

# Tech Reference: Hydraulic Steering

## *SeaStar/BayStar/Hynautic Helm Specifications:*

HELM DESCRIPTION	PART NUMBER	DISPLACEMENT CU. IN. (cc) PER REVOLUTION	RELIEF VALVE SETTING PSI (BAR)	MAXIMUM WHEEL DIA. Inches (mm)	TUBE/HOSE CONNECTION PORT SIZE
BAYSTAR - FRONT MOUNT	HH4016	1.6 (23.0)	1000 (70)	22 (558)	1/4 NPT
BAYSTAR - SPORT TILT	HH4015	1.6 (23.0)	1000 (70)	20 (508)	1/4 NPT
CAPILANO 1250V	HH5250	1.7-3.4 (27.8-55.7)	1000 (70)	36 (914)	3/8 NPT
CAPILANO 1275V	HH5275	2.7-5.4 (44.2-88.4)	1000 (70)	36 (914)	3/8 NPT
HYNAUTIC H-20 (3/4" SHAFT)	H-26	2.0 (33)	500 (35) or 950 (66)	32 (812)	3/8 & 1/4 NPT
HYNAUTIC H-20 (3/4" SHAFT)	H-25	2.75 (45)	500 (35) or 950 (66)	34 (863)	3/8 & 1/4 NPT
HYNAUTIC H-20 (1" SHAFT)	H-21	2.75 (45)	500 (35) or 950 (66)	34 (863)	3/8 & 1/4 NPT
HYNAUTIC H-40 (3/4" SHAFT)	H-42-02	4.0 (65.5)	500 (35) or 950 (66)	36 (914)	1/2 & 3/8 NPT
HYNAUTIC H-40 (1" SHAFT)	H-42	4.0 (65.5)	500 (35) or 950 (66)	36 (914)	1/2 & 3/8 NPT
HYNAUTIC H-40 (3/4" SHAFT)	H-41-02	5.5 (90.1)	500 (35) or 950 (66)	48 (1219)	1/2 & 3/8 NPT
HYNAUTIC H-40 (1" SHAFT)	H-41	5.5 (90.1)	500 (35) or 950 (66)	48 (1219)	1/2 & 3/8 NPT
SEASTAR 1.4 - FRONT MOUNT	HH5269	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - REAR MOUNT	HH5260	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT FULL FEEDBACK	HH5231	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT. 1" STRT. SHAFT	HH5279	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT. 1" TAPER. SHAFT	HH5280	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - TILT	HH5744	1.4 (23.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 1.7 - FRONT MOUNT	HH5271	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - FT. MT. FULL FEEDBACK	HH5761	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - REAR MOUNT	HH5261	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - R. MT. 1" TAPER. SHAFT	HH5281	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - SPORT TILT	HH5291	1.7 (27.8)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 1.7 - TRADITIONAL TILT	HH5741	1.7 (27.8)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.0 - FRONT MOUNT	HH5273	2.0 (33.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.0 - FT. MT. FULL FEEDBACK	HH5260	2.0 (33.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.0 - SPORT TILT	HH5745	2.0 (33.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.0 - TRADITIONAL TILT	HH5743	2.0 (33.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.4 - FRONT MOUNT	HH5272	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - FT. MT. FULL FEEDBACK	HH5762	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - REAR MOUNT	HH5262	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - R. MT. 1" TAPER. SHAFT	HH5282	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - SPORT TILT	HH5292	2.4 (39.3)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.4 - TRADITIONAL TILT	HH5742	2.4 (39.3)	1000 (70)	20 (508)	1/4 NPT
SEASTAR PRO 1.7 - FRONT MOUNT*	HH5779	1.7 (27.8)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 1.7 - REAR MOUNT*	HH5778	1.7 (27.8)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 1.7 - SPORT TILT*	HH5773	1.7 (27.8)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.0 - FRONT MOUNT*	HH5770	2.0 (33.0)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 2.0 - REAR MOUNT*	HH5771	2.0 (33.0)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 2.0 - SPORT TILT*	HH5290	2.0 (33.0)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.0 - TRADITIONAL TILT*	HH5774	2.0 (33.0)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.4 - FRONT MOUNT	HH5772	2.4 (39.3)	1500 (103)	26 (660)	1/4 NPT

\* SeaStar PRO helms cannot be used with an unbalanced cylinder. SeaStar PRO Kevlar® reinforced outboard hose MUST be used with ALL SeaStar PRO helms.

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## SeaStar/BayStar/Hynautic Cylinder Specifications:

CYLINDER MODEL	PART NUMBER	BORE DIA. Inches (mm)	NOM. SHAFT DIA. Inches (mm)	STROKE Inches (mm)	AREA SQUARE Sq.In.(cm)	VOLUME CUBIC IN. (cc)	TORQUE* (SEE NOTE) In.-Lb. (Kg-M)
<b>HYNAUTIC INBOARD UNITS (USED IN SEASTAR, CAPILANO &amp; HYNAUTIC SYSTEMS):</b>							
Hynautic Ball Joint Mount	K-18	1.25 (31.7)	.625 (15.9)	7 (178)	1.0 (6.5)	7.0 (147.4)	N/A
Hynautic Ball Joint Mount	K-19	1.25 (31.7)	.625 (15.9)	9 (229)	1.0 (6.5)	9.0 (114.7)	N/A
Hynautic Fixed Mount	K-22****	1.50 (38.1)	.75 (19.0)	10 (254)	1.33 (8.6)	13.3 (217.9)	8990 (103.5)
Hynautic Fixed Mount	K-27****	1.50 (38.1)	.75 (19.0)	10 (254)	1.33 (8.6)	13.3 (217.9)	8990 (103.5)
Hynautic Univ. Mt. (rod side)	K-5****	1.50 (38.1)	.875 (22.2)	9 (229)	1.32 (8.6)	11.9 (194.9)	10790 (124.3)
Hynautic (piston-only side)***					1.77 (11.5)	15.9 (260.5)	10790 (124.3)
Hynautic Pivot Mount	K-31****	2.00 (50.8)	.875 (22.2)	10 (254)	2.55 (16.6)	25.5 (417.9)	17230 (198.4)
Hynautic Universal Mount	K-8****	2.50 (63.5)	1.00 (25.4)	9.5 (241)	4.13 (26.8)	39.2 (642.4)	26575 (306.0)
Hynautic Universal Mount	K-9****	2.50 (63.5)	1.00 (25.4)	14.5 (368)	4.13 (26.8)	55.0 (901.3)	39850 (458.9)
<b>CAPILANO INBOARD UNITS:</b>							
BA150-7 (TMB/TMC)	HC5349/HC5355	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA175-7 (TMB/TMC)	HC5350/HC5356	1.75 (44.4)	.625 (15.9)	7 (178)	1.96 (12.7)	13.7 (225.4)	9569 (110.2)
BA200-7 (TMB/TMC)	HC5351/HC5357	2.00 (50.8)	.625 (15.9)	7 (178)	3.14 (20.2)	18.9 (310.0)	13200 (151.0)
BA200-11 (TMB/TMC)	HC5378/HC5379	2.00 (50.8)	.625 (15.9)	11 (279)	3.14 (20.2)	29.7 (486.0)	19900 (228.0)
<b>SEASTAR INBOARD UNITS:</b>							
BA125-7ATM	HC5312	1.25 (31.7)	.50 (12.7)	7 (178)	1.03 (6.7)	7.2 (118.2)	5025 (57.9)
BA135-7ATM	HC5313	1.375 (34.9)	.625 (15.9)	7 (178)	1.18 (7.6)	8.3 (135.2)	5741 (66.1)
BA150-7ATM	HC5314**	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA150-7TM	HC5318	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA150-9TM	HC5369	1.50 (38.1)	.625 (15.9)	9 (229)	1.46 (9.4)	13.1 (214.7)	9375 (107.7)
BA175-7TM	HC5319	1.75 (44.4)	.75 (19.0)	7 (178)	1.96 (12.7)	13.7 (225.4)	9569 (110.2)
<b>SEASTAR &amp; HYNAUTIC STERN DRIVE UNITS:</b>							
BA150-7EM	HC5326	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	8853 (102.0)
125-8EM (rod side)	HC5328***	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.3 (135.2)	7142 (82.3)
(125-8EM) (piston-only side)	HC5329***	1.25 (31.7)	.50 (12.7)	8 (203)	1.23 (7.9)	9.8 (160.8)	8505 (98.0)
92VPS	HC5331***	1.25 (31.7)	.50 (12.7)	8 (203)	1.23 (7.9)	8.3 (135.2)	N/A
BA-125-EMV	HC5330	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.3 (135.2)	7142 (82.3)
BA-135-7EM	HC5332	1.375 (34.9)	.625 (15.9)	7 (178)	1.18 (7.6)	8.3 (135.2)	5741 (66.1)
Hynautic Univ. Mt. (rod side)	K-5****	1.50 (38.1)	.875 (22.2)	9 (229)	1.32 (8.6)	11.9 (194.9)	10790 (124.3)
Hynautic (piston-only side)					1.77 (11.5)	15.9 (260.5)	10790 (124.3)
<b>SEASTAR OUTBOARD UNITS:</b>							
PIVOT FRONT MOUNT	HC5345/47/48/58	1.375 (35)	.75 (19.0)	8 (203)	0.82 (5.3)	8.34 (136.6)	N/A
PIVOT FRONT MOUNT (PRO)	HC6345/HC6358	1.375 (35)	.75 (19.0)	8 (203)	0.82 (5.3)	8.34 (136.6)	N/A
CATAMARAN (FIXED MOUNT)	HC5343	1.262 (32.6)	.75 (19.0)	10 (254)	0.82 (5.3)	8.13 (133.2)	N/A
SIDE MOUNT (rod side)	HC5370***	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.3 (135.2)	N/A
SIDE MOUNT (piston-only side)					1.23 (7.9)	9.8 (160.8)	N/A
SPLASHWELL MT. (rod side)	HC5380***	1.25 (31.7)	.50 (12.7)	9 (228)	1.03 (6.7)	9.3 (152.1)	N/A
SPLASHWELL MOUNT (piston-only side)					1.23 (7.9)	11.0 (180.9)	N/A
FRONT MT.-STD. (OBS.)	HC5340/42	1.262 (32.6)	.75 (19.0)	10 (254)	0.82 (5.3)	8.13 (133.2)	N/A
FRONT MT.-COMPACT (OBS.)	HC5365	1.338 (34.0)	.75 (19.0)	7 (178)	0.97 (6.3)	6.87 (111.0)	N/A

Theoretical torque about pivot point at 35 degrees articulation with 1,000 PSI (70 BAR) system pressure, except as noted (\*\*\*\*).

\*\* Also used in some stern drive applications.

\*\*\* These area and volume calculations are for unbalanced cylinders. The piston surface areas/displacements are different on each side of the cylinder, since one end has a rod and piston (less surface area) and the other end has only a piston (more surface area). The lower sets of numbers are for the cylinder side with piston and rod (shaft). The higher sets of numbers are for the piston-only side of the cylinder.

\*\*\*\* Theoretical torque about pivot point at 35 degrees articulation with 950 PSI (66 BAR) system pressure.

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# Tech Reference: Hydraulic Steering

## Power Steering Cylinder Specifications:

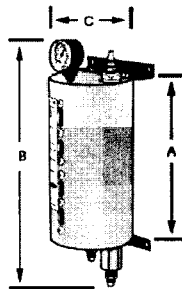
CYLINDER MODEL	PART NUMBER	BORE	NOMINAL SHAFT		VOLUME	OUTPUT	TORQUE
		DIAMETER	DIAMETER	STROKE	CUBIC IN.	FORCE	(SEE NOTE)
		Inches (mm)	Inches (mm)	Inches (mm)	(cc)	Ft.-Lbs. (N)	In.-Lb. (Nm)
SINGLE 9" STROKE x1	HC5801-2	2.00 (51)	1.00 (25.4)	9 (229)	21.25 (348)	2,946 (13090)	18,900 (2,130)
SINGLE 11" STROKE x1	HC5803-2	2.00 (51)	1.00 (25.4)	11 (280)	26.00 (426)	2,946 (13090)	23,140 (2,610)
SINGLE 9" STROKE x1	HC5805	2.50 (64)	1.00 (25.4)	9 (229)	37.11 (608)	5,154 (22926)	33,065 (3,736)
TWIN 9" STROKE x2	HC5802	2.00 (51)	1.00 (25.4)	9 (229)	42.50 (697)	5,892 (26,190)	37,800 (4,260)
TWIN 11" STROKE x2	HC5804	2.00 (51)	1.00 (25.4)	11 (280)	52.00 (853)	5,892 (26,190)	46,280 (5,220)
TWIN 9" STROKE x2	HC5806	2.50 (64)	1.00 (25.4)	9 (229)	74.33 (1216)	10,308 (45,852)	66,130 (7,472)

**NOTE:** Theoretical torque about pivot point at 35 degrees articulation with 1,000 PSI (70 BAR) system pressure.

## Hydraulic Reservoir & Relief Valve Specifications:

### Reservoirs

Made of T-6061 aluminum, reservoirs are pressure tested for a minimum of 100 hours, and shipped complete with front-reading pressure gauge, fluid level indicator, and return line filter.



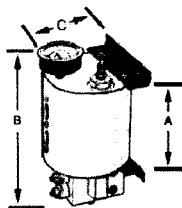
(R06 shown)

#### RESERVOIR DIMENSIONS & SPECIFICATIONS:

Model No.	DIMENSIONS			SPECIFICATIONS		
	A	B	C	Capacity (Qt)	Optl. Hand Pump	Special Notes
R-06	9-1/2"	13-5/8"	4-7/8"	2	No	Standard Model
R-07	9-1/2"	14-5/8"	4-7/8"	2	Yes	-
R-11	6"	10-5/8"	4-7/8"	1	Yes	-
R-12	9-1/2"	13-5/8"	4-7/8"	2	No	-

### Reservales

The reservale combines the function of a reservoir and relief valve into a single component.



(RV55 shown)

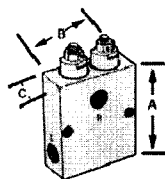
#### RESERVALE DIMENSIONS & SPECIFICATIONS:

Model No.	DIMENSIONS			SPECIFICATIONS				
	A	B	C	Capacity (Qt)	Relief Setting (psi)	Optional Gauge Style	Hand Pump	Special Notes
RV-55	6"	9-1/4"	4-7/8"	1	500	Top Read	No	3/8" O.D. Tubing
RV-55P	6"	10-1/4"	4-7/8"	1	500	Top Read	Yes	3/8" O.D. Tubing
RV-57	6"	10-3/8"	4-7/8"	1	500	Top Read	Yes	5/16" O.D. Tubing
RV-60	6"	9-1/4"	4-7/8"	1	950	Top Read	No	5/16", 3/8" I.D. Hose
RV-67	6"	10-1/4"	4-7/8"	1	950	Front Read	Yes	5/16", 3/8" I.D. Hose

The relief portion of the reservale is factory set at either 500 psi or 950 psi. Made of T-6061 aluminum, the reservale is complete with front or top-reading gauge, fluid level indicator, and return filter. Relief valve is flow-thru style from either direction to accommodate either portside or starboard mounting.

### Relief Valves

These special relief valves are factory set for either 500 psi or 950 psi. They are intended to protect the system's components and assist in purging air.



(MSV-21 shown)

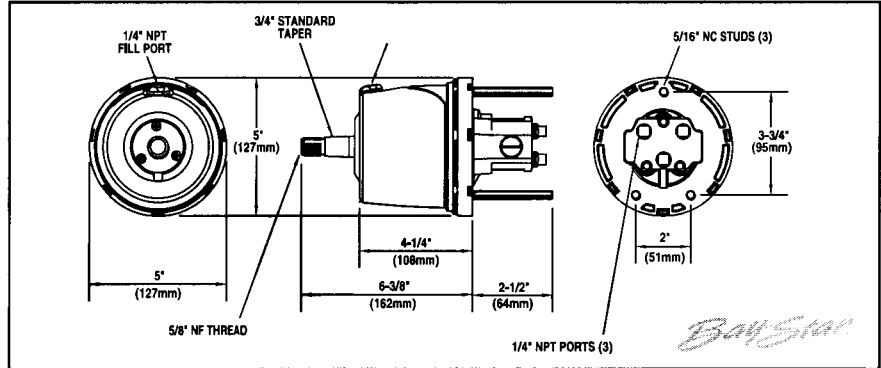
#### RELIEF VALVE DIMENSIONS & SPECIFICATIONS:

Model No.	DIMENSIONS			SPECIFICATIONS		
	A	B	C	Relief Setting (psi)	Port Size	Special Notes
MSV-19	3-7/8"	2-1/2"	1"	500	1/4-20 NPT	-
MSV-21	3-7/8"	2-1/2"	1"	950	1/4-20 NPT	Standard model

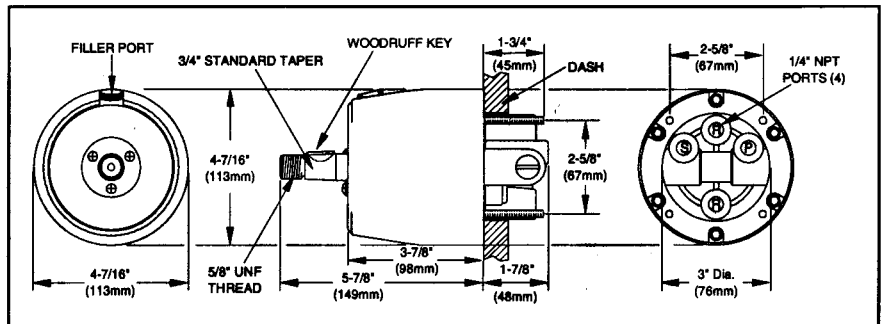
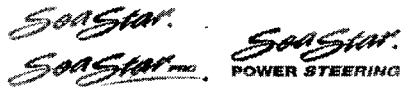
# SeaStar steering dimensions

## Helms:

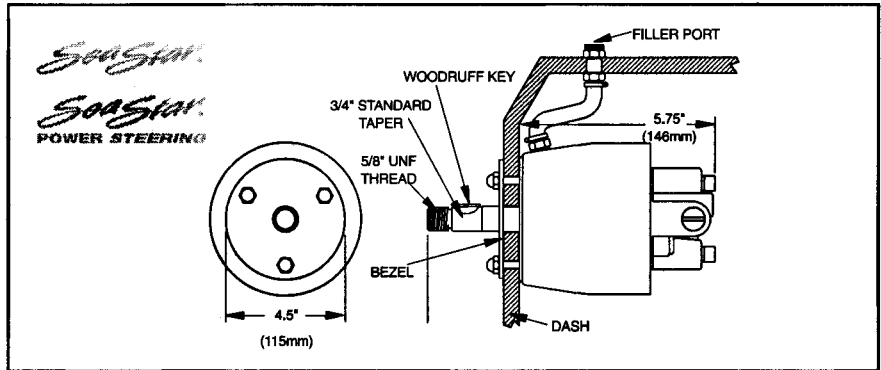
### BayStar



### SeaStar & SeaStar PRO Front Mount



### SeaStar Rear Mount

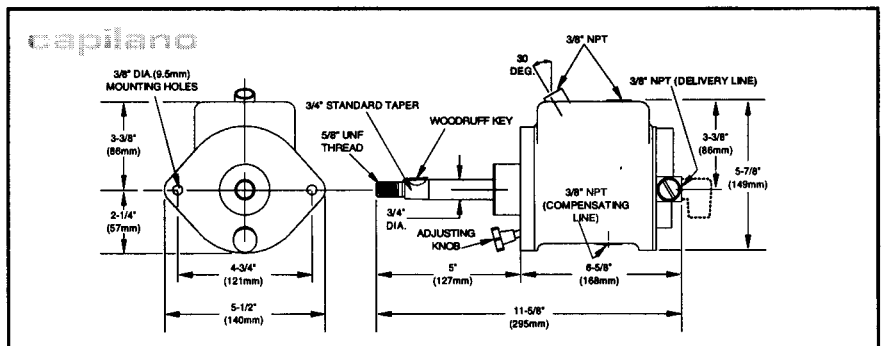


### Hynautic Rear Mount

Technical drawing of the Hynautic helm assembly showing a perspective view of the unit with dimensions A, B, and C. The table below provides the dimensions and shaft key types for various models.

HELM SERIES	HELM MODEL/ PART NO.	DIMENSIONS (INCHES)			SHAFT KEY TYPE
		A	B	C	
H-20	H-21	6.125	10.75	3.5	1/4" square
	H-25	5.5	10.125	3.5	#9 Woodruff
	H-26	5.5	10.125	3.5	#9 Woodruff
H-40	H-41	6.125	13.625	5.125	1/4" square
	H-41-02	5.5	13.0	5.125	#9 Woodruff
	H-41	6.125	13.625	5.125	1/4" square
	H-42-02	5.5	13.0	5.125	#9 Woodruff

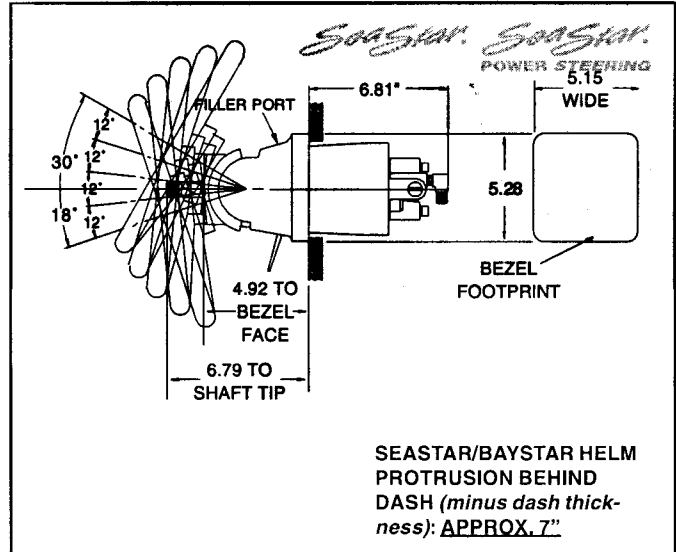
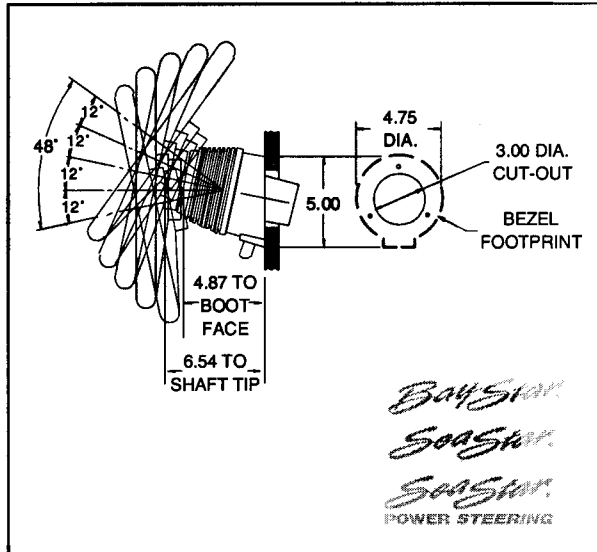
### Capilano



# SeaStar steering dimensions

## Performance Tilt:

## Traditional Tilt:

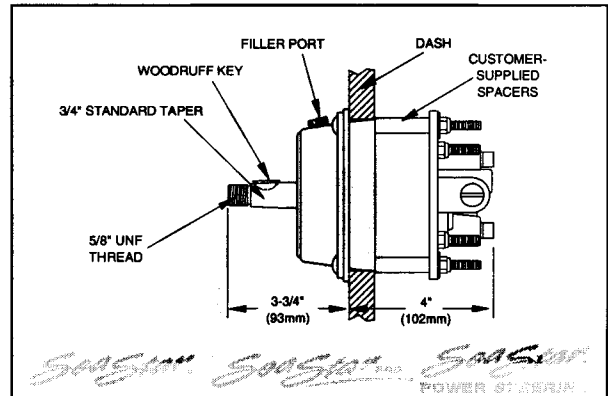


SEASTAR/BAYSTAR HELM PROTRUSION BEHIND DASH (minus dash thickness): APPROX. 7"

## SeaStar Helm Mounting Options:

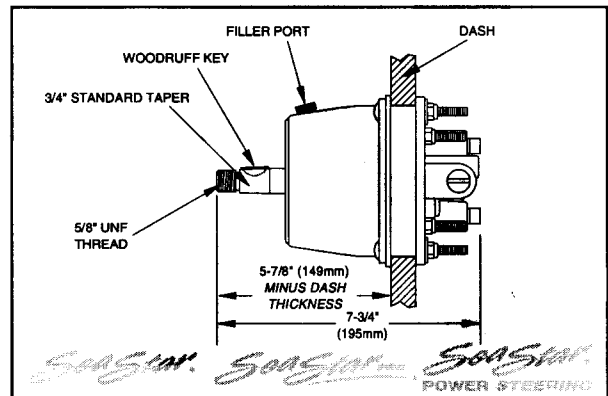
(for SeaStar front mount helms only)

### Round Bezel Kit HA5417

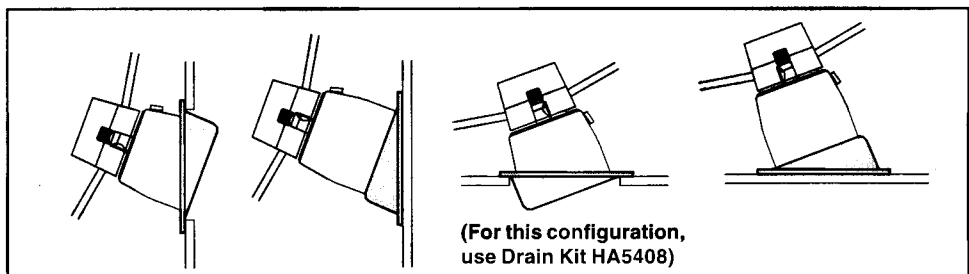


### Square Backplate kit HA5418

Required when retrofitting SeaStar front mount helms into dashboard holes from the following steering systems:  
Teleflex Mechanical steering: Big-T, Safe-T and most other rotary.  
Teleflex Hydraulic steering: SyTen  
Hynautic Hydraulic steering helms: H-50, H60, H-80, H-300.



### Dash 20° Wedge Kit HA5419

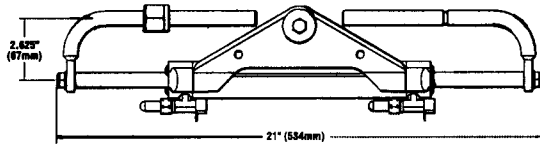


# SeaStar steering dimensions

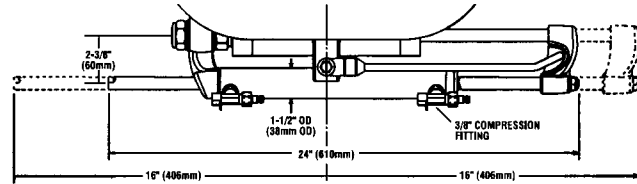
## Cylinders: Outboard

### BayStar

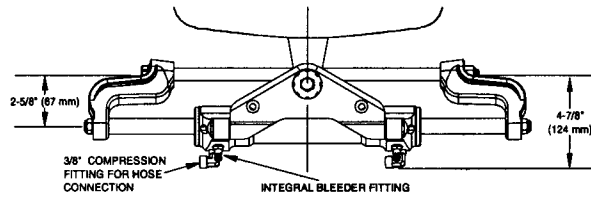
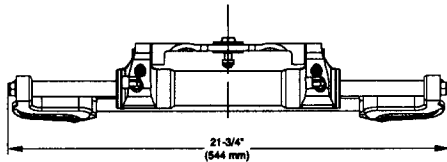
HC4645, HC4647, HC4658



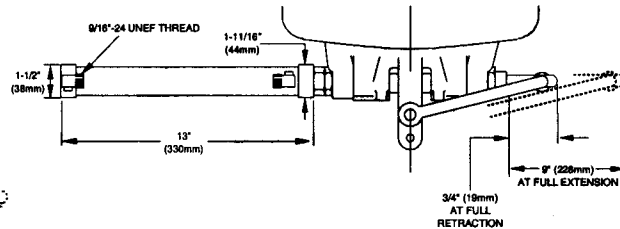
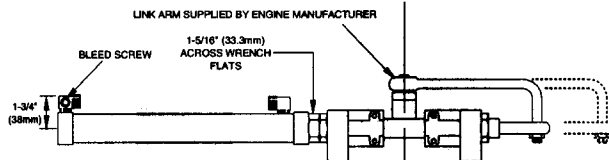
HC4600



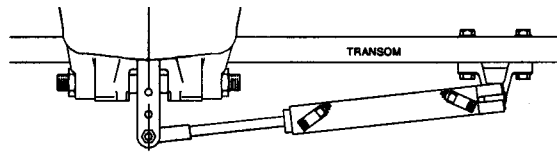
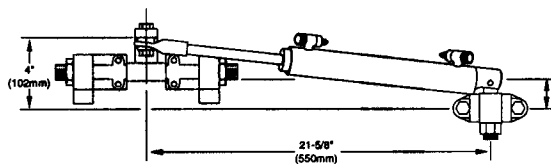
### SeaStar Front Mount (HC5345 shown)



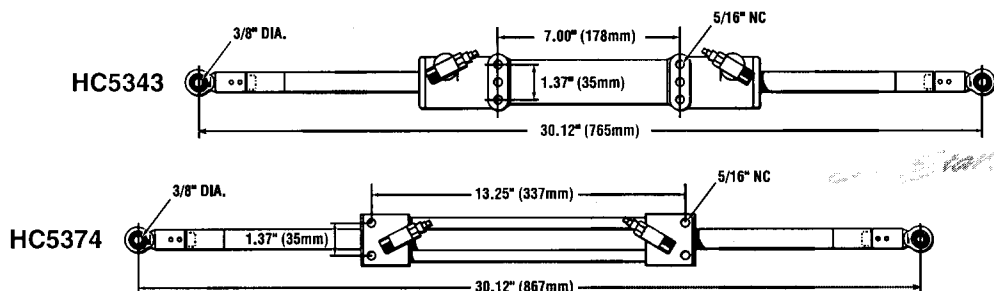
### SeaStar Side Mount (HC5370)



### SeaStar Splashwell Mount (HC5380)



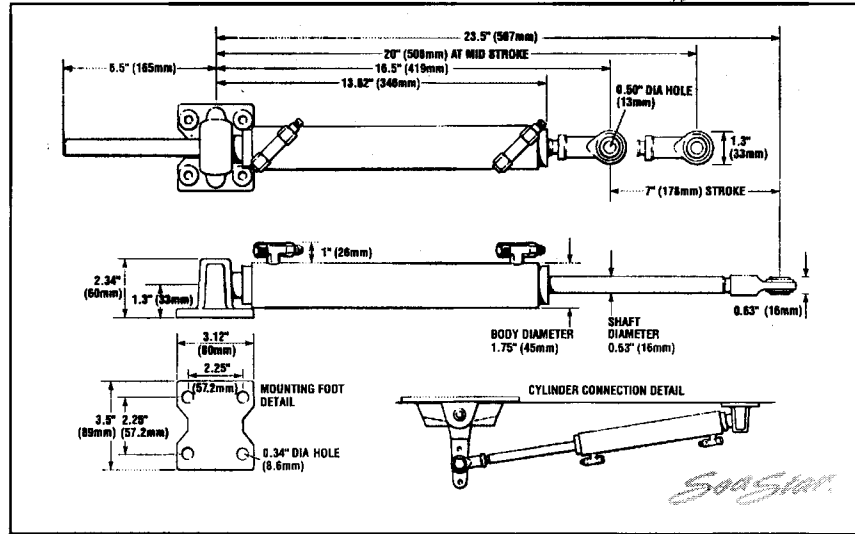
### SeaStar Catamaran/ Pontoon (HC5343 & HC5374)



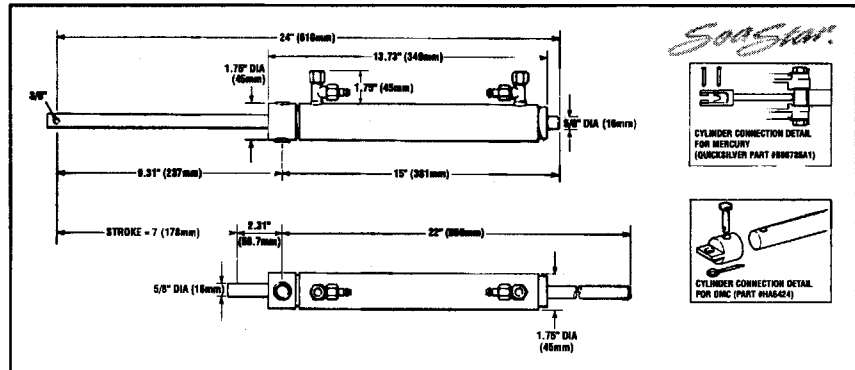
# SeaStar steering dimensions

## Cylinders: Stern Drive (I/O) Internal Mount

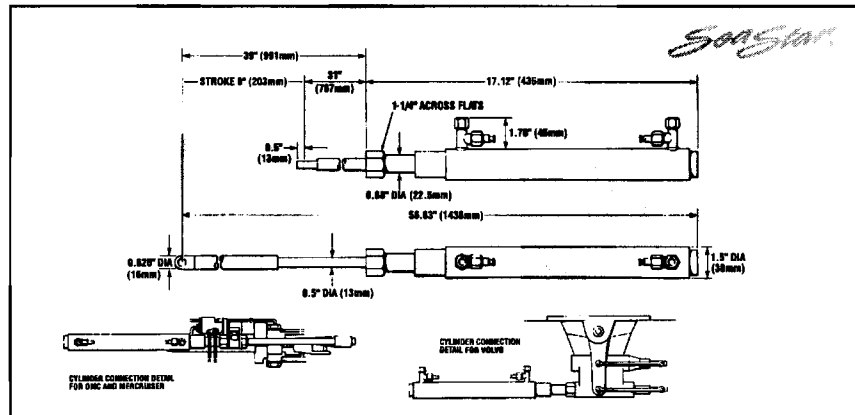
STERN DRIVE CYLINDER:  
P/N HC5314  
(MODEL BA150-7ATM)  
Marine Drive Systems®  
Series 1000  
(Non Power Assisted, TO DATE)  
Volvo® 275  
(Non Power Assisted TO DATE)



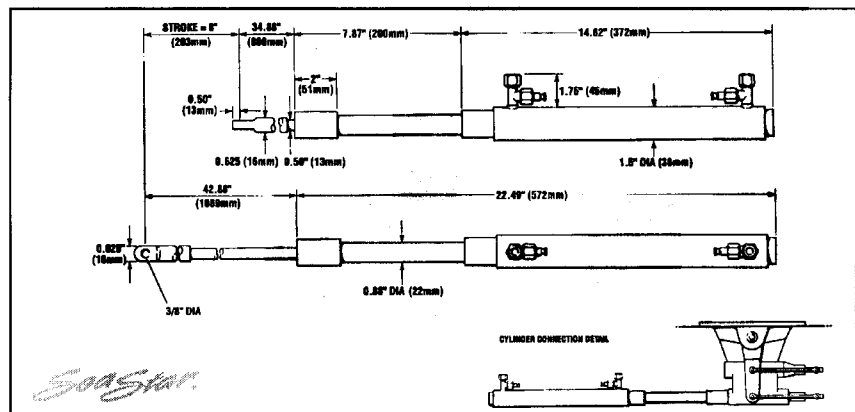
STERN DRIVE CYLINDER:  
P/N HC5326  
(MODEL BA150-7EM)  
MerCruiser® ALPHA I;  
MerCruiser® BRAVO I & II  
(Non Power Assisted, 1984-DATE)  
OMC® King Cobra  
(Non Power Assisted; 1986-DATE)



STERN DRIVE CYLINDER:  
P/N HC5328 (MODEL 125-8EM)  
BMW® All Models  
(Power Assisted, TO DATE)  
MerCruiser® MERCUISER I  
(Power Assisted TO 1983)  
MerCruiser® ALPHA I;  
MerCruiser® BRAVO I & II  
Power Assisted (1984-DATE)  
OMC® King Cobra  
(Power Assisted 1986-DATE)  
Volvo® 280, 290  
(Power Assisted TO DATE)  
Yamaha® All Models  
(Power Assisted 1989-DATE)



STERN DRIVE CYLINDER:  
P/N HC5329  
(MODEL 125-8VEM)  
Volvo® Diesel  
(Power Assisted, TO DATE)



# SeaStar steering dimensions

## Stern Drive (I/O): Internal Mount

**STERN DRIVE CYLINDER:**

P/N HC5330

(MODEL BA125-8EMV)

BMW® All Models

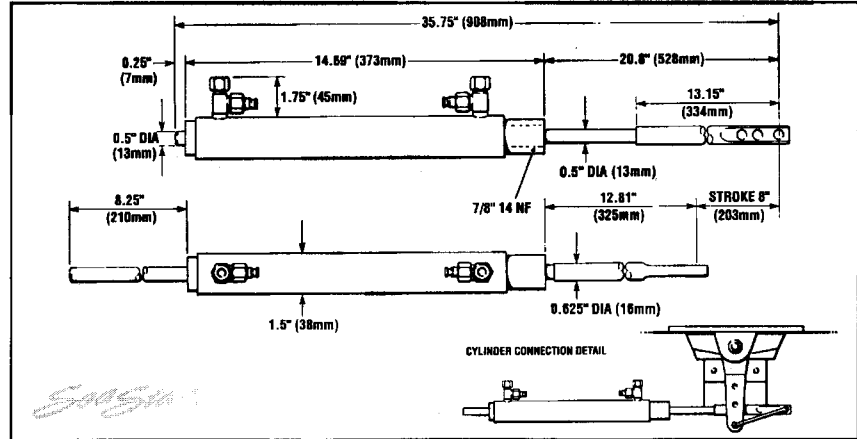
(Non Power Assisted, TO DATE)

MerCruiser®, MerCruiser I

(Non Power Assisted, TO 1983)

Volvo® 280, 290 & Volvo® Diesel

(Non Power Assisted, TO DATE)



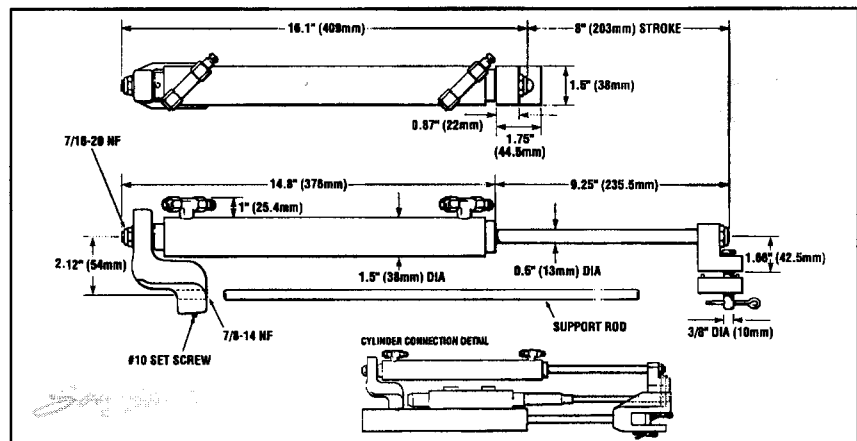
**STERN DRIVE CYLINDER:**

P/N HC5331

(MODEL 92-VPS)

Volvo® All Models

(Power Assisted, 1992)



**STERN DRIVE CYLINDER:**

P/N HC5332

(MODEL 135-7EM)

MerCruiser® Alpha 1;

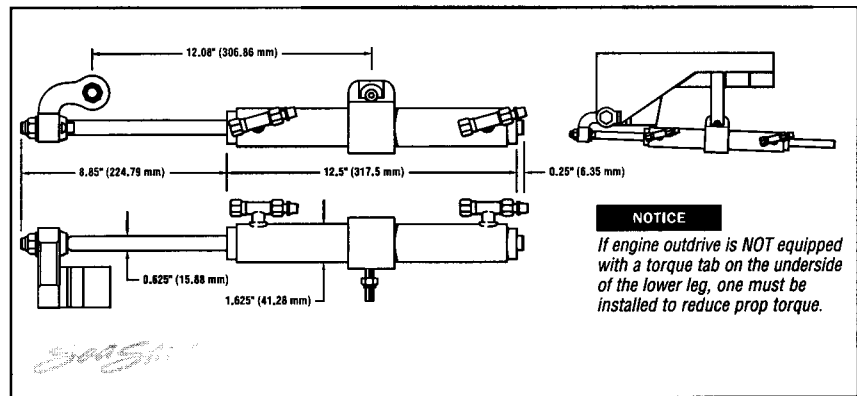
MerCruiser® Bravo I, II, III

(Non Power Assisted, TO DATE)

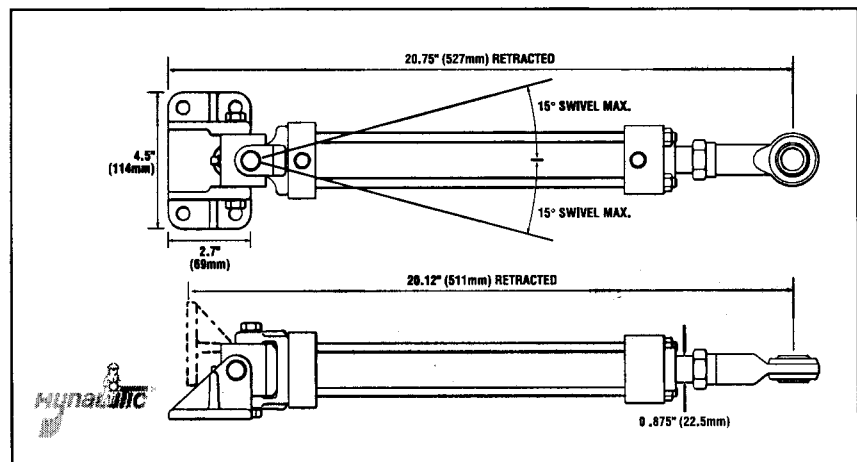
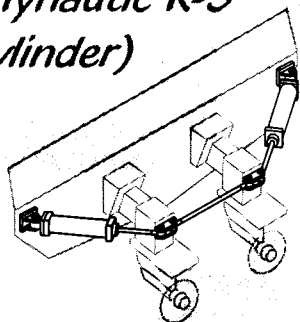
Volvo® 280, 290, Diesel

(Non Power Assisted, TO DATE)

NOTE: If engine outdrive is not equipped with a torque tab on the underside of the lower leg, one must be installed to reduce prop torque.



## Heavy Duty External Mount (Hynautic K-5 cylinder)



# SeaStar steering dimensions

## Cylinders:

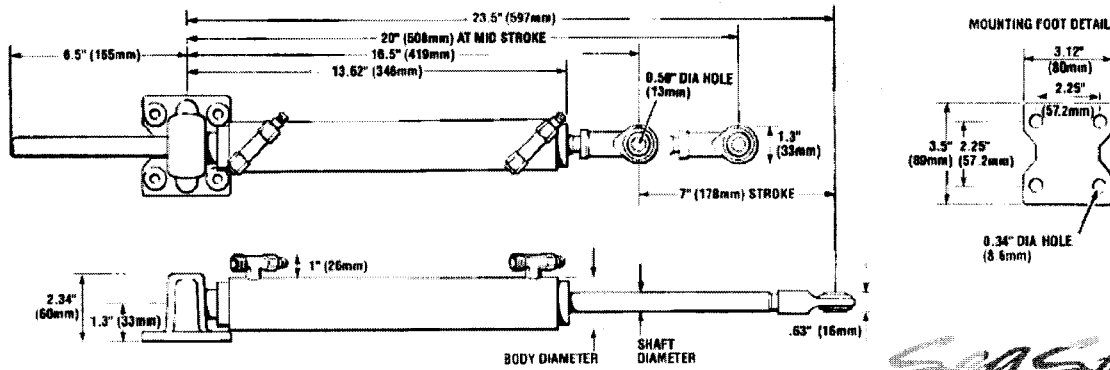
### Inboard - Manual

#### Aluminum

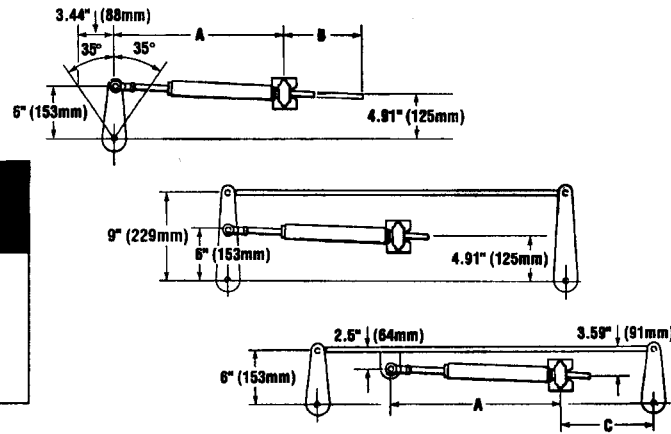
#### DIMENSIONS

ATM (ALUMINUM BODY) INBOARD CYLINDERS  
P/N HC5312/HC5313/HC5314 (MODEL BA1\_\_-7ATM):

CYLINDER DIMENSIONS SPECIFIC TO MODEL			
CYLINDER MODEL	PART #	BODY DIAMETER	SHAFT DIAMETER
BA125-7ATM	HC5312	1.38" (35mm)	0.50" (12.7mm)
BA135-7ATM	HC5313	1.50" (38mm)	0.63" (15.9mm)
BA150-7ATM	HC5314	1.75" (45mm)	0.63" (15.9mm)



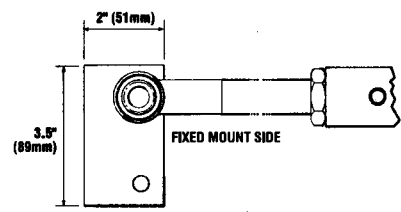
MOUNTING CONFIGURATION DIMENSIONS  
ATM (ALUMINUM BODY) INBOARD CYLINDERS  
P/N HC5312/HC5313/HC5314 (MODEL BA1\_\_-7ATM):



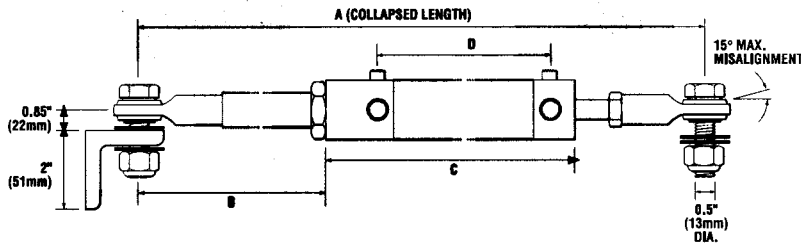
CYLINDER MODEL	PART #	MOUNTING DIMENSIONS		
		A	B	C
BA125-7ATM	HC5312	20" (508)	6.5" (165)	8.5" (216)
BA135-7ATM	HC5313	20" (508)	6.5" (165)	8.5" (216)
BA150-7ATM	HC5314	20" (508)	6.5" (165)	8.5" (216)

(Figures in parenthesis are in millimeters)

#### BALL JOINT MOUNT CYLINDERS (K-18/K-19)



CYL MODEL	DIMENSIONS				BORE	STROKE	DISP
	A	B	C	D			
K-18	24.5" (622mm)	9.31" (237mm)	11.75" (299mm)	9.875" (251mm)	1.25" (32mm)	7" (178mm)	7cu in
K-19	28.5" (724mm)	11.31" (287mm)	13.75" (350mm)	11.875" (302mm)	1.25" (32mm)	9" (229mm)	9cu in



# SeaStar steering dimensions

## Cylinders:

### Inboard - Manual

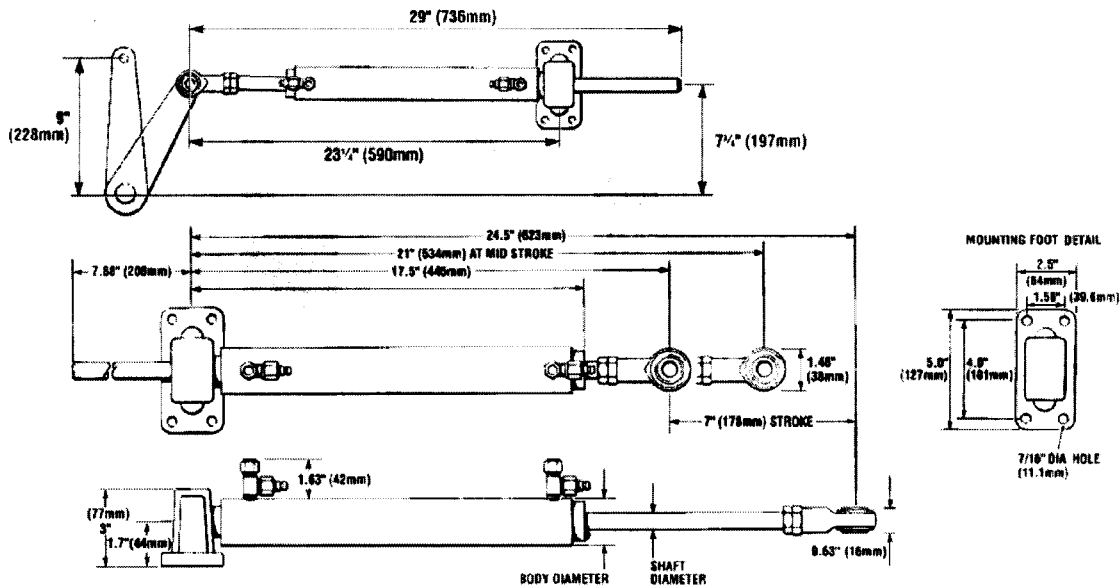
Brass - SeaStar



CYLINDER DIMENSIONS SPECIFIC TO MODEL			
CYLINDER MODEL	PART #	BODY DIAMETER	SHAFT DIAMETER
BA150-7TM	HC5318	1.75" (45mm)	0.63" (15.9mm)
BA150-9TM	HC5369	1.75" (45mm)	0.63" (15.9mm)
BA175-7TM	HC5319	2.00" (51mm)	0.75" (19.1mm)

#### DIMENSIONS

TM (BRASS BODY) INBOARD CYLINDERS  
P/N HC5318/HC5319 (MODEL BA1\_\_-7TM):

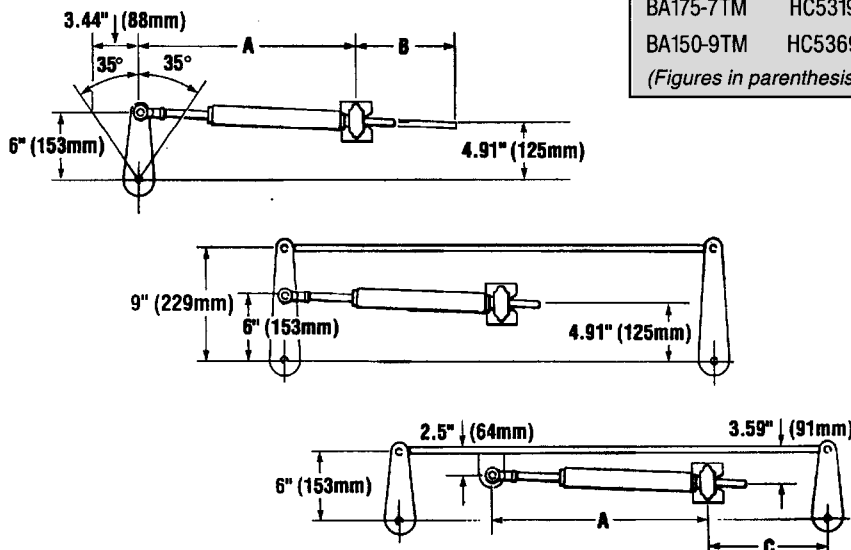


#### MOUNTING CONFIGURATION DIMENSIONS

TM (BRASS BODY) INBOARD CYLINDERS  
P/N HC5318/HC5319 (MODEL BA1\_\_-7TM):

CYLINDER			MOUNTING DIMENSIONS		
MODEL	PART #		A	B	C
BA150-7TM	HC5318	21" (534)	8" (204)	10" (254)	
BA175-7TM	HC5319	21" (534)	8" (204)	10" (254)	
BA150-9TM	HC5369	21" (534)	8" (204)	10" (254)	

(Figures in parenthesis are in millimeters)



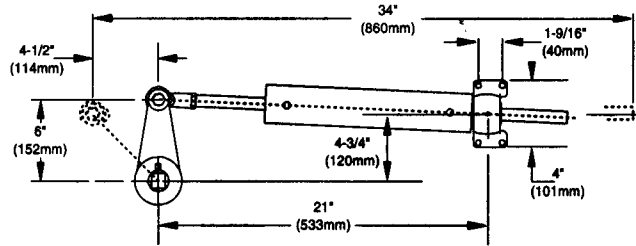
# SeaStar steering dimensions

## Cylinders:

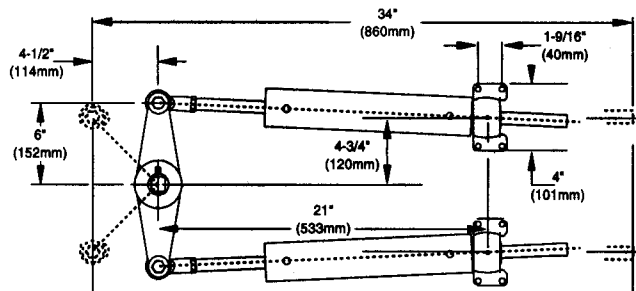
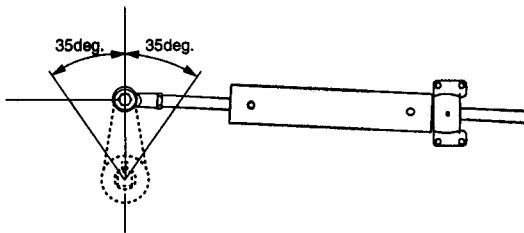
### Inboard - Manual

### Brass - Capilano

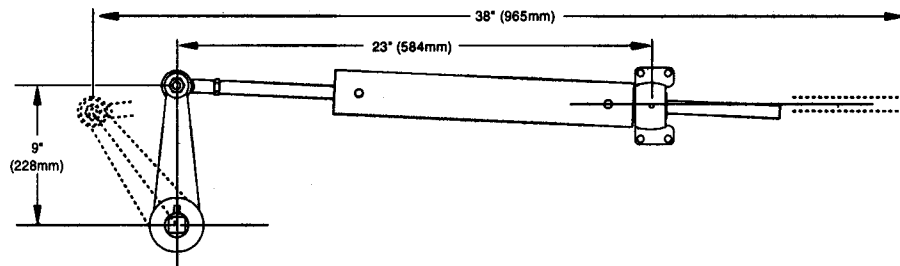
**DIMENSIONS & MOUNTING CONFIGURATIONS**  
CAPILANO (BRASS BODY) INBOARD CYLINDERS  
BALANCED 7" STROKE MODELS  
P/N's HC5349/HC5350/HC5351/HC5355/HC5356/HC5357  
(MODEL BA\_\_-7TM\_):



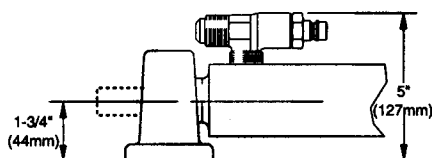
### TYPICAL CYLINDER STROKE ARC:



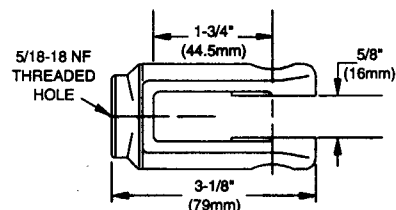
**DIMENSIONS & MOUNTING CONFIGURATIONS**  
CAPILANO (BRASS BODY) INBOARD CYLINDERS  
BALANCED 11" STROKE MODELS  
P/N's HC5378/HC5379  
(MODEL BA\_\_-11TM\_):



### CYLINDER MOUNTING FOOT DETAIL - ALL 7" STROKE MODELS



### CYLINDER ROD END CLEVIS DIMENSIONS

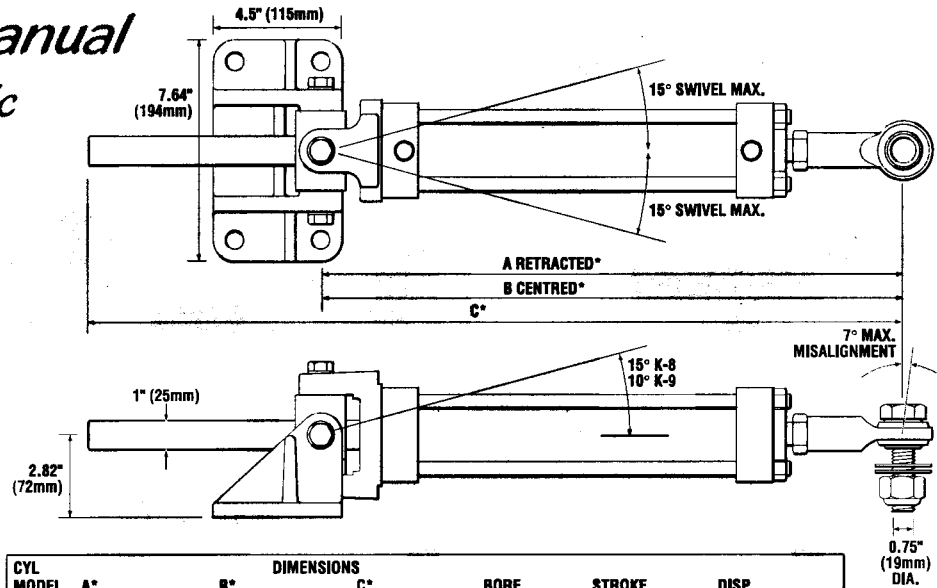


# SeaStar steering dimensions

## Cylinders:

### Inboard - Manual Brass - Hynautic

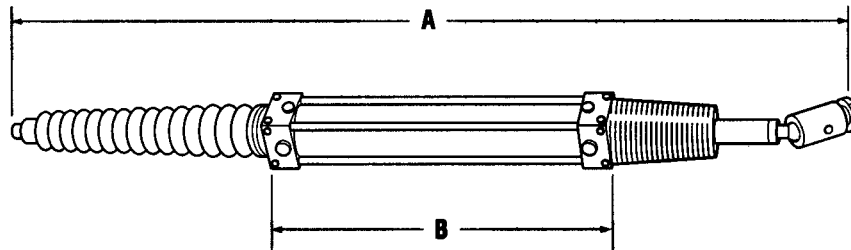
"UNIVERSAL MOUNT"  
MODELS:  
P/N K-8/K-9



CYL MODEL	DIMENSIONS			BORE	STROKE	DISP
	A*	B*	C*			
K-8	19.74" (502mm)	24.47" (622mm)	27.92" (710mm)	2.5" (64mm)	9.5" (242mm)	39.2cu in
K-9	24.74" (629mm)	31.99" (813mm)	37.92" (962mm)	2.5" (64mm)	14.5" (369mm)	59.8cu in

\* Clevis option increases length by 0.44" (12mm)

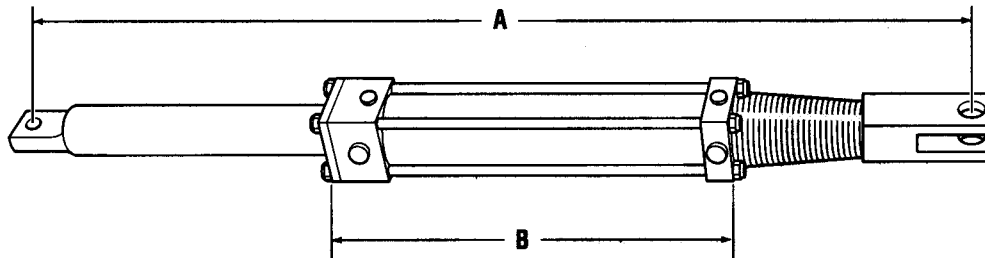
"FIXED MOUNT"  
MODELS:  
P/N K-22/K-27



CYL MODEL	DIMENSIONS			BORE	STROKE	DISP
	A	B				
K-22	*34.12" (867mm)	13.25" (337mm)	1.5" (38mm)	10" (254mm)	13.20cu in	
K-27	*36.75" (934mm)	13.25" (337mm)	1.5" (38mm)	10" (254mm)	13.20cu in	

\* Dimensions are with the cylinder rod centered.

"PIVOT MOUNT"  
MODEL:  
P/N K-31



CYL MODEL	DIMENSIONS			BORE	STROKE	DISP
	A	B				
K-31	*38.37" (975mm)	14.12" (359mm)	2.0" (51mm)	10" (254mm)	25.5cu in	

\* Dimensions are with the cylinder rod centered.