

Steering systems, rudders and stocks



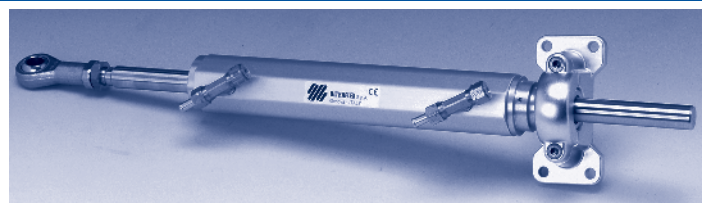
Hydraulic steering

The Helm Pump

Smooth operating, high efficiency axial piston pumps provide the 'Power' to the steering cylinder when the steering wheel is turned. They are matched to cylinder size to give suitable number of wheel turns according to the rudder torque. The helm pumps are combined with a back mounted or separate lockvalve which 'blocks' rudder feedback and isolates each pump in a multiple station. The system is filled simply by pouring the recommended oil into the helm pump filler - no external pressurisation is required. Any number of steering stations may be used in a single system. Each helm pump operates independently without station transfer and each has full control of rudder. Wheels not in use do not turn. Optional power steering and autopilot pump sets are connected in the same manner as additional stations.

The Steering Cylinder

Cylinders are double acting, fully balanced, to give an equal number of turns of the wheel in each direction. Suitable end fittings are provided, according to application, but usually a ball joint on the end of the rod, and a swivel base on the cylinder. 32mm cylinders have aluminium bodies and larger cylinders all have brass bodies. Compression fittings and nylon piping complete the kits.



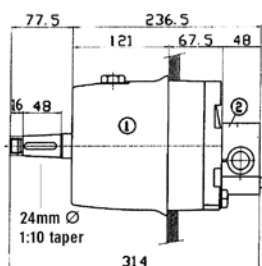
General characteristics

Lock valve at each steering station
High overall efficiency
All components repairable
Ideal for multi stations and autopilot
No pressurisation required
Suitable for most boats 4m to 20m

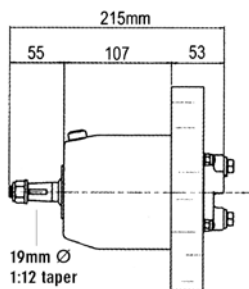
Special attachments available for Sternpower 80, Mercruiser, Autopilot and through tube outboards

Dimensions (mm) and Torque (Kg-Met)

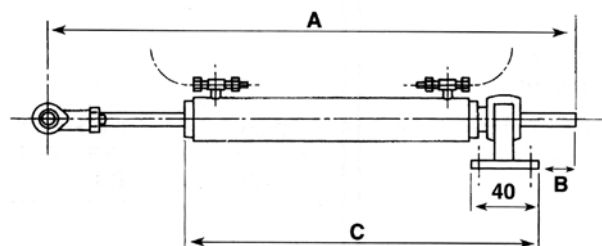
Cylinder	32 x 178	40 x 178	40 x 222	50 x 230	50 x 300
A	568	620	720	787	951
B (Max)	151	175	225	220	290
C	348	366	416	522	616
Max Torque Kpm	58	87	111	217	281



HD Helm



LD Helm



Lancing Marine standard rudder dimensions (cms)

A cm	B cm	C cm	SD ins	SL cm	MAX kts @ 30°
8	20	30	1	20	25
10	25	38	1	25	18
10	25	38	1¼	23	25
12	30	46	1¼	23	18
12	30	46	1½	25	25
15	38	56	1½	25	18
15	38	56	1¾	28	27
15	38	56	2	30	28

Rudder torque must be carefully calculated as follows:-

$$\text{Torque forward (Kg-Met)} = \frac{(0.37B-A) \text{ C.B. } V_f^2}{71460}$$

$$\text{Torque astern (Kg-Met)} = \frac{(0.63B-A) \text{ C.B. } V_r^2}{71460}$$

A = Balance length, cms
B = Total length, cms
C = Rudder height, cms
Vf = Max. forward speed, knots
Vr = Max. astern speed, knots

Detailed calculations can be done using the Lancing Marine Boatspeed and Propeller Program, available for PC operating systems.

Rudder and tube assembly

