

LEWMAR®

Marine
Equipment
Guide

2010



Introduction

This catalogue marks a new dawn for Lewmar; throughout the business there is a renewed spirit of innovation, an entrepreneurial drive and greater focus on what our customers and market demand.

I am delighted that all this energy and vigour is translating itself directly into new product development. From winches and windlasses through to hardware and hatches, you'll find the quality you expect from Lewmar combined with the latest innovation and style.

Enjoy using our catalogue and next time you are on-line visit our new and improved website www.lewmar.com where you will find our on-line spare's shop, installation tips and the latest news.

Peter Tierney, Chairman and CEO Lewmar Ltd.

Anchoring & Docking

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At Lewmar, we think about what makes boaters' lives easier, and bring those ideas to life in our products. We aim to relieve the aching muscles that often come with anchoring and give you more confidence when docking. That's why each anchor and windlass we bring to the market is made of the finest quality materials and engineered for excellence.



Anchoring & Docking

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Easy Anchoring Starts with a Lewmar Windlass

Whether you own a small fishing boat, a 100-foot cruiser or a mid-size sailboat, Lewmar has a windlass designed to fit your exact needs. Each one is crafted with durability, convenience and affordability in mind.

Both our vertical and horizontal designs are sleek and attractive to complement your boat.

Windlass Selection Guide

Boat Length Overall

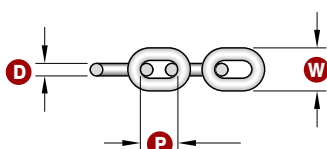
Model	Size	m	6	9.2	12.2	15.2	18.3	21.3	24.4
		ft	20	30	40	50	60	70	80
Pro-Sport 550									
Pro-Series/Fish 700									
Pro-Series/Fish 1000									
H2									
H3									
V700									
V1/V1-Sport									
V2									
V3									
V4									
V5									
V6									

Windlass Selection Guide

Boat Length Overall

Model	Size	m	19.8	22.9	25.9	29	32.1	35.1	38.2	41.2	44.3	47.2	50.3
		ft	65	75	85	95	105	115	125	135	145	155	165
V8 2500W													
V8 Hi-Power													
V10													
V12													

Chain Guide



		10mm DIN 766	3/8" ISO G4	Lewmar 9.5mm G40	11mm Short Link	7/16" ISO G4	Lewmar 12mm G30/G40 12mm Short Link	13mm DIN 766	1/2" ISO ACCO G4	Lewmar 14mm G30/G40 14mm Short Link	14mm DIN 766	16mm Short Link	16mm DIN 766
D	mm	10	10	9.5	11	11.8	12	13	13.2	14	14	16	16
	inch	0.394	0.394	0.374	0.433	0.464	0.472	0.512	0.519	0.551	0.511	0.630	0.630
P	mm	28	31	31.5	33	35.5	36	36	40.4	42	41	48	45
	inch	1.102	1.220	1.240	1.299	1.400	1.417	1.417	1.590	1.654	1.614	1.890	1.772
W	mm	36	35	31.6	39	40.1	40.5	47	45.7	49	50	56	58
	inch	0.394	0.394	0.394	0.433	0.464	0.472	0.512	0.519	0.551	0.511	0.630	0.630

How to choose the right windlass for your boat

In order to select the correct windlass for your boat, three questions should be answered:

1. What size windlass would best suit my boat?

Use our windlass selection chart found on page 2 to determine the general size of windlass to be fitted to your boat by using length and displacement. For example, if you have a 10m (33 ft) boat, typically a 270kg (600 lb) pull windlass would be selected. The rule to crosscheck your windlass selection is to add the total weight of the chain and the weight of the anchor together. Rope is very light and does not affect the actual lifting performance of the windlass, but can be factored in. For safe cruising in all types of conditions and sea areas, Lewmar recommends that you multiply the total weight of your anchor and chain x4 (x2 for V6 to V12).

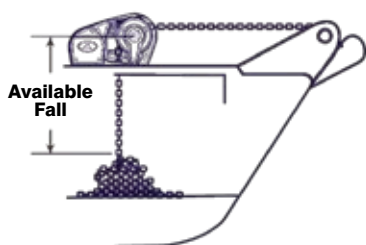
This number should be less than the maximum pull of the windlass you have selected. Should your findings be at or more than the maximum pull, select the next largest windlass. The windlass does not stow the anchor rode in the locker. Gravity stows the rode in the locker. There must be a free and clear area under the hawse pipe for the incoming rode to lie; if not, the rode will jam. Your windlass is a retrieval device; the windlass retrieves the anchor and rode. A windlass is not a high-load-bearing device. When at anchor your rode should be secured to a chain stopper, a cleat or other mooring point on the bow.

2. How long is the anchor rode I wish to use, and will the windlass put the entire rode into my locker?

Begin by examining the depth of the anchor locker to determine the fall that is available. The fall is the vertical distance between the top of the anchor locker and the top of the anchor rode when the entire rode is completely stored inside. This measurement is important in determining whether your boat will be best suited for a vertical or horizontal windlass. Do not stow the rode inside the anchor locker; gravity stows the rode.

You must know how much rode will fit into your locker by gravity. There has to be a free and clear area under the hawse pipe for the incoming rode. Otherwise you will have to comb the rode back, keeping a clear and free space under the hawse pipe while retrieving the anchor.

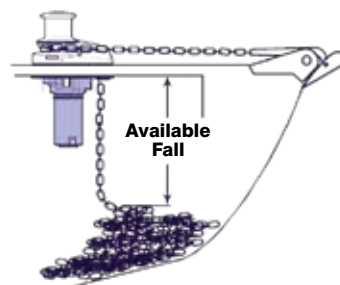
Horizontal Windlass



The key features of Horizontal Windlasses are:

- Most of the windlass unit is on the deck
- Easy installation
- Good for boats with small anchor lockers
- Anchor rode enters the gypsy, makes a 90° turn and feeds into the anchor locker
- Minimum fall of 304mm (12") is recommended in order to have enough gravity to pull the rode down into the locker

Vertical Windlass



The key features of Vertical Windlasses are:

- More of the unit is hidden below deck
- Suitable for large anchor lockers
- Anchor rode makes a 180° wrap around the gypsy providing more security
- Minimum fall of 406mm (18") is recommended in order to have enough gravity to pull the rode down into the locker

3. How much pulling power should my windlass have?

Having selected a vertical or horizontal windlass and determined the size required using the chart on page 2, you can cross-check by using the following formula:

Please note this is an indication only. If in doubt please contact your Lewmar representative.

**Total weight of
ground tackle
(anchor and rode)**



x 4*

=

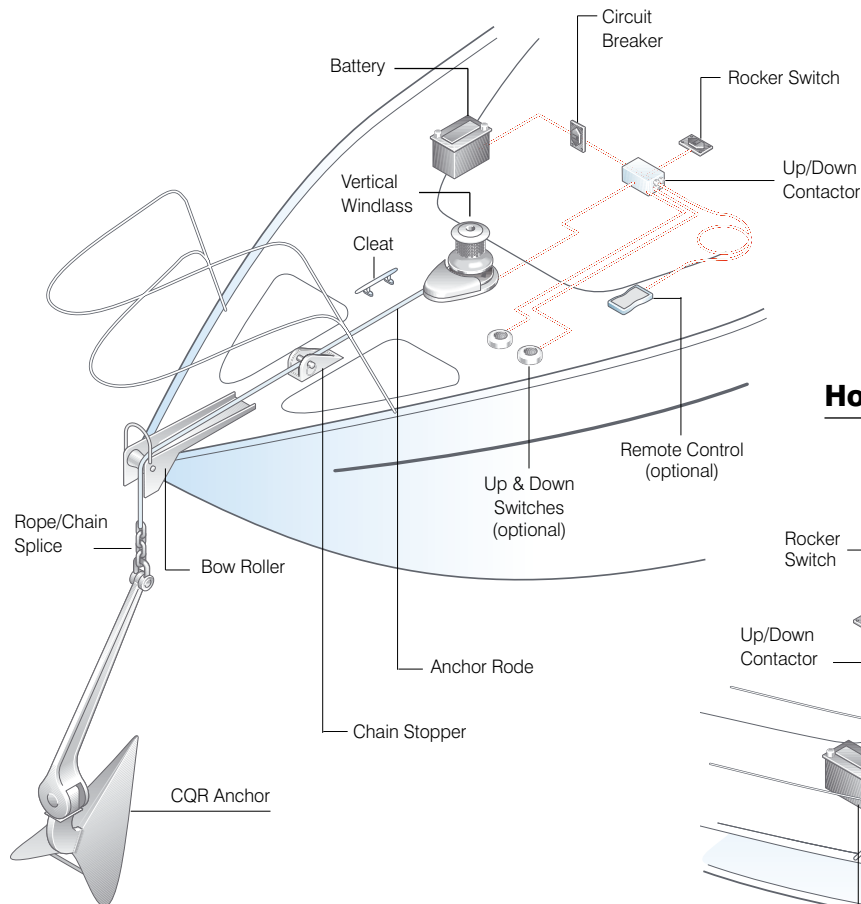
**Pulling power
required by
the windlass**

* Working Load:

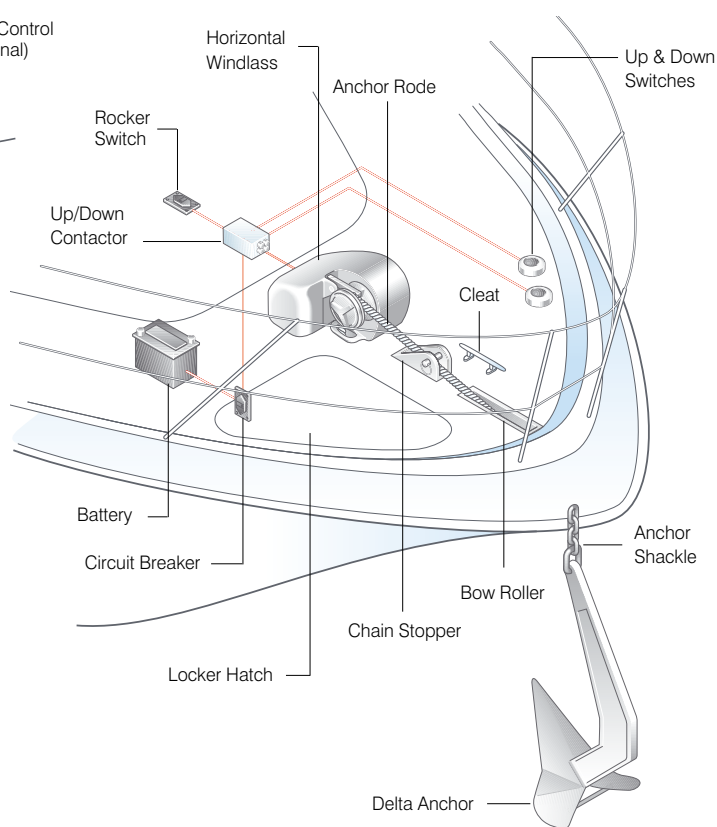
Designed to allow prolonged anchor laying and retrieving. Use x4 for all horizontal windlass and vertical windlass up to V5. Use x2 for V6 and above.

Windlass & Anchoring Know-How

Vertical Windlass



Horizontal Windlass



Please see your owner's manual for complete installation diagrams.

Windlass & Anchor Operation Safety Tips

ALWAYS

- Always tie off anchor rode to a strong point while at anchor
- Always secure anchor rode/anchor when underway
- Always look before deploying your anchor
- Always motor up to anchor while retrieving
- Always shut off circuit breaker when working on windlass
- Always shut off circuit breaker when windlass is not in use

NEVER

- Never allow your windlass to hold the boat while at anchor
- Never use your windlass to pull or tow boat
- Never use your windlass to lift a person
- Never stick fingers in or around gypsy while operating
- Never allow loose clothing and hair to come close to windlass when operating

V-Series Vertical Windlass

Lewmar's highly successful market changing Stainless Steel Vertical Range now caters for boats from 6m (20ft) to 50m (160ft). Built from 316 Stainless Steel and mirror polished they are robust and beautiful. The range has a number of innovative features including Fast Fit, Fall Safe and optional IP68 motor gearbox.

Features

- Lewmar "fast fit" for models V1, V2 & V3
- Lewmar "Fall Safe"
- IP 68 available
- Lloyds type approved V6-V12
- Rope chain gypsies for V1 to V5
- Complete range of anchoring deck hardware



V700 Vertical Windlass

With 100% 316 stainless steel housing and a sleek flush-mount design that hides the motor down below, the V700 is one of the most attractive and durable windlasses on the market. It works at the push of a button and has two built-in features that make it unique – motor protection and anchor lock. Plus it's affordable.



V700 models come DIY ready

Features

- 100% 316 stainless steel deck unit
- IP67 Rated (Waterproof to 1 meter)
- Fall Safe anchor lock
- Fast line speed
- Manual recovery option
- Impact-resistant motor cover
- 5-year warranty
- For boats up to 10.5m (35 ft)
- With reed switch and magnet fitted as standard for chain counter applications



V700 Specifications

Part Number	Description	Gypsy No.	Motor Supply Voltage	Motor Power Watts	Typical Max Pull kg lb	Maximum Line Speed m/min.ft/min.	Working Load kg lb	Normal Current Draw	Typical Line Speed/min m ft	Weight Gypsy Only kg lb	Circuit Breaker
6670011196-312	V700 12V 6mm kit*	602	12V	320W	320 700	25 82	79 175	45A	15 50	6.5 14	35A
6670011107-312	V700 12V 1/4" G4 kit*	603	12V	320W	320 700	25 82	79 175	45A	15 50	6.5 14	35A

* Kit includes: Contactor and Circuit breaker.

Note:
For switch kit and accessories refer to p24

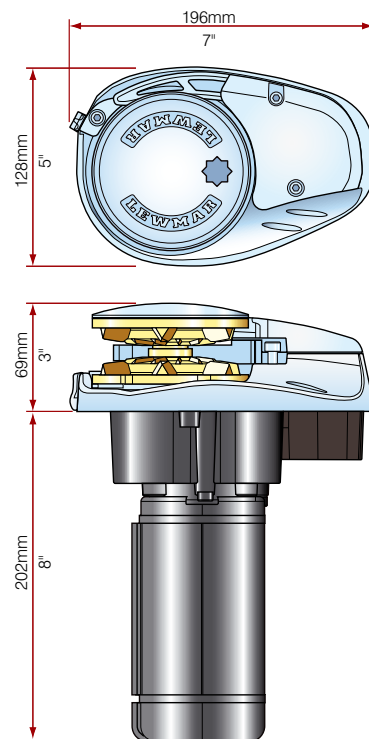
V700 Gypsy Specifications

Gypsy Number	Chain Description	Rope Description mm	Rope Description in	
602	6mm DIN 766	12	1/2	3-strand and 8-plait
603	1/4" G4 or BBB, 7mm DIN 766	12	1/2	3-strand and 8-plait

Cable Sizes

Product	Voltage	Length of Cable Run		Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'		
V700	12V	10mm ² / 8 AWG	10mm ² / 8 AWG	1.5mm ² / 16 AWG	5A

The above cable sizes are recommendations only.



V1/V2/V3 and V-Sport Vertical Windlasses

The new V-Sport range offers all the performance of the V-range at a cost saving. The new composite housing contains strong load bearing elements, so that it can be used as an alternative to the Stainless Steel unit.

Features

- Rope-chain gypsy
- Manual chain release (Free Fall)
- Cone clutch for smooth, easy control
- Optional manual override motor gearbox
- W.A.R.P Drum
- Fall safe anchor lock
- Robust/reliable worm gearbox
- FastFit™ equipped for quicker installation and less hassle
- Emergency recovery kit available
- IP68 kits available
- For Boats up to 14m (48ft)



© 2009 European Boatbuilder

The NEW V-Sport windlass is a lighter, more affordable alternative to the V-series. Housed in lightweight composite material it is available in size V1, V2 and V3 gypsy only versions. For electric specifications refer to the V1-V2 and V3 respectively.



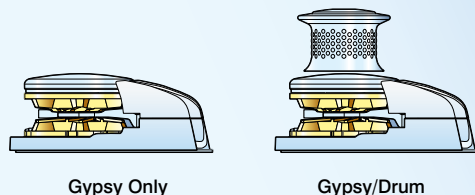
V1/V2/V3 Specifications

Model	Motor Power Watts	Max. Pull kg lb	Working Load kg lb	Max. Line Speed m/min. ft/min.	Normal Current Draw	Circuit Breaker	App. Weight Gypsy only kg lb	App. Weight Gypsy/Drum kg lb
V1	700W	454 1000	113 250	19 65	80A	90A	19 42	- -
V2 12v	700W	650 1433	163 358	21 69	80A	90A	19 42	22 48.5
V2 24v	900W	760 1675	180 396	24 79	45A	50A	19 42	22 48.5
V3 12v	1000W	890 1962	215 473	28 92	85A	110A	21.5 47	24.5 54
V3 24v	1000W	1020 2248	243 535	30 98	60A	90A	21.5 47	24.5 54

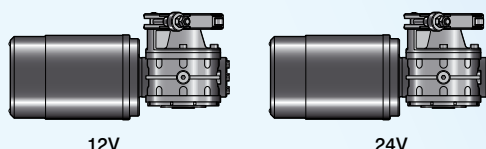
V1/V2/V3 and V-Sport Vertical Windlasses (cont)

Specify your Windlass

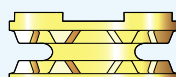
1 Deck Unit



2 Motor Gearbox



3 Gypsy



IP68 motor gearbox available on request

- Waterproof unit won't be damaged even if submerged under water
- Robust composite case
- Compression cable clamps included
- No maintenance required
- Provide best motor protection against the elements

Accessories

Part Number	Description
66810030	V1/2/3 and V-sport Control arm kit
66840054	V1/2/3 Gypsy Only manual recovery kit
66840056	V1/2/3 Gypsy Drum manual recovery kit
68000866	3 Gland bulk Head fitting
68000867	4 Gland bulk Head fitting

V1/V2/V3 & V-Sport Vertical Windlass

Deck Unit

Part Number	Description
68000951	V1 Gypsy only
68000952	V1 Sport Gypsy only
68000828	V2/3 Gypsy only
68000953	V2/3 Sport Gypsy only
68000829	V2/3 Gypsy Drum

Motor gearbox (Including contactor)

Part Number	Description
68000954	V1-12V
68000955	V2 - 12V
68000956	V2 - 24V
68000957	V3 - 12V
68000958	V3 - 24V

V-Series and V-Sport series use same motor gearbox

Notes:

For switch kit and accessories refer to p 24
For motor / gearbox dimensions refer to the website or product manual

V1/V2/V3 and V-Sport Gypsy Specifications

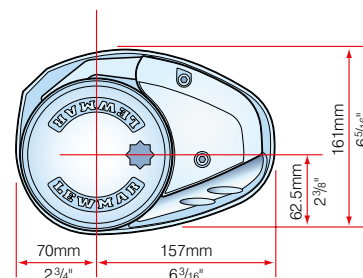
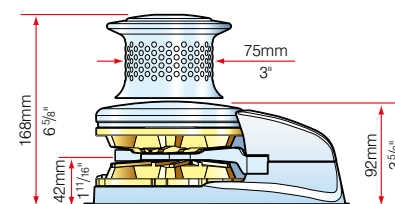
Part Number	Gypsy Number	Chain Description	Rope Description mm	Rope Description in	
68000840	006	6mm ISO 4565, 1/4" G40*, 1/4" BBB	12-14	1/2	3-strand and 8-plait
68000360	000	7mm ISO 4565, 1/4" G40*, 1/4" BBB	12-14	1/2	3-strand and 8-plait
68000361	001	8mm DIN 766, 8mm ISO 4565, 5/16" G40	12-16	1/2-5/8	3-strand and 8-plait (5/8 only)
68000362	002	10mm DIN 766, Campbell 3/8" S4	12-16	1/2-5/8	3-strand and 8-plait (5/8 only)
68000363	003	10mm ISO, Campbell 3/8" S3, Lewmar 9.5mm G40	16	5/8	3-strand and 8-plait

*G40 = Grade 40 Short Link Chain

Cable Sizes (V-series and V-sports)

Product	Voltage	Length of Cable Run		Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'		
V1	12V	10mm ² / 6 AWG	25mm ² / 4 AWG	1.5mm ² / 16 AWG	5A
V2	12V	10mm ² / 6 AWG	25mm ² / 4 AWG	1.5mm ² / 16 AWG	5A
V2	24V	6mm ² / 10 AWG	6mm ² / 8 AWG	1.5mm ² / 16 AWG	5A
V3	12V	16mm ² / 6 AWG	25mm ² / 2 AWG	1.5mm ² / 16 AWG	5A
V3	24V	10mm ² / 8 AWG	16mm ² / 6 AWG	1.5mm ² / 16 AWG	5A

Dimension Diagram



V4/V5 Vertical Windlass

Features

- Rope-chain gypsy
- Cone clutch for smooth, easy control
- Manual Free Fall
- W.A.R.P Drum
- Robust and reliable drive train
- Reed switch and magnet fitted as standard
- Manual override (optional)
- The largest rope chain windlass in the range
- For boats up to 22m (72ft)



V4/V5
Gypsy Only



V4/V5 Gypsy/
Drum

V4/V5 Electric Specifications

Model	Motor Power Watt	Max. Pull kg	Max. Pull lb	Working Load kg	Working Load lb	Max. Line Speed m/min.	Max. Line Speed ft/min.	Normal Current Draw	Circuit Breaker	App. Weight Gypsy only kg	App. Weight Gypsy only lb	App. Weight Gypsy/Drum kg	App. Weight Gypsy/Drum lb
V4 12V	1600W	1250	2750	313	688	25	82	125A	150A	29	64	36	79
V4 24V	2000W	1500	3300	375	825	27	90	70A	110A	29	64	36	79
V5 12V	2000W	1450	3190	363	798	27	90	120A	150A	31	68	38	84
V5 24V	2000W	1600	3520	400	880	29	97	60A	110A	31	68	38	84

V4/V5 Hydraulic Specifications

Model	Normal Pressure	Flow Rate	Max. Pull kg	Max. Pull lb	Max. Line Speed m/min	Max. Line Speed ft/min
V4/5 Hyd	175 bar 2537 psi (cont)	10-40 l/min 2.6-10.6 US gal/min	1100 at 140 bar	2400 at 203 psi	21 at 40 l/min	69 at 10.6 US gal/min

Hydraulic motor/gearboxes are suitable for use with both V4/V5 and C4/C5.

V4/V5 Vertical Windlass (cont)

V4/V5 Vertical Windlass

Deck Unit

Part Number	Description
66810024	V4/5 Gypsy Only
66810025	V4/5 Gypsy Drum

Motor gearbox (Including contactor)

Part Number	Description
68000959	V4 - 12V
68000960	V4 - 24V
68000961	V5 - 12V
68000962	V5 - 24V
68000294	V4/5 Hydraulic

Accessories

Part Number	Description
66810031	V4/5 control arm kit
68000866	3 gland bulk head fitting
68000867	4 gland bulk head fitting

V4/V5 Gypsy Specifications

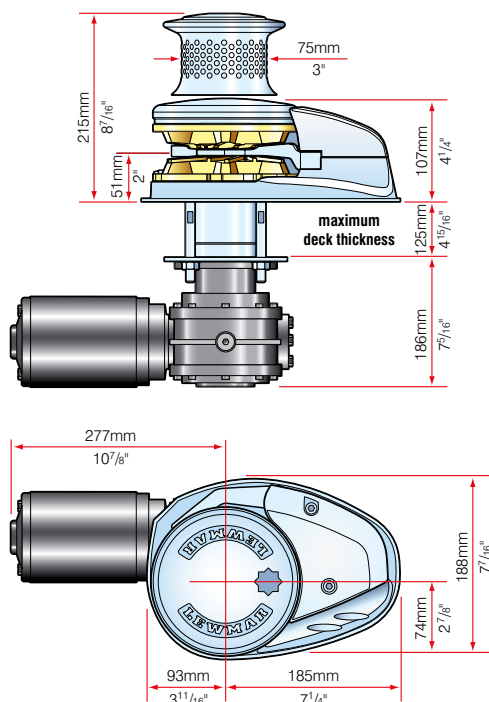
Part Number	Gypsy Number	Chain Description	Rope Description mm	Rope Description in	Rope Type
68000356	201	8mm DIN 766, 8mm ISO 4565, 5/16" G40, 5/16" Campbell S4,	12-14	1/2	3 strand hard lay up
68000357	202	10mm DIN 766, 5/16" Campbell S3, 3/8" Campbell S4, 9.5mm G30	16	5/8	3 strand hard lay up
68000358	203	10mm ISO 4565, 3/8" Campbell S3, Lewmar 9.5mm G40	16	5/8	3 strand hard lay up
68000359	204	12mm ISO 4565, 13mm DIN 766	18-20	3/4	3 strand hard lay up

Cable Sizes

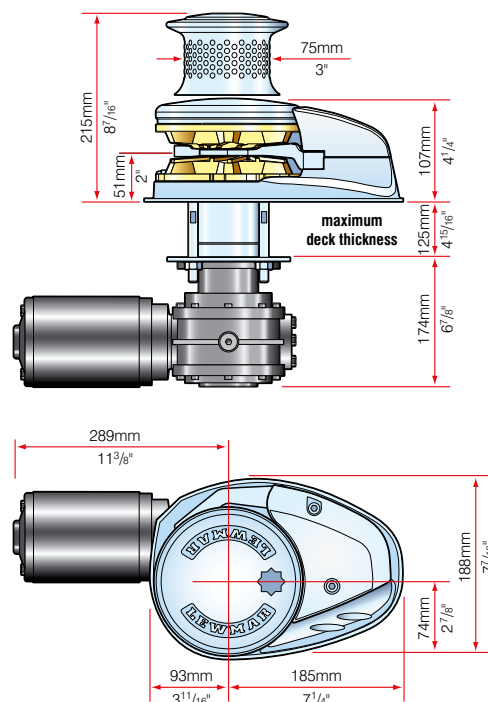
Product	Voltage	Length of Cable Run	Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'	15-22m / 50-73'
V4	12V	25mm ² / 2 AWG	35mm ² / 0 AWG	50mm ² / 0 AWG
V4	24V	10mm ² / 3 AWG	16mm ² / 4 AWG	25mm ² / 2 AWG
V5	12V	25mm ² / 3 AWG	35mm ² / 0 AWG	50mm ² / 0 AWG
V5	24V	10mm ² / 3 AWG	16mm ² / 4 AWG	25mm ² / 2 AWG

Note:
For switch kit and accessories refer to p24

V4 Dimension Diagram



V5 Dimension Diagram



V6 Vertical Windlass

Recently introduced the V6 combines the main features from the industry leading V-range with the additional characteristics required on larger vessels including left and right hand and remote chain pipe versions. This model has Lloyds approval.

Features

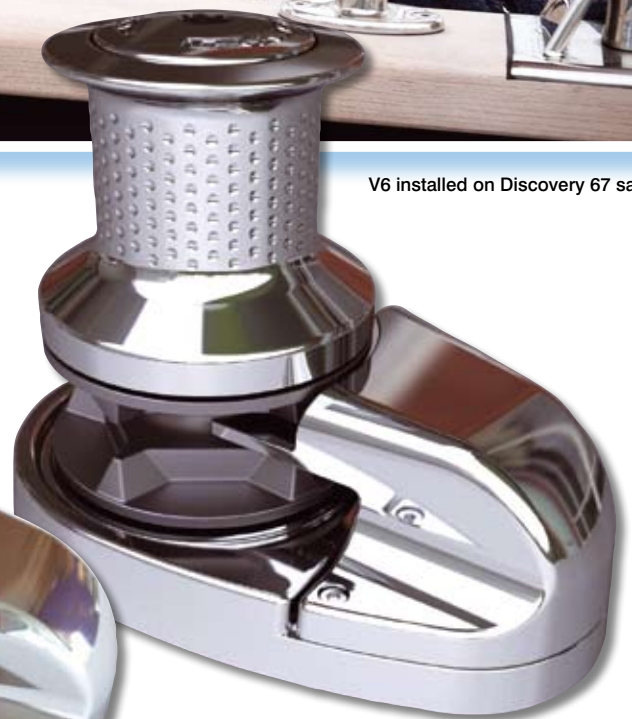
- All stainless steel deck unit
- Powered and manual chain release
- W.A.R.P. Drum (Wear and Abrasion Resistant Pattern)
- Cone Clutch for smooth, easy control
- Left- and right-hand versions
- Available in 24v and Hydraulic power options
- Remote chain-pipe version
- For boat up to 24m (80ft)



V6 installed on Discovery 67 sailboat



V6 Gypsy Only
(model shown is left-hand)



V6 Gypsy/Drum
(model shown is left-hand)

V6 Electrical Specifications

Model	Motor Power Watt	Max. Pull kg lb	Working Load kg lb	Max. Line Speed m/min. ft/ min.	Normal Current Draw	Circuit Breaker	kg	Weight lb
V6 24V	2000W	1818 4000	606 1333	18 59	90A	150A	63	139

V6 Hydraulic Specifications

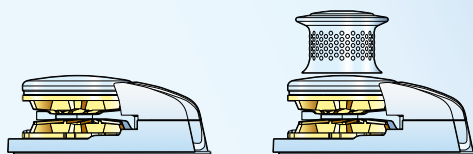
Model	Normal Pressure	Flow Rate	Max. Pull kg lb	Max. Line Speed m/min ft/min	Weight kg lb
V6 Hyd	60 bar 882 psi (cont)	20-60 l/min 5.2-15.8 US gal/min	1450 at 190 bar 3190 at 2793 psi	34 at 60 l/min 110 at 15.9 US gal/min	52 114

V6 Vertical Windlass (cont)

Specify your Windlass

1

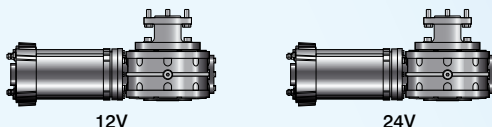
Deck Unit



Gypsy Only
Gypsy/Drum
Available in right and left hand version

2

Motor Gearbox

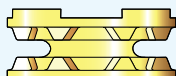


12V

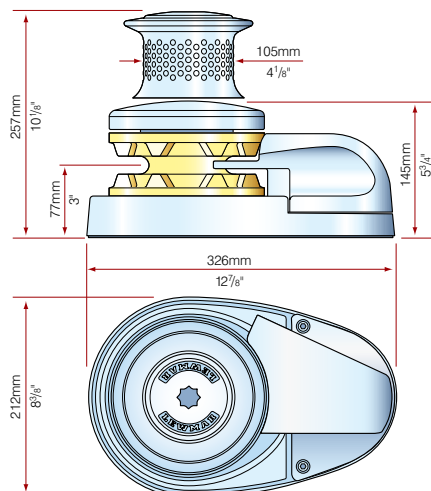
24V

3

Gypsy



Dimension Diagram



V6 Vertical Windlass

Deck Unit

Part Number	Description
69000400	V6 Deck Unit LH Gypsy Drum
69000401	V6 Deck Unit RH Gypsy Drum
69000402	V6 Deck Unit LH Gypsy Only
69000403	V6 Deck Unit RH Gypsy Only

LH = Left Hand, RH = Right Hand

Motor gearbox

Part Number	Description
69000407	V6 - 24V Motor/Gearbox Assy
69000408	V6 - Hyd Motor/Gearbox

V6 Gypsy Specifications

Part Number	Gypsy Kit	Chain Description
68000903	10mm	10mm DIN 766, 3/8" G4, Lewmar 9.5mm G40
68000904	12mm/13mm	11mm Short Link, Lewmar 12mm G30/G40, 13mm DIN 766
68000905	14mm	Lewmar 14mm G30/G40, 14mm DIN 766, 7/16" G40
68000906	1/2"	1/2" ACCO G4, Lewmar 12mm G30/G40, Lewmar 1/2" G30/G40

Note:

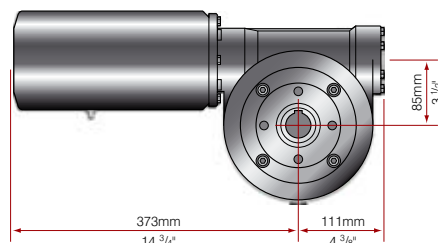
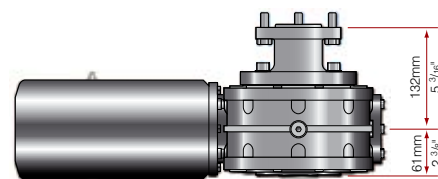
For switch kit and accessories refer to p24

For remote chain pipe measurement please check www.lewmar.com

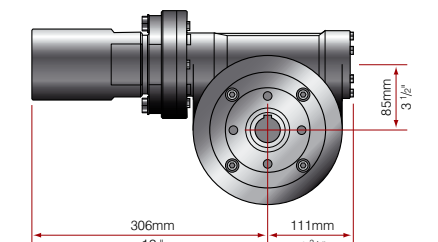
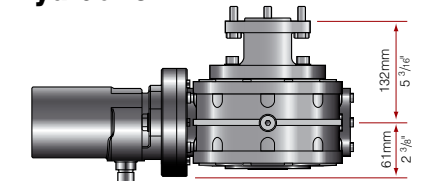
Cable Sizes

Product	Voltage	Length of Cable Run			Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'	15-22m / 50'- 73'		
V6	24V	25mm ² / 2 AWG	35mm ² / 0 AWG	50mm ² / 0 AWG	1.5mm ² / 16 AWG	5A

24V 2kW



Hydraulic



V8 Vertical Windlass



Features

- All stainless steel deck unit
- Dog Clutch
- Close-coupled band brake option
- Two remote hand wheel options
- Full range of power options including AC, DC and hydraulic
- Independent capstan operation
- Powered or manual chain release
- W.A.R.P. Drum (Wear and Abrasion Resistant Pattern)
- A wide range of metric and imperial chain gypsies are available
- Left-and right-hand versions
- Remote Chain pipe version
- For Boats up to 33m (108ft)

V8 installed on a Sunseeker Predator 84



V8 Gypsy Only Close Brake
(model shown is left-hand)



V8 Gypsy/Drum/Remote Brake
(model shown is left-hand)

V8 Electric Specifications

Model	Voltage	Motor Power Watt	Max. Pull		Working Load		Max. Line Speed		Normal Current Draw	Circuit Breaker	Weight	
			kg	lb	kg	lb	m/min.	ft/min.			kg	lb
V8 2500W	24V	2500W	2273	5000	1137	2500	24	79	150A	200A	101	222
V8 3500W	24V	3500W	2727	6000	1364	3000	23	75	200A	250A	103	227
V8 AC		208V	2200	4840	1109	2420	15.5	51	12A	16A	105	231
V8 AC		400V	2500	5500	1259	2750	19	62	9A	10A	105	231

V8 Hydraulic Specifications

Model	Normal Pressure		Flow rate		Max Pull		Max line speed		Weight	
	bar	psi	l/min	US gal/min	Kg	lb	m/min	ft/min	Kg	lb
V8 Hyd (165cc/rev)	50	735	20-55	5.2-14.3	1818 @ 155 bar	4000 @ 2278 psi	18 @ 43 l/min	59 @ 11.3 US gal/min	84	185
V8 Hyd (230cc/rev)	50	735	20-55	5.2-14.3	2727 @ 155 bar	6000 @ 2278 psi	14 @ 40 l/min	46 @ 10.6 US gal/min	84	185
V8 Hi-P Hyd (in-line)	50	735	20-55	5.2-14.3	2727 @ 175 bar	6000 @ 2572 psi	21 @ 56 l/min	69 @ 14.7 US gal/min	95	209

V8 Vertical Windlass (cont)

V8 Vertical Windlass

Deck Unit

Part Number Left Hand	Part Number Right Hand	Description
69000377	69000378	V8 Deck Unit GD, Close Brake
69000379	69000380	V8 Deck Unit GD, HI-P CB
69000381	69000382	V8 Deck Unit GO, Close Brake
69000387	69000388	V8 Deck Unit GO, HI-P CB
69000390	69000391	V8 Deck Unit GD, RB
69000392	69000393	V8 Deck Unit GD, HI-P RB
69000394	69000395	V8 Deck Unit GO, RB
69000396	69000397	V8 Deck Unit GD, HI-P RB

Motor/Gearbox

Part Number	Description
69000383	V8 24v 2.5kW Motor/Gearbox
69000383M	V8 24v 2.5kW M/Gearbox Type M
69000384	V8 24v 3.5kW Motor/Gearbox
69000384M	V8 24v 3.5kW M/Gearbox Type M
69000385	V8 Hyd Motor/Gearbox
69000386	V8 230cc /rev Hyd HP Motor gearbox
69000416	V8 165cc/rev Hyd Motor/Gearbox
69000389	V8 4kw 400v 3 ph AC M/Gearbox
69000389M	V8 4kw 400v AC M/G/box Type M
69000398	V8 4kW 208v 3 Ph AC M/Gearbox
69000398M	V8 4kW 208v 3 Ph AC M/G/box Type M



Description Abbreviations & Explanations

LH = Left Hand are mainly for single installs

HI-P = High-Power deck unit can only be used with HP hydraulic motor gearbox

CB = Close coupled band brake included. It is operated with a winch handle

RB = Remote band brake version ready to accept the brake cable

Type M = Mirror image to allow motor to be on opposite side of gearbox

HP = High-performance inline hydraulic drive

Remote Chain Pipe Option

Part Number	Description
66000691	Cover & stripper kit for remote chain pipe
68000024	8-13mm Chain Pipe
68000037	14-16mm Chain Pipe

Notes:

For switch kit and accessories refer to p24

For motor / gearbox dimensions and remote chain pipe measurements, refer to www.lewmar.com or product manual

V8 Gypsy Specifications

Part Number	Gypsy Assembly	Chain Description
68000900	11mm	11 mm DIN 766
68000877	12-13mm	12 mm Short Link, 13 mm DIN 766
68000878	14mm	14 mm Short Link, 14 mm DIN 766, 7/16" G40
68000879	16mm	16 mm Short Link, 16 mm DIN 766
68000880	1/2"	1/2" ACCO G4
68000881	14mm Studlink	14mm Studlink

Band Brake Controls

Part Number	Description
68000876	V8 Above Deck Remote Brake
68000897	V8 Through Deck Remote Brake Assy

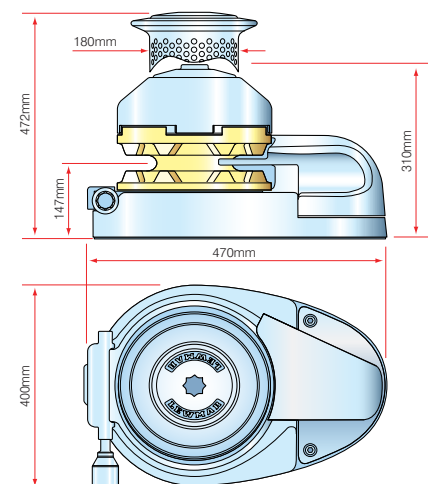
Brake Cables

Part Number	Description
65001365	V8 Brake cable 500mm
65001367	V8 Brake cable 700mm
65001541	Brake cable 1000mm

Cable Sizes

Product	Voltage	Length of Cable Run			Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'	15-22m / 50'- 73'		
V8 2500W	24V	35mm ² / 0 AWG	35mm ² / 0 AWG	50mm ² / 00 AWG	1.5mm ² / 16 AWG	5A
V8 3500W	24V	35mm ² / 0 AWG	35mm ² / 0 AWG	50mm ² / 00 AWG	1.5mm ² / 16 AWG	5A

Dimension Diagram



V10/V12 Vertical Windlass

Lewmar's new heavy lift Vertical windlass range is designed for the true super yacht vessel. The V10 and V12 windlasses are built to provide the ultimate in strength to withstand high loads on vessels up to 50m (160ft).

Features

- All stainless steel deck unit
- All sizes are available as gypsy only and gypsy drum in left hand, right hand and remote chain pipe configurations
- Full range of power options including AC, DC and hydraulic
- Independent capstan operation
- Powered or manual chain release
- W.A.R.P. Drum (Wear and Abrasion Resistant Pattern)
- A wide range of metric and imperial chain gypsies are available including 22mm Studlink
- For boats up to 50m (160ft)



© 2009 Sunseeker



V10/V12 Gypsy/Drum

V10/V12 Gypsy Only

V10/V12 Electric Specifications

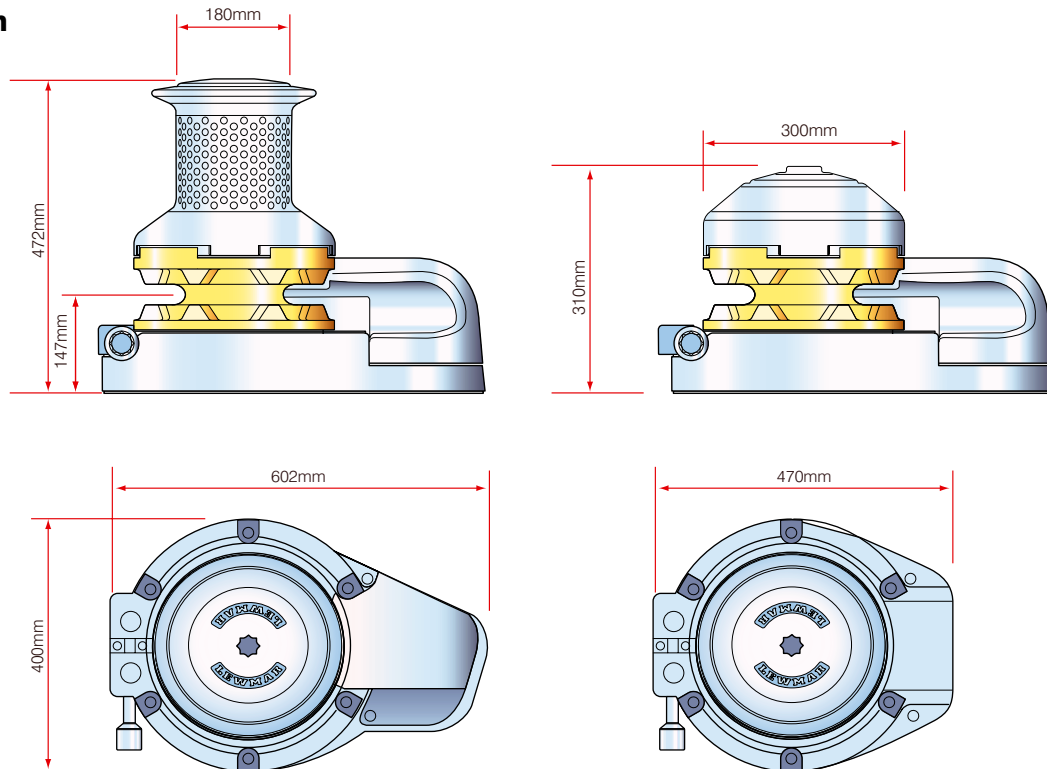
Model	Motor Power Watt	Max. Pull kg lb	Working Load kg lb	Max. Line Speed m/min. ft/min.	Normal Current Draw	Circuit Breaker	Weight kg lb
V10 400V AC	5500	4000 8800	2000 4400	18 59	12A	13A	301 662
V10 208V AC	5500	4000 8800	2000 4400	18 59	16A	20A	301 662
V12 400V AC	7500	5000 11000	2500 5500	20 66	15A	16A	357 785
V12 208V AC	7500	5000 11000	2500 5500	20 66	24A	32A	357 785

V10/V12 Hydraulic Specifications

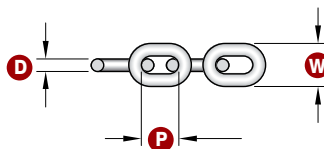
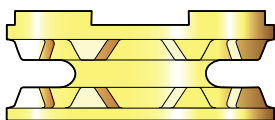
Model	Gearbox	Max Pressure bar psi	Min/Max Flow Rate l/min US gal/min	Max. Pull kg lb	Working Load kg lb	Max. Line Speed m/min ft/min	Weight kg lb
V10 — 500 cc/rev	5:1	155 2279	30-60 7.8-15.6	4000 8800	2000 4400	8-16 26-52	187 411
V12 — 250 cc/rev	13.5:1	155 2279	30-80 7.8-20.8	5000 11000	2500 5500	6-17 20-56	204 449

V10/V12 Vertical Windlass (cont)

Dimension Diagram



Chain Guide



V10/V12 Gypsy Specifications

Part Number	Description	Chain Description	D		P		W	
			mm	in	mm	in	mm	in
68000944	16mm Studlink Gypsy Kit	16mm Studlink – V10/V12	16	0.630	64	2.520	57.6	2.268
68000946	17.5mm Studlink Gypsy Kit	17.5mm Studlink – V10/V12	17.5	0.689	70	2.756	63	2.480
68000943	19mm Studlink Gypsy Kit	19mm Studlink – V10/V12	19	0.748	76	2.992	68.4	2.693
68000932	20.5mm Studlink Gypsy Kit	20.5mm Studlink – V10/V12	20.5	0.807	82	3.228	73.8	2.906
68000945	22mm Studlink Gypsy Kit	22mm Studlink – V12 remote hawse only	22	0.866	88	3.465	79.2	3.118

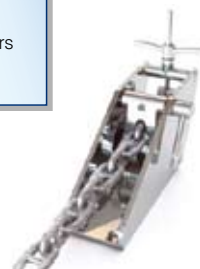
Accessories



Brake Control



For more information on Devils Claw chain stoppers refer to p.32



Devils Claw chain stoppers

Horizontal Windlasses

The Pro-Series range of Horizontal Windlasses is perfect for all boats up to 12m (38ft), particularly where space is a major issue.

All the Windlasses are mounted completely on the deck allowing maximum space for line storage. These Windlasses are perfect for installations using mainly rope as our spring loaded arms ensure the best possible control.



Pro-Sport, Pro-series and Pro-Fish models come DIY ready



© 2009 Southerly

Pro-Sport Horizontal Windlass

Lewmar's new Pro-Sport rope/chain windlass is designed as an economical package for rope and chain applications, without compromise to quality or performance. Pro-Sport is designed around a highly efficient spur gearbox, using smaller, more powerful permanent magnet motors. The unit has manual freefall and two gypsy sizes to choose from. It is DIY-ready and easy to install. Its rugged aluminum center case and durable composite side covers make Pro-Sport the perfect choice. Complete with push-button control, anchoring has never been easier.

Features

- Powerful motor providing superior line speed
- Low power consumption / current draw
- Dual direction powered operation
- Choice of two gypsy sizes, 6mm & 7mm (1/4") chain
- Maximum pulling power: 250kg (550 lbs)
- Convenient above-deck installation
- 3-year warranty
- For boats up to 9m (28ft)



Pro-Sport 550 Specifications

Part Number	Description	Gypsy No.	Motor Supply Voltage	Motor Power Watt	Max. Pull		Maximum Line Speed		Working Load		Normal Current Draw	Weight		Circuit Breaker
6656811196-303	Pro-Sport 550 G 6mm Kit*	502	12 V	150 W	250	550	30	98	62.5	137.5	20A	6.5	14	25A
6656811197-303	Pro-Sport 550 G 7mm / 1/4" Kit*	503	12 V	150 W	250	550	30	98	62.5	137.5	20A	6.5	14	25A

* Kits include: windlass, base gasket seal, fast mounting studs, installation wrench, toggle switch and circuit breaker.

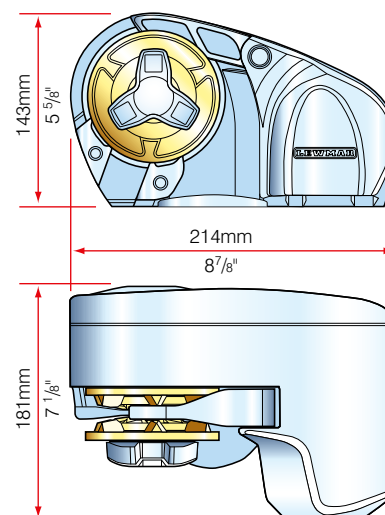
Dimension Diagram

Pro-Sport Gypsy Specifications

Gypsy Number	Chain Description	Rope Description		
		mm	in	
502	6mm DIN766	12mm	1/2	3-strand and 8-plait
503	1/4" G4, 1/4" BBB, 7mm DIN 766	12mm	1/2	3-strand and 8-plait

Cable Sizes

Product	Voltage	Length of Cable Run		Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'		
Pro-Sport	12V	6mm ² / 10 AWG	6mm ² / 8 AWG	1.5mm ² / 16 AWG	5A



Pro-Series + Pro-Fish Horizontal Windlasses

Praised by professionals worldwide, the horizontal Pro-Series is a shining example of Lewmar's commitment to provide quality products for boats from 6m-11.5m (20-38ft). It's DIY-ready, easy to install and housed in 100% 316 stainless steel, making it well protected and durable. And with push-button control and a built-in manual emergency recovery system, anchoring has never been easier.

Also available is our Pro-Fish model, the ultimate windlass for fishermen. The Pro-Fish has an automatic freefall that allows you to pull right up over a wreck or ledge, and drop anchor with speed and precision. No more running your motor or wasting fuel while you "hover fish." And you can retrieve your anchor just as easily, with the push of a button. Plus, the Pro-Fish is DIY-ready and made of durable 100% 316 stainless steel.

Features

- Automatic freefall (Pro-Fish only)
- Powerful motor providing fast line speed
- Manual emergency recovery equipped – all you need is a common 1/2" socket wrench
- Strong 100% 316 stainless steel, including control arm and stripper
- Maximum pulling power: 320kg (700 lb) for the 700 and 454kg (1,000 lb) for the 1000
- Convenient above-deck installation
- 5-year warranty
- For boats up to 12m (38ft)
- Free Fall conversion kits



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Pro-Series
Horizontal Windlass



Pro-Fish
Horizontal Windlass

Pro-Series + Pro-Fish Horizontal Windlasses (cont)

Pro-Series Windlass Specifications

Model	Max. Chain		Motor Supply Voltage	Motor Power	Max. Pull		Working Load		Max. Line Speed		Normal Current Draw	Circuit Breaker	Weight	
	mm	inch			kg	lb	kg	lb	m/min.	ft/min.			kg	lb
Pro-Series 700	7mm	1/4"	12v	500W	320	700	79	175	32	105	35A	50A	8.5	19
Pro-Series 1000	8mm	5/16"	12v	700W	454	1000	114	250	32	105	50A	70A	9.5	21
Pro-Fish 700	7mm	1/4"	12v	500W	320	700	79	175	32	105	35A	50A	8.5	19
Pro-Fish 1000	8mm	5/16"	12v	700W	454	1000	114	250	32	105	50A	70A	9.5	21

Pro-Series/Pro-Fish Windlass Kit

Part Number	Description	Gypsy No.
6656011196-310	Pro-Series 700 Kit	502
6656011107-310	Pro-Series 700 Kit	503
6657011196-311	Pro-Series 1000 Kit	502
6657011108-311	Pro-Series 1000 Kit (USA only)	516
6657011198-311	Pro-Series 1000 Kit	504

Part Number	Description	Gypsy No.
6656211196-310	Pro-Fish 700 Kit	502
6656211107-310	Pro-Fish 700 Kit	503
6656411198-311	Pro-Fish 1000 Kit	504
6656411108-311	Pro-Fish 1000 Kit (USA only)	516

*Kits Include:

Windlass, base gasket seal, fast mounting studs, installation wrench, circuit breaker, dual-direction solenoid and rocker switch.

Pro-Series/Pro-Fish Gypsy Specifications

Gypsy Number	Chain Description	Rope Description		
		mm	in	
502	6mm DIN 766	12mm	1/2	3-strand and 8-plait
503	1/4" G4, 1/4" BBB, 7mm DIN 766	12mm	1/2	3-strand and 8-plait
516	5/16" G4	14-16mm	9/16-5/8	3-strand and 8-plait (5/8 only)
504	8mm DIN 766, 5/16" BBB, 8mm ISO 4565	14-16mm	9/16-5/8	3-strand and 8-plait (5/8 only)

Cable Selection

Product	Voltage	Length of Cable Run		Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'		
Pro-Series/Pro-Fish 700	12V	10mm2 / 10 AWG	16mm2 / 6 AWG	1.5mm2 / 16 AWG	5A
Pro-Series/Pro-Fish 1000	12V	10mm2 / 8 AWG	16mm2 / 4 AWG	1.5mm2 / 16 AWG	5A

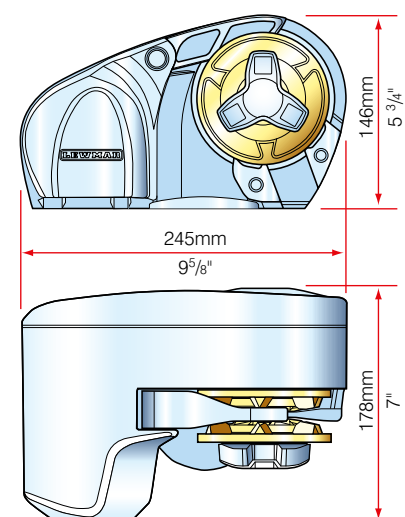
The above cable sizes are recommendations only.

Conversion Kit

Part Number	Description
66000616	Conversion Kit



Dimension Diagram



H-Series

The stylish, horizontal H-Series Windlasses use the reliable worm gearbox technology. The integral contactor simplifies wiring and is protected by a durable maincase. The unit's waterproof seal requires minimum maintenance, and since you can install it in one piece, getting started is quick and easy.

Features

- Quick, easy, one-piece installation
- Robust horizontal worm motor-gearbox for reliable performance
- Integral contactor protected by maincase
- Sealed waterproof unit requires minimum maintenance
- Aluminium and composite maincase for reduced weight
- Stainless Steel warping drum and unique "Wear and Abrasion Reduction Pattern" finish
- H2/3's come with reed switch and magnet fitted as standard for chain counter applications
- For Boats up to 14m (48ft)



H2 & H3 Specifications

Part Number	Part Number	Motor Supply	Gypsy	Motor	Max Pull	Max Line	Working	Normal	Normal	Weight	Weight	Circuit							
Gypsy only	Gypsy/Drum	Model	No.	Power	kg	Speed	Load	Current	Line	Gypsy Only	Gypsy/Drum	Breaker							
			Voltage		lb	m	lb	Draw	Speed	kg	lb	(Slow Blow)							
			ft			ft			ft										
69600533	69600537	H2	12v	505	700W	650	1433	21	69	163	358	80A	17	56	21.5	47	23.5	52	90A
69600534	69600538	H2	12v	506	700W	650	1433	21	69	163	358	80A	17	56	21.5	47	23.5	52	90A
	69600545	H3	12v	505	1000W	890	1962	28	92	215	475	85A	18	59	23.5	52	25.5	56	110A
69600542	69600546	H3	12v	506	1000W	890	1962	28	92	215	475	85A	18	59	23.5	52	25.5	56	110A
	69600548	H3	24v	506	1000W	1020	2248	30	98	243	535	60A	20	66	23.5	52	25.5	56	90A

* Kits include: Built-in-dual-direction contactor, breaker and rocker switch

H2 & H3 Gypsy Specifications

Gypsy Number	Size	Chain Description	Rope Description mm	Rope Description in
505	8mm	5/16" BB, 5/16" US G4 ISO, 8mm DIN 766, 8mm ISO 4565	14-16	9/16-5/8
506	10mm	3/8" BBB, 10mm DIN 766, Lewmar 9.5 G40	14-16	9/16-5/8

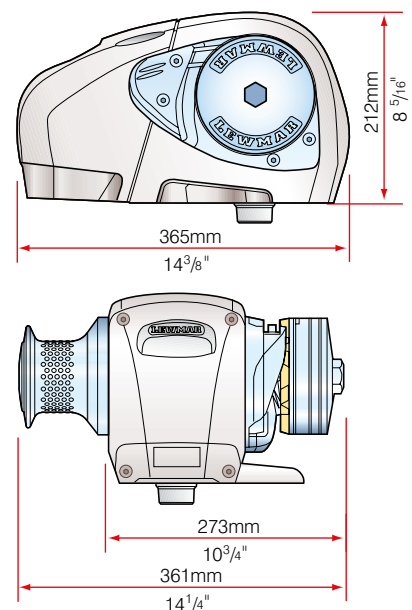
Manual Recovery Kit

Available on the H2/H3 as an optional extra, it remains fitted to the unit for user convenience

Part Number	Description
66840045	M/R Kit H2/H3

Cable Sizes

Product	Voltage	Length of Cable Run 0-7m / 0'-23'	Length of Cable Run 7-15m / 23'-50'	Switch Wiring	Current rating for switch wire
H2	12V	10mm ² / 6 AWG	25mm ² / 4 AWG	1.5mm ² / 16 AWG	5A
H2	24V	6mm ² / 10 AWG	6mm ² / 8 AWG	1.5mm ² / 16	5A
H3	12V	16mm ² / 6 AWG	25mm ² / 2 AWG	1.5mm ² / 16 AWG	5A
H3	24V	10mm ² / 8 AWG	16mm ² / 6 AWG	1.5mm ² / 16 AWG	5A



C Series Capstans

Lewmar’s C Series Capstans provide almost effortless rope control at the press of a footswitch. The WARP™ (Wear and Abrasion Resistant Pattern) finished drum optimizes performance and reduces rope wear by up to 30%. Stainless steel components combine strength, anti-corrosion and durability with a beautiful, polished finish. Installation of the C3 is quick and simple, as it is fastened entirely from above deck. This innovation cuts installation time by 35%.



Features

- Beautifully crafted stainless steel components ensure enduring strength and performance
- WARP™ finish drum - unique Wear and Abrasion Resistant Pattern reduces rope wear by 30%
- C3 offers quick, easy on-deck installation requiring only one person
- C4–C10’s have worm gearbox-inherent anti-runback characteristics acting as a mechanical brake

For details of the C10 please refer to www.lewmar.com



Capstan Selection Guide

		Boat Length Overall								
Model	Size	m	6	12.2	18.3	24.4	30.5	36.6	42.7	48.8
	ft	20	40	60	80	100	120	140	160	180
C3										
C4										
C5										
C6										
C8										
C10										

C Series Capstan Electric Specifications

Part Number	Description	Motor Power	Max. Pull		Working Load		Max. Line Speed		Normal Current Draw	Circuit Breaker	Weight	
			kg	lb	kg	lb	m/min.	ft/min.			kg	lb
6630331312	C3 - 12V integrated deck unit & motor gearbox	1000W	750	1650	188	550	12	39	65A	70A	12	26
6630332312	C3 - 24V integrated deck unit & motor gearbox	1000W	850	1870	213	550	12	39	40A	50A	12	26
68000534	C4 - 12V Motor Gearbox	1600W	1250	2750	313	882	25	82	125A	150A	25	55
68000535	C4 - 24V Motor Gearbox	2000W	1500	3300	375	882	27	89	70A	110A	25	55
66810011	C5 - 12V Motor Gearbox	2000W	1450	4100	363	1025	27	89	120A	150A	27.5	60
66810012	C5 - 24V Motor Gearbox	2000W	1600	4100	400	1025	29	97	60A	110A	27.5	60
69000414	C6 - 24V Motor Gearbox	2000W	1540	3388	770	1644	40	131	90A	-	30	66

C8-C10 - Refer to www.lewmar.com

C-Series Capstan Hydraulic Specifications

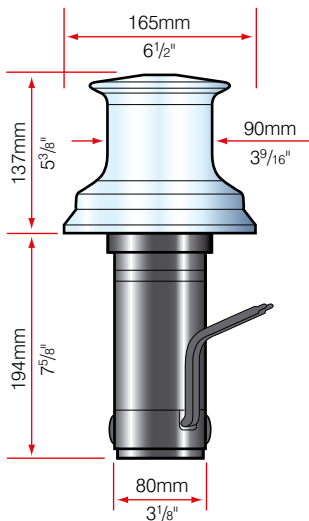
Model	Normal Pressure	Flow Rate	Max Pull		Max Line Speed	
			kg	lb	m	ft
C4/C5 Hydraulic	175 bar 2537 psi (cont)	10-40 l/min 2.6-10.6 US gal/min	1100 at 14 bar	2400 at 203 psi	21 at 40 l/min	69 at 10.6 US gal/min

C6-C8 and C10 Hydraulic - Refer to www.lewmar.com

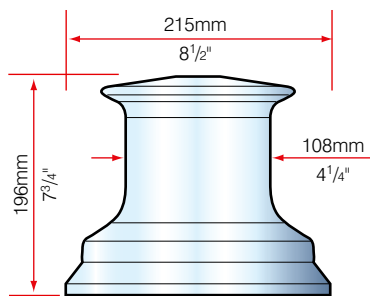
Deck Unit

Part Number	Description
66810032	C4/5 Deck Unit
69000411	C6 Deck Unit

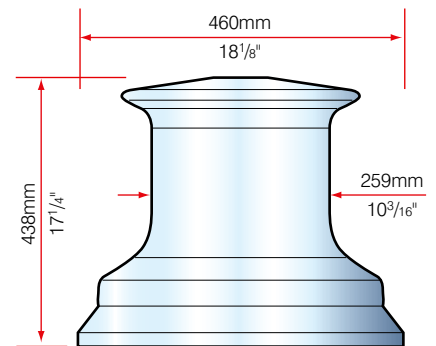
C3 Dimensions



C4/C5 Dimensions



C6 Dimensions



For Below Deck Dimensions refer to the product manual or www.lewmar.com
For C8-C10 dimensions please refer to www.lewmar.com

Cable Sizes

Product	Voltage	Length of Cable Run			Switch Wiring	Current rating for switch wire
		0-7m / 0'- 23'	7-15m / 23'- 50'	15-22m / 50'- 73'		
C3	12V	10mm ² / 8 AWG	16mm ² / 4 AWG		1.5mm ² / 16 AWG	5A
C3	24V	6mm ² / 10 AWG	6mm ² / 8 AWG		1.5mm ² / 16 AWG	5A
C4	12V	25mm ² / 3 AWG	35mm ² / 0 AWG	50mm ² / 0 AWG	1.5mm ² / 16 AWG	5A
C4	24V	10mm ² / 8 AWG	16mm ² / 4 AWG	25mm ² / 2 AWG	1.5mm ² / 16 AWG	5A
C5	12V	25mm ² / 3 AWG	35mm ² / 0 AWG	50mm ² / 0 AWG	1.5mm ² / 16 AWG	5A
C5	24V	10mm ² / 8 AWG	16mm ² / 4 AWG	25mm ² / 2 AWG	1.5mm ² / 16 AWG	5A
C6	24V	10mm ² / 8 AWG	16mm ² / 4 AWG	25mm ² / 2 AWG	1.5mm ² / 16 AWG	5A

C8-C10 - Refer to www.lewmar.com

Switches

- Switches suitable for DC electric windlasses running on 12 or 24V
- Normally open contact, 5A (12 & 24V)
- Ready to install
- Must be used with a contactor or control box

Deck foot switch

Single direction switch. Hinged cover to prevent accidental operation.
Available in 3 finishes — Grey, White & Stainless Steel



68000883
Grey Foot Switch



68000930
White Foot Switch



68000888
Stainless Steel
Foot Switch

Description	Grey Part Number	White Part Number	Stainless Steel Part Number
Windlass down	68000883	68000917	68000888
Windlass up	68000884	68000918	68000889
Blank	68000928	68000930	68000929

Guarded Rocker Switch



Part Number	Description
68000593	Dual direction switch

Hand-held wired remote control



Part Number	Description
68000524	Delux remote control
68000599	Hand-held control switch

Chain Counters

Panel mount AutoAnchors, Suitable for DC electric windlasses using all-chain or rope/chain rode and hydraulic or AC powered windlasses using all-chain rode.

Features

- Works with prefitted reed switch sensors
- Has additional diagnostics to help troubleshoot installation
- Large LCD display shows at a glance how much anchor rode is out
- "One touch" automatic function deploys and retrieves a preset length of anchor rode
- Docking alarm and preset stopping point help protect the boat during anchor retrieval
- Adjustable red backlighting ensures clear night operation
- Choice of feet or meters rode measurement
- Safety lock reduces unwanted windlass operation
- Easy installation and setup
- Install up to 2 units or combine with the AA150 or AA560 for multiple stations on the boat
- Waether cover to protect the console unit
- Console colour grey



66830010



66830008

Wireless RF Remote Control

Both the 3-Button Windlass Remote Kit and the 5-Button Windlass & Thruster Kit are easily retrofitted to existing installations and include a replaceable battery. The fobs float and are waterproof to IP67 (1 Meter deep). Using over one billion individual codes, our propriety encryption scheme prevents false triggering from any other device or similar fob. And both kits include a Receiver that supports up to eight remot key fobs (additional fobs sold separately).

10m Remote Antenna Kit

When reception is poor or distance to the windlass/thruster is long, a remote antenna will improve reception.

Part Number	Description
68000969	10m Remote Antenna Kit

3-Button Windlass Wireless Remote Kit

- Allows wireless remote operation (up/Down) of any Lewmar or Simpson Lawrence (solenoid switched) windlass
- FCC & CE
- Kit includes one wireless Fob and one Receiver

Part Number	Description
68000967	3-Button Windlass Wireless remote Kit



Most Lewmar products utilise solenoids although some of our smaller products may not. If in doubt contact your Lewmar representative.

5-Button Windlass & Thruster Wireless Remote Kit

- Allows wireless operations of any Lewmar Thruster (Port & Starboard Thrust) and any Lewmar or Simpson Lawrence (solenoid witted) windlass (Up/Down)*
- FCC & CE
- Kit includes one wireless Fob, one Windlass Receiver and one Thruster Receiver

Part Number	Description
68000968	5-Button Windlass & thruster Wireless remote Kit



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Circuit Breakers

Part Number	Description
68000603	Circuit Breaker (Slow Blow) 25A
68000604	Circuit Breaker (Slow Blow) 35A
68000348	Circuit Breaker (Slow Blow) 50A
68000240	Circuit Breaker (Slow Blow) 70A
68000349	Circuit Breaker (Slow Blow) 90A
68000350	Circuit Breaker (Slow Blow) 110A
68000351	Circuit Breaker (Slow Blow) 150A
68000627	Circuit Breaker (Slow Blow) 160A
68000894	Circuit Breaker (Slow Blow) 200A
68000628	Circuit Breaker (Slow Blow) 225A
68000895	Circuit Breaker (Slow Blow) 250A



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Contactors

		Capstans		Pro-Series	Pro-Series									V8	V8
Part Number	Description	C3 to C6	Pro-Sport	Fish 700	Fish 1000	V700	V1	V2/V3	V4	V5	V6	2500	3500		
	Sealed Contactors														
68000933	Single 12V	•													
68000934	Single 24V	•													
68000937	Compact Dual 12V (SF)						•	•							
68000938	Compact Dual 24V (SF)							•							
68000318	Dual 12V (SF)						•	•		•					
68000319	Dual 24V (SF)							•		•		•			
68000939	Compact Dual 12V (PM)		•	•	•	•									
68000320	Dual 12V (SW)								•						
68000321	Dual 24V (SW)								•		•		•		
	Contactors in Boxes														
18000301	Single 12V	•													
18000302	Single 24V	•													
68000129	Dual 12V (SF)						•	•		•					
68000130	Dual 24V (SF)							•		•		•			
68000965	Dual 12V (SW,PM)		•	•	•	•			•						
68000966	Dual 24V (SW,PM)								•		•		•		
	Pre-wired Contactors in Boxes with fuse														
68000963	Dual 12V (SW,PM)		•	•	•	•			•						
68000964	Dual 24V (SW,PM)								•		•		•		

Delta™ Anchor

The Delta™ anchor is constructed of high-grade manganese steel and stainless steel for maximum tensile strength. Its unique shank profile and ballasted tip make it self-launching. And its low center of gravity and self-righting geometry ensure that it will set immediately.

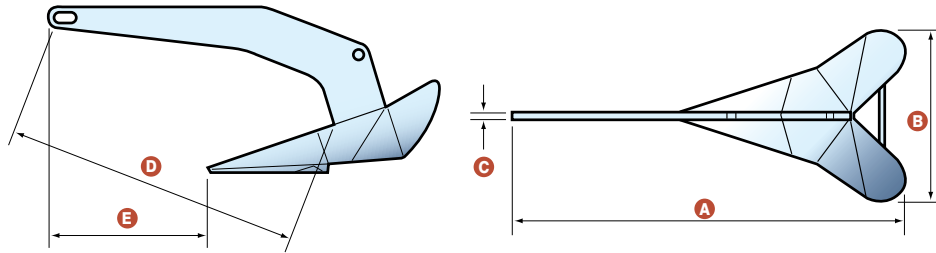
Consistent and reliable in performance, the Delta™ anchor is guaranteed for life against breakage†, has Lloyd's Approval* as a High Holding Power anchor and is specified as the primary anchor used by numerous National Lifeboat organizations.

Galvanized
Delta™ Anchor



Stainless Steel
Delta™ Anchor

Dimension Diagram



Delta™ Anchor Specifications

Galvanized Part No	Stainless Part No	Anchor Weight		Recommended Chain Size		A		B		C		D		E	
		kg	lb	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
0057404		4	9	6-7	1/4	514	20 1/4	230	9	8	5/16	387	15 1/4	210	8 1/4
0057406	0057306	6	14	6-7	1/4	593	23 3/8	265	10 3/8	10	3/8	450	17 5/8	243	9 1/2
0057410	0057310	10	22	8	5/16	695	27 3/8	310	12 1/4	13	1/2	526	20 5/8	282	11 1/8
0057416	0057316	16	35	8	5/16	812	32	362	14 1/4	13	1/2	614	24 1/8	328	13
0057420	0057320	20	44	10	3/8	877	34 1/2	392	15 3/8	16	5/8	663	26 1/8	357	14
0057425	0057325	25	55	10	3/8	945	37 1/4	415	16 3/8	16	5/8	713	28	387	15 1/4
0057432	0057332	32	70	10	3/8	1023	40 1/4	453.5	17 7/8	20	3/4	775	30 1/2	425	16 3/4
0057440	0057340	40	88	10	3/8	1103	43 1/2	489	19 1/4	20	3/4	883	32 3/4	437	17 1/4
0057450	0057350	50	110	12	1/2	1175	46 1/4	523	20 1/2	20	3/4	890	35	479	18 7/8
0057463	0057363	63	140	12	1/2	1270	50	567	20 3/8	22	7/8	963	38	508	20

Delta™ Anchor Selection Guide

	Anchor Weight		Chain Size		Boat Length Overall							
	kg	lb	mm	in	6 m 20 ft	9.2m 30 ft	12.2m 40 ft	15.2 m 50 ft	18.3 m 60 ft	21.3 m 70 ft	24.4 m 80ft	27.4 m 90ft
Delta™	4	9	6-7	1/4								
Delta™	6	14	6-7	1/4								
Delta™	10	22	8	5/16								
Delta™	16	35	8	5/16								
Delta™	20	44	10	3/8								
Delta™	25	55	10	3/8								
Delta™	32	70	10	3/8								
Delta™	40	88	10	3/8								
Delta™	50	110	12	1/2								
Delta™	63	140	12	1/2								

†Damage by deformation or bending is not covered by this guarantee.

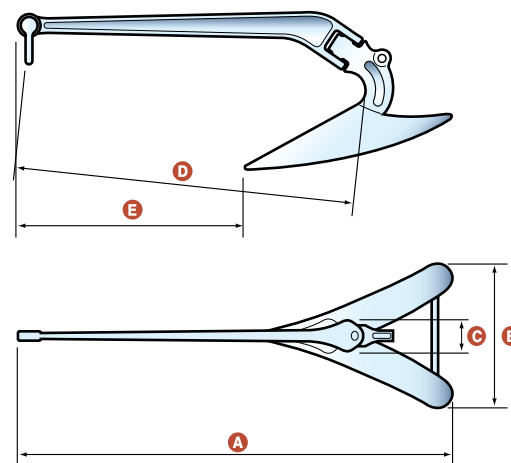
*Lloyd's Test Certification is available for individual Delta™ anchors by arrangement.

CQR™ Anchor

The CQR™ anchor has gained legendary status for its superior performance. The original drop-forged construction of the CQR™ anchor increases its strength and reliability under load – a genuine CQR™ anchor will not break. Its hinged shank delivers consistent setting and holding even in the very worst conditions. The CQR™ anchor is guaranteed for life against breakage* and has Lloyd's Approval** as a High Holding Power anchor.



Dimension Diagram



CQR™ Anchor Specifications

Galvanized Part No	Stainless Part No	Anchor Weight		Recommended Chain Size		A		B		C		D		E	
		kg	lb	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
0056503	-	7	15	6	1/4	660	26	235	9 1/4	55	2 1/8	552	21 3/4	330	13
0056504	-	9	20	8	5/16	775	30 1/2	246	9 5/8	60	2 3/8	647	25 1/2	370	14 1/2
0056505	-	11	25	8	5/16	825	32 1/2	282	11 1/8	65	2 1/2	677	26 5/8	390	15 3/8
0056506	-	16	35	8	5/16	981	38 5/8	328	13	76	3	776	30 1/2	513	20 1/8
0056507	-	20	44	10	3/8	1037	40 5/8	355	14	83	3 1/4	828	32 1/2	528	20 3/4
0056508	0056205	27	60	10	3/8	1117	44	390	15 3/8	89	3 1/2	913	36	555	21 7/8
0056509	0056206	34	75	12	1/2	1190	46 7/8	412	16 1/4	94	3 3/4	978	38 1/2	570	22 1/2
0056510	0056207	48	105	11	7/16	1196	47	485	19	120	4 3/4	843	33 1/8	530	20 7/8
0056511	0056208	66	140	12.5	1/2	1337	52 5/8	537	21 1/8	128	5	933	36 3/4	583	23
0056513	0056209	81	180	12.5	1/2	1450	57	582	23	138	5 1/2	1010	39 3/4	634	25
0056515	0056210	108	240	12.5	1/2	1560	61 1/2	641	25 1/4	146	5 3/4	1105	43 1/2	694	27 3/8
0056530	0056211	137	300	14	9/16	1682	66 1/4	693	27 1/4	154	6	1194	47	746	29 3/8
0056540		182	400	16	5/8	1865	73 1/2	763	30	164	6 1/2	1319	52	828	32 1/2
0056550		227	500	17.5	11/16	2109	83	825	32 1/2	174	6 7/8	1430	56 1/4	875	34 1/2
0056560		273	600	17.5	11/16	2138	84 1/8	870	34 1/4	184	7 1/4	1511	59 1/2	949	37 3/8
0056570		318	700	19	3/4	2256	88 7/8	900	35 1/2	197	7 3/4	1589	62 1/2	996	39 1/4
	0056217	500	1100	22	7/8	2628	103 1/2	1064	41 7/8	216	8 1/2	1847	72 3/4	1168	46

CQR™ Anchor Selection Guide

	Anchor Weight		Chain Size		Boat Length Overall						
	kg	lb	mm	in	6 m 20 ft	9.2m 30 ft	12.2m 40 ft	15.2 m 50 ft	18.3 m 60 ft	21.3 m 70 ft	80 ft
CQR™	7	15	6	1/4							
CQR™	9	20	8	5/16							
CQR™	11	25	8	5/16							
CQR™	16	35	8	5/16							
CQR™	20	44	10	3/8							
CQR™	27	60	10	3/8							
CQR™	34	75	11	7/16							
CQR™	48	105	11	7/16							

*Damage by deformation or bending is not covered by this guarantee.

**Lloyd's Test Certification is available for individual CQR™ anchors by arrangement.

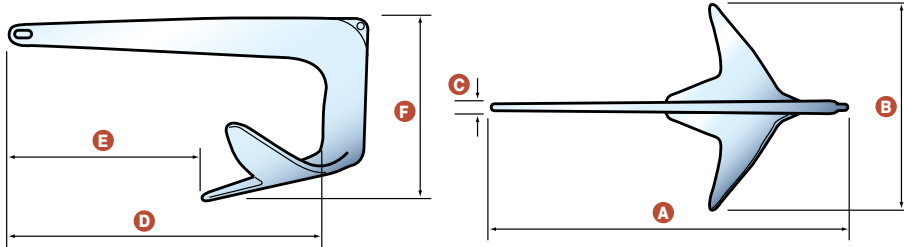
Claw Anchor

Designed based on anchors used to secure oil rigs in the North Sea. The Claw anchor is constructed of high-grade steel cast in a single piece. It sets effortlessly, holds in a variety of seabeds and stows easily on the bow roller of most boats.

Stainless Steel Claw

Galvanised Claw

Dimension Diagram*



Claw Anchor Specifications

Galvanised Part Number	Stainless Steel Number	Anchor Weight		Recommended Chain Size		A		B		C		D		E		F	
		kg	lb	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
0057901	0058901	1	2.2	5	3/16	290	11 7/16	200	7 7/8	6	1/4	265	10 7/16	155	6 1/8	150	5 7/8
0057902	0058902	2	4.4	5	3/16	360	14 3/16	250	9 13/16	8	5/16	325	12 3/4	190	7 1/2	180	7 1/16
0057905	0058905	5	11	5	3/16	470	18 1/2	310	12 3/16	10	3/8	415	16 5/16	270	10 5/8	230	9 1/16
0057907	0058907	7.5	16.5	6	1/4	495	19 1/2	330	13	10	3/8	430	16 15/16	280	11	260	10 1/4
0057910	0058910	10	22	8	5/16	540	21 1/4	360	14 3/16	11	7/16	465	18 5/16	305	12	285	11 1/4
0057915	0058915	15	33	10	3/8	625	24 5/8	420	16 9/16	13	1/2	530	20 7/8	340	13 3/8	330	13
0057920	0058920	20	44	10	3/8	700	27 9/16	460	18 1/8	17	1 1/16	590	23 1/4	365	14 3/8	335	13 3/16
0057930	0058930	30	66	12	1/2	825	32 1/2	525	20 11/16	19	3/4	705	27 3/4	425	16 3/4	395	15 9/16
0057950		50	110	16	5/8	955	37 7/8	645	25 3/8	23	1 5/16	780	30 11/16	490	19 5/16	440	17 5/16
0057980		80	176	20	3/4	1065	41 15/16	710	28	26	1	865	34 1/16	540	21 9/16	485	19 1/8

*Dimensions relates to the Galvanised Claw anchors. Stainless Steel Claw dimension available on request.

Claw Anchor Selection Guide

	Anchor Weight		Chain Size		Boat Length Overall							
	kg	lb	mm	in	6 m 20 ft	9.2m 30 ft	12.2m 40 ft	15.2 m 50 ft	18.3 m 60 ft	21.3 m 70 ft	24.4 m 80ft	27.4 m 90ft
Claw	1	2.2	5	3/16								
Claw	2	4.4	5	3/16								
Claw	5	11	5	3/16								
Claw	7.5	16.5	6	1/4								
Claw	10	22	8	5/16								
Claw	15	33	10	3/8								
Claw	20	44	10	3/8								
Claw	30	66	12	1/2								
Claw	50	110	16	5/8								
Claw	80	176	20	3/4								

Anchor Rodes

Features

- Designed to complement the rope-chain gypsies fitted to all Lewmar windlasses
- Calibrated for even pitch
- Hot dip galvanised to minimise corrosion
- Welded for high strength
- Smooth rope-to-chain transition
- Helps your windlass operate smoothly
- Hand-sewn whipping guarantees against unravelling



Premium 3 Strand Rodes (USA only)

Part Number	Description
69000331	5' 1/4" G4 X 100' 1/2" w/ 5/16 shackle
69000332	10' 1/4" G4 X 150' 1/2" w/ 5/16 shackle
69000334	15' 1/4" G4 X 200' 1/2" w/ 5/16 shackle
69000335	15' 1/4" G4 X 300' 1/2" w/ 5/16 shackle
69000339	20' 5/16" G4 X 200' 5/16" w/ 3/8 shackle

Premium 8 Plait Rodes (USA only)

Part Number	Description
HM10HT200PX	10' 1/4"G4 - 200' 1/2" 8PLT with Shackle — Sprint 600 & H-600
HM15HT300PX	15' 1/4"G4 - 300' 1/2" 8PLT with Shackle — Sprint 600 & H-600
HM15H300PX	15' 5/16" G4 - 300' 5/16" 8PLT with Shackle — H-900, (Concept 1, V-2&3 Use 001 gypsy)
HM30B130PX	30' 5/16"BBB - 130' 5/16" 8PLT with Shackle — H-900 and (H-600 using 504 gypsy)
HM30B200PX	30' 5/16" BBB - 200' 5/16" 8PLT with Shackle — H-900

Bow Rollers

Features

- Friction-free surface to make dropping and weighing anchor easier
- Won't damage the deck or topsides
- Allows you to safely stow anchor while cruising and deploy at short notice
- Constructed of 304 stainless steel
- Range of rollers to fit the most common combinations of anchor, mounting style and boat
- Please visit lewmar.com for the full range of sizes



66840007

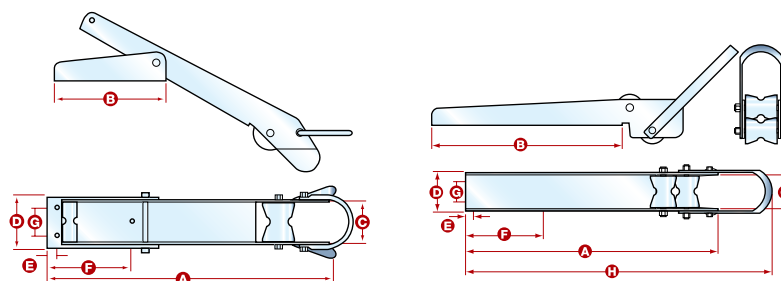


66840009



66840008

Dimension Diagram



Bow Roller Specifications

Part Number	Weight kg lb	Anchor Type	A mm in	B mm in	C mm in	D mm in	E mm in	F mm in	G mm in	H mm in
66840007	3.6 8	Any Fluke style to 35lb/16kg	524 20	103 8	76 3	99 3 7/8	16 5/8	153 6	51 2	- -
66840008	4 9	14, 22 & 35lb (7, 10 & 16kg) Delta™ anchors	495 19 1/2	376 14 3/16	67 2 5/8	80 3 1/8	16 5/8	153 6	38 1 1/2	602 23 1/16
66840009	4.5 10	14, 22 & 35lb (7, 10 & 16kg) Delta™ anchors*	597 23 1/2	478 18 13/16	67 2 5/8	80 3/8	16 5/8	153 6	38 1 1/2	704 27 1/16

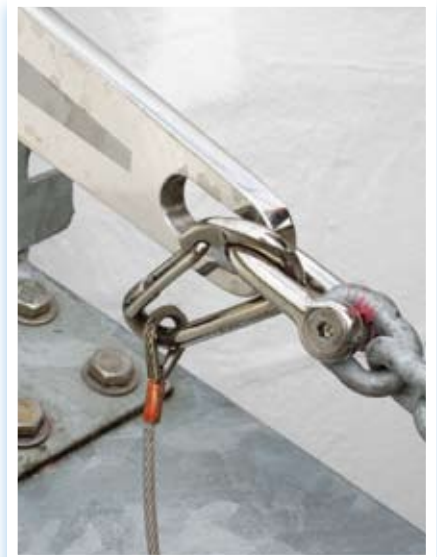
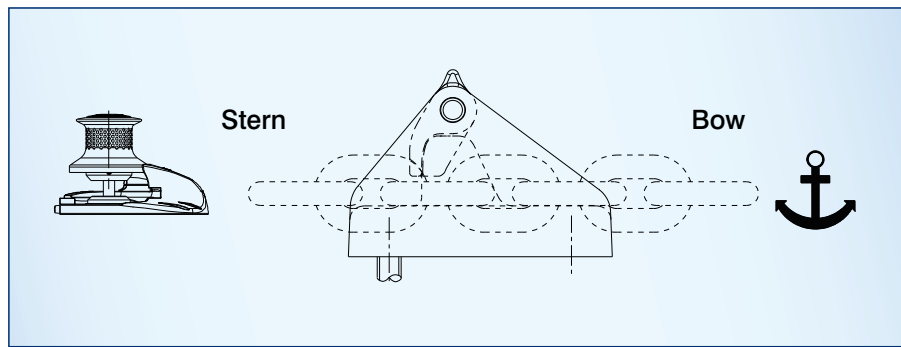
* Farther from the bow.

Chain Stoppers

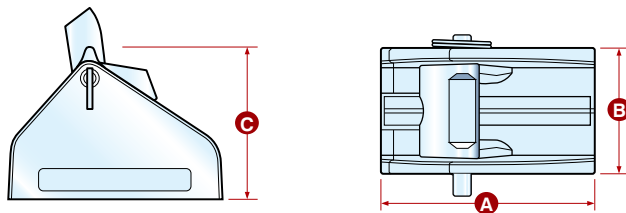
Windlasses are not designed to hold high loads while a boat is at anchor. When the windlass is not in use and the boat is at anchor, the chain should be secured using a chain stopper or the rope rode should be attached to a load-bearing point such as a cleat. Lewmar has created a beautiful new range of cast stainless chain stoppers made from 316 stainless steel, perfect for sleep-filled nights and lazy lunches.



66840049



Dimensions Diagram



Chain Stopper Specifications

Standard Part Number	Lever Version Part Number	Chain Size		A		B		C	
		mm	in	mm	in	mm	in	mm	in
66840049	66840077	8	5/16	110	4 5/16	65	2 1/2	79	3 1/8
66840050	66840079	10	3/8	110	4 5/16	65	2 1/2	79	3 1/8
66840051	66840080	12-13	1/2	148	5 7/8	88	3 1/2	101	4
66840052	66840081	13-14	9/16	160	6 5/16	100	3 15/16	106	4 3/16
66840069		6-10	1/4-3/8	79	3 1/8	60	2 3/8	57	2 1/4

Anchor Safety Straps

Part Number	Description
66840027	Anchor Safety Strap 3mm Wire
66840028	Anchor Safety Strap 4mm Wire



66840028

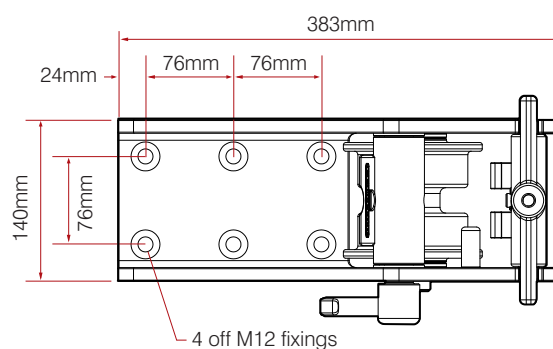
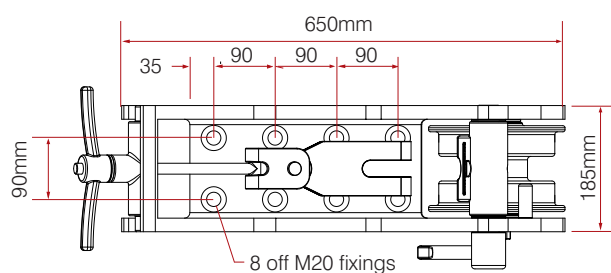
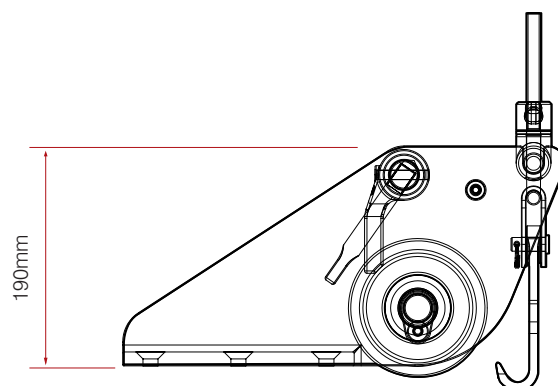
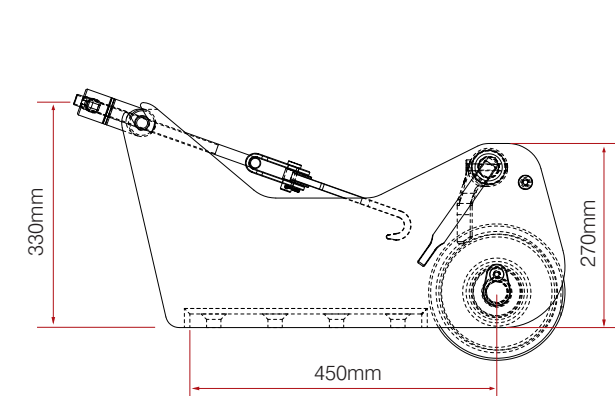
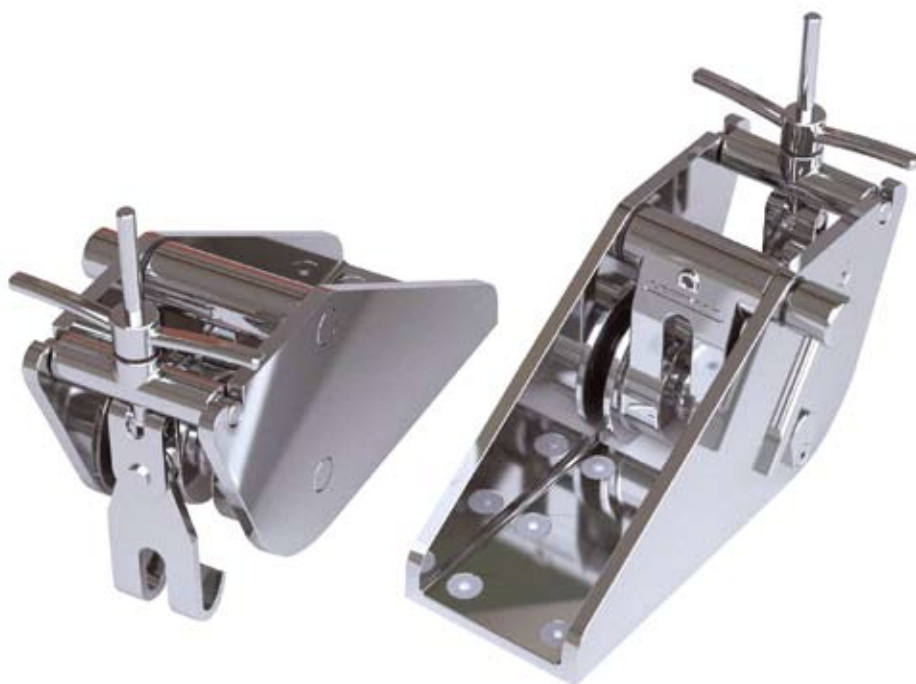
Minimum 12"/305mm Long PVC Coated Stainless Steel

Devils Claw Chain Stoppers

In addition to our standard range of chain stoppers, Lewmar offer a range of devils claw chain stopper aimed directly at the large custom builder.

The devils claw chain stopper incorporate a mechanism (claw) that enables the anchor to be held 'tight' when stowed preventing vibration, knocking and accidental deployment. The claw mechanism can be safely stowed when not in use, allowing the chain to run freely.

The Lewmar devils claw is available in horizontal & vertical configurations and a wide range of sizes from 14mm to 22mm Studlink Chain.



For part number details visit www.lewmar.com

Dimension's shown are typical, for actual sizes see www.lewmar.com

Manoeuvring around the dock area can be difficult, but Lewmar's TT Thrusters make docking simple. The revolutionary design of the TT propeller — the latest in Lewmar's long history of custom thruster solutions — achieves perfectly even thrust in both direction for maximum control and manoeuvrability. All Lewmar Thrusters have been extensively tested, resulting in a smooth, efficient and quiet performance that will have you docking like a pro in no time.



Thrusters

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Take Control. Enjoy your boating. Fit a Lewmar Thruster

As marinas get smaller and berths get tighter, safely docking a boat is more challenging than ever. Thrusters give you total control of your boat and allow you to manoeuvre into and out of tight spots with ease

Some good reasons why thrusters improve your boating

- ✓ Docking your boat is easy; it makes you look like a professional skipper.
- ✓ Boating is meant to be fun. Why end your day or week on the water with a stressful experience?
- ✓ A thruster offers the help you need to be in full control when docking and departing regardless of wind conditions and currents.
- ✓ Short off crew? A thruster makes you less dependent on having a skilled crew. The independence a thruster provides will allow you to use your boat whenever you want, whether alone or with others.
- ✓ Every boat can benefit from having a thruster installed.

Choosing the right Lewmar thruster for your boat.

Today most yachts or motorboats over 45' have a bow thruster fitted as standard. The thruster will usually meet the expectations of most customers when using the boat under normal weather conditions. The sizes used by boat builders will vary depending on the boat's intended usage and price level. In today's production boats of around 45'-50', the typical thruster will push the boat's bow against a direct side wind of 20-22 knots.

For boat owners who use their boats in more demanding conditions or have a strong current in their local marina, Lewmar can offer upgrades to a higher performance thruster. However, few pleasure craft need a thruster that can push the bow against a direct side wind of more than 25 knots.

The boat's wind area, the 'lateral wind draft area' and the thruster's tunnel position in the hull determine the thruster's performance on a boat. By knowing these factors we can calculate the wind pressure on the boat and the centre point of this wind pressure. However the wind pressure is seldom from right angles and many boat superstructures are quite streamlined so we can reduce the factor slightly. From these calculations we can determine what thrust is needed to counter the wind pressure with the given thruster position.

Our selection chart to the right gives you a general guide.

To gain total control of your boat in combination with a bow thruster the solution is to install a stern thruster, leaving the main engines to propel the boat forward and backward as they were intended.

Thruster Accessories

Lewmar's offers a comprehensive range of attractive panels with easy connection systems.

The Lewmar dual joystick panel provides control of both thrusters with just one hand. Dual thrusters combined with a remote control, is the best combination to make docking easy for a single-handed boater. A remote controller (see page 38) will make life really easy especially if you are short handed!



For remote control
refer to p.25



Thruster Selection Guide

After deciding Force Factor (See guide below), locate your vessels length and appropriate TT Thruster

FF	LOA ft LOA (m)	30 (9)	35 (10.5)	40 (12)	45 (13.5)	50 (15)	55 (16.7)	60 (18.2)	65 (19.7)	70 (21.2)	75 (22.7)	80 (24.2)	85 (26)	90 (27.3)
1	140TT 2.0	140TT 2.0	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT 15.0	
2	140TT 2.0	140TT 2.0	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT 15.0	
3	140TT 2.0	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT 15.0	300TT Hyd	
4	140TT 2.0	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT Hyd	300TT Hyd	
5	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT 15.0	300TT Hyd	300TT Hyd	
6	140TT 2.2	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT Hyd	300TT Hyd	300TT Hyd	
7	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 10.8	300TT 15.0	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	
8	185TT 3.0	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 15.0	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	
9	185TT4.0	185TT 5.0	185TT 6.0	250TT 8.0	250TT 9.6	300TT 10.8	300TT 15.0	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	300TT Hyd	

Note The 250TTHyd can be used in all areas that the 300TT10.8 appears.

Force Factor Guide

Wind Effects (Conditions)		Force Factor		
		A Light Displacement/ Low Windage	B Medium Displacement/ Medium Windage	C Heavy Displacement/ High Windage
Slight	5-8M/S, 11-16 Knots, Beaufort F4, 12-18mph	1	2	3
Moderate	8-11M/S, 17-21 Knots, Beaufort F5, 19-24mph	4	5	6
Rough	11-14M/S, 21-26 Knots, Beaufort F6, 25-30mph	7	8	9

A
**Sleek Power
Boat**



B
Fast Cruiser



C
**Heavy
Displacement
Yacht**



Thruster Features

- 1 Sealed gear leg with long-life "mechanical" seal allow Lewmar thrusters to be fitted without the need for a top up reservoir, they are pre-filled with special gear oil for lifetime lubrication.
- 2 The gearbox is fitted with a spline drive and all bronze drive legs are fully galvanically protected.
- 3 We offer a composite drive leg in the 140 TT, which does not require anodes.
- 4 The Lewmar thruster controller intelligently protects the thruster from potential inherent problems in all high current applications as well as user faults. It includes several important safety features imperative in a product with such high power, run by DC electrics, as a thruster.
- 5 The 5 blade special propellers are the result of much testing over a number of years of development work and thousands of tests. They have been designed to reduce the noise level, while maintaining the exceptional efficiency. This goal was achieved, and we even chose to make them a little bit more aggressive on some models, increasing the thrust on some thrusters.

Many of our competitors have now tried to copy our propellers with limited success. The Lewmar thruster is quieter and more efficient. Please see individual information on each new thruster for more details.

- 6 To provide reliable and safe thruster installations in more boats, we offer modified versions of our DC electric thrusters in watertight housings for use in stern and other locations that may get wet or are exposed to gasoline fumes. These IP thrusters are fully ignition protected (ISO 8846) for use in boats with gasoline engines. They have a hermetically sealed composite housing around all electric parts. This provides the ignition protection as no gasoline fumes can enter and be ignited by sparks.

All electric parts that could be damaged by water are covered and protected, making Lewmar's thrusters the ideal choice for stern thruster installations where it is difficult to ensure that the thruster will always remain dry.



TT Electric Thrusters



140TT



185TT

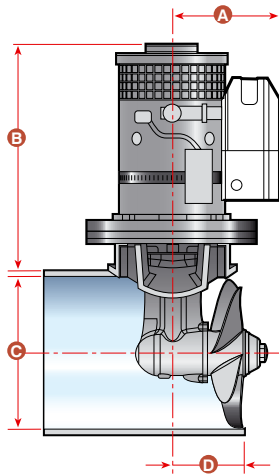


250TT

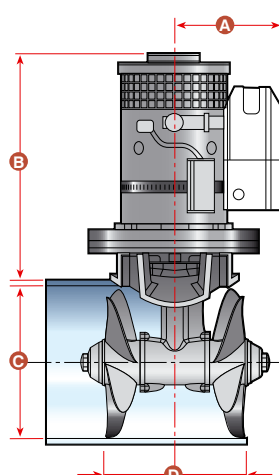


300TT

Dimension Diagrams



140TT & 185TT



250TT & 300TT

Features

- Range from 2.0kw (3HP) to 15kw (20HP)
- No reservoir to install, no leaks and no maintenance
- High performance 5 blade propellers give equal thrust in both directions
- High integrity seal
- Spline driven propeller, no drive pin required
- Black box electronics prevents misuse and protects motor
- Hardened and ground spiral bevel gears for maximum efficiency and quiet power transmission
- Self-resetting thermal protection on all motors
- Choice of Joystick or Touch Panel controls
- Easy plug-together switch connections
- Minimum silhouette hub for smooth water flow
- Ignition Protected Option Available cable

TT Thruster Specifications

Part number	Model	Voltage	Power Kw	HP	Gearbox Metal	Tunnel	Props	Thrust Kgf	lb	Weight kg	lb	A mm	in	B mm	in	C mm	in	D mm	in
591482	140TT2.0	12V	2.0	2.7	Composite	140	Single 5-blade	37	81	13	29	123	4 9/16	209	8 1/4	140	5 1/2	73	2 7/8
591481	140TT2.2	12V	2.2	3.0	Composite	140	Single 5-blade	42	92	13	29	123	4 9/16	235	9 1/4	140	5 1/2	73	2 7/8
591801	185TT3.0	12V	3.0	4.0	Bronze	185	Single 5-blade	58	128	20	43	130	5 1/8	271	10 11/16	185	7 5/16	85	3 3/8
591802	185TT3.0	24V	3.0	4.0	Bronze	185	Single 5-blade	58	128	20	43	130	5 1/8	271	10 11/16	185	7 5/16	85	3 3/8
591807	185TT4.0	12V	4.0	5.4	Bronze	185	Single 5-blade	65	143	20	43	148	5 13/16	294	11 9/16	185	7 5/16	85	3 3/8
591808	185TT4.0	24V	4.0	5.4	Bronze	185	Single 5-blade	65	143	20	43	148	5 13/16	294	11 9/16	185	7 5/16	85	3 3/8
591803	185TT5.0	12V	5.0	6.7	Bronze	185	Single 5-blade	82	180	27	59	162	6 3/8	316	12 7/16	185	7 5/16	85	3 3/8
591804	185TT5.0	24V	5.0	6.7	Bronze	185	Single 5-blade	82	180	27	59	162	6 3/8	316	12 7/16	185	7 5/16	85	3 3/8
591805	185TT6.0	12V	6.0	8.0	Bronze	185	Single 5-blade	97	213	27	59	173	6 13/16	316	12 7/16	185	7 5/16	85	3 3/8
591806	185TT6.0	24V	6.0	8.0	Bronze	185	Single 5-blade	97	213	27	59	173	6 13/16	316	12 7/16	185	7 5/16	85	3 3/8
592501	250TT8.0	24V	8.0	10.8	Bronze	250	Twin CR	140	308	46	102	165	6 1/2	405	15 15/16	250	9 13/16	238	9 3/8
592502	250TT9.6	48V	9.6	13.0	Bronze	250	Twin CR	170	374	50	110	165	6 1/2	427	16 13/16	250	9 13/16	238	9 3/8
592503	250TT8.0	24V	8.0	10.8	Aluminium	250	Twin CR	140	308	46	102	165	6 1/2	405	15 15/16	250	9 13/16	238	9 3/8
593001	300TT10.8	24V	10.8	14.5	Bronze	300	Twin CR	250	550	65	143	203	8	450	17 11/16	300	11 13/16	320	12 7/8
593002	300TT15	48V	15	20	Bronze	300	Twin CR	280	616	68	150	203	8	450	17 11/16	300	11 13/16	320	12 7/8
593003	300TT10.8	24V	10.8	14.5	Aluminium	300	Twin CR	250	550	65	143	203	8	450	17 11/16	300	11 13/16	320	12 7/8

CR = Counter Rotating

Ignition Protected TT Thruster

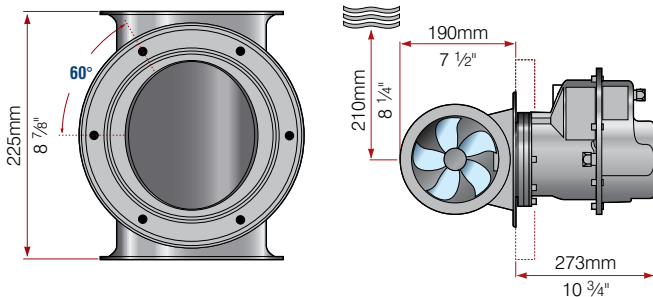
Provide reliable and safe installations for boats exposed to gasoline fumes. The IP Thruster is also ideal for stern locations where the thruster may get wet.

Features

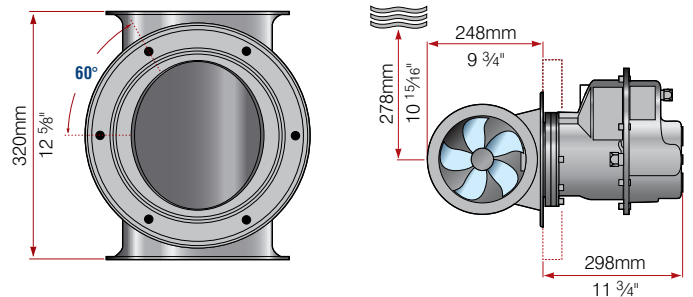
- Manufactured and tested to meet ISO 8846
- Waterproof (not recommended to be used when submerged for long periods of time)
- Tough and durable composite housing
- Pre-installed 10m of control cable for connection outside of the restricted area
- Pre-installed 3m of power cables and supplied terminals for safe power supply connection
- Externally mounted fuse for easy maintenance
- Electric motor incorporates an auto-shutoff thermal sensor
- Control systems shuts down after 3 minutes of continual use
- High quality Solenoids to prevent possible contact welding
- Electronic delay between thrust directions to prevent damage to motor
- Externally mounted in-line fuse fitted to protect cable
- IP kits can also be retrofitted to Bow Thrusters



Dimension Diagrams 140TT IP



Dimension Diagrams 185TT IP



Ignition Protected TT Thruster Specifications

Part number	Model	Voltage	Power	Thrust	Current Draw	Fuse Rating	Estimated Boat Size
591404	140TT IP	12V	2.2Kw	42kgf	280A	200A	25-32ft
591829	185TT IP	12V	3.0Kw	58kgf	330A	250A	32-38ft
591830	185TT IP	24V	3.0Kw	58kgf	160A	130A	32-28ft
591831	185TT IP	12V	4.0Kw	65kgf	470A	400A	38-44ft
591832	185TT IP	24V	4.0Kw	65kgf	235A	250A	38-44ft
591833	185TT IP	12V	5.0Kw	82kgf	480A	400A	44-50ft
591834	185TT IP	24V	5.0Kw	82kgf	240A	250A	44-50ft
591836	185TT IP	24V	6.0Kw	97kgf	370A	325A	50-58ft

Thruster Accessories

Fuse Holders

Standard Fuse Holder – 589006 Our basic fuse holder is designed for ANL fuses and comes complete with a polycarbonate safety cover.

T2 Fuse Holder – 589013 This higher-spec fuse holder for ANL fuses allows for easy fuse replacement. The cable is clamped independently, so a fuse can be changed without disturbing the cable. The T2 also comes with a polycarbonate safety cover.



589013



589006

Control Panels

Lewmar's attractive panels are easy to install using a hole saw and our simple control cable connection system.

Basic Control Panel – 589094 Ideal entry level control of thrusters. It features On/Off illumination and easy installation connection.

Joystick Panel – 589002 Lewmar's Joystick Panel features a one second press-and-hold safety ON device, auto shutoff after 3 minutes of continuous use and also after 15 minutes of continuous inactivity. To prevent damage to electric motor, the panel has a one-second delay from Port to Starboard (and Starboard to Port).

Dual Joystick Panel – 589004 Our Dual Joystick Panel incorporate safety locks, illumination as well as features described in the Joystick panel 589002.

Touch Panel – 589001 Our Touchscreen Panel incorporate safety locks, illumination as well as features described in the Joystick panel 589002.



589004



589001



589094

Connecting Leads and Y Connectors

Lewmar supplies 4-wire cables suitable for most installations or 5-wire cables for installations where a Battery Switch is connected. To install, simply measure the distance from the Thruster to the Panel and choose the lead that fits best. If you are installing a second or third panel, use a Y Connector to divert power back to the Thruster.



Cable Specifications

4-Wire Cable	5-Wire Cable	Length
589021	589075	2m
589016	589070	7m
589017	589071	10m
589018	589072	14m
589019	589073	18m
589020	589074	22m
589015	589069	2m Extension
589025	589076	Y Connector

Automatic Battery Switch (ABS)



Automatic battery switch

Our easy-to-install Automatic Battery Switch is the optimum safety device. It is installed close to the batteries it will prevent power from reaching the Thruster until the Lewmar panel is activated. When thrusting is finished, but the panel has not yet been switched off, the ABS will sense the lack of activity and switch the power off automatically. And finally, if there is a need for thrusting and the panel is operating, the ABS will sense this need and activate.

Part Number #589034

Switch Box



12V-24V & 24V-48V Switch box

To allow safe usage of a 24V thruster on a 12V boat and 48V thruster on a 24V boat. Additional batteries will be required.

Part Number	Description
589029	12V/24V
589030	24/48V
589031	12V/24V H*

*Heavy Duty

Accessories Selector

Accessories Selector		140TT		185TT										250TT								300TT															
		591402 - 2.0 kw 12V	591401/591404 IP - 2.2 kw 12V	591801/591829 IP - 3.0 kw 12V	591802/591830 IP - 3.0 kw 24V	591807/591831 IP - 4.0 kw 12V	591808/591832 IP - 4.0 kw 24V	591803/591833 IP - 5.0 kw 12V	591804/591834 IP - 5.0 kw 24V	591805 - 6.0 kw 12V	591806/591836 IP - 6.0 kw 24V	591820 - 6cc - 10hp	591821 - 5cc - 10hp	592501 - 8.0 kw 24V	592502 - 9.6 kw 48V	592503 - 8.0 kw 24V	592510 - 26cc - 20hp	592511 - 17cc - 20hp	592520 - 26cc - 20hp	592521 - 17cc - 20hp	592522 - 14cc - 20hp	593001 - 10.8 kw 24V	593002 - 15 kw 48V	593003 - 10.8 kw 24V	593010 - 30cc - 30hp	593011 - 26cc -30hp	593020 - 30cc - 30hp	593021 - 26cc - 30hp	593022 - 22cc - 30hp	593023 - 19cc - 30hp	593024 - 17cc - 30hp						
Gearbox Material	Composite	●	●																																		
	Bronze			●	●	●	●	●	●	●	●	●	●	●	●				●	●	●		●	●					●	●	●	●	●	●			
	Aluminium															●	●	●							●	●	●										
Fuse	589007 -130A				●		●		●																												
	589008 - 250A			●											●																						
	589009 - 325A										●																										
	589010 - 400A					●		●						●		●								●													
	589011 - 500A									●													●		●												
	589012 - 200A	●	●																																		
Fuse Holder	589006 - Standard	●	●	●	●		●		●		●			●	●																						
	589013 - T2	●	●	●	●	●	●	●	●	●	●			●	●	●						●	●	●													
Controller	589001 - Touch		●	●	●	●	●	●	●	●	●			●	●	●						●	●	●													
	589002 - Joystick		●	●	●	●	●	●	●	●	●			●	●	●						●	●	●													
	589094 Joystick	●																																			
	589004 - Dual		●	●	●	●	●	●	●	●	●			●	●	●							●	●	●												
Power Switch Box	589029 - 12V/24V				●		●		●		●			●		●																					
	589030 - 24V/48V														●								●														
	589031 - 12V/24V H																					●		●													

Thruster Accessories (cont)

Tunnels

Our range of high-quality filament-wound GRP tunnels is manufactured to our specifications and comes in a variety of cut-lengths. We also have a limited range of steel tubes.

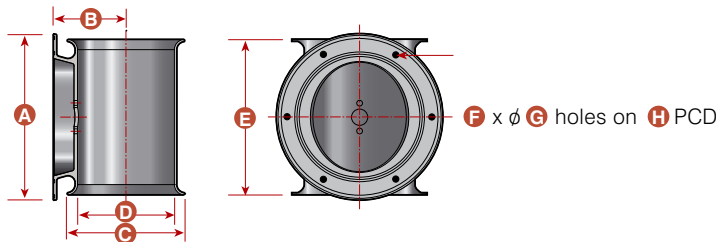
Tunnel Length cm ft	GRP Ø140mm (5 1/2")	GRP Ø185mm (7 2/7")	Steel Ø185mm (7 2/7")	GRP Ø250mm (9 5/6")	GRP Ø300mm (11 4/5")
75 2'6"	589101	589300			
100 3'3"	589102	589301	589320	589501	589700
150 4'11"	589103	589302	589321	589502	589701
200 6'7"		589303		589503	589702
300 9'10"					589703



Stern Kits

Lewmar manufactures sturdy stern kits from durable GRP. You'll find a kit to match our Thrusters — Sizes 140TT through to 300TT

Kit Number	Thruster	mm ^A	in	mm ^B	in	mm ^C	in	mm ^D	in	mm ^E	in	^F	mm ^G	in	mm ^H	in
589110	140TT	240	9.450	105	4.134	170	6.693	140	5.512	225	8.858	6	8.5	0.335	206	8.110
589310	185TT	290	11.417	130	5.118	235	9.252	185	7.283	320	12.598	6	10.5	0.413	251	9.882
589510	250TT	350	13.780	175	6.890	310	12.205	250	9.843	380	14.961	6	10.5	0.413	312	12.283
589710	300TT	384	15.118	215	8.465	375	14.764	300	11.811	420	16.535	8	12	0.472	334	13.150



Recommended Spares

Thruster	140TT	185TT	250TT/300TT
Anodes	589150	589350	589550

Thruster	140TT	185TT	250TT LH	250TT RH	300TT LH	300TT RH
Propellers	589151	589351	589551	589552	589751	589750

Thruster	140TT	185TT
Drive Pins	589018	589017

Thruster	140TT	185TT	250TT
Support Brackets	589064	589066	589065

Brushes Kit

Motor size	Motor brushes part No
3.0kW 12-24V	
5.0/6.0kW 12V	589081
5.0kW 24V	589082
6.0kW 24V	589083
8.0kW 24V	589084
10.8kW 24V	589085
15.0kW 48V	589086
2.0/2.2kW 12V	589087
4.0kW 12V	589088
4.0kW 24V	589089
9.6kW 48V	589090
2.2kW Silver Cap	589091



Anode Kit



Propellers

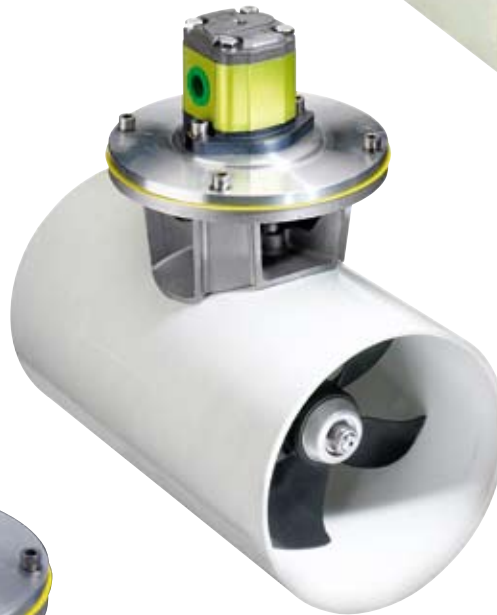
TT Hydraulic Thrusters

When longer duration is required or weight and space are critical, the hydraulic version of the TT Thrusters are the ideal solution. The TT Hydraulic Thrusters enable significant flexibility of vessel movement. The Hydraulic Thruster increases the thrust over the appropriate D.C. Electric power source version.

The power and performance of a hydraulic thruster is dependant on the Hydraulic system. Lewmar offer a complete turn key hydraulic solution. 250 and 300 models are available in bronze or aluminium hub version. Please see your Lewmar agent for more details.



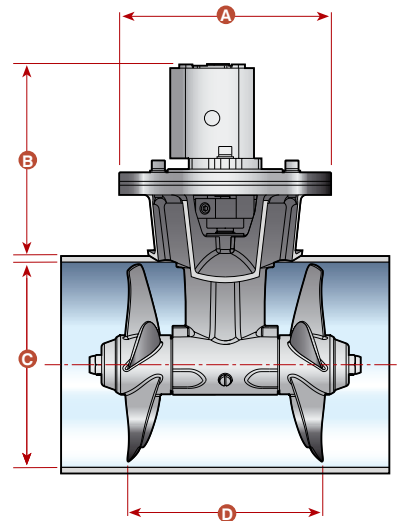
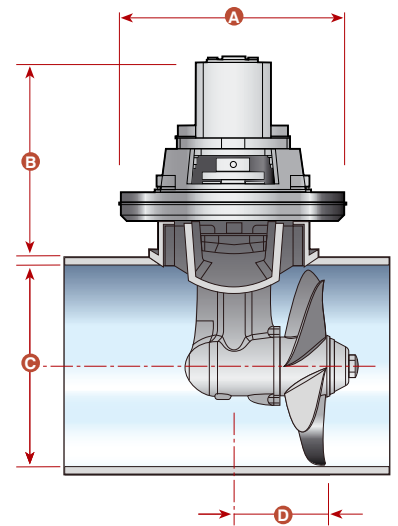
185TTH Thruster



250TTH Thruster



300TTH Thruster



TT Hydraulic Thruster Specifications

Model	Tunnel	Propeller	Weight		Power		A		B		C		D	
			kg	lb	HP	Kw	mm	in	mm	in	mm	in	mm	in
185TTH	185mm	Single	8	17.6	10	7	200	7 7/8	202	7 15/16	185	7 9/32	83	3 9/32
250TTH	250mm	Twin CR	13	28.6	20	15	258	10 5/32	234	9 7/32	250	9 27/32	238	9 3/8
300TTH	300mm	Twin CR	17	37.4	30	22.5	258	10 5/32	256	10 1/16	300	11 13/16	320	12 19/32

CR: Counter Rotating

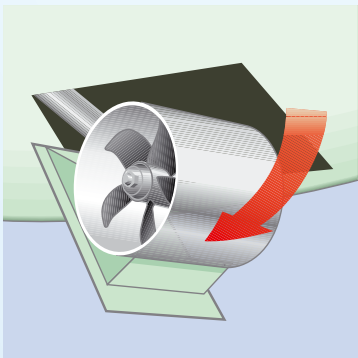
Custom Range

Manoeuvring larger vessels in today's confines of a busy harbour, or marina can challenge even a skilled crew. Cross winds and tides can be difficult to overcome with conventional propulsion, and steering gear, particularly when 'stern to mooring'. Lewmar Thrusters can help provide additional control just when you need it at the touch of a button, or move of a joystick. Lewmar have a range of well proven thrusters which suit sail or power vessels up to 150ft.

Many of our custom Thrusters are available with Bronze or Aluminium legs. Contact Lewmar for details.



Thruster Range Options

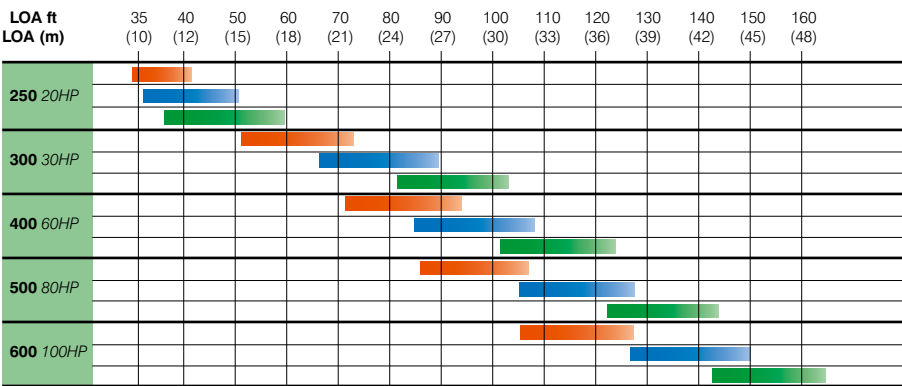


The Swing Retracting thruster can be mounted further forward in a vessel with a shallow forefoot or other internal space restrictions.



The Vertical Retracting thruster offers exceptional performance by deeper immersion and minimised drag by maintaining the hull's shape upon retraction.

Thruster Size Guide



Key to Guide Chart

- Control in Strong Wind Conditions
- Control in Moderate Wind Conditions
- Control in Light Wind Conditions

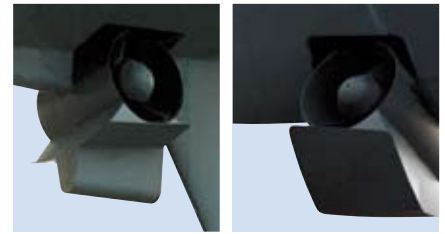
Estimated performance reference guide for vessels of average proportions. If in doubt about specific wind calculations contact Lewmar.



Vertical Retracting Tunnel Thrusters

Lewmar has continued development of its Custom Thruster range started in 1983 with the introduction of the VRTT series. The VRTT utilises the advances gained with the successful TT range, to give the most rugged & powerful range of retracting thrusters on the market. The addition of the VRTT range enables Lewmar to supply a Retracting Thruster for vessels up to 164ft (50m). Vertical Retracting Thrusters will give ultimate control without having to compromise hull performance. When not in use the Thruster retracts into the hull leaving a clean line, so there is no drag. The 300 VRTT Hydraulic is capable of developing more than 30HP and as Retracting Thrusters not only give better immersion but can be mounted further forward they will give better performance per HP than a standard tunnel Thruster.

Lewmar understands the importance of pollution and the environment so all motors are housed inside the hull, to minimise leaks. All the vertical retractors have a manual raise - lower mechanism for use in the event of power failure or for cleaning and anti-fouling.

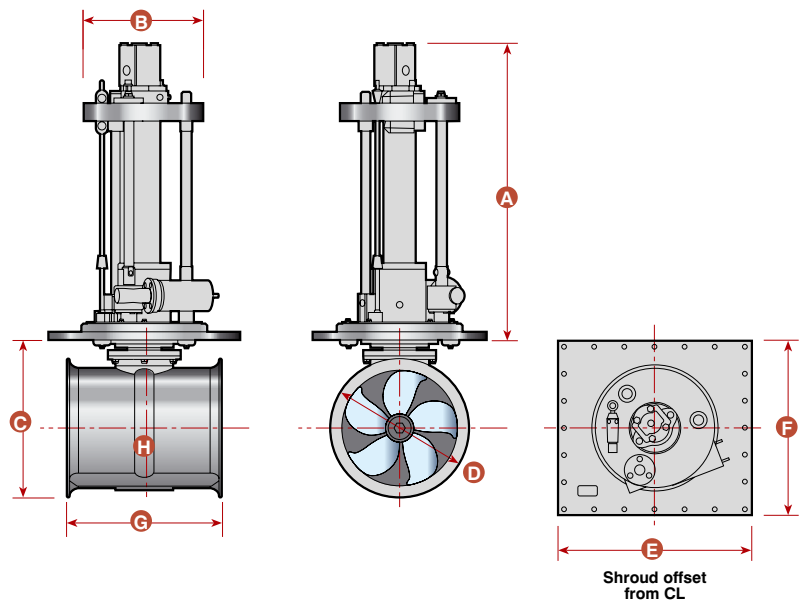


Retracting Bow and Stern Thrusters in Lowered Positions

Vertical Retracting Thruster Selection Guide

Model	HP	Typical vessel size	
		m	ft
250VRTTE	10.7	14-20	45-65
250VRTTH	13	14-22	45-71
250VRTTH	20	16-23	48-75
300VRTTH	30	17-27	55-90
400SVTH	30-60	20-37	65-120
500SVTH	60-75	25-43	80-140
600SVTH	75-100	30-50	98-164

For an expert assessment of your vessels Thruster needs contact us for advice



Vertical Retracting Thruster Dimensions

Model	A		B		C		D		E		F		G		H		Standard Stroke	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
250VRTTH	721	28 3/8	310	12 7/32	353	13 7/8	300	11 13/16	450	17 23/32	400	15 3/4	350	13 3/4	0	0	300	11 13/16
250VRTTE	911	35 7/8	310	12 7/32	353	13 7/8	300	11 13/16	450	17 23/32	400	15 3/4	350	13 3/4	0	0	300	11 13/16
300VRTTH	765	30 1/8	310	12 7/32	407	16	360	14 3/16	500	19 11/16	450	17 23/32	400	15 3/4	0	0	350	13 3/4
400SVTH	548	21 9/16	400	15 3/4	533	21	430	16 15/16	580	22 27/32	520	20 15/32	340	13 3/8	30	1 3/16	500	19 11/16
500SVTH	575	22 5/8	400	15 3/4	645	25 3/8	533	21	700	27 9/16	640	25 3/16	480	18 7/8	45	1 25/32	650	25 19/32
600SVTH	795	31 5/16	480	18 29/32	801	31 9/16	650	25 19/32	850	33 15/32	850	33 15/32	550	21 5/8	50	1 31/32	700	27 9/16

Swing Retracting Hydraulic Thrusters

Swing retracting thrusters are ideal for higher performance sailing yachts, and fast planing or semi-displacement hulls. With the thruster in a raised position it offers a completely fair hull section causing minimum drag. Lewmar has now introduced a completely new and simple design, which is a logical step forward from the current successful range. This new design is in keeping with Lewmar's environmental concerns and has no hydraulic motors or hoses in the water. Unlike many manufacturers, all of this componentry is housed inside the hull, preventing pollution in the event of an oil leak. The swing thruster has a lower height than the vertical retracting models, and so can be mounted further forward in the vessel without additional space intrusion into the forepeak. This means that there will be enhanced thrust performance from a lesser power input, making an extremely efficient unit. The swing thruster is raised and lowered by the use of a hydraulic motor which rotates a lead screw. This provides a positive

lock in the raised and lowered positions. It also provides a manual override in the event of a power loss, or for cleaning and servicing whilst hauled out.

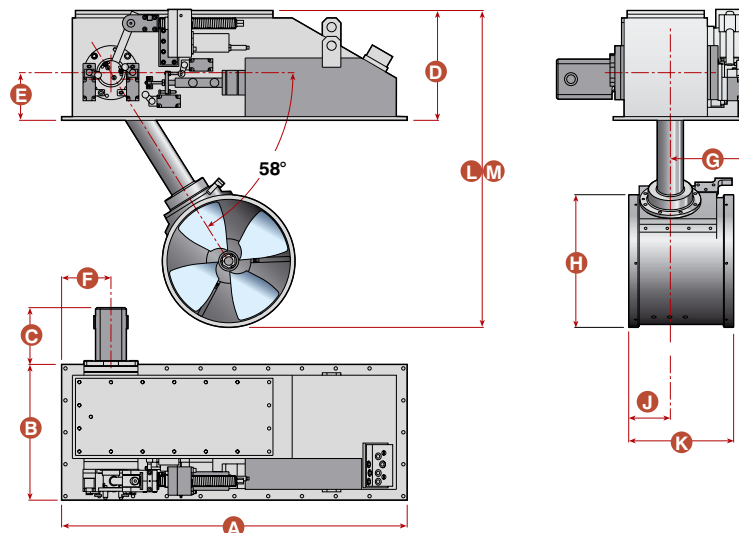
The thrust figures have been tested and verified after comprehensive analysis in a 100M laboratory test tank facility.



Swing Retracting Hydraulic Thruster Selection Guide

Model	Aluminium	hp	Typical vessel size*	Thrust
400 S Swing Retracting Hydraulic Thruster Series	400 SAH	30 hp – 60 hp	20 – 37m (65 – 120 ft)	8-10 kg/kw (18-22 lbs/hp)
500 S Swing Retracting Hydraulic Thruster Series	500 SAH	65 hp – 75 hp	25 – 43m (80 – 140 ft)	Note: Actual thrust developed is dependent upon depth of immersion and hull shape.

* For high windage, heavy displacement Vessels please contact for advice



Swing Retracting Hydraulic Thruster Dimensions

Model	A		B		C		D		E		F		G		H		J		K		L		M	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
400 Swing 40HP	1120	44 1/8	440	17 5/16	184	7 1/4	390	15 3/8	154.5	6 1/8	160	6 3/8	255	10 1/8	430	16 15/16	135	5 3/8	340	13 3/8	603	23 3/4	1027	40 7/16
400 Swing 50HP	1120	44 1/8	440	17 5/16	190	7 15/32	390	15 3/8	154.5	6 3/32	160	6 3/8	255	10 1/8	430	16 15/16	135	5 3/8	340	13 3/8	603	23 3/4	1027	40 7/16
400 Swing 60HP	1120	44 1/8	440	17 5/16	196.5	7 7/8	390	15 3/8	154.5	6 3/32	160	6 3/8	255	10 1/8	430	16 15/16	135	5 3/8	340	13 3/8	603	23 3/4	1027	40 7/16
500 Swing	1255	49 1/2	590	23 3/4	116	4 9/16	438	17 1/4	154.5	6 3/32	160	6 3/8	250	9 27/32	545	21 15/32	285	11 7/32	480	18 29/32	680	26 3/4	1200	47 1/4



Hatches and Portlights

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Lewmar Hatches — Quality you can count on!

Manufactured from the highest quality materials, Lewmar hatches feature a unique integral seal that makes them completely leak-proof. They are rigorously tested for performance and designed for easy, one-piece installation. Friction levers hold your hatch open at any angle between 30° and 90° and allow 180° opening for easy access.

Features

- Soft, fluid styling
- Comprehensive range
- Self supporting lids
- Unique seal system
- Simple maintenance
- Locking handles
- External access on larger hatches
- Hatch vent position
- Trim kits (optional extra) provide a clean finish to any installation



Telescopic Stay

Lewmar's Telescopic Stay features excellent lid positioning and rigid control. The stay allows hatch opening to around 90° — an advantage on smaller to mid size yachts where deck space is a premium.

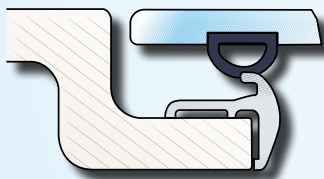


- A** Outside handles allow the hatch to be opened from on deck if it is not locked.
- B** Anodised aluminium frame for corrosion resistance
- C** Curved upper frame for strength as well as modern styling.
- D** Unique seal system
The seal and acrylic are fitted into the frame to produce a stronger, more leak proof hatch.
- E** Friction levers hold the lid open in any position between 30° and 90° and allows 180° opening for easy access. It mechanically attaches the acrylic to the frame.



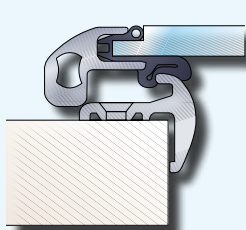
Maintenance

Acrylic or seal can be replaced by sliding the two halves of the frame apart. Look for this icon on relevant pages.



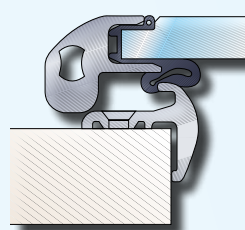
Flush Hatch

Made especially for boat builders preparing recessed hatch openings. The hatch fits seamlessly into a specially designed recess in the deck. The precision of the fit makes for a sleek, modern look and means no more stubbed toes for boat owners.



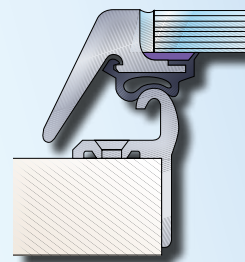
Low Profile Hatch

The Low Profile hatch has soft styling and sleek looks. Smaller ventilation hatches are suitable for mounting on any sailboat deck location whilst larger hatches can be used as foredeck hatches on smaller yachts.



Medium Profile Hatch

Utilising thicker acrylic and deeper frame sections, the Medium Profile hatch provides greater strength and durability whilst echoing the sleek styling of the Low Profile hatches. It is ideal as a foredeck hatch on larger offshore yachts.



Ocean Hatch

The Ocean Hatch has classical styling and rugged construction for ultimate protection against the elements. Lewmar's Ocean hatches are fitted to thousands of boats throughout the world.

Ocean Hatch

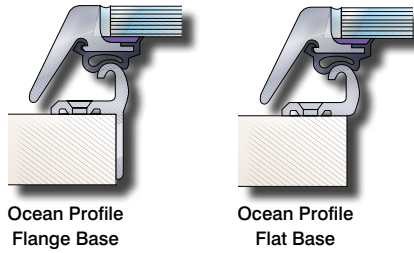
With its classic style, the Ocean Hatch is fitted to thousands of boats around the world. Its rugged construction provides the ultimate protection against the elements, whatever conditions you might face.

CE Approved

Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

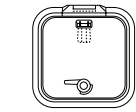
Size	Area 2a
All Sizes	✓

Note: Area 2a = Deck, Coachroof, Cockpit & Transom

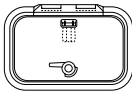


Ocean Profile Flange Base

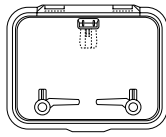
Ocean Profile Flat Base



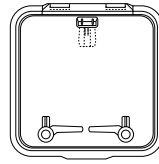
Size 10



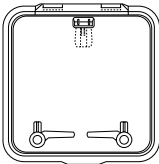
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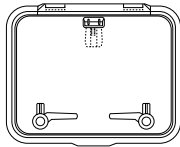
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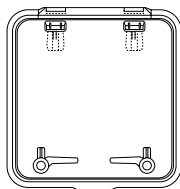
Size 40



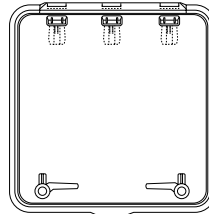
Size 44*



Size 50

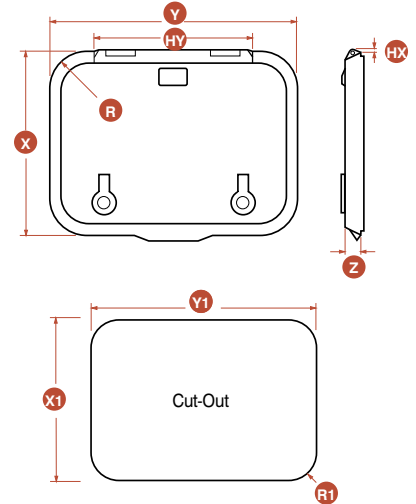


Size 60



Size 70

Ocean Hatch Dimensions



* Minimum size for ISO 9094 escape hatches

Ocean Hatch Specification

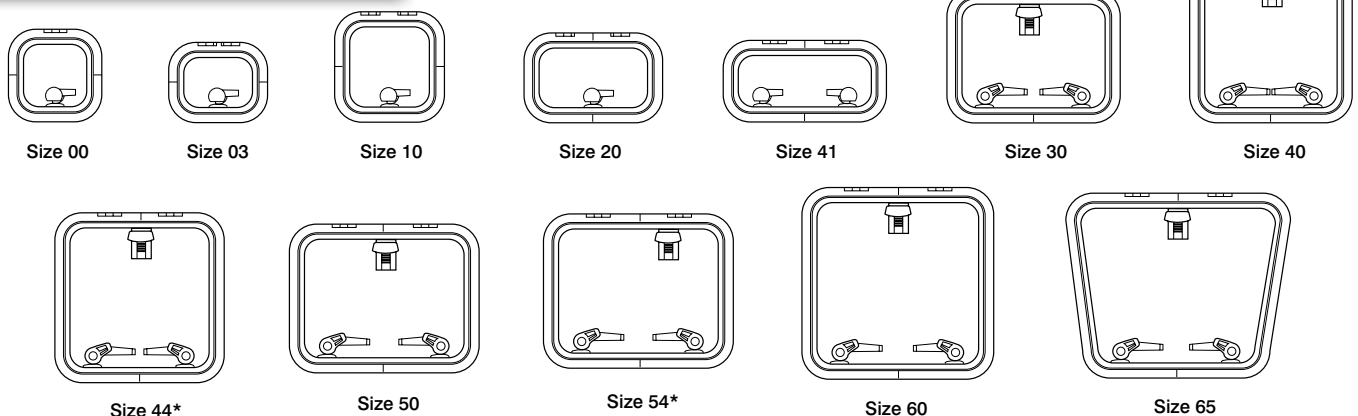
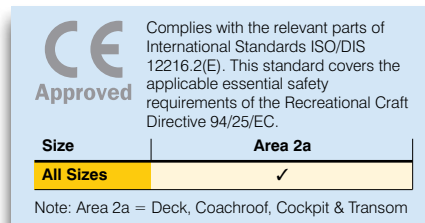
			Overall Size												change if Trimkits are used									Hatch Weight		Acrylic Window Thickness	
Part Number	Size	Lower Frame	X Length		Y Width		Z Height		R Radii		HX Hinge Length		HY Hinge Width		X1 Length		Y1 Width		R1 Radii		kg	lb	mm				
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in							
39610050 39610070	10	Flat Base 25mm/1in Flange	324	12¾	324	12¾	39.5	1½	75	2⅝	5	¾	138	5⅞	255 260	10⅞ 10¼	255 260	10⅞ 10¼	40 42.5	1⅞ 1⅞	2.26	5.77	10	¾			
39620050 39620070	20	Flat Base 25mm/1in Flange	266	10½	411	16¾	39.5	1½	69	2⅞	5	¾	225	8⅞	197 202	7¾ 7⅞	342 347	13⅞ 13⅞	34 36.5	1⅞ 1⅞	2.74	6.04	10	¾			
39630050 39630070	30	Flat Base 25mm/1in Flange	391	15¾	521	20½	39.5	1½	75	2⅝	5	¾	335	13¾	322 327	12⅞ 12⅞	452 457	17⅞ 18	40 42.5	1⅞ 1⅞	4.5	9.9	10	¾			
39640050 39640070	40	Flat Base 25mm/1in Flange	485	19½	485	19½	39.5	1½	75	2⅝	5	¾	299	11¾	416 421	16¾ 16¾	416 421	16¾ 16¾	40 42.5	1⅞ 1⅞	4.76	10.5	10	¾			
39644050 39644070	44	Flat Base 25mm/1in Flange	509	20⅞	509	20⅞	43	1⅞	76	3	4	¾	302	11⅞	437 442	17¾ 17¾	437 442	17¾ 17¾	40 42.5	1⅞ 1⅞	5	11	12	½			
39650050 39650070	50	Flat Base 25mm/1in Flange	444	17½	574	22¾	43	1⅞	76	3	4	¾	367	14⅞	372 377	14¾ 14⅞	502 507	19¾ 19⅞	40 42.5	1⅞ 1⅞	7.3	16.1	12	½			
39660050 39660070	60	Flat Base 25mm/1in Flange	574	22¾	574	22¾	43	1⅞	76	3	4	¾	367	14⅞	502 507	19¾ 19⅞	502 507	19¾ 19⅞	40 42.5	1⅞ 1⅞	8	17.6	12	½			
39670050 39670070	70	Flat Base 25mm/1in Flange	694	27¾	694	27¾	43	1⅞	76	3	4	¾	487	19¾	622 627	24½ 24⅞	622 627	24½ 24⅞	40 42.5	1⅞ 1⅞	10.8	23.8	12	½			

- Hatches should be fitted to a flat surface with a maximum tolerance of $\pm 1\text{mm}$
- Fastening size for lower frame section use 5mm CSK screws No. 10 UNC 2BA

- Fastening size at the hinge section use M6 (1/4")
- Flat base hatches cannot be used with Trim kits or Roller shades

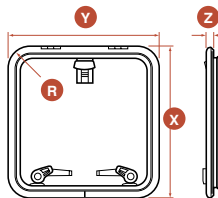
Low Profile Hatch

The sleekly designed Low Profile Hatch is ideal for use on a powerboat. Smaller ventilation hatches are a better fit for sailboats, while the larger sizes can be used as foredeck hatches on smaller to mid size yachts.

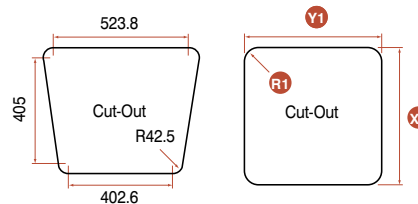


* Minimum size for ISO 9094 escape hatches

Low Profile Hatch Dimensions



Low Profile Hatch Cut-Outs



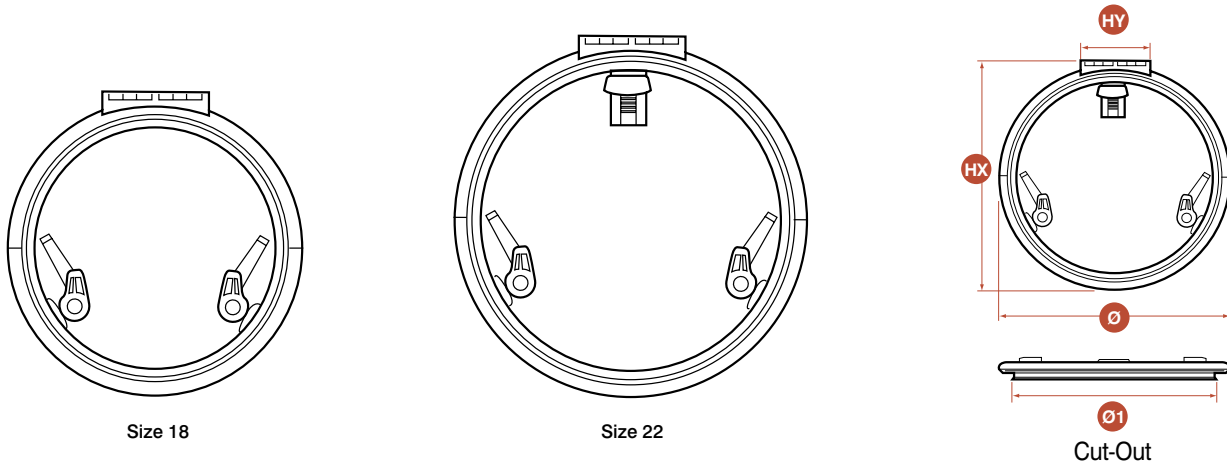
Low Profile Hatch Specifications

Part Number Self Supporting Lid	Part Number Hatch With Telescopic Stay	Size	Lower Frame Flange		Overall Size								Cut-Out Size Dimensions change if Trimkits are used						Hatch Weight		Acrylic Window Thickness	
					X Length		Y Width		Z Height		R Radii		X1 Length		Y1 Width		R1 Radii					
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mm	in
39900030		00	15	9 16	281	11 ¹ 16	281	11 ¹ 16	25	1	72.5	2 ⁷ 8	211	8 ⁵ 16	211	8 ⁵ 16	42.5	1 ¹¹ 16	1.6	3.5	8	5 16
39903030		03	15	9 16	246	9 ¹¹ 16	301	11 ⁷ 8	25	1	72.5	2 ⁷ 8	176	6 ¹⁵ 16	231	9 ¹ 8	42.5	1 ¹¹ 16	1.6	3.5	8	5 16
39910030	399100303	10	15	9 16	330	13	330	13	25	1	72.5	2 ⁷ 8	260	10 ¹ 4	260	10 ¹ 4	42.5	1 ¹¹ 16	2.2	4.9	8	5 16
39920030		20	15	9 16	272	10 ¹¹ 16	417	16 ⁷ 16	25	1	72.5	2 ⁷ 8	202	7 ¹⁵ 16	347	13 ¹¹ 16	42.5	1 ¹¹ 16	2.3	5.1	8	5 16
39930030	399300303	30	15	9 16	397	15 ⁵ 8	527	20 ³ 4	25	1	72.5	2 ⁷ 8	327	12 ⁷ 8	457	18	42.5	1 ¹¹ 16	4.2	9.3	8	5 16
39940030	399400303	40	15	9 16	491	19 ⁵ 16	491	19 ⁵ 16	25	1	72.5	2 ⁷ 8	421	16 ⁹ 16	421	16 ⁹ 16	42.5	1 ¹¹ 16	4.6	10.1	8	5 16
39941030		41	15	9 16	246	9 ¹¹ 16	491	19 ⁵ 16	25	1	72.5	2 ⁷ 8	176	6 ¹⁵ 16	421	16 ⁹ 16	42.5	1 ¹¹ 16	2.5	5.5	8	5 16
39944030	399440303	44	15	9 16	512	20 ³ 16	512	20 ³ 16	25	1	72.5	2 ⁷ 8	442	17 ³ 8	442	17 ³ 8	42.5	1 ¹¹ 16	4.8	10.6	8	5 16
39950030	399500303	50	15	9 16	447	17 ⁵ 8	577	22 ¹¹ 16	25	1	72.5	2 ⁷ 8	377	14 ¹³ 16	507	19 ¹⁵ 16	42.5	1 ¹¹ 16	4.8	10.6	8	5 16
39954030	399540303	54	15	9 16	462	18 ³ 16	577	22 ¹¹ 16	25	1	72.5	2 ⁷ 8	392	15 ⁷ 16	507	19 ¹⁵ 16	42.5	1 ¹¹ 16	4.9	10.8	8	5 16
39960030	399600303	60	15	9 16	577	22 ¹¹ 16	577	22 ¹¹ 16	25	1	72.5	2 ⁷ 8	507	19 ¹⁵ 16	507	19 ¹⁵ 16	42.5	1 ¹¹ 16	6.4	14.1	10	3 8
39965030		65	15	9 16	560	22 ¹¹ 16	560 ^{min} 22 ¹¹ 16 ^{min} 675 ^{max} 26 ⁹ 16 ^{max}	25	1	72.5	2 ⁷ 8	See drawing					42.5	1 ¹¹ 16	6.5	14.3	10	3 8

- Hatches should be fitted to a flat surface with a maximum tolerance of ± 1 mm
- Fastening size for lower frame section use 5mm CSK screws No. 10 UNC 2BA

- Fastening size at the hinge section use M6 (1/4")
- Cut-out dimensions change if a Trimkit is used

Low Profile Round Hatch



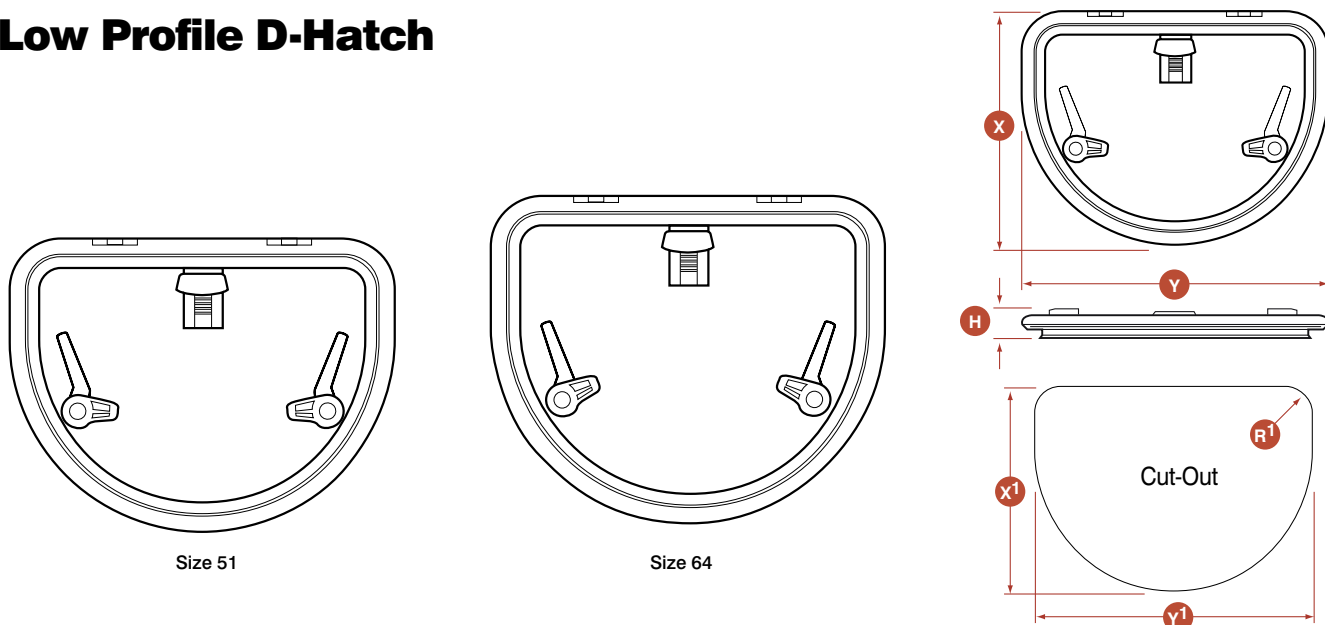
Low Profile Round Hatch Specifications

Part Number	Size	Lower Frame Flange		Overall Size						Cut-Out Size Dimensions change if Trimkits are used			Hatch Weight	
				Ø Length	Z Height	HX Hinge Length	HY Hinge Width	Ø1 Diameter						
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	kg	lb
39918030	18	15	9/16	490	19 15/16	25	1	493	19 7/16	141	5 9/16	420	3.8	8.4
39922030	22	15	9/16	588	23 1/8	25	1	591	23 1/4	173	6 13/16	518	5.8	12.8

1. Hatches should be fitted to a flat surface with a maximum tolerance of ± 1 mm
2. Fastening size for lower frame section use 5mm CSK screws No. 10 UNC 2BA

3. Fastening size at the hinge section use M6 (1/4")
4. Cut-out dimensions change if a Trimkit is used

Low Profile D-Hatch



Low Profile D-Hatch Specifications

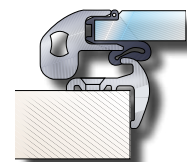
Part Number Self Supporting Lid	Size	Lower Frame Flange		Overall Size								Cut-Out Size Dimensions change if Trimkits are used						Hatch Weight		Acrylic Window Thickness	
				X Length	YWidth		ZHeight		RRadii		X1 Length	Y1Width		R1Radii							
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mm	in		
39951030	51	15	9/16	448	17 5/8	588	23 1/8	25	1	72.5	2 7/8	378	14 7/8	518	20 3/8	42.5	1 11/16	5.5	12.1	8	5/16
39967300	64	15	9/16	500	19 11/16	600	23 5/8	25	1	72.5	2 7/8	430	16 15/16	530	20 7/8	42.5	1 11/16	6.4	14.1	8	5/16

1. Hatches should be fitted to a flat surface with a maximum tolerance of ± 1 mm
2. Fastening size for lower frame section use 5mm CSK screws No. 10 UNC 2BA

3. Fastening size at the hinge section use M6 (1/4")
4. Cut-out dimensions change if a Trimkit is used

Medium Profile Hatch

Ideal as foredeck hatch on larger offshore yachts, the Medium Profile has thicker acrylic and deeper frame sections for greater strength and durability. It features Lewmar's unique sealing system, allowing for easy acrylic replacement. All while retaining the smooth, modern lines of the Low Profile Hatch.



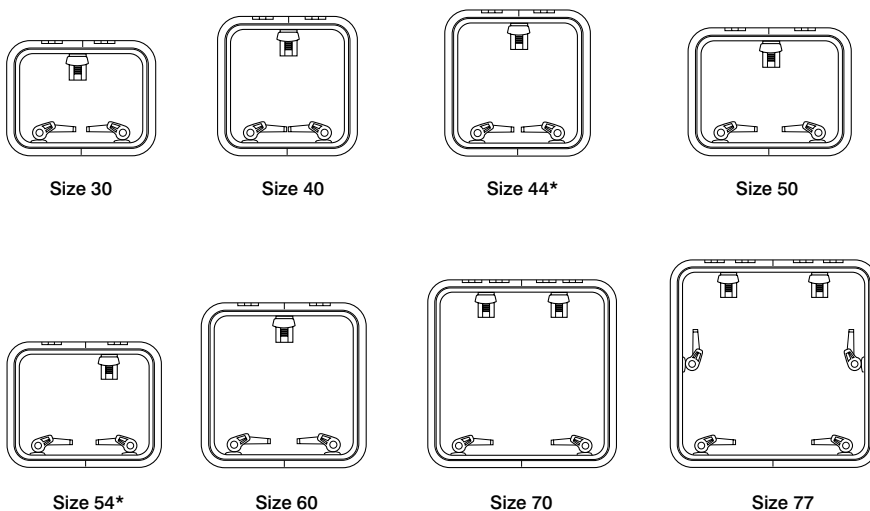
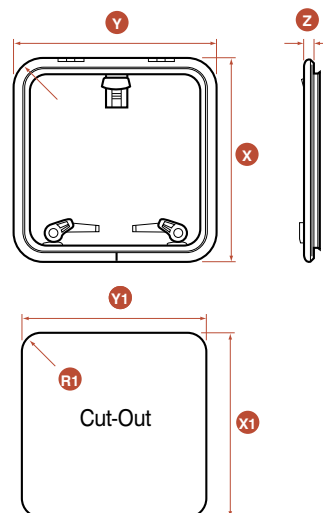
Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

Size	Area 2a
All Sizes	✓

Note: Area 2a = Deck, Coachroof, Cockpit & Transom



Medium Profile Hatch Dimensions



* Minimum size for ISO 9094 escape hatches

Medium Profile Hatch Specification

												Cut-Out Size Dimensions change if Trimkits are used						Hatch Weight		Acrylic Window Thickness		
Part Number Size		Lower Frame Flange		Overall Size								X1 Length		Y1 Width		R1 Radii						
		X Length		Y Width		Z Height		R Radii								kg	lb	mm	in			
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in					
39930020		30	15	5/16	397	15 5/8	527	20 3/4	32	1 1/4	78	3 1/16	327	12 7/8	457	18	42.5	1 11/16	5.0	11.1	12	1/2
39940020		40	15	5/16	492	19 3/8	492	19 3/8	32	1 1/4	78	3 1/16	421	16 9/16	421	16 9/16	42.5	1 11/16	5.9	13.0	12	1/2
39944020		44	15	5/16	513	20 3/16	513	20 3/16	32	1 1/4	78	3 1/16	442	17 3/8	442	17 3/8	42.5	1 11/16	6.4	14.1	12	1/2
39950020		50	15	5/16	448	17 7/8	578	22 3/4	32	1 1/4	78	3 1/16	377	14 13/16	507	19 15/16	42.5	1 11/16	6.3	13.9	12	1/2
39954020		54	15	5/16	463	18 1/4	578	22 3/4	32	1 1/4	78	3 1/16	392	15 7/16	507	19 15/16	42.5	1 11/16	6.5	14.3	12	1/2
39960020		60	15	5/16	578	22 3/4	578	22 3/4	32	1 1/4	78	3 1/16	507	19 15/16	507	19 15/16	42.5	1 11/16	7.8	17.2	12	1/2
39970020		70	15	5/16	698	27 1/2	698	27 1/2	32	1 1/4	78	3 1/16	627	24 11/16	627	24 11/16	42.5	1 11/16	10.6	23.4	12	1/2
39977020		77	15	5/16	770	30 5/16	770	30 5/16	32	1 1/4	78	3 1/16	699	27 1/2	699	27 1/2	42.5	1 11/16	12.7	28.0	12	1/2

- Hatches should be fitted to a flat surface with a maximum tolerance of ± 1 mm
- Fastening size for lower frame section use 5mm CSK screws No. 10 UNC 2BA

- Fastening size at the hinge section use M6 (1/4") bolts
- Cut-out dimensions change if a Trimkit is used

Pilot Hatch

The Pilot Hatch is a sliding hatch styled to match the Low and Medium Profile Hatches. It is designed for use on the Wheelhouse or Cockpit canopy of a power craft.

The hatch opens up enclosed steering positions, allowing the helm and crew to experience the sunshine and fresh air on fine days. Unlike a hatch with a hinged lid, the handle on the Pilot Hatch never moves out of reach or requires lifting from a difficult angle when the hatch is fully open.

The lid is moved using a single handlebar that also rotates to seal down the hatch. When full ventilation is not required, the lid can also be secured with a 5cm opening. The pilot hatch uses Lewmar's unique seal system for improved sealing and easy servicing. The acrylic can be replaced without the use of sealant. The sliding technology comes from Lewmar's racing hardware track systems, ensuring minimum friction.

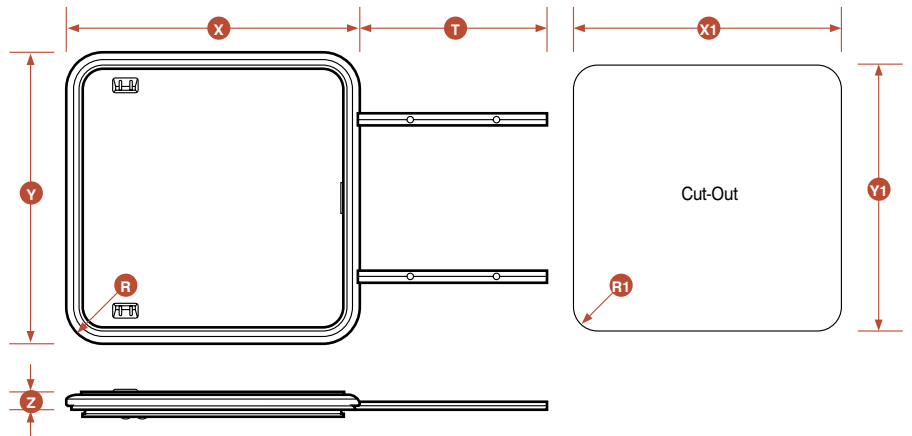


Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

Size	Area 3
All Sizes	✓

Note: Area 3 = Parts of the boat, other than the hull or parts of the deck, superstructure or cockpit sole etc., on which people may not normally step or stand. In this case, the top of the motorboat Wheelhouses and Cockpit canopies is the designed use. For other applications, please contact Lewmar before starting the installation. For a full description of Area 3, please consult the regulations.

Pilot Hatch Dimensions



Pilot Hatch Specification

Overall Size										Cut-Out Size Dimensions change if Trimkits are used												
Part Number	Size	Version	Lower Frame Flange		X Width		Y Length		Z Height		R Radii		T Track Length		X1 Width		Y1 Length		R1 Radii		Acrylic Window Thickness	
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
30074000	60	Smoke Grey	15	9/16	581	22 7/8	577	22 11/16	29	1 1/8	73	2 7/8	373	14 3/4	507	19 15/16	507	19 15/16	42.5	1 11/16	10	3/8
30069900	78	Smoke Grey	15	9/16	844	33 1/4	790	31 1/8	29	1 1/8	73	2 7/8	638	25 1/8	770	30 3/16	720	28 1/4	42.5	1 11/16	10	3/8

- Trim Kits are not available for size 78, normal Trim Kit fits size 60
- Hatches should be fitted to a flat surface with a maximum tolerance of ± 1 mm
- The Pilot Hatch is only for use on wheel houses and cockpit canopies. It is not suitable for use on normal decks and coachroof applications

- Fastening size for lower frame and sliding track use 5mm CSK screws No. 10 UNC 2BA
- The pilot hatch cannot be operated from the outside

Flush Hatch

Created specifically for new boat designs, the Flush Hatch is a simple yet original design. It is made specifically for boat builders preparing recessed hatch openings that would originally have housed either a conventional hatch or an extremely expensive custom flush hatch. The hatch fits seamlessly into a specifically designed recess in the deck and cannot retrofit existing decks. The precision of the fit makes for a sleek, modern look and means no more stubbed toes for boat owners.

The Flush Hatch is now part of Lewmar's standard range and is a fraction of the cost of flush hatches typically placed on superyachts and other prestigious builds.

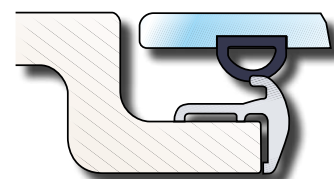
Dark Sport Tint Style

For the sleek 'Blackout' window look, made popular by discerning owners of sports cars and superyachts, Lewmar now offers a dark grey acrylic option on its Flush Hatch range. Dark grey keeps cabins cooler and enhances the appearance of the boat. It has lower light transmission and a blacker more reflective appearance.



Features

- Based on proven Ocean and Low Profile Hatches, which have been thoroughly tested in countless ocean conditions
 - Tough, tinted acrylic panel is all that can be seen on deck
 - Strengthened, extruded aluminium frame hidden discreetly below deck
 - Completely watertight structure
 - Water drained effortlessly away by deck-molded channels
 - Strong, stylish handles and hinges
- Trim fit sizes 10, 44, 60 & 70

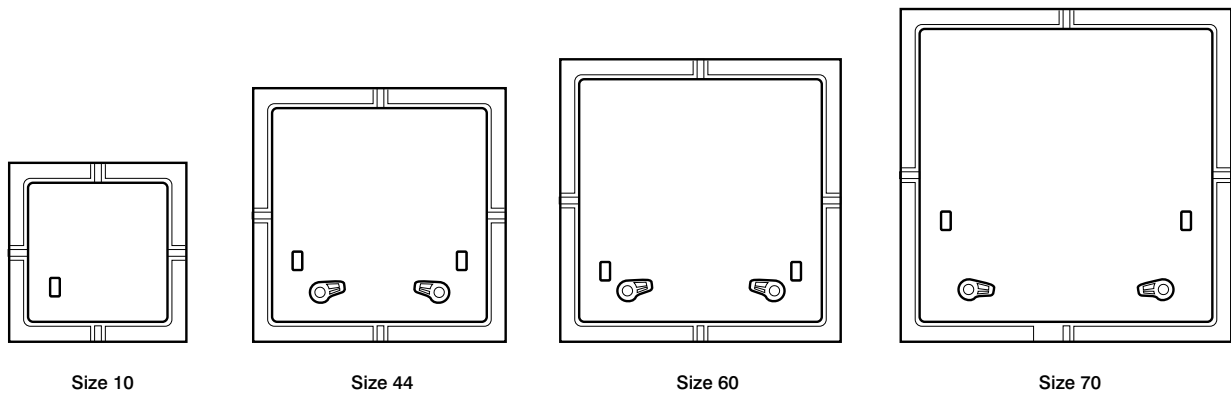


CE
Approved

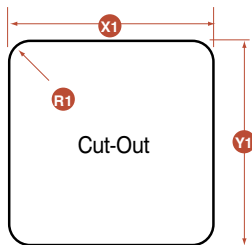
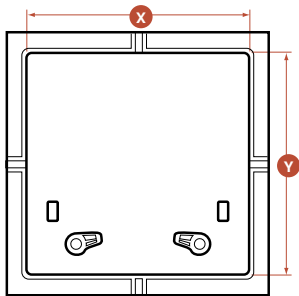
Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

Size	Area 2a
All Sizes	✓

Note: Area 2a = Deck, Coachroof, Cockpit & Transom



Flush Hatch Dimensions



Flush Hatch Specification

Standard Colour Part Number	Dark Sport Tint Part Number	Size	Lower Frame Flange		W Hinge Gap	Overall Size								Cut-Out Size Dimensions									Acrylic Window Thickness	
						X Width		Y Length		Z Depth		R Radii		X1 Width			Y1 Length			R1 Radii				
			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
39910012	39910812	10	15	5/16	10	3/8	330	13	330	13	31	1 1/4	10	3/8	260	10 1/4	260	10 1/4	42.5	1 11/16	12	1/2		
39944012	39944812	44	15	5/16	10	3/8	512	20 3/16	512	20 3/16	31	1 1/4	10	3/8	442	17 3/8	442	17 3/8	42.5	1 11/16	12	1/2		
39960012	39960812	60	15	5/16	10	3/8	577	22 11/16	577	22 11/16	31	1 1/4	10	3/8	507	19 15/16	507	19 15/16	42.5	1 11/16	15	9/16		
39970012	39970812	70	15	5/16	12	1/2	697	27 1/2	697	27 1/2	31	1 1/4	10	3/8	627	24 11/16	627	24 11/16	42.5	1 11/16	15	9/16		

1. Standard Colour, grey acrylic, white lower frame
2. Dark Sport Tint, Dark grey acrylic, white lower frame

Accessories

ABS Plastic Trim and Flyscreen

Trimkits provide an easy and stylish way of finishing a hatch installation inside the cabin. The Trimkits come complete with a flyscreen to prevent mosquitoes entering the boat.



Hatch Trim Kits

Hatch Size	Plastic Trimkit	
	Ivory Trim	White Trim
00 Low Profile*	367400552	367400252
03	367403552	367403252
10	367410552	367410252
18 Round	367618552	367618252
20 Low Profile*	367420552	367420252
20 Ocean	367620552	367620252
22 Round	367622552	367622252
30	367630552	367630252
40	367640552	367640252
41	367441552	367441252
44	367644552	367644252
50	367650552	367650252
51	n/a	367651252
54	367654552	367654252
60	367660552	367660252
64	n/a	367664252
65	367665552	367665252
70	367670552	367670252

*Note: Does not fit Ocean, Rollstop or Superhatch

Cut Out Dimensions & Deck Thickness Requirements

Plastic Trimkit	
Cut Out Dimension Increase*	Add 4mm to X1 & Y1 and 2mm to R1
Ocean	Min Hull Thickness = 25mm Max Hull Thickness = 72mm
Low & Medium Profile	Min Hull Thickness = 15mm Max Hull Thickness = 62mm

*Cut Out dimensions for hatches are shown on their relevant pages

Notes:

Can only be fitted to boats with a headlining.
Cannot be used on flat base Ocean hatches.

Flyscreen Hinge

The flyscreen hinge makes it easier to quickly access the hatch handles when the flyscreen is in place. It is only necessary to undo two tabs and the flyscreen will hinge down — and not fall out. The flyscreen can be removed and stowed separately if required. Hinges are also available as retro fit items.



Flyscreen Hinge Kit

Description	Plastic Trimkit	
	Ivory Trim	White Trim
Retro Fit Kit	361196995	361196992

Retro Fit Vent

The vent can be fitted to the acrylic lens of any Lewmar hatch or to the deck.



Features

- Fits to hatch or deck
- Made from the same rugged composite used in many Lewmar hatch and winch parts
- Styled to match the Low & Medium Profile hatches
- Captive bung to close the ventilator — it cannot be lost
- Fits deck thickness to 100mm
- CE approved and leak tested
- No sealant required for hatch fitting

Part No.	Description
361041990	Vent Retro Fit Pack

Telescopic Stay

Lewmar's Telescopic Stay features excellent lid positioning and rigid control. The stay allows hatch opening up to 95° — An advantage on smaller to mid size yachts where deck space is at a premium. See range specification tables for sizes.

Part No.	Description
360918999	Retro Fit Power Boat Stay

Retro Fit Lock & Key Kit

The retro fit lock and key kit can be fitted to any Lewmar Hatch by drilling a hole through the acrylic and riveting a catch block to the lower frame. The lock and key are marinised to prevent corrosion.

Part No.	Description
360259990	Lock and Key Kit

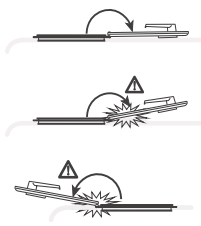


Hatch Fitting Guide

Mark the Cut Out

- Before marking up the hatch cut out area ensure it is being fitted to a flat surface (+/- 1mm).

- Ensure that the lid will be properly supported when fully open



- Mark the cut out dimensions of the hatch onto the deck (Figure 1). Remember, if a trim is being fitted it will be necessary to increase the cut out by the amount stated. To mark up the hatch's corners follow the "How to radius a corner" instructions opposite.
- Offer the hatch up to the marked out dimensions to check accuracy.

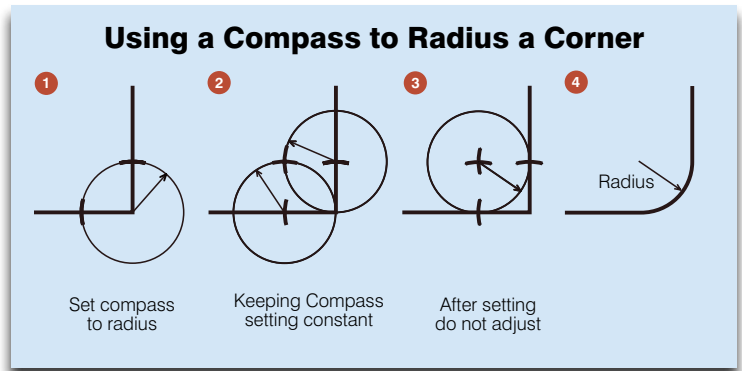


Figure 1

Cut & Drill

- Take care to avoid any power cables, gas pipes or other services. Please ensure that you use the appropriate safety equipment such as electrical power breakers and safety glasses.
- Drill a hole for the jigsaw blade on the waste side of the cut line. Use a jigsaw to cut the aperture through the boat. It may be necessary to cut or remove the headlining (Figure 2).
- Alternatively, a hole cutter that matches the corner radii may be used to cut the corners (Figure 3).
- Test fit the hatch before applying sealant. While the hatch is in place mark the lower frame fixing holes (Figure 4). Check that the hatch will open and close as required.
- With the hatch removed from the deck drill all fastening holes (Figure 5). The hinges should be through bolted while self-tapping screws can be used for fitting the remainder of the frame.



Figure 2



Figure 3



Figure 4



Figure 5

Bed Down & Seal

- When you are entirely happy with the installation of the hatch. Apply a generous bead of bedding compound all the way around the frame where it is in contact with the deck.
- Apply sealant to both sides of the fastening holes on the hatch frame (Figure 6). If replacing an existing hatch, fill any old fixing holes with sealant.
- Refit the hatch to the deck (Figure 7). Around the hatch frame a small amount of bedding compound should be forced out of the gap between the frame and deck. Fasten the lower frame to the deck.
- The hatch should be through bolted in the hinge areas, while self-tapping screws can be used for fitting the remainder of the lower frame to the deck sheet (Figure 8). Clean up excess bedding compound.
- Hatch installation finished (Figure 9).



Figure 6



Figure 7



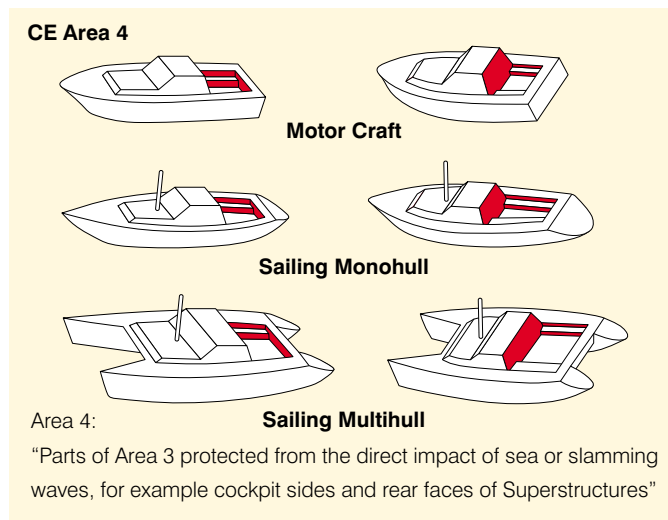
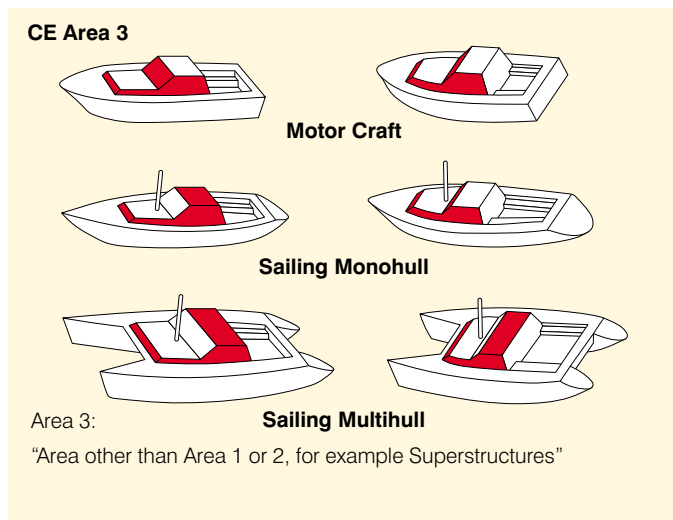
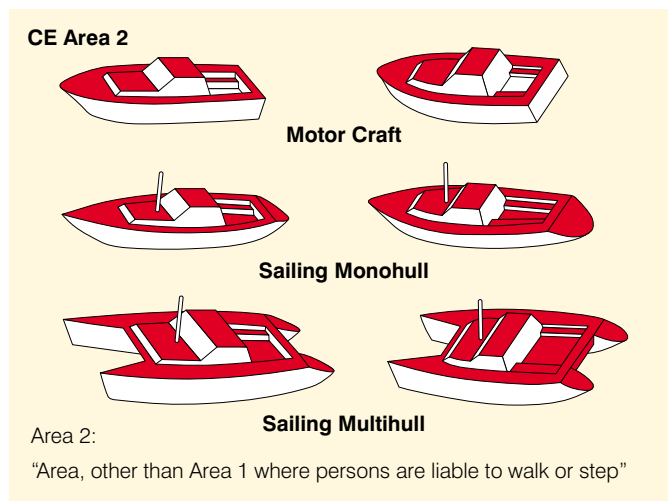
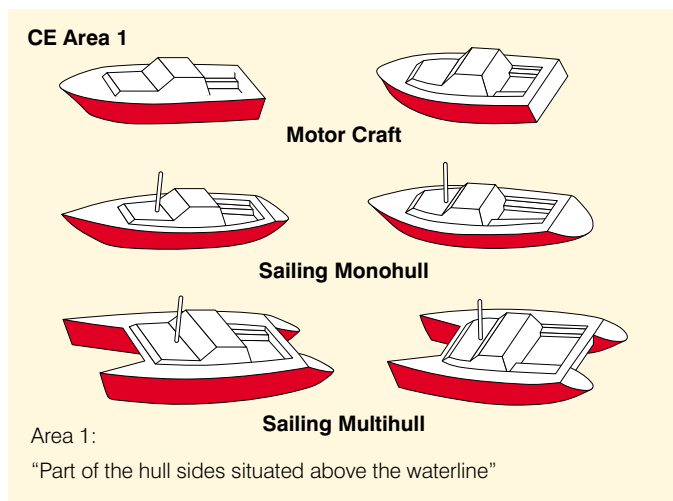
Figure 8



Figure 9

CE regulations

CE Areas



These drawings are notes for guidance only, when specifying a boat please consult the full regulations.

CE Approval

The CE Regulations apply to craft up to 24m in length that are sold in the European Union. Although the regulations may not apply to your boat, they are a useful guide for small craft throughout the world.

Lewmar warranties are invalid if the product is installed in an area where it was not intended, and if the installation fails to meet the requirements of the CE regulations.

The Regulations have Design Categories for boats based on their intended usage and propulsion (sail or power). All Lewmar hatches and portlights are for Design Category A (Ocean Sailing) or Design Category B (Offshore Sailing). Boats built to the CE Regulations are fitted with a plate showing the Design Category.

The Regulations divide up the hull and deck into four specific "Areas." These are shown above.

For craft with a freeboard greater than 1/12 of its overall length the hull is split into Areas 1 and 2b. Please refer to the recreational craft directive 94/25/EC.

A product that is suitable for fitting to an area for which it is approved is suitable for all the areas below its category. For example, a

portlight that is approved for Area 2a may also be fitted to Areas 3 and 4, but not Area 1 or 2b.

All the hatches and portlights in this publication are CE Approved for the areas indicated on the product pages.

Hatches

Description	Sizes	Category	Area
Low Profile	All	A	2a
Medium Profile	All	A	2a
Ocean Hatch	All	A	2a
Flush Hatch	All	A	2a
Pilot Hatch	All	A	2a

Portlights

Description	Sizes	Category	Area
Standard	All	A	2a
Atlantic	10, 30, 32	A	1
Atlantic	40, 60	A	2a
Stainless	0,1,1RE,7RE,8	A	2a
Stainless	0,1,1RE,7RE,8	B	1
Stainless	Round	A	1
Flush Mitre	All	A	2a

Lewmar Portlights — Attractive and durable!

Available in a range of sizes, Lewmar Portlights provide solutions for coastal and ocean power and sailboats in CE Areas 1 & 2. They can open at many angles, feature interior trim mouldings and come in a range of frame colour options so you can find the perfect match for your boat.

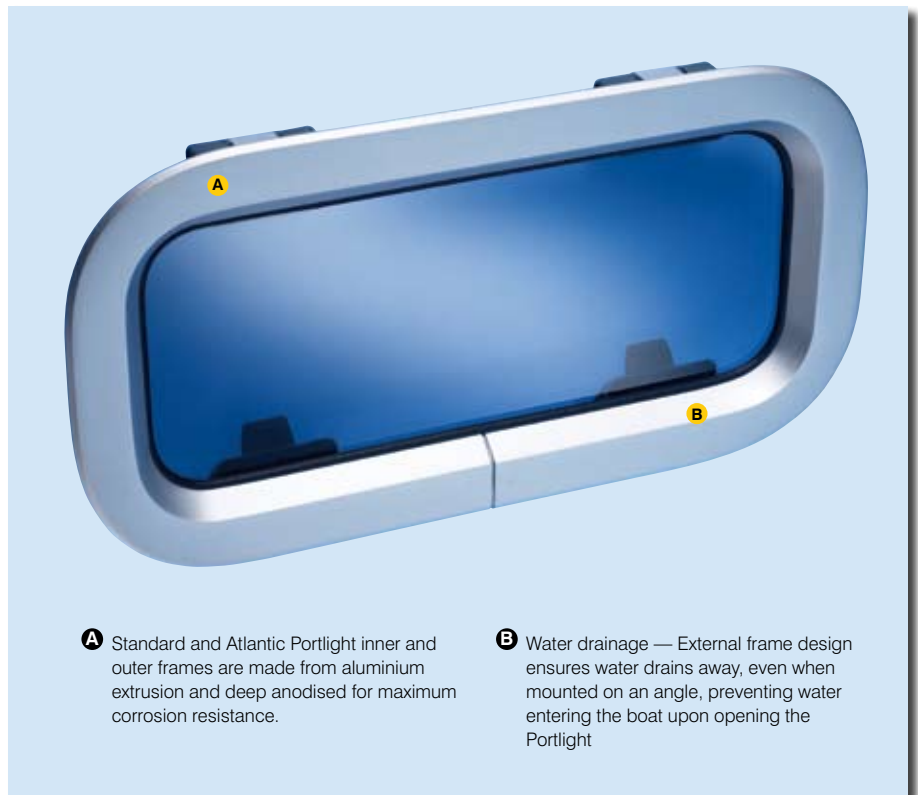
Features

- **Quick action handles**

Portlight handles apply the correct pressure evenly onto the seal in the closed position. Portlight handles are unable to vibrate open when in the closed position

- **Friction Hinges**

Lewmar's hinges provide a choice of open positions with no knobs, stays or straps. Hinges and other moving parts are corrosion-free.



Mitre portlight installed on the Azimut 38

Portlights — Selection Guide

Standard Portlight

- The Standard Portlight is fitted to thousands of boats throughout the world
- Aluminium outside frame
- Handles and hinges are fitted to the edge of the lens to allow clear visibility
- Quick-action handles
- ABS plastic inside trim can be cut to length
- Friction hinges hold the window open



Atlantic Portlight

- Stronger aluminium outer frame with single welded joint
- Lens bonded into alloy frame for additional stiffness
- Metal handles
- Aluminium inside trim
- Small opening sizes (10,30 & 32) CE Approved for in-hull installation
- Friction hinges hold the window open

Stainless Portlight

- Polished stainless outer frame with no joint
- Handles and hinges are fitted to the edge of the lens to allow clear visibility
- Quick-action handles
- ABS plastic inside trim can be cut to length
- Friction hinges hold the window open



NEW — Flush Miter Portlight

- Development of Lewmar Standard Portlight
- Number of textures, angles and levels is minimised in order to minimise the visual impact of the portlight on the boat
- Acrylic almost flush with the mounting surface
- 12mm acrylic is used in order to achieve the flush effect
- Flat Outer frame
- Outer frame powder coated black to camouflage with the acrylic lens

Atlantic Portlight

The Atlantic Portlight has clean lines and a clear, acrylic window housed in an attractive aluminium frame

Features

- Extensive range
- Flyscreens provided as standard
- Friction hinges
- Quick-action handles



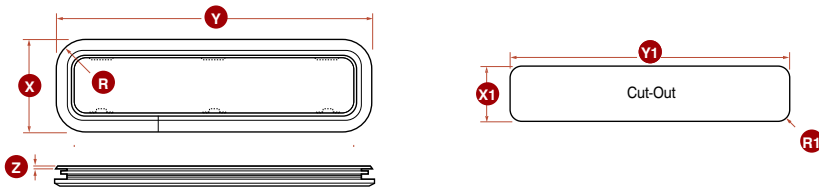
Atlantic Portlight Specification

Part number			Version	Overall Size							Cut-Out Size						Hatch Weight		Acrylic Window Thickness		
with Thin Valance	with Thick Valance	Size		X Length		Y Width		Z Height	R Radii	X1 Length		Y1 Width		R1 Radii							
				mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mm	in
39110090	39110070	10	Opening	174	6 1⁄16	304	12	6	¼	71	2 13⁄16	154	6 1⁄16	284	11 3⁄16	61	2 3⁄8	1.6	3.5	8	5⁄16
39130090	39130070	30	Opening	200	7 7⁄8	400	15 ¾	6	¼	71	2 13⁄16	180	7 1⁄16	380	14 15⁄16	61	2 3⁄8	2.2	4.8	8	5⁄16
39132090	39132070	32	Opening	200	7 7⁄8	400	15 ¾	6	¼	100	3 15⁄16	180	7 1⁄16	380	14 15⁄16	90	3 9⁄16	2.1	4.6	8	5⁄16
39140090	39140070	40	Opening	200	7 7⁄8	480	18 7⁄8	6	¼	71	2 13⁄16	180	7 1⁄16	460	18 1⁄8	61	2 3⁄8	2.5	5.5	8	5⁄16
39160090	39160070	60	Opening	200	7 7⁄8	600	23 5⁄8	6	¼	71	2 13⁄16	180	7 1⁄16	580	22 13⁄16	61	2 3⁄8	3.0	6.6	8	5⁄16

1. Smoke grey acrylic and silver anodise frames.
2. Portlights and fixed lights should be fitted to a flat surface with a maximum tolerance of ± 1 mm
3. Portlights and fixed lights come complete with fastenings as indicated on above table

4. Portlight opening is restricted on very thick hulls.
5. At 24mm hull thickness opening angle is 115°

Portlight Dimensions

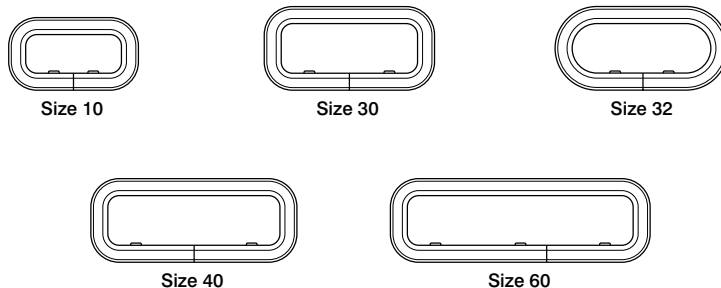


Portlight Valance & Fastening Required

Hull Thickness mm	Valance Type	Fastening
8-10	Thin Hull Valance	360360999* M5 x 12mm Long
11-15		360361999 M5 x 16mm Long
16-19	Thick Hull Valance	360362999 M5 x 20mm Long
20-24		360363999† M5 x 25mm Long

* Supplied as standard with thin hull valances
† Supplied as standard with thick hull valances
Fastenings supplied in bags of 100.

Atlantic Portlight Sizes



Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

Size	Area 1	Area 2a
Opening 10 to 32	✓	✓
Opening 40 to 64		✓

Note: Area 1 = Hull above Waterline
Area 2a = Deck, Coachroof, Cockpit & Transom

Stainless Portlights

With its highly polished stainless outer frame, the Stainless Portlight will really shine on your boat. The handles and hinge system were designed to leave the lens clear of obstructions, giving it an uncluttered view and a clean, modern look.

Features

- ABS Plastic Trim
- Can be installed with sealant or closed cell PVC tape
- Easily fitted by clamping the cabin sides between inner and outer frame with screws provided that are fastened into the outer frame
- Trim with clean styling



Stainless Portlight Specifications

Part Number	Size	Trim Colour	Version	Overall Size								Cut-Out Size						Weight		Acrylic Window Thickness	
				X Length	Y Width	Z Height	R Radii	X1 Length	Y1 Width	R1 Radii											
				mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mm	in
393020262 393010262	0	White White	Opening Fixed	176	6 15⁄16	323	12 11⁄16	4	3⁄16	62	2 7⁄16	156	6 1⁄8	303	12	52	2 1⁄16	1.5	3.3	8	5⁄10
393120262 393110262	1	White White	Opening Fixed	191	7 1⁄2	367	14 7⁄16	4	3⁄16	62	2 7⁄16	171	6 3⁄4	347	13 5⁄8	52	2 1⁄16	1.7	3.8	8	5⁄10
393180262 393170262	1RE	White White	Opening Fixed	191	7 1⁄2	367	14 7⁄16	4	3⁄16	95.5	3 1⁄2	171	6 3⁄4	347	13 5⁄8	85.5	3 5⁄16	1.7	3.74	10	3⁄8
393780262 393770262	7RE	White White	Opening Fixed	191	7 1⁄2	425	16 3⁄4	4	3⁄16	95.5	3 1⁄2	171	6 3⁄4	405	15 1⁄16	85.5	3 5⁄16	1.9	4.18	10	3⁄8
393820862 393810862	8	Chrome Chrome	Opening Fixed	196	7 11⁄16	452	17 13⁄16	4	3⁄16	n/a	n/a	See drawing on website						1.9	4.18	10	3⁄8

1. Maximum hull thickness 30mm
2. Minimum hull thickness 9mm
3. All portlights are supplied with M5 x 20 screws for hull thickness 12-17mm

4. Portlights should be fitted to a flat surface +/-1mm
5. Complete with Flyscreen

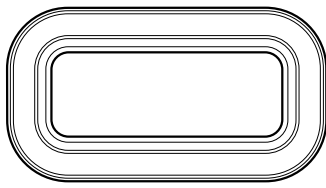
Round Stainless Portlight Specifications

Part Number	Colour	Overall Version	Overall Diameter Ø	Cutout Diameter Ø	Weight		Thickness	
			mm	in	kg	lb	mm	in
30133000	Chrome	Opening	250	9 7/8	1.4	3	8	5/16
30169700	Chrome	Opening	296	11 5/8	2.0	4	10	3/8

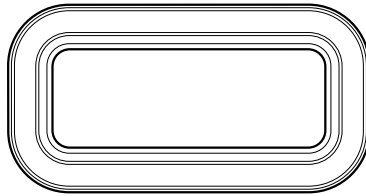
1. Maximum hull thickness 24mm
2. Minimum hull thickness 8mm
3. All portlights are supplied with M5 x 12 fastenings

4. Portlights should be fitted to a flat surface +/-1mm
5. No Flyscreen is available for the Round Stainless Portlight

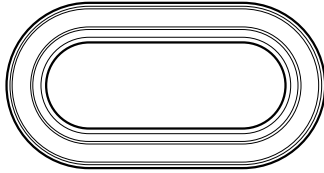




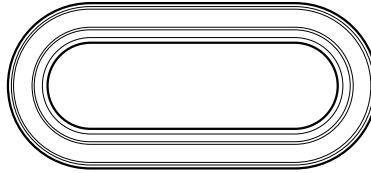
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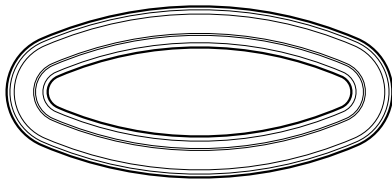
Size 1



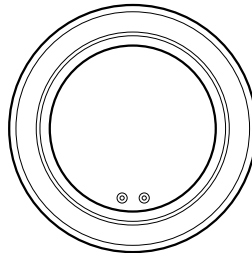
Size 1RE



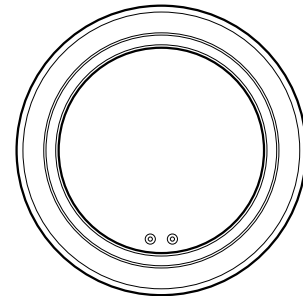
Size 7RE



Size 8



Round 250mm



Round 296mm

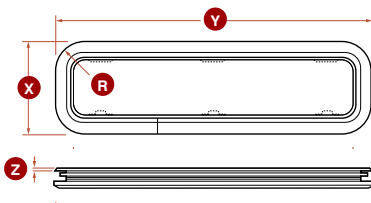


Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

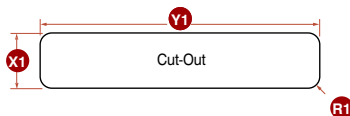
Sizes	Category A Area 1 Sail Boat	Category A Area 2a Sail Boat	Category B Area 1 Power Boat
Size 0, 1, 1RE 7RE & 8		✓	✓
Round	✓	✓	✓

Note: Area 1 = Hull above Waterline
Area 2a = Deck, Coachroof, Cockpit & Transom
Category A = 'Ocean'
Category B = 'Offshore'

Portlight Dimensions



Portlight Cut-Out



© 2009 Bavaria Yachtbau GmbH

Standard Portlight

A perfect match for any hatch in the Lewmar range, the Standard Portlight is stylish, competitively priced and easy to both use and install.

Features

- ABS Plastic Trim
- Can be installed with sealant or closed cell PVC tape
- Cut out shape available from www.lewmar.com
- Easily fitted by clamping the cabin sides between inner and outer frame with screws provided that are fastened into the outer frame
- Trim with clean styling
- Complete with flyscreen (except sizes 4L and 4R)



Standard Portlight Specifications

Part Number	Size	Trim Colour	Version	Overall Size								Cut-Out Size						Weight		Acrylic Window Thickness	
				X Length mm in	Y Width mm in	Z Height mm in	R Radii mm in	X1 Length mm in	Y1 Width mm in	R1 Radii mm in											
393020200 393020500	0	White Ivory	Opening Opening	176	6 15⁄16	323	12 11⁄16	4	3⁄16	62	2 7⁄16	156	6 1⁄8	303	11 15⁄16	52	2 1⁄16	1.1	2.42	6	1⁄4
393120200 393120500	1	White Ivory	Opening Opening	191	7 1⁄2	367	14 7⁄16	4	3⁄16	62	2 7⁄16	171	6 3⁄4	347	13 3⁄8	52	2 1⁄16	1.3	2.86	6	1⁄4
393180200 393180500	1RE	White Ivory	Opening Opening	191	7 1⁄2	367	14 7⁄16	4	3⁄16	95.5	3 3⁄4	171	6 3⁄4	347	13 3⁄8	85.5	3 3⁄8	1.3	2.86	8	5⁄16
393220200 393220500	2	White Ivory	Opening Opening	176	6 15⁄16	425	16 3⁄4	4	3⁄16	62	2 7⁄16	156	6 1⁄8	405	15 15⁄16	52	2 1⁄16	1.4	3.08	8	5⁄16
393320200 393320500	3	White Ivory	Opening Opening	191	7 1⁄2	449	17 11⁄16	4	3⁄16	62	2 7⁄16	171	6 3⁄4	429	16 7⁄8	52	2 1⁄16	1.7	3.74	10	3⁄8
393420200 393420500	4	White Ivory	Opening Opening	191	7 1⁄2	646	25 7⁄16	4	3⁄16	62	2 7⁄16	171	6 3⁄4	627	24 11⁄16	52	2 1⁄16	2.4	5.28	8	5⁄16
393440200 393440500	4R	White Ivory	Opening Opening	195	7 11⁄16	708	27 7⁄8	4	3⁄16	62	2 7⁄16	175	6 7⁄8	688	27 1⁄16	52	2 1⁄16	2.4	5.28	8	5⁄16
393460200 393460500	4L	White Ivory	Opening Opening	195	7 11⁄16	708	27 7⁄8	4	3⁄16	62	2 7⁄16	175	6 7⁄8	688	27 1⁄16	52	2 1⁄16	2.4	5.28	8	5⁄16
393520200 393520500	5	White Ivory	Opening Opening	264	10 3⁄8	449	17 11⁄16	4	3⁄16	62	2 7⁄16	244	9 5⁄8	429	16 7⁄8	52	2 1⁄16	2.3	5.15	10	3⁄8
393780200 393780500	7RE	White Ivory	Opening Opening	191	7 11⁄16	425	16 3⁄4	4	3⁄16	95.5	3 12⁄16	171	6 3⁄4	405	15 15⁄16	85.5	3 3⁄8	2.4	528	8	5⁄16

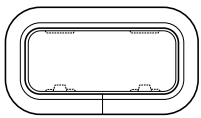
1. Maximum hull thickness 34mm

2. Minimum hull thickness 7mm

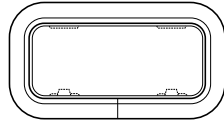
3. All portlights are supplied with 12 off M5 x 25 screws for hull thickness 17-25mm

4. Portlights should be fitted to a flat surface +/-1mm

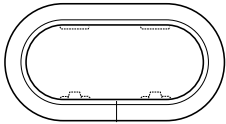
5. Acrylic colour is Smoke Grey



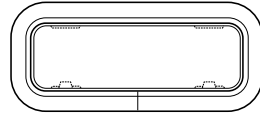
Size 0



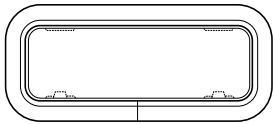
Size 1



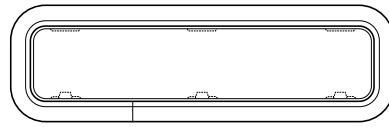
Size 1RE



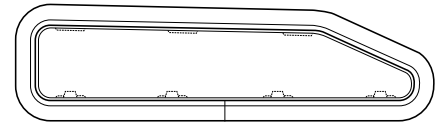
Size 2



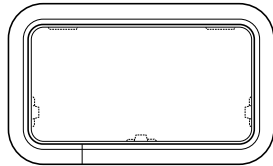
Size 3



Size 4



Size 4R



Size 5



Size 7RE

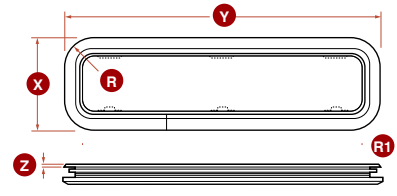


Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 94/25/EC.

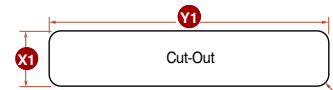
Size	Area 2a
All Sizes	✓

Note: Area 2a = Deck

Portlight Dimensions



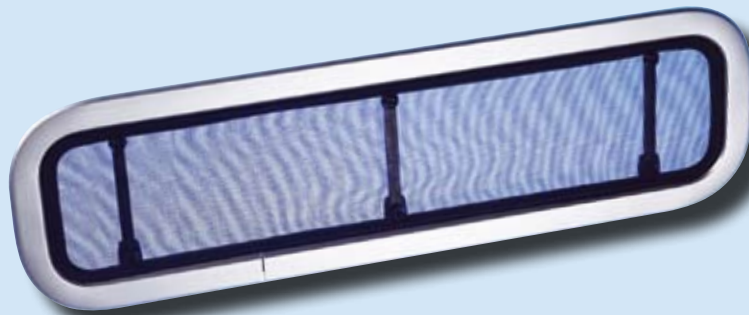
Portlight Cut-Out



New Portlight Flyscreen



The new portlight flyscreen provides easy installation and removal. It can also be left in place when the window is closed. It is available in all the popular sizes of Standard and Atlantic portlights.



NEW! — Flush Mitre Portlight

In the Flush Mitre Portlight the acrylic has been moved as far forward as possible to make it approximately flush with the mounting surface, to do this 12mm acrylic is used where portlights normally use 8 to 10mm. The outer frame as been made as flat as possible and the angled face of the Standard Portlight as been removed. This has increased the quantity of alloy in the frame.

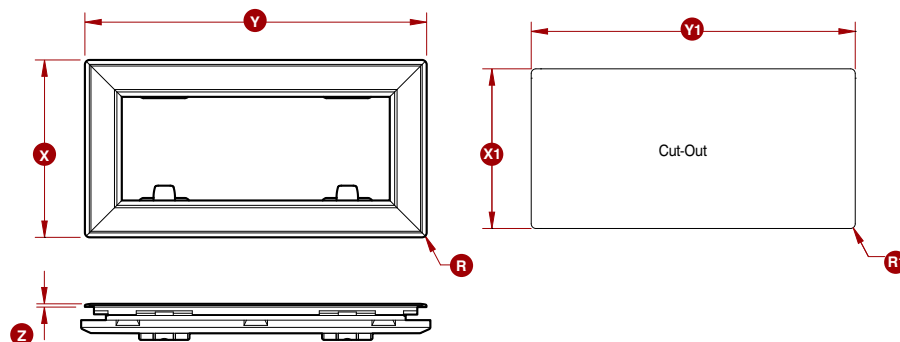
The outer frame is powder coat black in colour to camouflage to the acrylic lens; this is more costly than the anodising that is normally used.



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Portlight Dimensions



CE Approved

Complies with the relevant parts of International Standards ISO/DIS12216:2002. This standard covers the applicable essential safety requirements on the Recreational Craft Directive 95/25/EC.

Size	Category A, Area 2a
All Sizes	✓

Note: Area 2a = Deck, Coachroof, Cockpit & Transom
Category A = 'Ocean'

Flush Mitre Portlight Specification

Part number	Size	Colour	Version	Overall Size								Cut-Out Size						Hatch Weight		Acrylic Window Thickness	
				X		Y		Z		R		X1		Y1		R1					
				Width		Length		Height		Radii		Width		Length		Radii		kg	lb	mm	in
393029800	0	Black	Opening	175	6 7⁄8	322	12 11⁄16	4	3⁄16	5	13⁄16	156	6 1⁄8	303	11 15⁄16	5	13⁄16	1.3	2.9	12	1⁄2
393129800	1	Black	Opening	190	7 1⁄2	366	14 7⁄16	4	3⁄16	5	13⁄16	171	6 3⁄4	347	13 11⁄16	5	13⁄16	1.6	3.5	12	1⁄2
393329800	3	Black	Opening	190	7 1⁄2	448	17 11⁄16	4	3⁄16	5	13⁄16	171	6 3⁄4	429	16 7⁄8	5	13⁄16	2	4.4	12	1⁄2
393429800	4	Black	Opening	190	7 1⁄2	645	25 7⁄16	4	3⁄16	5	13⁄16	171	6 3⁄4	626	24 11⁄16	5	13⁄16	2.8	6.2	12	1⁄2

1. Portlights should be fitted to a flat surface with a maximum tolerance of 1mm
2. Maximum hull thickness 11mm (1/2in), minimum hull thickness 6mm (1/4in)
3. Acrylic colour is Smoke Grey

4. All Portlights are supplied complete with 12 off M5 16mm screws (hull thickness 6-11mm)

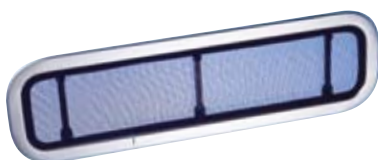
Portlight Accessories

Standard Portlight Clip Flyscreens

Part Number	Description
367302936	Flyscreen Size 0
367312936	Flyscreen Size 1
367318936	Flyscreen Size 1RE
367322936	Flyscreen Size 2
367332936	Flyscreen Size 3
367342936	Flyscreen Size 4
367345936	Flyscreen Size 4L/4R (Pair)
367352936	Flyscreen Size 5
367378936	Flyscreen Size 7RE

Atlantic Portlight Clip Flyscreens

Part Number	Description
367110936	Flyscreen Size 10
367130936	Flyscreen Size 30
367132936	Flyscreen Size 32
367140936	Flyscreen Size 40
367160936	Flyscreen Size 60



Stainless Portlight Flyscreens

Part Number	Description
367302966	Flyscreen Size 0
367312966	Flyscreen Size 1
367318966	Flyscreen Size 1RE
367378966	Flyscreen Size 7RE
367382966	Flyscreen Size 8 Elliptical



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Standard & Stainless Portlight Fastenings

Part Number	Screw Size	Hull Thickness (mm) Standard Portlight		Hull Thickness (mm) Stainless Portlight	
		Min	Max	Min	Max
19899000	M5 x 12	7	9	7	9
19899100	M5 x 16	8	13	8	13
19899200	M5 x 20	12	17	12	17
19899300	M5 x 25	17	22	17	22
19899400	M5 x 30	22	27	22	27
19899500	M5 x 35	27	32	27	32
19899600	M5 x 40	32	34	32	34

* Note: screws supplied in quantities of 100.

Portlight Fitting Guide

Mark the Cut Out

- Cut out the template provided and check it is accurate by placing it over the back of the portlight. Portlights should be fitted to a flat surface (+/- 1mm.) Tape the template to the boat and mark the cut line (Figure 1).



Figure 1

Cut & Drill

- Take care to avoid any power cables, gas pipes or other hazardous devices.
- Please ensure that you use the appropriate safety equipment such as electrical power breakers and safety glasses.
- Drill a hole for the jigsaw blade on the waste side of the cut line (Figure 2).
- Use the jigsaw to cut the aperture through the boat (Figure 3).
- It may be necessary to cut or remove the headlining.
- Portlights are fitted by clamping the outer frame against the deck using the inner frame inside the boat (Figure 4).
- Test fit the portlight and clamp ring before applying sealant (Figure 6).



Figure 2



Figure 3



Figure 4



Figure 5

Bed Down & Seal

- If you are replacing an old portlight, fill any old fixing holes with sealant.
- When you are entirely happy with the installation of the portlight, remove and set it aside. Apply a generous bead of bedding compound all the way around the frame where it is in contact with the deck (Figure 6).
- Refit the portlight to the boat. A small amount of bedding compound should be forced out of the gap between the frame and the deck the whole way round the frame (Figure 7).
- Clamp the outer frame to the inner frame with the fixings enclosed (Figure 8). Ensure the fixing threads are greased.
- Clean up the excess bedding compound.
- Portlight installation Finished (Figure 9).



Figure 6



Figure 7



Figure 8



Figure 9

Lewmar winches are designed with both racing crews and cruising sailors in mind. The new EVO range of winches meets the needs of sailors and boat builders with a perfect blend of looks functionality and reliability.

We have a range of new captive winches, and for smaller boats where space under the cabin top is limited we have designed the CW800.

Constant evolution means our cutting edge racing winches have been fitted on board the current America's Cup multi-hulls as well as much of the TP52 fleet.



Winches

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OneTouch Winch Handle

Lewmar OneTouch winch handles offers a new approach to winch handle design. Its patented 'OneTouch' mechanism allows you to squeeze the release lever (which runs the entire length of the handle) and pull to unlock in one quick, easy motion. To lock in, simply squeeze and insert. All it takes is one hand, so you can spend less time fiddling around and more time sailing.

Features

- 8" and 10" Alloy Handle
- Release lever runs entire length of the handle — no twisting, jiggling or fiddling around
- Easy one-handed removal — just squeeze and lift
- Lightweight, forged construction
- Corrosion resistant for years of performance under harsh conditions
- Available in Standard Grip and Power Grip
- As used by the Americas Cup, Volvo and TP52 teams.



2914 0044



2914 0046

OneTouch Winch Handle Specifications

Part Number	Size		Description
	mm	in	
2914 0044	250	10	Alloy Handle, Lock-in Single, Grip
2914 0046	250	10	Alloy Handle, Lock-in, Power Grip
2914 0040	200	8	Alloy Handle, Lock-in Single, Grip
2914 0042	200	8	Alloy Handle, Lock-in, Power Grip

Winch Handles

Lewmar winch handles use ball bearings for maximum efficiency. The PowerGrip winch handle makes initial fast cranking with one hand both easy and comfortable. When the load comes on and it's time to shift gears, you can use your second hand to grip the main shaft handle and do some serious grinding.

Titan winch handles are made of the finest quality materials and created using the latest computer aided designs. Titan handles are engineered to withstand the rigours of the saltwater environment year after year.



2914 1011



2914 1110



2914 1111



2914 0121



2914 0036



2914 5301

Lewmar Winch Handle Specifications

Part Number	Size		Description
	mm	in	
2914 1011	200	8	Alloy Lock-in Winch Handle
2914 1110	250	10	Alloy Winch Handle (Forged)
2914 1111	250	10	Alloy Winch Handle, Lock-in (Forged)
2914 0121	250	10	Chrome Winch Handle, Lock-in Power Grip (Forged)

Composite Winch Handle Specifications

Part Number	Size		Description
	mm	in	
2914 5301	200	8	Titan Winch Handle, Red, Locking
2914 0032	200	8	Lite Touch Winch Handle, PowerGrip
2914 5311	250	10	Titan Winch Handle, Red, Locking
2914 0036	250	10	Lite Touch Winch Handle, PowerGrip

Winch Handle Pocket

Part Number	Description
2914 0020	Winch Handle Pocket



2914 0020

EVOlution Winches

Lewmar fuses its legendary quality with state of the art technology to offer the most advanced winch range ever; the EVO.

Lewmar believes in evolution not revolution – it has been evolving and improving winch technology for almost half a century. Since the 1960's Lewmar has developed winch solutions for the world's leading boat-builders, custom yards and race teams. No other company in the leisure marine market has the same level of heritage and expertise when it comes to building reliable, high quality, easy to fit and easily serviceable winches.

Steadfast building blocks

We've taken Lewmar's Ocean Winch; the most popular winch ever made and improved it further. The new EVO winch is a development that contains years of knowledge and understanding of what boat builders and sailors want. No compromises have been made in terms of quality or integrity of design. You won't find much plastic here, we use high quality alloys and metal!

Customer focused

Key boat builders briefed us that they wanted Lewmar to retain all the benefits of its simple, no nonsense, easy to service winch with very few parts. It's proven performance and easy conversion to power were all in its favour.

But we knew we could make installation easier and update the styling. With this in mind we have designed a winch that can either be fitted in the conventional manner, or without removing the drum, to speed up installation. This new easy fit feature uses Lewmar's **"FAST FIT"** stud fixings.

Cruising Sailors confirmed they want a proven quality winch that could be serviced by the boat owner without any tools, they wanted to be able to put the winch together themselves, and they also wanted a reliable and predictable grip.

With many winch users only chartering boats for a few days holiday a year, safety is key in any new developments. We have included in some simple safety features the direction arrow which means all your crew load the line on (feed) the winch correctly that will make sailing more fun for the entire family.

Racing Sailors liked the alloy, needle-peened finish of Lewmar's winches. Their only request was that they'd like it in black. The good news is we have it in black, grey and chrome bronze finish.

Manufacturing quality

In the last few years Lewmar Havant plant was updated with the most hi tech machinery in the industry. Our plant is capable of building hundreds of winches every day; we are able to control quality, finish and variants all on the same machines. Our quality control procedures and processes are tried and tested and renowned throughout the industry.

7-Year warranty

We are so confident about the quality of our new EVO winch range that we are backing this up with a new comprehensive 7-year warranty.



With Lewmar's global network of distributors, wherever you are in the world, you can be confident that Lewmar will be there to support you.



Take a look inside

Engineering excellence

For Lewmar customers, there is no such thing as "just a winch." That's because inside every winch you will find materials developed over many years, designed using the latest techniques and machined using the most up to date CNC equipment. When we machine the winches we are looking for the maximum in efficiency, durability and strength to weight ratio.

Because of our aggressive in-house testing program, Lewmar winches have proven themselves time and again in the roughest conditions and on the toughest racecourses.



Simple servicing

NO TOOLS are required to service a Lewmar EVO winch, simply unscrew the top cap with your fingers to remove the drum and provide access to the proven gear train.

If you try to put a Lewmar EVO winch together wrongly, it will become very clear that you've got it wrong; it is impossible to service the winch and put it back together incorrectly. Safety and convenience has been designed into every EVO winch.



Electric winches

Whatever sailing you do, short handed or long distance cruising, the decision to install electric winches, or upgrade your existing winches with one of our conversion kits is simple.

Lewmar's EVO winches are specifically engineered to offer sail trimming at the push of a button for more relaxed and comfortable sailing.



Multiple styles and finishes

EVO winches are available in black or grey alloy and chrome bronze for the cruising sailor. The range is available with single speed or two speed, manual winches and electric winches are available from size 40 through to 65.



Quick installation

The new Lewmar "FAST FIT" enables one person to fit the winch, without removing the drum. There are no plastic parts to snap off, just select the correct size stud, wind it into the strong bronze centre stem and mount the winch into pre-drilled holes.



Wave Spring jaw and stripper ring

The integrated investment cast stainless steel feeder arm completely covers the winch, and does not create a rope trap above our WaveSpring jaws.

Directional arrows allow fool proof loading of the winch, a very helpful feature if you are sailing with an inexperienced crew.

The stripper position can be adjusted to smoothly feed the rope out of the jaws and into the cockpit, while the proven stripper ring goes round the WaveSpring. Lewmar's unique design ensures you cannot snag that loose rope cover, no matter how long you have been using your sheets.

Standard Winches

Lewmar has created a winch range that incorporates many exciting features, all brought together with a blend of traditional skills and high technology, which are reflected in the outstanding quality of Lewmar's standard winches. Besides the technical innovation and high performance criteria involved, there's also the aesthetic appearance and finish to consider. The range shown here achieves just that with sizes ranging from 6 to 16, one or two speed gearing and two finishes. All of which is supported by a comprehensive range of winch spares.



Standard Winch Chrome



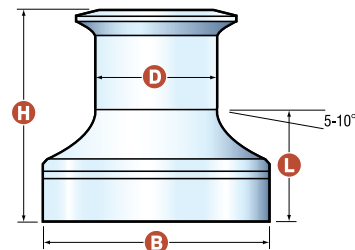
Standard Winch Grey Alloy

Expert Advice

When installing a winch, Lewmar recommends the winch must be mounted on a flat surface and that the rope enters the drum at an angle of 5° to 10° to the base axis of the winch. This angle can be achieved by using a base wedge when mounting the winch.

Standard Winch Dimensions

Note: Not all mounting holes are symmetrical on all models.



Standard Winch Specifications

Part Number	Model	Finish	Gear Ratio		Power Ratio		SWL		Weight		Drum Dia		Base Dia		Height		Line Entry		Mounting Instructions
			1st	2nd	1st	2nd	kg	lb	kg	lb	mm	in	mm	in	mm	in	mm	in	
49006010	6	Alloy	1:1		6.8:1		341	752	0.5	1.1	59	2 5/16	94	3 11/16	83	3 1/4	35.5	1 3/8	4 x M6 (1/4 in) c'sk head screws on 66mm (2 13/32 in) PCD
19006100	6	Chrome	1:1		6.8:1		341	752	1.1	2.4	59	2 5/16	94	3 11/16	83	3 1/4	35.5	1 3/8	
49007030	7	Alloy	1:1		7.9:1		341	752	0.8	1.8	65	2 9/16	108	4 1/4	102	4	40	1 9/16	5 x M6 (1/4 in) c'sk head screws on 80mm (3 1/2 in) PCD
49007032	7	Chrome	1:1		7.9:1		341	752	1.7	3.7	65	2 9/16	108	4 1/4	102	4	40	1 9/16	
49008030	8	Alloy	1:1		7.9:1		455	1003	1.4	3.1	65	2 9/16	108	4 1/4	103	4 1/16	40	1 9/16	5 x M6 (1/4 in) c'sk head screws on 80mm (3 1/2 in) PCD
49008032	8	Chrome	1:1		7.9:1		455	1003	2.3	5.1	65	2 9/16	108	4 1/4	103	4 1/16	40	1 9/16	
49016030	16	Alloy	1:1	2:1	7.9:1	16:1	570	1257	2.1	4.6	67	2 5/8	120	4 3/4	112	4 7/16	55	2 3/16	5 x M6 (1/4 in) c'sk head screws on 94mm (3 11/16 in) PCD
49016032	16	Chrome	1:1	2:1	7.9:1	16:1	570	1257	3.2	7.0	67	2 5/8	120	4 3/4	112	4 7/16	55	2 3/16	

Evo Winches



Lewmars EVO Winch Range evolution from the renowned Ocean winch

Features

- Easy Servicing - No tools required
- "FAST FIT" stud fixings
- User friendly direction arrows
- All the benefits of the Evo range
- Choice of three finishes.
- Convertable to electric

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Evo Self-Tailing Winch Specifications

Part Number	Model	Finish	Gear Ratio		Power Ratio		SWL		Weight		Drum Dia ^D		Base Dia ^B		Height ^H		Line Entry ^L		Line Size	
			1st	2nd	1st	2nd	kg	lb	kg	lb	kg	lb	mm	in	mm	in	mm	in	mm	in
49515055	15ST	Alloy Black	2:1		15.8:1		500	1102	2.3	5.1	65.7	29 1/16	121	4 3/4	115	4 11/16	58	2 5/16	6-10	1/4-3/8
49515057	15ST	Alloy Grey	2:1		15.8:1		570	1257	2.9	6.4	65.7	29 1/16	121	4 3/4	115	4 11/16	58	2 5/16	8-12	5/16-1/2
49515056	15ST	Chrome Bronze	2:1		15.8:1		570	1257	3.9	8.6	65.7	29 1/16	121	4 3/4	115	4 11/16	58	2 5/16	8-12	5/16-1/2
49530055	30ST	Alloy Black	2:1	4.2:1	13.8:1	29.2:1	685	1510	4.2	9.2	74	2 15/16	138	5 7/16	145.85	5 3/4	69	2 11/16	8-12	5/16-1/2
49530057	30ST	Alloy Grey	2:1	4.2:1	13.8:1	29.2:1	685	1510	4.2	9.2	74	2 15/16	138	5 7/16	145.85	5 3/4	69	2 11/16	8-12	5/16-1/2
49530056	30ST	Chrome Bronze	2:1	4.2:1	13.8:1	29.2:1	685	1510	5.6	12.3	74	2 15/16	138	5 7/16	145.85	5 3/4	69	2 11/16	8-12	5/16-1/2
49540055	40ST	Alloy Black	1.9:1	5.8:1	13.2:1	40.2:1	795	1753	4.9	10.7	74	2 15/16	148	5 13/16	158.5	6 1/4	79	3 1/8	8-12	5/16-1/2
49540057	40ST	Alloy Grey	1.9:1	5.8:1	13.2:1	40.2:1	795	1753	4.9	10.7	74	2 15/16	148	5 13/16	158.5	6 1/4	79	3 1/8	8-12	5/16-1/2
49540056	40ST	Chrome Bronze	1.9:1	5.8:1	13.2:1	40.2:1	795	1753	6.5	14.3	74	2 15/16	148	5 13/16	158.5	6 1/4	79	3 1/8	8-12	5/16-1/2
49545055	45ST	Alloy Black	2.4:1	7.6:1	13.9:1	44.8:1	1200	2646	7.2	15.8	87	3 7/16	168	6 5/8	177.7	7	84	3 5/16	8-14	5/16-9/16
49045057	45ST	Alloy Grey	2.4:1	7.6:1	13.9:1	44.8:1	1200	2646	7.2	15.8	87	3 7/16	168	6 5/8	177.7	7	84	3 5/16	8-14	5/16-9/16
49045056	45ST	Chrome Bronze	2.4:1	7.6:1	13.9:1	44.8:1	1200	2646	9.7	21.3	87	3 7/16	168	6 5/8	177.7	7	84	3 5/16	8-14	5/16-9/16

For information on the Lewmar Ocean Range please go to www.lewmar.com



Wave Spring jaw and stripper ring

The integrated investment cast stainless steel feeder arm covers the winch, and does not create a rope trap above our WaveSpring jaws.

The feeder arm position can be adjusted to smoothly feed the rope out of the jaws and into the cockpit, while the proven stripper ring goes round the WaveSpring. Lewmar's unique design ensures you cannot snag that loose rope cover.

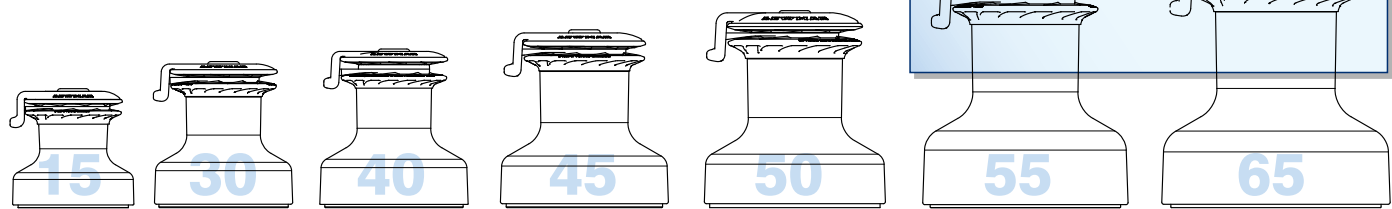
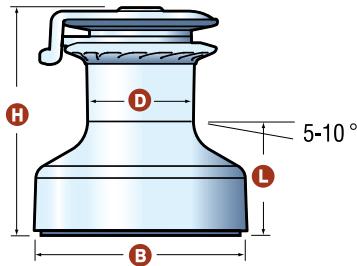
Mounting Instructions

40EST	5 x M6 (1/2 in) c'sk head screws on 121mm (4 3/4 in) PCD
45EST	5 x M8 (5/16 in) c'sk head screws on 136mm (5 11/32 in) PCD
50EST	6 x M8 (5/16 in) c'sk head screws on 150mm (5 29/32 in) PCD
55EST	6 x M8 (5/16 in) c'sk head screws on 165mm (6 1/2 in) PCD
65EST	5 x M10 (3/8 in) c'sk head screws on 184mm (7 1/4 in) PCD
68EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
68/3EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
77EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
77/3EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
88/3EST	8 x M10 (3/8 in) c'sk head screws on 270mm (10 5/8 in) PCD
111/3EST	6 x M12 (1/2 in) c'sk head screws on 340mm (13 3/8 in) PCD

Note: not all holes are symmetrical on all models. For "FAST FIT" stud specifications visit www.lewmar.com

Evo Winch Dimensions

Note: Not all mounting holes are symmetrical on all models.



Expert Advice

When installing a winch, Lewmar recommends the winch must be mounted on a flat surface and that the rope enters the drum at an angle of 5° to 10° to the base axis of the winch. This angle can be achieved by using a base wedge when mounting the winch.

Evo Self-Tailing Winch Specifications

Part Number	Model	Finish	Gear Ratio		Power Ratio		SWL		Weight		Drum Dia		Base Dia		Height		Line Entry		Line Size	
			1st	2nd	1st	2nd	kg	lb	kg	lb	kg	lb	mm	in	mm	in	mm	in	mm	in
49550055	50ST	Alloy Black	2.6:1	9:1	13.9:1	48.6:1	1250	2756	8.8	19.4	93	3 5/8	181	7 1/8	196.8	7 3/4	86	3 3/8	8-14	5/16-9/16
49550057	50ST	Alloy Grey	2.6:1	9:1	13.9:1	48.6:1	1250	2756	8.8	19.4	93	3 5/8	181	7 1/8	196.8	7 3/4	86	3 3/8	8-14	5/16-9/16
49550056	50ST	Chrome Bronze	2.6:1	9:1	13.9:1	48.6:1	1250	2756	12.1	26.7	93	3 5/8	181	7 1/8	196.8	7 3/4	86	3 3/8	8-14	5/16-9/16
49555055	55ST	Alloy Black	2.8:1	11.2:1	13.8:1	54:1	1480	3263	12.0	26.4	105	4 1/8	205	8 1/16	237.5	9 11/32	115	4 1/2	8-16	5/16-5/8
49555057	55ST	Alloy Grey	2.8:1	11.2:1	13.8:1	54:1	1480	3263	12.0	26.4	105	4 1/8	205	8 1/16	237.5	9 11/32	115	4 1/2	8-16	5/16-5/8
49555056	55ST	Chrome Bronze	2.8:1	11.2:1	13.8:1	54:1	1480	3263	17.0	37.5	105	4 1/8	205	8 1/16	237.5	9 11/32	115	4 1/2	8-16	5/16-5/8
49565055	65ST	Alloy Black	3.1:1	14.8:1	13.4:1	64:1	1700	3748	16.6	36.5	118	4 5/8	231	9 1/8	253.5	10	121.5	4 13/16	8-18	5/16-1 1/16
49565057	65ST	Alloy Grey	3.1:1	14.8:1	13.4:1	64:1	1700	3748	16.6	36.5	118	4 5/8	231	9 1/8	253.5	10	121.5	4 13/16	8-18	5/16-1 1/16
49565056	65ST	Chrome Bronze	3.1:1	14.8:1	13.4:1	64:1	1700	3748	23.8	52.4	118	4 5/8	231	9 1/8	253.5	10	121.5	4 13/16	8-18	5/16-1 1/16

For information on the Lewmar Ocean Range please go to www.lewmar.com

Electric Winches



@2009 Hunter

A Self-Tailing Evo Winch that works at the push of a button!

That's exactly what you will find with Lewmar's electric winch range. The Evo range is available from 40-65, the Ocean range of winches is available 40-111.

E series – electric motor including controller

The E series controller is now attached directly to the winch motor gearbox, this convenient solution removes any complicated wiring for the installer and the unit, also keeps the boat looking very tidy. A thermal trip is connected to monitor the motor temperature, which ensures a cut out if the heat builds up to an unacceptable level.

Manual operation is available as a back up, or to experience traditional sailing. This gives 2 speed manual drive, and one speed electric drive. Available on the Evo electric winch range 40, 45 & 50.

Electric winches up to the Evo 50 use the E series controller, and winches 55 and over use the Electric load sensing controller with built in overload protection.

ELS – Electric load sensing 55ST – 111ST

The "ELS" (Electric Load Sensing) Electric Winches are controlled by an Overload Protection Control Box, this allows the winch to be operated up to a high load, equivalent to the SWL (Safe Working Load) of each winch size. When this load is reached the winch automatically cuts out. If the load is reduced the winch load can be increased back up to this cut out level. Safety Overload Cut Out function was pioneered by Lewmar, and is a unique Lewmar feature. A Motor Thermal trip is connected as an extra safety feature to ensure a motor cut out, if the heat builds up to an unacceptable level.

With Lewmar electric winches, the sheet is recovered rapidly at low load when sheets are slacker, and slows down as load increases. This provides speed when you need it most, and control as you tune your sails to perfection.

Features

- Push Button Power
- Quiet operation
- Manual override
- All the benefits of the Evo range
- Easy to install
- Inclusive of contactor and motor units



Manual operation facility is available as back up or to experience traditional sailing. Two + One speed comes as the standard control. It gives two-speed Manual drive (through use of the winch handle) + one-speed Electric Drive. Available on Lewmar winch sizes – 55ST to 77ST. In addition Two + Two or three speed is available on Lewmar 68ST to 111ST.



Electric Winches — Complete Kits

Electric Winch Kits 12V (24V units are also available)

Part Number	Model	Description
49540210	40EST	Alloy Black Complete
49540201	40EST	Chrome Bronze Complete
49540200	40EST	Alloy Grey Complete
49545210	45EST	Alloy Black Complete
49545201	45EST	Chrome Bronze Complete
49545200	45EST	Alloy Grey Complete
49550210	50EST	Alloy Black Complete
49550201	50EST	Chrome Bronze Complete
49550200	50EST	Alloy Grey Complete
49555210	55EST	Alloy Black Complete
49555201	55EST	Chrome Bronze Complete
49555200	55EST	Alloy Grey Complete
49565210	65EST	Alloy Black Complete
49565201	65EST	Chrome Bronze Complete
49565200	65EST	Alloy Grey Complete

Kit includes: Deck unit, motor gearbox, E series connected to motor 40 -50, or control box 55 & 65, circuit breaker 40 -50 or fuse 55 to 65, deck switch.

For information on the Lewmar Ocean Electric Range please go to www.lewmar.com



Two + Three Speed Electric Winch

Custom Electric Winch Complete Kits

Part Number	Model	Finish	Weight	
			kg	lb
49088214	88EST	Stainless Steel	62.0	136.4
49088219	88/3EST	Stainless Steel	62.3	139.3
49111214	111EST	Stainless Steel	63.5	139.7
49111219	111/3EST	Stainless Steel	65.0	143.32

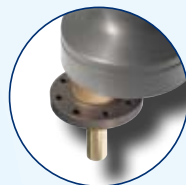
Kit includes: Deck Unit, Motor/Gearbox, and Control Box.

Electric Conversion Kits (for Ocean winch only)



Ocean Winch

+



Conversion Kit

The Lewmar Ocean winch can easily be converted into an Electric Winch. The basic Ocean winch needs a conversion kit to form the basic Electric Winch Deck Unit.

Part Number	Description	40ST	46ST	48ST	50ST	54ST	58ST	65ST
48040055	40ST Conversion Kit	✓						
48046055	46ST Conversion Kit		✓					
48048055	48ST Conversion Kit			✓				
48050055	50ST Conversion Kit				✓			
48054055	54ST Conversion Kit					✓		
48058055	58ST Conversion Kit						✓	
48065055	65ST Conversion Kit							✓

NOTE: You will also require, Motor/Gearbox, Contactor, Circuit Breaker and Switch.

Specify your own Electric Winch



1 — Electric Winch Deck Unit

Electric Winch

Part Number	Model	Finish	Weight	
			kg	lb
48540210	40EST	Alloy Black	17.8	39.3
48540201	40EST	Chrome	19.5	43
48540200	40EST	Alloy Grey	17.8	39.3
48545210	45EST	Alloy Black	22.1	48.6
48545201	45EST	Chrome	24.6	54.1
48545200	45EST	Alloy Grey	22.1	48.6
48550210	50EST	Alloy Black	24.7	54.3
48550201	50EST	Chrome	28.1	61.8
48550200	50EST	Alloy Grey	24.7	54.3

Part Number	Model	Finish	Weight	
			kg	lb
48550210	55EST	Alloy Black	29	63.8
48550201	55EST	Chrome	34.8	76.5
48550200	55EST	Alloy Grey	29	63.8
48565210	65EST	Alloy Black	33.6	73.9
48565201	65EST	Chrome	40.8	89.7
48565200	65EST	Alloy Grey	33.6	73.9

Custom Electric Winch

Part Number	Model	Finish	Weight	
			kg	lb
48068200	68 EST	Alloy	42	92
48068201	68 EST	Chrome	48.8	107.3
48068204*	68 EST	Stainless/Steel	46	101.2
48068203*	68 EST	All Chrome	49.7	109.3
48068202*	68 EST	All Bronze	49.7	109.3
48068202	68/3 EST	Alloy	48	105.6
48068206	68/3 EST	Chrome	54.8	120.6
48068209*	68/3 EST	Stainless/Steel	52	114.4
48068208*	68/3 EST	All Chrome	55.7	122.5

Part Number	Model	Finish	Weight	
			kg	lb
48077200	77 EST	Alloy	42	92
48077201	77 EST	Chrome	48.8	107.3
48077204*	77 EST	Stainless/Steel	46	101.2
48077203*	77 EST	All Bronze	49.7	109.3
48077205	77/3 EST	Alloy	48	105.6
48077206	77/3 EST	Chrome	54.8	120.6
48077209*	77/3 EST	Stainless/Steel	52	114.4
48077208*	77/3 EST	All Chrome	55.7	122.5

Notes: •All models marked with an (*) i.e. Stainless/Steel, All Chrome and All Bronze Winch Finishes are made to order.
•Weights shown above includes the weight of Motor Gearbox & Control Box.

Electric Winch — Dimensions

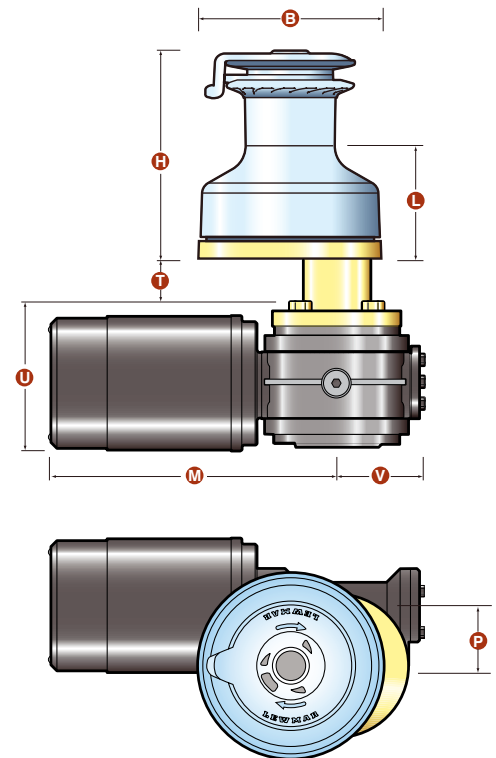
When installing a winch, Lewmar recommends the winch be mounted on a level surface and that the rope enters the drum at an angle of 5° to 10° to the base axis of the winch. This angle can be achieved by using a base wedge when mounting the winch.

Winch Size	^H Height		^L Line Entry		^M		^P		^T		^U		^V		^B Base Dia	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
40EST	175	6 9/10	95.4	3 49/64	238.5	9 25/64	50	1 31/32	34.4	1 23/64	120.7	2 3/4	72.5	2 55/64	154	6 1/16
45EST	194	7 5/8	100.3	3 61/64	238.5	9 25/64	50	1 31/32	64.4	2 17/32	120.7	2 3/4	72.5	2 55/64	174	6 55/64
50EST	246.8	9 2/3	105.2	4 9/64	238.5	9 25/64	50	1 31/32	64.4	2 17/32	120.7	2 3/4	72.5	2 55/64	186	7 21/64
55EST	257.5	10 1/8	135.8	5 3/8	290	11 7/16	62	2 7/16	59.5	2 5/16	160	6 1/4	80	3 1/8	209	8 1/4
65EST	273.8	10 3/4	141.8	5 9/16	290	11 7/16	62	2 7/16	59.5	2 5/16	160	6 1/4	80	3 1/8	234	9 1/4
68EST	302.2	12	142.1	5 5/8	290	11 7/16	62	2 7/16	67.5	2 11/16	160	6 1/4	80	3 1/8	282	11 1/8
68/3EST	346.5	13 5/8	186.4	7 5/16	290	11 7/16	62	2 7/16	67.5	2 11/16	160	6 1/4	80	3 1/8	294	11 9/16
77EST	348	13 11/16	174	6 7/8	290	11 7/16	62	2 7/16	67.5	2 11/16	160	6 1/4	80	3 1/8	294	11 9/16
77/3EST	348	13 11/16	174	6 7/8	290	11 7/16	62	2 7/16	67.5	2 11/16	160	6 1/4	80	3 1/8	294	11 9/16
88EST	355	14	159.5	6 1/4	290	11 7/16	62	2 7/16	-	-	-	-	-	-	326	12 3/4
111EST	396	15 5/8	171.5	6 3/4	290	11 7/16	62	2 7/16	-	-	-	-	-	-	406	16

Mounting Instructions

40EST	5 x M6 (1/2 in) c'sk head screws on 121mm (4 3/4 in) PCD
45EST	5 x M8 (5/16 in) c'sk head screws on 136mm (5 11/32 in) PCD
50EST	6 x M8 (5/16 in) c'sk head screws on 150mm (5 29/32 in) PCD
55EST	6 x M8 (5/16 in) c'sk head screws on 165mm (6 1/2 in) PCD
65EST	5 x M10 (3/8 in) c'sk head screws on 184mm (7 1/4 in) PCD
68EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
68/3EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
77EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
77/3EST	6 x M10 (3/8 in) c'sk head screws on 241mm (9 1/2 in) PCD
88/3EST	8 x M10 (3/8 in) c'sk head screws on 270mm (10 5/8 in) PCD
111/3EST	6 x M12 (1/2 in) c'sk head screws on 340mm (13 3/8 in) PCD

Note: not all holes are symmetrical on all models



Cable Sizes

	Cable distance from battery to winch	UP TO 10m (33ft)		10-35m (33-49ft)		15-20m (49-66ft)	
		CSA mm²	AWG	CSA mm²	AWG	CSA mm²	AWG
12V	40 - 50	35	2	50	0	70	00
12V	55 - 65	70	00	95	000	120	0000
12V	68 - 77	50	0	70	00	95	000
24V	40 - 50	25	3	25	3	35	2
24V	55 - 65	25	3	35	2	50	0
24V	68 - 77	25	3	35	2	50	0

2 — Motor Gearbox

Part Number	Description	Motor (Watts)	40ST	45ST	50ST	55ST	65ST	68-68/3	77-77/3
48000116	40-50 12v M/GBX ASSY	700	•	•	•				
48000117	40-50 24v M/GBX ASSY	900	•	•	•				
48000075	50-65 12v M/GBX ASSY	1600				•	•		
48000076	50-65 24v M/GBX ASSY	2000				•	•		
48000077	68-77 12v M/GBX ASSY	1600						•	•
48000078	68-77 24v M/GBX ASSY	2000						•	•

Part Number	Description	Motor (Watts)	40ST	45ST	50ST
48000211	12v Pre-Wired M/GBX	700	•	•	•
48000212	24v Pre-Wired M/GBX	900	•	•	•



3 — Contactors & Control Boxes

Part Number	Description	40ST	45ST	50ST	55ST	65ST	68-68/3	77-77/3
68000933	Contacteur 12V "E"	•	•	•				
68000934	Contacteur 24V "E"	•	•	•				
18000301	Contacteur Box 12V "E"	•	•	•				
18000302	Contacteur Box 24V "E"	•	•	•				
48000081	40 Control Box 12v "ELS"	•						
48000082	40 Control Box 24v "ELS"	•						
48000083	45 Control Box 12v "ELS"		•					
48000084	45 Control Box 24v "ELS"		•					
48000085	50 Control Box 12v "ELS"			•				
48000086	50 Control Box 24v "ELS"			•				
48000089	55 Control Box 12v "ELS"				•			
48000090	55 Control Box 24v "ELS"				•			
48000093	65 Control Box 12v "ELS"					•		
48000094	65 Control Box 24v "ELS"					•		
48000178	68-68/3 Control Box 12v "ELS"						•	
48000179	68-68/3 Control Box 24v "ELS"						•	
48000180	77-77/3 Control Box 12v "ELS"							•
48000181	77-77/3 Control Box 24v "ELS"							•

"ELS" Electric Load Sensing Control Box



Contacteur "E"

4 — Accessories

Circuit Breaker

Part Number	Voltage	Circuit Breaker	Winch Size
68000349	12V	90A	40
68000542	24V	40A	40
68000350	12V	110A	45
68000348	24V	50A	45
68000239	12V	120A	50
68000240	24V	70A	50
68000894	12V	200A	55
68000349	24V	90A	55
68000894	12V	200A	65
68000349	24V	90A	65
68000239	12V	120A	68
68000240	24V	70A	68
68000351	12V	150A	77
68000240	24V	70A	77
68000351	12V	150A	88
68000349	24V	90A	88
68000239	12V	120A	111
68000240	24V	70A	111

Deck Switches

Single direction switch. Hinged cover to prevent accidental operation. Available in 3 finishes — Grey, White & Stainless Steel

Part Number	Description
68000928	Grey Switch (Blank)
68000970	Grey Switch (Open)
68000930	White Switch (Blank)
68000971	White Switch (Open)
68000929	Stainless Steel Switch (Blank)
48000100	Grand Prix Switch



Grey Switch (Open)



White Switch (Blank)



Stainless Steel Switch

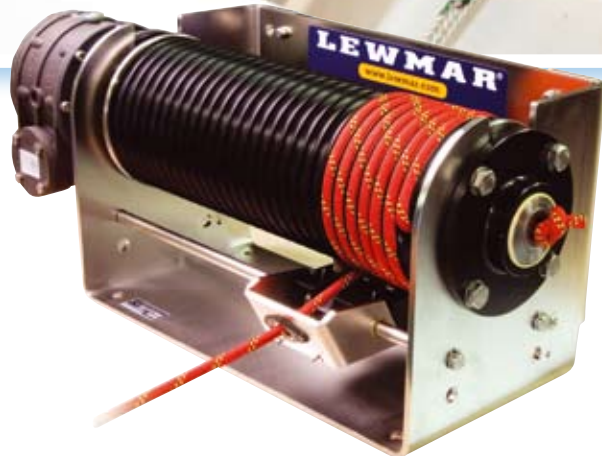


Grand-Prix switch Solid Stainless steel

CW 800 — The captive winch for the smaller Yacht

The CW 800 winches are ideal for the main halyard or mainsheet on yachts. The CW 800 offers safe remote controlled line handling and storage on yachts up to 48ft (14.6m).

If you wish to have powered winches but do not have the space on the cabin top, using a CW800 will allow the halyards to be hauled and stored in a convenient place on board for a very efficient use of space on board smaller yachts.



CW800 High capacity

Specification

Max line length	14.6m 48ft
Line size	10mm – 12mm (3/8' – 7/16')
Maximum Line Speed	45m per minute
Maximum pull	1200kg
Maximum holding power	1500kg
Weight	39.3kg
Part number 12V	59600150

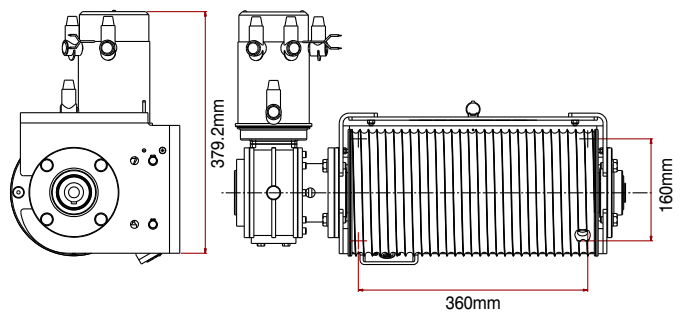
CW800 Standard

Specification

Max line length	10.3m 34ft
Line size	12mm (3/8' – 7/16')
Maximum Line Speed	33.5m per minute
Maximum pull	1400kg
Maximum holding power	1500kg
Weight	38.3kg
Part number 12V	59600140

24v available please contact your Lewmar agent

CW 800 Dimension Diagram



Available in 12V and 24V options the CW 800 is a viable alternative to managing halyards, or main sheets, dependent on the line speed required.

Hydraulic Winches — Fluid engineering from Lewmar

Lewmar's hydraulic powered winches combine the benefits of electric winches with system integration. The installation of a cost-effective multi function hydraulic system on boats over 15m (50ft) enables short handed sailing through push button control of winches and other deck functions which can be integrated into the system.

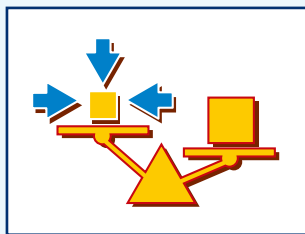
Features

- Suitable for craft over 15m (50ft)
- Minimal internal space required
- Low weight
- Manual override facility
- Silent operation
- Push button control
- All benefits of Ocean Range
- Available in 6 beautiful finishes
- Powered by Lewmar's Commander hydraulic packs



Push Button Control

Combining Lewmar's push button operation and Lewmar's Wavespring self-tailer produces simple hands free sailing whatever sheeting operation is to be carried out.



Minimal space and weight

The hydraulic motor is extremely compact ensuring minimal internal space used, while being less obtrusive below deck. All achieved without compromising power.



Quiet operation

By using hydraulic power the winch operation is performed in near silence: Adding to your sailing experience.



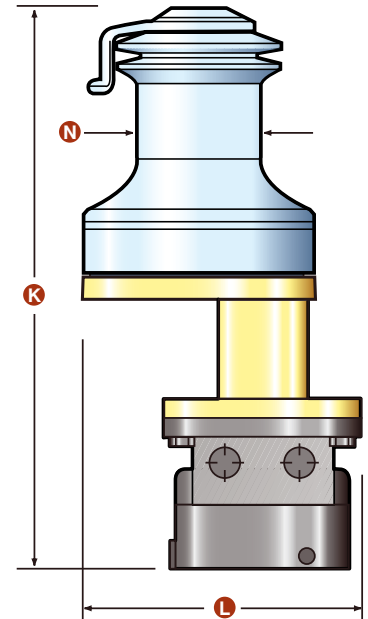
Manual Override

Manual override can be effected simply and quickly through winch handle insertion.



Hydraulic Winch Dimensions

Note: Not all mounting holes are symmetrical on all models. Top dimensions as Electric Winches



Hydraulic Winch Specifications

Part Number	Model	Finish	Weight		K		L		N		Line Size		Mounting Instructions
			kg	lb	mm	in	mm	in	mm	in	mm	in	
49046155	46HST	Alloy	15.6	34.4	430	16 ¹⁵ / ₁₆	186	7 ⁵ / ₁₆	93	3 ¹¹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/ ₁₆ in) c'sk head screws on 136mm (5 ¹ / ₂ in) PCD
49046156	46HST	Chrome	18.4	40.6	430	16 ¹⁵ / ₁₆	186	7 ⁵ / ₁₆	93	3 ¹¹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	
49048155	48HST	Alloy	17.2	37.9	430	16 ¹⁵ / ₁₆	186	7 ⁵ / ₁₆	93	3 ¹¹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	6 x M8 (5/ ₁₆ in) c'sk head screws on 150mm (5 ⁹ / ₁₆ in) PCD
49048156	48HST	Chrome	21.1	46.4	430	16 ¹⁵ / ₁₆	186	7 ⁵ / ₁₆	93	3 ¹¹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	
49050100	50HST	Alloy	19.8	43.5	460	18 ¹ / ₈	209	8 ¹ / ₃	105	4 ¹ / ₈	8-16	5/ ₁₆ -5/ ₈	6 x M8 (5/ ₁₆ in) c'sk head screws on 165mm (6 ¹ / ₂ in) PCD
49050101	50HST	Chrome	24.7	54.4	460	18 ¹ / ₈	209	8 ¹ / ₃	105	4 ¹ / ₈	8-16	5/ ₁₆ -5/ ₈	
49054100	54HST	Alloy	20.5	45.1	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-16	5/ ₁₆ -5/ ₈	6 x M8 (5/ ₁₆ in) c'sk head screws on 165mm (6 ¹ / ₂ in) PCD
49054101	54HST	Chrome	26.4	58.2	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-16	5/ ₁₆ -5/ ₈	
49058100	58HST	Alloy	22.8	50.1	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-18	5/ ₁₆ -1 ¹ / ₁₆	5 x M10 (3/ ₈ in) c'sk head screws on 184mm (7 ¹ / ₄ in) PCD
49058103	58HST	All Chrome	31.1	73.0	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-18	5/ ₁₆ -1 ¹ / ₁₆	
49065100	65HST	Alloy	25.1	55.2	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-18	5/ ₁₆ -1 ¹ / ₁₆	5 x M10 (3/ ₈ in) c'sk head screws on 184mm (7 ¹ / ₄ in) PCD
49065103	65HST	All Chrome	31.1	73.0	478	18 ¹³ / ₁₆	207	8 ¹ / ₈	105	4 ¹ / ₈	8-18	5/ ₁₆ -1 ¹ / ₁₆	
49068100	68HST	Alloy	28.5	62.7	542	21 ⁵ / ₁₆	294	11 ⁹ / ₁₆	141	5 ⁹ / ₁₆	10-20	3/ ₈ -3/ ₄	6 x M10 (3/ ₈ in) c'sk head screws on 241mm (9 ¹ / ₂ in) PCD
49068103	68HST	All Chrome	36.2	79.5	542	21 ⁵ / ₁₆	294	11 ⁹ / ₁₆	141	5 ⁹ / ₁₆	10-20	3/ ₈ -3/ ₄	
49068109	68/3HST	Stainless Steel	40.0	88.0	542	21 ⁵ / ₁₆	294	11 ⁹ / ₁₆	141	5 ⁹ / ₁₆	10-20	3/ ₈ -3/ ₄	6 x M10 (3/ ₈ in) c'sk head screws on 241mm (9 ¹ / ₂ in) PCD
49068108	68/3HST	All Chrome	42.2	92.8	542	21 ⁵ / ₁₆	294	11 ⁹ / ₁₆	141	5 ⁹ / ₁₆	10-20	3/ ₈ -3/ ₄	
49077100	77HST	Alloy	35.8	78.8	547	21 ⁹ / ₁₆	294	11 ⁹ / ₁₆	178	7	12-22	1 ¹ / ₂ -7/ ₈	6 x M10 (3/ ₈ in) c'sk head screws on 241mm (9 ¹ / ₂ in) PCD
49077103	77HST	All Chrome	48.8	107.4	547	21 ⁹ / ₁₆	294	11 ⁹ / ₁₆	178	7	12-22	1 ¹ / ₂ -7/ ₈	
49077109	77/3HST	Stainless Steel	42.0	92.4	547	21 ⁹ / ₁₆	294	11 ⁹ / ₁₆	178	7	12-22	1 ¹ / ₂ -7/ ₈	6 x M10 (3/ ₈ in) c'sk head screws on 241mm (9 ¹ / ₂ in) PCD
49077108	77/3HST	All Chrome	49.8	109.56	547	21 ⁹ / ₁₆	294	11 ⁹ / ₁₆	178	7	12-22	1 ¹ / ₂ -7/ ₈	
49088104	88HST	Stainless Steel	54.0	118.8	568	22 ³ / ₈	324	12 ³ / ₄	228	9	12-25	1 ¹ / ₂ -1	8 x M10 (3/ ₈ in) c'sk head screws on 270mm (10 ⁵ / ₈ in) PCD
49088109	88/3HST	Stainless Steel	55.0	121.0	568	22 ³ / ₈	324	12 ³ / ₄	228	9	12-25	1 ¹ / ₂ -1	
49111104	111HST	Stainless Steel	68.5	150.7	627	24 ¹¹ / ₁₆	406	16	280	11	16-38	5/ ₈ -1 ¹ / ₂	6 x M12 (1/ ₂ in) c'sk head screws on 340mm (13 ³ / ₈ in) PCD
49111109	111/3HST	Stainless Steel	69.5	152.9	627	24 ¹¹ / ₁₆	406	16	280	11	16-38	5/ ₈ -1 ¹ / ₂	

If weight is a consideration Lewmar can offer alloy drums for most hydraulic winches. For more detailed dimensions visit www.lewmar.com or consult the product manual.

Servicing your Winch



The Lewmar Winch is the easiest winch to service in the world!

Frequency of servicing

Lewmar winches must be serviced regularly. Winches are required to carry deceptively high loads. Regular servicing, with attention to correct assembly and condition of parts, is vital to the safety and performance of your boat.

When ?

1. Two or three times during active sailing season

Winches should be stripped, cleaned and re-lubricated.

2. At the end of each sailing season & before starting the new sailing season

All Lewmar winches should be completely stripped, cleaned, thoroughly checked for damage and lubricated. (see Lewmar Volume 11 Winch Service Manual available at www.lewmar.com)

External cleaning of the drum.

Chromed winches – wash drum regularly with fresh water and dry with a cloth. Non-abrasive liquid chrome cleaner can be used occasionally to remove dirt spots.

Alloy winches – wash drum regularly with fresh water and dry with a cloth. DO NOT use polishes or abrasives.

Stainless Steel Winches – wash drum regularly with fresh water and dry with a cloth. Non-abrasive liquid chrome cleaner can be used occasionally to remove dirt spots.

Servicing Winches

All components should be removed and cleaned in a paraffin bath during the course of servicing. If you do not have access to a paraffin bath, use half of an old plastic container with an old toothbrush. Even a cotton cloth soaked in paraffin or white spirit will suffice.

Caution

Some Lewmar winches contain plastic components which may be damaged by inappropriate cleaning agents. Always check the manufacturers directions before using any cleaning agents.

Greasing

Never use grease to lubricate your pawls, as this can lead to pawls sticking in their pockets and disabling the winch. Instead, lubricate with a light engine oil.

Use only a light smear of winch grease when lubricating ratchet tracks, gear teeth and bearings. Otherwise excess grease will be forced out and collect in potentially dangerous areas, such as pawl pockets.

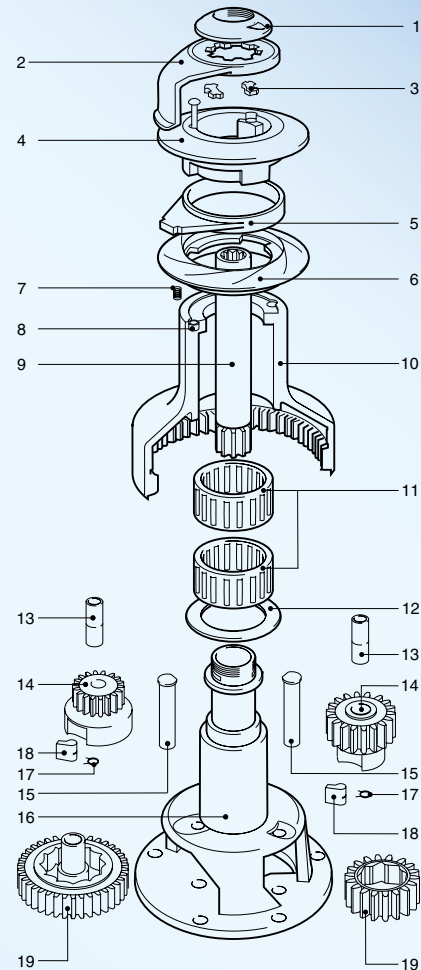
Assembly

Winches must be re-assembled in the reverse sequence to the order of dismantling. After re-assembly, immediately check the winch functions correctly.

Mounting

Winches must be fitted in the manner laid out in leaflet B2189 (supplied with every winch and downloadable from www.lewmar.com). Winches are self-draining and care should be taken to ensure the drain holes are not obstructed.

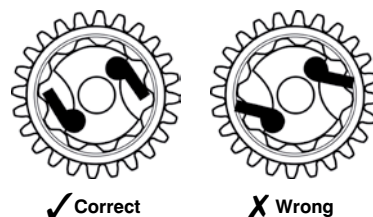
Know your Winch



- | | |
|------------------|-----------------------------|
| 1. Top Cap | 11. Roller bearing assembly |
| 2. Feeder arm | 12. Drum washer |
| 3. Collet | 13. Gear spindle sleeve |
| 4. Upper crown | 14. Pawl gear |
| 5. Stripper ring | 15. Gear spindle |
| 6. Lower crown | 16. Centre stem |
| 7. Spring | 17. Pawl spring |
| 8. Spring cup | 18. Pawl |
| 9. Main spindle | 19. Ratchet gear |
| 10. Drum | |

Ratchet Gears – Pawl Engagement

When assembling ratchet gears, check pawl engagement as shown below. Incorrect assembly will lead to back winding of the winch. This is very dangerous, so extreme care should be taken.



Winch Spares and Maintenance Kits



19700100
Spares Kit 5-44



19700200
Spares Kit
14ST-66ST



19700300
Spares Kit 44-66PB



19700401
STD Large Pawls &
Springs 50-65



19700501
STD Small Pawls &
Springs 5-48 & 66



19701500
Winch Maintenance
Pack



19701000
Grease — 100g



19701100
Grease — 300g



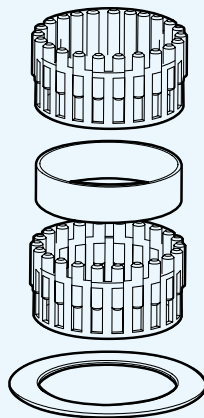
19701600
Race Lube —
55ml

Part Number	Description
19700100	Basic Kit – 4 Circlips, 4 Pawls, 4 Pawl Springs
19700200	Winch Servicing Kit – 4 Circlips, 8 Pawls, 12 Pawl Springs, 3 keys, 2 pan head screws (Self tailers)
19700300	Three speed winch servicing kit
19700401	Standard Large Pawls & Springs. (50-65) 6 pawls, 12 pawl springs
19700501	Standard Small Pawls & Springs (5-48/66) 6 pawls, 12 pawl springs
19701000	GearGrease – 100g tube, waterproof grease for many applications
19701100	GearGrease – 300g tub
19701600	RaceLube – 55ml, for applications where grease is not advised
19701500	Winch Maintenance Packs – 100g greasegear, 55ml racelube, brush, "How to" Booklet, 10 pawl springs.

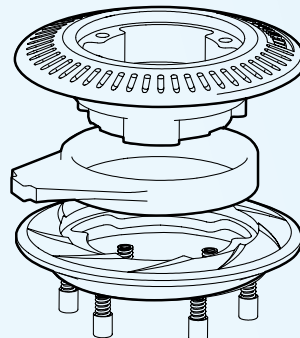
Servicing manuals are also available for all Lewmar winches. All manuals are downloadable from www.lewmar.com

Winch Spares Kit

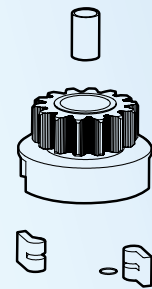
Available from Top Cap to Pawl Gear Kit.
Contact your local Lewmar supplier or
go to www.lewmar.com



Drum Bearing Kit



Jaw Kit



Pawl Gear Kit

Captive Winch Line Management System

LMS CW Winches are ideal for main and mizzen halyards, genoas and staysail sheets, main sheet or runner applications.

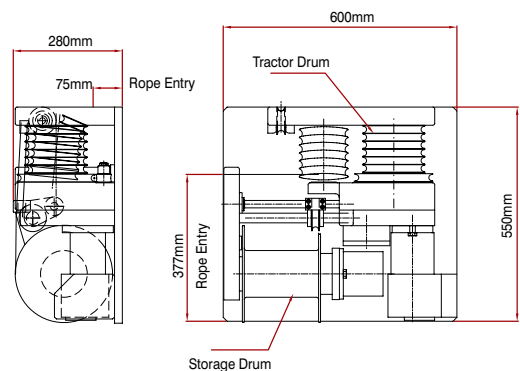
Offering safe remote controlled line handling and storage for yachts in the 24m (80ft) to 91m (300ft) range.

Features

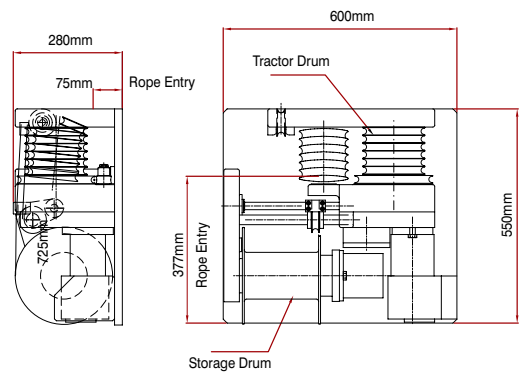
- Up to 25% lighter than previous models
- Compact size
- Up to 3 speed options
- Good combination of line speed and power
- Eliminates long lead entry angles
- Automatic hauling system
- Kind to ropes — no chaffing or fretting
- Line stowing system ensures low line tension and good line lay
- Can be used with proportional or non proportional hydraulic control systems
- Emergency high-load release feature
- Self sustaining — No load 'drop back' when the brakes are applied
- Separate hauling and stowing drums, allows more rope storage for a given size

For small boats where space under the cabin top is limited we have designed the CW800. For details refer to page 81

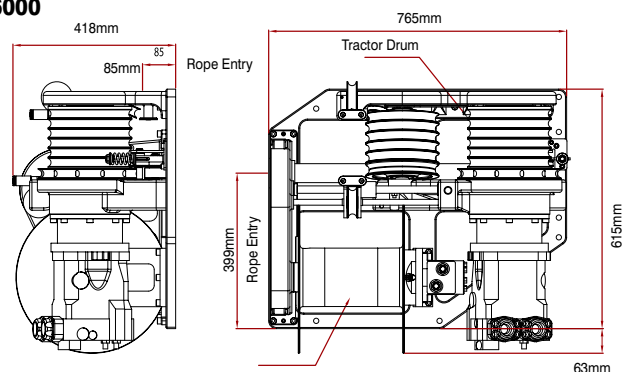
CW 2500



CW 3500



CW 6000



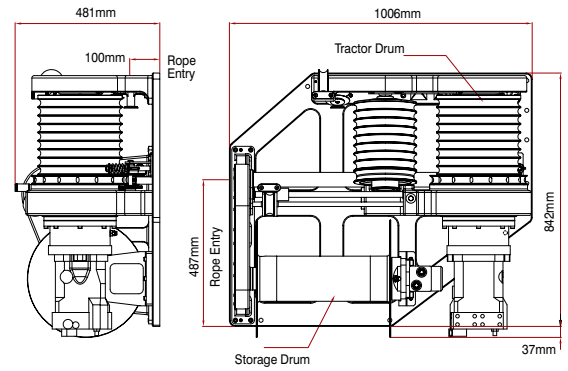
A separate Hauling drum eliminates the need for long lead entries while storing the rope to the separate storage drum, allowing the rope to be stored neatly at low tension and preventing damage to the rope and the possibility of riding turns.



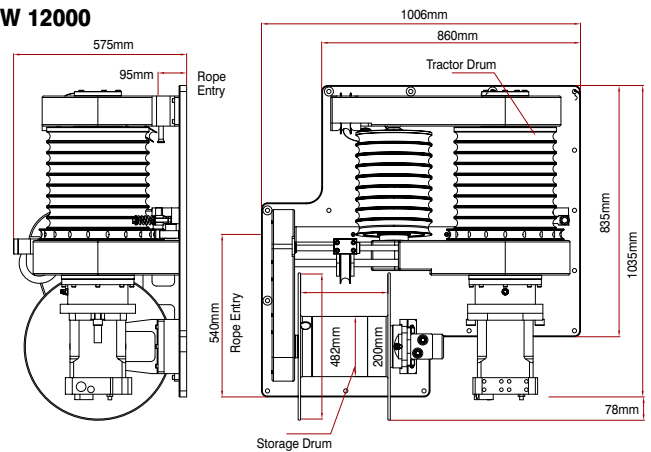
Custom line storage

Custom line storage options available. Consult Lewmar for further details.

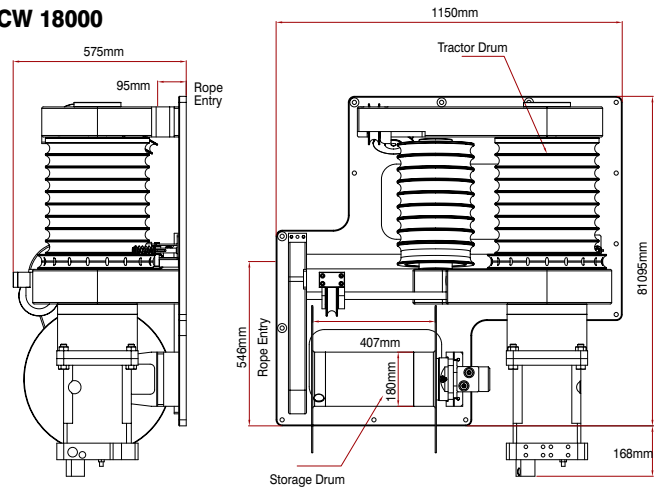
CW 9000



CW 12000



CW 18000



LMS Standard Specifications

Model	CW2500	CW3500	CW6000	CW9000	CW12000	CW18000
Speeds	1	2	2 or 3	2 or 3	2 or 3	2 or 3
Maximum Line Pull (kg)	2500	3500	6000	9000	12000	18000
Maximum Line Speed in each gear (m/min)	28	31/15	60/24/15	60/22/10	60/20/13	60/16/10
Flow rate at max Line Speeds (l/min)	60	55	45	70	95	110
Line Diameter Size Range (mm)	12-16	12-16	14-22	22-28	26-30	30-38
Line Storage (m)	12mm = 38	12mm = 38	14mm = 110	20mm = 110	26mm = 65	30mm = 65
	14mm = 29	14mm = 29	16mm = 90	22mm = 85	28mm = 55	32mm = 55
	16mm = 27	16mm = 27	18mm = 75	24mm = 65	30mm = 50	34mm = 50
			20mm = 60	26mm = 60	32mm = 40	36mm = 45
			22mm = 50	28mm = 50		
Maximum Working Pressure (bar)	160	150	235	200	230	220
Weight (kg)	120	120	150	285	480	600

Racing Winches — Features

Lewmar Carbon Power — Engineered to win!

Lewmar racing winches are the result of years of development in events like the America's Cup, Vendee Globe, MedCup and the Volvo Ocean Race. Lewmar racing winches feature aluminium and carbon fibre construction with torlon polymer bearings and the option of titanium gears.

This makes the Lewmar winch the first choice for lightweight performance boats that want a winch they can rely on - round the cans, or round the world – you can rely on Lewmar!

Using the latest finite element analysis and simulation software we are able to optimise our designs to be the lightest and most efficient winch systems in the world.

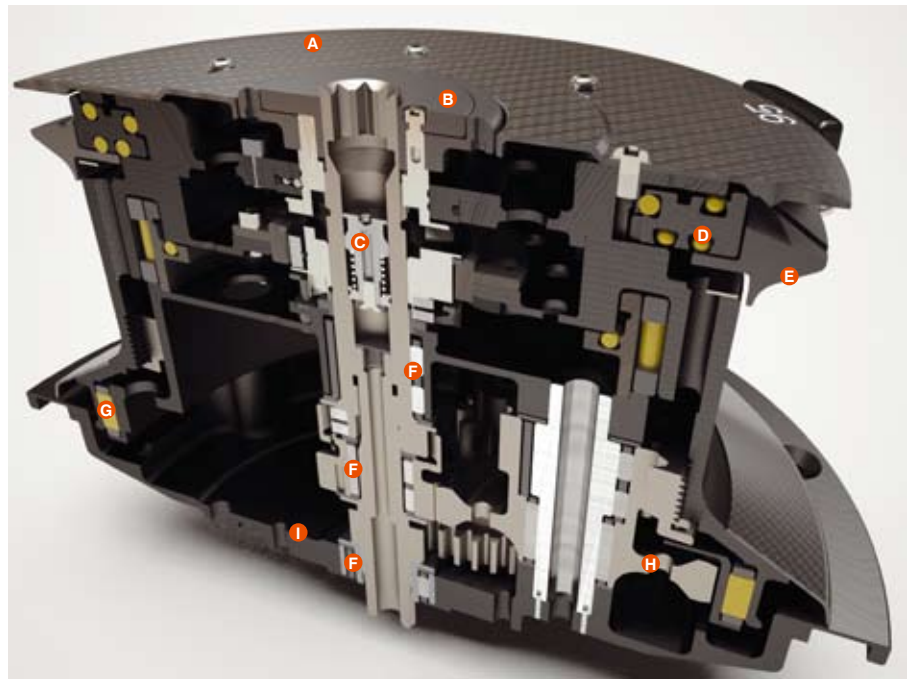
The carbon power range starts with the 50 GPST, which is incredibly strong for its weight and runs all the way through to its big brother, the 120-4 GPST with the patented integral four speed system.

Lewmar racing winches can be customised to suit individual needs with some of the many options including ceramic drum coatings, self tailing jaws, custom top cleats, four speeds, free spinning or ratcheting base sheave additions and anticlockwise rotations if required.

Where ever your next campaign, and what ever your next boat is, whatever the application, Lewmar has a racing winch to help you win!

Features

- Weight saving
- Superior strength
- Developed through extensive research and development
- Speed and Power ratios for ultimate flexibility
- Wavespring Self-Tailer
- Extensive range — Self-Tailing, Cleat-Top Sheave, Base combinations
- Easy to service
- Needle Peen Drum



A Carbon Tops & Skirts — Reducing weight

B Slam down 1:1 first speed button

C Drum Release — Unique single release button, for quick maintenance and servicing

D Torlon Balls — More balls than any other winch!

E Wave Grip self-tailer — Proven simple effective design

F Internal Roller Bearings — For maximum efficiency

G Large Torlon Bearings

H Optimised Gear Design — Skeletal but strong

I Sunk Base Option — For lower windage and flusher decks



Grand Prix racing winches can be driven by grinding pedestals or by hydraulic or electric motors, with modern racing rules evolving all the time the Lewmar winch range has evolved to meet these challenges.

Lewmar has had many successful partnerships over recent years including many of the leading TP52's, America's Cup teams, Open 60's and IRC race boats such as RAN2 the Fastnet 2009 winner, and the multiple record breakers - Wild Oats and Leopard 3, which between them hold many race records and victories.

Pedestal-drive winch systems are used for applications demanding speed and power. One or more crew can grind from a powerful optimised standing position. Pedestal systems are customized to meet the specific needs of each boat.



Light, fast and strong!

Lightweight and strong, Lewmar's racing winches offer the serious racer outstanding performance and power. Using the best features of our standard range combined with the technology used on America's Cup, Volvo 70's, Vendée Globe etc.

Racing Winch Selection Guide

Since the introduction of our racing winch series, we can offer far more opportunity to select the correct winch for the application of a racing sailor. The models related to yacht size and sail area are shown in the chart below. See following pages for exact specifications, and options. Remember that some winch selections are dependent on the number of purchases used in the overall system. Remember, this chart is for general guidance only. Many loads can be higher due to factors like ballast etc. Dynamic shock loading will also increase loads dramatically. Remember, extra care should be taken on multihulls due to higher righting moments. If in doubt, please feel free to consult your Lewmar office, for further guidance



Racing Winch Selection Guide

Application	Size	Boat Length Overall												
		m ft	8.8 29	10.1 33	10.7 35	11.3 37	11.9 39	12.5 41	14.6 48	16.8 55	18.9 62	21.6 71	24.4 80	25+ 80+
Genoa Sheet	40													
	44													
	44/3													
	48/3													
	50/3													
	60/3													
	77/3													
	95													
	105													
	115													
Spinnaker Sheet	120													
	40													
	44													
	48													
	50													
	58													
	68													
	77													
Main Sheet	105													
	120													
	40													
	48													
	54													
	62													
Genoa Halyard	77													
	95													
	115													
	40													
	44													
	48													
	50													
	54													
Spinnaker Halyard	62													
	68													
	77													
	40													
	44													
	48													
	50													
	54													
Spinnaker Halyard	62													
	68													
	77													
	40													
	44													

Sail Area

Boat Length Overall	m		6.1–7.6		7.6–8.8		8.8–10.1		10.1–10.7		10.7–11.3		11.3–11.9		11.9–12.5		12.5–14.6		14.6–16.8		16.8–18.9		18.9–21.6		21.6–24.3	
Application	ft		20–25		25–29		29–33		33–35		35–37		37–39		39–41		41–48		48–55		55–62		62–71		71–80	
Genoa (sq ft/sq m)	200	19	300	28	350	33	470	44	550	51	600	56	750	70	900	84	1500	139	1900	177	2300	214	2700	251		
Spinnaker (sq ft/sq m)	300	28	400	37	600	56	800	74	1000	93	1200	111	1400	130	1600	149	3000	279	3800	353	4600	427	5400	502		
Main (sq ft/sq m)	120	11	150	14	180	17	210	20	230	21	260	24	300	28	350	33	750	70	875	81	1000	93	1200	111		

Racing Winch Selection Guide

Application	Size	m ft	8.8 29	10.1 33	10.7 35	11.3 37	11.9 39	12.5 41	14.6 48	16.8 55	18.9 62	21.6 71	24.4 80	25+ 80+
Main Halyard	40													
	44													
	48													
	54													
	58													
	68													
	77													
Staysail Halyard	40													
	44													
	48													
	50													
	58													
	68													
	77													
Spin Pole Topping Lift	40													
	44													
	48													
	54													
	62													
Spin Pole Foreguy	40													
	44													
	48													
	50													
	58													
	68													
	77													
Cunningham/ Reef	40													
	44													
	48													
	54													
	62													
	77													
Boom Vang	40													
	HYD													
Runners	40													
	44													
	48													
	54													
	58													
	62													
	68													
	77													

Grand Prix Racing Winches

What's inside makes all the difference. In every Lewmar Carbon Fibre Winch, you will find materials developed for the aerospace industry, precision CNC machined for maximum efficiency, durability and strength-to-weight ratio. Once the winch is assembled, we use an aggressive in-house testing program to ensure maximum performance on the world's toughest racecourses.

Features

- Developed in conjunction with some of the top racing classes including GP42, Class 40, TP52, Open 60, Volvo 70, IACC, 100ft Supermaxi + offshore Maxi-Multihulls
- Range available in 2, 3 or with Lewmar's Patented Integral four-speed system available on larger winch models
- Self-Tailing, Cleat top
- Top handle driven or bottom pedestal drive with electric or hydraulic options available.

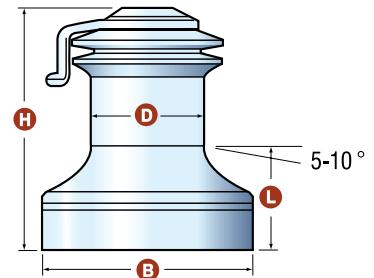


68ACSTR
(Self-Tailing)



105/4ACR
(Cleat Top & Sheave Base)

All 3-Speed Grand Prix winches are available in either Self-Tailing, Cleat Top or Sheave Base



Grand Prix Racing Winches Specifications

Model	Finish	Gear Ratio				Power Ratio				Weight		D		B		H		L		Line Entry	Line Size	Mounting Instructions
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	kg	lb	mm	in	mm	in	mm	in	mm	in			
50GPST	Carbon	3.4:1	11.3:1	-		15.2:1	50:1	-	-	4.7	10.3	115	4½	188	7⅝	168	6⅝	62	2½	8-14	⅝/16-⅞/16	5 x M8 (⅝/16 in) c'sk head screws on 170mm (6⅝/8 in) PCD
50GPST SR	Carbon	3.4:1	11.3:1	-		15.2:1	50:1	-	-	5.1	11.2	115	4½	217	8½	168	6⅝	62	2½	8-14	⅝/16-⅞/16	5 x M8 (⅝/16 in) c'sk head screws on 170mm (6⅝/8 in) PCD
60/3GPST	Carbon	1:1	4.3:1	15.4:1		3.9:1	16.8:1	60.2:1	-	7.8	172	130	5⅛	214	8½	186	7⅝	67	2⅝	8-14	⅝/16-⅞/16	6 x M8 (⅝/16 in) c'sk head screws on 195mm (7⅝/8 in) PCD
60/3GP SB	Carbon	1:1	4.3:1	15.4:1		3.9:1	16.8:1	60.2:1	-	8.2	18	130	5⅛	236	9⅝/16	186	7⅝	67	2⅝	8-14	⅝/16-⅞/16	6 x M8 (⅝/16 in) c'sk head screws on 195mm (7⅝/8 in) PCD
68ACSTR	Carbon	3.5	19.2:1	-		12:1	67:1	-	-	9.5	20.9	150	5⅞	250	9⅓/16	213	8⅜	99	3⅞	8-14	⅝/16-⅞/16	6 x M10 (⅜/8 in) c'sk head screws on 200mm (7⅞/8 in) PCD
68/3ACSTR	Carbon	1:1	3.4:1	19.2:1		3.5:1	12:1	67:1		10.6	23.3	146	5¾	250	9⅓/16	227	8⅞/16	97	3⅞	8-14	⅝/16-⅞/16	6 x M10 (⅜/8 in) c'sk head screws on 200mm (7⅞/8 in) PCD
68/3GP SB	Carbon	1:1	3.5:1	19.3:1		3.5:1	12:1	67:1		10.5	23.1	146	5¾	275	10⅓/16	227	8⅞/16	95	3¾	8-14	⅝/16-⅞/16	6 x M10 (⅜/8 in) c'sk head screws on 200mm (7⅞/8 in) PCD
82GPST	Carbon	1:1	8.5:1	29:1		2.5:1	24:1	82:1		14.7	32.4	182	7⅞	290	117/16	215	87/16	79.5	3⅛	12-16	1/2-5/8	8 x M10 (⅜/8 in) c'sk head screws on 266mm (10½/2 in) PCD
99/3GPST	Carbon	1:1	9.4:1	40.9:1		2.5:1	23:1	101:1		17.5	38.5	204	8	320	12⅝	234	9¼	90	3½	10-16	⅜/8-5/8	8 x M10 (⅜/8 in) c'sk head screws on 296mm (11⅞/8 in) PCD
99/3GP SB	Carbon	1:1	9.4:1	40.9:1		2.5:1	23:1	101:1		19.2	42.2	204	8	328	12⅞/16	234	9¼	92	3⅞/16	12-16	1/2-5/8	8 x M10 (⅜/8 in) c'sk head screws on 281mm (11⅞/16 in) PCD
95/4GPST	Carbon	1:1	3.8:1	8:1	40:1	2:1	7.6:1	16:1	80:1	20.5	45.1	254	10	370	14⅝	225	87/8	98	3⅞	10-16	⅜/8-5/8	6 x M12 (½/2 in) c'sk head screws on 288mm (11⅜/32 in) PCD
95/4GPST SB	Carbon	1:1	3.8:1	8:1	40:1	2:1	7.6:1	16:1	80:1	21.8	48.0	254	10	370	14⅝	225	87/8	98	3⅞	10-16	⅜/8-5/8	6 x M12 (½/2 in) c'sk head screws on 288mm (11⅜/32 in) PCD
105/3STR	Carbon	1:1	8.3:1	39.6:1	-	1.6:1	13.6:1	64.8:1	-	18.5	40.7	280	11	360	14⅞/32	225	87/8	93.7	3⅞/16	8-14	⅝/16-⅞/16	6 x M12 (½/2 in) c'sk head screws on 288mm (11⅜/32 in) PCD
105/4GPST	Carbon	1:1	3.8:1	8:1	40:1	1.8:1	6.9:1	14.5:1	72.6:1	21.6	47.5	280	11	370	14⅝	237	9⅜	90	3½	10-16	⅜/8-5/8	6 x M12 (½/2 in) c'sk head screws on 288mm (11⅜/32 in) PCD
105/4GP SB	Carbon	1:1	3.8:1	8:1	40:1	1.8:1	6.9:1	14.5:1	72.6:1	23.4	51.5	280	11	370	14⅝	220	8⅝	90	3½	10-16	⅜/8-5/8	6 x M12 (½/2 in) c'sk head screws on 288mm (11⅜/32 in) PCD
115/3ACSTR	Carbon	1:1	8:1	45.2:1	-	1.8:1	14.8:1	82.2:1	-	39.3	86.5	282	11⅞	432	17	327	127/8	152	5⅞/16	12-18	1/2-¾	10 x M12 (½/2 in) c'sk head screws on 365mm (14⅜/8 in) PCD
120/4ACSTR	Carbon	1:1	3.6:1	8:1	45.2:1	1.7:1	6:1	13.5:1	75.3:1	47.3	104.1	305	12	450	17¾	312	12¼	143	5⅝	14-20	9/16-¾	10 x M12 (½/2 in) c'sk head screws on 365mm (14⅜/8 in) PCD

Racing Winches



Two Speed Racing Self-Tailing Winch

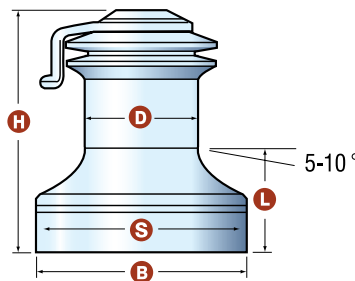


Three Speed Cleat Top Racing Winch

Racing Winches Specifications

Model	Finish	Gear Ratio				Power Ratio				Weight		Drum Dia		Base Dia		Height		Line Entry		Line Size		Mounting Instructions
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	kg	lb	mm	in	mm	in	mm	in	mm	in	mm	in	
40STR	Alloy	1.9:1	5.8:1	-	-	13.2:1	40.2:1	-	-	3.4	7.5	74	2 ¹⁵ / ₁₆	148	5 ¹³ / ₁₆	173	6 ¹³ / ₁₆	80	3 ¹ / ₈	8-12	5/ ₁₆ -1/2	5 x M6 (1/4 in) c'sk head screws on 121mm (4 ³ / ₄ in) PCD
44STR	Alloy	2.4:1	7.6:1	-	-	13.9:1	44.8:1	-	-	4.9	10.8	87	3 ⁷ / ₁₆	168	6 ⁹ / ₁₆	192	7 ⁹ / ₁₆	84	3 ⁹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/16 in) c'sk head screws on 136mm (5 ¹ / ₂ in) PCD
44/3R	Alloy	1:1	3:1	8.7:1	-	5.1:1	15.2:1	44:1	-	5.5	12.1	100	3 ¹⁵ / ₁₆	184	7 ¹ / ₄	169	6 ⁹ / ₁₆	83	3 ³ / ₄	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/16 in) c'sk head screws on 150mm (5 ²⁹ / ₃₂ in) PCD
48STR	Alloy	2.6:1	9:1	-	-	13.9:1	48.6:1	-	-	5.9	13.0	93	3 ¹¹ / ₁₆	181	7 ¹ / ₈	208	8 ³ / ₁₆	86	3 ³ / ₈	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/16 in) c'sk head screws on 150mm (5 ²⁹ / ₃₂ in) PCD
48/3R	Alloy	1:1	3.6:1	10.6:1	-	4.5:1	16.3:1	48:1	-	6.8	14.9	112	4 ⁷ / ₁₆	207	8 ¹ / ₈	196	7 ⁹ / ₁₆	102	4	8-14	5/ ₁₆ -9/ ₁₆	6 x M8 (5/16 in) c'sk head screws on 165mm (6 ¹ / ₂ in) PCD
50STR	Alloy	2.8:1	10.5:1	-	-	13.8:1	50.6:1	-	-	7.8	17.2	105	4 ¹ / ₈	200	7 ⁷ / ₈	238	9 ³ / ₁₆	106	4 ³ / ₁₆	8-16	5/ ₁₆ -5/ ₈	6 x M8 (5/16 in) c'sk head screws on 165mm (6 ¹ / ₂ in) PCD
50/3R	Alloy	1:1	5.4:1	12.8:1	-	31.1:1	20.9:1	49.9:1	-	8.4	18.5	130	5 ¹ / ₈	225	8 ⁷ / ₈	223	8 ³ / ₄	120	4 ³ / ₄	8-16	5/ ₁₆ -5/ ₈	5 x M8 (5/16 in) c'sk head screws on 193mm (7 ²⁹ / ₃₂ in) PCD
54STR	Alloy	2.8:1	11.2:1	-	-	13.8:1	54:1	-	-	8.3	18.3	105	4 ¹ / ₈	205	8 ¹ / ₁₆	250	9 ¹³ / ₁₆	115	4 ¹ / ₂	8-16	5/ ₁₆ -5/ ₈	6 x M8 (5/8 in) c'sk head screws on 165mm (6 ¹ / ₂ in) PCD
58STR	Alloy	3.1:1	13.5:1	-	-	13.5:1	58.1:1	-	-	10.2	22.4	118	4 ⁵ / ₈	228	9	266	10 ¹ / ₂	118.5	4 ¹¹ / ₁₆	8-18	5/ ₁₆ -1 ¹ / ₁₆	5 x M10 (5/16 in) c'sk head screws on 184mm (7 ¹ / ₄ in) PCD
60/3R	Alloy	1:1	5.4:1	19:1	-	3.1:1	16.7:1	59.4:1	-	13.6	26.9	162	6 ⁹ / ₁₆	238	9 ⁹ / ₁₆	315	12 ³ / ₈	164	6 ⁷ / ₁₆	8-18	5/ ₁₆ -1 ¹ / ₁₆	6 x M10 (5/16 in) c'sk head screws on 200mm (7 ⁷ / ₈ in) PCD
62STR	Alloy	3.1:1	14.5:1	-	-	13.5:1	62.6:1	-	-	10.8	23.8	118	4 ⁵ / ₈	231	9 ¹ / ₈	271	10 ¹ / ₁₆	121.5	4 ³ / ₄	8-18	5/ ₁₆ -1 ¹ / ₁₆	5 x M10 (5/16 in) c'sk head screws on 184mm (7 ¹ / ₄ in) PCD
77/3STR	Alloy	2.8:1	8:1	27:1	-	7.9:1	23:1	77:1	-	22.3	49.1	178	7	294	11 ⁹ / ₁₆	348	8 ³ / ₄	174	6 ⁷ / ₈	12-22	1 ¹ / ₂ -7/ ₈	8 x M10 (5/16 in) c'sk head screws on 256mm (8 ²⁹ / ₃₂ in) PCD
88/3STR	Alloy	3.8:1	8:1	40:1	-	8.4:1	17.8:1	89:1	-	24.7	54.5	228	9	324	12 ³ / ₄	333	13 ¹ / ₈	151	54 ¹⁵ / ₁₆	12-25	1 ¹ / ₂ -1	6 x M12 (1/2 in) c'sk head screws on 288mm (11 ¹ / ₂ in) PCD
111/3STR	Alloy	3.6:1	8:1	45.2:1	-	6.5:1	14.6:1	82.2:1	-	29.8	65.7	260	11	404	15 ¹⁵ / ₁₆	367	14 ⁷ / ₁₆	163	6 ⁷ / ₁₆	12-25	1 ¹ / ₂ -1	8 x M12 (1/2 in) c'sk head screws on 340mm (13 ³ / ₈ in) PCD
111/4R	Alloy	1:1	3.6:1	8:1	45.2:1	1.8:1	6.5:1	14.6:1	89.2:1	29.1	64.2	280	11	404	15 ¹⁵ / ₁₆	317	12 ¹ / ₂	163	6 ⁷ / ₁₆	12-25	1 ¹ / ₂ -1	8 x M12 (1/2 in) c'sk head screws on 340mm (13 ³ / ₈ in) PCD

Note: All racing winches are available in grey or black finish.



Expert Advice

When installing a winch, Lewmar recommends the winch must be mounted on a flat surface and that the rope enters the drum at an angle of 5° to 10° to the base axis of the winch. This angle can be achieved by using a base wedge when mounting the winch.

Speed Ring Racing Winches Specifications

Model	Finish	Gear Ratio		Speed Ring Power Ratio		Power Ratio		Weight		Drum Dia		Speed Ring Dia		Base Dia		Height		Line Entry		Line Size		Mounting Instructions
		1st	2nd	1st	2nd	1st	2nd	kg	lb	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	
40STR SR	Alloy	1.9:1	5.8:1	6.6:1	20.3:1	13.2:1	40.2:1	3.8	8.4	74	2 ¹⁵ / ₁₆	145.5	5 ³ / ₄	175	6 ⁹ / ₁₆	173	6 ¹³ / ₁₆	80	3 ¹ / ₈	8-12	5/ ₁₆ -1/2	5 x M6 (1/4 in) c'sk head screws on 121mm (4 ³ / ₄ in) PCD
44STR SR	Alloy	2.4:1	7.6:1	7:1	22.6:1	13.9:1	44.8:1	5.4	11.9	87	3 ⁷ / ₁₆	170.5	6 ³ / ₄	205	8 ¹ / ₁₆	192	7 ⁹ / ₁₆	84	3 ⁹ / ₁₆	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/16 in) c'sk head screws on 136mm (5 ¹ / ₂ in) PCD
48STR SR	Alloy	2.6:1	9:1	7.2:1	24.8:1	13.9:1	48.6:1	6.5	14.3	93	3 ¹¹ / ₁₆	184	7 ¹ / ₄	221	8 ⁷ / ₁₆	208	8 ³ / ₁₆	86	3 ³ / ₈	8-14	5/ ₁₆ -9/ ₁₆	5 x M8 (5/16 in) c'sk head screws on 150mm (5 ²⁹ / ₃₂ in) PCD

Pedestal Systems

Lewmar has been making pedestal systems for nearly 40 years! Working closely with some of the best teams and sailors over this time has given Lewmar a great pedigree and understanding, we know what it takes to get you over the line. Lewmar can develop bespoke tailored systems to your exact requirements.

The unique Lewmar "i Beam" belt drive pedestals are moulded in carbon fibre with an optimised layup schedule that ensures maximum stiffness and efficiency. Lewmar are able to offer straight or twisted pedestals and our fat grip pedestal racing handles are ideal for the biggest strongest grinders you have on the team (we can customise our pedestals for girls as well!).

Drive components are fabricated of Hardcote anodized aluminium and titanium or 17-4 PH stainless steel. Ceramic upper and torlon lower bearings along with the carbon-reinforced drive belts ensure the lowest possible weight whilst retaining maximum efficiency.

In addition to the standard below-deck drives, we can offer pedestals that can be removed to open up cockpit space for long-distance racing or cruising. These systems can be removed in just a few minutes and the winches operated to top action using a standard winch handle.



Drive Shafts

Lewmar offers two types of drive shafts, either extruded splined aluminium drive shafts, or the more popular custom made carbon tubular drive shafts with bonded end fittings. The drive shaft choice is determined by load, cost, and weight considerations.



Drive Shaft Specifications

Product	Weight	
	kg	lb
Lightweight Alloy Drive Shaft	1.0	2.2
High Torque Ultralight Carbon Fibre Drive Shaft*	0.4	0.9

*Illustrated

CV Joints

The Lewmar constant velocity joint can replace universal joints reducing weight in the system as well as increasing drive train efficiency for more effective power transfer.



Universal Joints

Gear boxes are connected to other gear boxes and pedestals by drive shafts fitted with either a universal joint or a coupling at each end. Our CV couplings are extremely light but may only be used where the shafts are in-line. Our high angle universal joint is made of aluminium with 17-4 stainless pins, making it very strong and able to operate efficiently at shaft angles up to 15 degrees.

Clutches

The unique Lewmar dog drive clutches ensure consistent and smooth operation this allows engagement and disengagement even while the grinders are hard at work spinning the handles.



Clutch Specifications

Product	Weight	
	kg	lb
Modular Self Seeking Clutch*	2.4	5.3
Integrated Self Seeking Clutch	0.75	1.6

*Illustrated

Disconnect foot switches

Pedestal system disconnects can be activated with either levers, control lines or a two-position push button. The most popular method is operation via a foot switch. Here you can see a Lewmar foot switch as it would be in a system, close to the grinders so they have complete control.



Bevel box

The bevel gear box is the core building block of the Lewmar drive system. The bevel gear box housings are made of a high-strength aluminium alloy that is Hardkote-anodized for maximum durability. The optimised gears, shafts, and rollers are 17-4 PH stainless steel.



Bevel box Specifications

Product	Weight	
	kg	lb
Alloy Bevel Gearbox	4.5	10
Lightweight 4 Man Alloy Bevel Gearbox	2.5	5.5
High Torque Ultralight Carbon Fibre Bevel Gearbox	2.0	4.4

Overdrive Box

The overdrive box can be used to speed up line speeds or increase power, ideal for fast leeward mark rounding, or short handed sailing if you need more power.

The Lewmar overdrive box is modular and can be fitted to any pedestal drive system.

Overdrive Box Specifications

Product	Weight	
	kg	lb
Overdrive Box	3.1	6.8

Pedestal Systems (cont)

Pedestals

- Lightweight Carbon Shell
- Developed using high-strength low-weight pre-preg carbon fibre composites from the F1 industry
- Twist or straight pedestal options
- Dual output also available
- Clear coat UV stable protective lacquer is standard (painted options available)
- Internal belt drive composite bearing systems
- Double bearing systems on handle housing
- Custom Fat Racing grip handles
- Removable Pedestal options for fast cruising market



Pedestal Specifications

Product	Weight	
	kg	lb
Shaft Drive Pedestal — Max Height	19.2	42.0
Shaft Drive Pedestal — Min Height	14.6	32.0
Carbon Fibre Drive Belt Pedestal — Max Height*	5.5	12.1
Glass Fibre Drive Belt Pedestal — Max Height	5.9	14.0

Note: Weight Includes Double Grip Handles *Illustrated

Pedestal Systems — Case Study

The illustration is indicative of Lewmar’s 3D CAD capability. It shows the range of modular components brought together to form an ergonomically efficient Pedestal System that offers versatility, efficiency and power. Power drive hydraulic or electric additions can be engineered into the system with full safety interlocks, allowing for effortless push-button sailing.

Design Brief:

- Driven Pit Winch
- Twin linked Pedestal configuration
- Wide Body Cleat Top Powerful Primaries
- Overdrive feature for A-sail Gybes



Hydraulics

Contents

Hydraulics Introduction	98-99
Commander 200	100
Commander 400	101
Custom Commander	102
Pump Drives	103
Control Systems	104



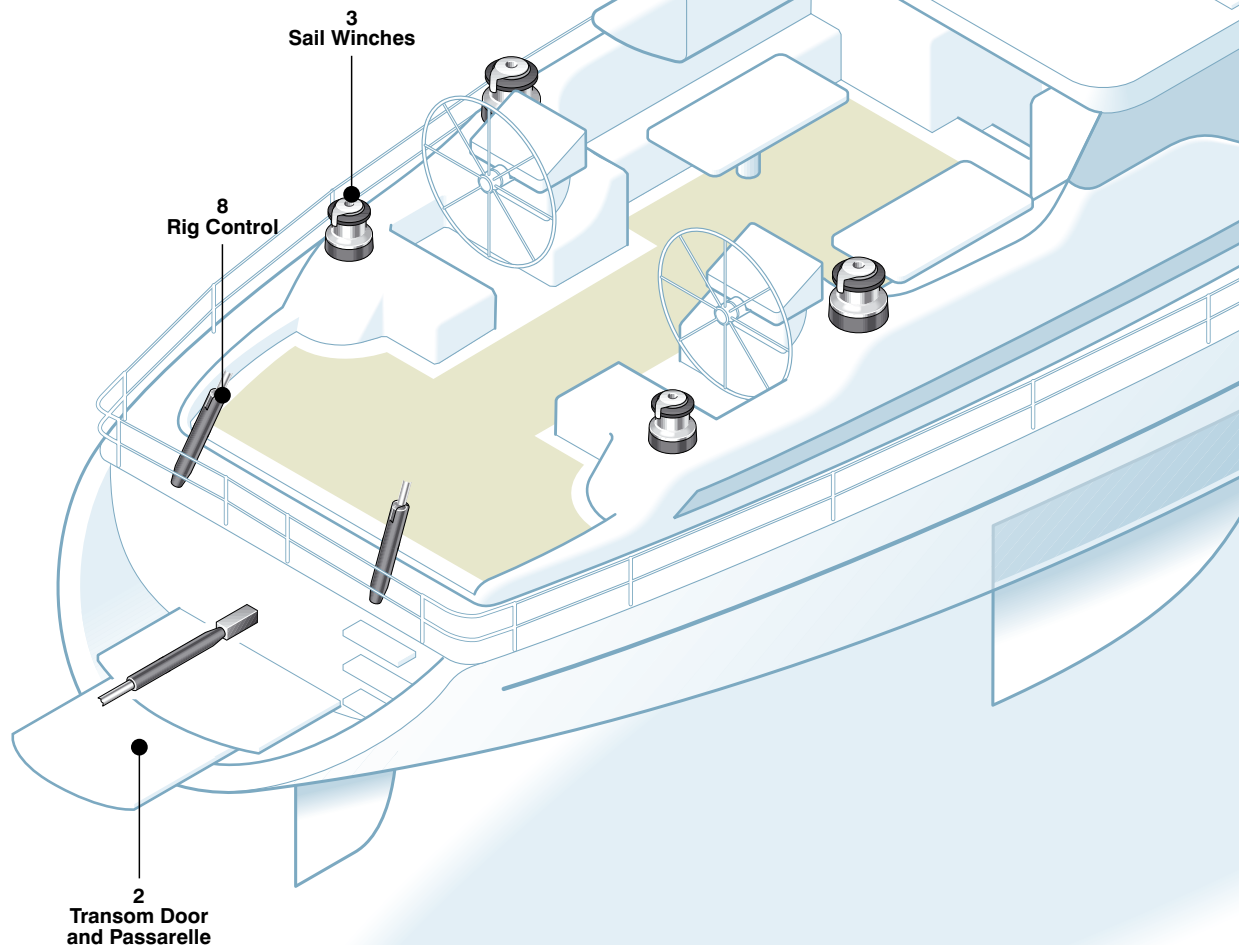
Hydraulic Integrated Engineered Systems. The totally compatible solution.

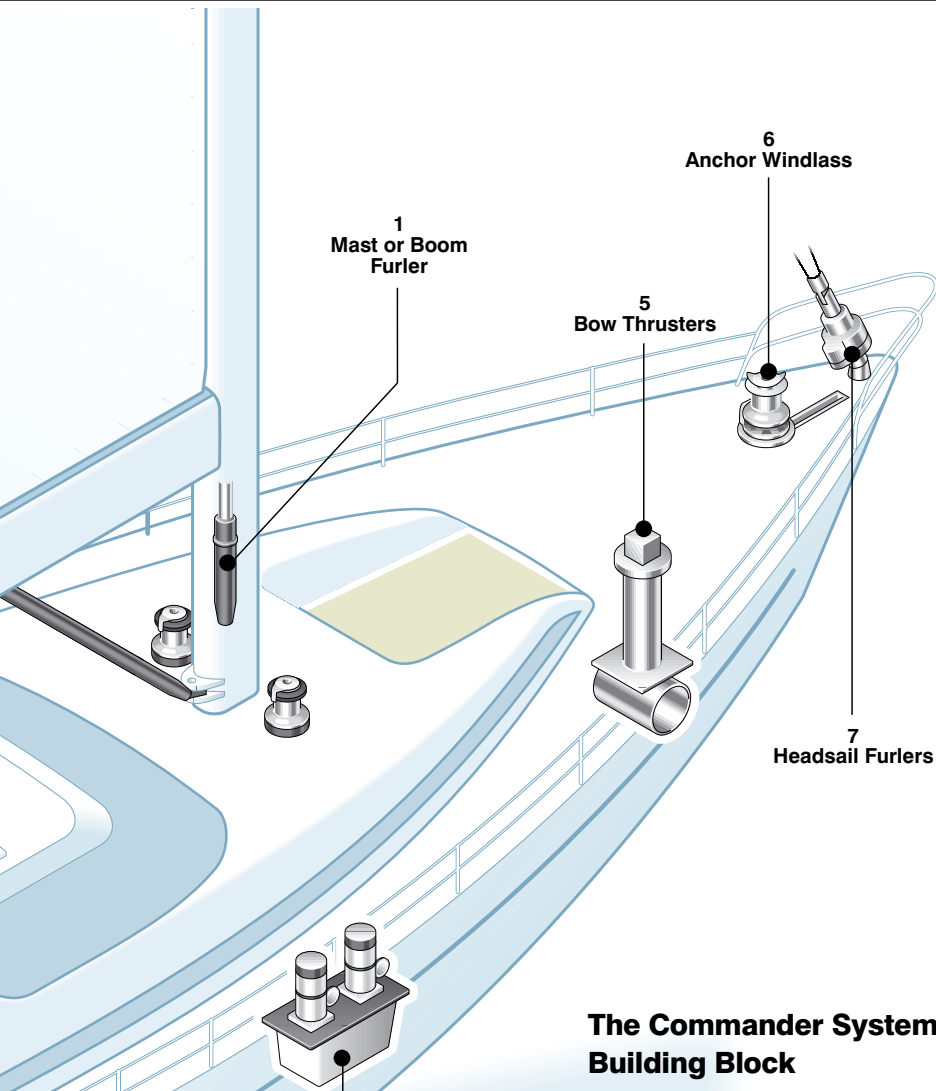
Since 1983 Lewmar have pioneered the use of hydraulic powered sailing systems for use on modern cruising yachts of all types. This has enabled larger vessels to be sailed with less crew more safely than ever before. A variety of heavy jobs can be completed at the touch of a button making life easier, and more enjoyable.

A hydraulic power system can be engineered to perform many tasks, from hauling up the anchor, to furling the sails. With over 30 years of experience, Lewmar can offer a variety of solutions tailor made to suit your particular application.

With our range of power packs and control systems we can offer simple single function packs, to multi-function and multi-source systems for yachts up to 90m (300 ft).

Selection of the most suitable system will depend on a number of factors, but the following pages will give valuable information which will enable owners, designers and builders to construct a working solution specifically to suit their demands.

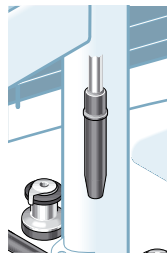




The Commander System Building Block

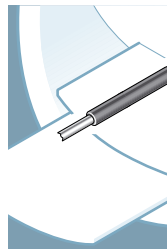
1 Mast or Boom Furler

Lewmar have a hydraulic system that can control any of the world's furler manufacturer's units.



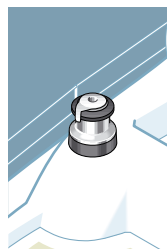
2 Transom Door and Passarelle

Lewmar can provide various control systems for different actuator methods, whether they are cylinders of rotary actuators, balanced, or unbalanced systems.



3 Sail Winches

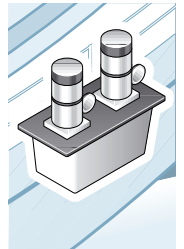
Sail handling winches whether conventional, self-tailing or captive line management systems. (See Winch Section for details)



4 Commander Hydraulic Power Pack

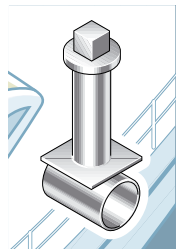
4 Commander Hydraulic Power Pack

A variety of power packs are available. Single/Multiple motor, various voltages, custom reservoirs, the list is endless.



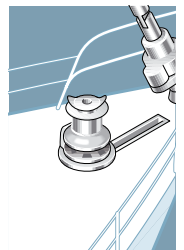
5 Bow Thrusters

Lewmar offer a wide range of thrusters (See Thruster section for details). The thruster can be powered from main engine or generator. This additional power source can also be integrated with the power pack.



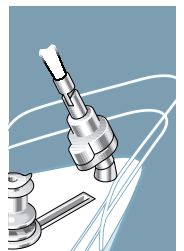
6 Anchor Windlass

The Lewmar anchor windlass is an ideal addition to the system, and affords an excellent level of performance.



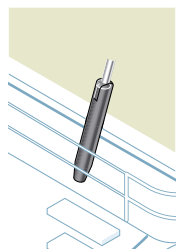
7 Headsail Furlers

Hydraulic headsail furlers from various manufacturers are a stylish and reliable way to control the size of the headsail. Valves and control systems are available for headsails.



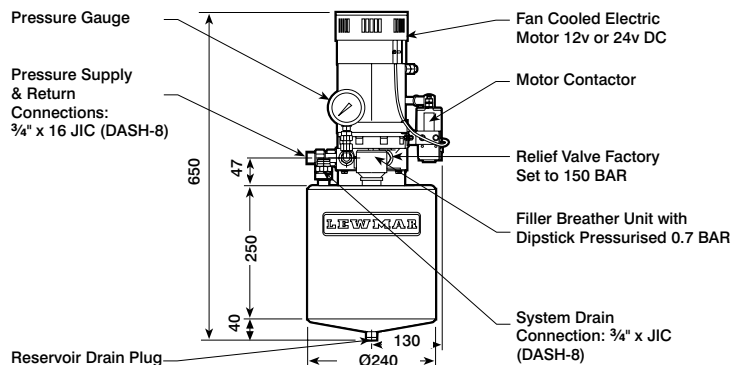
8 Rig Control

The sail handling system can be also integrated with rig control cylinders such as back stay and boom vang for rapid take-up facility.



Commander 200

The Commander 200, is a compact hydraulic power unit, which is capable of operating winches, anchor windlasses, furling systems, and auxiliary functions, one at a time. Both 12 and 24 volt versions feature a fan cooled electric motor, offering high pressure and flow performance coupled to a long duration running time. Both 12 and 24 volt motors offer thermal protection safety switches. The concept of the Commander 200 is flexibility, its modular ordering format allows the required specification to be suited to each vessel as necessary.



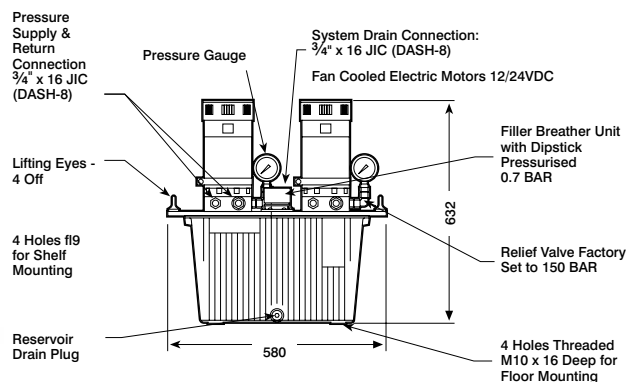
Hydraulic Technical Specification — Commander 200

Operating pressure	140 bar (2030 p.s.i.)
Max flow	12v – 16 l/min (4.3 US gal/min) 24v – 17 l/min (4.6 US gal/min)
Reservoir capacity	9 litres (2.4 US gal)
Hydraulic oil type	ISO 32 grade
Hose type and size	12mm bore (1/2 in) SAE100R2 or DIN20021 part 2. For all pressure and tank lines. 6mm bore (1/4 in). For all case drain lines.

For longer hose runs, larger bore hoses may be required, if in doubt contact Lewmar.

Commander 400

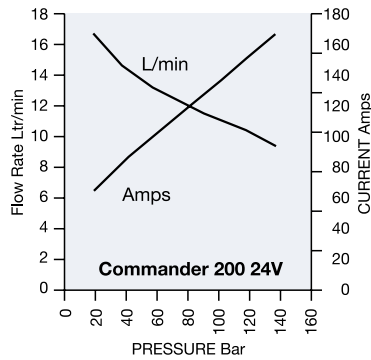
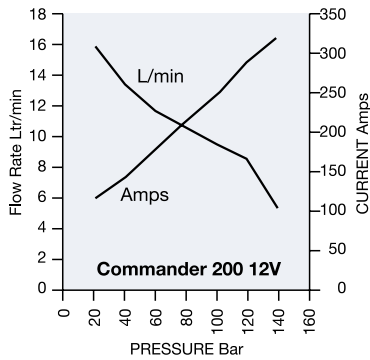
The Commander 400 continues the flexibility of the Commander 200 but with increased power. It is available in 12 or 24 volt versions, both are fan cooled. The Commander 400 is ideal for vessels which require high flow for sailing functions.



Hydraulic Technical Specification — Commander 400

Operating pressure	140 bar (2030 p.s.i.)
Max flow	12v – 32 l/min (8.4 US gal/min) 24v – 34 l/min (9.0 US gal/min)
Reservoir capacity	27 litres (7.1 US gal)
Hydraulic oil type	ISO 32 grade
Hose type and size	12mm bore (1/2 in) SAE100R2 or DIN20021 part 2. For all pressure and tank lines. 6mm bore (1/4 in). For all case drain lines.

For longer hose runs, larger bore hoses may be required, if in doubt contact Lewmar.



Commander 200 & 400 Cable distance from batteries to motor (2 x distance from battery).

Up to 5.0m (16 ft)	12v – 70mm/sq (USA 00) 24v – 35 mm/sq (USA 2)
Up to 7.5m (24 ft)	12v – 95 mm/sq (USA 000) 24v – 50 mm/sq (USA 0)
Up to 10.0m (32 ft)	12v – 120 mm/sq (USA 0000) 24v – 70 mm/sq (USA 00)
Up to 12.5m (41 ft)	12v – 185 mm/sq (USA 00000) 24v – 95 mm/sq (USA 000)

Voltage drop over complete wiring run should not exceed 2 volts.

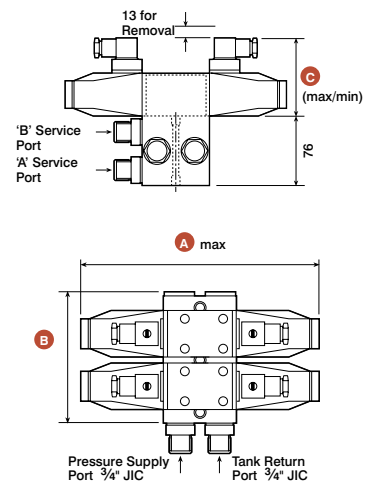
Commander Unit Sizes

	mm	Height mm	Width mm	Depth mm	Dry Weight kg	Weight with oil kg
Commander 200	12 or 24 volt	650	ø 240	N/A	18.0	26
Commander 400	12 or 24 volt	632	580	340	40	60
Control box		160	80	55	0.5	N/A

Commander 200 & 400 Manifold and D.C.V. Valves Only

	A max mm	B mm	C* min mm	C max mm	Weight kg
One Station	276	78	90	270	4.1
Two Station	276	129	90	270	6.9
Three Station	276	180	90	270	9.8
Four Station	276	231	90	270	12.6
Five Station	276	282	90	270	15.5
Six Station	276	333	90	270	18.3

* C Dimension is dependant on valve stack configuration



Electrical Technical Specification Commander 200

12 and 24 volt motors nominally rated to 3kw. Supply voltage limits, $\pm 15\%$ at extreme tolerances the unit will operate with de-rated performance.

Current drain 12v	@ 60 bar – 180 amps @ 140 bar – 320 amps
Battery capacity	600 amp/hour
Recommended Circuit breaker, fuse	300 amp (slow blow type)
Current drain 24v	@ 60 bar – 100 amps @ 140 bar – 165 amps
Battery capacity	400 amp/hour
Recommended Circuit breaker, fuse	150 amp (slow blow type)

The above battery capacities are a guide, contact your battery supplier if in doubt.

There are four main assemblies which need to be specified and ordered to enable the system to be correctly supplied.

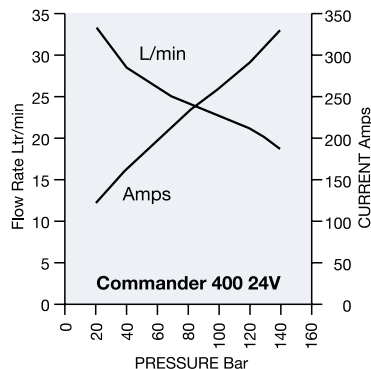
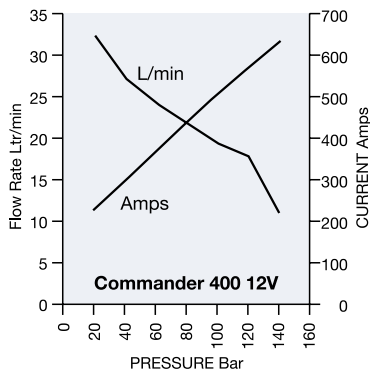
1. The electric motor hydraulic pump set (12 or 24 volt), with integral oil reservoir, pressure relief valve, pressure gauge and motor contactor.
2. The control box is a sealed enclosure containing a printed circuit board (P.C.B.). Each control box is capable of controlling four directional valves. Additional control boxes can be mounted side by side and linked which allows for more than four valves to be controlled.
3. Directional control valve stations, these can be on one manifold block with one to six valves, or in any combination of manifolds and valves. A range of valve assemblies are available to suit the common sailing functions. Contact Lewmar for advice.
4. Pipe mounted return line oil filter, standard spin on cartridge type, rated to 25 micron. Electrical switches can be used to control the system. As with all Commanders, deck switches are ordered separately.

Electrical Technical Specification Commander 400

12 and 24 volt motors nominally rated to 3kW and fan cooled. Supply voltage limits, $\pm 15\%$ however at extreme tolerances the unit will operate with de-rated performance.

Current drain 12v	@ 60 bar – 360 amps @ 140 bar – 640 amps
Battery capacity	1200 amp/hour
Recommended Circuit breaker, fuse	300 amp (slow blow type) per motor
Current drain 24v	@ 60 bar – 200 amps @ 140 bar – 320 amps
Battery capacity	800 amp/hour
Recommended Circuit breaker, fuse	150 amp (slow blow type) per motor

The above battery capacities are a guide, contact your battery supplier if in doubt.

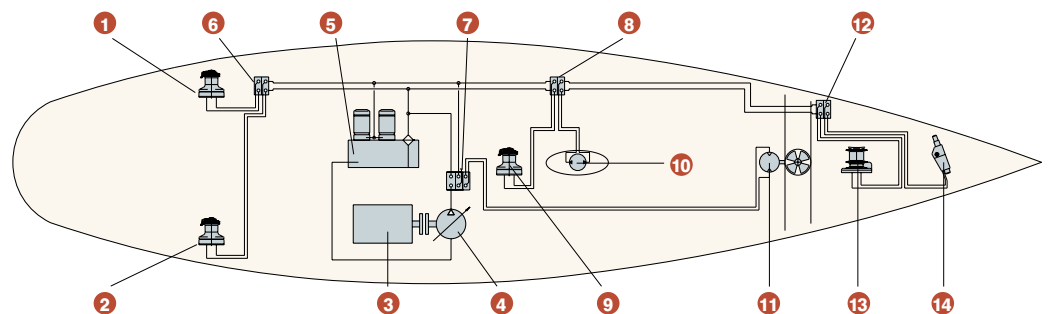


Custom Commander

The Lewmar range of custom Commanders is very comprehensive. This type of system allows the design of a fully integrated hydraulic package to be installed, and affords the builder the knowledge that he has a properly engineered package that is not just a mismatch of various manufacturers components. Custom commander systems can be fully integrated with Lewmar Thrusters. This allows the use of single reservoir, saving valuable space. It also allows the use of the Thruster pump to act as an additional power source for the sailing system hydraulics. This can offer considerable benefits in the reduction of battery charging, as well as an additional source of power in the event of an emergency. Lewmar Custom Commander Systems have been used on over 200 yachts in the last 15 years. A testament to the popularity, and reliability of the product.

Features

- DC motors from 3–14 kw
- Multi motor combinations
- 3 phase AC versions
- AC/DC versions
- Custom designed reservoirs
- Remote valve groups
- PLC control
- Electric & Hydraulic soft starts
- Various alarm outputs
- Fan cooled motors
- Thermal overload protection
- Proportional control
- Individual custom manual supplied

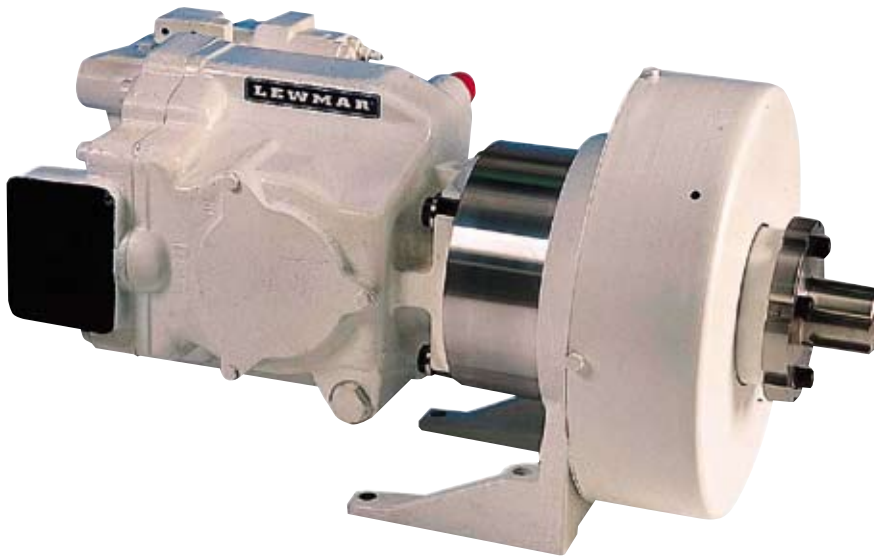


18.5m (61 ft) Sloop Hydraulic Schematic

Position	Description	Type	Pressure Flow
1	Genoa Sheet Winch	Lewmar 66SHST	140 BAR – 30 L/min
2	Genoa Sheet Winch	Lewmar 66SHST	140 BAR – 30 L/min
3	18 kW Generator Set	Various	
4	Variable Displacement Pump	41 CC/REV	150 BAR – 53 L/min
5	24 v DC Hydraulic Power Pack	Custom Commander 400	140 BAR – 30 L/min
6	Aft Winch Valve Group	2 Station Valve Group	
7	PTO Backup/Thruster Valve	2 Station Valve Group	150 BAR – 53 L/min 140 BAR – 30 L/min
8	Mast Winch/Furler Valve Group	2 Station Valve Group	
9	Halyard/Outhaul winch	Lewmar 54SHST	140 BAR – 30 L/min
10	In Mast Main Furler	Various	140 BAR – 20 L/min
11	15HP Tunnel Thruster	Lewmar 250TTH	150 BAR – 53 L/min
12	Fwd Windlass/Furler Valve Group	2 Station Valve Group	
13	Gypsy Capstan Anchor Windlass	Lewmar 3000VH	140 BAR – 30 L/min
14	Headsail Furler	Various	140 BAR – 30 L/min

Pump drives

The real art of achieving an integrated system installation that is efficient and trouble free is the design of the pump drive system. Lewmar have hundreds of designs that have been giving reliable service for years. The design of such a system is a very careful balance between the performance characteristics of the power source (Main engine, Generator, or Gearbox), choice of thruster drive motor, and set up of the control system. Lewmar specify variable displacement pump and fixed displacement pump drive systems dependant on system requirements. These systems offer fingertip control of power selection, are extremely energy efficient as you only generate the power demanded and generate less noise. The various types of drive offer different benefits, but all depend on correct engineering:-



Main Engine Drives

Careful consultation between Lewmar and the engine manufacturer will assure a pump drive that will give a good spread of power from idle to higher RPM. Obviously some engines are better suited than others but most of the higher torque models will offer good results. Lewmar recommend the fitment of an electromagnetic clutch in order that the pump can be disconnected when not required. This saves energy, heat and noise. A speed trip can also be fitted to ensure that the engine is not stalled at low RPM, or the pump is not damaged at high RPM.

Gearbox Drive

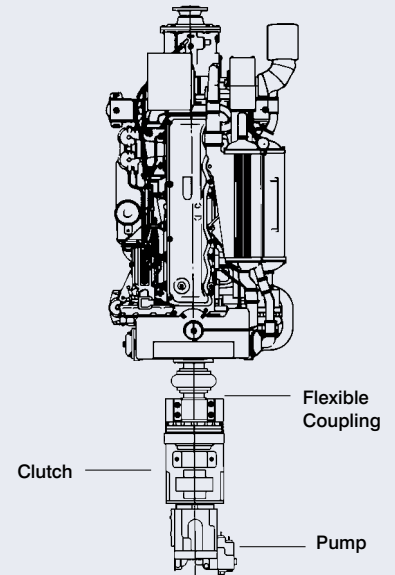
Some gearbox manufacturers can provide a PTO output if specified. Some are clutched and some are direct coupled. Again, with

careful consultation we can provide a pump drive to suit. Even without a clutch we can provide a speed sensor that will allow the pump to run at standby if the RPM are too low or too high.

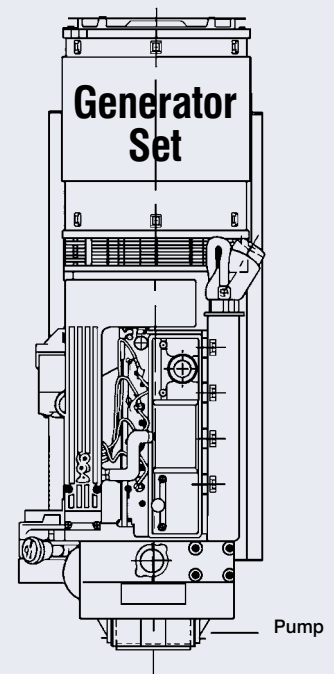
Generator Drive

If the generator can provide sufficient usable power, this is an excellent way of achieving thrust without disturbing the main engine. The major generator manufacturers can provide a clutched PTO output if specified. Lewmar can then match a pump to suit. The advantage of this system is that the generator runs at a constant high RPM, so the pump size can be smaller for the same Horsepower. No speed trip is required, as the RPM is constant.

Main Engine



Generator



Control Systems

The control systems are an extremely important component in making the whole system work. They provide a user friendly interface at the panel end, and an accurate and safe method of controlling the high horsepower generated by the pump drives. Lewmar have a range of building blocks which can be customised to suit the system perfectly.

Control Box

The control of such systems is essential to the safe operation of the thrusters. Lewmar use a versatile PLC (Programmable Logic Control) technology to link all the necessary systems.

Should the system require future additional functions, such as extra winches and cylinders, Lewmar can modify the PLC programme, subject to capacity, and supply the modification via a PLC loader. All master programs are held at Lewmar.

Speed Trip

The engine RPM signal is fed into the PLC allowing control logic to be applied to certain engine operating conditions. For example, thrusters should not be operated when the engine RPM is too low and pump drives should not be engaged when the engine RPM is too high.

Low Oil

Standard practice is to provide an alarm output to warn of low oil. This will flash an oil warning light on the control panel. Custom outputs for audible alarms are also available.

Minimum Oil

The system will be completely disabled, preventing damage to hydraulic components, and a warning light will illuminate.

Oil Temperature

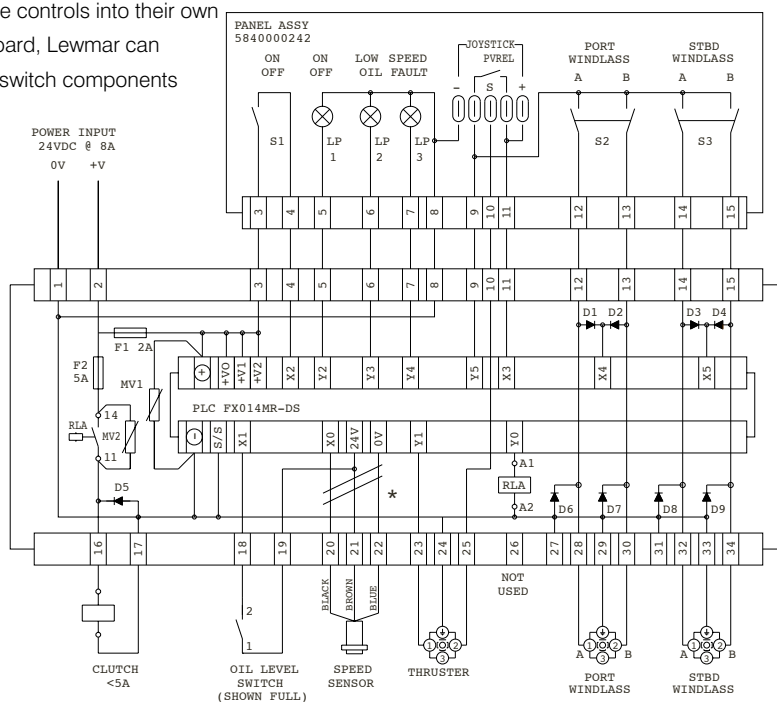
Additional outputs are provided to monitor temperature.

Panels

Thruster and system control panels are engraved alloy panels fitted with IP67 components, for protection in outside locations. Proportional thruster control is by spring centre joystick. All other control buttons are illuminated for ease of use at night, or poor light conditions. These control buttons are momentary type, which allows full safety interlocks in conjunction with the control system. There is a standard range of panels, and Lewmar can supply custom versions if required. Should the builder wish to incorporate the controls into their own panel, or dashboard, Lewmar can supply all of the switch components separately.



Tunnel Thruster and Dual Windlass Control Circuit



By using the latest materials and design technology developed in the racing arena, Lewmar has completely transformed the sailing experience. Each hardware component is designed to work in perfect harmony with rope action, placing sail control squarely in your fingertips. The result? Smooth yet powerful deck-to-sail movement that you can feel confident about.



Hardware

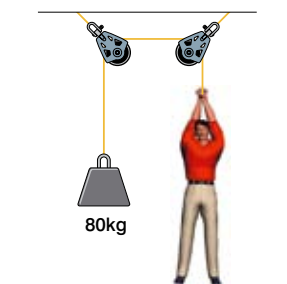
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Technical Reference — Choosing the right system.

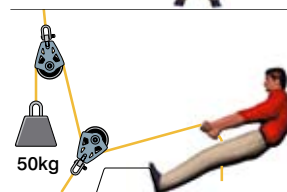
Blocks and purchases:

How hard can you pull?

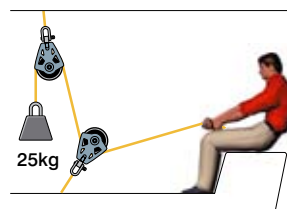


As a guide, the average person can:-
Pull vertically down a force equivalent to his body weight (for a short period!)

When fully braced, pull intermittently sideways with one hand 25 kg, and with two hands, 50kg.



In a normal sailing environment, adjust control lines frequently loaded to 25 kg. Or exert 15kg single handed, or 25 kg double handed, on the handle of a winch.

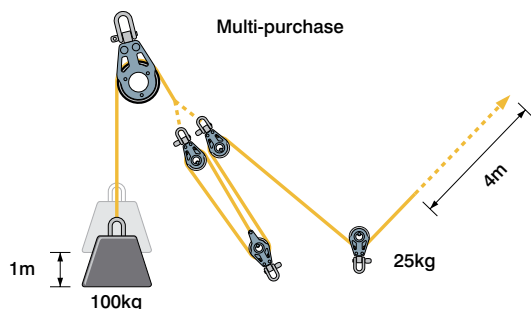


To enable safe and accurate trimming of sails, this human force can be multiplied through a purchase, made up of block systems and/or winches. The purchase means that human power can comfortably achieve the higher forces required for most sailboat controls.

As an example, a 4:1 purchase requires 4 times as much rope to be pulled, but achieves 4 times as much force.

Lewmar manufacture a diverse range of blocks to suit all marine

Fig 1 Multi-purchase



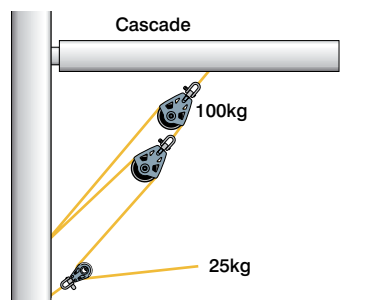
applications. This guide aims to help you to choose the best purchase system, and the appropriate Lewmar products, to suit your application.

Which purchase system?

Figs 1 and 2 show two different configurations for a 4:1 purchase system. The multi-purchase system is used where the full range of adjustment is required, for example a mainsheet traveller system.

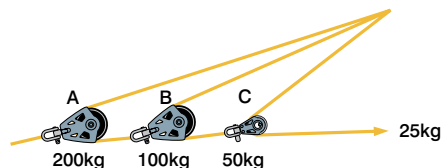
The cascade system can achieve a high purchase with fewer blocks, and diameter and type of line can be specified in line with the load on each part of the system, but it achieves a much smaller range of adjustment. A typical application is a vang system. Cascade systems also enable controls to be led conveniently to either side of the boat, for example with a backstay adjuster.

Fig 2



When specifying a cascade, it's important to ensure that each block in the system has sufficient travel to give the range required. Block B travels twice as far; and block C four times as far, as block A (fig 3). All blocks must be free to travel their full working length without danger of hooking or catching.

Fig 3



Frequently, a combination of cascade and multi-purchase achieves the best compromise between power and range. Fig 4 shows a variety of examples of combination systems, with typical applications, the genoa system showing a satellite purchase remote from the car.

Fig 4.1
48:1 cascade
on Backstay

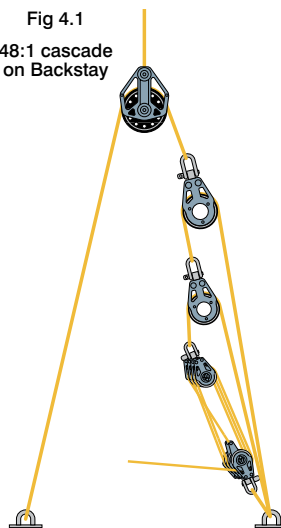


Fig 4.2
8:1 combi on
Jib system

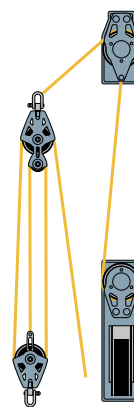
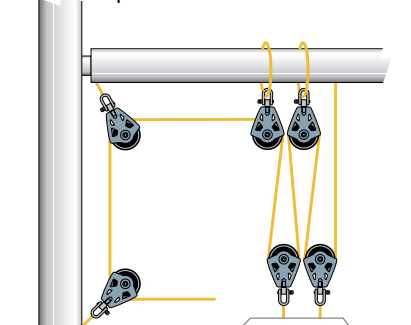
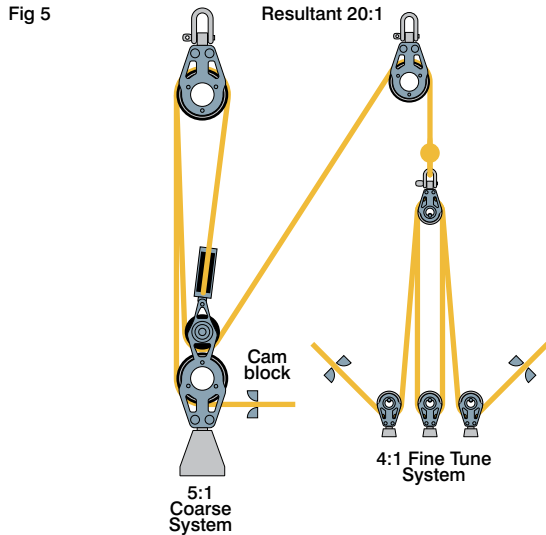


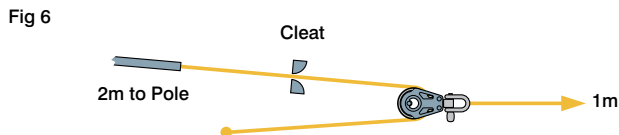
Fig 4.3 4:1 purchase on Mainsheet



Coarse/fine tune. Racing mainsheet systems often comprise a coarse system; used for moving large amounts of unloaded mainsheet (for example at the windward or leeward mark), combined with a fine tune system, which is led to each side of the boat and used for playing the mainsail whilst beating. Fig 5 shows a typical configuration.



Reverse purchase. Occasionally, on a lightly loaded system, a reverse purchase system can achieve greater range or faster movement than the human input. Fig 6 shows an example of a 1:2 asymmetric pole launch system.



Pulling 1 metre on the control moves the pole out 2 metres. Note that the load on the control line is now twice that on the pole launch rope. For this reason in this system the cleat is located on the launch rope, not the control line.

How much purchase power?

If we know the approximate sailing (output) force required we can calculate the purchase required by dividing the output force by the input from control line or winch. To achieve 200kg tension on a system, for example, would require $200\text{kg}/25\text{kg} = 8:1$ purchase.

The table (Fig 7) gives some typical examples of purchases used by Lewmar customers.

Fig 7 — Typical purchase systems

Boat size	4m/ 13ft	6m/ 20ft	8m/ 26ft	10m/ 33ft	12m/ 39ft	14m/ 45ft	16m/ 53ft
Mainsheet-Hand	3:1	4:1	4:1	5:1-10:1	8:1-24:1	-	-
Mainsheet-Winched	-	-	-	3:1	4:1	4:1	4:1
Vang-Cruising	4:1	4:1	4:1	6:1	8:1	10:1	10:1
Vang-Racing	5:1	6:1	8:1	12:1	24:1	36:1	48:1
Car tow-Cruising	-	-	2:1	2:1	2:1	3:1	3:1
Car tow-Racing	-	2:1	3:1	6:1	10:1	2:1 (winch)	2:1 (winch)

Winched purchases. To decide the purchase required in a system controlled by a winch, calculate the winch output by multiplying 15kg for a single handed, or 25kg for a double handed winch, by the winch model no. (44, 48, etc.) On Lewmar and most other brands, the winch number is also the highest power ratio the winch can provide when using a 250mm/10" winch handle. The following table suggests the pulling power that can be generated.

Typical winch output loads

Winch size	30	40	45	50	55
One handed input - 15 Kg on handle = Winch output load	450kg	600kg	660kg	720kg	-
Two handed input - 25 Kg on handle = Winch output load	-	-	1100kg	1200kg	1350kg

Some typical systems in use on current boats

	Backstay	Mainsheet traveller	Mainsheet coarse tune	Extra purchase for mainsheet fine tune	Jib traveller	Vang	Cunningham
Racing dayboat (e.g. Etchells 22)	16:1 cascade	2:1	2:1	4:1 multi-purchase	Plunger	8:1 combination	4:1 cascade
Small cruiser (e.g. Hunter 32)	Fixed	2:1	4:1 multi-purchase	-	Plunger	4:1 multi-purchase	N/A
Small racing yacht (e.g. Mumm 30)	16:1 combination	8:1 multi-purchase	6:1 multi-purchase	4:1 multi-purchase	8:1 combination	20:1 combination	4:1 cascade
Medium cruiser (e.g. Oceanis 393)	Fixed	4:1	4:1	N/A	2:1 with plunger	5:1	N/A
Medium racing yacht (e.g. Farr 40)	Hydraulic	12:1 combination	2:1 Winched	N/A	12:1 combination	36:1 combination	6:1 combination
Large cruiser (e.g. HR 53)	Hydraulic	6:1	4:1 Winched	N/A	2:1 with plungers	8:1	4:1
Large racing yacht (e.g. Farr 52)	Hydraulic	2:1 Winched	2:1 Winched	N/A	2:1 Winched	Hydraulic	6:1 combination

Technical Reference (cont)

Which bearing?

Lewmar's Synchro Control Blocks fitted with ball bearing sheaves are designed for frequently adjusted applications which need free, fast running systems, such as sheets, or control lines which are controlled by hand and parked in cleats.

The Synchro Blocks use free spin bearings and are designed for applications which have high static loadings, but are adjusted less frequently, tending to be cleated for periods of time in the same position. Examples are mainsail halyard or runners controls.

Racing Blocks are fitted with Torlon roller bearing sheaves to combine the qualities of each of the above, and are the ultimate choice for any performance system.

Which size/load block?

Every Lewmar block has a specified Safe Working Load, seen in the specification tables on the relevant page. From the force exerted by human or winch power, it is possible to calculate approximate load requirements of each block within a system, (see How hard can you pull) and match the forces and the products' Safe Working Load.

Deflection loads. The actual load exerted on a block also depends on line's angle of deflection around the sheave. A small deflection results in a lower load, maximum deflection (180°) gives maximum load. (Fig 8)

The table (Fig 9) enables a quick check of the block load as a percentage of the line load for the range of deflection angles.

Genoa cars. This principle has some interesting effects on genoa cars and genoa car tow loadings.

The sheet car on a high clewed no.3 jib deflects the sheet far more than that on a large overlapping genoa. The no.1 genoa may therefore create less load on the car than the no.3 which has a larger deflection angle.

Similarly, the force required to move the car forward is much higher when there is a large deflection than a small one. (Fig 10).

Efficiency. Always choose a sheave diameter at least 7x the line diameter. With smaller sheaves, energy is wasted in forcing the line to bend round the sheave, with a resulting loss in efficiency.

Ensure that blocks are fitted so they always align with the lines passing through them. Pay particular attention to multiple blocks, and those leading lines which go periodically slack.

All Lewmar products have been designed, tested, and developed to achieve best possible efficiency; however, no purchase system is 100% efficient. Therefore the force achieved at the working end of the purchase will be slightly less than the human load multiplied by the purchase. When calculating the purchase required to achieve a known load, we'd therefore recommend allowing a factor of 1.05 per block. Multiplied by the number of 180° turns in the rope make in a system to be certain of "fingertip control".

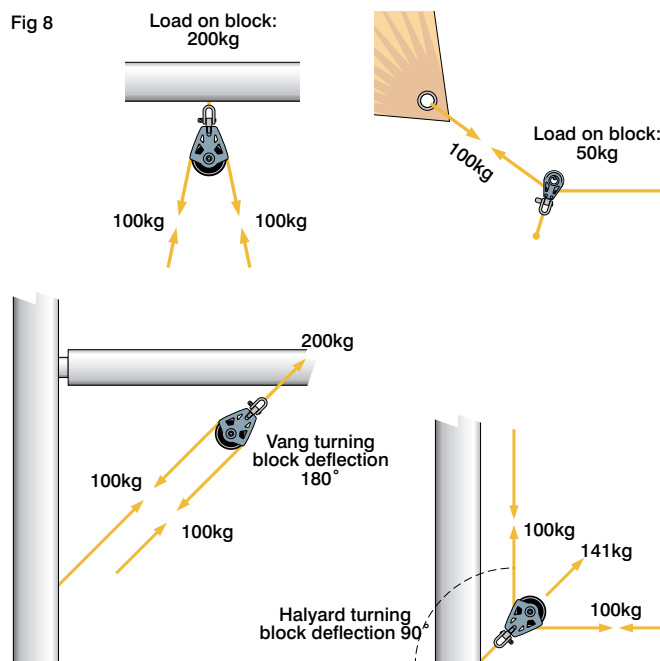
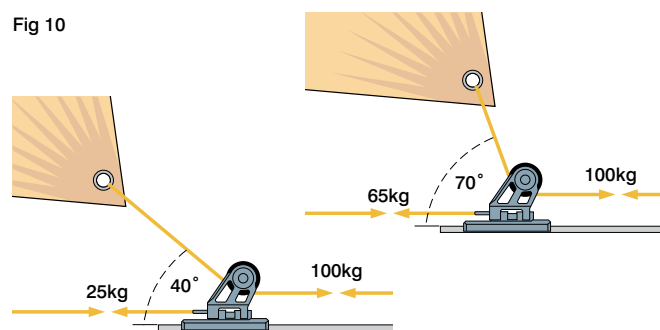


Fig 9

Change of Angle	Block Load as % of line load	Change of Angle	Block Load as % of line load
180°	200%	90°	141%
170°	199%	80°	129%
160°	197%	70°	115%
150°	193%	60°	100%
140°	187%	50°	84%
135°	184%	45°	76%
130°	181%	40°	68%
120°	173%	30°	52%
110°	164%	20°	35%
100°	153%	10°	17%
		0°	0%

Fig 10



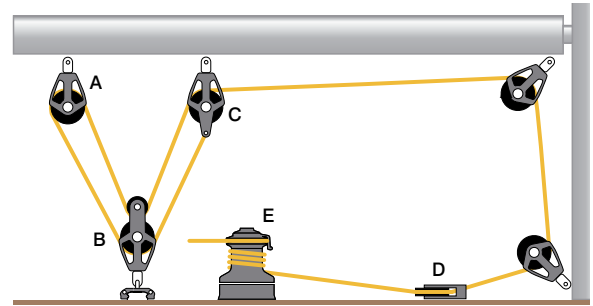
Vertical genoa sheet angle	Tow load as % of sheet load
70°	65%
60°	50%
50°	35%
40°	25%
Mainsheet traveller towing load	
Guide % of mainsheet load	25%

Technical Reference — Mainsheet Systems

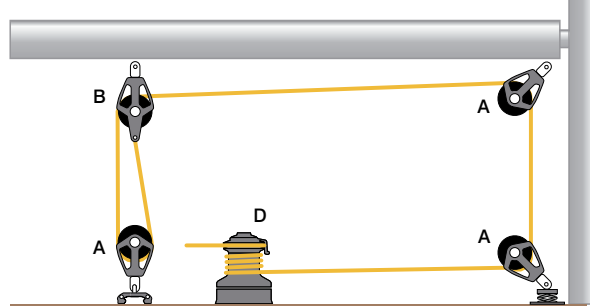
Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
4:1 with dedicated Winch	A	Single	-	-	29927201	29929001
	B	Fiddle	-	-	29927231	29929031
	C	Single Becket	-	-	29927204	29929004
	D	Footblock	-	-	29927261	29929061
	E	Winch	-	-	45st/46st	48st/50st
Half German	A	Single	-	-	-	29929001
	B	Single Becket	-	-	-	29929004
	C	Upstand	-	-	-	19831000
	D	Winch	-	-	-	48st/50st
Double German	A	Single	-	-	-	29929001
	B	Double	-	-	-	29929002
	C	Upstand	-	-	-	29393000
	D	Winch	-	-	-	48st/50st
Maxi	A	Single	-	-	-	29929001
	B	Car	-	-	-	29433682
	C	Footblock	-	-	-	29929061
	D	Winch	-	-	-	48st/50st
4:1 Fiddle	A	Fiddle	29905031	29926031	29927231	29929031
	B	Fiddle	29925037	29926037	29927237	29929039
6:1 Tripple	A	Triple	-	29906003	29907203	-
	B	Triple	-	29926010	29927210	-
6:1/24:1	A	Double	-	29926002	29927202	-
	B	Triple	-	29926010	29927210	-
	C	Single	-	29925001	29926001	-
	D	Fiddle	-	29925031	29926031	-
	E	Fiddle	-	29925039	29926039	-

** Last 2 digits declare the finish of the winch

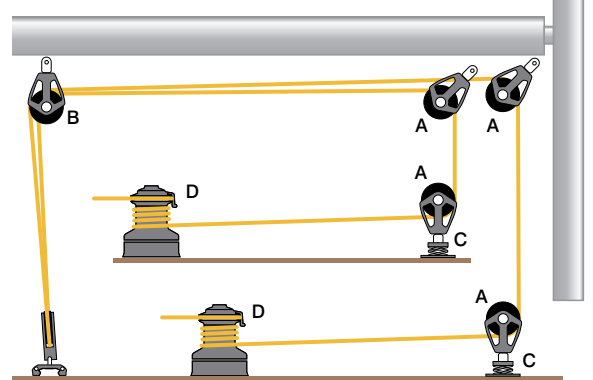
4:1 Dedicated Winch



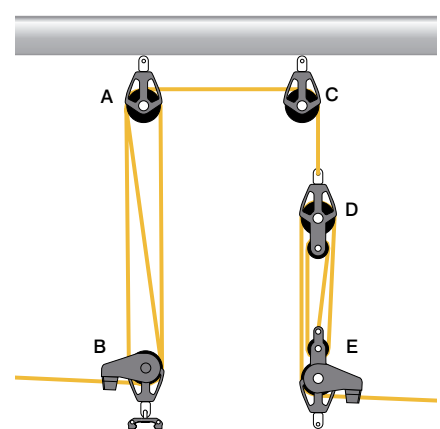
Half German



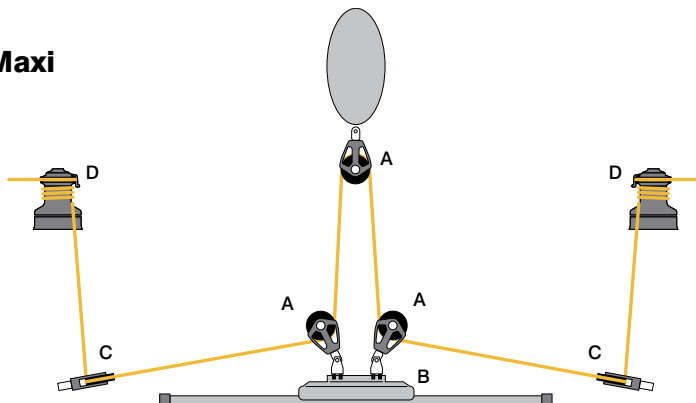
Double German



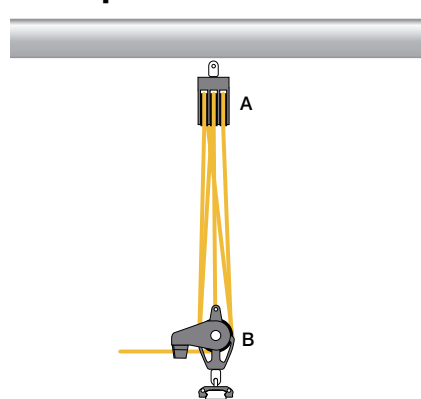
6:1/24:1



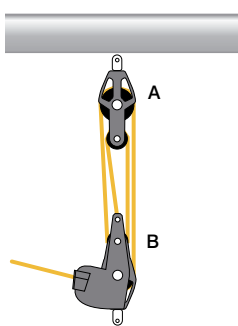
Maxi



6:1 Tripple



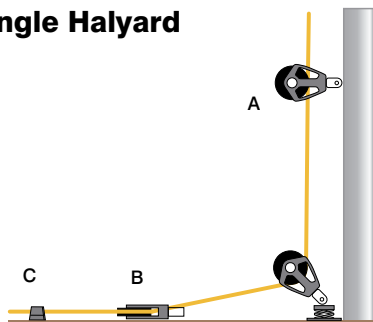
4:1 Fiddle



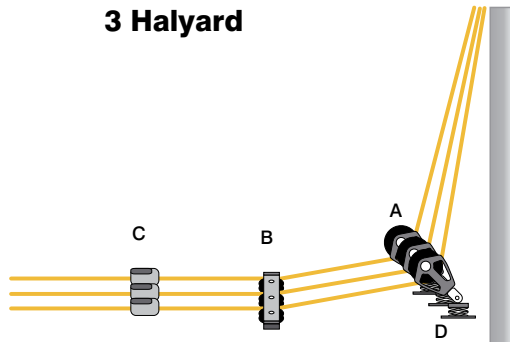
Technical Reference — Halyards

Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
Single Halyard	A	Mastbase Block	29925021	-	-	-
	B	Footblock	29901460	-	-	-
	C	Cam	29104100	-	-	-
3 Halyard	A	Mastbase Block	-	29906021	29927221	-
	B	Organiser	-	29916090	29916060	-
	C	Clutch	-	29101410	29101412	-
	D	Upstand	-	19811000	19821000	-

Single Halyard



3 Halyard



Technical Reference — Genoa System

Plunger Car

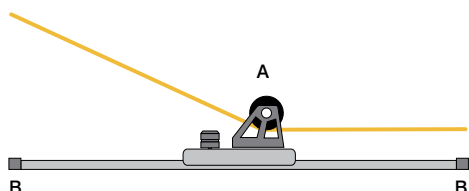
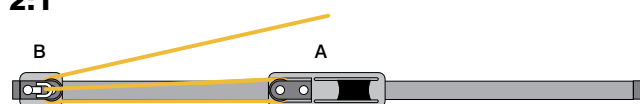
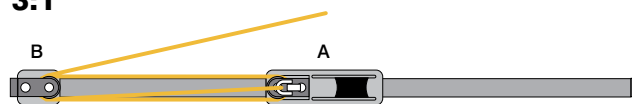


Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
Plunger Car	A	Car	29040600	29441700	29442412	29443700
	B	Endstop	29179040	29171040	29172040	29443040
2:1	A	Car	29040100	29441311	-	29443311
	B	Endstop	29170030	29471035	-	29473135
3:1	A	Car	-	29441345	29442345	-
	B	Endstop	-	29471032	29472035	-
8:1	A	Car	-	-	29442321	29443311
	B	Endstop	-	-	29472035	29473035
	C	Pad Eye	-	-	29904040	29904040
	D	Cleat	-	-	29104110	29104110
	E	Fairlead	-	-	29104114	29104114
	F	Single Becket	-	-	29925004	29926004
	G	Single Fiddle	-	-	29925031	29926031

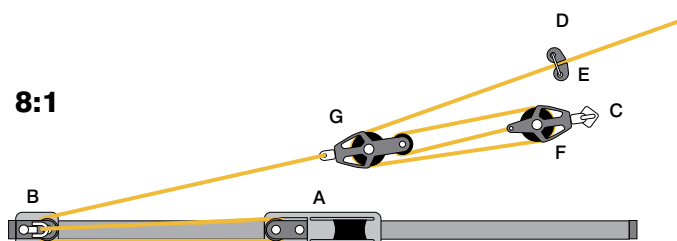
2:1



3:1



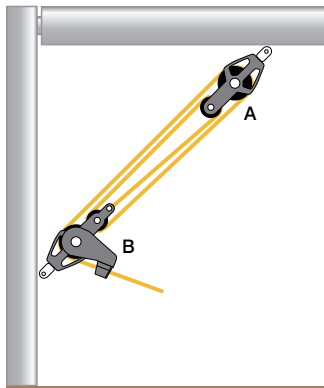
8:1



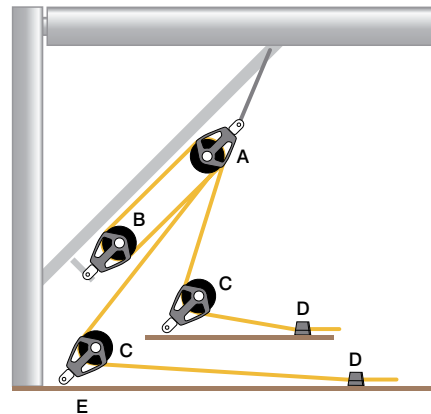
Technical Reference — Boom Vang

Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
4:1 Fiddle	A	Fiddle	-	29906031	-	-
	B	Fiddle & Cam	-	29906039	-	-
6:1 Double Ended Cascade	A	Tripple	-	-	-	29929003
	B	Double	-	-	-	29929002
	C	Single	-	-	-	29909001
	C	Cam Cleat	-	-	-	29104110
	D	Eye Strap	-	-	-	29104113

4:1 Fiddle

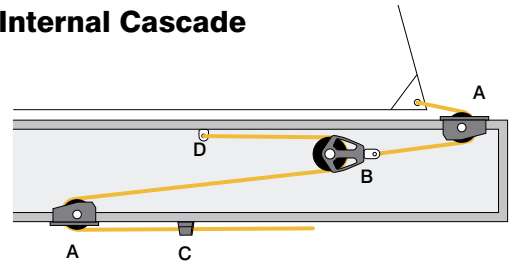


6:1 Double Ended

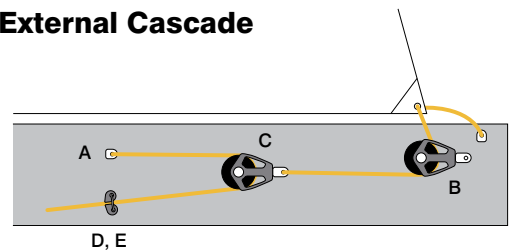


Technical Reference — Outhaul

2:1 Internal Cascade



4:1 External Cascade



4:1 Internal Cascade

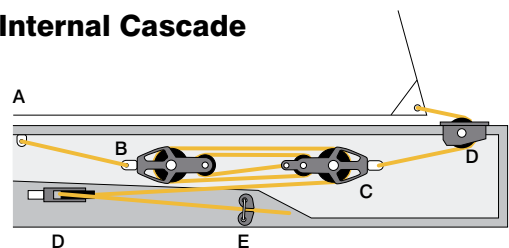
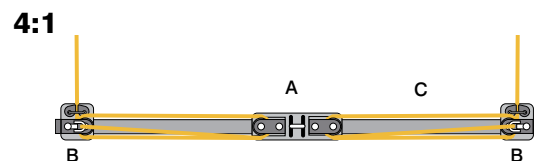
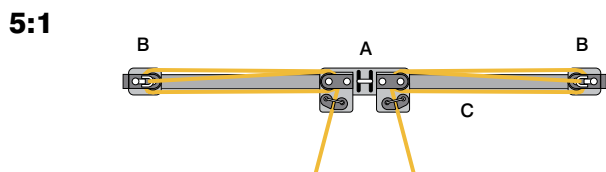
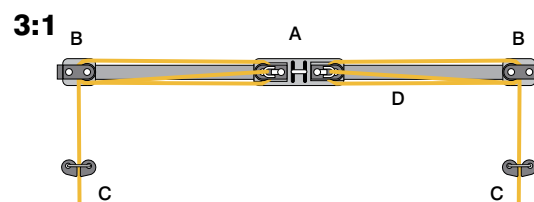
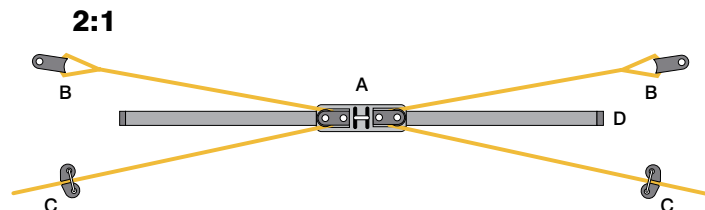


Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
2:1 Internal Cascade	A	Through Deck	29901361	-	-	-
	B	Single	29901421	-	-	-
	C	Cam Cleat	29104100	-	-	-
	D	Eye Strap	29104103	-	-	-
4:1 Internal Cascade	A	Eye Strap	-	29104113	-	-
	B	Footblock	-	29901460	-	-
	C	Single	-	29105001	-	-
	D	Cam Cleat	-	29104110	-	-
	E	Feeder Loop	-	29104116	-	-
4:1 External Cascade	A	Eye Strap	-	-	29104113	-
	B	Fiddle	-	-	29927231	-
	C	Fiddle & Becket	-	-	29927234	-
	D	Through Deck	-	-	29901361	-
	E	Cam Cleat	-	-	29104110	-

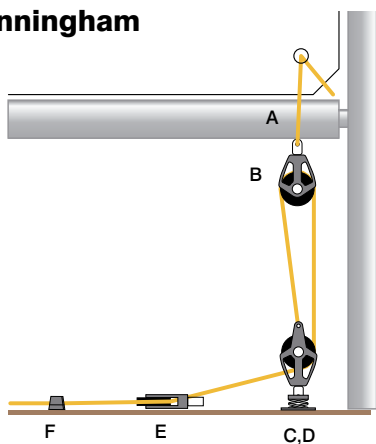
Technical Reference — Traveller Systems

Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
2:1	A	Car	29330107	29431311	-	29433602
	B	Dead Eye	29171010	29171010	-	29473135
	C	Cleat	29904100	29904100	-	29101412
	D	Track	291614**	291614**	-	291636**
	E	Winch	-	-	-	40ST
3:1	A	Car	-	29431315	-	-
	B	Endstop	-	29471032	-	-
	C	Cleat	-	29471015	-	-
	D	Track	-	291614**	-	-
4:1	A	Car	-	29431312	29432312	-
	B	Endstop	-	29471836	29472836	-
	C	Track	-	291614**	291624**	-
5:1	A	Car	-	29431916	29432816	-
	B	Endstop	-	29471032	29473032	-
	C	Track	-	291614**	291624**	-

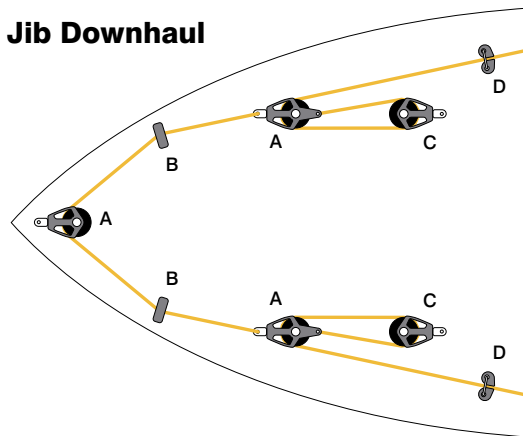


Technical Reference — Cunningham

4:1 Cunningham



6:1 Jib Downhaul



8:1 Cunningham

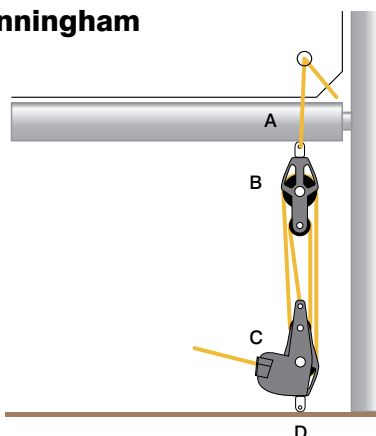
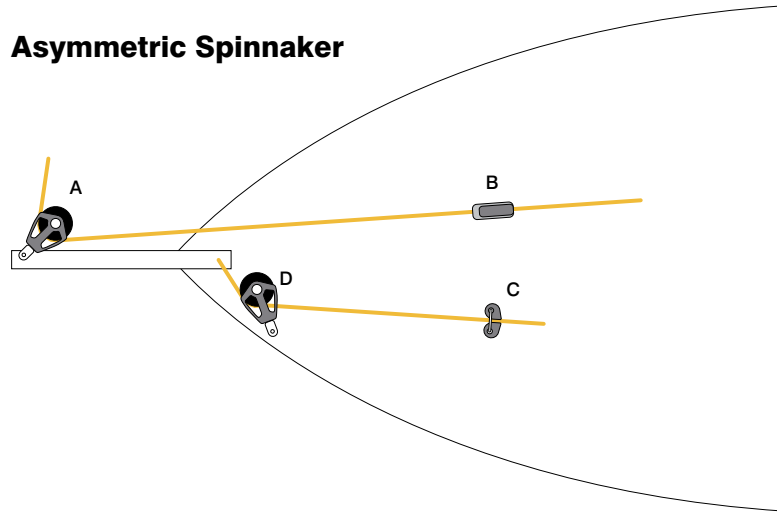


Diagram Title	Ref	Description	Size 0	Size 1	Size 2
4:1 Cascaded	A	Eye Strap	29014113	29014113	-
	B	Single	29925001	29906001	-
	C	Single Becket	29925004	29926004	-
	D	Upstand	29904046	19811000	-
	E	Footblock	29901460	29926061	-
	F	Cam Cleat	29104100	29104100	-
8:1 Cascaded	A	Eye Strap	-	29014113	29014113
	B	Fidle	-	29926031	29927231
	C	Fiddle/Becket/Cam	-	29926039	29927239
8:1 Jib Downhaul J24	A	Single	29906001	-	-
	B	Bulls Eye	29904117	-	-
	C	Footblock	29901460	-	-
	D	Cam Cleat	29104100	-	-

Technical Reference — Asymmetric Spinnaker

Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
Asymmetric Spinnaker	A	Single	-	-	29927201	-
	B	Jammer	-	-	29101112	-
	C	Footblock	-	-	29927264	-
	D	Cam	-	-	29104110	-

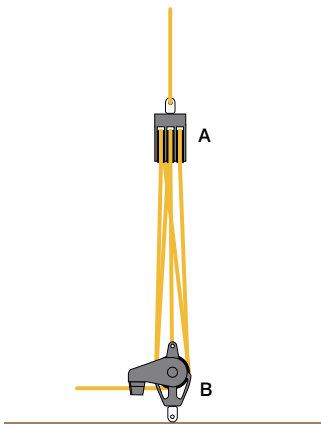
Asymmetric Spinnaker



Technical Reference — Various

Diagram Title	Ref	Description	Size 0	Size 1	Size 2	Size 3
6:1 Right Angle	A	Triple	-	29926003	-	-
	B	Triple/Cam/Becket	-	29906010	-	-

6:1 Right Angle Backstay



Clutches — Features

Lewmar has redefined rope clutch technology with a variable geometry handle and unique grip pattern of dominos that prevent rope fray. This revolutionary new system has been independently tested time and again and has won awards for its innovative framework.

Domino Cluster and longer holding pattern holds line under load without fraying the rope

Controlled Release – Pull back handle combined with patented clutch and release mechanism provides controlled release even at full holding load

Handle has a solid link to the domino cluster

Line Size – Clutches capable of holding lines from 6mm ($\frac{1}{4}$ "") to 14mm ($\frac{9}{16}$ "")



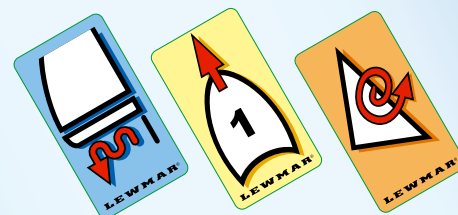
X Instead of just jamming the rope...



✓ ... Lewmar's Domino mechanism flexes it for better grip and less rope wear. Dominos also allow multiple holding points.

Features

- Full Range
- Easy Installation
- High holding Power
- Supplied with decals
- Domino mechanism



Lewmar's award winning rope clutch can now be clearly marked and identified with our range of info-graphics specially designed to suit all sailing applications.

		Boat Length Overall											
		m	7.6	8.8	10.1	10.7	11.3	11.9	12.5	14.6	16.8	18.9	21.5
Application		ft	25	29	33	35	37	39	41	48	55	62	70
Halyards	Main												
	Genoa												
	Spinnaker												
Gooseneck	Reef Lines												
	Outhaul												
	Flattener												
Pole/ Boom Lift	Spin Pole Uphaul												
	Spin Pole Down Haul												
	Heel Lift												
	Main Boom Topping Lift												
Furling Lines	Genoa												
	Main												
Sheets	Mainsheet 4:1 Purchase												
Control Lines	Mainsheet Car (2:1 Purchase)												
	Genoa Car (2:1 Purchase)												
	Pole Outhaul												
	Kicking Strap/Vang												

● D1 Rope Clutch ● D2 Rope Clutch

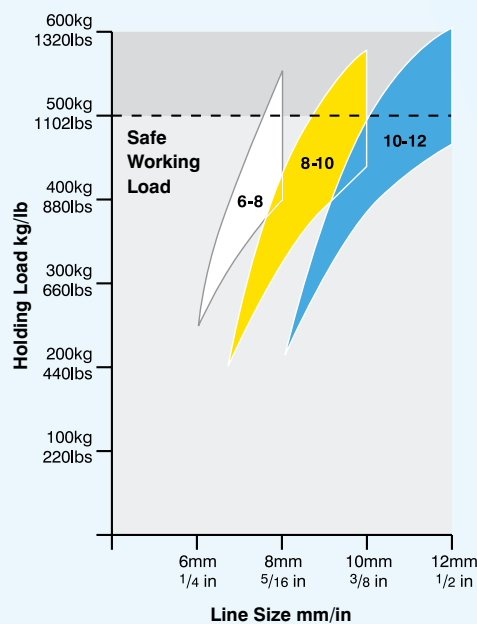
Holding Loads Explained

The holding load of each clutch is listed for the two main line sizes the clutch was designed to hold, the maximum and minimum listed are dependent on the line type used.

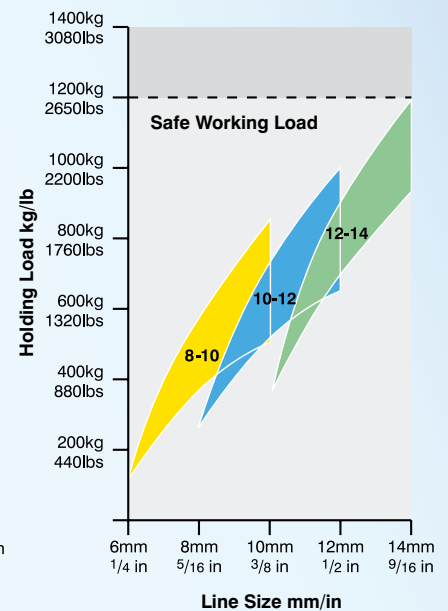
Rope clutches can handle one line size below the nominal range but at a reduced holding load, this can be useful for more lightly loaded applications such as control lines and down hauls. In virtually all cases the larger the line the better the holding capacity, so where the ultimate load is required the larger of the designated line should be used.

This graph shows the range of holding loads that can be achieved, a good quality hard cored line will hold better than a softer line, in some cases this may be higher than the rated Safe Working Load of the clutch but in all cases the line will slip before the Breaking Load is reached.

D1 Rope Clutch



D2 Rope Clutch



D1 Rope Clutch

Features

- High load applications on boats up to 9.7m (32ft), low load and control line applications on larger boats
- Line sizes from 6mm (1/4") to 12mm (1/2"). Safe working load 500kg(1100lb)
- Minimum holding loads shown in table, for maximum loads see page 115
- Fixings and position as industry standard.



D1 Single Rope Clutch



D1 Double Rope Clutch

D1 Rope Clutch Specifications

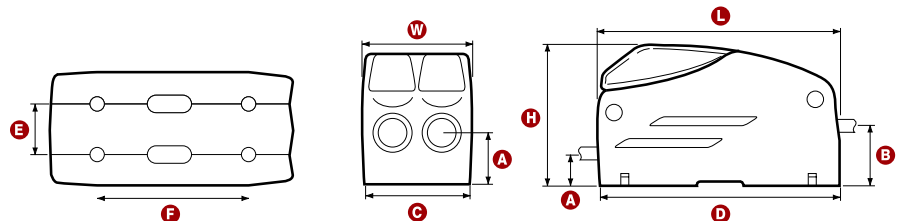
Part Number	Size	Description	Line Size		Min Holding Load		Weight	
			mm	in	kg	lb	g	oz
2910 1108	D1	6 - 8 Single Clutch	6 - 8	1/4 - 5/16	300	661	249	8.8
2910 1208	D1	6 - 8 Double Clutch	6 - 8	1/4 - 5/16	300	661	470	16.6
2910 1110	D1	8 - 10 Single Clutch	8 - 10	5/16 - 3/8	400	880	245	8.6
2910 1210	D1	8 - 10 Double Clutch	8 - 10	5/16 - 3/8	400	880	464	16.4
2910 1112	D1	10 - 12 Single Clutch	10 - 12	3/8 - 7/16	500	1100	242	8.5
2910 1212	D1	10 - 12 Double Clutch	10 - 12	3/8 - 7/16	500	1100	460	16.2
2910 0010	D1	Handle Kit	-	-	-	-	-	-

D1 Rope Clutch Dimensions

Notes:

Note: Line entry and exit angle should not exceed 15° from the rope clutch centre line

Use Pan head M6 - 1/4" fixings - do not tighten beyond 10N.m Torque



D1 Rope Clutch Dimensions

Size	Length ^L		Width ^W		Height ^H		Line Entry ^A		Line Exit ^B		^C		^D		^E		^F	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Single	126	5	32.0	1 5/16	72	2 13/16	27	1 1/8	29	1 3/16	29	1 3/16	125	4 7/8	-	-	79	3 1/8
Double	126	5	57.85	2 5/16	72	2 13/16	27	1 1/8	29	1 3/16	55	2 3/16	125	4 7/8	26	1	79	3 1/8

D2 Rope Clutch

Features

- High load applications on boats up to 16.8m (55ft), low load and control line applications on larger boats
- Line sizes from 8mm (5/16") to 14mm (9/16"). Safe working load 1200kg(2650lb)
- Minimum holding loads shown in table, for maximum loads see page 115
- Fixings and position as industry standard.



D2 Single Rope Clutch

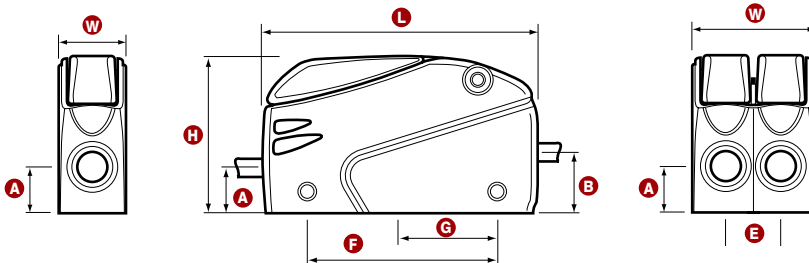


D2 Double Rope Clutch

D2 Rope Clutch Specifications

Part Number	Size	Description	Line Size		Min Holding Load		Weight		SWL	
			mm	in	kg	lb	g	oz	kg	lb
2910 1410	D2	8-10 Single Clutch	8 - 10	5/16- 3/8	500	1102	648	22.8	1200	2650
2910 2410	D2	8-10 Double Clutch	8 - 10	5/16- 3/8	500	1102	1216	42.9	1200	2650
2910 1412	D2	10-12 Single Clutch	10-12	3/8- 1/2	700	1550	633	22.3	1200	2650
2910 2412	D2	10-12 Double Clutch	10-12	3/8- 1/2	700	1550	1176	41.5	1200	2650
2910 1414	D2	12-14 Single Clutch	12-14	1/2- 9/16	1000	2204	623	22	1200	2650
2910 2414	D2	12-14 Double Clutch	12-14	1/2- 9/16	1000	2204	1139	40.2	1200	2650
2910 1501	D2	Handle Kit					N/A			

D2 Rope Clutch Dimensions



Notes:

Line entry and exit angle should not exceed 15° from the rope clutch centre line.

Use Pan head M8 - 5/16" fixings - do not tighten beyond 22 N.m Torque

2500 2323 Label Function Sheet

D2 Rope Clutch Dimensions

Size	Length (L)		Width (W)		Height (H)		Line Entry (A)		Line Exit (B)		Fixing Point (E)		Fixing Point (F)		Fixing Point (G)	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Single	156	6 1/8	38	1 1/2	88	3 3/8	26	1	32	1 1/8	-	-	107	4 1/4	70	2 1/8
Double	156	6 1/8	68.5	2 1/8	88	3 3/8	26	1	32	1 1/8	30.5	1 1/8	107	4 1/4	70	2 1/8

Organisers

All organisers have space to pass two lines between each sheave

Synchro Organiser Features

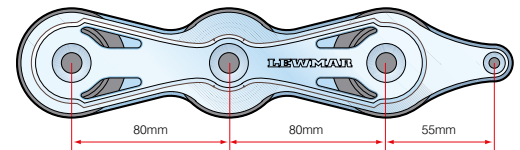
- Flush fixings
- Bushed sheaves with side thrust ball bearings
- Wide rope entry



2991 6042
Synchro Six Sheave
Double Stacked



2991 6060
Synchro Three Sheave
Single



Synchro Organisers Specifications

Part Number	Sheave Dia		No. of Sheaves	Safe Working Load		Max Working Load of Sheave		Breaking Load		Max Breaking Load of Sheave		Max Line Size		Length		Weight		Fixings (Not included)	
	mm	in		kg	lb	kg	lb	kg	lb	kg	lb	mm	in	mm	in	g	oz	mm	in
2991 6042	60	2 3/8	3	3700	8156	1100	2424	7400	16312	2200	4849	12	1/2	256	10 1/16	602	21.2	M10	3/8
2991 6060	60	2 3/8	6	2550	5500	1100	2420	5000	11000	1100	2424	12	1/2	256	10 1/16	329	12.9	M10	3/8

Ocean Organiser Features

- Bushed Sheaves
- Tough interchangeable acetal or alloy sheaves (40mm only)
- Stackable



2913 9114
Ocean 60mm Four Sheave



2913 9122
Two Sheave Organiser

Ocean Organisers Specifications

Part Number	Sheave Dia		No. of Sheaves	Safe Working Load		Max Working Load of Sheave		Breaking Load		Max Breaking Load of Sheave		Max Line Size		Length		Weight		Fixings (not included)		Sheaves Centers	
	mm	in		kg	lb	kg	lb	kg	lb	kg	lb	mm	in	mm	in	g	oz	mm	in	mm	in
2913 9122	40	1 5/8	2	1005	2215	750	1654	2010	4431	1500	3307	10	3/8	142	5 5/8	123	271	M8	5/16	47	1 7/8
2913 9123	40	1 5/8	3	1507	3322	750	1654	3015	6646	1500	3307	10	3/8	189	7 3/8	206	454	M8	5/16	47	1 7/8
2913 9124	40	1 5/8	4	2010	4431	750	1654	4020	8861	1500	3307	10	3/8	236	9 1/3	275	606	M8	5/16	47	1 7/8
2913 9125	40	1 5/8	5	2512	5537	750	1654	5025	11076	1500	3307	10	3/8	283	11 1/8	352	776	M8	5/16	47	1 7/8
2913 9126	40	1 5/8	6	3015	6646	750	1654	6030	13292	1500	3307	10	3/8	330	13	425	937	M8	5/16	47	1 7/8
2913 9112	60	2 3/8	2	2400	5290	1200	2645	4800	10580	2400	5290	14	9/16	231	9 1/8	325	11.46	M10	3/8	72	2 27/32
2913 9113	60	2 3/8	3	3000	6613	1200	2645	6000	13226	2400	5290	14	9/16	303	12	435	15.34	M10	3/8	72	2 27/32
2913 9114	60	2 3/8	4	3600	7935	1200	2645	7200	15871	2400	5290	14	9/16	375	14 3/4	551	19.43	M10	3/8	72	2 27/32
2913 9115	60	2 3/8	5	4200	9258	1200	2645	8400	18516	2400	5290	14	9/16	447	17 5/8	637	22.46	M10	3/8	72	2 27/32
2913 9116	60	2 3/8	6	4800	10580	1200	2645	9600	21161	2400	5290	14	9/16	519	20 1/2	775	27.33	M10	3/8	72	2 27/32

Cleats

Made from state-of-the-art materials developed by the automotive industry and refined for the marine market, Lewmar cleats enhance performance in durability, strength and lubrication.

Features

- Low line entry load
- High holding load
- Constant tension springs
- Wash-out bearing slots
- Split base fairlead to facilitate continuous line installations



Angle wedges included in package of
2910 4100
2910 4110



2910 4100
2910 4110



2990 4117
2990 4118



2990 4126



2910 4104
2910 4114



2910 4115
2910 4116



2910 4103
2910 4113

Cleat Specifications

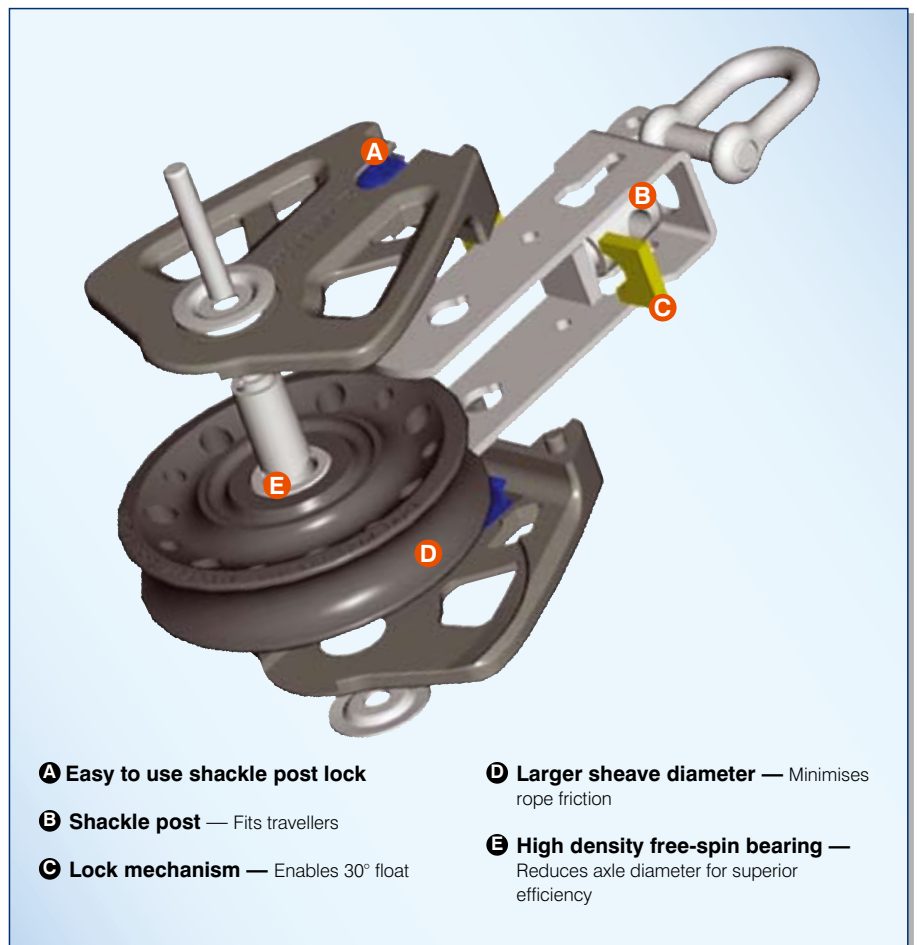
Part Number	Description	Safe Working Load		Line Size		Fixing Pitch		Fixing Size		Weight	
		kg	lb	mm	in	mm	in	mm	in	g	oz
2910 4100	Small Composite Cleat	120	264	2-8	5/64-5/16	27	1 1/16	M4	5/32	17.5	0.6
2910 4110	Medium Composite Cleat	180	396	4-12	5/32-1/2	38	1 1/2	M5	3/16	48.5	1.7
2910 4126	Swivel Cam Base for 60/80mm blocks	300	661	4-10	5/32-7/16	4 x 19	4 x 3/4	M5	3/16	302	10.7
2910 4104	Fairlead to fit 29104100	-	-	2-8	5/64-5/16	-	-	-	-	6	0.2
2910 4114	Fairlead to fit 29104110	-	-	4-12	5/32-1/2	-	-	-	-	14	0.5
2910 4115	Small Feeder Loop	-	-	2-8	5/64-5/16	-	-	-	-	6	0.2
2910 4116	Medium Feeder Loop	-	-	4-12	5/32-1/2	-	-	-	-	10	0.35
2910 4103	Small Eye Strap (Pair)	-	-	2-8	5/64-5/16	27	1 1/16	M4	5/32	6	0.2
2910 4113	Medium Eye Strap (Pair)	-	-	4-12	5/32-1/2	38	1 1/2	M5	3/16	18	0.6
2990 4117	Medium Bull's Eye (Pair)	-	-	12	1/2	25	1	M4	5/32	12	0.4
2990 4118	Large Bulls Eye	-	-	18	3/4	32	1 1/4	M5	3/16	32	1.1

Synchro Blocks — Features

Lewmar synchro block are engineered for speed, efficiency and superior handling. We use a combination of scientifically optimised block geometry, a Free-Spin bearing and self-aligning head to reduce friction and increase efficiency by up to 40% over budget blocks on mainsheet systems. Which means each component is perfectly synchronised with the movement of the rope, providing you with an easier, smoother transfer of power from deck to sail and less wear on your rope.

Features

- Stainless steel strap for best strength and longer service life
- Stiff glass fibre reinforced cheeks to prevent lines from wedging
- Innovative design with “tool-free” sliding swivel locking mechanism



Applications

Plain bearing blocks are typically used for heavy and static loads in:

- Halyard tuning
- Mainsheet systems
- Mast foot blocks
- Mast head blocks
- Boom vang

Practical switch from swivelling to fixed shackle

Synchro Blocks — Selection Guide

Selection Guide

Application	Synchro Size mm	Boat Length Overall						
		m ft	7.3 24	8.5 28	10.3 34	11.5 38	13.4 44	14.6 48
Mainsheet Blocks End Boom	50							
	60							
	72							
	90							
Mainsheet Blocks Mid Boom	50							
	60							
	72							
	90							
	105							
Main & Genoa Halyard Block & Padeye at Mast Base	60							
	72							
	90							
	105							
Spinnaker Mast Top Block	50							
	60							
	72							
	90							
	105							
Spinnaker Sheet Blocks	50							
	60							
	72							
	90							
	105							
Spinnaker Guy Blocks	50							
	60							
	72							
	90							
	105							
Spinnaker Downhaul	50							
	60							
	72							
	90							
Boom Vangs	50							
	60							
	72							
	90							
Backstay Tensioners	50							
	60							
	72							

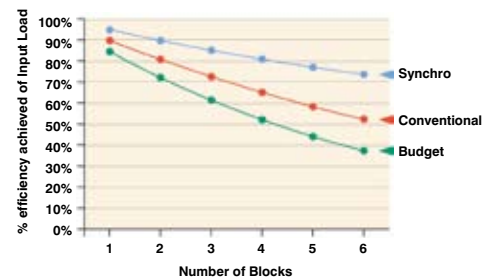
Head can be positioned for use in line or at 90 degrees — or left to rotate freely when in unlocked position. When locked allows 30° “float” on shackle post to improve alignment of block.



Higher efficiency — for faster sail handling and less rope wear.

Independent tests show Synchro blocks offer increased efficiency over conventional designs. Calculations over a 6-block mainsheet system, indicated Synchro blocks can deliver up to 40% greater efficiency than budget products — resulting in better responsiveness and improved sailing performance.

Efficiency improvements in multi block systems



Synchro Blocks 50 and 60mm

50mm & 60mm Synchro Block Specifications

Part Number	Size	Description	Safe Working Load		Optimum Line Size		Max Line Size		Weight	
			kg	lb	mm	in	mm	in	g	oz
2992 5001	50	Single	450	990	6	1/4	10	3/8	67	2.36
2992 5002	50	Double	450	990	6	1/4	10	3/8	142	5.01
2992 5003	50	Triple	450	990	6	1/4	10	3/8	226	7.96
2992 5004	50	Single & Becket	450	990	6	1/4	10	3/8	81	2.85
2992 5005	50	Double & Becket	450	990	6	1/4	10	3/8	164	5.77
2992 5009	50	Single & Becket & Cam	450	990	6	1/4	10	3/8	123	4.30
2992 5010	50	Triple & Becket & Cam	450	990	6	1/4	10	3/8	282	9.93
2992 5021	50	Toggle Head			See page 124					
2992 5031	50	Single Fiddle	450	990	6	1/4	10	3/8	94	3.31
2992 5034	50	Single Fiddle & Becket	450	990	6	1/4	10	3/8	98	3.45
2992 5037	50	Single Fiddle & Cam	450	990	6	1/4	10	3/8	139	4.89
2992 5039	50	Single Fiddle & Becket & Cam	450	990	6	1/4	10	3/8	145	5.10
2992 6001	60	Single	800	1760	8	5/16	10	3/8	115	4.06
2992 6002	60	Double	800	1760	8	5/16	10	3/8	251	8.84
2992 6003	60	Triple	800	1760	8	5/16	10	3/8	371	13.06
2992 6004	60	Single & Becket	800	1760	8	5/16	10	3/8	127	4.48
2992 6005	60	Double & Becket	800	1760	8	5/16	10	3/8	261	9.19
2992 6010	60	Triple & Becket & Cam	800	1760	8	5/16	10	3/8	447	15.73
2992 6021	60	Toggle Head			See page 124					
2992 6029	60	Single Alloy Sheave	800	1760	8	5/16	10	3/8	165	5.82
2992 6031	60	Single Fiddle	800	1760	8	5/16	10	3/8	156	5.50
2992 6034	60	Single Fiddle & Becket	800	1760	8	5/16	10	3/8	166	5.85
2992 6037	60	Single Fiddle & Cam	800	1760	8	5/16	10	3/8	221	7.78
2992 6039	60	Single Fiddle & Becket & Cam	800	1760	8	5/16	10	3/8	234	8.24



2992 5001
2992 6001



2992 5002
2992 6002



2992 5003
2992 6003



2992 5004
2992 6004



2992 5005
2992 6005



2992 5009



2992 5010
2992 6010



2992 5034
2992 6034



2992 5037
2992 6037



2992 5039
2992 6039



2992 5031
2992 6031



For information about Synchro Snap Shackles please refer to page 140.

Additional Information

	50mm Blocks	60mm Blocks
Post Diameter	7.9mm (5/16")	9.4mm (3/8")
Shackle Pin Diameter	4mm (5/32")	5mm (3/16")
Fit Traveller Upstand	-	Size 1 NTR
Fit Block Upstand	29904050 (see p.141)	19811000 (see p.141)
Fit Snap Shackle	29925040 (see p.140)	29926040 (see p.140)
Use Cleat	29104100 (see p.119)	29104110 (see p.119)

Synchro Blocks 72 and 90mm

72mm & 90mm Synchro Block Specifications

Part Number	Size	Description	Safe Working Load		Optimum Line Size		Max Line Size		Weight	
			kg	lb	mm	in	mm	in	g	oz
2992 7201	72	Single	1100	2420	10	3/8	12	1/2	190	6.69
2992 7202	72	Double	1100	2420	10	3/8	12	1/2	406	14.29
2992 7203	72	Triple	1100	2420	10	3/8	12	1/2	618	21.75
2992 7204	72	Single & Becket	1100	2420	10	3/8	12	1/2	210	7.41
2992 7205	72	Double & Becket	1100	2420	10	3/8	12	1/2	415	14.61
2992 7210	72	Triple & Becket & Cam	1100	2420	10	3/8	12	1/2	820	28.86
2992 7221	72	Toggle head	See page 124							
2992 7231	72	Single Fiddle	1100	2420	10	3/8	12	1/2	250	8.80
2992 7234	72	Single Fiddle & Becket	1100	2420	10	3/8	12	1/2	275	9.70
2992 7237	72	Single Fiddle & Cam	1100	2420	10	3/8	12	1/2	339	11.93
2992 7239	72	Single Fiddle & Becket & Cam	1100	2420	10	3/8	12	1/2	356	12.53
2992 9001	90	Single	2000	4400	12	1/2	14	9/16	413	14.57
2992 9002	90	Double	2000	4400	12	1/2	14	9/16	966	34.0
2992 9003	90	Triple	2000	4400	12	1/2	14	9/16	1389	48.89
2992 9004	90	Single & Becket	2000	4400	12	1/2	14	9/16	458	16.15
2992 9021	90	Toggle head	See page 124							
2992 9031	90	Single Fiddle	2000	4400	12	1/2	14	9/16	544	19.19
2992 9034	90	Single Fiddle & Becket	2000	4400	12	1/2	14	9/16	589	20.77
2992 9039	90	Single Fiddle & Becket & Cam	2000	4400	12	1/2	12	1/2	879	27.12



2992 7201
2992 9001

2992 7202
2992 9002



2992 7203
2992 9003

2992 7204
2992 9004

Additional Information

	72mm Blocks	90mm Blocks
Post Diameter	11.9mm (15/32")	16.5mm (21/32")
Shackle Pin Diameter	6mm (1/4")	9.8mm (3/8")
Fit Traveller Upstand	Size 2 NTR	Size 3 NTR
Fit Block Upstand	19821000 (see p.141)	29393000 (see p.141)
Fit Snap Shackle	29927240 (see p.140)	29929040 (see p.140)
Use Cleat	29104110 (see p.119)	Spinlock PX



2992 7205

2992 7210



2992 7231
2992 9031



2992 7234
2992 9034



2992 7237



2992 7239



2992 9039

Synchro Halyard Blocks

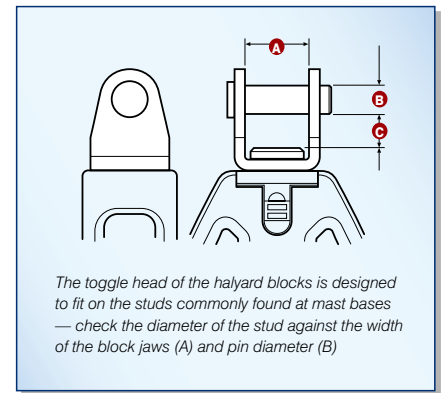


2992 5021
Sync Block. Toggle Head

2992 6021
Sync Block. Toggle Head

2992 7221
Sync Block. Toggle Head

2992 9021
Sync Block. Toggle Head



Synchro Halyard Block Specifications

Part Number	Sheave Diameter mm		Safe Working Load kg lb		Optimum Line Size mm in		Max Line Size mm in		Weight g oz		Head Details					
											A Width mm in		B Pin mm in		C Space to Pin mm in	
29925021	50		450	990	6	1/4	10	3/8	73	2.57	13	1/2	5	3/16	8.2	5/16
29926021	60		800	1760	8	5/16	10	3/8	122	4.29	15	37/64	6	7/32	6.9	9/32
29927221	72		1100	2420	10	3/8	12	1/2	198	6.98	18	45/64	8	5/16	9.6	3/8
29929021	90		2000	4400	12	1/2	14	9/16	414	14.57	23	29/32	10	25/64	13.9	17/32

Synchro Blocks 105mm

105mm Synchro Block Specifications

Part Number	Size	Description	Safe Working Load kg lb		Optimum Line Size mm in		Max Line Size mm in		Weight g oz	
2992 1050*	105	Single Stand Up	3500	7700	14	9/16	16	5/8	1535	54.2
2992 1051	105	Single	3500	7700	14	9/16	16	5/8	786	27.72
2992 1054	105	Single & Becket	3500	7700	14	9/16	16	5/8	874	30.76

Additional Information — 105mm Synchro Block

Post Diameter 19.75mm (7/8")

Shackle Pin Diameter 10mm (3/8")

Fit Traveller Upstand Size 3 HL 3.5T NTR

Stand up blocks fitting details

* Use pad eye 29904050. For base dimension and fixing details see page 141



2992 1050
Single Stand Up



2992 1051
Single



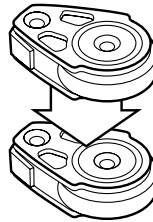
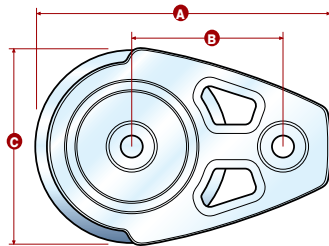
2992 1054
Single & Becket

Synchro Footblocks

Lewmar's Synchro footblocks use Alloy cheeks, fixing isolators and moulded base plate to prevent sealant ingress into the sheave. Jamming footblocks are designed to temporarily held a sheet while it is transferred to another winch.

Synchro Footblock — Selection Guide

Footblock	Sheet deflection	Winch Size						
		8	14/16	30	40	44	48	50
60mm	90°							
	800kg SWL 180°							
72mm	90°							
	1100kg SWL 180°							
90mm	90°							
	2000kg SWL 180°							



Standard and jammer options can be double stacked

Synchro Footblock Footprint

Description	A		B		C	
	mm	in	mm	in	mm	in
40mm Footblock	63.2	2 5/16	34.5	1 5/16	40	1 9/16
60mm Footblock	98	3 7/8	51	2	59	2 5/16
72mm Footblock	110.6	4 5/16	58	2 5/16	71	2 13/16
90mm Footblock	134	5 1/4	69	2 11/16	89	3 1/2



A smaller 40mm control line footblock comes with a stainless steel base plate and can be used as miniature organisers or deflectors for lines being returned to the cockpit.



2992 6061



2992 7261



2992 9061



2992 7264

Synchro Footblock Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Safe Cam load		Weight		Fixings	
			kg	lb	kg	lb	kg	lb	kg	lb	Not Included	
2992 4061	40	Control line Footblock	750	1653	1500	3307	-	-	66	2.33	M8	5/16
2992 4062	40	Double Control line Footblock	750	1653	1500	3307	-	-	121	4.27	M8	5/16
2992 6061	60	Synchro Footblock	800	1764	1600	3527	300	661	162	5.7	M8	5/16
2992 6064	60	Synchro Jamming Footblock	800	1764	1600	3527	300	661	190	6.7	M8	5/16
2992 7261	72	Synchro Footblock	1200	2645	2400	5291	300	661	229	8.1	M8	5/16
2992 7264	72	Synchro Jamming Footblock	1200	2645	2400	5291	300	661	250	8.8	M8	5/16
2992 9061	90	Synchro Footblock	2000	4409	4000	8818	300	661	430	15.2	M10	3/8
2992 9064	90	Synchro Jamming Footblock	2000	4409	4000	8818	300	661	480	16.9	M10	3/8

Ocean Snatch Blocks

For general spinnaker use. Snatch blocks feature soft synthetic rubber cheeks to handle rough treatment and the Synchro snap shackle.

Where a snatch block is attached in a situation which will not permit full movement, such as through some toe rails, a shackle must be used to ensure full articulation.



1981 0600
Size 1 Snatch Block



1982 0600
Size 2 Snatch Block



1983 0500
Size 3 Snatch Block

Ocean Snatch Block Specifications

Part Number	Size	Bearing	Sheave Dia Material	Safe Working Load		Breaking Load		Sheave Dia.		Sheave Width		Line Size		Weight	
				kg	lb	kg	lb	mm	in	mm	in	mm	in	g	oz
1981 0600	1	Stainless Steel	Delrin	1135	2500	2270	5000	66	2 5/8	20	3/4	14	9/16	480	17
1982 0600	2	Stainless Steel	Delrin	1590	3500	3180	7000	80	3 1/8	20	3/4	16	5/8	880	31
1983 0500	3	Needle Roller	Aluminium	2155	4750	4310	9500	80	3 1/8	20	3/4	16	5/8	1040	36.5



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Ball Racing Blocks — Selection Guides

Choosing the right Control Block

Application	Size mm	Boat Length Overall					
		m ft	3.6 12	5.4 18	7.3 24	8.5 28	10.3 34
Main sheet - End boom: Single/Fiddle Blocks	30						
	40						
	60						
Main sheet - End boom: Double/Triple Blocks	30						
	40						
	60						
Halyard Blocks	30						
	40						
	60						
Mast base and general control blocks	30						
	40						
	60						
Spinnaker sheet/Halyard blocks	30						
	40						
	60						

Choosing the right Racing Block

Application & Sheeting Position	Size	Description	m ft	Boat Length Overall					
				7.3 24	8.5 28	10.3 34	11.5 38	13.4 44	14.6 48
Mainsheet Blocks End Boom Singles	60	HL Singles							
	80	Singles & Fiddles							
	80	HL Singles							
Mainsheet Blocks End Boom Doubles & Triples	60	HL Doubles & Triples							
	80	Doubles & Triples							
	80	HL Doubles & Triples							
Mainsheet Blocks Mid Boom Singles	60	HL Singles							
	80	Singles & Fiddles							
	80	HL Singles							
Mainsheet Blocks Mid Boom Doubles & Triples	60	HL Doubles & Triples							
	80	Doubles & Triples							
	80	HL Doubles & Triples							
Main & Genoa Halyard (Block & Padeye at Mast Base)	60	HL Single Shackle							
	80	Singles Shackle							
	80	HL Single Shackle							
Spinnaker Mast Top Blocks	60	HL Singles							
	80	Singles							
	80	HL Singles							
Spinnaker Mast Sheets Blocks/ Guy Blocks	60	HL Singles							
	80	Singles/Fiddle/Ratchet							
	80	HL Singles							
Spinnaker Genoa Footblock 90° Deflection	60	HL Singles							
	80	Singles							
	80	HL Singles							
Boom Vang (First Block in Cascade)	60	HL Singles							
	80	HL Singles							

Control Blocks

Lewmar's high performance Control Blocks are extremely lightweight and have unprecedented load bearing capacity. The weight advantage comes from a combination of MRT (Metal Replacement Technology) and stainless steel central race and balls. Long Fibre Technology provides you with exceptional strength and durability. Plus, the open design allows you to easily flush out sand and salt, which keeps maintenance simple and your entire operation running a lot smoother.



A revolution in handling and weight advantage!

These blocks are specifically designed for hand held loads, they achieve maximum efficiency at maximum hand load.

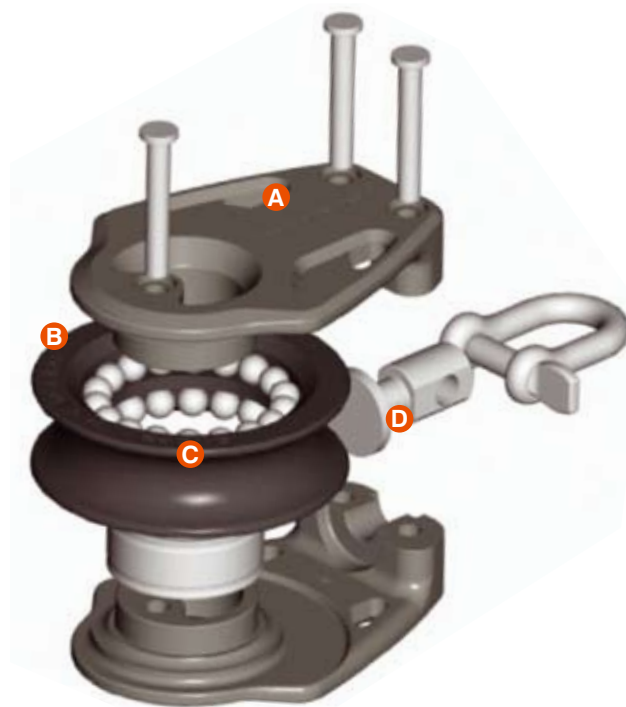
Features

- Lightweight
- Very High Strength
- Impact Resistant
- Reduced Friction
- Easy Maintenance
- Optimised for hand control

Applications

Ball bearing blocks are typically used for medium and dynamic loads in:

- Control line applications
- Mainsail sheets for dinghies and keelboats
- Spinnaker sheets, barber haulers
- Genoa sheets
- Dinghy applications



A Long fiber cheek

B Short fiber sheaves

C Marked Sheave — Showing Line size and safe working load

D Stainless Steel balls and ball groove — Avoids deformation and loss of performance

30mm Control Blocks



2990 1341



2990 1321



2990 1322



2990 1323



2990 1328



2990 1320



2990 1314



2990 1324



2990 1325



2990 1326



2990 1330



2990 1360

Additional Information

- Triple block fits block upstand 29904046 (see p.141)
- Use Cleat 29104100 (see p.119)
- Max line Size 8mm ($\frac{5}{16}$ in)
- Compatible with snap shackle (see p.140)



2990 4046



2990 1363



2990 1365



2990 0240



2990 1361



2990 1362

Synchro Control 30mm Specifications

Part Number	Description	Safe Working Load		Breaking Load		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	g	oz	mm	in	mm	in
2990 1301	Single SS Sheave	240	528	480	1056	54	2 1/8	36	1.2	7.1	2/7	4	1/6
2990 1321	Single	200	440	480	1056	68	2 43/64	28	1	7.1	2/7	4	1/6
2990 1322	Double	300	660	600	1320	68	2 43/64	47	1.65	7.1	2/7	4	1/6
2990 1323	Triple	500	1100	1000	2200	76	3	85	3	9.25	3/8	5	1/5
2990 1324	Single with Becket	200	440	480	1056	81	3 3/16	33	1.16	7.1	2/7	4	1/6
2990 1325	Double with Becket	300	660	600	1320	81	3 3/16	50	1.76	7.1	2/7	4	1/6
2990 1326	Triple with Becket	500	1100	1000	2200	90	3 35/64	90	3.17	9.25	3/8	5	1/5
2990 1328	Triple Cleat	250	550	1000	2200	76	3	135	4.76	9.25	3/8	5	1/5
2990 1330	Triple with Becket & Cleat	300	660	1000	2200	90	3 35/64	140	5	9.25	3/8	5	1/5
2990 1320	Single Stand Up	200	440	480	1056	58	2 9/32	30	1	-	-	-	-
2990 1341	Single strap block	200	440	480	1056	54	2 1/8	26	0.92	-	-	-	-
2990 1314	Single strap block with Becket	200	440	480	1056	68	2 43/64	31	1.09	-	-	-	-
2990 1361	Through deck single	200	440	480	1056	76	3	26	0.92	-	-	-	-
2990 1362	Through deck tandem	200	440	480	1056	99	3 1/2	45	1.59	-	-	-	-
2990 1363	Vertical lead block	200	440	480	1056	45	1 1/2	48	1.69	-	-	-	-
2990 1365	Pivoting exit block	200	440	480	1056	68	2 43/64	80	2.82	-	-	-	-
2990 0240	Tweezer Block	120	265	240	529	53	2 3/16	28	1.0	-	-	-	-
2990 1360	Cheekblock	200	440	480	1056	50	2	18.5	0.65	-	-	-	-

40mm Control Blocks



2990 1441



2990 1447



2990 1421



2990 1422



2990 1423



2990 1428



2990 1401



2990 1420



2990 1424



2990 1425



2990 1426



2990 1430

Additional Information

- Triple block fits block upstand 29904046 (see p.141)
- Use Cleat 29104100 (see p.119)
- Max line Size 10mm (3/8in)
- Compatible with snap shackle (see p.140)



2990 4046



2990 1460



2990 1463



2990 1429

Synchro Control 40mm Specifications

Part Number	Description	Safe Working Load		Breaking Load		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	g	oz	mm	in	mm	in
2990 1447	Single Web	240	528	800	1760	57	2 1/4	39.5	1.39	-	-	-	-
2990 1420	Single Stand Up	240	528	800	1760	74	2 29/32	54	1.9	-	-	-	-
2990 1441	Single Fixed Strap	240	528	800	1760	70	2 3/4	44	1.55	-	-	-	-
2990 1421	Single	240	528	800	1760	80	3 9/64	52	1.83	8	5/16	4	1/8
2990 1422	Double	480	1056	1200	2640	95	3 47/64	112.5	3.97	-	-	4	1/8
2990 1423	Triple	720	1584	1800	3960	102	4 1/64	187.5	6.61	11.5	7/16	6	1/4
2990 1424	Single & Becket	240	528	800	1760	98	3 55/64	56.5	1.99	8	5/16	4	1/8
2990 1425	Double & Becket	480	1056	1200	2640	111	4 23/64	116.5	4.11	-	-	4	1/8
2990 1426	Triple & Becket	720	1584	1800	3960	119	4 43/64	192.5	6.79	11.5	7/16	6	1/4
2990 1428	Single & Becket & Cam	240	528	800	1760	98	3 55/64	56.5	1.99	8	5/16	4	1/8
2990 1429	Triple & Cam	720	1584	1800	3960	102	4 1/64	247.5	8.73	11.5	7/16	6	1/4
2990 1430	Triple & Becket & Cam	720	1584	1800	3960	119	4 43/64	252.5	8.91	11.5	7/16	6	1/4
2990 1460	Cheekblock	240	528	900	1980	67	2 5/8	43	1.52	-	-	-	-
2990 1463	Single Vertical Lead block	240	528	900	1980	57	2 15/64	70	2.4	-	-	-	-
2990 1401	Single SS Sheave	400	880	800	1760	70	2 3/4	76	2.5	-	-	-	-

60mm Control Blocks

These blocks are designed for hand loads only, for winched loads use synchro or racing.



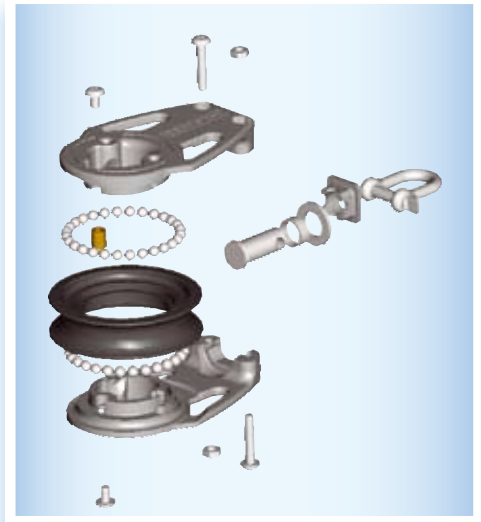
2990 1651



2990 1652



2990 1661



2990 1653



2990 1654



2990 1659



2990 1660



2990 1670

Additional Information

Fit block upstand:

Singles 29810000

Doubles and Triples 29904050 (see page 141)

Use Cleat 29104110 (see page 119)

Max line size: 12mm (1/2")

Max line size for ratchet blocks: 10mm (3/8")

Compatible with snap shackle (see page 140)

Singles fit Size 1 Traveller Upstand

Double & Triple fit Size 2 Traveller Upstand

Synchro Control 60mm Specifications

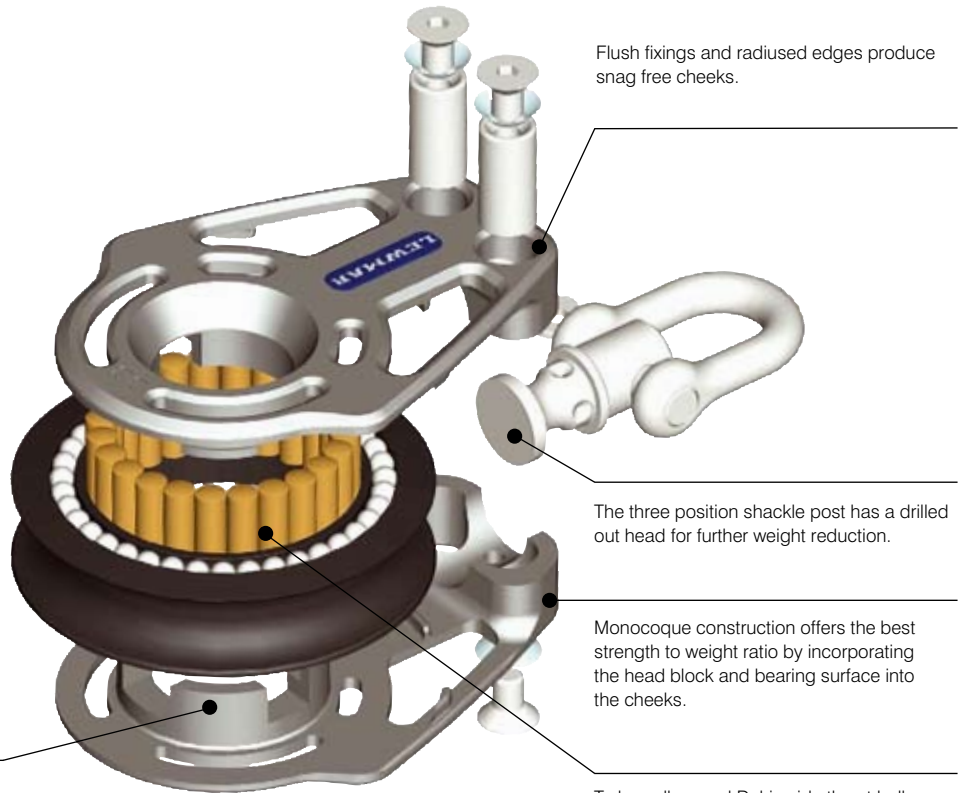
Part Number	Description	Safe Working Load		Breaking Load		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	g	oz	mm	in	mm	in
2990 1651	Single	400	882	800	1764	124	4 7/8	108	3.7	9.5	3/8	5	3/16
2990 1652	Double	750	1653	1500	3306	138	5 7/16	220	7.2	10	9/16	6	1/4
2990 1653	Triple	1000	2204	2000	4409	144	5 3/4	333	10.9	10	9/16	6	1/4
2990 1654	Single & Becket	400	882	800	1764	147	5 25/32	120	4.1	9.5	3/8	5	3/16
2990 1659	Single & Becket & Cam	400	882	800	1764	147	5 25/32	279	9.8	9.5	3/8	5	3/16
2990 1660	Triple & Becket & Cam	1000	2204	2000	4409	166	6 17/32	514	17.3	10	9/16	6	1/4
2990 1661	Single & Ratchet	400	882	800	1764	124	4 7/8	126	4.3	9.5	3/8	5	3/16
2990 1670	Triple, Ratchet, Becket. Cam & eye for fine tune	1000	2204	2000	4409	166	6 17/32	538	18.2	10	9/16	6	1/4

Racing Blocks — Features

Lewmar Racing Blocks and Cars are designed to achieve the best strength-to-weight ratio within legal race limits. They range in size from 60mm (23/8") to 250mm (9 7/8") and comes as single, becket, doubles, triples and footblocks.

Features

- Monocoque Construction
- 3 in 1 Head
- Torlon Rollers
- Delrin Thrust Balls



Patented bayonet fixing means that central fastenings are not required and only two locating screws are needed in the head, further reducing weight and improving performance.

Torlon rollers and Delrin side thrust balls provide optimum bearing for rapid line handling.

Torlon rollers on blocks above 80mm. Captive Delrin side thrust balls will not drop out when sheave is removed.

Web Blocks — Features

Lewmar's second generation racing blocks, use Finite Element Analysis (FEA) to minimise material where it's not needed and reinforce the load paths where it is needed. We have moved this generation of racing blocks to whole new level.

Features

- High Loads
- Extreme high strength-to-weight ratios
- Sheaves designed to maximise the Torlon roller's strength
- Can be webbed in place in both planes

60mm Web block now features the same becket-shaped head as the runner and halyard blocks — so it can be used as a fast halyard block or as the floating block on a transverse jib system.



Blocks are compatible with mainsheet upstands

60mm Racing Blocks

Sheaves run on dual Delrin ball races. Features alloy cheeks and composite sheaves. Ratchet fiddle blocks feature alloy ratchet sheaves and recessed ratchet lever. 60mm blocks fit Synchro Snap Shackle 29926040



2990 1611



2990 1614



2994 1611



2990 1612



2990 1600



2990 1647



2990 1631



2990 1624

Additional Information

Stand up blocks fitting details:

Base diameter 58mm (2 5/16 in). Fixings 4 x M6 (1/4 in)

60mm Racing High Load Block Specifications

Part Number	Description	Safe Working Load		Breaking Load		Max Line Size		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	mm	in	g	oz	mm	in	mm	in
2990 1600	60mm Single Stand Up	800	1763	1600	3527	12	1/2	123	4 7/8	283	10.0	-	-	-	-
2990 1611	60mm Single	800	1763	1600	3527	12	1/2	123	4 3/4	162	5.7	11	3/8	6	1/4
2994 1611*	60mm High Load Single	1200	2640	2400	5280	12	1/2	123	4 3/4	158	5.6	11	3/8	6	1/4
2990 1612	60mm Double	1440	3175	2880	6349	12	1/2	132	5 1/8	291	10.3	13.8	1/2	8	5/16
2990 1614	60mm Single & Becket	800	1763	1600	3527	12	1/2	141	5 5/8	170	6.0	11	3/8	6	1/4
2990 1647*	60mm High Load Web Block	1400	3086	2800	6172	12	1/2	94	3 11/16	120	4.2	-	-	-	-
2990 1631	60mm Single Fiddle	400	882	800	1764	10	3/8	169	6 5/8	174	6.1	10	3/8	5	3/16
2990 1624	60mm Single, Fiddle Ratchet, Becket & Cam	400	882	800	1764	10	3/8	189	7 1/2	362	13	10	3/8	5	3/16

*Sheaves run on Torlon rollers with Delrin ball side thrust races. Alloy sheaves, alloy cheeks.

80mm Racing Blocks

Sheaves run on dual Delrin ball races.
Features alloy cheeks and composite sheaves. Single blocks fit Synchro Snap Shackle 29927240.



2990 1811



2990 1812



2990 1813



2994 1800



2990 1830



2990 1821



2990 1814



2990 1831



2990 1824



2990 1834

80mm Racing Block Specifications

Part Number	Description	Safe Working Load		Breaking Load		Max Line Size		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	mm	in	g	oz	mm	in	mm	in
2990 1811	80mm Single	1000	2204	2000	4408	12	1/2	152	6	251	8.8	12.5	1/2	6	1/4
2990 1812	80mm Double	1800	3968	3600	7936	12	1/2	160	6 3/8	487	17.2	14	9/16	8	5/16
2990 1813	80mm Triple	2200	4849	4400	9698	12	1/2	160	6 3/8	724	25.5	14	9/16	8	5/16
2990 1814	80mm Single & Becket	1000	2204	2000	4408	12	1/2	177	7	278	9.8	12.5	1/2	6	1/4
2994 1800	80mm High Load Single Stand Up	2400	5280	4800	10560	14	9/16	155	6 1/8	518	18	-	-	-	-
2994 1801	80mm High Load Single	2400	5280	4800	10560	14	9/16	160	6 1/4	337	12	15	9/16	8	5/16
2990 1821	80mm Single Ratchet	800	1764	1600	3527	12	1/2	152	6	291	10.3	12.5	1/2	6	1/4
2990 1824	80mm Fiddle, Ratchet, Becket & Cam	1000	2204	2000	4409	12	1/2	240	9 1/2	593	21	12.5	1/2	6	1/4
2990 1830	80mm Triple Ratchet, Becket & Cam	2200	4849	4400	9698	12	1/2	185	7 1/4	976	34.4	14	9/16	8	5/16
2990 1831	80mm Single Fiddle	1000	2204	2000	4409	12	1/2	217	8 9/16	356	12.6	12.5	1/2	6	1/4
2990 1834	80mm Single Fiddle & Becket	1000	2204	2000	4409	12	1/2	240	9 1/2	382	13.5	12.5	1/2	6	1/4

105mm, 130mm and 155mm Racing Blocks

Sheaves run Delrin ball races. Features alloy cheeks, alloy ratchet and recessed ratchet lever. Sheaves run on Torlon rollers with Delrin side thrust races.



2994 1101



2994 1104



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Additional Information

Stand up block fitting details:
For base dimension fixing
details see p.141

Block Size

Use Pad Eye

105

29904060

130

29904053

155

29904054

Racing Block Specifications

Part Number	Description	Safe Working Load		Breaking Load		Max Line Size		Length		Weight		Shackle Post Dia.		Shackle Pin Dia.	
		kg	lb	kg	lb	mm	in	mm	in	g	oz	mm	in	mm	in
2994 1100	105mm Single Stand Up	3750	8250	7500	16500	14	9/16	205	8 1/8	727	25.7	-	-	-	-
2994 1101	105mm Single	3750	8250	7500	16500	14	9/16	219	8 5/16	605	21.4	19.8	3/4	10	3/8
2994 1104	105mm Single Becket	3750	8250	7500	16500	14	9/16	247	9 3/4	640	22.6	19.8	3/4	10	3/8
2994 1130	130mm Single Stand Up	5000	11000	10000	22000	16	5/8	246	9 3/4	1404	49.6	-	-	-	-
2994 1131	130mm Single	5000	11000	10000	22000	16	5/8	245	10	952	33.6	21.8	7/8	12	1/2
2994 1150	155mm Single Stand Up	7500	16500	15000	33000	18	1 1/16	287	11 5/8	2396	84.7	-	-	-	-
2994 1151	155mm Single	7500	16500	15000	33000	18	1 1/16	287	11 1/4	1810	64	25.8	1	14	9/16
2994 1154	155mm Single Becket	7500	16500	15000	33000	18	1 1/16	333	13 1/8	1737	61.4	25.8	1	14	9/16

Racing Footblocks

For low-load footblocks, you'll want composite sheaves and friction cams. For high load, alloy sheaves and spring cams. The jammer holding load is no more than 300kg/660lb. Be sure you don't load the upper sheave beyond 60% of the Safe Working Load.



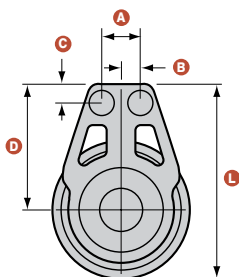
Selection Guide — Racing Footblocks

			Winch Size							
Application & Sheeting Position	Size	Description	Hand Load	16	30	46	48	58	68	77
Genoa Footblock (Assumes 180° Line Deflection)	60	Footblock								
	60	HL Footblock								
	80	Footblock								
	80	HL Footblock								
	105	Footblock								
	130	Footblock								
	155	Footblock								

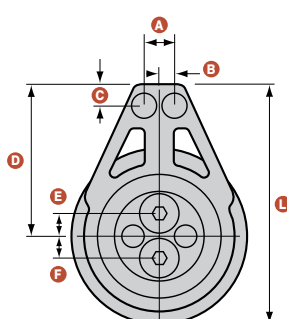
Racing Footblock Footprint Details

Size	L		A		B		C		D		E		F		G	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
60mm	85	3 1/8	20	4/5	10	2/5	16	5/8	55	2 1/8	-	-	-	-	-	-
80mm	111	4 3/8	26	1	13	1/2	20	4/5	71	2 4/5	-	-	-	-	-	-
105mm	148	5 5/8	35	1 3/8	17.5	2/3	27	1	95	3 3/4	14	1/2	13.6	1/2	-	-
130mm	181	7 1/8	40	1 4/7	20	4/5	33	1 2/7	111	4 1/3	18	5/7	18	5/7	-	-
155mm	216	8 1/2	54	2 1/8	27	1	50	2	138	5 3/7	20	4/5	20	4/5	-	-
175mm	243	9 4/7	33	1 2/7	16.5	2/3	23	1	152	6	25	1	13	1/2	26	1
250mm	348	13 5/7	44	1 3/4	22	6/7	29	1 1/7	210	8 1/4	28	1 1/9	28	1 1/9	28	1 1/9

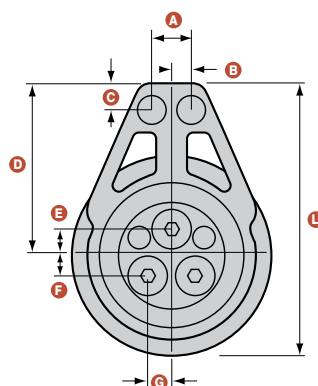
60mm–80mm Footblock



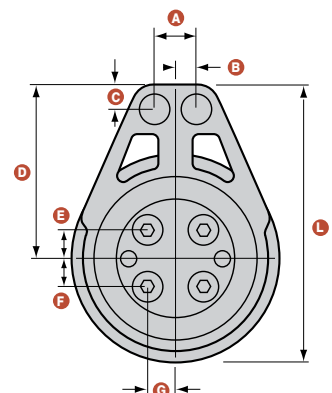
105mm–155mm Footblock



175mm Footblock



250mm Footblock



Racing Footblocks 60mm to 155mm

Sheaves run on Torlon rollers with dual Delrin ball side thrust races. Alloy sheaves, alloy bayonet cheeks for simply servicing. Safe working loads are quoted for the whole assembly.



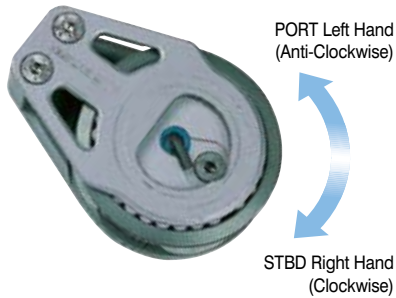
2990 6601
2990 6811



2990 6602
2990 6812



2990 6604/06
2990 6814/16



2990 6821 PORT
2990 6822 STBD
80mm Left or Right Hand Ratchet Single



2994 6611
2994 6801



2994 6802

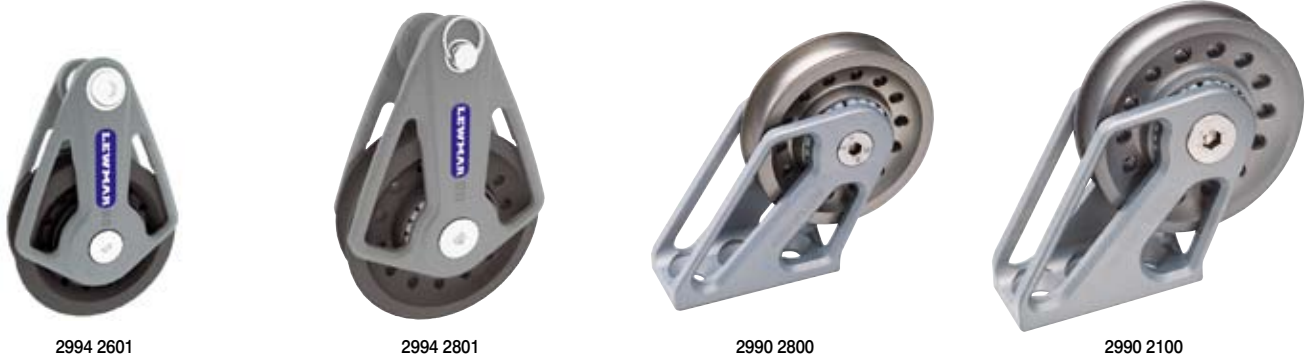
Maximum deck thickness
for supplied fastenings 35mm

Synchro Control Footblock Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Max Line Size		Weight		Fixings High Load versions come without fixings	
			kg	lb	kg	lb	mm	in	g	oz		
2990 6601	60	Single	400	882	800	1764	12	1/2	160	5.6	2xM6	1xM6
2990 6602	60	Double	400	882	800	1764	12	1/2	258	9.1	2xM6	1xM6
2990 6604	60	Single Jamming - Left Hand	400	882	800	1764	12	1/2	181	6.3	2xM6	1xM6
2990 6606	60	Single Jamming - Right Hand	400	882	800	1764	12	1/2	181	6.3	2xM6	1xM6
2990 6621	60	Ratchet (Anticlockwise) Left Hand	400	882	800	1764	12	1/2	160	5.6	2xM6	1xM10
2990 6622	60	Ratchet (Clockwise) Right Hand	400	882	800	1764	12	1/2	160	5.6	2xM6	1xM10
2994 6611	60	High Load Single*	1400	3080	2800	6160	12	1/2	132	4.7	2xM6	1xM10
2990 6811	80	Single	1000	2204	2000	4404	14	9/16	279	9.8	2xM6	1xM6
2990 6812	80	Double	1000	2204	2000	4404	14	9/16	415	15	2xM6	1xM6
2990 6814	80	Single Jamming - Left Hand	1000	2204	2000	4404	14	9/16	299	11	2xM6	1xM6
2990 6816	80	Single Jamming - Right Hand	1000	2204	2000	4404	14	9/16	299	11	2xM6	1xM6
2994 6801	80	High Load Single*	2400	5280	4800	10560	14	9/16	268	9.5	2xM8	1xM12
2994 6802	80	High Load Double*	2400	5280	4800	10560	14	9/16	500	17.7	2xM8	1xM12
2994 6101	105	High Load Single*	3750	8250	7500	16500	14	9/16	490	17.3	2xM10	2xM12
2994 6102	105	High Load Double*	3750	8250	7500	16500	14	9/16	873	30.8	2xM10	2xM12
2994 6131	105	High Load Single*	5500	12100	11000	24200	16	5/8	732	25.9	4xM12	4xM12
2994 6151	105	High Load Single*	7500	16500	15000	33000	18	1 1/16	1476	52.2	7xM12	2xM16

Racing Halyard Blocks

Impregnated composite bearings with dual Delrin side thrust races, ideal for high static loads.
Low-profile head fits into pad eye for lowest lead to winch. Alloy sheaves profile for H.M.P.E. line such as Spectra, Dyneem or Vectran

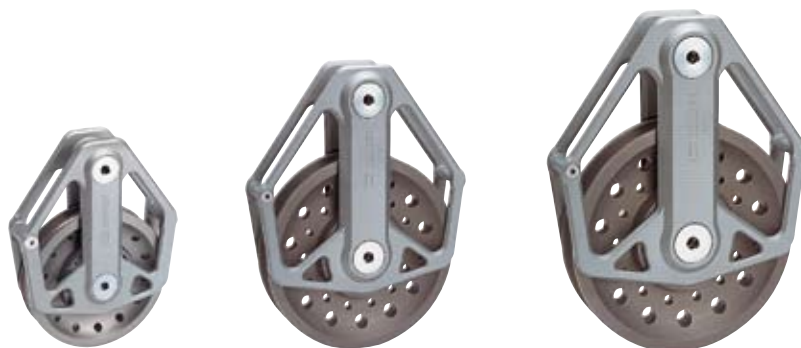


Racing Halyard Block Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Maximum Line Size		Weight		Length		Head Details							
			kg	lb	kg	lb	mm	in	gm	oz	mm	in	A	B	C	D	mm	in	mm	in
2994 2601	60	High-Load Halyard	1400	3080	2800	6160	12	1/2	146	5.2	95	3 3/4	12.8	1/2	8.5	21/64	25.3	1	24	15/16
2990 2800	80	Fixed Halyard	2500	5500	5000	11000	14	9/16	300	10.6	120	4 3/4	-	-	-	-	-	-	-	-
2994 2801	80	High-Load Halyard	2500	5500	5000	11000	14	9/16	274	9.7	120	4 3/4	14.4	9/16	11	7/16	28	1 3/4	27.4	1 3/32
2990 2100	105	Fixed Halyard	4000	8817	8000	17637	16	5/8	629	22.2	149	5 7/8	-	-	-	-	-	-	-	-

Racing Runner Blocks

Sheaves run on an impregnated bearing with dual side thrust bearings for free running at low initial load. Computer designed cheeks with non-snag bails.
Also available in Titanium.

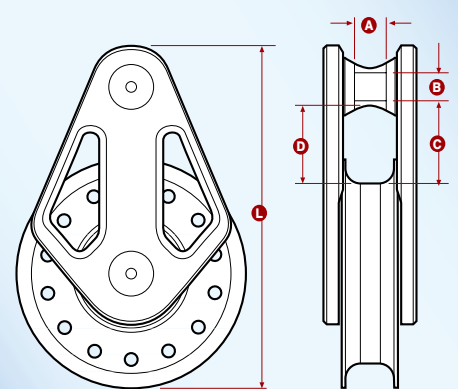


2990 2808

2990 2138

2990 2178

Head Details



Racing Runner Block Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Max Line Size		Weight		Length		Head Details							
			kg	lb	kg	lb	mm	in	gm	oz	mm	in	A	B	C	D	mm	in	mm	in
2990 2808	80	Runner	2000	4409	5000	11023	14	9/16	256	9	120	4 3/8	11	7/16	11	7/16	28.6	1 9/64	27.8	1 3/32
2990 2809	80	Runner & Becket	2000	4409	5000	11023	14	9/16	265	9.4	148	5 3/8	11	7/16	11	7/16	28.6	1 9/64	27.8	1 3/32
2990 2108	105	Runner	2560	5643	6400	14110	16	5/8	448	15.8	154	6 1/8	13	33/64	13	33/64	34	1 11/32	32	1 1/4
2990 2138	130	Runner	4000	8817	10000	22046	18	1 1/16	776	27.4	188	7 3/4	16	5/8	16	5/8	34	1 11/32	32	1 1/4

Stainless Steel Blocks & Footblocks



130mm Single Shackle



130mm Single Eye



130mm Single Becket with Shackle



130mm Single Becket with Eye



155mm Runner



175mm Runner & Becket



130mm Single Footblock



130mm Double Footblock

Stainless Steel Block Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Sheave Diameter		Line Size		Length	
			kg	lb	kg	lb	mm	in	mm	in	mm	in
2931 4139	105	Single Shackle	3000	6613	6000	13226	105	4 1/8	16	5/8	220	8 7/8
2931 4169	105	Single Eye	3000	6613	6000	13226	105	4 1/8	16	5/8	192	7 1/2
2931 4339	105	Single Becket with Shackle	3000	6613	6000	13226	105	4 1/8	16	5/8	250	9 7/8
2931 4369	105	Single Becket with Eye	3000	6613	6000	13226	105	4 1/8	16	5/8	222	8 3/4
2931 5139	130	Single Shackle	5000	11021	10000	22043	130	5 1/8	18	1 1/16	266	10 1/2
2931 5169	130	Single Eye	5000	11021	10000	22043	130	5 1/8	18	1 1/16	227	9
2931 5339	130	Single Becket with Shackle	5000	11021	10000	22043	130	5 1/8	18	1 1/16	302	11 7/8
2931 5369	130	Single Becket with Eye	5000	11021	10000	22043	130	5 1/8	18	1 1/16	254	10 3/8
2931 6139	155	Single Shackle	7500	16532	15000	33064	155	6 1/8	20	3/4	333	13 1/4
2931 6169	155	Single Eye	7500	16532	15000	33064	155	6 1/8	20	3/4	275	10 7/8
2931 6339	155	Single Becket with Shackle	7500	16532	15000	33064	155	6 1/8	20	3/4	376	14 7/8
2931 6369	155	Single Becket with Eye	7500	16532	15000	33064	155	6 1/8	20	3/4	318	12 1/2
2931 6749	155	Runner	6000	13226	12000	26451	155	6 1/8	20	3/4	225	8 3/8
2931 7849	175	Runner & Becket	10000	22043	20000	44092	175	6 7/8	22	7/8	310	12 1/8

These blocks are made to order

Stainless Steel Footblock Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Sheave Diameter		Line Size		Length	
			kg	lb	kg	lb	mm	in	mm	in	mm	in
2938 4139	105	Single Footblock	3200	7054	6400	14107	105	4 1/8	16	5/8	154	6 1/8
2938 4169	105	Double Footblock	3200	7054	6400	14107	105	4 1/8	16	5/8	154	6 1/8
2938 5139	130	Single Footblock	5000	11021	10000	22043	130	5 1/8	18	1 1/16	190	7 1/2
2938 5169	130	Double Footblock	5000	11021	10000	22043	130	5 1/8	18	1 1/16	190	7 1/2
2938 6139	155	Single Footblock	7500	16532	15000	33064	155	6 1/8	20	3/4	217	8 5/8
2938 6169	155	Double Footblock	7500	16532	15000	33064	155	6 1/8	20	3/4	217	8 5/8

These blocks are made to order

Stainless Steel Pad Eyes



130mm Removable Screw in
Deck Eye & Base



130mm Removable Screw in
Pad Eye & Base



130mm Stainless
Steel Pad Eye



175mm Removable
Pad Eye

Pad Eye Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Base Dia	
			kg	lb	kg	lb	mm	in
2939 4016	105	Stainless Steel Pad Eye	3500	7700	7000	15400	72	2 7/8
1986 1100	130	Stainless Steel Pad Eye	5000	11000	10000	22000	89	3 1/4
2939 0013	155	Stainless Steel Pad Eye	7000	15400	14000	30800	137	5 7/16
2939 0014	175	Stainless Steel Pad Eye	10000	22000	20000	44000	165	6 17/32
2939 6019	130	Removable Pad Eye	5000	11000	10000	22000	100	4
2939 7013	155	Removable Pad Eye	7000	15400	14000	30800	135	5 1/4
2939 9013	175	Removable Pad Eye	10000	22000	20000	44000	160	6 1/4
2939 4052	105	Removable Screw in Pad Eye & Base	3000	6600	6000	13200	80	3 5/32
2939 6050	130	Removable Screw in Deck Eye & Base	5000	11000	10000	22000	99	3 7/8
2939 6052	130	Removable Screw in Pad Eye & Base	5000	11000	10000	22000	99	3 7/8
2939 9052	155/175	Removable Screw in Pad Eye & Base	9500	20940	19000	41800	135	5 1/4

Synchro Snap Shackles



2992 5040



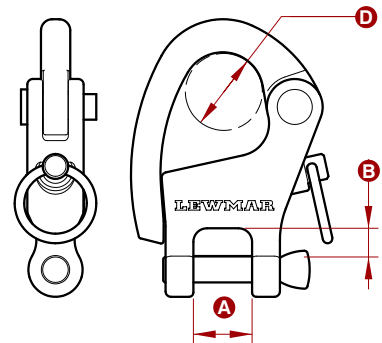
2992 6040



2992 7240



2992 9040



Synchro Snap Shackle Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Pin Dia		A		B		D	
			kg	lb	kg	lb	mm	in	mm	in	mm	in	mm	in
2992 5040	50	Synchro Snap Shackle	450	990	900	1980	4	1/8	9	3/8	4.5	3/16	12	1/2
2992 6040	60	Synchro Snap Shackle	800	1760	1600	3520	5	3/16	12	1/2	6	1/4	14	9/16
2992 7240	72	Synchro Snap Shackle	1100	2420	2200	4840	6	1/4	13	1/2	6.5	1/4	18	11/16
2992 9040	90	Synchro Snap Shackle	2000	4400	4000	8800	9.5	3/8	17.5	11/16	7.5	5/16	22	7/8

Block Accessories

Block Upstands



1981 1000
1982 1000



2990 4046



2990 4050



2939 3000

Block Upstand Specifications

Part Number	To Suit Block Size	Safe Working Load		Weight		Base Dia	
		kg	lb	g	oz	mm	in
2990 4046	30 & 40mm Control	400	990	24	0.8	30	1 3/16
2990 4050	60mm Control & 60mm Synchro	400	990	24	0.8	45	1 3/4
1981 1000	60mm Control Singles/Fiddles 72mm Synchro	800	1760	120	4	69	2 1/4
1982 1000	60mm Low-Load Singles 80mm Low-Load Racing Singles/Fiddles	1100	2420	130	4.5	69	2 1/4
1939 3000	90 Synchro Upstand	2000	4400	310	11	66	2 1/2

Pad Eyes



2990 4060



2990 4053



2990 4054



2990 4040



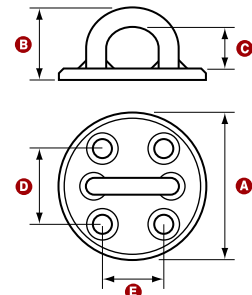
2990 4041

Pad Eye Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Weight		Bar Dia		Base Dia	
			kg	lb	kg	lb	g	oz	mm	in	mm	in
2990 4060	60/80	Halyard Pad Eye	3200	7054	6400	14110	154	5.4	10	3/8	66	2 5/8
2990 4053	105	Halyard Pad Eye	5000	11023	10000	22046	435	15.3	12.7	1/2	98	3 7/8
2990 4054		Halyard Pad Eye	7500	16535	15000	33069	787	27.8	15.8	5/8	115	4 1/2
2990 4040		Gibb Diamond Pad Eye	1135	2502	2270	5004	45	1.6	6	7/32	60 x 38	2 3/8 x 1 1/2
2990 4041		Gibb Square Pad Eye	3180	7011	6360	14021	227	8.0	9	5/16	70 x 70	2 3/4 x 2 3/4

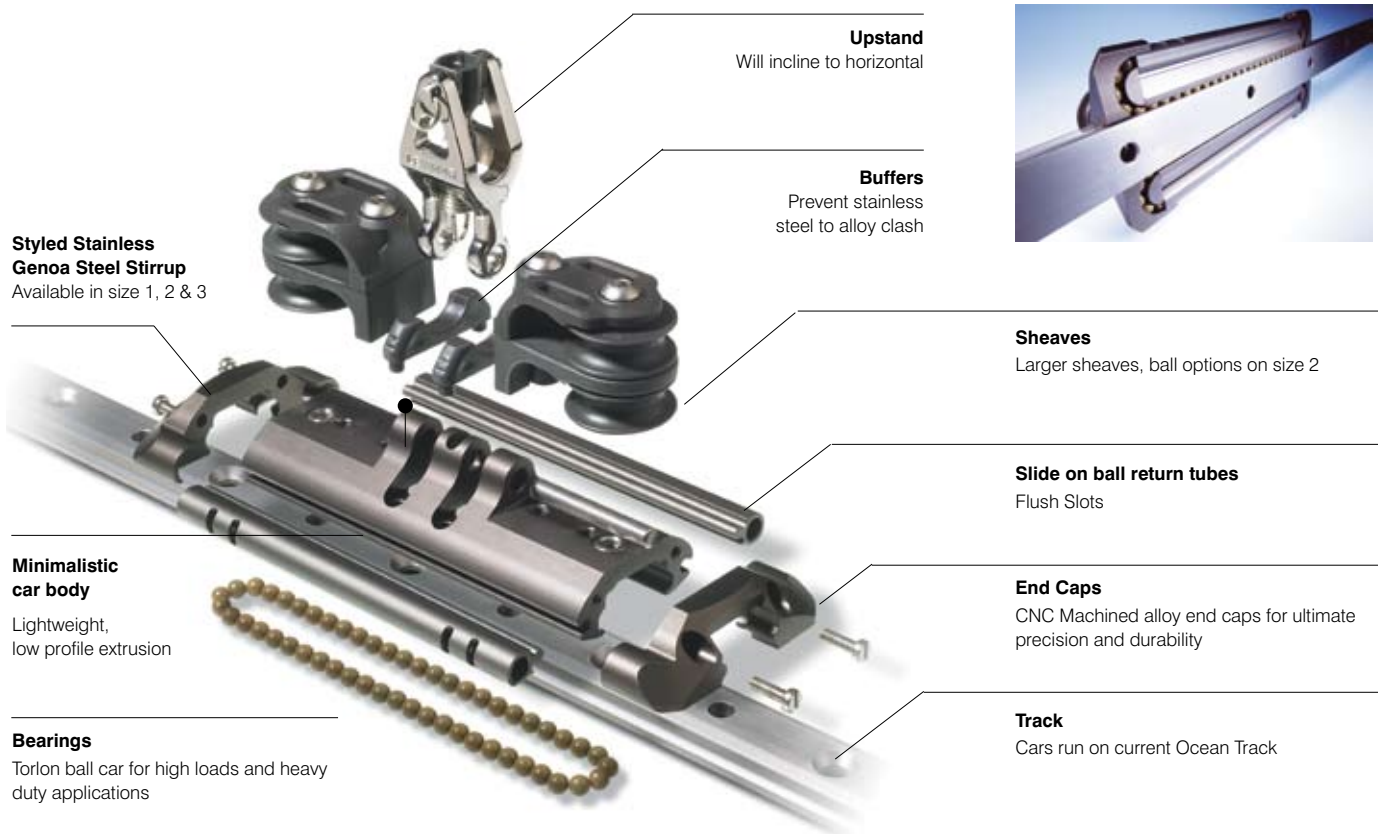
Fixing and Dimensions

Pad Eye Part No.	A		B		C		D		E		Fixings	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
2990 4060	66	2 19/32	33	1 1/16	18	2 3/32	34	1 11/32	28	1 3/32	4xM8	4x 5/16
2990 4053	98	3 27/32	48	1 7/8	28	1 3/32	50	2 31/32	42	1 21/32	4xM12	4x 7/16
2990 4054	115	4 17/32	58	2 5/16	34	1 5/16	60	2 11/32	48	1 7/8	4xM12	4x 7/16
2990 4040	38	1 1/2	24	1 5/16	14	9/16	23	1 5/16	46	1 19/16	4xM5	4x 3/16
2990 4041	70	2 3/4	37	1 7/16	21	7/8	38	1 1/2	38	1 1/2	4xM8	4x 5/16



Traveller Systems — Make sail control easy!

Lewmar's integrated range of mainsheet travellers and Genoa cars are fast, functional and attractive — perfect for everything from day boats to offshore cruisers and Grand Prix racers.



Features

- Broad range – Suitable for craft from 6m (20ft) – 30m (100ft)
- Re-Circulating ball bearing cars and slide rod car options
- Short cars for radiused tracks and long cars for compact multiple block attachment
- 2 style of car links for short and standard length cars
- Modular system creates multiple options and creative solutions
- Ball bearing control line options on size 2 and 3
- Lock-on alloy cam plate extrusions on size 1 and 2 end stops
- Cam cleat on car available in size 1 and 2
- Surface mounted end stops eliminates leakage
- Mainsheet kits provide a complete system in one package

Car Upgrade

To improve movement under load standard car sizes 0–3 can be upgraded from slide rods to recirculating balls.



Mainsheets & Genoa Cars — Selection Guide

This selection guide is designed to be used as a quick reference only.

For more detailed product information visit www.lewmar.com.

Calculations are based on the average modern cruising yacht. Sail area, different rigs, heavy or light displacement, multihull or monohull, are all factors which effect a yacht's specifications. Loadings should be obtained from the designer and matched to the safe working load of the hardware. Please contact your Lewmar agent if you have any questions regarding the correct hardware for your boat.

Ocean Cars Selection Guide

Application & Sheeting Position	Size	Towing Purchase (Maximum Available Purchase)	m ft	Boat Length Overall									
				7.3 24	8.5 28	10.3 34	11.5 38	13.4 44	14.6 48	16.4 54	18.2 60	21.3 70	21+ 70+
Genoa	0	2:1											
End Boom Mainsheet	0	2:1											
Mid Boom or Multihull	0	2:1											
Genoa	1	4:1 or 2:1 to Winch											
End Boom Mainsheet	1	4:1											
Mid Boom or Multihull	1	4:1											
Genoa	2	4:1 or 2:1 to Winch											
End Boom Mainsheet	2	5:1											
Mid Boom or Multihull	2	5:1											
Genoa	3	5:1 or 2:1 to Winch											
End Boom Mainsheet	3	5:1 or 2:1 to Winch											
Mid Boom or Multihull	3	5:1 or 2:1 to Winch											

Note: Size 3 also includes High Load options.



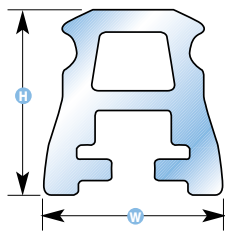
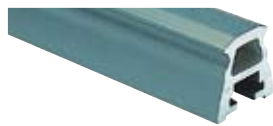
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Track Selection Guides

Beam Track

Some beam tracks can only use metric fasteners; see table for details. The moment of inertia is used to calculate the stiffness of material section. All track is extruded from Aluminium 6082T6. Beam track is available from size 0 to 3 and is used when spanning cockpits and

across companion way hatches. Three fixing bolts should always be used either side of the span and washers fitted under the head of the bolt and between track and deck.



Beam Track Specifications and Fixing Details

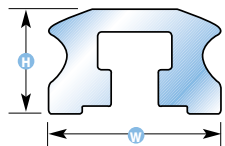
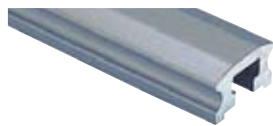
Part Number	Track Size	Actual Length		Height		Width		Weight (Per Metre)		Max Safe Working Load of Car		Max Span Between Fixings		Fixings	
		m	ft	mm	in	mm	in	g	oz	kg	lb	mm	in	Metric	Imperial
2916 0315	0	1.5	4'11"	24.7	0.97	24	0.44	954	33.65	450	1000	400	16	Hex Hd M6	1/4"
2916 1315	1	1.5	4'11"	30	1.18	30	1.18	1084	38.27	900	1980	700	27	Hex Hd M8	5/16"
2916 0320	1	2.0	6'7"												
2916 2315	2	1.5	4'11"	35	1.38	35	1.38	1560	54.91	1500	3300	800	31	Hex Hd M10	-
2916 2320	2	2.0	6'7"												
2916 3315	3	1.5	4'11"	35	1.38	35	1.38	3640	128.13	2350	5180	900	35	Hex Hd M12	-
2916 3320	3	2.0	6'7"												
2916 3330	3	3.0	9'10"												



Sliding Bolt Track

Sliding bolt track is available in sizes 1 & 2 and has two significant features — a smooth clean profile with no visible fixings and the ability to retro-fit new track to the deck using original bolt holes — no need to

worry about old track pattern holes matching up with a new track. The track is designed to permit a washer to fit on each bolt between the track and deck to ensure a secure seal.



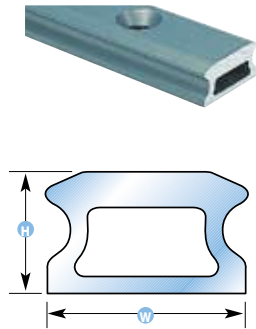
Sliding Bolt Track Specifications and Fixing Details

Part Number	Track Size	Actual Length		Height		Width		Weight (Per Metre)		Max Safe Working Load of Car		Max Span Between Fixings		Fixings	
		m	ft	mm	in	mm	in	g	oz	kg	lb	mm	in	Metric	Imperial
2916 1115	1	1.5	4'11"	14	0.56	23	0.90	520	18.30	900	1980	100	4	Hex Hd M6	1/4"
2916 1120	1	2.0	6'7"												
2916 1130	1	3.0	9'10"												
2916 2115	2	1.5	4'11"	18	0.71	30	1.18	839	29.56	1500	3300	800	31	Hex Hd M8	5/16"
2916 2120	2	2.0	6'7"												
2916 2130	2	3.0	9'10"												



Drilled Track

Drilled track is commonly used and particularly useful where through deck fixing is not possible, such as in double skinned boats, where fixing bolts are trapped into a plate in the deck. Available from size 0 to 3.



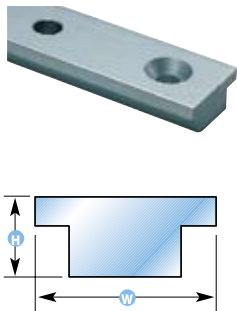
Drilled Plunger Track Specifications and Fixing Details

Part Number	Track Size	Nominal Length		Height		Width		Weight (Per Metre)		Max Safe Working Load of Car		Max Span Between Fixings		Fixings	
		m	ft	mm	in	mm	in	g	oz	kg	lb	mm	in	Metric	Imperial
2916 0415	0	1.466	4'11"	11	0.43	19	0.75	342	12.06	450	1000	80	3.1	Hex Hd M5	-
2916 0420	0	2.026	6'7"												
2916 1415	1	1.526	5'											Hex Hd M6	1/4"
2916 1420	1	2.026	6'8"	13	0.50	23	0.90	530	18.65	900	1980	100	4		
2916 1430	1	3.026	9'11"												
2916 2415	2	1.532	5'											Hex Hd M8	5/16"
2916 2420	2	2.032	6'3"	15	0.56	30	1.18	764	26.95	2000	4400	100	4		
2916 2430	2	3.032	10'												
2916 3615	3	1.548	5'1"											Hex Hd M10	3/8"
2916 3620	3	2.048	6'9"	21	0.84	35	1.38	968	33.88	3300	7260	100	4		
2916 3630	3	3.048	10'1"												



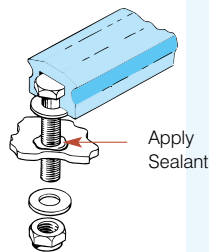
32mm (1 1/4") T-Track

32mm (1 1/4") T-Track is widely used on cruising boats where car sheeting positions change infrequently



32mm T-Track Specifications and Fixing Details

Part Number	Nominal Length		Height		Width		Weight (Per Metre)		Max Safe Working Load of Car		Max Span Between Fixings		Fixings	
	m	ft	mm	in	mm	in	g	oz	kg	lb	mm	in	Metric	Imperial
2916 6215	1.5	4'11"												
2916 6225	2.5	8'2"	15	5/8	32	1 1/4	865	30.5	2350	5170	100	4	CSK M8	5/16"
2916 6230	3.0	9'10"												



Additional Information

Tracks can be bent to suit customer's requirements, please contact your local supplier for more information.

Stainless Steel track is available in 40mm T-Track, Size 3 and Size 4.

Size 0 Ocean Cars & Mainsheet System

For boats up to 8.5m/28ft. Use size 0 – 1 or Synchro 50mm/60mm blocks. Suitable for 6mm (¼") control line.



2902 0701



2903 0600



2903 0100



2904 0600



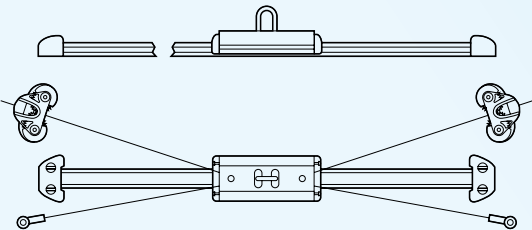
2917 0030



2917 0040

Size 0 Mainsheet System

Lewmar makes selecting your mainsheet system simple — with complete Mainsheet System Kits. Lewmar's Size 0 Ocean Mainsheet System is a complete kit made specifically for yachts up to 28 feet (8.5m) long.



2906 0152
Mainsheet
Traveller
Kit - Size 0



Size 0 Ocean Traveller Kit —
2:1 Purchase System

2906 0152 Size 0 Ocean Traveller System

Comprises of:

2903 0100	1 x - Mainsheet Car
2917 0040	2 x - End Stop
2916 0112	1 x - 1.2m Sliding Bolt Track
2917 1010	1 x - Size 1 Dead Eye
2990 4100	2 x - Small Composite Cleat
2990 4104	2 x - Small Cam Fairlead

Boat Size:	Up to 8.5m	Up to 28ft
Track:	Beam, Drilled or Sliding Bolt	
Max. Mainsail Area:		
End Boom:	16m ²	170 ft ²
Mid Boom:	12m ²	130 ft ²
Safe Working Load:	400kg	990 lbs

Size 0 Car Specifications

Part Number	Description	Safe Working Load		Breaking Load		Length		Width		Weight	
		kg	lb	kg	lb	mm	in	mm	in	g	oz
2902 0701	Short Car with Delrin Balls & Shackle	200	440	460	1010	71	2.79	51	2	142	5.59
2903 0100	Mainsheet Car with Delrin Balls & Shackle , 1 pair control line sheaves	450	990	900	1980	123	4.83	51	2	210	7.39
2903 0600	Mainsheet Car with Slide Rods, Shackle & Plunger	450	990	900	1980	123	4.83	51	2	225	7.92
2904 0600	Genoa Car with Slide Rods & Plunger	600	1325	1200	2650	123	4.83	51	2	427	15.03
2917 0030	Control Line End Stop with Sheave	200	440	460	1010	58	2.3	51	2	78	2.75
2917 0040	End Stop									10	0.35

Mainsheet Traveller Systems

Traveller kits are made up of all the necessary components to assemble a standard system. Each one comes with Lewmar's sliding bolt track, which allow you to retrofit the new track to your deck using the original bolt holes.



Size 1 Mainsheet System

In the Size 1 kit, you'll find all the components necessary to assemble a standard system for yachts up to 36 feet (11m) long.

Size 2 Mainsheet System

Like the size 1 system, the Size 2 Mainsheet system comes with everything you need for a complete standard system, including the sliding bolt track. A Size 2 can fit yachts up to 49 feet (15m) long.

Size 1 & 2 Traveller Kit — 4:1 Purchase System

	Size 1	Size 2
Traveller System	29461354	29462354
Comprises of:		
1 x Mainsheet Car Shackle and 2 Double Control Line Sheave, Cleats & Becket	29431916	29432916
2 x End stop with Double Control Line sheaves	29471032	29472032
1 x Sliding Bolt Track	29161115	29162118
Track Length	1.5m	1.8m
Boat Size:	Up to 11m (36ft)	Up to 14.6m (48ft)
Max. Mainsail Area:		
End Boom:	34m ² (366ft ²)	46m ² (495ft ²)
Mid Boom:	21m ² (226ft ²)	38m ² (410ft ²)
Safe Working Load:	900kg (1980 lb)	1000kg (2000 lb)

Size 1 & 2 Cars

Size 1 Traveller System

For boats up to 11m (36ft) upstands for 60mm blocks. Suitable for 8mm (5/16") control line. Fits all Ocean size 1 tracks.



2943 1300
2943 2300



2943 1312
2943 2312



2943 1315

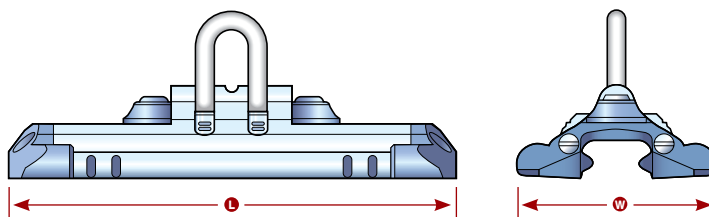


2943 2412
2943 2424

Size 2 Traveller System

For boats up to 15m (49ft). Upstands for 72mm blocks, option on 29432424 to fit 90mm. Suitable for 10mm (3/8") control line. Fits all Ocean size 2 tracks.

Mainsheet Car — Dimension Diagram



Standard Systems Mainsheet Car — Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Length ^L		Width ^W		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
Size 1 Torlon Ball (TB) Cars												
2943 1311	1	TB Car with Shackle and 1 Pair CL Sheaves	900	1980	1800	3960	162	6 3/8	71	2 3/4	374	13.2
2943 1315	1	TB Car with Shackle, 1 Pair CL Sheaves and Becket	900	1980	1800	3960	162	6 3/8	71	2 3/4	378	13.2
2943 1916	1	TB Car Shackle, 2 Double CL Sheaves, Becket and Cam	900	1980	1800	3960	162	6 3/8	97	3 3/4	799	28.2
2943 1415	1	TB Car Upstand 1 Pair CL Sheaves and Becket	900	1980	1800	3960	162	6 3/8	71	2 3/4	472	16.6
2943 1814	1	TB Car Upstand 2 Double CL Sheaves and Cam	900	1980	1800	3960	162	6 3/8	97	3 3/4	759	26.7
2944 1321	1	TB Car Genoa Stirrup 1 CL Sheave Port	900	1980	1800	3960	162	6 3/8	71	2 3/4	560	19.8
2944 1331	1	TB Car Genoa Stirrup 1 CL Sheave Starboard	900	1980	1800	3960	162	6 3/8	71	2 3/4	560	19.8
Size 1 Slide Rod (SR) Cars												
2944 1720	1	SR Car Genoa Stirrup Plunger Stop Port	1000	2200	2000	4400	148	5 13/16	50	2	480	16.8
2944 1730	1	SR Car Genoa Stirrup Plunger Stop Starboard	1000	2200	2000	4400	148	5 13/16	50	2	480	16.8
Size 2 Torlon Ball (TB) Cars												
2942 2300	2	TB Short Car with Shackle	1100	2420	3000	6600	140	5 1/2	92	3 5/8	386	13.6
2943 2311	2	TB Car with Shackle, 1 Pair CL Sheaves	1500	3300	3000	6600	210	8 5/16	92	3 5/8	747	26.3
2943 2312	2	TB Car with Shackle, 2 Double CL Sheaves	1500	3300	3000	6600	210	8 5/16	92	3 5/8	871	30.7
2943 2916	2	TB Car Shackle 2 Double CL Sheaves Becket and Cam (5:1)	1500	3300	3000	6600	210	8 5/16	120	4 3/4	1730	68.1
2943 2415	2	TB Car Upstand 1 Pair CL Sheaves and Becket	1500	3300	3000	6600	210	8 5/16	92	3 5/8	993	35
2943 2412	2	TB Car Upstand and 2 Double CL Sheaves	1500	3300	3000	6600	210	8 5/16	92	3 5/8	997	35.1
2943 2816	2	TB Car Upstand 2 Double CL Sheaves Becket and Cam (5:1)	1500	3300	3000	6600	210	8 5/16	120	4 3/4	1610	56.7
2943 2424	2	TB Car size 3 Upstand, 2 Double CL Sheaves	2000	4400	4000	8800	210	8 5/16	92	3 5/8	1050	37
2943 2832	2	TB Car Long 2 x Size 3 Upstand 2 Double CL Sheaves	2800	6160	5600	12320	307	12 1/16	92	3 5/8	1560	55
2944 2321	2	TB Car Genoa Stirrup 1 CL Sheave Port	1800	3960	3600	7920	210	8 5/16	120	4 3/4	1330	46.9
2944 2331	2	TB Car Genoa Stirrup 1 CL Sheave Starboard	1800	3960	3600	7920	210	8 5/16	120	4 3/4	1330	46.9
Size 2 Slide Rod (SR) Cars												
2944 2720	2	SR Car Genoa Stirrup Plunger Stop Port	1800	3960	3600	7920	194	7 5/8	65	2 5/8	1201	42.4
2944 2730	2	SR Car Genoa Stirrup Plunger Stop Starboard	1800	3960	3600	7920	194	7 5/8	65	2 5/8	1201	42.4

If the car you are looking for is not shown please visit www.lewmar.com for further details

Customise your Car



2943 1814

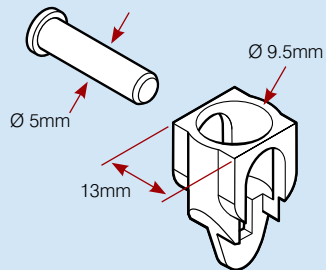


2943 2916

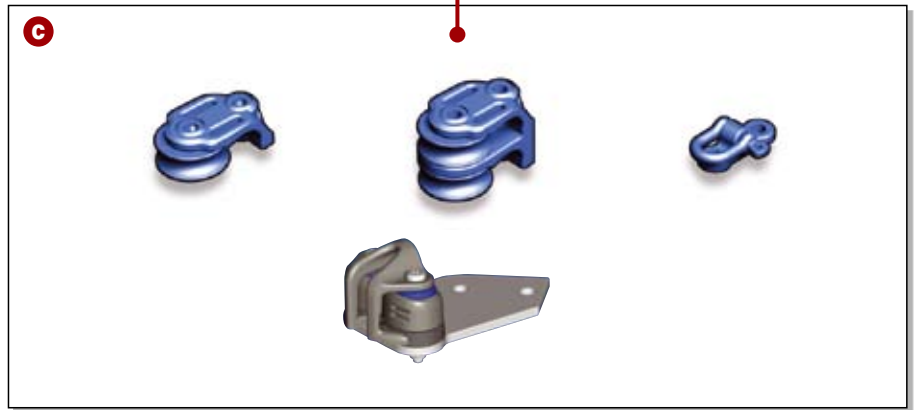
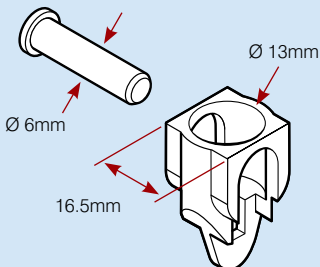


2944 1321

Size 1 Upstand Cup Detail



Size 2 Upstand Cup Detail



Key	Description	Size 1 Part Number	Size 2 Part number
a	Upstand	29171024	29172024
	Stirrup	28003225	28003226
b	Slide Rod Car with Shackle	29431500	29432500
	Slide Rod Car Plunger with Shackle	29441723	29442723
	TB Car with Shackle	29431300	29432300
c	Becket Assembly (pair)	29471010	29472010
	Single CL Sheave (pair)	29471011	29472011
	Double CL Sheave (pair)	29471012	29472012
	Cleats for car (pair)	29471015	29472015
	Genoa Stirrup Assembly	28003225	28003226

For fastening lengths visit www.lewmar.com

Size 1 & 2 End Stops



2947 1030
2947 2030



2947 1037
2947 2037



2947 1031
2947 2031



2947 2501



2947 1032
2947 2032



2947 1035
2947 2035



2947 1836
2947 2836



2947 1015
2947 2015

Beckets & control line sheaves from
'Customise your system' on p149 fit these
end stops.

Size 1 & 2 End Stop — Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Length		Width		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
Size 1												
2947 1015	1	Cleat Assembly for End Stop (pair)	180	396	360	792	47	1 7⁄8	59	2 5⁄16	123	4.3
2947 1030	1	Bare End Stop	585	1287	1170	2574	47	1.9	29	1.1	99	3.5
2947 1031	1	End Stop with Single CL Sheave	585	1287	1170	2574	75	2.9	50	2	140	4.9
2947 1032	1	End Stop with Double CL Sheave	585	1287	1170	2574	75	2.9	50	2	172	6.1
2947 1035	1	End Stop with Single CL Sheave & Becket	585	1287	1170	2574	47	1.9	29	1.1	165	5.8
2947 1036	1	End Stop with Double CL Sheave & Becket	585	1287	1170	2574	47	1.9	29	1.1	185	6.5
2947 1037	1	Plunger Stop	650	1430	1300	2860	43	1.7	50	2	83	2.9
29471836	1	End Stop with Double CL Sheave & Becket & Cleat Assembly (pair)	585	1287	1170	2574	75	2.9	78	3.1	258	9.1
2944 1701	1	End Stop Sheet Lead	1000	2200	2000	4400	162	1 3⁄8	50	2	480	16.8
Size 2												
2947 2015	2	Cleat Assembly for End Stop (pair)	180	396	360	792	69	2 3⁄4	97	3 3⁄4	368	12.9
2947 2030	2	Bare End Stop	750	1650	1950	4290	105	4 1⁄8	65	2 5⁄8	238	8.4
2947 2031	2	End Stop with Single CL Sheave	750	1650	1950	4290	105	4 1⁄8	65	2 5⁄8	301	10.6
2947 2032	2	End Stop with Double CL Sheave	750	1650	1950	4290	105	4 1⁄8	65	2 5⁄8	363	12.8
2947 2035	2	End Stop with Single CL Sheave & Becket	750	1650	1950	4290	105	4 1⁄8	65	2 5⁄8	331	11.7
2947 2036	2	End Stop with Double CL Sheave & Becket	750	1650	1950	4290	105	4 1⁄8	65	2 5⁄8	393	13.8
2947 2037	2	Plunger Stop	975	2145	1950	4290	87	3 3⁄8	65	2 5⁄8	261	9.2
2947 2836	2	End Stop with Double CL Sheave, Becket and Cleat Assembly (pair)	750	1650	1950	4290	105	4 1⁄8	112	4 5⁄8	602	21.2
2944 2701	2	End Stop Sheet Lead	1800	3960	3600	7920	194	7 5⁄8	65	2 5⁄8	1134	40

Size 1 & 2 Spares and Accessories



2947 1041
2947 2041



2917 1040
2917 2040



2947 1027
2947 2027



2990 5200



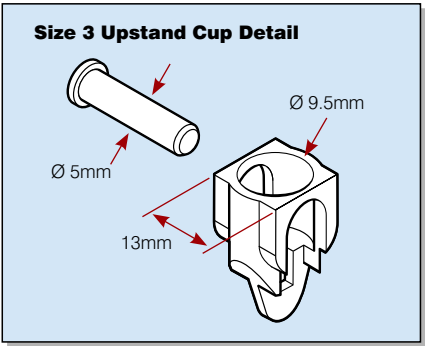
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Size 1 & 2 Spares and Accessories — Specifications

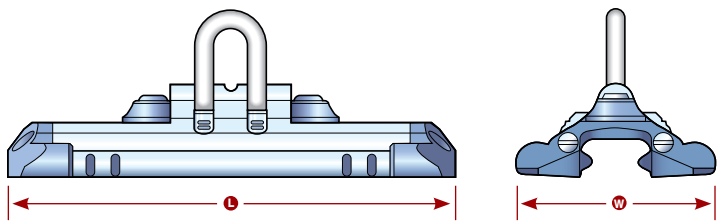
Part Number	Size	Description	Safe Working Load		Breaking Load		Length		Width		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
Size 1												
2917 1040	1	Track End Stop	250	550	500	1100	-	-	-	-	22	0.77
2990 5105	1	Impact End Stop	500	1100	560	1230	40	1 1/2	46	1 3/4	24	0.8
2947 1041	1	Beam Track End Cover (pair)	-	-	-	-	13	1/2	50	2	12	0.4
2947 1042	1	HD Beam Track End Cover (pair)	-	-	-	-	13	1/2	50	2	18	0.6
2947 1027	1	Conversion Kit to Re-circulate Balls	-	-	-	-	-	-	-	-	-	-
2947 1063	1	Short Car Link	1150	2530	2300	5060	71	2 3/4	25	1	160	5.6
Size 2												
2917 2040	2	Track End Stop	-	-	-	-	-	-	-	-	30	1.1
2990 5200	2	HD Racing Impact end stop (needs extra drilling in track)	1250	2755	3300	7275	114	4 1/8	-	-	158	5.6
2947 2027	2	Conversion Kit to Re-circulate Balls	-	-	-	-	-	-	-	-	-	-
2947 2038	2	Friction Stop	975	2145	1950	4290	87	3 3/8	65	2 5/8	261	9.2
2947 2041	2	Beam Track End Cover (pair)	-	-	-	-	22	7/8	65	2 5/8	26	0.9
2947 2042	2	HD Beam Track End Cover (pair)	-	-	-	-	3.5	1/8	67	2 5/8	40	1.4
2947 2062	2	Car Link with Sz3 Upstand (90mm Synchro/80mm 2G Racing)	1500	3300	3000	6600	-	-	-	-	639	22.5
2947 2063	2	Short Car Link (90mm Synchro/80mm 2G Racing)	2200	4840	4400	9680	-	-	-	-	383	13.5
2947 2064	2	Dog Bone Car Link (Standard and Short Car Link)	1500	3300	3000	6600	-	-	-	-	110	3.8

Size 3 Mainsheet Cars & Genoa Cars

For boats up to 22m (72ft). Cars have fully machined ball races. Mainsheet cars up to 2.5T SWL and use Size 2 control line sheaves, from the 'Customise your system' section of p149. All cars fit original Size 3 track, but Genoa plunger stops need drilled plunger track ref 291636**.



Mainsheet Car — Dimension Diagram



Size 3 Mainsheet Car — Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		L Length		W Width		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
Mainsheet Torlon Ball (TB) Cars												
2942 3400	3	TB Car Short Size 3 Uprstand	2000	4400	4000	8800	150	5 15/16	88	3 1/2	781	27.3
2942 3301	3	TB Short Car with Shackle	2000	4400	4000	8800	150	5 15/16	88	3 1/2		
2943 3400	3	TB Car with Uprstand	2500	5500	5000	11000	215	8 1/2	88	3 1/2	743	26
2943 3300	3	TB Car with Shackle	2500	5500	5000	11000	215	8 1/2	88	3 1/2	924	32.3
2943 3314	3	TB Car with Shackle, 2 Double CL Sheaves	2500	5500	5000	11000	215	8 1/2	88	3 1/2	993	34.8
2943 3416	3	TB Car with Uprstand, 2 Double CL Sheaves & Becket	2500	5500	5000	11000	215	8 1/2	88	3 1/2	1790	62.6



2944 3311



2944 3700



2944 3702



2947 3032



2947 3035



2917 3040



2947 3037



2947 3030



2947 3036

Size 3 Genoa Car & Accessories — Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		L Length		W Width		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
Size 3 Torlon Ball (TB) Genoa Cars												
2944 3311	3	TB Genoa with CL Sheave	3500	7700	7000	15400	215	8 1/2	88	3 1/2	1565	54.8
2944 3611	3	5T Genoa with CL Sheave	5000	11000	10000	22000	320	12 5/8	88	3 1/2		
Size 3 Slide Rod (SR) Genoa Cars												
2944 3700	3	SR Genoa Car with Plunger	3500	7700	7000	15400	180	7 1/16	70	2 13/16	1410	49.4
2944 3700C	3	SR Genoa Car with Ocean Plunger	3500	7700	7000	15400	180	7 1/16	70	2 13/16	1410	49.4
2944 3702	3	SR Genoa Car with Plunger (Composite Sheave)	2250	4950	4500	9900	180	7 1/16	70	2 13/16	1079	37.8
End Stops												
2917 3040		Simple End Stop	-	-	-	-	-	-	-	-	42	1.5
2947 3032		Double CL End Stop	800	1760	1600	3520	93	3 11/16	70	2 13/16	390	13.7
2947 3035		Single CL End Stop with Becket	800	1760	1600	3520	93	3 11/16	70	2 13/16	381	13.3
2947 3036		Double CL End Stop with Becket	800	1760	1600	3520	93	3 11/16	70	2 13/16	460	16.1
2947 3135		High Load, Single CL End Stop with Becket	3000	6600	6000	13200	140	5 1/5	70	2 13/16	537	18.8
2947 3030		Impact End Stop	2200	4840	4400	9680	93	3 11/16	70	2 13/16	247	8.7
2947 3037		Plunger End Stop (For track with 12.3mm holes)	2000	4400	4000	8800	80	3 3/16	70	2 13/16	298	10.4
2948 3037C		Plunger End Stop Ocean (for track with 9.5mm holes)	2000	4400	4000	8800	80	3 3/16	70	2 13/16	298	10.4
Accessories												
2947 3041		Beam Track End Cover	-	-	-	-	-	-	-	-	42	1.5
2947 3063		Short Car Link (for 105mm Synchro or Racing)	3750	7700	7500	15400	-	-	-	-	455	16
2947 3024		Upstand Kit NTR	2500	5500	5000	11000	-	-	-	-	274	9.7

Genoa T-Track Cars

All Lewmar Track cars fit the industry standard 32mm (1 1/4"). The cars are available in three styles and cover three different loading levels to suit boats from 9m (30ft) up to 15.5m (50ft).

Features

- Precision Workmanship
- Three Styles
- Simple to fit
- Low Maintenance



© 2009 Hallberg Rassy



2904 1700



2904 2700



2904 2705



2917 2015



2917 2016

Additional Information

32mm T-Track is a universal track widely accepted and used on many boats up to 50ft. For details see p.143



Genoa Cars & T-Track Accessories — Specifications

Part Number	Size	Description	Safe Working Load		Breaking Load		Length		Width		Weight	
			kg	lb	kg	lb	mm	in	mm	in	g	oz
2904 1700	1	Plunger Car	900	1980	1800	3960	111	4 3/8	56	2 1/4	540	19.1
2904 2700	2	SS Stirrup, plunger car	1500	3300	3000	6600	120	4 11/16	56	2 1/4	719	25.3
2904 2704	2	Control Line Sheave Car	1500	3300	3000	6600	128	5	56	2 1/4	719	25.3
2904 2705	2	Tri-Roller Genoa Car	1500	3300	3000	6600	147	5 3/4	64	2 1/2	767	27.1
2917 2117	2	Slider with Shackle and Plunger	1500	3300	3000	6600	120	4 11/16	56	2 1/4	480	17
2904 3702	3	SS Stirrup, Plunger Car	2350	5170	4700	10340	170	6 3/4	56	2 1/4	1199	47.3
2917 2015		Control Line End Stop	-	-	-	-	-	-	-	-	120	4.2
2917 2016		Track End Stop	-	-	-	-	-	-	-	-	19	0.7

Car Accessories

Bearing Specifications

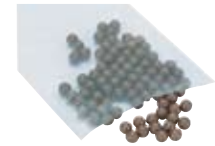
Part Number	Description	Where Used	Diameter	
			mm	in
Torlon Balls for Ocean & NTR Cars				
2917 1021	Torlon Balls (per 100)	SZ1 Ocean and NTR Cars	6.4	1/4
2917 2021	Torlon Balls (per 100)	SZ2 Ocean and NTR Cars	7.8	5/16
2917 3021	Torlon Balls (per 100)	SZ3 Ocean and NTR Cars	9.5	3/8
2917 4021	Torlon Balls (per 100)	SZ4 Ocean	12.7	1/2
Delrin Balls for Blocks				
2917 5022	Delrin Balls (per 100)	60HL Footblocks	3.2	1/8
2917 0022	Delrin Balls (per 100)	60LL+80HL+105+130 Blocks/Footblocks	4.6	3/16
2917 1022	Delrin Balls (per 100)	80LL+105+155+175 Blocks/Footblocks	6.4	1/4

Part Number	Description	Where Used	Diameter	
			mm	in
Slide Rods for Ocean Cars				
2917 0026	Slide Rods (per pair)	SZ0 Cars	4.6	3/16
2917 1026	Slide Rods (per pair)	SZ1 Cars	6.4	1/4
2917 2026	Slide Rods (per pair)	SZ2 Cars	7.8	5/16
2917 3026	Slide Rods (per pair)	SZ3 Cars	9.5	3/8

Part Number	Description	Block Size
Torlon Rollers for Racing Blocks & CL Sheaves		
2990 0010	Torlon Roller (per 22)	60mm
2990 0011	Torlon Roller (per 24)	80mm
2990 0012	Torlon Roller (per 35)	105mm
2990 0013	Torlon Roller (per 47)	130mm
2990 0014	Torlon Roller (per 50)	155mm
2990 0015	Torlon Roller (per 59)	175mm
2990 0016	Torlon Roller (per 68)	200mm
2990 0017	Torlon Roller (per 78)	225mm



Delrin Balls



Torlon Balls



Ocean Slide Rods

Ocean Traveller Car Accessories

Part Number	Size	Description
2917 2044	2	Alloy End Cap Kit
2917 3044	3	Alloy End Cap Kit
2917 0046	0	Rubber Buffer Kit
2917 1046	1	Rubber Buffer Kit
2917 2046	2	Rubber Buffer Kit
2917 3046	3	Rubber Buffer Kit
2917 1020	1	Stainless Steel Cam Plate (Sizes 0 and 1 are the same size)
2917 2020	2	Cam Plate
2917 3020	3	Cam Plate



Ocean Cam Plate
Available in Sizes 1-3



Ocean Car Alloy End Cap Kit
Available in Sizes 2 & 3



Ocean End Stop Rubber Buffer Kit
Available in Sizes 0-3

Size 4 Racing Cars, Accessories & Track

Size 4 Racing cars for major offshore events and the performance-conscious yachtsman. High load 80mm / 3/8" control line sheaves for 14mm / 9/16" line. 12mm / 1/2" Torlon balls running in fully machined ball races. Additional weights reducing slots machined along the top of the return ball race. End stops fixed through deck and track.



2990 3402
Mainsheet Car, Twin Upstand, 1
Control Line Sheave



2990 5400
High Load Impact End Stop



2990 5401
Track End



2990 3451 PORT
2990 3452 STBD
Genoa Car, Stirrup Torlon Ball &
Dead Eye



2990 5412
Plunger Stop



2990 5414
Track Plug

Size 4 Racing Car — Specifications

Part Number	Description	Safe Working Load		Breaking Load		Length		Width		Line Exit Height		Weight	
		tonne	lb	tonne	lb	mm	in	mm	in	mm	in	g	oz
Size 4 Racing Mainsheet Car													
2990 3401	Single Upstand and 1 Pair CL Sheaves	8	17634	16	35268	465	18 3⁄8	113	4 7⁄16	-	-	5195	183.2
2990 3402	Twin Upstand and 1 Pair CL Sheaves	8	17634	16	35268	465	18 3⁄8	113	4 7⁄16	-	-	5195	183.2
Size 4 Racing Genoa Cars													
2990 3451	TB Car Genoa Stirrup & Dead Eye - Port	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
2990 3452	TB Car Genoa Stirrup & Dead Eye - Stbd	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
2990 3453	TB Car Genoa Stirrup with 1 CL Sheave - Port	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
2990 3454	TB Car Genoa Stirrup with 1 CL Sheave - Stbd	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
2990 3457	TB Car Genoa Stirrup with Slide Rod Plunger - Port	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
2990 3458	TB Car Genoa Stirrup with Slide Rod Plunger - Stbd	6	13225	12	26450	385	15 1⁄8	113	4 7⁄16	137	5 3⁄8	6740	236.5
Size 4 Racing End Stop													
2990 5400	High Load Impact End Stop	4	8117	8	17637	185	7 1⁄4	113	4 7⁄16	-	-	1040	36.7
2990 5401	Track End	1	2240	2	4409	110	4 5⁄16	113	4 7⁄16	-	-	580	20.5
2990 5410	Control Line End Stop	6	13225	12	26450	185	7 1⁄4	113	4 7⁄16	-	-	1500	52.9
2990 5412	Plunger Stop	3	6613	6	13225	110	4 5⁄16	113	4 7⁄16	-	-	897	31.6
2990 5414	Track Plug	-	-	-	-	-	-	-	-	-	-	36	1.3

Custom Yacht Systems

A true reflection of quality.

Especially developed for today's super yachts and yesteryear's classics. They combine aesthetic beauty with design quality for yachts between 21m (70ft) and 36.5m (120ft).

The cars are complemented by Lewmar's range of stainless steel block.

Features

- Precision workmanship
- Stainless steel for ultimate corrosion resistance
- Styling whilst polished and passivated to a high quality finish
- Recirculating ball system for free movement under load
- Main and genoa stops fitted with high-energy absorption buffers
- Low Maintenance

Genoa Systems

- High load impact end stops available with sheet lead option.
- Recirculating Torlon ball or slide rod Genoa cars with fixed stirrups, prevent damage to coach work on deck.
- Side rollers for fair lead of sheet on to sheaves.
- Screw down plunger stops with option on car.
- Car length designed to fit snugly between plungers for passage making.
- Control line endstops for towing cars under load.



Mainsheet Systems

- Control line endstops with composite sheaves for low maintenance and free running.
- Recirculating ball mainsheet cars run on Torlon balls with padeyes to support block.
- Designed to fit snugly between plunger stops for passage making.
- Endstops have high energy impact absorption buffers.
- Styled with snag free soft edges polished and passivated to a high quality finish.



Custom Projects

Hardware developed for large high performance and custom yachts have special requirements in terms of strength, weight and performance. Materials may vary from aluminium, ultra-light titanium or carbon, to mirror-polished stainless steel.

BPO mainsheet car that broke the transatlantic record! The same Patented Lewmar double ball race cars were also used aboard IDEC when Francis Joyon smashed the round the world record by 14 days.



Custom floating sheet blocks from Panamax



A custom floating transverse jib sheet block, designed for the high loads up to 4000kg however the block is exceptionally light.

The low profile flip – flop block are light weight, and can be used for various leads on a boat, the blocks pivot around the line axis in order to keep the line as low to the deck as possible.



The Lewmar custom racing blocks feature PTFE impregnated main bearings with two rows of torlon side thrust balls making the block very efficient.

We have used the Lewmar patented double ball race system, on this Maxi below deck main sheet car, the double ball race system is designed to give a very good strength to length ratio, giving maximum travel on the track and significantly reducing the weight of the complete system.



Lewmar steering systems are now designed, and built at our Havant UK Head office. We are able to control the entire process and ensure we give you the best possible steering system for your yacht.

Lewmar's steering systems have been world leaders for over 50 years, and constantly evolving to meet the performance and aesthetic needs of both cruisers and elite racers. Each product is thoroughly tested (CE Certified) in the most adverse conditions possible and then finished with care to suit every type of yacht.



Steering

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Wheels

Wheel Selection Guide

cm in	66 26	81 32	97 38	112 44	127 50	142 56	157 62	173 68	188 74
Folding Wheel									
Commodore™ Flat									
Commodore™ Dished									
Mini Maxi™									
Carbon									
Fastnet									

Multi Tooth Wheel Disengagement Units

This is a quick, safe and efficient way to disengage the steering wheel whilst still allowing the system to operate. This is particularly useful when using a dual wheel system or operating the steering by Autopilot. The unit incorporates precision multi tooth gears to ensure zero backlash or play.

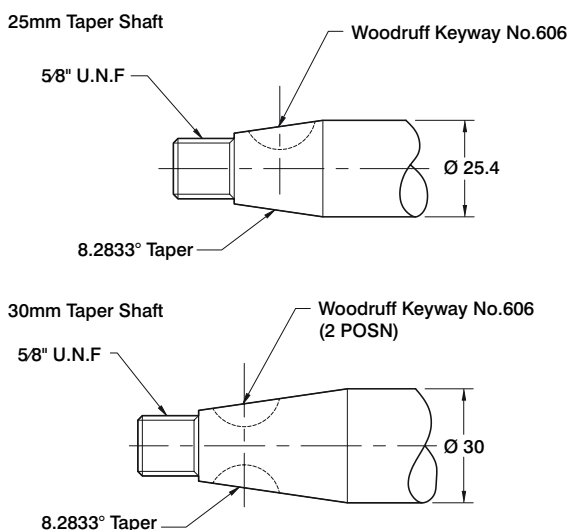
Note: This product cannot be retrofitted to an existing wheel and must be requested when ordering a new wheel. This multi-tooth disengagement unit can be added to any style newly built Lewmar wheel. For prices and part numbers of wheels incorporating this product please speak to a Lewmar representative.



The Lewmar Steering Wheel Shaft

All Lewmar wheels listed in this catalogue have the 25mm/1" taper shaft. Angle of taper ensures the wheel is easily removable. Larger wheels (1.6m and up) can also be supplied with the 30mm/1 3/16" taper shaft. The folding wheel dual-hub also fits a 25mm/1" parallel shaft.

Lewmar uses industry standard 25mm/1" tapered keyed shaft to ensure positive fit of the steering wheel. The 30mm/1 3/16" taper shaft is only used in custom super yacht systems



Brake Spinner

A brake spinner is used to lock the wheel and rudder when in port or at anchor. Lewmar uses a powerful and progressive through shaft friction brake. It is specific to the type of wheel used. For more information and part numbers, refer to wheel section on pages 161 to 164.



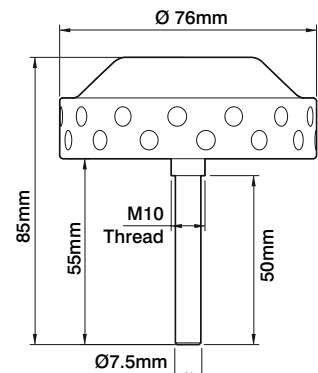
Folding Wheel

Lewmar's innovative and patented Folding Wheel is now available at your local retailer. Its unique, fast-action folding system is a concept in space-saving technology. Conventional wheels significantly restrict your cockpit space, but the Lewmar Folding Wheel breaks down that barrier. Ideal for a wide range of yachts, including those with twin-wheeled layout. The Folding Wheel has a two-turn, buttress-threaded, split-spoke design, and a unique hinging system with fast-action handgrip release. This allows you to easily fold and unfold the wheel, using a simple twist of the composite handgrip. At a fraction of the cost of custom versions, the Folding Wheel is appealing to both production boat builders and owners looking to improve their deck layouts.



Folding Wheel

Part Number	Description	Size		Fit Shaft
		mm	in	
89700375	Folding Wheel 6 spoke Hide Cover	813	32	1" Taper
89700376	Folding Wheel 6 spoke Hide Cover	914	36	1" Taper
89700377	Folding Wheel 6 spoke Hide Cover	1016	40	1" Taper
89700520	Folding Wheel 6 spoke Hide Cover	1066	42	1" Taper
89700406	Folding Wheel 6 spoke Hide Cover Dual Hub	813	32	1" Taper & 1" parallel
89700407	Folding Wheel 6 spoke Hide Cover Dual Hub	914	36	1" Taper & 1" parallel
89700408	Folding Wheel 6 spoke Hide Cover Dual Hub	1016	40	1" Taper & 1" parallel
89700521	Folding Wheel 6 spoke Hide Cover Dual Hub	1066	42	1" Taper & 1" parallel



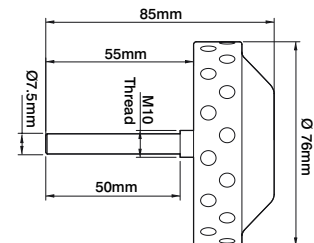
8910 0143
Brake Spinner

The Commodore™ Wheel

Durable and elegantly styled, the Commodore is a standard choice for yachtsmen the world over. Choose from sizes ranging in diameter from 66cm (26") to 122cm (48").

Commodore™ Wheel — supplied with hide cover

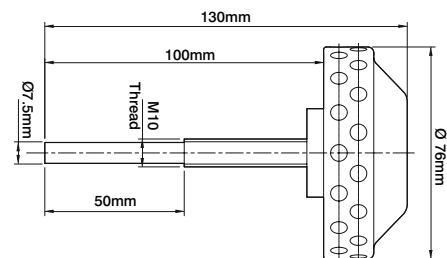
Part Number	Description	Size	
		cm	in
89700264	5 spoke flat polished	66	26
89700265	5 spoke flat polished	71	28
89700266	5 spoke flat polished	76	30
89700267	5 spoke flat polished	81	32
89700268	5 spoke flat polished	91	36
89700297	5 spoke dished polished	66	26
89700298	5 spoke dished polished	71	28
89700299	5 spoke dished polished	76	30
89700300	5 spoke dished polished	81	32
89700301	5 spoke dished polished	91	36
89700593	5 spoke dished polished	102	40
89700024	8 spoke flat, polished	107	42
89700432	8 spoke flat, polished	112	42
89700025	8 spoke flat, polished	122	48
89700063	8 spoke dished, polished	107	42
89700064	8 spoke dished, polished	122	48



8910 0143
Brake Spinner

The Mini Maxi™ Wheel

The Mini Maxi™ wheel is designed for use where a larger wheel is required or for exceptional rigidity. The Mini Maxi™ wheel is available up to 1524mm/60" diameter.



89100144
Brake Spinner

Mini Maxi™ Wheel — Supplied with Hide Cover and Spats

Part Number	Description	Size	
		cm	in
89700092	Mini Maxi™ 10 spoke	91	36
89700093	Mini Maxi™ 10 spoke	102	40
89700094	Mini Maxi™ 10 spoke	107	42
89700095	Mini Maxi™ 10 spoke	122	48
89700096	Mini Maxi™ 10 spoke	132	52
89700097	Mini Maxi™ 10 spoke	137	54
89700098	Mini Maxi™ 10 spoke	152	60

Carbon Wheel

The Y-Spoke carbon wheel combines ultimate weight saving with sleek and slender styling. Ideal for Grand Prix Race Yachts or as a solution to increasing demand for race technology on cruising yachts.

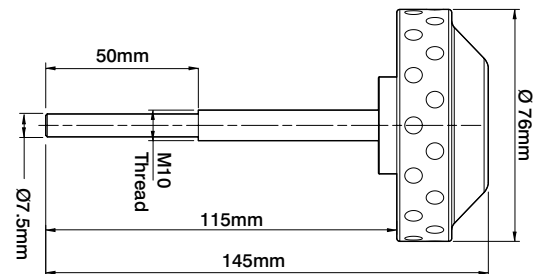
These wheels are built and supplied to order in a variety of sizes ranging from 1m/39" to 1.8m/71".



Carbon Wheel

Part Number	Description	Size		Weight	
		m	in	kg	lb
89700412	Carbon Y Spoke	1	39	2	4.4
89700410	Carbon Y Spoke	1.1	43	2.1	4.6
89700413	Carbon Y Spoke	1.2	47	2.2	4.8
89700414	Carbon Y Spoke	1.3	51	2.5	5.5
89700415	Carbon Y Spoke	1.4	55	2.8	6
98700383	Carbon Y Spoke	1.5	59	3	6.6
89700416	Carbon Y Spoke	1.6	62	3.1	7
98700451	Carbon Y Spoke	1.7	67	3.3	7.3
89700417	Carbon Y Spoke	1.8	71	3.5	7.7

Elbow Spoke Carbon Wheel



89800098
Brake Spinner



Elbow Spoke Carbon Wheel

Part Number	Description	Size	
		cm	in
89700638	Carbon Elbow-Spoke - Port	90	35
89700639	Carbon Elbow-Spoke - Starboard	90	35
89700668	Carbon Elbow-Spoke - Port	116	45
89700669	Carbon Elbow-Spoke - Starboard	116	45

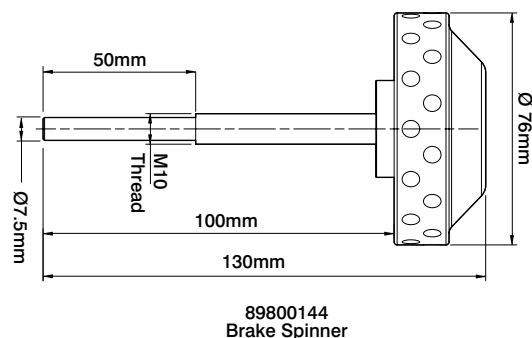
Fastnet Wheel

The Fastnet wheel is made from Alloy 6082 and is lightweight and stylish. These wheels are built to order and supplied powder coat painted black with black leather to the wheel rim as standard. We can offer white painted wheels and alternative leather colour options to cover the wheel rims upon request. The Fastnet wheel range starts at 122cm/48" with incremental sizes up to 175cm/69".



Fastnet Wheel

Part Number	Description	Size	
		m	in
89700602	Fastnet Alloy Hide Fitted, Black paint and black leather	127	50
89700603	Fastnet Alloy Hide Fitted, Black paint and black leather	132	52
89700604	Fastnet Alloy Hide Fitted, Black paint and black leather	137	54
89700591	Fastnet Alloy Hide Fitted, Black paint and black leather	150	59
89700581	Fastnet Alloy Hide Fitted, Black paint and black leather	160	63



Wheel Accessories

Rail Mount Wheel Holder

The Rail Mount Wheel Holder can be used on most boat rails to store the wheel when not in use, thus providing a clear area in the cockpit.

Features

- Manufactured in 316 investment cast Stainless Steel
- Designed to suit 25mm/1" taper or Parallel steering wheel shaft
- Will fit 25mm/1", 28.6mm /1 1/8" & 32mm/1 1/4" diameter rails



89400327
Rail Mount Wheel Holder

Quick Release Bi-square Wheel Nuts

The quick release wheel nut — with a standard winch handle bi-square. As you always have a winch handle on hand, this is a quick and simple way to remove your wheel. The quick release wheel nut is available in 316 grade stainless steel, to mirror polish finish.



Quick Release Nuts

Part Number	Wheel Type
89700161	Commodore™ wheel
89700162	Mini Maxi™ Fastnet/Carbon

Pedestal Selection Guide

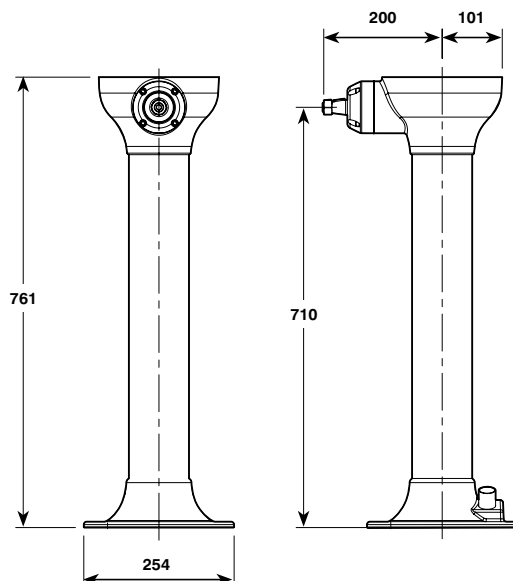
Pedestals	Aft Cockpit					Centre Cockpit		Tiller-Wheel Conversions	
	For Boats Up to 60ft Constellation (Open Wire)	For Boats Up to 60ft Cobra (Cruising)	For Boats Up to 60ft Cobra (Ocean)	For Boats Up to 60ft Cobra (Racing)	For Boats Up to 200ft Mamba (Open Wire)	For Boats Up to 80ft Constellation (Conduit)	For Boats Up to 80ft Mamba	Constellation (Open Wire)	Mamba (Cruising)
Enguard	•	•		•	•	•	•	•	•
Integra	•	•		•	•	•	•	•	•
Reliant	•	•			•	•	•	•	•
Royale	•	•	•		•	•	•		
Maximum Wheel Size	2m/78"	1.2m/48"	1.2m/48"	2m/78"	2m/78"	2m/78"	2m/78"	2m/78"	1.2m/48"

- Lewmar pedestals are manufactured from modern composites, which guard against electrolytic action and the corrosive nature of salt water
- All standard Lewmar pedestals measure 710mm/28" from the base to centre of steering shaft. Custom pedestal heights are available upon request
- All Lewmar pedestals (except the Athena range) are available in Constellation Cobra and Mamba steering systems
- Guardrails are not included (except Athena and Ranger Models). For guardrail options refer to page 168.
- Lewmar offers a comprehensive range of pedestal accessories and options from guardrails and engine control to compasses, cockpit tables and instrument pods.

Enguard Pedestal

The Enguard pedestal incorporates an integral guardrail pedestal base, which minimises the footprint area the pedestal takes-up on the deck. The Enguard pedestal can be found fitted to many production boats around the world such as Hunter and Northshore.

Enguard Pedestal Dimensions



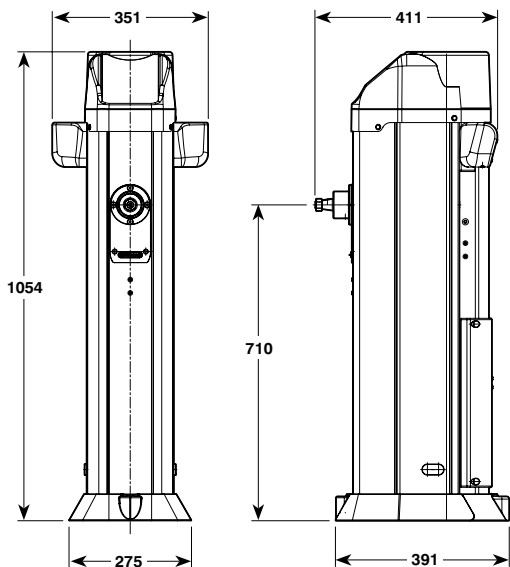
Features

- Integrated guardrail base providing compact and rapid installation
- Wide range of accessories available

Integra Pedestal

The Integra pedestal is the latest in Lewmar's range of integrated pedestal steering systems. The Integra offers quick and easy above deck access to fit Lewmar's patented autopilot drive motor. The integra pedestal can be found fitted to many production boats around the world such as Hunter, Delphia, Northshore and Linjett.

Integra Pedestal Dimensions



Features

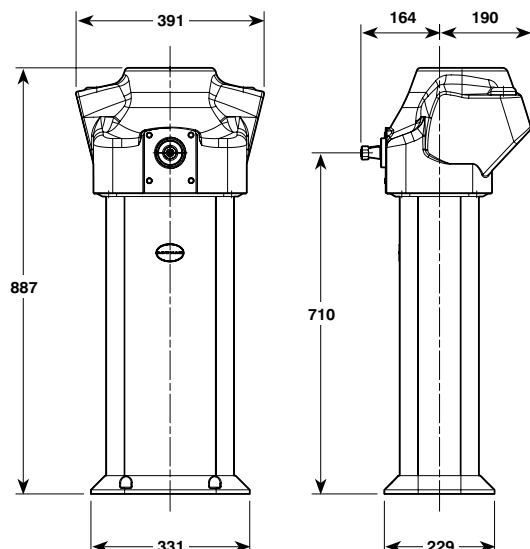
- Compass mounting platform and integrated housing
- Ability to mount 1 single instrument to the uPVC top moulding
- Pre-installed single lever engine control
- All Integra Cobra pedestals have the ability to install an integrated autopilot drive
- Removable access door for quick and simple autopilot installation.
- Harness bolts supplied as standard on the forward and aft side of the pedestal deck flange.
- Pedestal pre-drilled for cockpit table mounting
- Pedestal stop ring included



Reliant Pedestal

The Reliant pedestal is the first step in the 'Console' range of Lewmar pedestals. The Reliant utilises the 'Premiere Tube' platform, shared with the Royale and Ranger pedestals. The Reliant pedestal can be found fitted to many production boats around the world such as Oyster and Moody.

Reliant Pedestal Dimensions



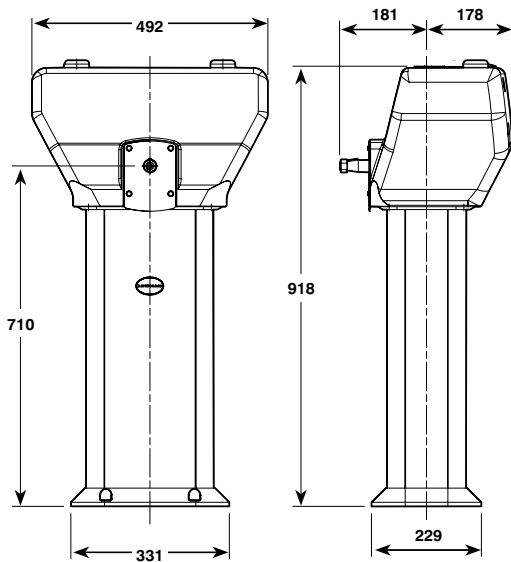
Features

- Mounting areas for a single engine control on port or starboard
- Wide range of accessories available



Royal Pedestal

The Royale is an evolution of the console style pedestal range. The Royale head provides maximum flexibility for instrument mounting. The Royal pedestal can be fitted to many production boats around the world such as Harmony, Tartan and Najad.



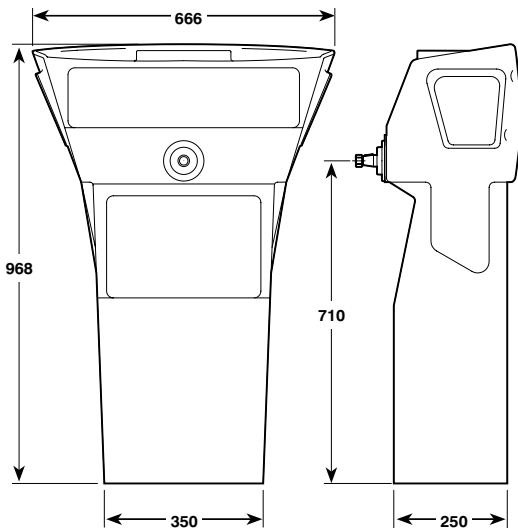
Features

- Mounting areas for single lever engine control on port or starboard
- Accepts 4 Industry standard 110mm / 4.25" yachting instruments
- Flush mount compass platform

Athena Pedestal

The Athena has been designed for the larger yacht to provide a greater area for mounting instrumentation and controls. It can be found fitted to custom and production boats around the world such as Oyster

Athena Pedestal Dimensions



Features

- Available in Constellation and Mamba steering systems
- Moulded in glass fibre with reinforced stainless steel mounting plate and bearing supports
- Mounting areas for a single engine controls lever port or starboard
- Flush mount compass platform
- Large area for multiple control instruments
- Guardrail included

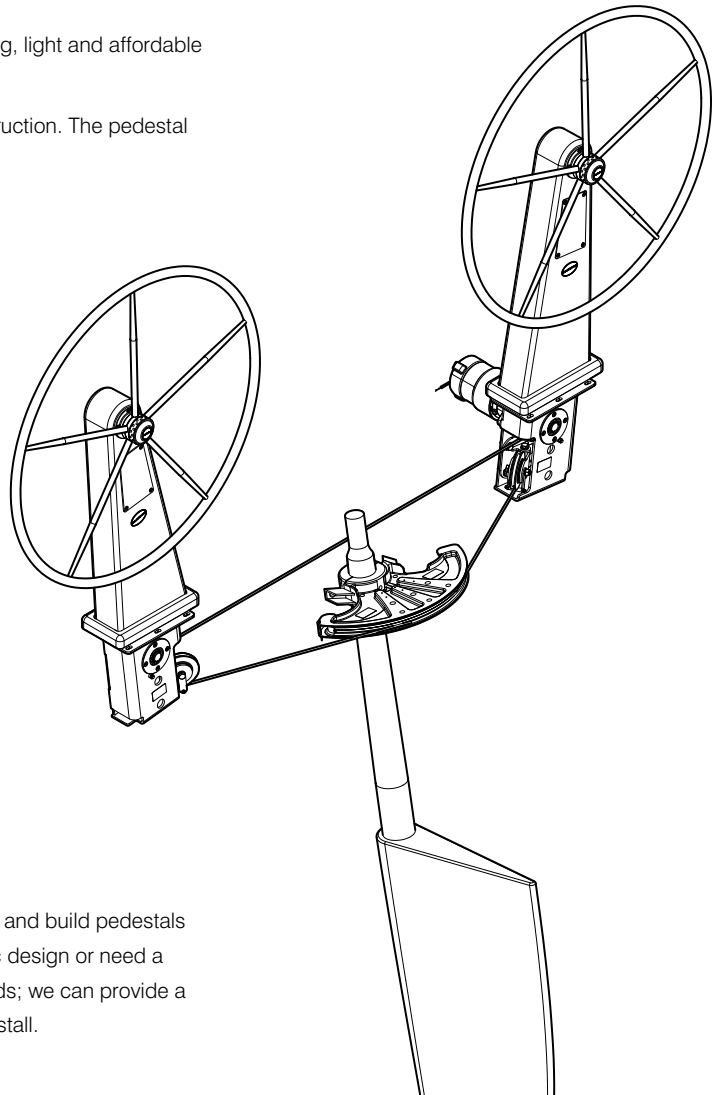
Twin Angled Pedestal

The twin Angled pedestal solution is the answer to the demand for a strong, light and affordable pedestal system, for twin wheeled performance boats.

The pedestal is made from aluminium, yet is very strong and stiff in construction. The pedestal angles and heights are variable, if required.

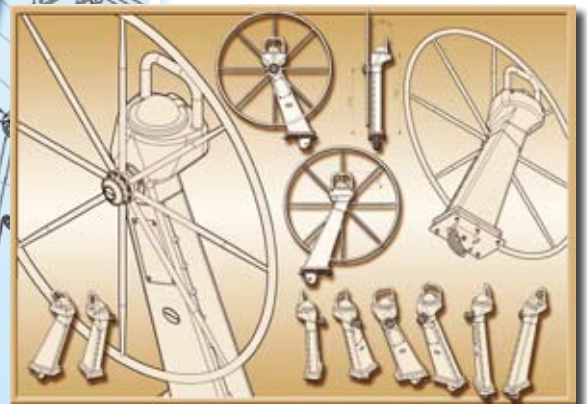
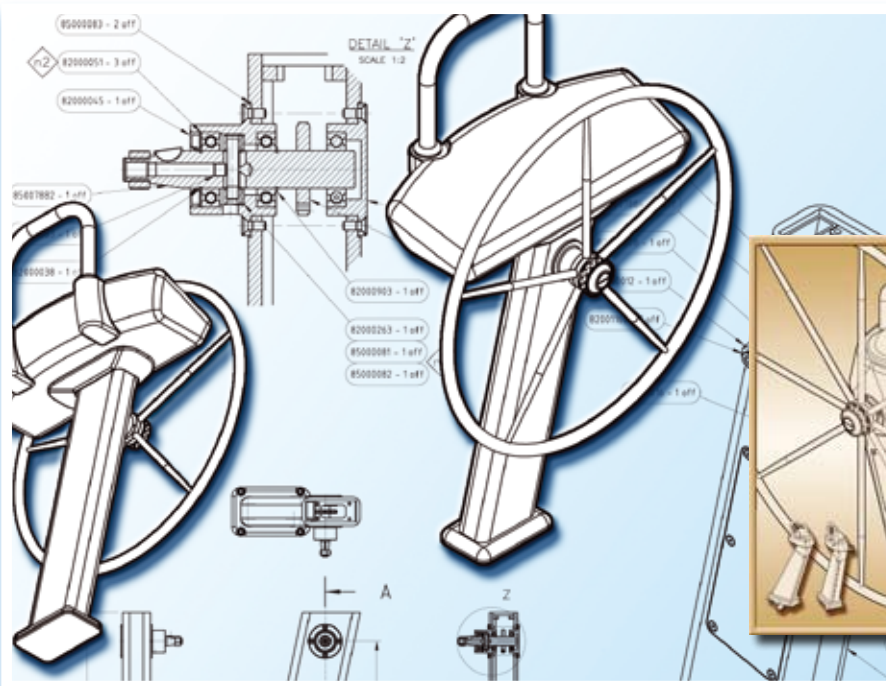


© 2009 Dufour Yachts



Custom Pedestals

The Lewmar steering design team provides a unique service: they design and build pedestals for volume boat builders as well as one-off specials. If you have a specific design or need a specific pedestal solution, let our engineering team take care of your needs; we can provide a total package from the pedestal design to a delivered product ready to install.



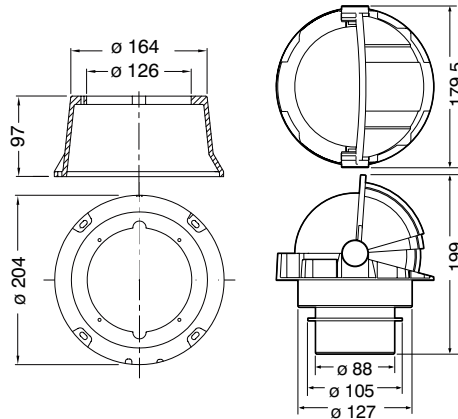
Pedestal Accessories

Compasses

The Lewmar 135 Compass is a stylish, precision instrument to compliment any cockpit. The high quality compass is manufactured with precision components. The compass utilises a real sapphire to ensure ultimate reliability and durability. The diaphragms, made of Viton®, are fully waterproof and absorb the fluid variations resulting from differing temperatures and air pressure. Every compass complies with rigorous vibration, temperature, stability and precision specifications.



Lewmar 135 Compass flush mounted in pedestal



Features

- Apparent diameter of card: 130mm
- Flush mounting or pedestal mounting (with the addition of a binnacle)
- Minimal flushmount depth
- Double lighting (12 or 24 V mounting)
- Unique 'Lewmar' binnacle
- Black card
- 5 year warranty

Part Number	Model 135 Compass
89400000	Flush Mount 135 Compass with hood
89400001	135 Compass complete with Binnacle Housing

Engine Control Mechanism

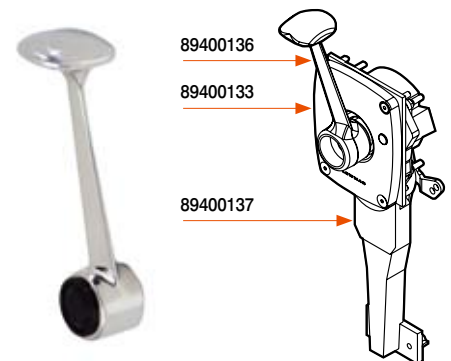
Lewmar offers engine and gear controls to complement the steering pedestal of your choice. The engine control designed exclusively for Lewmar is non-magnetic and can be guardrail or pedestal mounted without interfering with the compass.



89800013
Rubber button plunger kit

Features

- Housed in pod
- Guardrail Mounted
- Bulkhead mounted fascia plate
- Exclusive design for Lewmar
- Non-magnetic
- 316 stainless steel cranked handle



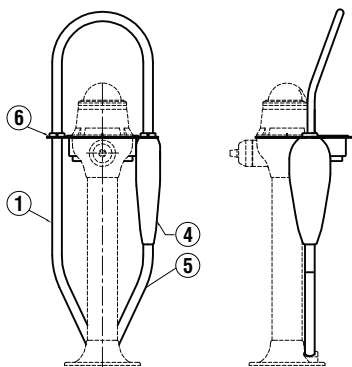
89400136
Single Lever
Engine Control

Part Number	Description
89400109	Control Mech kit cranked handle and Fascia Plate
89400084	Engine control Housing to suit Morse SL3 Mechanism
89400136	Handle Cranked Stainless Steel
89400137	Mechanism Only (No Handle)
89400146	Fitting Kit for Control Mechanism
89400196	Control Mech Cranked Handle & Pod Assembly
89800013	Rubber button and plunger kit
89400316	Control Mechanism crank handle

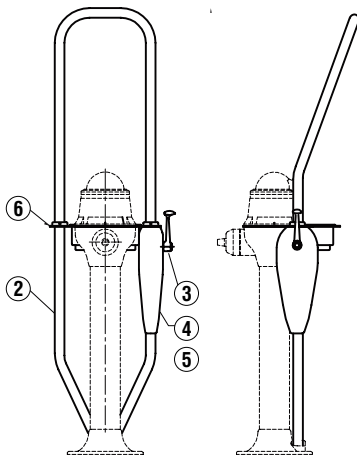
Guardrails

Lewmar Guardrails are designed to protect the compass and pedestal and to provide assistance while moving about the cockpit. Our wide range of straight, kickback and extended guardrails, are manufactured from 32mm/1.25" heavy duty 316 stainless steel tube. The extensive choice of guardrails is complemented by our instrument pod range, see page 171.

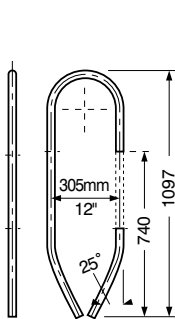
Enguard Guardrail



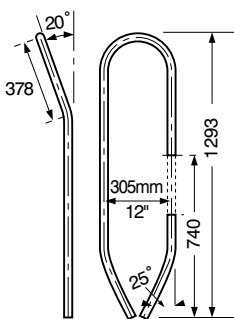
89400125
Enguard Guardrail Kit



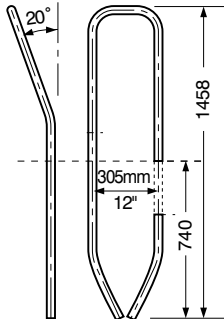
Enguard extended kickback guardrail
shown with all accessories



89400031



89400033

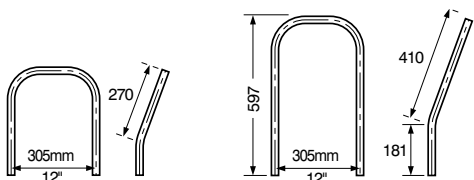


89400035

Guardrail Kits & Spares

Part Number	Description	Key
89400125	Enguard Guardrail Kit, with Kickback, Engine Pod , Top Plate & Cup holder	
89400031	Guardrail Straight (Stbd)	
89400033	Guardrail Kickback (Stbd)	①
89400035	Guardrail Extended Kickback (Stbd)	②
89400109	Control Mechanism	③
89400084	Engine Pod	④
89400120	Drop Tube	⑤
89400122	Top Plate & Cup Holder	⑥

Reliant & Royale Guardrail



Reliant & Royale Guardrail

Part Number	Description
89400046	Kickback rail
89400047	Extended kickback rail

Instrument Pods

Display your instruments in an easily accessible and attractive Lewmar Instrument Pod. Our range of pods are designed to complement Lewmar pedestals. Pods are available as retrofit accessories or as a complete assembly, and can house most sizes of yachting instruments,

radars and chartplotters. Each one comes with fitting instructions and fasteners for easy, drill-and-tap installation.

For a complete range of instrument pods visit www.lewmar.com

Helm Pod 2 x Standard Instruments

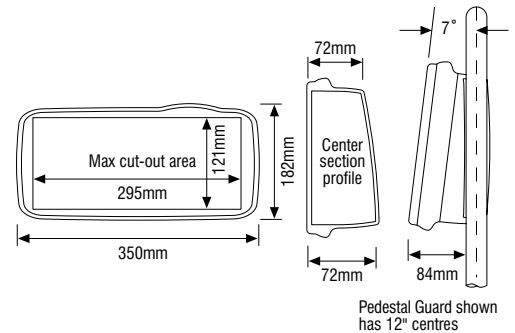


Helm Pod

Features

- Multiple point sealing for full instrument protection
- Tamper-proof stainless fastenings secure install without self-tapping into plastic
- Manufactured from acrylic capped ABS plastic
- Thread inserts allow pod front to be easily removed

89400428 — Helm Pod 2 x standard navigation instruments & autopilots White

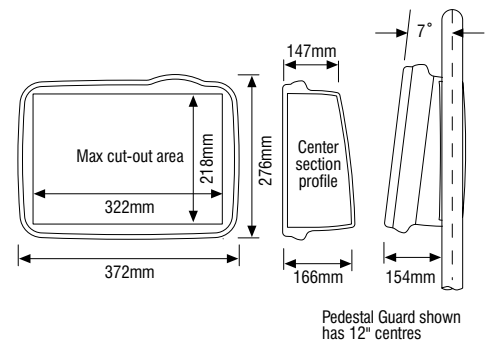


Classic-Pod

Features

- All cables routed internally
- Tamper-proof stainless fastenings secure install without self-tapping into plastic
- Fixing holes are pre-drilled
- Minimised extra material outside of max usable face

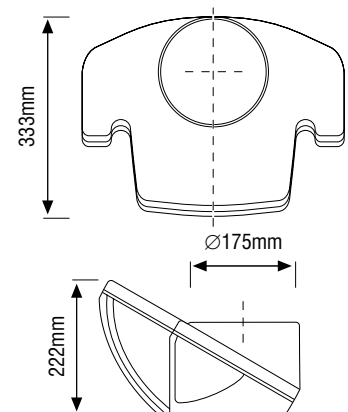
89400423 — Helm Pod Up to 8" display (deep back) White



Features

- Fits directly to the Enguard and Classic style pedestals, via a special top plate.
- Offers increased mounting space for instruments, on the pedestal.
- Available with kickback guardrail for the inclusion of additional instrument pod options.
- Compass mounting point.

89400100 — Classic Pod



Stainless Steel GPS/Mobile Phone Holder



Features

- Manufactured from 316 investment cast stainless steel
- Pod arm will fit 1", 1 1/8" and 1 1/4" diameter guardrail tubes
- All wiring of products mounted to the pod arm are hidden internally.

89400328 — Stainless Steel GPS/Mobile Phone Holder

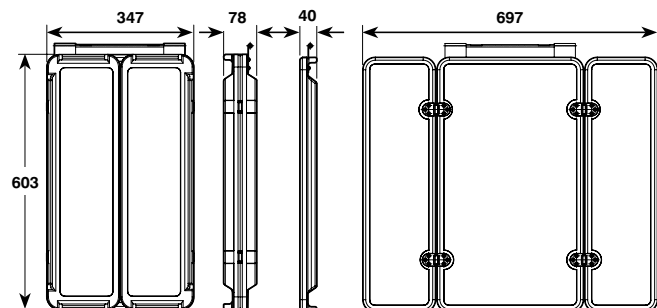
For a complete range of instrument pods visit www.lewmar.com

Cockpit Accessories

Composite Table

Lewmar offers the Composite double-leaf folding table, manufactured from uPVC with high strength composite core.

- Double-leaf fold out
- High strength uPVC compact core
- Luxury finish



Composite Tables Double-leaf DIY Ready

Part Number	Description
89400013	Table Composite double leaf with mounting kit for Enguard pedestal
89400014	Table Composite double leaf with mounting kit for Reliant pedestal
89400024	Table Composite double leaf with mounting kit for Royale pedestal

Teak Table

This three-leaf cockpit table in teak is available to suit all pedestal types and is supplied as standard with bracket, support and easy fitting instructions. When not in use, the table can be folded up against the forward edge of the pedestal.

- All Teak from sustainable forests
- Suits all pedestal types
- Quick-release hinge for simple storage
- Folds against pedestal
- Supplied unvarnished



Teak Tables Double-leaf with Fitting Kit

Part Number	Description
89400283	Table kit for Classic pedestal unvarnished
89400284	Table kit for Enguard pedestal unvarnished
89400285	Table kit for Reliant/Athena pedestal unvarnished
89400286	Table kit for Royale pedestal unvarnished
89400365	Table kit for Integra pedestal unvarnished

Fitting kits only for Teak Tables

Part Number	Description
89400420	Universal table mounting kit to suit Enguard, Reliant, Royale and Integra Pedestals

Stainless Steel Cockpit Locker Latch

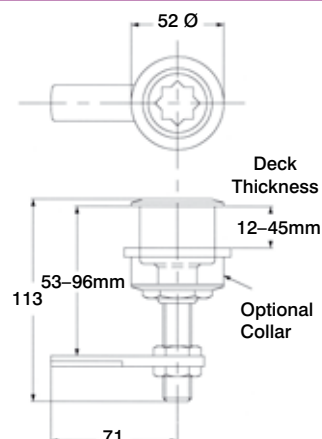
The Lewmar locker latch is a high quality product designed for any boat. Easy operation via a winch handle is standard.

Features

- 316 investment cast product
- Easy installation
- Watertight 'O' ring seal
- Easy operation via winch handle
- Adjustable deck thickness



89400061
Cockpit Locker Latch Stainless Steel



Steering Systems

Lewmar offers a comprehensive range of steering equipment based on 3 different mechanical concepts.

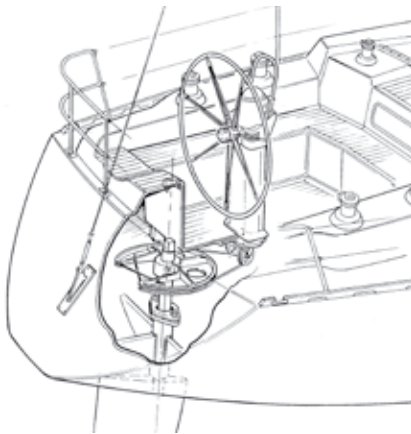
- **Constellation™** - Open Wire Steering & Conduit
- **Cobra™** - Rack & Pinion
- **Mamba™** - Rotating Torque Tube & Bevelhead

This product portfolio offers today's boat builders a solution for any steering installation.

Steering Manuals and installation guides can be found on the Lewmar website
www.lewmar.com

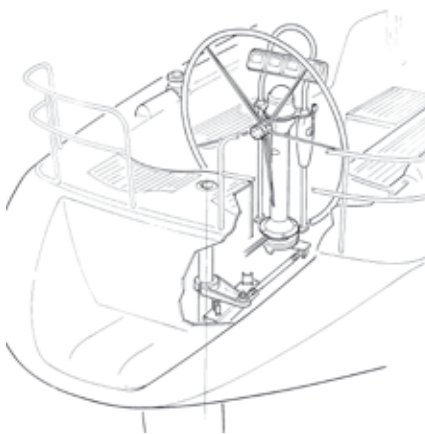


© 2009 Hallberg Rassy



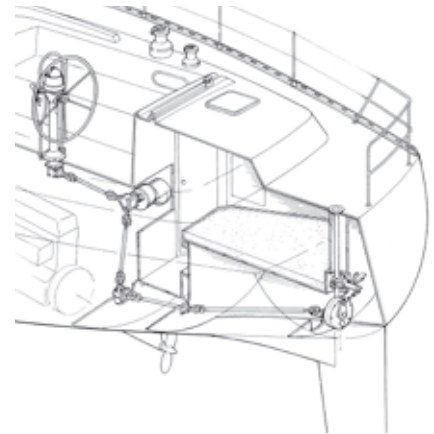
Constellation™ – Wire Steering

Wire steering systems are suitable for yachts from 7m /25' to Maxi's. This diversity has enabled us to develop the Constellation system with feedback from various types of boat builders. Wire systems are ideal for aft cockpit installations, either single or tandem. Wire-in conduit systems are also available for centre cockpit installations. The conduit system overcomes the difficulties that are experienced when using open wire in centre cockpit installations.



Cobra™ – Rack & Pinion

Cobra uses rack and pinion in the head of the pedestal to provide the necessary mechanical advantage required for sensitive steering. Cobra has been designed for use in aft cockpit sailboats and is a world leader in its field. Lewmar also offers customised Cobra systems for use in non aft cockpit applications.



Mamba™ – Rotating Torque Tube & Bevelhead

The ultimate steering system providing feedback and strength; Both features that are unique to gear box and bevelhead steering systems. Mamba is a suitable steering system for a diverse range of sailboats from blue water cruisers to America's Cup contenders. It offers unique features such as power assisted steering whilst retaining versatility in the type of installation it can be used in i.e. Tandem systems.

Constellation™ Systems

Constellation is made up of a complete range of wire steering systems, offering award winning design and high quality construction, for vessels up to 18m/60'. The systems have been developed in conjunction with both production boat yards and the world's racing community.

All aluminium parts are etched, anodised and stoved using powder coated polyester resins.

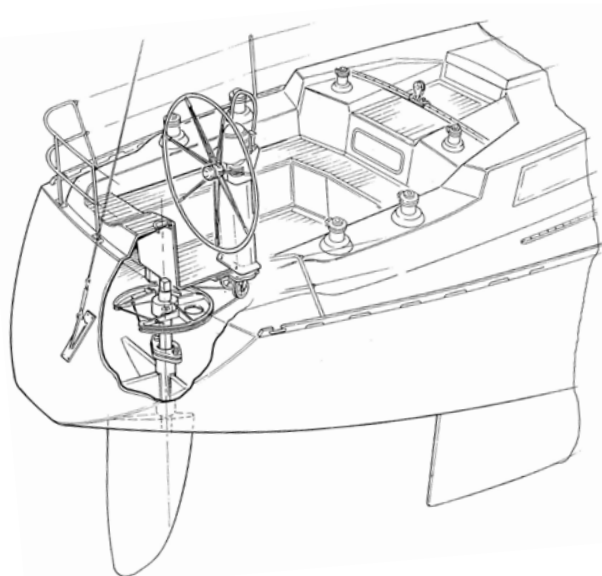
Constellation™ Open Wire System

Aft Cockpit Radial Steering Systems

The simplest wire system available for aft cockpit yachts with vertical, or near vertical, rudders using a radial quadrant in conjunction with a cross wire idler, (universal idler if the pedestal is mounted aft of the rudder stock). Dependent on sheave and quadrant sizes, this equipment can be employed on sailing yachts up to approximately 18m /60'.

Please note the sheaves are fully adjustable in the angular mode to obtain perfect lead from sheave to quadrant. The splay angle is dependent on:

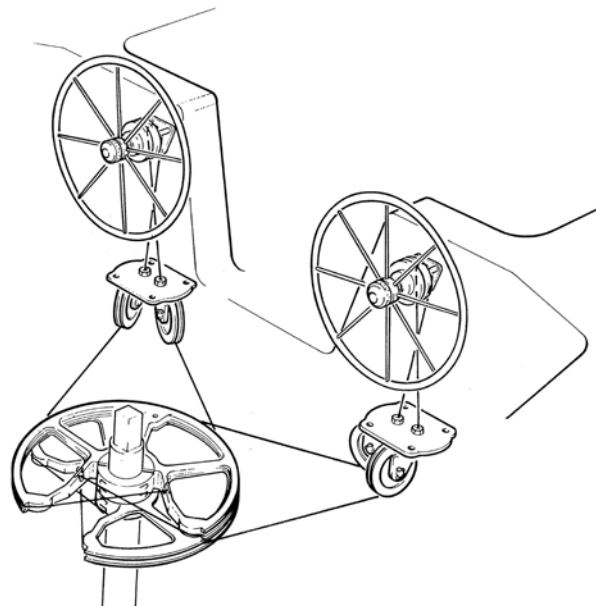
- a) Distance from pedestal centre to rudder stock.
- b) Quadrant diameter.



A typical aft cockpit radial wire system incorporating 260° radial quadrant crosswire idler

Features

- Steering shaft supported in triple high efficiency ball bearings, ensuring no axial and radial play
- Cross wire idlers, bevelled & adjustable to ensure perfect cable alignment
- Composite construction quadrants for maximum reliability and compactness
- Range of terminal units, sheaves, bulkhead steerers, quadrants and accessories
- Efficient installation
- Pedestals sprocket options, dependent on boat size: 5/8P 11T, 5/8P 13T or 3/4P 11T
- Electrostatically applied, polyester coating for maximum corrosion protection
- Integrated autopilot drive kit for mounting drive units



The schematic shows a typical twin wheel Constellation™ installation incorporating bulkhead steerers and bevelled cross wire idlers.

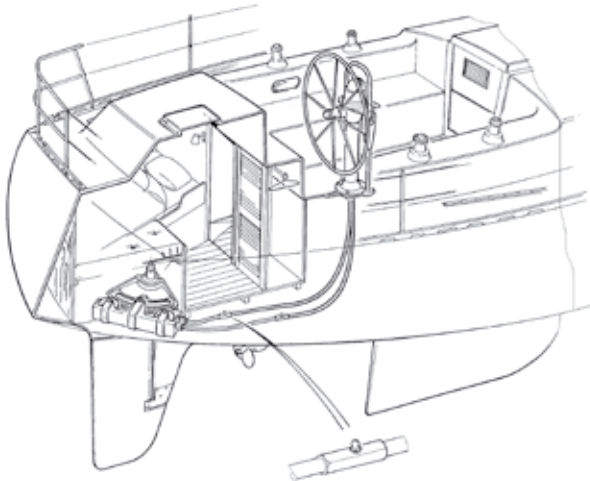
Constellation™ Wire-in Conduit System

Due to their ease of installation, wire-in conduit systems have largely replaced open wire for centre cockpit yachts. Advances in conduit technology have resulted in Constellation systems that are simple to install and easy to maintain. Self contained sheave assemblies have been developed to fit into the conduit route, eliminating the requirement for re-enforced pads.

Lewmar offer a range of components to complete your wire-in conduit installation, including conduit end fittings, conduit greasers and terminal units to align the cables with the quadrants.

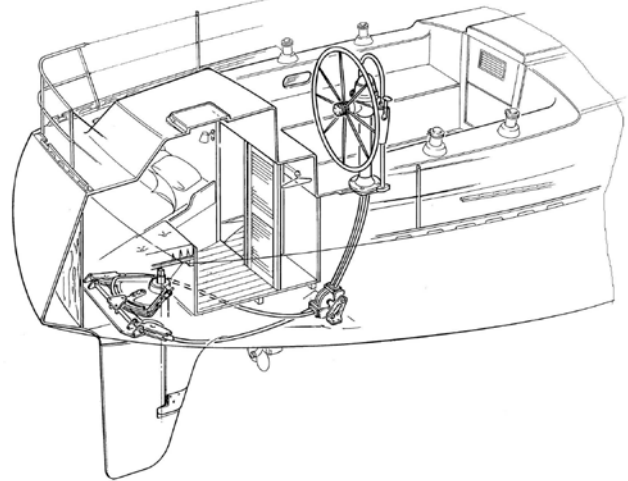
Features

- Simple to install
- Ultimate reliability
- Pedestal or bulkhead mounting for wheels
- Heavy duty double armoured conduit with low-friction liner to ensure efficiency
- In-line conduit greasers



Most common conduit installation for centre cockpit yachts up to 12m/40'. To achieve the maximum sensitivity and life from a conduit system please follow the following rules:

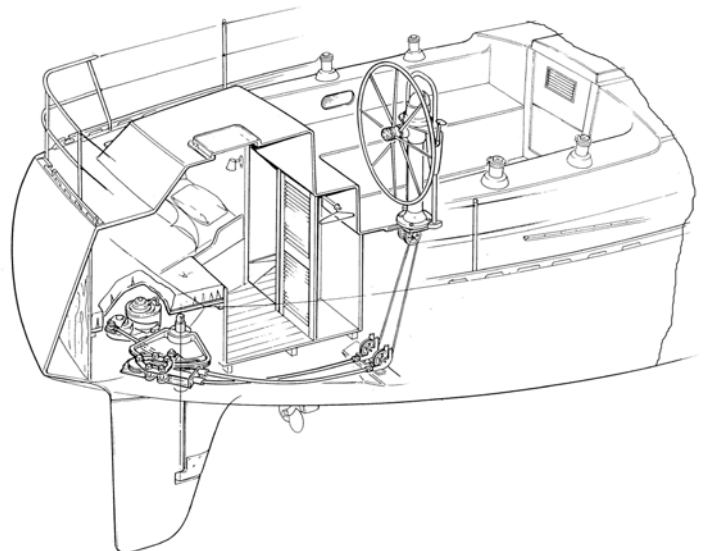
1. Keep the number of bends to a minimum.
2. Do not exceed 270° of total curves.
3. Avoid 'S' bends.
4. Orientate the quadrant to achieve the best conduit lead.
5. Minimum bend radius 200mm/8".



Illustrated is a typical 15m/50' centre cockpit installation, utilising conduit from the pedestal to the conduit sheave adaptor. The steering then follows the curve of the hull in conduit, terminating at an articulated terminal unit.

Constellation™ Conduit/Open Wire System

Example where the quadrant is offset to starboard and the tangential terminal unit has been fitted. A universal idler at the bottom of the pedestal using open wire to conduit adaptors is illustrated as an option. In this instance therefore, the conduit adaptors have to be rigidly installed.

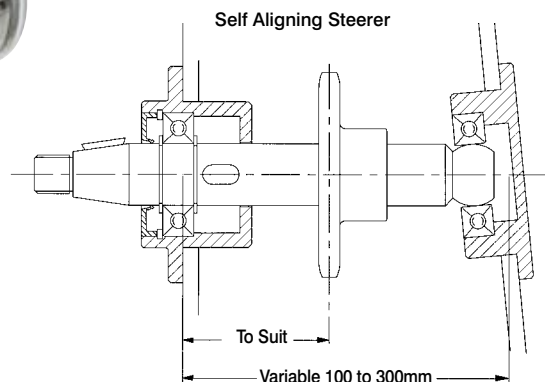


Constellation Bulkhead Steerers

The Bulkhead steerer incorporates twin high efficiency ball races, which are double sealed and pre-lubricated for a long and maintenance free life.

Self Aligning Steerer

- Self Aligning ball to take up misalignment or draft angle when installing within a console.
- Compact installation with a minimum distance of 100mm/4" between bulkhead faces.
- Available with sliding sprocket to aid line up with multiple sheaves.
- Steering shaft supported by high efficiency sealed-for-life bearings.
- Through-shaft mounted friction brake.
- Forward & aft flange housing manufactured in polymer composite material



Stainless Steel Steerer

- Comes complete with a through shaft friction brake
- Manufactured in investment cast stainless steel
- The steering shaft is supported by a pre-lubricated sealed ball race bearing, which provides low friction

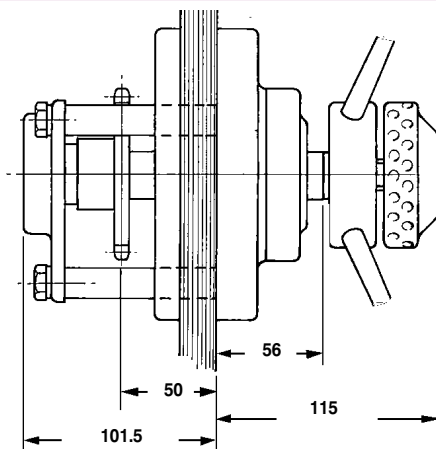


Stainless Steel Steerer

Part Number	Sprocket Type
89101124	5/8P-11T
89101125	5/8P-13T
89101126	5/8P-15T
89101127	3/4P-11T

Quick Mount Bulkhead Steerer

- The unit comes complete with a through shaft brake, autopilot stub shaft take off.
- The steerer is manufactured in stainless steel and powder coated to a high gloss finish.
- The steering shaft is supported by a pre-lubricated sealed ball race bearing, which provide low friction.



Quick-mount Bulkhead Steerer

Constellation Chain & Wire Accessories

Breaking Strength

The figures shown in the tables below indicate the minimum breaking strength of Lewmar cables and chain. Due to the reduction in strength caused by cable fatigue over time, the maximum loading should never exceed 25% of the breaking strain shown.

For example, a 305mm/12" radius quadrant used in conjunction with 6mm/0.23" wire is suitable for the following maximum rudder torque (see example shown right).

$$\text{Torque} = \frac{\text{Breaking Strain} \times \text{Radius} \times \text{Safety Factor}}{\text{Safety Factor}}$$

Metric Example

$$= 2040\text{Kg} \times 0.305\text{m} \times 0.25$$

$$= 155 \text{ mKg}$$

Imperial Example

$$= 4500\text{lb} \times 12" \text{ radius} \times 0.25$$

$$= 13500 \text{ in.lb}$$

Features

- Precision engineered in non magnetic stainless steel
- 2 off master links for easy connection to the cable
- Custom length chain sets available on request
- Cable supplied in 7 x 19 stainless steel stranded construction
- Cable can be supplied to be finished with eyebolts and thimbles
- Fully assembled with pre-swaged eyebolts available



Wire and Chain assembly

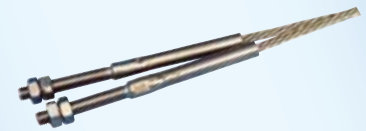
Steering Cable 7 x 19 Stranded Stainless Steel

Part Number	Cable Diameter mm	Cable Diameter in	Breaking Strain kg	Breaking Strain lb
89100077	5	0.1	1406	3100
89100078	6	0.2	2040	4500

Steering cable supplied per meter with no termination

Non-Magnetic Stainless Steel Roller Chain Assemblies

Part Number	ANSI SPEC	Pitch inches	Breaking Strain kg	Breaking Strain lb
89100090	ANSI 50	5/8	2267	5000
89100093	ANSI 60	3/4	3175	7000



Pre-swaged cables can be supplied on request

Constellation™ Quadrant, Sprocket & Chain Kit Specification Table

The table (following) illustrates the turns at the helm for a range of standard sprocket and quadrant sizes. Lewmar Steering offer custom quadrants in 6082T6 alloy or composite up to 1020mm/40" radius. We can also offer custom sprockets with any number of teeth in 15.87mm/5/8 or 19.05mm/3/4" or 25.4mm/1" pitch stainless steel or 60802T6 high strength aluminium.

Part Numbers APPROPRIATE CHAIN KIT		Quadrant Type	Sprocket Size vs turns HO/HO for 72° Rudder Travel			
5/8" P Sprocket	3/4" P Sprocket		5/8" P 11T	5/8" P 13T	5/8" P 15T	3/4" P 11T
89100090	89100093	152mm/6" radius 260°	1.08	0.92	0.79	0.9
89100090	89100093	190mm/7.5" radius 80°	1.35	1.14	1.0	1.12
89100090	89100093	203mm/8" radius 260°	1.44	1.22	1.06	1.20
89100090	89100093	228mm/9" radius 260°	1.62	1.37	1.18	1.35
89100090	89100093	254mm/10" radius 260°	1.8	1.52	1.32	1.50
89100090	89100093	304mm/12" radius 80°	2.2	1.86	1.61	1.80
89100090	89100093	304mm/12" radius 260°	2.2	1.86	1.61	1.80
89100091	89100094	381mm/15" radius 80°	2.71	2.29	1.98	2.25
89100091	89100094	381mm/15" radius 260°	2.71	2.29	1.98	2.25
89100091	89100094	457mm/18" radius 80°	3.25	2.75	2.38	2.70
89100091	89100094	457mm/18" radius 260°	3.25	2.75	2.38	2.70
89100092	89100095	508mm/20" radius 80°	3.61	3.05	2.64	3.00
89100092	89100095	609mm/24" radius 80°	4.35	3.68	3.19	3.60
89100100	89100096	762mm/30" radius 80°	5.44	4.60	4.00	4.50



Conduit

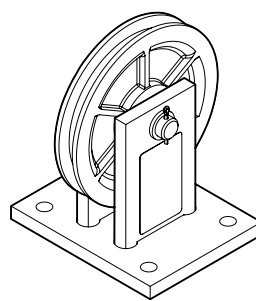
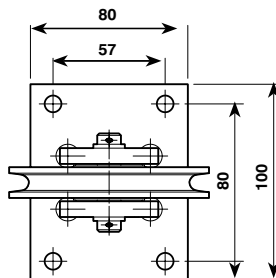
Part Number	Description
89100069	Conduit (Sold per meter)
89100116	Conduit end fitting

Constellation Sheave Assemblies

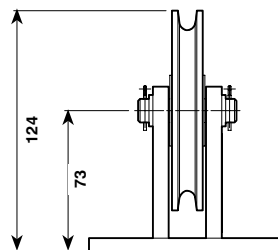
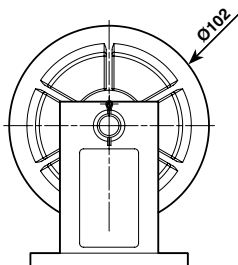
Lewmar offers an extensive range of open wire sheave assemblies in 102mm/4", 127mm/5", 152mm/6", 203mm/8" and 10"/254mm diameters. For each size, Lewmar offer upright, flush, flat and articulated versions. Lewmar sheaves are available in bronze, aluminium and A100 glass reinforced nylon.

Features

- 102mm/4" & 152mm/6" sheave assemblies are supplied with A100 glass re-enforced, nylon sheaves, which are corrosion resistant
- 127mm/5" sheaves available on request
- The 203mm/8" and 254mm/10" versions incorporate anodised aluminium sheaves, housed in laser cut 316 grade stainless steel carriers
- High operation efficiency and sensitive steering operation – sheaves run on 45mm/1.77" caged roller bearings
- All open wire sheave assemblies incorporate wire guides to prevent cable jump



Single Articulated Sheave



Open Wire Sheaves

Part No. Single	Part No. Double	Sheave Ø mm in	Description
89100750	-	102 4	Upright
89100026	89100029	152 6	Upright
89100027	89100030	152 6	Flat
89100032	89100033	152 6	Articulated



Double Upright Sheave Assembly

Constellation Idlers

Lewmar Idlers are designed to prevent chafing when the cable straightens into the sheave track. The illustration on the right demonstrates the advantage of Lewmar's bevelled cross wire idler plate.



Cross Wire Idler

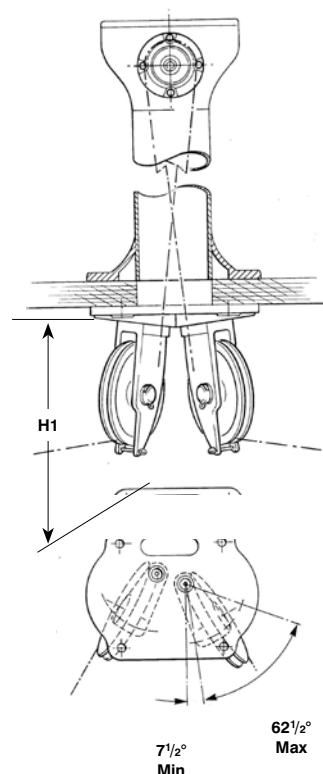


Illustration showing the flexibility of a Bevelled Idler.

Guide to Idlers in relation to cable size and quadrants

Part Number	Idler Type	Size Ø mm in	Cable Ø mm in
89100015	Cross Wire Idler	101 4	5 3/16
89100018	Cross Wire Idler	127 5	5-6 3/16-1/4
89100022	6" Cross Wire Idler	152 6	6 1/4

Conduit to Sheave Adaptor



© 2009 Oyster

Conduit to Sheave Adaptors

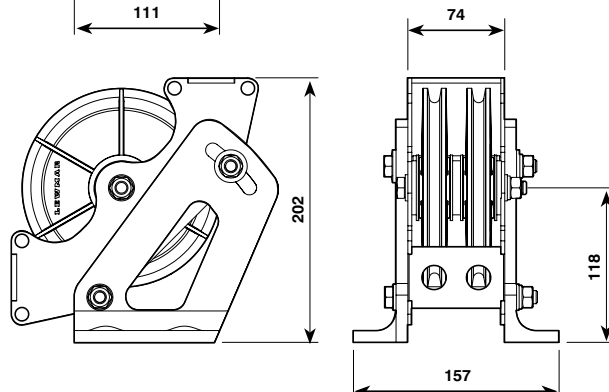
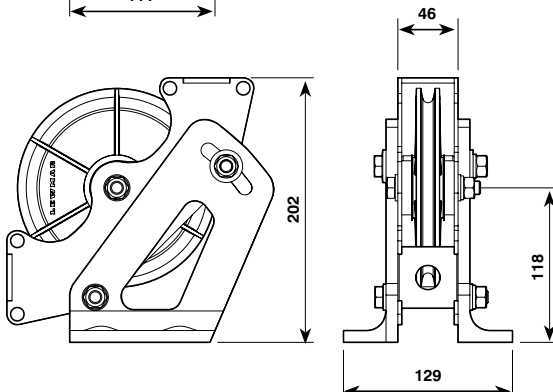
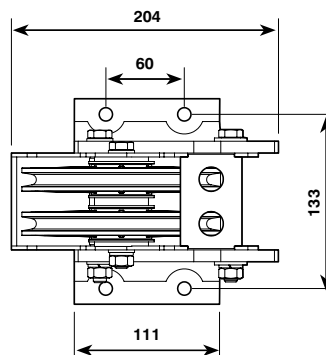
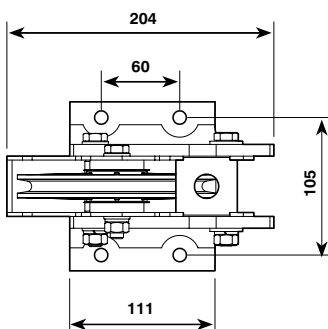
Part No. Single	Sheave Description
89100098	152mm/6" Single Conduit Sleeve
89100099	152mm/6" Double Conduit Sleeve



89100098
6"/152mm Single Conduit to Sheave adaptor

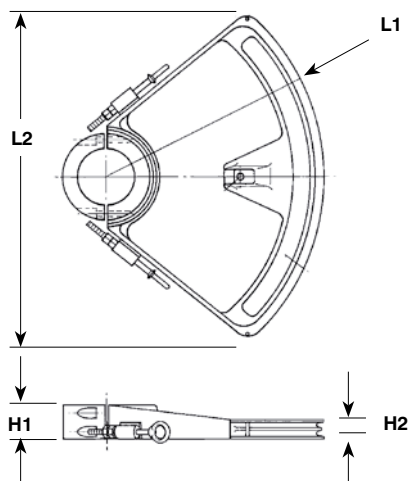


89100099
6"/152mm Double Conduit to Sheave adaptor



Constellation Quadrants

Lewmar offers a range of unique, composite 80° and 260° quadrants.



Features

- Fabricated from 6082 aluminium alloy
- Strong yet ductile, almost impossible to fracture under impact loading
- Compact, where transom space is restricted
- Attachment point for linear drives on larger quadrants
- Quadrants with integral stopping surfaces for use against the rudder stop
- Radial versions supplied pre-drilled for optional bolt on stop block
- Generous groove depths and a large guide bend radii, for longevity of the cable.
- 80° quadrants supplied with cable retaining pins to prevent cable jump

80° Composite High Strength Quadrants

Operating Radius		Maximum Bore Size Ø		Typical Boat Length		Boss Height ¹¹		Boss Height ¹²		Maximum Rad Width ¹³		Maximum Rad Width ¹⁴	
mm	in	mm	in	m	ft	mm	in	mm	in	mm	in	mm	in
190	7.5	80	3	10	32	60	2.4	35	1.3	195	7.7	290	11
228	9	80	3	9-11	30-37	60	2.4	35	1.3	233	9	350	13.7
305	12	80	3	10-13	36-42	60	2.4	35	1.3	308	12	456	18
305	12	100	4	10-13	36-42	60	2.4	35	1.3	308	12	456	18
381	15	80	3	12-15	40-48	60	2.4	35	1.3	382	15	564	22
381	15	100	4	12-15	40-48	60	2.4	35	1.3	382	15	564	22
457	18	100	4	14-16	45-52	60	2.4	35	1.3	465	18	718	28
457	18	125	5	14-16	45-52	100	4	42	1.6	465	18	718	28
508	20	125	5	15-19	50-62	100	4	42	1.6	512	20	815	32
609	24	125	5	18-24	60-80	100	4	42	1.6	615	24	938	37

Quadrants can be supplied pilot bored or machined to suit

260° Composite High Strength Quadrants

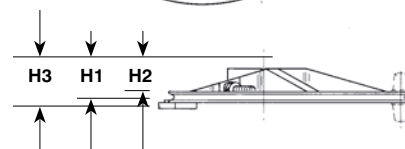
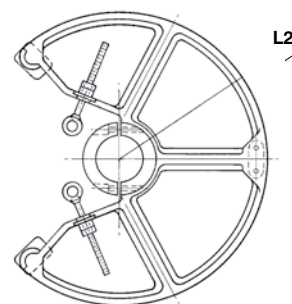
Operating Radius		Maximum Bore Size Ø		Typical Boat Length		Boss Height ¹¹		Boss Height ¹²		Maximum Rad Width ¹³		Maximum Rad Width ¹⁴	
mm	in	mm	in	m	ft	mm	in	mm	in	mm	in	mm	in
152	6	80	3	10	32	60	2.3	48	1.8	60	2.3	155	6
203	8	80	3	9-11.5	30-38	60	2.3	48	1.8	60	2.3	210	8
254	10	80	3	10-13	35-42	60	2.3	48	1.8	60	2.3	260	10
254	10	100	4	10-13	35-42	60	2.3	48	1.8	60	2.3	260	10
305	12	100	4	12-15	40-50	60	2.3	50	2	62	2.4	315	12
381	15	125	5	14-18	45-60	100	4	86	3	98	3.8	390	15
457	18	125	5	17-24	55-80	100	4	86	3	98	3.8	470	18.5

Quadrants can be supplied pilot bored or machined to suit

Eye bolt tensioner kits

Eye bolt/cable tensioner are not supplied with quadrants and must be ordered separately

89100196 — Eye bolt tensioner kit for 6mm wide cable



Cobra™ Systems

With over 40 years technological development, Cobra has become the first choice for boat builders worldwide for aft cockpit vessels. Cobra systems are the world leader in terms of performance, reliability and appearance, for Rack and Pinion.

Features

- Absolute precision and feel – as responsive as a tiller
- Simple installation
- Strong and light – no parts to fret, chafe or fatigue
- Minimum maintenance
- Smoother operation
- Greater torque capability
- Full CE Certification available



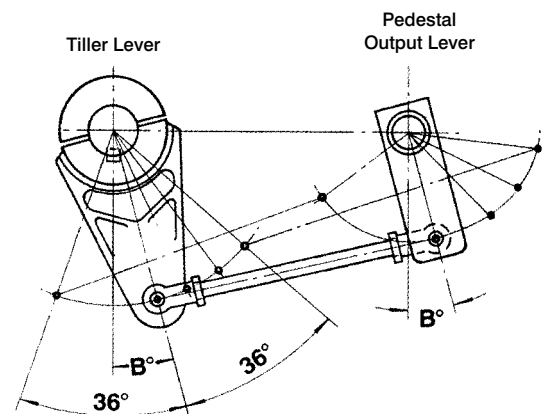
Cobra steering

© 2009 Jongert

Type	Gear Ratio	Mechanical advantage at midships	Turns Ho/Ho	Max rudder torque		Typical Boat size	
				Nm	ft.lb	m	ft
Cobra Cruising	5:1	8:1	1.77	2943	2170	13.7	45
Cobra Base Unit	5:1	8:1	1.77	2943	2170	13.7	45
Cobra Racing	4:1	6:1	1.4	4557	3360	16.7	55
Cobra Ocean	6.7:1	10.2:1	2.45	4905	3617	18.3	60

Wide Angle Geometry

The lever geometry for Lewmar transmission systems is based on the principle of Wide Angle Geometry. This results in a very direct steering amidships and a more indirect and powerful steering at full rudder. Due to this unique feature, the total number of turns of the wheel on a transmission steering system can be reduced by 30-40% compared to a cable system with the same maximum rim loads. This effect is achieved by an unequal length of the output and tiller lever. The output lever has 134mm centers and the tiller lever 203mm. The diagram to the right shows the mechanical advantage (lever reduction) in relation to the rudder angle. Around midships the reduction is quite constant, and above 15 degrees rudder the mechanical advantage nearly doubles compared to the midships advantage. The consequence of wide angle geometry is the offset angle of the levers in midship position. This offset angle is necessary to achieve the same travel to port and starboard. The offset angle varies with the distance from the output lever to the tiller lever. Offset angles can be avoided when the complete gearbox is put on an offset distance.



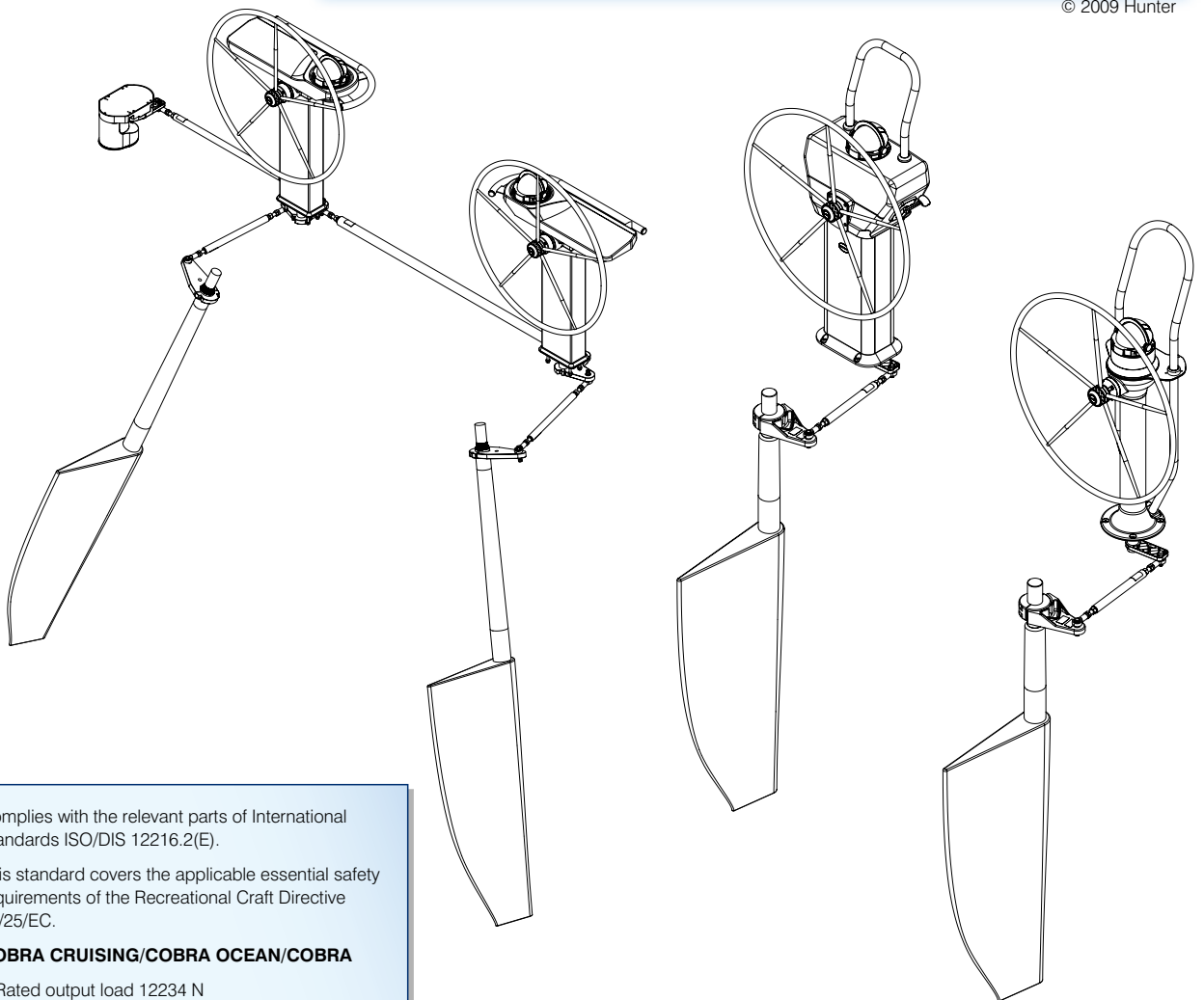
Cobra™ Cruising

The principle of the Cobra steering system is based on the precision gearcut circular rack and pinion in the head of the pedestal, providing the necessary mechanical advantage. The quadrant gear is connected to a stainless steel downtube, at the base of which is an output lever. This connects to a similar lever, mounted on the rudder stock, via a fully adjustable draglink.

All shaft work is carried through high efficiency sealed ball races and the mesh of gears is controlled via shims under the input, eliminating any lost motion. The input socket also houses a powerful and progressive friction brake for dampening the wheel, when at anchor, for example.



© 2009 Hunter



Complies with the relevant parts of International Standards ISO/DIS 12216.2(E).

This standard covers the applicable essential safety requirements of the Recreational Craft Directive 94/25/EC.

COBRA CRUISING/COBRA OCEAN/COBRA

- Rated output load 12234 N
- Maximum rudder torque at midships 252 Kgf.m
- Maximum rudder torque at full lock 474 Kgf.m

Cobra™ Racing

Cobra™ Racing is designed specifically for racing and fast cruising yachts up to 17m/55', providing the ultimate in feel and responsiveness.

Features

- Incorporates uprated components to handle the higher torque demands of a large wheel installation
- More direct gear ratio offering 1.5 turns lock to lock
- Can be reduced to less than 1 turn where required
- Larger diameter pinion for greater strength and more direct steering
- Light, strong pedestal shell incorporating 101mm/4" diameter tube
- Uprated gear quadrant in super nickel aluminium bronze.



Cobra RACING with Enguard pedestal

Cobra™ Ocean

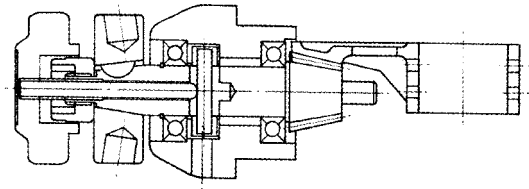
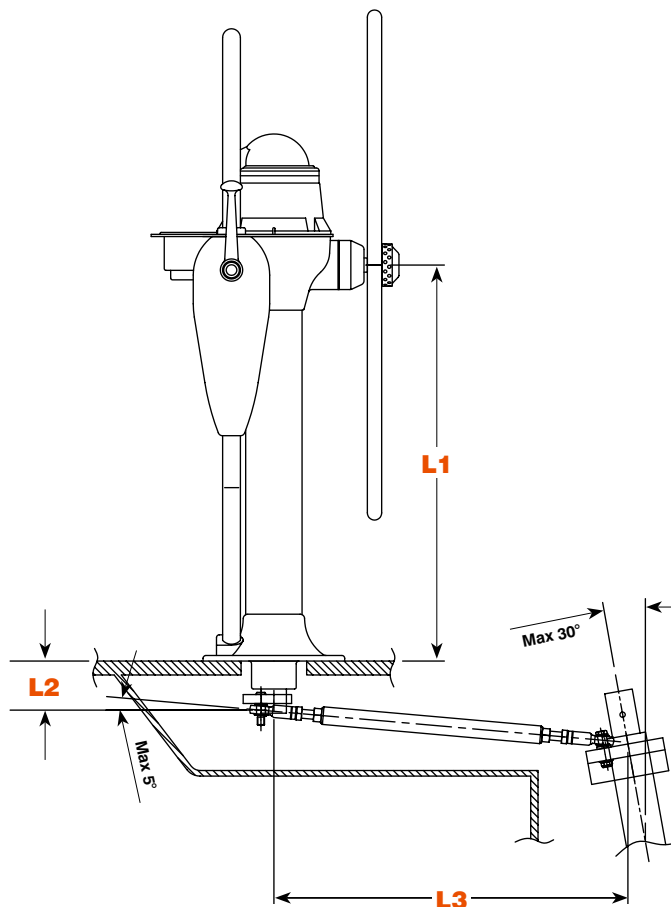
Designed for Blue Water yachts, with smaller wheels requiring a greater number of turns lock to lock. It offers the same, superb feel and simple, compact installation as other Cobra™ variants.

Features

- For yachts up to 18m/60'
- Suitable for maximum rudder torque of 4905Nm/3618 lb ft
- Additional space for a larger gear set
- 2.4 turns lock to lock
- Larger bearings and a 60mm/2.3" stainless steel down shaft
- Royale and Ranger pedestals specific to the Cobra Ocean system



Cobra Ocean with Royal pedestal



The PowRTM Input cartridge

This input socket design prevents the quadrant gear from lifting the pinion gear under high load conditions.

Cobra™ Installation Guidelines

L1 Standard pedestal height L1 = 710mm/28". Minimum possible height = 178mm/7", maximum possible height 915mm/36".

L2 Standard under deck dimension L2 = 102mm/4". The minimum dimension is governed only by the thickness of the cockpit sole. Where an extended L2 under deck is required, it may be necessary to also add a torque snubber plate, as seen in this brochure.

L3 The distance between the centre of pedestal and the rudder stock, L3 can vary between 120mm/5" – 2000mm/79". Draglinks are made to specification and are adjustable by 20mm/0.78" upon installation.

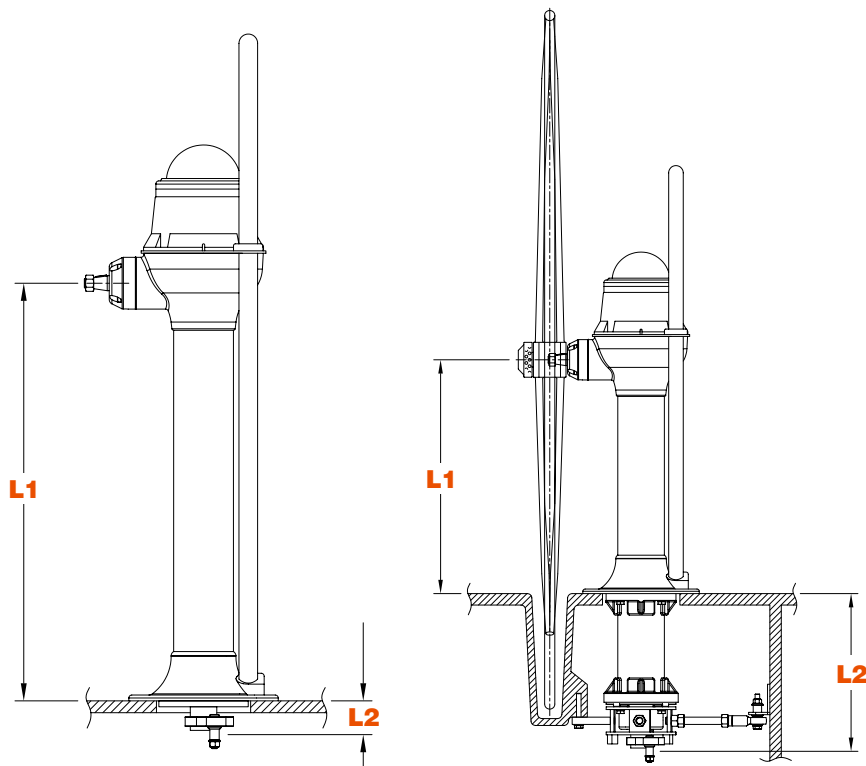
The draglink should not exceed an angle of 5° from the horizontal.

A standard Cobra™ installation can accommodate a rudder rake up to a maximum of 30°. This does however depend on the boat size and type, and the length of L3. Where this angle exceeds 20°, please consult our technical department.

As standard, all levers are mounted to the starboard side and the pedestal is mounted forward of the rudder stock.

Cobra™ System — Customised for specific installations

A Cobra system can be customised for twin rudder installations, bridge deck consoles, transom mount rudders and centre cockpit vessels. Cobra™ offers a simple steering solution for this arrangement that ensure the rudders remain in phase and Ackerman effect can be achieved.



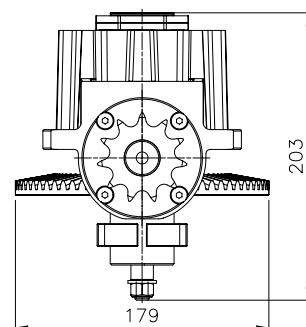
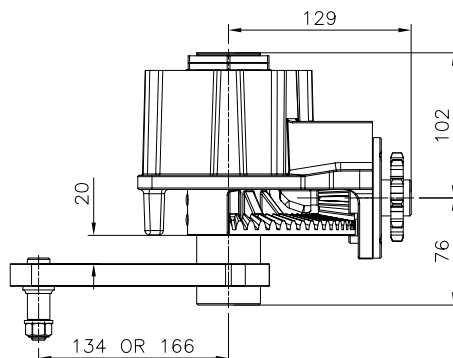
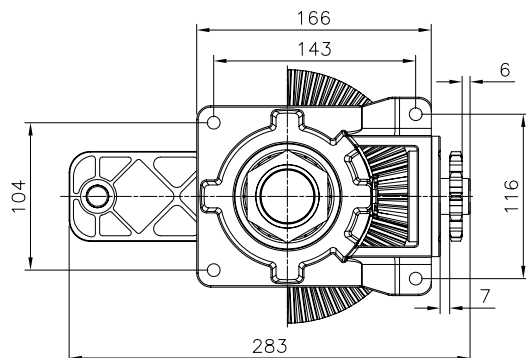
Frequently the space directly below the cockpit floor is limited and this special bearing arrangement reduces the intrusion into the accommodation.

This illustrates the use of a wheel trough and shortened height pedestal which is particularly common on Cobra™ Racing installations where large wheels are fitted.

Besides giving more mechanical purchase, the large diameter wheel enable the helmsman to sit out and still reach the helm. Please note that the use of a torque snubber plate may be necessary, to counteract the extra pitching movement caused by the large L2 dimensions (greater than 152mm/6").

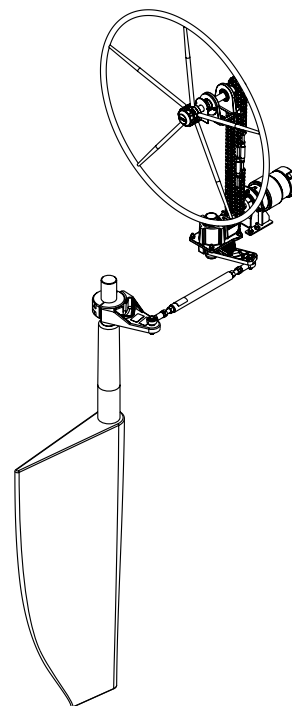
Rack & Pinion Base unit

- Remote mountable rack & pinion gearbox
- Suitable for yacht up to 13.7m / 45'
- Direct gear ratio provides 1.77 turns lock to lock with 181 chain drive
- CE certified



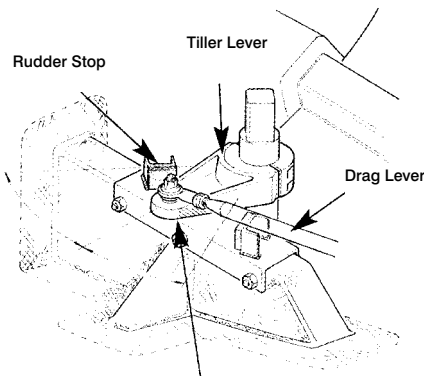
Features

- One-piece Power input assembly, easy maintenance and gear adjustment
- High-efficiency double sealed deep groove ball bearings
- Powerful and progressive, front mount friction brake
- One-piece heavy duty stainless steel down tube
- Computer optimised gear quadrant design
- Gear quadrant secured via twin 10mm/0.39" stake pins with double shear
- High-strength stainless steel output level welded to down shaft
- Stainless steel rose jointed draglink
- Nybrol gear quadrant and pinion for ultra high strength
- Ability to withstand shock loads



Stop Rings

Limiting the amount of rudder travel is essential on all steering arrangements. The Cobra system provides an alternative and simpler to install device than conventional rudder stops – the stop ring. The stop ring, mounted directly below the pedestal, ensures that the output lever travel does not exceed the designed limit. Stops should operate adjacent to operating centres.



Stops should operate adjacent to operating centres

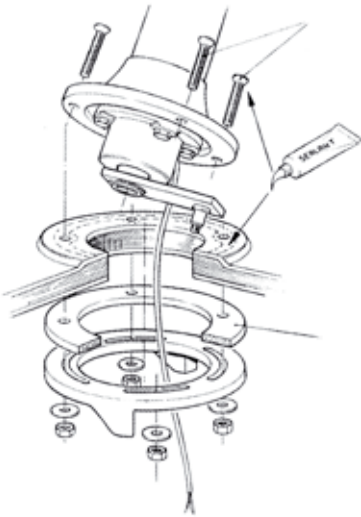


Illustration showing detail of Stop Ring. Custom Stop Ring also available



89000004
Stop Ring Cobra

Note: Additional rudder stop can be fitted to tiller lever if a stop ring cannot be installed.

Draglinks



Draglink complete with rod end

The draglinks specified above are supplied with one end fitting loose to enable the tube to be cut to size and welded. If the correct centres for the draglink are known contact your Lewmar dealer prior to order for the part number relating to the centre required.

Part Number	Description	Length one end loose		System Type
		mm	in	
89500011	Draglink Assemblies AHFT 10	1000	40	Cruising
89500012	Draglink Assemblies AHFT 10	2000	80	Cruising
89500013	Draglink Assemblies AHFT 12	1000	40	Racing and Ocean
89500014	Draglink Assemblies AHFT 12	2000	80	Racing and Ocean

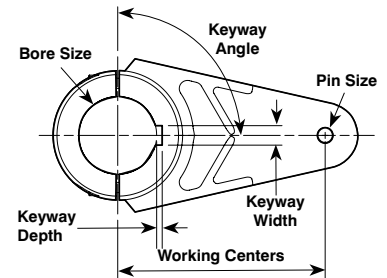
Rod Ends



Part Number	Description
82000356	Rod End AHFT10 Stainless Steel
82000357	Rod End AHFT12 Stainless Steel

Rods ends can be purchased separate from draglink assemblies as spare parts.

Tiller Levers



Part Number	Can be machined to bore size		Description
	mm	in	
89500002	80	3	Tiller Lever
89500005	100	4	Tiller Lever
89500008	125	5	Tiller Lever

Lewmar also offers extended versions to enable the fitting of linear drive type autopilots at 250mm/10" and 350mm/13" centres, in conjunction with the standard 203mm/8" position for the steering draglink.

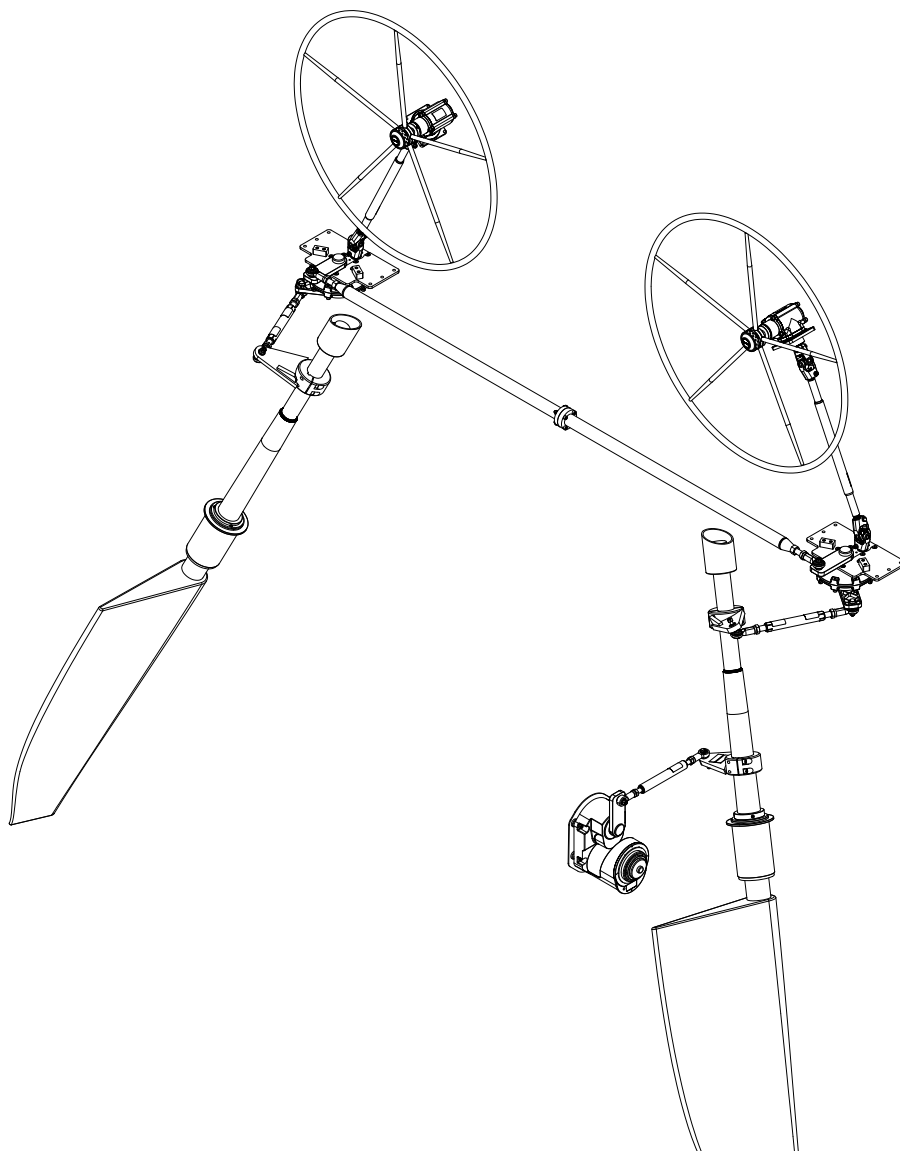
All above part numbers are for standard tiller levers supplied pilot offer a machining service to supply the tiller lever ready to suit the rudder stock of the boat, please contact your Lewmar distributor for part number and price prior to ordering.

Mamba™

The Mamba™ system provides the ultimate in marine steering, in terms of precision, feedback and strength. Mamba systems are chosen for a diverse range of sail and power craft such as blue water cruising yachts, pilot vessels, and sail training vessels.

Features

- All parts are CNC machined, gearcut and assembled for the highest precision
- Bevelheads and gearboxes are manufactured using only marine grade materials
- Mamba offers enormous strength with minimal maintenance
- Maintained well, Mamba delivers a lifetime of service
- Reduction gearboxes accommodate rudder torques up to 5400mKg
- Instant rudder feedback
- Gearboxes and bevelheads provide high efficiency – fully reversible and totally positive



Principle of Operation

Mamba steering is a rotating torque tube and bevelhead system, transmitting the helmsman's input to a high efficiency reduction gearbox, mounted adjacent to the rudder stock. A tiller lever is fitted to the rudder stock and is driven by a similar lever integral to the gearbox, via a fully articulating jointed draglink.

Two or three station systems, catamarans and tandem wheel steering systems are regularly supplied. The integration of autopilot drives and remote controlled disengagement units are simply achieved.

The Mamba range of steering systems is offered in two sizes, BH10 and BH130, which are coupled with 12 models of reduction gearbox, providing equipment to suit all craft from 10.6m/35' to 61m/200'.

In most cases, either high efficiency spur, or reduction gearboxes are chosen, offering between 1.0 and 26 turns lock to lock. Each option also provides a high reverse efficiency, transmitting rudder feel to the helmsman.

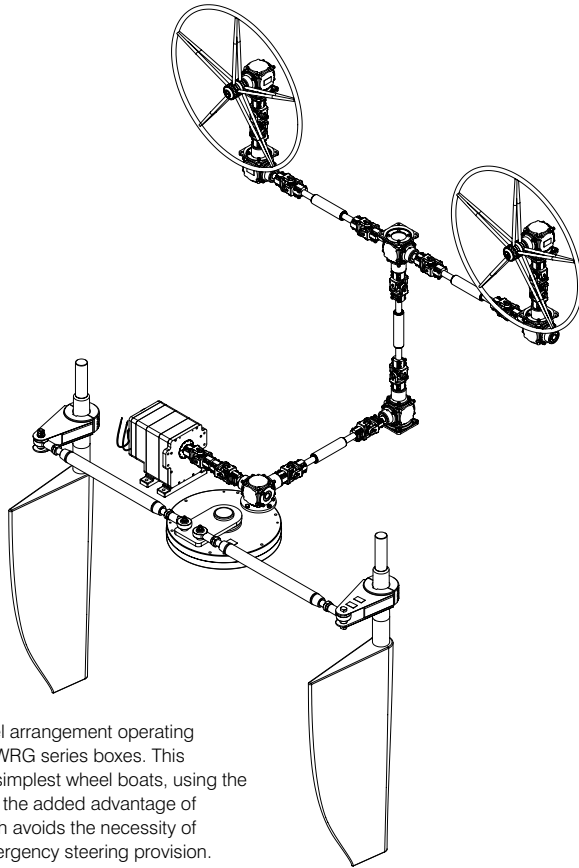
To simplify installations, Mamba equipment offers the following examples of versatility:

- Bevelheads can be supplied with 2, 3 or 4 steering shafts, permitting integration for secondary steering stations, tandem wheel arrangements and direct coupled autopilot drives.
- A choice of mounting plates and brackets for bevel and gearboxes.
- Availability of step ration gears to adjust overall steering ratio.

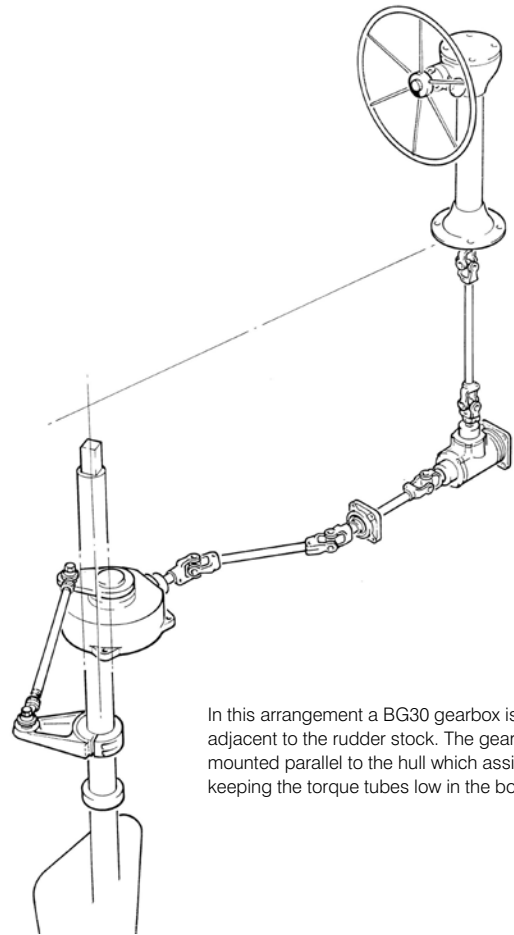
The lever geometry for Lewmar transmission systems is based on the principle of Wide Angle Geometry refer to p181.

Mamba™ — Typical Installations

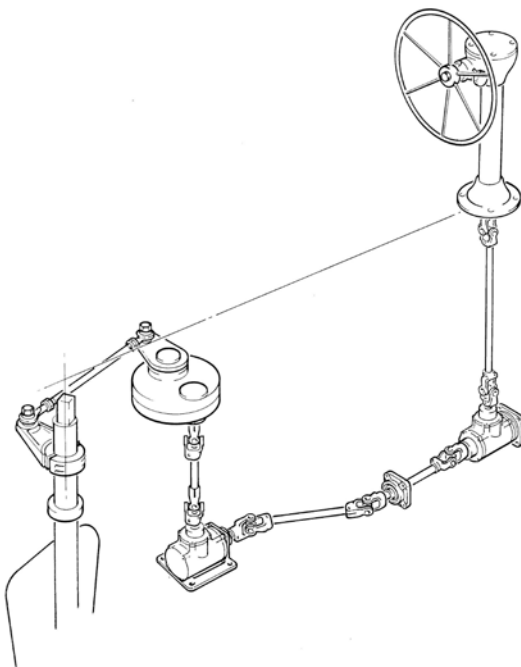
Lewmar can accept Naval Architect's designs in 2D or 3D as well as conventional drawings. Here are some sample schematics showing the versatility of the Mamba system.



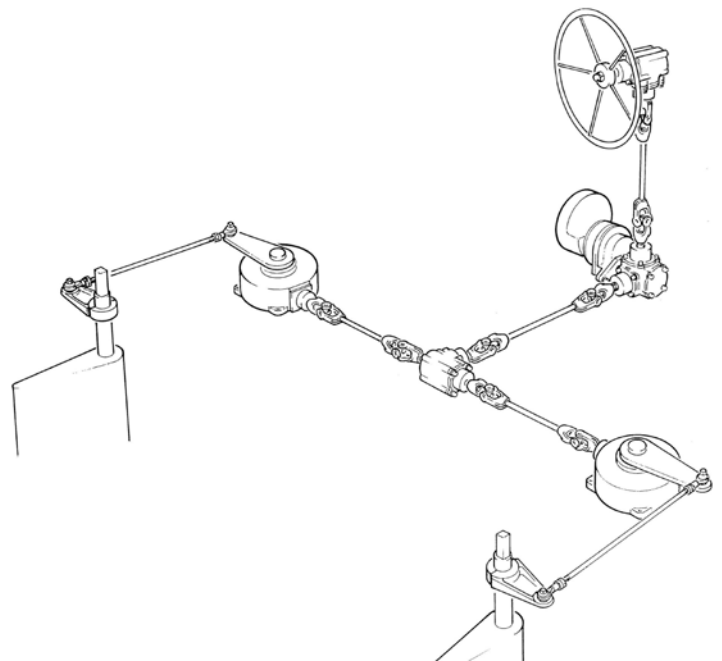
Tandem wheel arrangement operating through twin WRG series boxes. This provides the simplest wheel boats, using the minimum has the added advantage of systems which avoids the necessity of providing emergency steering provision.



In this arrangement a BG30 gearbox is situated adjacent to the rudder stock. The gearbox is mounted parallel to the hull which assists in keeping the torque tubes low in the boat.



Where the rudder stock and bearing is mounted higher in the boat, this arrangement is preferable.



An illustration showing a typical Mamba™ installation for a catamaran. The rigidity and backlash free nature of the Mamba™ system means that it is unnecessary to have a draglink between the rudders to achieve synchronisation.

In addition Lewmar can arrange the geometry to provide Ackerman effect which increases the turn angle on the inside rudder to improve steering reaction. This example also illustrates the simple connection of the Lewmar autopilot drive.

Mamba™ — Bevelheads

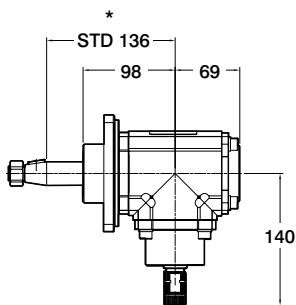
BH10

Lewmar BH10 torque tubes are made of marine grade stainless steel depending on the specific installation requirements. Torque tubes are supplied in standard lengths with one end loose for welding by the installer. Or we offer fully welded torque tubes to pre-specified lengths



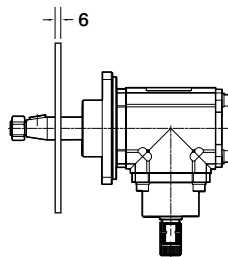
Useful information

- 1 Steering shafts can be made to customer's preferred length
- 2 Bevelheads are available with either rotation
- 3 Standard bevelheads have 1:1 ratio, but other ratios are available as detailed in specification
- 4 Mounting plate (or bracket) can be fitted to all faces to facilitate ease of mounting
- 5 All bevelheads can be configured to accept the Lewmar direct fit autopilot mount
- 6 For detailed dimensions contact a Lewmar representative
- 7 Due to the custom nature of this product, contact Lewmar for part number

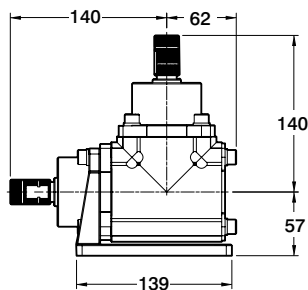


Steering Bevelhead (BH10)

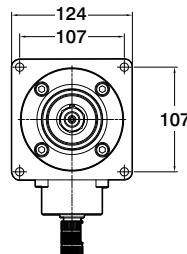
*To suit customer requirements



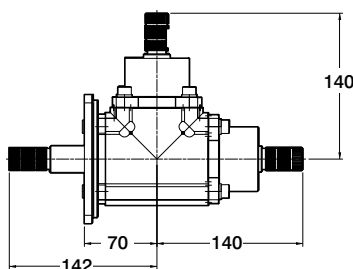
Steering Bevelhead with Brake (BH10)



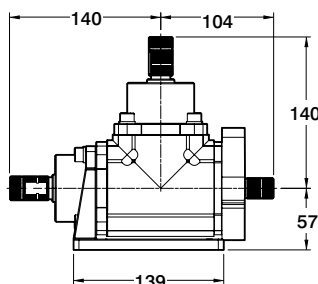
Transfer Bevelhead (BH10)



Steering Bevelhead (BH10 Front View)



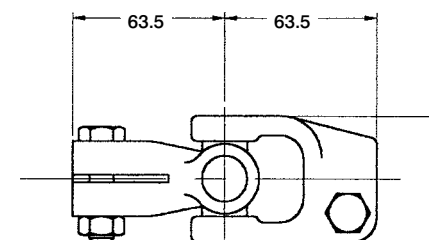
Transfer Bevelhead 3-way (BH10)



3-way Bevelbox with AP Flange (BH10)

Universal Joints

Must be fitted at both ends of a torque tube. Where a self aligning bearing is used, one universal joint connects both torque tubes, as shown in illustrations. Self aligning bearings work up to an angle of 15°. AMK10 universal joints have a maximum permissible working angle of 25°. Where practical, the angle at each joint should be balanced.



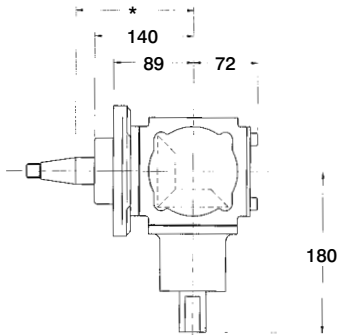
89200057
AMK10 Universal Joint



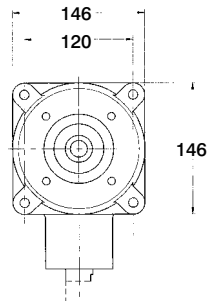
Mamba Universal Joint and self-aligning bearing

BH130 — For boats 60ft and above

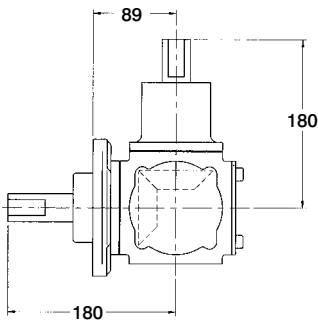
Lewmar BH130 torque tubes are made of marine grade stainless steel. Depending on the specific installation requirements, torque tubes are supplied in standard lengths with one end loose for welding by the installer. Or we offer fully welded torque tubes to pre-specified lengths



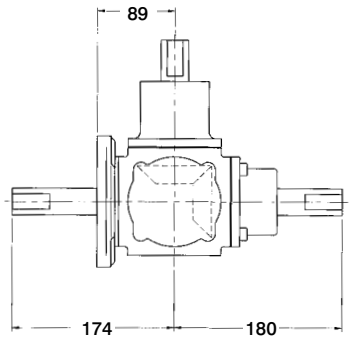
Steering Bevelhead (BH130)
*To suit customer requirements



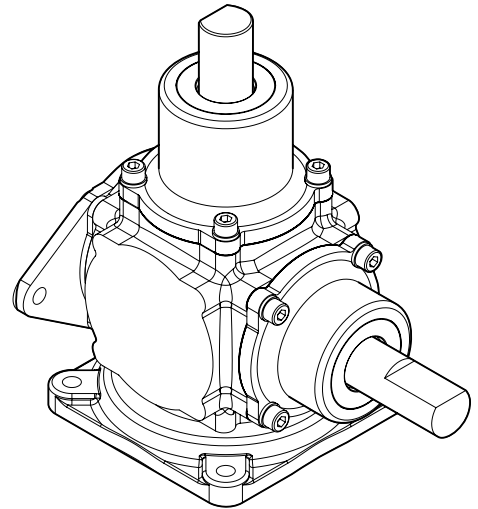
Steering Bevelhead (BH130 Front View)



Transfer Bevelhead (BH130)

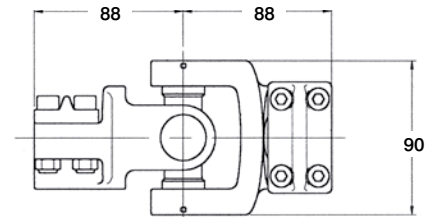


**Transfer Bevelhead with
Autopilot adaptor flange 3-way (BH130)**



Universal Joints

The WUJ6 universal joint is suitable for use with large gearboxes 18, 20 and 45, see p191. It has a maximum permissible working angle of 25°. Where practical, the angle at each joint should be balanced.



89200070
WUJ6 Universal Joint



Mamba™ — BG Reduction Gearboxes

The BG Series of high efficiency reduction gearboxes employ bevel gears manufactured from either high alloy steel or nickel bronze alloy running in precision roller bearings. Gear casings are manufactured from marine grade aluminium and shaft work is stainless steel or nickel bronze alloy. All gearboxes are grease filled and shimmed for zero backlash.



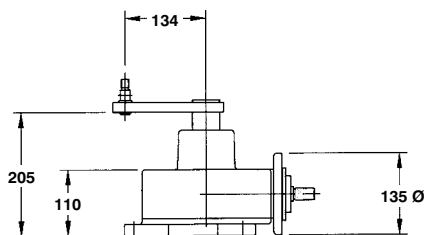
89200034
Gearbox (BG12)

Mamba Reduction Gearboxes

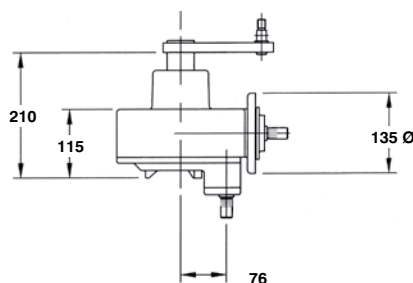
Gearbox Type	Gear Ratio	Mechanical Advantage at Midships	Turns Ho to Ho	Maximum Rudder Torque		Typical Boat Range	
				Nm	ft. lbs	m	ft
BG12	5:1	8:1	1.8	2943	2170	up to 14	up to 45
BG12/2	5:1	8:1	1.8	2943	2170	up to 14	up to 45
BG30	6.7:1	10.2:1	2.4	4905	3617	14-18	45'-60'

Useful information

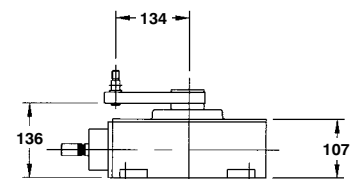
- 1 Mechanical advantage and turns lock to lock are based on standard level geometry
- 2 Reduction gearboxes can be mounted anywhere within the general proximity of the rudder stock 0.2m/7" to 2m/6.5'
- 3 For detailed dimensions contact your Lewmar representative



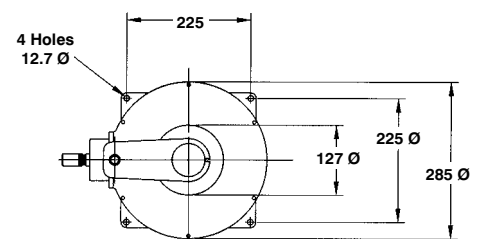
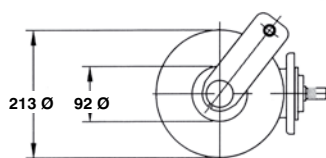
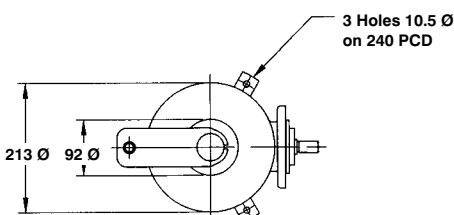
Gearbox (BG12)



Gearbox with second output for autopilot drive or additional steering position (BG12/2)



Gearbox (BG30)



Mamba™ — WRG Reduction Gearboxes

The WRG series of high-efficiency gearboxes employs precision cut, stub tooth form, spur gears running in deep groove ball and roller bearings. Gear casing are manufactured from marine grade aluminium, and shaft work is in stainless steel or nickel bronze alloy. All gearboxes are CNC machined and grease filled to ensure a perfect fit and maintenance free life.



89200041
Gearbox (WRG12)



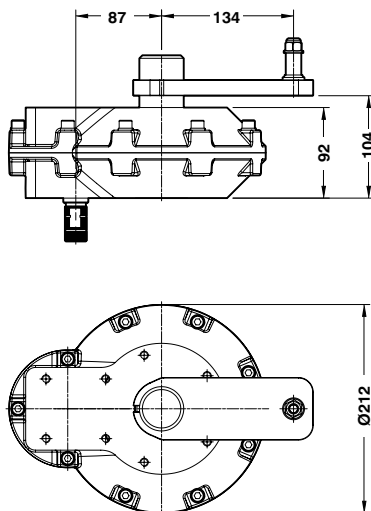
89200046
Gearbox (WRG18)

Mamba Reduction Gearboxes

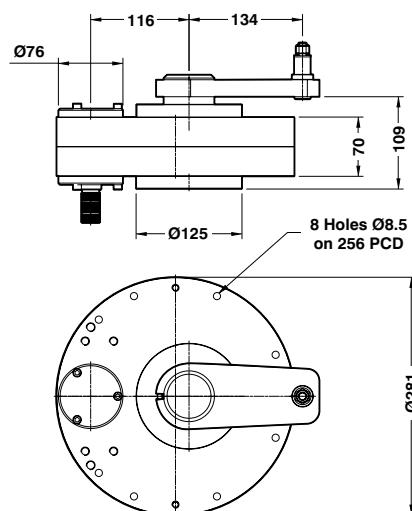
Gearbox Type	Gear Ratio	Mechanical Advantage at Midships	Turns Ho to Ho	Maximum Rudder Torque Nm	ft. lbs	Typical Boat Range m	ft
WRG11	5:1	8:1	1.8	2943	2170	11.5-14	38-45
WRG12	7:1	10.8:1	2.4.8	5150	3798	13-20	45-65
WRG18	10:1	15.2:1	3.5	10800	7965	18-27	60-90
WRG20	12.6:1	19.1:1	4.4	13700	10104	24-33.5	80-110
WRG45	13:1	20:1	4.6	24000	17701	20-46	90-120
WRG60	24.7:1	37.5:1	8.6	36250	26740	33-45	110-150
WRG90	65:1	96:1	21.6	53000	39090	36.5-61	120-200

Useful information

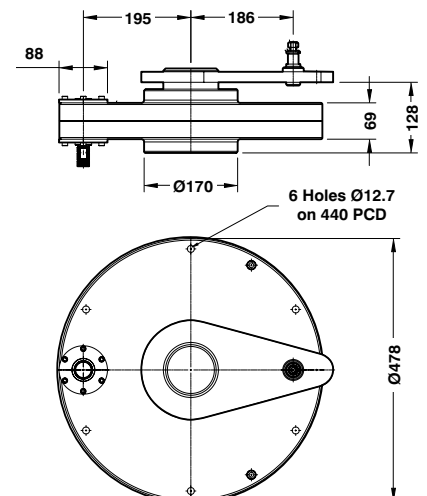
- 1 Mechanical advantage and turns lock to lock are based on standard level geometry
- 2 Overall mechanical advantage and turns lock to lock can be altered via stepped ratio bevels in bevelheads within the system or by non-standard level centers.
- 2 Reduction gearboxes can be mounted anywhere within the general proximity of the rudder stock (0.2m/7" to 2m/6.5') For more details please refer to the installation and maintenance handbook.
- 4 Bevelheads can be directly integrated to all WRG series gearboxes
- 5 For detailed dimensions contact your Lewmar representative.



Gearbox (WRG11)

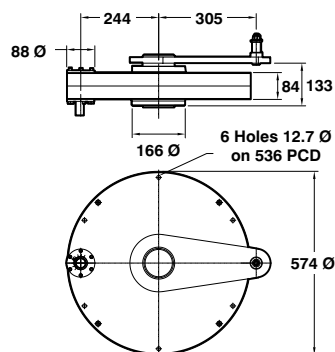


Gearbox (WRG12)

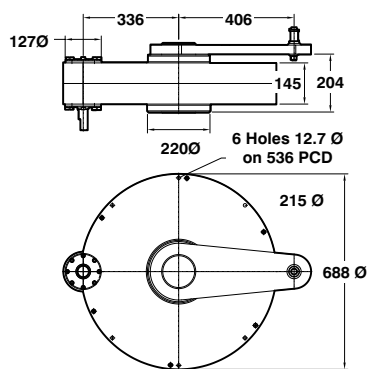


Gearbox (WRG18)

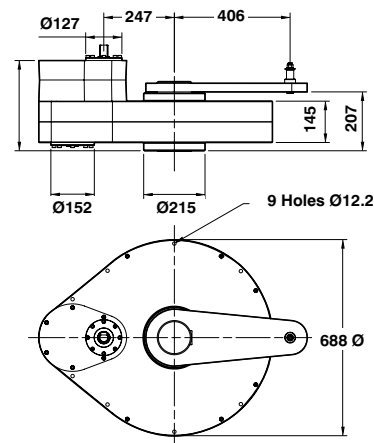
Mamba™ — WRG Reduction Gearboxes (cont)



Gearbox (WRG20)



Gearbox (WRG45)



Gearbox (WRG60)

Mamba™ — Bevelhead Integration

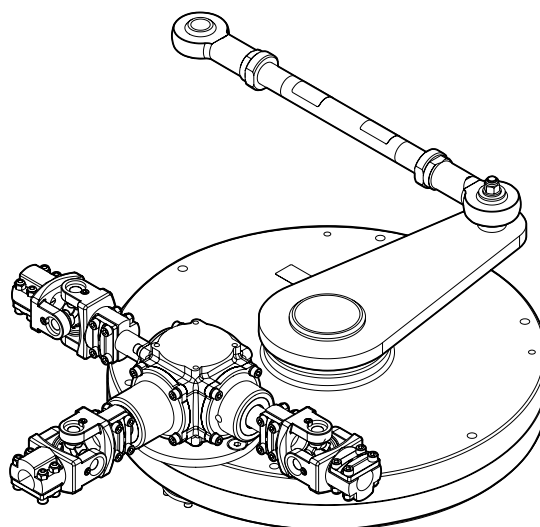
Integration – WRG series of spur reduction gearboxes can be supplied with an integral bevelhead fitted to the input shaft as per illustrations below. The bevelhead can be mounted to either side of the reduction gearbox and rotated at any angle. Custom arrangements are available with great stand offs between the gearbox and bevelhead. Lewmar provides an in-house design service for Mamba installations.

Pedestal Gearbox Integration

Mamba™ pedestal – BG WRG Integration – For larger aft cockpit yachts, the WRG and BG series gearboxes can be directly mounted to the pedestal.

On the WRG12 gearbox and above – a torque adapter plate is provided to transmit the force directly to the underside of the cockpit floor.

For raked rudders (25° and above), it is normal to use the BG series of gearbox, see page 190.



Gearbox WRG type showing directional movement of outer lever and torque tubes

Autopilot Drives

Our experience has given us insight into the challenges that occur when interfacing autopilot drives to the steering system and how important this aspect is to the correct operation of the autopilot. Our comprehensive range of mechanical and hydraulic autopilot drive units helps overcome typical installation problems.

Features

- All units have an electromechanical clutch, virtually eliminating drag on the steering system
- All units are compatible with the majority of electronic suppliers, such as Raymarine, B&G and Simrad
- All drives have low current draw
- Drives available in 1/4, 1/2 and 1HP capacities, suitable for all Lewmar steering types.



Lewmar recommends the following Drive Units for your boat. If your boat is not listed here, please contact Lewmar for further information

Boat Builder/ Model	Drive Type	Part Number
Bavaria		
30, 33, 37, 39 Cruisers	Integra	89300136
42, 44, 46, 49, 50, Cruisers	Mamba	89300137
Bavaria NC55	Direct	85008160 + 89500956
Dufour		
34	Constellation	89300109
40, 44	Constellation	89300086
385, 455	Constellation	89300123
Gib Sea 43	Mamba	89300137
Halberg Rassy		
40, 43	Mamba	89300137
46, 48, 53 - 12v	Mamba	89300137
46, 48, 53 - 24v	Mamba	89300054
62	Mamba	89300060
Hunter		
44, 49	Mamba	89300137
45CC	Integra	89300113
Island Packet		
370	Direct	89300040
440	Direct	89300040
445	Mamba	89300137
485	Mamba	89300137

Boat Builder/ Model	Drive Type	Part Number
Najad		
400	Mamba	89300137
460, 490, 511	Mamba	89300137
Northshore		
Southerly 110	Direct	89300103 + 89300099
Southerly 32	Integra	89300104
Southerly 35RS	Direct	89300103 + 89300100
Southerly 38	Mamba	89300157
Southerly 42	Mamba	89300103
Vancouver 49	Mamba	89300117
Oyster		
62, 655	Mamba	89300060
72, 82	Mamba	89300070
Tartan		
3400	Direct	89300039
3700	Direct	89300039
4100	Direct	89300039
4400	Direct	89300039

Autopilot drive manuals and installation guides can be found on the Lewmar website www.lewmar.com

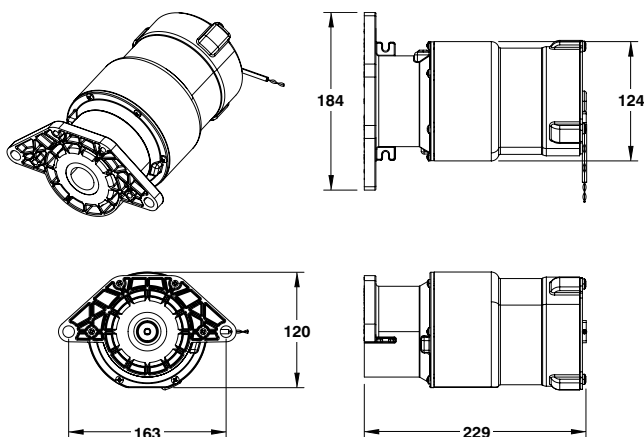
Integra Drives

The Integra drive is available in three formats.

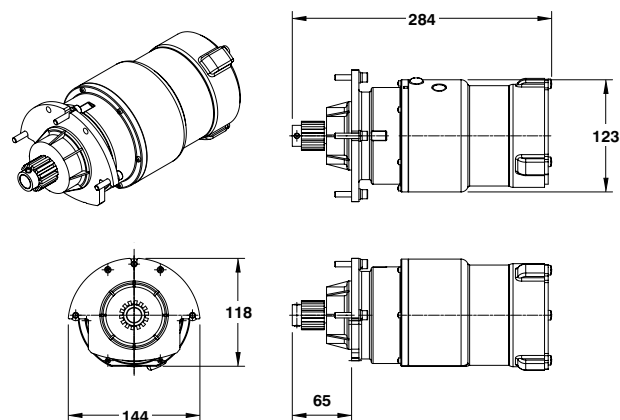
The Cobra and Mamba versions mount directly inside the Integra pedestal. This unique installation is only available from Lewmar and provides the installer with a simple and quick installation with no complicated, labour intensive mounting platforms required. We also offer an Integra Sprocket version, which is very popular with Bavaria Cruising yachts from 9m to 12m (30ft to 39ft) in length.



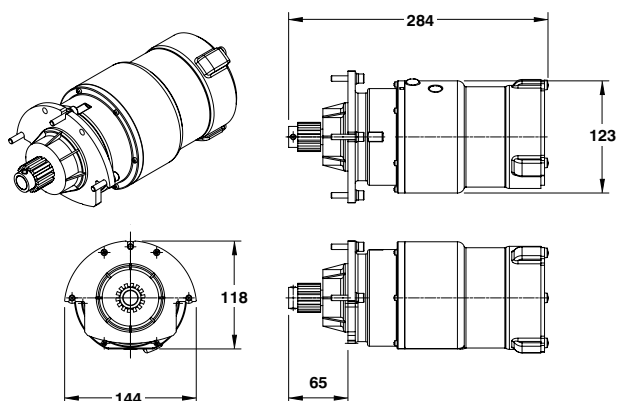
Part Number	Description
89300136	Bavaria Integra Drive
89300137	Mamba Integra Drive
89300104	Cobra Pedestal Integra Drive
89300113	Mamba Pedestal Integra Drive



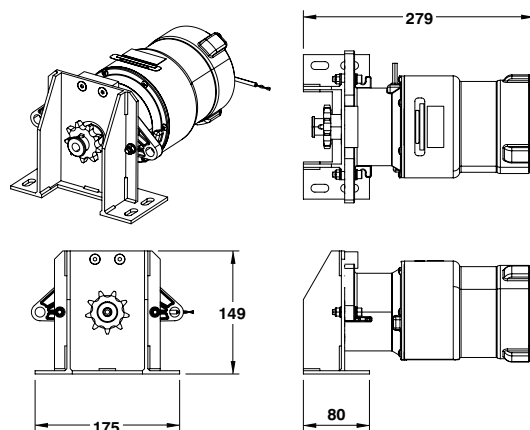
Mamba Integra Drive



Mamba Pedestal Integra Drive



Cobra Pedestal Integra Drive



Bavaria Integra Drive

Mamba™ Drives

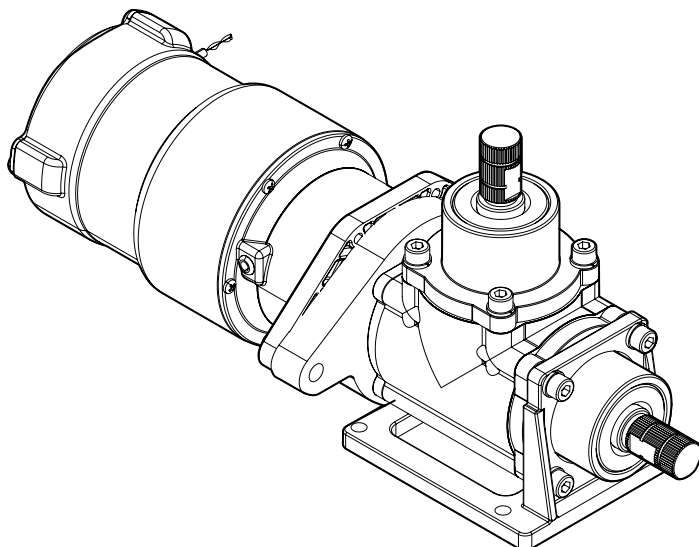
These unique autopilot drives directly couple to Mamba systems, eliminating the need for separate platforms, chain and sprockets.



Mamba Drive Unit Specification

Spine Coupling Connection	HP	Voltage*	Max Output Torque		Average current Speed RPM	Max rudder Torque		Ave Current Consumption	Weight	
			Nm	ft. lbs		mkg	ft. lbs		kg	lb
3/4 x 48	1/4	12	169	125	10	248	1794	4A	9	19.8
3/4 x 48	1/4	24	169	125	10	248	1794	2.5A	9	19.8
3/4 x 48	1/4	24	169	125	10	248	1794	2.5A	9	19.8
3/4 x 48	1/2	24	183	135	13	426	3080	3.5A	10.5	23.1
3/4 x 48	1/2	24	183	135	13	426	3080	3.5A	10.5	23.1

* Voltage relates to clutch



The illustration (left) shows the simplicity of installation of the Mamba drive unit fitted to a BH10 type bevelhead via the interface plate. The drive is transmitted via a splined muff to shaft connection.

The bevelhead or gearbox provides the mounting, and no additional support is necessary for the autopilot drive unit.

Direct Drives

Uniquely, the Direct Drive can operate onto the pedestal or gearbox output lever as an alternative to the rudder lever. This offers the installer and boat designer more options for layout as the Direct Drive can be mounted in any attitude.



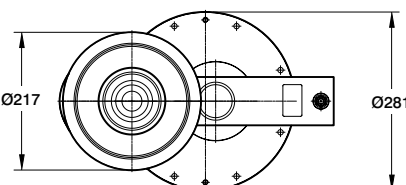
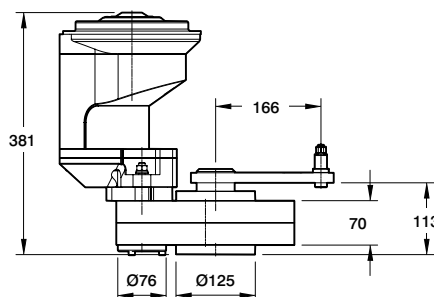
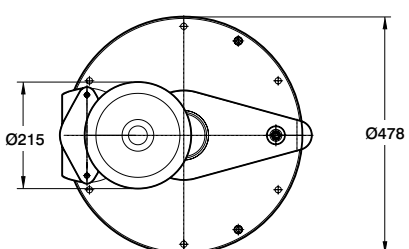
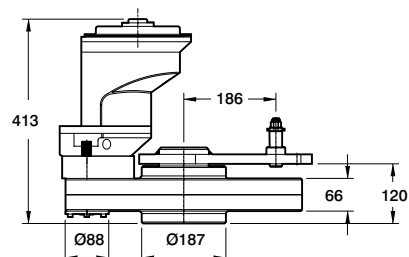
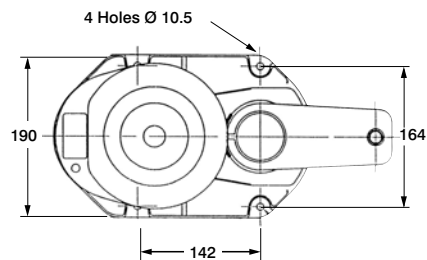
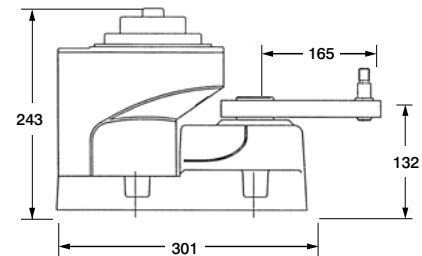
Features

- Available in Constellation, Cobra and Mamba steering systems
- Extremely powerful, delivering up to 2432Nm/1794ft. lb of torque
- Virtually zero drag – steering performance is not impaired
- Compact Direct Drive, enabling close mounting to the rudder stock, at any attitude

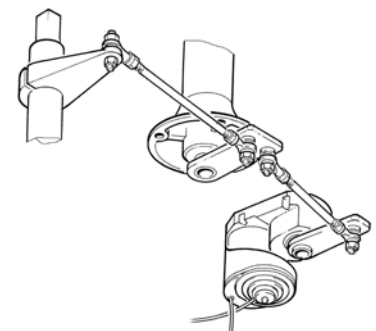
Direct Drive Unit Specification

Output Lever Centre	HP	Voltage*	No Load Speed Ho-Ho	Max rudder Torque mkg	Max rudder Torque ft-lb	Average Current Consumption	Weight kg	Weight lb
166mm Lever	1/4	12	10s	248	1794	4A	8.8	19.4
166mm Lever	1/4	24	10s	248	1794	4A	8.8	19.4
166mm Lever	1/2	24	12s	345	2496	3.5A	24.8	55
166mm Lever	1/2	24	17s	493	3566	3.5A	45.5	100

* Voltage relates to clutch



Direct drive connected to a tiller lever via a draglink



Rotary Sprocket Drives — To suit Constellation & Mamba

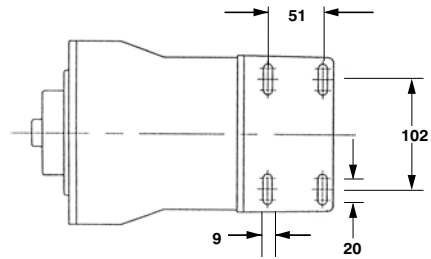
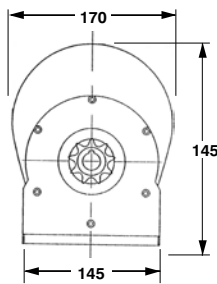
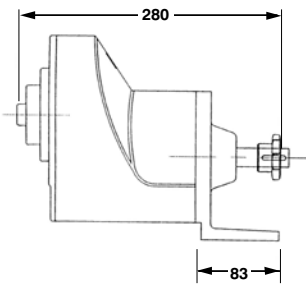
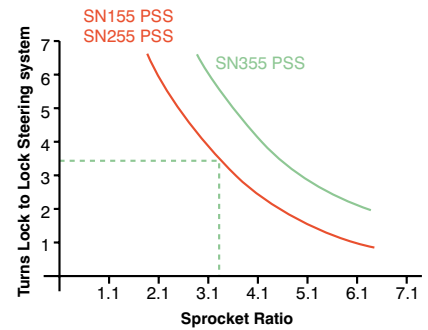


Lewmar offer 3 sizes of powerful and compact rotary drive units, which employ conventional chain and sprocket

connection to the steering system. The high efficiency, twin stage, epicyclic gearbox is grease filled, which allows mounting in any attitude. The wide mounting platform is slotted to aid chain tensioning. Rotary drives are generally used on cable and push-pull steering systems and it is necessary to

calculate the correct driven sprocket, which is dependent on the turns (mechanical advantage) of the steering system. Lewmar can supply fully machined sprockets for your steering system in steel or stainless steel upon request, as well as chain and master links.

Please refer to the graph to calculate the correct sprocket size. The turns lock to lock is referred to at the position on the steering where the driven sprocket is to be mounted.



Rotary Sprocket Drive Unit Specification

Sprocket Size	Type	HP	Voltage*	Max Output Torque		No Load Speed RPM	Max Rudder Torque		Avg Current Consumption	Weight	
				Nm	ft-lb		mkg	ft-lb		kg	lb
5/8" P 9T Sprocket	SN155PSS	1/8	12	24	18	44	116	840	2A	7.8	17.2
5/8" P 9T Sprocket	SN255PSS	1/4	12	43	32	44	207	1500	4A	8.8	19.4
5/8" P 9T Sprocket	SN255PSS	1/4	24	43	32	44	207	1500	2.5A	8.8	19.4
5/8" P 9T Sprocket	SN355PSS	1/2	24	47	35	55	332	2400	3.5A	10	22
5/8" P 9T Sprocket	SN455PSS	1	24	466	344	18	1660	12055	6A	30	66.1

*Voltage relates to clutch

Mamba™ Sprocket 1HP Drives

Lewmar has developed a 1HP Drive Unit motor suitable for sailing yachts & commercial vessels up to 60m/ 200'. With the capacity to steer such vessels on a continuous rating basis, utilising a 1HP twin rotor, ultra high efficient printed circuit motor, the unit offers the major advantage of variable speed operation, ensuring far higher steering accuracy and less strain on the steering mechanism and rudder linkage.

The 1HP Twin Rota is compatible with a number of autopilot manufacturers electronics.

This particular unit typically consumes less than 1/5 of the power consumption of a similarly rated hydraulic power pack. The 1HP Drive has an output rating of 248Nm/256lb. ft and a maximum output torque of 468Nm/344lb. ft.



Mamba™ 1HP Drive Unit Specification

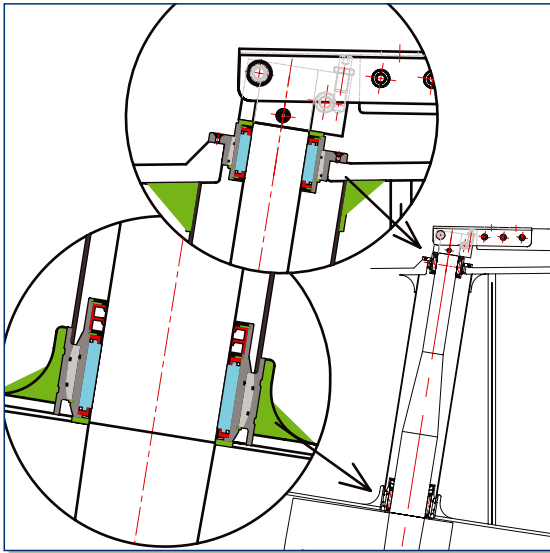
Part Number	Type	HP	Volts	Max output Torque		No Load Speed RPM	Max rudder Torque		Avg Current Consumption	Weight	
				Nm	ft-lb		mkg	ft-lb		kg	lb
89300064	SN455PSM	1	24	466	344	18	1660	12055	6A	30	66.1

Rudder Bearing — Solutions

Lewmar offers a range of rudder bearing and rudder stocks to complement yacht steering systems. Lewmar's rudder bearings come in two basic types — plain roller and self-aligning roller. We can provide a rudder bearing solution for any yacht, whether it's tiller steered or a

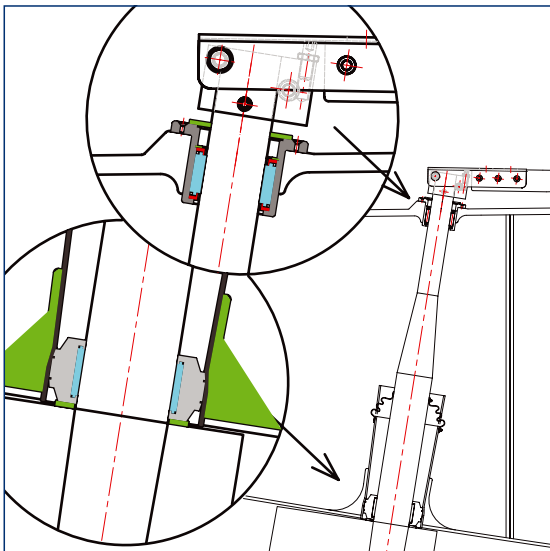
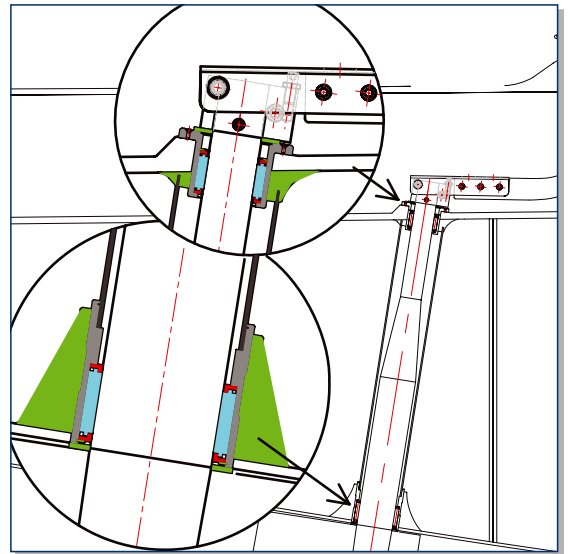
Grand Prix racer. Lewmar roller bearings are designed for production yachts as well as custom one-off yachts. Choose from our range or speak to your Lewmar representative for a specification and design to suit your rudder bearing requirements.

Tiller Steered Yachts



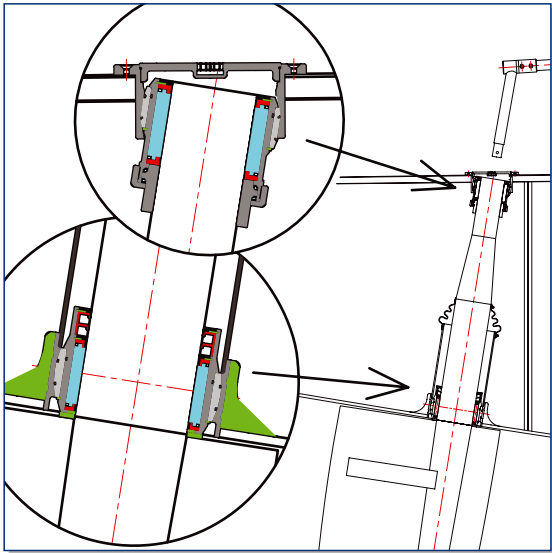
This tiller steered boat is using self-aligning roller bearings that simplify installation and allow for any bending movement in the rudder shaft when under sailing conditions. A rudder tube is slotted into the lower self-aligning bearing, which extends the lower bearing outer housing up to the upper bearing.

This is a typical example of a production boat using a tiller rudder bearing installation. The lower bearing is quick and simple to install, and there is no laminating or bonding of the bearing to the hull required. When using a conical lower bearing the builder will laminate the hull and the housing, for the bearing is formed using a mold tool. To install, the bearing sealant is applied to the outer surface and then positioned and the nut tightened to hold in position.



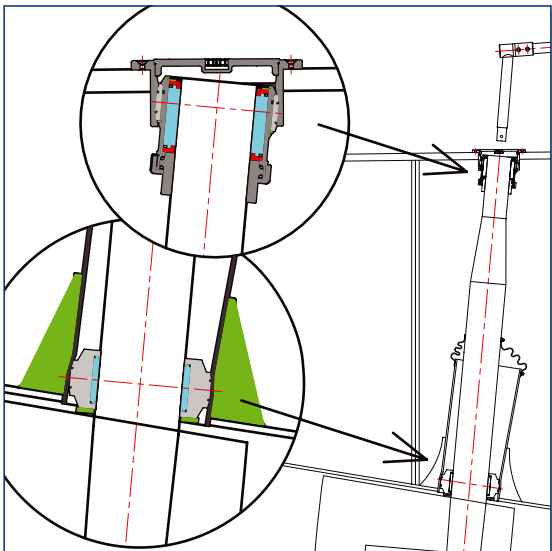
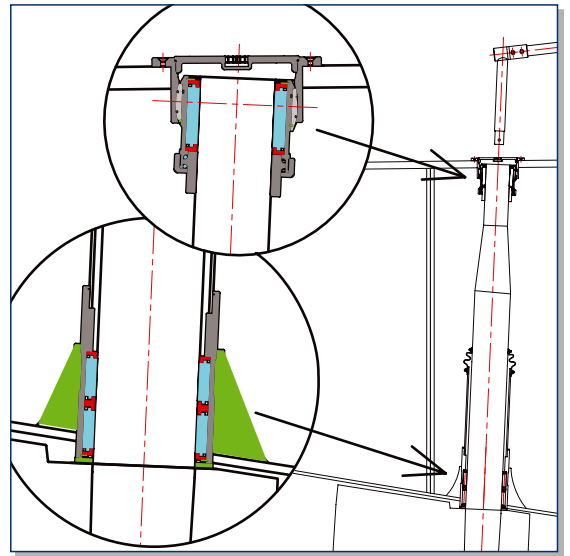
Here is an example of the tiller steered rudder system for a one off or low volume sailing boat. When aligning the bearings, the rudder shaft must be positioned and the plain roller rudder bearings are either bonded or laminated to the vessel hull and deck.

Wheel Steered Yachts



This wheel steered boat is using self-aligning roller bearing that simplify installation and allow for any bending movement in the rudder shaft when under sailing conditions. A rudder tube is slotted into the lower self-aligning bearing which extends the lower bearing outer housing up to the upper bearing.

This is a typical example of a production wheel steered boat using a rudder bearing installation. The lower bearing is quick and simple to install, and there is no laminating or bonding of the bearing to the hull required. When using a conical lower bearing, the builder will laminate the hull and the housing, for the bearing is formed using a mold tool inset within the hull mould tool. To install, the bearing sealant is applied to the outer surface and then positioned and the nut tightened to hold in position.



Many production boat builders like this type of solution as it allows for increased angles of the rudder shaft to the hull. The rudder bearing housing is GRP and allows for an easy laminating process to the hull. Sealing the bearing is completed with a gaiter, and these are easily replaced with the requirements to remove the rudder from the boat.

Rudder Bearing & Stocks

Specification Guidelines

	Vessel Type			Sealing system	
	Tiller Boats	Cruising Yachts	Racing Yachts	Lip Seals	Tube & Gaitor
Tiller Head Fittings	•				
Upper Roller Bearings	•	•			
Upper Bearing with deck cover and thrust race		•			
Upper Self-aligning Roller Bearings		•	•		
Upper Self-aligning Roller Bearing with thrust race			•		
Lower Roller Bearings Alloy	•	•		•	•
Lower Self-aligning Roller Bearings Alloy		•	•	•	•
Lower Self-aligning Roller Bearing GRP		•	•		•

Tiller Heads

- Tiller head block manufactured in 6082 alloy and anodised
- Suit shaft diameters 25mm – 50mm (1"–2")
- Height and angle adjusted by set screws
- 'U' shape channel manufactured in 316 stainless steel



Upper self aligning roller bearings

- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 50mm–120mm (2" – 4 3/4")
- Bearing includes s/a ball and precision Delrin rollers
- Easy to install flanged housing
- No grease or maintenance required



Plain roller Upper bearing

- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 50mm–109mm (2" – 4 5/16")
- Precision Delrin rollers
- Low friction co-efficient
- Easy to install flanged housing



Plain roller upper bearing with deck cover and thrust race

- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 50mm–109mm (2" – 4 5/16")
- Integra Locking ring
- Easy to install flanged housing
- Integra deck cover



Upper self aligning roller bearings with thrust race

- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 50mm–165mm (2" – 6 1/2")
- Bearing includes s/a ball and precision Delrin rollers
- Easy to install flanged housing
- Integra Locking ring and vertical thrust race



Lower Aluminium Roller bearings:

- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 50mm–109mm (2" – 4 5/16")
- Accepts sealing system for lip seals or rudder tube and gaitor
- Low friction co-efficient
- No grease or maintenance required



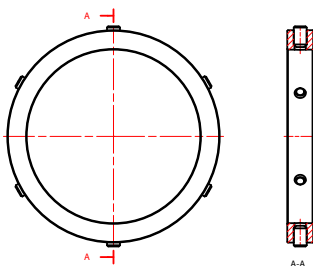
Lower self aligning GRP tube bearings

- Manufactured with a GRP tube for easy laminating on installation
- Suit rudder stock diameters 50mm–150mm (2" – 6")
- Bearing includes s/a ball and precision Delrin rollers
- Accepts sealing system for neoprene gaitor
- No grease or maintenance required



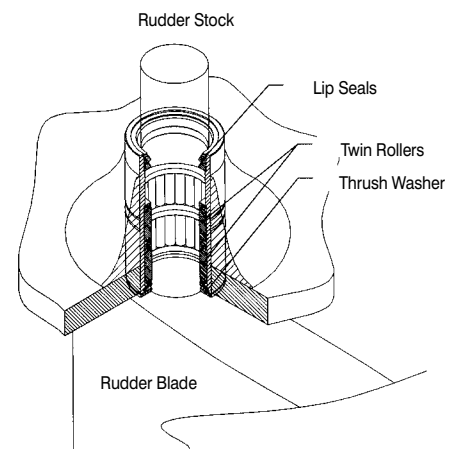
Locking Rings

- Used with upper bearings without integral locking ring
- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 40mm–110mm (1 1/2" – 4 5/16")
- Stainless set screws secure locking ring to rudder stock



Lip Seals

- Used with upper bearing without integral locking ring
- Manufactured in 6082 aluminium and anodised
- Suit rudder stock diameters 40mm–110mm (1 1/2" – 4 5/16")
- Stainless set screws secure locking ring to rudder stock



Navtec Performance Rigging

As a member of the Lewmar Marine products family, Navtec provides quality custom and standard rigging and hydraulic solutions to sailors and boat builders around the world. From Americas Cup racers to recreational cruisers to mega-yacht captains, Navtec rigging solutions are respected and trusted in the most challenging of sailing conditions.

Navtec's selection of wire fittings, Nitronic 50 rod components, biconic Kevlar and Aramid cables and fittings, and PBO Z system continuous and non-continuous rigging solutions have set the standard for performance and innovation for over thirty years.

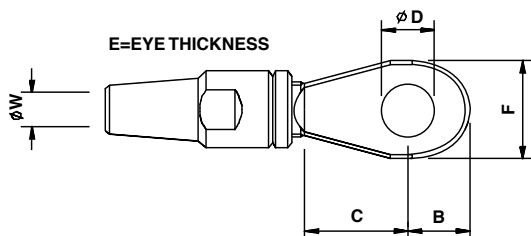
Navtec Norseman Swageless Terminals

Norseman terminals provide a fast, secure, corrosion-resistant end fitting on all types of wire rigging and are an ideal replacement part. They can be installed quickly and easily at sea, making them ideal for emergency repairs.



N010 Swageless Eyes

N010 Swageless Eyes Diagram



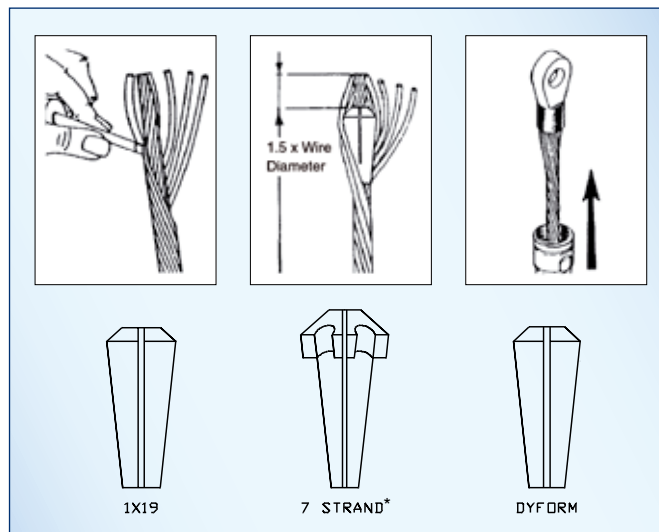
N010 Swageless Eyes

Part Number	Wire Dia		B	C	D	E	F
	mm	ins	mm	mm	mm	mm	mm
N010-M02506	2.5	3/32	7	11	4.7	5.5	13
N010-M02508	2.5	3/32	7	11	6.5	5.5	13
N010-M0308	3	1/8	7	11	6.5	5.5	13
N010-M0410	4	5/32	8.2	11	8.1	6.7	16
N010-0610	-	3/16	10	16	8.1	8	16
N010-0612	-	3/16	10	18	9.7	8	19
N010-M0510	5	-	10	16	8.1	8	16
N010-M0512	5	-	10	18	9.7	8	16
N010-0712	-	7/32	11	17	9.7	9	22
N010-0714	-	7/32	12.5	19.5	11.3	9.5	23
N010-0716	-	7/32	15	22	13	9.5	26
N010-M0612	6	-	11	17	9.7	9	22
N010-M0614	6	-	12.5	19	11.3	9.5	23
N010-M0616	6	-	13.5	23.5	13	9.5	26
N010-0812	-	1/4	11	17	9.7	9	22
N010-0814	-	1/4	12.5	19.5	11.3	9.5	23
N010-0816	-	1/4	15	19.5	13	9.5	26
N010-M0716	7	9/32	13.5	23.5	13	11	27
N010-M0816	8	5/16	15	24	13	12.5	27
N010-M0820	8	5/16	18	28	16	12.5	33
N010-1220	-	3/8	18	28	16	13.5	34
N010-M1020	10	-	18	28	16	13.5	34
N010-M1124	11	7/16	21	39	19.2	18	40
N010-M1128	11	7/16	25	39	22.5	18	47.5
N010-M1224	12	-	21	39	19.2	18	40
N010-M1228	12	-	25	41	22.5	18	47.5
N010-1624	-	1/2	21	39	19.2	18	40
N010-1628	-	1/2	25	39	22.5	18	47.5
N010-M1428	14	9/16	25	41	22.5	21	47.5
N010-M1632	16	5/8	27.5	44	25.7	24	54
N010-M1936	19	3/4	30	50	29	25.7	64
N010-M1940	19	3/4	30	50	32	25.7	64

Swageless fitting method

May be hand fitted without the use of special tools. Simply slip the body of the terminal over the full diameter of the cable. Unlay the outer wires and fit the cone over the centre core. Re-lay the outer wires. Ease the ends of the wires into the head of the fitting. Draw the body up to the head and screw together.

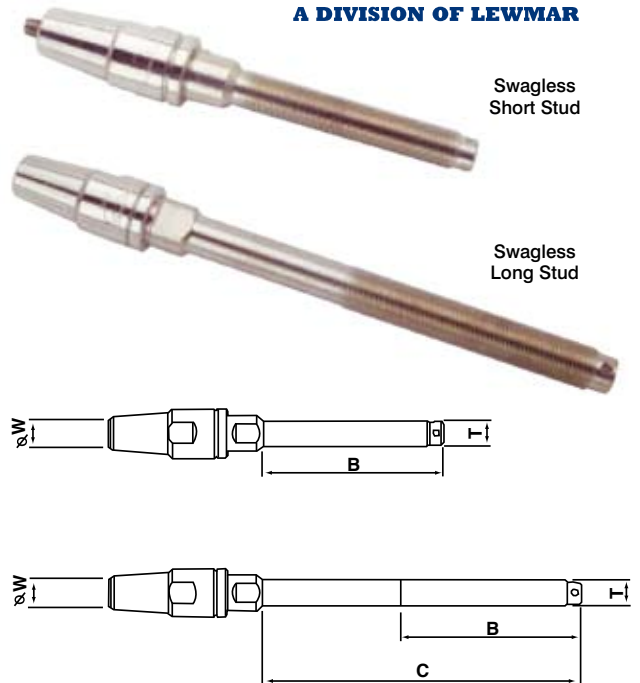
Note * One of the unfortunate characteristics of stainless steel threaded components is a slight risk of thread galling or seizing. On certain sizes of Norseman terminals the male thread has been coated with a special anti-friction compound, to eliminate the risk of thread galling or seizing. Care has been taken only to apply this coat to approximately half the threaded length, in order that there is sufficient uncoated steel for the recommended thread locking compound to take hold.



N030 Swageless Stud & Long Stud

Norseman Terminals provide a completely secure end fitting on good conventionally constructed strand, Dyform strand and rope for any one using ordinary tools and following the fitting instructions. They have an international reputation for quality, efficiency, versatility and safety.

Part Number	WIRE Ø		THREAD	B		C (Long Stud)	
	(mm)	(ins)	Ø (UNF)	(mm)	(ins)	(mm)	(ins)
N030-M02508	2.5	3/32	1/4	57	2.24	-	-
N030-M0308	3	1/8	1/4	57	2.24	-	-
N030-M0410	4	5/32	5/16	48	1.89	-	-
N030-0610	-	3/16	5/16	48	1.89	100	3.94
N030-0612	-	3/16	3/8	65	2.56	115	4.53
N030-M0510	5	-	5/16	48	1.89	100	3.94
N030-M0512	5	-	3/8	65	2.56	115	4.53
N030-0712	-	7/32	3/8	65	2.56	120	4.72
N030-0714	-	7/32	7/16	75	2.95	135	5.31
N030-0716	-	7/32	1/2	83	3.27	145	5.71
N030-M0612	6	-	3/8	65	2.56	120	4.72
N030-M0614	6	-	7/16	75	2.95	135	5.31
N030-M0616	6	-	1/2	83	3.27	145	5.71
N030-0812	-	1/4	3/8	65	2.56	130	5.12
N030-0814	-	1/4	7/16	75	2.95	135	5.31
N030-0816	-	1/4	1/2	83	3.27	145	5.71
N030-M0716	7	9/32	1/2	83	3.27	145	5.71
N030-M0816	8	5/16	1/2	83	3.27	155	6.10
N030-M0820	8	5/16	5/8	98	3.86	170	6.69
N030-1220	-	3/8	5/8	98	3.86	180	7.09
N030-M1020	10	-	5/8	98	3.86	180	7.09
N030-M1124	11	7/16	3/4	115	4.53	285	11.22
N030-M1128	11	7/16	7/8	138	5.43	308	12.13
N030-M1224	12	-	3/4	115	4.53	-	-
N030-M1228	12	-	7/8	138	5.43	-	-
N030-1624	-	1/2	3/4	115	4.53	-	-
N030-1628	-	1/2	7/8	138	5.43	-	-
N030-M1428	14	9/16	7/8	138	5.43	-	-
N030-M1632	16	5/8	1	155	6.10	-	-



Features

- Accuracy is achieved first time when rigging, giving economy of labour and materials.
- Inspection can be undertaken at any time simply by undoing the assembly.
- In emergency, Norseman Terminals can be fitted at sea in minutes as they do not require power presses, correct temperature conditions or curing time
- Terminals can be reused but MUST have a new cone.

Swageless Terminals and Forks

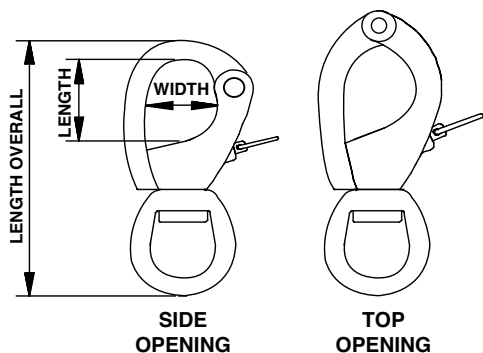
Go to www.navtec.net for part numbers specifications

Made from High Quality 316 Stainless Steel for 1 x 19, 17 Strand or Dyform wire.



Snap Shackles, Super Snap Shackles & Fid

High strength snapshackles investment cast in 17/4PH stainless steel, specially heat treated and electropolished to give the best possible combination of strength and corrosion resistance.



NSS Snap Shackle

Part Number	Size	Throat Width		Throat Length		Length Overall		Weight		Breaking Load	
		mm	in	mm	in	mm	in	kg	lb	kg	lb
Side Opening											
NSS-2571	1	17	0.687	22	0.875	68	2.687	0.060	0.125	2270	5000
NSS-2572	2	22	0.875	28	1.125	89	3.500	0.132	0.297	4126	9100
NSS-2573	3	26	1.000	34	1.375	109	4.250	0.255	0.563	6122	13500
Top Opening											
NSS-2511	1	18	0.687	24	0.937	70	2.750	0.070	0.156	2270	5000
NSS-2512	2	22	0.875	29	1.125	98	3.875	0.142	0.313	4126	9100
NSS-2513	2	26	1.000	34	1.375	118	4.625	0.270	0.594	6122	13500
Top Opening with Large Swivel Eye											
NSS-2521	2	22	0.875	29	1.123	107	4.250	0.150	0.328	4126	9100
NSS-2522	3	26	1.000	34	1.375	129	5.062	0.280	0.625	6122	13500



NSS Supersnap Shackle

Part Number	Bail Width		Bail Length		Weight		Recommended Working Load	
	mm	in	mm	in	gm	oz	kg	lb
NSS-719	12.7	0.50	17.0	0.67	53	1.9	1350	3000
NSS-720	20.3	0.80	16.0	0.63	155	5.5	2050	4550
NSS-723*	25.4	1.00	24.9	0.98	164	5.8	2050	4550
NSS-721	24.4	0.96	19.0	0.75	290	10.2	3600	8000
NSS-724**	30.0	1.18	30.0	1.18	300	10.6	3050	6750
NSS-726	23.8	0.94	27.6	1.085	386	13.6	5650	12500

Note: Typical breaking load is twice the recommended working load. * NSS-723 is the large bail version of NSS-720.

** NSS-724 is the large bail version of NSS-721.

Side Opening

The regular pattern for halyards, or where smaller sail grommets may prevent free movement of the snap shackle.



Top Opening

Is preferred for spinnaker sheet or guys as the plunger pin does not load up as much because the load is on the hinge rather than the opening bar, and so is easier to open under load. These are available with either a standard or large eye.



Racing Fid 730

For opening Supersnaps easily and safely under load this strong yet lightweight fid is the professionals choice. The fid is shaped to open a SUPERSNAP shackle either through the eye or via the side wall trigger, for a safe cast off under the heaviest loads.

Integral Backstay

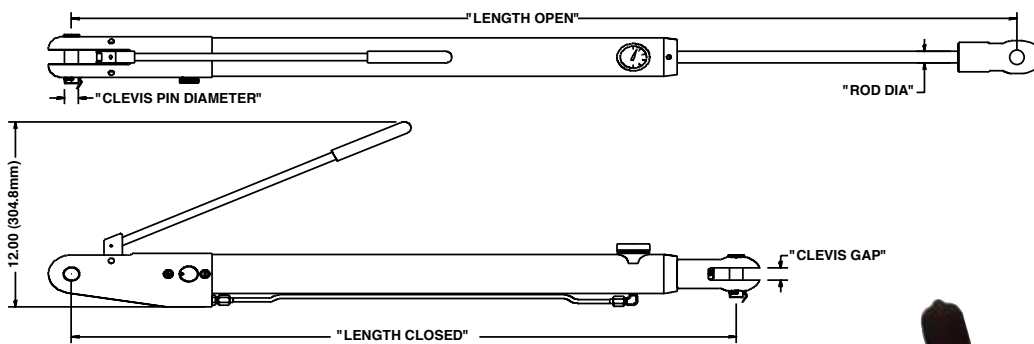


A DIVISION OF LEWMAR

More than a decade ago, we pioneered the Integral concept: a backstay adjuster that enables better sailing performance through superior engineering, mechanics, and ergonomics. Since then, we've continued to refine this product. Our integral backstay adjuster represents all of our experience and efforts to craft a perfect backstay solution for sailors.

The most recent version of the Navtec Backstay Adjuster is Series 9 which has been sculpted to be 10% lighter than the previous model. It has been designed to help you point higher, relieve unnecessary hull stresses while on the mooring, and ease the use of your roller furling system.

Our integral combines a high-pressure hydraulic cylinder and pump in one convenient package for ease of installation. Once installed, should service be required, Navtec has the largest worldwide network of marine hydraulic service centers.



Part Number	Max Pull Force @ Relief *		Stroke		Length Closed		Weight	
	kg	lbs	mm	in	mm	in	kg	lbs
A370-BLE-006	1,590	3,500	343	13.5	792	31.2	3.31	7.3
A370-BLE-010	2,450	5,400	343	13.5	803	31.6	3.36	7.4
A370-BLE-012	2,950	6,500	362	14.3	850	33.5	5.49	12.1
A370-BLE-017	3,950	8,700	362	14.3	850	33.5	5.49	12.1
A370-BLE-022	5,030	11,100	381	15.0	899	35.4	7.03	15.5

Part Number	Piston Rod Diameter		Clevis Pin & Gap	
	mm	in	mm	in
A370-BLE-006	14	9/16	11.1	7/16
A370-BLE-010	14	9/16	12.7	1/2
A370-BLE-012	16	5/8	15.9	5/8
A370-BLE-017	16	5/8	15.9	5/8
A370-BLE-022	19	3/4	19.1	3/4

Part Number	Backstay Toggle Length Pin-Pin	
	mm	in
A371-20A06	50.8	2.00
A371-20A10	50.8	2.00
A371-20A12A	59.2	2.33
A371-20A17A	59.2	2.33
A371-20A22	75.7	2.98

Integral Backstay Adjuster assembly includes handle, clevis pins and bushings (-6)

* Max relief setting is 4,000 psi, except for -6 and -12, which are 3,000 psi.

They are now offered in a black(BLE) or clear(CLE) finish

Part Number Index

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0056217 28	19831000 109	29145311 68	29330107 112	29471031 150	29901428 130	29906602 137
0056503 28	19861100 140	29160315 144	29384139 139	29471032 112, 150	29901429 130	29906604 137
0056504 28	19899000 65	29160320 144	29384169 139	29471036 150	29901430 130	29906606 137
0056505 28	19899100 65	29160415 145	29385139 139	29471037 150	29901441 130	29906621 137
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Limited Warranty and Key Terms of supply by Lewmar

Lewmar warrants that in normal usage and with proper maintenance its products will conform with their specification for a period of three years from the date of purchase by the end user, subject to the conditions, limitations and exceptions listed below. Any product, which proves to be defective in normal usage during that three-year period, will be repaired or, at Lewmar's option, replaced by Lewmar.

A CONDITIONS AND LIMITATIONS

- i Lewmar's liability shall be limited to the repair or replacement of any parts of the product which are defective in materials or workmanship.
- ii Responsibility for the selection of products appropriate for the use intended by the Buyer shall rest solely with the Buyer and Lewmar accepts no responsibility for any such selection.
- iii Lewmar shall not be liable in any way for Product failure, or any resulting loss or damage which arises from:
 - a. use of a product in an application for which it was not designed or intended;
 - b. corrosion, ultra violet degradation or wear and tear;
 - c. a failure to service or maintain the product in accordance with Lewmar's recommendations;
 - d. faulty or deficient installation of the product (unless conducted by Lewmar);
 - e. any modification or alteration of the product;
 - f. conditions that exceed the product's performance specifications or safe working loads.
- iv Product subject to a warranty claim must be returned to the Lewmar outlet which supplied the product for examination unless otherwise agreed by Lewmar in writing.
- v This warranty does not cover any incidental costs incurred for the investigation, removal, carriage, transport or installation of product.
- vi Service by anyone other than authorised Lewmar representatives shall void this warranty unless it accords with Lewmar guidelines and standards of workmanship.

vii Lewmar's products are intended for use only in the marine environment. Buyers intending to use them for any other purpose should seek independent professional advice as to their suitability. Lewmar accepts no liability arising from such other use.

B EXCEPTIONS

Cover under this Warranty is limited to a period of one year from the date of purchase by the end user in the case of any of the following products or parts of products:

- Electric motors and associated electrical equipment
- Electronic controls
- Hydraulic pumps, valves and actuators
- Weather seals
- Products used in "Grand Prix" racing applications

C LIABILITY

- i Lewmar's liability under this warranty shall be to the exclusion of all other warranties or liabilities (to the extent permitted by law). In particular (but without limitation):
 - a. Lewmar shall not be liable for:
 - Any loss of anticipated turnover or profit or indirect, consequential or economic loss ;
 - Damages, costs or expenses payable to any third party;
 - Any damage to yachts or equipment;
 - Death or personal Injury (unless caused by Lewmar's negligence).

Some states and countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- b. Lewmar grants no other warranties regarding the fitness for purpose, use, nature or satisfactory quality of the products.
- ii Where applicable law does not permit a statutory or implied warranty to be excluded, then such warranty, if permitted by that state or country's law, shall be limited to a period of one year from the date of purchase by the end

user. Some states and countries do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

D PROCEDURE

Notice of a claim for service under this warranty shall be made promptly and in writing by the end user to the Lewmar outlet which supplied the product or to Lewmar Limited at Southmoor Lane, Havant, Hampshire PO9 1JJ, England.

E SEVERANCE CLAUSE

If any clause of this warranty is held by any court or other competent authority to be invalid or unenforceable in whole or in part, the validity of the remaining clauses of this warranty and the remainder of the clause in question shall not be affected.

F OTHER RIGHTS

This warranty gives you specific legal rights, and you may also have other legal rights, which vary, from state to state and country to country.

In the case of European States a Consumer customer (as defined nationally) has legal rights under the applicable national law governing the sale of Consumer Goods; this Warranty does not affect those rights.

G LAW

This warranty shall be governed by and read in accordance with the laws of England or the state or country in which the first end user is domiciled at the time of purchase of the product.

H DISPUTES

Any dispute arising under this warranty may, at the option of the end-user, be referred to alternative dispute resolution under the rules of the British Marine Federation or to the Courts of the State whose law shall govern the warranty or to the Courts of England and Wales.

The British Marine Federation may be contacted at Marine House, Thorpe Lea Road, Egham, England, TW20 8BF

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