

# 702-703 XS-F VALVE WITH TCR ACTUATOR

## FEATURES

The 702-703 XS-F + TCR actuator ball-valve is intended for the automatic opening/closing of pipes for non-loaded industrial fluids up to a pressure of 137 bar and a temperature of 220°C (180°C for stainless steel version). This high-performance valve is a full-bore 3-part embedded tie-bolt valve. Due to its double body and stem leak-proofing, the antistatic system and its fire safety, it can be used in the gas and oil industry. The valve is EC-, FIRE SAFE- and ATEX-approved. The ISO 5211 mounting pad is used for a standardised assembly of the TCR actuator. The latter is perfectly adapted to both indoor and outdoor (under shelter) industrial use.

## AVAILABLE MODELS

**702 XS-F:** carbon steel body 1.0619

**703 XS-F:** stainless steel body 1.4408

**Diameters:** 1/2" to 2"

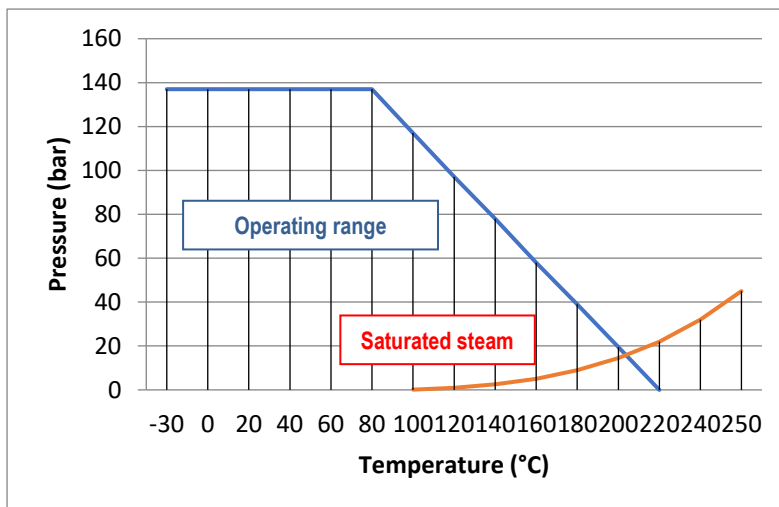
**Connections:** G and NPT threaded, SW and BW to be welded

**Supply voltages:** 24V AC-DC, 230V DC.



## LIMITS OF USE

Fluid pressure: PS	137 bar
Fluid temperature: WT	<b>Steel:</b> -20°C / +220°C <b>Stainless steel:</b> -30°C / +180°C
Operation under saturated steam	15 bar / +200°C (Steel version)
Ambient temperature	- 20°C / + 60°C
Service factor	S2 – 50%



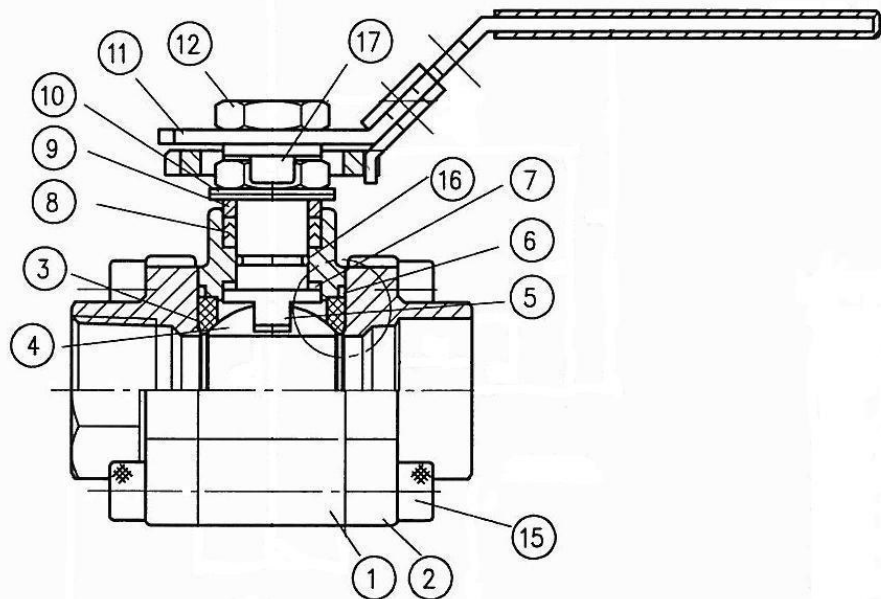
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		Ref.	FT702XSF+TCR ENG
		Rev.	04
		Date	01/2023

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## DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 2014/68/EC	<b>1/2" to 1"</b> : not subject		Final test	API 598
	<b>1"1/4 to 2"</b> : category III	TÜV 0035	Material certificate	NKS 10204
Design	ANSI B16.34		Resistance to corrosion	NACE MR-0175
Size	EN 12516-1		Fire safe	API 607/4
Steel grades	EN 1503-2		Connection Motorisation	ISO 5211:
G Connection	ISO 228-1		Actuator pilot connection	NAMUR
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	SIRA 0518	NPT connection	ANSI B1.20
	EN 13463-1		Switch box connection	VDI/VDE 3845



## CONSTRUCTION

No.	Name	Steel	Stainless steel	No.	Name	Steel	Stainless steel
1	Body	1.0619 carbon steel	1.4408 SS	10	Belleville washer		301 SS
2	Ends	1.0619 carbon steel	1.4408 SS	11	Lever		304 SS
3	Seats	PTFE + 50% stainless steel	PTFE - Glass	12	Lever nut		304 SS
4	Ball		316 SS	13	Pointer		304 SS
5	Stem		316 SS	14	Coupling		PVC
6	Body gasket		Graphite	15	Screw		ISO 89812.9
7	Washer		PTFE + 50% stainless steel	16	O-ring		FPM
8	CG gasket		Graphite	17	Padlocking		304 SS
9	Washer		304 SS	18	Ball		316 SS
				19	Spring		316 SS

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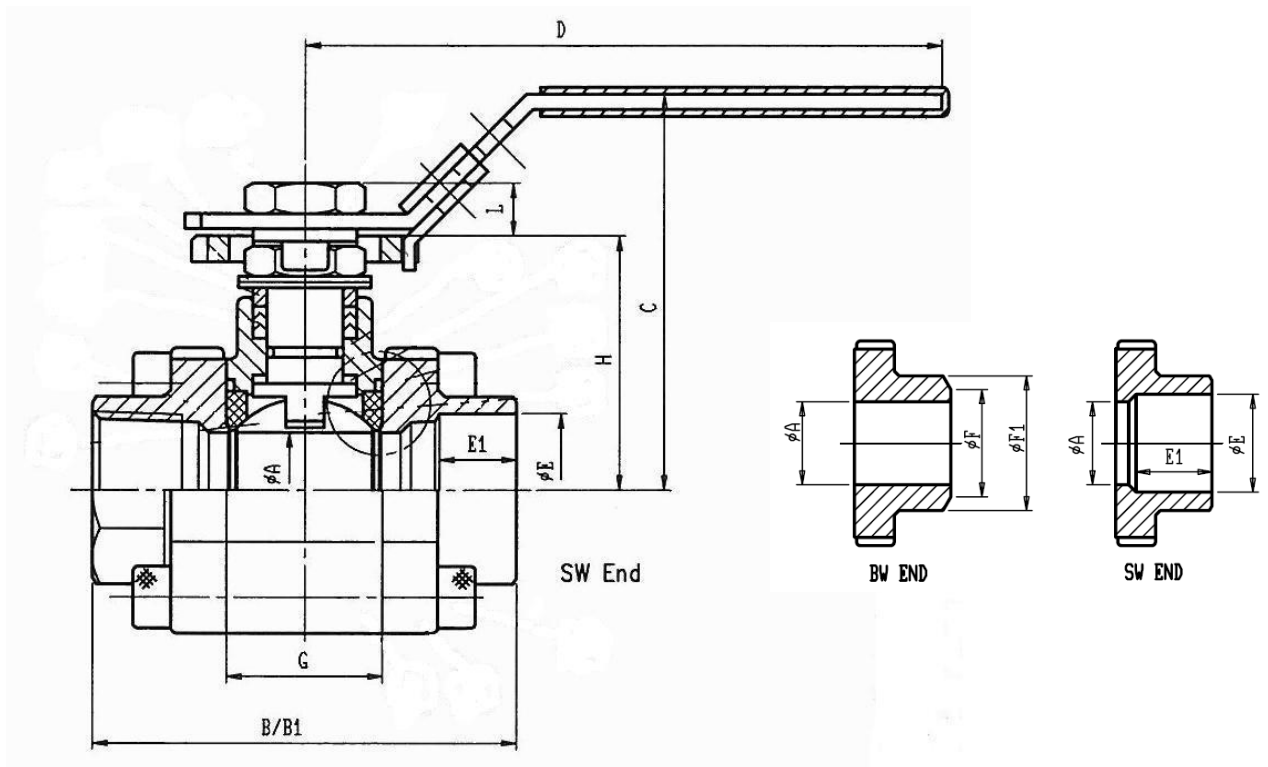


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Pages	2/8
Ref.	FT702XSf+TCR ENG
Rev.	04
Date	01/2023

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## DIMENSIONS (mm)



DN	1/2"	3/4"	1*	1"1/4	1"1/2	2"
A	16	20	24.5	32	38	50
B (SW)	75	80	90	110	120	140
B1 (BW)	75	90	100	110	125	150
C	70.9	73.4	84.1	89.3	109.5	118.9
D	110	110	135	135	165	165
E	21.8	27.2	33.9	42.7	48.8	61.2
E1	11.2	14.3	15.8	17.5	19.1	21.3
F (BW)	17	22	28	37	43	54
F1 (BW)	21.3	26.9	33.7	42.4	48.3	60.3
G	25.2	27.7	33	41.2	49.3	63.6
H	42.3	44.8	54	59.2	73.5	82.9
L	8	8	10	10	14.8	14.8

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Pages	3/8
Ref.	FT702XSF+TCR ENG
Rev.	04
Date	01/2023

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## TCR ELECTRICAL MOTORISATION

The TCR motorisation proposed as standard comprises:

- IP67 plastic housing for actuator and steel gear box,
- a safety coefficient of 1.3 minimum compared to the nominal torque of the valve,
- an upstream / downstream pressure difference  $\Delta P=10$  bar max.

The actuator's assembly is direct.

DN	Actuator	Power (W)		Time (s) 230V AC	Time (s) 24 V AC-DC	Standard equipment of the actuator
		230V AC / 24V AC-DC	TCR-N			
1/2"	TCR-02N	15	36	10	10	2 adjustable limit switches 2 dry auxiliary contacts Thermal protection of the motor 2-3W anti-condensation resistance Stand-by manual control with key 3D Position visual indicator Electrical connection: <b>TRC02:</b> 1 x PE M10 + 1.5m cable <b>TCR05:</b> 1 x PE M20 + 1.5m cable
3/4"	TCR-02N	15	36	10	10	
1"	TCR-02N	15	36	10	10	
1" 1/4	TCR-05N	25	40	12	12	
1" 1/2	TCR-05N	25	40	12	12	
2"	TCR-05N	25	40	12	12	

For any other operating conditions, please contact us.

\* indicative time for actuator running empty

## MOTORISATION OPTIONS

There are many options, so please contact our sales service for more information on these:

1	100mm high height adjustment for installing thermal insulation
2	Actuator dimensioned for an upstream / downstream pressure difference $\Delta P$ greater than 10 bar
3	NF actuator – return via condenser – TCR-KT32
4	High-speed actuator - TRC-NH
5	Smart actuator with manoeuvring time adjustment - TCR-C
6	Control actuator – TCR-T
7	NF control actuator – return via condenser – TCR-T-KT32
8	Field bus actuator - TCR-B
9	Actuator with in-built timer – TCR-D
10	Wireless actuator – TCR-R

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		Ref.	FT702XSf+TCR ENG
		Rev.	04
		Date	01/2023

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## ASSEMBLY AND MAINTAINANCE INSTRUCTIONS

### 1 - Installation

#### 1.1 - Checks

- Check that the material of the valve body is chemically compatible with the fluid.
- Check that the pressure and service conditions are compatible with the (P, T) diagram of the valve. See § "Service limits"
- Check that the fluid is clean and free of particles. The latter could scratch the ball and damage the seats, hence causing the valve to leak. If need be, install an upstream filter.
- Check that there is no risk of thermal expansion of the fluid, which could damage the seats. In the open position, a hole at the top of the ball balances the pressures between the body cavity and the flow of the fluid. As an option, we recommend a relief hole upstream of the valve for equalising the pressures for fluids such as ammonia, LPG, chlorine, etc.
- Check that the valve is not used for flow or pressure control since it is not intended for this use and there is a risk of premature wear of the seats, in particular in the event of high pressure and/or temperature. For this special application, preferably use our "V-port" version with a V-shaped hole in the ball. Please contact us.
- Check that the valve is not used on a gas which might condense at certain times during the process. In such a case, the pressure within the body cavity could become negative, which could lead to a significant deformation of the seats. Please contact us.
- Static electricity: the valve will be supplied with a ball-stem-body internal electrical continuity tester. If the service conditions require the electrical continuity of the installation, check its earthing.
- If the valve is installed in an explosive zone, you must follow the additional "IMEVMATEX" instructions.

#### 1.2 - Storage before installation

- Follow our general "IMESTOCK" instructions for storage.

#### 1.3 - Installation

- Before any installation, isolate the piping upstream and downstream, depressurize the piping and bring the installation to ambient temperature. Carefully clean the piping of any particle (foreign body, dust, rust, etc.) or shavings by water rinsing or air blowing.
- Remove the protective tips from the valve ends.
- Check the cleanliness of the internal surfaces of the valve and if need be, clean them.
- Direction of mounting: the valves do not have a preferred direction of mounting, unless a relief hole was drilled into the ball.
- Check the perfect alignment and the proper support of the pipe installation upstream and downstream of the valve. Alignment defects cause mechanical deformations which can block the valve or lead to leaks at the body gaskets.

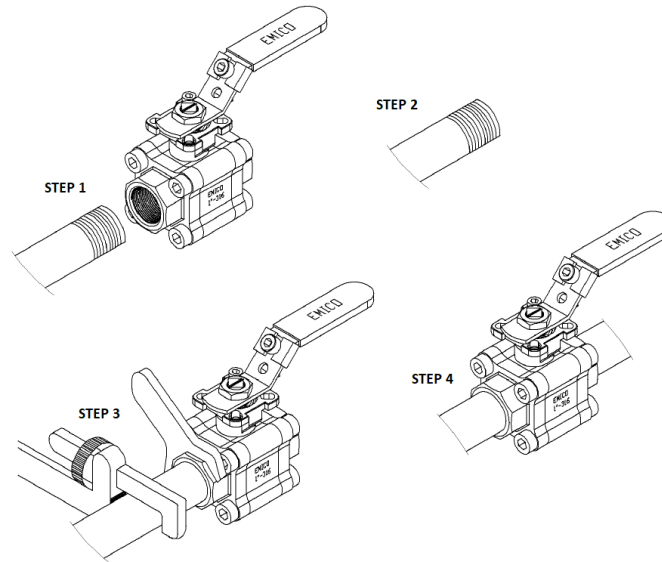
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		Ref.	FT702XSf+TCR ENG
		Rev.	04
		Date	01/2023

# 702-703 XS-F VALVE WITH TCR ACTUATOR

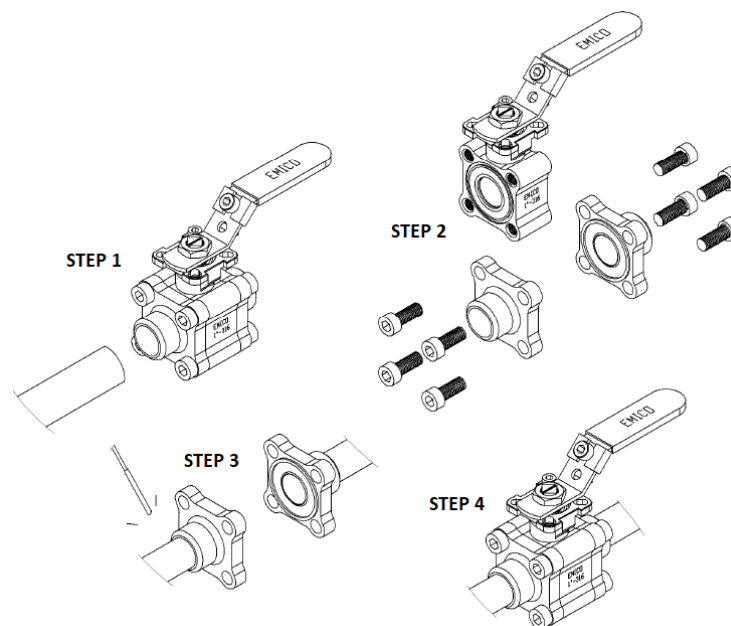
## ○ **Threaded valve connection:**

- Check that the standards for the valve internal thread and pipe thread are the same.
- Cover the pipe threads using a sealing material (tow, PTFE tape, sealing glue, etc.) which is suitable for the fluids.
- Screw the tube into the valve end clockwise, as shown in the diagram below.
- Check the sealing of the connection using a suitable test (hydrostatic test or leak detection spray).



## ○ **Connection of weld-on valves:**

- Remove the end (items 2) by unscrewing the tie-bolts, and remove the central body.
- Weld each end onto the upstream or downstream pipe, following the alignment of the tie-bolt holes.
- Cool down to the room temperature the welded ends, then put back the central body complying with the tightening torques shown in the table below.
- Check the sealing of the connection using a suitable test (hydrostatic test or leak detection spray).



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		Ref.	FT702XSF+TCR ENG
		Rev.	04
		Date	01/2023

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- Hydraulic test of the installation
  - Valves were tested at the factory at 1.5 x WP.
  - If a hydrostatic test is carried out on the installation, do not exceed the authorised pressure.

## 2 - Service

- If a hot fluid flows across the valve, do not touch the valve surface.
- Always operate the valve slowly and smoothly.
- Opening clockwise, closing anti-clockwise.

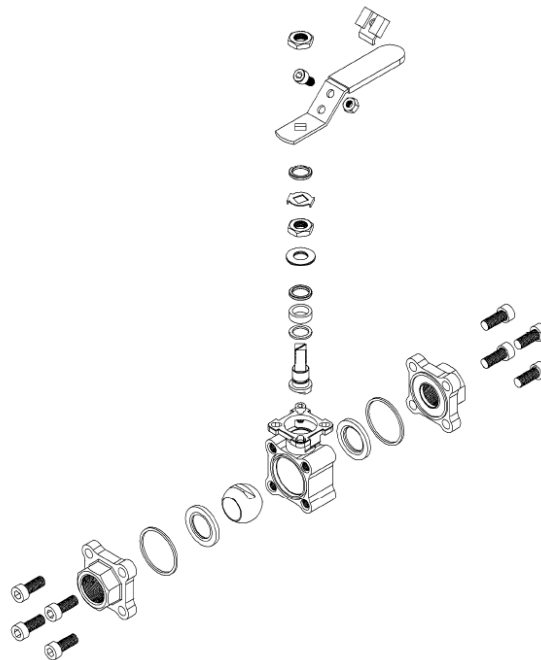
## 3 - Servicing

### 3.1 - Frequency of servicing

- The servicing frequency depends upon the use of the valve, of the type of fluid, of its velocity, of its frequency of operation, of the cycles of rise and fall in pressure and temperature.
- Before any intervention, isolate the upstream and downstream pipe installation using the valves provided for this purpose. Depressurize the pipe installation and bring it to ambient temperature.
- If the lever has to be removed, do that before disassembling the body.
- To remove the central body, unscrew the tie-bolts symmetrically. Then gently remove the central part avoiding to drop the ball.
- To remove the ball from the body, turn the stem by a quarter turn.

### 3.2 – Inspecting the state of the valve and possible repair

- Check the state of the ball (Item 4): it has to be clean and unscratched. If the cleaning or polishing is not possible, replace it (see the § on spare parts).
- Check the state of the seats (3.1 and 3.2): they must not be deformed, nor scratched, nor worn, or dirty. Otherwise, replace them with parts from the gasket kit.
- Check the state of the packing gland (7, 8, 9 and 16): no leak at the stem should be found, and the rings should not be excessively worn. If need be, replace the gaskets.
- Check the state of the body gaskets (6.1 and 6.2). Replace them if necessary.
- Reassemble the different parts of the valve, following the tightening torques shown in the table below.
- Check that the stem manoeuvring is smooth. Perform about ten manoeuvres.



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		Ref.	FT702XSF+TCR ENG
		Rev.	04
		Date	01/2023

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**TABLE OF THE TIGHTENING TORQUES OF THE TIE-BOLTS AND OF THE LEVER NUT**

DN	Thread	Torque (Nm)	Lever nut (Nm)
1/2" - 15	M8	22	4
3/4" - 20	M8	22	4
1" - 25	M10	40	4.5
1"1/4 - 32	M12	100	4.5
1"1/2 - 40	M12	100	5.5
2" - 50	M12	100	5.5

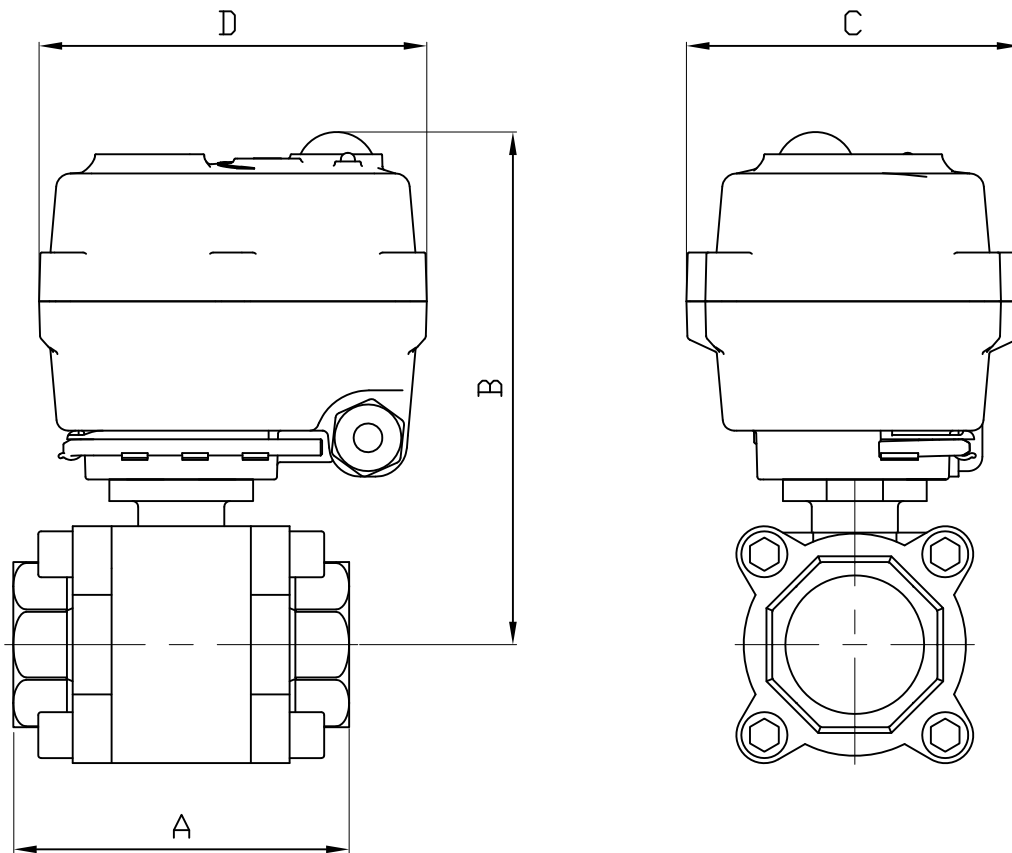
**SPARE PARTS**

DN	PTFE-STAINLESS STEEL gasket kit	PEEK gasket kit	Ball	V30° ball	V60° ball	Lever
Reference mark	3-6-7-8-16	3-6-7-8-16	4	4	4	11
1/2" - 15	982712	982722	980032	980042	980052	982802
3/4" - 20	982713	982723	980033	980043	980053	982802
1" - 25	982714	982724	980034	980044	980054	982804
1"1/4 - 32	982715	982725	980035	980045	980055	982804
1"1/2 - 40	982716	982726	980036	980046	980056	982806
2" - 50	982717	982727	980037	980047	980057	982806

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		Ref.	FT702XSF+TCR ENG
		Rev.	04
		Date	01/2023






TCR-02-05

DN	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
SERVO	TCR02	TCR02	TCR02	TCR05	TCR05	TCR05
A	75	80	90	110	120	140
B	132.3	134.8	144	180.2	194.5	203.9
C	70	70	70	111	111	111
D	104	104	104	132	132	132
KG	1.44	1.62	2.34	4.25	5.34	8.22

Informations données à titre indicatif et sous réserve de modifications éventuelles  
data subject to alteration

Ech: /	Date :11/09/2019	Dessiné par : E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.
ROBINET A TOURNANT SPHERIQUE 703XS / BALL VALVE 703XS + SERVOMOTEUR TCR / ELECTRIC ACTUATOR				Matière :		
				Poids (Kg) :		
 45, Rue du Ruisseau 38297 SAINT QUENTIN FALLAVIER				Traitement : SANS		
				Plan n° Ens 1391		

# TCR-N ELECTRICAL ACTUATOR

## FEATURES

The TCR-N electric actuators are intended for motorising ¼ turn valves with a torque of 15, 20, 50, 110, 200 or 400 Nm. With a compact construction and plastic housing, they are especially well suited for motorising ball valves and butterfly valves. Several variants offer advanced functions. IP67 leak-tightness: to be used indoors and, possibly, outdoors under a shelter. Possible installation in parallel. Manual control with a key.

## AVAILABLE MODELS

Supply voltages: 230V AC, 24V AC/DC, 12V DC.

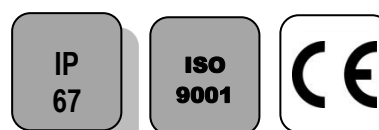


## LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Service factor	S4 - 50% (TCR 02-05-11)
	S3 - 85% (TCR 20-40)

## MECHANICAL FEATURES

Gear box	treated steel pinions
Torques	15 - 20 - 50 - 110 - 200 - 400 Nm
Angle of rotation	90° +/- 2°
Declutching	Without (TCR 02-05-11)
	With (TCR 20-40)
Override control	By key



Actuator	TCR 02N			TCR 05N		
	Torques (Nm)	15	20	20	50	
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12VDC	24V AC-DC	95-265V AC-DC
Manoeuvring time (s)	15	10	10	12	12	12
ISO 5211:	F03/F05 - star 11			F05/F07 - star 14		

Actuator	TCR 11N			TCR 20N			TCR 40N		
	Torques (Nm)	110			200			400	
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12VDC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC
Manoeuvring time (s)	10	10	10	25	25	25	25	25	25
ISO 5211:	F05/F07 - star 17			F07/F10 - star 22			F07/F10 - star 22		

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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

# TCR-N ELECTRICAL ACTUATOR

## ELECTRICAL FEATURES

Actuator	TCR 02N	TCR 05N
Motor protection	Thermal switch	
Limit switches	2 adjustable switches	
Auxiliary switches	2 adjustable dry switches	
Anti-condensation	integrated	
Electrical connection	PE M10 + 1.5m cable	PE M20 + 1.5m cable

Actuator	TCR 02N			TCR 05N		
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC
Power (W)	15	15	15	25	25	25
Current (A)	1,5	1,5	0,09	1,67		0,18 - 0,37
Fuse Protection (A)	5	5	1	8		1 - 2

Actuator	TCR 11N	TCR 20N	TCR 40N
Motor protection	Thermal switch		
Limit switches	2 adjustable switches		
Auxiliary switches	2 adjustable dry switches		
Anti-condensation	Integrated		
Electrical connection	2 x PE M14 + 1,5m cable	2 x PE M20 + 1.5m cable	2 x PE M20 + 1,5m cable

Actuator	TCR 11N			TCR 20N			TCR 40N		
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC
Power (W)	100	100	100	50	50	50	80	80	80
Current (A)	2,5		0,3 - 0,6	2		0,22	3,3		0,36
Fuse Protection (A)	5		2 - 3	3		5	8		2

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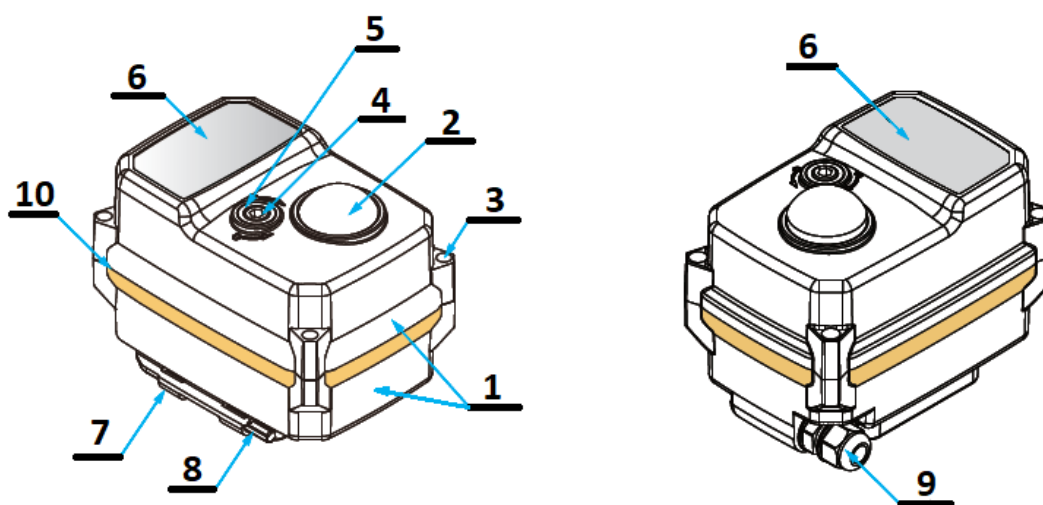
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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

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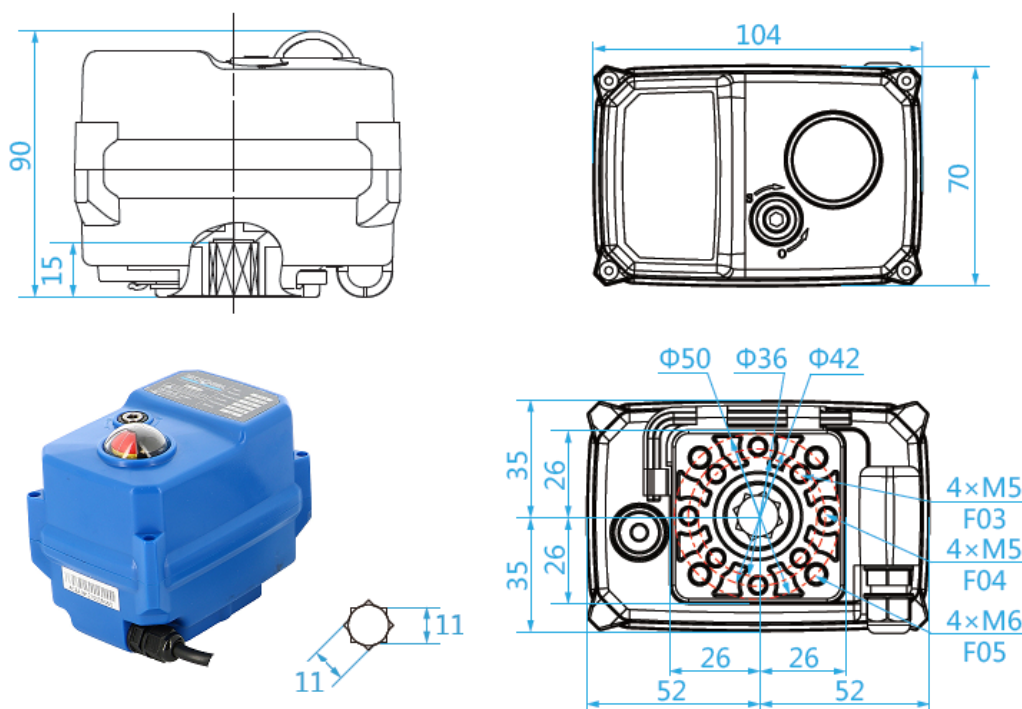
## CONSTRUCTION (TCR-02N)

TCR-02N					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 4	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR

Weight (kg): 0.620



## DIMENSIONS (mm)



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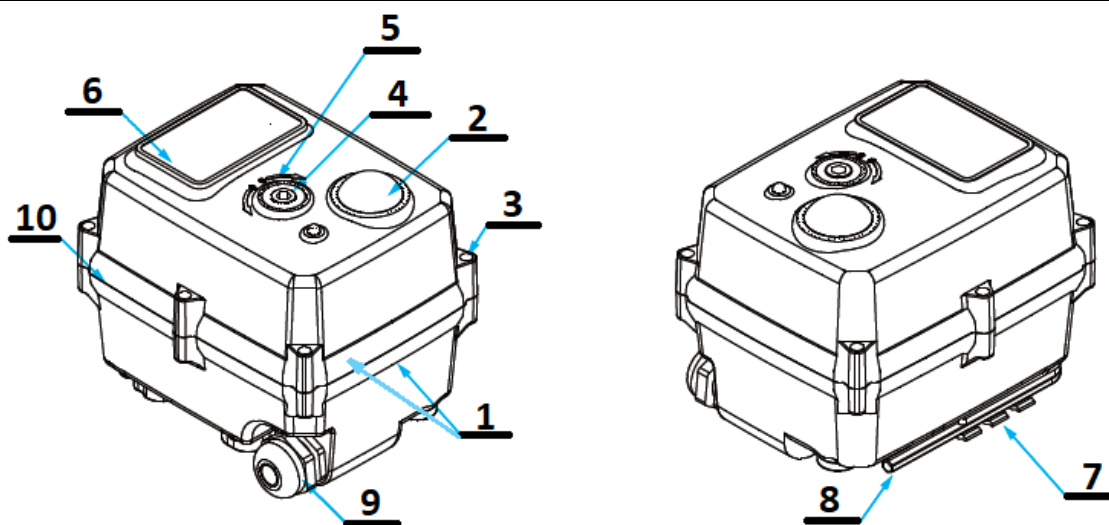
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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

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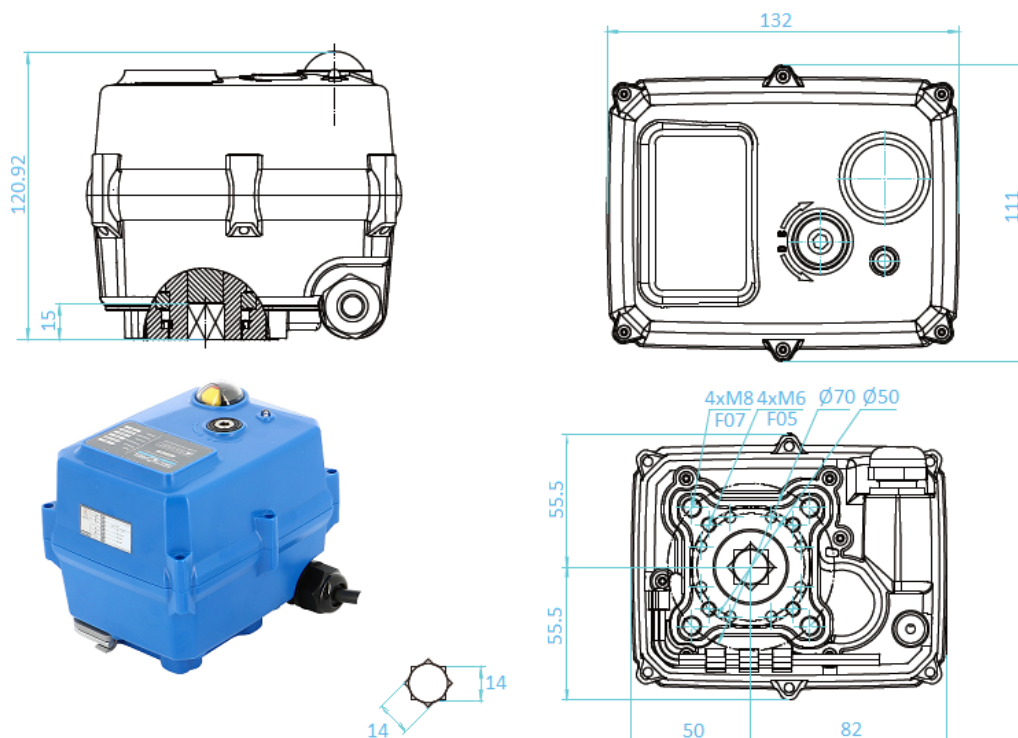
## CONSTRUCTION (TCR-05N)

TCR-05N					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR

Weight (kg): 1.800



## DIMENSIONS (mm)



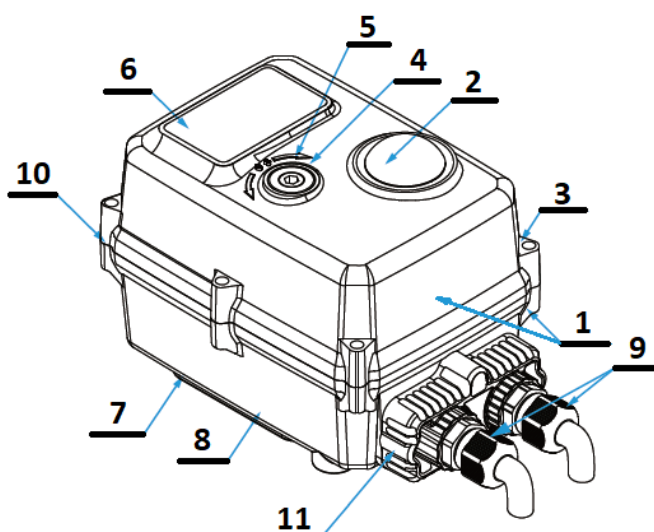
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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

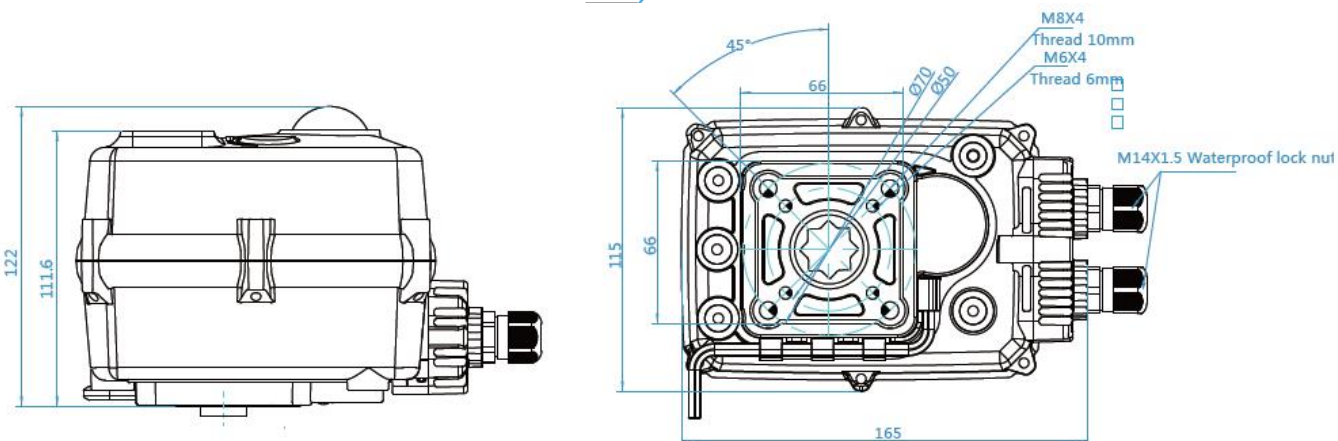
# TCR-N ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-11N)

TCR-11N					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	X 2 Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR
Weight (kg): 2.200			11	Cable gland unit	Plastic (ABS)



## DIMENSIONS (mm)



Information given as an indication only, and subject to possible modifications

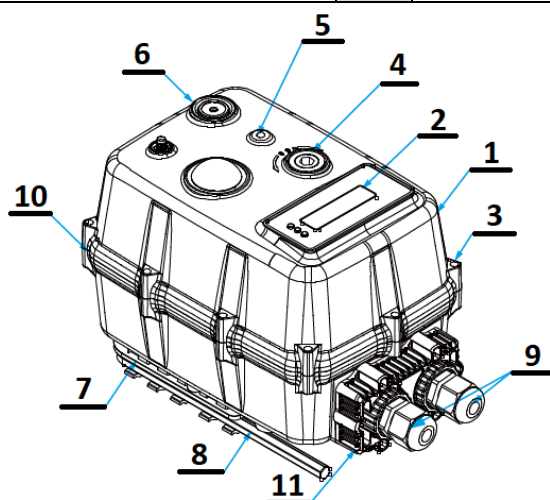
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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022



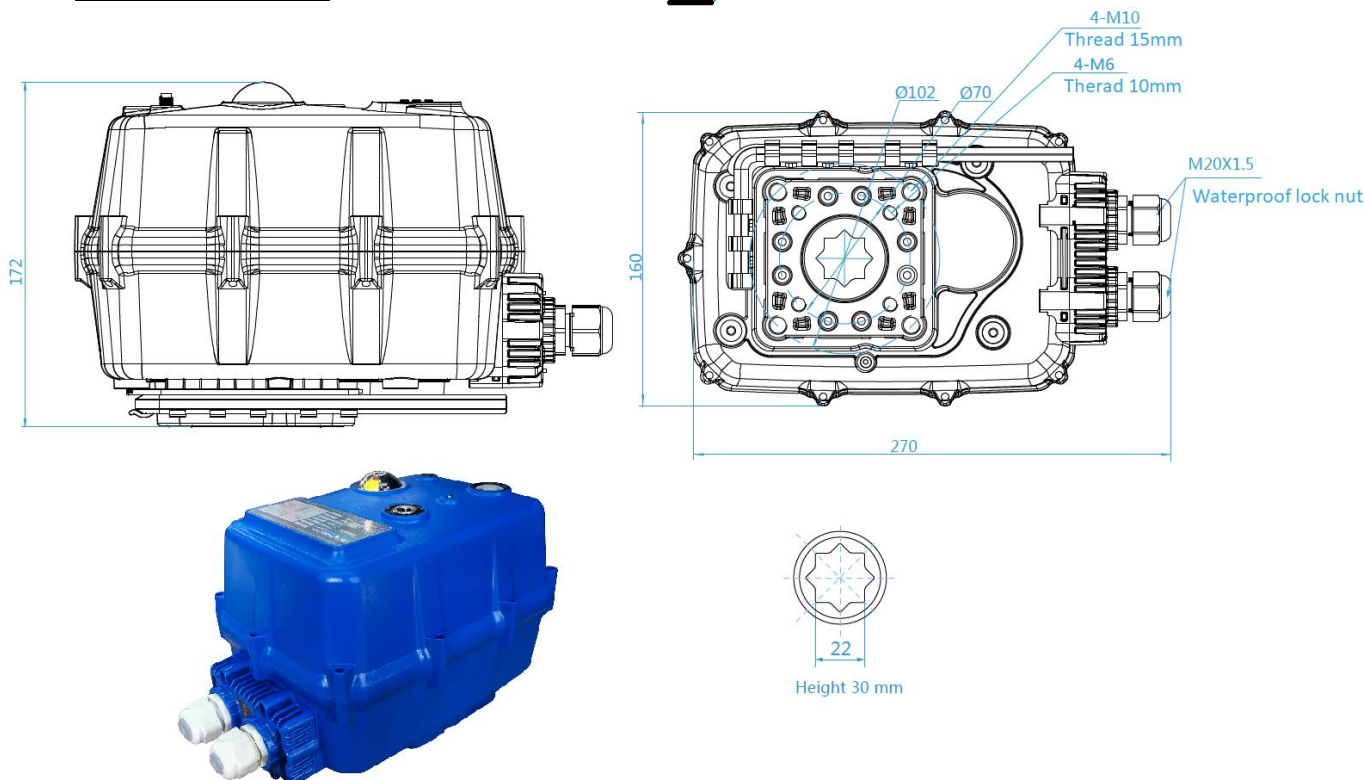
# TCR-N ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-20N / TCR-40N)

TCR-20N / TCR-40N					
No.	Name	Material	No.	Name	Material
1	Casing + lid	PC + PET	6	Clutch	Polyoxymethylene POM
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic ABS
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	X 2Packing gland	Nylon
5	LED	Transparent PC	10	Cover gasket	NBR
Weight (Kg) : 6,000			11	Cable gland unit	Plastic ABS



## DIMENSIONS (mm)

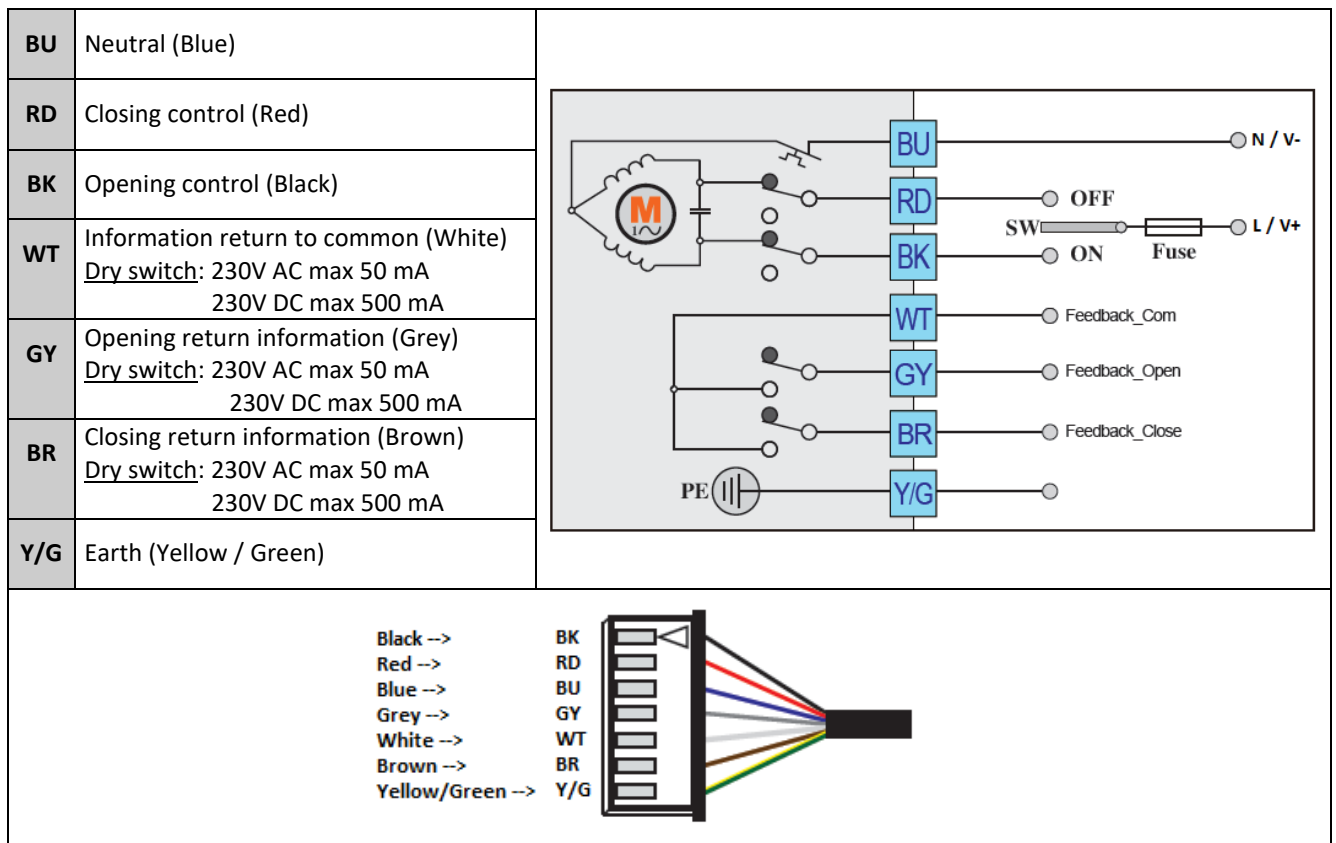


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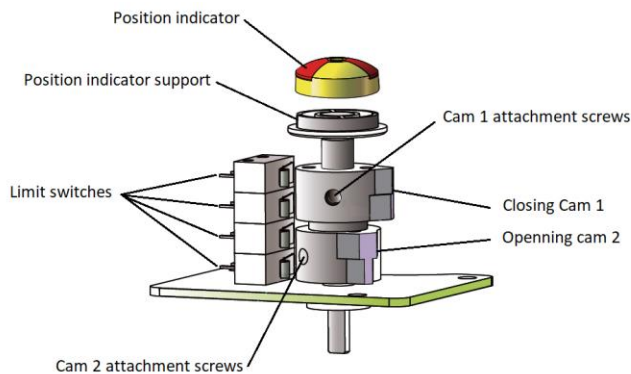
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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

# TCR-N ELECTRICAL ACTUATOR

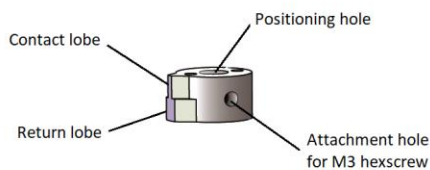
## WIRING DIAGRAM



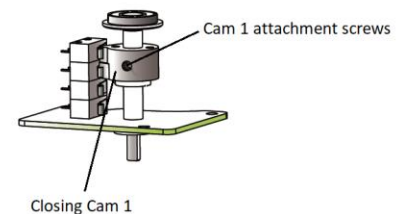
## SWITCH SETTING



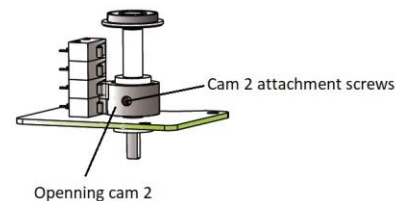
**GENERAL VIEW**



**CAM DETAIL**



**CLOSING CAM ADJUSTMENT**



**OPENING CAM ADJUSTMENT**

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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022



# TCR-N ELECTRICAL ACTUATOR

## TROUBLESHOOTING

Defect met	Cause of defect	Method of solving
Inactive actuator	Non-connected electrical grid.	Connect to the electrical grid.
	Wrong voltage.	Check the actuator's voltage.
	Motor overheating.	Check the torque on the valve.
	Faulty connection.	Check the connection to the terminal box.
	Damaged start capacitor.	Contact the supplier for repair.
No switch signal	Faulty connection.	Check the connections.
	Damaged microswitch	Change the microswitch
Valve that is not fully closed	Use the return signal from the actuator check.	Receiving a return signal does not mean that the actuator is fully closed, hence do not cut the power supply.
	The hysteresis increases due to wear or between the actuator and the valve's stem.	Readjust the limit cams. Contact the supplier for repair.
Presence of humidity or water in the actuator	Unsuitable cable cross-section being used.	Contact the supplier for repair.
	The cable connection is not leak-tight.	
	Worn sealing gaskets.	
	Loose cover screws.	Dry the internal parts and tighten the cover screws.

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		Ref.	FT2411 ENG
		Rev.	04
		Date	09/2022

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## FEATURES

The TCR-N-KT electric actuators are intended for motorising ¼ turn valves with a torque of 15, 50, 90 or 200 Nm. **Capacitor return function:** the closing manoeuvre is provided by a capacitor. With a compact construction and plastic housing, they are especially well suited for motorising small size ball valves. IP67 leak-tightness: to be used indoors and, possibly, outdoors under a shelter. Possible installation in parallel. Manual control with a key.

## AVAILABLE MODELS

Supply voltages: 230V AC, 24V AC/DC.

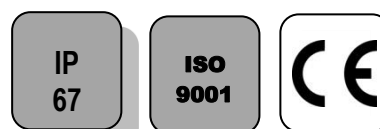
## LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Service factor	S4 - 50% (TCR 02N-05N-11N)
	S3 - 85% (TCR 20N)



## MECHANICAL FEATURES


Gear box	treated steel pinions
Torques	15 - 45 - 95 - 110 Nm
Angle of rotation	90° +/- 2°
Decutching	Without (TCR 02N-05N-11N)
	With (TCR 20N)
Override control	By key



Actuator	TCR 02N-KT32		TCR 05N-KT32		TCR 11N-KT32	
Torques (Nm)	15		50		90	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Manoeuvring time (s)	10	10	12	12	10	10
ISO 5211:	F03/F05 - star 11		F05/F07 - star 14		F05/F07 - star 17	

Actuator	TCR 20N-KT32	
Torques (Nm)	200	
Voltage	24V AC - DC	95-265V AC-DC
Manoeuvring time (s)	25	25
ISO 5211:	F07/F10 - étoile de 22	

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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## ELECTRICAL FEATURES

Actuator	TCR 02N-KT32	TCR 05N-KT32	TCR 11N-KT32
Motor protection	Thermal switch		
Limit switches	2 adjustable switches		
Auxiliary switches	2 adjustable dry switches		
Anti-condensation	integrated		
Electrical connection	PE M10 + 1.5m cable	PE M20 + 1.5m cable	2 x PE M14 + 1.5m cable

Actuator	TCR 02N-KT32		TCR 05N-KT32		TCR 11N-KT32	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Power (W)	36	36	40	40	100	100
Current (A)	1,5	0,09	1,8	1,6	2,5	0,26 - 0,52
Fuse protection (A)	5	1	10	2	5	2

Actuator	TCR 20N-KT32
Motor protection	Thermal switch
Limit switches	2 adjustable switches
Auxiliary switches	2 adjustable dry switches
Anti-condensation	integrated
Electrical connection	PE M20 + 1.5 m cable

Actuator	TCR 20N-KT32	
Voltage	24V AC - DC	95-265V AC - DC
Power (W)	50	50
Current (A)	2	0.22
Fuse protection (A)	2	5

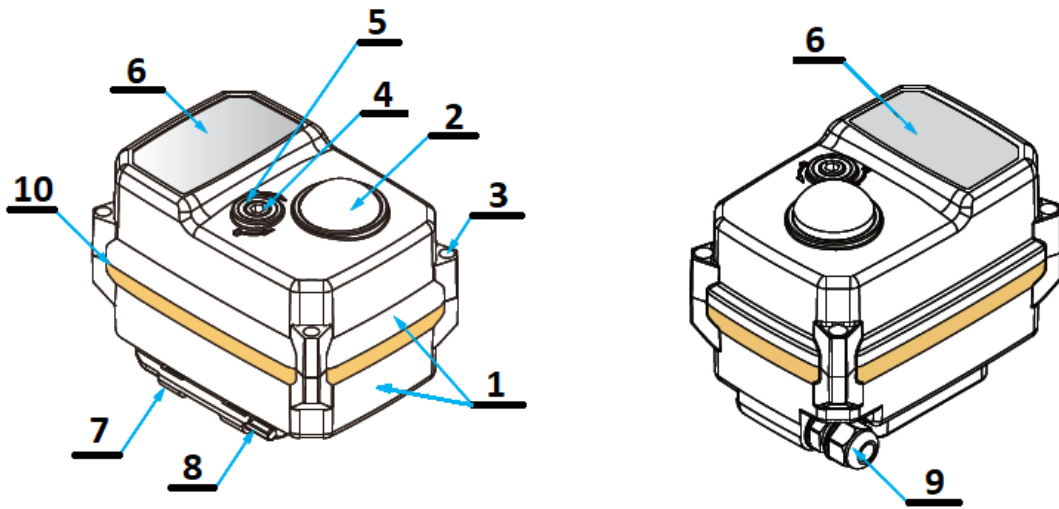
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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022

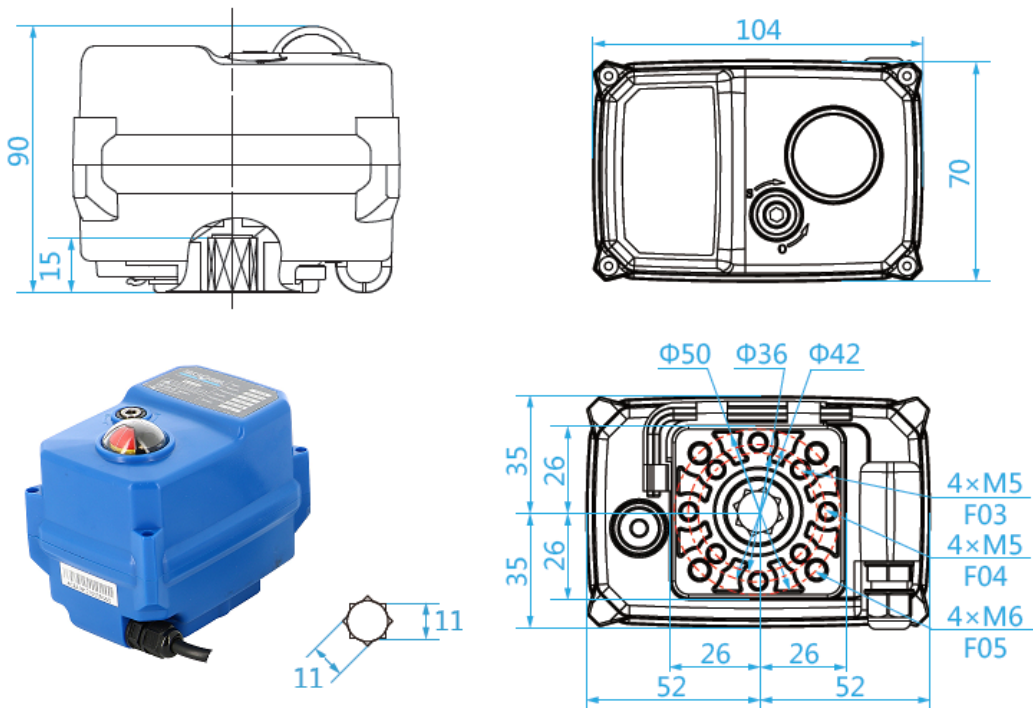
# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-02N-KT32)

TCR-02N-KT32					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 4	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR
Weight (kg): 0.620					



## DIMENSIONS (mm)



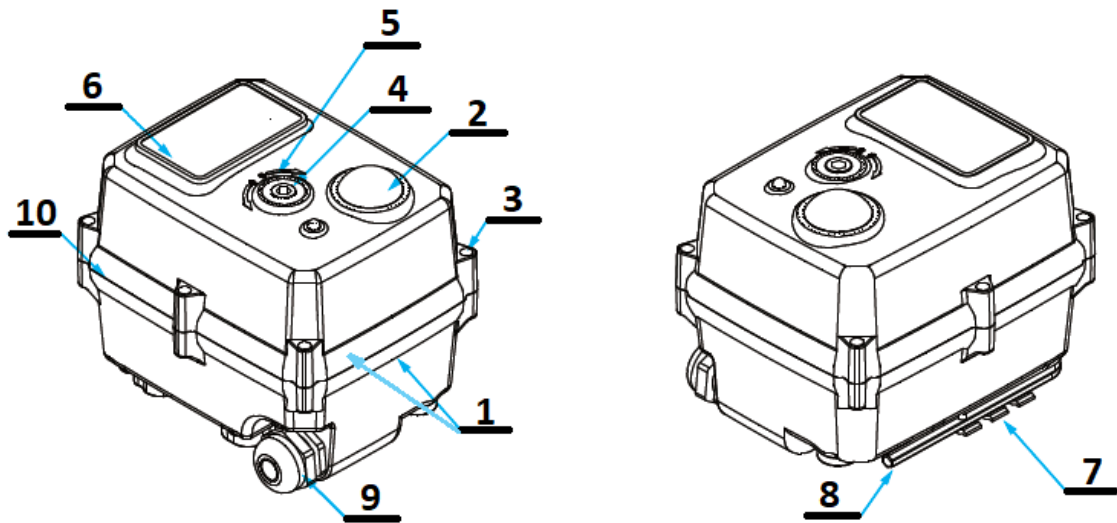
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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022

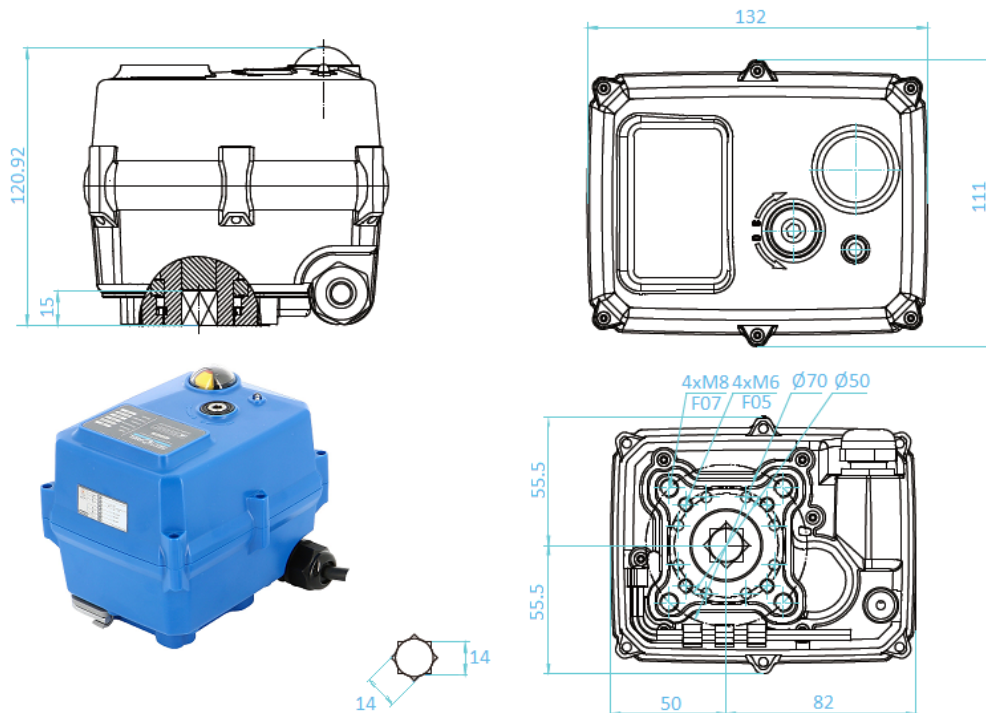
# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-05N-KT32)

TCR-05N-KT32					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR
Weight (kg): 1.800					



## DIMENSIONS (mm)



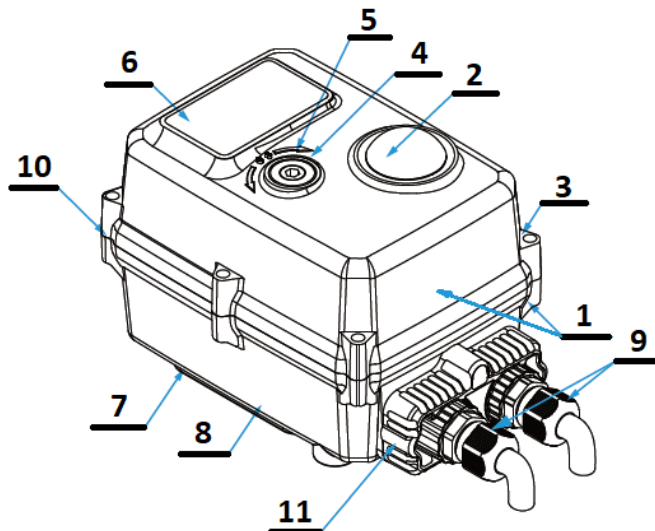
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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022

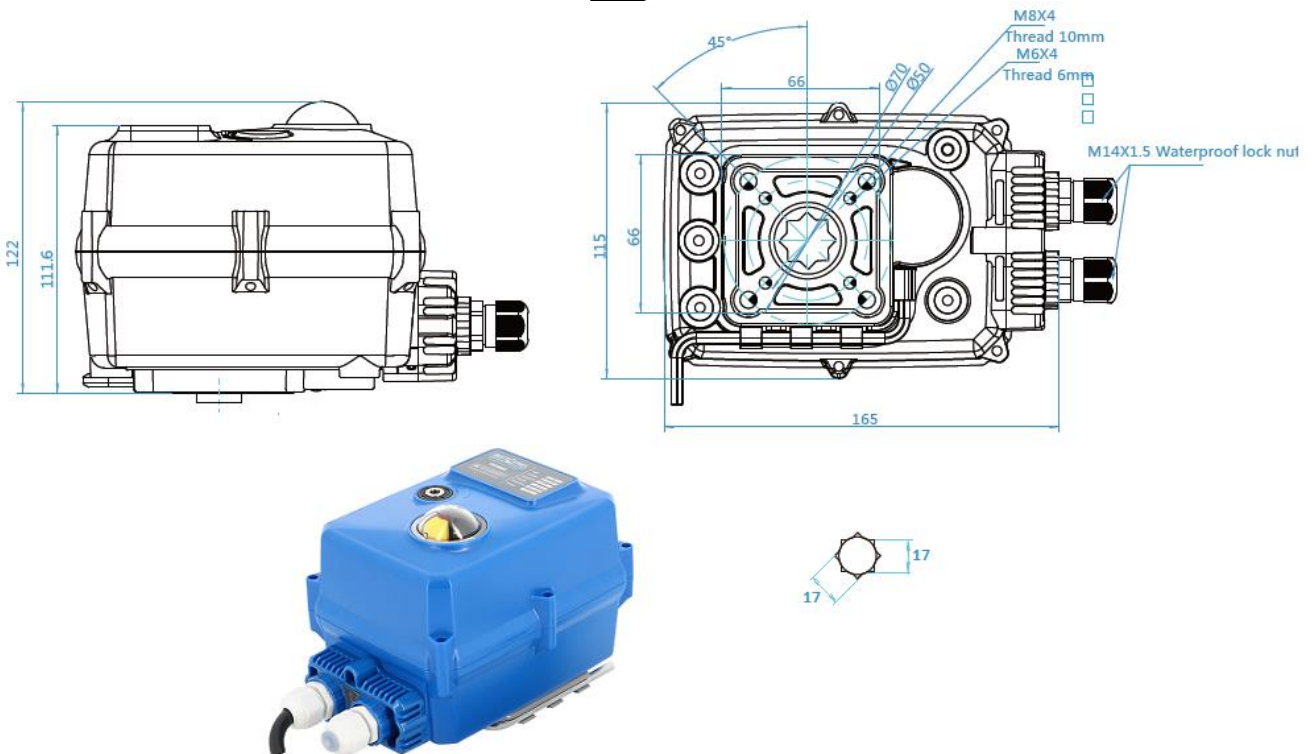
# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-11N-KT32)

TCR-11N-KT32					
No.	Name	Material	No.	Name	Material
1	Casing + lid	Plastic (ABS)	6	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	X 2Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR
Weight (kg): 2.200			11	Cable gland unit	Plastic (ABS)



## DIMENSIONS (mm)



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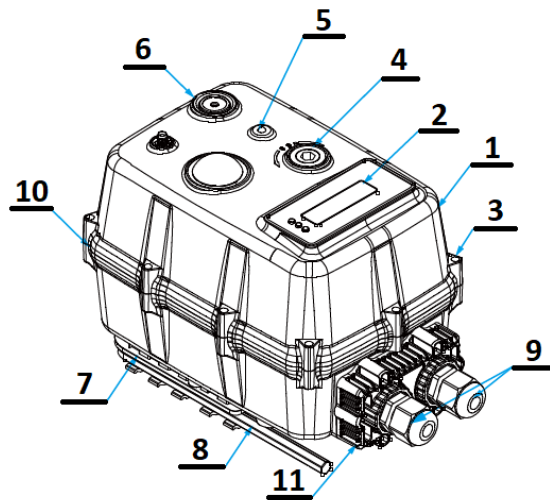
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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022



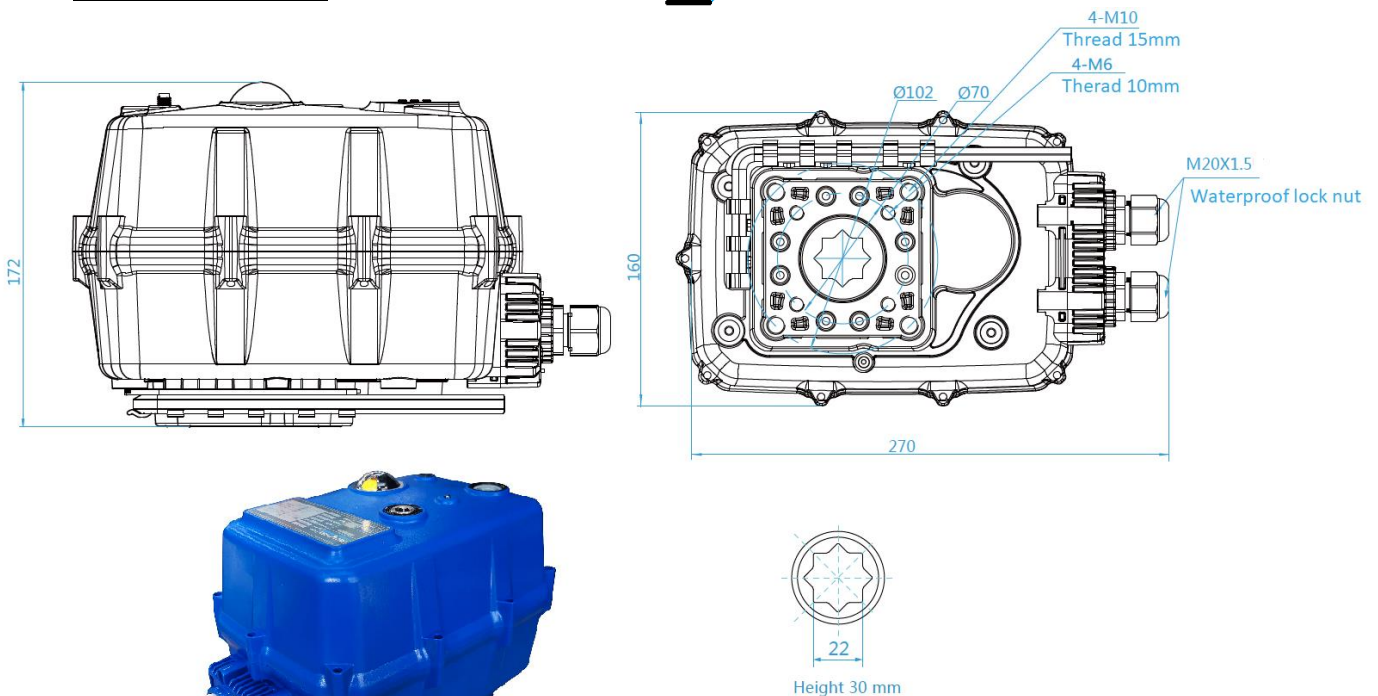
# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## CONSTRUCTION (TCR-20N-KT32)

TCR-20N-KT32					
N°	Désignation	Matière	N°	Désignation	Matière
1	Casing + lid	PC + PET	6	Clutch	Polyoxymethylene POM
2	Position indicator	Polycarbonate plastic	7	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	8	Hex key	Steel
4	Backup control stem	Aisi 304	9	X 2 Packing gland	Nylon
5	LED	Plastic PC	10	Cover gasket	NBR
Poids (Kg) : 6,000			11	Cable gland unit	Plastic (ABS)



## DIMENSIONS (mm)

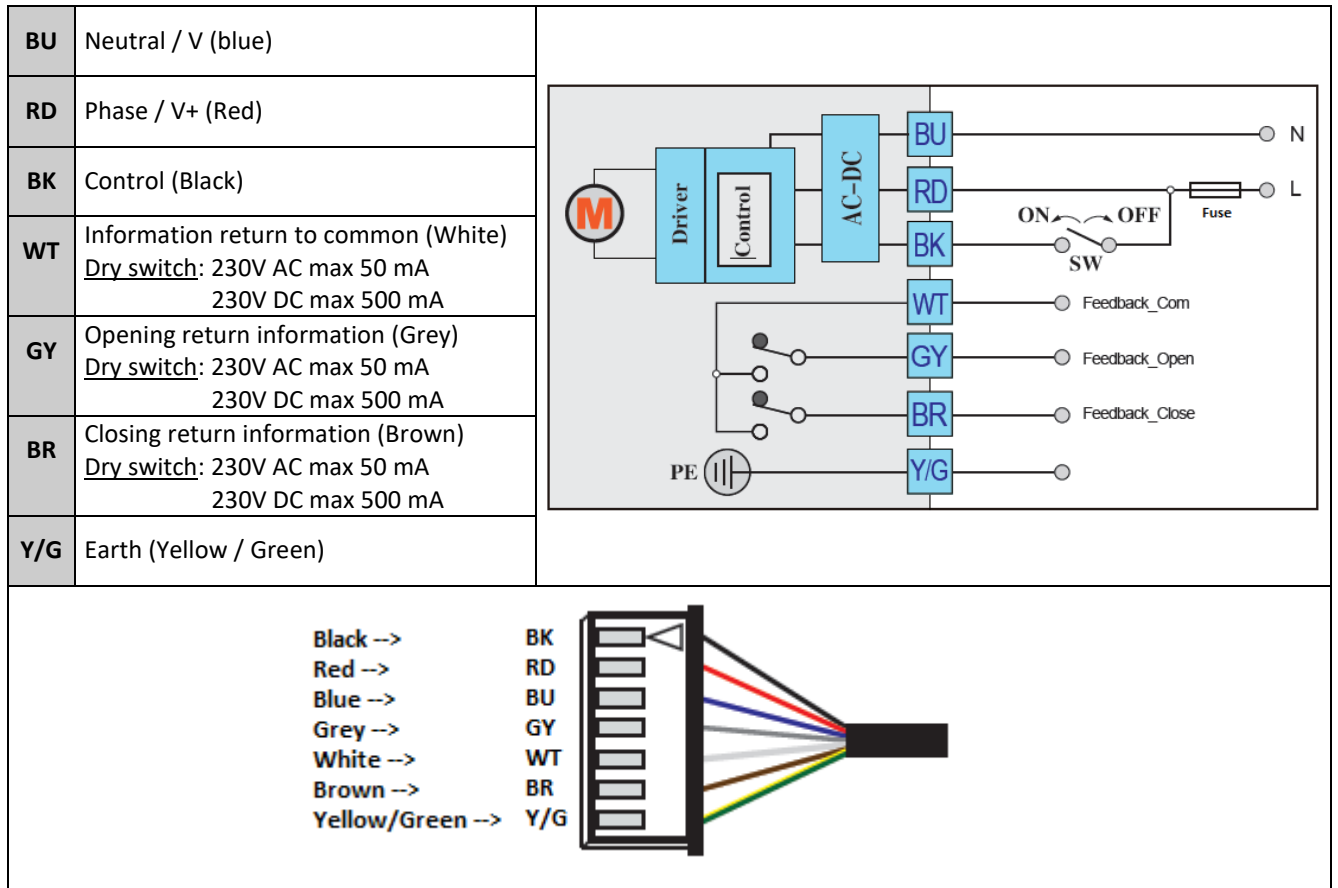


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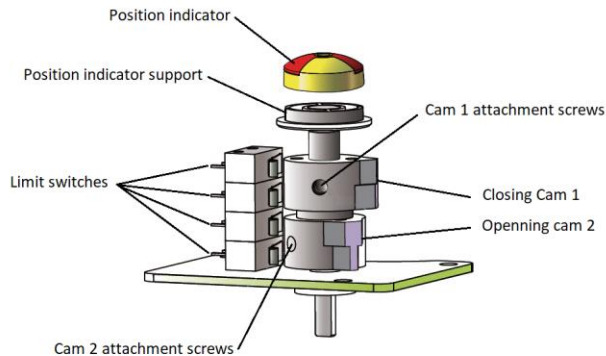
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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

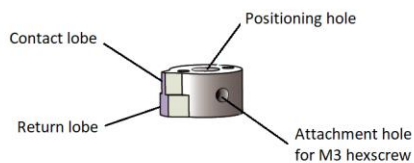
## WIRING DIAGRAM



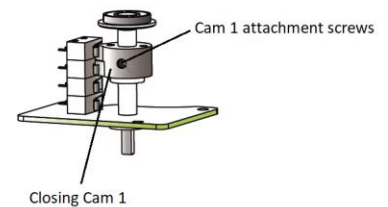
## SWITCH SETTING



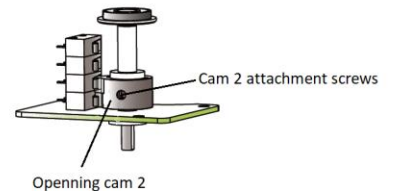
**GENERAL VIEW**



**CAM DETAIL**



**CLOSING CAM ADJUSTMENT**



**OPENING CAM ADJUSTMENT**

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Pages	7/8
Ref.	FT2412 ENG
Rev.	04
Date	09/2022



# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## TROUBLESHOOTING

Defect met	Cause of defect	Method of solving
Inactive actuator	Non-connected electrical grid.	Connect to the electrical grid.
	Wrong voltage.	Check the actuator's voltage.
	Motor overheating.	Check the torque on the valve.
	Faulty connection.	Check the connection to the terminal box.
	Damaged start capacitor.	Contact the supplier for repair.
No switch signal	Faulty connection.	Check the connections.
	Damaged microswitch	Change the microswitch
Valve that is not fully closed	Use the return signal from the actuator check.	Receiving a return signal does not mean that the actuator is fully closed, hence do not cut the power supply.
	The hysteresis increases due to wear or between the actuator and the valve's stem.	Readjust the limit cams. Contact the supplier for repair.
Presence of humidity or water in the actuator	Unsuitable cable cross-section being used.	Contact the supplier for repair.
	The cable connection is not leak-tight.	
	Worn sealing gaskets.	
	Loose cover screws.	Dry the internal parts and tighten the cover screws.

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		Ref.	FT2412 ENG
		Rev.	04
		Date	09/2022