

# 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 6 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](http://www.muir.com.au). The staff at Muir can also assist in windlass selection, please find contact details at the back.

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.

## 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

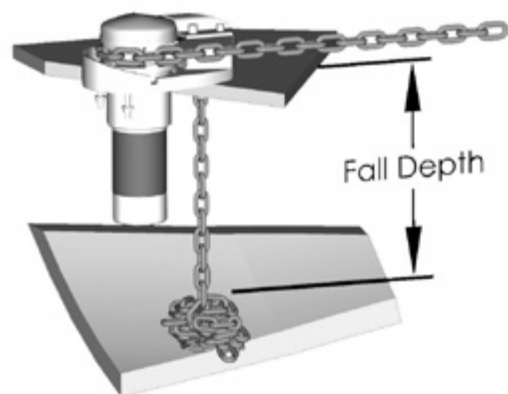
locker will assist in determining the installation to suit your vessel. Refer to the fall depth diagrams to the left, and the options detailed below.

## 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 sleek 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.

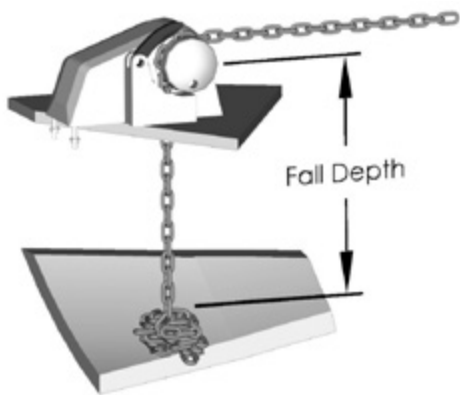
### Vertical Windlass



**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.



## Horizontal Windlass



### 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 6, you need to determine the lift capacity required for your application and then refer to the detailed information on the appropriate model.

$$\begin{array}{l}
 \text{Total weight of} \\
 \text{ground tackle (kg)} \\
 \text{(anchor + rope} \\
 \text{/ chain)} \\
 \text{[ ]} \times 4
 \end{array}
 =
 \begin{array}{l}
 \text{Maximum} \\
 \text{pulling} \\
 \text{power load (kg)} \\
 \text{required by} \\
 \text{the windlass}
 \end{array}$$

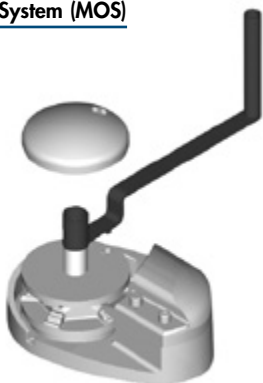
### Manual Operation

Consideration should be given to selecting an automatic windlass with the option of Manual Operation. Manual operation is available on various Storm 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 gypsy attachment that fits to the top of the gypsy after the capstan or clutch top has been removed.

Manual Operating System (MOS)



Manual Override System (MORS)



### 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 positioned 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.

# Windlass Selection Guide









## VESSEL LENGTH

Metres	4	6	8	10	12	14	16	18	20	25	30
Feet (ft)	13	20	26	33	39	46	52	59	66	82	100

## MODELS

Storm Vertical Powered		4	6	8	10	12	14	16	18	20	25	30
VR/VRC 600	Page 9		Dark Blue	Dark Blue	Dark Blue	Light Blue						
VR/VRC 850	Page 10			Dark Blue	Dark Blue	Light Blue						
VR/VRC 1250	Page 11				Dark Blue	Dark Blue	Light Blue					
VR/VRC 2200	Page 12					Dark Blue	Dark Blue	Light Blue				
VR/VRC 2500	Page 13						Dark Blue	Dark Blue	Light Blue			
VR/VRC 3500	Page 14							Dark Blue	Dark Blue	Light Blue		
VR/VRC 4000	Page 15								Dark Blue	Dark Blue	Light Blue	
Storm Automatic Freefalls		4	6	8	10	12	14	16	18	20	25	30
VFF 600	Page 16		Dark Blue	Dark Blue	Light Blue							
Manual Vertical		4	6	8	10	12	14	16	18	20	25	30
VM/VMC 500	Page 17			Dark Blue	Dark Blue	Light Blue						
Compact Automatic Freefalls		4	6	8	10	12	14	16	18	20	25	30
HFF 600S	Page 21		Light Blue	Light Blue	Light Blue							
Compact Horizontal Powered		4	6	8	10	12	14	16	18	20	25	30
Easyweigh H900/V900	Page 20		Light Blue	Light Blue	Light Blue							
H600S	Page 21		Light Blue	Light Blue	Light Blue	Light Blue						
HR 1600 Cougar	Page 23			Light Blue	Light Blue	Light Blue						
HR 2500 Cheetah	Page 23				Light Blue	Light Blue	Light Blue					
HR 3500 Jaguar	Page 24					Light Blue	Light Blue	Light Blue				
HR 4000 Thor	Page 24						Light Blue	Light Blue	Light Blue			
HR 4200 Thor	Page 24							Light Blue	Light Blue	Light Blue		
Vertical Powered Capstans		4	6	8	10	12	14	16	18	20	25	30
VC 500	Page 25		Light Blue	Light Blue	Light Blue							
VC 650	Page 25			Light Blue	Light Blue	Light Blue						
VC 850	Page 25				Light Blue	Light Blue	Light Blue					
VC 2500	Page 25					Light Blue	Light Blue	Light Blue	Light Blue			
VC 3500	Page 25						Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	
Inline Vertical Powered Capstans		4	6	8	10	12	14	16	18	20	25	30
VC 800	Page 26			Light Blue	Light Blue	Light Blue						
Drum Winches		4	6	8	10	12	14	16	18	20	25	30
DFF 08	Page 28		Dark Grey	Dark Grey	Dark Grey							
DFF 10	Page 28			Dark Grey	Dark Grey	Dark Grey						
DW 06	Page 29		Dark Grey	Dark Grey	Dark Grey	Dark Grey						
DW 08	Page 29			Dark Grey	Dark Grey	Dark Grey	Dark Grey					
DW 10	Page 29				Dark Grey	Dark Grey	Dark Grey	Dark Grey				
DW 12	Page 29					Dark Grey	Dark Grey	Dark Grey	Dark Grey			
DW 15	Page 29						Dark Grey	Dark Grey	Dark Grey	Dark Grey		

## LEGEND

				<b>Heavy Displacement</b> Refers to a vessel relatively heavy in weight compared to its overall length
				<b>Light Displacement</b> 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
- 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.