

CE

2020



# HYDRAULIC STEERING

F o motor fuera de borda

F o popa Drive

F o Dentro del casco



**SEAFIRST**  
ENGINEERING



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# HYDRAULIC STEERING FOR OUTBOARD





## Hydraulic Steering for Outboard

# MO 100H

## COMPLETE PACKAGED SYSTEM



For small engine under 95hp

- Standard wheel turns : 4.5 lock to lock

### Steering kits includes

Model	Description
CSH 018 Helm Pump	Front Mount Helm pump 18cc
SOC 2512H Cylinder	Front Mount Outboard cylinder. When ordering, specify the engine model.
SF OIL 15 Hydraulic Oil	Hydraulic oil 1 liter x 2 bottles. SAE NO 15.
NH 04-SS-07 Hydraulic Hose	Hydraulic Hose 1/4, 7 meter x 2pcs
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide – Single Engine

System Model	Applicable Outboard Motors	Cylinder
MO 100H	Yamaha 4 stroke : From 20hp to 90hp Yamaha 2 stroke : From 30hp to 95hp Honda 4 stroke : From 20hp to 70hp Suzuki 4 stroke : From 20hp to 70hp Mercury : From 30hp to 90hp Tohatsu 4 stroke : 30hp to 90hp Tohatsu 2 stroke : 30hp to 90hp	SOC 2512H

**Caution** : Cut the Wing Nut type transom mount clamping screw if any. It could be interfaced with cylinder when fully trim.

## Hydraulic Steering for Outboard

# MO 150H

## COMPLETE PACKAGED SYSTEM

**SEAFRIEND**



For outboard engine up to 150HP

- Standard wheel turns: 5.6 lock to lock

### Steering kits includes

Model	Description
CSH 018 Helm Pump	Front Mount Helm pump 18cc
SOC 3016H Type Cylinder	Front Mount Outboard cylinder.
SF OIL 15 Hydraulic Oil	Hydraulic oil 1 liter x 2 bottles. SAE NO 15.
NH 04-SS-07 Hydraulic Hose	Hydraulic Hose 1/4, 7 meter x 2
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide

System Model	Applicable Outboard Motors	Cylinder
MO 150H-R1	Yamaha 4 stroke : From 75hp to 150hp Yamaha 2 stroke : 50hp, 60hp and From 100hp to 150hp Suzuki 4 stroke : From 70hp to 150hp Honda 4 stroke : From BF 50 to BF 150 except old BF 115A / old BF 130A Mercury : From 50hp to 150hp except old 4 stroke(1732cc) from 75hp and 115 hp Tohatsu 4 stroke : From BFT 70 to BFT 150 except old BFT 115A / old BFT 130A Tohatsu 2 stroke : Up to 140hp Evinrude : From 65hp to 150hp	SOC 3016H-R1
MO 150H-R4	Yamaha 4 stroke : From 30hp to 60hp / Yamaha 2 stroke : From 50hp to 95hp	SOC 3016H-R4
MO 150H-R5	Honda old BF 115A / Old BF 130A	SOC 3016H-R5
MO 150H-R6	Mercury old 4 stroke (1732cc) Frome 75hp to 115hp	SOC 3016H-R6

**Caution** : MO150H-R6 must be used for Mercury old 4 stroke(1732cc) from 75hp and 115hp.



## Hydraulic Steering for Outboard

# MO 350H, MO 350V

## COMPLETE PACKAGED SYSTEM



For Outboard engine up to 350HP

- Standard wheel turns : 5.3 lock to lock
- For more or less wheel turns, ask your distributor or manufacturer

Easy installation for limited space

### Steering kits includes

Model	Description
NSH 025 Helm Pump	Front Mount Helm pump 25cc
SOC 3520H or 3520V type Cylinder	Front Mount Outboard cylinder. When ordering, specify the engine model.
SF OIL 15 Hydraulic Oil	Hydraulic oil 1 liter x 2 bottles. SAE NO 15.
NH 06-SS-07 Hydraulic Hose	Hydraulic Hose 3/8, 7 meter x 2pcs
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide – Single Engine

System Model	Applicable Outboard Motors	Cylinder
MO 350H - R1	Yamaha 4stroke : From 75hp to 350hp Yamaha 2stroke : 50hp, 60hp and From 100hp to 250hp Suzuki 4stroke : From 70hp to 300hp Honda 4stroke : From BF 50 to BF 250 except old BF 115A / old BF 130A Mercury : From 50hp to 250hp except old 4stroke 75hp and 115hp Tohatsu 4 stroke : From BFT 70 to BFT 250 except old BFT 115A / old BFT 130A Tohatsu 2 stroke : Up to 140hp Evinrude : From 65hp to 300hp	SOC 3520H-R1
MO 350H-R6	Mercury old 4 stroke (1732cc) From 75hp to 115hp	SOC 3520H-R6
MO 350V-Y1	Yamaha 4 stroke : From 75hp to 350hp Yamaha 2 stroke : From 100hp to 250hp Suzuki 4 stroke : From 70hp to 300hp	SOC 3520V-Y1
MO 350V-H1	Honda 4 stroke : From BF 70 to BF 250 except old BF 115A / old BF 130A	SOC 3520V-H1
MO 350V-Y4	Yamaha 4 stroke : From 30hp to 60hp / Yamaha 2 stroke : From 50hp to 95hp	SOC 3520V-Y4
MO 350V-H5	Honda old BF115A / old BF 130A	SOC 3520V-H5

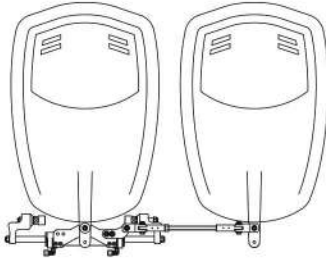
**Caution** : MO350H-R6 must be used for Mercury old 4 stroke(1732cc) from 75hp and 115hp.

# ORDER GUIDE

## MO 350V (H) Single engine, Single Cylinder

Application	Wheel Turns	Components	Model	Q'ty	Remark	System
Up to 350HP	5.3	Cylinder	SOC 3520	1	MO 350V MO 350H Package kit	
		Helm Pump	NSH 025	1		
		Hose	NH 06-SS-07	2		
		Oil	SF OIL 15	2		
		Accessories kit	OAK-300	1		
For a second station, add below : Refer to Dual Station Kit. Page 34						

## MO 350VT1 (HT1) Twin engine, Single Cylinder

Application	Wheel Turns	Components	Model	Q'ty	Remark	System
Up to 600HP (counter rotating engine) Up to 450HP (non-counter rotating engine)	5.3	Cylinder	SOC 3520	1	MO 350VT1 MO 350HT1 Package kit	
		Helm Pump	NSH 025	1		
		Hose	NH 06-SS-07	2		
		Oil	SF OIL 15	2		
		Accessories kit	OAK-300	1		
		Tie Bar	TBK 800S	1		
		For a second station, add below : Refer to Dual Station Kit. Page 34				

## MO 350VT2 (HT2) Twin engine, Two Cylinder

Application	Wheel Turns	Components	Model	Q'ty	Remark	System
Up to 700HP (counter rotating engine) Up to 600HP (non-counter rotating engine)	10.6	Cylinder	SOC 3520	2	MO 350VT2 MO 350HT2 Package kit	
		Helm Pump	NSH 025	1		
		Hose	NH 06-SS-07	2		
		Hose	NH 06-SS-01	2		
		T fitting	HTO14NNS	2		
		Oil	SF OIL 15	4		
		Accessories kit	OAK-300	1		
		Tie Bar	TBK 800T	1		
		For a second station, add below : Refer to Dual Station Kit. Page 34				

## Hydraulic Steering for Outboard

# MO 700H

## COMPLETE PACKAGED SYSTEM



### Hydraulic Steering for High horsepower

- Standard Wheel turn : 6.3 lock to lock  
For more or less wheel turns, ask your distributor or manufacturer

### Steering kits includes

Model	Description
NSH 025	Helm pump
SOC 3822-W7 type Cylinder	Front Mount Outboard cylinder.
SF OIL 15 Hydraulic Oil	Hydraulic oil 1 liter x 2 bottles.
NH 06-SS-07 Hydraulic Hose	Hydraulic Hose 3/8, 7 meter x 2pcs
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide – Single Engine

System Model	Applicable Outboard Motors
MO 700H -W7	Any above 200HP of all brands



# HYDRAULIC STEERING FOR STERN DRIVE





## Hydraulic Steering for Stern Drive

# MS 250S-U1, B1 COMPLETE PACKAGED SYSTEM



For power assist stern drive

• Wheel turn 5.4 / 4.4

For Non-power assist stern drive

• Wheel turn 4.4

### Steering kits includes

Model	Description
NSH 030 Helm Pump	Front Mount Helm pump 30cc
SSC 3214U / SSC 3214B Cylinder	Stern drive cylinder, Unbalanced / Balanced
SF OIL 15 Hydraulic Oil	Hydraulic oil 1 liter x 4 bottles. SAE NO 15.
NH 06-SS-20 Hydraulic Hose	Hydraulic Hose 3/8, 20 meter x 1pcs, including two Reusable hose coupling
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide

System Model	Maker	Model	Remark
MS 250S-U1	MERCUISER	MERCUISER 1	Power Assist stern drive
		ALPHA	
		BRAVO ONE	
		BRAVO TWO	
		BRAVO THREE	
MS 250S-B1	MERCUISER	ALPHA	Non - Power Assist stern drive
		BRAVO ONE	
		BRAVO TWO	
		BRAVO THREE	



# HYDRAULIC STEERING FOR INBOARD





## Hydraulic Steering for Inboard

# MI-N

## COMPLETE PACKAGED SYSTEM



### Steering kits includes

Model	Description
NSH-XXX Helm Pump	Front Mount Helm pump
IOC -40XX, 50XX Cylinder	Single Straight Cylinder.
SF OIL 15 Hydraulic Oil	SAE NO 15, Hydraulic oil 1 liter x 2 bottles for MI 34N~61N 1 liter x 4 bottles for MI 75N~117N
NH 06-SS-20 Hydraulic Hose	Hydraulic Hose 3/8", 20 meter x 1pc, Reusable Hose Coupling x 2pcs
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-300 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide

Complete Model	System Basic Components		Wheel Turns Lock to Lock	Recommend		Suitable Steering Wheel Size
	Cylinder	Helm Pump		Applicable kgf.m	Engine Power HP	
MI 34N	IOC-4020	NSH 022	5.5	34	75	Dia 350mm
MI 48N	IOC-4021	NSH 025	6.7	48	75	
MI 61N	IOC-4022	NSH 030	7.1	61	110	
MI 75N	IOC-5024	NSH 037	7.1	75	110	Dia 395mm
MI 96N	IOC-5025	NSH 044	7.7	96	140	
MI 117N	IOC-5026	NSH 044	9.3	117	180	

※ Torque at pressure 40kg/cm<sup>2</sup> and 35 degree

## Hydraulic Steering for Inboard

# MI-H

## COMPLETE PACKAGED SYSTEM



### Steering kits includes

Model	Description
HP4590T Helm Pump	Rear Mount Helm Pump 48~85cc. Adjustable
IOC -50XX, 63XX Cylinder	Single Straight Cylinder.
SF OIL 15 Hydraulic Oil	SAE NO. 15, Hydraulic oil 1 liter x 4 bottles.
NH 06-SS-20 Hydraulic Hose	Hydraulic Hose 3/8", 20 meter x 1pc, Reusable Hose Coupling x 2pcs
Accessories included	Helm pump fittings, Helm pump mounting hardware kit, Accessories kit OAK-200 (Bleed tube, Funnel, Oil supply tube)

The Steering Wheel is not included in the package.

### Application Guide

Complete Model	System Basic Components		Wheel Turns Lock to Lock	Recommend		Suitable Steering Wheel Size
	Cylinder	Helm Pump		Applicable kgf.m	Engine Power HP	
MI 118H	IOC-5024	HP 4590T	3.1~5.5	118	180	Dia 600mm
MI 151H	IOC-5025	HP 4590T	4.0~7.0	151	250	
MI 185H	IOC-5026	HP 4590T	4.8~8.6	185	250	
MI 270H	IOC-6325	HP 4590T	7.1~12.5	270	250	
MI 329H	IOC-6326	HP 4590T	8.6~15.3	329	350	

※ Torque at pressure 63kg/cm<sup>2</sup> and 35 degree

# POWER HYDRAULIC STEERING





## Power Hydraulic Steering

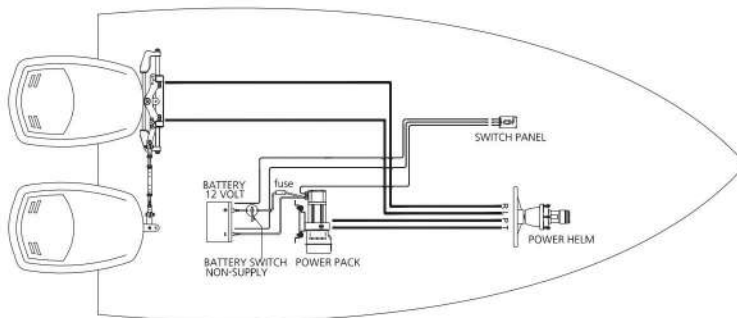


Applicable for Outboard, Inboard and Stern drive hydraulic steering!



- The "Maxteering" is a power steering for featherlight steering
- Maxteering is recommended in the following cases
  - For multiple engines or multiple rudders
  - For high horsepower engine
  - To replace Manual hydraulic steering
  - For heavy duty environment on boat

## Maxteering Application



※ Cylinder is not included in the supply scope of package

## Maxteering Kits includes

System	Specification						
	Power Helm	Power Pack	Switch	Hydraulic Oil	High Pressure Hose	Oil Bleeding Kit	Remark
Maxteering 12-40	SMP-40 (40cc)	BLP-1216	PSP-200-12V	SF-OIL-15 (6 Liters)	RH06-SS-07 x 2ea RH06-SS-04 x 2ea	OAK-500	12V
Maxteering 24-80	SMP-80 (80cc)	BLP-2437	PSP-100-24V	SF-OIL-15 (8 Liters)	RH06-SS-07 x 2ea RH06-SS-04 x 2ea	OAK-500	24V

※ When ordering, specify the suitable hose length.

# HYDRAULIC STEERING COMPONENTS





# Hydraulic Steering Components

## CSH HELM PUMP

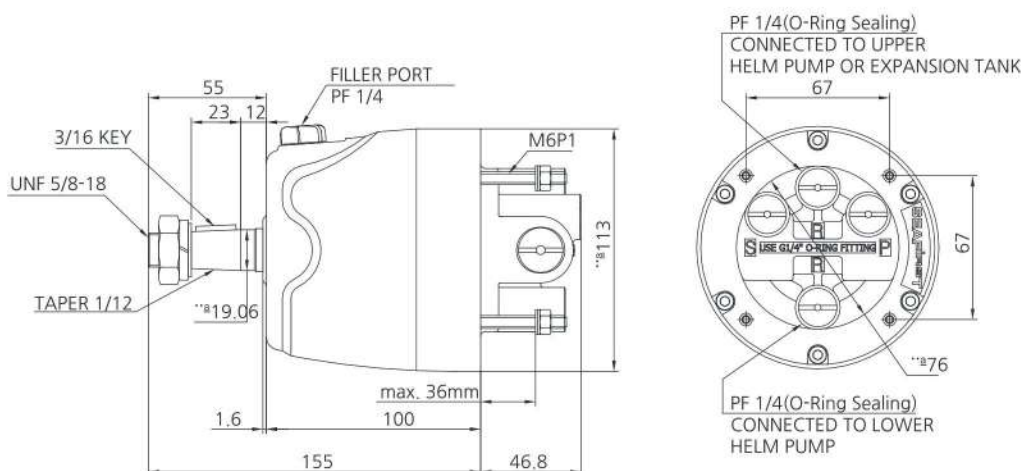


- Maximum durability
- At factory, the two port on the rear are blocked tightly with black plugs while the tow ports are blocked.
- Fixed displacement
- Lock Valve Inbuilt
- Mounting Hardware and steering wheel mounting hardware supplied as standard
- Interconnection ports(black plug) for dual stations of steering
- Common dash hole mount for easy replacement with other brand

### Maxteering Kits includes

Model	Displacement		Lock Valve	Steering Wheel
	cc / rev	Cu.in / rev		
CSH 018	18cc	1.09	Built-in	Min Dia 300mm

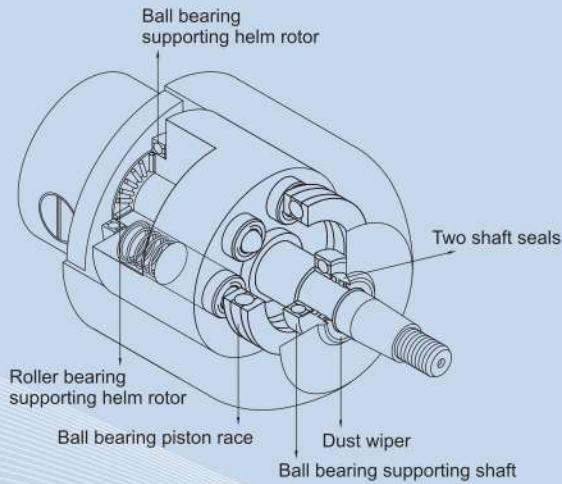
### Drawing





## Hydraulic Steering Components

# NSH HELM PUMP

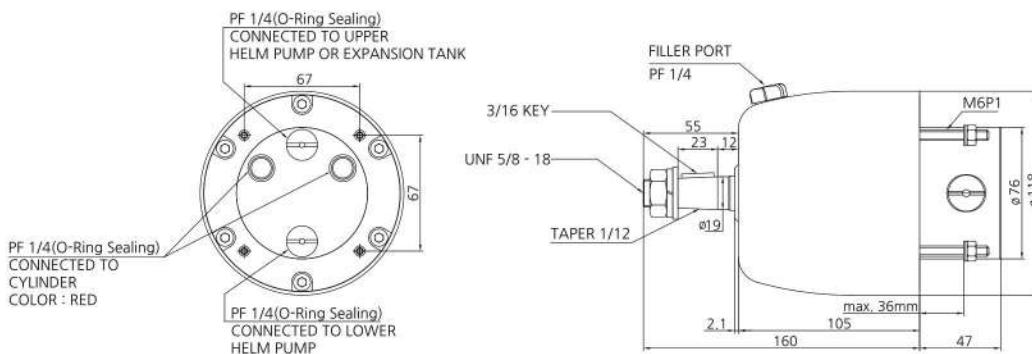


- Maximum durability • Stainless Steel Shaft
- At factory, the two ports on the rear are blocked tightly with black plugs while the two ports are blocked loosely with red plugs for an easy open to connect hydraulic hose fittings
- Fixed displacement • Lock Valve Inbuilt
- Mounting Hardware and steering wheel mounting hardware supplied as standard
- Interconnecting ports (black plugs) for dual stations of steering
- Common dash hole mount for easy replacement with other brand

## NSH Helm pump

Model	Displacement		Lock Valve	Steering Wheel
	cc / rev	Cu.in / rev		
NSH 018	18	1.09	Built-in	Min Dia 300mm
NSH 022	22	1.34		Min Dia 300mm
NSH 025	25	1.52		Min Dia 300mm
NSH 030	30	1.83		Min Dia 350mm
NSH 037	37	2.25		Min Dia 395mm
NSH 044	44	2.68		Min Dia 395mm

## Drawing



# Hydraulic Steering Components

## HP HELM PUMP

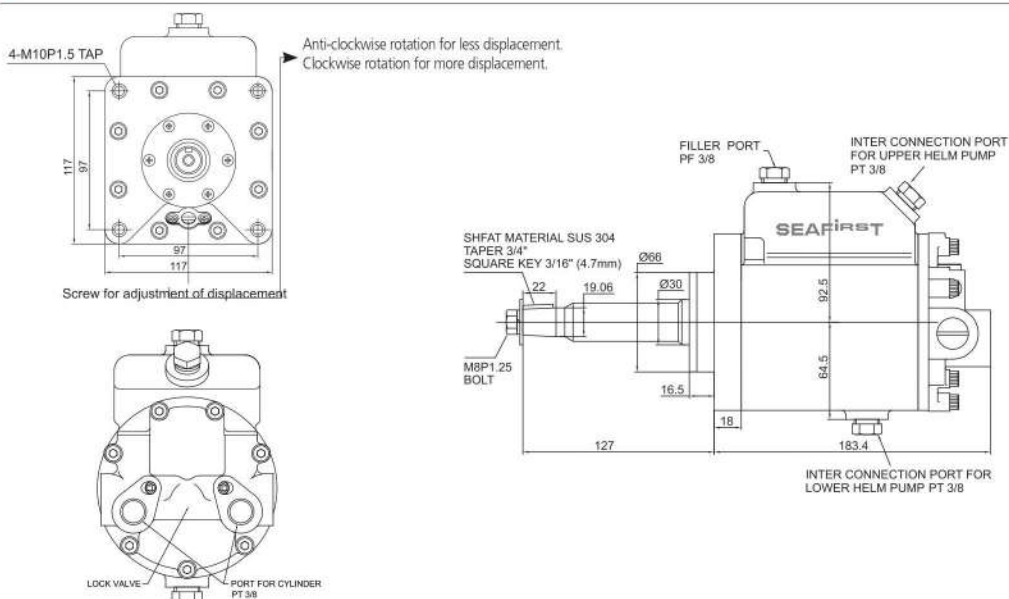


- Stainless Steel Shaft
- Adjustable Displacement from 48cc to 85cc
- Lock Valve Inbuilt
- Mounting Hardware and steering wheel mounting hardware supplied as standard
- Interconnecting ports for dual stations of steering

### Steering kits includes

Model	Displacement		Shaft Spec	Key Spec	Remark
	cc / rev	Cu.in / rev			
HP 4590T	48~85	2.9~5.1	Taper on 3/4 shaft	3/16" square	Built in lock valve

### Drawing





## Hydraulic Steering Components

# POWER HELM

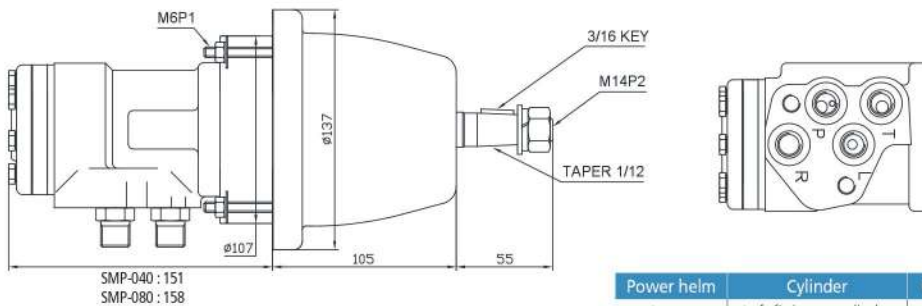


- Stainless Steel Shaft
- Provides instant manual back-up in case of power failure
- Taper on 3/4" diameter shaft with 3/16" key
- Heavy duty design, suitable steering wheel size : diameter 24"
- Anodized on front cover

### SMP Power Helm

Model	Displacement		Shaft Spec	Key Spec
	cc / rev	Cu.in / rev		
SMP-040	40	2.44	3/4" Dia	3/16"
SMP-080	80	4.88		

### Drawing



Power helm	Cylinder	Power pack
L port	Left fitting on cylinder	
R port	Right fitting on cylinder	
T port		T port
P port		P port

## Hydraulic Steering Components

# CYLINDER

### SOC 2512H Type - Outboard

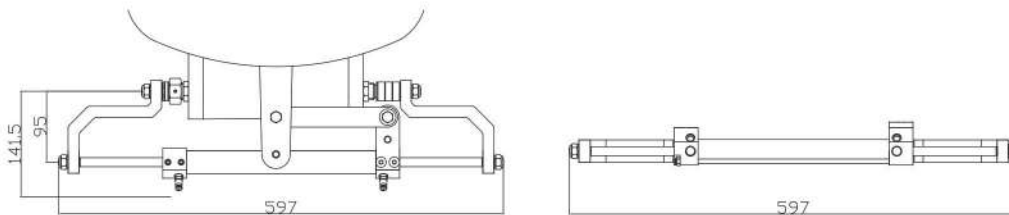


#### Model : SOC 2512H Type

Volume	83 cc
Stroke	220mm
Shaft diameter	12mm
Output force	264kg
Bore diameter	25mm

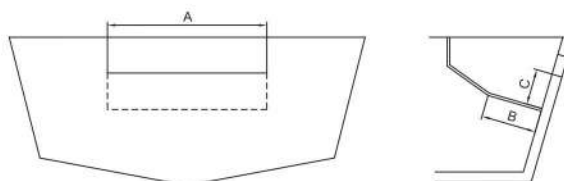
- Stainless steel shaft with hard chrome plate
- Aluminum tube with anodizing
- Aluminum arms with anodizing
- Stainless steel lock nuts
- Compact Design for less space installation
- Install for single engine
- Balanced cylinder : The number of turns lock to lock is equal port to starboard

#### Drawing



#### Splashwell Dimension Requirement

No of Cylinder	A	B	C	Min.engine center distance
1	600mm	174mm	150mm	N/A



Note : Maximum transom thickness 76mm



## Hydraulic Steering Components

# CYLINDER

### SOC 3016H Type - Outboard

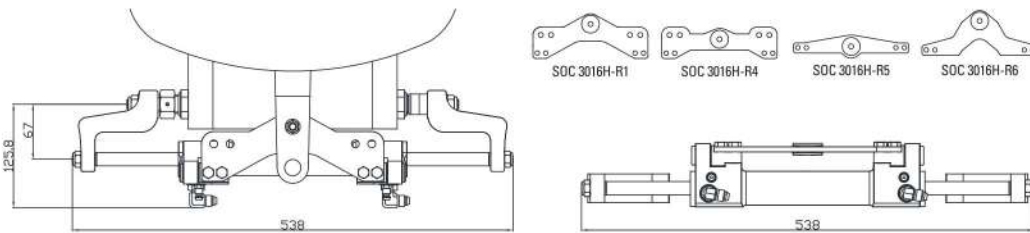


### SOC 3016H-R1, R4, R5, R6 Cylinder

Volume	101 cc
Output force	354kg
Shaft diameter	16mm
Bore diameter	30mm
Stroke	200mm

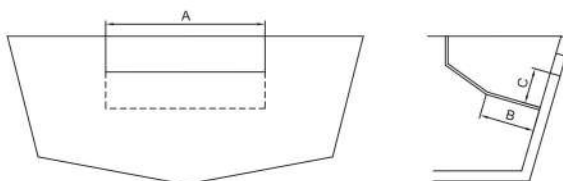
- Stainless steel shaft with hard chrome plate
- Aluminum tube with anodizing
- Aluminum arms with anodizing
- Stainless steel lock nuts
- Compact Design for less space installation
- Install for single engine
- Balanced cylinder : The number of turns lock to lock is equal port to starboard

### Drawing



### Splashwell Dimension Requirement

No of Cylinder	A	B	C	Min.engine center distance
1	541mm	152mm	127mm	N/A



Note : Maximum transom thickness 76mm

# Hydraulic Steering Components

## CYLINDER

### SOC 3520H type - Outboard

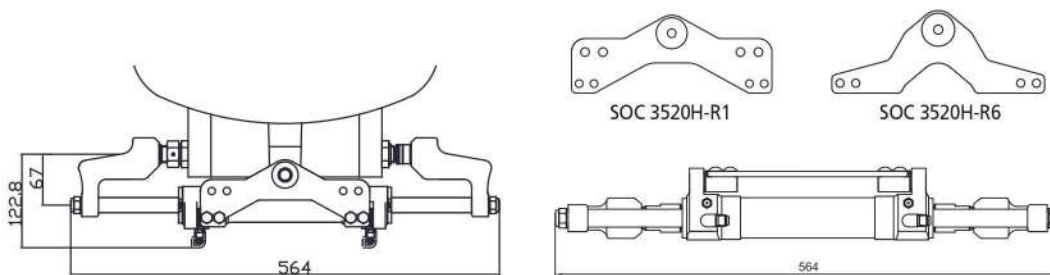


#### Model : SOC 3520H-R1, SOC 3520H-R6

Volume	132cc
Output force	454kg
Shaft diameter	20mm
Bore diameter	35mm
Stroke	203mm

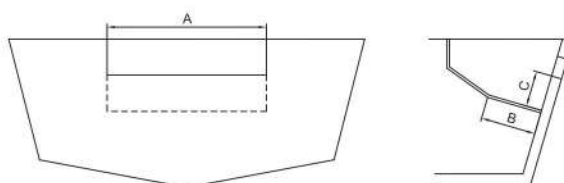
- Stainless steel shaft with hard chrome plate
- Aluminum tube with anodizing
- Aluminum arms with anodizing
- Stainless steel lock nuts
- Compact Design for less space installation
- Install for single and multi engines
- Balanced cylinder : The number of turns lock to lock is equal port to starboard

#### Drawing



#### Splashwell Dimension Requirement

No of Cylinder	A	B	C	Min.engine center distance
1	570mm	152mm	127mm	N/A
2	1180mm	152mm	127mm	660mm



Note : Maximum transom thickness 76mm



## Hydraulic Steering Components

# CYLINDER

### SOC 3520V type - Outboard

Easy installation for the limited space

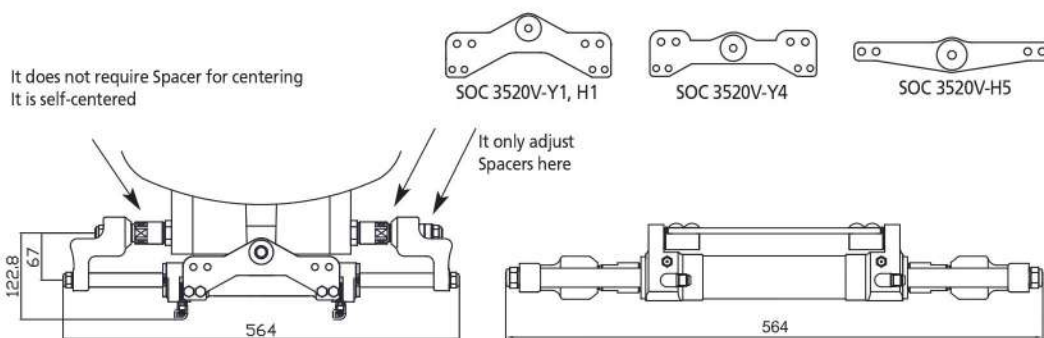


### Model : SOC 3520V-Y1, SOC 3520V-H1 / SOC 3520V-Y4, SOC 3520V-H5

Volume	132cc
Output force	454kg
Shaft diameter	20mm
Bore diameter	35mm
Stroke	203mm

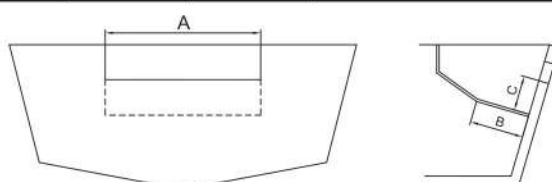
- Stainless steel shaft with hard chrome plate
- Aluminum tube with anodizing
- Aluminum arms with anodizing
- Stainless steel lock nuts
- Compact Design for less space installation
- Install for single and multi engines
- Balanced cylinder : The number of turns lock to lock is equal port to starboard

## Drawing



## Splashwell Dimension Requirement

No of Cylinder	A	B	C	Min.engine center distance
1	570mm	152mm	127mm	N/A
2	1180mm	152mm	127mm	660mm



Note : Maximum transom thickness 76mm

# Hydraulic Steering Components

## CYLINDER

### SOC 3822H Type - Outboard

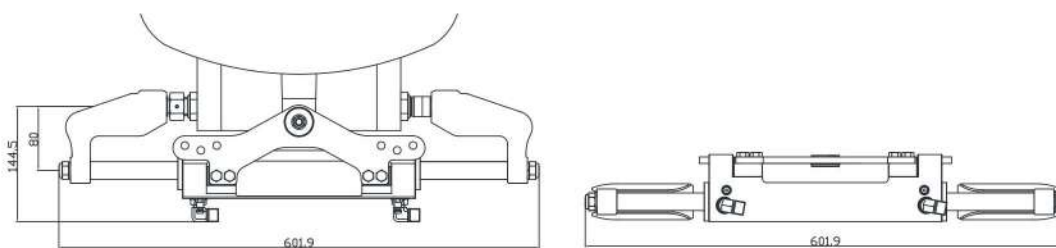


#### Model : SOC 3822H-W7

Volume	162cc
Output force	528kg
Shaft diameter	22mm
Bore diameter	38mm
Stroke	215mm

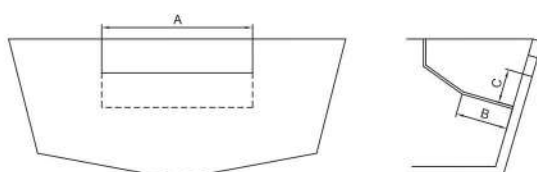
- Stainless steel shaft with hard chrome plate
- Aluminum tube with anodizing
- Aluminum arms with anodizing
- Stainless steel lock nuts
- Compact Design for less space installation
- Install for single and multi engines
- Balanced cylinder : The number of turns lock to lock is equal port to starboard

#### Drawing



#### Splashwell Dimension Requirement

No of Engine	A	B	C	Min.engine center distance
1	608mm	165mm	140mm	N/A
2	1256mm	152mm	127mm	680mm





## Hydraulic Steering Components

# CYLINDER

SSC 3214U type - Stern Drive

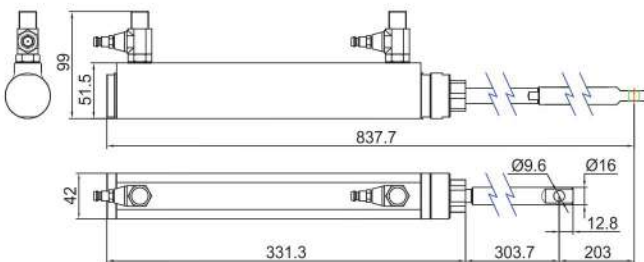
SSC 3214B type - Stern Drive



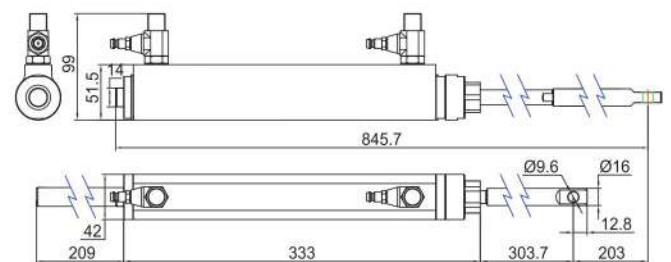
### Model : SSC 3214U, 3214B

SPECIFICATIONS	SSC 3214U	SSC 3214B
Volume	163/132cc	132cc
Stroke	203mm	203mm
Shaft diameter	14mm	14mm
Output force	455kg / 563kg	455kg
Bore diameter	32mm	32mm

### SSC 3214U Drawing



### SSC 3214B Drawing



# Hydraulic Steering Components

## CYLINDER

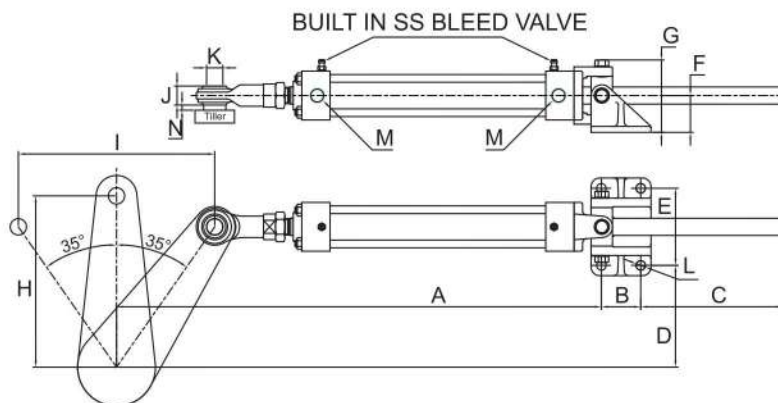
### IOC Cylinder - Inboard



- ① Stainless Steel
- ② Aluminium with anodized
- ③ Brass, Black color
- ④ Stainless steel, chrome plated

Cylinder	Bore mm	Stroke mm	Shaft mm	Oil Volume cc	Torque. Kgf.m		Port thread M
					At 40kg/cm <sup>2</sup>	At 63kg/cm <sup>2</sup>	
IOC-4020	40	127	20	120	34	54	PT 3/8
IOC-4021	40	178	20	168	48	75	PT 3/8
IOC-4022	40	229	20	215	61	97	PT 3/8
IOC-5024	50	178	25	262	75	118	PT 3/8
IOC-5025	50	229	25	337	96	151	PT 3/8
IOC-5026	50	279	25	411	117	185	PT 3/8
IOC-6325	63	229	25	600	171	270	PT 3/8
IOC-6326	63	279	25	734	209	329	PT 3/8

### Dimension



Model	A	B	C	D	E	F	G	H	I	J	K	L	N
IOC-4020	413	46	64	46	90	43	84	111	127	22	19.1	11	Min 6
IOC-4021	490	46	115	82	90	43	84	155	178	22	19.1	11	Min 6
IOC-4022	566	46	166	118	90	43	84	199	229	22	19.1	11	Min 6
IOC-5024	534	70	85	70	114	62	114	155	178	22	19.1	13	Min 6
IOC-5025	610	70	136	106	114	62	114	199	229	22	19.1	13	Min 6
IOC-5026	685	70	187	142	114	62	114	243	279	22	19.1	13	Min 6
IOC-6325	613	78	126	85	156	72	127	199	229	22	19.1	13	Min 6
IOC-6326	688	78	177	121	156	72	127	243	279	22	19.1	13	Min 6



## Hydraulic Steering Components

# POWER PACK

BLP 1216

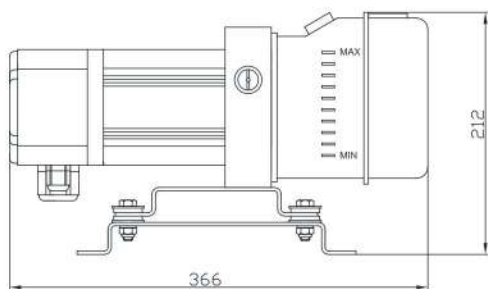
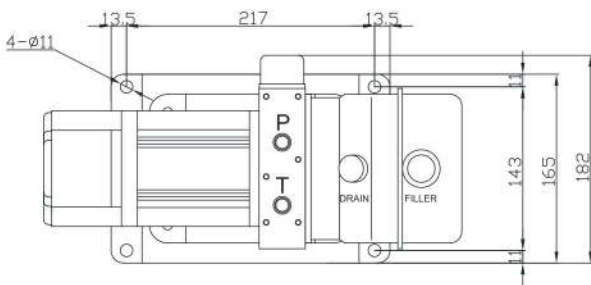
BLP 2437

## POWER PACK

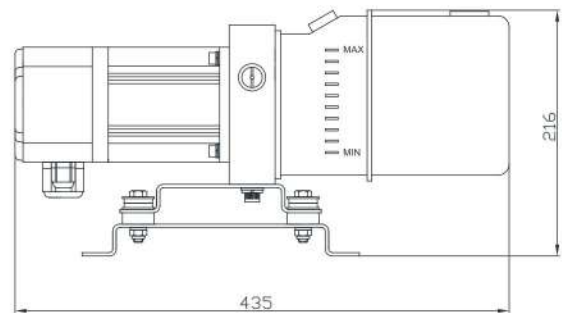
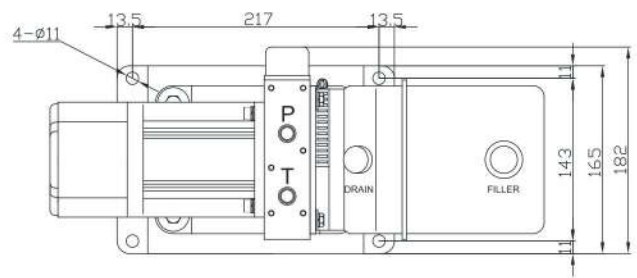


- DC12V /DC24V
- High Efficiency, low noise
- Low Amp draw
- Only suitable for mount on floor
- Transparent Oil Tank for oil level vision
  - Oil tank in 12V power pack : 1.5L
  - Oil tank in 24V power pack : 2.5L
- Black galvanized motor housing, salt water resistant
- 5meter Wiring Harness included
- Vented filler plug
- Vibration proof

### BLP 1216 Drawing



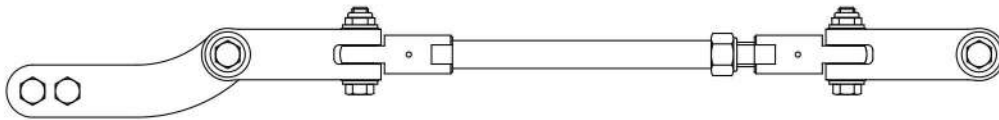
### BLP 2437 Drawing



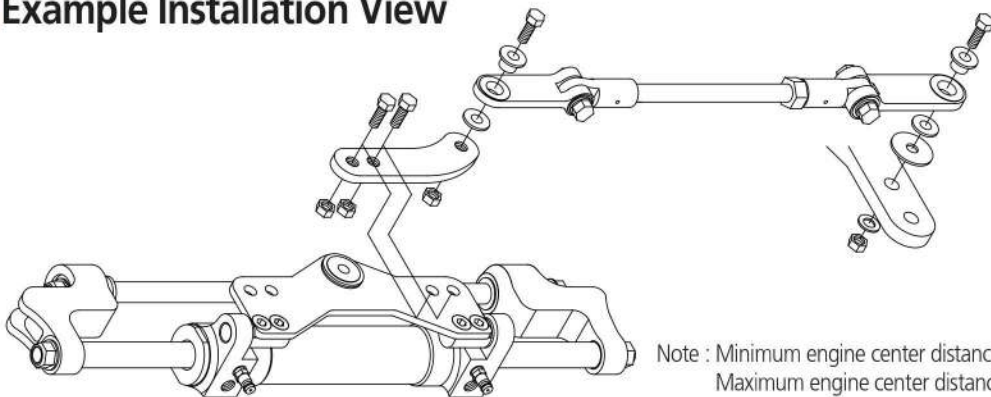
## Hydraulic Steering Components

# TIE BAR For SOC 3520 Cylinder

### TBK 800S

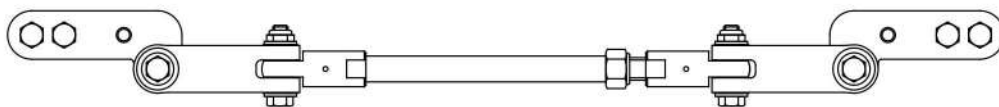


#### Example Installation View

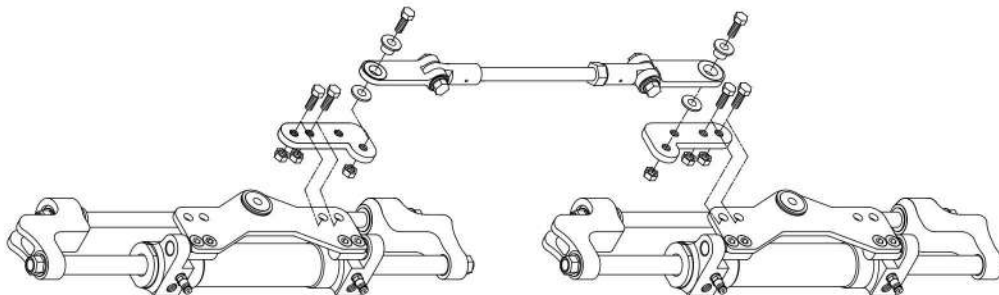


Note : Minimum engine center distance : 530 mm  
Maximum engine center distance : 1030mm

### TBK 800T



#### Example Installation View



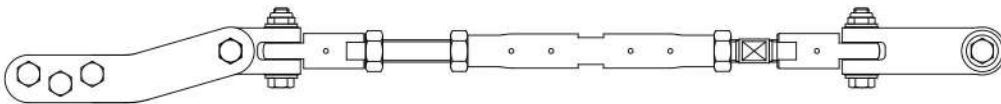
Note : Minimum engine center distance : 640 mm  
Maximum engine center distance : 1150mm



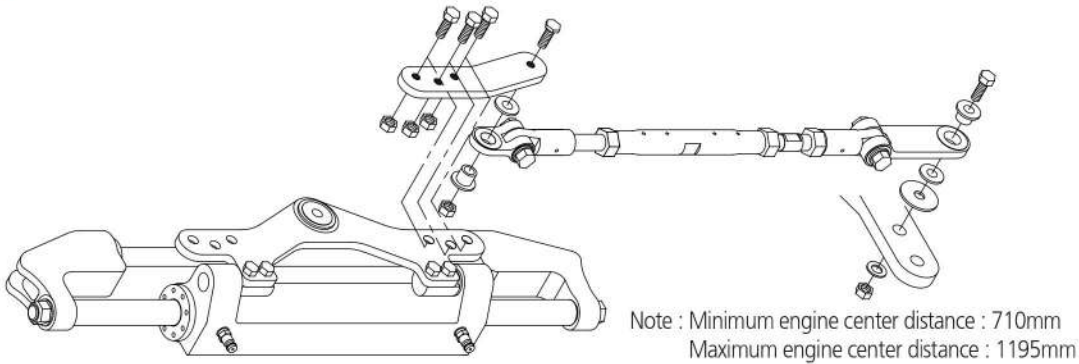
## Hydraulic Steering Components

# TIE BAR For SOC 3822 Cylinder

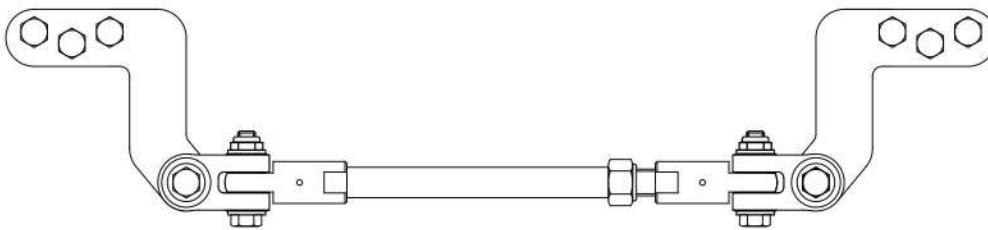
### 3822-TBA-1-2



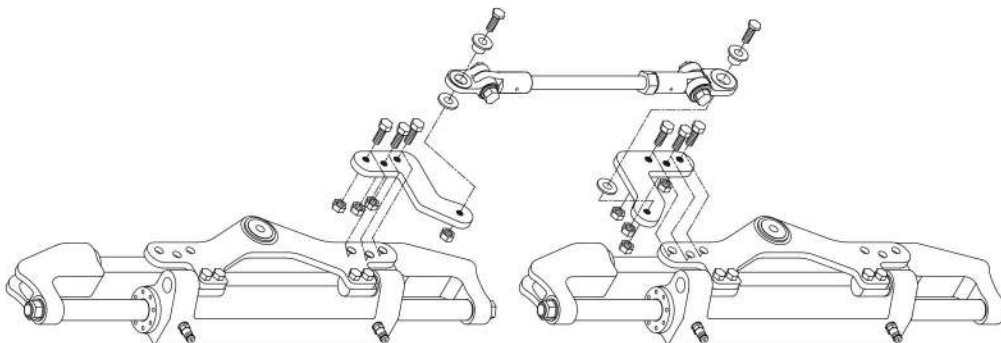
#### Example Installation View



### 3822-TBK-2-2



#### Example Installation View



Note : Minimum engine center distance : 620mm  
Maximum engine center distance : 1100mm

## Hydraulic Steering Components

# HOSE & HOSE COUPLING

## HOSE KIT

Part Number	Description	Hose Coupling	Hose Size	Recommendation
NH 04-SS-01	Hose 1meter	G (PF) 1/4	1/4"	MO100H, MO150H
NH 04-SS-05	Hose 5meter	G (PF) 1/4	1/4"	
NH 04-SS-06	Hose 6meter	G (PF) 1/4	1/4"	
NH 04-SS-07	Hose 7meter	G (PF) 1/4	1/4"	
NH 04-SS-08	Hose 8meter	G (PF) 1/4	1/4"	
NH 04-SS-09	Hose 9meter	G (PF) 1/4	1/4"	
NH 04-SS-10	Hose 10meter	G (PF) 1/4	1/4"	
NH 04-SS-15	Hose 15meter	G (PF) 1/4	1/4"	
NH 06-SS-01	Hose 1meter	G (PF) 3/8	3/8"	MO350H, MO700H
NH 06-SS-05	Hose 5meter	G (PF) 3/8	3/8"	
NH 06-SS-06	Hose 6meter	G (PF) 3/8	3/8"	
NH 06-SS-07	Hose 7meter	G (PF) 3/8	3/8"	
NH 06-SS-08	Hose 8meter	G (PF) 3/8	3/8"	
NH 06-SS-09	Hose 9meter	G (PF) 3/8	3/8"	
NH 06-SS-10	Hose 10meter	G (PF) 3/8	3/8"	
NH 06-SS-15	Hose 15meter	G (PF) 3/8	3/8"	
RH 06-SS-01	High pressure hose 1meter	G (PF) 3/8	3/8"	MAXTEERING
RH 06-SS-05	High pressure hose 5meter	G (PF) 3/8	3/8"	
RH 06-SS-06	High pressure hose 6meter	G (PF) 3/8	3/8"	
RH 06-SS-07	High pressure hose 7meter	G (PF) 3/8	3/8"	
RH 06-SS-08	High pressure hose 8meter	G (PF) 3/8	3/8"	
RH 06-SS-09	High pressure hose 9meter	G (PF) 3/8	3/8"	
RH 06-SS-10	High pressure hose 10meter	G (PF) 3/8	3/8"	
RH 06-SS-15	High pressure hose 15meter	G (PF) 3/8	3/8"	



Pre-assembled hose connectors on both ends Swaged type

\* Other length : Production on demand

## HOSE (Roll)

Part Number	Description	Hose Size
NH 04	200meter	1/4"
NH 06	100 meter	3/8"
RH 06	100 meter	3/8"





## Hydraulic Steering Components

# HOSE & HOSE COUPLING

## HOSE KIT with Bulkhead Mounting Plate



It is hose kit with pre-assembled Bulkhead Mounting Plate. For part number, add "B" on part number of hose kit. For example, NH06-SS-06B : 6meter hose kit with Bulkhead Mounting Plate

## Bulkhead Mounting Plate



Part Number	Description	Suitable Hose
BMK16	Bulkhead Mounting Plate	NH04 (1/4"), NH06 (3/8")
BMK20	Bulkhead Mounting Plate	RH06(3/8")

## Hose Coupling



Swaging type



Reusable type (Screw in type)



Reusable type (Push in type)

Part Number	Spec	Material	Suitable Hose	Remark
SE-PF-04-14-S	G (PF) 1/4	Stainless steel	1/4"(NH 04)	Swaging type
SF-PF-06-14-S	G (PF) 3/8	Stainless steel	3/8"(NH06, RH06)	
C3520149	G (PF) 3/8	Brass	3/8"(NH 06)	Reusable Hose Coupling (Screw in type)
CPK0414	G (PF) 1/4	Steel	1/4"(NH 04)	Campuka (Push in type)

# Hydraulic Steering Components

## FITTING

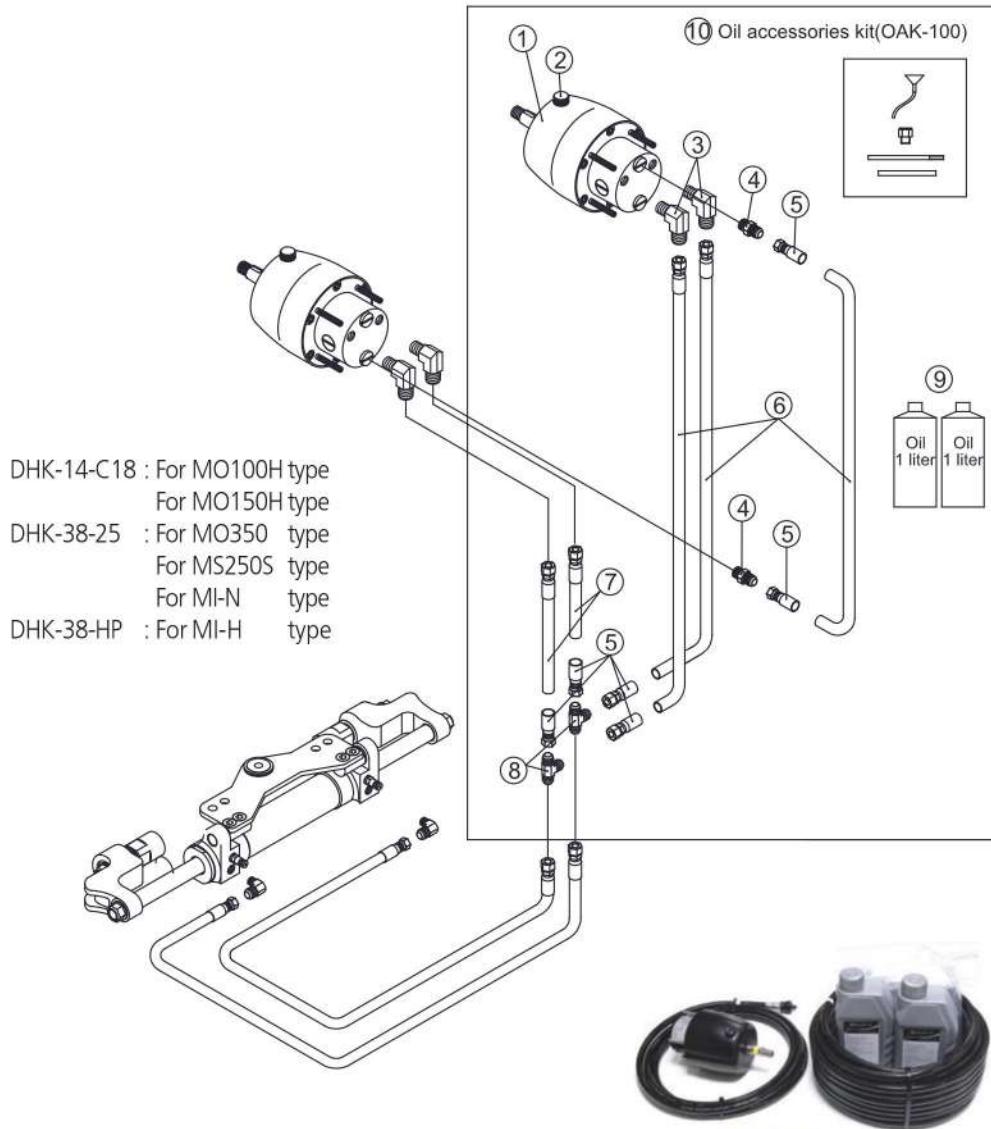
<p><b>HS38N0S</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HSO14HS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HSO14NS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HSO14BS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HL38N0</b></p> <p><b>STEEL</b></p>
<p><b>HLO14H0S</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HLO14B0S</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HL014N0S</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HTN300</b></p> <p><b>STEEL</b></p>	<p><b>HTH300</b></p> <p><b>STEEL</b></p>
<p><b>HTO14HHS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HTO14BBS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>HTO14NNS</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>C3214118</b></p> <p><b>STAINLESS STEEL</b></p>	<p><b>C3520122</b></p> <p><b>STAINLESS STEEL</b></p>
<p><b>HP38</b></p> <p><b>STEEL</b></p>	<p><b>HP14</b></p> <p><b>STEEL</b></p>	<p><b>NP14</b></p> <p><b>STEEL</b></p>	<p><b>NP38</b></p> <p><b>STEEL</b></p>	<p><b>HSBB</b></p> <p><b>STEEL</b></p>
<p><b>HSHH</b></p> <p><b>STEEL</b></p>	<p><b>HSNN</b></p> <p><b>STEEL</b></p>			



## Hydraulic Steering Components

# DUAL STATION KIT

Part No : DHK-14-C18, DHK-38-25, DHK-38-HP



- DHK-14-C18 : For MO100H type  
For MO150H type
- DHK-38-25 : For MO350 type  
For MS250S type  
For MI-N type
- DHK-38-HP : For MI-H type

### Dual Steering kits includes

NO	Description	Dual station 1/4 DHK-14-C18	Dual station 3/8 DHK-38-25	Dual Station 3/8 DHK-38-HP	Q, TY
1	Helm pump (Select Model)	CSH-018	NSH-025	HP4590T	1
2	Cap	C1800803	C1800803	C3060128	1
3	Elbow fitting(O-ring)	HLO14H0	HLO14N0S	HL38N0	2
4	Straight fitting(O-ring)	HSO14H0	HSO14N0	HS38N0S	2
5	Campuka / Reusable	CPK0414	C3520149	C3520149	6
6	Hose -30M	NH04-SS-30	NH06-SS-30	NH06-SS-30	1
7	Hose -04M	NH04-SS-04	NH06-SS-04	NH06-SS-04	1
8	Tee fitting	HTH300	HTN300	HTN300	2
9	OIL (1LITER)	SF OIL 15	SF OIL 15	SF-OIL-15	2
10	OIL Accessories Kit	OAK-300	OAK-300	OAK-200	1

## Hydraulic Steering Components

# OIL BLEEDING KIT & TILLER ARM & OIL

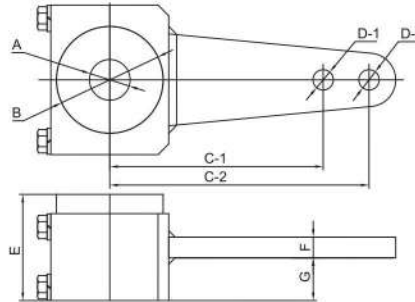
### Oil bleeding, Purging kit

Model OAK-300 for NSH helm pump  
 Model OAK-200 for HP helm pump  
 Model OAK-500 for SMP power helm



### Tiller arm

- Reamer bolt, washers and Nut are supplied
- Tiller arm is made of steel with hard powder coating



Parts Number	A	B	C-1	C-2	D-1	D-2	E	F	G	Application Cylinders
ST57-19S	25.4~60	80	111 /	/ 155	19.1 /	/ 19.1	70	15	27.5	IOC-4020 IOC-4021 IOC-5024
ST09-19S	25.4~60	80	/	199	/	19.1	70	15	27.5	IOC-4022, IOC-5025, IOC-6325
ST911-19S	38.1~80	100	199 /	/ 243	19.1	/ 19.1	100	20	40	IOC-5026 IOC-6326

Dimension : mm  
 For 70 degree angle use

### Oil

Hydraulic steering require a good quality of hydraulic fluid, especially in case of manual hydraulic steering like outboard hydraulic steering. We highly recommend to use SAE NO 15 oil. Substitution of non-recommended fluid may result in heaving steering.



Model : SF OIL 15 (1liter bottle)



## Hydraulic Steering Components

# LIQUID TIE BAR ALIGNMENT VALVE STEERING WHEEL

## Liquid Tie Bar Alignment Valve

In case that the mechanical tie bar can not be used because of boat situation, the Liquid Tie Bar Alignment Valve can be used to allow for realignment of two outboard motors or two rudders. The use of mechanical tie bar is best. There is no substitute for mechanical tie bar.

**Model** LTB-14 for 1/4" tube line

**Model** LTB-38 for 3/8" tube line

**Model** LTB-916 for 9/16" tube line



## Steering Wheel



SH-300



S01-350, S01-395

Model	Size	Material	Recommend
SH-300	Dia 300mm	Aluminium	Helm pump NSH 018, 022
S01-350	Dia 350mm	Stainless steel	Helm pump NSH 018, 022, 025, 030
S01-395	Dia 395mm	Stainless Steel	Helm Pump NSH 037, NSH 044

## Hydraulic Steering Components

# SPARE PARTS KIT

Product Name	Description	Parts Name
CSH Helm Pump	Seal Kit	C1700801
NSH Helm Pump	Seal Kit	C1800801
SOC2512H Cylinder	Seal Kit	C2512801
	Tube Cover Kit	C2512802
	Rod Kit	C2512803
	Tiller Bushing Kit	C2512804
	Arm Kit	C2512805
	Space Ring Kit	C2512806
SOC3016H Cylinder	Seal Kit	C3016801
	Tube Cover Kit	C3016802
	Rod Kit	C3016803
	Tiller Bushing Kit	C3520804
	Arm Kit	C3016805
SOC3520V Cylinder	Space Ring Kit	C3520808
	Seal Kit	C3520801
	Tube Cover Kit	C3520802
	Rod Kit	C3520803
	Tiller Bushing Kit	C3520804
SOC3520H Cylinder	Arm Kit	C3520805
	Space Ring Kit	C3520806
	Seal Kit	C3520801
	Tube Cover Kit	C3520802
	Rod Kit	C3520803
SOC3822H Cylinder	Tiller Bushing Kit	C3520804
	Arm Kit R	C3520807
	Space Ring Kit R	C3520808
	Seal Kit	C3822801
	Tube Cover Kit	C3822802
IOC4020 ~ 4022 Cylinder	Rod Kit	C3822803
	Tiller Bushing Kit	C3520804
	Arm Kit R	C3822805
	Space Ring Kit R	C3520808
	Seal Kit	C4021170
IOC5024 ~ 5026 Cylinder	Seal Kit	C5025170
IOC6325 ~ 6326 Cylinder	Seal Kit	C6325170
SSC3214U Cylinder	Seal Kit	C3214801
	Tube Cover Kit	C3214802
	Rod Kit	C3214803
SSC3214B Cylinder	Seal Kit	C3215801
	Tube Cover Kit	C3215802
	Rod Kit	C3215803

## Conversion Kit for SOC 3016H, 3520H universal cylinder

Product Name	Description	Parts Name
Conversion Kit R1	To convert any SOC3520(3016)H cylinder to SOC3520(3016)H-R1	C3520814
Conversion Kit R4	To convert any SOC3520(3016)H cylinder to SOC3520(3016)H-R4	C3520815
Conversion Kit R5	To convert any SOC3520(3016)H cylinder to SOC3520(3016)H-R5	C3520816
Conversion Kit R6	To convert any SOC3520(3016)H cylinder to SOC3520(3016)H-R6	C3520817

Please contact to distributor or dealer for any other assembly methods except in the above case.



## Hydraulic Steering Components

# RUDDER ANGLE INDICATORS SYSTEM

### RAI-S : Single Station

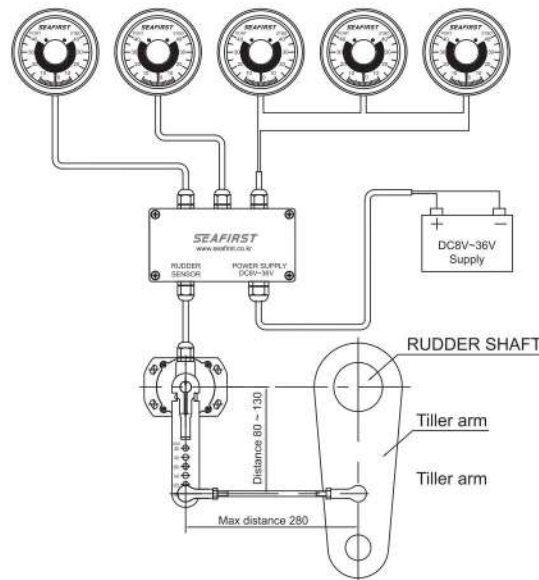
- Accurate, Durable needle movement
- Anti-corrosive black bezel
- Dimmer Switch
- LED on/off terminal
- Single and Dual station only
- Water resistant
- Fog resistant
- Led lighting



Part Number	Description	Source	Remark
DSR 110	Sensor	DC 8V ~ DC 36V	Include 10meter harness
DNR 104	Indicator 40-0-40		Dia 85mm
SFR 101	Indicator 45-0-45		Dia 85mm
SFR 102	Indicator 45-0-45 (Reverse)		Dia 85mm

### RAI-M : Multi Stations

- Accurate, Durable needle movement
- Anti-corrosive black bezel
- Dimmer Switch
- LED on/off terminal
- Multi-Stations max 15 indicators
- Water resistant
- Fog resistant
- Led lighting



Part Number	Description	Source	Remark
DSR 110	Sensor	DC 8V ~ DC 36V	Include 10meter harness
DSR 104	Indicator 40-0-40		Dia 85mm
DSR 106	Distribution box		Dia 85mm
SFR 111	Indicator 45-0-45		Dia 85mm
SFR 112	Indicator 45-0-45 (Reverse)		Dia 85mm





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