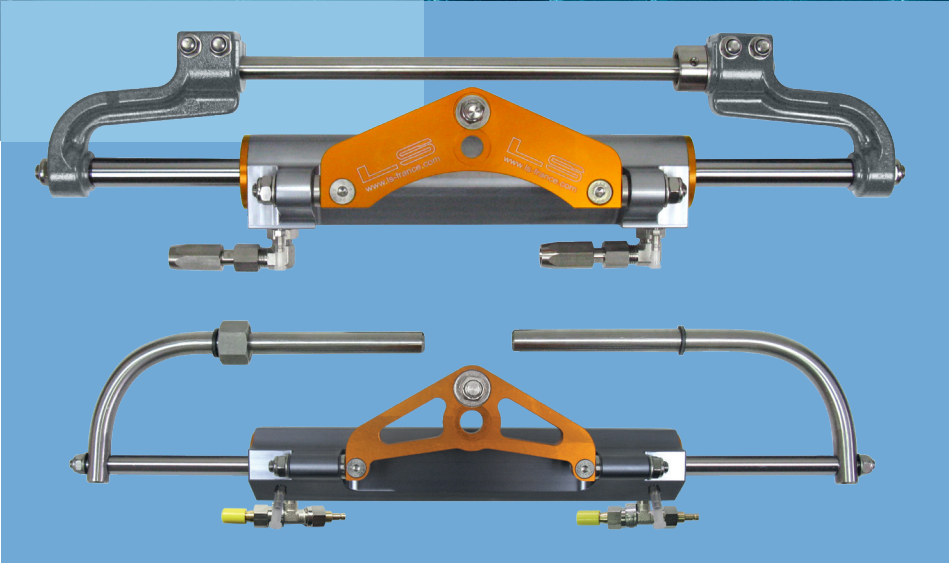
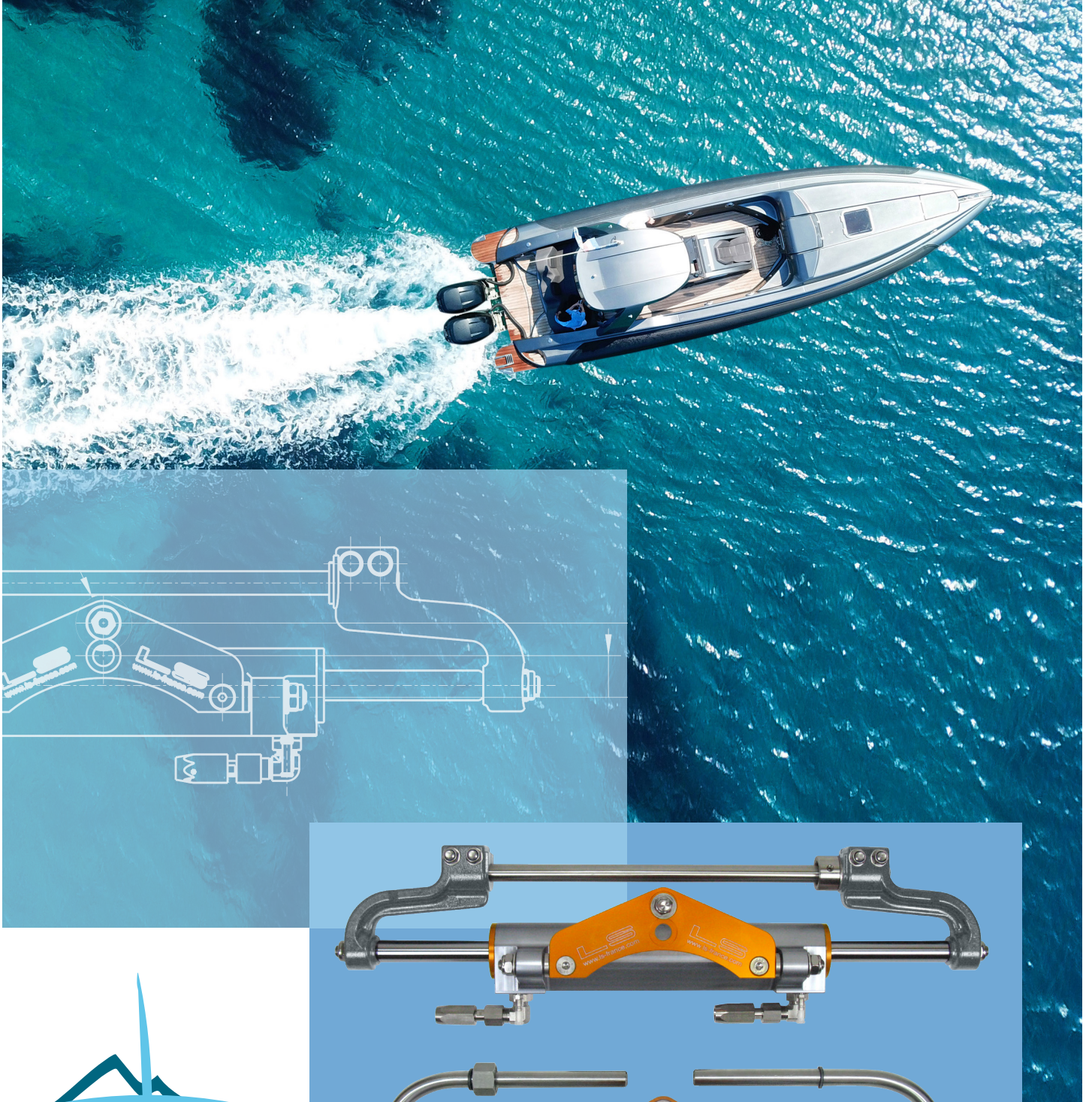


# Hydraulic Steering Systems for Outboard Motors



## **Lecomble & Schmitt s.A.s.**

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<https://www.ls-france.com>

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# HYDRAULIC STEERING SYSTEMS FOR OUTBOARD MOTORS

## LS HYDRAULIC STEERING SYSTEMS

Our hydraulic steering systems for outboard motors are **perfectly adapted to the requirements of different applications**, i.e. pleasure boating, workboats, professional or amateur fishing, competition and its accompaniment.

They are **easy to install**, state of the art machine finished and **made to resist a marine environment**.

You can easily select **the best suited system for your boat** within the most comprehensive range available on the market with a guarantee of **efficiency, reliability and smoothness**.

Our systems carry a **2 year warranty** and are **CE** approved.



### Description of LS Hydraulic Steering Systems

As a general rule, the basic set up of a steering system includes:

- 1 Cylinder,
- 1 Manual pump,
- Fittings and tubing to connect the cylinder to the manual pump.

Other elements will be added to this basic set up in function of the number of steering stations, the number of outboard motors to be operated and the addition of a power pack for the automatic pilot.

#### Cylinder

The cylinder is the dictating element towards the selection of a system as it gives the power to the steering system. To select a cylinder, follow the method described on page 4.

#### Manual pump

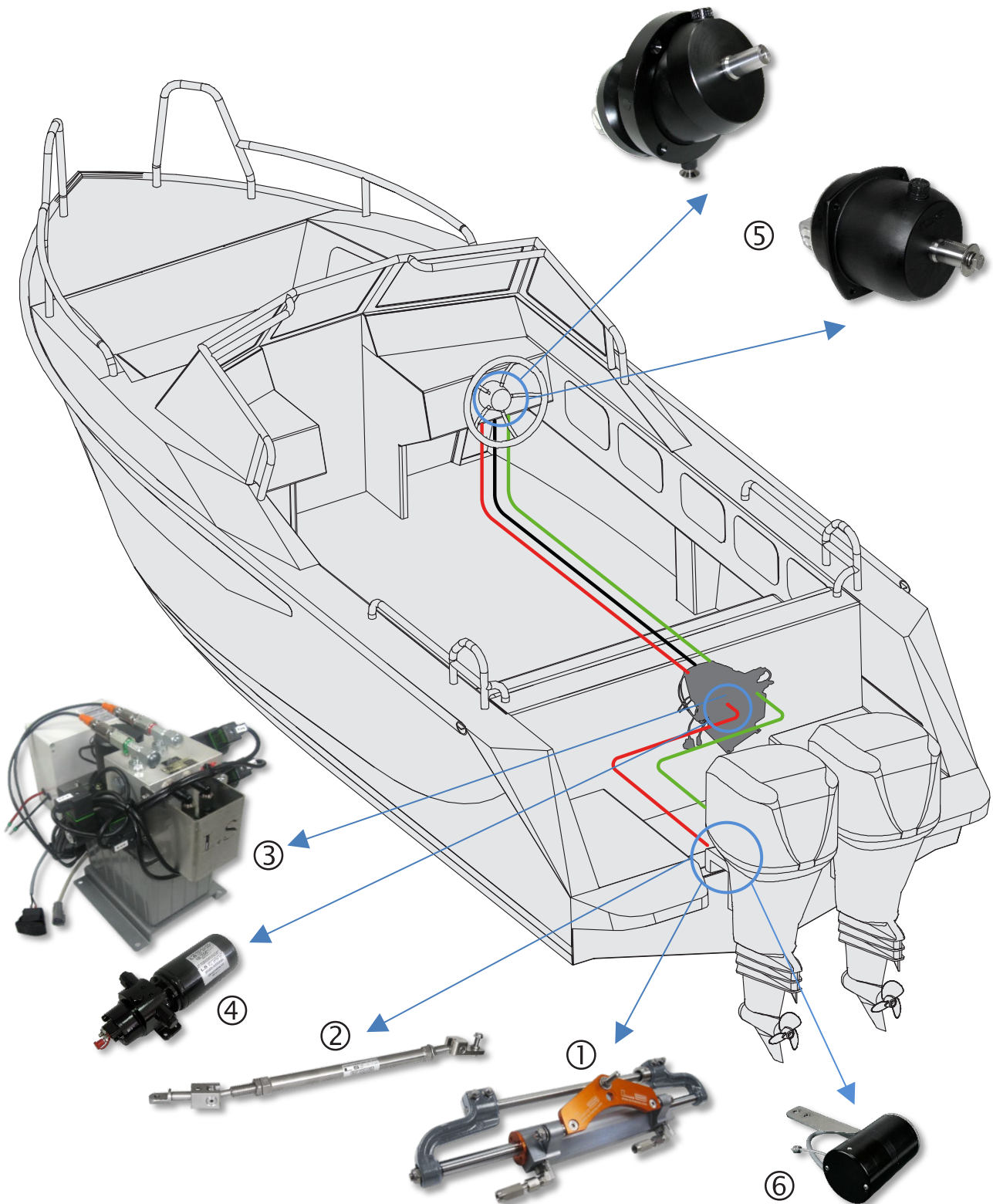
The manual pump is an axial piston pump which sucks and forces back the oil contained in the circuit when the wheel is operated. Its cubic capacity determines the number of turns required for a lock to lock manoeuvre of the motor(s). The pump is fitted with lock valves to prevent inopportune motor movement when the helm is not operated. The pump is also fitted with pressure relief valves to protect the circuit against abnormal pressure increase.

#### Tubing

Tubing is designed for hydraulic transfer under pressure and is easily integrated in the installation as a result of its flexibility and small bending radius. Tubing diameter is selected in function of the manual helm pump flow rate.

# HYDRAULIC STEERING SYSTEMS FOR OUTBOARD MOTORS

## OUTBOARD HYDRAULIC STEERING MAIN COMPONENTS



① Hydraulic cylinder

④ Autopilot power pack

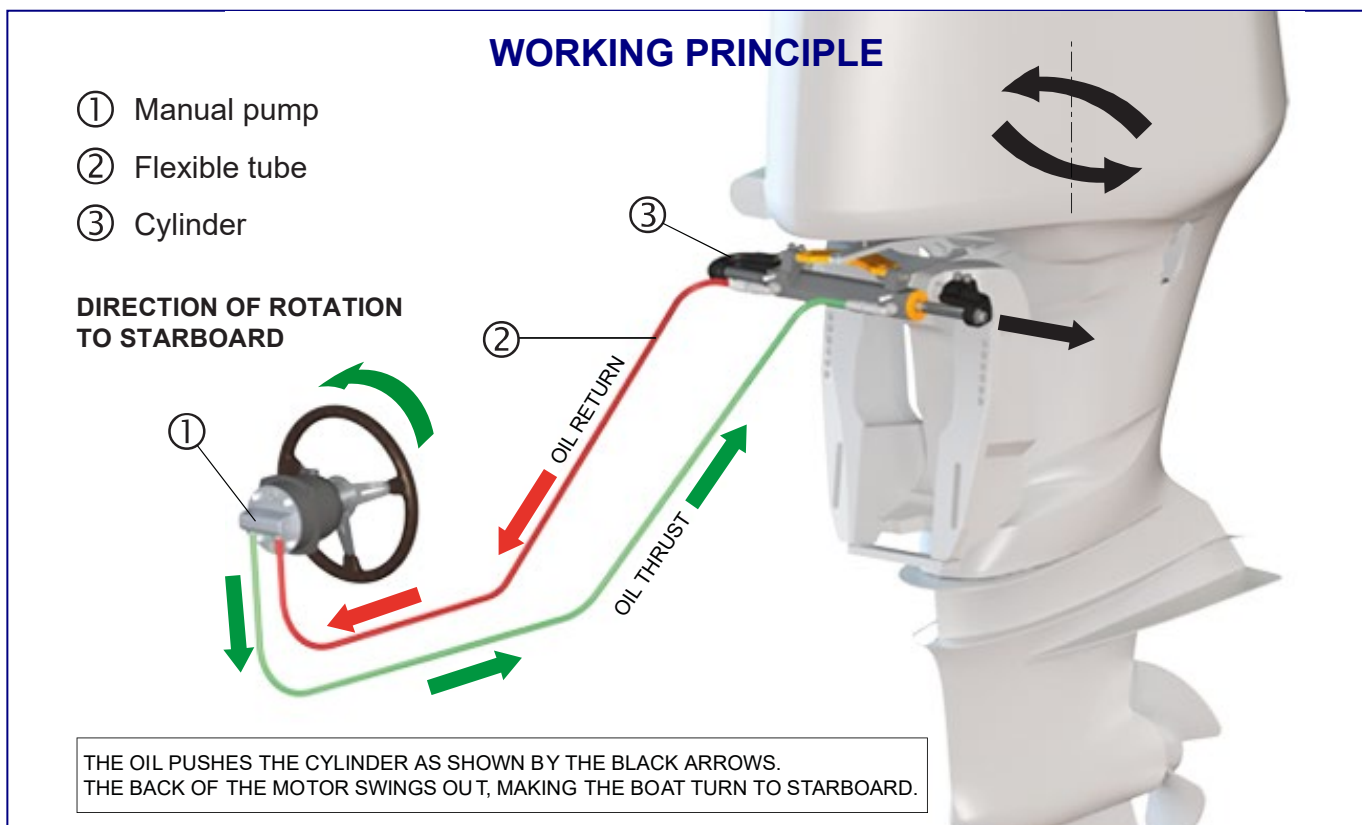
② Tie rod for multi-engine installation

⑤ Hydraulic helm pump / Tilt-pump

③ Autopilot and power assist power pack

⑥ Outboard Sensor

# HYDRAULIC STEERING SYSTEMS FOR OUTBOARD MOTORS



## SELECTION OF THE STEERING SYSTEM

Determine your boat's power engines on our website: [www.ls-france.com](http://www.ls-france.com)



To select a steering system in our range, first determine the maximum horse power developed by the outboard motor(s) and the rotational direction of the propellers on installations with several motors.

Indeed:

- **For twin motor installations working in the same rotational direction, add the power of both motors** (see example below).

Whereas:

- **For twin motor installations working in counter-rotation, take into account the power of one motor only + 20%** (see example below).

	Maximum Power
For the installation of one single motor 1 x 115 H.P. ....	<b>= 115 H.P.</b>
For twin motor installation 2 x 115 H.P. (same rotational direction) .....	<b>= 230 H.P.</b>
For twin motor installation 2 x 115 H.P. (in counter rotation) : <b>115 + 20%</b> .....	<b>= 138 H.P.</b>

Now select in our range the hydraulic steering which complies with the **maximum power** of the motor(s) (see examples below):

Maximum power 115 H.P. ....	<b>LS 125 PRO or LS 226</b>
Maximum power 230 H.P. ....	<b>LS 3500 PRO or LS 232 C</b>
Maximum power 138 H.P. ....	<b>LS 175 PRO</b>

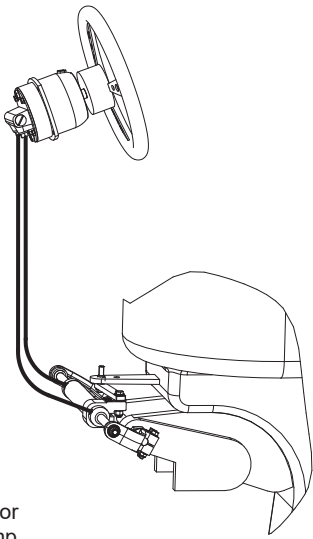
For twin motor installations when the calculated maximum power exceeds the **maximum power** the steering system is given for (ex.: 2 x 200 H.P. in same rotational direction = 400 H.P.), it will be necessary to install a cylinder on each motor with a parallel hydraulic circuit (see "Different types of assemblies").

**Note: For 4-blade propellers or more and for motors equipped with twin propellers or with long or extra-long shafts, please contact us.**

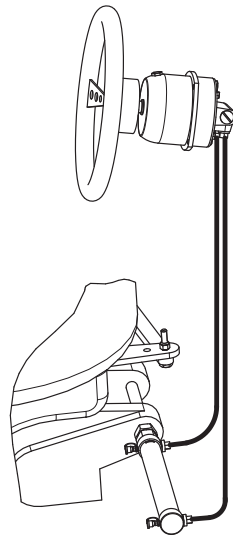


# DIFFERENTS TYPES OF ASSEMBLIES

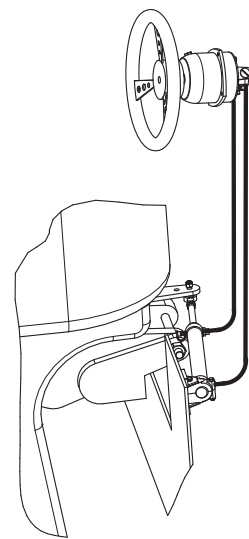
## Single-motor installations



1 motor  
1 pump  
1 front mount cylinder

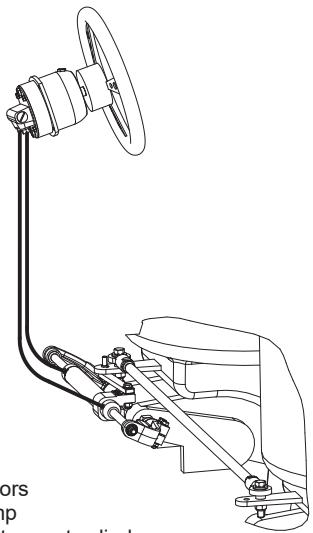


1 motor  
1 pump  
1 side mount cylinder

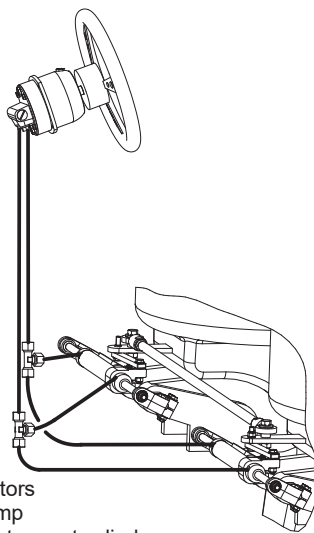


1 motor  
1 pump  
1 side mount cylinder on panel

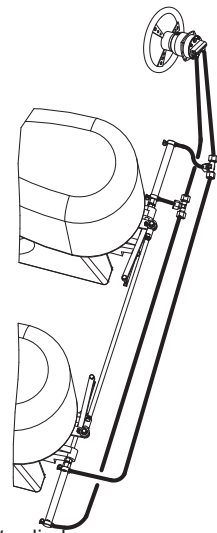
## Twin-motor installations



2 motors  
1 pump  
1 front mount cylinder  
1 tie rod



2 motors  
1 pump  
2 front mount cylinders  
1 tie rod

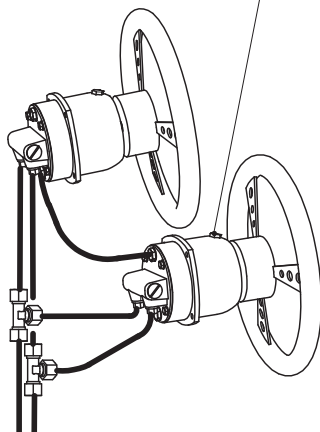


2 motors  
1 pump  
2 side mount cylinders  
1 tie rod

## Installation for double steering station

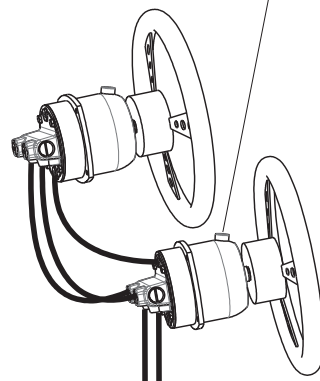
### Traditional installation with T-fittings

Non vented plug compulsory

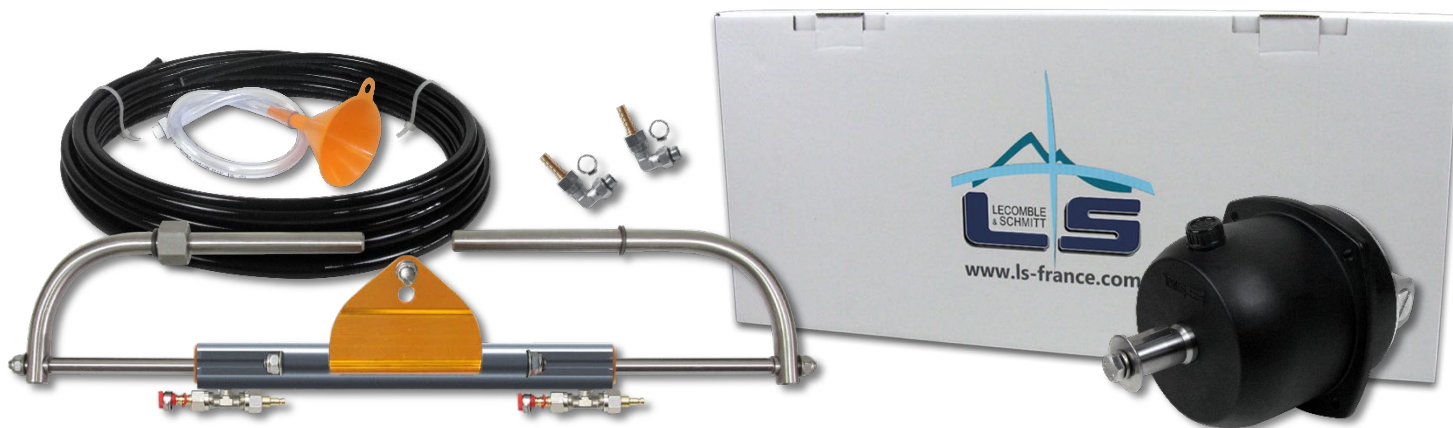


### Installation with dual outlet pump flange (horizontal / vertical)

Non vented plug compulsory



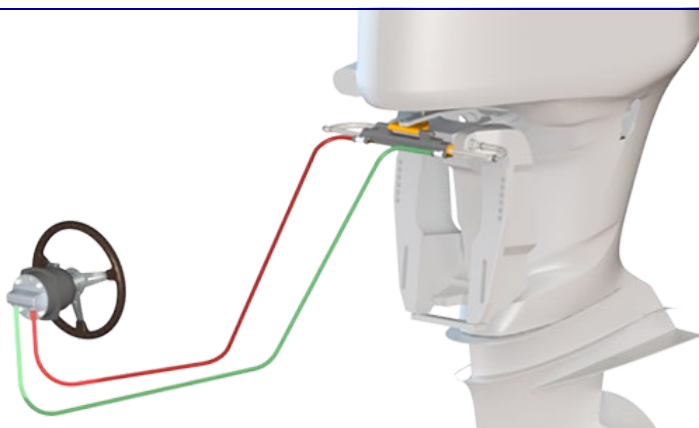
# HYDRAULIC STEERING SYSTEM LS 80 PRO – 2203348



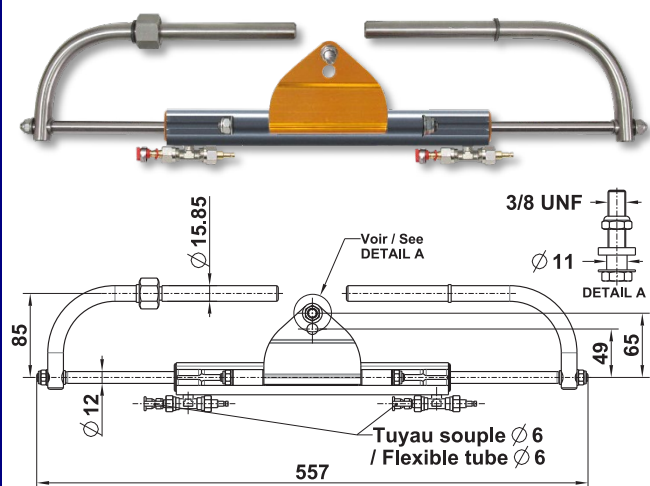
**FOR OUTBOARD MOTORS UP TO 80 HP / PORT TO STARBOARD: 3.5 turns**  
*contact us for boat speed exceeding 40 knots and for 40 / 50 hp Suzuki motors*

### Composition of standard kit 2203348

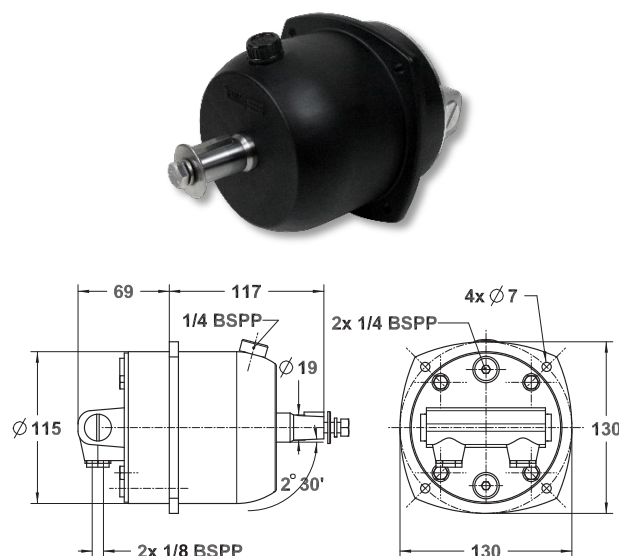
<b>2200804</b>	<b>Pump 20 HB with lock valve</b>
<b>2203315</b>	<b>Cylinder VHM EX 80 HP + fittings</b>
<b>2201989</b>	<b>Set of elbow pump fittings Ø 6</b>
<b>1204268</b>	<b>10 metres of flexible tube Ø 6</b>
<b>2203853</b>	<b>OB filling kit</b>



**2203315 Cylinder VHM EX 80 HP + fittings**  
 Weight: 2.3 kg    Volume: 70 cc    Stroke: 206 mm



**2200804 Pump 20 HB with lock valve**  
 Weight: 3.5 kg



**1204268 10 metres of flex. tube Ø 6**



**2201989 Set of elbow pump fittings Ø 6**

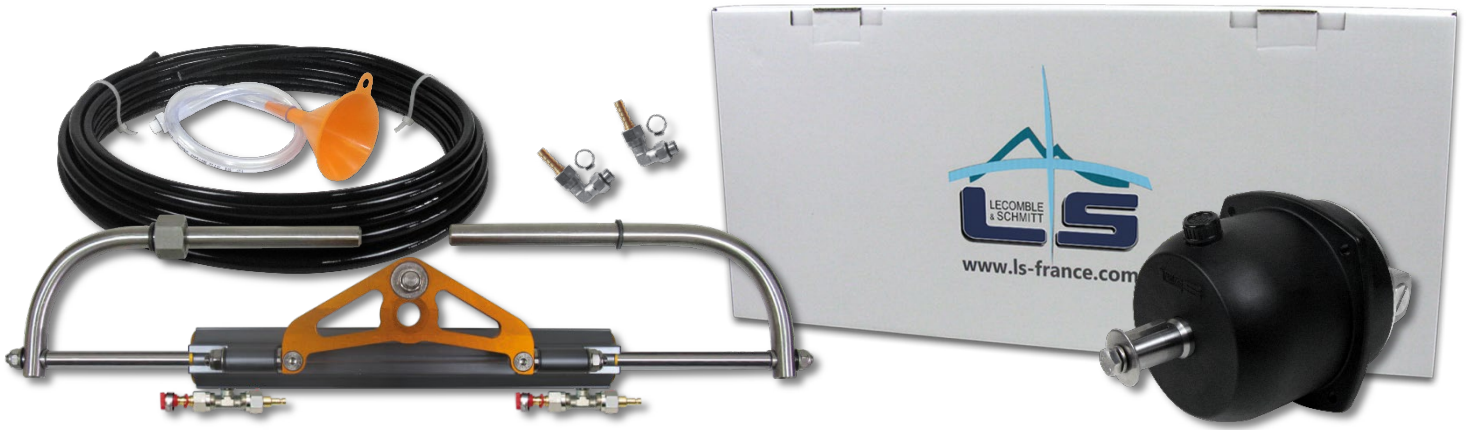


**2203853 OB filling kit**





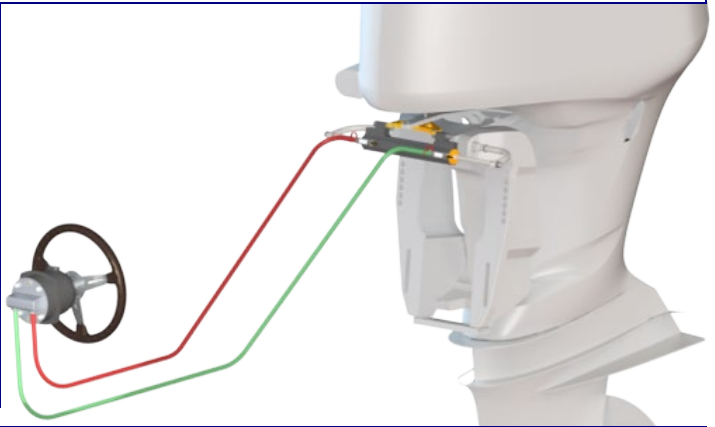
# HYDRAULIC STEERING SYSTEM LS 125 PRO – 2203349



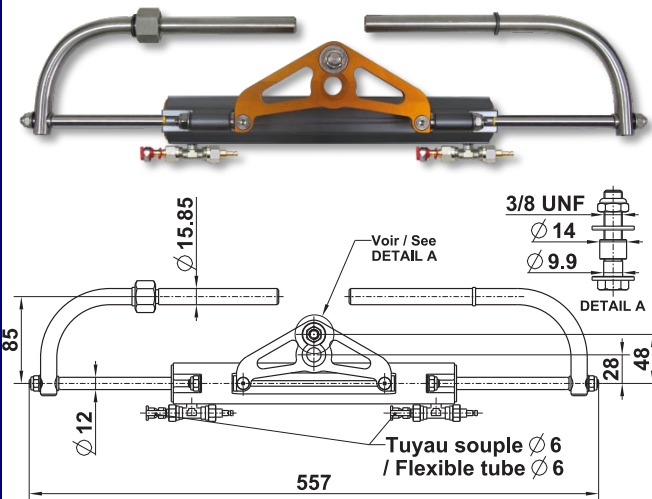
**FOR OUTBOARD MOTORS UP TO 125 HP / PORT TO STARBOARD: 5.4 turns**  
**(200 H.P. for two motors working in counter-rotation)**  
*contact us for boat speed exceeding 40 knots and for 40 / 50 hp Suzuki motors*

**Composition of standard kit 2203349**

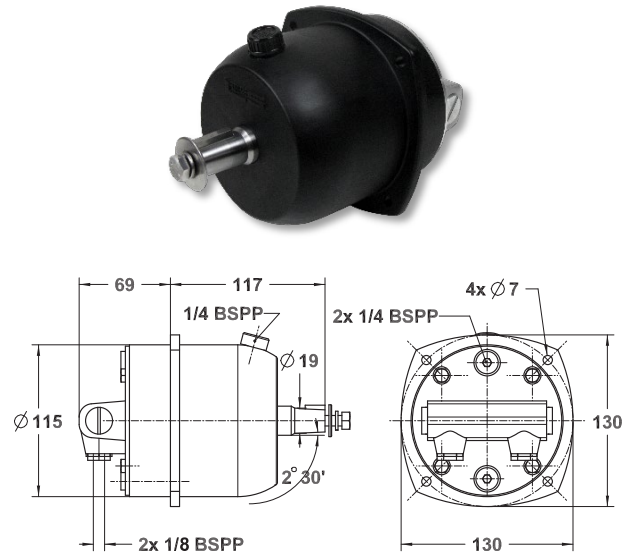
<b>2200804</b>	<b>Pump 20 HB with lock valve</b>
<b>2203333</b>	<b>Cylinder VHM EX 125 HP + fittings</b>
<b>2201989</b>	<b>Set of elbow pump fittings Ø 6</b>
<b>1204268</b>	<b>10 metres of flexible tube Ø 6</b>
<b>2203853</b>	<b>OB filling kit</b>



**2203333 Cylinder VHM EX 125 HP + fittings**  
 Weight: 2.5 kg    Volume: 107 cc    Stroke: 212 mm



**2200804 Pump 20 HB with lock valve**  
 Weight: 3.5 kg



**1204268 10 metres of flex. tube Ø 6**



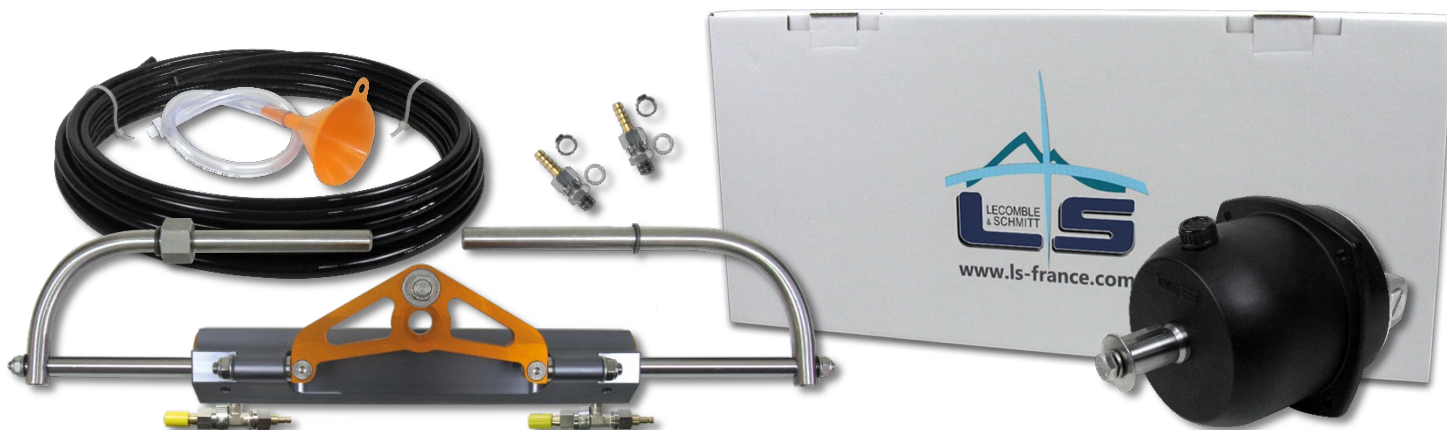
**2201989 Set of elbow pump fittings Ø 6**



**2203853 OB filling kit**



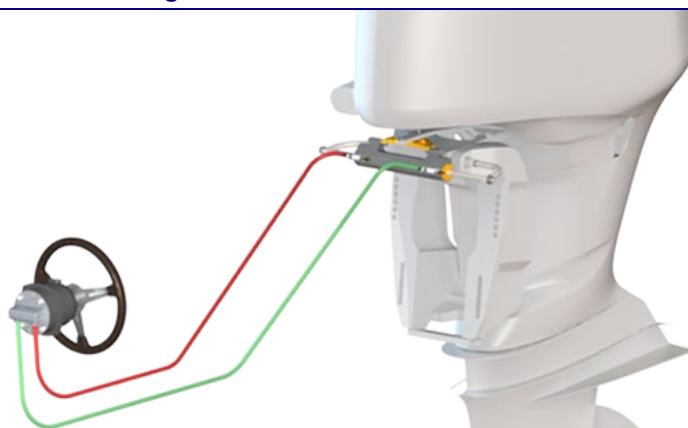
# HYDRAULIC STEERING SYSTEM LS 175 PRO – 2203350



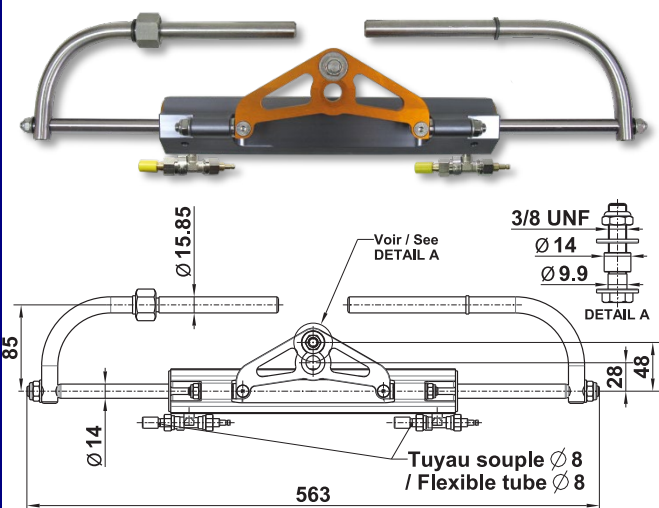
**FOR OUTBOARD MOTORS UP TO 175 HP / PORT TO STARBOARD: 5.3 turns**  
 (300 H.P. for two motors working in counter-rotation)  
*contact us for boat speed exceeding 40 knots*

### Composition of standard kit 2203350

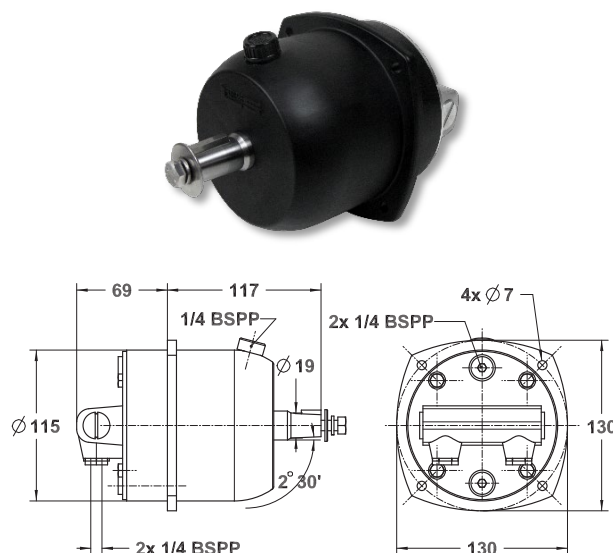
<b>2200948</b>	<b>Pump 26 HB with lock valve</b>
<b>2203334</b>	<b>Cylinder VHM EX 175 HP + fittings</b>
<b>2202723</b>	<b>Set of straight pump fit. 1/4 BSPP TS8</b>
<b>1204825</b>	<b>10 metres of flexible tube Ø 8</b>
<b>2203853</b>	<b>OB filling kit</b>



**2203334 Cylinder VHM EX 175 HP + fittings**  
 Weight: 3 kg    Volume: 137 cc    Stroke: 210 mm



**2200948 Pump 26 HB with lock valve**  
 Weight: 3.5 kg



**1204825 10 metres of flex. tube Ø 8**



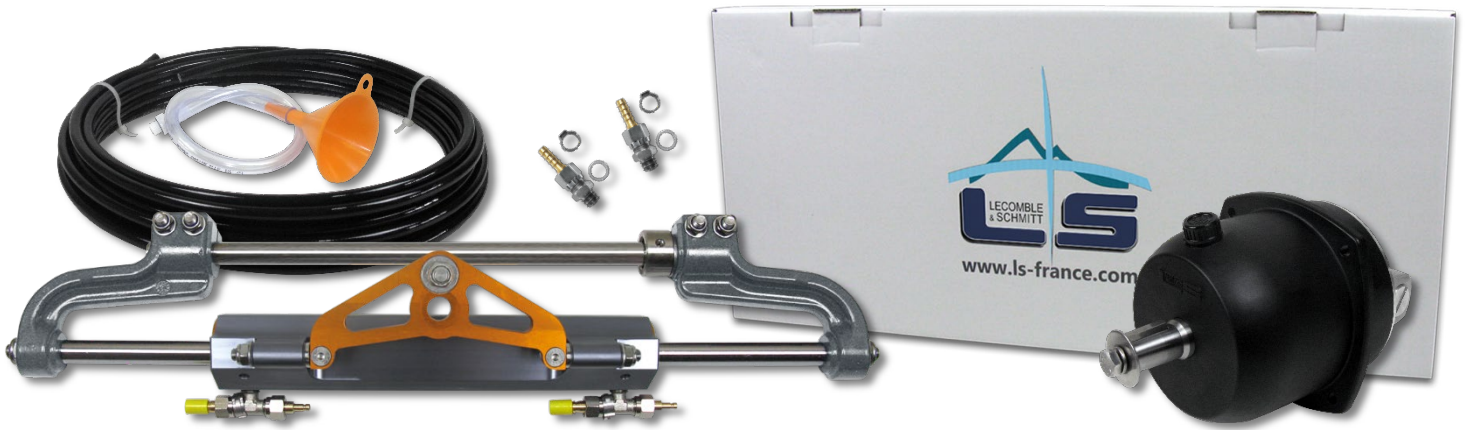
**2202723 Set of straight pump fit. 1/4 BSPP TS8**



**2203853 OB filling kit**



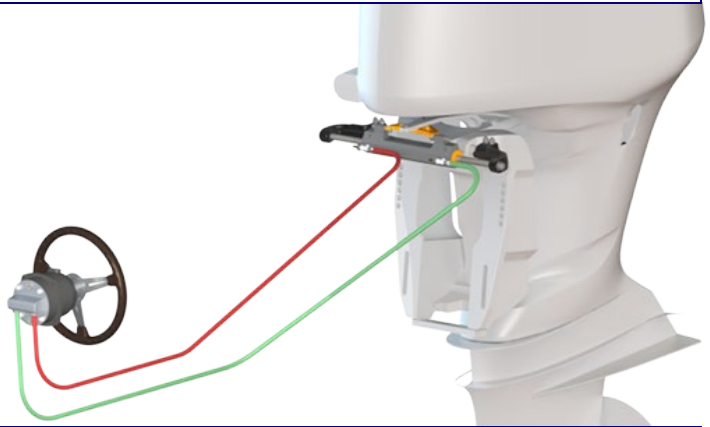
# HYDRAULIC STEERING SYSTEM LS 225 PRO – 2203351



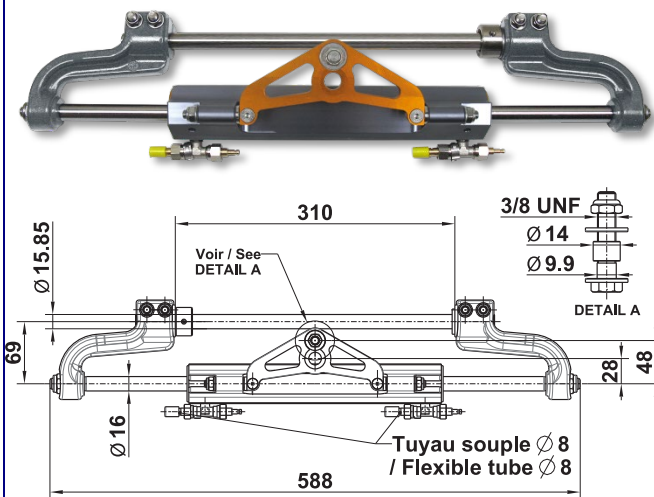
**FOR OUTBOARD MOTORS UP TO 225 HP / PORT TO STARBOARD: 4.9 turns  
(400 H.P. for two motors working in counter-rotation)**

### Composition of standard kit 2203351

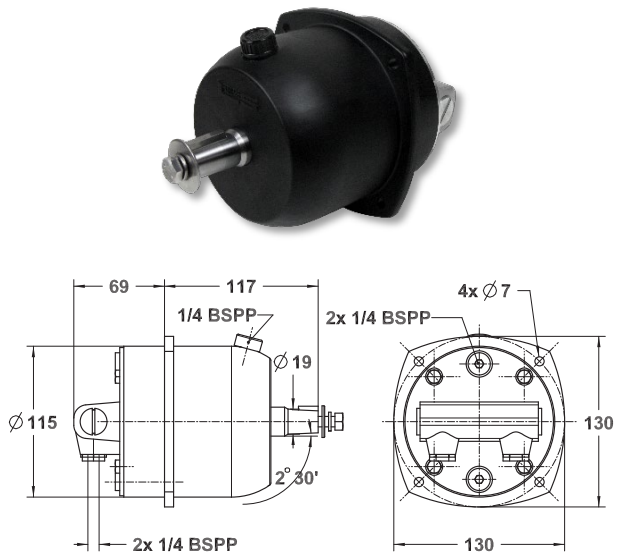
<b>2200948</b>	<b>Pump 26 HB with lock valve</b>
<b>2203335</b>	<b>Cylinder VHM EX 225 HP + fittings</b>
<b>2202723</b>	<b>Set of straight pump fit. 1/4 BSPP TS8</b>
<b>1204825</b>	<b>10 metres of flexible tube Ø 8</b>
<b>2203853</b>	<b>OB filling kit</b>



**2203335 Cylinder VHM EX 225 HP + fittings**  
Weight: 3.7 kg    Volume: 127 cc    Stroke: 210 mm



**2200948 Pump 26 HB with lock valve**  
Weight: 3.5 kg



**1204825 10 metres of flex. tube Ø 8**



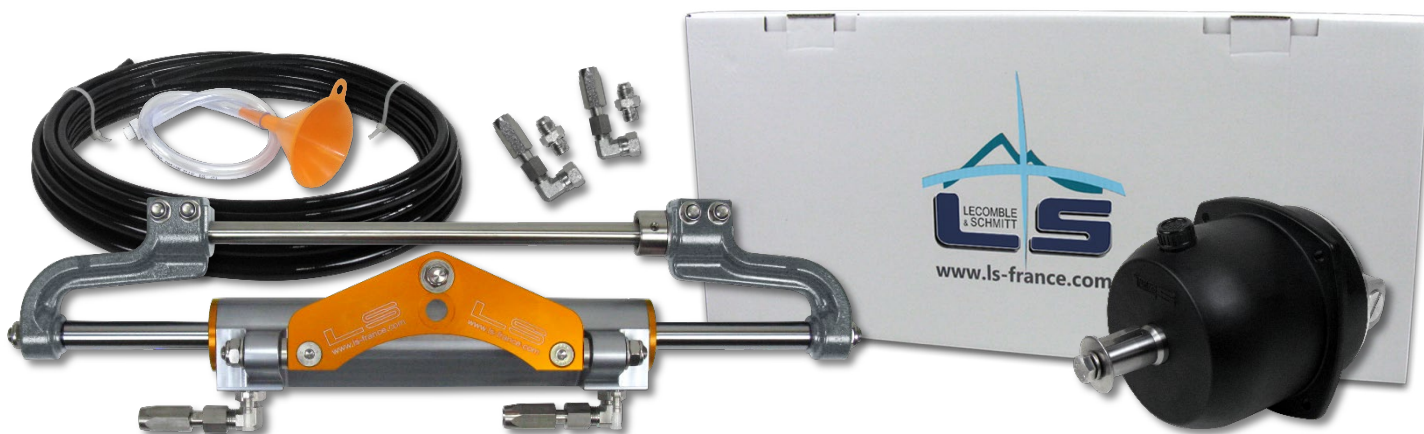
**2202723 Set of straight pump fit. 1/4 BSPP TS8**



**2203853 OB filling kit**



# HYDRAULIC STEERING SYSTEM LS 3500 PRO – 2203576



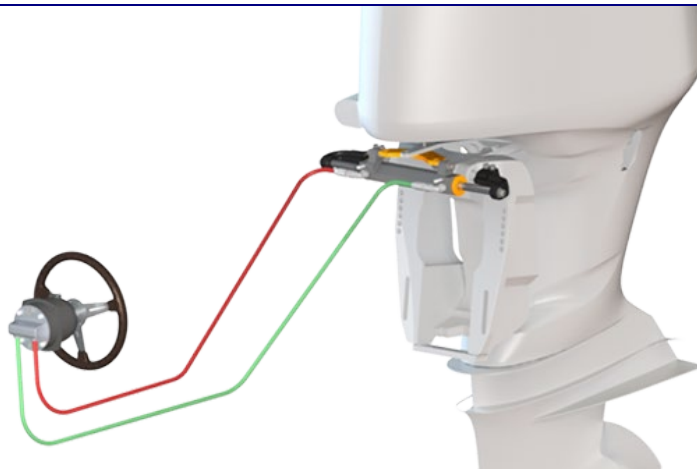
**FOR OUTBOARD MOTORS UP TO 350 HP  
PORT TO STARBOARD: 6.5 turns**

### Composition of standard kit 2203576

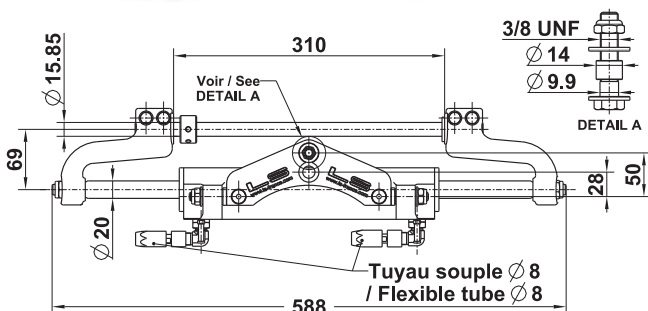
<b>2200950</b>	Pump 30 HB with lock valve <sup>(1)</sup>
<b>2203572</b>	Cylinder VHM EX 3500 HP + fitt. <sup>(2)</sup>
<b>2200021</b>	Set of elbow pump fittings
<b>1204825</b>	10 metres of flexible tube Ø 8
<b>2203853</b>	OB filling kit

<sup>(1)</sup> Other pump models : contact us

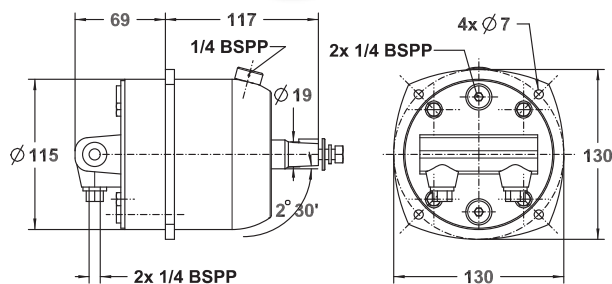
<sup>(2)</sup> Option with Stainless Steel Bracket : contact us



**2203572 Cylinder VHM EX 3500 HP + fittings**  
Weight: 4.9 kg    Volume: 198 cc    Stroke: 210 mm



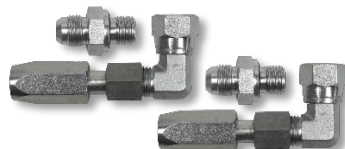
**2200950 Pump 30 HB with lock valve**  
Weight: 3.4 kg



**1204825 10 metres of flex. tube Ø 8**



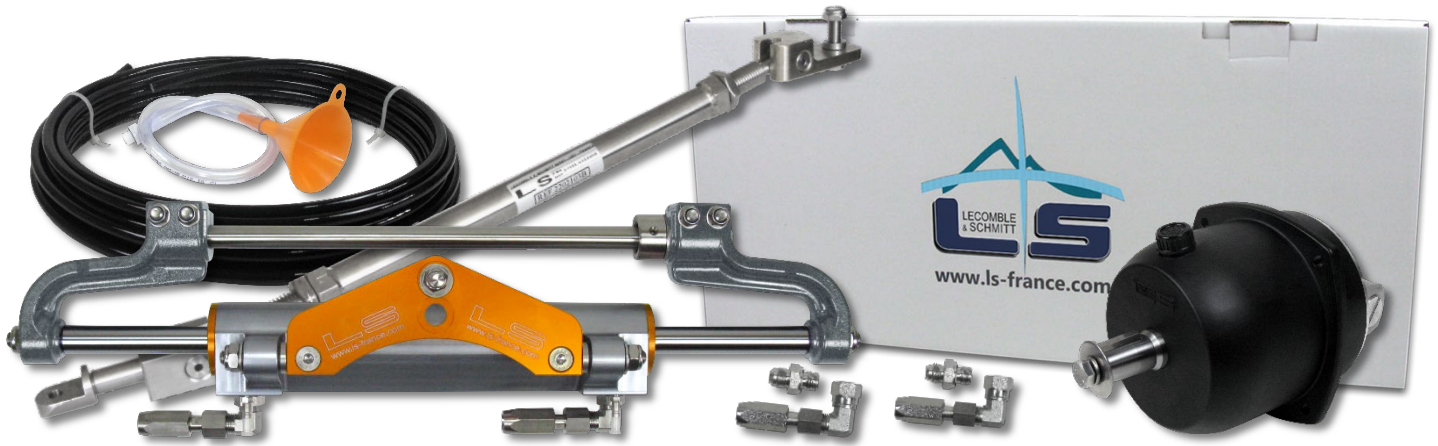
**2200021 Set of elbow pump fitt.**



**2203853 OB filling kit**



# HYDRAULIC STEERING SYSTEM LS 7000 PRO – 2203577



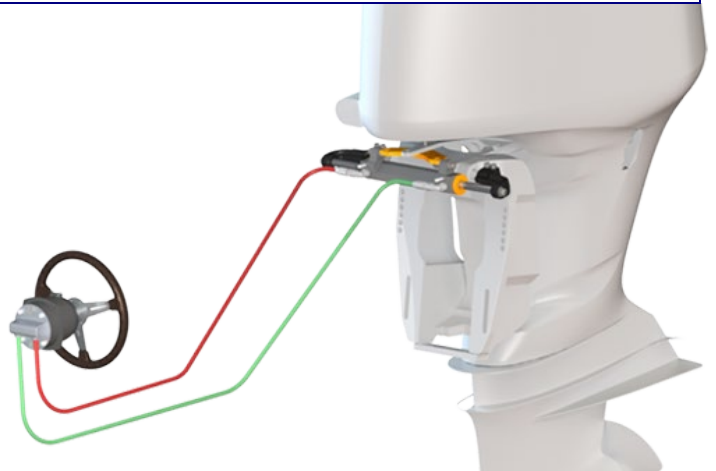
## FOR TWIN OUTBOARD MOTORIZATION IN COUNTER-ROTATION UP TO 2 x 350 H.P. / PORT TO STARBOARD: 7.5 TURNS

### Composition of standard kit 2203577

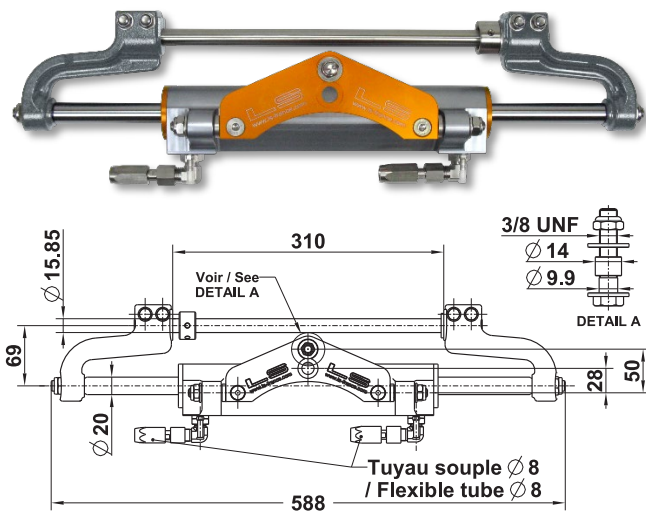
<b>2200948</b>	Pump 26 HB with lock valve <sup>(1)</sup>
<b>2203572</b>	Cylinder VHM EX 3500 HP + fitt. <sup>(2)</sup>
<b>2200021</b>	Set of elbow pump fittings
<b>1204742</b>	12 metres of flexible tube Ø 8
<b>2202103</b>	350 PRO tie rod Length 580 – 810 mm
<b>2203853</b>	OB filling kit

<sup>(1)</sup> Other pump models : contact us

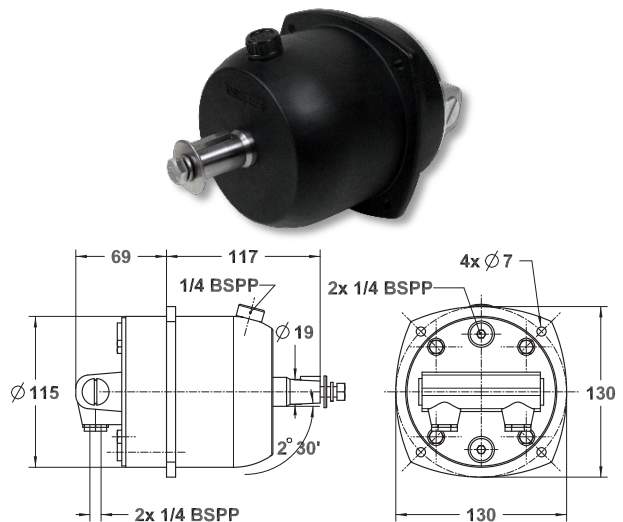
<sup>(2)</sup> Option with Stainless Steel Bracket : contact us



**2203572** Cylinder VHM EX 3500 HP + fittings  
Weight: 4.9 kg    Volume: 198 cc    Stroke: 210 mm



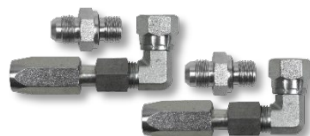
**2200948** Pump 26 HB with lock valve  
Weight: 3.5 kg



**1204742** 12 metres of flex. tube Ø 8



**2200021** Set of elbow pump fittings



**2203853** OB filling kit



**2202103** Tie rod



# POWER ASSIST STEERING FOR OUTBOARDS WITH INTEGRATED AUTOPILOT FUNCTIONALITY



## 2203854 LS 3500 ASS/30 CC - 3 l/mn - POWER ASSISTED 12 V<sup>(1)</sup>

composed of :

- 1 pump 30 HB with lock valve<sup>(2)</sup>
- 1 power pack unit 3 l/mn12 V<sup>(3)</sup>
- 1 cylinder VHM 3500 HP + s/steel fittings
- 1 connection kit

**2200950**

**2203800**

**2203574**

**2203856**

## 2203855 LS 3500 ASS/30 CC - 4.5 l/mn - POWER ASSISTED 12 V<sup>(1)</sup>

composed of :

- 1 pump 30 HB with lock valve<sup>(2)</sup>
- 1 power pack unit 4.5 l/mn12 V<sup>(3)</sup>
- 1 cylinder VHM 3500 HP + s/steel fittings
- 1 connection kit

**2200950**

**2203841**

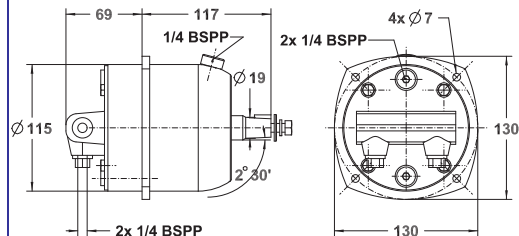
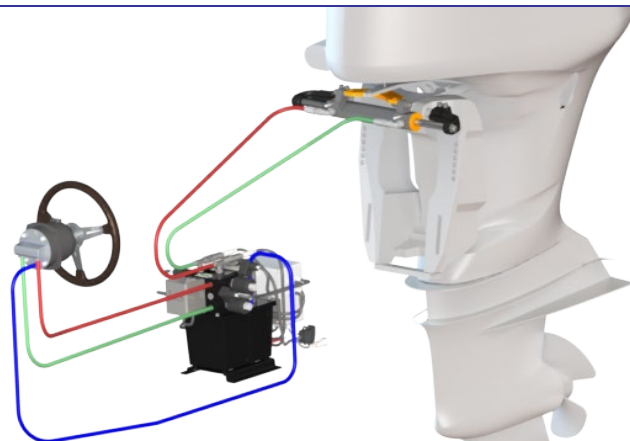
**2203574**

**2203856**

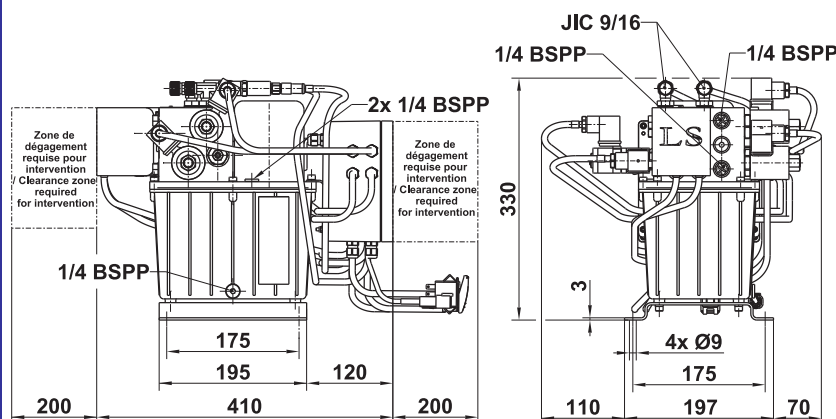
<sup>(1)</sup>System requiring high pressure hose (contact us for further information)

<sup>(2)</sup>Option "Tilt HB 5 – Pump 30 CT" upon request

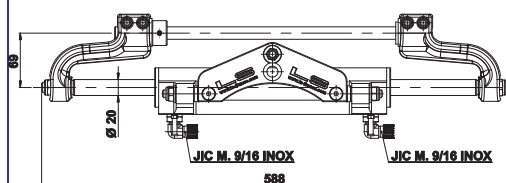
<sup>(3)</sup>Available in 24 Volt upon request



**2200950 Pump 30 HB with lock valve**



**2203800 (3 l/mn) / 2203841 (4.5 l/mn) Power Pack Unit in 12 V<sup>(3)</sup>**



**2203574 Cylinder VHM 3500 HP + Fit.**

# HB 5 TILT PUMPS

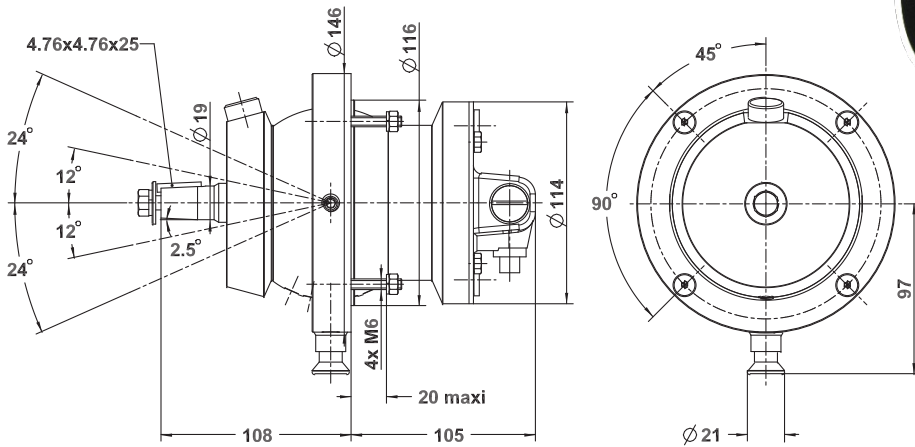


This product – the only one of its kind – is the most compact system on the market.

The hydraulic pump has been integrated directly into the tilt mechanism and is fitted with a lock valve.

## ORIENTATION RANGE

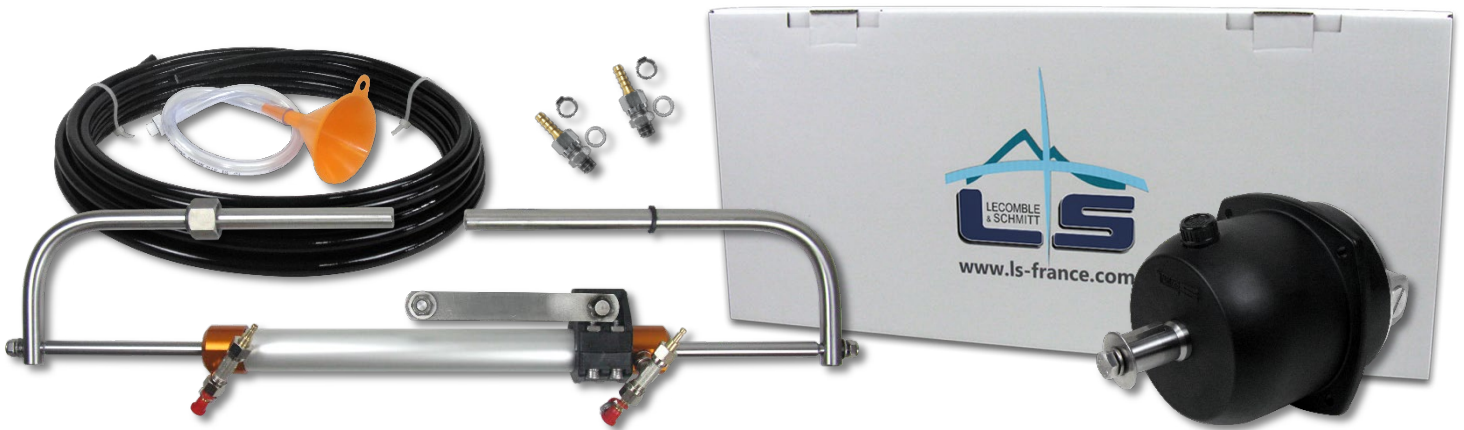
Possible orientation angle:  
-24° to +24° (5 positions).



Ref.	Designation	Flow rate
2203658	HB 5 TILT PUMP – 20 CT	20 cc/t
2203559	HB 5 TILT PUMP – 26 CT	26 cc/t
2203659	HB 5 TILT PUMP – 30 CT	30 cc/t
2203669	HB 5 TILT PUMP – 35 CT	35 cc/t
2203670	HB 5 TILT PUMP – 40 CT	40 cc/t
2203695	HB 5 TILT PUMP – 50 CT	50 cc/t



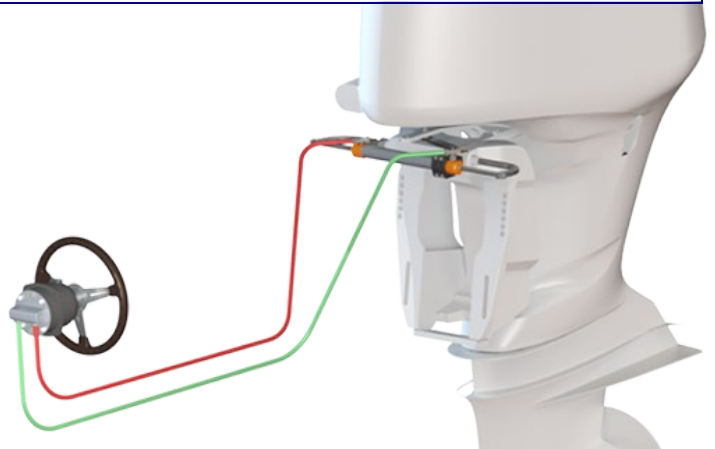
# HYDRAULIC STEERING SYSTEM LS 226 – 2201757



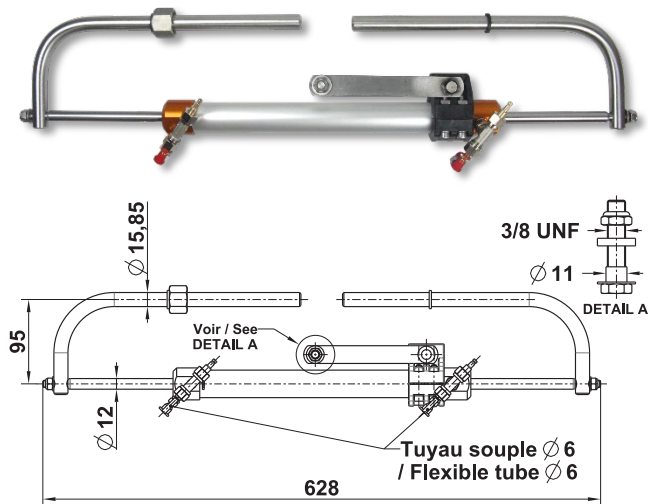
**FOR OUTBOARD MOTORS UP TO 115 HP / PORT TO STARBOARD: 4.8 turns  
(180 H.P. for two motors working in counter-rotation)**

## Composition of standard kit 2201757

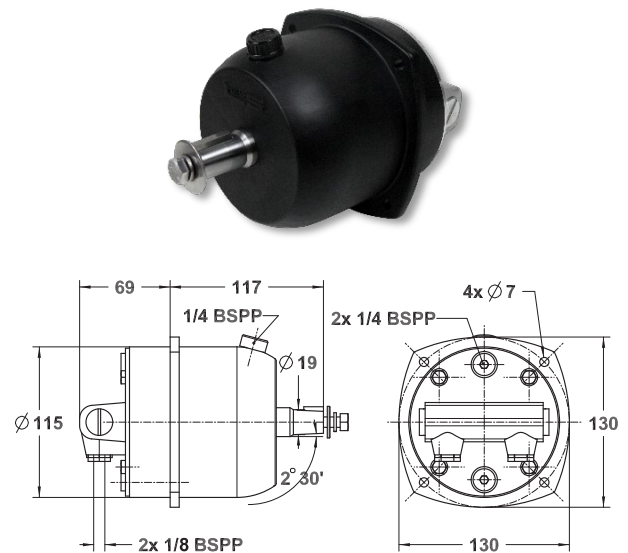
<b>2200804</b>	<b>Pump 20 HB with lock valve</b>
<b>2200830</b>	<b>Cylinder VHM 226 + fittings</b>
<b>2200807</b>	<b>Set of straight pump fittings</b>
<b>1204268</b>	<b>10 metres of flexible tube Ø 6</b>
<b>2203853</b>	<b>OB filling kit</b>



**2200830 Cylinder VHM 226 + fittings**  
Weight: 2.6 kg    Volume: 96 cc    Stroke: 230 mm



**2200804 Pump 20 HB with lock valve**  
Weight: 3.5 kg



**1204268 10 metres of flex. tube Ø 6**



**2200807 Set of straight pump fit.**

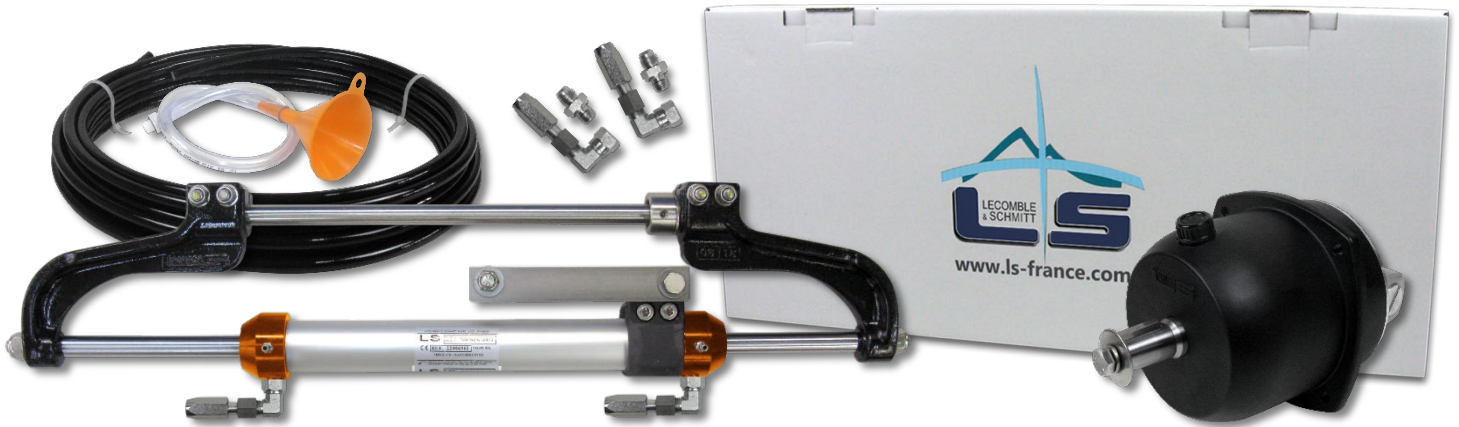


**2203853 OB filling kit**





# HYDRAULIC STEERING SYSTEM LS 232 C – 2202224

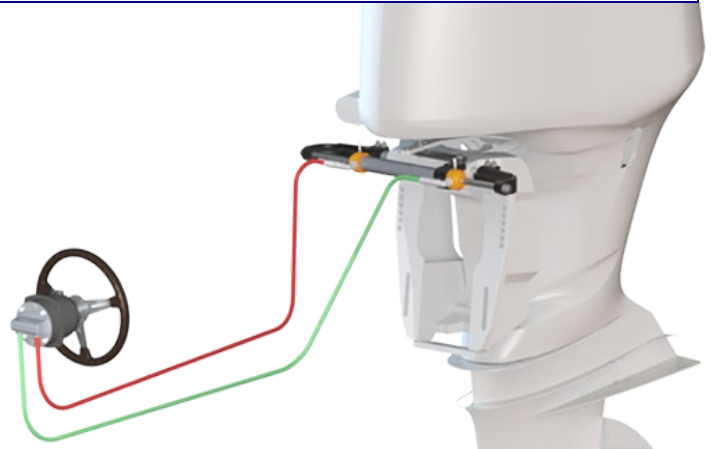


**FOR OUTBOARD MOTORS UP TO 300 HP / PORT TO STARBOARD: 4.7 turns  
(500 H.P. for two motors working in counter-rotation)**

### Composition of standard kit 2202224

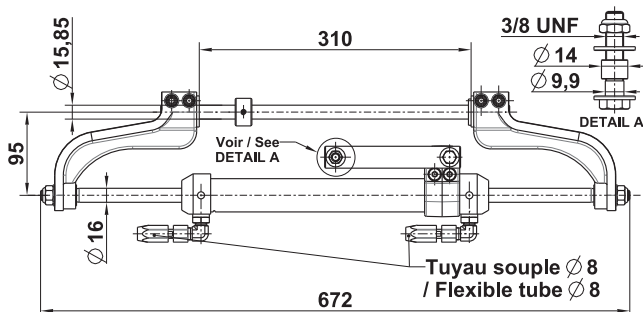
<b>2200950</b>	<b>Pump 30 HB with lock valve<sup>(1)</sup></b>
<b>2200696</b>	<b>Cylinder VHM 232 H + fittings</b>
<b>2200021</b>	<b>Set of elbow pump fittings</b>
<b>1204825</b>	<b>10 metres of flexible tube Ø 8</b>
<b>2203853</b>	<b>OB filling kit</b>

<sup>(1)</sup> Other pump models : contact us



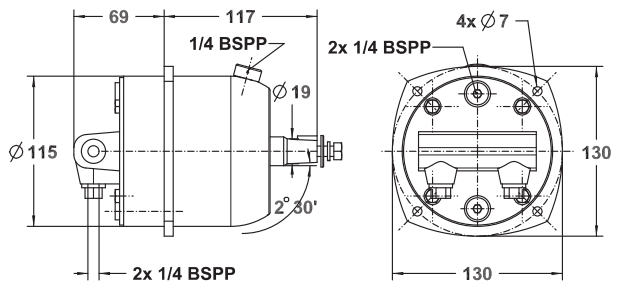
### 2200696 Cylinder VHM 232 H + fittings

Weight: 4.2 kg    Volume: 140 cc    Stroke: 230 mm



### 2200950 Pump 30 HB with lock valve

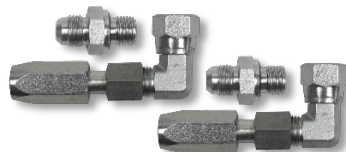
Weight: 3.4 kg



### 1204825 10 metres of flex. tube Ø 8



### 2200021 Set of elbow pump fit.



### 2203853 OB filling kit



# HYDRAULIC STEERING SYSTEMS FOR OUTBOARD MOTORS

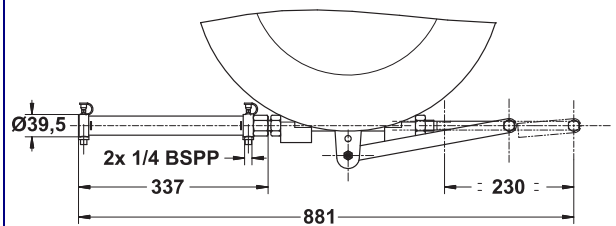


## SIDE MOUNTED STEERING

Maxi motor power **175 H.P.**      **2200951 LS 26 A**  
 (Pump 26 HB with lock valve + fitt. + VHM 28 ST HB + fitt + 8m of flex tube)

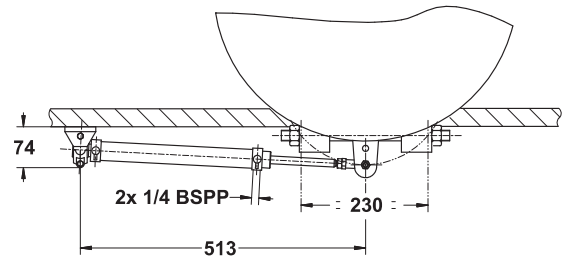
Maxi motor power **175 H.P.**      **2200952 LS 26 B**  
 (Pump 26 HB with lock valve + fitt. + VHM 28 ST HBR + fitt + 8m of flex tube)

Maxi motor power **300 H.P.**      **2201327 LS 32 HB**  
 (Pump 30 HB with lock valve + fitt. + VHM 32 ST HB + fitt + 8m of flex tube)



**2200033** VHM 28 ST HB      **Weight: 1.4 kg**  
**2200608** VHM 32 ST HB      **Weight: 1.4 kg**

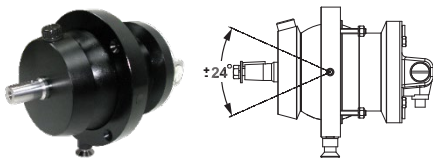
Code of elements that can make up a complete kit	Type of pump
<b>2200948</b> Pump 26 HB with lock valve	<b>2200948</b> 26 HB with lock valve(*)
<b>2200950</b> Pump 30 HB with lock valve	
<b>2200033</b> Cylinder VHM 28 ST HB	
<b>2200196</b> Cylinder VHM 28 ST HBR	
<b>2200608</b> Cylinder VHM 32 ST HB	
<b>2200021</b> Set of pump fittings	
<b>2200022</b> Set of cylinder fittings	
<b>2200038</b> Set of pump s/steel fittings	<b>2200950</b> 30 HB with lock valve(*)
<b>2200023</b> Set of cylinder s/steel fittings	
<b>2200047</b> Set of tees for Ø8 mm flex. tube	
<b>2200024</b> Ø8 flexible tube (per metre)	
<b>2202041</b> Tie rod 470 – 710 mm	
<b>2200017</b> Oil (2 litre can)	



**2200196** VHM 28 ST HBR      **Weight: 1.1 kg**

### OPTION

**HB 5 Tilt Pumps** – page 13



### ACCESSORIES

**TIE RODS** - page 21



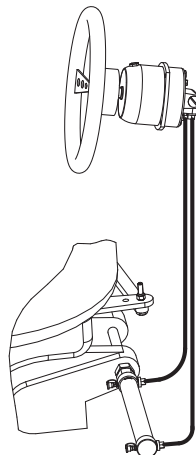
**STEERING WHEELS** - page 22



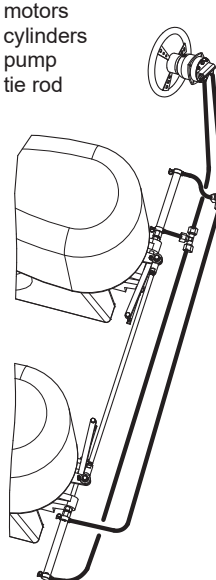
**OIL CAN** - page 20



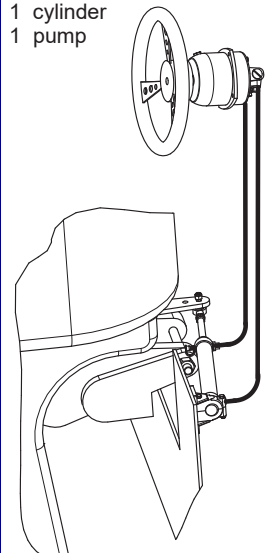
1 motor  
1 cylinder  
1 pump



2 motors  
2 cylinders  
1 pump  
1 tie rod



1 motor  
1 cylinder  
1 pump



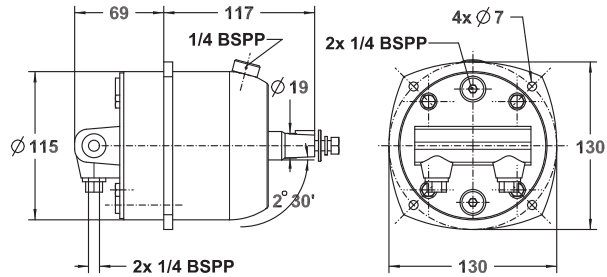
# HYDRAULIC STEERING SYSTEMS FOR STERN-DRIVES

## HYDRAULIC STEERING SYSTEMS FOR POWER ASSISTED STERN-DRIVES

Cylinder type 28 ST HB AS is fitted directly on the power assisted steering system of the stern-drive motor. No additional mounting kit is required. It is suitable for Volvo, OMC, Mercruiser, Yamaha and others...

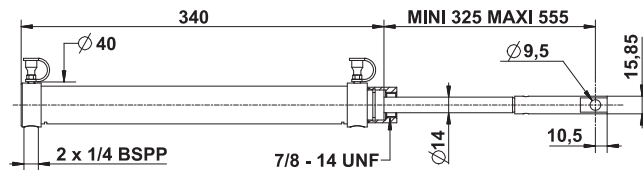
**The kit for a single steering station consists of:**

- 1 pump type 30 HB with lock valve **2200950**
- 1 set of pump fittings **2200021**
- 1 set of cylinder fittings **2200022**
- 1 cylinder type VHM 28 ST HB AS **2200358**
- x metres of Ø 8 mm flexible tube **2200024**



**For a double steering station, add the following to the above kit:**

- 1 pump type 30 HB with lock valve **2200950**
- 2 sets of pump fittings **2200021**
- 1 set of tees **2200047**
- x metres of Ø 8 mm flexible tube **2200024**



## CYLINDERS FOR STERN-DRIVES WITHOUT POWER ASSISTANCE

These cylinders are fitted on in the same way as a cable steering system. Fittings and tubes are the same as for cylinder VHM 28 ST HB AS above (2200358).

Number of turns lock to lock in function of the <b>PUMP / CYLINDER</b> selection	2200948 26 HB-L.V.	2200950 30 HB-L.V.	2201105 35 HB-L.V.	2201107 40 HB-L.V.	TYPE OF MOTOR TYPE OF CYLINDER <i>(Other types on request)</i>
	4	3.6	3	2.6	Up to 175 H.P. VOLVO <b>2200546</b> 28 ST HB DT
	5	4.5	3.7	3.2	Up to 260 H.P. VOLVO <b>2200460</b> 32 ST HBV DT
	4.7	4.2	3.5	3	Up to 175 H.P. MERCUISER - OMC <b>2200344</b> 32 ST HBM DT
	<b>2200948</b>	<b>2200950</b>	<b>2201105</b>	<b>2201107</b>	26 HB with lock valve 30 HB with lock valve 35 HB with lock valve 40 HB with lock valve

# OUTBOARD SENSOR



## Linear Sensor with cable POTENTIOMETER technology for LS Outboard Cylinder

The sensor is developed to provide a robust and high performance solution for steering. Its watertight design and its conception made of anodised aluminium and stainless steel make this sensor ideal for marine applications.

Its compact dimensions allows it to be installed on existing cylinders without interference when the outboard motor is lifted.

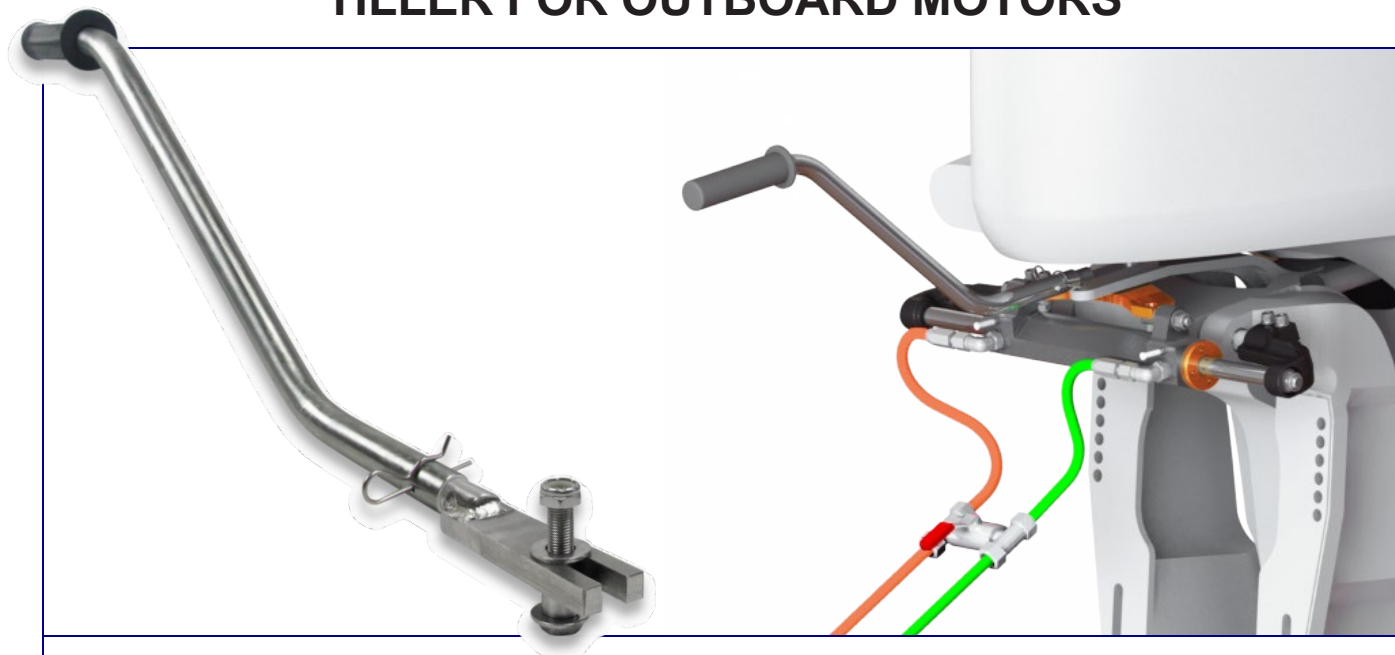
It can be installed on all our cylinders VHM EX 225 HP and VHM EX 3500 HP.

Supplied with 3 metres electric cable.

### Outboard Sensor

2204113 For Port mounted sensor	2204147 For Starboard mounted sensor
<p><b>2204114</b> Cylinder VHM EX 3500 HP + s/steel fittings + port mounted sensor</p>	<p><b>2204175</b> Cylinder VHM EX 3500 HP + s/steel fittings + starboard mounted sensor</p>
<p><b>2204174</b> Cylinder VHM EX 225 HP + fittings + port mounted sensor</p>	<p><b>2204176</b> Cylinder VHM EX 225 HP + fittings + starboard mounted sensor</p>

# TILLER FOR OUTBOARD MOTORS



With this tiller for LS outboard cylinders, the boat can be steered from the motor.

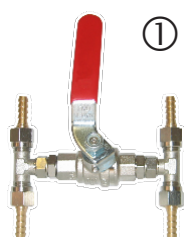
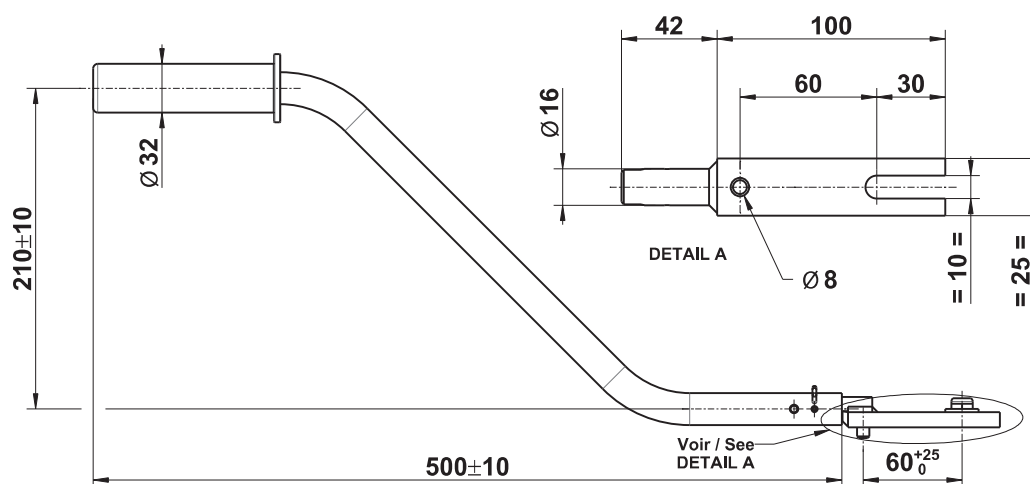
Thanks to this function, the motor can easily be operated without having to resort to the steering wheel (for various fishing actions, anchorage, watch and emergency tiller if need be).

Equipped with a quick coupling, the tiller can be fitted and removed easily and stored in a locker.

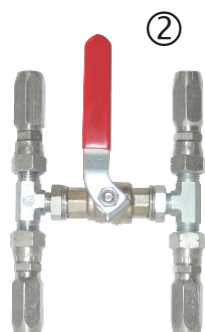
Manufactured in stainless steel tube, its weight does not exceed 0.8 kg.

**⚠ Do not use at a speed exceeding 6 knots.**

## 2204073 Tiller system on motor lever equipped



①




②

### By-Pass Valves

- |   |                |   |
|---|----------------|---|
| ① | <b>2200803</b> | By-pass valve for flexible tube TS Ø 6 mm                   |
| ① | <b>2202496</b> | By-pass valve for flexible tube TS Ø 8 mm                   |
| ② | <b>2204199</b> | By-pass valve for flexible tube Ø 8 mm + recoverable nozzle |

# MAIN ACCESSORIES FOR OUTBOARD STEERING SYSTEMS

<b>2203322</b> SEPARATOR DSC1.0	<b>2203103</b> SEPARATOR DSC1
Fuel-water separators specifically designed for outboard motors, DSC1.0 and DSC1 come with two Ø8mm and two Ø10mm adjustable fittings, assembly screws and bolts and an instruction manual.	
For outboard motors from 4 HP to 45 HP	For outboard motors from 45 HP to 300 HP
 <p>141,38 mm</p> <p>74,15 mm</p>	 <p>203,59 mm</p> <p>107,40 mm</p>

**NON DISPOSABLE FILTERS**


**2203947** VHM 80/125 HP SET OF BULLHORNS FOR SUZUKI



225 mm

105 mm

**1206946** EQUIPPED GREASE NIPPLE



Can be installed on all LS hydraulic steering systems up to 175 hp and on all types of cable steering.

**2200017** 2 LITRE OIL CAN DEXRON II




For all types of LS hydraulic steering systems.

**2203948** SET OF FITTINGS 9/16 - 24 UNEF / JIC 9/16




For the installation of LS pumps and hydraulic hoses on the Seastar and Baystar cylinder range.

**2203645** FITTING G1/4 - 9/16 - 24 UNEF



For the installation of LS pumps to the hydraulic hoses on Seastar and Baystar steerings.

**2201753** BULKHEAD STRAIN RELIEF



Suitable for all LS flexible tubes and all other flexible tubes with an outer diameter of 8 to 12 mm.

**2201058** PUMP BEZEL



# MAIN ACCESSORIES FOR OUTBOARD STEERING SYSTEMS

## TIE RODS FOR OUTBOARD MOTORS



**2202911** Center distance between motors 450 – 650 mm  
**2202912** Center distance between motors 650 – 850 mm



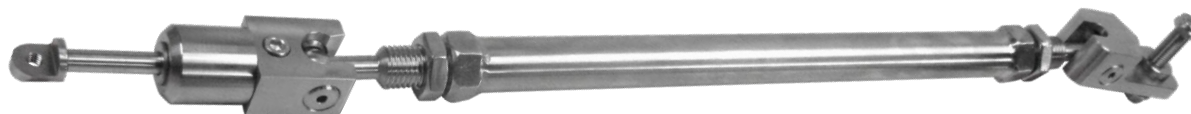
**2202041(\*)** Center distance between motors 470 – 710 mm  
**2202102(\*)** Center distance between motors 710 – 940 mm



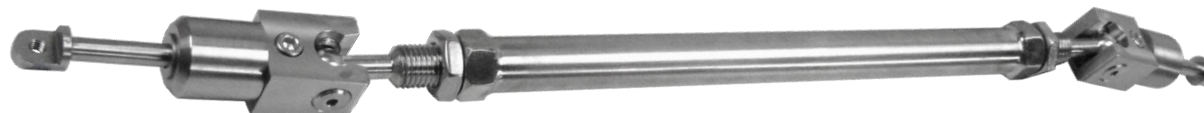
**2202103(\*)** Center distance between motors 580 – 810 mm *To be fitted with 1 VHM EX 350 HP or 1 VHM EX 3500 HP*  
**2203842(\*)** Center distance between motors 575 – 835 mm MERCURY *To be fitted with 1 VHM EX 3500 HP*



**2202123(\*)** Center distance between motors 650 – 880 mm *To be fitted with 2 VHM EX 350 HP or 2 VHM EX 3500 HP*



**2204104(\*)** Center distance between motors 600 – 820 mm *To be fitted with 1 VHM EX 125 / 175 / 225 HP*



**2204105(\*)** Center distance between motors 610 – 720 mm *To be fitted with 2 VHM EX 125 / 175 / 225 HP*

(\*)Allow the tilting of one motor independently of the other one

## **2203593** LS SPEEDY PURGE

### Better, Faster and Neater Air Purge

LS SPEEDY PURGE is a tool designed to **fill and purge** air from LS hydraulic steering systems fitted on 5 to 15 metre boats.

LS SPEEDY PURGE connects directly to the 12 volt boat battery with crocodile clips and to the cylinder and pump with 2 x 4 metre clear spiral hoses.

Easily **transportable**, its 4 litre oil contents gives enough autonomy to fill and bleed 2 to 3 steering systems in a row without refilling.

Fill and purge is done neatly **by a single operator in less than 10 mn**, so that SPEEDY PURGE is paid off from the very first steering systems.

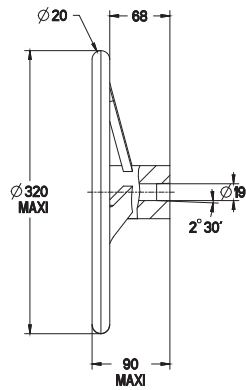


**2203836** LS Speedy purge – 12V – with 4 m extension hoses

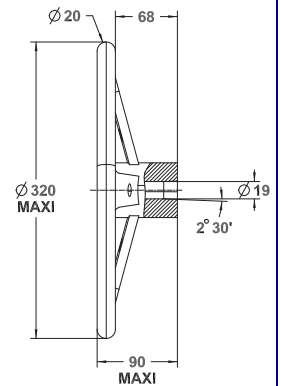
**1206948** Set of 2 x 4 m extension hoses

# RANGE OF STEERING WHEELS

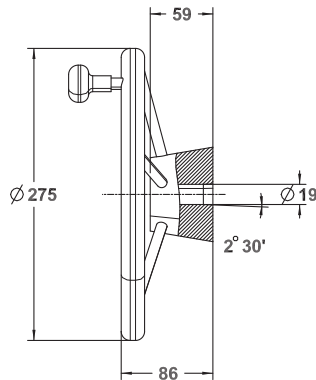
**2200181** Black “sport” steering wheel Ø 320-19



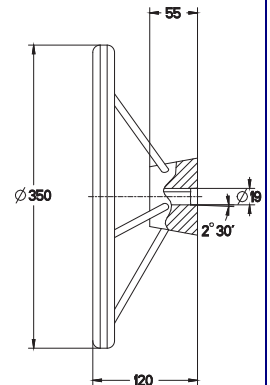
**2200182** Black “racing” steering wheel Ø 320-19



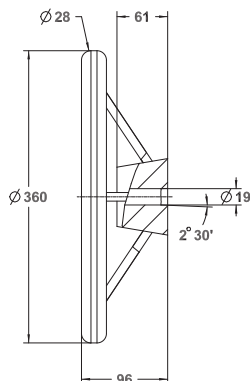
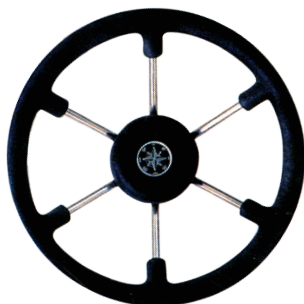
**2202462** S/Steel Wheel with knob Ø 275-19



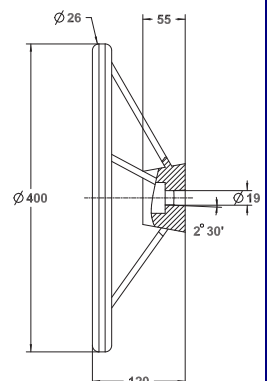
**2200985** S/Steel Wheel Ø 350-19



**2203377** Covered S/Steel Wheel Ø 360-19



**2200986** S/Steel Wheel Ø 400-19





# HYDRAULIC FLEXIBLE TUBES

## FLEXIBLE TUBES FOR CRIMP CONNECTIONS

Only the sole use of LS flexible tubes in Ø6, Ø8 or Ø10 mm will **guarantee** the global performances and safe use of LS steering systems.

	Ø6	Ø8	Ø10
Per metre	<b>2200810</b>	<b>2200024</b>	<b>2200070</b>
8 meters	<b>1204267</b>	<b>1204986</b>	
10 meters	<b>1204268</b>	<b>1204825</b>	
12 meters	<b>1204740</b>	<b>1204742</b>	
13 meters		<b>1204743</b>	
15 meters		<b>1202887</b>	
16 meters		<b>1204741</b>	
20 meters		<b>1205245</b>	
25 meters	<b>1204985</b>	<b>1207117</b>	
35 meters	<b>1205301</b>	<b>1205300</b>	
50 meters	<b>1207223</b>	<b>1207145</b>	
100 meters	<b>1207229</b>	<b>1207230</b>	<b>1207231</b>
400 meters	<b>1205359</b>	<b>1205360</b>	
400 meters (on reel)	<b>1207024</b>	<b>1207025</b>	




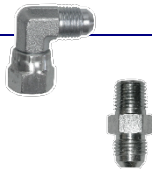


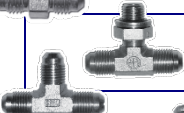
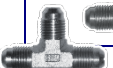




## Ø8 FLEXIBLE TUBES WITH PRE-CRIMPED CONNECTIONS

- Flexible tube - length 5 m **1290502**
- Flexible tube - length 6 m **1290503**
- Flexible tube - length 6,5 m **1290610**
- Flexible tube - length 7,5 m **1290504**

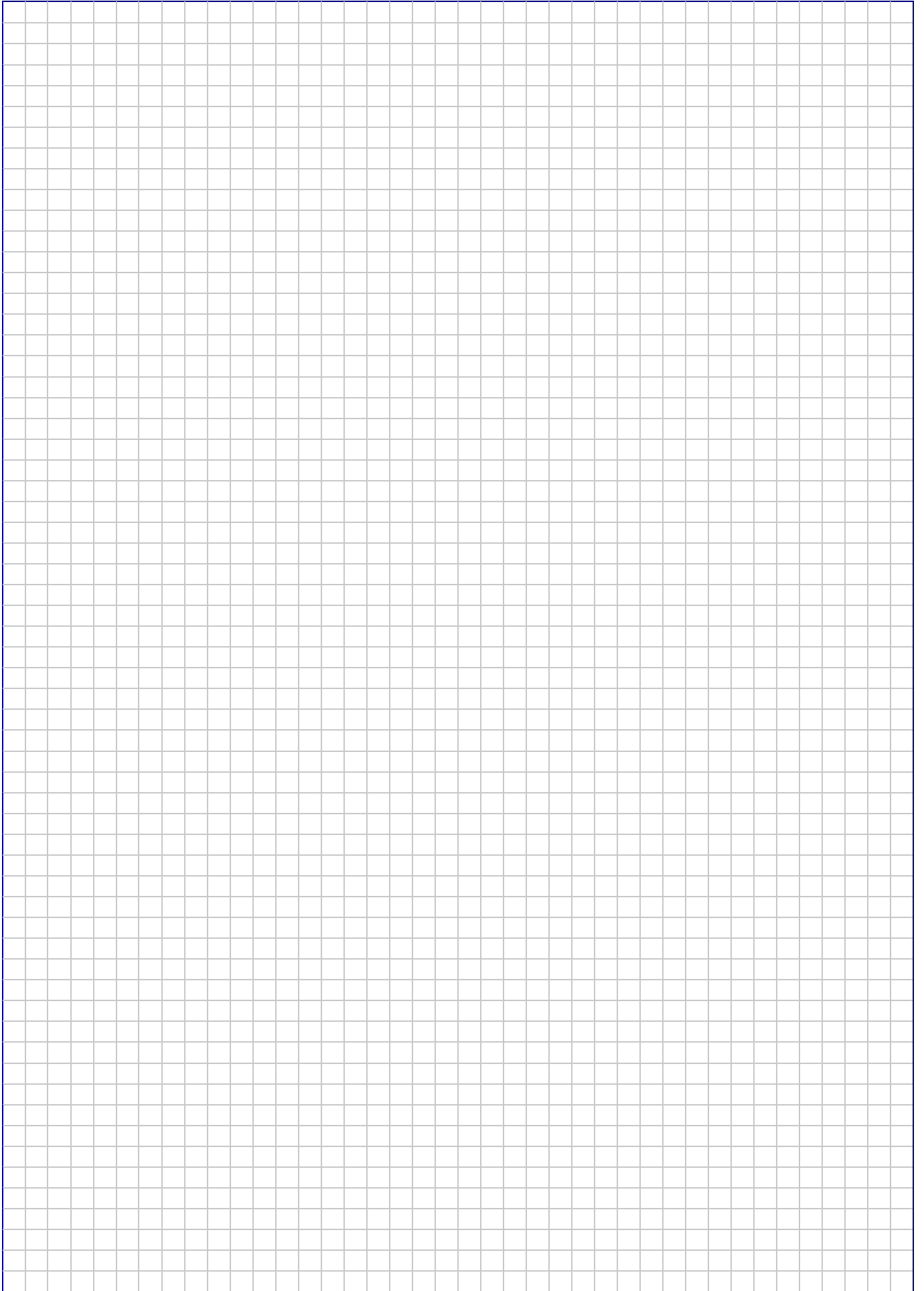


## FITTINGS

### FOR FLEXIBLE TUBE

Type	Designation	Code for steel	Code for s/steel
 <b>Elbow fittings 90°</b>	1/4 BSPT JIC M. 9/16	<b>2200321</b>	<b>2200309</b>
	3/8 BSPT JIC M. 9/16	<b>2200426</b>	
 <b>Swivel elbow fitt.</b>	1/4 BSPP JIC M. 9/16	<b>1205997</b>	<b>1206365</b>
	JIC M. 9/16 – JIC F 9/16	<b>1205894</b>	<b>1205656</b>
 <b>Straight fittings</b>	1/4 BSPT JIC M. 9/16	<b>2200427</b>	<b>2200447</b>
	1/4 BSPP JIC M. 9/16	<b>2200199</b>	<b>2200448</b>
	3/8 BSPT JIC M. 9/16	<b>2200428</b>	
	3/8 BSPP JIC M. 9/16	<b>2200429</b>	<b>2202039</b>
 <b>Adapters</b>	1/4 BSPT JIC F.T. 9/16	<b>2200430</b>	
	3/8 BSPT JIC F.T. 9/16	<b>2200356</b>	
 <b>Connection fitt.</b>	JIC M. 9/16	<b>2200288</b>	<b>1206540</b>
 <b>Tee fittings</b>	Rotatable 1/4 BSPP 2 x JIC M. 9/16	<b>2200431</b>	
	3/8 BSPT 2 x JIC M. 9/16	<b>2200432</b>	
 <b>Equal tee fittings</b>	JIC M. 9/16	<b>2200433</b>	<b>2202009</b>
 <b>Swivel tee fittings</b>	Rotatable JIC M. 9/16	<b>2201566</b>	
 <b>Straight fittings</b>	JIC M. 9/16 inner diam. 8	<b>2200299</b>	<b>2200449</b>
	JIC M. 9/16 inner diam. 10	<b>2200301</b>	
 <b>Elbow fittings</b>	Inner diam. 8	<b>2200302</b>	
	Inner diam. 10	<b>2200303</b>	
 <b>Connection fitt.</b>	Inner diam. 8	<b>2200373</b>	
	Inner diam. 10	<b>2200434</b>	

# NOTES



## GUARANTEE

- 1) The manufacturer guarantees the equipment sold and supplied against any faulty manufacturing or defects whether they are the result of the design, the raw material, the manufacturing or construction under the terms and restrictions indicated below :
  - 2) The guarantee is applicable only if the client has satisfied the general obligations of this contract, in particular, the terms of payment.
  - 3) The guarantee only includes equipment sold by the manufacturer. It does not extend to equipment in which the manufacturer's supply has been installed and, in particular, to the performances of this equipment.
  - 4) When the manufacturer's supplies are installed by the client or a third party into any other equipment, they remain solely responsible for this installation, the selection and suitability of the manufacturer's supplies as the manufacturer's diagrams, designs and proposals are given as an indication only, unless otherwise specified in the order. In particular, the manufacturer does not guarantee components or equipment not sold by him, nor the assembly, adaptation, design or operation of the assembly or parts of the assembly thus created. The manufacturer's supply, as well as the assembly created by the client or a third party, are assumed to be operated under the exclusive control of the client or the third party.
  - 5) The period of the guarantee is eighteen months starting from the date of first use by the original consumer or twenty four months from the date of delivery of the products to the transporter, distributor or wholesaler. The manufacturer has the right to require from the client proof of the commissioning date specified on the guarantee request. This period is neither extended nor interrupted through legal or amicable claims on the part of the client. At the end of this period, the guarantee is terminated without further consideration.
  - 6) The obligation of the guarantee only applies if the client establishes that the defect appeared under normal operating conditions stipulated for this type of supply, or indicated by the manufacturer in writing and during normal operation. It does not apply in case of negligence, faulty maintenance or supervision, operator's responsibility, imprudence, non observance of recommended or operating instructions, or the use of oil of insufficient quality for the equipment. The manufacturer is released from responsibility for any damage caused by loss of oil or leaks. The guarantee also does not apply for any incidents resulting from a case of force majeure or Acts of God, as well as any damage, replacement or repairs exceeding the normal material wear.
  - 7) The guarantee is limited to the repair in the manufacturer's shop at his own cost within the shortest possible time, of the equipment and parts supplied by him, identified as defective by the technical department. These parts must be sent pre-paid. No claim may be made for compensation for any damage such as personal injury, damage to goods other than those concerned in this contract, privation of possession, operating losses, commercial damage or loss of earnings. During the guarantee period, the cost of labor, dismantling and reassembly of the equipment outside the manufacturer's plant, the shipping costs for repaired, replaced or faulty equipment, travelling and accommodation expenses for technicians are the responsibility of the client.
- When the guarantees are given according to the industrial results for a given equipment, these results and the consequences of this undertaking will result in a special agreement between the parties.
- 8) In order to take advantage of this guarantee, the client must notify the manufacturer in writing as soon as possible of the defects attributed to the equipment and provide any proof concerning these defects. He must do his best for the manufacturer to be able to ascertain these defects and to perform corrective actions. The guarantee does not apply if the equipment is not returned to the manufacturer in the state in which it broke down or if it has previously been disassembled, repaired, modified either by a third party, the user or the client. After receiving proper notification of the equipment defect, the manufacturer shall correct this fault as soon as possible, reserving the right, if applicable, to modify all or part of equipment in order to fulfil the obligations.
  - 9) The client agrees that the manufacturer will not be responsible for damage due to the fact that the client has not satisfied any one of the obligations defined above.

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