MUIR

SINCE 1968

Winch Selection

WINCHES

WINDLASSES

CAPSTANS

ANCHORS

ANCHOR ROLLERS

ANCHOR CHAIN

SWITCH CONTROLS

ANCHORING ACCESSORIES

HYDRAULIC SYSTEMS

COMPLETE ANCHORING SYSTEMS

BUILDING WINCHES FOR OVER 40 YEARS...HERE FOR THE LONG HAUL

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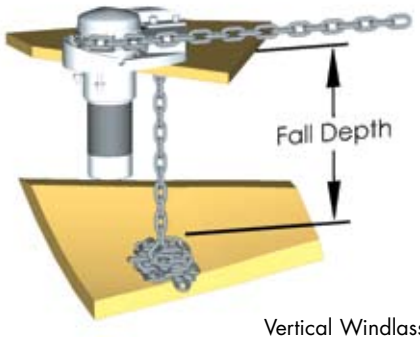
Selecting a Windlass

Selecting the appropriate windlass and ground tackle for your vessel and application ensures efficient deployment and retrieval of your anchor irrespective of anchoring or weather conditions. An undersized windlass may well compromise the safety of your vessel and crew. Choosing the right one should prevent costly repairs and damage.

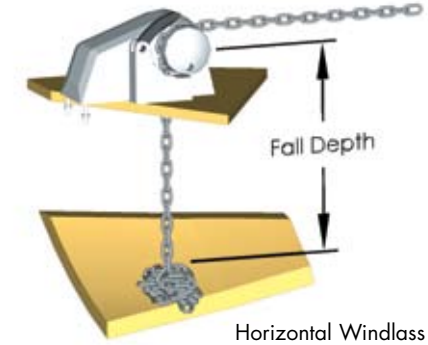
When selecting a windlass there are a number of factors that need to be considered: vessel type, length and displacement, anchor and chain size, windage and the anchoring environment. The selection chart on page 5 will assist in determining the ideal windlass options for your vessel. Once the suitable windlasses are identified refer to those particular product specification pages in the catalogue for details or visit the Muir website at www.muir.com.au. The staff at Muir can also assist in Windlass Selection on + 61 (3) 6211 8811 or email sales@muir.com.au.

A windlass is often exposed to harsh elements therefore it is important to consider the materials and components it is manufactured from. Muir windlasses incorporate high quality components including chromed bronze and high quality marine grade 316 Stainless Steel running gear, stainless steel drive shafts and marine coated alloy housings, to ensure strength, durability and long term usage.

A powered windlass with some form of manual operation or override is always a wise choice and ensures peace of mind that the anchor can be retrieved if power failed or in an emergency. The type and style of windlass you select will depend on the depth of the chain locker, the fore deck layout, power options and personal preference.



Vertical Windlass



Horizontal Windlass

MANUAL OR POWER OPERATION?

There are three main ways a windlass can be powered.

1. Manual windlasses: you do the work of a motor, while internal gearing or a ratchet drive makes it easier. These windlasses are above deck units and very simple to install.

2. Electric power windlasses: windlass motors do all the lifting controlled by remote or deck switches and require little user interaction. One of the easiest methods for weighing anchor, however, requires electrical power sources in 12/24V or 3 Phase AC.

3. Hydraulic power windlasses: another easy method for weighing anchor requires hydraulic pump/powerpack.

DEPTH OF THE CHAIN LOCKER?

Measuring the vertical distance underside of the deck and the top of the completely stored and heaped anchor rode in the locker will assist in determining the installation to suit your vessel. Refer to the fall depth diagrams to the left, and the options detailed below.

HORIZONTAL OR VERTICAL CONFIGURATION?

Windlasses are one of two types - vertical or horizontal. This is based on the orientation of the drive shaft - vertical or horizontal in direction.

Vertical Windlass: The running gear, gypsy and capstan are positioned above the deck with the motor and gear drive below. Vertical windlasses operate at optimum with greater anchor rode fall than the horizontal windlass and a minimum fall of 30cm from top of stacked anchor rode is recommended. This is particularly important if using nylon line which does not fold and stack as well as chain does. Vertical windlasses minimise deck intrusion and the modern curved lines enhance the look of any vessel. A vertical windlass provides a 180-degree wrap of the anchor rode around the gypsy for maximum feed into the locker and prevention of chain slippage and jumping.

Horizontal Windlass: Fully enclosed, above deck windlasses, this style is usually preferred where locker space is limited or additional fall is required. The motor and gear drive is fully enclosed in the housing with nothing protruding below deck. The horizontal windlass operates with optimum anchor rode fall of at least 30cm from the top of the stacked anchor rode,and due to the horizontal orientation of the gypsy higher above the deck there is additional fall provided. These units are ideally suited for vessels with shallow locker space. Often selected for commercial and charter vessel applications.

Manual Operating System (MOS)

Manual Override System (MORS)

MANUAL OPERATION

Consideration should be given to selecting an automatic windlass with the option of Manual Operation. Manual operation is available on various Atlantic and Compact Models, refer to the model pages for further details.

Manual Override System (MORS): allows for manual retrieval of the anchor rode with the application of a standard sheet winch handle to the clutch cap on vertical models, and an extension handle for Compact models.

Manual Operating System (MOS): allows for manual operation featuring a special handle that fits to the top of the gypsy after the capstan or clutch top has been removed.

DETERMINING THE CAPACITY OF THE WINDLASS TO SUIT MY REQUIREMENTS

Once you have identified the windlasses that will suit your vessel based on the length and displacement from the table on page 5, you need to determine the lift capacity required for your application and then refer to the detailed information on the appropriate model.

The steps to achieve this are:

1) Determine the weight of anchor tackle [anchor + anchor rode (anchor + chain) = anchor tackle]

2) Multiply the weight of the anchor tackle by a factor of three to determine the required pulling power of the windlass.

For example: Weight of anchor tackle = 125lb/56kg
The required pulling power = 125lb/56kg x 3 = 375lb/168kg

The required pulling power of the windlass should not exceed 1/3 of the maximum load of the windlass. Therefore we would select a 1200lb/545kg windlass as it is 3 times the required pulling power of 375lb. In this instance an Atlantic 1200/1250 or Compact 1200 would be best suited assuming the vessel had an average displacement.

WORK LOAD (continuous working of the winch)

If a winch works for long periods of time (in contrast to short intervals) then it would typically run at 25% of the maximum workload of the winch.

However, for shorter intervals (typical when weighing anchor) the rating is between 30%-40% of the maximum load of the windlass, and usually involves multiple stages of operation as the vessel is pulled up above the anchor and rode, breaks free from the seabed and is stowed.

At each stage the workload varies. During the breakout of the anchor from the seabed it will be at its maximum load peak. The windlass should not be used to haul the vessel to the anchor, but the vessel should be powered toward the anchor to minimise the load on the windlass.

CIRCUIT BREAKER

To protect the motor and wiring of the electric windlass and to qualify for warranty, a circuit breaker must be installed. An appropriate circuit breaker for the AMPs load should be used, to ensure that when the windlass is at its peak the circuit breaker does not trip. Your Muir office or local representative will supply the recommended circuit breaker to suit the windlass requirements for maximum safety.

SECURITY

To minimise unnecessary load on the windlass and drive gear whilst at anchor, the anchor rode should be secured with a chain stopper or snubber line. For a complete selection of safety accessories refer to the system accessories at the back of the catalogue.

3 YEAR LIMITED WARRANTY

3 YEAR WARRANTY (First Owner)
We warrant each new product manufactured by us to be free from defects in material and workmanship for a period of 3 years from date of purchase (subject to conditions and exclusions.)

CONDITIONS:
While this warranty applies to defects in material and workmanship, it does not apply to:

- Normal worn parts or to damage caused by neglect, lack of maintenance, accident, or improper service/installation or service by persons other than an authorised Muir representative.
- Muir shall not be responsible for failures due to products being used in applications that they are not intended for, or conditions that exceed the products performance specifications.
- For warranty claim, defective product must be returned to Muir for inspection.
- Muir will not be responsible for freight charges, removal or installation labour on warranty claims.

EXCLUSIONS:
Warranty is limited to twelve months for:

- Electric motors/controls/equipment,
- Hydraulic pumps/controls/valves,
- Weather seals,
- Use on Hire vessels.

All incidental and/or consequential damages are excluded from this warranty. Warranties of merchantability and fitness are excluded from this warranty. Implied warranties are limited to the life of this warranty. Some countries do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above may not apply to you. This warranty covers all products shown in this catalogue and purchased after January 1st 2002.

GLOSSARY OF TERMS

AMPS Workload – determined as up to the maximum amps. **Anchor Rode** – the line that secures the anchor to the vessel, consisting of either rope, chain or a combination of rope and chain. **Automatic Free Fall** – Windlass releases automatic clutch by a means of a remote switch for rapid deployment. No user interaction. **Bridle** – chain stopper/compressor, devils claw. Located between the winch and bow roller. Secures chain and takes load off the winch/windlass. **Capstan** – drum, rope drum. The capstan is used for hauling rope. **Displacement** – The amount of water displaced by a floating vessel, usually measured in tonnes. **Fixed drive** – Direct couple from transmission to gypsy/capstan. **Free Fall** – Release of clutch manually releases the chain to freefall. **Gypsy** – **Chain gypsy, wildcat, chain wheel** – A special wheel with pockets to suit chain and or rope for hauling up the anchor and anchor rode. **Hauling** – weighing, lifting. The operation of lifting anchor, rope or chain. **Hawser** – chain pipe that anchor rode feeds through into locker. **Horizontal windlass/winch** – Drive shaft, capstan and gypsy are located horizontally to the deck. **Inline drive** – powerful and efficient integrated gearbox and motor. **Manual Operation System (MOS)** – Handle fits directly into gypsy by removing the capstan or clutch top. **Manual Override System (MOR)**– Handle fits into windlass top and over-rides the transmission and ratchet drive system. Power back up can be used. **Maximum Load** – The maximum operating load that could be applied to the windlass, but the load the winch would normally be subjected to is substantially less. **Max Line Speed** – Maximum speed the anchor rode could be retrieved at. **Ratchet drive** – Indirect couple from transmission to gypsy/capstan via a ratchet cone. This allows for normal powered operation and manual operation where some power is available. **RCMS** – Rope Chain Management System ref. p. 33. **Vertical windlass/winch** – Drive shaft, capstan and gypsy are located vertically to the deck. **Workload** – Typical lift. Usually up to 25% of the Maximum load.

ABBREVIATIONS

DC	Direct Current
AC	Alternating Current
HYD	Hydraulic
gal	Gallons (US)
lt	Litres
MPa	Megapascal
PSI	Pounds per square inch
lb	Pound
kg	Kilogram
Min	Minute
m	Metre
mm	Millimetre
"	Inch
' / ft	Feet

Windlass Selection Guide

VESSEL LENGTH

Metres	6	8	10	12	14	16	18	20	25	30	35
Feet (ft)	20	26	33	39	46	52	59	66	82	100	115

MODELS

Atlantic & Storm Vertical Powered		
VR/VRC 600	Page 9	
VR/VRC 850	Page 10	
VR/VRC 1250	Page 11	
VR/VRC 2200	Page 12	
VR/VRC 2500	Page 13	
VR/VRC 3500	Page 14	
VR/VRC 4000	Page 15	
VR/VRC 1000	Page 16	
VR/VRC 1200	Page 16	
Atlantic Automatic Freefalls		
VFF600	Page 8	
VFF1050	Page 8	
VFF2200	Page 8	
Drum Winches		
DW08/DFF08	Page 17	
DW10/DFF10	Page 17	
Compact Automatic Freefalls		
H600S	Page 19	
HFF600S	Page 19	
Compact Horizontal Powered		
HR700	Page 20	
HR1600 Cougar	Page 21	
HR2500 Cheetah	Page 21	
HR3500 Jaguar	Page 22	
HR4000 Thor	Page 22	
HR4200 Thor	Page 22	
Vertical Powered Capstans		
VC 500	Page 23	
VC 650	Page 23	
VC 850	Page 23	
VC 2500	Page 23	
VC 3500	Page 23	
VC 4000	Page 23	
Inline Vertical Powered Capstans		
VC800	Page 25	
VC2000	Page 25	
Manual Vertical		
VM/VMC 500	Page 26	
VM/VMC 500 Hawser	Page 26	

For the full range of Muir accessories, refer page 27.

LEGEND

Heavy Displacement

Refers to a vessel relatively heavy in weight compared to its overall length

Light Displacement

Refers to a vessel relatively light in weight compared to its overall length

REFERENCE

- VR – Vertical Reversing with a Gypsy
- VRC – Vertical Reversing with a Gypsy and Capstan
- VFF – Vertical Freefall
- HFF – Horizontal Freefall
- VC – Vertical Capstan
- HR – Horizontal Reversing
- VM – Vertical Manual with Gypsy
- VMC – Vertical Manual with Gypsy and Capstan
- HM – Horizontal Manual
- H – Hawse Pipe

The specification in this section applies to vessels operating in safe weather conditions.

This information is to be used as a guide only and it is recommended that you contact your local Muir representative for further information on the appropriate system to meet your requirements.

Muir recommend where vessels are being used for charter or commercial purposes or for extended offshore cruising in rugged conditions or where average displacement puts them at the upper limit of the windlass size a larger model should be selected.

Displacement, windage and anchoring conditions are factors to consider when selecting a Muir system and it is advisable to select a larger windlass and ground tackle if anchoring in exposed conditions.

All systems assume the use of a chain stopper or chain snubber line to prevent load being placed on the windlass when breaking loose the anchor.