

## 1121-1125 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

### FEATURES

1121 to 1125 butterfly valves are intended for the automatic opening /closing of different usual fluid pipes. The valve body is made of grey cast iron. The different configurations of the butterfly materials and of the liner make it suitable for different applications. Wafer mounting with centring ears between PN10/16 or ANSI 150 flanges. The long neck makes the mounting on thermally insulated pipe installations possible. The ISO 5211 mounting pad enables the TCR actuator to be directly assembled. The latter is suitable for S3-S4-type service factor, installed indoors or outdoors under shelter.



### LIMITS OF USE

<b>Fluid pressure: PS</b>	16 bar up to DN 300
<b>Fluid temperature: WT</b>	According to the table below
<b>Prohibited uses</b>	Steam, natural gas
<b>Ambient temperature</b>	-20°C / +60°C
<b>Service factor</b>	S4 - 50% (TCR02N-05N-11N)
	S3 - 85% (TCR20N-40N)



### AVAILABLE MODELS

DN 40 to DN 250.

Connection between flanges PN10/16 and ANSI 150 RF

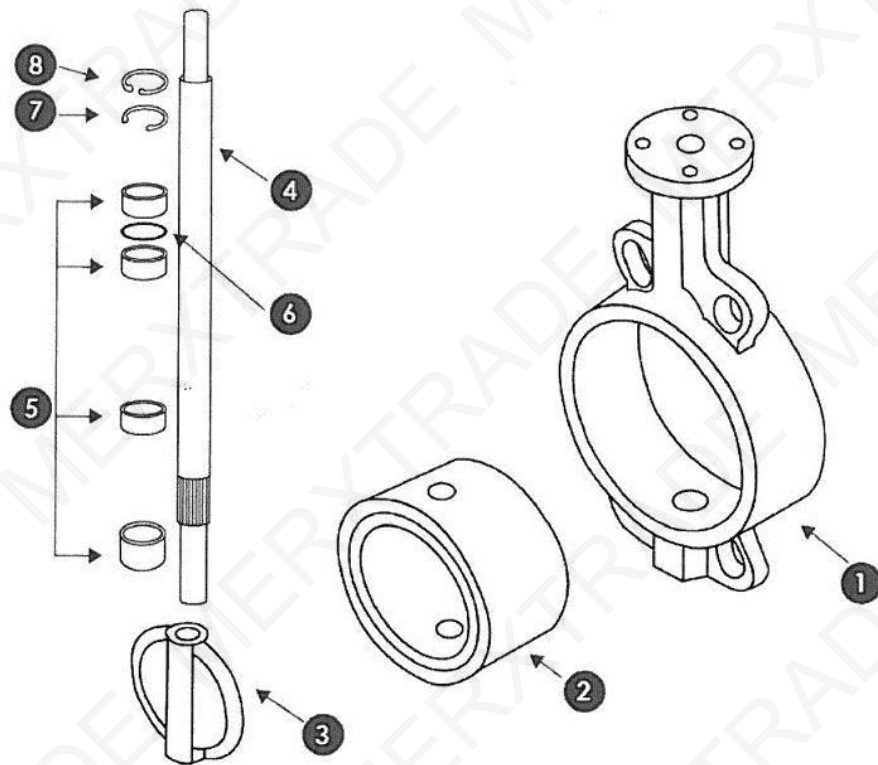
**Supply voltages:** 24 VAC, 24 VDC and 230 VAC.

Ref.	Butterfly	Liner	Example of applications	WT° min	WT° max
1121	stainless steel	NBR	Liquid hydrocarbons - compressed air	-10°C	+90°C
1123	Stainless steel	EPDM	Demineralised water - alkalis	-10°C	+110°C
1125	cast iron	EPDM	Hot water - cold water	-10°C	+110°C

# 1121-1125 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

## DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 2014/68/EC	Cat. III module H	0035	Final test	API 598
Face-to-face dimension	ISO 5752 series 20		Actuator pilot connection	NAMUR
Flange dimension	EN 1092-1		Switch box connection	VDI/VDE 3845
Connection Motorisation	ISO 5211:		SIL 3 level (the actuator alone)	NKS 61508

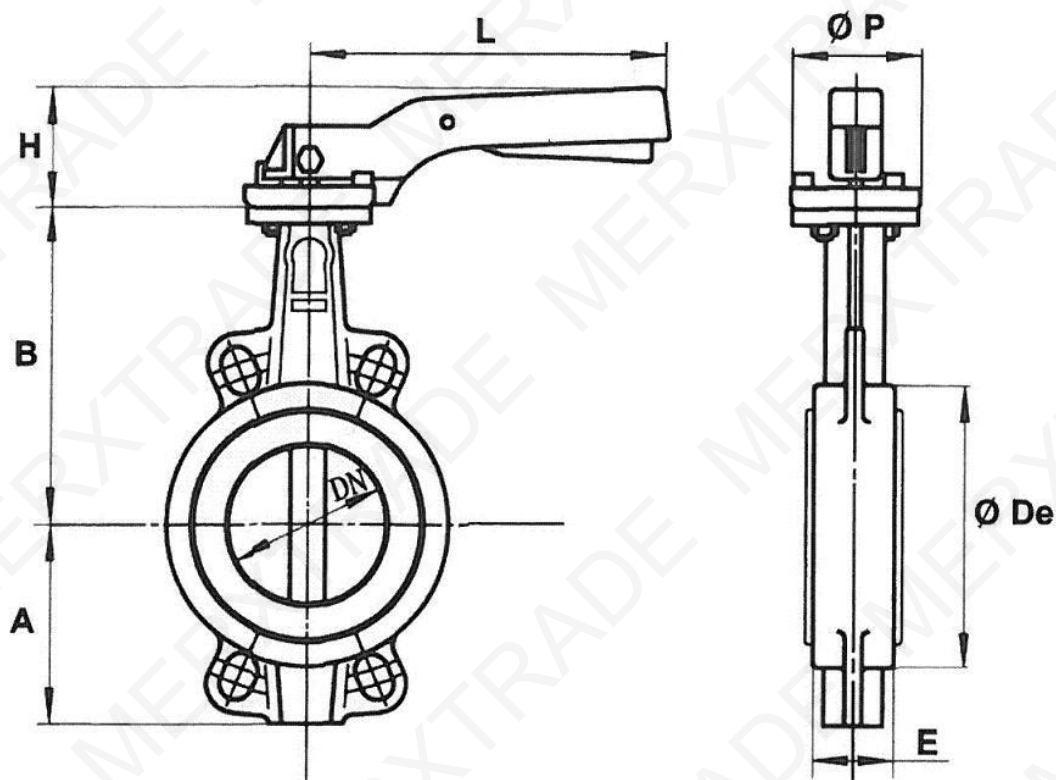


## CONSTRUCTION

No.	Name	1121	1123	1125
1	Body	EN GJL-250 grey cast iron		
2	Liner	NBR	EPDM	EPDM
3	Butterfly	1.4408 SS	1.4408 SS	EN GJS-400-15 nickel-plated cast iron
4	Crossing stem	416 SS		
5	Bearings	PTFE		
6	O-ring	NBR	NBR	NBR
7	Circlips	Steel		
8	Circlips	Steel		

## 1121-1125 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

### DIMENSIONS (mm)



DN	40	50	65	80	100	125	150	200	250	300
A	61	77	87.5	95	107	121	144	171	205	235
B	130	136	142	158	180	192	215	242	280	310
Ø De	82	95	109	127	152	180	207	260	315	370
E	33	43	46	46	52	56	56	60	68	78
H	74	74	74	74	74	79	79	37	37	37
L	200	200	200	200	200	278	278	355	507	507
Ø P	65	65	65	65	65	90	90	125	150	150
Weight (kg)	1.8	2.5	2.9	3.2	4.12	6.7	7.8	14.2	23.4	33.8

### FLOW-RATE COEFFICIENT Kv (m<sup>3</sup>/h)

DN	40	50	65	80	100	125	150	200	250	300
Kv	78	98	167	258	512	872	1347	2675	4555	7037

# 1121-1125 BUTTERFLY VALVES + 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
40	TCR-05N	25	12s	12s	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>TCR05:</b> 1 x PE M20 + 1.5m cable <b>TCR11:</b> 2 x PE M14 + 1.5m cable <b>TCR20:</b> 2 x PE M20 + 1.5m cable <b>TCR40:</b> 2 x PE M20 + 1.5m cable
50	TCR-05N	25	12s	12s	
65	TCR-05N	25	12s	12s	
80	TCR-05N	25	12s	12s	
100	TCR-11N	100	10s	10s	
125	TCR-11N	100	10s	10s	
150	TCR-20N	50	25s	25s	
200	TCR-40N	80	25s	25s	
250	TCR-40N	80	25s	25s	

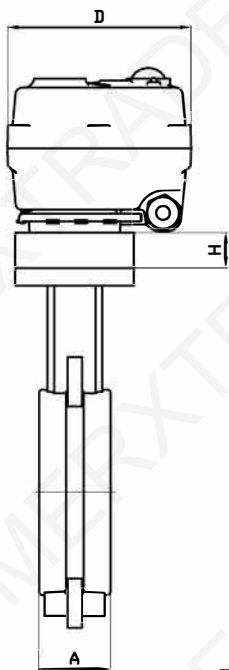
For any other operating conditions, please contact us.

\* indicative time for actuator running empty

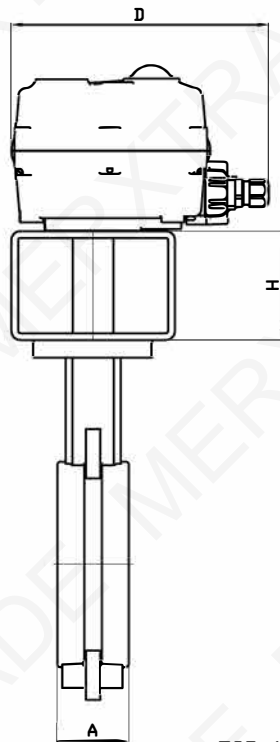
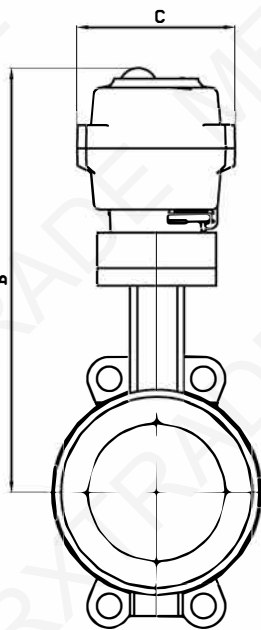
## MOTORISATION OPTIONS

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

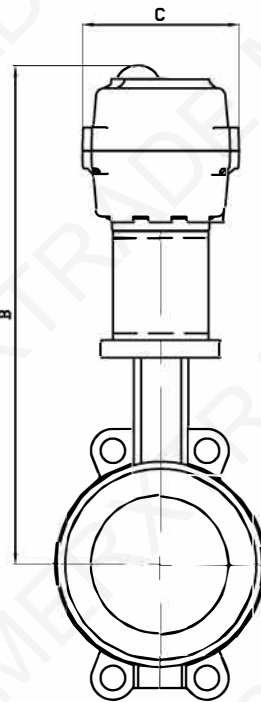
1	NF actuator – return via condenser – TCR-KT32
2	High-speed actuator - TRC-NH
3	Smart actuator with manoeuvring time adjustment - TCR-C
4	Control actuator – TCR-T
5	NF control actuator – return via condenser – TCR-T-KT32
6	Field bus actuator - TCR-B
7	Actuator with in-built timer – TCR-D
8	Wireless actuator – TCR-R



TCR-05



TCR-11-20-40



DN	40	50	65	80	100	125
SERVO	TCR05	TCR05	TCR05	TCR05	TCR11	TCR11
A	33	43	46	46	52	56
B	277	283.5	289	305	328	340
C	111	111	111	111	115	115
D	132	132	132	132	165	165
H	26	26	26	26	26	26
KG	3.9	4.4	5	5.7	7.9	9.5

DN	150	200	250
SERVO	TCR20	TCR40	TCR40
A	56	60	68
B	413	429	532
C	160	160	160
D	270	270	270
H	26	15	80
KG	14.6	19.1	35.9

# 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		

## 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

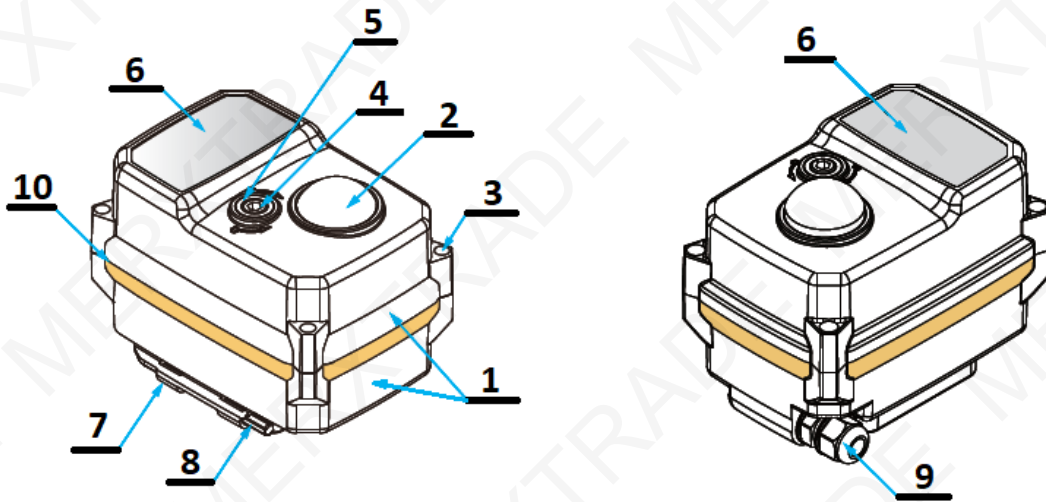
Actuator	TCR 11N			TCR 20N			TCR 40N		
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC
Power (W)	100	100	100	50	50	50	80	80	80
Current (A)	2,5		0,3 - 0,6	2		0,22	3,3		0,36
Fuse Protection (A)	5		2 - 3	3		5	8		2

# TCR-N ELECTRICAL ACTUATOR

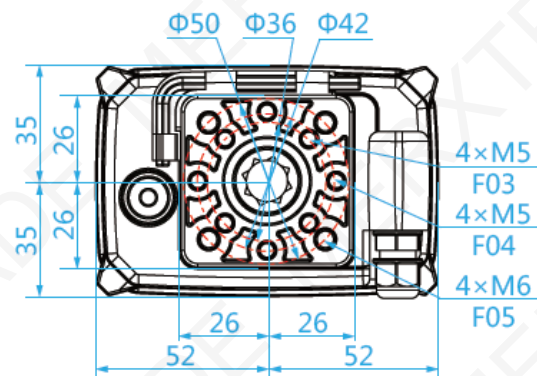
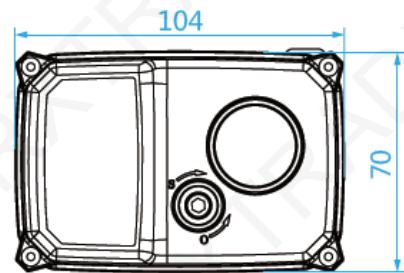
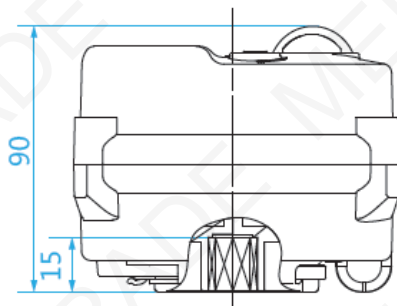
## CONSTRUCTION (TCR-02N)

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)



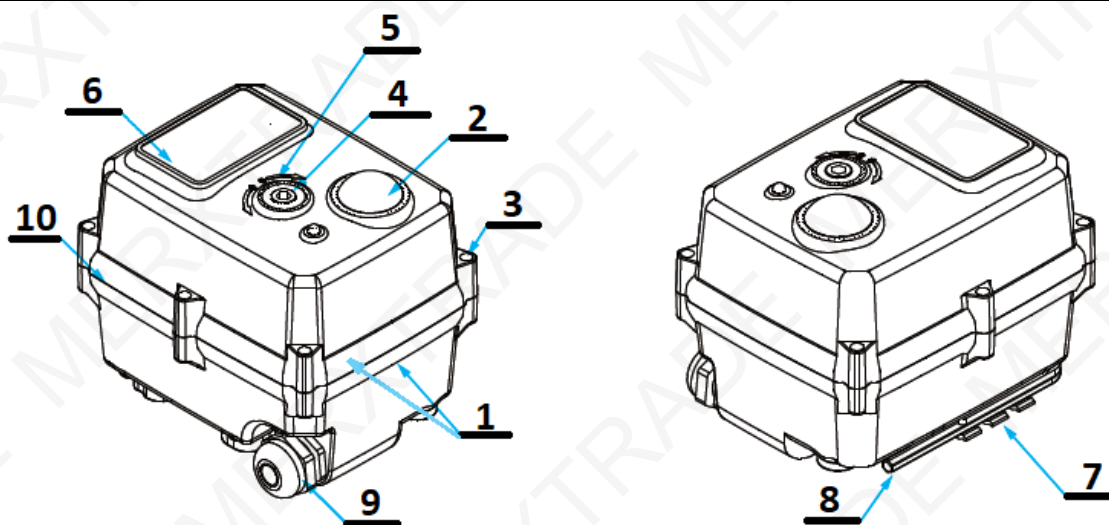


# TCR-N ELECTRICAL ACTUATOR

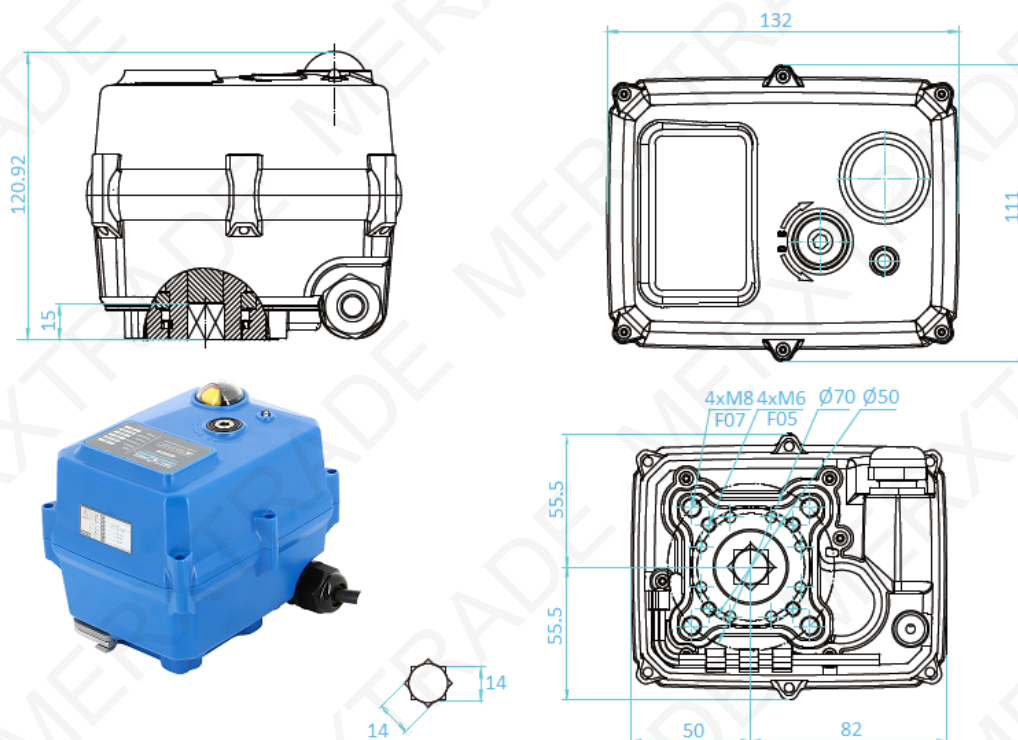
## CONSTRUCTION (TCR-05N)

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**



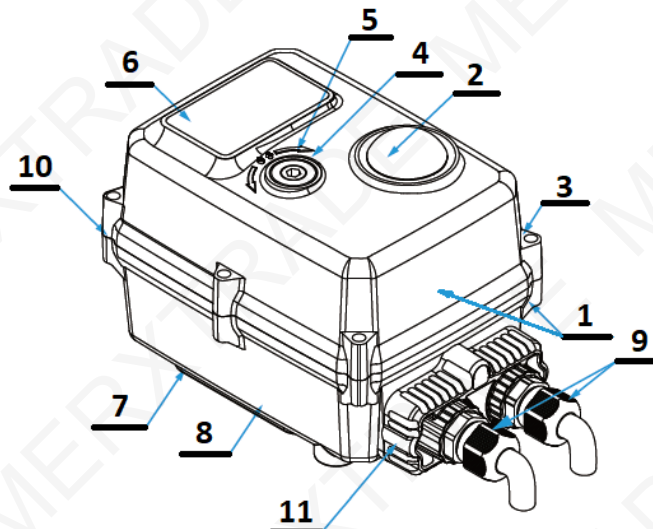
## DIMENSIONS (mm)



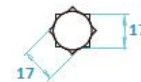
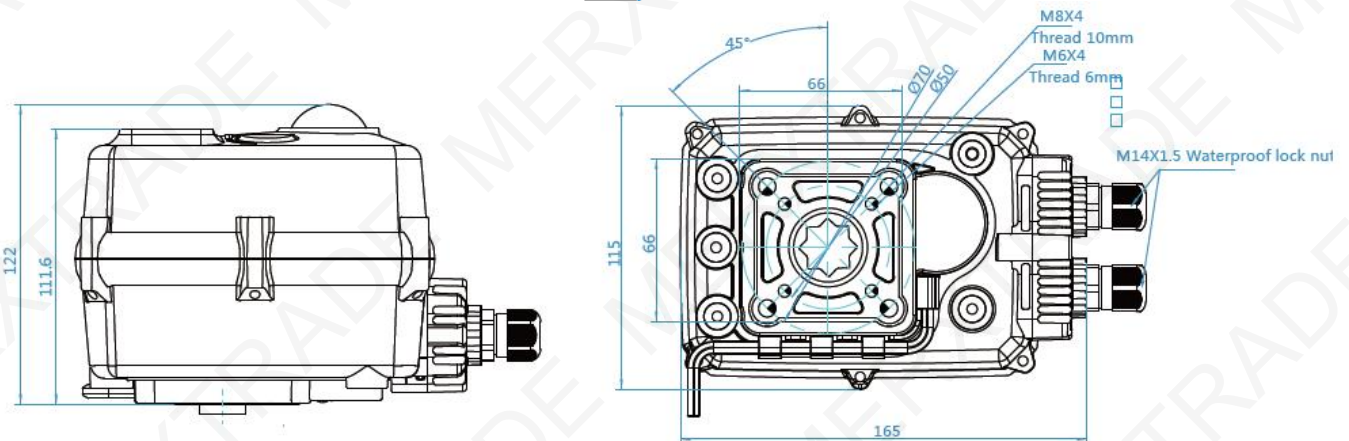
# TCR-N ELECTRICAL ACTUATOR

## 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 2Packing gland	Nylon
5	Gasket	NBR	10	Cover gasket	NBR
Weight (kg): 2.200			11	Cable gland unit	Plastic (ABS)



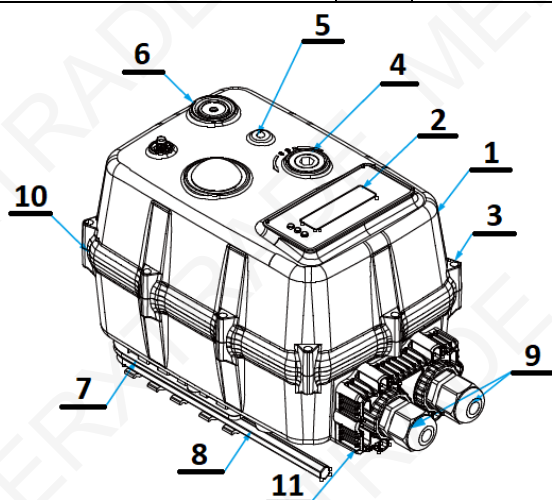
## DIMENSIONS (mm)



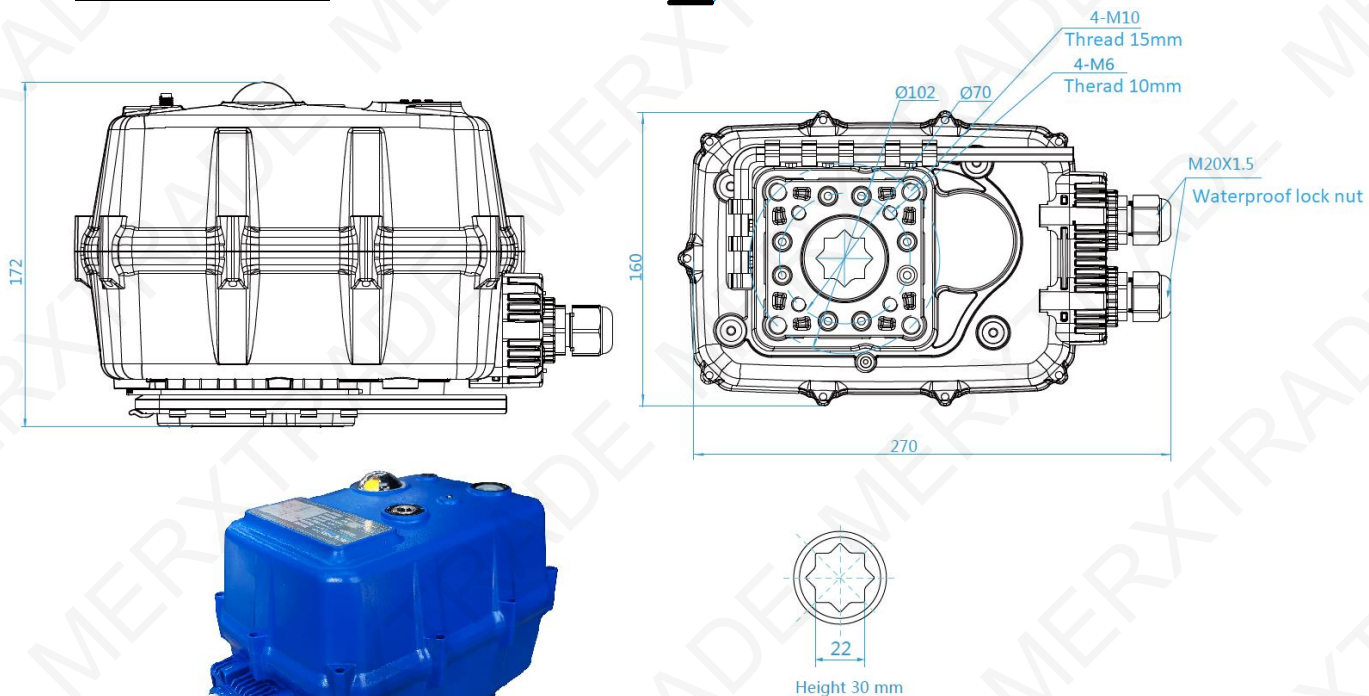
# TCR-N ELECTRICAL ACTUATOR

## 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

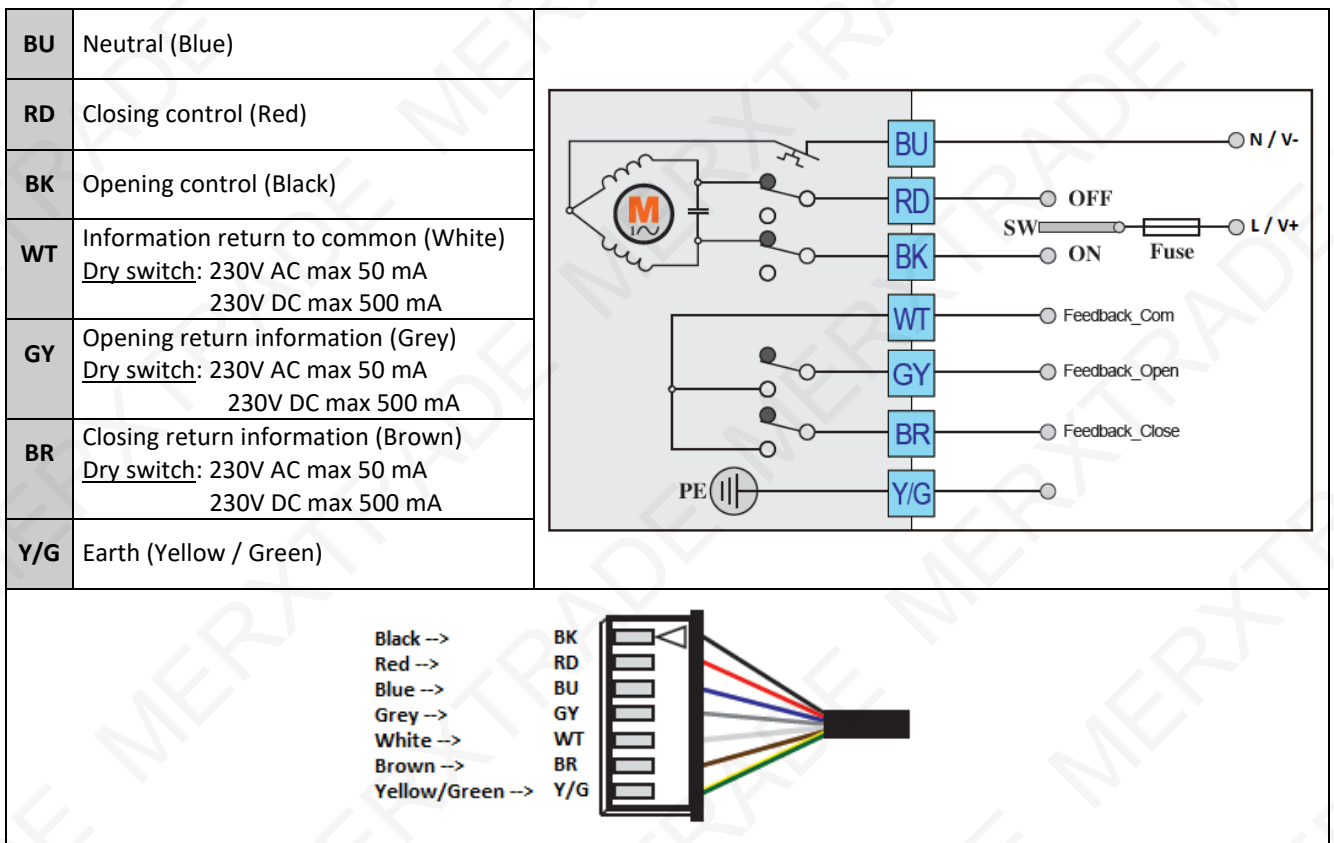


## DIMENSIONS (mm)

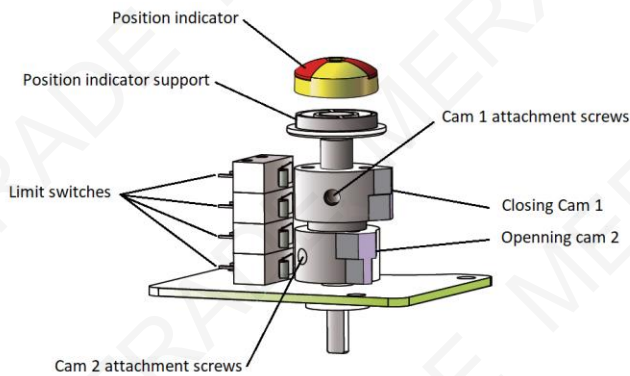


# TCR-N ELECTRICAL ACTUATOR

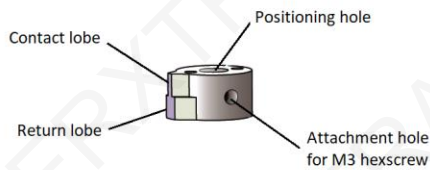
## WIRING DIAGRAM



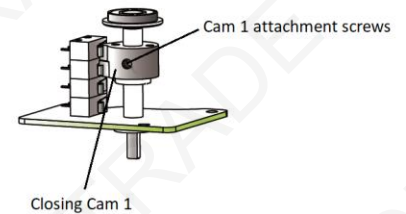
## SWITCH SETTING



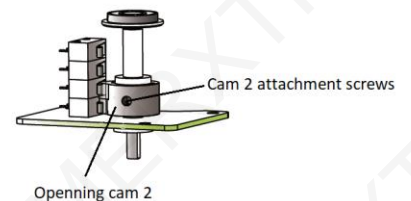
### GENERAL VIEW



### CAM DETAIL



### CLOSING CAM ADJUSTMENT



### OPENING CAM ADJUSTMENT

## 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.

## 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 - star 22	

## 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

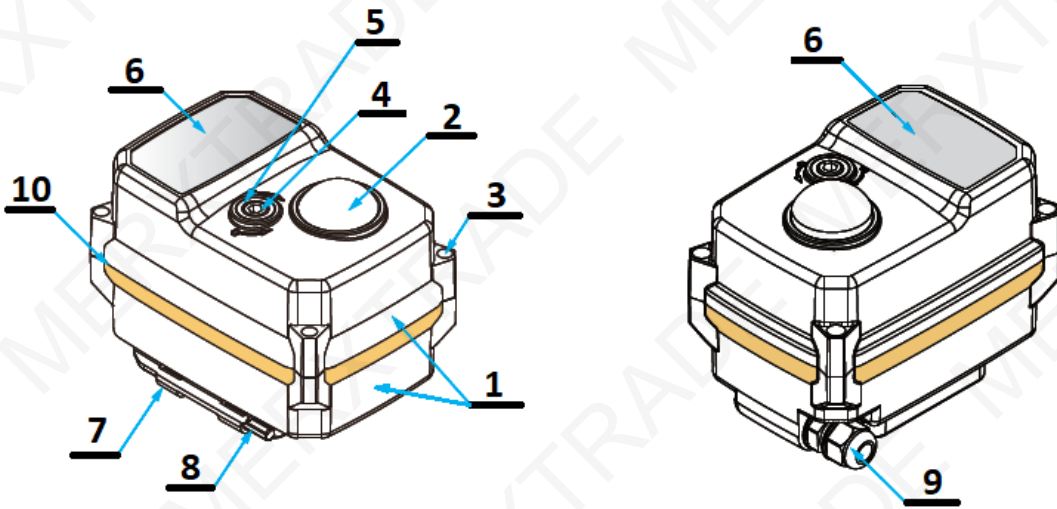
Actuator	TCR 20N-KT32	
Voltage	24V AC - DC	95-265V AC - DC
Power (W)	50	50
Current (A)	2	0.22
Fuse protection (A)	2	5

## TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

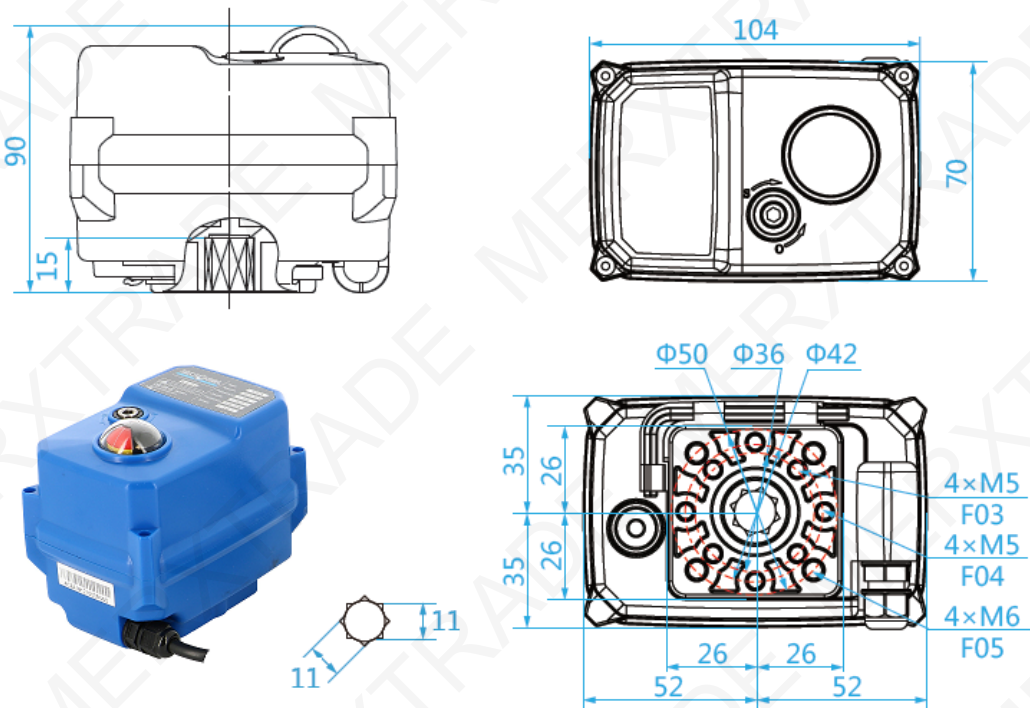
### CONSTRUCTION (TCR-02N-KT32)

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)



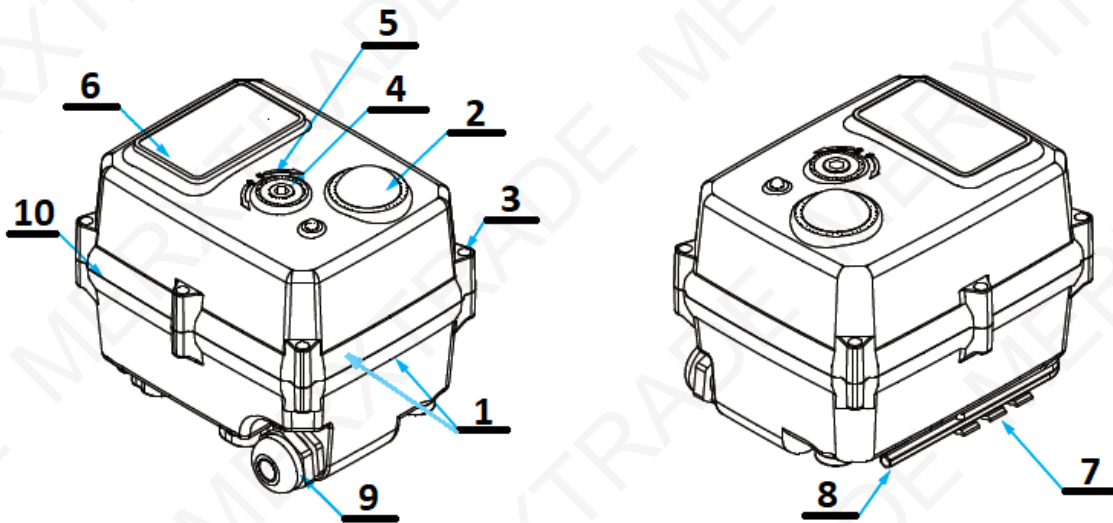


## TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

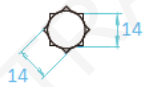
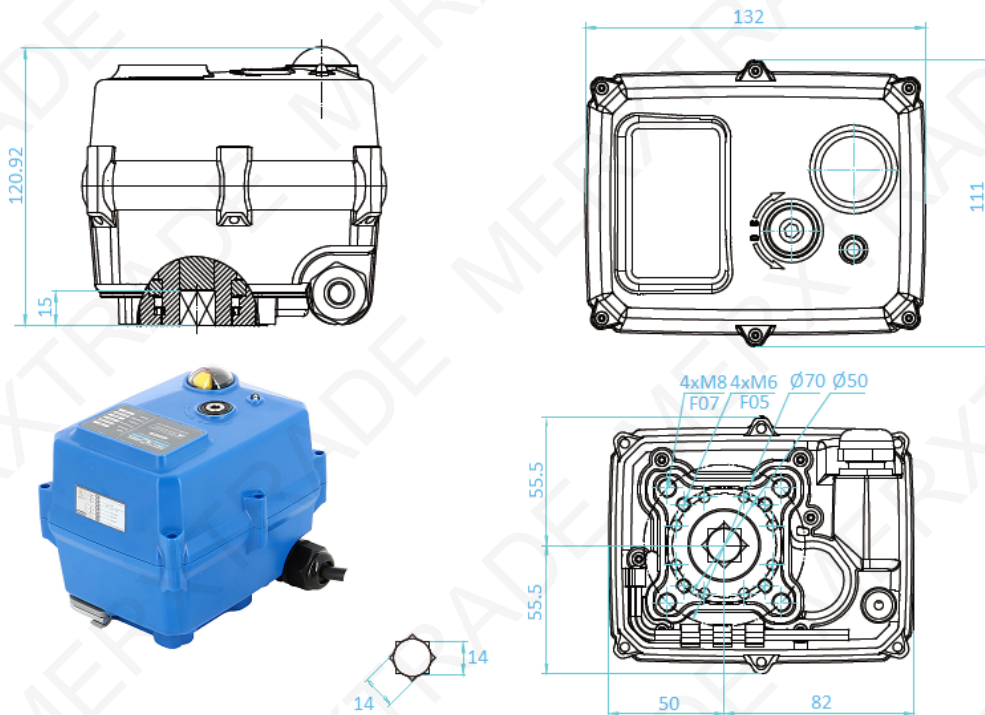
### CONSTRUCTION (TCR-05N-KT32)

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**



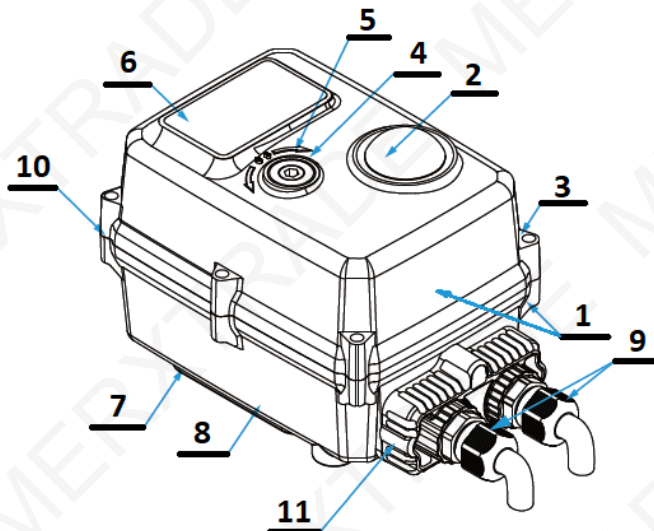
### DIMENSIONS (mm)



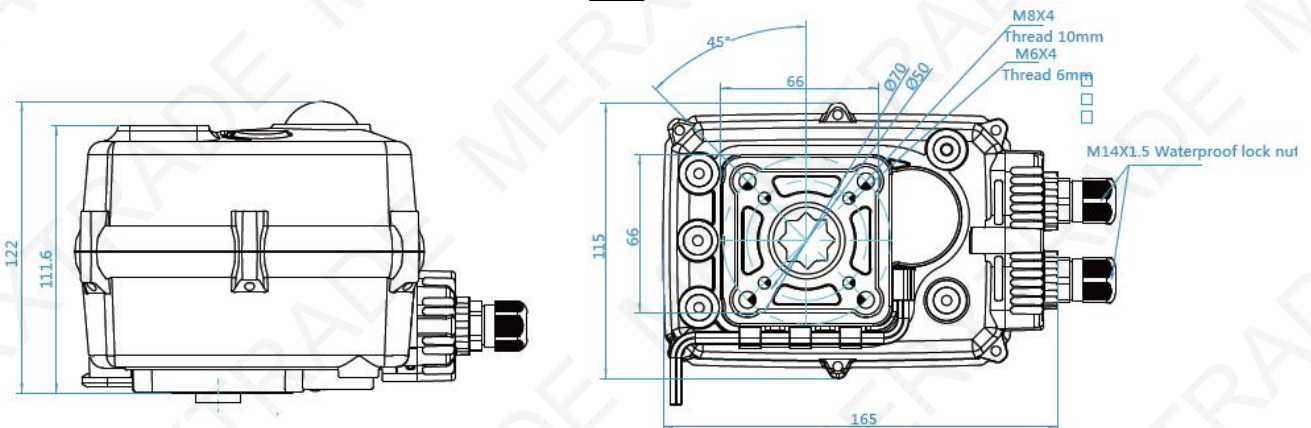
## TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

### 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)



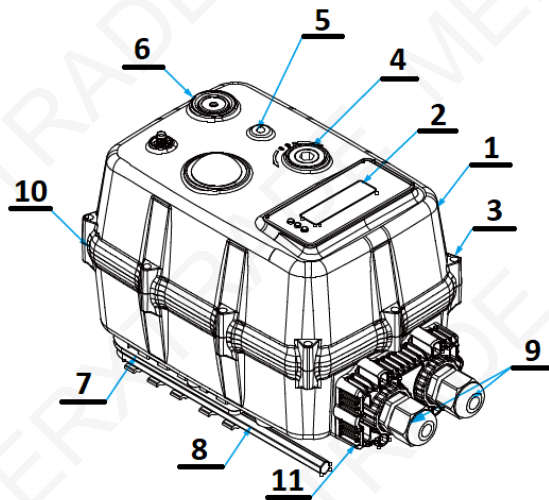
### DIMENSIONS (mm)



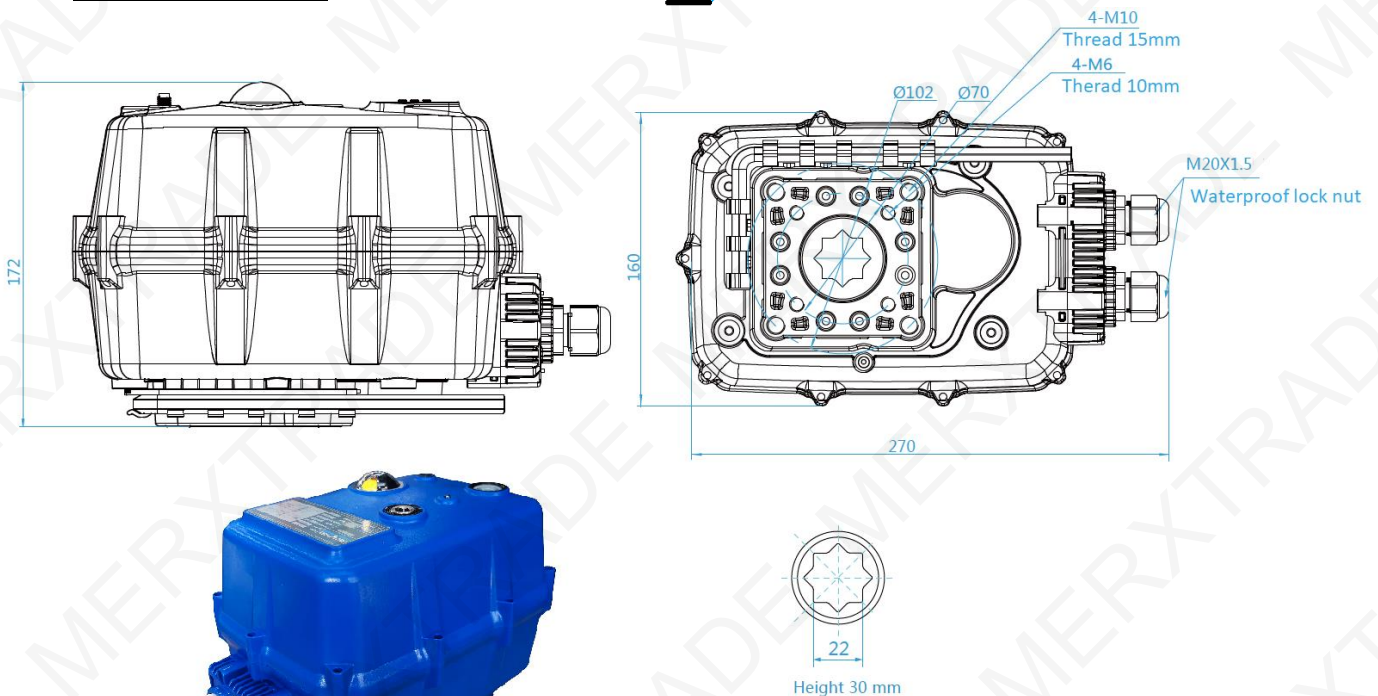
## TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

### 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 2Packing gland	Nylon
5	LED	Plastic PC	10	Cover gasket	NBR
Poids (Kg) : 6,000			11	Cable gland unit	Plastic (ABS)



### DIMENSIONS (mm)

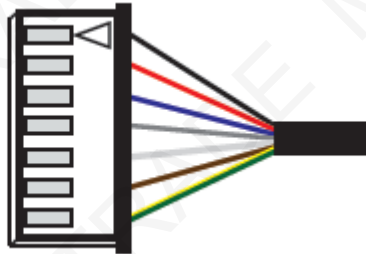


# TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

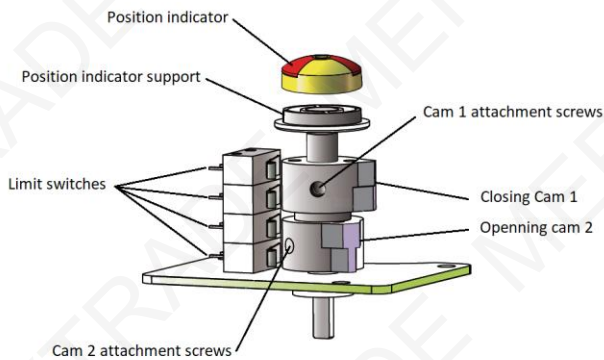
## WIRING DIAGRAM

<b>BU</b>	Neutral / V (blue)	
<b>RD</b>	Phase / V+ (Red)	
<b>BK</b>	Control (Black)	
<b>WT</b>	Information return to common (White) Dry switch: 230V AC max 50 mA 230V DC max 500 mA	
<b>GY</b>	Opening return information (Grey) Dry switch: 230V AC max 50 mA 230V DC max 500 mA	
<b>BR</b>	Closing return information (Brown) Dry switch: 230V AC max 50 mA 230V DC max 500 mA	
<b>Y/G</b>	Earth (Yellow / Green)	

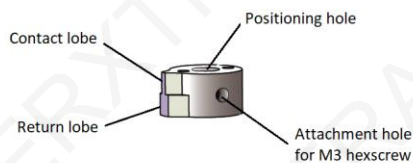
- Black --> BK
- Red --> RD
- Blue --> BU
- Grey --> GY
- White --> WT
- Brown --> BR
- Yellow/Green --> Y/G



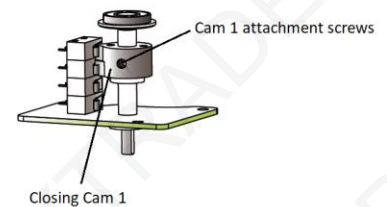
## SWITCH SETTING



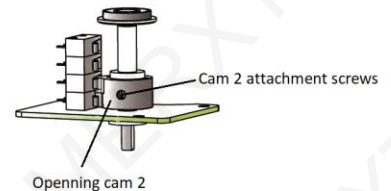
**GENERAL VIEW**



**CAM DETAIL**



**CLOSING CAM ADJUSTMENT**



**OPENING CAM ADJUSTMENT**

## 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.