

# Valve motor type MT90 Marine

## For valves DN 80 – 300 mm

4.8.05-F

GB-1

### Characteristics

- Motor for Clorius valves types L2FM, M2FM, G2FM, L3FM, M3FM and G3FM.
- MT90 is approved for marine applications by Germanischer Lloyd, No. 57067-91 HH
- Can be manually operated in case of power failure.
- Low or high voltage operation
- Digital or analogue version.

### Application

Valve motor type MT Marine is specially designed to meet the demands of the powerful low frequency vibration environments in marine installations.

The main applications are cooling of freshwater - sea water - and oil-systems for main and auxiliary engines.

### Mounting

For mounting and starting up, the instructions delivered with the motor must be followed carefully. The wiring diagram is fixed inside the motor cover. Valve and motor must be mounted with vertical stems. Free height above/below the motor has to be at least 175 mm for service.

### Service

No special service is necessary. It is recommended to check and grease the valve motor at every docking or every three year.

### Valve opening

The valve opening can be seen on one of the stays.

### Positional potentiometer (option)

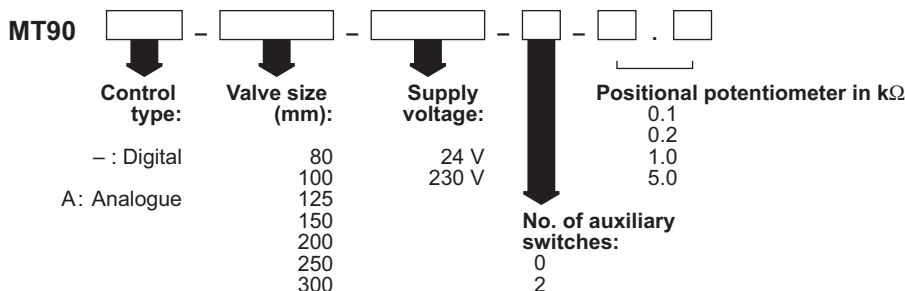
The positional potentiometer is adjusted to a 45 mm valve stroke. If using valves with a stroke less than 45 mm, the signal will be reduced according to the table below.

| Valve size DN | Resistance range in % |
|---------------|-----------------------|
| 300 mm        | 0-100 %               |
| 300/250 mm    | 0-100 %               |
| 200 mm        | 0-100 %               |
| 150 mm        | 0-100 %               |
| 125 mm        | 0-100 %               |
| 100 mm        | 81 %                  |
| 80 mm         | 69 %                  |



### Technical data

|                          |   |
|--------------------------|---|
| Power supply             | 24 V AC, 50/60 Hz<br>or 230 V, 50/60 Hz                                 |
| Consumption              | 6.7 W   |
| Closing force            | 1200 N  |
| Spindle speed            | 25 mm/min.  |
| Casing                   | IP65  |
| Ambient temp.            | -20 to +60°C  |
| Humidity                 | 0-100% R.H  |
| Manual operation         | included  |
| Weight                   | 7.5 kg  |
| Analogue version         | 0 (2) – 10 V<br>or 0 (4) – 20 mA  |
| Positional potentiometer | max. 1.5 W<br>max. 30 mA  |
| Auxiliary switches       | max. 250 V<br>max. 5 A (Ohm)<br>max. 3 A (inductive)<br>max. 1 A (bulb) |



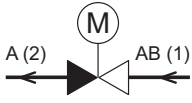
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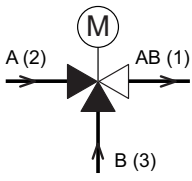
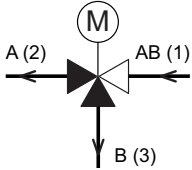
# Valve motor type MT90 Marine

## For valves DN 80 – 300 mm

4.8.05-F

GB-2

| 2-way valves   |                          |                    |                          |     |     |              |     |         |       |     |         |     |
|--|--------------------------|--------------------|--------------------------|-----|-----|--------------|-----|---------|-------|-----|---------|-----|
| <b>Max. differential pressure <math>\Delta p_L</math> in bar against which the actuator is able to close.</b>  |                          |                    |                          |     |     |              |     |         |       |     |         |     |
| As a principal rule $\Delta p_L$ is calculated as inlet pressure $p_1 = \Delta p_L$ (For most valves $\Delta p_L$ is reduced by an increasing $p_1$ .) |                          |                    |                          |     |     |              |     |         |       |     |         |     |
| Valve type →   |                          |                    | M2FM, G2FM               |     |     |              |     |         | L2FM  |     |         |     |
| Pressure stage →   |                          |                    | PN 10 (PN 16)            |     |     | PN 6 (PN 10) |     |         | PN 10 |     | PN 6    |     |
| Application  | Motor                    | Valve motor placed | Dimension of valve in mm |     |     |              |     |         |       |     |         |     |
|  |                          |                    | 80                       | 100 | 125 | 150          | 200 | 300/250 | 300   | 200 | 300/250 | 300 |
|   | closes against port A(2) | below              | 10                       | 10  | 10  | 10           | 10  | 5.1     | 5.1   | 10  | 5.1     | 5.1 |
|  |                          | above              | 10                       | 10  | 10  | 10           | 10  | 6       | 6     | 10  | 6       | 6   |

| 3-way valves   |                          |                    |                          |     |     |              |     |         |       |     |         |     |
|--|--------------------------|--------------------|--------------------------|-----|-----|--------------|-----|---------|-------|-----|---------|-----|
| <b>Max. differential pressure <math>\Delta p_L</math> in bar against which the actuator is able to close.</b>  |                          |                    |                          |     |     |              |     |         |       |     |         |     |
| As a principal rule $\Delta p_L$ is calculated as inlet pressure $p_1 = \Delta p_L$ (For most valves $\Delta p_L$ is reduced by an increasing $p_1$ .) |                          |                    |                          |     |     |              |     |         |       |     |         |     |
| Valve type →   |                          |                    | M3FM (G3FM)              |     |     |              |     |         | L3FM  |     |         |     |
| Pressure stage →   |                          |                    | PN 10 (PN 16)            |     |     | PN 6 (PN 10) |     |         | PN 10 |     | PN 6    |     |
| Application  | Motor                    | Valve motor placed | Dimension of valve in mm |     |     |              |     |         |       |     |         |     |
|  |                          |                    | 80                       | 100 | 125 | 150          | 200 | 300/250 | 300   | 200 | 300/250 | 300 |
| Mixing valve<br>  | closes against port A(2) | below              | 10                       | 10  | 10  | 10           | 10  | 5.1     | 5.1   | 10  | 5.1     | 5.1 |
|  |                          | above              | 10                       | 10  | 10  | 10           | 10  | 6       | 6     | 10  | 6       | 6   |
|  | closes against port B(3) | below              | 10                       | 10  | 7.4 | 5.2          | 7.2 | 2.8     | 2.8   | 7.2 | 2.8     | 2.8 |
|  |                          | above              | 10                       | 9.6 | 6.9 | 4.6          | 6.4 | 1.6     | 1.8   | 6.4 | 1.6     | 1.8 |
| Diverting valve<br>   | opens from port B(3)     | below              | 10                       | 10  | 10  | 10           | 10  | 5.6     | 5.6   | 10  | 5.6     | 5.6 |
|  |                          | above              | 10                       | 10  | 10  | 10           | 10  | 6       | 6     | 10  | 6       | 6   |
|  | opens from port A(2)     | below              | 10                       | 10  | 8.1 | 6            | 8   | 3.2     | 3.2   | 8   | 3.2     | 3.2 |
|  |                          | above              | 10                       | 10  | 7.6 | 5.3          | 7.1 | 2.1     | 2.3   | 7.1 | 2.1     | 2.3 |

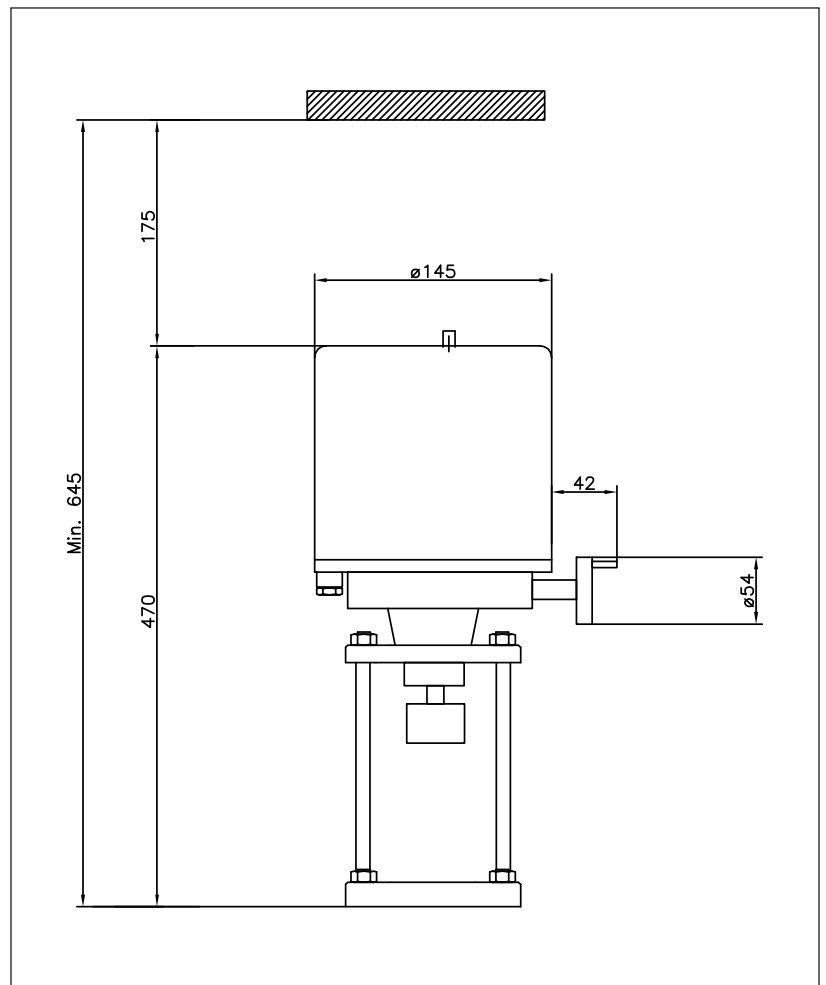
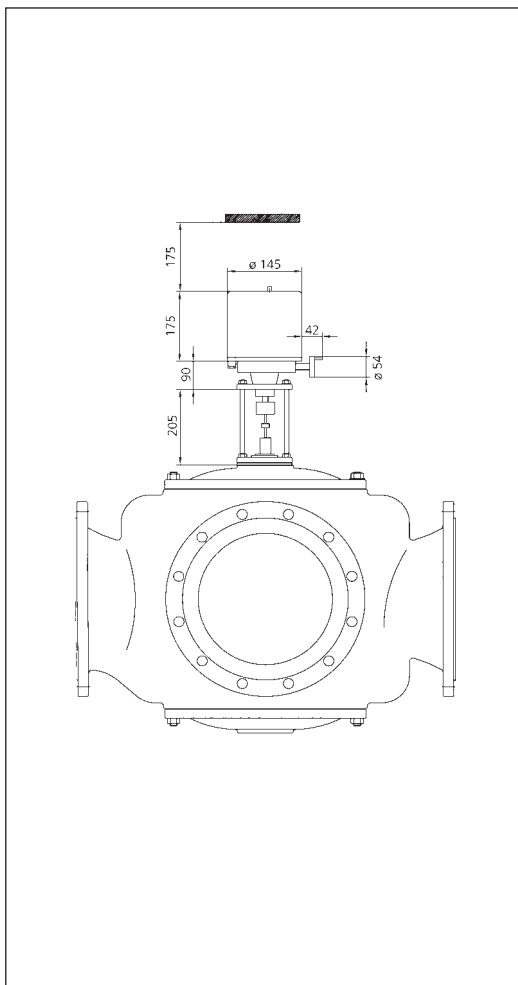
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# Valve motor type MT90 Marine For valves DN 80 – 300 mm

4.8.05-F

GB-3

## Dimension sketch

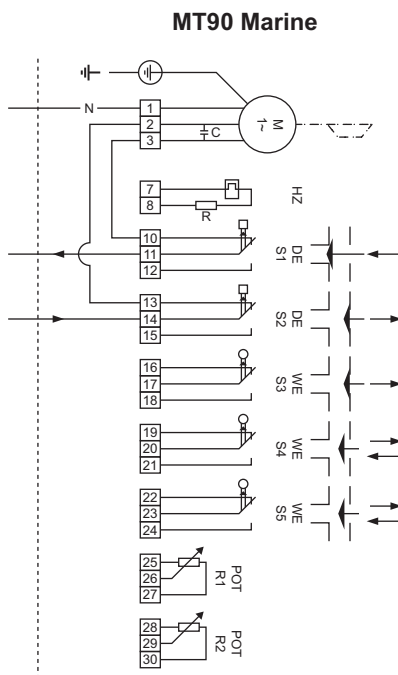


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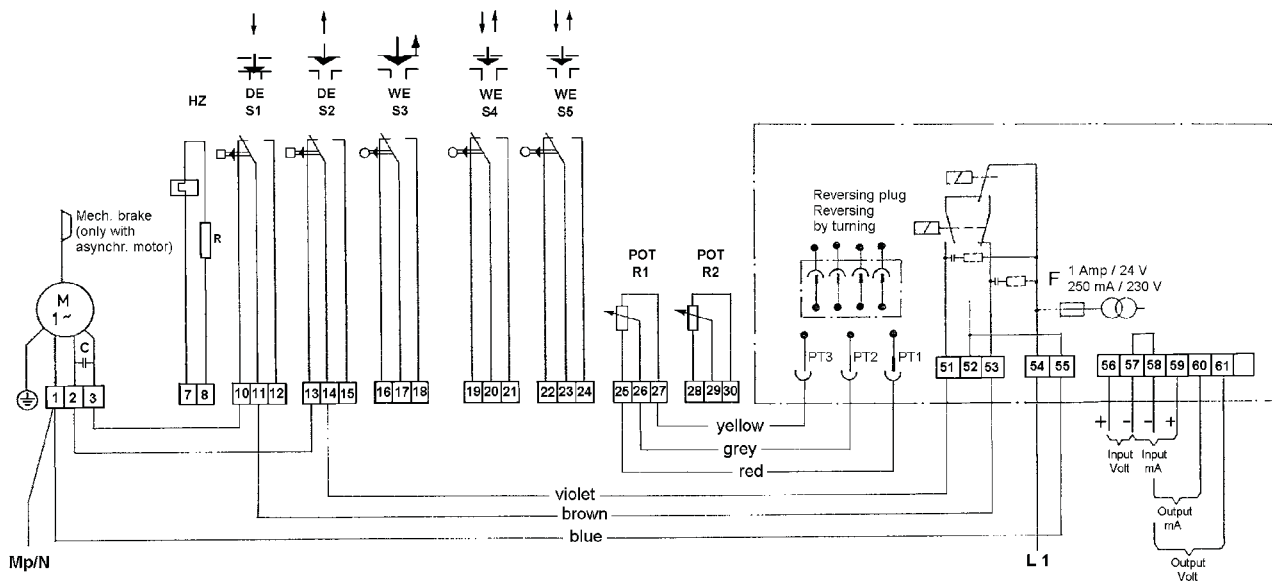
## Connection diagram for cooling

**Controller ER 2000**  
See datasheet 4.6.01

**Controller ER 2000-P**  
See datasheet 4.6.07



## MT90 A (analogue)



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