VALBIA

BONOMI GROUP

PATENTED

MT

Variable speed multi-turn electric actuator


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GROUP

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VIDEO

Presentation

Valbia is an Italian manufacturer of rack and pinion double acting and spring return pneumatic actuators, multi-turn and quarter-turn electric actuators mainly for the water, energy, industrial, marine and OEM. The company's offer also includes the supply and automation of ball and butterfly valves complete with control accessories.

A complete product range:

Electric

- Three phase multi-turn up to 9000 Nm.
- Three phase quarter turn up to 300.000 Nm.
- Single phase and DC quarter turn up to 350 Nm.

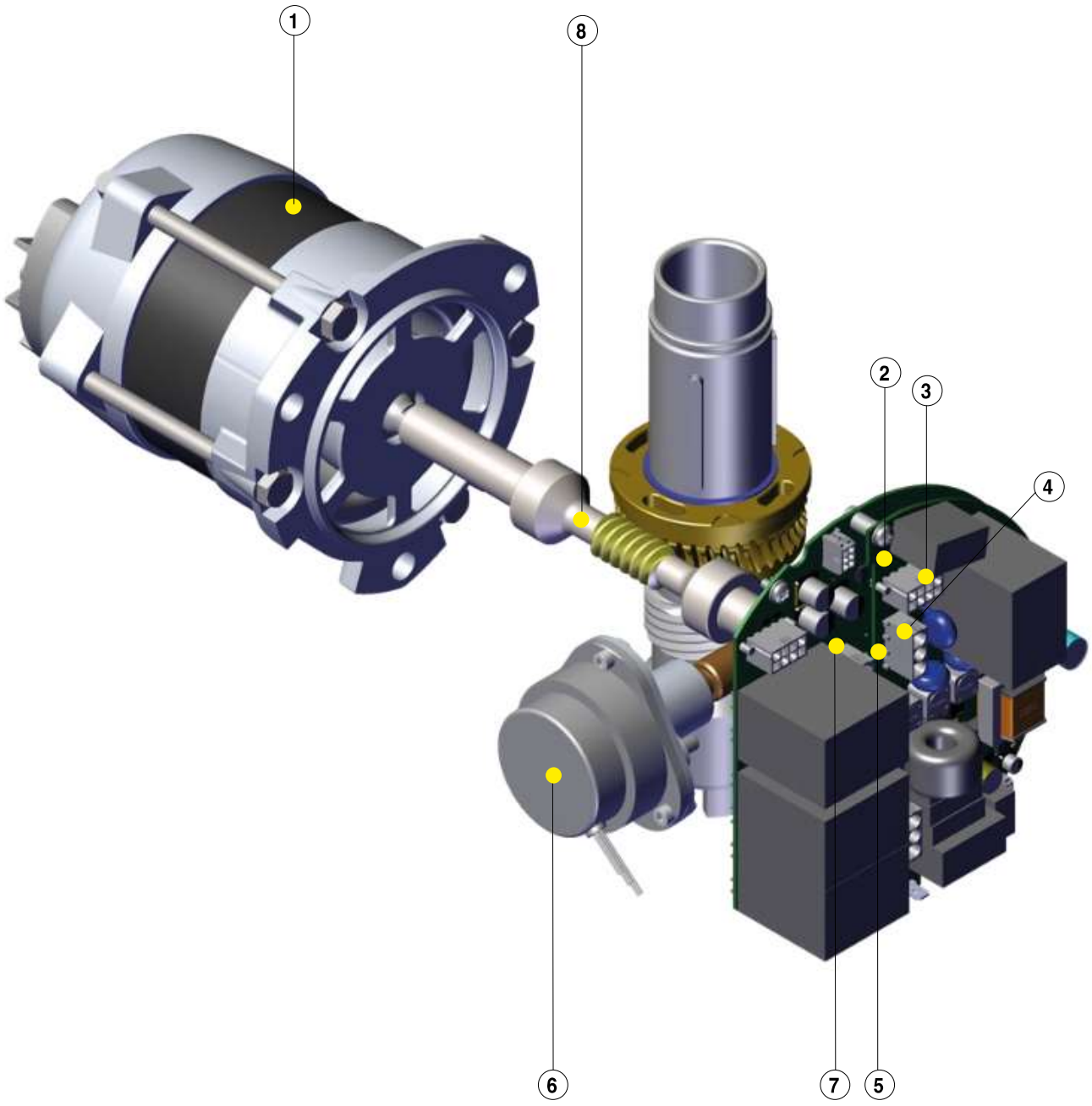
Rack and pignon pneumatic actuator

- Double acting and spring return up to 5000 Nm.
- 90° and 180° versions.
- Aluminum extruded body or A351 CF8M.
- Protection and special treatments on request.

Valbia's MT serie intelligent actuator has been designed according to the latest technologies and with innovative solutions, included the **patented** Valbia **system** consisting of the **AC-Brushless** motor controlled by the inveter.
The wide speed range allows independent soft start and stop protecting the pipeline from potentially dangerous water hammer and safeguarding the valve mechanical structure.

Below are the main features identified in the renders:

1	Motor	The motor used in the **MT** series actuators is a high-performance, very low inertia, high torque sensorless AC brushless (BLAC). The thermal protection of the windings is achieved by means of bimetal contact Klixon.The synchronization of the power supply phases of the motor is guaranteed by the inverter, no specific device is needed (e.g. phase discriminator or synchronizer). • **Adjustable speed**: thanks to the integrated inverter designed by the company , it is possible to vary the motor speed, and consequently the output of the actuator, from a minimum of 12 to a maximum of 120 rpm with 1 rpm increments, directly from the local pushbutton. It is also possible to change or independently set-up new start/stop speed ramps depending on the individual plant needs. • **Power supply**: thanks to the extreme versatility of the inverter, Valbia's actuators can be powered with three-phase supply voltages from 400 to 480V +10%, 50 or 60hz +5%, without a prior definition or need to change motor or power PCB. It is also possible to supply single-phase versions 110-240V, 50/60hz. • **Duty cycle:** The MT series actuator is capable of performance according to EN 22153, class A/B/C/D, and IEC 60034-1 duty S2-30' max and S4 up to 1200 starts/h.
2	Monitoring	The torque measurement and monitoring is carried out on the motor, upstream of the mechanics, and takes into account the thermal impact on the losses of mechanical components, making the system extremely accurate and reliable. Sophisticated internal sensors also allow continuous monitoring of temperature, vibration and humidity.
3	Remote control inputs	The digital inputs for remote control are opto-isolated, available both for external voltages up to 120 Vac/dc, or internally derived to 24 Vdc.
4	Bluetooth connection	A proprietary software, **ValbiaApp**, can be installed on PC's and Windows devices and allows, through the Bluetooth card integrated in the actuator, the management, configuration and display of all the primary and secondary parameters of the actuator, speed profiles and internal data logger with graphs related to torque profiles and speed curves.
5	Remote indication	The standard configuration of our **MT** Series provides 4 contacts (RL1, RL2, RL3 and RL4) for remote indications independently reconfigurable, a reconfigurable monitoring relay for unavailability of actuator remote control, and a 4-20 mA analog position/torque transmitter proportional to valve travel. On request it is also possible to add 4 additional contacts (RL5, RL6, RL7 and RL8) as well as an analogic 4-20 mA proportional positioner. MT actuators can also be equipped with Profibus-DP and Modbus-RTU single and double channel.
6	Position control	The continuous detection of the position, up to 8000 turns, is achieved by a very high precision wiegand effect absolute encoder.
7	Phase lost protection	The power unit, on which the inverter is fitted, manages both the motor power supply and the internal auxiliary power supplies. The unit configuration also detects the lack of one or more phases of the main voltage by inhibiting the operability of the motor and protecting it from damaging overheating.
8	Drive gearing	A simple but robust and reliable single stage worm-and-wheel gear drive runs in an oil bath for effective lubrication in any orientation. The standard lubricant is a synthetic advanced performance oil, specific for industrial mechanical gearing, which guarantees exceptional performance under severe operating conditions.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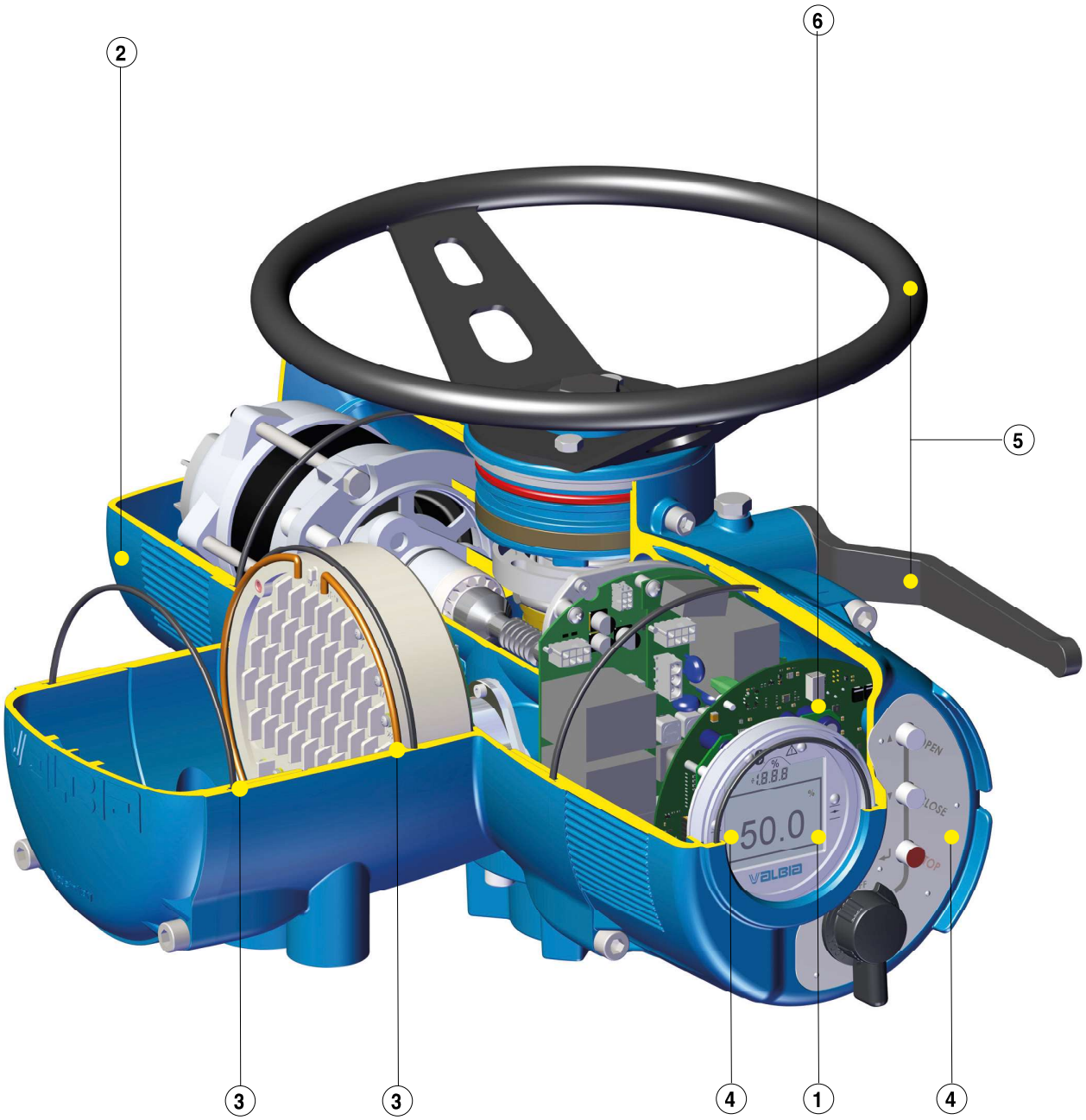
1	Display	Large backlit alpha-numeric LCD display with readable and intuitive graphics. It is also possible to view and modify both the primary and secondary configuration parameters, as well as all the information and graphs of the integrated data logger. • **Non-intrusive building**: settings and configurations are carried out without opening any cover using the local pushbuttons with hall effect technology.
2	Enclosure	Explosionproof enclosure ATEX and IECEx certified is also available. • **Ambient temperature**: standard from -20°C up to +70°C (from -4°F to +158°F).
3	Protection	Enclosure protection according to IP66/IP68 (10 meters / 96 hours) is in accordance with EN 60529. The double sealing of the terminal block ensures the IP66/68 protection of the internal components, even in the case of the terminal cover removed.
4	Local control	The local interface, in addition to the display, includes the open/stop/close pushbuttons and the local/off/remote lockable selector switch. To guarantee the IP66/68 protection and the non-intrusiveness, the buttons and the selector have hall effect contacts with no cams through the housing. The local interface includes also 5 status LED's for open, close, running, alarm indications with reconfigurable colors and bluetooth activated blue color.
5	Manual operation	The manual operation is guaranteed by a direct handwheel, without gear reduction (only on larger models there is a worm gearing to reduce the manual effort). The internal gears of the handwheel are completely independent from the motor to guarantee operability even in the case of a locked motor. The handwheel is engaged pushing down the lever (lockable) that completely disengages the motor gearing to engage the handwheel directly on the central column. The electrical operation has always the priority over the manual's one and it is automatic at the motor restart.
6	Data logger	Valbia's **MT** range actuators are equipped with a sophisticated integrated data logger that detects and makes available a wide range of data and useful information for both maintenance and troubleshooting, including: • Opening and closing torque profiles. • PST curve. • Temperature, vibration, humidity detection. • Events. • Statistics. • Configuration and set-up settings. • Operating time. • Historical data. • Alarms and pre-alarms. • Settings for scheduled maintenance.


2
6
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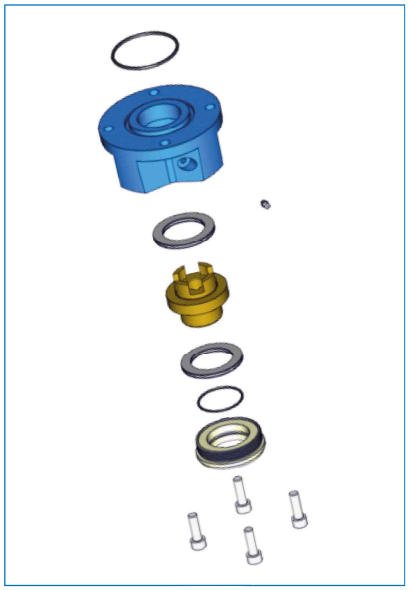
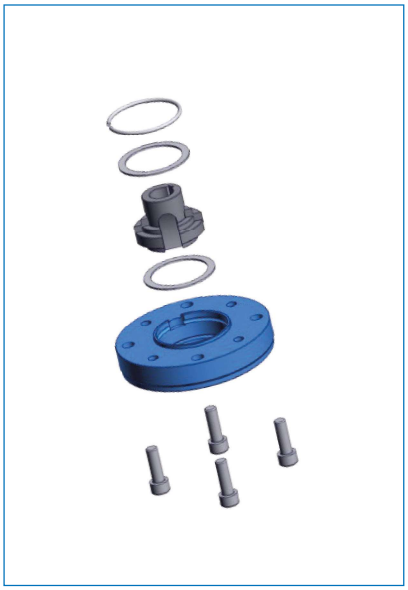
OPEN
CLOSE
50.0
VALBIA

Technical data

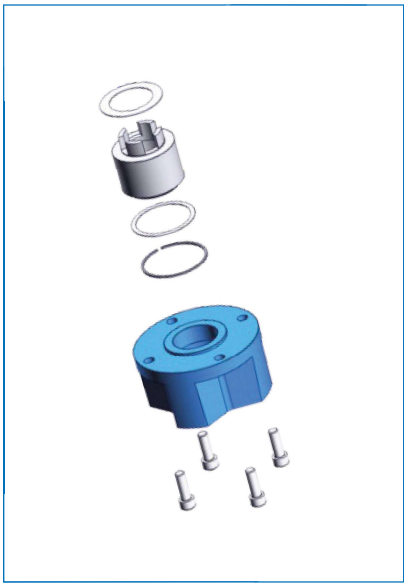
Output base: all actuators sizes are equipped with flanges, with and without thrust bearings, separable from the actuator body to facilitate assembly and maintenance.



ISO type A with thrust bearings



ISO type B3/B4 without thrust bearings



ISO type B without thrust bearings

Mechanical performance

	VB-0030MT	VB-0060MT	VB-0120MT	VB-0250MT	VB-0500MT
Max torque (Nm)	32	63	125	250	500
Min torque (Nm)	13	25	50	100	200
Variable speed (rpm)	from 12 to 120	from 12 to 120	from 12 to 120	from 12 to 120	from 12 to 106
ISO base	F10	F10	F10	F14	F14
Max thrust (kN)	40	40	40	100	100
Max rising stem acceptance (mm)	32	32	40	58	58
Max keyed stem acceptance (mm)	24,5[1]	24,5[1]	30[1]	48[1]	48[1]
Weight (Kg)	35	35	40	66	66

[1] According to ISO 773 or UNI6604

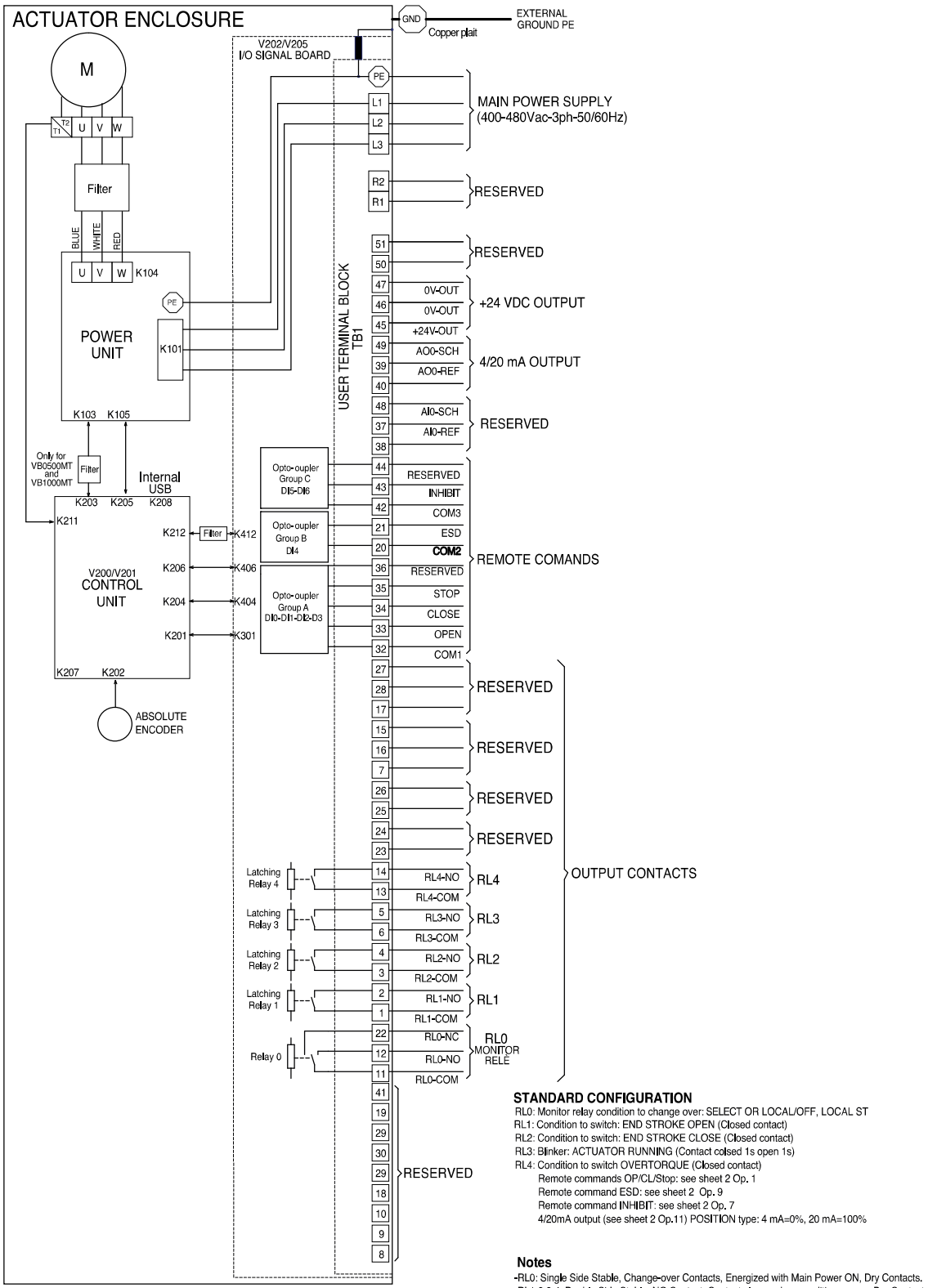
Electrical performance

Model	Max current [Amp]	Nominal current [Amp]	Motor nominal power [kW]
VB-0030MT	2,2	1,7	0,9
VB-0060MT	2,6	2,0	1,1
VB-0120MT	4,7	3,6	1,7
VB-0250MT	7,8	6	3,1
VB-0500MT	9,2	7,1	4,2

Applications

OIL & GAS · WATER TREATMENT · CLEAN ENERGY · ENERGY · INDUSTRIAL · DRINKING WATER · PETROCHEMICAL

Basic wiring diagram



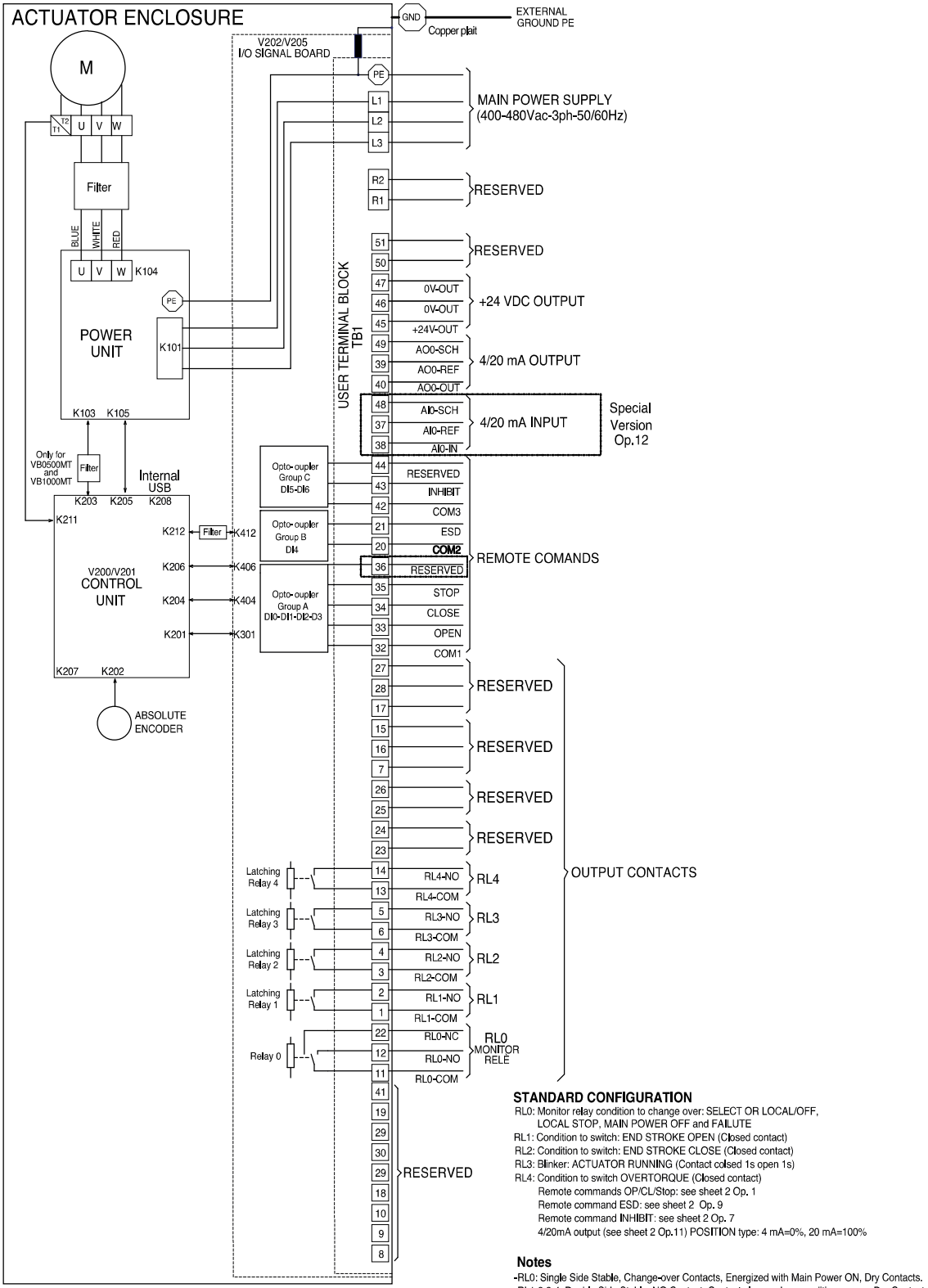
STANDARD CONFIGURATION

RL0: Monitor relay condition to change over: SELECT OR LOCAL/OFF, LOCAL ST
RL1: Condition to switch: END STROKE OPEN (Closed contact)
RL2: Condition to switch: END STROKE CLOSE (Closed contact)
RL3: Blinker: ACTUATOR RUNNING (Contact colsed 1s open 1s)
RL4: Condition to switch OVERTORQUE (Closed contact)
Remote commands OP/CL/Stop: see sheet 2 Op. 1
Remote command ESD: see sheet 2 Op. 9
Remote command INHIBIT: see sheet 2 Op. 7
4/20mA output (see sheet 2 Op.11) POSITION type: 4 mA=0%, 20 mA=100%

Notes

-RL0: Single Side Stable, Change-over Contacts, Energized with Main Power ON, Dry Contacts.
-RL1,2,3,4: Double Side Stable, NO Contact, Contact closes when condition occurs, Dry Contact
-MAX VOLTAGE: 250Vca, 30Vcc,
-MAX CURRENT: 5Amp (1Amp cad)
-RESERVED for option modules or internal use

Wiring diagram with Positioner



STANDARD CONFIGURATION

RL0: Monitor relay condition to change over: SELECT OR LOCAL/OFF, LOCAL STOP, MAIN POWER OFF and FAILUTE
RL1: Condition to switch: END STROKE OPEN (Closed contact)
RL2: Condition to switch: END STROKE CLOSE (Closed contact)
RL3: Blinker: ACTUATOR RUNNING (Contact colsed 1s open 1s)
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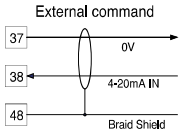
-MAX CURRENT: 5Amp (1Amp cad)
-RESERVED for option modules or internal use

Connection diagram

Special Version

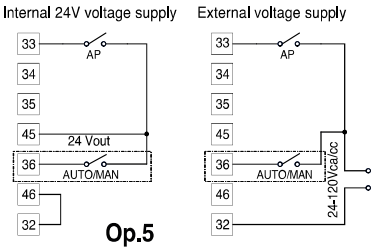
4-20mA IN



Op.12

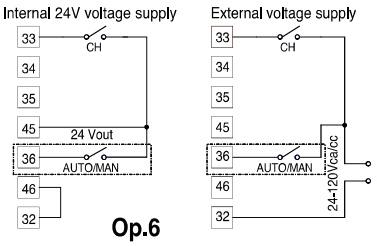
Option activated only on request:
•AUTO/MAN: AUTOMATIC closed contact (positioner ON)
Contact open MANUAL (positioner OFF)

2 Wire - Closed contact OPENS



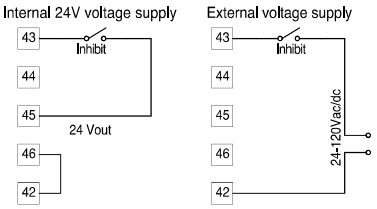
Op.5

2 Wire - Closed contact CLOSES



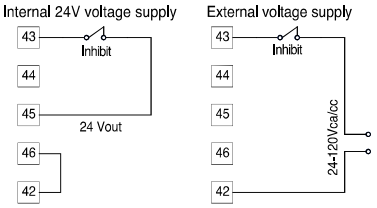
Op.6

INHIBIT - On with closed contact



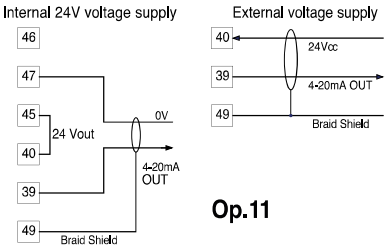
Op.7

INHIBIT - On with open contact



Op.8

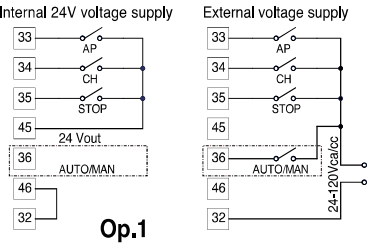
4-20mA OUT



Op.11

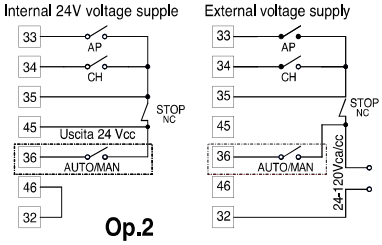
Rload = 250 Ohm

4 Wire latched - Stop ON with closed contact



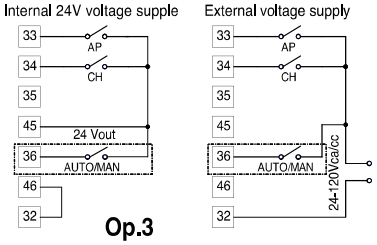
Op.1

4 Wire latched - Stop ON with open contact



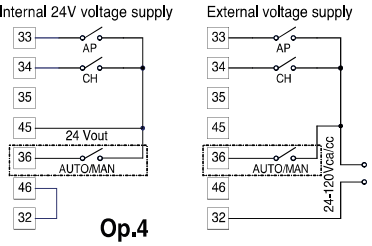
Op.2

3 Wire push to run



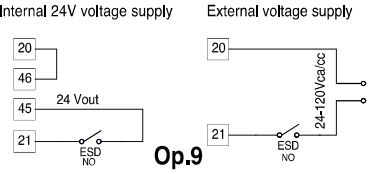
Op.3

3 Wire push to run



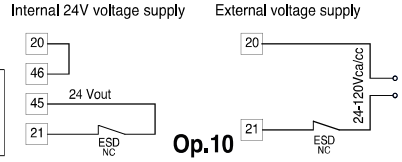
Op.4

Command ESD - ON with closed contact



Op.9

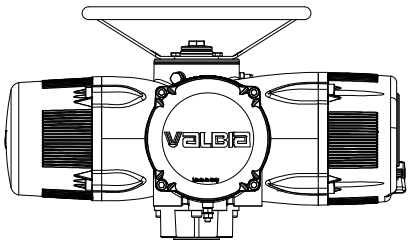
Command ESD - ON with open contact

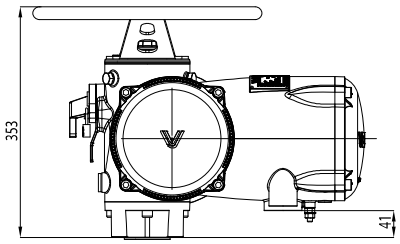


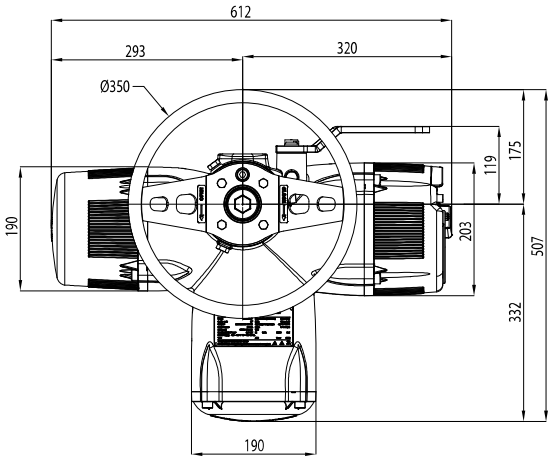
Op.10

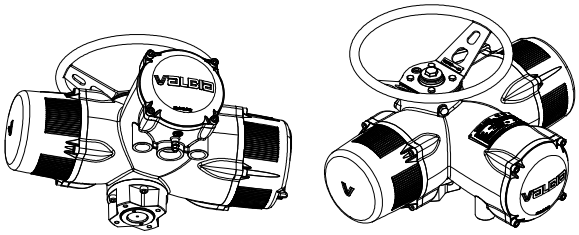
WARNING Wiring of INPUT/OUTPUT terminals must be according to configuration of relevant parameters. See procedures to set the parameters and instruction manual for the guide to view and set the actuator parameters.

Mod. VB0030MT-VB0060MT

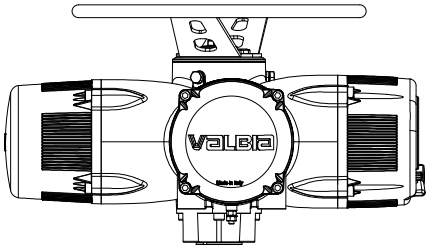


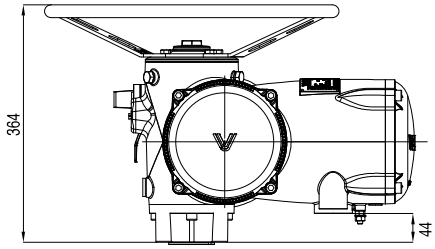


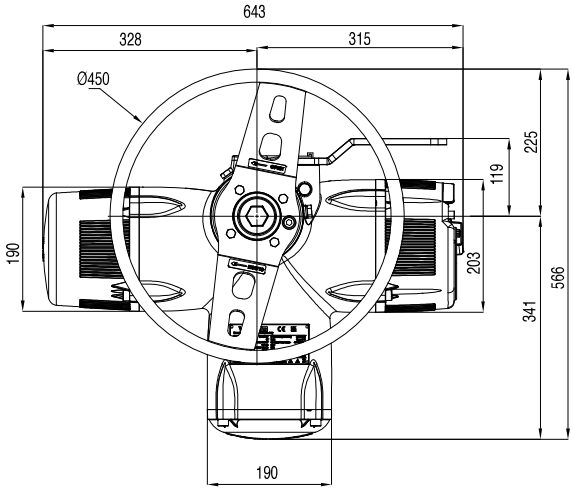


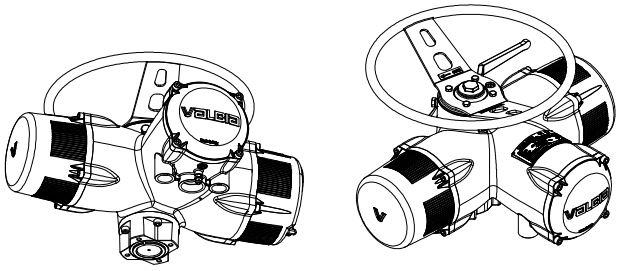


Mod. VB0120MT

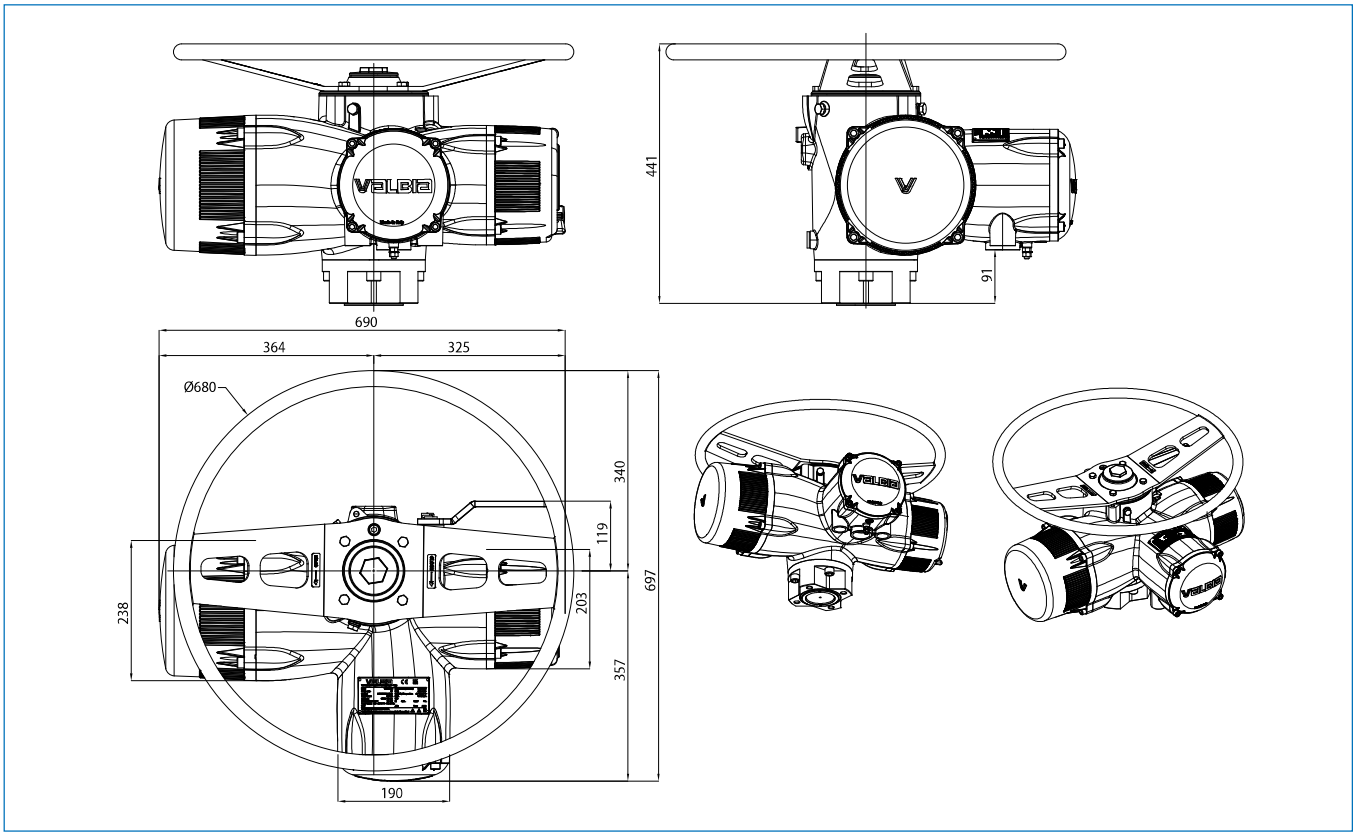








Mod. VB0250MT-VB0500MT



After sales and site service

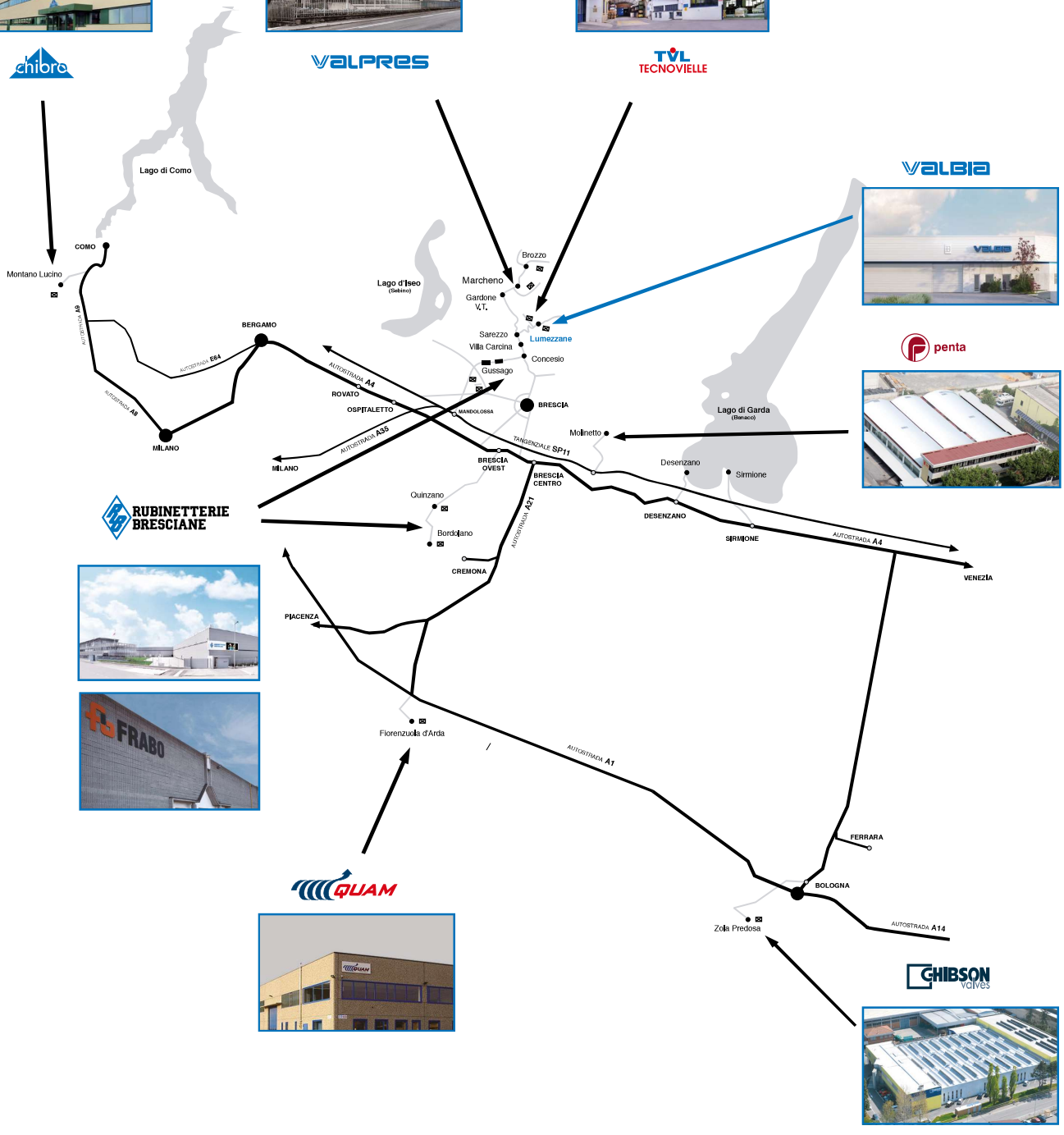
Technical assistance is increasingly important for the proper maintenance of the actuators.
Valbia has a direct **after-sales** and technical site service, highly qualified in giving immediate customer support for any need. From simple repair, both on-site and in the workshop, to the possibility of multi-year maintenance contracts structured for each specific need of the customer and the plant. The company also offers one of the most efficient and qualified **retrofitting** service of the market, giving the possibility to motorize existing valves of any type, both manual to be electrified or old actuators to be replaced.

WHERE WE ARE

chibra

VALPRES

TVL TECNOVIELLE



VALBIA

penta

RUBINETTERIE BRESCIANE

QUAM

GHIBSON valves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