

# Hydraulic Projects

Data Sheet ML40+d

## ML40~~PLUS~~ LINEAR ACTUATOR

The ML40~~PLUS~~ Electro Hydraulic Linear Actuator combines all the elements of an hydraulic circuit in one compact unit. Designed for ease of installation, the unit is supplied with a quick release mounting and tiller bolt. An optional rudder reference/feedback unit can be mounted directly onto the actuator. Integral relief valves protect the unit and its mountings from being overloaded.



### Description

The ML40~~PLUS~~ combines a hydraulic cylinder, pump, motor, clutch and reservoir in one powerful and compact unit. To operate the clutch is engaged and the cylinder extends and retracts by means of reversing the motor polarity. Integral relief valves protect the unit and its mounting from being overloaded. Anti-cavitation valves are also incorporated to allow full stroke speeds of up to 2 seconds when back-driven by the helm.

Designed for ease of servicing with a motor that can be removed from the unit without affecting the hydraulic circuit.

A full range of spares, seal kits and servicing tools are available.

The ML40~~PLUS~~ is supplied pre-filled and ready to install.

### Application

Ruggedly designed specifically for the marine auto-pilot market where they are widely used on sailboats and power craft with displacement or fast planing hulls. They are ideal where space is limited as there is no separate pipe-work or reservoirs to fit. The unit can be mounted in any attitude.

Outside of the marine market it has found many industrial applications including gate and door opening and mechanical lifts.

The ML40~~PLUS~~ is suitable anywhere a high thrust is required from a 12 or 24v DC supply.

### Features

- Ease of installation.
- Low profile
- Low power consumption.
- 2 speed options.
- Integral relief valves.
- Rudder/feedback option.
- Low maintenance.
- User serviceable.
- Quick release mounting.
- 12 or 24v DC option.
- Service kits available.
- Low back-drive
- Fully marinised
- Interchangeable with ML40

### Technical Data

#### Performance

Maximum thrust (intermittent)	732 kg
Hard over time nominal ML40 <del>PLUS</del> 10	13 sec
Hard over time nominal ML40 <del>PLUS</del> 20	9 sec
Temperature rating minimum	-20°C
Temperature rating maximum	+65°C
Relief valve setting	62 bar
Back-drive at 12 sec Hard-over	7kg

#### Electrical

Motor voltage nominal	12 or 24v DC
Motor power	100 watt
Max current 12v 25% duty	22.5 A
Max current 24v 25% duty	11.2 A
Rotation	Reversing
Protection	IP44
Connection	1m Flying Lead 2 Core 2.5mm <sup>2</sup>
Ignition protection	BS EN 28846:1993
EMC	BS EN 60945:2002
Orientation	Red Lead Positive Cylinder Retracts
Coil power continuous connection	12 watt DIN 43650
protection	IP65
cable Ø (not supplied)	6 - 8mm

#### Recommended oil

Mineral based hydraulic ISO VG10

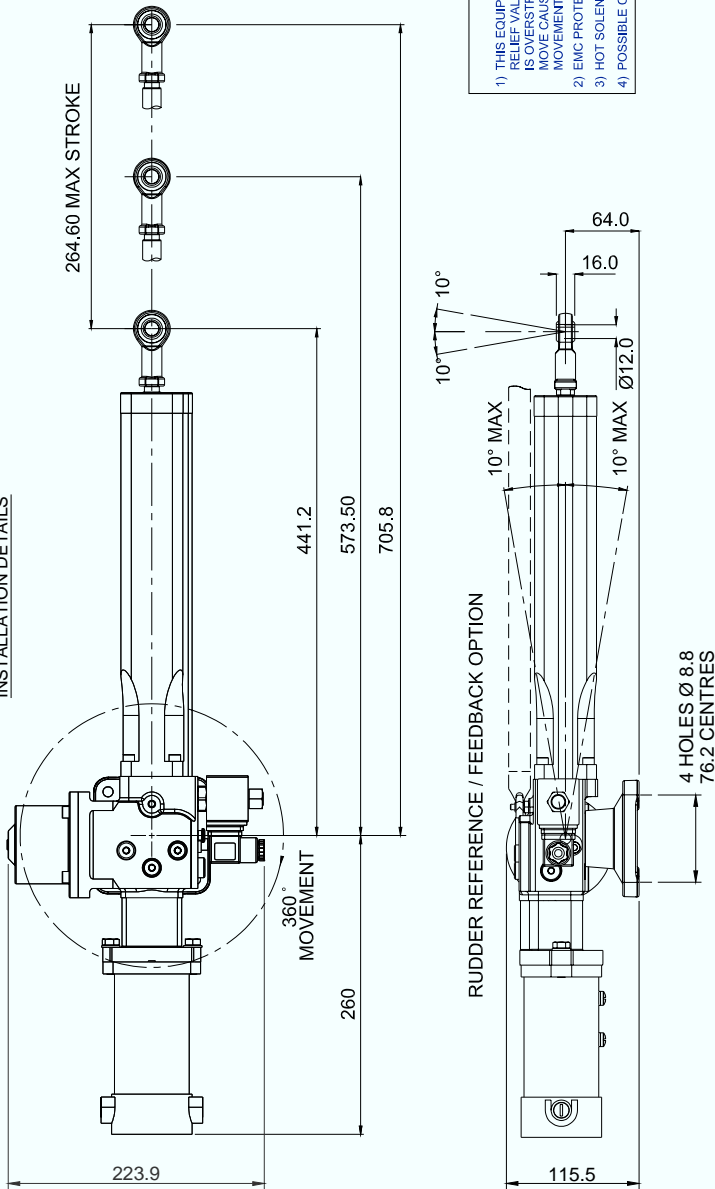
#### Materials

Body	Aluminium BS 1490
Piston rod	Chrome Plated Stainless Steel
Seals	Nitrile & PTFE
Body Protection	SP270

**Weight** 9.0 kg

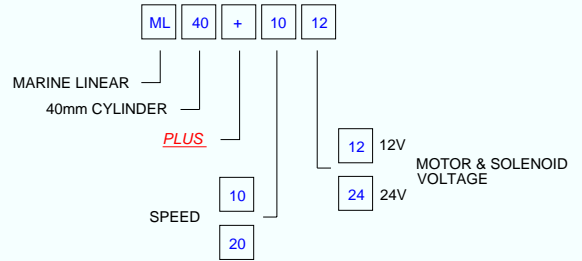


**INSTALLATION DETAILS**

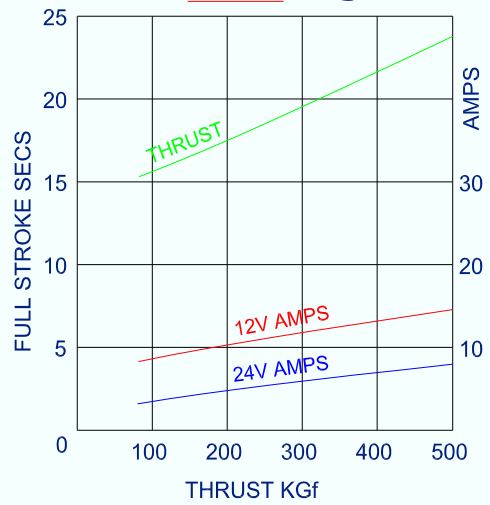


- WARNING**
- 1) THIS EQUIPMENT IS FITTED WITH RELIEF VALVES AND WHEN THE UNIT IS OVERSTRESSED THE CYLINDER WILL MOVE AND CAUSE UNEXPECTED MOVEMENT OF THE STEERING GEAR
  - 2) EMC PROTECTED - DO NOT FLASH TEST
  - 3) HOT SOLENOID
  - 4) POSSIBLE CRUSH INJURIES FROM MOVING PARTS

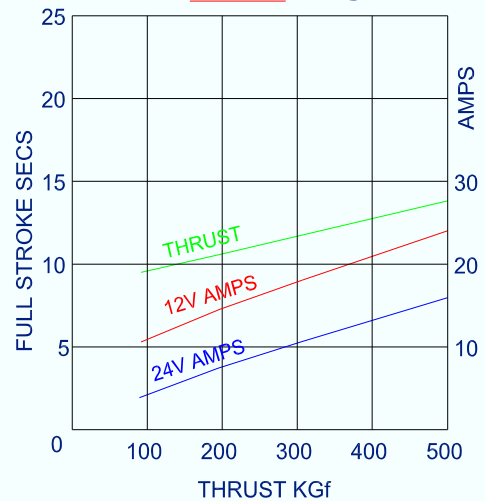
**ORDER CODE**



**ML40PLUS 10 @25°C**



**ML40PLUS 20 @25°C**



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