

Steering

Pumps & Cylinders



Steering



MT - MTP series



Hydraulic pumps

These pump units and cylinders are fully interchangeable, thus enabling the builder and the owner to choose the best possible combination of price and number of wheel turns lock to lock. The smaller the pump unit, the lower the price, but also: the higher the number of turns. The rudder torque always determines which cylinder is to be selected.

Benefits

- Available for single and dual station control
- Cylinder and pump can be supplied separately
- Axial plunger pumps with 7 plungers
- Stainless steel steering wheel shaft, extra strong for large steering wheels

Cylinders

These pump units and cylinders are fully interchangeable, thus enabling the builder and the owner to choose the best possible combination of price and number of wheel turns lock to lock. The smaller the pump unit, the lower the price, but also: the higher the number of turns. The rudder torque always determines which cylinder is to be selected.

Benefits

- Cylinder and pump can be supplied separately
- Cylinders are supplied complete with flexible hose tails
- Cylinders are provided with bleed nipples which accept a quick-release coupling for rapid bleeding
- The cylinder is provided with a base plate with universal joint and a swivelling rod end

Pump-cylinder combinations

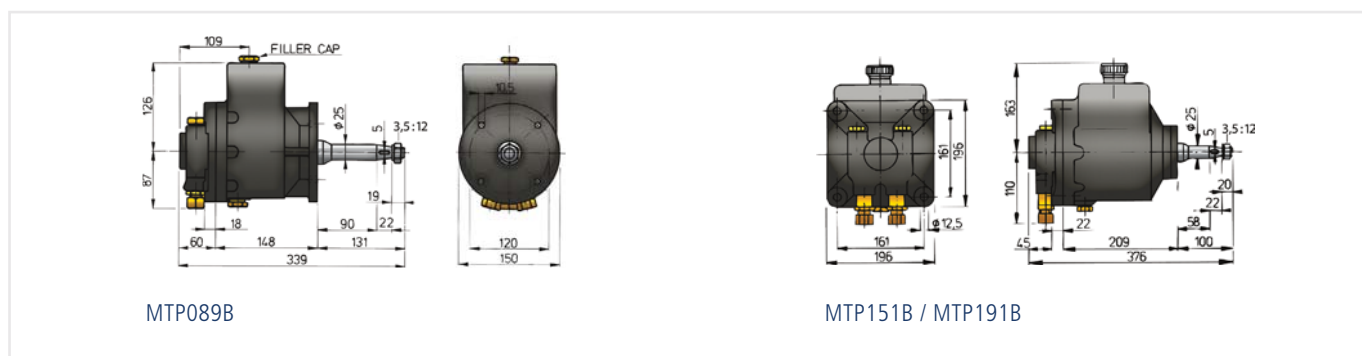
Theoretical number of steering wheel turns from Starboard to Port.

| Pump unit | Cylinder | | | | | |
|-----------|----------|-------|-------|-------|-------|--------|
| | MT230 | MT345 | MT455 | MT600 | MT900 | MT1200 |
| MTP89 | 5.6 | 8.4 | 11.2 | 14.8 | 22.2 | 29.6 |
| MTP151 | 3.3 | 5.0 | 6.6 | 8.8 | 13.1 | 17.5 |
| MTP191 | 2.6 | 3.9 | 5.2 | 6.9 | 10.4 | 13.8 |



Steering pumps - Available types

| Type | Capacity of pump unit | Number of pistons | Maximum pressure | Dimensions of tubes | Connections | Weight of pump unit | Recommended steering wheel diameter |
|---------|---------------------------|-------------------|--|---------------------|--------------------------|---------------------|-------------------------------------|
| MTP089B | 89 cm ³ /rev. | 7 | 63 kg/cm ² (6178 kPa) (896 lbs/sq. inch) | Ø 18 x 15 mm | G 1/2 female pipe thread | 9,1 kg | 60 - 80 cm |
| MTP151B | 151 cm ³ /rev. | 7 | | | | 23 kg | 100 - 110 cm |
| MTP191B | 191 cm ³ /rev. | 7 | | | | 23 kg | 120 - 140 cm |



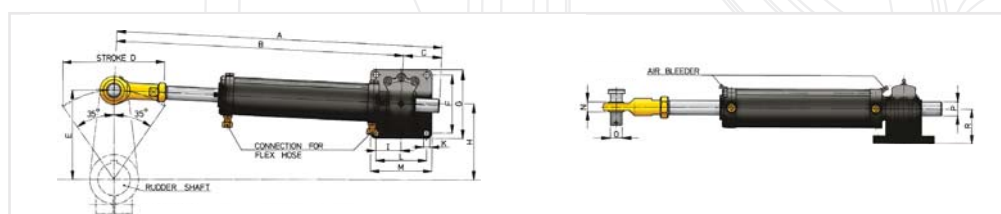
Steering cylinders - Available types

135

| Type | Max torque at 35° rudder angle | Cylinder stroke | Max. pressure | Cylinder volume | Total rudder angle | Length of tiller arm | Weight of cylinder | Dimensions of tubes | Connections |
|---------|--------------------------------|-----------------|---|----------------------|--------------------|----------------------|--------------------|---------------------|--|
| MT0230B | 2207 Nm (225 kgm) | 200 mm | 6178 kPa (63 kg/cm ²) (896 lbs/sq.inch) | 500 cm ³ | 70° | 175 mm | 13,8 kg | Ø 18 x 15 mm | All connections are provided with G 1/2 female pipe thread |
| MT0345B | 3335 Nm (340 kgm) | 300 mm | | 750 cm ³ | | 260 mm | 15,9 kg | | |
| MT0455B | 4415 Nm (450 kgm) | 400 mm | | 1000 cm ³ | | 350 mm | 18 kg | | |
| MT0600B | 5886 Nm (600 kgm) | 200 mm | | 1319 cm ³ | | 175 mm | 35,1 kg | | |
| MT0900B | 8829 Nm (900 kgm) | 300 mm | | 1978 cm ³ | | 260 mm | 38,8 kg | | |
| MT1200B | 11772 Nm (1200 kgm) | 400 mm | | 2638 cm ³ | | 350 mm | 42,5 kg | | |

Dimensions cylinder types

| Cylinder type | A | B | C | D | E | F | G | H | I | K | L | M | N | O | P | R |
|---------------|------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|----|----|----|-----|
| MT0230B | 733 | 607 | 127 | 200 | 175 | 112 | 140 | 143 | 36 | 11 | 72 | 100 | 31 | 25 | 28 | 55 |
| MT0345B | 933 | 757 | 177 | 300 | 260 | 112 | 140 | 215 | 36 | 11 | 72 | 100 | 31 | 25 | 28 | 55 |
| MT0455B | 1133 | 907 | 227 | 400 | 350 | 112 | 140 | 286 | 36 | 11 | 72 | 100 | 31 | 25 | 28 | 55 |
| MT0600B | 735 | 695 | 40 | 200 | 175 | 160 | 198 | 143 | 71,5 | 18,5 | 143 | 182 | 25 | 35 | 40 | 102 |
| MT0900B | 935 | 845 | 90 | 300 | 260 | 160 | 198 | 215 | 71,5 | 18,5 | 143 | 182 | 25 | 35 | 40 | 102 |
| MT1200B | 1135 | 995 | 140 | 400 | 350 | 160 | 198 | 286 | 71,5 | 18,5 | 143 | 182 | 25 | 35 | 40 | 102 |



Steering Accessories



Non-return valve

Both for single and for dual steering, a non-return valve is available (complete with all fittings). Also a pressure relief valve, complete with a fittings, can be supplied.

| Type | Description |
|-------|--|
| HS81B | Dual non-return valve (G1/2) (incl. tube connectors Ø 18 mm) |
| HS74B | Single non-return valve (G1/2) with by-pass valve (incl. tube connectors Ø 18 mm) (suitable for single and dual station) |
| HS42B | Pressure relief valve (G1/2) (incl. tube connectors Ø 18 mm) |



By-pass valve

If, in an emergency, a quick change-over to tiller steering is required, installation of a by-pass valve is necessary.

| Type | Description |
|----------|--|
| BYPASS18 | By-pass valve for Ø 18 mm tubing (incl. tube connectors Ø 18 mm) |



Copper tubing

Copper tubing available (per roll):

| Type | Internal Ø | External Ø | Length |
|----------|------------|------------|-----------|
| COPPER18 | 15 mm | 18 mm | 10 metres |

