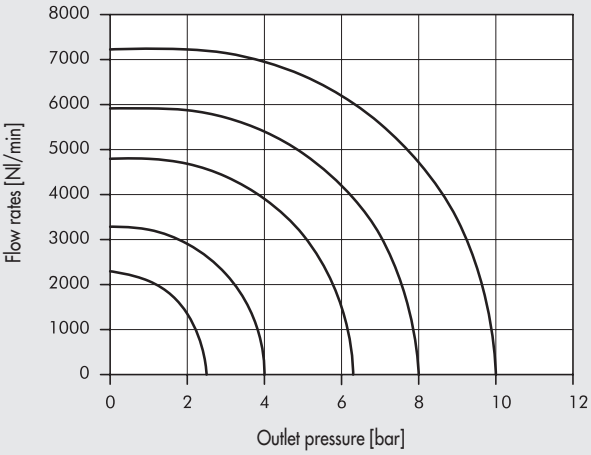
ISO 1 - ON RELIEF



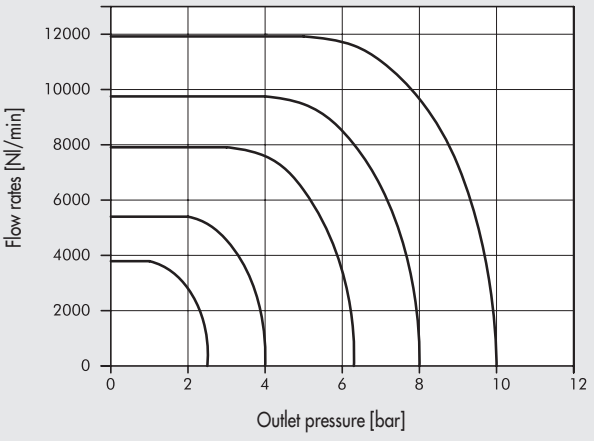
ISO 2 - ON DELIVERY



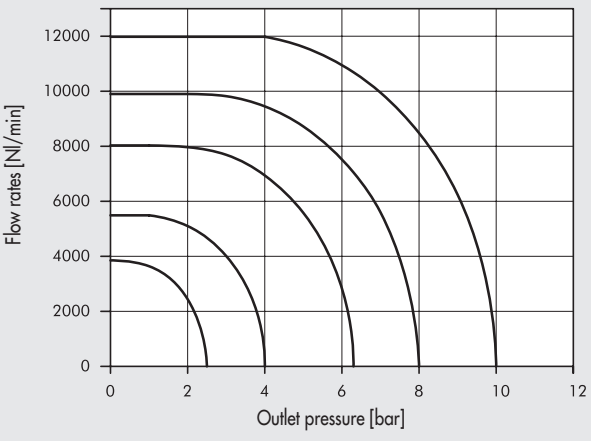
ISO 2 - ON RELIEF



ISO 3 - ON DELIVERY



ISO 3 - ON RELIEF

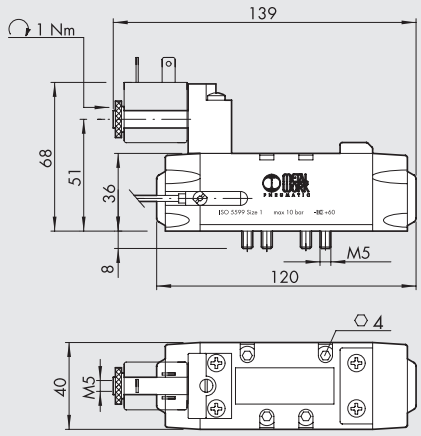


SYNOPTIC, SIZES AND VERSIONS

I S V	5	5	S O	S	O O	3 F
FAMILY	**DIMENSIONS**	**FUNCTION**	**OPERATORS 14**	**RESETTING 12**	**FURTHER DETAILS**	**SENSOR**
ISV ISO solenoid/ pneumatic	**5** ISO1 **6** ISO2 **7** ISO3	**5** 5/2	**SO** solenoid **SE** solenoid assisted	**S** mechanical springs	**OO** 5/2	**3F** 2.5 m 3 wires **M8** 0.3 m M8 **AT** 2 m ATEX

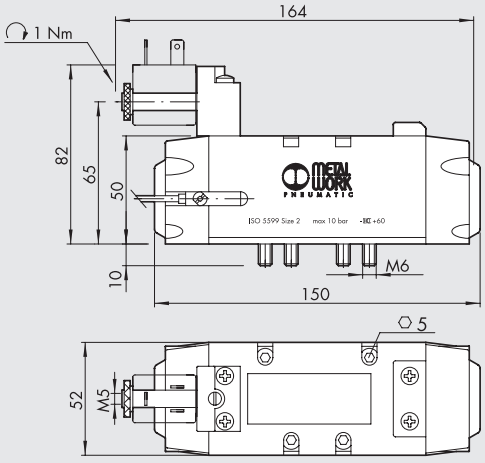
METAL WORK PNEUMATIC

5/2 MONOSTABLE - ISO 1



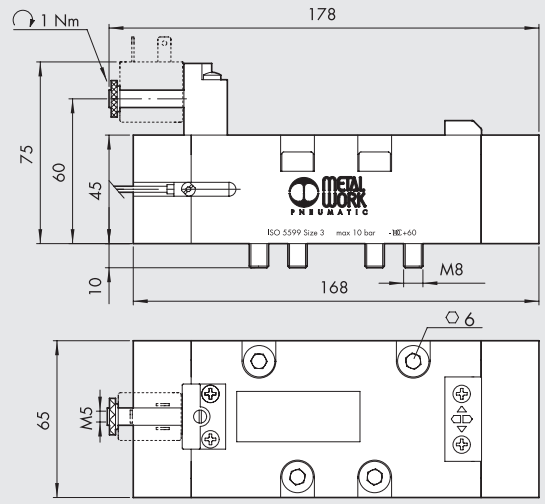
Symbol	Code	Abbrev.	Sensor	Weight [g]
	7057021100	ISV 55 SOS OO 3F	2.5 m 3 wires	380
	7057121100	ISV 55 SOS OO M8	0.3 m M8	350
	7057221100	ISV 55 SOS OO AT	2 m ATEX	370
	7057021400	ISV 55 SES OO 3F	2.5 m 3 wires	380
	7057121400	ISV 55 SES OO M8	0.3 m M8	350
	7057221400	ISV 55 SES OO AT	2 m ATEX	370

5/2 MONOSTABLE - ISO 2



Symbol	Code	Abbrev.	Sensor	Weight [g]
	7058021100	ISV 65 SOS OO 3F	2.5 m 3 wires	750
	7058121100	ISV 65 SOS OO M8	0.3 m M8	720
	7058221100	ISV 65 SOS OO AT	2 m ATEX	740
	7058021400	ISV 65 SES OO 3F	2.5 m 3 wires	750
	7058121400	ISV 65 SES OO M8	0.3 m M8	720
	7058221400	ISV 65 SES OO AT	2 m ATEX	740

5/2 MONOSTABLE - ISO 3



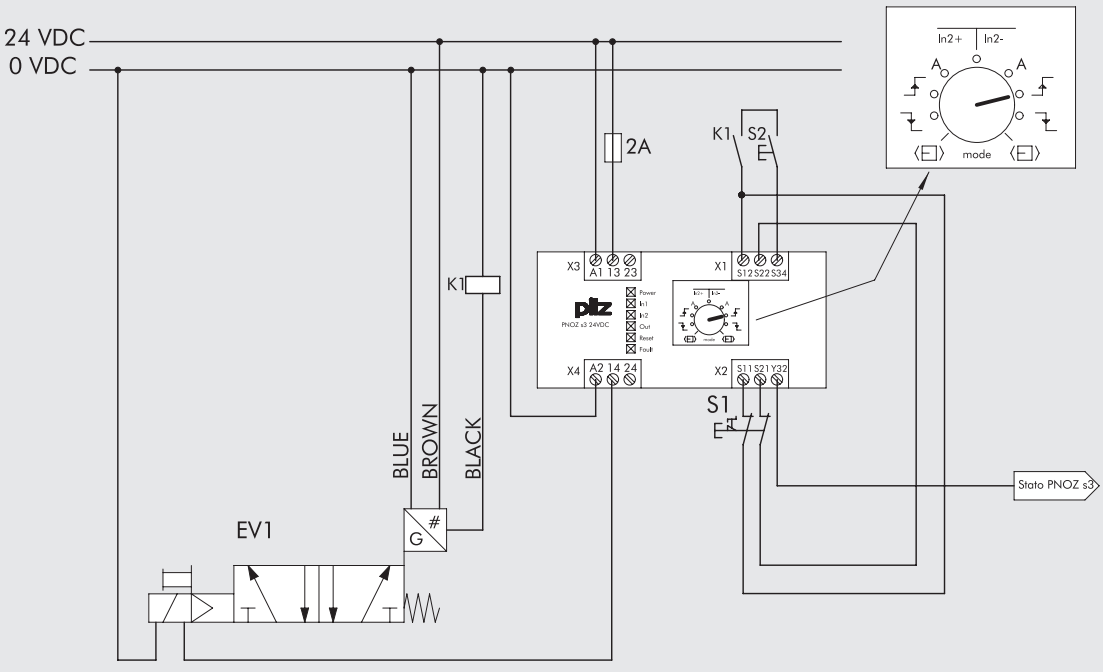
Symbol	Code	Abbrev.	Sensor	Weight [g]
	7059021100	ISV 75 SOS OO 3F	2.5 m 3 wires	1240
	7059121100	ISV 75 SOS OO M8	0.3 m M8	1210
	7059221100	ISV 75 SOS OO AT	2 m ATEX	1230
	7059021400	ISV 75 SES OO 3F	2.5 m 3 wires	1240
	7059121400	ISV 75 SES OO M8	0.3 m M8	1210
	7059221400	ISV 75 SES OO AT	2 m ATEX	1230

EXAMPLE OF A SAFETY CIRCUIT WITH A SINGLE VALVE

Below is an example of a wiring diagram for controlling Metal Work SAFE AIR® single valves using Pilz® components.
Circuit components:
- a Pilz® safety module PNOZ® s3 for controlling the emergency stop button; terminal Y32 indicates the status of the module, which can be relayed to the machine control logic
- an emergency stop button S1 (Pilz® - PIT® es Set) linked to terminals S11-S12-S22-S23 of the PNOZ® s3
- a Metal Work SAFE AIR® solenoid valve, the 24 VDC coil of which is fed by terminal 14 of the PNOZ® s3 (the other terminal of the coil is 0 V); the valve's Hall-effect sensor is 24 VDC
- a start/reset button S2
- a relay K1, controlled by the valve sensor; an NO contact of the relay is in series with button S2 of the PNOZ® s3.

Expected behaviour with the system operating correctly:
- system deactivated:
  - contact 14 is OFF
  - the coil is de-energized
  - the sensor is ON
  - relay K1 is energized
  - contact K1 is closed
  - contact Y32 is OFF
- with the system activated via the start/reset button:
  - contact 14 is ON
  - the coil is energized
  - the sensor is OFF
  - relay K1 is de-energized
  - contact K1 is open
  - contact Y32 is ON

In the event of a malfunction (e.g. spool jam), the coil is de-energized but the sensor remains OFF, relay K1 remains de-energized, contact K1 remains open (preventing subsequent restarts) and contact Y32 is OFF.
In the event of a valve fault, the circuit in the diagram below does not allow relief of the compressed air system. Sensor status must be monitored to assess valve operation. Contact Y32 indicates the status of the PNOZ® s3, not the status of the sensor.
All the electrical connections between the various components must comply with the applicable safety regulations.
If the emergency button is operated at a frequency of 1 actuation per hour, the circuit activates a safety function with PL = c (calculations made with the PAScal programme by Pilz®). Responsibility for final checking that PL lies with the person assembling the circuit.

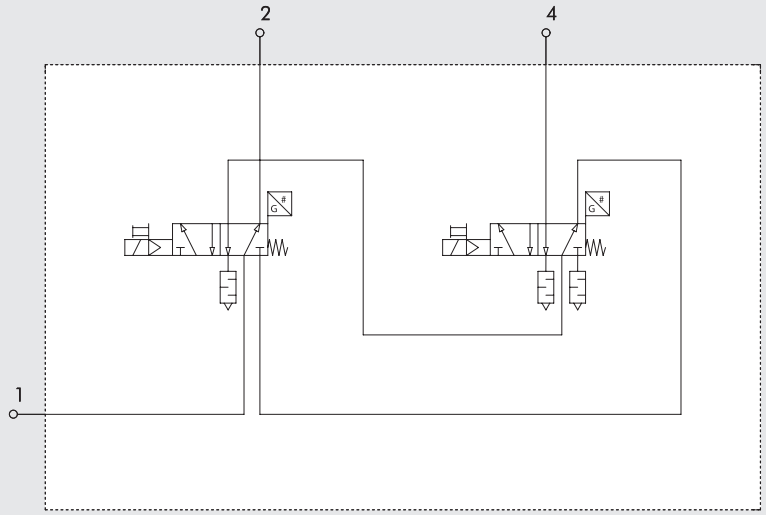


DOUBLE VALVE ISO 5599/1 SERIES SAFE AIR®

TECHNICAL DATA		ISO 1	ISO 2	ISO 3
Fluid		Filtered unlubricated air (50µm); lubrication, if used, must be continuous		
Operation		double 5/2 monostable		
Operating pressure:	bar			
non-assisted		from 2.5 to 10		
pilot-assisted		from vacuum to 10		
Minimum pilot pressure	bar	2.5		
Operating temperature range	°C	from -10 to +60 (from -10 to +45 for Atex version)		
Conductance C	Nl/min · bar	228	498	720
Critical ratio b	bar/bar	0.40	0.24	0.44
Flow rate at 6.3 bar Δp 0.5 bar	Nl/min	770	1250	2500
Flow rate at 6.3 bar Δp 1 bar	Nl/min	1050	1750	3400
Conductance C on relief	Nl/min · bar	222	554	724
Critical ratio b on relief	bar/bar	0.30	0.20	0.41
Flow rate on free exhaust at 6.3 bar	Nl/min	1600	4000	5300
TRA/TRR a 6.3 bar	ms/ms	24 / 50	39 / 60	50 / 120
Installation		Any position		
Solenoid pilot		to CNOMO		
Manual actuator		Monostable on solenoid pilot and valve body		
Recommended lubricant		ISO e UNI FD 22		
Compatibility with oils		See **chapter Z1**		
Coils		30 mm side, Ø 8 hole – EN175301-803 connection, type A		
		22 mm side, Ø 8 hole – EN175301-803 connection, type B		
		Certified EN 60204.1 and VDE 0580		
		Refer to the Accessories section for electrical features page **B1**.131 (*)		
Class of protection		IP65 with coil and connector mounted		
Noise level		Max. 78 dBA with silenced relief		
Max coil ring nut torque	Nm	1		
CE marking		In accordance with Machinery Directive, Annexe V **		
ATEX category (only for versions with an ATEX sensor)		Ⓔx II 3G Ex nA IIC T4 Gc X -10°C<Ta<45°C		
		Ⓔx II 3G Ex h IIC T4 Gc X		
		Ⓔx II 3D Ex tc IIIC T135°C Dc IP65		
Safety function		Cuts off the power supply and relieves the air circuit connected to port 4		
Type of sensor used		Hall effect (refer to page **B1**.163 for sensor details)		
B10d		50 x 10^6 cycles		
Category - ISO EN 13849		4		
DC		High (≥ 99 %)		
CCF		80		
PL - ISO EN 13849		Suitable for use in safety circuits up to PL=e		

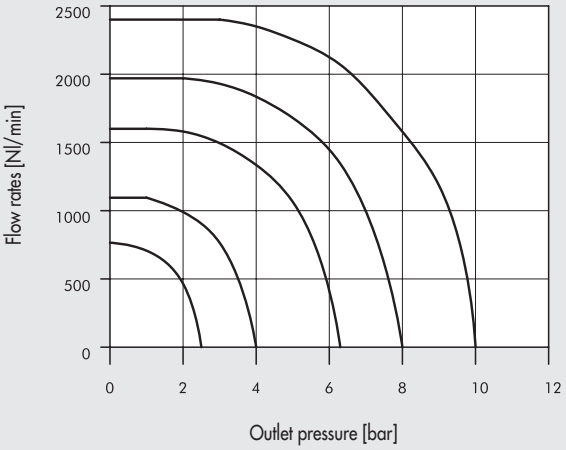
* To avoid malfunctions, we recommend using Metal Work accessories
** The declaration can be downloaded from www.metalwork.it
IMPORTANT: Any ferromagnetic masses must be at least 30 mm from the sensor.
Prevent magnetic fields from creating disturbance in the sensor area.

WIRING DIAGRAM

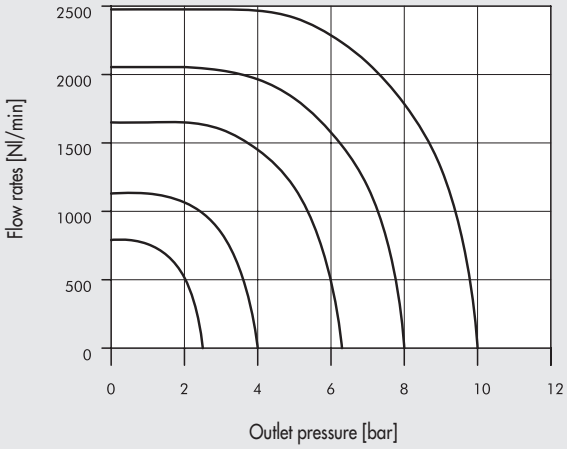


FLOW CHARTS - DOUBLE VALVE

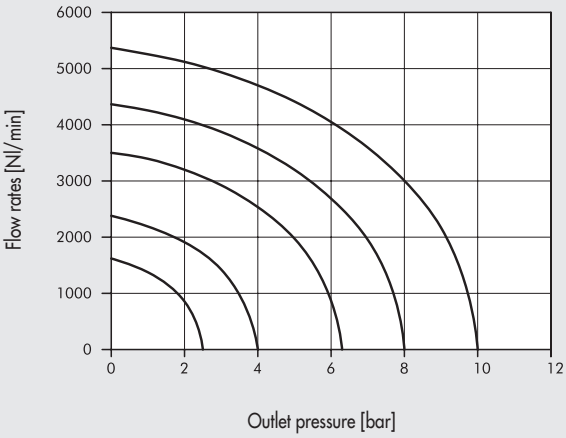
ISO 1 - ON DELIVERY



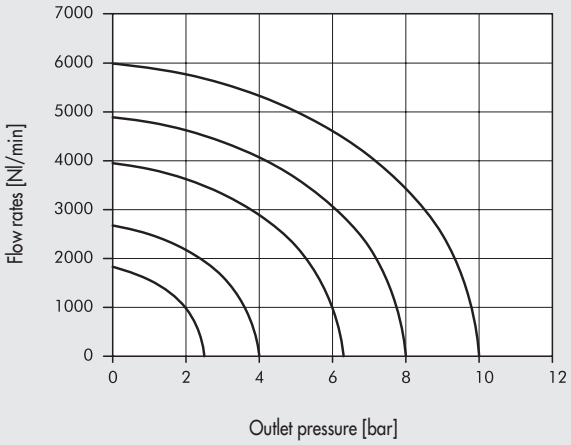
ISO 1 - ON RELIEF



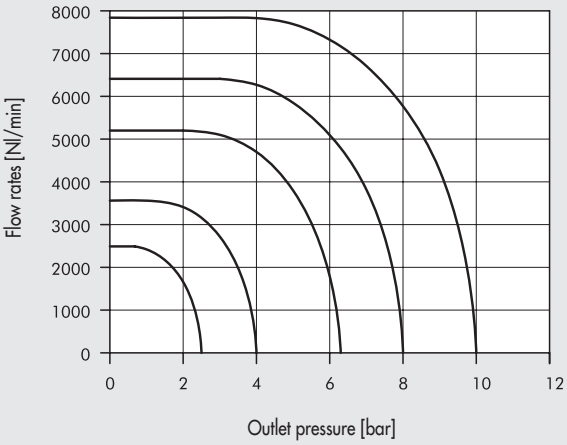
ISO 2 - ON DELIVERY



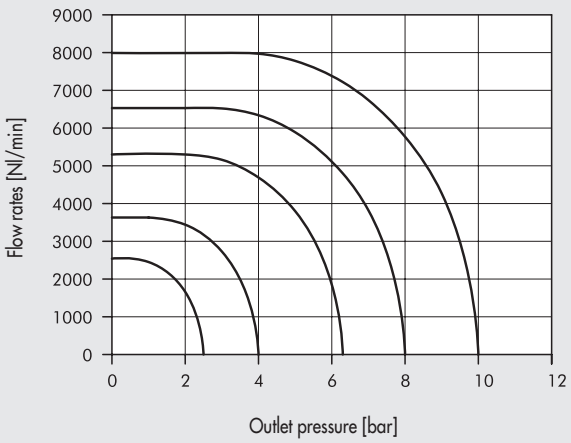
ISO 2 - ON RELIEF



ISO 3 - ON DELIVERY



ISO 3 - ON RELIEF

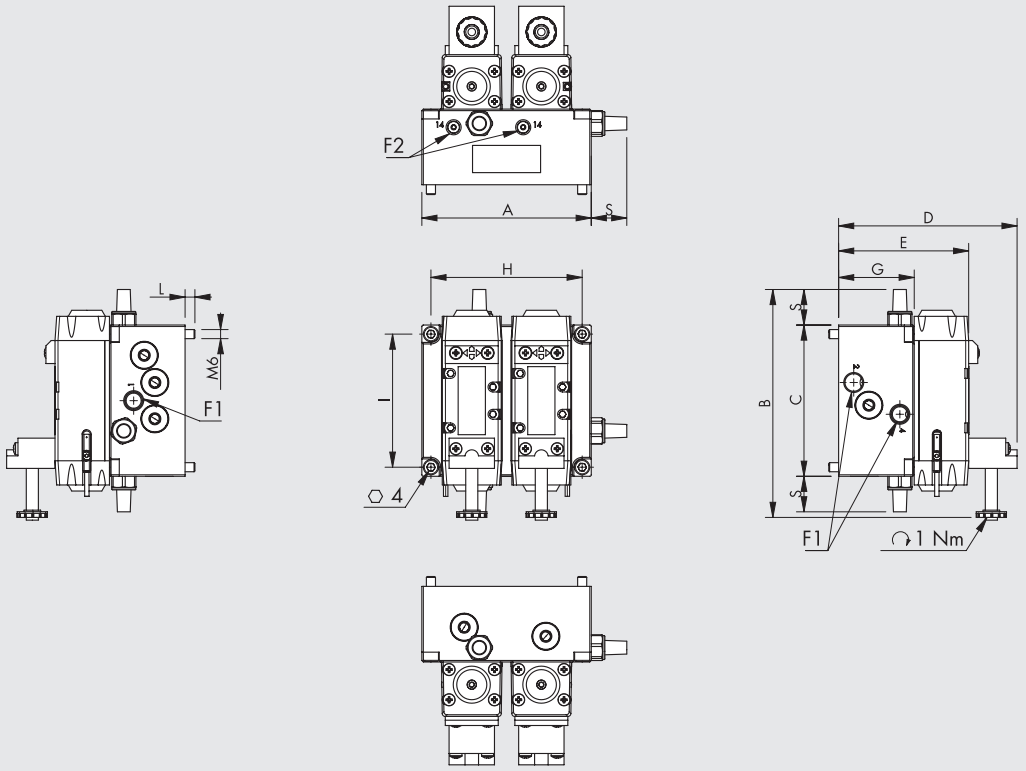


SYNOPTIC, SIZES AND VERSIONS

I S V	5	5	S O	S	D D	3 F
FAMILY	DIMENSIONS	FUNCTION	OPERATORS 14	RESETTING 12	FURTHER DETAILS	SENSOR
ISV ISO solenoid/ pneumatic	**5** ISO1 **6** ISO2 **7** ISO3	**5** 5/2	**SO** solenoid **SE** solenoid assisted	**S** mechanical springs	**DD** double 5/2	**3F** 2.5 m 3 wires **M8** 0.3 m M8 **AT** 2 m ATEX

METAL WORK PNEUMATIC

DOUBLE 5/2 MONOSTABLE



Code	Size	Abbrev.	A	B	C	D	E	F1	F2	G	H	I	L	S	Sensor	Weight [g]
7057021110	ISO 1	ISV 55 SOS DD 3F	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	2.5 m 3 wires	2100
7057121110	ISO 1	ISV 55 SOS DD M8	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	0.3 m M8	2100
7057221110	ISO 1	ISV 55 SOS DD AT	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	2 m ATEX	2100
7057021410	ISO 1	ISV 55 SES DD 3F	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	2.5 m 3 wires	2100
7057121410	ISO 1	ISV 55 SES DD M8	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	0.3 m M8	2100
7057221410	ISO 1	ISV 55 SES DD AT	112	152.5	100	118	86	G 1/4"	M5	50	100	88	6	23.5	2 m ATEX	2100
7058021110	ISO 2	ISV 65 SOS DD 3F	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	2.5 m 3 wires	4000
7058121110	ISO 2	ISV 65 SOS DD M8	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	0.3 m M8	4000
7058221110	ISO 2	ISV 65 SOS DD AT	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	2 m ATEX	4000
7058021410	ISO 2	ISV 65 SES DD 3F	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	2.5 m 3 wires	4000
7058121410	ISO 2	ISV 65 SES DD M8	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	0.3 m M8	4000
7058221410	ISO 2	ISV 65 SES DD AT	146	176	116	145	113	G 3/8"	G 1/8"	63	134	104	13	29	2 m ATEX	4000
7059021110	ISO 3	ISV 75 SOS DD 3F	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	2.5 m 3 wires	5300
7059121110	ISO 3	ISV 75 SOS DD M8	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	0.3 m M8	5300
7059221110	ISO 3	ISV 75 SOS DD AT	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	2 m ATEX	5300
7059021410	ISO 3	ISV 75 SES DD 3F	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	2.5 m 3 wires	5300
7059121410	ISO 3	ISV 75 SES DD M8	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	0.3 m M8	5300
7059221410	ISO 3	ISV 75 SES DD AT	186	188	116	155	123	G 1/2"	G 1/8"	78	174	104	9	31.5	2 m ATEX	5300

NOTES

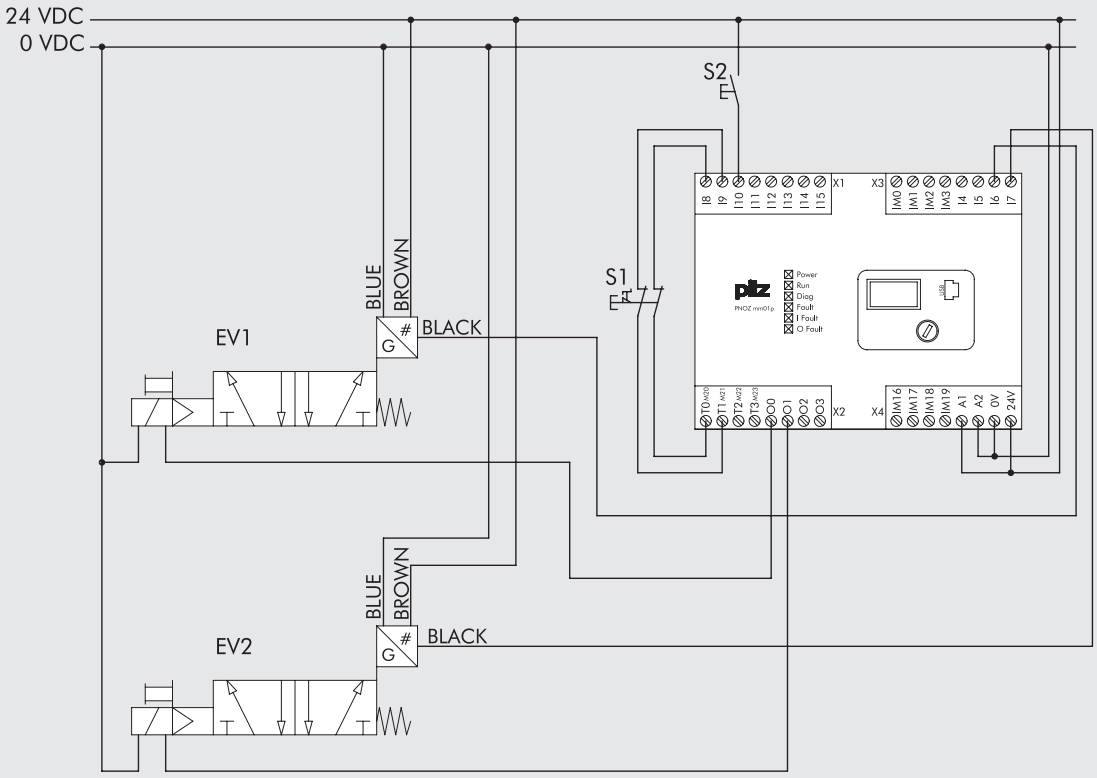
EXAMPLE OF A SAFETY CIRCUIT WITH A DOUBLE VALVE

Below is an example of a wiring diagram for controlling double valves SAFE AIR® a Metal Work using Pilz® components.
Circuit components:
- a Pilz® PNOZ® mm 0.1p modular safety system
- an emergency stop button S1 (Pilz® - PIT® es Set) linked to terminals T0-T1-I8-I9 of the PNOZ® mm 0.1p
- a Metal+ Work double solenoid valve SAFE AIR®, the 24 VDC coils of which are fed by terminals O0 (SV1) and O1 (SV2) of the PNOZ® mm 0.1p (the other terminals of the coils are OV); the valves' Hall-effect sensors are 24 VDC
- the sensor signals are relayed to terminals 16 (SV1) and 17 (SV2) of the PNOZ® mm 0.1p
- a start/reset button S2

Expected behaviour with the system operating correctly:
- system deactivated:
  - contacts O0 and O1 are OFF
  - the coils are de-energized
  - the sensors are ON (and hence signals to terminals 16 and 17)
  - if one of the sensors is OFF, the Pilz® module does not allow subsequent start/reset
- with the system activated via the start/reset button:
  - contacts O0 and O1 are ON
  - the coils are energized
  - the sensors are OFF (and hence signals to terminals 16 and 17)

The PNOZ® mm0.1p module is programmed so that:
- when either sensor is OFF, and the coils are de-energized, the module does not allow subsequent restarts.
- when the valves are energized, the 2 sensors must go off within the valve actuation time (24 ms for ISO1s, 39 ms for ISO2s and 50 ms for ISO3s), otherwise the 2 valves are switched off again.
  The programme can be downloaded from www.metalwork.it (the licence for programming Pilz® modules is not included).

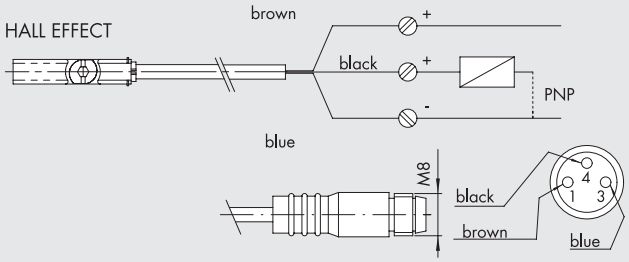
All the electrical connections between the various components must comply with the applicable safety regulations.
If the emergency button is operated at a frequency of 1 actuation per hour, the circuit activates a safety function with PL = e (calculations made with the PAScal programme by Pilz®).
Responsibility for final checking that PL lies with the person assembling the circuit.



METAL WORK PNEUMATIC

TECHNICAL DATA SENSOR		MZT8	ATEX MZT8
		EFFECT HALL	EFFECT HALL
Type of contact		N.O.	N.O.
Switch		PNP	PNP
Supply voltage (Ub)	VDC	10 to 30	10 to 26
Power	W	-	≤ 1.7
Voltage variation		-	≤ 10% of Ub
Voltage dro at Imax	V	≤ 2.2	≤ 2.2
Consumo	mA	≤ 10	≤ 10
Corrente di uscita	mA	≤ 200	≤ 50
Switching frequency	Hz	≤ 1000	≤ 1000
Short-circuit protection		Yes	Yes
Over-voltage suppression		Yes	Yes
Polarity inversion protection		Yes	Yes
EMC		EN 60947-5-2	EN 60947-5-2
LED display		Yellow	Yellow
Magnetic sensitivity	mT	2.45 - 2.75	2.45 - 2.75
Repeatability	mT	≤ 0.1	≤ 0.1 mT (Ub and ta fixed)
Degree of protection (EN 60529)		IP67	IP67
Vibration and shock resistance		30 g, 11 ms, 10 to 55 Hz, 1 mm	30 g, 11 ms, 10 to 55 Hz, 1 mm
Temperature range	°C	-30 to +80	-20 to +50
Sensor capsule material		PA12	PA12
2.5 m/2 m connecting cable		PVC; 3 x 0.12 mm²	PVC; 3 x 0.12 mm²
Connecting cable with M8x1		Polyurethane; 3 x 0.14 mm²	-
Wire NO.		3	3
Category ATEX		-	II 3G Ex nA IIC T4 Gc X II 3D Ex tc IIIC T135°C Dc IP67 X
Certifications		CE	CE Ex

WIRING DIAGRAM SENSOR



ACCESSORIES

Refer to page **B1**.131 for coils and connectors

CONNECTORS FOR SENSORS M8

See page **A6**.9