

# 502 VALVE WITH TCR ELECTRICAL ACTUATOR

## FEATURES

The brass 2-way ball valve 502+TCR provides the shut-off function for networks of usual non-corrosive fluids: water, air, hydrocarbons, etc. It is a full-bore valve. It is EC- and ACS-approved (French health compliance certificate). The ISO 5211 mounting pad enables the actuator to be directly assembled. The latter is suitable for S4-type service factor, installed indoors or outdoors under shelter.

## AVAILABLE MODELS

CW 617N brass body.

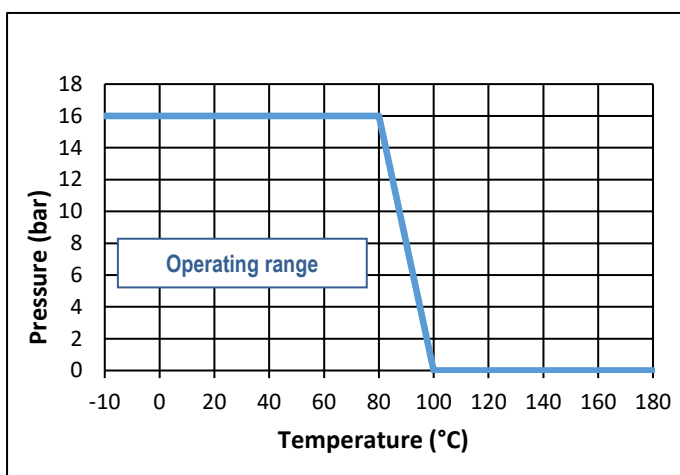
1/4" to 4" diameters.

G thread connections.

**Supply voltages:** 12V DC, 24V DC, 24V AC and 230V AC.

## LIMITS OF USE

<b>Fluid pressure: PS</b>	16 bar
<b>Fluid temperature: WT</b>	- 10°C / + 100°C
<b>Ambient temperature</b>	- 20°C / + 60°C
<b>Service factor</b>	S4 – 50%



## DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 2014/68/EC	<b>1/4" to 1"</b> : not subject		French health compliance certificate (A.C.S.)	<b>1/4"- 3/8"</b> : not certified
	<b>1"1/4 to 2"</b> : article 4 § 3			<b>1"1/4 to 1"1/2</b> : 08 ACC LY 073
	<b>2" 1/2 to 4"</b> : category II	PASCAL 1115		<b>2" to 4"</b> : 10 ACC LY 265
Size	EN 12516-4		Connection Motorisation	ISO 5211:
Brass grade	NKS 12240		Final test	NKS 12266

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



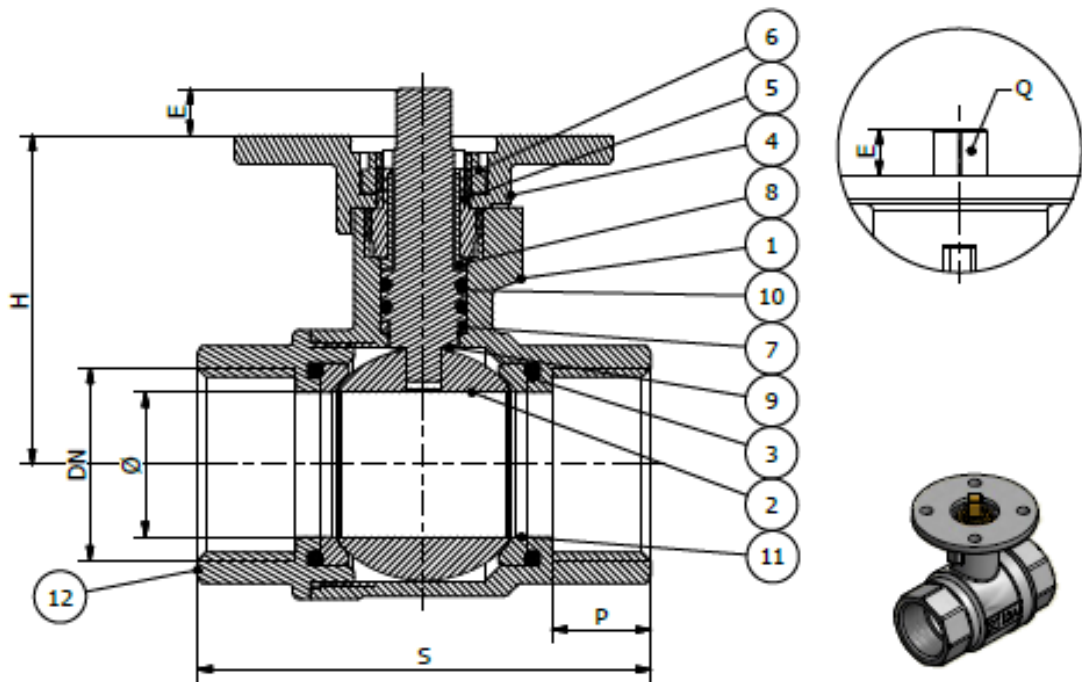
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Pages	1/3
Ref.	FT502+TCR ENG
Rev.	02
Date	06/2020

# 502 VALVE WITH TCR ELECTRICAL ACTUATOR

## CONSTRUCTION

No.	Name	Material	No.	Name	Material
1	Body	Nickel-plated CW 617N brass	7	Anti-friction ring	PTFE
2	Ball	Chromium-plated CW 617N brass	8	Anti-friction coupling	PTFE
3	O-ring (DN 2"1/2 to 4")	NBR	9	Stem	CW 614N brass
4	Motorisation flange	Nickel-plated CW 617N brass	10	O-ring	NBR / FPM
5	Nut	CW 614N brass	11	Seat	PTFE
6	Nut	CW 614N brass	12	End	Nickel-plated CW 617N brass



## DIMENSIONS (mm)

DN	1/4"	3/8"	1/2"	3/4"	1*	1" 1/4	1" 1/2	2"	2" 1/2	3"	4"
∅	10	10	15	20	25	32	39	48	64	78	100
S	50	60	63.5	72	86	96	107	115	141	159	196
P	10	11	14	16	17	18	19	21	25	25	30
H	33	34	45	48.5	52.5	56.5	68	79	92	102	127
E	9	9	13	13	13	13	13	10	12	12	17
Q	9	9	11	11	11	11	11	11	14	14	17
ISO	F03	F03	F05	F05	F05	F05	F05	F05	F05	F05	F07

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		Ref.	FT502+TCR ENG
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# 502 VALVE WITH TCR ELECTRICAL ACTUATOR

## 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 230V AC / 24V AC-DC	Time 230V AC	Time 24 V ac-dc	Standard equipment of the actuator
1/4"	TCR-02N	15	10s	10s	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: TRC02: 1 x PE M10 + 1.5m cable TCR05: 1 x PE M20 + 1.5m cable TCR11: 2 x PE M14 + 1.5 m cable
3/8"	TCR-02N	15	10s	10s	
1/2"	TCR-02N	15	10s	10s	
3/4"	TCR-02N	15	10s	10s	
1"	TCR-02N	15	10s	10s	
1" 1/4	TCR-05N	25	12s	12s	
1" 1/2	TCR-05N	25	12s	12s	
2"	TCR-05N	25	12s	12s	
2" 1/2	TCR-05N	25	12s	12s	
3"	TCR-11N	100	10s	10s	
4"	TCR-11N	100	10s	10s	

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:

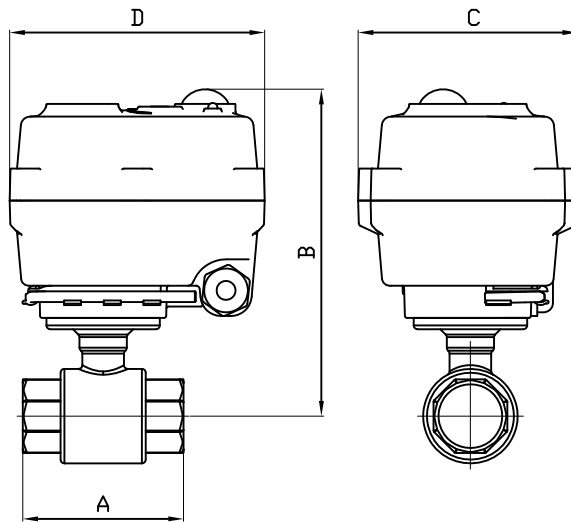
1	100mm high height adjustment for installing thermal insulation (500HC valve)
2	Actuator dimensioned for an upstream / downstream pressure difference $\Delta P$ greater than 10 bar
3	NF actuator – return via condenser – TCR-KT32
4	High-speed actuator - TRC-NH
5	Smart actuator with manoeuvring time adjustment - 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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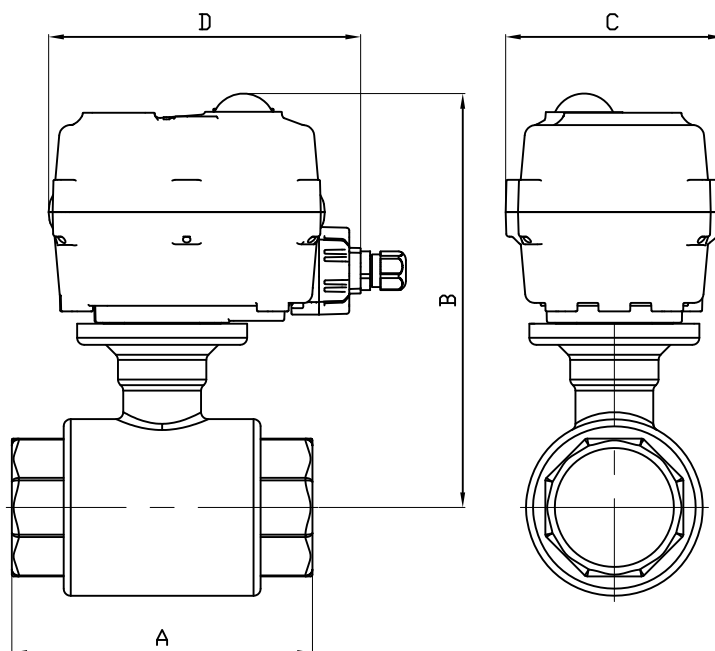


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Pages	3/3
Ref.	FT502+TCR ENG
Rev.	02
Date	06/2020




TCR-02-05



TCR-11

DN	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
SERVO	TCR02		TCR02	TCR02	TCR02	TCR05	TCR05	TCR05	TCR05	TCR11	TCR11
A	50	60	63.5	72	86	96	107	115	141	159	196
B	125	126	166	169.5	173.5	177.5	189	200	213	224	251
C	70		70	70	70	111	111	111	111	115	115
D	104		104	104	104	132	132	132	132	165	165
KG	0.83	0.84	1.12	1.25	1.48	2.86	3.3	4	5.53	8.5	11.16

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

Ech: /	Date :03/09/2019	Dessiné par : E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.
ROBINET A TOURNANT SPHERIQUE 502/BALL VALVE 502 + SERVOMOTEUR TCR/ELECTRIC ACTUATOR TCR				Matière :		
				Poids (Kg) :		
				Traitement : SANS		
				45, Rue du Ruisseau		
38297 SAINT QUENTIN FALLAVIER				Plan n° Ens 1375		

# TCR-N ELECTRICAL ACTUATOR

## FEATURES

The TCR-N electric actuators are intended for motorising ¼ turn valves with a torque of 15, 20, 50 or 110 Nm. With a compact construction and plastic housing, they are especially well suited for motorising small size ball 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

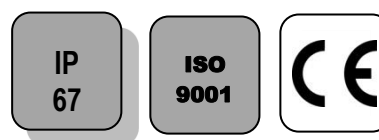
Supply voltages: 230V AC, 24V AC/DC, 12V DC.

## LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Service factor	S4-50%

## MECHANICAL FEATURES

Gear box	treated steel pinions
Torques	15 - 20 - 50 - 110 Nm
Angle of rotation	90° +/- 2°
Declutching	without
Override control	By key



Actuator	TCR 02N			TCR 05N			TCR 11N		
	Torques (Nm)	15	20	20	50			110	
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)	15	10	10	12	12	12	10	10	10
ISO 5211:	F03/F05 - star 11			F05/F07 - star 14			F05/F07 - star 17		

## ELECTRICAL FEATURES

Actuator	TCR 02N		TCR 05N		TCR 11N	
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	

Actuator	TCR 02N			TCR 05N			TCR 11N		
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)	15	15	15	25	25	25	100	100	100
Current (A)	1,5	1,5	0,09	1,67		0,18 - 0,37	2,5		0,3 - 0,6
Fuse Protection (A)	5	5	1	8		1 - 2	5		2 - 3

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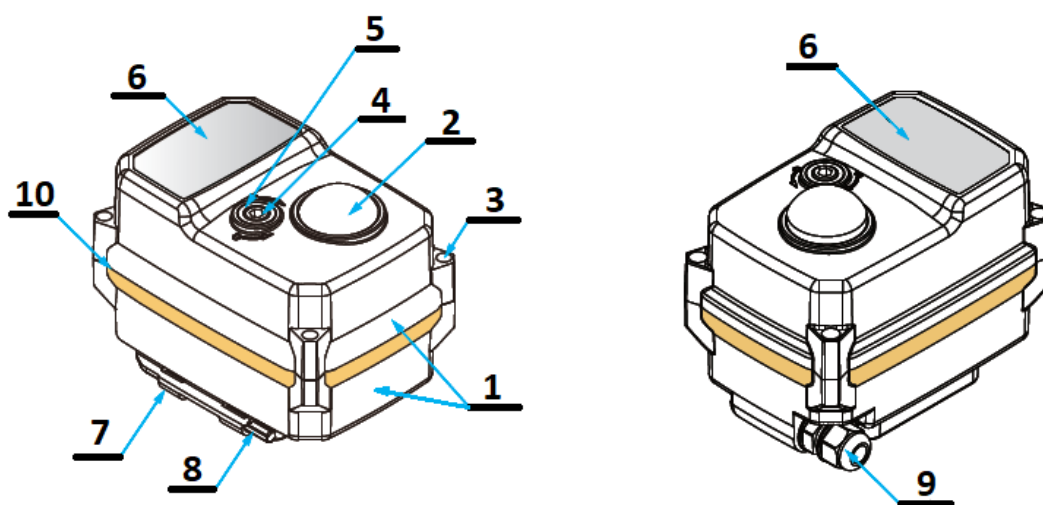
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		Ref.	FT2411 ENG
		Rev.	02
		Date	06/2020

# TCR-N ELECTRICAL ACTUATOR

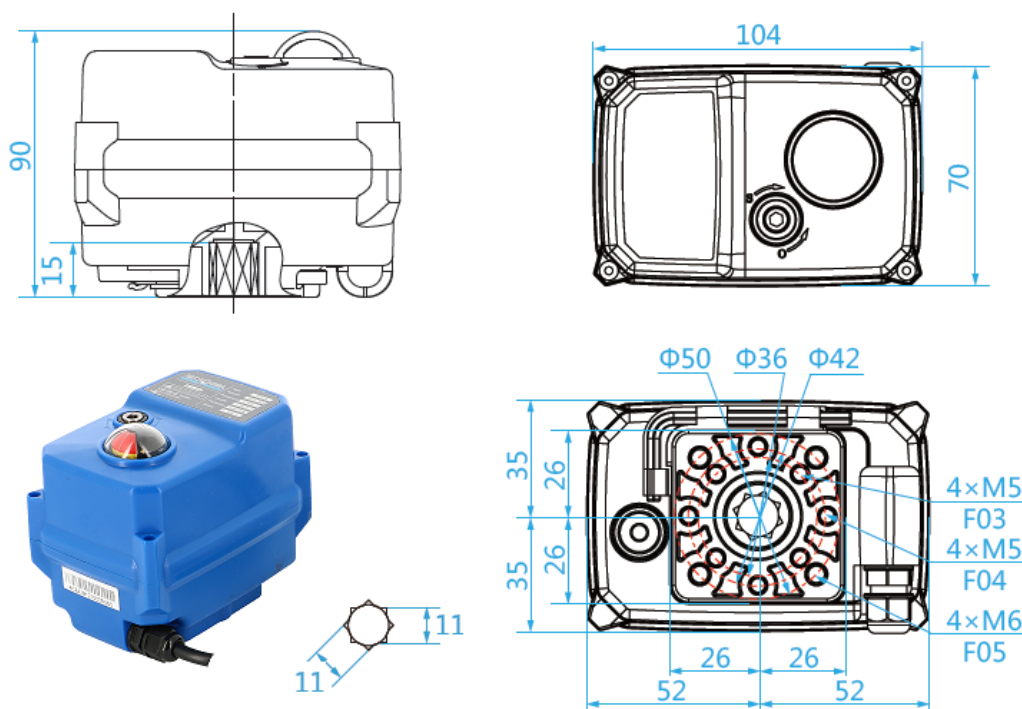
## CONSTRUCTION (TCR-02N)

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)



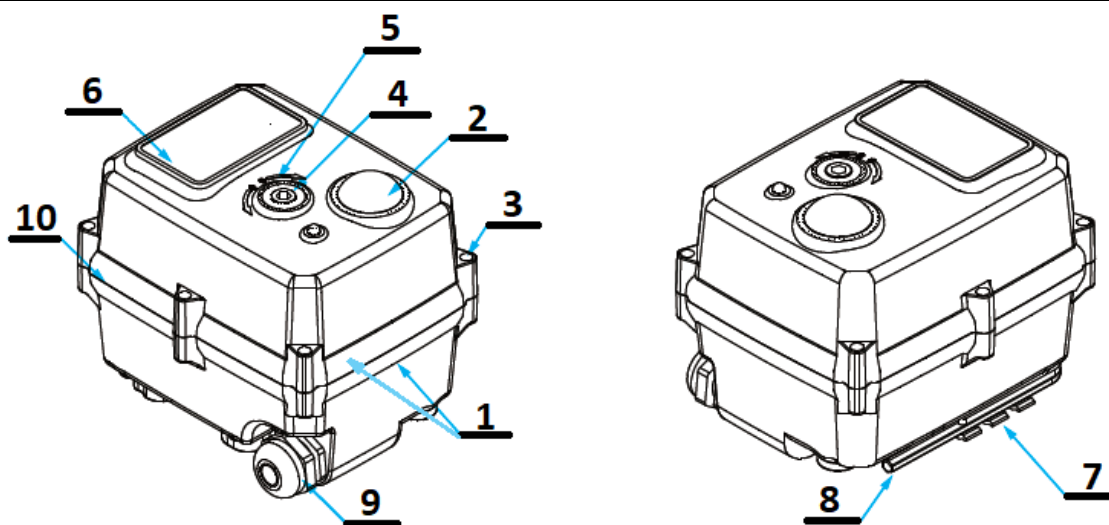
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		Ref.	FT2411 ENG
		Rev.	02
		Date	06/2020

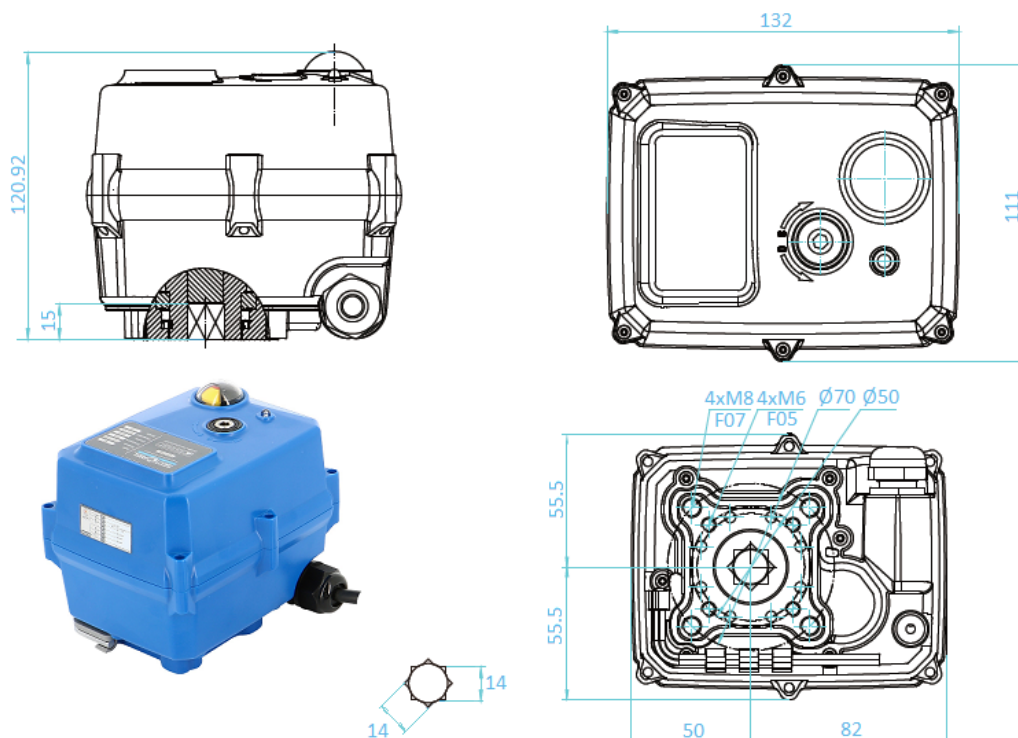
# TCR-N ELECTRICAL ACTUATOR

## 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)



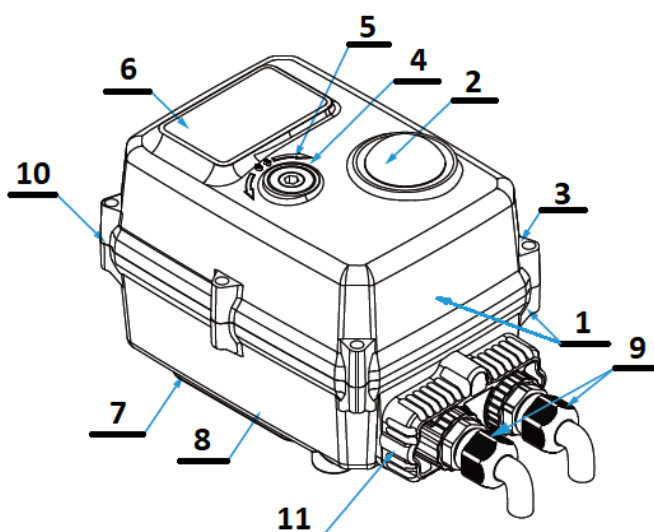
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		Ref.	FT2411 ENG
		Rev.	02
		Date	06/2020

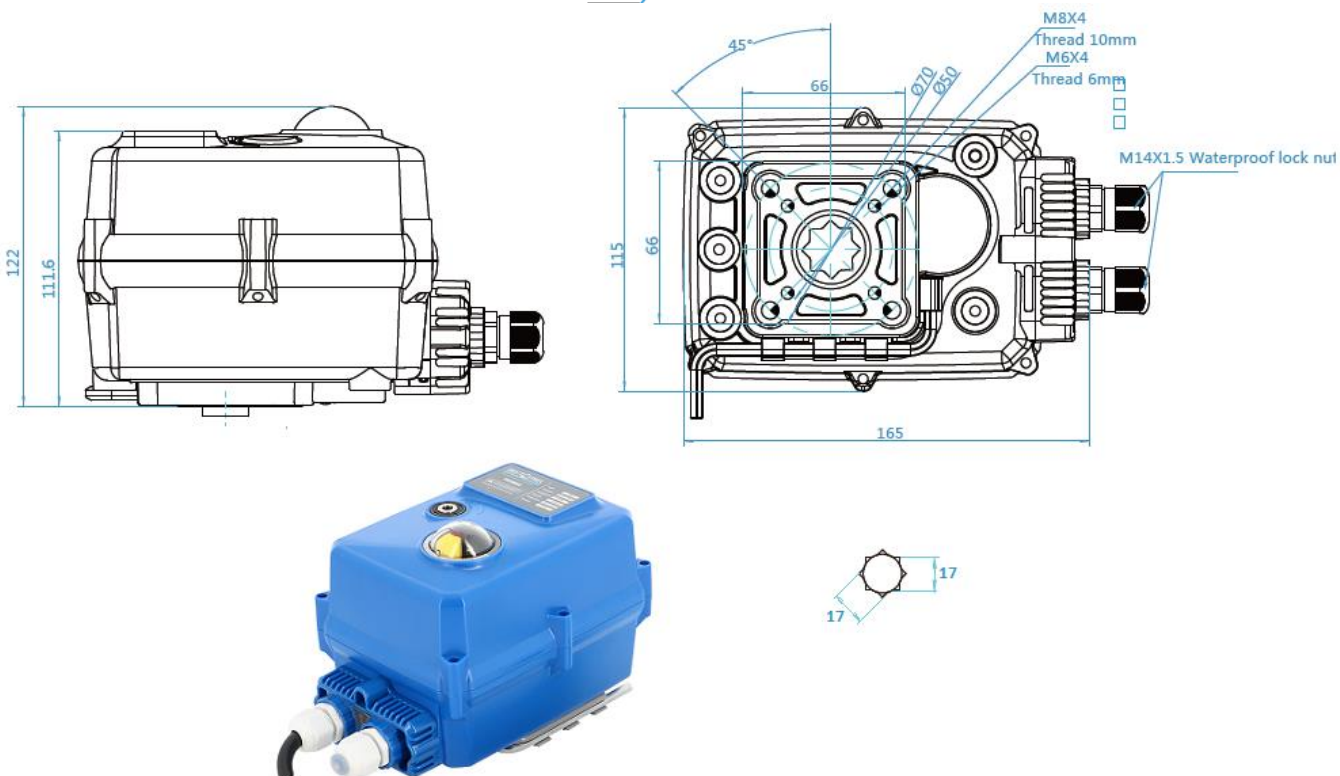
# TCR-N ELECTRICAL ACTUATOR

## 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)

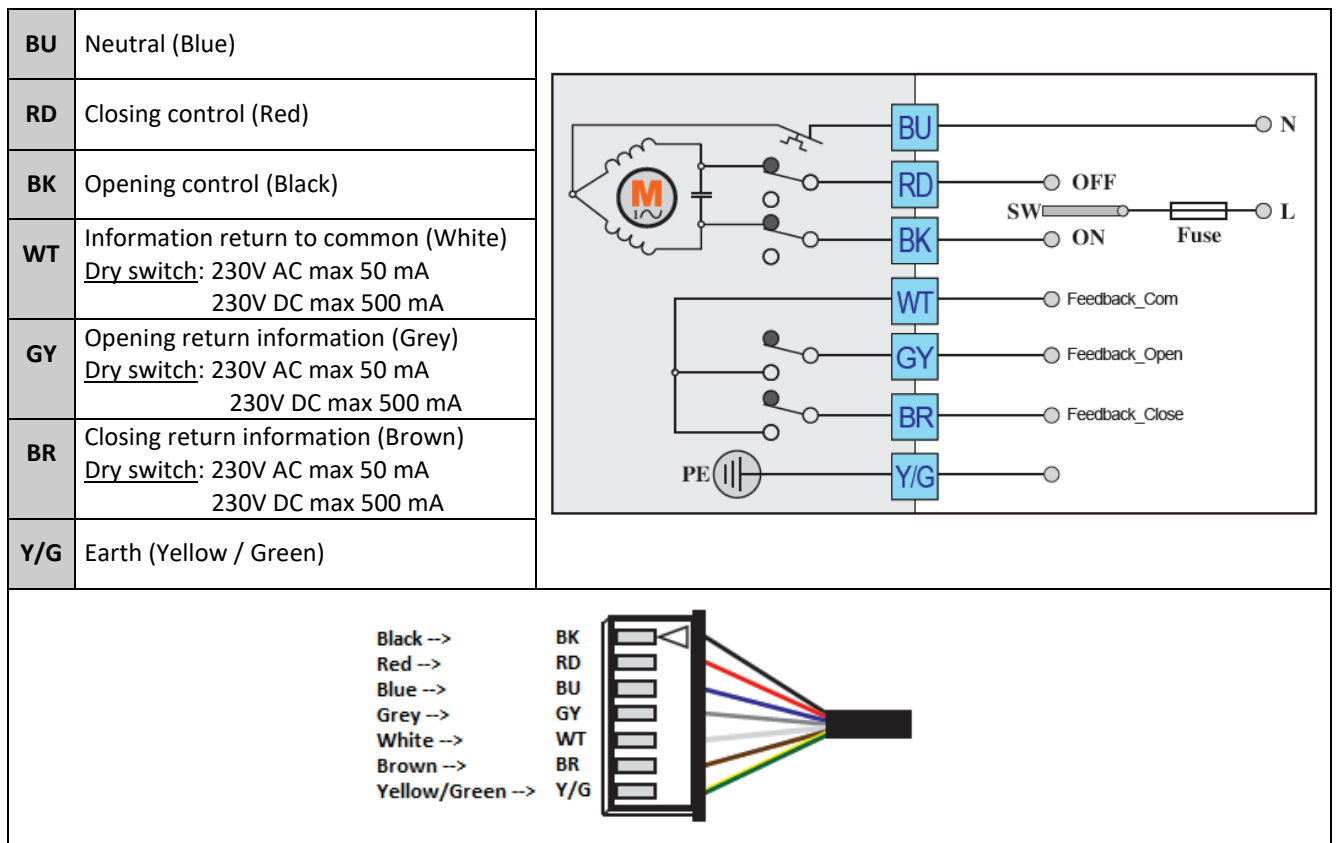


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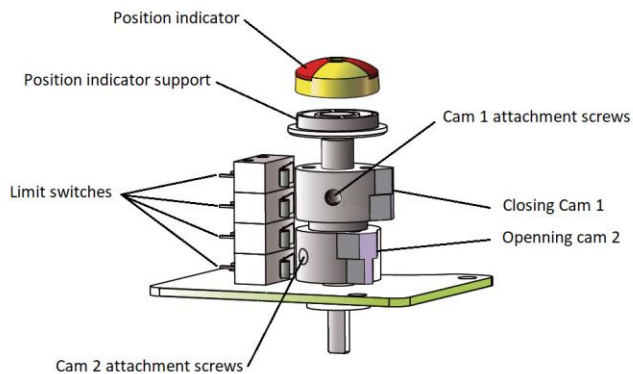
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		Ref.	FT2411 ENG
		Rev.	02
		Date	06/2020

# TCR-N ELECTRICAL ACTUATOR

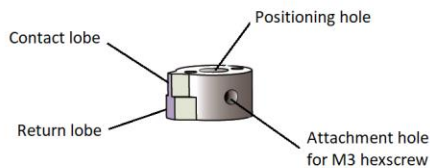
## WIRING DIAGRAM



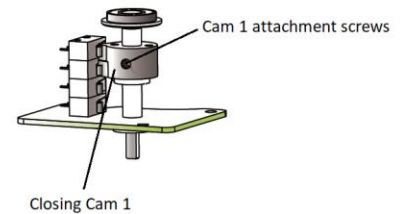
## SWITCH SETTING



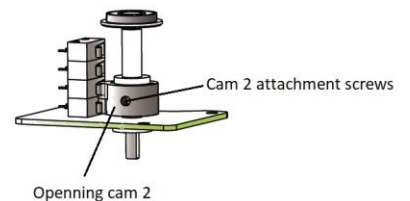
**GENERAL VIEW**



**CAM DETAIL**



**CLOSING CAM ADJUSTMENT**



**OPENING CAM ADJUSTMENT**

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Pages	5/6
Ref.	FT2411 ENG
Rev.	02
Date	06/2020

# 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.	02
		Date	06/2020

# 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, 45, 95 or 110 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

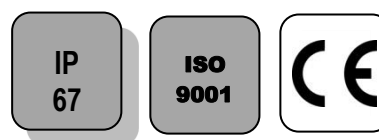
Supply voltages: 230V AC, 24V AC/DC.

## LIMITS OF USE

IP Code	IP 67
Ambient temperature	- 20°C / +60°C
Service factor	S4-50%

## MECHANICAL FEATURES

Gear box	treated steel pinions
Torques	15 - 45 - 95 - 110 Nm
Angle of rotation	90° +/- 2°
Declutching	without
Override control	By key




Actuator	TCR 02N-KT32		TCR 05N-KT32		TCR 11N-KT32	
	Torques (Nm)	15		45		110
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)	15	15	12	12	10	10
ISO 5211:	F03/F05 - star 11		F05/F07 - star 14		F05/F07 - star 17	

## 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

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

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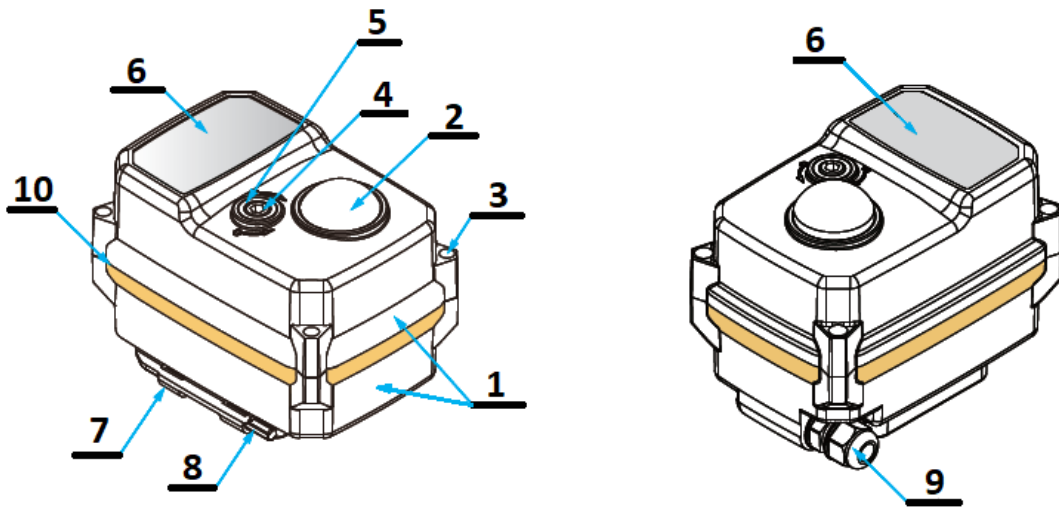
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		Ref.	FT2412 ENG
		Rev.	03
		Date	06/2020

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

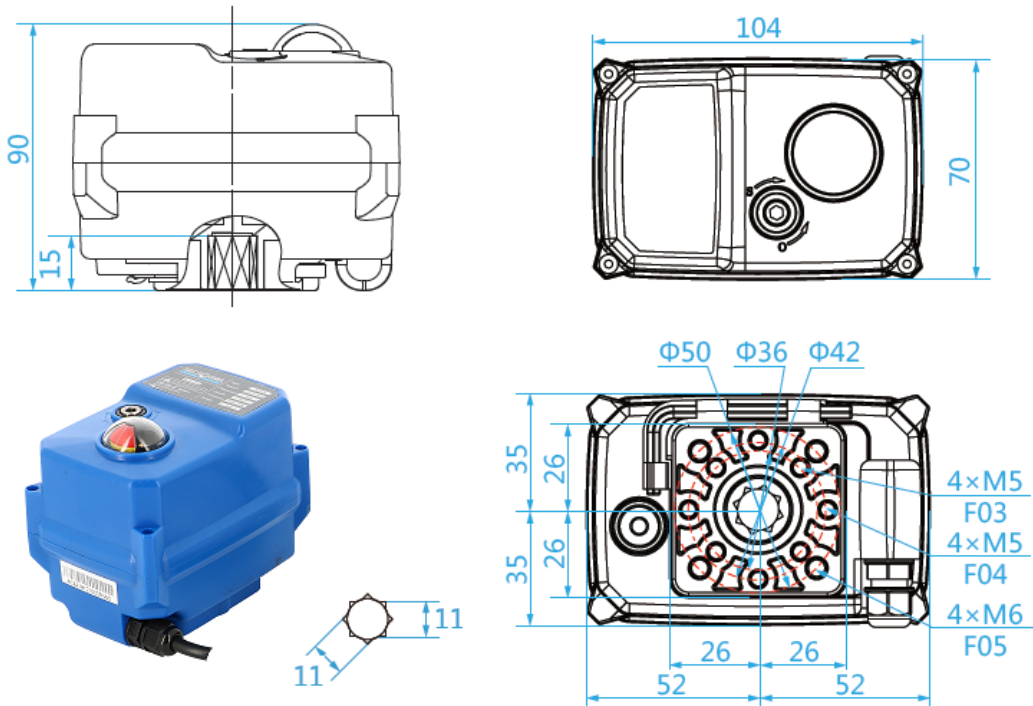
## CONSTRUCTION (TCR-02N-KT32)

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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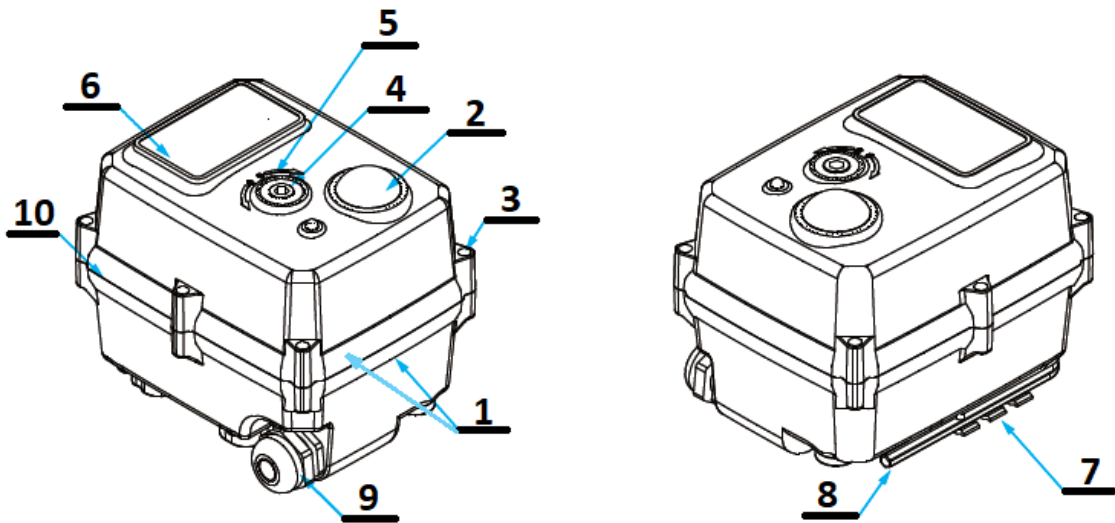
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		Ref.	FT2412 ENG
		Rev.	03
		Date	06/2020

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

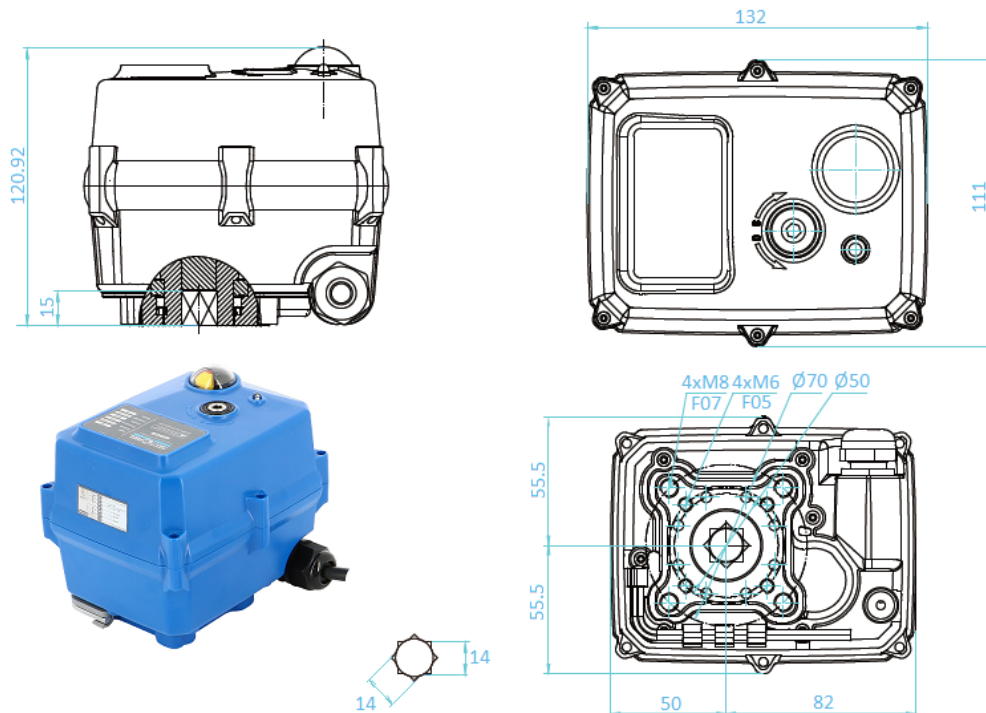
## CONSTRUCTION (TCR-05N-KT32)

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)



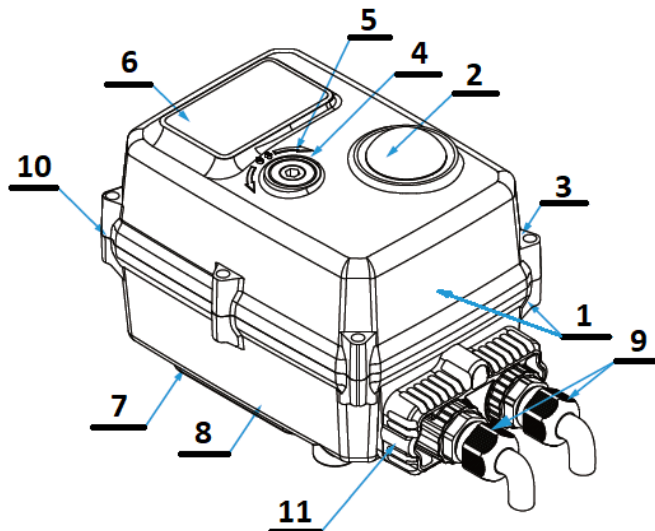
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		Ref.	FT2412 ENG
		Rev.	03
		Date	06/2020

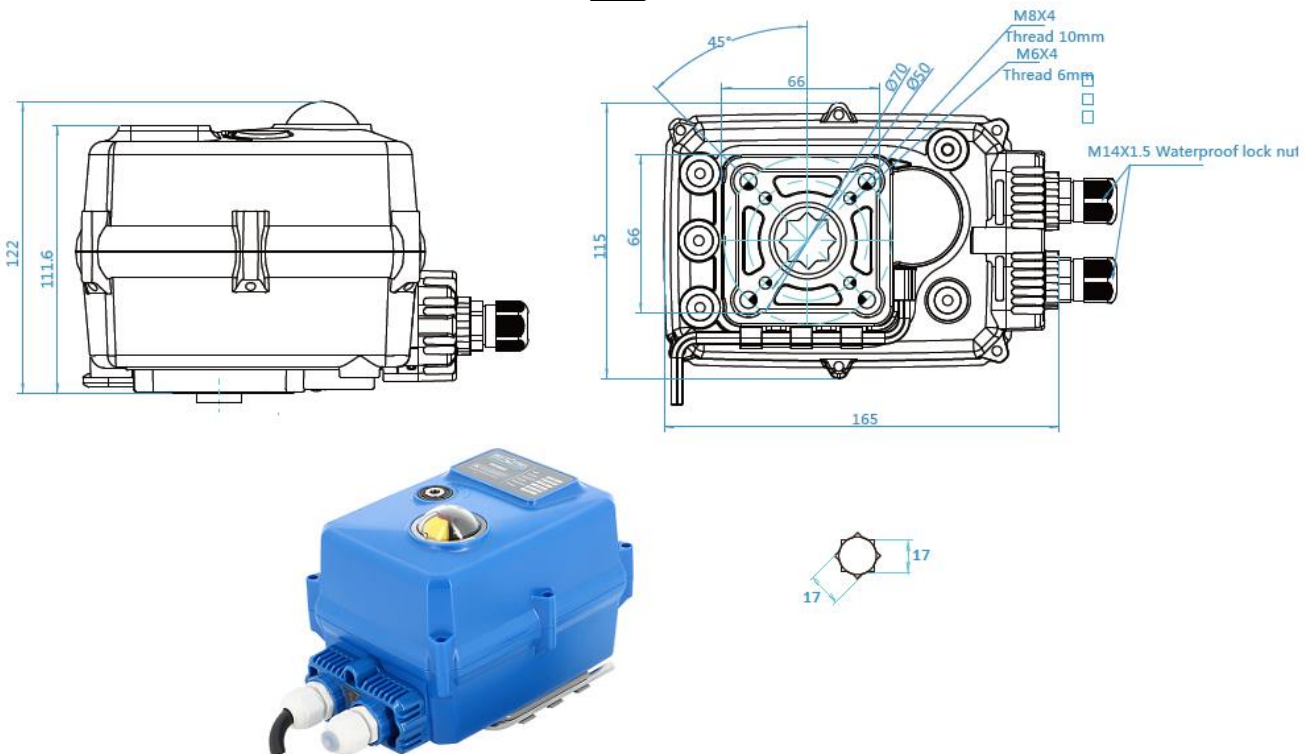
# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

## 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)

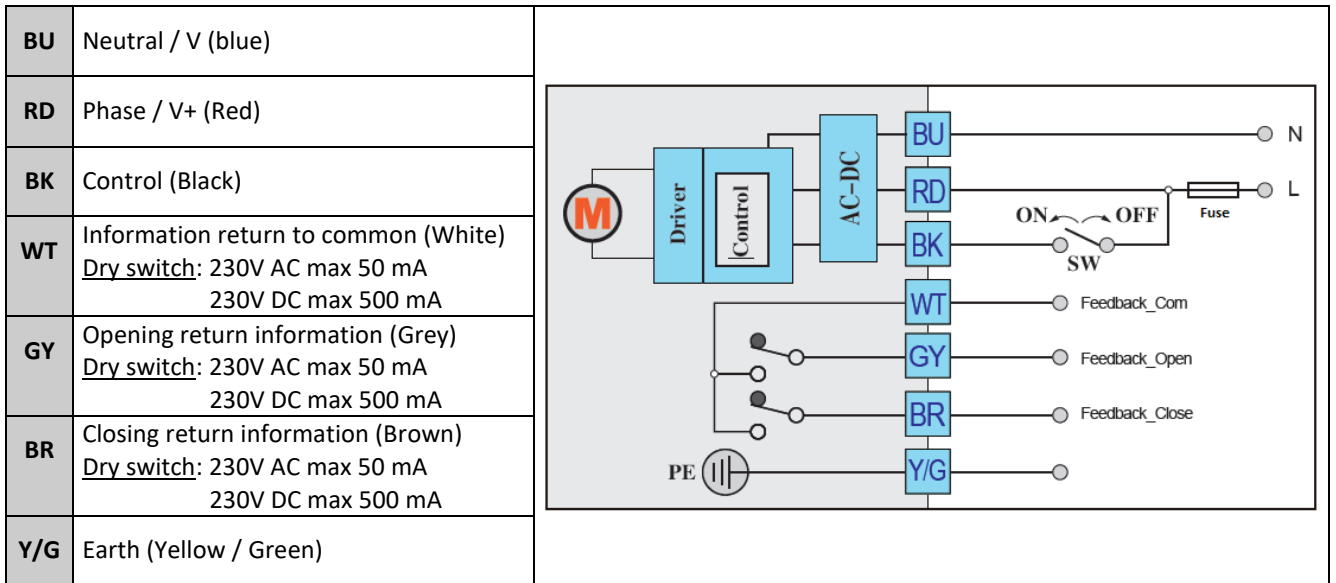


Information given as an indication only, and subject to possible modifications

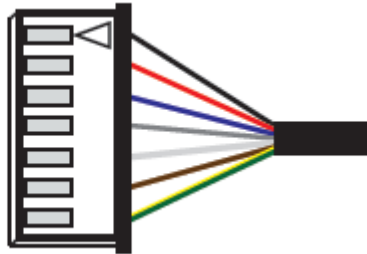
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		Ref.	FT2412 ENG
		Rev.	03
		Date	06/2020

# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

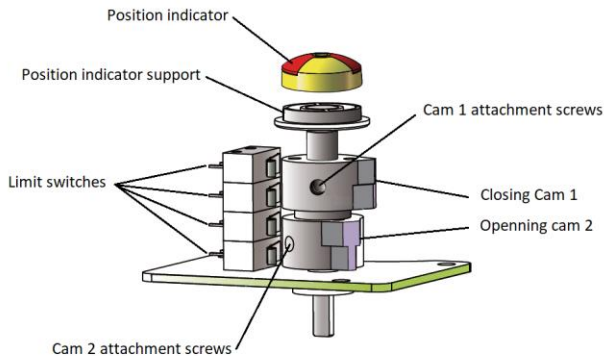
## WIRING DIAGRAM



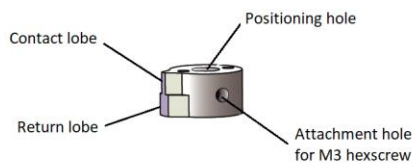
Black → BK  
 Red → RD  
 Blue → BU  
 Grey → GY  
 White → WT  
 Brown → BR  
 Yellow/Green → Y/G



## SWITCH SETTING

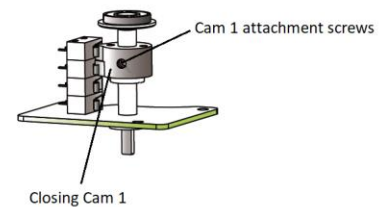


### GENERAL VIEW

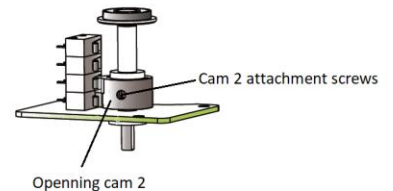


### CAM DETAIL

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



### CLOSING CAM ADJUSTMENT



### OPENING CAM ADJUSTMENT



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Pages	5/6
Ref.	FT2412 ENG
Rev.	03
Date	06/2020

# 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.	03
		Date	06/2020