DANA BREVINI® Motion Systems

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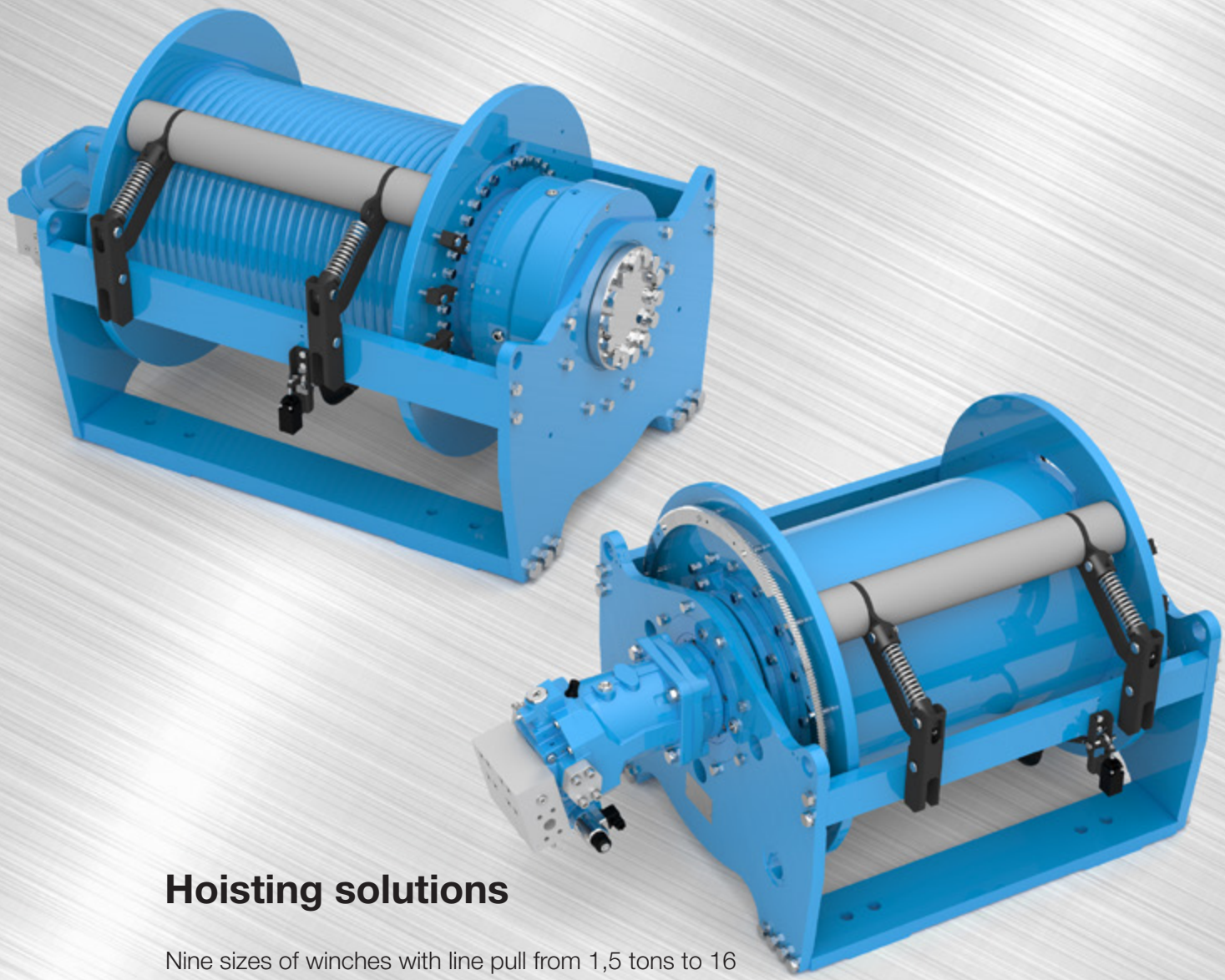
Product Catalog

# Brevini® Evolution™ Series
# **Hoisting Winches**

The new Winch Series for Mobile and Industrial Markets



## Hoisting solutions

Nine sizes of winches with line pull from 1,5 tons to 16 tons at first layer, designed for cranes used in Mobile and Industrial market. The winches are equipped with High Speed Brevini® Hydraulic Motor and a wide range of controls ensure safety, avoid damage to the winch, the crane, and most importantly, people on job site.

# Brevini® Evolution™ Series
# **Hoisting Winches**

The new Winch Series for Mobile and Industrial Markets

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Motion Systems

## Brevini® Evolution™ Series Hoisting Winches

The brand new series of high-performance Brevini® Evolution™ Series winches for construction and material-handling vehicles, marine, off-shore and many other mobile or stationary applications are the result of years of experience in Engineering and Manufacturing of winches.

With 9 sizes available, BWE015, BWE025, BWE035, BWE055, BWE070, BWE085, BWE105, BWE125 and BWE160 winches offer a lifting capacity from 1,5 ton to 16 ton (3,300 lbf to 35,200 lbf) we will enhance the product range and give us the opportunity to better serve our customers.

Brevini® Evolution™ Series Winches feature the Brevini® high-speed piston motor, fixed or variable displacement.
Introducing the nine piston motor technology as a standard option we are able to provide ideal balance and smooth control even at very low speed keeping high performance level. Electric motor are also available on request.

The new winch series has a strong modular design that makes the winch able to meet customer specification in terms of performances as well as customer needs in term of accessories.

For all sizes are available grooved drum made by the special groove profile which improve the spooling performances, rope capacity as well as rope lifetime.

A wide range of accessories are available to improve safety and control of all winch function.

For all sizes are available pressure roller, hydraulic or electric limit switch as last safety wraps indicator, electric or hydraulic rotary limit switch as minimum and maximum rope capacity indicator, speed sensor, torque/overload sensor to have better control on spooling and other winch operation.

For all sizes is available the “Personnel Lifting” version due to a secondary brake directly connected to the drum which assure safety and control in all working condition.

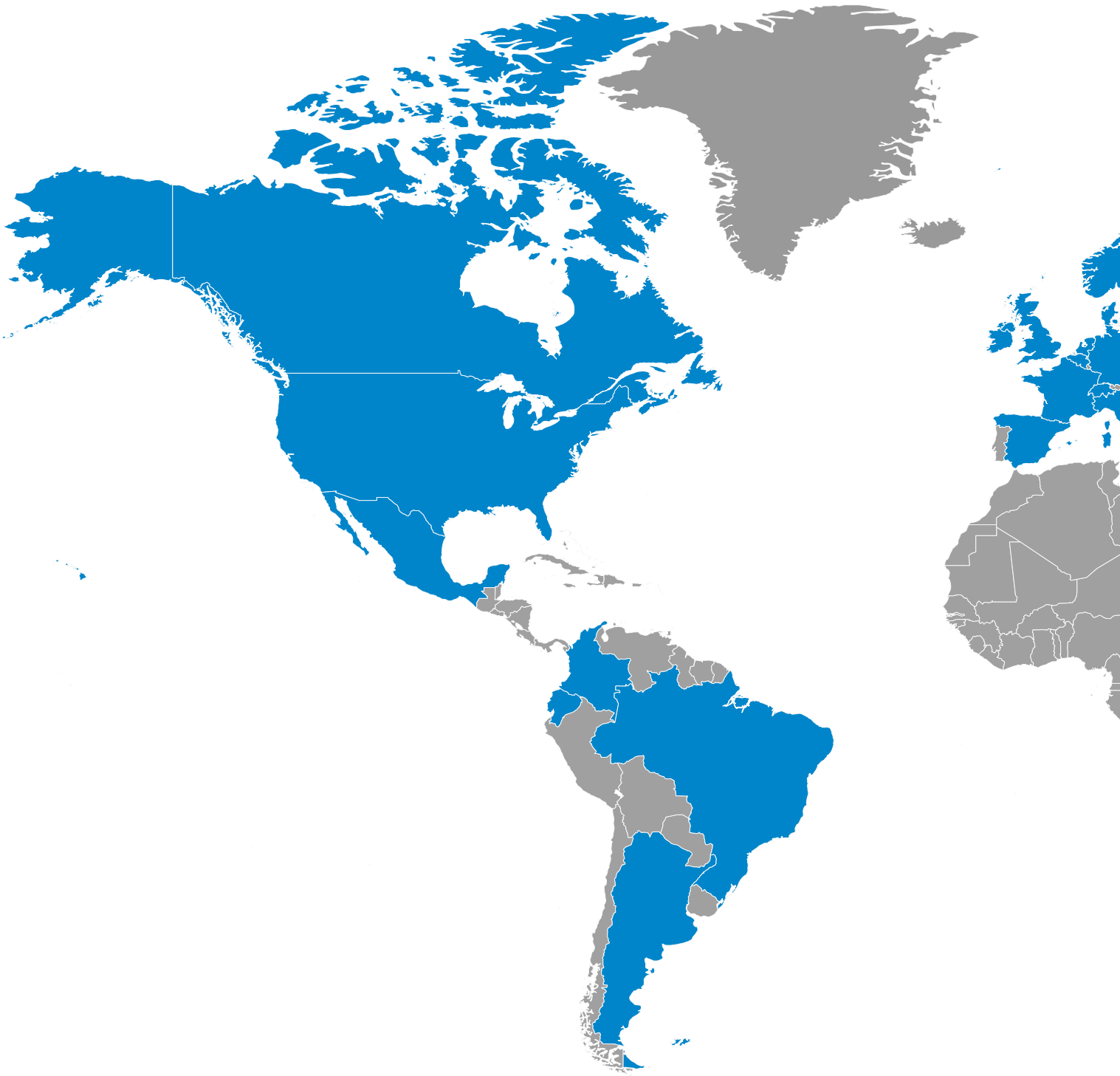
Other accessories like rope, hook and shackle are available to meet customer requirements.

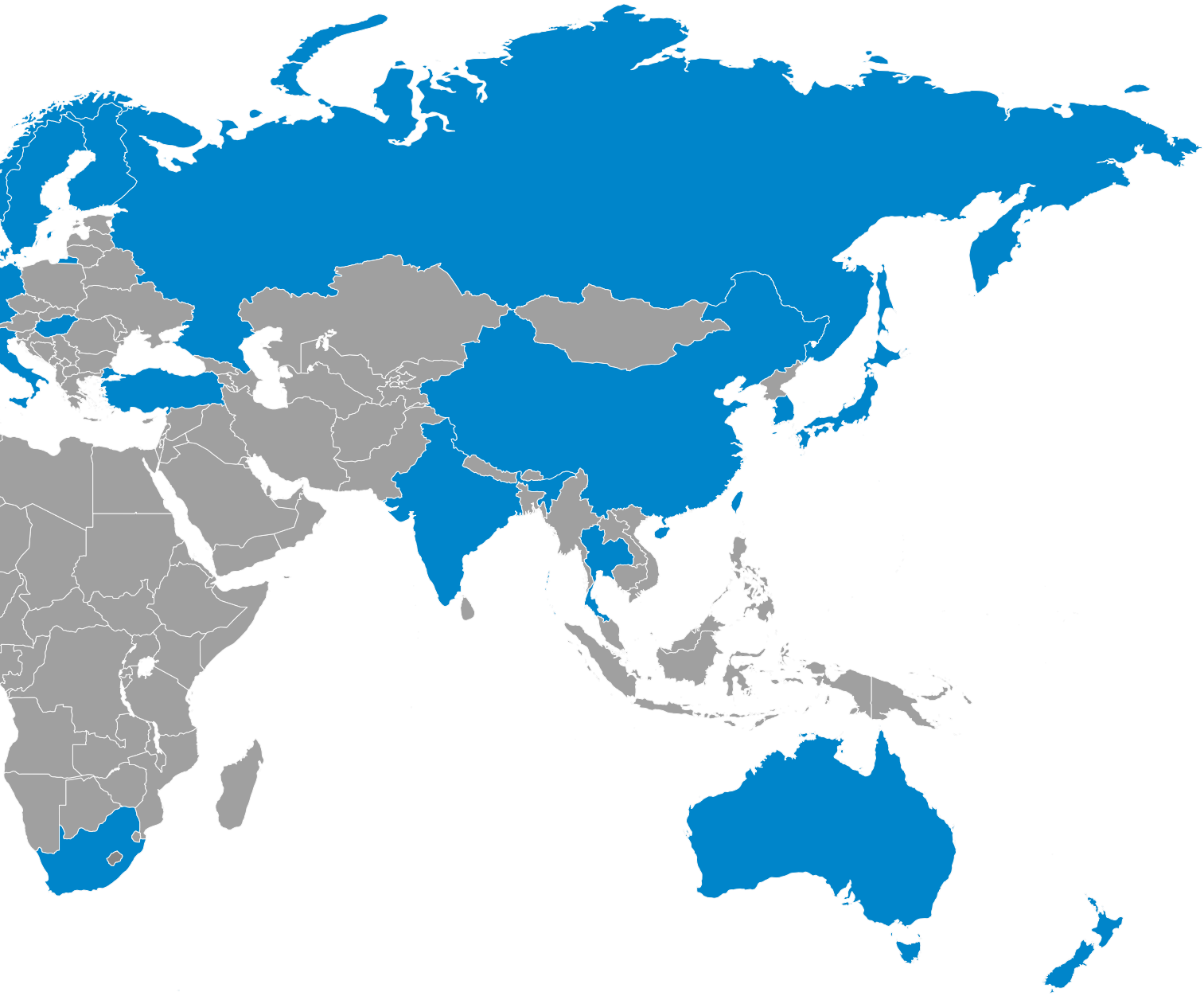
The new winch series are suitable for marine environment due to many technical features which makes the winch the perfect solution for this application, drum and frame in steel, pressure roller made in stainless steel, marine painting.

The winches are designed to meet safety certification standards for major international organizations governing these applications. Brevini® winches are suitable for ambient working Temperature between -20°C to +40°C. In case of ambient working temperature lower than -20°C has to be approved by Engineering.
Different working condition on request.

More than 40 years of winches experience makes this new winch series an innovative and high-performance products ideal for the new generation of machine.

# DANA OFF-HIGHWAY





# MAIN MOBILE APPLICATIONS

## Rough-Terrain Crane

## Crawler Telescopic boom Crane

## Piling Rig

## All Terrain Crane

### Stacker and Reclaimer

### Off-Shore Cranes

### Drill Rig

### Marine Cranes

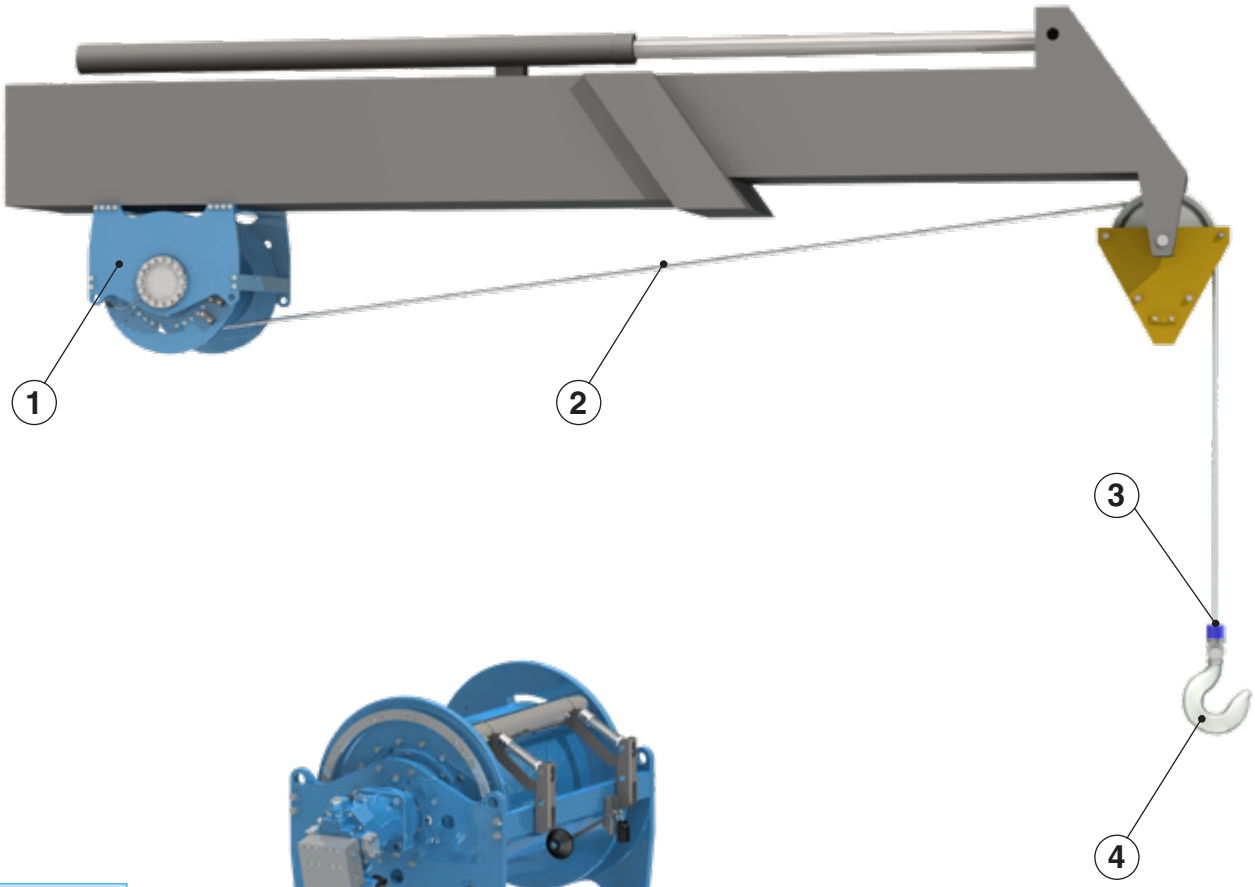
### Harbor Crane

## Table N° 1

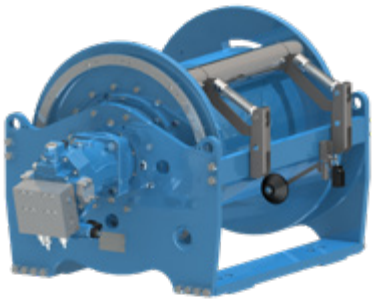
| Crane type classification guide | | According to FEM section I, 3rd edition, Table T.2.1.3.5 | |
|---|---|---|---|
| Type of crane | Type of duty | Type of mechanism | |
| | | Hoisting | Lifting |
| Erection cranes | | M2 - M3 | M1 - M2 |
| Loading bridge cranes | Hook duty | M5 - M6 | - |
| | Grab or magnet duty | M7 - M8 | - |
| Workshop cranes | | M6 | - |
| Overhead traveling cranes, pig-breaking cranes, scrapyard cranes | Grab or magnet duty | M8 | - |
| Bridge cranes for unloading, bridge cranes for containers Other bridge cranes (with crab, and/or slewing jib) | a) Hook or spreader duty<br>b) Hook duty | M6 - M7<br>M4 - M5 | M3 - M4<br>- |
| Bridge cranes for unloading, bridge cranes (with crab, and/ or slewing jib) | Grab or magnet duty | M8 | M3 - M4 |
| Dry dock cranes, shipyard jib cranes, jib cranes for dismantling | Hook duty | M5 - M6 | M4 - M5 |
| Dockside cranes (slewing, on gantry etc.), floating cranes and pontoon derricks | Hook duty | M6 - M7 | M5 - M6 |
| | Grab or magnet duty | M7 - M8 | M6 - M7 |
| Floating cranes and pontoon derricks for very heavy loads (usually greater than 100 t) | Hook duty | M3 - M4 | M3 - M4 |
| Deck cranes | Hook duty | M4 | M3 - M4 |
| | Grab or magnet duty | M5 - M6 | M3 - M4 |
| Tower cranes for building | | M4 | M4 |
| Derricks | | M2 - M3 | M1 - M2 |
| Railway cranes allowed to run in a train | | M3 - M4 | M2 - M3 |
| Mobile cranes | Hook duty | M3 - M4 | M2 - M3 |

## Table N° 2

| Class of utilization | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Classes of utilization (Table T.2.1.3.4.) | | T2 | T3 | T4 | T5 | T6 | T7 | T8 |
| | | 400 < T2 800 | 800 < T3 1600 | 1600 < T4 3200 | 3200 < T5 6300 | 6300 < T6 12500 | 12500 < T7 25000 | 25000 < T8 50000 |
| L1 | 0 > Km 0.125 | | M2 | M3 | M4 | M5 | M6 | M7 |
| L2 | 0.125 > Km 0.250 | M2 | M3 | M4 | M5 | M6 | M7 | M8 |
| L3 | 0.250 > Km 0.500 | M3 | M4 | M5 | M6 | M7 | M8 | - |
| L4 | 0.500 > Km 1000 | M4 | M5 | M6 | M7 | M8 | - | - |




## 1 Winch



## 2 Rope

## 3 Shackle

## 4 Hook

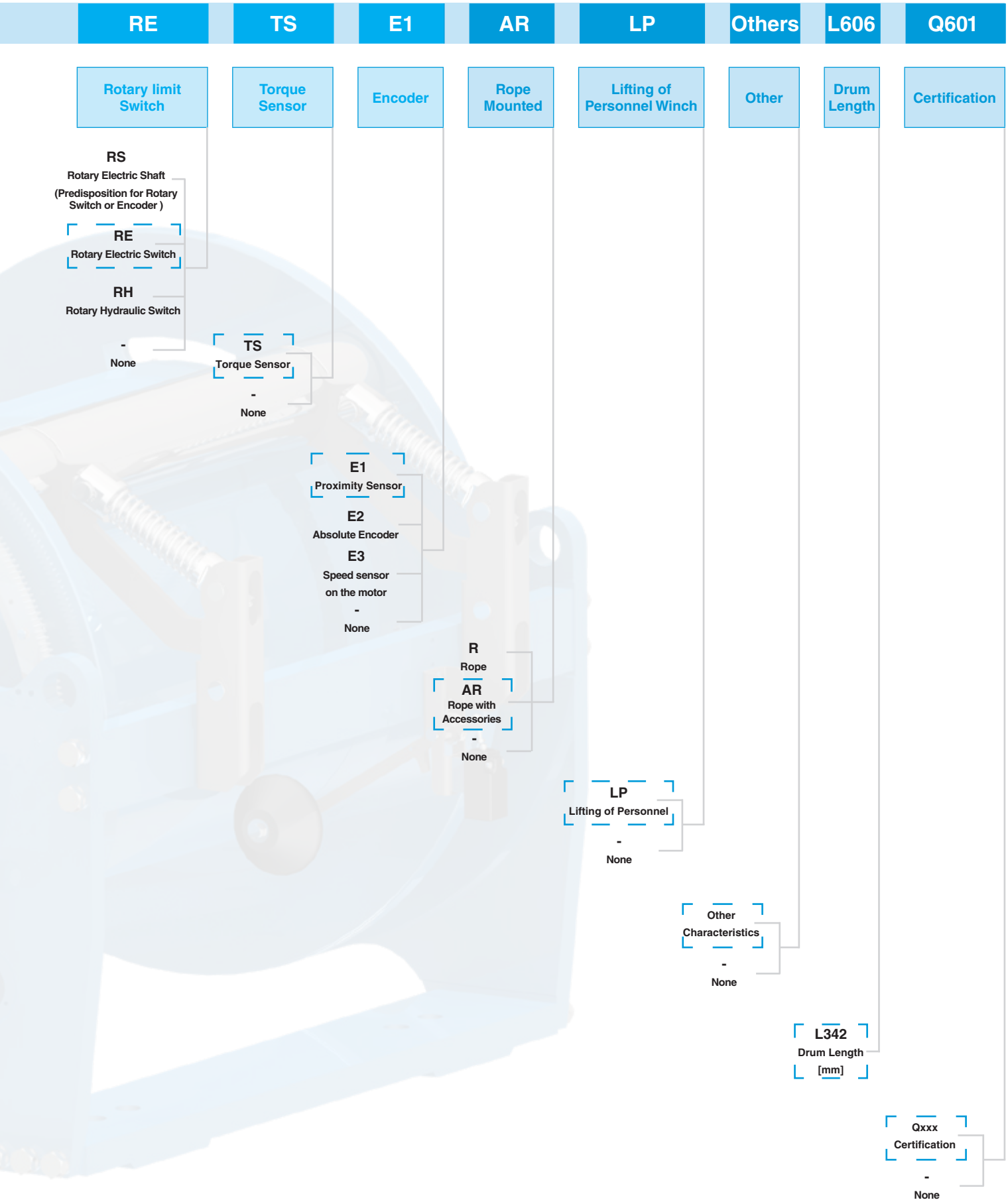
# WINCHES DESIGNATION

| BWE085 | SD24 | 01 | 49.4 | APV085 | P | EL |
|---|---|---|---|---|---|---|
| Size | SD24 Drum Configuration<br>SD24 Rope Diameter | Drum Rotation *<br>Sense | Ratio | APV085 Motor<br>APV085 Displacement | Pressure Roller | Limit Switch |
| BWE015 | SDØ<br>Smooth Drum | 01<br>Clock Wise (standard) | 49.4 | APV<br>Axial Pistons Variable | P<br>Present | EL<br>Electric Switch |
| BWE025 | GDØLL (1)<br>Special Grooved Left | 01s (2) (4)<br>Clock Wise w (Sprag Clutch) | 81.0 | APF<br>Axial Pistons Fixed | -<br>None | HY (4)<br>Hydraulic Switch |
| BWE035 | GDØLR (2)<br>Special Grooved Right | 02<br>Counter Clock Wise | | IPV<br>Integrated Pistons Variable | | -<br>None |
| BWE055 | | 02s (2) (4)<br>Counter Clock Wise w (Sprag Clutch) | | IPF<br>Integrated Pistons Fixed | | |
| BWE070 | | 00 (3)<br>Not Defined | | ORB<br>Orbital | | |
| BWE085 | | | | 00<br>Universal Input | | |
| BWE105 | | | | FI (2)<br>Female Input | | |
| BWE125 | | | | MI (2)<br>Male Input | | |
| BWE160 | | | | ELM (2)<br>Electric Motor | | |

* From motor side view

(1) Available with sense of rotation clockwise 02 only
(2) Available on request
(3) Available with smooth drum only
(4) Available with single overcenter valve only (pag.B9)

# WINCHES DESIGNATION



# ROPE DESCRIPTION

| ROPE | 6x36 | D14x100 | RR | G | CT | NoR | 1960 | A02 | DNV GL |
|---|---|---|---|---|---|---|---|---|---|
| | Rope Class | Rope Dimensions | Rope Structure | Rope Material | Strands Structures | Rotation Anti-Rotation | Rope Strength | End Fitting | Certification |

**Rope Class**

- **6x36**

**Rope Dimensions**

- **D14x100**
  Diameter x Length
  [mm] x [m]

**Rope Structure**

- **RR**
  Right Regular Lay
- **LR**
  Left Regular Lay
- **RL**
  Right Lang Lay
- **LL**
  Left Lang Lay

**Rope Material**

- **G**
  Galvanized Steel
  (Standard)
- **B**
  Bright
- **S**
  Stainless

**Strands Structures**

- **CT**
  Compacted
  (Standard)
- **NC**
  Not Compacted

**Rotation Anti-Rotation**

- **NoR**
  Anti-Rotating
- **RoT**
  Rotating

**Rope Strength**

- **2160**
  [MPa]
  (Standard)
- **1960**
  [MPa]
- **1770**
  [MPa]

**End Fitting**

- **A01**
  Thimble DIN3091
- **A02**
  Thimble DIN6899
  (Standard)
- **A03**
  Close Spelter Socket
- **A04**
  Open Spelter Socket
- **A05**
  Open Spelter
  Socket AP
- **A06**
  Free End

**Certification**

- Certification

# ROPE ACCESSORIES DESCRIPTION

## SHACKLE

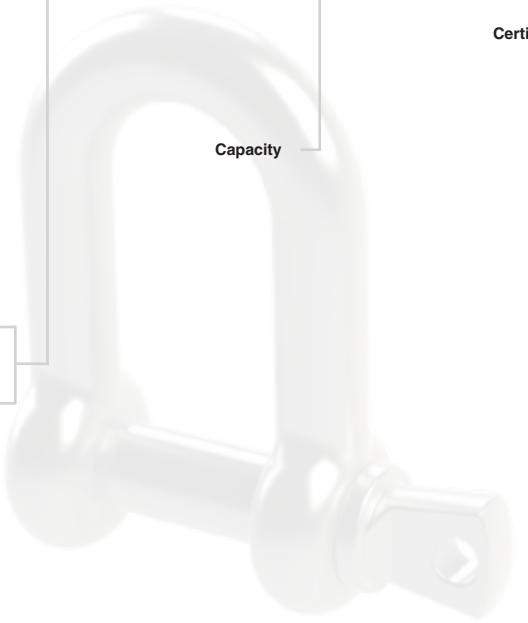
| SPA | cs | 3Ton | DNV GL |
|---|---|---|---|
| Shackle Type | Shackle Material | Shackle Capacity | Certification |

Certification

Capacity

cs
Carbon Steel
(Standard)
as
Alloy Steel

BTA
Bolt Type Anchor
(Standard)
SPA
Screw Pin Anchor



## HOOK

| EH | cs | 3Ton | ABS |
|---|---|---|---|
| Hook Type | Hook Material | Hook Capacity | Certification |

Certification

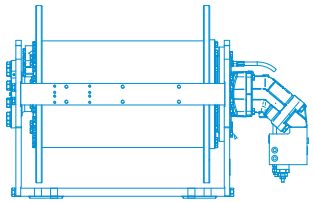
Capacity

cs
Carbon Steel
(Standard)
as
Alloy Steel

SH
Swivel
(Standard)
BH
Bearing
EH
Eye Hook

# SYMBOLOGY

| Description | Units | | Symbol |
|---|---|---|---|
| | SI | USC | |
| Minimum Geometrical Displacement | $cm^3/rev$ | $in^3/rev$ | $Vg_{min}$ |
| Maximum Geometrical Displacement | $cm^3/rev$ | $in^3/rev$ | $Vg_{max}$ |
| Speed | rpm | rpm | $n_2$ |
| Filling Plug | - | - |  |
| Oil Level Plug | - | - |  |
| Magnetic Drain Plug | - | - |  |
| Motor Drain Plug | - | - | **DR** |
| Brake Filling Plug | - | - |  |
| Brake Oil Level Plug | - | - |  |
| Brake Drain Plug | - | - |  |
| Brake Releasing Plug | - | - |  |
| Motor Service Ports | - | - |  |
| | - | - |  |
| Drum Rotation | - | - |  |



| Size | Line Pull at first Layer [kg] | Line Pull at first Layer [lbf] |
|---|---|---|
| **BWE015** | 1.500 | 3.300 |
| **BWE025** | 2.500 | 5.500 |
| **BWE035** | 3.500 | 7.700 |
| **BWE055** | 5.500 | 12.100 |
| **BWE070** | 7.000 | 15.400 |
| **BWE085** | 8.500 | 18.700 |
| **BWE105** | 10.500 | 23.100 |
| **BWE125** | 12.500 | 27.500 |
| **BWE160** | 16.000 | 35.200 |

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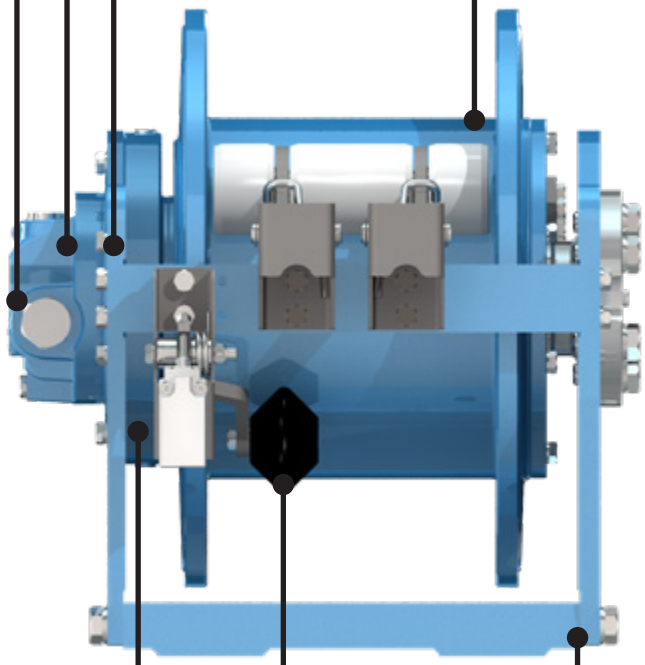
**Line Pull at first Layer up to:**
**1.500 [kg]**
**3.300 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Spheroidal graphite cast iron,
available in grooved or smooth options



**High performance Gears**
Low noise and longer life time

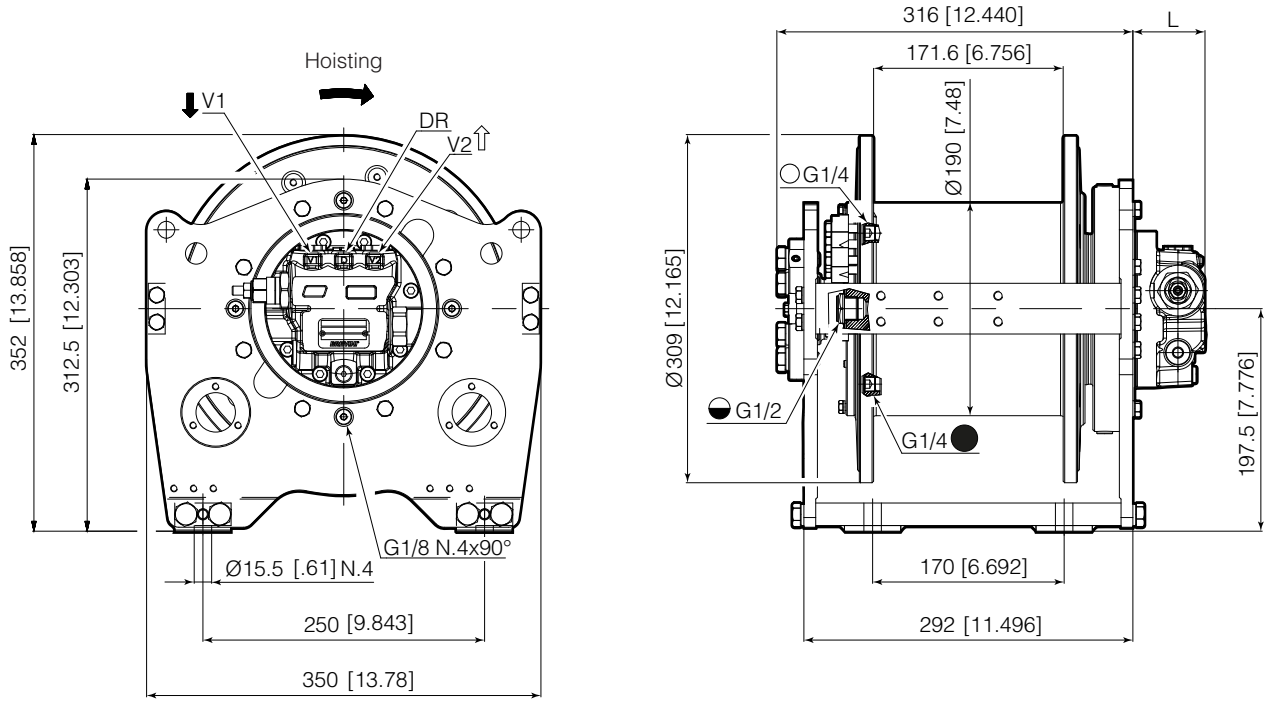
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

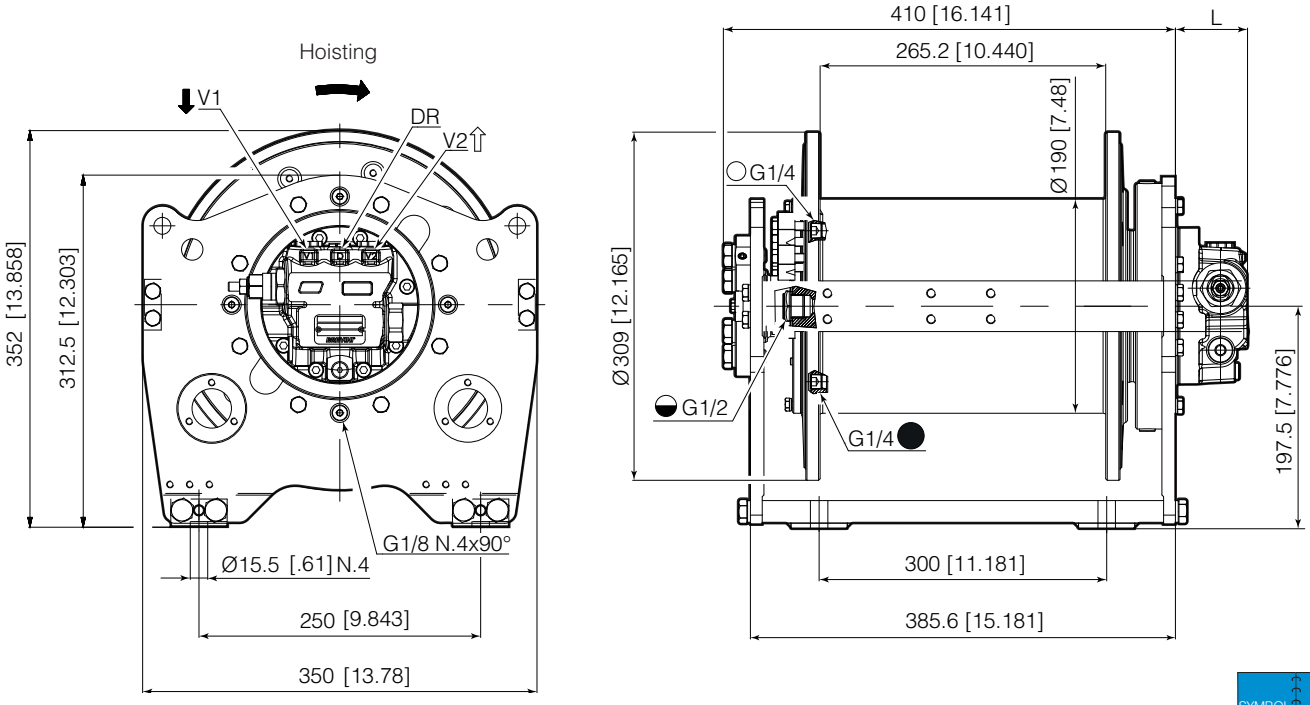
## Brevini® Hydraulic Motor

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA021 (1) | 21 cm³/rev [1.28 in³/rev] | 64.0 mm [2.519 in] |
| **Fixed Displacement** | BRZV160 (1) | 160 cm³/rev [9.76 in³/rev] | 89.5 mm [3.523 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 22.5 mm [0.886 in] |

## Winch - standard




## Winch - extended drum



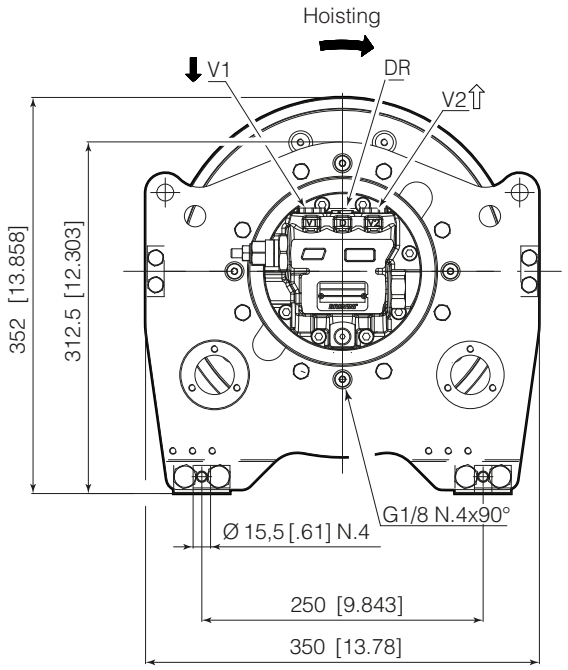

SYMBOL A 16

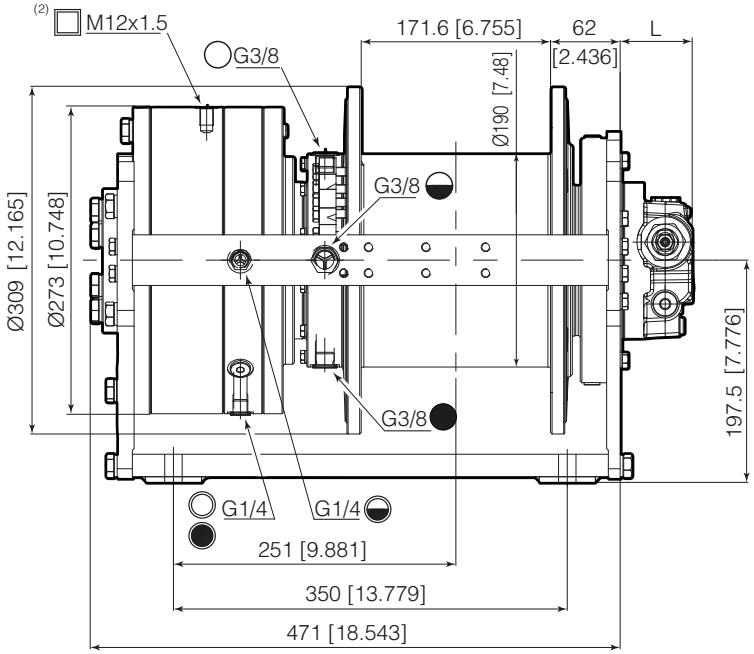
(1) As Standard with single overcenter valve, double overcenter valve available on request.

## Brevini® Hydraulic Motor for Lifting of Personnel Winches

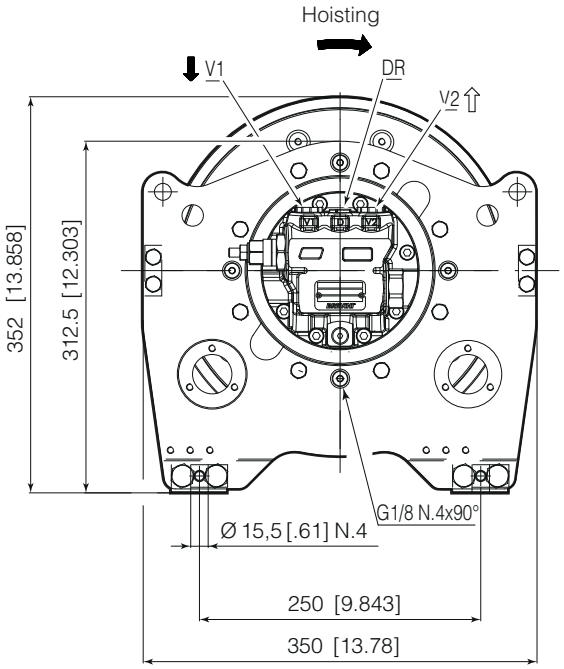
| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA021 (1) | 21 cm³/rev [1.28 in³/rev] | 64.0 mm [2.519 in] |
| **Fixed Displacement** | BRZV160 (1) | 160 cm³/rev [9.76 in³/rev] | 89.5 mm [3.523 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 22.5 mm [0.886 in] |

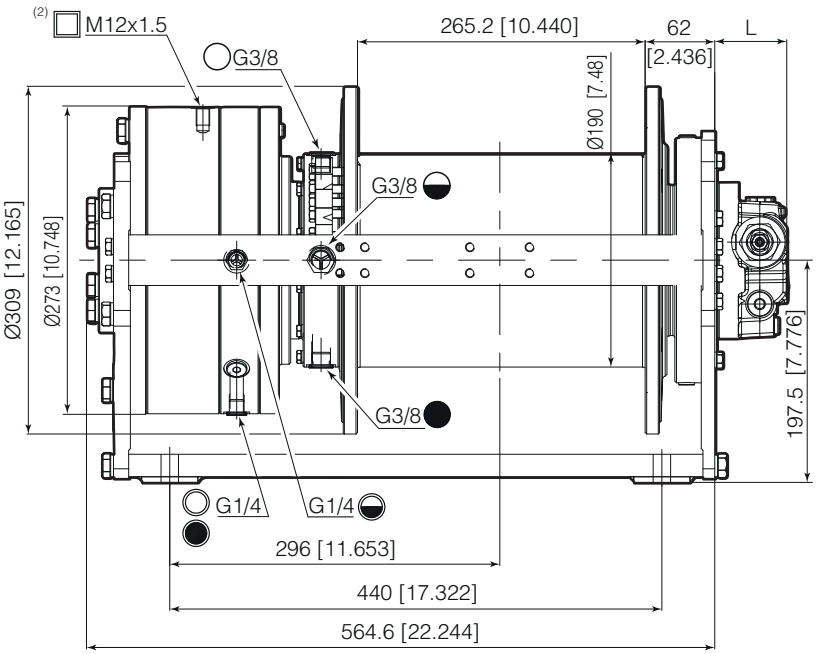
## Lifting of Personnel Winch - standard




## Lifting of Personnel Winch - extended drum



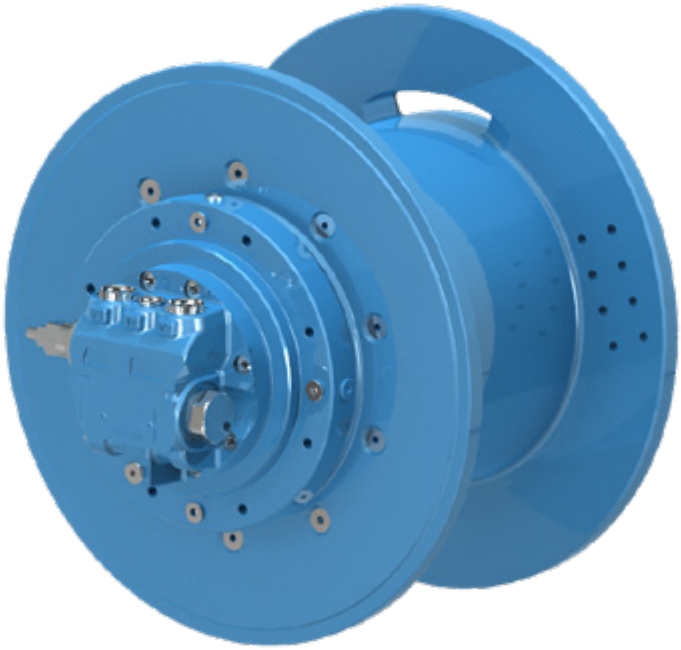

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) Lifting of personnel brake release pressure (Release/Max) 27/315 bar [392/4570 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **B5VA021** | 21 [cm³/rev] | 1.28 [in³/rev] |
| | **BRZV160** | 160 [cm³/rev] | 9.75 [in³/rev] |
| **Ratio** | | 19.1 | |
| | | 3.95 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| | **extended** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 8 [mm]<br>Ø 10 [mm]<br>Ø 12 [mm] | Ø 0.31 [in]<br>Ø 0.39 [in]<br>Ø 0.47 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 10 mm [0.39 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE015-SD10..-01-19.1-APF021**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 1500 | 1380 | 1280 | 1190 | 1120 | - |
| Rope speed | [m/min] | 73 | 79 | 86 | 92 | 98 | - |
| Rope length | [m] | 10 | 20 | 33 | 45 | 59 | 73 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA021 | | Oil quantity | 0.85 | [l] |
| Starting lifting pressure | 320 | [bar] | Oil fill/drain plug | G1/4 | T |
| Operating pressure | 270 | [bar] | Estimated weight | 59 | [kg] |
| Operating oil flow at the motor | 50 | [l/min] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 5.0 | [l/min] | Motor drain port | G1/4 | DR |
| Gear ratio | 19.1 | [i] | Static braking torque (1) | 180 | [Nm] |
| Advised rope diameter | 10 | [mm] | Brake release pressure (Release/Max) | 41 / 315 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE015-SD10..-01-19.1-APF021**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 3300 | 3050 | 2830 | 2630 | 2470 | - |
| Rope speed | [fpm] | 241 | 262 | 282 | 303 | 324 | - |
| Rope length | [ft] | 34 | 68 | 108 | 148 | 194 | 239 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA021 | | Oil quantity | 0.22 | [gal] |
| Starting lifting pressure | 4640 | [psi] | Oil fill/drain plug | G1/4 | [gal] |
| Operating pressure | 3870 | [psi] | Estimated weight | 130 | [lbf] |
| Operating oil flow at the motor | 13 | [gpm] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 1.32 | [gpm] | Motor drain port | G1/4 | DR |
| Gear ratio | 19.1 | [i] | Static braking torque (1) | 132 | [ft·lbf] |
| Advised rope diameter | 0.39 | [in] | Brake release pressure (Release/Max) | 595 / 4570 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 8 [mm] | 862 (5) (1) | 1100 | 313 (5) (1) | 400 | 862 (5) (1) | 1100 | 392 (5) (1) | 500 |
| Ø 10 [mm] | 1035 (4) (1) | 1300 | 318 (4) (1) | 400 | 955 (4) (1) | 1200 | 398 (4) (1) | 500 |
| Ø 12 [mm] | 1081 (3) (1) | 1300 | 333 (3) (1) | 400 | 998 (3) (1) | 1200 | 416 (3) (1) | 500 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.31 [in] | 1900 (5) (1) | 2445 | 690 (5) (1) | 890 | 1900 (5) (1) | 2445 | 864 (5) (1) | 1112 |
| Ø 0.39 [in] | 2281 (4) (1) | 2890 | 701 (4) (1) | 890 | 2105 (4) (1) | 2667 | 877 (4) (1) | 1112 |
| Ø 0.47 [in] | 2383 (3) (1) | 2890 | 734 (3) (1) | 890 | 2200 (3) (1) | 2667 | 917 (3) (1) | 1112 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available - standard

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 8 [mm] | Rope length | [m] | 12 | 25 | 40 | 55 | 71 | 88 |
| Rope Diameter Ø 12 [mm] | Rope length | [m] | 8 | 17 | 28 | 38 | - | - |

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,31 [in] | Rope length | [ft] | 42 | 84 | 132 | 181 | 234 | 288 |
| Rope Diameter Ø 0,47 [in] | Rope length | [ft] | 28 | 57 | 92 | 126 | - | - |

Last indicated Layer is intended only as Storage

## Other Ropes available - extended

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 8 [mm] | Rope length | [m] | 19 | 40 | 62 | 86 | 111 | 137 |
| Rope Diameter Ø 10 [mm] | Rope length | [m] | 16 | 32 | 51 | 70 | 92 | 114 |
| Rope Diameter Ø 12 [mm] | Rope length | [m] | 13 | 27 | 43 | 60 | - | - |

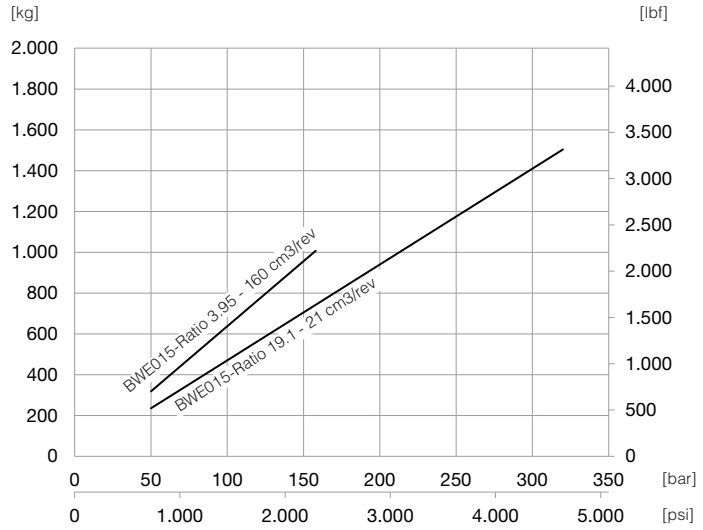
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,31 [in] | Rope length | [ft] | 65 | 132 | 206 | 282 | 365 | 450 |
| Rope Diameter Ø 0,39 [in] | Rope length | [ft] | 52 | 107 | 168 | 232 | 302 | 374 |
| Rope Diameter Ø 0,47 [in] | Rope length | [ft] | 44 | 90 | 143 | 198 | - | - |

Last indicated Layer is intended only as Storage

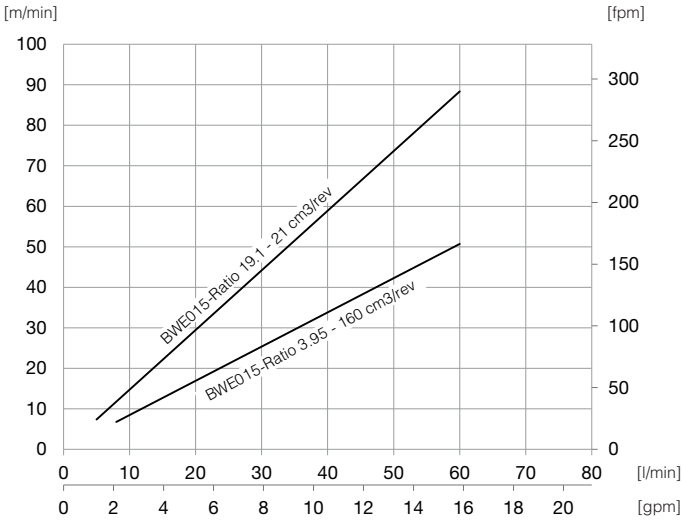
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer




### Maximum Speed at first layer




**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

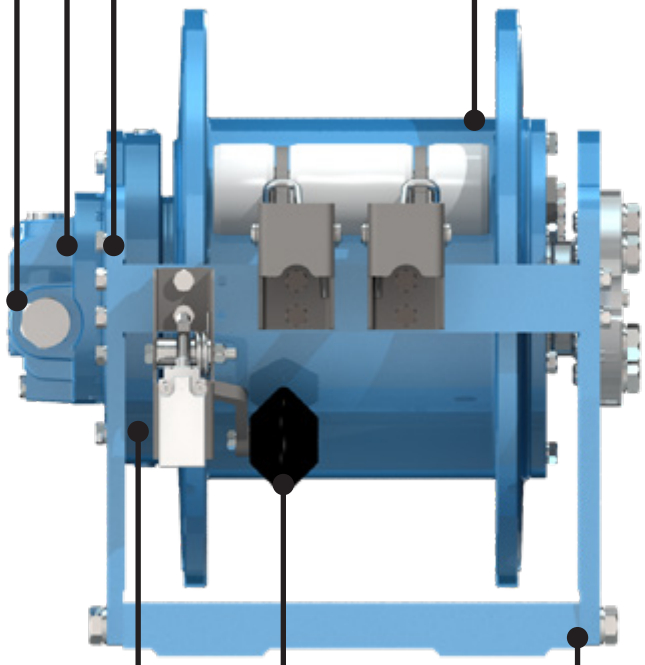
**Line Pull at first Layer up to:**
**2.500 [kg]**
**5.500 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Spheroidal graphite cast iron,
available in grooved or smooth options



**High performance Gears**
Low noise and longer life time

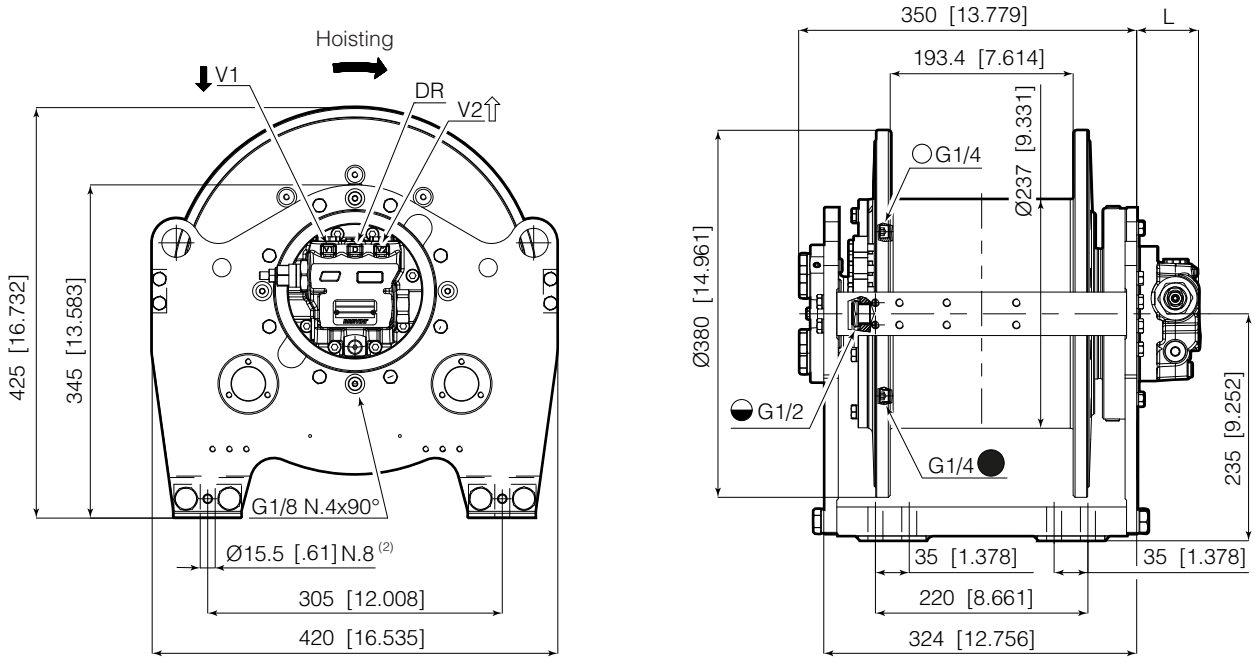
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

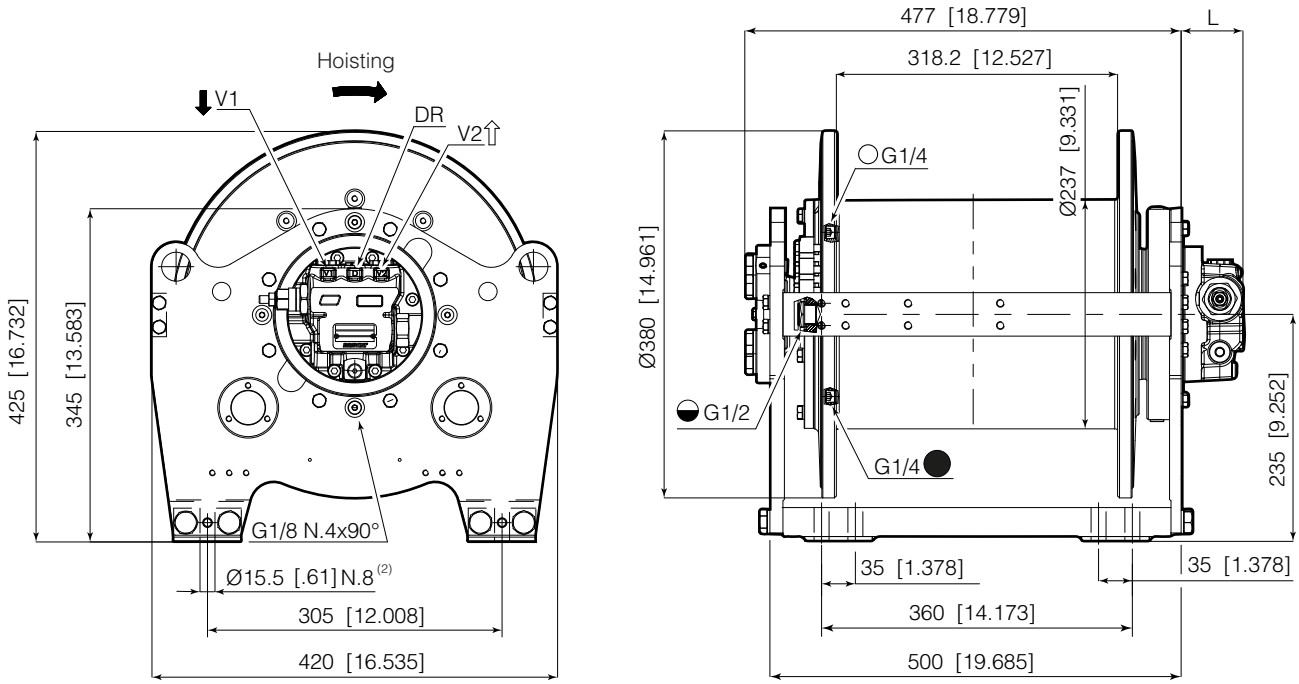
## Brevini® Hydraulic Motor

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA021 (1) | 21 cm³/rev [1.28 in³/rev] | 64.0 mm [2.519 in] |
| **Fixed Displacement** | BRZV250 (1) | 250 cm³/rev [15.24 in³/rev] | 105 mm [4.133 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 22.5 mm [0.886 in] |

## Winch - standard




## Winch - extended drum



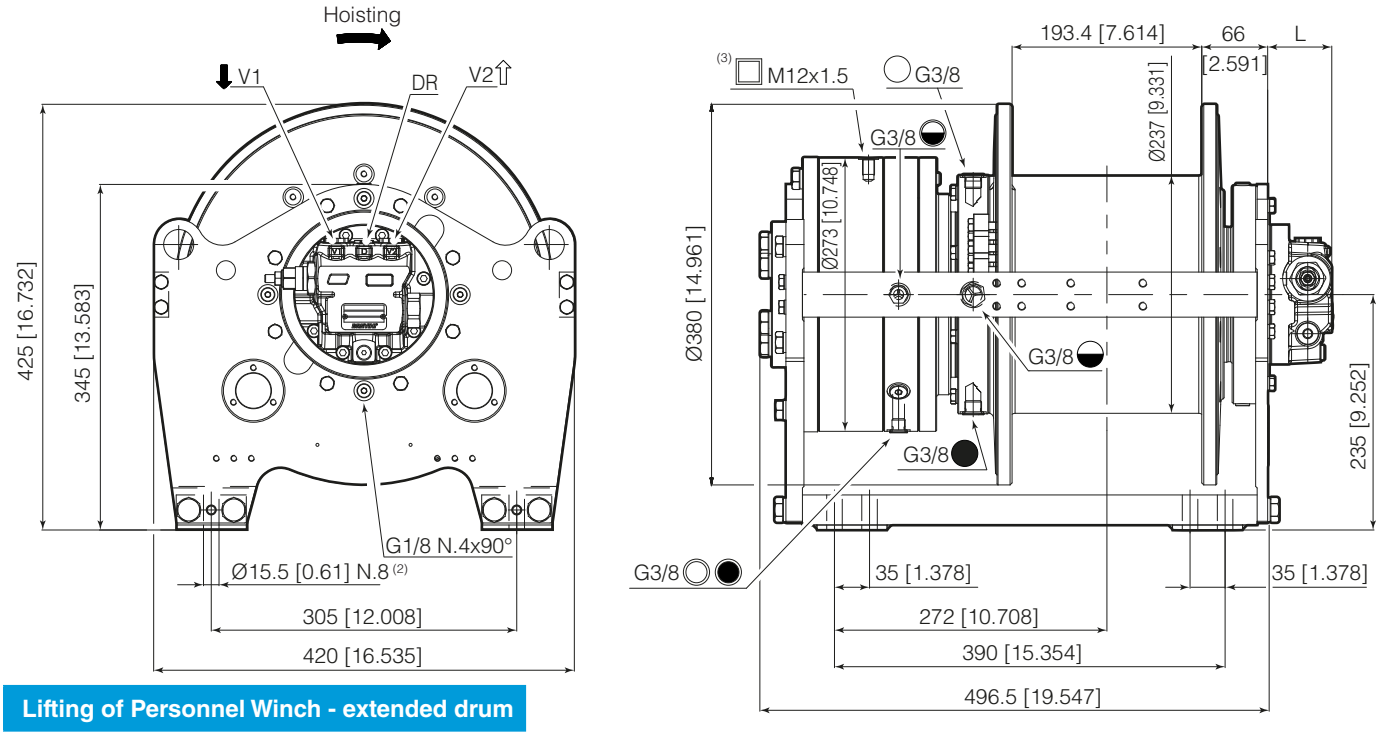

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.

SYMBOL A 16

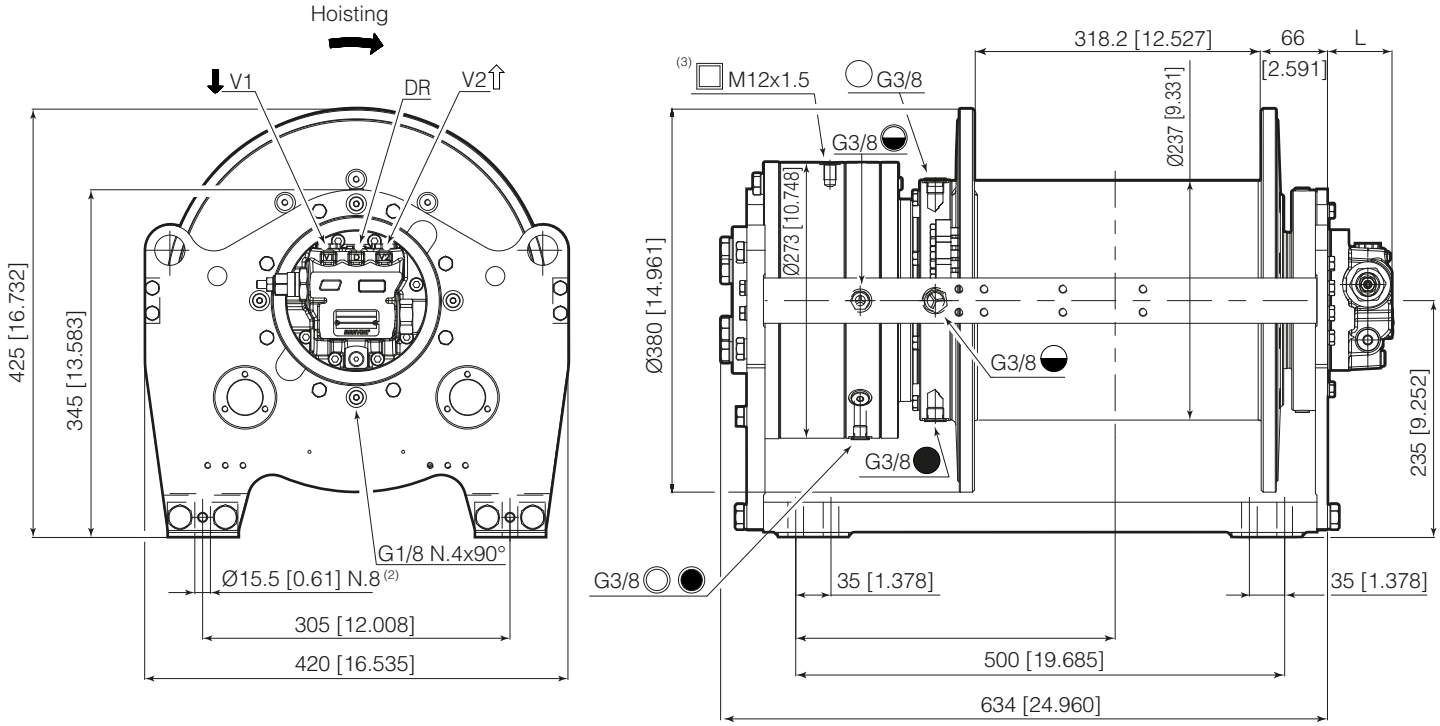
## Brevini® Hydraulic Motor for Lifting of Personnel Winches

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA021 (1) | 21 cm³/rev [1.28 in³/rev] | 64.0 mm [2.519 in] |
| **Fixed Displacement** | BRZV250 (1) | 250 cm³/rev [15.24 in³/rev] | 105 mm [4.133 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 22.5 mm [0.886 in] |

### Lifting of Personnel Winch - standard




### Lifting of Personnel Winch - extended drum




(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.
(3) Lifting of personnel brake release pressure (Release / Max) 27/315 bar [392/4570 psi]

SYMBOLS A 16

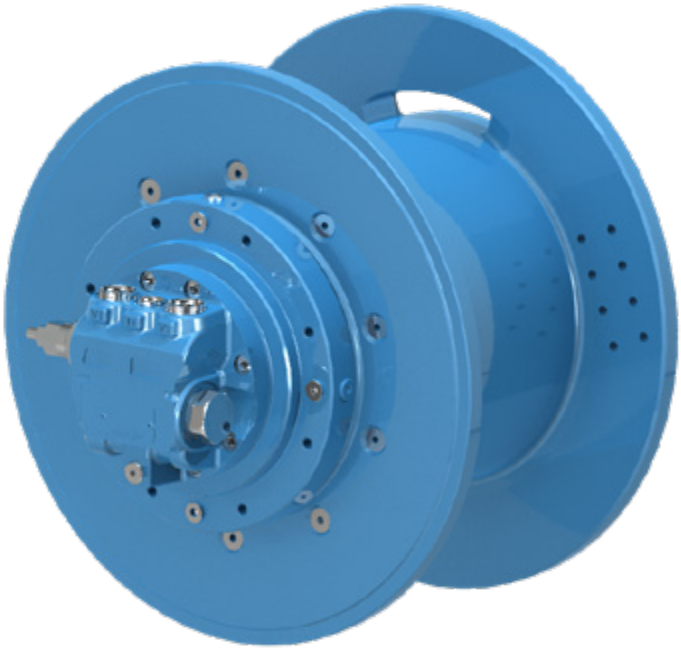
# Dimensions

# BWE025

## Motor Drum Winch

Available on request:

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **B5VA021** | 21 [cm³/rev] | 1.28 [in³/rev] |
| | **BRZV250** | 250 [cm³/rev] | 15.24 [in³/rev] |
| **Ratio** | | 37.4 | |
| | | 5.53 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| | **extended** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 10 [mm]<br>Ø 12 [mm]<br>Ø 14 [mm] | Ø 0.39 [in]<br>Ø 0.47 [in]<br>Ø 0.55 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 12 mm [0.47 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE025-SD12..-01-37.4-APF021**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 2500 | 2310 | 2150 | 2000 | 1880 | - |
| Rope speed | [m/min] | 46 | 50 | 54 | 58 | 62 | - |
| Rope length | [m] | 12 | 24 | 38 | 52 | 68 | 84 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA021 | | Oil quantity | 1,45 | [l] |
| Starting lifting pressure | 335 | [bar] | Oil fill / drain plug | G1/4 | T |
| Operating pressure | 285 | [bar] | Estimated weight | 103 | [kg] |
| Operating oil flow at the motor | 50 | [l/min] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 5.0 | [l/min] | Motor drain port | G1/4 | DR |
| Gear ratio | 37.4 | [i] | Static braking torque (1) | 180 | [Nm] |
| Advised rope diameter | 12 | [mm] | Brake release pressure (Release/Max) | 41 / 315 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE025-SD12..-01-37.4-APF021**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 5500 | 5100 | 4740 | 4420 | 4150 | - |
| Rope speed | [fpm] | 153 | 166 | 178 | 191 | 204 | - |
| Rope length | [ft] | 39 | 80 | 126 | 172 | 225 | 278 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA021 | | Oil quantity | 0,38 | [gal] |
| Starting lifting pressure | 4915 | [psi] | Oil fill / drain plug | G1/4 | T |
| Operating pressure | 4100 | [psi] | Estimated weight | 227 | [lbf] |
| Operating oil flow at the motor | 13 | [gpm] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 1,32 | [gpm] | Motor drain port | G1/4 | DR |
| Gear ratio | 37.4 | [i] | Static braking torque (1) | 132 | [ft·lbf] |
| Advised rope diameter | 0.47 | [in] | Brake release pressure (Release/Max) | 595 / 4570 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 10 [mm] | 1332 (5) (1) | 1700 | 509 (5) (1) | 650 | 1332 (5) (1) | 1700 | 470 (5) (1) | 800 |
| Ø 12 [mm] | 1844 (4) (1) | 2300 | 521 (4) (1) | 650 | 1764 (4) (1) | 2200 | 481 (4) (1) | 800 |
| Ø 14 [mm] | 1932 (3) (1) | 2300 | 546 (3) (1) | 650 | 1848 (3) (1) | 2200 | 504 (3) (1) | 800 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.39 [in] | 2936 (5) (1) | 3778 | 1122 (5) (1) | 1445 | 2936 (5) (1) | 3778 | 2936 (5) (1) | 1778 |
| Ø 0.47 [in] | 4064 (4) (1) | 5112 | 1148 (4) (1) | 1445 | 3888 (4) (1) | 4890 | 3888 (4) (1) | 1778 |
| Ø 0.55 [in] | 4258 (3) (1) | 5112 | 1203 (3) (1) | 1445 | 4073 (3) (1) | 4890 | 4073 (3) (1) | 1778 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available - standard

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 10 [mm] | Rope length | [m] | 14 | 29 | 45 | 61 | 80 | 98 |
| Rope Diameter Ø 14 [mm] | Rope length | [m] | 10 | 21 | 33 | 46 | 60 | - |

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.39 [in] | Rope length | [ft] | 47 | 95 | 149 | 203 | 263 | 323 |
| Rope Diameter Ø 0.55 [in] | Rope length | [ft] | 34 | 69 | 110 | 150 | 198 | - |

Last indicated Layer is intended only as Storage

## Other Ropes available - extended

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 10 [mm] | Rope length | [m] | 23 | 48 | 75 | 103 | 133 | 164 |
| Rope Diameter Ø 12 [mm] | Rope length | [m] | 19 | 40 | 63 | 87 | 114 | 141 |
| Rope Diameter Ø 14 [mm] | Rope length | [m] | 17 | 35 | 55 | 76 | 100 | - |

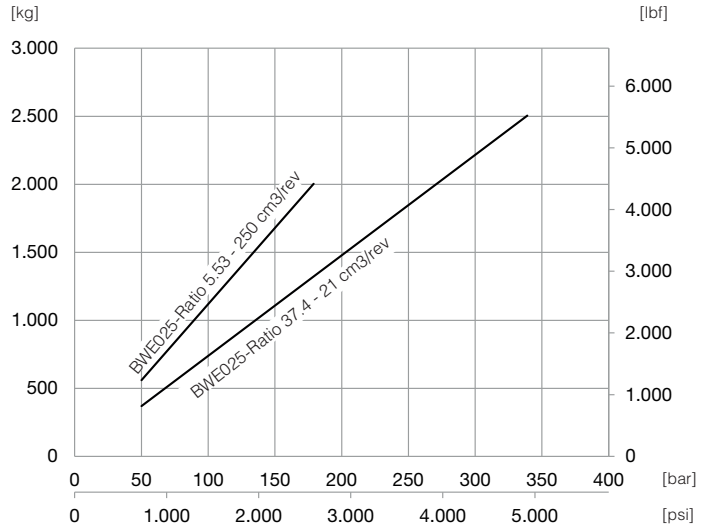
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,39 [in] | Rope length | [ft] | 77 | 158 | 247 | 338 | 437 | 538 |
| Rope Diameter Ø 0,47 [in] | Rope length | [ft] | 65 | 133 | 209 | 288 | 375 | 463 |
| Rope Diameter Ø 0,55 [in] | Rope length | [ft] | 56 | 115 | 182 | 252 | 330 | - |

Last indicated Layer is intended only as Storage

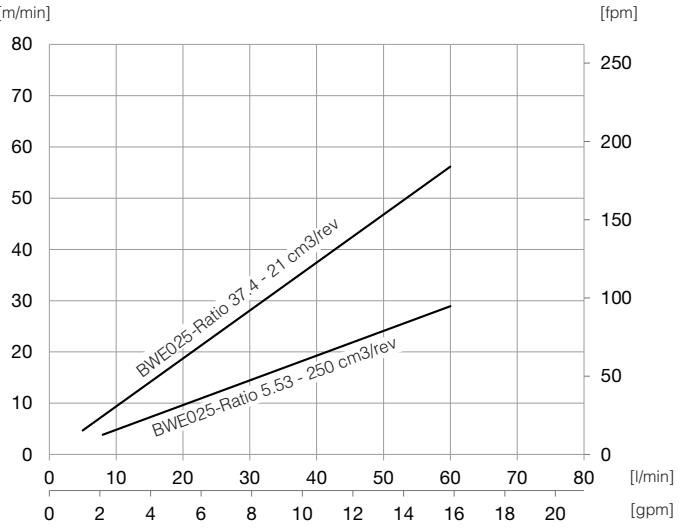
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer




### Maximum Speed at first layer




**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

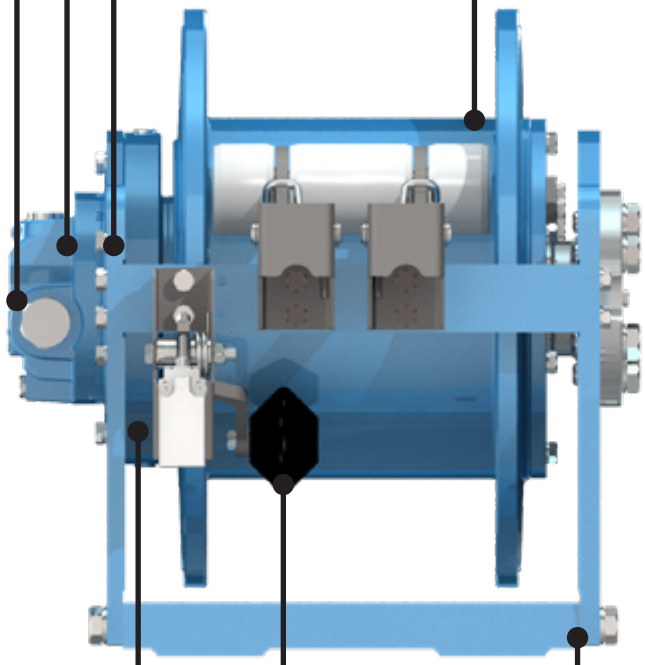
**Line Pull at first Layer up to:**
**3.500 [kg]**
**7.700 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Spheroidal graphite cast iron,
available in grooved or smooth options



**High performance Gears**
Low noise and longer life time

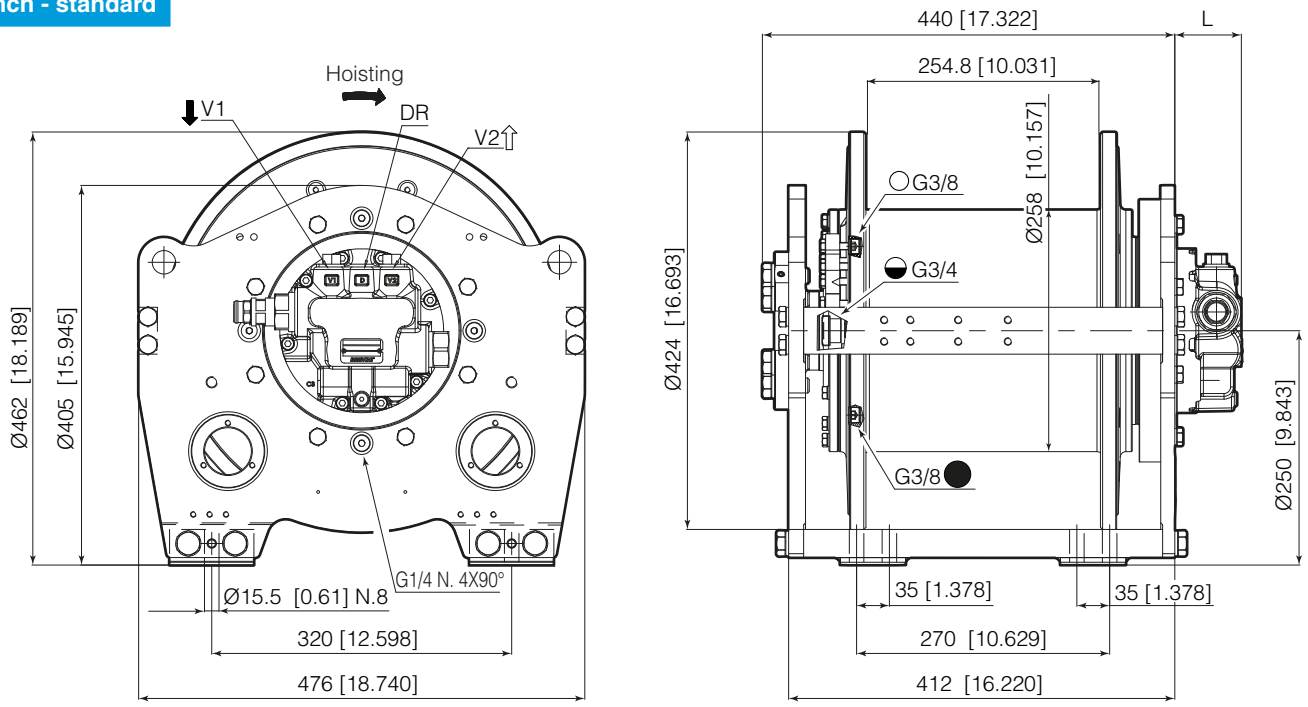
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

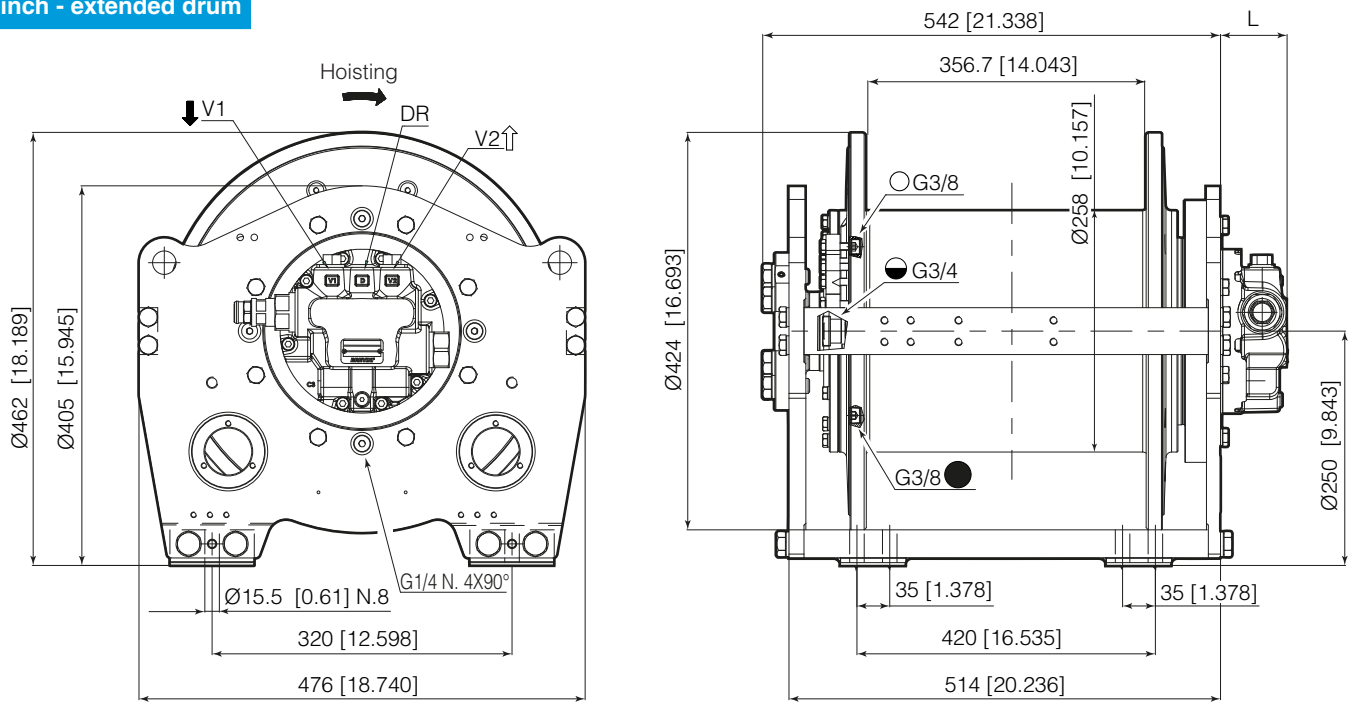
## Brevini® Hydraulic Motor

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA037 (1) | 37 cm³/rev [2.25 in³/rev] | 71 mm [2.795 in] |
| **Fixed Displacement** | B5VA068 (1) | 68 cm³/rev [4.14 in³/rev] | 98 mm [3.858 in] |
| **With NO Motor** | On request | - | On request |

## Winch - standard




## Winch - extended drum



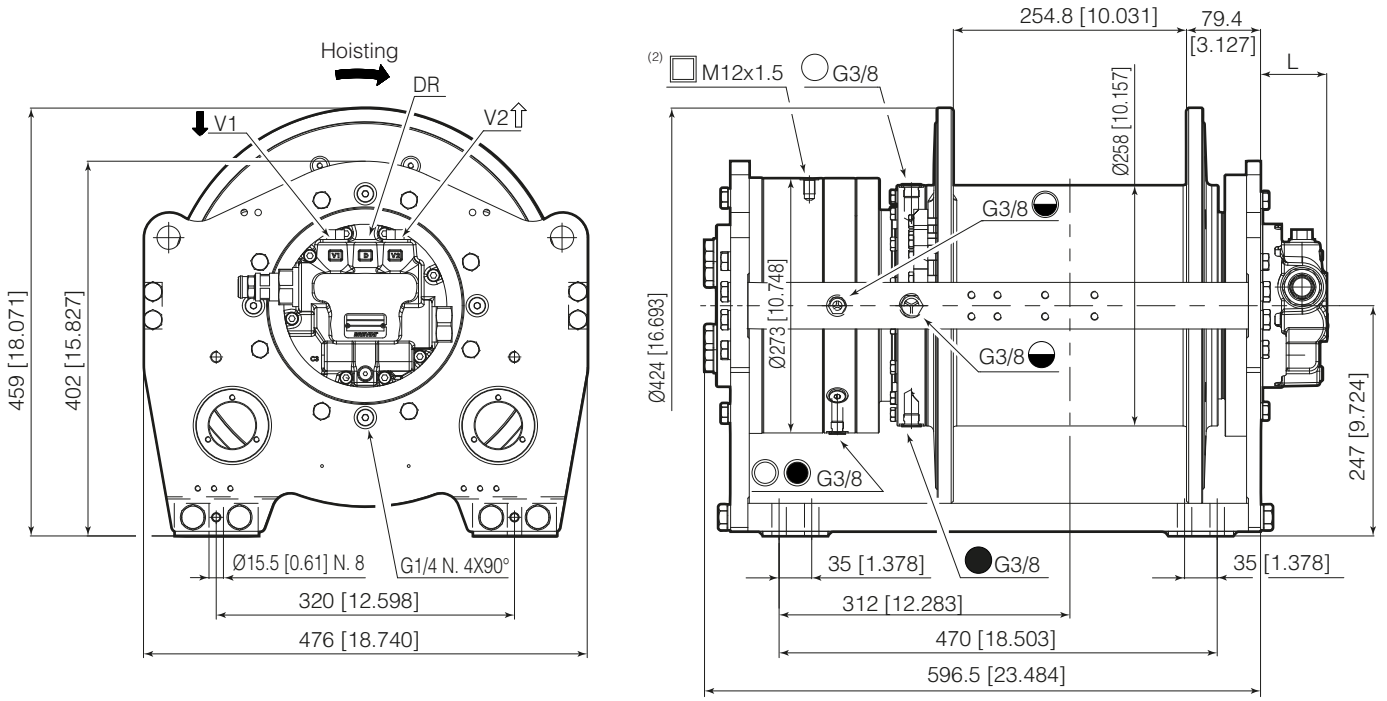

SYMBOL A 16

(1) As Standard with single overcenter valve, double overcenter valve available on request.

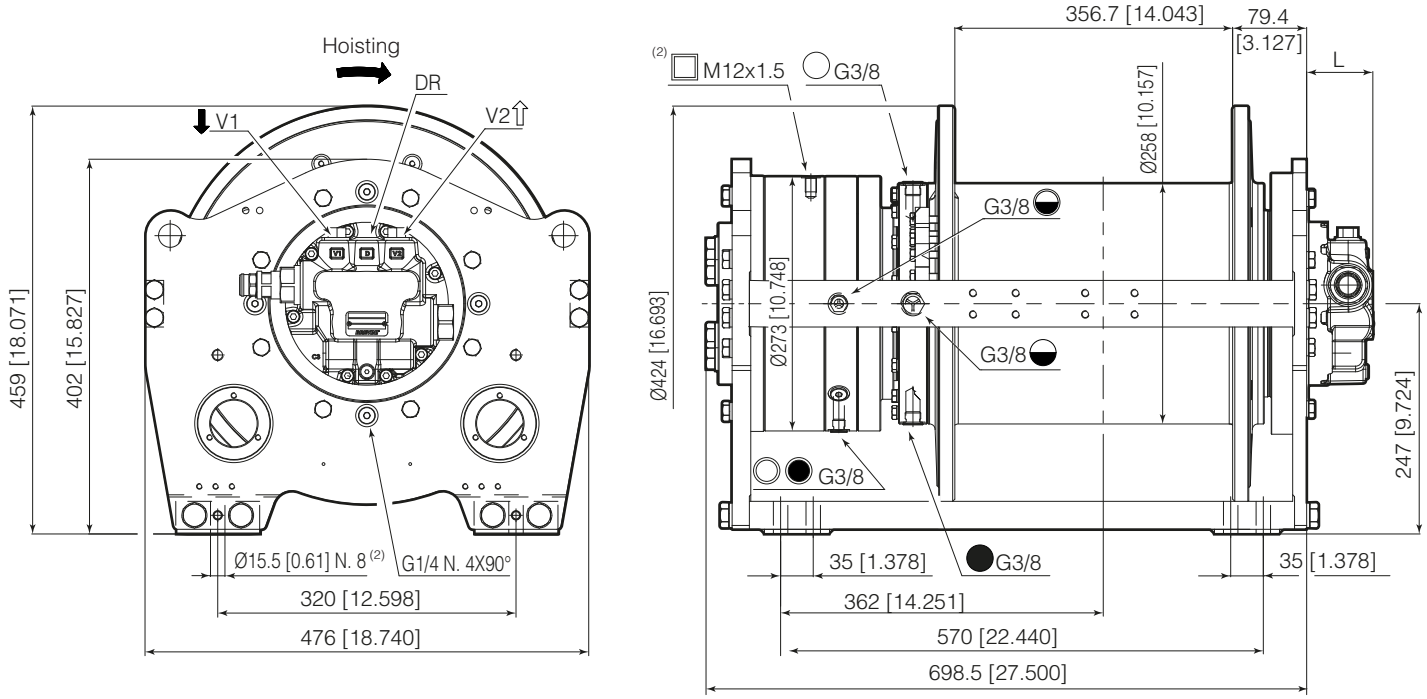
## Brevini® Hydraulic Motor for Lifting of Personnel Winches

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA037 (1) | 37 cm³/rev [2.25 in³/rev] | 71 mm [2.795 in] |
| **Fixed Displacement** | B5VA068 (1) | 68 cm³/rev [4.14 in³/rev] | 98 mm [3.858 in] |
| **With NO Motor** | On request | - | On request |

### Lifting of Personnel Winch - standard




### Lifting of Personnel Winch - extended drum



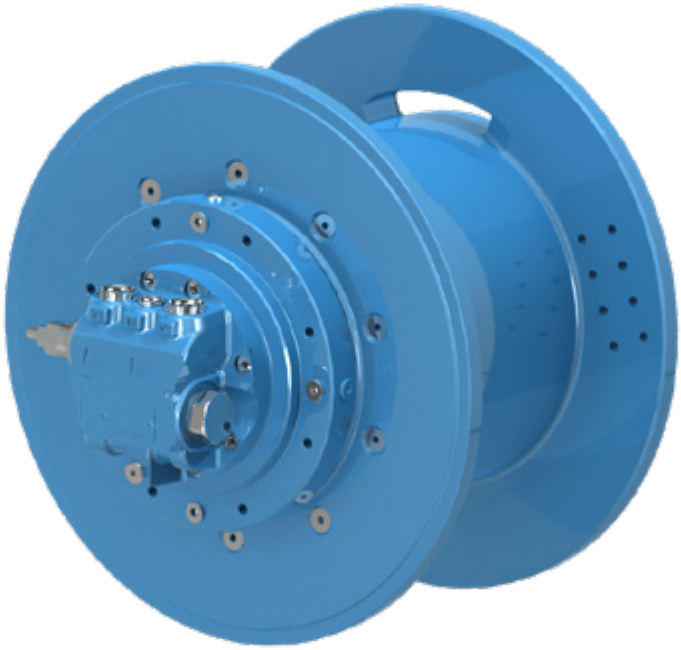

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) Lifting of personnel brake release pressure (Release / Max) 27/315 bar [392/4570 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **B5VA037** | 37 [cm³/rev] | 2.25 [in³/rev] |
| | **B5VA068** | 68 [cm³/rev] | 4.14 [in³/rev] |
| **Ratio** | | 33.6 | |
| | | 22.9 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| | **extended** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 12 [mm]<br>Ø 14 [mm]<br>Ø 16 [mm] | Ø 0.47 [in]<br>Ø 0.55 [in]<br>Ø 0.63 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 14 mm [0.55 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE035-SD14..-01-33.6-APF037**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 3500 | 3220 | 2980 | 2770 | 2590 | - |
| Rope speed | [m/min] | 32 | 35 | 37 | 40 | 43 | - |
| Rope length | [m] | 14 | 30 | 47 | 65 | 85 | 106 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA037 | | Oil quantity | 2.7 | [l] |
| Starting lifting pressure | 325 | [bar] | Oil fill / drain plug | G3/4 | T |
| Operating pressure | 275 | [bar] | Estimated weight | 203 | [kg] |
| Operating oil flow at the motor | 50 | [l/min] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 5.0 | [l/min] | Motor drain port | G3/8 | DR |
| Gear ratio | 33.6 | [i] | Static braking torque (1) | 245 | [Nm] |
| Advised rope diameter | 14 | [mm] | Brake release pressure (Release/Max) | 27 / 350 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE035-SD14..-01-33.6-APF037**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 7700 | 7100 | 6570 | 6110 | 5710 | - |
| Rope speed | [fpm] | 105 | 115 | 124 | 133 | 143 | - |
| Rope length | [ft] | 49 | 99 | 157 | 215 | 281 | 348 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA037 | | Oil quantity | 0.71 | [in] |
| Starting lifting pressure | 4740 | [psi] | Oil fill / drain plug | G3/4 | [gal] |
| Operating pressure | 3955 | [psi] | Estimated weight | 447 | [lbf] |
| Operating oil flow at the motor | 13 | [gpm] | Lifting / Lowering port | G1/2 | V1 / V2 |
| Minimum oil flow at the motor | 1,32 | [gpm] | Motor drain port | G1/8 | DR |
| Gear ratio | 33.6 | [i] | Static braking torque (1) | 180 | [ft·lbf] |
| Advised rope diameter | 0.55 | [in] | Brake release pressure (Release/Max) | 395 / 5080 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

# Performance Tables

# BWE035

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 12 [mm] | 1918 (5) (1) | 2500 | 690 (5) (1) | 900 | 1918 (5) (1) | 2500 | 805 (5) (1) | 1050 |
| Ø 14 [mm] | 2690 (4) (1) | 3400 | 712 (4) (1) | 900 | 2532 (4) (1) | 3200 | 831 (4) (1) | 1050 |
| Ø 16 [mm] | 2834 (3) (1) | 3400 | 750 (3) (1) | 900 | 2668 (3) (1) | 3200 | 875 (3) (1) | 1050 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.47 [in] | 4262 (5) (1) | 5556 | 1533 (5) (1) | 2000 | 4262 (5) (1) | 5556 | 1789 (5) (1) | 2333 |
| Ø 0.55 [in] | 5978 (4) (1) | 7556 | 1582 (4) (1) | 2000 | 5627 (4) (1) | 7111 | 1847 (4) (1) | 2333 |
| Ø 0.63 [in] | 6298 (3) (1) | 7556 | 1667 (3) (1) | 2000 | 5929 (3) (1) | 7111 | 1944 (3) (1) | 2333 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available - standard

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 12 [mm] | Rope length | [m] | 17 | 35 | 54 | 75 | 97 | 120 |
| Rope Diameter Ø 16 [mm] | Rope length | [m] | 13 | 26 | 42 | 58 | 76 | - |

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.47 [in] | Rope length | [ft] | 56 | 114 | 180 | 246 | 320 | 395 |
| Rope Diameter Ø 0.63 [in] | Rope length | [ft] | 43 | 87 | 139 | 192 | 252 | - |

Last indicated Layer is intended only as Storage

## Other Ropes available - extended

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 12 [mm] | Rope length | [m] | 24 | 49 | 77 | 106 | 137 | 169 |
| Rope Diameter Ø 14 [mm] | Rope length | [m] | 20 | 42 | 67 | 92 | 121 | 149 |
| Rope Diameter Ø 16 [mm] | Rope length | [m] | 18 | 37 | 59 | 82 | 108 | - |

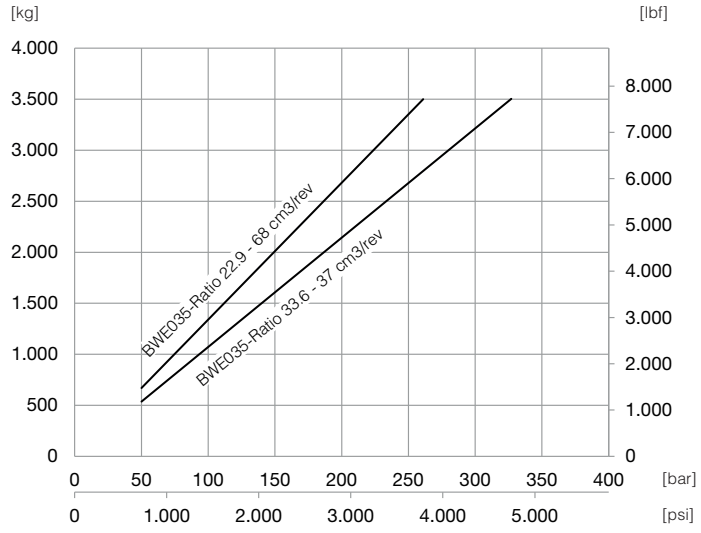
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,47 [in] | Rope length | [ft] | 79 | 162 | 253 | 347 | 451 | 557 |
| Rope Diameter Ø 0,55 [in] | Rope length | [ft] | 68 | 140 | 221 | 304 | 397 | 492 |
| Rope Diameter Ø 0,63 [in] | Rope length | [ft] | 60 | 124 | 196 | 271 | 356 | - |

Last indicated Layer is intended only as Storage

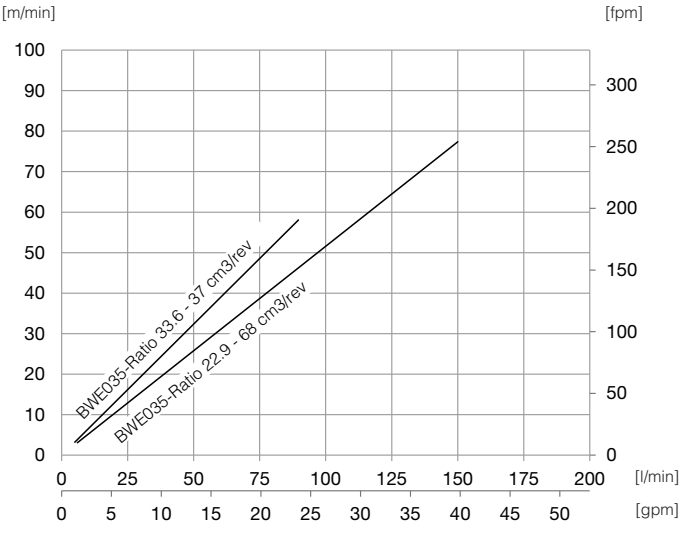
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer




### Maximum Speed at first layer




**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

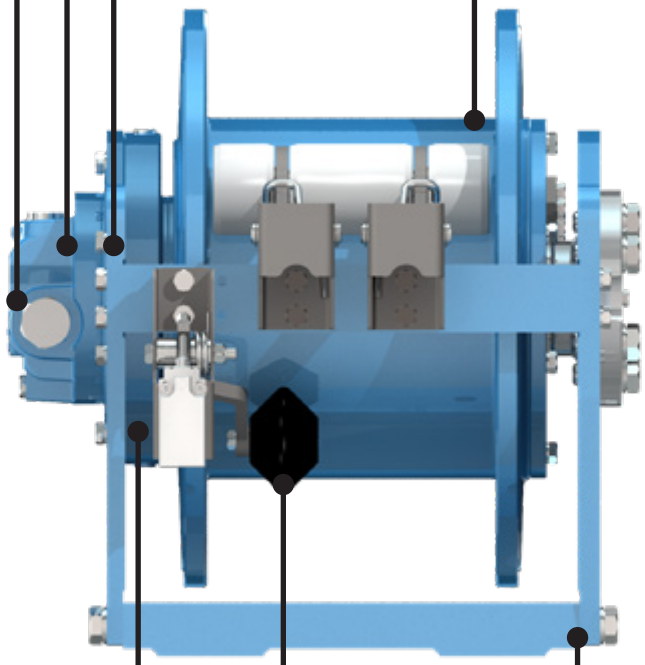
**Line Pull at first Layer up to:**
**5.500 [kg]**
**12.100 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Spheroidal graphite cast iron,
available in grooved or smooth options



**High performance Gears**
Low noise and longer life time

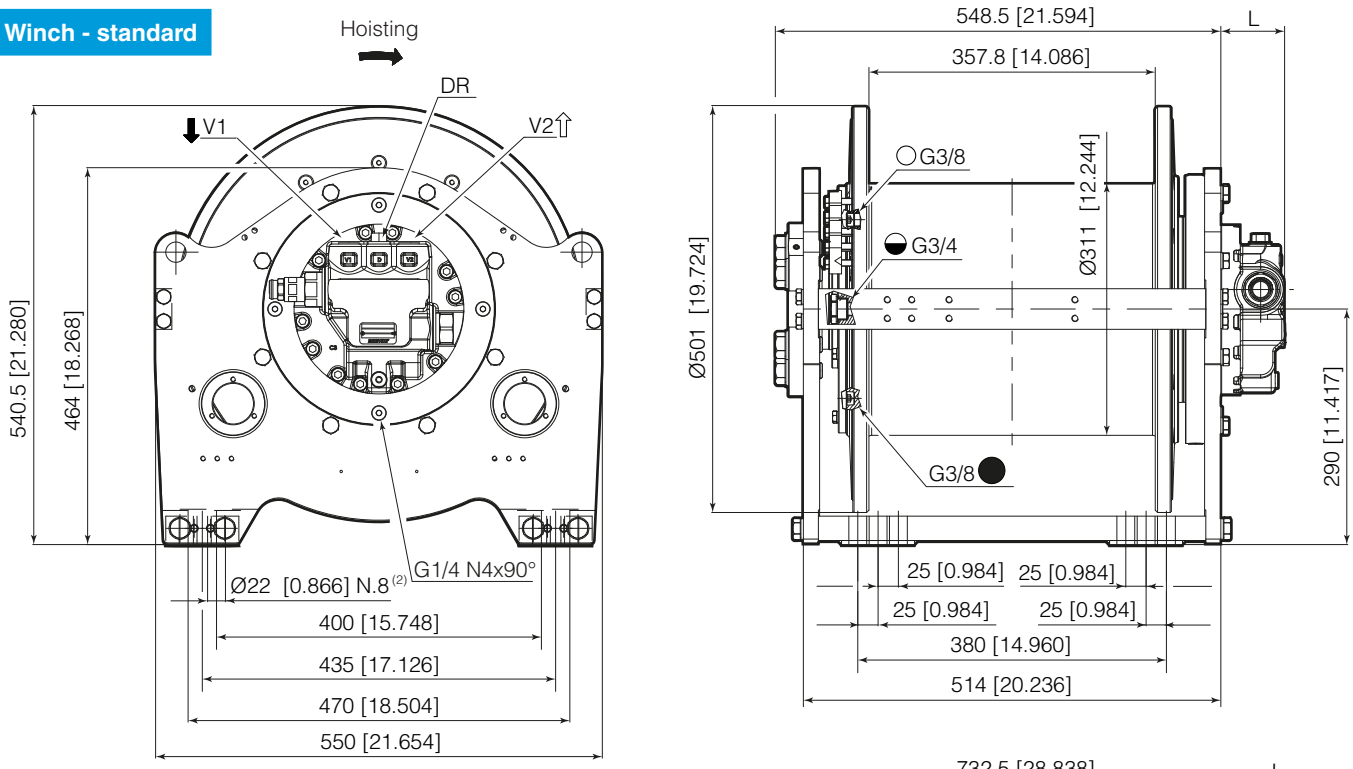
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

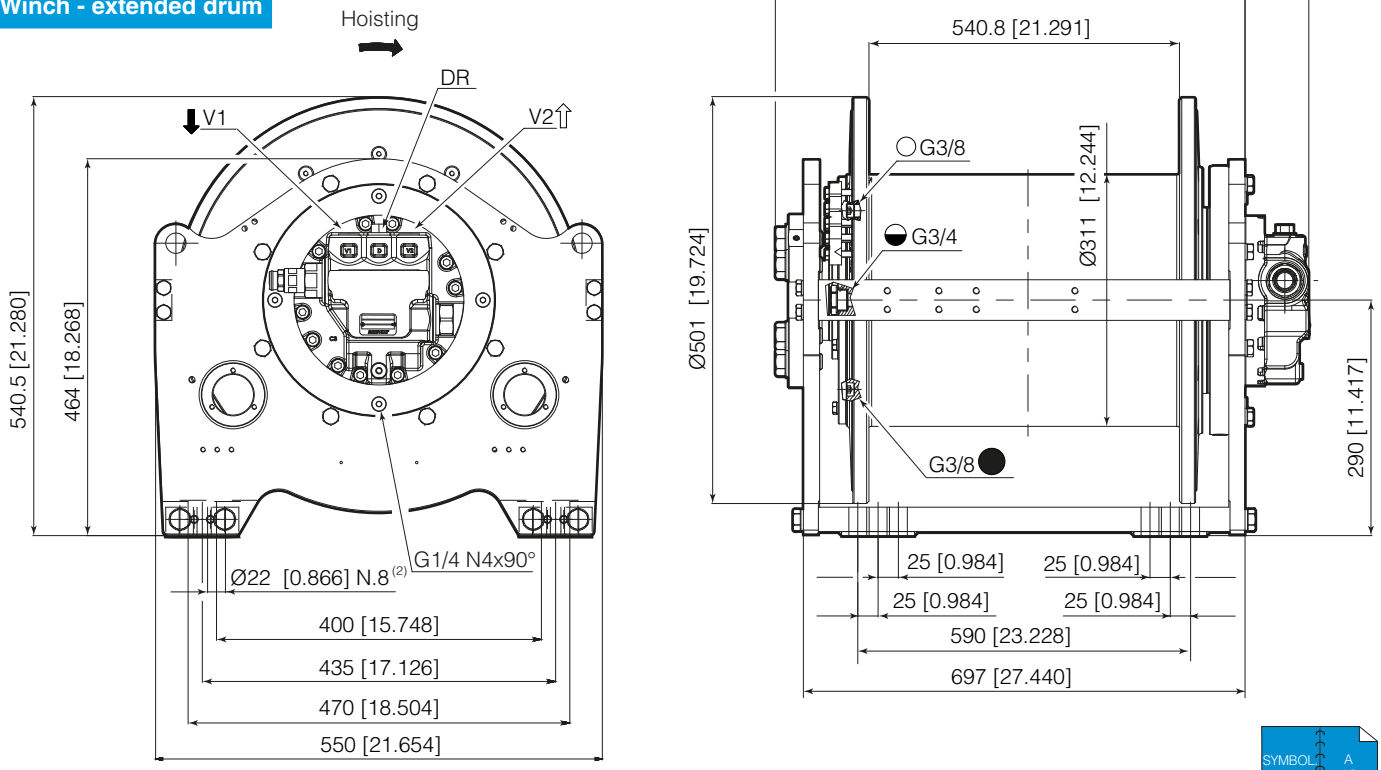
## Brevini® Hydraulic Motor

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA068 (1) | 68 cm³/rev [4.14 in³/rev] | 78.5 mm [3.858 in] |
| **Fixed Displacement** | HR160 (1) | 160 cm³/rev [4.14 in³/rev] | 242.6 mm [9.551in] |
| **Fixed Displacement** | SH11CR090 (1) | 90 cm³/rev [5.47 in³/rev] | 239 mm [9.409 in] |
| **Variable Displacement** | SH9V085 (1) | 85 cm³/rev [5.17 in³/rev] | 352 mm [13.858 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 5.5 mm [0.216 in] |

### Winch - standard




### Winch - extended drum



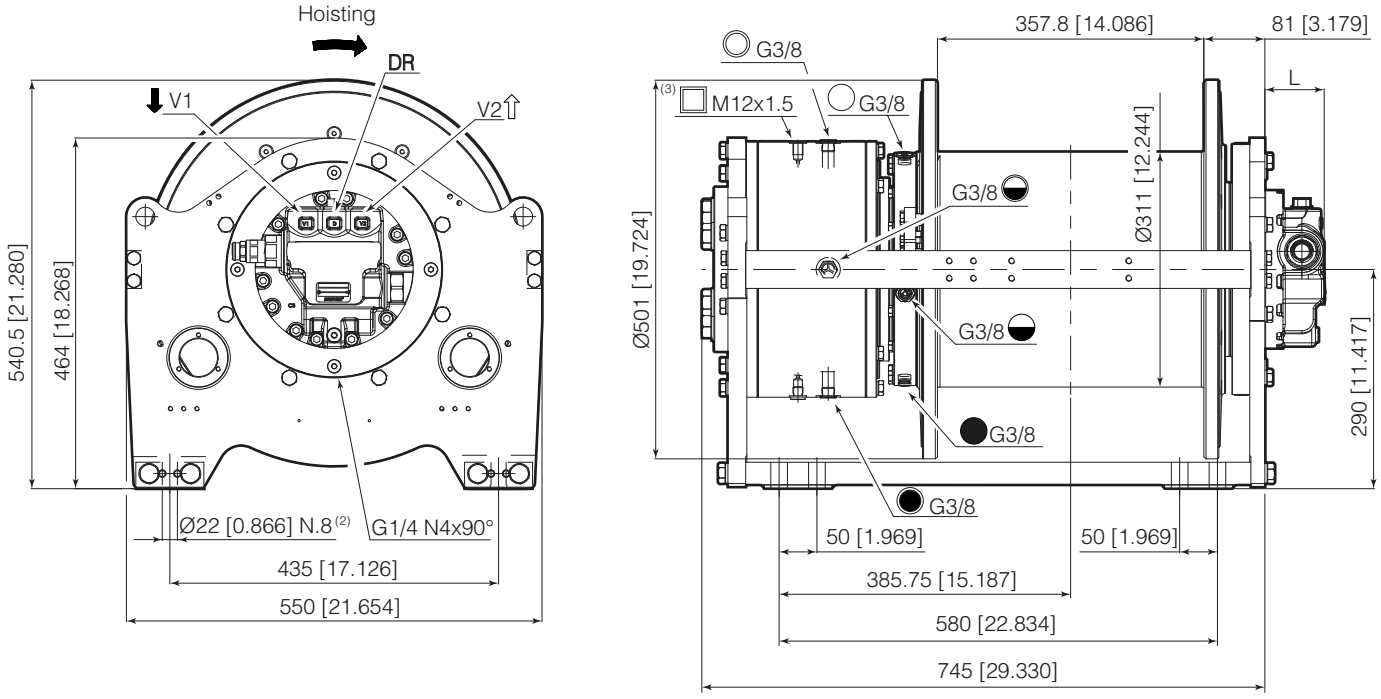

SYMBOL A 16

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.

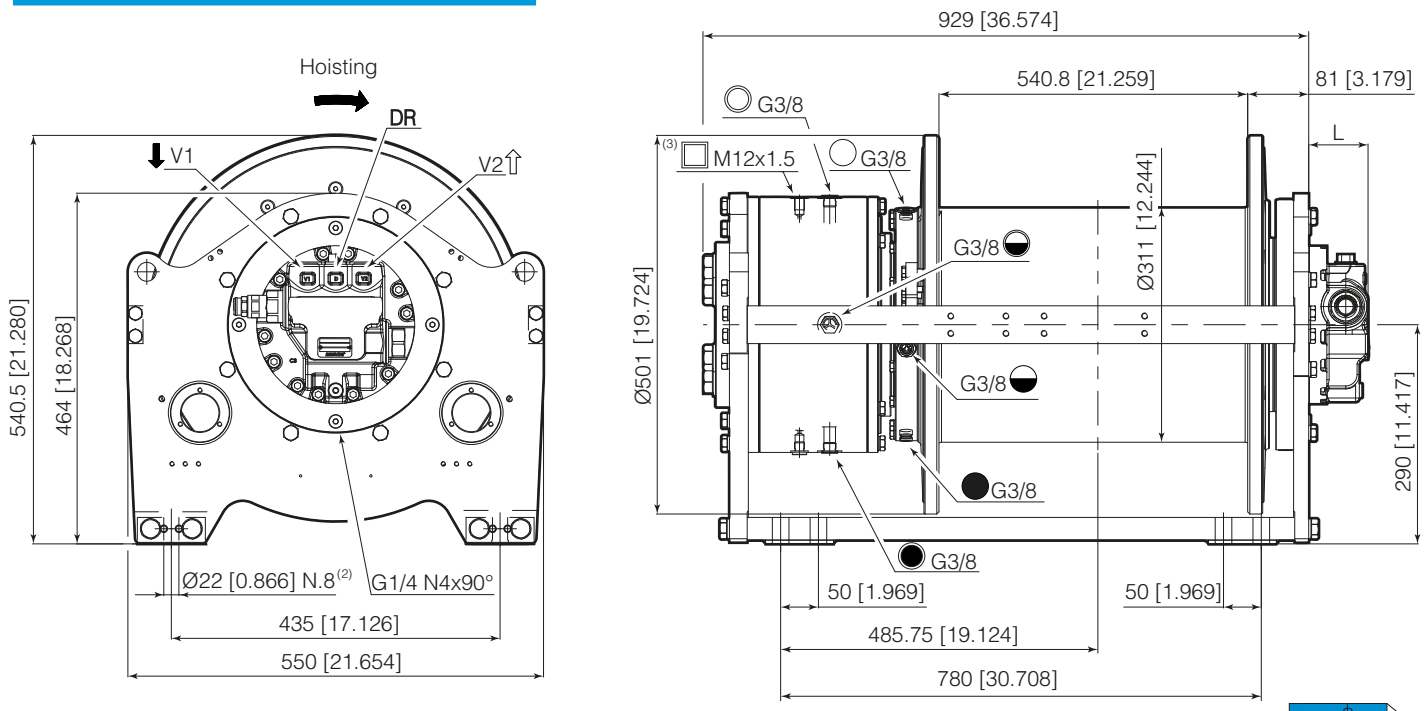
## Brevini® Hydraulic Motor for Lifting of Personnel Winches

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | B5VA068 (1) | 68 cm³/rev [4.14 in³/rev] | 78.5 mm [3.858 in] |
| **Fixed Displacement** | HR160 (1) | 160 cm³/rev [4.14 in³/rev] | 242.6 mm [9.551in] |
| **Fixed Displacement** | SH11CR090 (1) | 90 cm³/rev [5.47 in³/rev] | 239 mm [9.409 in] |
| **Variable Displacement** | SH9V085 (1) | 85 cm³/rev [5.17 in³/rev] | 352 mm [13.858 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 5.5 mm [0.216 in] |

### Lifting of Personnel Winch - standard




### Lifting of Personnel Winch - extended drum



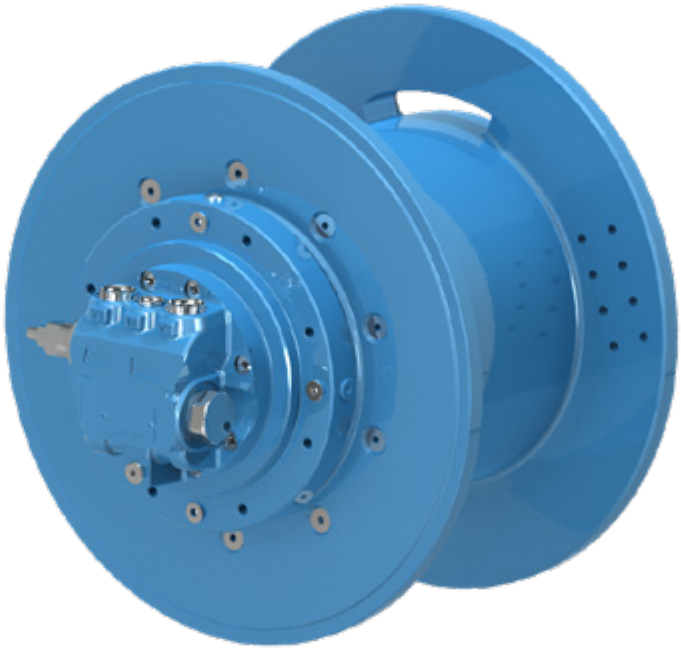

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.
(3) Lifting of personnel brake release pressure (Release / Max) 27/315 bar [392/4570 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **B5VA068** | 68 [cm³/rev] | 4.14 [in³/rev] |
| | **HR160** | 160 [cm³/rev] | 9.74 [in³/rev] |
| | **SH11CR090** | 90 [cm³/rev] | 5.47 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V085** | 85 [cm³/rev] | 5.17 [in³/rev] |
| **Ratio** | | 33.6 | |
| | | 22.9 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| | **extended** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 14 [mm]<br>Ø 16 [mm]<br>Ø 18 [mm] | Ø 0.55 [in]<br>Ø 0.63 [in]<br>Ø 0.71 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 16 mm [0.63 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE055-SD16..-01-33.6-APF068**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 5500 | 5090 | 4720 | 4410 | 4130 | - |
| Rope speed | [m/min] | 21 | 22 | 24 | 26 | 28 | - |
| Rope length | [m] | 22 | 44 | 70 | 97 | 126 | 156 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA068 | | Oil quantity | 4.8 | [l] |
| Starting lifting pressure | 335 | [bar] | Oil fill / drain plug | G3/8 | T |
| Operating pressure | 285 | [bar] | Estimated weight | 320 | [kg] |
| Operating oil flow at the motor | 50 | [l/min] | Lifting / Lowering port | G3/4 | V1 / V2 |
| Minimum oil flow at the motor | 6.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 33.6 | [i] | Static braking torque (1) | 494 | [Nm] |
| Advised rope diameter | 16 | [mm] | Brake release pressure (Release/Max) | 27 / 350 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE055-SD16..-01-33.6-APF068**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 12100 | 11220 | 10410 | 9720 | 9110 | - |
| Rope speed | [fpm] | 69 | 75 | 80 | 86 | 92 | - |
| Rope length | [ft] | 72 | 147 | 231 | 318 | 415 | 513 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | B5VA068 | | Oil quantity | 1.26 | [gal] |
| Starting lifting pressure | 4885 | [psi] | Oil fill / drain plug | G3/8 | T |
| Operating pressure | 4075 | [psi] | Estimated weight | 705 | [lbf] |
| Operating oil flow at the motor | 13 | [gpm] | Lifting / Lowering port | G3/4 | V1 / V2 |
| Minimum oil flow at the motor | 1,58 | [gpm] | Motor drain port | G1/2 | DR |
| Gear ratio | 33.6 | [i] | Static braking torque (1) | 364 | [ft·lbf] |
| Advised rope diameter | 0.62 | [in] | Brake release pressure (Release/Max) | 395 / 5080 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 14 [mm] | 3013 (5) (1) | 3900 | 1159 (5) (1) | 1500 | 3013 (5) (1) | 3900 | 1468 (5) (1) | 1850 |
| Ø 16 [mm] | 3998 (4) (1) | 5000 | 1199 (4) (1) | 1500 | 3518 (4) (1) | 4400 | 1519 (4) (1) | 1850 |
| Ø 18 [mm] | 4213 (3) (1) | 5000 | 1264 (3) (1) | 1500 | 3707 (3) (1) | 4400 | 1601 (3) (1) | 1850 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.55 [in] | 6696 (5) (1) | 8667 | 2576 (5) (1) | 3333 | 6696 (5) (1) | 8667 | 3262 (5) (1) | 4111 |
| Ø 0.63 [in] | 8884 (4) (1) | 11111 | 2664 (4) (1) | 3333 | 7818 (4) (1) | 9778 | 3376 (4) (1) | 4111 |
| Ø 0.71 [in] | 9362 (3) (1) | 11111 | 2808 (3) (1) | 3333 | 8238 (3) (1) | 9778 | 3558 (3) (1) | 4111 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available - standard

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 14 [mm] | Rope length | [m] | 25 | 50 | 79 | 109 | 141 | 174 |
| Rope Diameter Ø 18 [mm] | Rope length | [m] | 19 | 40 | 63 | 87 | 114 | - |

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.55 [in] | Rope length | [ft] | 82 | 167 | 261 | 357 | 464 | 572 |
| Rope Diameter Ø 0.71 [in] | Rope length | [ft] | 64 | 131 | 208 | 287 | 376 | - |

Last indicated Layer is intended only as Storage

## Other Ropes available - extended

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 14 [mm] | Rope length | [m] | 37 | 77 | 121 | 166 | 215 | 265 |
| Rope Diameter Ø 16 [mm] | Rope length | [m] | 33 | 68 | 107 | 147 | 192 | 238 |
| Rope Diameter Ø 18 [mm] | Rope length | [m] | 29 | 61 | 96 | 133 | 174 | - |

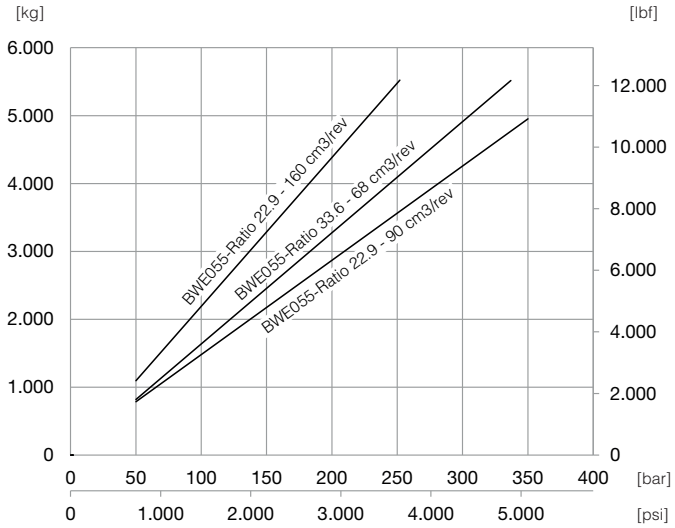
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.55 [in] | Rope length | [ft] | 124 | 254 | 397 | 544 | 705 | 871 |
| Rope Diameter Ø 0.63 [in] | Rope length | [ft] | 109 | 224 | 352 | 485 | 631 | 781 |
| Rope Diameter Ø 0.71 [in] | Rope length | [ft] | 97 | 201 | 317 | 438 | 573 | - |

Last indicated Layer is intended only as Storage

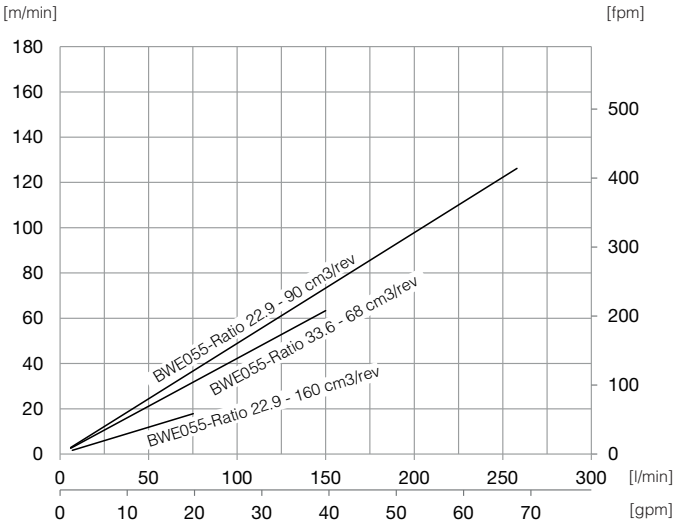
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

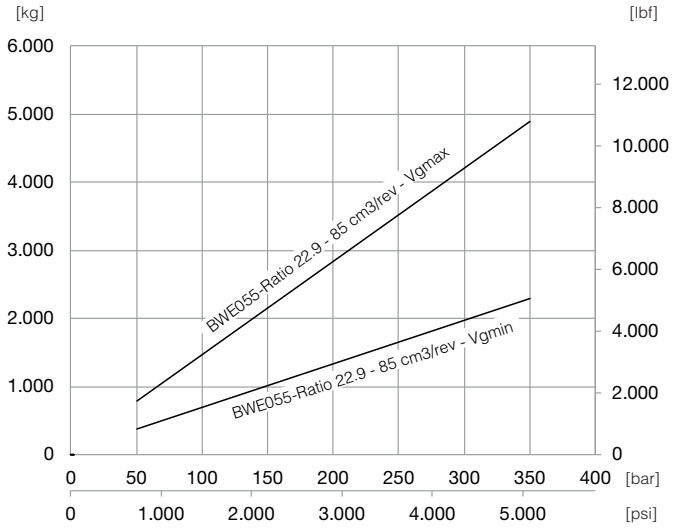



### Maximum Speed at first layer

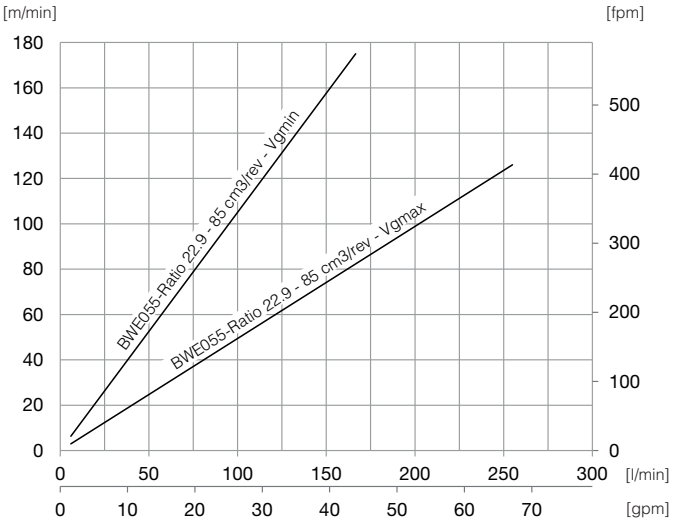



## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




### Maximum Speed at first layer




$Vg_{max}$ = 85 cm³/rev [5.17 in³/rev]
$Vg_{min}$ = 40 cm³/rev [2.43 in³/rev]

$Vg_{max}$ = 85 cm³/rev [5.17 in³/rev] - Max 255 l/min [67 gpm] allowed
$Vg_{min}$ = 40 cm³/rev [2.43 in³/rev] - Max 166 l/min [44 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

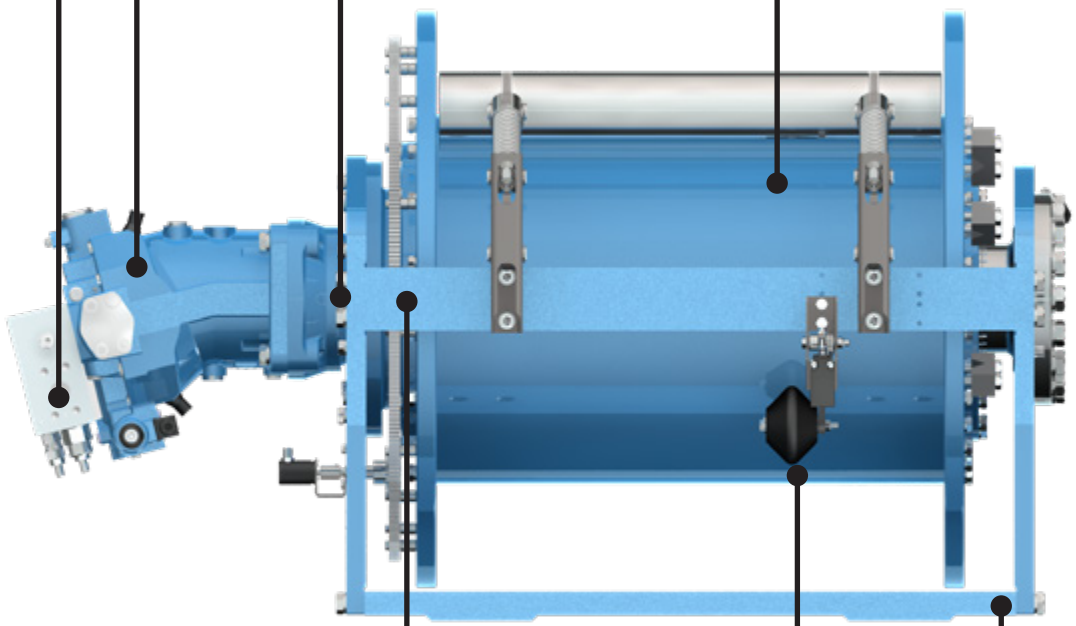
**Line Pull at first Layer up to:**
**7.000 [kg]**
**15.400 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Spheroidal graphite cast iron,
available in grooved or smooth options



**High performance Gears**
Low noise and longer life time

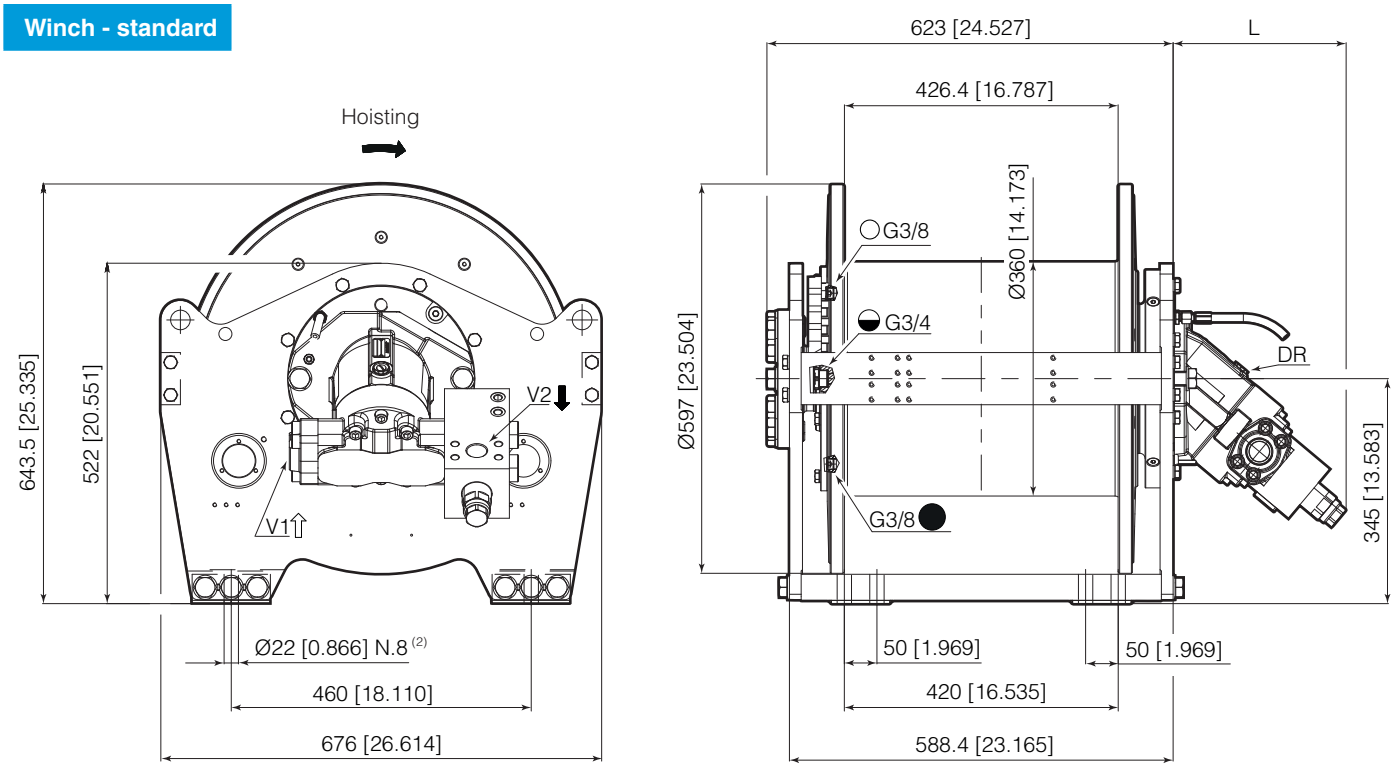
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

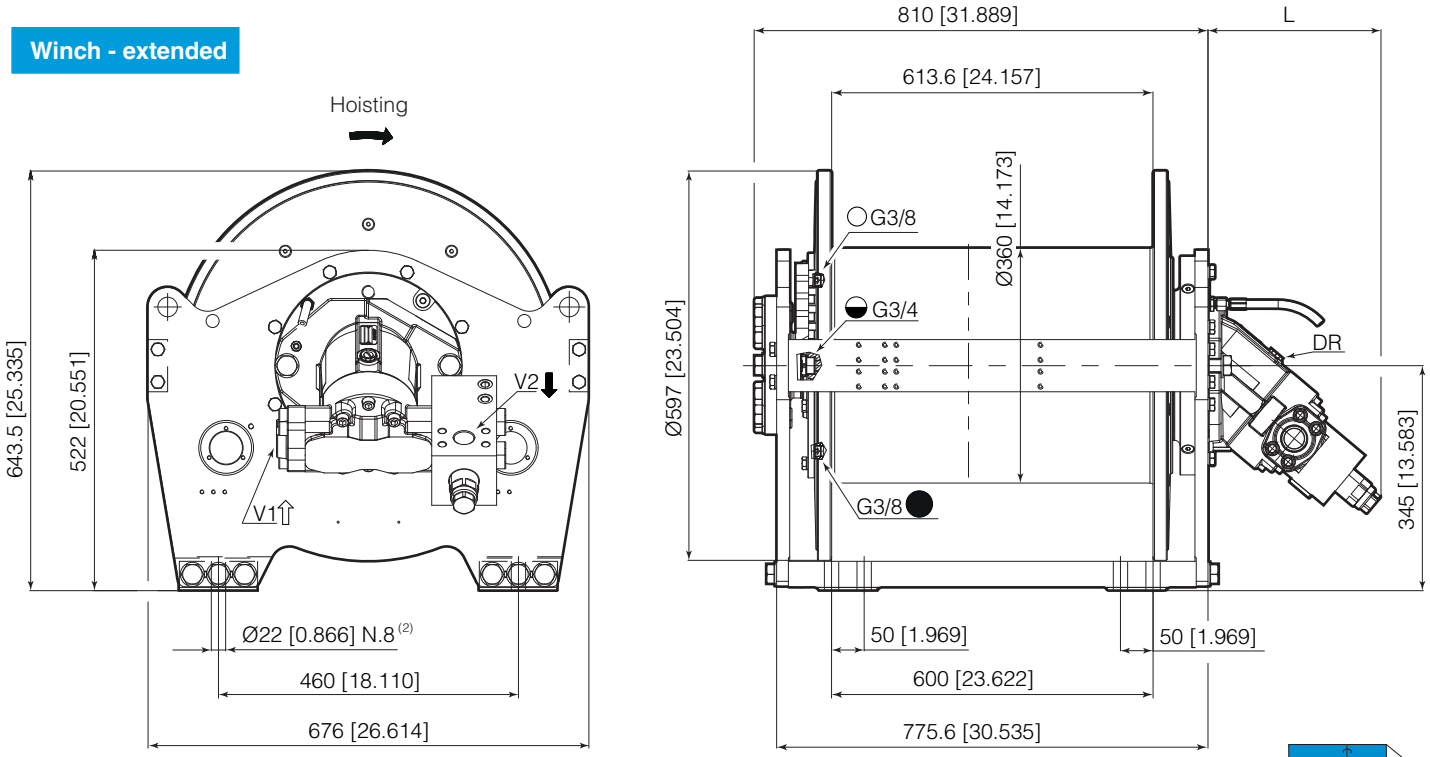
## Brevini® Hydraulic Axial Piston Motor

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11CR090 (1) | 90 cm³/rev [5.47 in³/rev] | 239 mm [9.409 in] |
| **Fixed Displacement** | SH11CR125 (1) | 125 cm³/rev [7.61 in³/rev] | 265 mm [10.433 in] |
| **Variable Displacement** | SH9V115 (1) | 115 cm³/rev [7.00 in³/rev] | 408 mm [16.062 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 6.0 mm [0.236 in] |

## Winch - standard




## Winch - extended



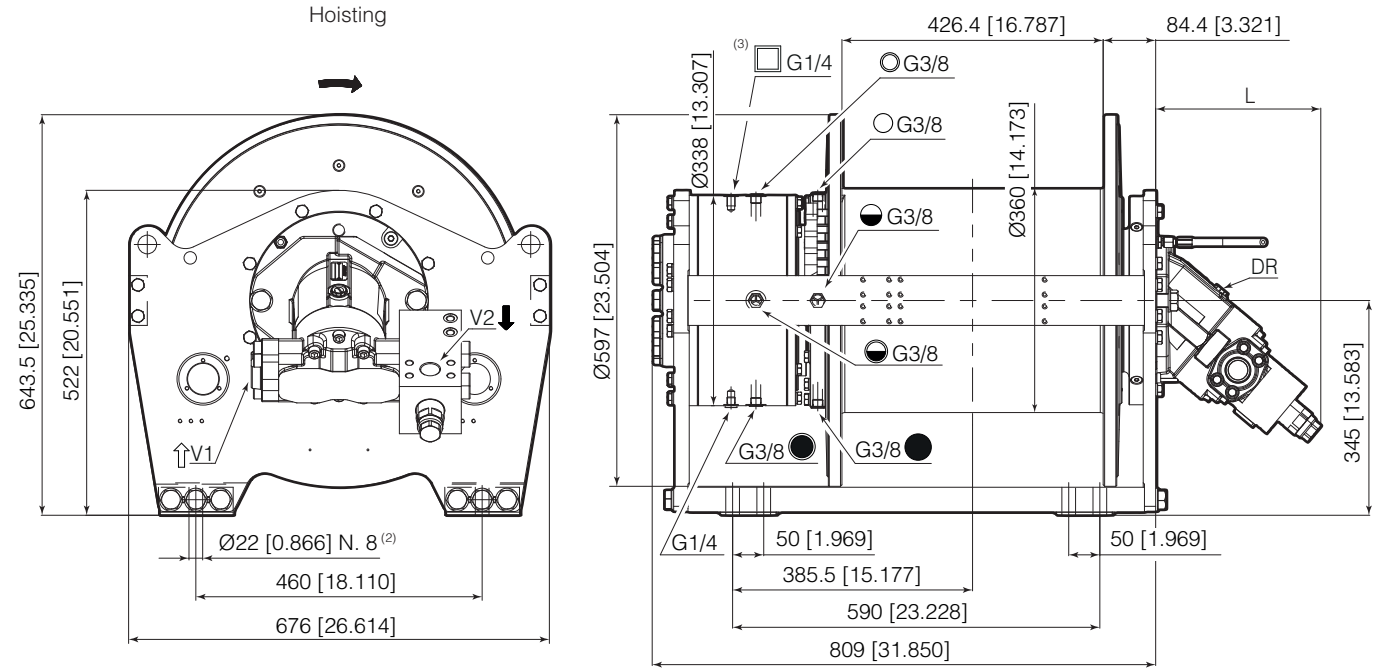

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 4 bolts for DNV certified version only. N. 8 bolts for other versions.

SYMBOL A 16

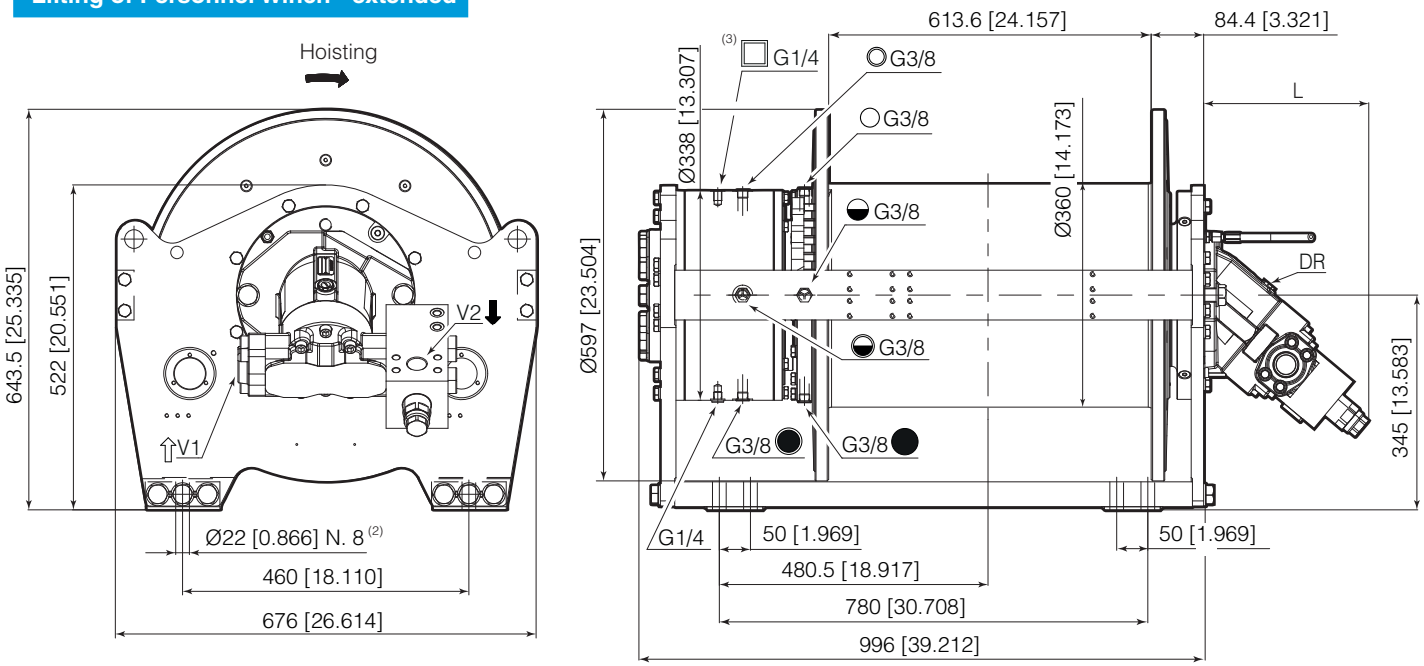
## Brevini® Hydraulic Axial Piston Motor for Lifting of Personnel Winches

| | Motor type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11CR090 (1) | 90 cm³/rev [5.47 in³/rev] | 239 mm [9.409 in] |
| **Fixed Displacement** | SH11CR125 (1) | 125 cm³/rev [7.61 in³/rev] | 265 mm [10.433 in] |
| **Variable Displacement** | SH9V115 (1) | 115 cm³/rev [7.00 in³/rev] | 408 mm [16.062 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 6.0 mm [0.236 in] |

### Lifting of Personnel Winch - standard




### Lifting of Personnel Winch - extended



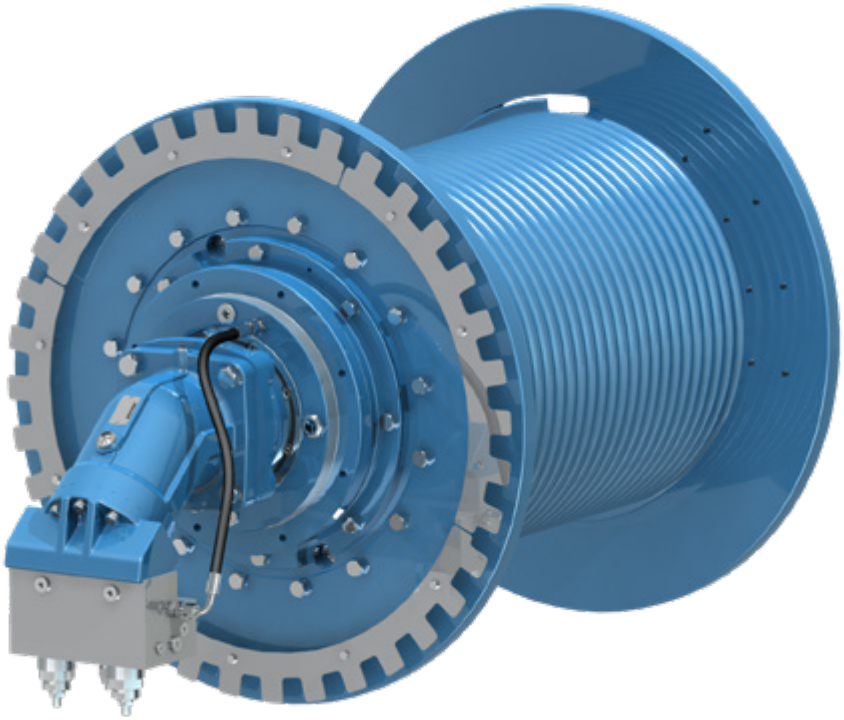

(1) As Standard with single overcenter valve, double overcenter valve available on request.
(2) N. 4 bolts for DVN certified version only. N. 8 bolts for other versions.
(3) Lifting of personnel brake release pressure (Release / Max) 39/300 bar [566/4355 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **SH11CR090** | 90 [cm³/rev] | 5.47 [in³/rev] |
| | **SH11CR125** | 125 [cm³/rev] | 7.61 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V115** | 115 [cm³/rev] | 7.00 [in³/rev] |
| **Ratio** | | 33.6 | |
| | | 22.9 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| | **extended** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 18 [mm]<br>Ø 20 [mm]<br>Ø 22 [mm] | Ø 0.71 [in]<br>Ø 0.78 [in]<br>Ø 0.86 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 20 mm [0.78 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

BWE070-SD20..-01-22.9-APF125

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 7000 | 6430 | 5940 | 5520 | 5150 | - |
| Rope speed | [m/min] | 58 | 64 | 69 | 74 | 80 | - |
| Rope length | [m] | 24 | 49 | 78 | 108 | 141 | 175 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11CR125 | | Oil quantity | 8 | [l] |
| Starting lifting pressure | 395 | [bar] | Oil fill / drain plug | G3/8 | T |
| Operating pressure | 335 | [bar] | Estimated weight | 510 | [kg] |
| Operating oil flow at the motor | 150 | [l/min] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 8.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 22.9 | [i] | Static braking torque (1) | 848 | [Nm] |
| Advised rope diameter | 20 | [mm] | Brake release pressure (Release/Max) | 33 / 315 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

BWE070-SD20..-01-22.9-APF125

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 15400 | 14180 | 13100 | 12170 | 11370 | - |
| Rope speed | [fpm] | 193 | 210 | 227 | 245 | 262 | - |
| Rope length | [ft] | 80 | 163 | 258 | 355 | 464 | 575 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11CR125 | | Oil quantity | 2.11 | [gal] |
| Starting lifting pressure | 5770 | [psi] | Oil fill / drain plug | G3/8 | T |
| Operating pressure | 4815 | [psi] | Estimated weight | 1124 | [lbf] |
| Operating oil flow at the motor | 40 | [gpm] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 2,11 | [gpm] | Motor drain port | G1/2 | DR |
| Gear ratio | 22.9 | [i] | Static braking torque (1) | 625 | [ft·lbf] |
| Advised rope diameter | 0.78 | [in] | Brake release pressure (Release/Max) | 480 / 4570 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**
- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 18 [mm] | 3923 (5) (1) | 5200 | 1509 (5) (1) | 2000 | 3923 (5) (1) | 5200 | 1811 (5) (1) | 2400 |
| Ø 20 [mm] | 5040 (4) (1) | 6400 | 1575 (4) (1) | 2000 | 4804 (4) (1) | 6100 | 1890 (4) (1) | 2400 |
| Ø 22 [mm] | 5348 (3) (1) | 6400 | 1671 (3) (1) | 2000 | 5097 (3) (1) | 6100 | 2005 (3) (1) | 2400 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.71 [in] | 8718 (5) (1) | 11556 | 3353 (5) (1) | 4444 | 8718 (5) (1) | 11556 | 4024 (5) (1) | 5333 |
| Ø 0.78 [in] | 11200 (4) (1) | 14222 | 3500 (4) (1) | 4444 | 10676 (4) (1) | 13556 | 4200 (4) (1) | 5333 |
| Ø 0.86 [in] | 11884 (3) (1) | 14222 | 3713 (3) (1) | 4444 | 11327 (3) (1) | 13556 | 4456 (3) (1) | 5333 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available - standard

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 18 [mm] | Rope length | [m] | 27 | 55 | 86 | 118 | 154 | 190 |
| Rope Diameter Ø 22 [mm] | Rope length | [m] | 22 | 45 | 72 | 99 | 130 | - |

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.71 [in] | Rope length | [ft] | 88 | 180 | 283 | 389 | 506 | 626 |
| Rope Diameter Ø 0.86 [in] | Rope length | [ft] | 73 | 149 | 237 | 327 | 429 | - |

Last indicated Layer is intended only as Storage

## Other Ropes available - extended

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 18 [mm] | Rope length | [m] | 38 | 79 | 124 | 171 | 223 | 276 |
| Rope Diameter Ø 20 [mm] | Rope length | [m] | 35 | 72 | 113 | 157 | 204 | 254 |
| Rope Diameter Ø 22 [mm] | Rope length | [m] | 32 | 66 | 104 | 144 | 189 | - |

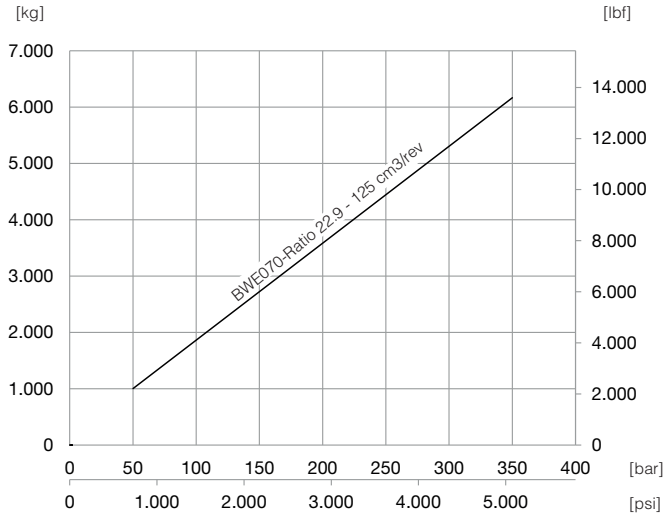
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0.71 [in] | Rope length | [ft] | 127 | 261 | 410 | 564 | 733 | 907 |
| Rope Diameter Ø 0.78 [in] | Rope length | [ft] | 115 | 237 | 373 | 515 | 672 | 834 |
| Rope Diameter Ø 0.86 [in] | Rope length | [ft] | 105 | 217 | 343 | 475 | 622 | - |

Last indicated Layer is intended only as Storage

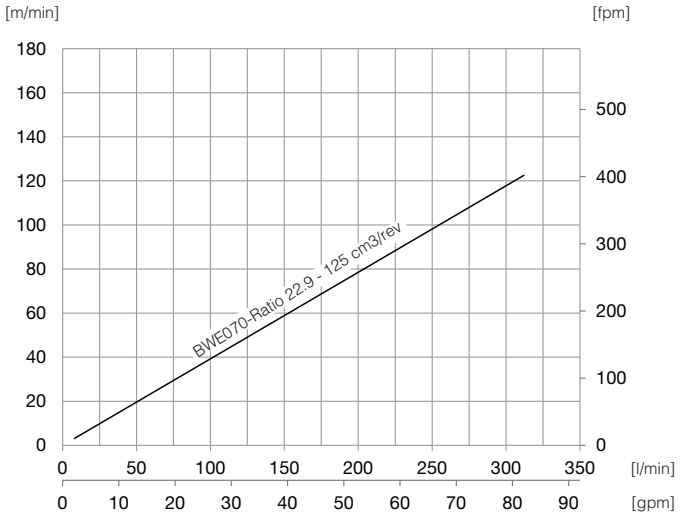
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

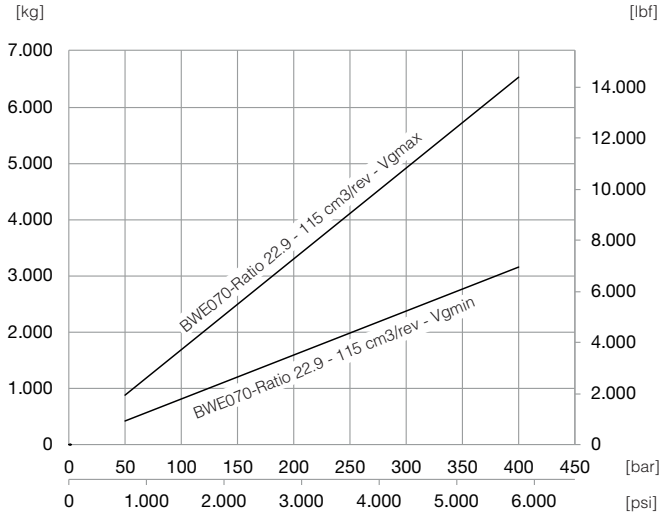



### Maximum Speed at first layer

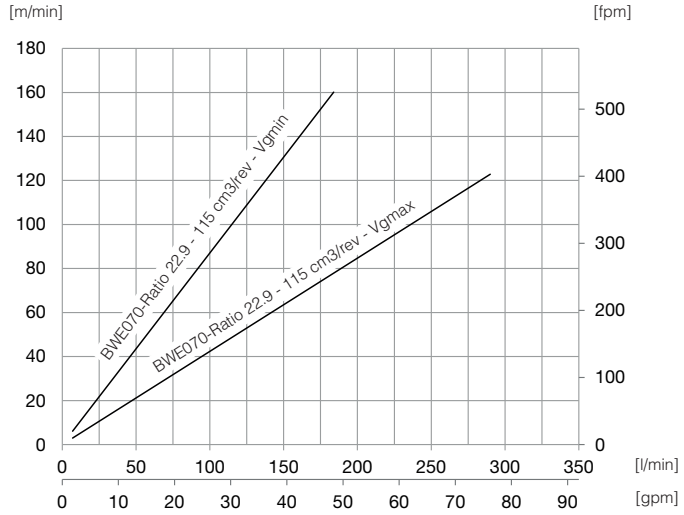



## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




### Maximum Speed at first layer




$Vg_{max}$ = 115 cm³/rev [7.00 in³/rev]
$Vg_{min}$ = 56 cm³/rev [4.40 in³/rev]

$Vg_{max}$ = 115 cm³/rev [7.00 in³/rev] - Max 290 l/min [76 gpm] allowed
$Vg_{min}$ = 56 cm³/rev [4.40 in³/rev] - Max 183 l/min [48 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

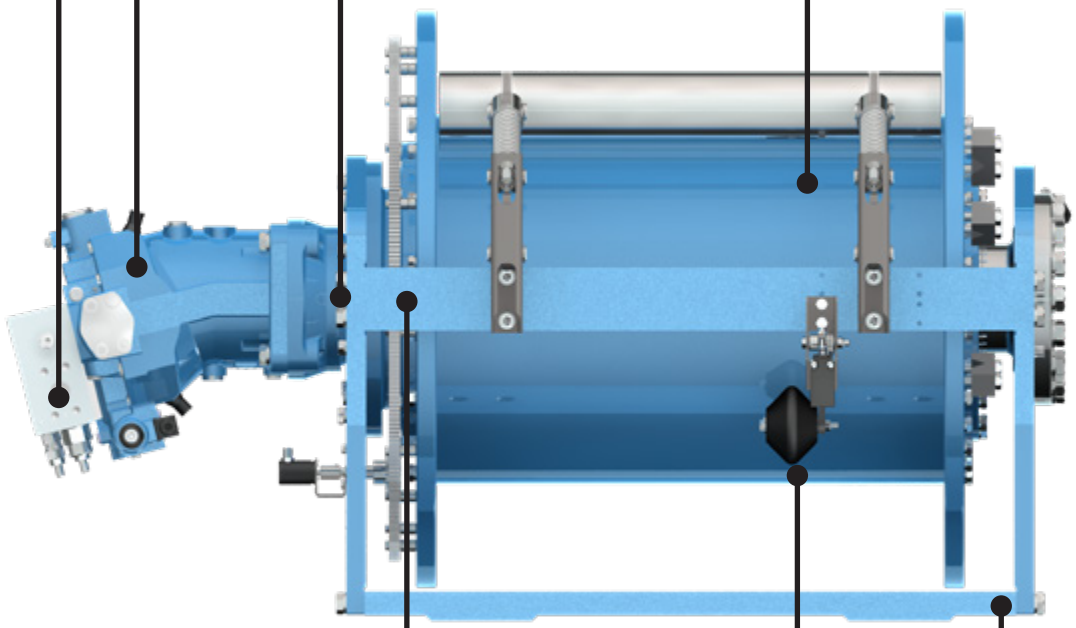
**Line Pull at first Layer up to:**
**8.500 [kg]**
**18.700 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Robust steel drum, available in
grooved or smooth options



**High performance Gears**
Low noise and longer life time

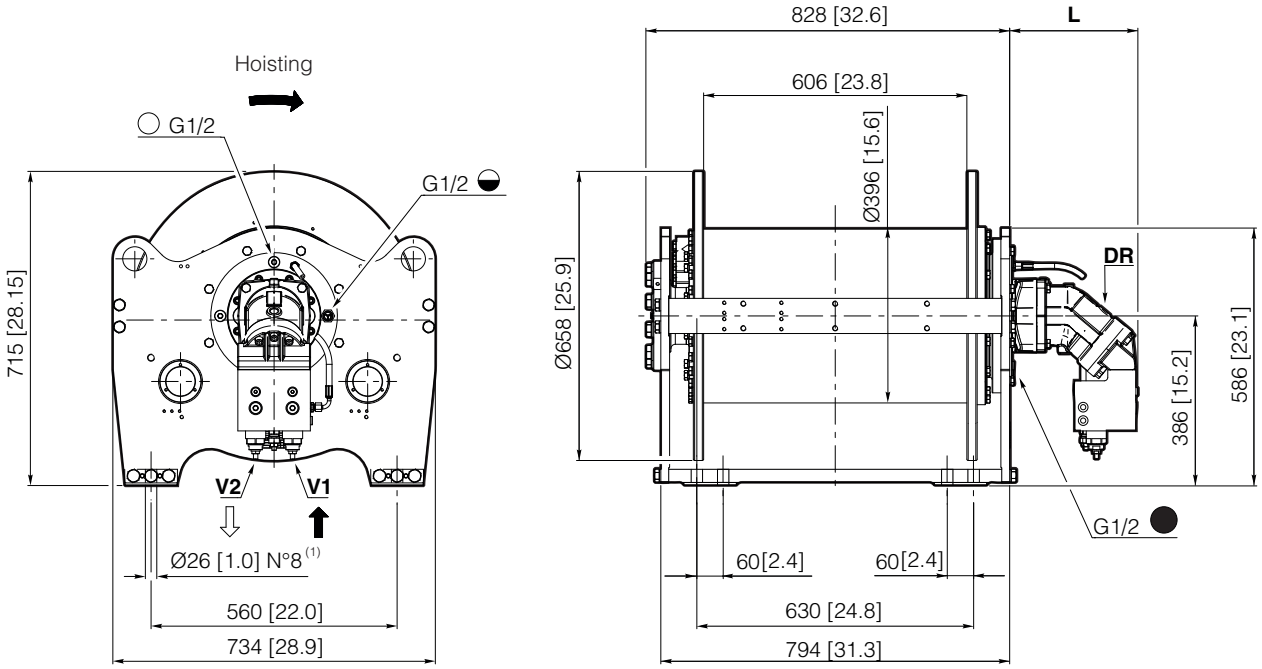
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

## Brevini® Hydraulic Axial Piston Motor

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C075 | 77.82 cm³/rev [4.747 in³/rev] | 286 mm [11.3 in] |
| **Variable Displacement** | SH9V085 | 85.3 cm³/rev [5.203 in³/rev] | 380 mm [15 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 9.5 mm [0.374 in] |

## Winch



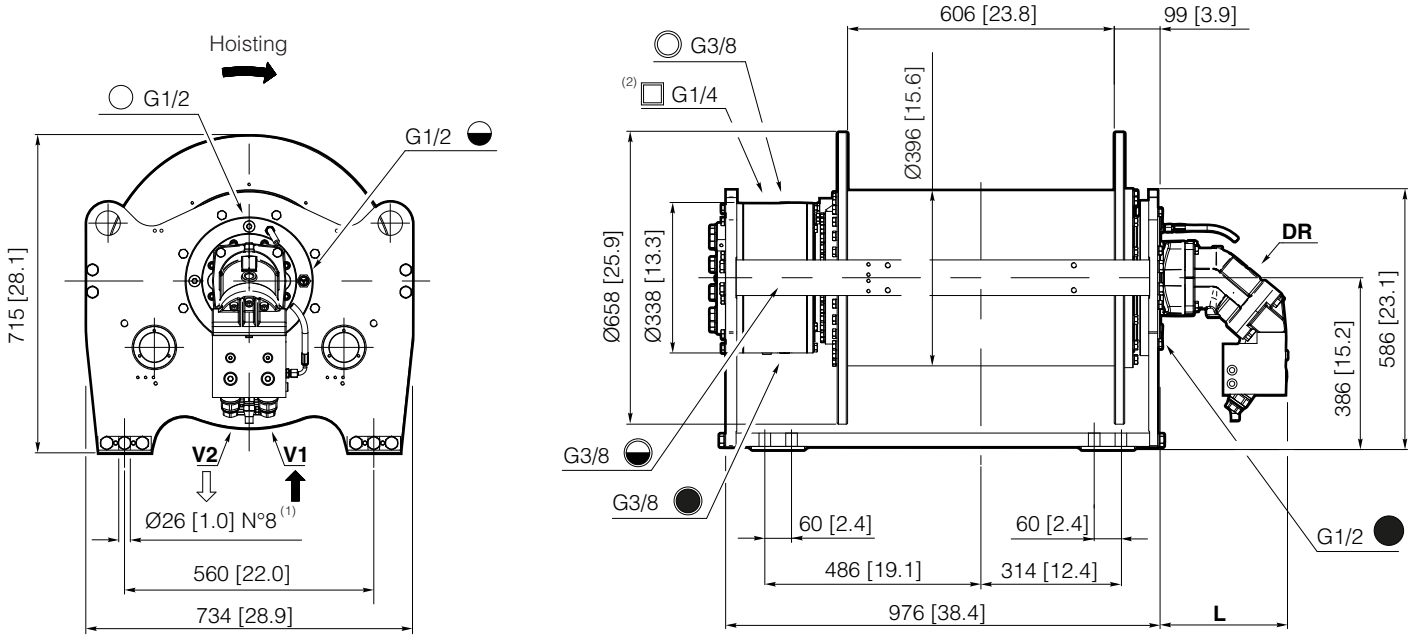

(1) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.

SYMBOL A 16

## Brevini® Hydraulic Axial Piston Motor for Lifting of Personnel Winches

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C075 | 77.82 cm³/rev [4.747 in³/rev] | 286 mm [11.3 in] |
| **Variable Displacement** | SH9V085 | 85.3 cm³/rev [5.203 in³/rev] | 380 mm [15 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 9.5 mm [0.374 in] |

## Lifting of Personnel Winch



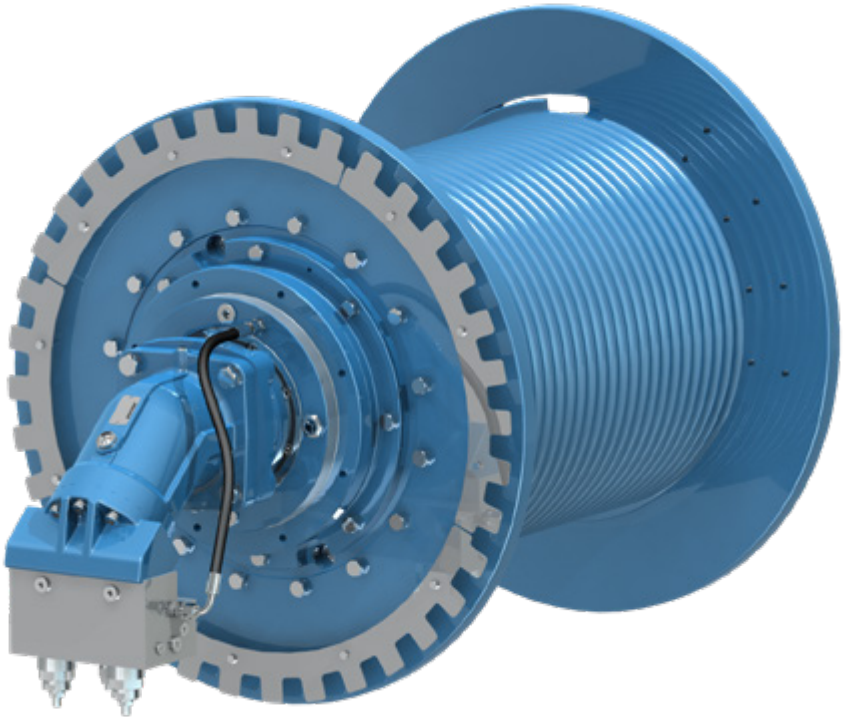

(1) N. 8 bolts for ABS certified version only. N. 4 bolts for other versions.
(2) Lifting of personnel brake release pressure (Release / Max) 50/300 bar [725/4355 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **SH11C075** | 77.82 [cm³/rev] | 4.74 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V085** | 85.3 [cm³/rev] | 5.2 [in³/rev] |
| **Ratio** | | 49.4 | |
| | | 81.0 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 20 [mm]<br>Ø 22 [mm]<br>Ø 24 [mm] | Ø 0.78 [in]<br>Ø 0.86 [in]<br>Ø 0.94 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 22 mm [0.86 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE085-SD22..-01-81-APF075**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 8500 | 7820 | 7230 | 6720 | 6270 | - |
| Rope speed | [m/min] | 29 | 32 | 34 | 37 | 39 | - |
| Rope length | [m] | 34 | 71 | 112 | 154 | 202 | 250 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C075 | | Oil quantity | 22 | [l] |
| Starting lifting pressure | 245 | [bar] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 210 | [bar] | Estimated weight | 671 | [kg] |
| Operating oil flow at the motor | 150 | [l/min] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 6.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 81,0 | [i] | Static braking torque (1) | 1172 | [Nm] |
| Advised rope diameter | 22 | [mm] | Brake release pressure (Release/Max) | 26 / 350 | [bar] |

| | | |
|---|---|---|
| Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) | M5 (T5-L2) | $n_2$=15 [rpm] |

## United States Customary Units: USC

**BWE085-SD22..-01-81-APF075**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 18800 | 17250 | 15940 | 14810 | 13830 | - |
| Rope speed | [fpm] | 96 | 105 | 113 | 122 | 131 | - |
| Rope length | [ft] | 114 | 233 | 368 | 507 | 662 | 822 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C075 | | Oil quantity | 5.81 | [gal] |
| Starting lifting pressure | 3610 | [psi] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 3010 | [psi] | Estimated weight | 1479 | [lbf] |
| Operating oil flow at the motor | 40 | [gpm] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 1.58 | [gpm] | Motor drain port | G1 | DR |
| Gear ratio | 81.0 | [i] | Static braking torque (1) | 864 | [ft·lbf] |
| Advised rope diameter | 0.86 | [in] | Brake release pressure (Release/Max) | 380 / 5080 | [psi] |

| | | |
|---|---|---|
| Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) | M5 (T5-L2) | $n_2$=15 [rpm] |

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 20 [mm] | 4516 (5) (1) | 6000 | 1732 (5) (1) | 2300 | 4516 (5) (1) | 6000 | 2108 (5) (1) | 2800 |
| Ø 22 [mm] | 5335 (4) (1) | 6800 | 1811 (4) (1) | 2300 | 5355 (4) (1) | 6800 | 2205 (4) (1) | 2800 |
| Ø 24 [mm] | 5765 (3) (1) | 6800 | 1925 (3) (1) | 2300 | 5689 (3) (1) | 6800 | 2343 (3) (1) | 2800 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.78 [in] | 9956 (5) (1) | 13227 | 3818 (5) (1) | 5070 | 9956 (5) (1) | 13227 | 4647 (5) (1) | 6172 |
| Ø 0.86 [in] | 11761 (4) (1) | 14991 | 3992 (4) (1) | 5070 | 11805 (4) (1) | 14991 | 4861 (4) (1) | 6172 |
| Ø 0.94 [in] | 12709 (3) (1) | 14991 | 4243 (3) (1) | 5070 | 12542 (3) (1) | 14991 | 5165 (3) (1) | 6172 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 20 [mm] | Rope length | [m] | 38 | 77 | 122 | 168 | 218 | 270 |
| Rope Diameter Ø 24 [mm] | Rope length | [m] | 32 | 65 | 104 | 143 | 188 | - |

## Other Ropes available

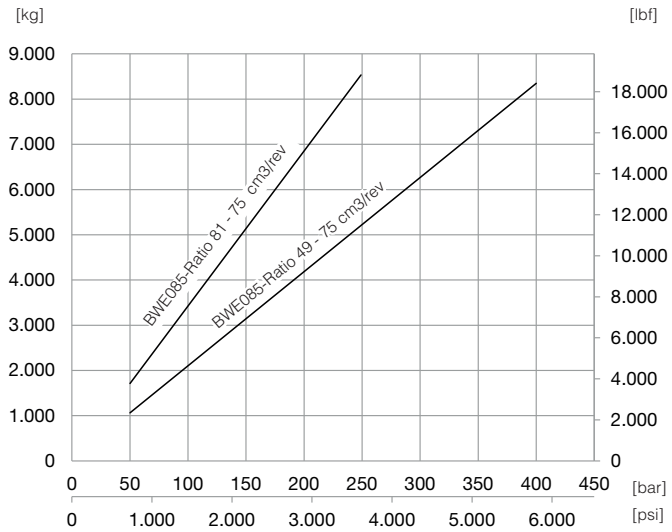
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,78 [in] | Rope length | [ft] | 124 | 255 | 400 | 551 | 717 | 887 |
| Rope Diameter Ø 0,94 [in] | Rope length | [ft] | 105 | 215 | 341 | 471 | 617 | - |

Last indicated Layer is intended only as Storage

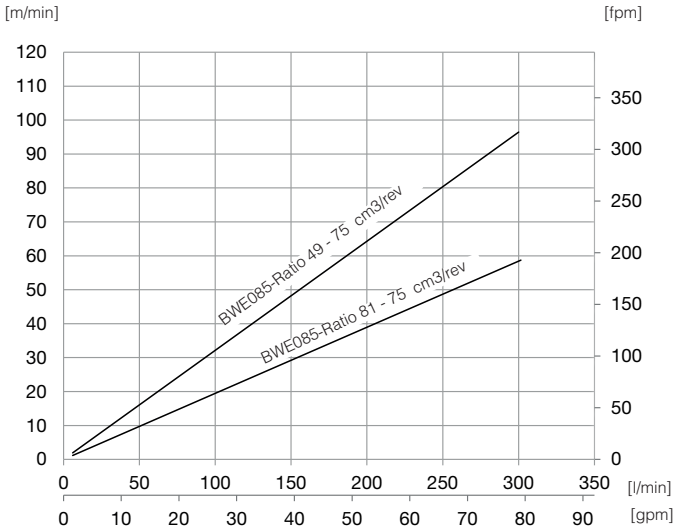
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

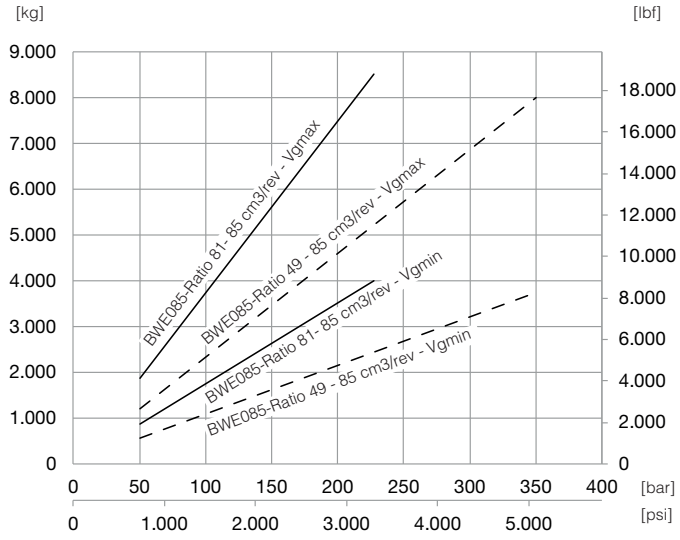



### Maximum Speed at first layer



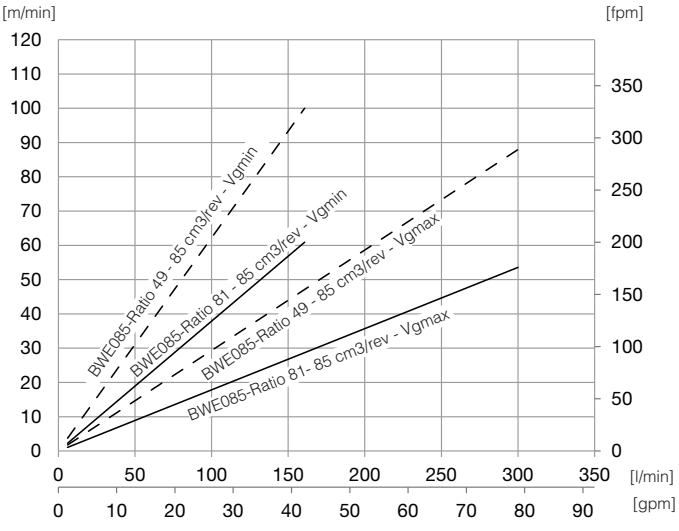

## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




$Vg_{max}$ = 85 cm³/rev [5.18 in³/rev]
$Vg_{min}$ = 40 cm³/rev [2.44 in³/rev]

### Maximum Speed at first layer




$Vg_{max}$ = 85 cm³/rev [5.18 in³/rev] - Max 300 l/min [80 gpm] allowed
$Vg_{min}$ = 40 cm³/rev [2.44 in³/rev] - Max 160 l/min [43 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

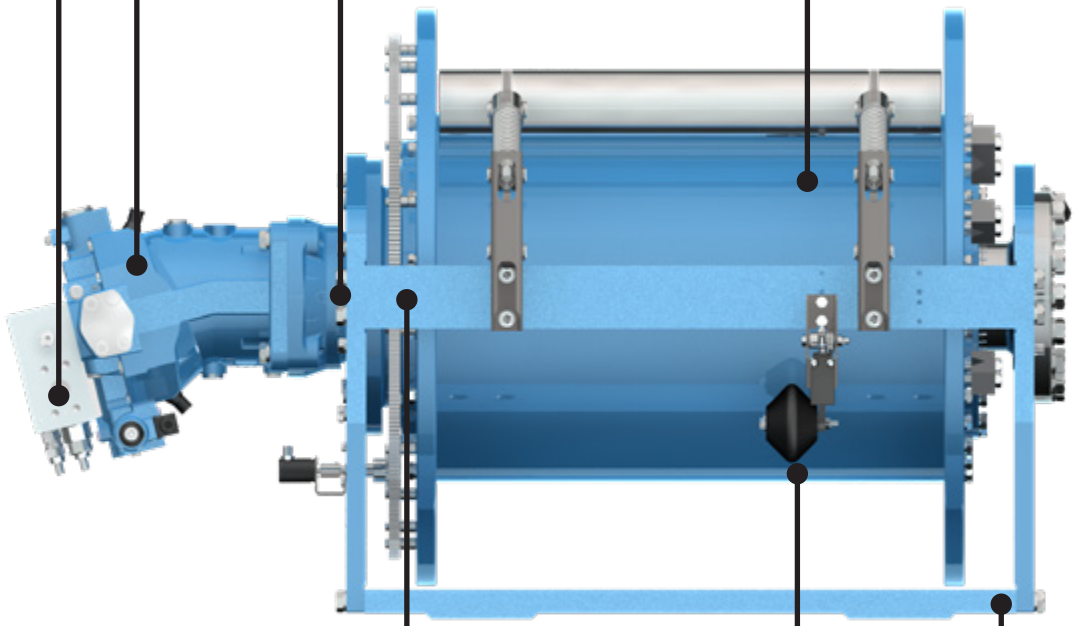
**Line Pull at first Layer up to:**
**10.500 [kg]**
**23.100 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Robust steel drum, available in
grooved or smooth options



**High performance Gears**
Low noise and longer life time

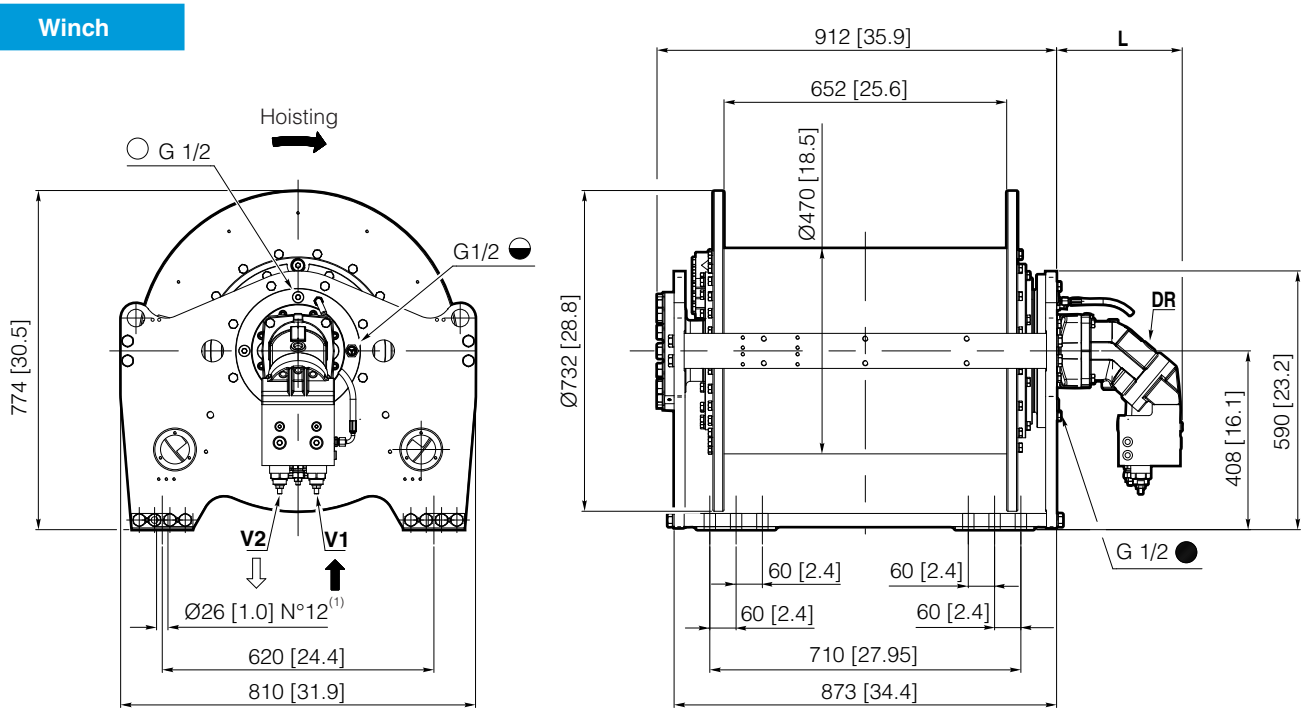
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

## Brevini® Hydraulic Axial Piston Motor

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C090 | 86.23 cm³/rev [5.26 in³/rev] | 286 mm [11.30 in] |
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.20 in] |
| **Variable Displacement** | SH9V115 | 115.7 cm³/rev [7.05 in³/rev] | 432 mm [17.00 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

## Winch



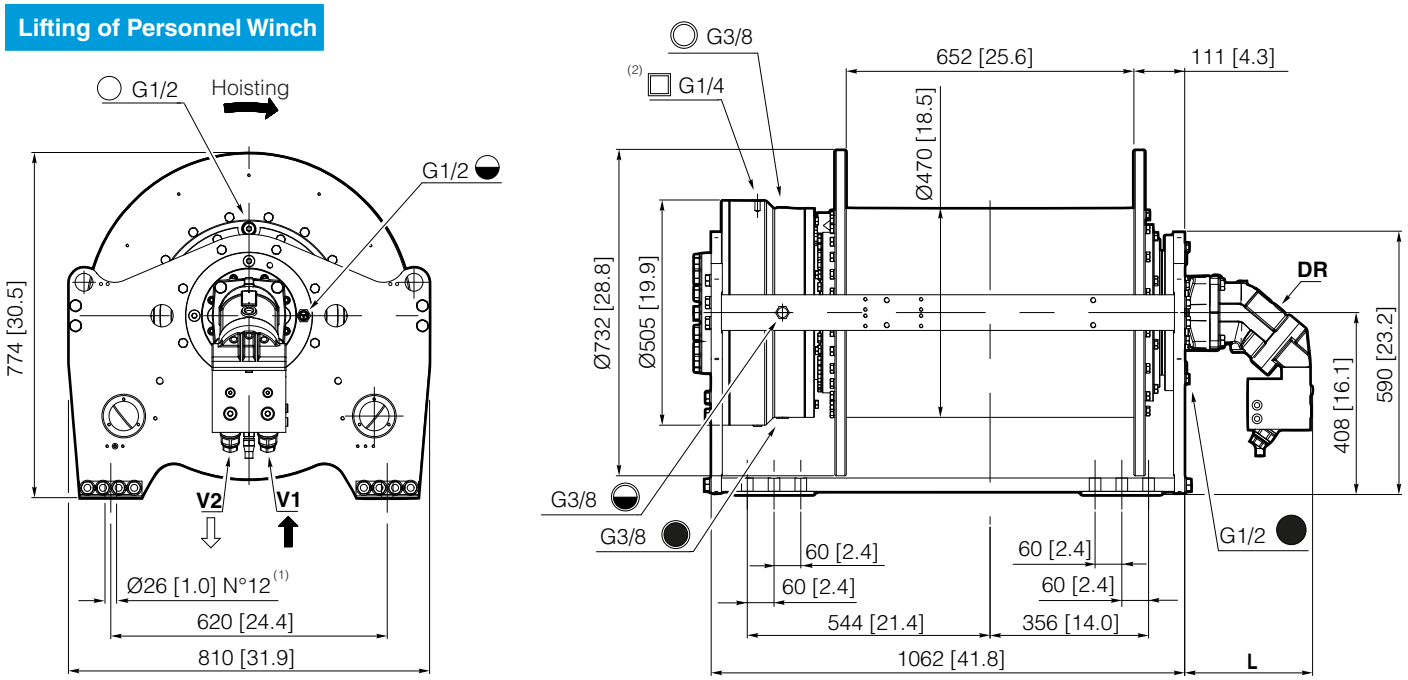

(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.

SYMBOL A 16

## Brevini® Hydraulic Axial Piston Motor for Lifting of Personnel Winches

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C090 | 86.23 cm³/rev [5.26 in³/rev] | 286 mm [11.30 in] |
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.20 in] |
| **Variable Displacement** | SH9V115 | 115.7 cm³/rev [7.05 in³/rev] | 432 mm [17.00 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

### Lifting of Personnel Winch



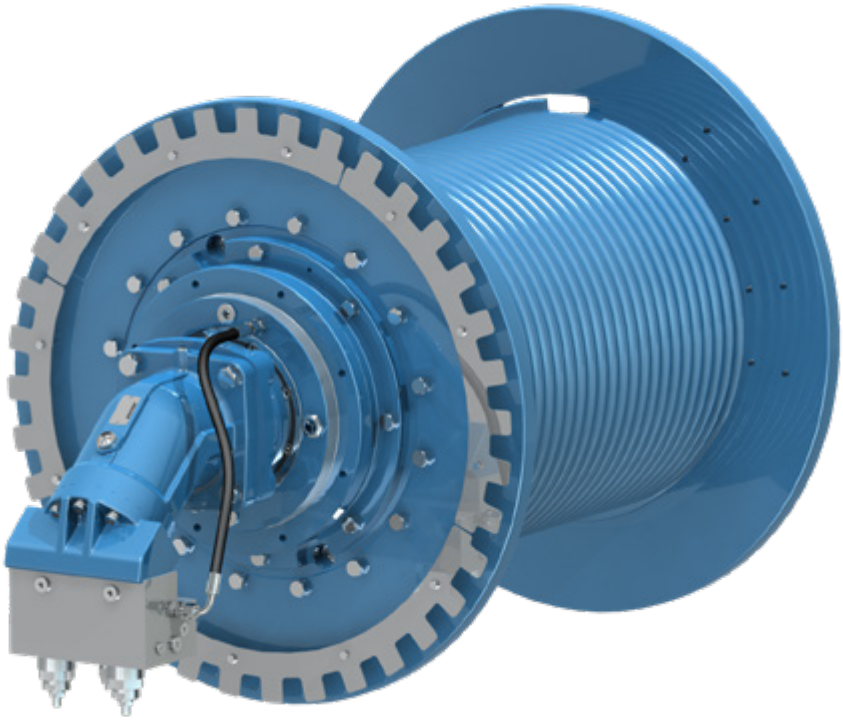

(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.
(2) Lifting of personnel brake release pressure (Release / Max) 23.5/300 bar [341/4355 psi]

SYMBOL A 16

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **SH11C090** | 86.23 cm³/rev | 5.26 [in³/rev] |
| | **SH11C125** | 124.8 cm³/rev | 4.747 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V115** | 115.7 [cm³/rev] | 7.05 [in³/rev] |
| **Ratio** | | 50.8 | |
| | | 83.2 | |
| **Drum** | **standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 20 [mm]<br>Ø 22 [mm]<br>Ø 24 [mm] | Ø 0.78 [in]<br>Ø 0.86 [in]<br>Ø 0.94 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 22 mm [0.86 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE105-SD22..-01-83,2-APF090**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 10500 | 9750 | 9110 | 8540 | 8040 | - |
| Rope speed | [m/min] | 30 | 32 | 35 | 37 | 39 | - |
| Rope length | [m] | 44 | 89 | 140 | 192 | 250 | 309 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C090 | | Oil quantity | 30 | [l] |
| Starting lifting pressure | 315 | [bar] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 265 | [bar] | Estimated weight | 899 | [kg] |
| Operating oil flow at the motor | 150 | [l/min] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 6.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 83,2 | [i] | Static braking torque (1) | 1172 | [Nm] |
| Advised rope diameter | 22 | [mm] | Brake release pressure (Release/Max) | 26 / 350 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE105-SD22..-01-83,2-APF090**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 23100 | 21510 | 20090 | 18840 | 17740 | - |
| Rope speed | [fpm] | 99 | 107 | 114 | 122 | 130 | - |
| Rope length | [ft] | 144 | 294 | 461 | 632 | 821 | 1013 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C090 | | Oil quantity | 7.92 | [in] |
| Starting lifting pressure | 4595 | [psi] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 3835 | [psi] | Estimated weight | 1981 | [lbf] |
| Operating oil flow at the motor | 40 | [gpm] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 1,58 | [gpm] | Motor drain port | G1/2 | DR |
| Gear ratio | 83,2 | [i] | Static braking torque (1) | 864 | [ft·lbf] |
| Advised rope diameter | 0.86 | [in] | Brake release pressure (Release/Max) | 380 / 5080 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 20 [mm] | 5630 (5) (1) | 7200 | 2190 (5) (1) | 2800 | 5630 (5) (1) | 7200 | 2659 (5) (1) | 3400 |
| Ø 22 [mm] | 6834 (4) (1) | 8400 | 2278 (4) (1) | 2800 | 6834 (4) (1) | 8400 | 2766 (4) (1) | 3400 |
| Ø 24 [mm] | 7204 (3) (1) | 8400 | 2402 (3) (1) | 2800 | 7204 (3) (1) | 8400 | 2916 (3) (1) | 3400 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.78 [in] | 12412 (5) (1) | 15873 | 4828 (5) (1) | 6172 | 12412 (5) (1) | 15873 | 5862 (5) (1) | 7495 |
| Ø 0.86 [in] | 15066 (4) (1) | 18518 | 5022 (4) (1) | 6172 | 15066 (4) (1) | 18518 | 6097 (4) (1) | 7495 |
| Ø 0.94 [in] | 15882 (3) (1) | 18518 | 5295 (3) (1) | 6172 | 15882 (3) (1) | 18518 | 6428 (3) (1) | 7495 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 20 [mm] | Rope length | [m] | 48 | 98 | 153 | 209 | 271 | 334 |
| Rope Diameter Ø 24 [mm] | Rope length | [m] | 40 | 82 | 130 | 178 | 232 | - |

## Other Ropes available

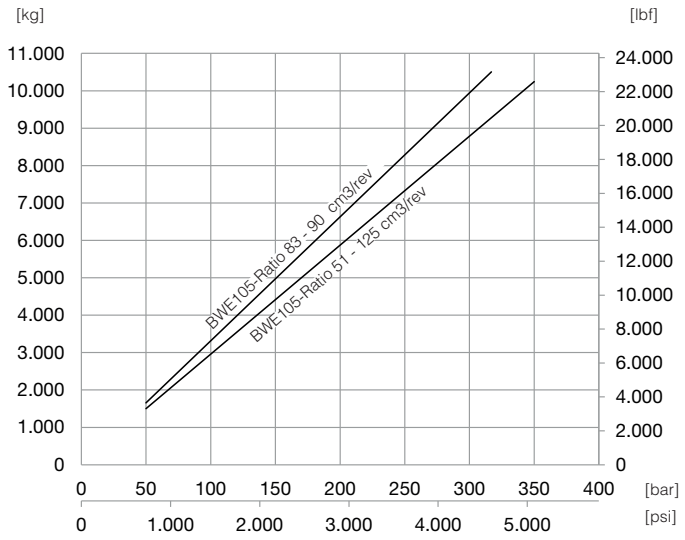
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,78 [in] | Rope length | [ft] | 158 | 322 | 502 | 687 | 890 | 1097 |
| Rope Diameter Ø 0,94 [in] | Rope length | [ft] | 133 | 271 | 426 | 586 | 763 | - |

Last indicated Layer is intended only as Storage

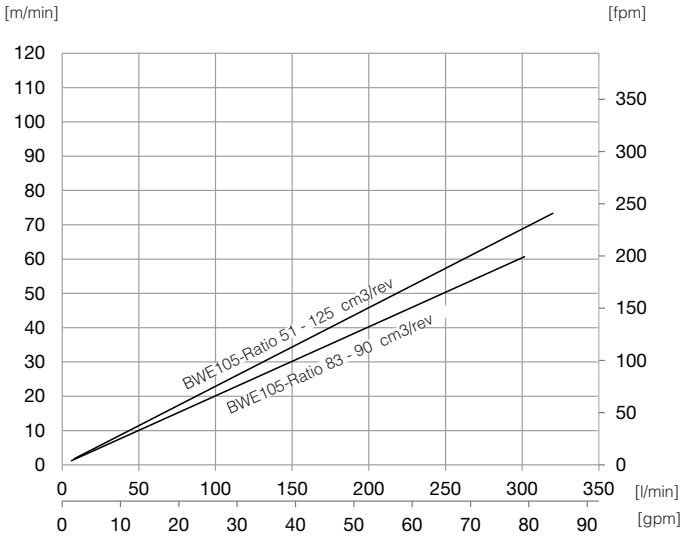
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

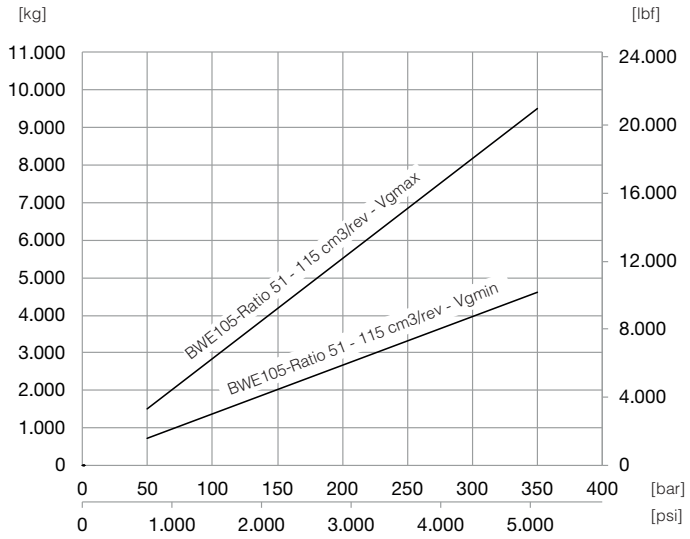



### Maximum Speed at first layer



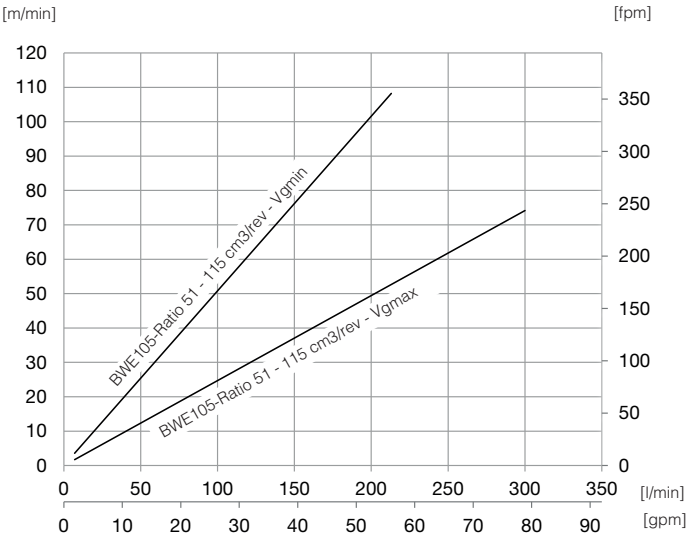

## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




$Vg_{max}$ = 115 cm³/rev [7.05 in³/rev]
$Vg_{min}$ = 56 cm³/rev [3.416 in³/rev]

### Maximum Speed at first layer




$Vg_{max}$ = 115 cm³/rev [7.05 in³/rev] - Max 300 l/min [80 gpm] allowed
$Vg_{min}$ = 56 cm³/rev [3.416 in³/rev] - Max 212 l/min [56 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

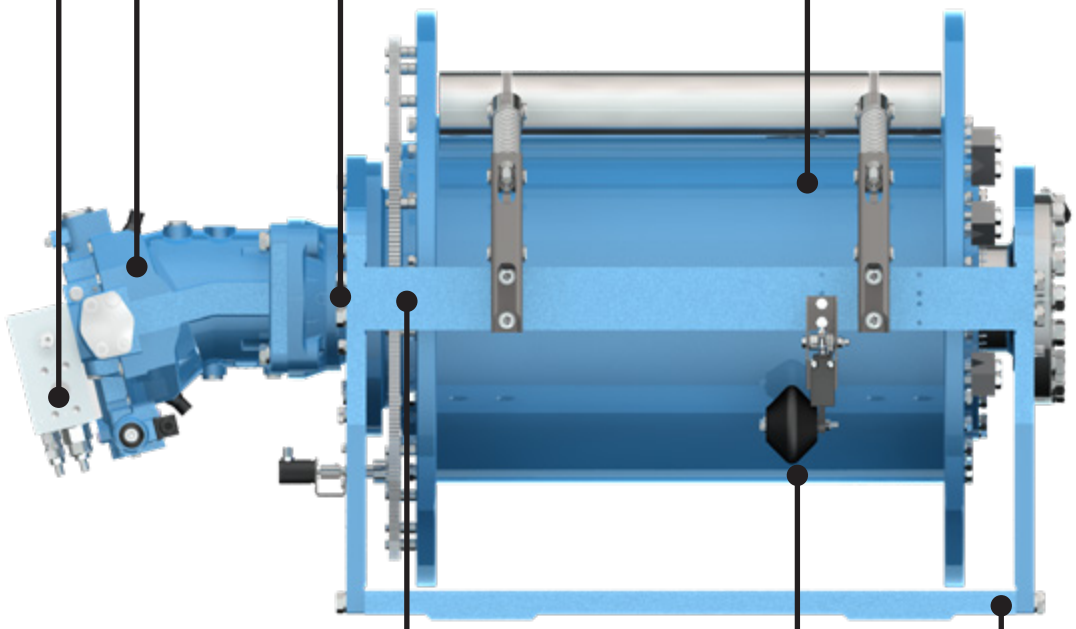
**Line Pull at first Layer up to:**
**12.500 [kg]**
**27.500 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Robust steel drum, available in
grooved or smooth options



**High performance Gears**
Low noise and longer life time

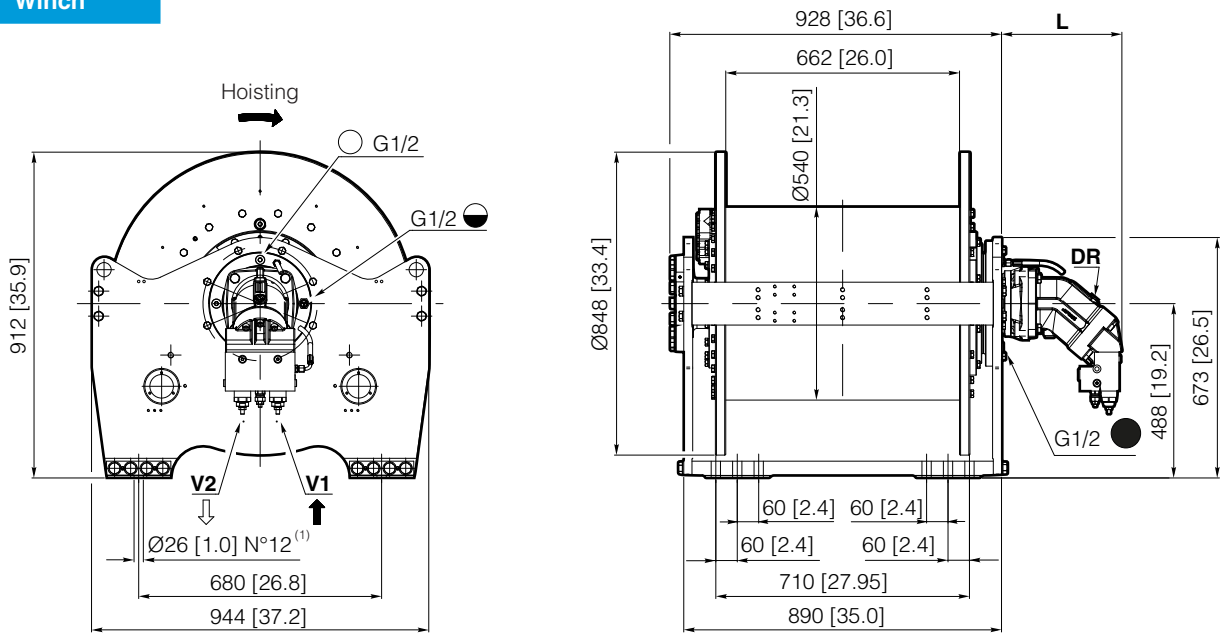
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

## Brevini® Hydraulic Axial Piston Motor

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.2 in] |
| **Fixed Displacement** | SH11C160 | 163.9 cm³/rev [9.998 in³/rev] | 400 mm [15.8 in] |
| **Variable Displacement** | SH9V165 | 166.2 cm³/rev [10.13 in³/rev] | 489 mm [19.2 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

## Winch



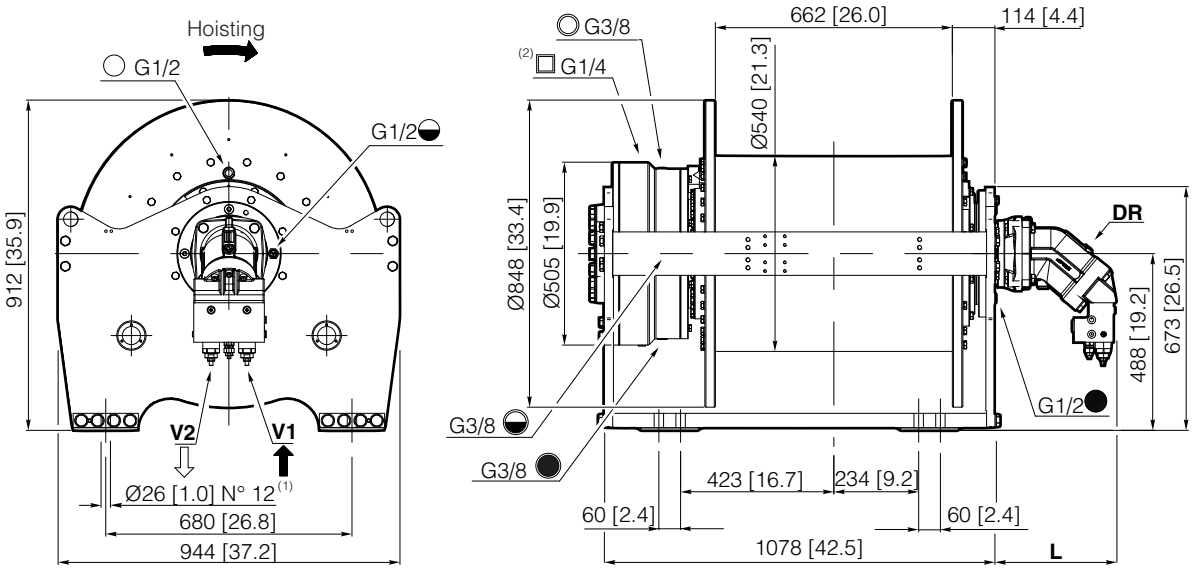

(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.

SYMBOL A 16

## Brevini® Hydraulic Axial Piston Motor for Lifting of Personnel Winches

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.2 in] |
| **Fixed Displacement** | SH11C160 | 163.9 cm³/rev [9.998 in³/rev] | 400 mm [15.8 in] |
| **Variable Displacement** | SH9V165 | 166.2 cm³/rev [10.13 in³/rev] | 489 mm [19.2 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

## Lifting of Personnel Winch

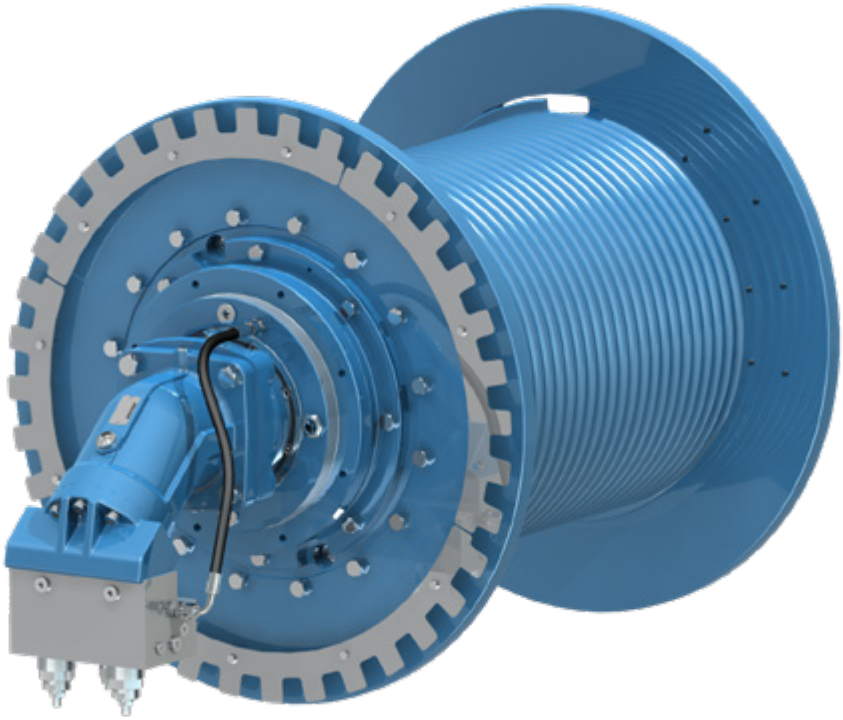



(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.
(2) Lifting of personnel brake release pressure (Release / Max) 33/300 bar [479/4355 psi]

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **SH11C125** | 124.8 cm³/rev | 7.613 [in³/rev] |
| | **SH11C160** | 163.9 cm³/rev | 9.998 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V165** | 166.2 [cm³/rev] | 10.13 [in³/rev] |
| **Ratio** | | 50.8 | |
| | | 83.2 | |
| **Drum** | **Standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 24 [mm]<br>Ø 26 [mm]<br>Ø 28 [mm] | Ø 0.94 [in]<br>Ø 1.02 [in]<br>Ø 1.10 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 26 mm [1.02 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE125-SD26..-01-83,2-APF125**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 12500 | 11590 | 10810 | 10120 | 9510 | - |
| Rope speed | [m/min] | 24 | 26 | 27 | 29 | 31 | - |
| Rope length | [m] | 43 | 88 | 139 | 190 | 247 | 306 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C125 | | Oil quantity | 39 | [l] |
| Starting lifting pressure | 300 | [bar] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 250 | [bar] | Estimated weight | 1150 | [kg] |
| Operating oil flow at the motor | 150 | [l/min] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 8.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 83,2 | [i] | Static braking torque (1) | 1172 | [Nm] |
| Advised rope diameter | 26 | [mm] | Brake release pressure (Release/Max) | 26 / 350 | [bar] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

## United States Customary Units: USC

**BWE125-SD26..-01-83,2-APF125**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 27500 | 25560 | 23830 | 22320 | 20980 | - |
| Rope speed | [fpm] | 79 | 85 | 91 | 97 | 104 | - |
| Rope length | [ft] | 142 | 290 | 456 | 625 | 813 | 1004 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C125 | | Oil quantity | 10.3 | [gal] |
| Starting lifting pressure | 4350 | [psi] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 3630 | [psi] | Estimated weight | 2535 | [lbf] |
| Operating oil flow at the motor | 40 | [gpm] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 2.11 | [gpm] | Motor drain port | G1/2 | DR |
| Gear ratio | 83.2 | [i] | Static braking torque (1) | 864 | [ft·lbf] |
| Advised rope diameter | 1.02 | [in] | Brake release pressure (Release/Max) | 380 / 5080 | [psi] |

Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) M5 (T5-L2) $n_2$=15 [rpm]

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 24 [mm] | 7127 (5) (1) | 9200 | 2713 (5) (1) | 3500 | 7127 (5) (1) | 9200 | 3254 (5) (1) | 4200 |
| Ø 26 [mm] | 8500 (4) (1) | 10501 | 2834 (4) (1) | 3500 | 8500 (4) (1) | 10501 | 3400 (4) (1) | 4200 |
| Ø 28 [mm] | 8987 (3) (1) | 10501 | 2996 (3) (1) | 3500 | 8987 (3) (1) | 10501 | 3595 (3) (1) | 4200 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.94 [in] | 15712 (5) (1) | 20282 | 5981 (5) (1) | 7716 | 15712 (5) (1) | 20282 | 7173 (5) (1) | 9259 |
| Ø 1.02 [in] | 18739 (4) (1) | 23150 | 6247 (4) (1) | 7716 | 18739 (4) (1) | 23150 | 7495 (4) (1) | 9259 |
| Ø 1.10 [in] | 19812 (3) (1) | 23150 | 6605 (3) (1) | 7716 | 19812 (3) (1) | 23150 | 7925 (3) (1) | 9259 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 24 [mm] | Rope length | [m] | 47 | 95 | 149 | 204 | 265 | 326 |
| Rope Diameter Ø 28 [mm] | Rope length | [m] | 40 | 82 | 130 | 178 | 232 | - |

## Other Ropes available

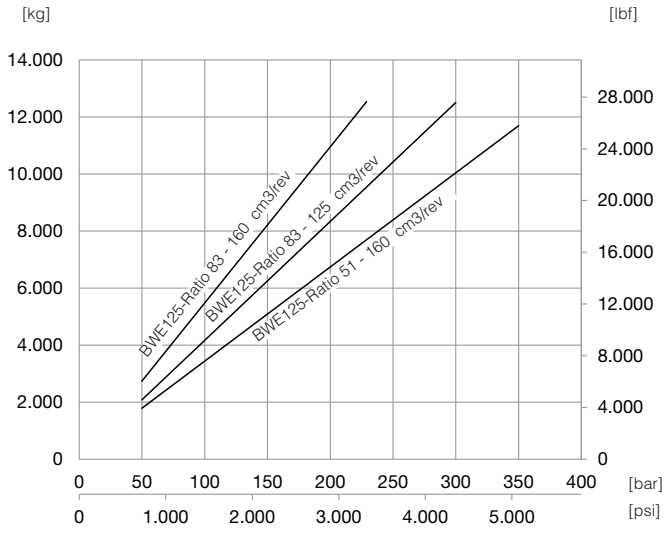
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,94 [in] | Rope length | [ft] | 154 | 313 | 490 | 671 | 870 | 1072 |
| Rope Diameter Ø 1.10 [in] | Rope length | [ft] | 133 | 271 | 426 | 586 | 764 | - |

Last indicated Layer is intended only as Storage

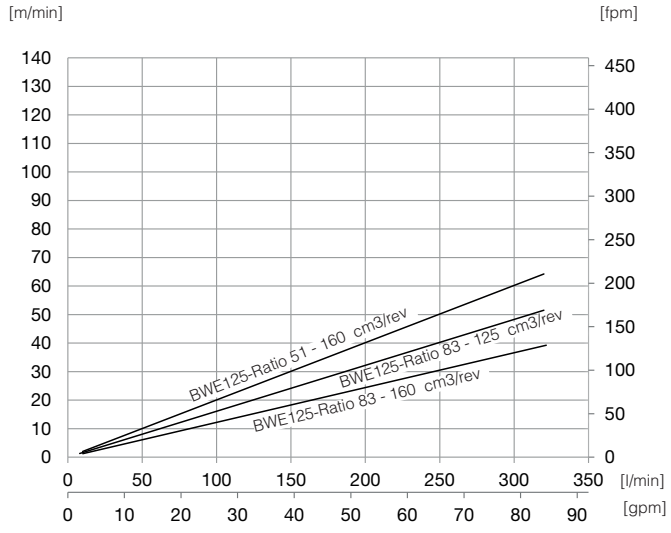
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

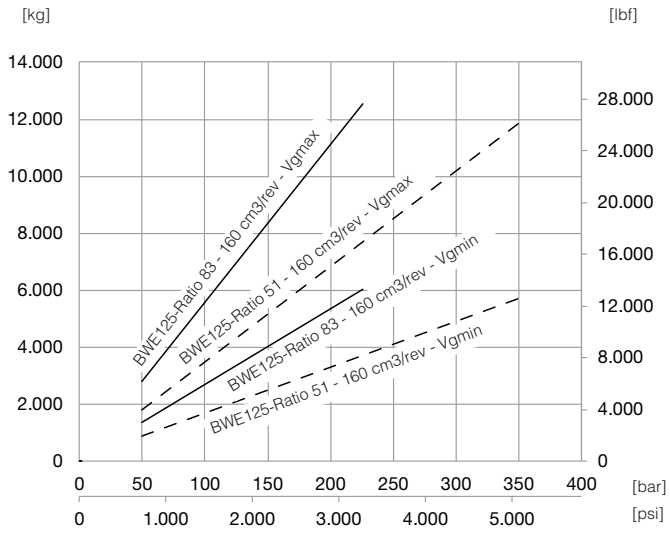



### Maximum Speed at first layer



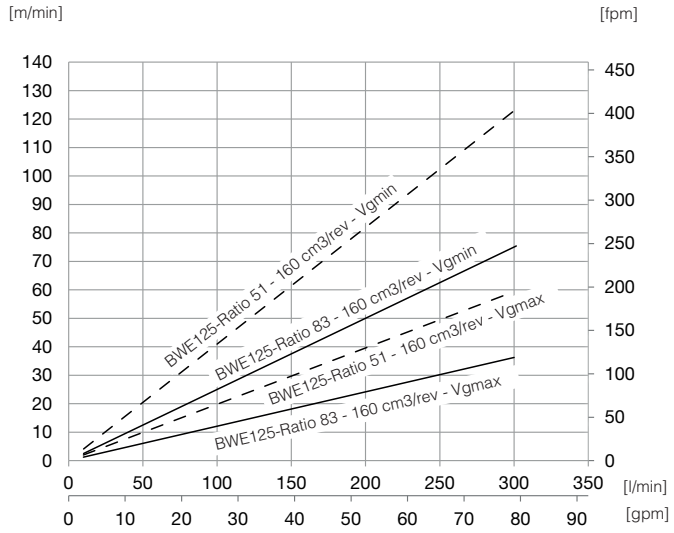

## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




$Vg_{max}$ = 166.2 cm³/rev [10.13 in³/rev]
$Vg_{min}$ = 80 cm³/rev [4.88 in³/rev]

### Maximum Speed at first layer




$Vg_{max}$ = 166.2 cm³/rev [10.13 in³/rev] - Max 300 l/min [79 gpm] allowed
$Vg_{min}$ = 80 cm³/rev [4.88 in³/rev] - Max 300 l/min [79 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

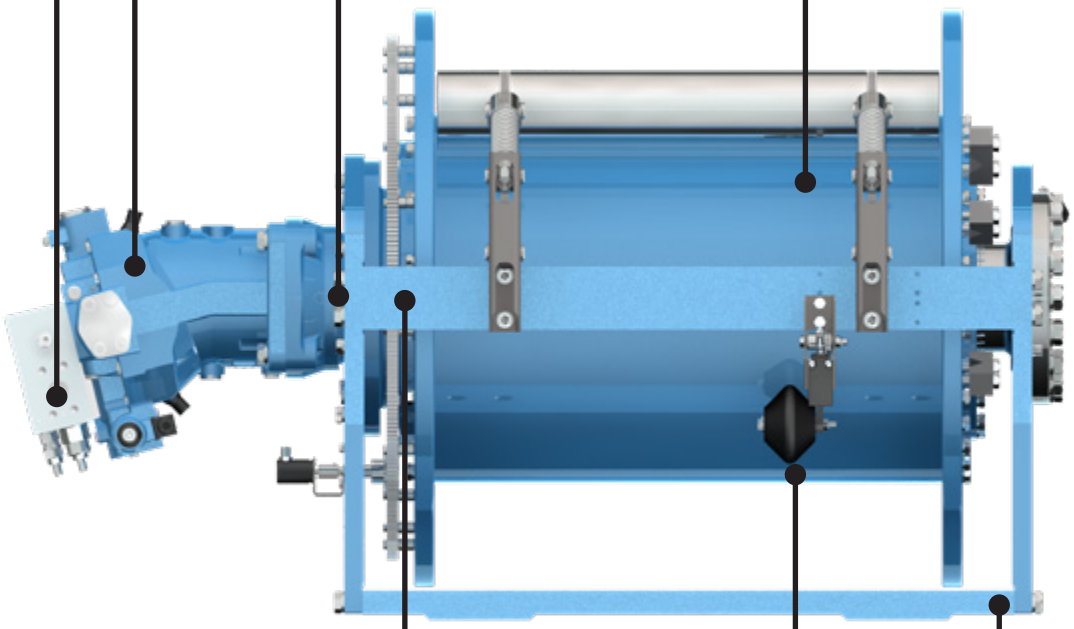
**Line Pull at first Layer up to:**
**16.000 [kg]**
**35.300 [lbf]**

**Control Valve**
To ensure safe operation with
enhanced control during Load Lowering

**Hydraulic Motor**
Fixed or Variable displacement Brevini®
High speed Axial piston motor

**Multidisc static Brake**
Specifically designed for
Winch applications

**Drum**
Robust steel drum, available in
grooved or smooth options



**High performance Gears**
Low noise and longer life time

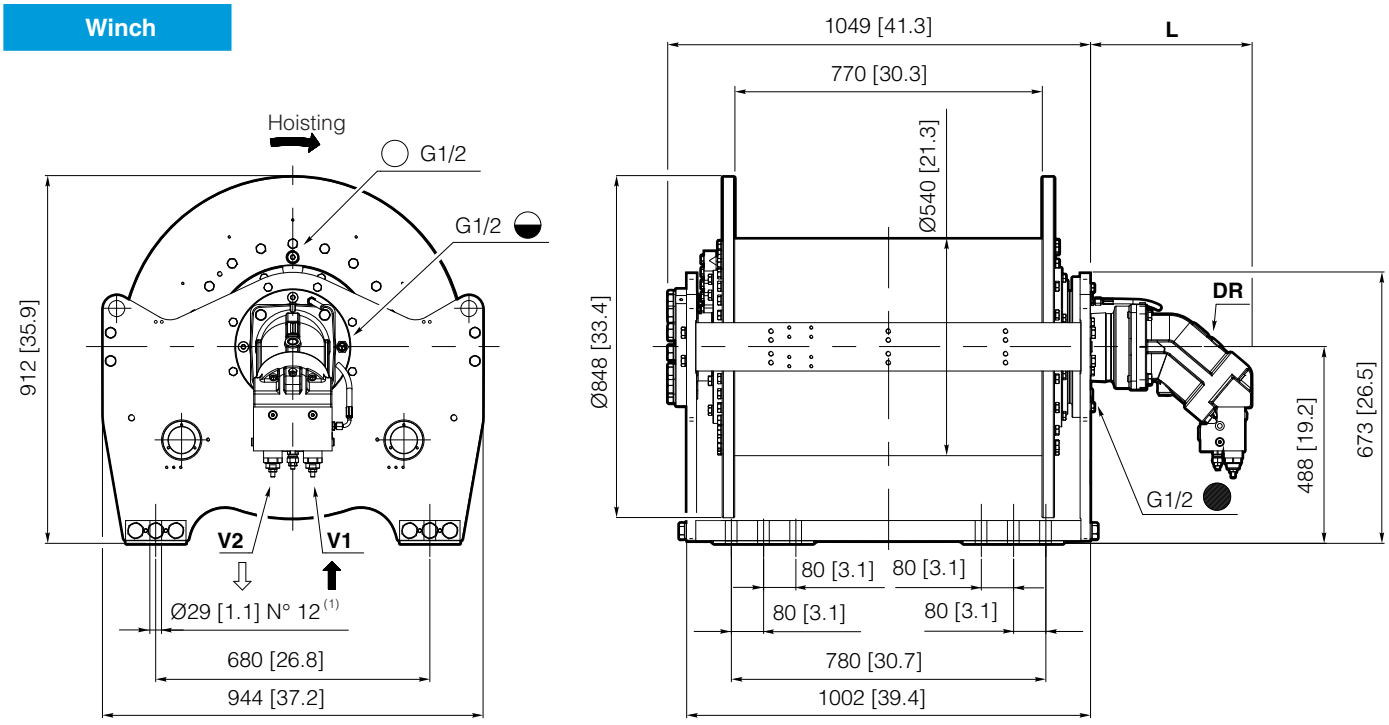
**Accessories**
Pressure Roller
Electric or Hydraulic Limit Switch
Electric or Hydraulic Rotary Limit Switch
Speed Sensor (proximity)

**Structure**
Robust steel frame
Suitable for low temperature applications

## Brevini® Hydraulic Axial Piston Motor

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.2 in] |
| **Fixed Displacement** | SH11C160 | 163.9 cm³/rev [9.998 in³/rev] | 400 mm [15.8 in] |
| **Variable Displacement** | SH9V165 | 166.2 cm³/rev [10.13 in³/rev] | 489 mm [19.2 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

## Winch



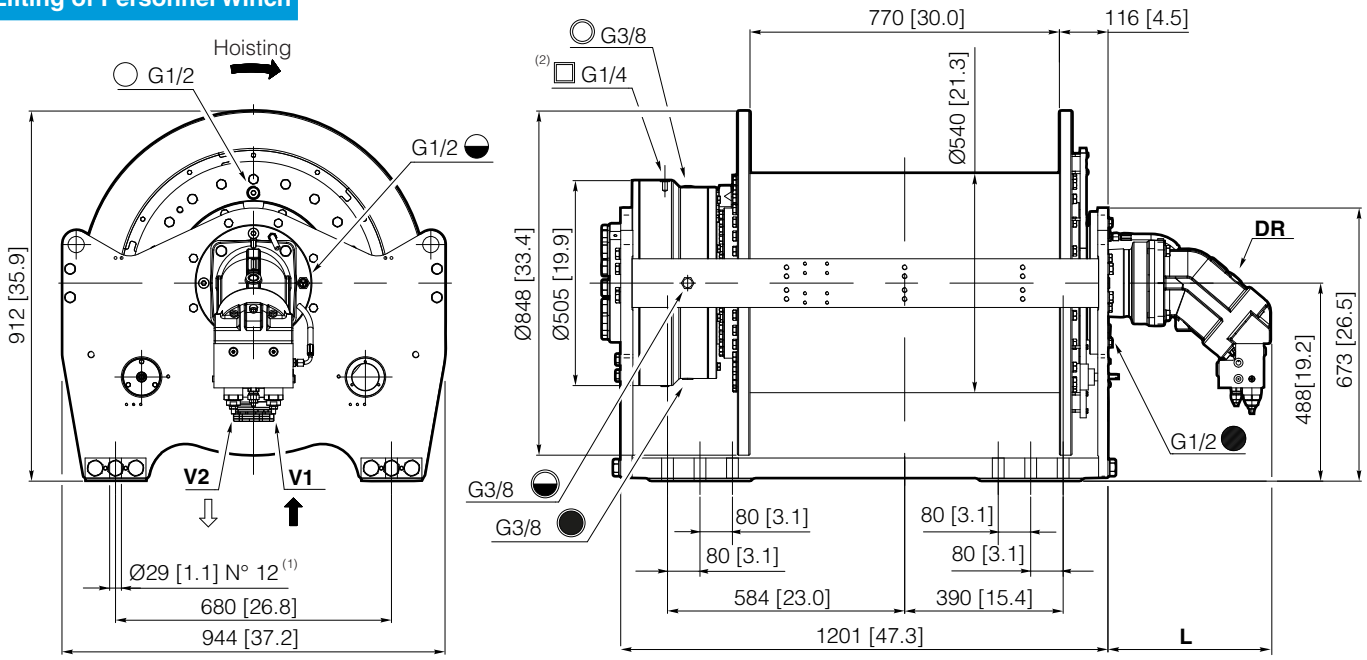

(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.

SYMBOL A 16

## Brevini® Hydraulic Axial Piston Motor for Lifting of Personnel Winches

| | Motor Type | Displacement | L |
|---|---|---|---|
| **Fixed Displacement** | SH11C125 | 124.8 cm³/rev [7.613 in³/rev] | 336 mm [13.2 in] |
| **Fixed Displacement** | SH11C160 | 163.9 cm³/rev [9.998 in³/rev] | 400 mm [15.8 in] |
| **Variable Displacement** | SH9V165 | 166.2 cm³/rev [10.13 in³/rev] | 489 mm [19.2 in] |
| **With NO Motor** | Universal Input Flange 00 | - | 4.5 mm [0.177 in] |

### Lifting of Personnel Winch

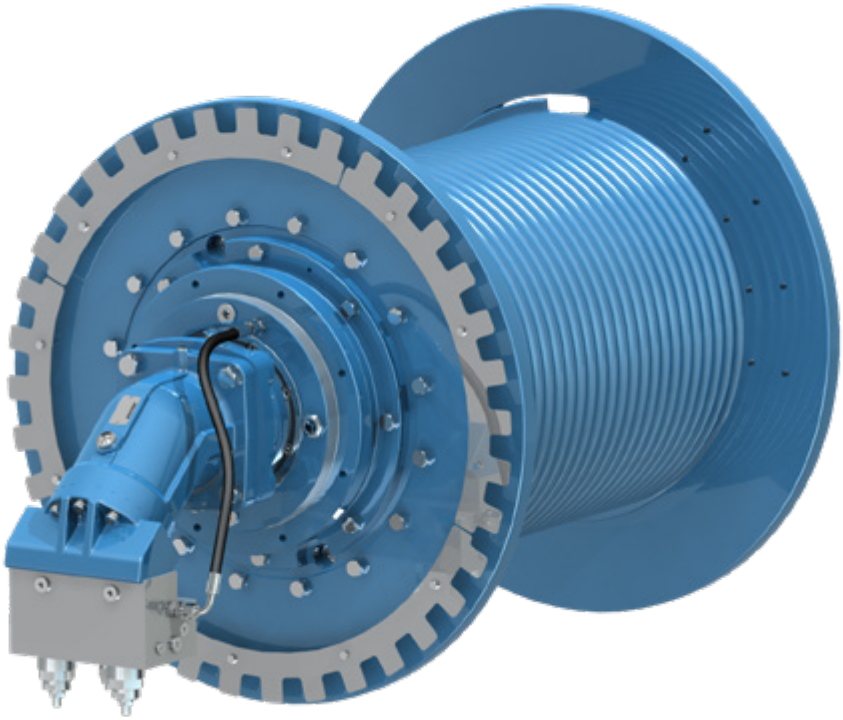



(1) N. 12 bolts for ABS certified version only. N. 8 bolts for other versions.
(2) Lifting of personnel brake release pressure (Release / Max) 40/300 bar [580/4355 psi]

## Motor Drum Winch

Available on request.

- with or without motor
- smooth or grooved drum
- customized drum length
- different rope diameter



## Our Standard Configurations

| | | | |
|---|---|---|---|
| **Hydraulic Motor Fixed Displacement** | **SH11C125** | 124.8 cm³/rev | 7.613 [in³/rev] |
| | **SH11C160** | 163.9 cm³/rev | 9.998 [in³/rev] |
| **Hydraulic Motor Variable Displacement** | **SH9V165** | 166.2 [cm³/rev] | 10.13 [in³/rev] |
| **Ratio** | | 61.5 | |
| | | 92.6 | |
| **Drum** | **Standard** | Smooth Drum<br>Special Grooved Drum (1) | |
| **Rope** | | Ø 24 [mm]<br>Ø 26 [mm]<br>Ø 28 [mm] | Ø 0.94 [in]<br>Ø 1.02 [in]<br>Ø 1.10 [in] |

(1) Left hand grooving as Standard only with rope diameter Ø 26 mm [1.02 in]. Right hand grooving on request. Other rope diameter available on request.

## International System of Units: SI

**BWE160-SD26..-01-92,6-APF125**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [kg] | 16000 | 14880 | 13870 | 12990 | 12210 | - |
| Rope speed | [m/min] | 21 | 23 | 25 | 26 | 28 | - |
| Rope length | [m] | 50 | 103 | 162 | 222 | 289 | 357 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C125 | | Oil quantity | 46 | [l] |
| Starting lifting pressure | 345 | [bar] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 290 | [bar] | Estimated weight | 1484 | [kg] |
| Operating oil flow at the motor | 150 | [l/min] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 8.0 | [l/min] | Motor drain port | G1/2 | DR |
| Gear ratio | 92.6 | [i] | Static braking torque (1) | 1172 | [Nm] |
| Advised rope diameter | 26 | [mm] | Brake release pressure (Release/Max) | 26 / 350 | [bar] |

| | | |
|---|---|---|
| Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) | M5 (T5-L2) | $n_2$=15 [rpm] |

## United States Customary Units: USC

**BWE160-SD26..-01-92,6-APF125**

| Working layer | | 1 | 2 | 3 | 4 | 5 | 6 Storage length |
|---|---|---|---|---|---|---|---|
| Line pull | [lbf] | 35300 | 32800 | 30580 | 28630 | 26920 | - |
| Rope speed | [fpm] | 71 | 76 | 82 | 87 | 93 | - |
| Rope length | [ft] | 166 | 339 | 531 | 729 | 948 | 1171 |

| | | | | | |
|---|---|---|---|---|---|
| Brevini® Motor | SH11C125 | | Oil quantity | 12.15 | [gal] |
| Starting lifting pressure | 5015 | [psi] | Oil fill / drain plug | G1/2 | T |
| Operating pressure | 4185 | [psi] | Estimated weight | 3271 | [lbf] |
| Operating oil flow at the motor | 40 | [gpm] | Lifting / Lowering port | G1 | V1 / V2 |
| Minimum oil flow at the motor | 2.11 | [gpm] | Motor drain port | G1/2 | DR |
| Gear ratio | 92.6 | [i] | Static braking torque (1) | 864 | [ft·lbf] |
| Advised rope diameter | 1.02 | [in] | Brake release pressure (Release/Max) | 380 / 5080 | [psi] |

| | | |
|---|---|---|
| Winch mechanisms classification in agreement with F.E.M. (1.001) (Third edition revised on 01.10.1998) | M5 (T5-L2) | $n_2$=15 [rpm] |

**Note:**

- For safety reasons always keep at least 3 wraps of rope wrapped on the drum.
- Technical features may change with no previous notice from the manufacturer.
- The MBL of the Rope must be verified according to the requested Safety Factors.
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

(1) Static braking torque does not affect the winch maximum static line pull which must be considered 125% of the nominal line pull at first layer.

## Line pull for Certified Winch Version: SI

| Rope Diameter | Line Pull (according to DNVGL) [kg] | | | | Line Pull (according to ABS) [kg] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 24 [mm] | 8522 (5) (1) | 11000 | 3331 (5) (1) | 4300 | 8522 (5) (1) | 11000 | 4029 (5) (1) | 5200 |
| Ø 26 [mm] | 10361 (4) (1) | 12800 | 3481 (4) (1) | 4300 | 10361 (4) (1) | 12800 | 4209 (4) (1) | 5200 |
| Ø 28 [mm] | 10955 (3) (1) | 12800 | 3681 (3) (1) | 4300 | 10955 (3) (1) | 12800 | 4450 (3) (1) | 5200 |

## Line pull for Certified Winch Version: USC

| Rope Diameter | Line Pull (according to DNVGL) [lbf] | | | | Line Pull (according to ABS) [lbf] | | | |
|---|---|---|---|---|---|---|---|---|
| | Cargo Winch | | Lifting of Personnel Winch | | Cargo Winch | | Lifting of Personnel Winch | |
| | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer | Last Layer | First Layer |
| Ø 0.94 [in] | 18787 (5) (1) | 24250 | 7343 (5) (1) | 9479 | 18787 (5) (1) | 24250 | 8882 (5) (1) | 11464 |
| Ø 1.02 [in] | 22842 (4) (1) | 28219 | 7674 (4) (1) | 9479 | 22842 (4) (1) | 28219 | 9279 (4) (1) | 11464 |
| Ø 1.10 [in] | 24151 (3) (1) | 28219 | 8115 (3) (1) | 9479 | 24151 (3) (1) | 28219 | 9810 (3) (1) | 11464 |

The line pull listed above are just for reference, for this application is strongly recommended to fill up the Selection Winch Technical Sheet available at the end of this catalogue and consult the Dana area contact person for final selection and validation.

## Other Ropes available

| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 24 [mm] | Rope length | [m] | 54 | 111 | 174 | 238 | 309 | 381 |
| Rope Diameter Ø 28 [mm] | Rope length | [m] | 47 | 96 | 151 | 208 | 271 | - |

## Other Ropes available

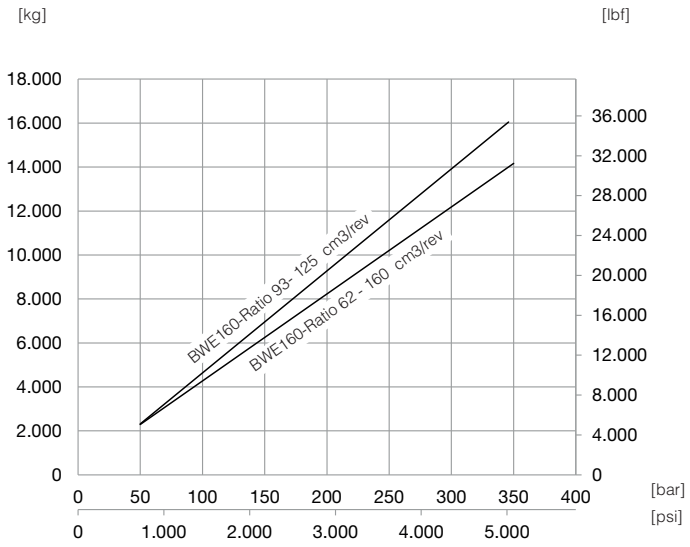
| Working layer | | | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| Rope Diameter Ø 0,94 [in] | Rope length | [ft] | 179 | 365 | 571 | 782 | 1014 | 1251 |
| Rope Diameter Ø 1.10 [in] | Rope length | [ft] | 154 | 316 | 497 | 684 | 891 | - |

Last indicated Layer is intended only as Storage

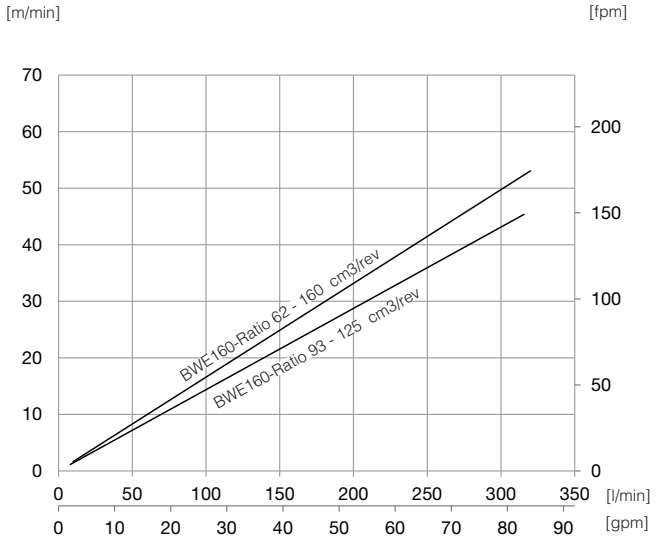
(1) Last working layer

## Axial Piston Motor Fixed Displacement

### Maximum Line pull at first layer

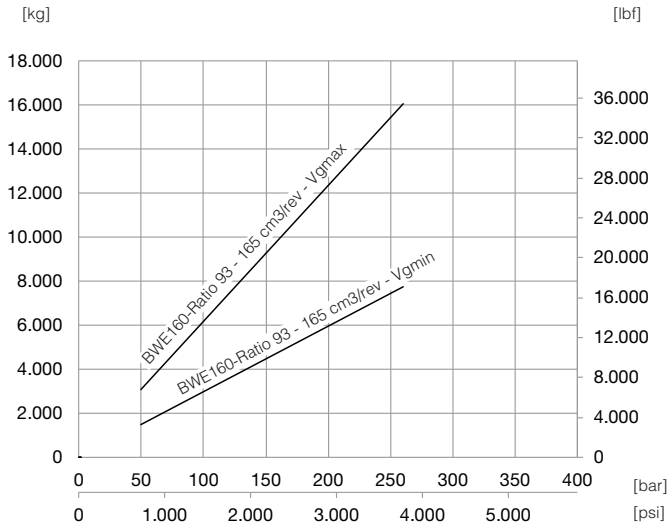



### Maximum Speed at first layer



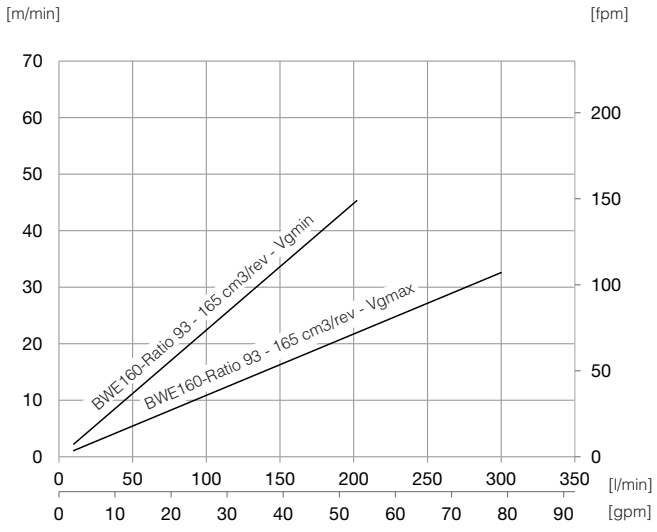

## Axial Piston Motor Variable Displacement

### Maximum Line pull at first layer




$Vg_{max}$ = 166.2 $cm^3$/rev [10.13 $in^3$/rev]
$Vg_{min}$ = 80 $cm^3$/rev [4.88 $in^3$/rev]

### Maximum Speed at first layer



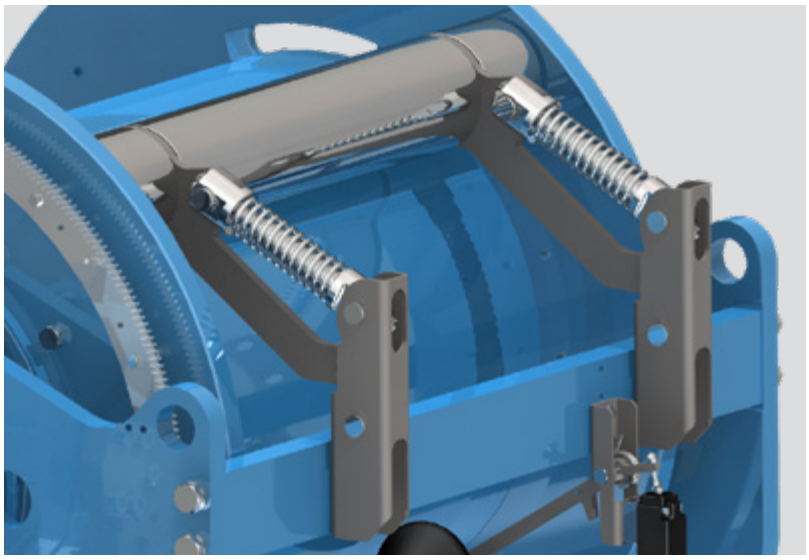

$Vg_{max}$ = 166.2 $cm^3$/rev [10.13 $in^3$/rev] - Max 300 l/min [79 gpm] allowed
$Vg_{min}$ = 80 $cm^3$/rev [4.88 $in^3$/rev] - Max 201 l/min [53 gpm] allowed

**Note:**
- All data shown in this page are ONLY FOR INFORMATION. The actual data will be issued according to Customer application and Duty Cycle.

DANA
BREVINI®
Motion Systems

B

## Pressure Roller

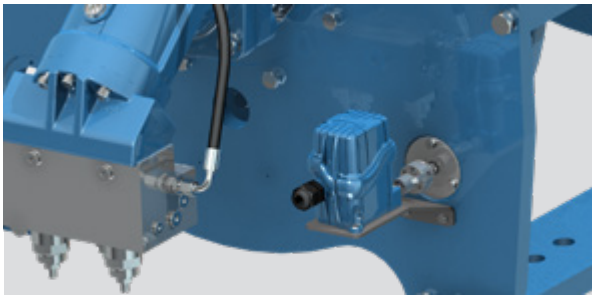


The pressure roller ensures the correct winding of the rope on the drum and is highly recommended when there is more than one layer of rope wounded on the drum.

## Safety Wraps Limit Switch

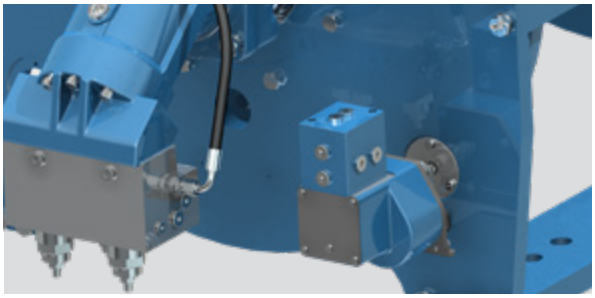
### Minimum Electric Limit Switch

### Min/Max Rotative Electric Limit Switch



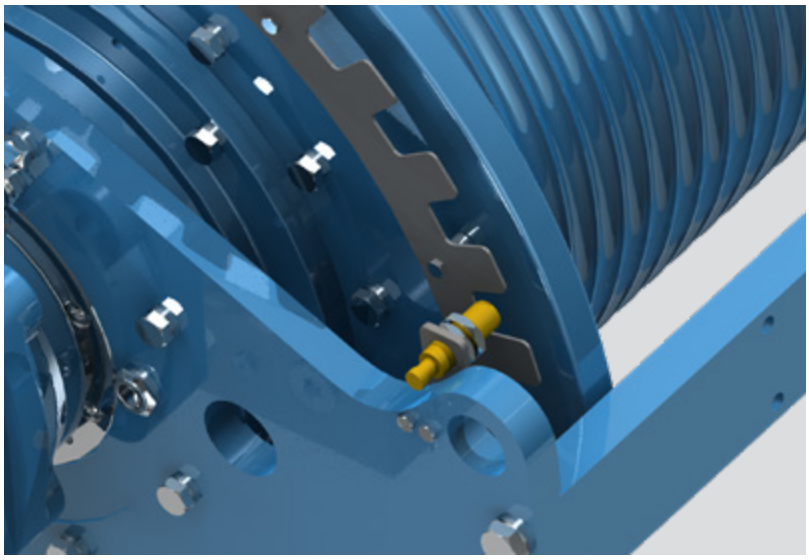
### Minimum Hydraulic Limit Switch

### Min/Max Rotative Hydraulic Limit Switch



These devices ensure a minimum number of wraps always needed to be wounded on the drum for safety reason, to avoid rope breakage causing the fall of the load.
Rotative Switches also ensure that the maximum rope capacity of the drum is not exceeded.

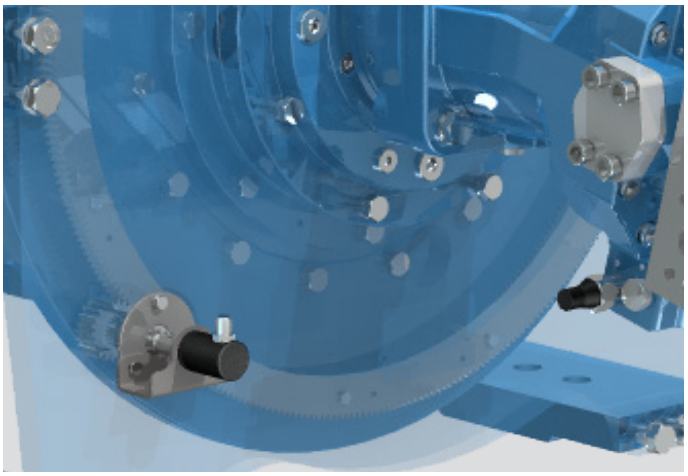
## Speed Sensor: Proximity



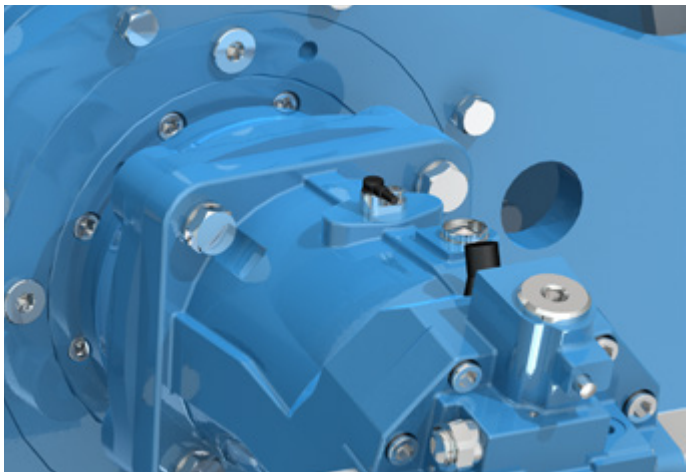
Our stainless-steel Proximity sensor is used to read the rotational speed of the drum, providing the user an information of the rope speed. Using two sensors is also possible to define the sense of rotation of the drum, giving information about lifting or lowering of the load.

## Rotative Speed Sensor

### Encoder



### Hall Effect Speed Sensor



The Encoder reads the speed of the drum and the rotation direction, providing information on the speed of the rope. Using an absolute encoder is also possible to collect information about the length of the rope still on the drum or unwounded. It is also possible to have the rotative speed sensor on the Brevini® Hydraulic Motor.

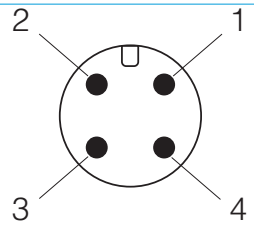
# TORQUE SENSOR

This sensor embedded in the winch is able to measure the torque applied to the drum at any time, during winch operation.

The unique design and electronic features are made to provide high precision and reliability.

Fully tested before they leave the factory.

| Technical Data | |
|---|---|
| **Available Winch Size** | BWE015 - BWE025 - BWE035 - BWE055 - BWE070<br>BWE085 - BWE105 - BWE125 - BWE160 |
| **Output signal** | 4 ÷ 20 [mA] |
| **Full Scale** | 120% of max Line pull * |
| **Operating Temperature** | -20° ÷ 40° [°C] / -4° ÷ 104° [°F] |
| **Achievable Performance** | Level “PLd” |
| **International Protection** | IP67 (electronic device) |
| **Integrated signal converter** | |
| **Cable length 0.15 [m]** | |
| **Connector M12x1.5 - 4 pin** | |

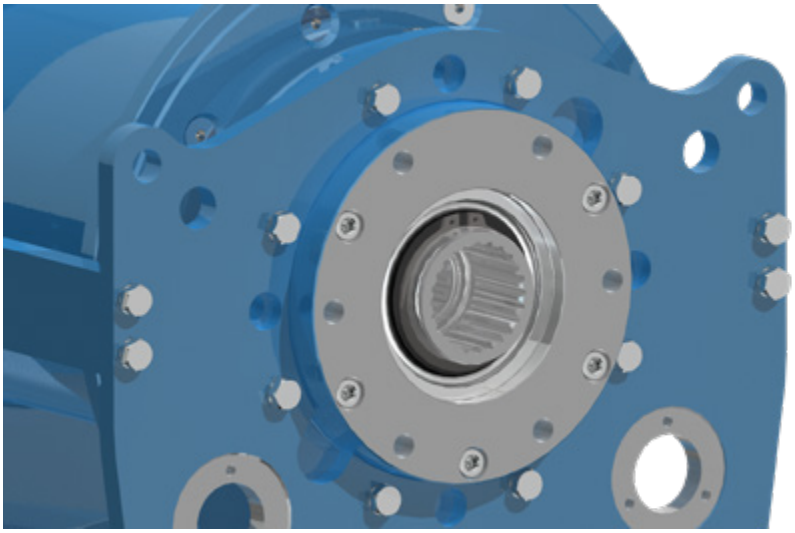


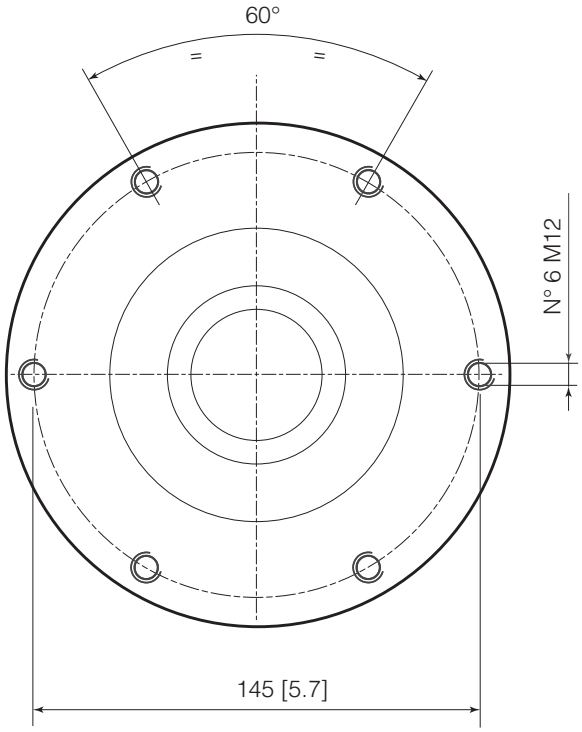

| Pin number | Connections |
|---|---|
| **1** | + Supply |
| **2** | - Supply |
| **3** | OUT 1 |
| **4** | OUT 2 |

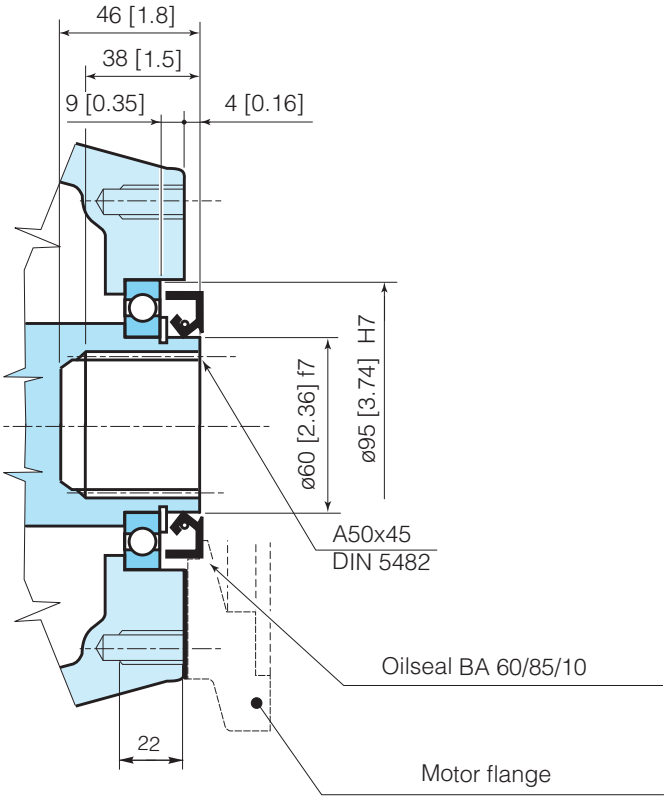
*:Consult the Dana area contact person for different scale values.

# UNIVERSAL INPUT FLANGE 00

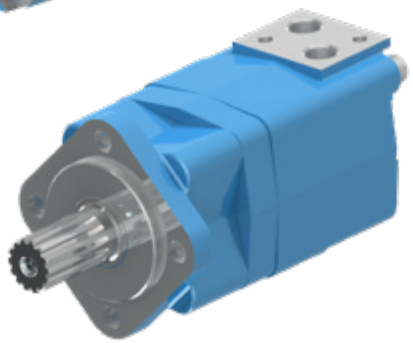
The universal input is a configuration mounted on the gear unit input, enabling the coupling of many types of motorizations by means of a special flange and adapter coupling.





# Brevini® ORBITAL MOTOR FIXED DISPLACEMENT



Our range of Orbital motor is the perfect fit for all the winch application where high torque and low speed are required.

The BRZV range able to reach peak pressure of 225bar, can offer different displacement between 50cc and 400cc, compact and reliable, is recommended when compactness is a plus.

The HR range able to reach peak pressure of 315 bar, can offer different displacement between 80cc and 400cc, robust and versatile, is recommended when efficiency is a plus.
All the motors are available with brake control valve, single or double overcenter.

## BRZV Orbital Motors Working Conditions

| Technical Data | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Size** | | | | **80** | **100** | **130** | **160** | **200** | **250** |
| **Displacement** | | $Vg_{max}$ | $cm^3/rev$ [$in^3/rev$] | 80.4 [4.9] | 100 [6.1] | 125.7 [7.66] | 160 [9.76] | 200 [12.2] | 250 [15.2] |
| **Max pressure** | Cont. | $p_{nom}$ | bar [psi] | 175 [2537] | 175 [2537] | 175 [2537] | 175 [2537] | 175 [2537] | 175 [2537] |
| | Peak | $p_{max}$ | bar [psi] | 225 [3262] | 225 [3262] | 225 [3262] | 225 [3262] | 225 [3262] | 225 [3262] |
| **Max speed** | | $n_{0max}$ | rpm | 746 | 600 | 477 | 375 | 300 | 240 |
| **Max flow** | | $q_{max}$ | l/min [gpm] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] | 60 [15.9] |

## HR Orbital Motors Working Conditions

| Technical Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Size** | | | | **80** | **100** | **130** | **160** | **200** |
| **Displacement** | | $Vg_{max}$ | $cm^3/rev$ [$in^3/rev$] | 80.4 [4.9] | 100 [6.1] | 125.7 [7.66] | 160 [9.76] | 200 [12.2] |
| **Max pressure** | Cont. | $p_{nom}$ | bar [psi] | 210 [3045] | 210 [3045] | 210 [3045] | 210 [3045] | 210 [3045] |
| | Peak | $p_{max}$ | bar [psi] | 310 [4495] | 310 [4495] | 310 [4495] | 310 [4495] | 310 [4495] |
| **Max speed** | | $n_{0max}$ | rpm | 932 | 750 | 596 | 468 | 375 |
| **Max flow** | | $q_{max}$ | l/min [gpm] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] | 75 [19.8] |

# Brevini® B5VA INTEGRATED AXIAL PISTON MOTOR FIXED DISP.

The B5VA is the unique solution that Dana offer to have the best compromise between compactness and performances.

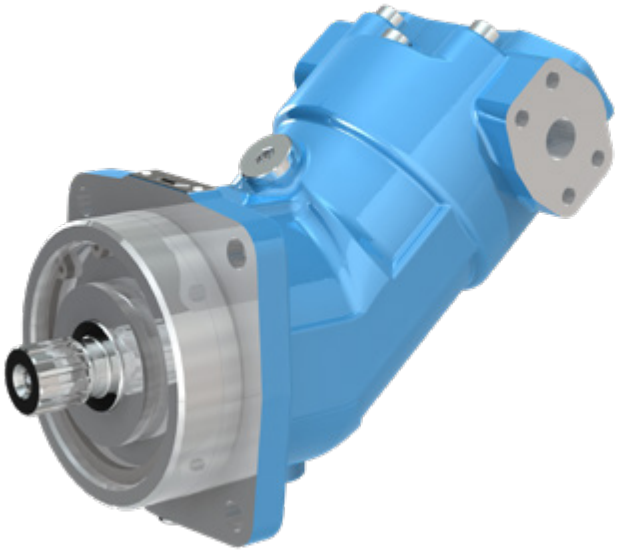
Able to reach a peak pressure of 350bar, available in three different sizes, is recommended for all the application where speed, torque and efficiency are required.

The integrated brake control valve, with single or double over-center, is the perfect blend of functionality and compactness.

## B5VA Integrated Axial Piston Motors Working Conditions

| Technical Data | | | | | | |
|---|---|---|---|---|---|---|
| **Size** | | | | **21** | **37** | **68** |
| **Displacement** | | $Vg_{max}$ | $cm^3/rev$ [$in^3/rev$] | 21.00 [1.28] | 37.04 [2.26] | 68 [4.15] |
| **Max pressure** | Cont. | $p_{nom}$ | bar [psi] | 300 [4351] | 300 [4351] | 300 [4351] |
| | Peak | $p_{max}$ | bar [psi] | 350 [5076] | 350 [5076] | 350 [5076] |
| **Max speed** | | $n_{0max}$ | rpm | 2857 | 2430 | 2205 |
| **Max flow** | | $q_{max}$ | l/min [gpm] | 60 [15.8] | 90 [23.77] | 150 [39.6] |

# Brevini® SH11C AXIAL PISTON MOTOR FIXED DISPLACEMEN



SH11C motors are a family of fixed displacement, bent axis piston design for operation in both open and closed circuit.

The proven design incorporating the lens shape valve plate, the high quality components and manufacturing techniques make the SH11C motors able to provide up to 430 bar [6235 psi] continuous and 480 bar [6960 psi] peak performance.

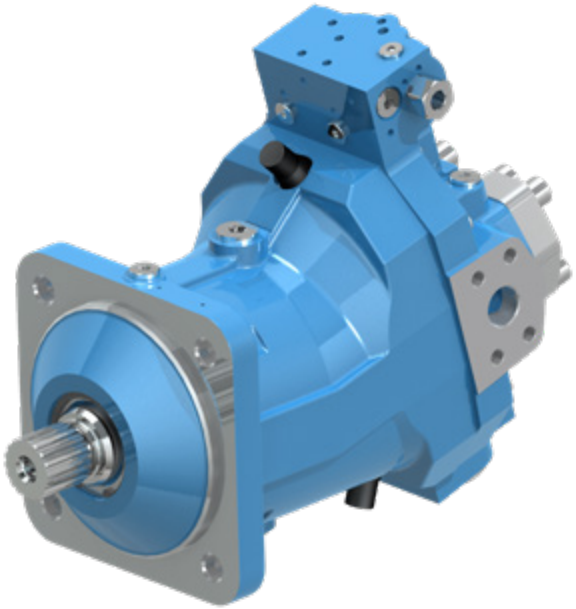
Fully laboratory tested and field proven, these units provide maximum efficiency and long life. Heavy duty bearings permit high radial and axial loads. Versatile design includes a variety of port plates, shaft ends and valves package that will fit the SH11C motors to any application both industrial and mobile. SH11C motors are available in both ISO and SAE version.

## SH11C Axial Piston Motors Working Conditions

| Technical Data | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Size** | | | | **075** | **090** | **125** | **160** |
| **Displacement** | | $Vg_{max}$ | $cm^3/rev$ [$in^3/rev$] | 77.82 [4.747] | 86.23 [5.26] | 124.8 [7.613] | 163.9 [9.998] |
| **Max pressure** | Cont. | $p_{nom}$ | bar [psi] | 430 [6235] | 430 [6235] | 430 [6235] | 430 [6235] |
| | Peak | $p_{max}$ | bar [psi] | 480 [6960] | 480 [6960] | 480 [6960] | 480 [6960] |
| **Max speed** | | $n_{0max}$ | rpm | 4500 | 4500 | 4000 | 3600 |
| **Max flow** | | $q_{max}$ | l/min [gpm] | 350 [92.4] | 388 [102.5] | 500 [132] | 590 [155.76] |

**Note:**
The information stated in this page are only for reference, for detailed information see the dedicated catalog on official site www.dana.com/off-highway

# Brevini® SH9V AXIAL PISTON MOTOR VARIABLE DISPLACEMENT



SH9V series are a family of variable displacement motors, bent axis piston design for operation in both open and closed circuit.

The proven design incorporating the lens shape valve plate, the high quality components and manufacturing techniques make the SH9V series motors able to provide up to 430 bar [6235 psi] continuous and 480 bar [6960 psi] peak performance.

Long life heavy duty bearings permit high radial and axial loads. Versatile design includes a variety of control and shaft ends that will adapt the SH9V series motors to any application both industrial and mobile.

## SH9V Axial Piston Motors Working Conditions

| Technical Data | | | | | | |
|---|---|---|---|---|---|---|
| **Size** | | | | **085** | **115** | **165** |
| **Displacement** | | $Vg_{max}$ | $cm^3/rev$ [$in^3/rev$] | 85.3 [5.203] | 115.7 [7.05] | 166.2 [10.13] |
| | Standard | $Vg_{min}$ | $cm^3/rev$ [$in^3/rev$] | 40 [2.44] | 56 [3.416] | 80 [4.88] |
| | Minimum possible | $Vg_{min}$ | $cm^3/rev$ [$in^3/rev$] | 17 [1.03] | 23 [1.403] | 33 [2.01] |
| **Max pressure** | Cont. | $p_{nom}$ | bar [psi] | 430 [6235] | 430 [6235] | 430 [6235] |
| | Peak | $p_{max}$ | bar [psi] | 480 [6960] | 480 [6960] | 480 [6960] |
| **Max flow** | | $q_{max}$ | l/min [gpm] | 341 [90.02] | 411 [108.5] | 515 [135.96] |

## Controls and Accessories suggested

Electric two position Control 2EE
The 2EE Control Version with the pressure override allows the motor to swivel to $Vg_{max}$ when the pressure setting is reached. The motor displacement is adjusted to $Vg_{min}$ when the solenoid valve is switched on and if the operating pressure rises beyond the pressure setting, the pressure limiting device overrides the electric two positions control and the motor swivels out to $Vg_{max}$. Swivel range is from $Vg_{min}$ to $Vg_{max}$.

## Hall Effect Speed Sensor

TW and TZ sensors are available on all the Motor Displacement, see the dedicated catalogue.

**Note:**
The information stated in this page are only for reference, for detailed information see the dedicated catalog on official site www.dana.com/off-highway

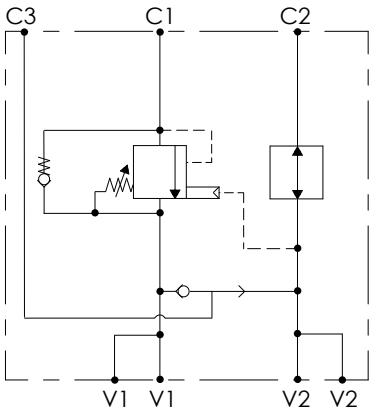
# CONTROL VALVE

Brake Control Valve specifically designed for winch operation.

This valve fits perfectly with our hydraulic motor BRZV and HR Series, able to maximize the winch performances.

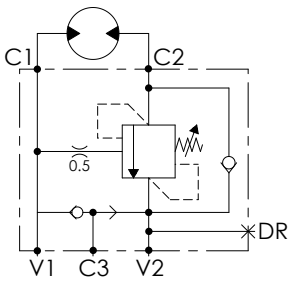
Single Overcenter Valve as a standard and Double Overcenter Valve as option.

## Single Overcenter Valve




| Technical Data | |
|---|---|
| **Max operation pressure** | 420 [bar] / 6091 [psi] |
| **Max Oil Flow** | 60 [l/min] / 15.8 [gpm] |
| **Pilot Ratio** | 4.3:1 [i] |

## Single Overcenter Valve



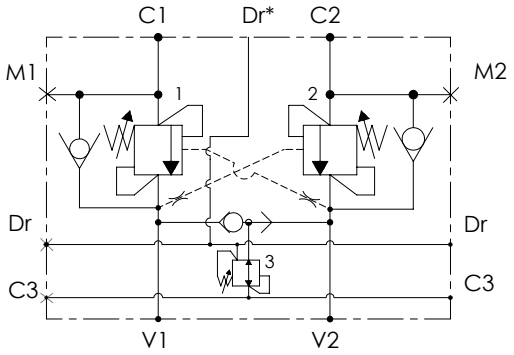

| Technical Data | |
|---|---|
| **Max operation pressure** | 350 [bar] / 5076 [psi] |
| **Max Oil Flow** | 150 [l/min] / 40.0 [gpm] |
| **Pilot Ratio** | 4:1 [i] |

Brake Control Valve specifically designed for winch operation.

This valve fits perfectly with our hydraulic motors SH11C and SH9V Series, able to maximize the winch performances. It also incorporates a pressure reducer cartridge on the brake line.

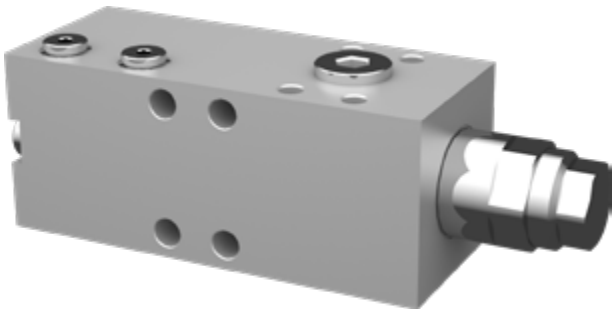
Double Overcenter Valve as a standard and Single Overcenter Valve as option.

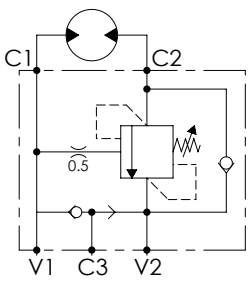
## Double Overcenter Valve




| Technical Data | |
|---|---|
| **Max operation pressure** | 400 [bar] / 5750 [psi] |
| **Max Oil Flow** | 320 [l/min] / 85.3 [gpm] |
| **Pilot Ratio** | 6:1 [i] |
| **Max operation brake pressure** | 70 [bar] / 1000 [psi] |

## Single Overcenter Valve






| Technical Data | |
|---|---|
| **Max operation pressure** | 500 [bar] / 7190 [psi] |
| **Max Oil Flow** | 320 [l/min] / 85.3 [gpm] |
| **Pilot Ratio** | 6:1 [i] |

# CERTIFICATION

New BWE Winch Series is designed to meet the majority of global Marine and Offshore Standards.

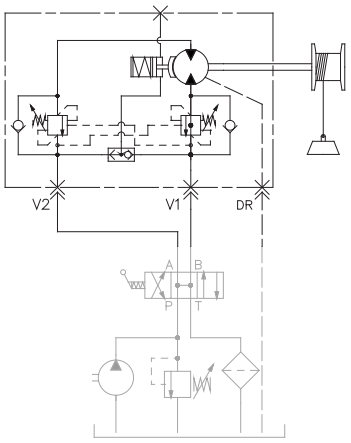
The winches as already Type Approved from DNV-GL and ABS, and already compliant to API-2c.

Other certification has to be requested and evaluated case-by-case..

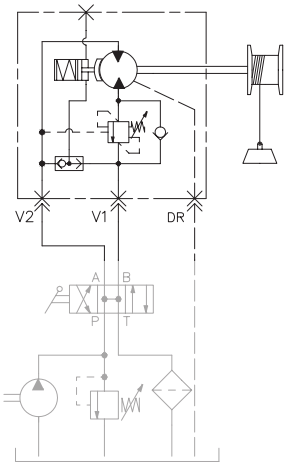

The winch support frame must be fixed securely to a good level surface of adequate thickness. Use quality and grade fixing nuts and bolts with correct torque setting according to dimensional drawings.

A and B ports of the proportional directional valve must be open to tank while the control valve is in neutral position. This prevents any build up of hydraulic pressure which could cause the negative brake to accidentally open.

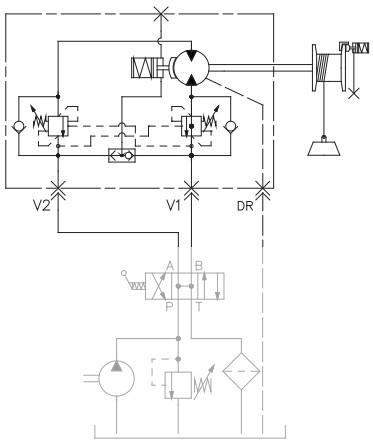
With Double Overcenter Valve



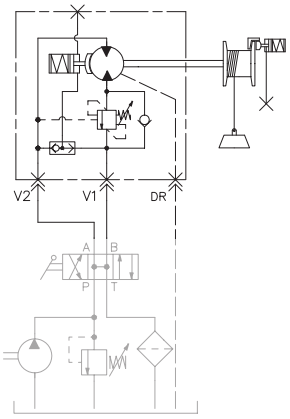

With Single Overcenter Valve




Lifting of Personnel
with Double Overcenter Valve




Lifting of Personnel
with Single Overcenter Valve




The supply, return and drain hoses must all be of adequate internal dimensions to support the maximum working and drainage flow rates. Draining hoses must always flow directly to the oil reservoir.

Standard hoisting direction is “01”, clockwise. For anti-clockwise, “02”, hoisting direction please specify when ordering.

The Brevini® winches are designed to hold 5 layers of cable of which 3 windings always present at the 1st layer.
Carefully follow the cable manufacturers instructions and respect all guidelines and rules ordering.

For Hydraulic oil use mineral oils with wear resistant additives, type HLP (DIN51524 ) or HM (ISO 6743/4) and viscosity according to ISO VG46. Recommended filtration 10µm absolute or ß10-75.

For the Brevini® motorized winches, use gear mineral oil with E.P. characteristics according to ISO VG150 or SAE 80W/90. For applications exposed to extreme temperature changes, use a synthetic oil with E.P. properties, with minimum viscosity of ISO VG150 or SAE 80W/90.
For the Brevini® motorized winches, equipped with sprag clutches, use gear mineral oil ISO VG150 with NO E.P. characteristics.

It is recommended to turn on the machinery without load for 5÷10 minutes at start-up.

## Foundamental characteristics of the oils

The important parameters to consider when choosing the type of oil are:
- viscosity at nominal operating conditions
- additives

The same oil must lubricate the bearings, the gears and the brake.
All these components work inside the same box, in different operating conditions.

## Viscosity

Nominal viscosity refers to a temperature of 40°C, but rapidly decreases as the temperature increases.
If the gear unit operating temperature is between 50°C and 70°C, a nominal viscosity can be chosen according to the following guide table, choosing the highest viscosity if the highest operating temperature is foreseen.

## Additives

In addition to the normal anti-foaming and antioxidant additives, it is important to use lubricating oils with additives that provide E.P. (extreme pressure) and antiwear properties, according to ISO 6743-6 L-CKC or DIN 51517-3 CLP. The lower the gear unit output speed is the more marked the E.P. characteristics of the products have to be. It should be remembered that the chemical compounds replacing hydrodynamic lubrication are formed to the detriment of the original E.P. load.
Therefore, with very low speeds and high loads it is important to respect the maintenance intervals so as not to excessively diminish the lubricating characteristics of the oil.

## Types of oils

The oils available generally belong to three large families.

- Mineral oils
- Polyalphaolefin (PAO) synthetic oils
- Polyalkylene glycol (PAG) synthetic oils

The most suitable choice is generally tied to the conditions of use.
Gear units that are not particularly loaded and with a discontinuous operating cycle, without considerable temperature ranges, can be lubricated with mineral oil.

In cases of heavy use, when the gear units are very loaded and in a continuous way, with resultant temperature increase, it is best to use polyalphaolefin synthetic lubricants.

The use of polyalkylene glycol oils is not allowed as they are not compatible with other oils and are often completely mixable with water: this phenomenon is particularly dangerous because it is not noticed, but rapidly diminishes the lubricating properties of the oil. Moreover, these lubricants can be chemically active against the oil seals and paint inside the gear unit.

In addition to the above, there are also hydraulic oils and oils for the food industry.

The former are used for the command of negative brakes.
The latter have a specific use in the food industry since they are special products that are not harmful to health.
Given below is table of lubricants, proposed by the best-known producers, with characteristics suitable for the lubrication of Brevini® gear units.

**Brevini® winches are supplied with lubricant: mineral oil ISO VG150.**

## Contamination

During normal operation, due to running-in of the surfaces, metallic micro-particles will inevitably form in the oil.
This contamination can shorten the life of the bearings, resulting in early breakdown of the gear unit.
To limit and control this phenomenon, without resorting to frequent and costly oil changes, a suitable auxiliary oil circulation system with filtering and cooling of the oil must be provided.
This system offers the dual advantage of controlling the level of contamination through the use of special filters and stabilizing the operating temperature at a level more suitable for ensuring the required viscosity.
For lubrication problems with gear units intended for particular uses, regarding the construction type and operating parameters, it is advisable to contact the Dana Sales Dept.

| Manufacturer | Mineral oils | | | Poly-Alpha-Olefin synthetic oils (PAO) | | |
|---|---|---|---|---|---|---|
| | ISO VG 150 | ISO VG 220 | ISO VG 320 | ISO VG 150 | ISO VG 220 | ISO VG 320 |
| **ADDINOL** | Eco Gear 150 M | Eco Gear 220 M | Eco Gear 320 M | Eco Gear 150 S | Eco Gear 220 S | Eco Gear 320 S |
| **ARAL** | Degol BG 50 Plus | Degol BG 220 Plus | Degol BG 320 Plus | Degol PAS 150 | Degol PAS 220 | Degol PAS 320 |
| **BP** | Energol GR-XP 150 | Energol GR-XP 220 | Energol GR-XP 320 | Enersyn EPX 150 | Enersyn EPX 220 | Enersyn EPX 320 |
| **CASTROL** | Alpha SP 150 | Alpha SP 220 | Alpha SP 320 | Alphasyn EP 150 | Alphasyn EP 220 | Alphasyn EP 320 |
| **CEPSA** | Engranajes XMP 150 | Engranajes XMP 220 | Engranajes XMP 320 | - | Aerogear Synt 220 | Aerogear Synt 320 |
| **CHEVRON** | - | - | - | Tegra Synthetic Gear 150 | Tegra Synthetic Gear 220 | Tegra Synthetic Gear 320 |
| **ENI** | Blasia 150 | Blasia 220 | Blasia 320 | Blasia SX 150 | Blasia SX 220 | Blasia SX 320 |
| **FUCHS** | Renolin CLP Gear Oil 150 | Renolin CLP Gear Oil 220 | Renolin CLP Gear Oil 320 | Renolin Unisyn CLP 150 | Renolin Unisyn CLP 220 | Renolin Unisyn CLP 320 |
| **KLÜBER** | Klüberoil GEM 1-150 N | Klüberoil GEM 1-220 N | Klüberoil GEM 1-320 N | Klübersynth GEM 4-150 N | Klübersynth GEM 4-220 N | Klübersynth GEM 4-320 N |
| **LUBRITECH** | Gearmaster CLP 150 | Gearmaster CLP 220 | Gearmaster CLP 320 | Gearmaster SYN 150 | Gearmaster SYN 220 | Gearmaster SYN 320 |
| **MOBIL** | Mobilgear XMP 150 | Mobilgear XMP 220 | Mobilgear XMP 320 | Mobil SHC Gear 150 | Mobil SHC Gear 220 | Mobil SHC Gear 320 |
| **MOBIL** | - | - | - | SHC 629 | SHC 630 | SHC 632 |
| **MOLIKOTE** | L-0115 | L-0122 | L-0132 | L-2115 | L-2122 | L-2132 |
| **NILS** | Ripress EP 150 | Ripress EP 220 | Ripress EP 320 | Atoil Synth PAO 150 | - | Atol Synth PAO 320 |
| **PANOLIN** | - | - | - | EP Gear Synth 150 | EP Gear Synth 150 | EP Gear Synth 150 |
| **Q8** | Goya NT 150 | Goya NT 220 | Goya NT 320 | El Greco 150 | El Greco 220 | El Greco 320 |
| **REPSOL** | Super Tauro 150 | Super Tauro 220 | Super Tauro 320 | Super Tauro Sintetico 150 | Super Tauro Sintetico 220 | Super Tauro Sintetico 320 |
| **SHELL** | Omala S2 G 150 | Omala S2 G 220 | Omala S2 320 | Omala S4 GX 150 | Omala S4 GX 220 | Omala S4 GX 320 |
| **SHELL** | - | - | - | Morlina S4 B 150 | Morlina S4 B 220 | Morlina S4 B 320 |
| **SUNOCO** | Sun EP 150 | Sun EP 220 | Sun EP 320 | - | - | - |
| **TEXACO** | Meropa 150 | Meropa 220 | Meropa 320 | Pinnacle EP 150 | Pinnacle EP 220 | Pinnacle EP 320 |
| **TOTAL** | Carter EP 150 | Carter EP 220 | Carter EP 320 | Carter SH 150 | Carter SH 220 | Carter SH 320 |
| **TRIBOL** | 1100/150 | 1100/220 | 1100/320 | - | - | 1510/320 |

DANA
BREVINI®
Motion Systems

# SELECTION WINCH TECHNICAL SHEET

DANA BREVINI Motion Systems

| | |
|---|---|
| Date | Salesman |
| Subsidiary | Requested lead time for quotation |

| | |
|---|---|
| Customer | Customer type [OEM; End User;..] |
| Contact person | Market Sector |
| Product to be replaced or new application ☐ | Machine Type |
| Winches q.ty / batch | Winches q.ty / year |
| Requested Lead Time Prototype | Requested Lead Time Series |
| Target Price Prototype | Target Price Series |
| Description of the application | |

## Winch characteristics

Winch type: Lifting ☐ Pulling ☐ Lifting person ☐ Lifting person + cargo ☐

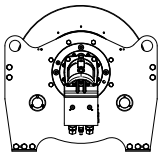
Drum: Smooth ☐ Grooved ☐ Helical left ☐ Helical right ☐ Lebus style left ☐ Lebus style right ☐

| | | | |
|---|---|---|---|
| Req. Line pull on drum [kg] | | Rope diameter [mm] | |
| At layer | | Storage Rope Length[m] | |
| Req. Speed on drum [m/min] | | Working Rope Lenght[m] | |
| At layer | | | |

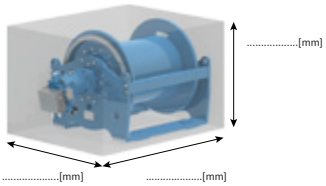
| | | | |
|---|---|---|---|
| FEM class or Duty cycle available | | Certifications | |
| | | Standards | |

| | | | |
|---|---|---|---|
| Ambient temperature [°C] | | Operating temperature [°C] | |

Exit of the rope



maximum dimension or other limitations




Drawings or indications

## Motor power supply

Motor not included into supply ☐ Electric ☐ Hydraulic ☐

| | |
|---|---|
| Model* | Manufacturer* |
| Flange type* | Shaft type* |

| **Electric** | **Hydraulic** |
|---|---|
| Supply Frequency [Hz] | Max pressure available at the motor [bar] |
| Supply Voltage [V] | Working Pressure [bar] |
| N. of Poles* | Displacement [cc/rev]* min: max: |
| | Max oil flow available at the motor[l/min] |

*** Fill up only if the motor is not included into supply**

## Accessories

| | | | | | |
|---|---|---|---|---|---|
| Rope** | Included ☐ | Not included ☐ | Pressure roller** | Included ☐ | Not included ☐ |
| Encoder** | Included ☐ | Not included ☐ | Press. Roller Limit switch | Electric ☐ | Hydr. ☐ |
| Roller fairleader** | Included ☐ | Not included ☐ | | $Min_{(empty\ drum)}$ ☐ | $Max_{(full\ drum)}$ ☐ |
| Rotative Limit switch** | Included ☐ | Not included ☐ | Mounting position |  ☐ |  ☐  ☐ |
| Auxiliary Brake** | Included ☐ | Not included ☐ | | | |
| Torque limiter** | Included ☐ | Not included ☐ | | | |
| Drum Rev. Counter** | Included ☐ | Not included ☐ | Painting (Cycle/RAL/gloss) | | |
| Others: | Included ☐ | Not included ☐ | | | |

**** if the customer has special requirements about accessories please add the specification as attachment**

Notes/ Other special requests

Attachments Yes ☐ No ☐

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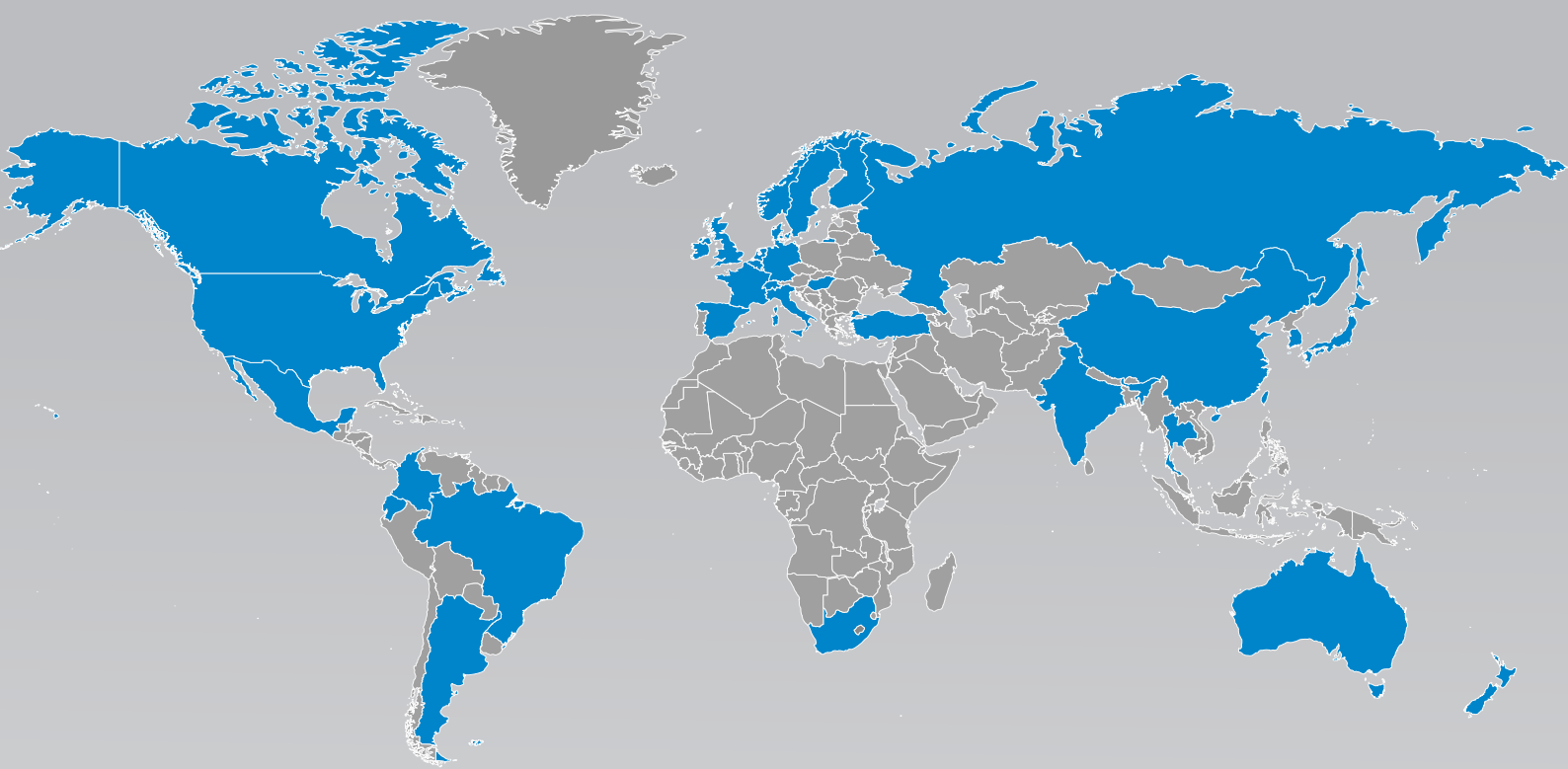

# Technologies Customized to **Every Part of the Globe**

With a presence in 34 countries, Dana Incorporated boasts more than 150 engineering, manufacturing, and distribution facilities. Our worldwide network of local service centers provides assurance that each customer will benefit from the local proximity and responsiveness.

### About Dana Incorporated

Dana is an integral partner for virtually every major vehicle and engine manufacturer worldwide. We are a leading supplier of drivetrain, sealing, and thermal technologies to the global automotive, commercial-vehicle, and off-highway markets. Founded in 1904, we employ thousands of people across six continents.

### About Dana Off-Highway Drive and Motion Technologies

Dana delivers fully optimized Spicer® drivetrain and Brevini® motion systems to customers in construction, agriculture, material-handling, mining, and industrial markets. We bring our global expertise to the local level with technologies customized to individual requirements through a network of strategically located technology centers, manufacturing locations, and distribution facilities.

Learn more about Dana's drivetrain and motion systems at **dana.com/offhighway**.

**Dana-Industrial.com**

**Application Policy**
Capacity ratings, features, and specifications vary depending upon the model and type of service. Application approvals must be obtained from Dana; contact your representative for application approval. We reserve the right to change or modify our product specifications, configurations, or dimensions at any time without notice.

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