1150-1183 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

FEATURES

1150-1183 butterfly valves are intended for the automatic opening /closing of very diverse fluid pipes. The valve body is made of GS cast iron. The different configurations of the butterfly materials and of the liner make it suitable for many applications. Wafer mounting with centring ears between PN10/16 and ANSI 150 flanges. 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. Many available options.

ISO 9001 | 3.1 Cert. | CE 0409 | IP 67

LIMITS OF USE

Fluid pressure: PS	16 bar up to DN 300 10 bar up to DN 400
Fluid temperature: WT	According to the table below
Ambient temperature	-20°C / +60°C
Service factor	S4 - 50% (TCR02N-05N-11N)
	S3 - 85% (TCR20N-TCR40N)

AVAILABLE MODELS

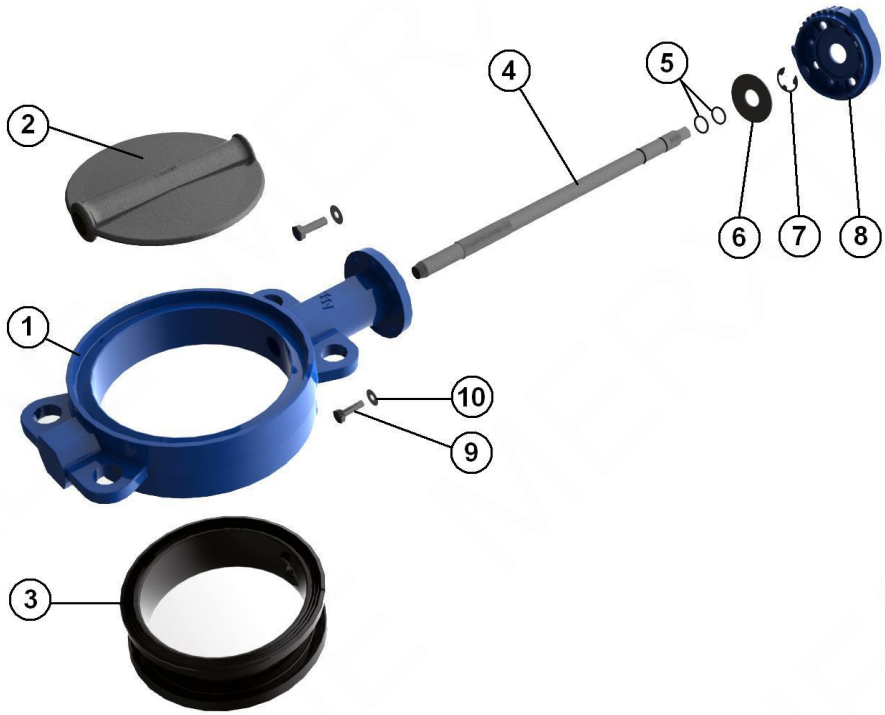
DN 32-40 to DN 250
Connection between flanges PN10/16 and ANSI 150 RF
Supply voltages: 24V CC, 24 V CA and 230 V CA

Ref.	Butterfly	Liner	Example of applications	WT° min	WT° max
1141	GS cast iron	NBR	Natural gas – NF-ROB GAZ authorisation 5 bar	-10°C	+60°C
1147	316 SS	NBR carboxyl	Powdery - abrasive	-10°C	+90°C
1149	316 SS	EPDM heat	Hot water	-10°C	+130°C
1150	GS cast iron	EPDM	Cold water – warm water (110°C at peak) - ACS	-10°C	+110°C
1151	316 SS	NBR	Hydrocarbon, natural gas, compressed air	-10°C	+90°C
1152	GS cast iron	NBR	Hydrocarbon, natural gas, compressed air	-10°C	+90°C
1153	316 SS	EPDM	Demineralised water – alkalis (110°C at peak) - ACS	-10°C	+110°C
1154	316 SS	FPM	Compatible aggressive fluids, petrol	-5°C	+150°C
1156	316 SS	White NBR	Compatible food fluids	-10°C	+80°C
1157	316 SS	SILICONE	Oils and fat	-15°C	+150°C
1158	Copper-alu	NBR	Seawater	-10°C	+80°C
1183	Polished stainless steel	Food SILICONE	Food fluids (FDA authorisation)	-15°C	+150°C

1150-1183 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 2014/68/EC	Cat. III modules B+C1	0409	Final test	ISO 5208:
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	0038	Face-to-face dimension	ISO 5752 series 20
Flange dimension	EN 1092-1		Connection Motorisation	ISO 5211:
Sanitary conformity	ACS No. 07 ACC LY 504			

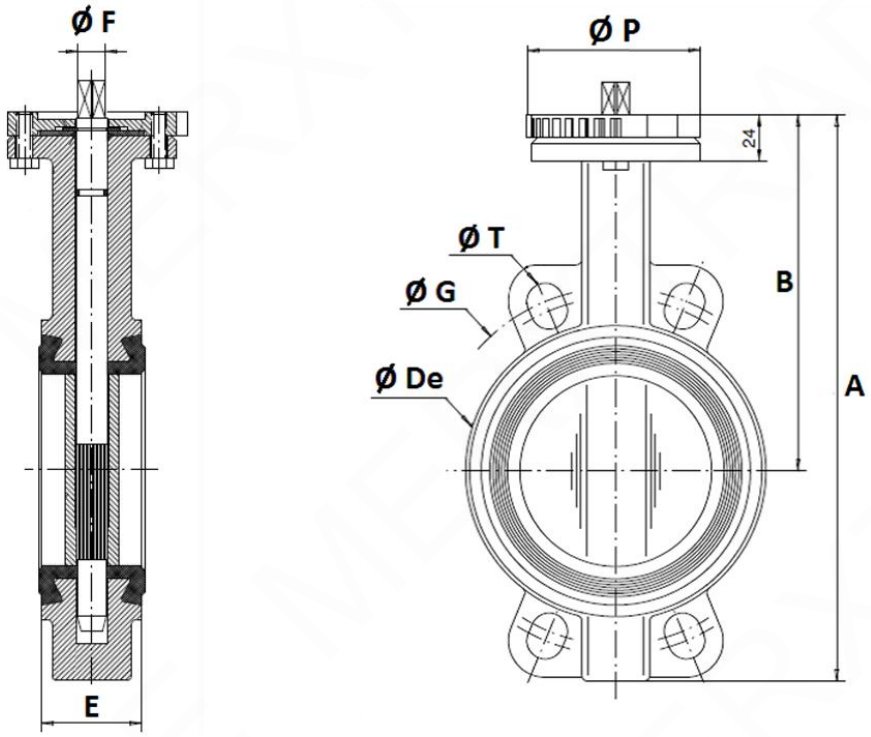


CONSTRUCTION

No.	Name	1147	1149	1141	1150	1152	1151	1153	1154	1156	1157	1183	1158
1	Body	GS EN GJS-500-7 cast iron											
2	Butterfly DN32-100	1.4408 SS										Mirror-polished stainless steel	Copper-alu
3	Butterfly DN125-400	GS cast iron	stainless steel	GS EN GJS-500-7 cast iron			1.4408 SS						
3	Liner	NBR carboxyl	EPDM heat	NBR Gas	EPDM	NBR	NBR	EPDM	FPM	White NBR	Silicone	Food-grade silicone	NBR
4	Stem	304 SS	304 SS	304 SS	420 SS	420 SS	304 SS	304 SS	304 SS	304 SS	304 SS	304 SS	304 SS
5	O-ring	NBR	NBR	NBR	EPDM	NBR	NBR	EPDM	FPM	NBR	EPDM	EPDM	NBR
6	Ring	steel											
7	Circlips	steel											
8	ISO mounting pad	aluminium											
9	Screw	5.6 steel											
10	Washer	steel											

1150-1183 BUTTERFLY VALVES + TCR ELECTRICAL ACTUATOR

DIMENSIONS (mm)



DN	32-40	50	65	80	100	125	150	200	250	300	350	400
A	206	228	243	266	294	324	349	438	461	523	582	645
B	140	156	162	170	185	207	216	256	248	280	300	340
Ø De	82	102	119	135	155	185	208	270	328	381	437	486
E	33	43	46	46	52	56	56	60	68	78	78	102
Ø F	10.5	10.5	14.5	16.5	16.5	18.5	18.5	22.5	25.5	30.5	30.5	35.5
Ø G	110	125	145	160	180	210	240	295	350	400	460	515
Ø P	88	88	88	88	88	105	105	105	150	150	170	170
Ø T	18	18	18	18	18	18	23	23	23	23	23	17
Weight (kg)	2.46	3.66	4.40	4.60	6	7.60	9.20	14.7	24.7	33	39	52

FLOW-RATE COEFFICIENT Kv (m^3/h)

DN	32-40	50	65	80	100	125	150	200	250	300	350	400
Kv	70	109	200	334	551	901	1427	2383	3825	5659	8177	10659

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 ΔP=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
32-40	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: **TCR05**: 1 x PE M20 + 1.5m cable **TCR11**: 2 x PE M14 + 1.5m cable **TCR20**: 2 x PE M20 + 1.5m cable **TCR40**: 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-05N	25	12s	12s	
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

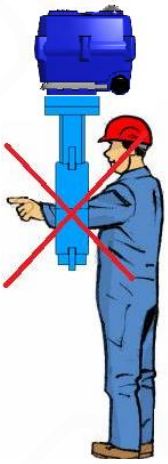
There are many options, so please contact our sales service for more information on these:

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

OPTIONS ON THE VALVE

1	Carbon steel body, 304 and 316 SS, bronze and aluminium
2	Carbon steel butterfly, 304 and 316 SS, copper-alu, Uranus, Hastelloy
3	Hypalon liner, silicone steam, white EPDM, natural rubber, neoprene, vulcanised
4	Stems of 420, 304, 316 SS, Hastelloy

114x, 115x AND 116x VALVES + ELECTRICAL ACTUATOR ASSEMBLY AND MAINTAINANCE INSTRUCTIONS

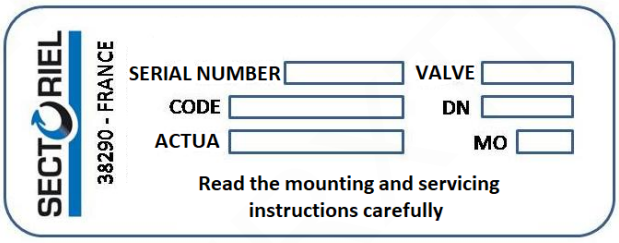


1 / CAUTION

1.1 - Cutting or crushing hazard
Never operate an automatic butterfly valve before its full assembly on the pipe installation. The accidental operation of the butterfly could lead to crushing or cutting of the operator's hand or arm.

2/ CHECKS AT ACCEPTANCE

2.1 - order number check
The valve code is shown on the SECTORIEL label affixed on the electrical actuator. Check that the code is identical with that shown on the delivery slip and the acknowledgement of receipt of your order.



2.2 - valve diameter check
The valve code is also shown on the SECTORIEL label affixed on the electrical actuator. Check that the diameter matches that of your pipe installation.

2.3 - flange standard check
114x and 115x +AP **valves have smooth lugs for mounting between PN10/16 flanges as per the EN 1092-1 standard and ANSI 150 as per the ANSI B16.5 standard. Check that the flanges of the pipe installation correspond to one of these standards.**
The 1160-61-62-63-64 valves have internally threaded lugs. They are compatible with PN10/16 flanges up to DN150 and PN10 from DN200 to DN300 as per the EN 1092-1 standard. Check that the pipe installation is as per the standard.

2.4 - fluid and ambient temperature parameter check
The pressure and temperature limits for the valve in service are shown in the table below. Check that, for your service, the pressure and temperature are compatible with the limits.

Fluid pressure: WP	16 bar up to DN 200 10 bar up to DN 400
Fluid temperature: WT	According to the table below
Ambient temperature	-20°C / +60°C

3 / STORAGE INSTRUCTIONS

Follow our "IMESTOCK" instructions for storage.

4 / ASSEMBLY INSTRUCTIONS

4.1 - Place of installation
The **114x, 115x and 116x** + electrical actuator valves can be installed both indoors and outdoors, while complying with the limit temperatures given in § 3.6.
If the valve is equipped with accessories (switch box, pilot solenoid valve), check their service temperatures and their IP code depending upon the place of installation.

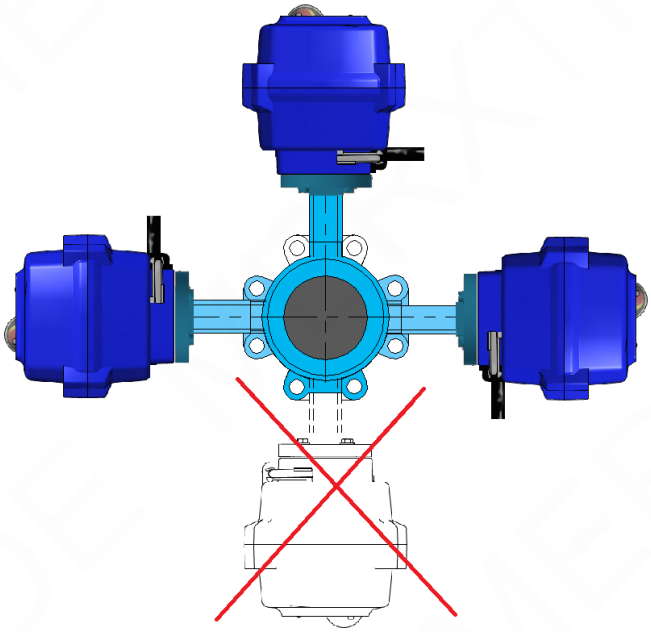
Information given as an indication only, and subject to possible modifications

4.2. - Connection to the pipe installation

4.2.1 - Mounting positions

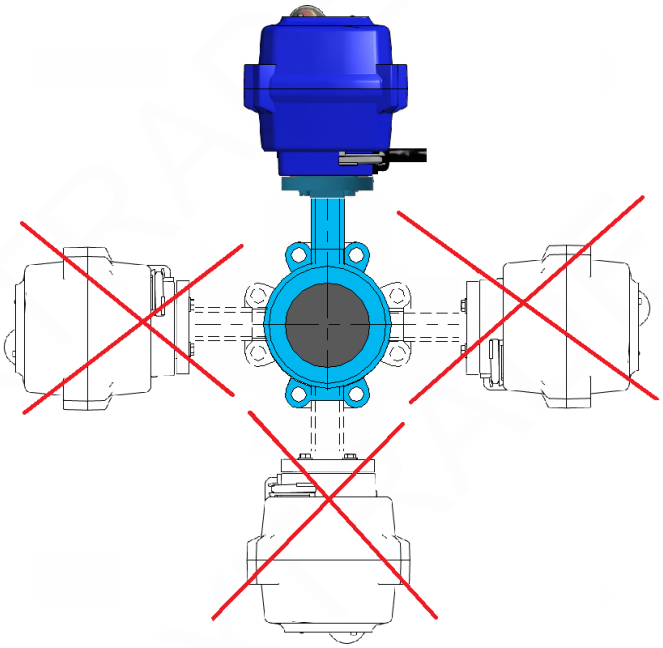
The automatic valve has to be mounted either vertically or horizontally with an electrical actuator, as shown in the diagram below:

DN40 - DN150



DN200 - DN400

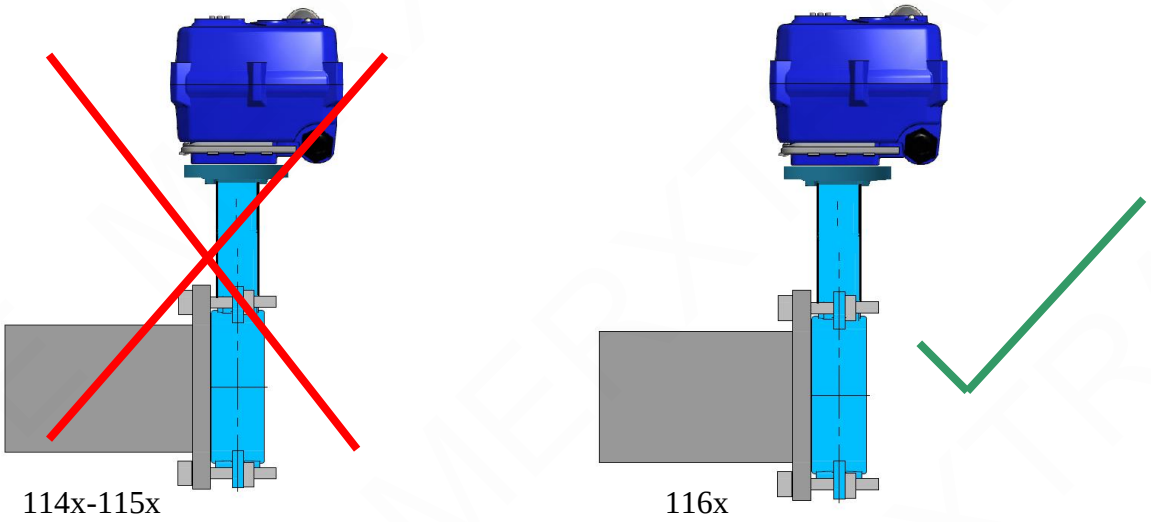
Authorised with suitable support



Authorised with suitable support

4.2.2 - Mounting at the end of a line

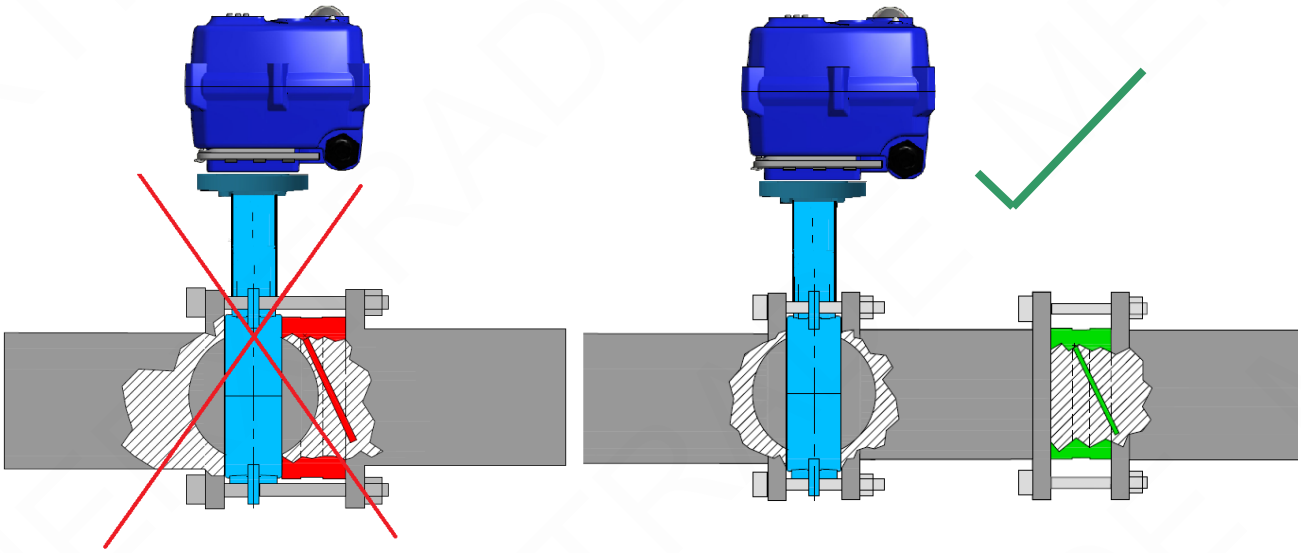
114x and 115x butterfly valves must not be installed at the end of a line. Only the 116x valves can be installed at the end of a line.



Possible blocking of the butterfly: protruding length.
At valve opening, the butterfly protrudes from the body according to the lengths shown in the table below.

DN	40	50	65	80	100	120	150	200	250	300	350	400
Protrusion (mm)	3,5	3,5	9,5	17	24	33,5	45,5	69	90	110,5	131	148

You must take it into account at mounting and not abut another valve element immediately upstream and downstream which could block the movement of the butterfly (e. g. a swing valve).

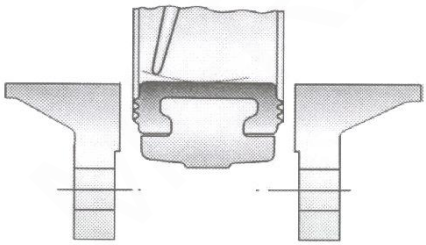


4.2.3 - Mounting precautions:
Before any intervention on the valve, please follow the following indications:

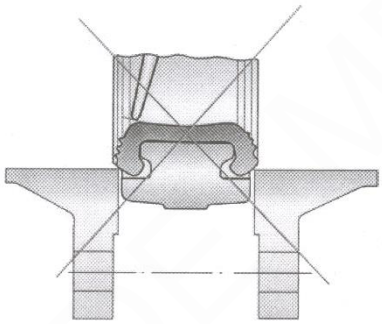
Before installing the valve, clean the piping (brazing residues, metal swarf, sealing material, etc.).
Isolate the pipe installation upstream and downstream.
Bleed the pipe installation in order to bring it to ambient temperature and pressure.
Do not force the piping to align it so as to prevent applying stress on the valve body.
Wear the safety equipment required for this type intervention (gloves and goggles).

4.2.4 - Valve installation on the piping

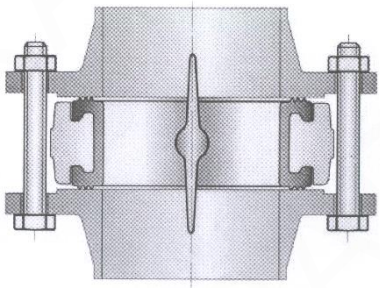
For all asymmetrical devices, check their orientation with regard to the normal direction of flow, and you must mount them in their operating position.



The gap in-between flanges has to be large enough to allow the valve be inserted without the elastic liner getting caught. The butterfly has to be in an almost closed position.



The liner can get damaged if the counter-flanges are not sufficiently spaced.



The butterfly has to be in the fully open position after positioning the valve in-between the counter-flanges and before tightening the bolts, otherwise the elastic liner might be deformed or deteriorated during the tightening of the first manoeuvre.

4.2.5 - connection to the pipe installation

Nuts and bolts for PN10/16 114x and smooth lug 115x

DN	ØD		ØK		Hole number		Nuts and bolts	
	PN10	PN16	PN10	PN16	PN10	PN16	PN10	PN16
40	150		110		4		M16x90	
50	165		125		4		M16x100	
65	185		145		4		M16x110	
80	200		160		8		M16x110	
100	220		180		8		M16x120	
125	250		210		8		M16x130	
150	285		240		8		M20x140	
200	340		295		8	12	M20x140	
250	395	405	350	355	12	12	M20x160	M24x
300	445	460	400	410	12	12	M20x160	M24x
350	505	520	460	470	16	16	M20x170	\
400	565	580	515	525	16	16	M24x200	\

Nuts and bolts for PN10/16 116x and threaded lug 118x

DN	ØD		ØK		Hole number		Nuts and bolts	
	PN10	PN16	PN10	PN16	PN10	PN16	PN10	PN16
40	150		110		4		Zinc-plated M16x30 steel screw	
50	165		125		4		VAZ M16x35	
65	185		145		4		VAZ M16x35	
80	200		160		8		VAZ M16x40	
100	220		180		8		VAZ M16x40	
125	250		210		8		VAZ M16x45	
150	285		240		8		VAZ M20x45	
200	340		295		8	12	VAZ M20x45	
250	395	405	350	355	12	12	VAZ 20x45	VAZ 24x
300	445	460	400	410	12	12	VAZ 20x60	VAZ 24x
350	505	520	460	470	16	16	VAZ 20x	\
400	565	580	515	525	16	16	VAZ 24x	\

5 / MAINTENANCE INSTRUCTIONS

5.1 - Before any intervention

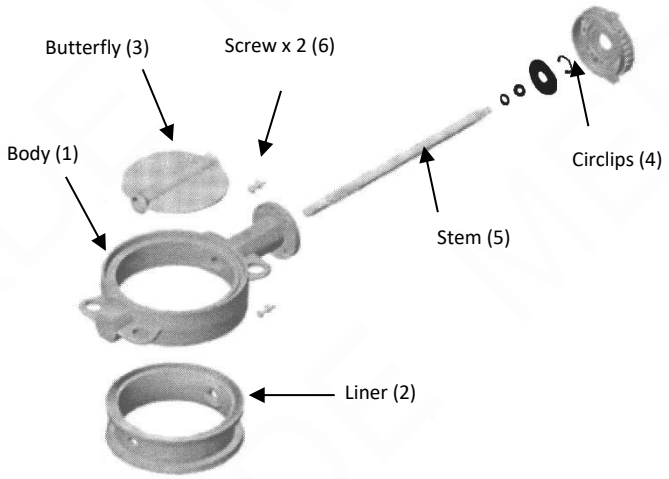
5.1.1 - Depressurize, drain and bring to ambient temperature, the pipe installation on which the valve is mounted.
5.1.2 - Close the compressed air supply to the actuator and depressurize the actuator. The valve will then close automatically.
5.1.3 - Turn off the electrical supply to the pilot solenoid valve.

Maintenance:

The absence of leak at the liner and at the valve stem should be regularly checked. If a leak occurs at the stem, replace the o-ring, if it occurs at the liner, the liner has to be replaced.

Important: All maintenance and servicing operations must be performed under the best safety conditions. Before any intervention, the valve has to be removed taking the above-mentioned precautions which apply both to mounting and removal.

Worn part replacement:



Remove the motor actuator. Unscrew the screws (6), remove the circlips (4). This frees the shaft (5), thus enabling the liner (2) and the butterfly (3) to be taken out of the body (1).

5.2 - Valve maintenance

In the event of a leak on the line, check the state of the butterfly (1) and of the liner (4). If need be, replace them.

Codes of spare parts:

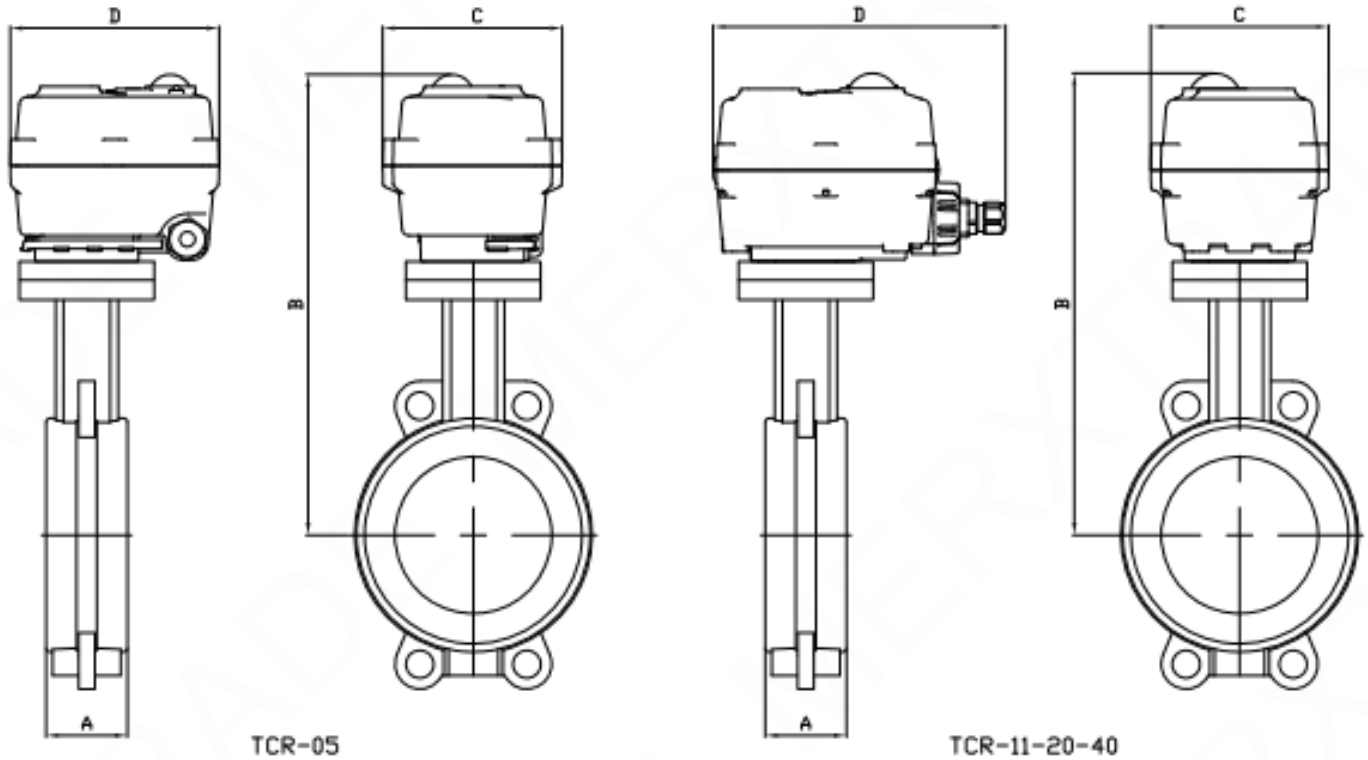
DN	Liner					Butterfly		Stem
	EPDM	EPDM C	NBR	SILICONE	FKM	cast iron	Stainless steel	
40	985946	985966	985986		986026	9865030	9865020	9865040
50	985947	985967	985987	986007	986027	9865031	9865021	9865041
65	985948	985968	985988	986008	986028	9865032	9865022	9865042
80	985949	985969	985989	986009	986029	9865033	9865023	9865043
100	985950	985970	985990	986010	986030	9865034	9865024	9865044
125	985951	985971	985991	986011	986031	9865035	9865025	9865045
150	985952	985972	985992	986012	986032	9865036	9865026	9865046
200	985953	985973	985993	986013	986033	9865037	9865027	9865047
250	985954	985974	985994	986014	986034	9865038	9865028	9865048
300	985955					9865039	9865029	9865049

In the event of a leak at the stem, check the state of the o-rings of the stem.

6 / INSTRUCTION ON OUR PRODUCT DISPOSAL AND RECYCLING

Our valve does not contain any hazardous substance. At the valve end of life, after removing the equipment, the user's obligation is to call a scrap metal collector who will sort and recycle the different parts of the equipment. For your information, the following families of metal are present in our product: steel, stainless steel and aluminium.

With regard to the electrical parts of the equipment, they have to be separated from the rest of the valve and given to a company specialised in recycling waste from electrical and electronic equipment, as per the directive 2002/96/EC.



TCR-05

TCR-11-20-40

* : montage avec platine H=5mm

DN	32-40	50	65	80	100	125
SERVO	TCR05	TCR05	TCR05	TCR05	TCR05	TCR11
A	33	43	46	46	52	56
B	261	277	282	290	313*	328
C	111	111	111	111	111	111
D	132	132	132	132	132	132
KG	4.32	5.3	5.9	6.4	7.9	11

DN	150	200	250
SERVO	TCR20	TCR40	TCR40
A	56	60	68
B	387	427	420
C	160	160	160
D	270	270	270
KG	16.6	19.5	32.1

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 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%
	S3 - 85% (TCR 20 – 40)

MECHANICAL FEATURES

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

IP 67 ISO 9001 CE

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			F05/F07 - star 22			F05/F07 - 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

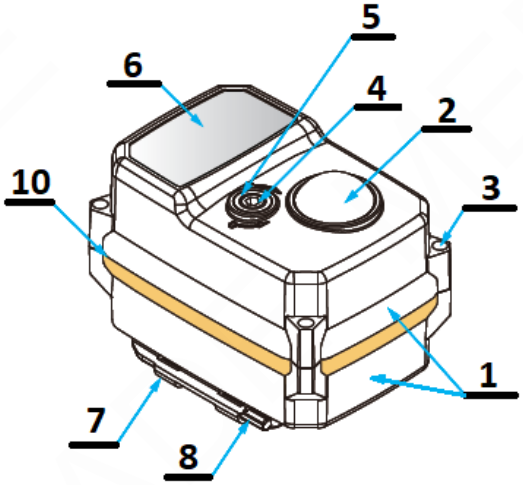
Actuator	TCR 11N	TCR 20N	TCR 40N
Motor protection	Thermal switch		
Limit switches	2 adjustable switches		
Auxiliary switches	2 adjustable dry switches		
Anti-condensation	Integrated		
Electrical connection	2 x PE M14 + 1,5m cable	2 x PE M20 + 1.5m cable	2 x PE M20 + 1,5m cable

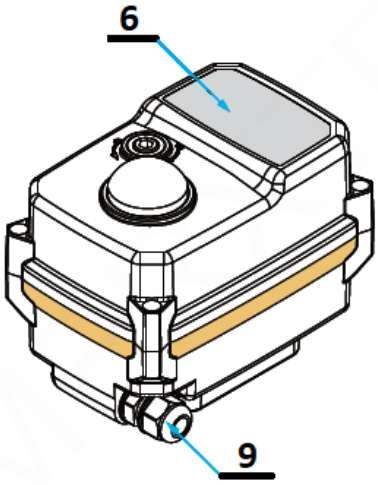
Actuator	TCR 11N			TCR 20N			TCR 40N		
Voltage	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC	12V DC	24V AC-DC	95-265V AC-DC
Power (W)	100	100	100	50	50	50	80	80	80
Current (A)	2,5		0,3 – 0,6	2		0,22	3,3		0,36
Fuse Protection (A)	5		2 - 3	2		5	2		8

TCR-N ELECTRICAL ACTUATOR

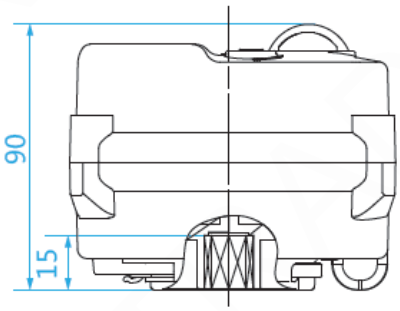
CONSTRUCTION (TCR-02N)

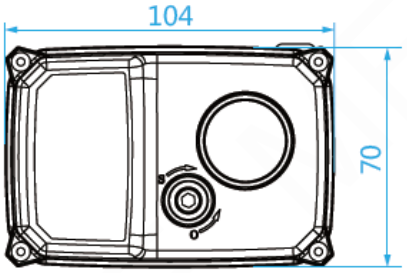
TCR-02N					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**6**	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	**7**	Key support	Plastic (ABS)
3	Screw x 4	Aisi 304	**8**	Hex key	Steel
4	Backup control stem	Aisi 304	**9**	Packing gland	Nylon
5	Gasket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

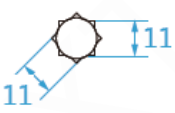


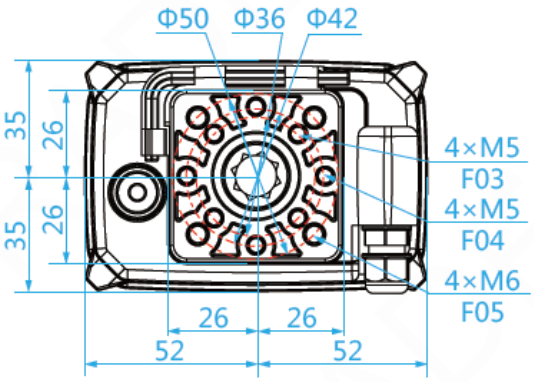


DIMENSIONS (mm)





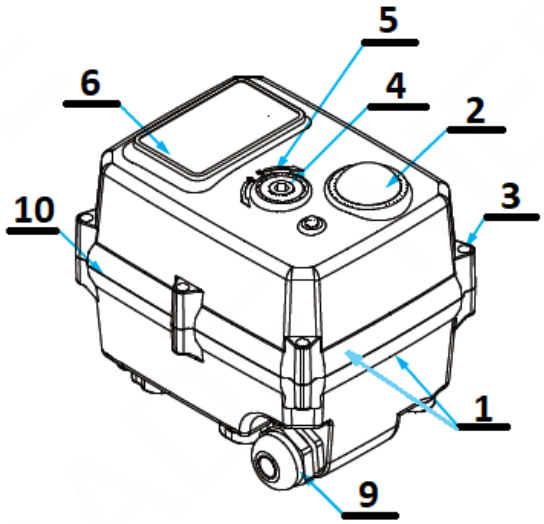


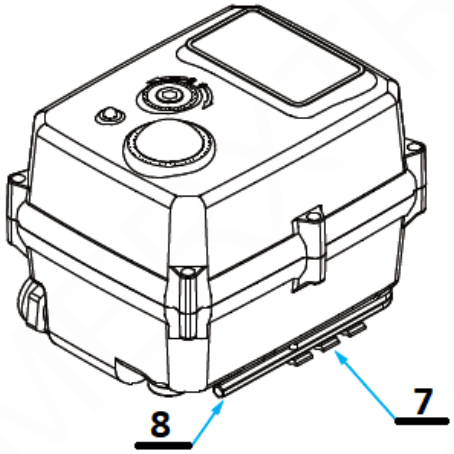


TCR-N ELECTRICAL ACTUATOR

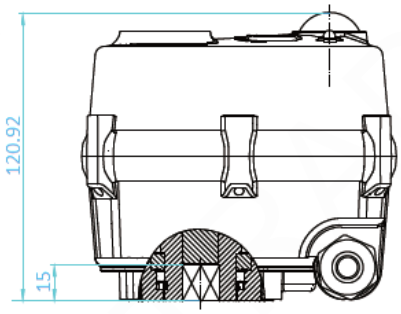
CONSTRUCTION (TCR-05N)

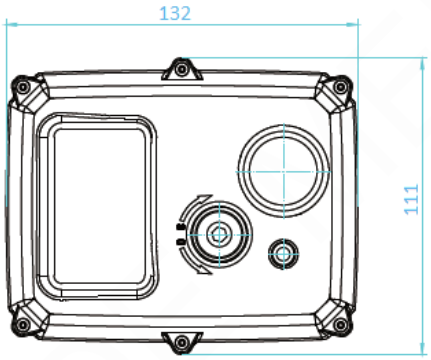
TCR-05N					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**6**	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	**7**	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	**8**	Hex key	Steel
4	Backup control stem	Aisi 304	**9**	Packing gland	Nylon
5	Gasket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

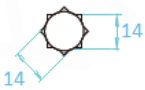


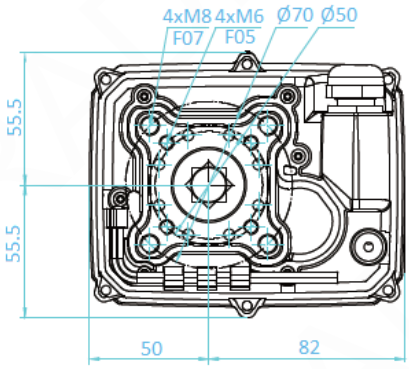


DIMENSIONS (mm)





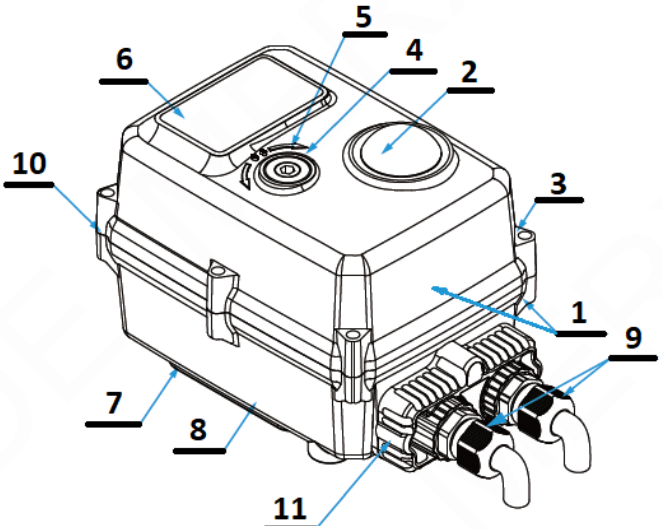




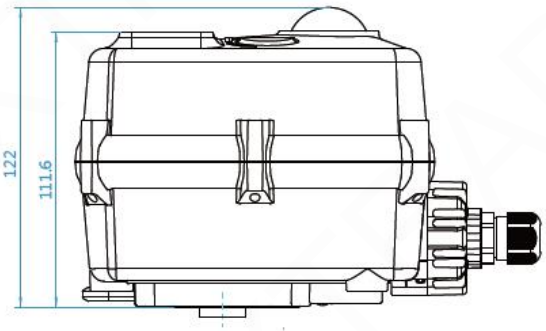
TCR-N ELECTRICAL ACTUATOR

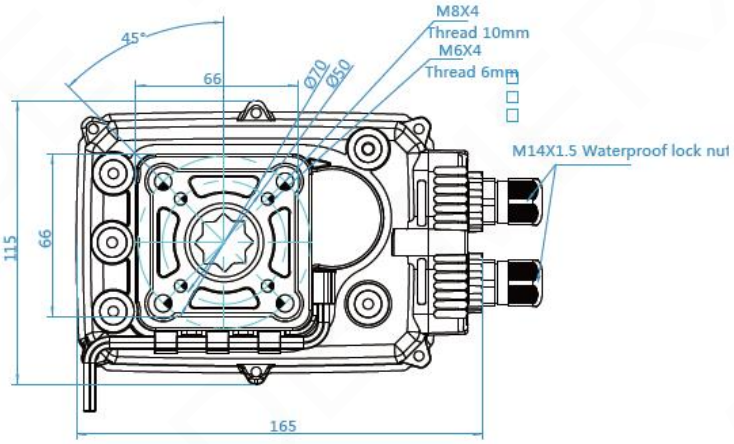
CONSTRUCTION (TCR-11N)

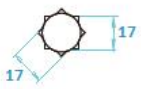
TCR-11N					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**6**	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	**7**	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	**8**	Hex key	Steel
4	Backup control stem	Aisi 304	**9**	X 2Packing gland	Nylon
5	Gasket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



DIMENSIONS (mm)



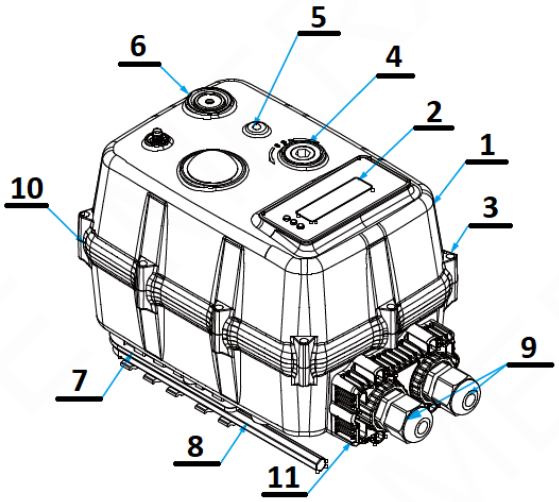




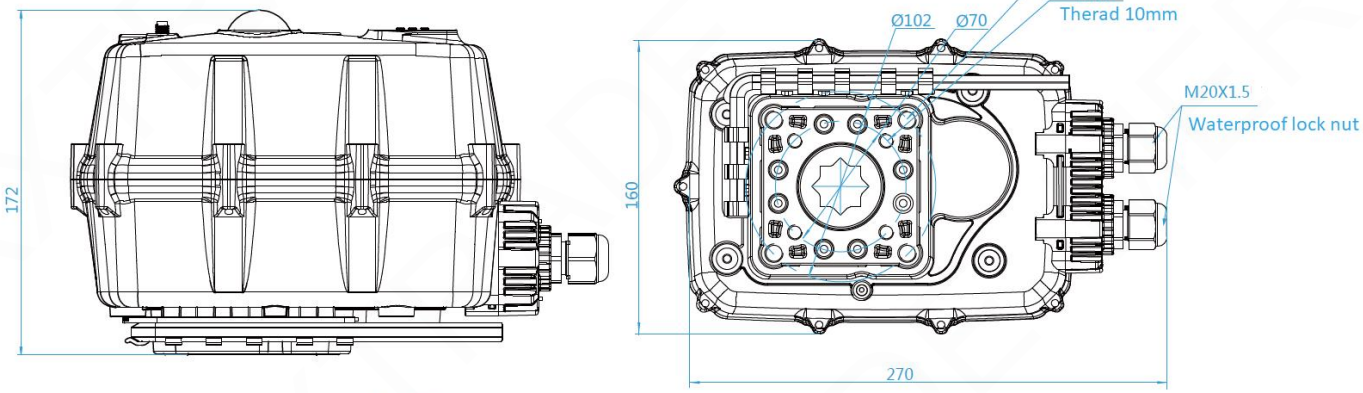
TCR-N ELECTRICAL ACTUATOR

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



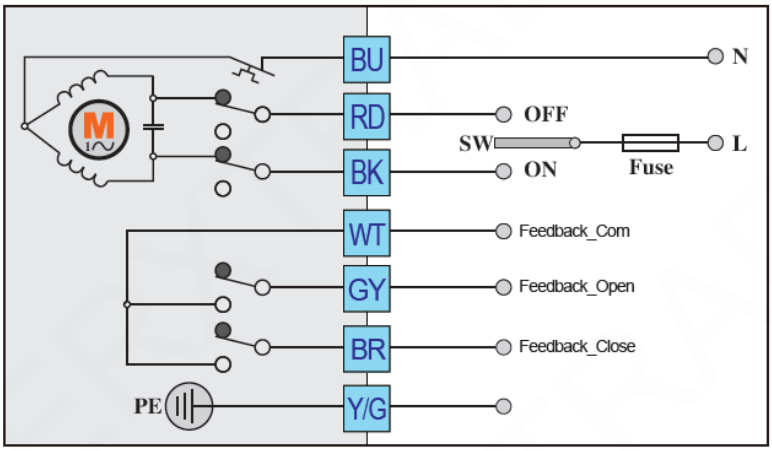
DIMENSIONS (mm)

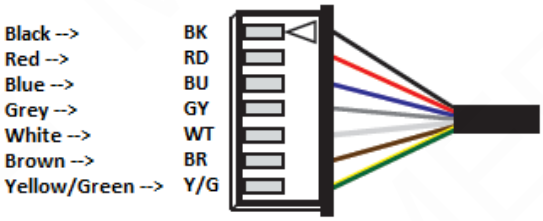


TCR-N ELECTRICAL ACTUATOR

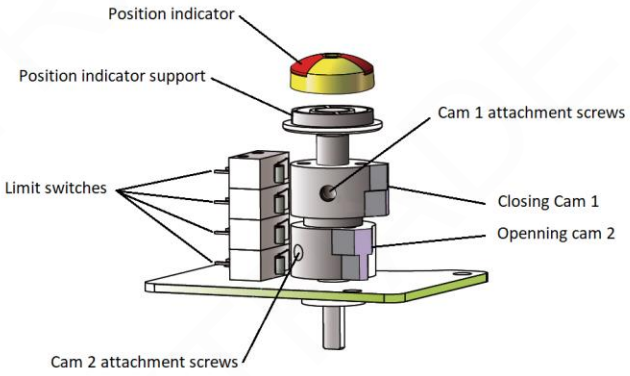
WIRING DIAGRAM

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

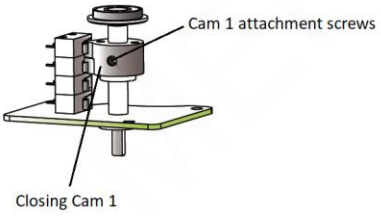




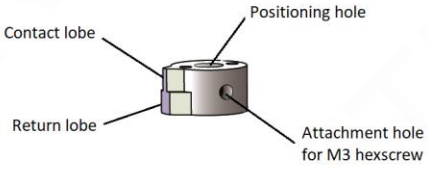
SWITCH SETTING



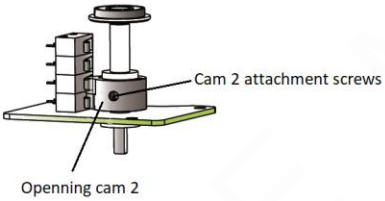
GENERAL VIEW



CLOSING CAM ADJUSTMENT



CAM DETAIL



OPENING CAM ADJUSTMENT

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

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, 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	95
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

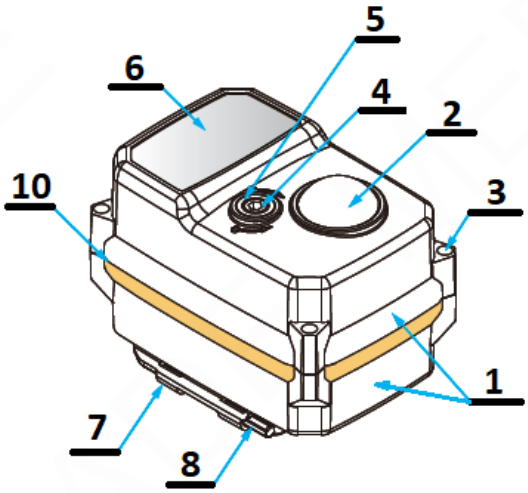
Actuator	**TCR 02N-KT32**	**TCR 05N-KT32**	**TCR 11N-KT32**
Motor protection	Thermal switch		
Limit switches	2 adjustable switches		
Auxiliary switches	2 adjustable dry switches		
Anti-condensation	integrated		
Electrical connection	PE M10 + 1.5m cable	PE M20 + 1.5m cable	2 x PE M14

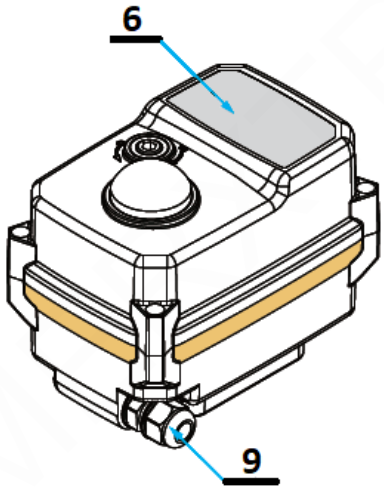
Actuator	**TCR 02N-KT32**		**TCR 05N-KT32**		**TCR 11N-KT32**	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Power (W)	36	36	40	40	100	100
Current (A)	1,5	0,09	1,8	1,6	2,5	0,26 - 0,52
Fuse protection (A)	5	1	10	2	5	2

TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

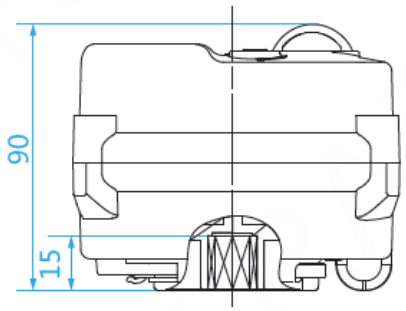
CONSTRUCTION (TCR-02N-KT32)

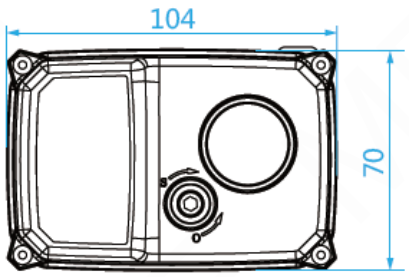
TCR-02N-KT32					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**6**	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	**7**	Key support	Plastic (ABS)
3	Screw x 4	Aisi 304	**8**	Hex key	Steel
4	Backup control stem	Aisi 304	**9**	Packing gland	Nylon
5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

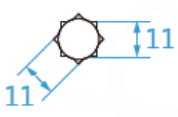


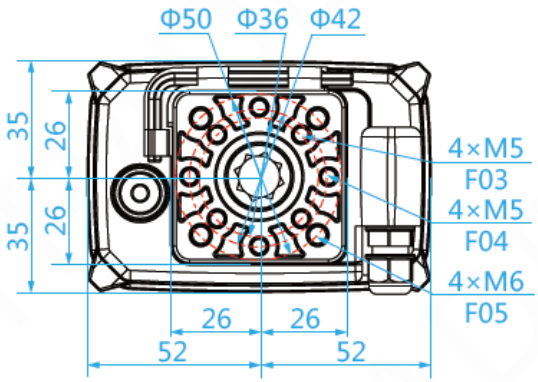


DIMENSIONS (mm)





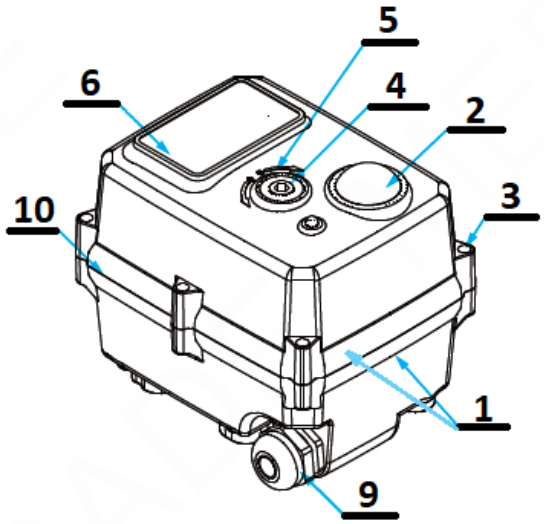


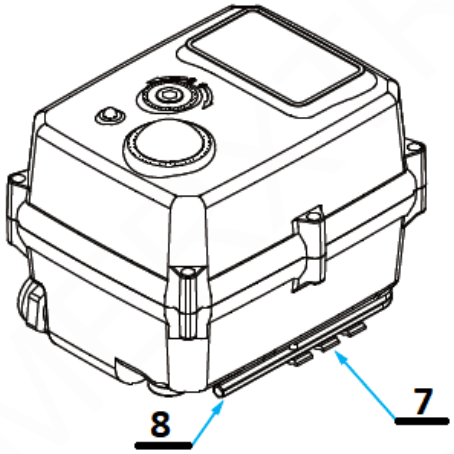


TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

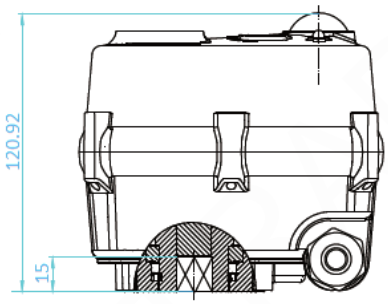
CONSTRUCTION (TCR-05N-KT32)

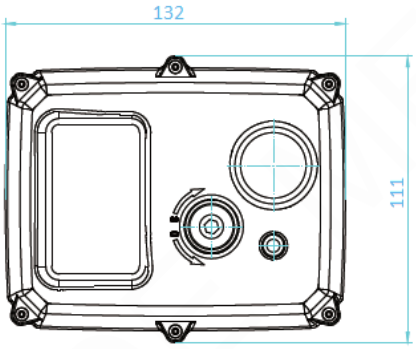
TCR-05N-KT32					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**6**	Rating plate	PVC
2	Position indicator	Polycarbonate plastic	**7**	Key support	Plastic (ABS)
3	Screw x 6	Aisi 304	**8**	Hex key	Steel
4	Backup control stem	Aisi 304	**9**	Packing gland	Nylon
5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

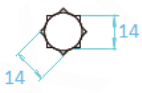


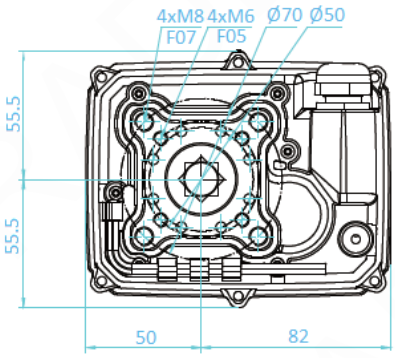


DIMENSIONS (mm)





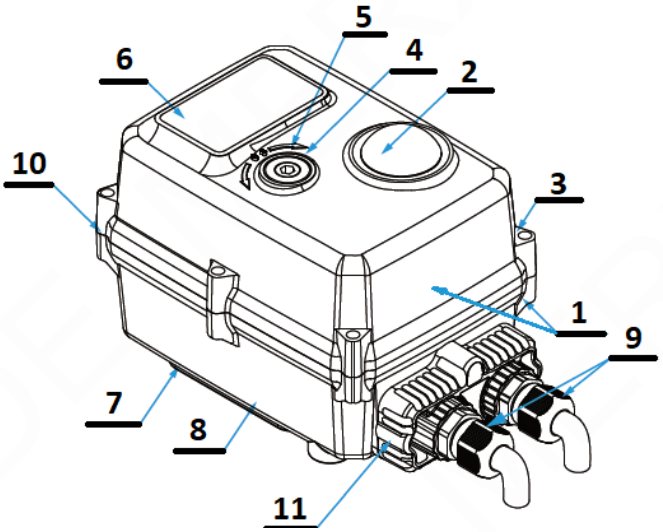




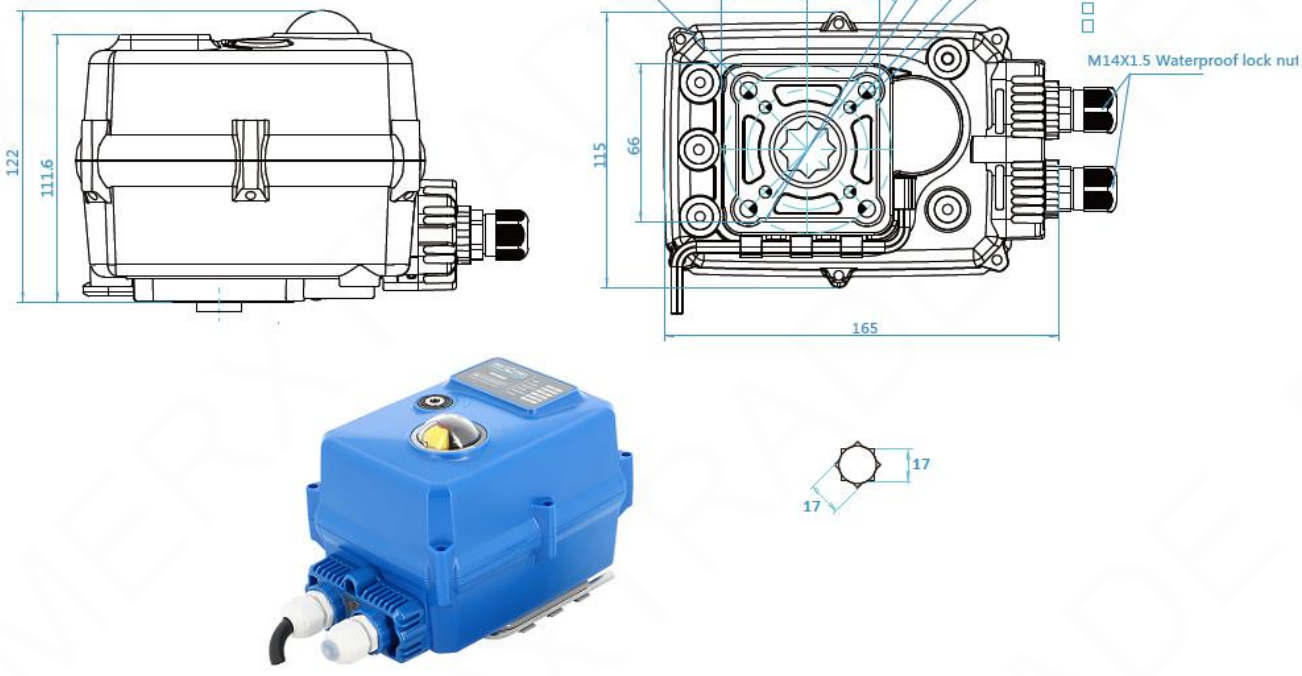
TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

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)



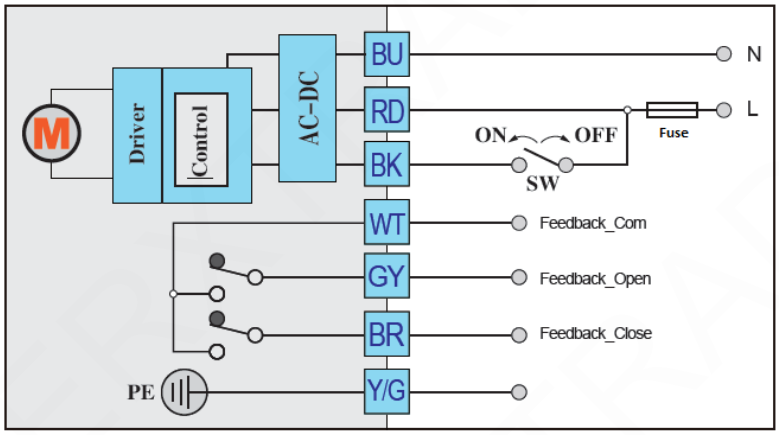
DIMENSIONS (mm)

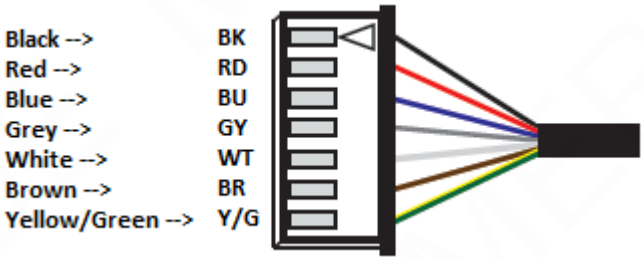


TCR-N-KT CAPACITOR RETURN ELECTRICAL ACTUATOR

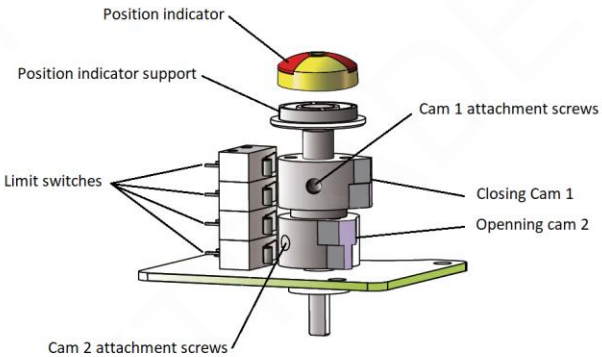
WIRING DIAGRAM

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

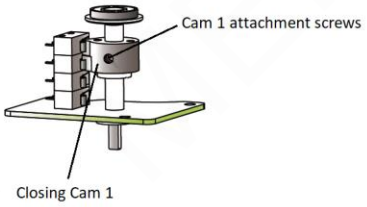




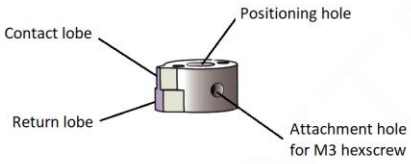
SWITCH SETTING



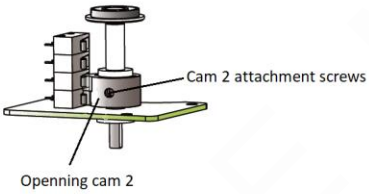
GENERAL VIEW



CLOSING CAM ADJUSTMENT



CAM DETAIL



OPENING CAM ADJUSTMENT

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-02T CONTROL ELECTRICAL ACTUATOR

FEATURES

The TCR-02T electric actuator is intended for motorising ¼ turn valves with a torque of 20 Nm. **Control function**: this motor is used to control the position of the valve depending upon an a 4-20mA input signal. 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. This actuator has many functions. Parameter setting is done directly on the screen.

AVAILABLE MODELS

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

Control: 4-20mA, 0-20mA, 2-10V, 0-10V.

IP 67 ISO 9001 CE

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	20 Nm
Angle of rotation	90° +/- 2°
Declutching	without
Override control	By key

Actuator	**TCR 02T**	
Torques (Nm)	20	
Voltage	24V AC - DC	95-265V AC-DC
Adjustment signal	4-20mA	
Manoeuvring time (s)	10	10
ISO 5211:	F03/F05 - star 11	

ELECTRICAL FEATURES

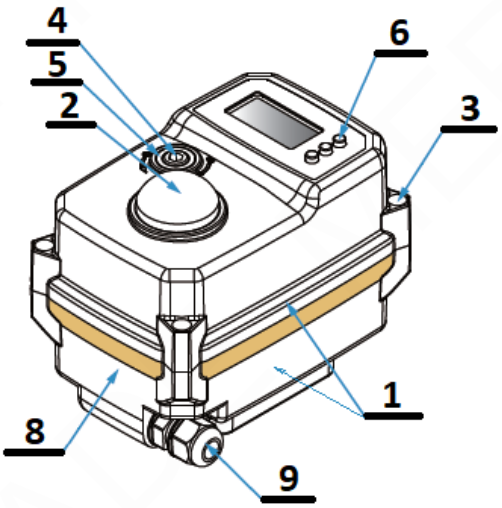
Actuator	**TCR 02T**
Motor protection	Thermal switch
Limit switches	2 adjustable switches
Anti-condensation	integrated
Electrical connection	PE M10 + 1.5m cable

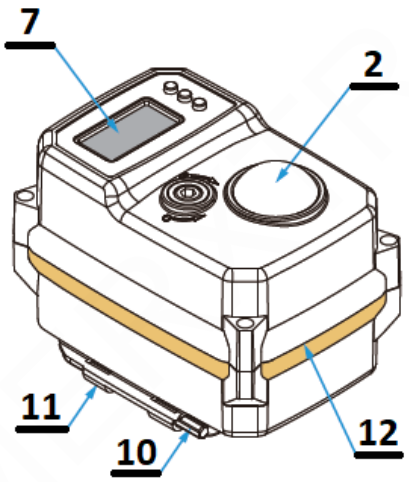
Actuator	**TCR 02T**	
Voltage	24V AC - DC	95-265V AC-DC
Power (W)	15	15
Current (A)	0,35	0,035 - 0,075
Fuse protection (A)	2	1

TCR-02T CONTROL ELECTRICAL ACTUATOR

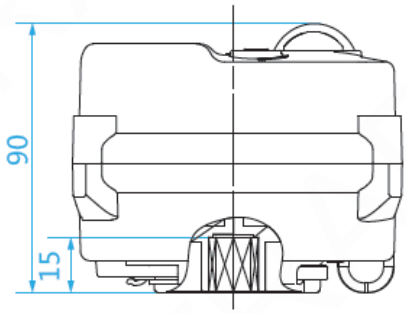
CONSTRUCTION (TCR-02T)

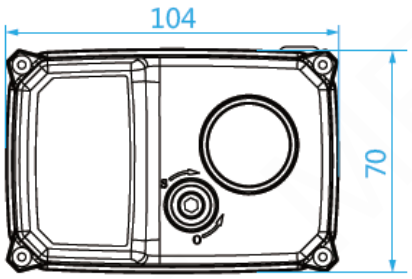
TCR-02T					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**7**	1.3” LCD display	OLED
2	Position indicator	Polycarbonate plastic	**8**	Rating plate	PVC
3	Screw x 4	Ansi 304	**9**	Packing gland	Nylon
4	Backup control stem	Ansi 304	**10**	Hex key	Steel
5	Gasket	NBR	**11**	Key support	Plastic (ABS)
6	Adjustment button	Rubber	**12**	Cover gasket	NBR
Weight (kg): 0.620					

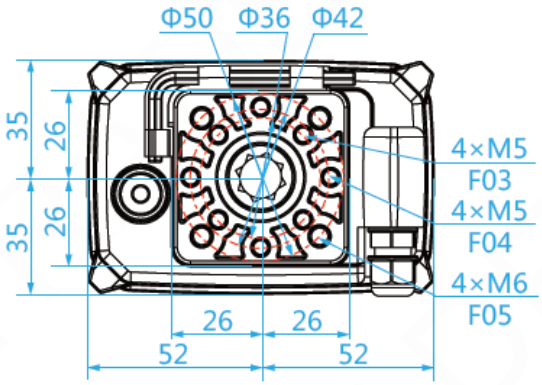




DIMENSIONS (mm)



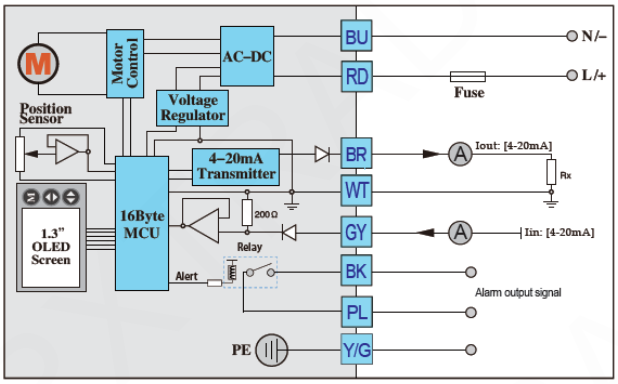


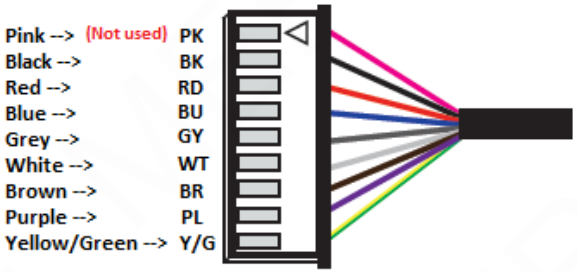


TCR-02T CONTROL ELECTRICAL ACTUATOR

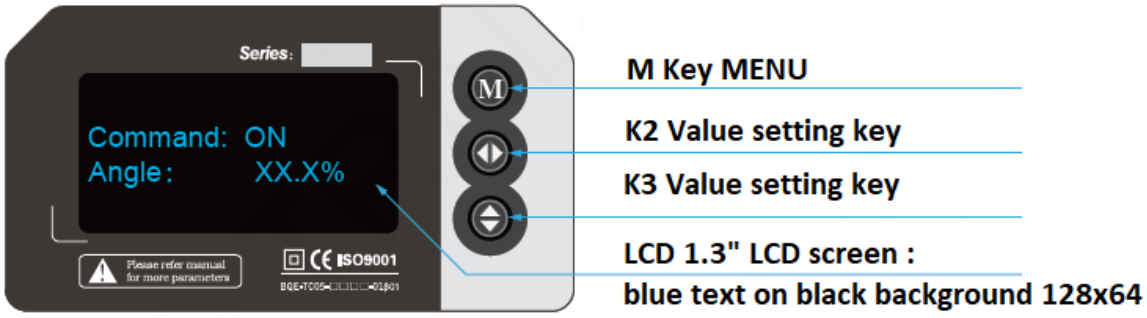
WIRING DIAGRAM (TCR 02T)

BU	Neutral (Blue)
RD	Phase (Red)
BR	Current control signal output (Brown)
WT	Common (White)
GY	Current control signal input (Grey)
BK	Alarm signal (Black)
PL	Alarm signal (Purple)
Y/G	Earth (Yellow / Green)



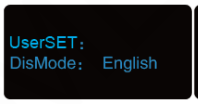
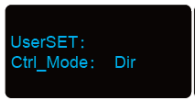
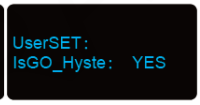


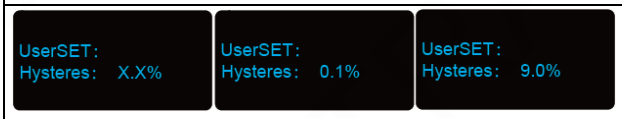
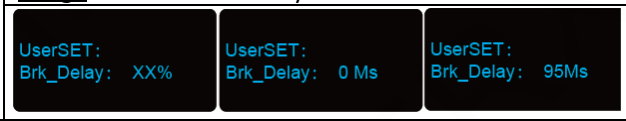
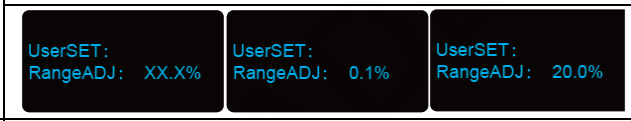
DESCRIPTION OF THE 1.3'' LCD SCREEN

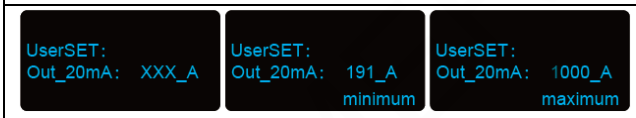
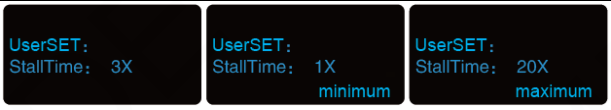


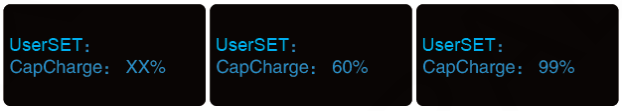
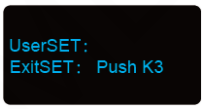
ACTUATOR SETTINGS

The following functions can have their parameters set from the menu accessible on the screen:

STEP	TITLE	FUNCTION AND VALUES
1	Entering the menu	Press the “M” button for more than 5 s.
2	Enter the password	Press the “M” button for more than 5 s. Enter the code “333” (use the keys K2 and K3) Press again the button “M”
		
3	Choice of language	English or Mandarin
		 
4	Choosing the direction of rotation of the actuator	**Direct**: 4mA = valve closed / 20 mA = valve open
		 
		Inverted: 4 mA = valve closed / 20 mA = valve open
5	Position by absence of any control signal	In the absence of a control signal, the valve can take 3 positions: ON, OFF or KEEP
		  
6	Dead band	This function is used to set the accuracy and the sensitivity of the control: the larger the band, the lower the accuracy; the narrower the band, the more oscillating the system can be. **Setting range:** 0.1 to 9.9% - **Setting by default**: 0.8%
		  
7	Hysteresis adjustment	This parameter setting is a prerequisite for the next. YES = adjustment is possible NO = no adjustment is possible (value by default)
		 

8	Hysteresis value	If the previous parameter is “YES”, it is possible to set the hysteresis value between 0.1 and 9.9%. The value by default is 0.2%. Do not use the function if there is a play between the valve’s stem and the actuator’s square. 
9	Manual adjustment of the speed of rotation	This function is used for slowing down the motor. **Range**: 20-100% - Value by default = 100% 
10	Braking time	In order to increase the stability of the motor, the motor will slow down after a short time before reaching its setpoint value position. During current use, this function is not useful. **Range**: 0-95 ms – Value by default = 1 ms 
11	Setting the maximum speed	This setting affects the available torque. Without a special need, do not change it. **Range**: 20-100% - Value by default = 100% 
12	Setting the minimum speed	This setting affects the available torque. Without a special need, do not change it. **Range**: 20-95% - Value by default = 75% 
13	Setting the speed for the stroke	This setting is used for setting a % of the actuator stroke during which it will slow down before reaching the setpoint value position. **Range**: 0.1-20% - Value by default = 10% 
14	Redefining the 4 mA position	Used to set another position than 0% for the 4 mA value. This function is useful for valves with an opening angle different from 90°. **Range**: -50% +80% - Value by default = 0.0% 

15	Redefining the 20 mA position	Used to set another position than 100% for the 20 mA value. This function is useful for valves with an opening angle different from 90°. **Range**: 20% +220% - Value by default = 100.0% 
16	Modification of the 4 mA output signal	If a deviation is found on the 4mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower. **Range**: 000_481_A – Value by default 191_A **NB**: always limit the lower value to 20 mA 
17	Modification of the 20mA output signal	If a deviation is found on the 20mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower. **Range**: 191_1000_A – Value by default 909_A 
18	Response time	Used to set the response speed of the valve. The smaller the value, the less sensitive the control. The bigger the value, the more sensitive it is. Increase the value when the response speed is too low. **Setting range:** 1x20x – Value by default 3x 
19	Checking the feed signal	The actuator periodically tests its electrical power supply. A change of a value will change the interval between two tests. In current use, there is no need to change this parameter. 
20	Power supply position by default	This setting is not available on this version (see version T-KT) **Value by default**: KEEP 

21	Capacitor charge	This setting is not available on this version (see version T-KT) **Value by default**: 95% 
22	Alarm test	This function is used to control whether a defect alarm is broadcast or not. It is especially used for factory testing **Value by default**: ON 
23	Exiting the menu	Press K3 to exit the menu The system will switch back in the automatic checking mode. 

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-05-11T CONTROL ELECTRICAL ACTUATOR

FEATURES

The TCR-05-11T electric actuator is intended for motorising ¼ turn valves with a torque of 50 or 110 Nm.
Control function: this motor is used to control the position of the valve depending upon an a 4-20mA or 0-10V input signal. 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. This actuator offers many functions (see § parameter setting menu) Parameter setting is done directly on the screen.

AVAILABLE MODELS

Supply voltages : 230V AC, 24V AC/DC.
Control : 4-20mA, 0-20mA, 2-10V, 0-10V.

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	50 - 110 Nm
Angle of rotation	90° +/- 2°
Declutching	without
Override control	By key

Actuator	**TCR 05T**		**TCR 11T**	
Torques (Nm)	50		110	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Adjustment signal	4-20mA, 0-20mA, 2-10V, 0-10V			
Manoeuvring time (s)	12	12	10	10
ISO 5211:	F05/F07 - star 14		F05/F07 - star 17	

ELECTRICAL FEATURES

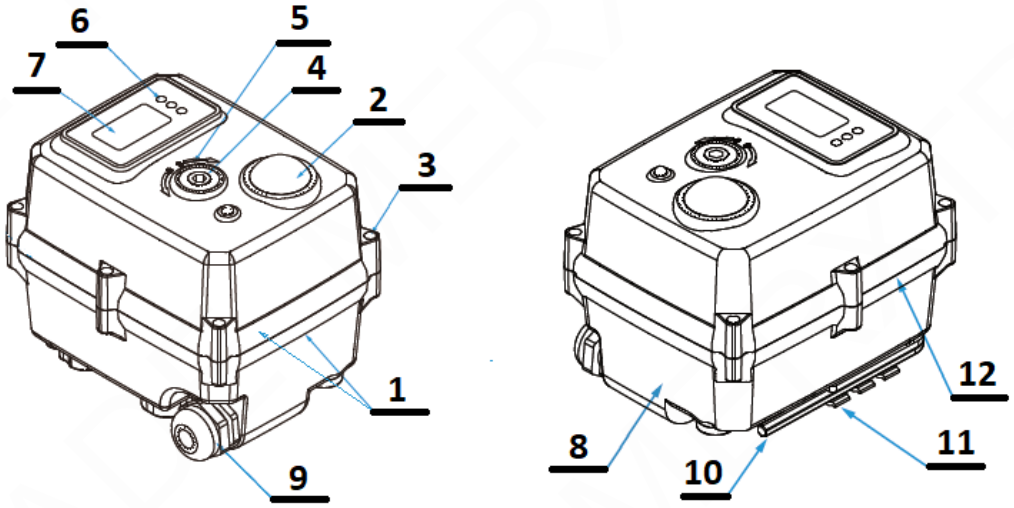
Actuator	**TCR 05T**	**TCR 11T**
Motor protection	Thermal switch	
Limit switches	2 adjustable switches	
Anti-condensation	integrated	
Electrical connection	PE M20 + 1.5m cable	2 x PE M14

Actuator	**TCR 05T**		**TCR 11T**	
Voltage	24V AC - DC	95-265V AC-DC	24V AC - DC	95-265V AC-DC
Power (W)	25	25	100	100
Current (A)	0,83	0,18	2,2	0,26 - 0,52
Fuse protection (A)	4	2	10	2

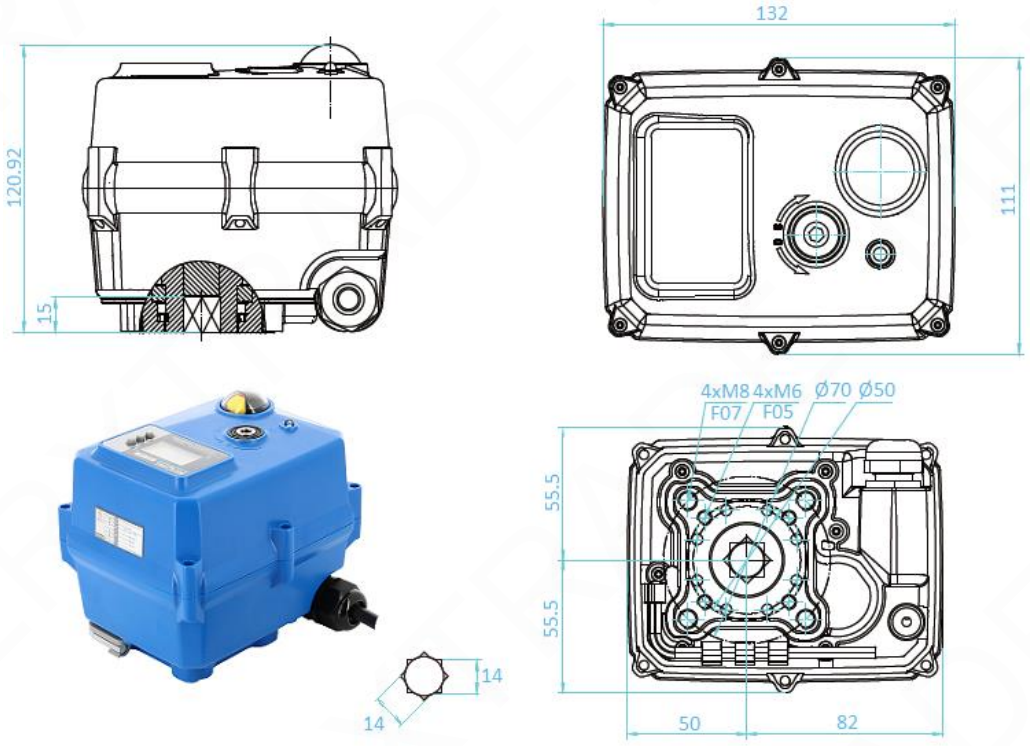
TCR-05-11T CONTROL ELECTRICAL ACTUATOR

CONSTRUCTION (TCR-05T)

TCR-05T					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**7**	1.3” LCD display	OLED
2	Position indicator	Polycarbonate plastic	**8**	Rating plate	PVC
3	Screw x 6	Ansi 304	**9**	Packing gland	Nylon
4	Backup control stem	Ansi 304	**10**	Hex key	Steel
5	Gasket	NBR	**11**	Key support	Plastic (ABS)
6	Adjustment button	Rubber	**12**	Cover gasket	NBR
Weight (kg): 1.800					



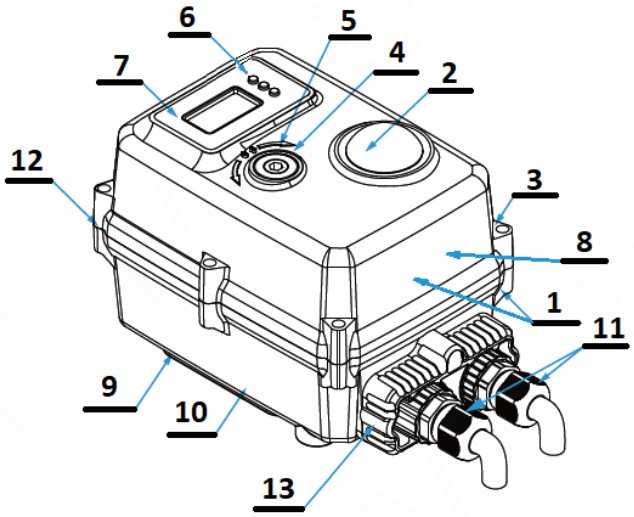
DIMENSIONS (mm)



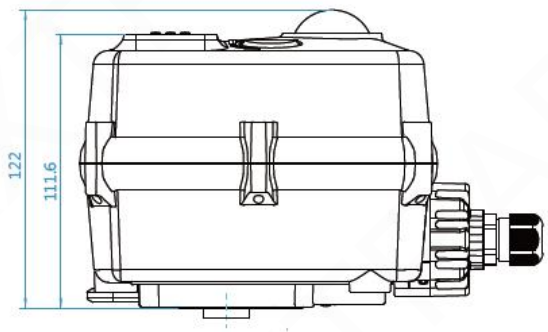
TCR-05-11T CONTROL ELECTRICAL ACTUATOR

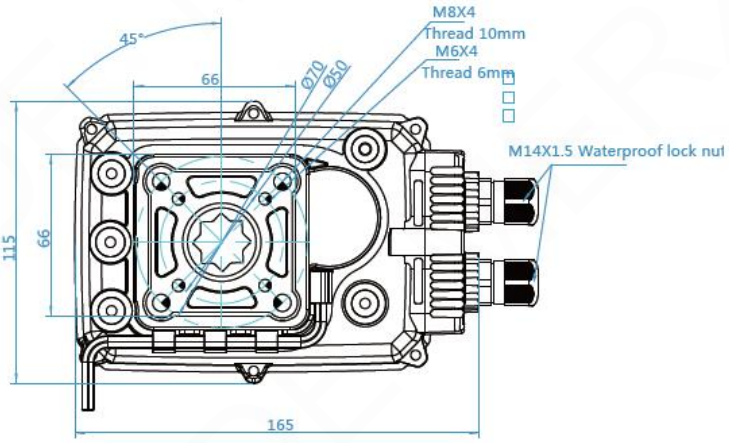
CONSTRUCTION (TCR-11T)

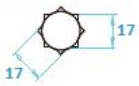
TCR-11T					
No.	**Name**	**Material**	**No.**	**Name**	**Material**
1	Casing + lid	Plastic (ABS)	**7**	1.3” LCD display	OLED
2	Position indicator	Polycarbonate plastic	**8**	Rating plate	PVC
3	Screw x 6	Ansi 304	**9**	Key support	Plastic (ABS)
4	Backup control stem	Ansi 304	**10**	Hex key	Steel
5	Gasket	NBR	**11**	X 2Packing gland	Nylon
6	Adjustment button	Rubber	**12**	Cover gasket	NBR
Weight (kg): 2.200			**13**	Cable gland unit	Plastic (ABS)



DIMENSIONS (mm)



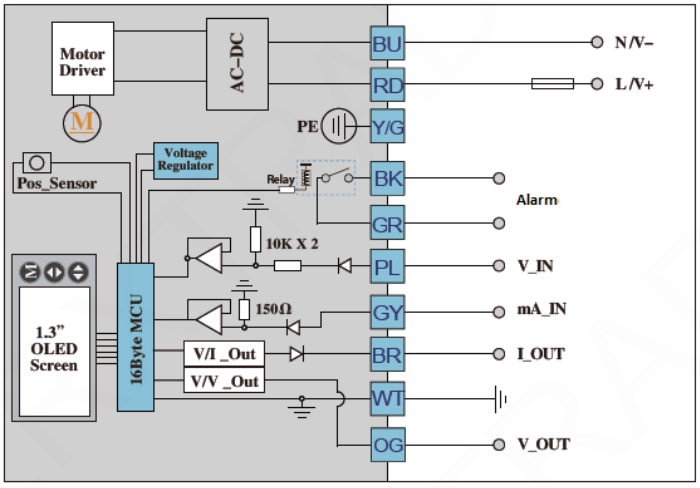


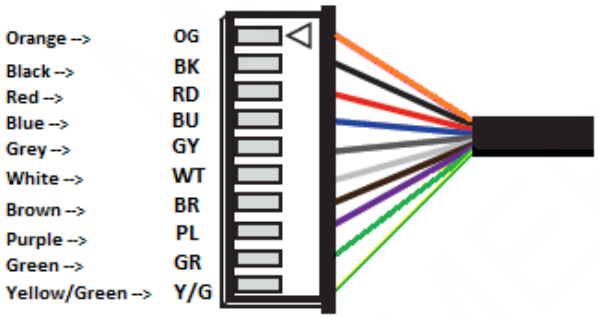


TCR-05-11T CONTROL ELECTRICAL ACTUATOR

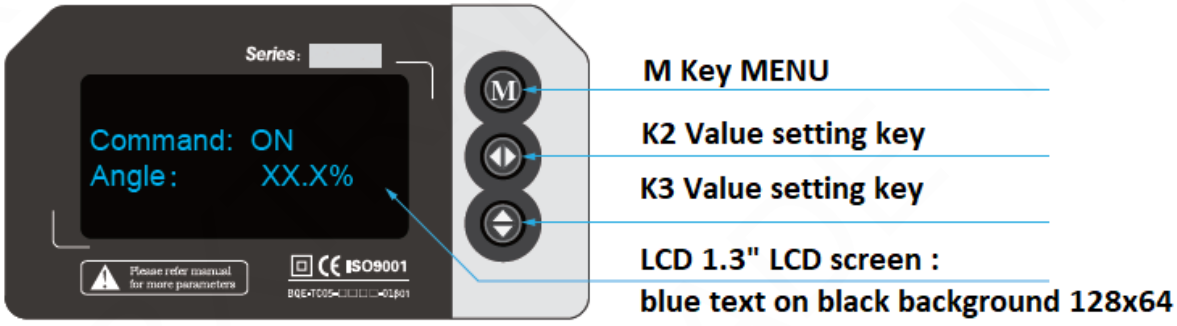
WIRING DIAGRAM

BU	Neutral (Blue)
RD	Phase (Red)
Y/G	Earth (Yellow / Green)
BK	Alarm (Black)
GR	Alarm (Green)
PL	Voltage control signal input (Purple)
GY	Current control signal input (Grey)
BR	Current control signal output (Brown)
WT	Signal control common (White)
OG	0-10V voltage control signal output (Orange)





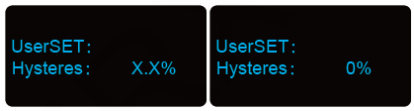
DESCRIPTION OF THE 1.3'' LCD SCREEN

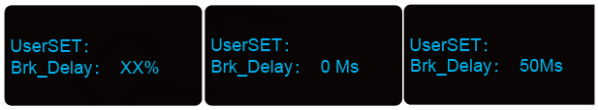
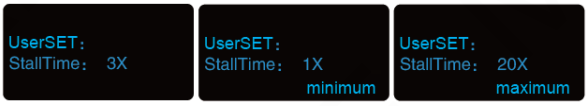


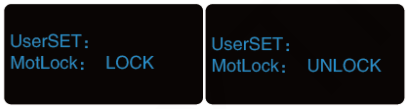
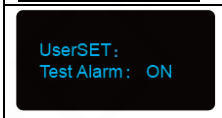
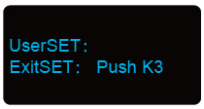
PARAMETER SETTING MENU OF THE ACTUATOR

The following functions can have their parameters set from the menu accessible on the screen:

STEP	TITLE	FUNCTION AND VALUES
1	Standby screen	If the actuator did not receive any signal in the last 5 minutes, the screen switches to standby. Press any button for 5 s. Then reactivate the screen.
2	Enter the password	Press the "M" button for more than 5 s. Enter the code "333" (use the keys K2 and K3) Press again the button "M" 
3	Choice of language	English or Mandarin 
4	Choosing the control signal	Press "K3" to chose the control signal Possible signals: 4-20mA, 0-20mA, 2-10V, 0-10V Press "M" again to continue 
5	Choosing the direction of rotation of the actuator	Direct 4mA = valve closed / 20 mA = valve open Inverted 4 mA = valve closed / 20 mA = valve open 
6	Position by absence of any control signal	In the absence of a control signal, the valve can take 3 positions: ON, OFF or KEEP 
7	Dead band	This function is used to set the accuracy and the sensitivity of the control: the larger the band, the lower the accuracy; the narrower the band, the more oscillating the system can be. **Setting range:** 0.1 to 9.9% - **Setting by default**: 0.8% 

8	Hysteresis adjustment	This parameter setting is a prerequisite for the next. YES = adjustment is possible NO = no adjustment is possible (value by default) 
9	Hysteresis value	If the previous parameter is “YES”, it is possible to set the hysteresis value between 0.1 and 9.9%. The value by default is 0.2%. Do not use the function if there is a play between the valve’s stem and the actuator’s square. 
10	Redefining the 4 mA position	Used to set another position than 0% for the 4 mA value. This function is useful for valves with an opening angle different from 90°. **Range**: -50% +80% - **Value by default** = 0.0% 
11	Redefining the 20 mA position	Used to set another position than 100% for the 20 mA value. This function is useful for valves with an opening angle different from 90°. **Range**: +81% +220% - **Value by default** = 100.0% 
12	Manual adjustment of the speed of rotation	This function is used for slowing down the motor. **Range**: 20-100% - Value by default = 100% 
13	Setting the maximum speed	This setting affects the available torque. Without a special need, do not change it. **Range**: 20-100% - Value by default = 100% 
14	Setting the minimum speed	This setting affects the available torque. Without a special need, do not change it. **Range**: 20-95% - Value by default = 75% 

15	Setting the speed for the stroke	This setting is used for setting a % of the actuator stroke during which it will slow down before reaching the setpoint value position. **Range**: 1-20% - Value by default = 10% 
16	Braking time	In order to increase the stability of the motor, the motor will slow down after a short time before reaching its setpoint value position. During current use, this function is not useful. **Range**: 0-50 ms – **Value by default** = 1 ms 
17	Modification of the output signal 4 mA	If a deviation is found on the 4mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower. **Range**: 000_481_A – **Value by default** 191_A **NB**: always limit the lower value to 20 mA 
18	Modification of the 20mA output signal	If a deviation is found on the 20mA output signal, this function is used to adjust it. If the number is increased, the current is higher. If the number is decreased, the current is lower. **Range**: 191_1000_A – **Value by default** 909_A 
19	Response time	Used to set the response speed of the valve. The smaller the value, the less sensitive the control. The bigger the value, the more sensitive it is. Increase the value when the response speed is too low. **Setting range:** 1x20x – Value by default 3x 
20	Checking the feed signal	The actuator periodically tests its electrical power supply. A change of a value will change the interval between two tests. In current use, there is no need to change this parameter. 
21	Power supply position by default	This parameter setting is not available on this version (see version T-KT) **Value by default**: KEEP 

22	Super-capacitor charge	This setting is not available on this version (see version T-KT) **Value by default**: 95% 
23	Actuator locking after the intervention of the super-capacitor	This parameter setting is not available on this version (see version T-KT) **Value by default**: UNLOCK 
24	Alarm test	This function is used to control whether a defect alarm is broadcast or not. It is especially used for factory testing **Value by default**: ON 
25	Exiting the menu	Press K3 to exit the menu The system will switch back in the automatic checking mode. 

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.