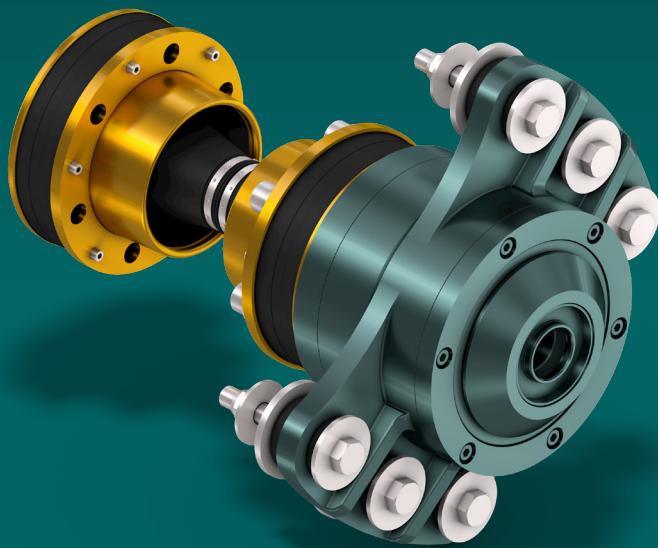




Aquadrive® Anti-Vibration System





**NO NOISE
NO VIBRATION
NO MAINTENANCE**

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Our products and technology deliver the power to harvest crops, move earth, mine resources and handle material. Increasingly there is a need to focus on energy efficiency, increased productivity and safety as well as enabling operators to be continually connected and well informed to avoid downtime.

The Walterscheid Powertrain Group is committed to providing products and services that support these requirements, and to demonstrating our position in developing technologies and solutions for the challenges of tomorrow, supporting our customers in meeting the demands of a crowded planet.



The Walterscheid Powertrain Group is a truly global business with 9 manufacturing facilities and 20 service centres in 15 countries across five continents.

This strong global presence positions us to:

- ▶ Be well placed to access fast-growing markets
- ▶ Build partnerships with market-leading customers
- ▶ Deliver product and service suited to the local markets
- ▶ Optimise our position in supply chains
- ▶ Develop technologies in partnership with global customers

Key facts

Number of employees: 2,200

Locations: 9 manufacturing plants and 20 service locations across 15 countries

The Walterscheid Powertrain Group – the global supplier of power management products, systems and service solutions for the world's leading off-highway and industrial equipment manufacturers.

Technology and services at the heart of our success

- ▶ We are continuously developing new technologies and customer solutions which deliver efficiency in the agricultural, construction, mining, utility vehicle and industrial markets
- ▶ We service all powertrain products and systems between power source and power applied

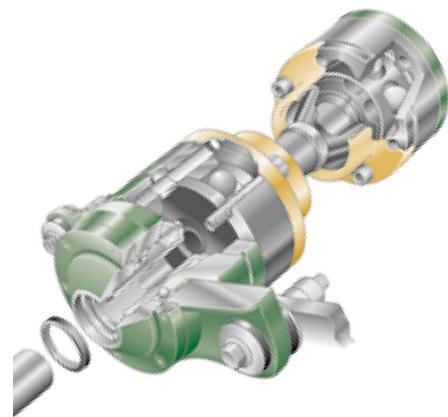
THE AQUADRIVE SYSTEM

SUPERIOR ENGINEERING

The Aquadrive antivibration system will help you and your crew enjoy the peace and quiet of boating. By isolating the engine from the rest of your boat, noise and vibration are greatly reduced. Most installations result in a 50% or more reduction in cabin or cockpit noise and vibration. Aquadrive will also help to keep your driveline in good condition by minimising wear and tear on the transmission and cutlass bearings.

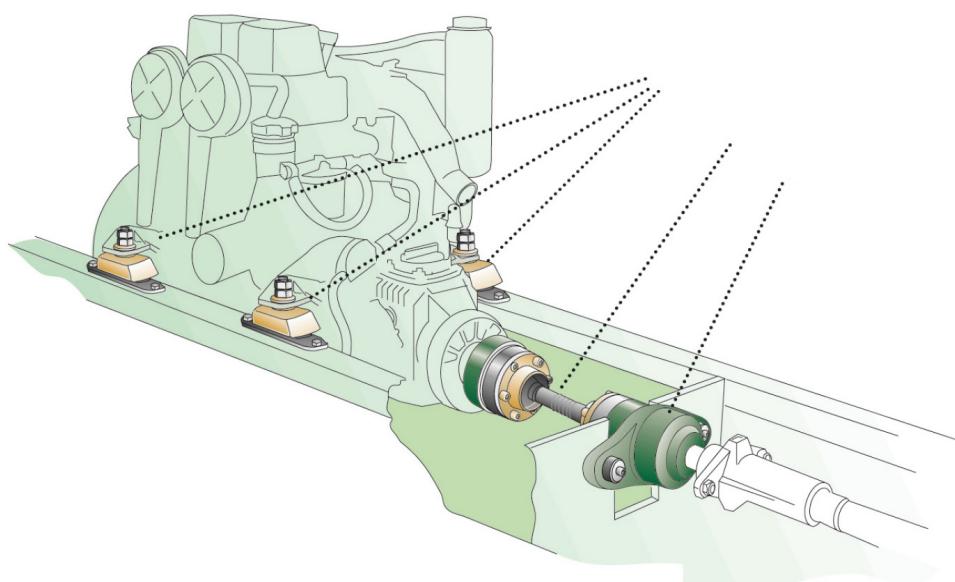
The propeller shaft is aligned to an Aquadrive thrust bearing, which absorbs the propeller thrust. A Constant Velocity (CV) shaft transmits engine power to the thrust bearing and propeller shaft.

The CV shaft automatically adjusts to changes in the alignment between engine and thrust bearing and allows engine movements in every direction. Unlike standard installations, periodic realignment will not be required. The use of softer engine mounts, which isolate engine vibration from the hull, completes the system. Aquadrive antivibration system creates the necessary conditions for a smooth running, quiet boat.



OUTSTANDING TECHNOLOGY TO IMPROVE BOATS WORLDWIDE

Aquadrive offers a large variety of different models designed to match boats powered from 5 hp to 1500 hp, we have a system that's right for nearly any boat. Whether you are a professional marine engine installer or an enlightened boat owner, we can help you find the suited system for your application.



A.

The soft engine mounts isolate the engine from the hull.

B.

The Constant Velocity drive shaft absorbs engine vibrations and eliminates the need for accurate alignment.

C.

The thrust unit, fastened on a load bearing hull section, reduces stress on the transmission, on the engine mounts and, in particular, on the engine bearings.

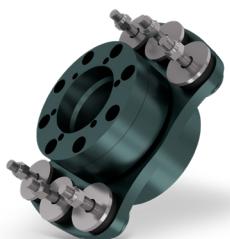
THE AQUADRIVE SYSTEM

CV SHAFT



The drive shaft of variable length includes two true plunging Constant Velocity joints that work independently at any angle, this eliminates the need for accurate engine alignment, either during initial installation or subsequent use. The rolling action of the balls within the CV-joints absorb all axial and radial loads, permitting the use of very soft engine mounts as well as reducing wear in connected bearings. A range of pre-machined gearbox coupling kits allows problem free coupling to almost every marine gearbox transmission. Our CV shafts, as a standalone element, do provide a perfect and maintenance free solution for coupling of waterjets, IPS drives etc. to the remote engine side. Beside the above mentioned homokinetic advantages, the ball joints absorb vibrations through the driveshafts.

THRUST BEARING



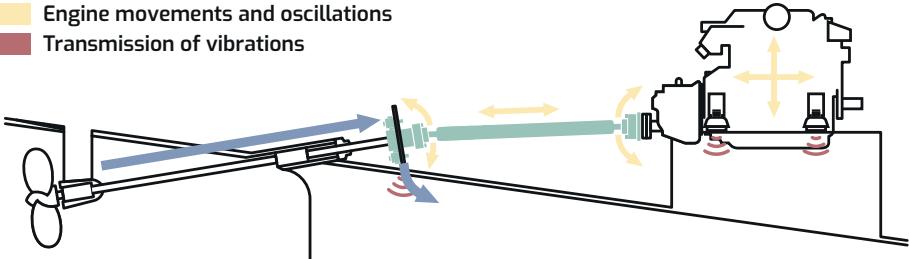
Aquadrive thrust bearing assemblies with rubber mounts attach to a cross brace in the hull. Robust bearings transfer the thrust directly to the hull and not the engine. In addition, the propeller shaft is much better supported, leading to smoother running and less wear on the stern seal.

ENGINE MOUNTS



Aquadrive's proven engine mounts are softer than almost any other and should be used to take full advantage of the system. These mounts are steel hooded to prevent diesel damage and fully captive so that the engine cannot leave its frame even if the vessel is turned over.

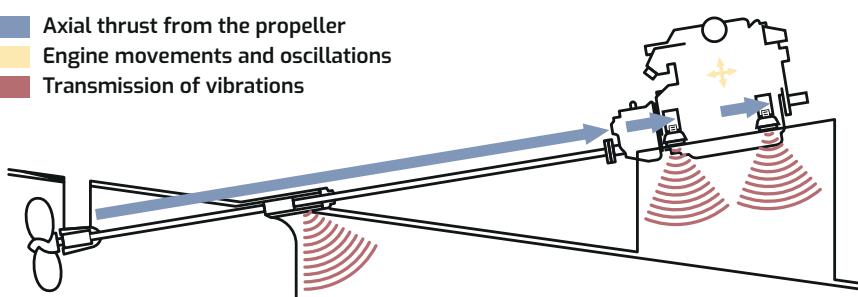
- Axial thrust from the propeller
- Engine movements and oscillations
- Transmission of vibrations



WITH AQUADRIVE

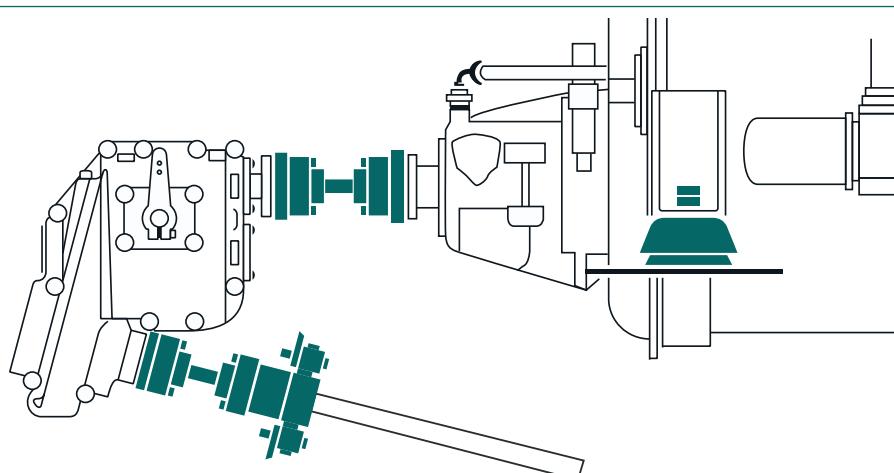
With Aquadrive the engine can be installed in a horizontal position using soft and efficient mounts. Apart from easy installation and permanent alignment, this also leads to better space utilisation while dramatically reducing vibration and noise.

- Axial thrust from the propeller
- Engine movements and oscillations
- Transmission of vibrations



WITHOUT AQUADRIVE

In traditional installations, the alignment of the propeller shaft to the engine has to be precise and subject to periodical maintenance. Stiff mounts transmit high levels of vibration to the hull, even when perfectly aligned.



AQUADRIVE FOR V-DRIVES

Aquadrive for installations with V-drive.

Moduline B05



CVB 05.05

Max. static torque ($\emptyset A = 20 \text{ mm}$)

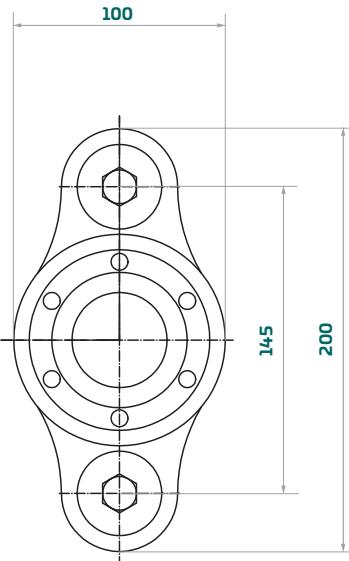
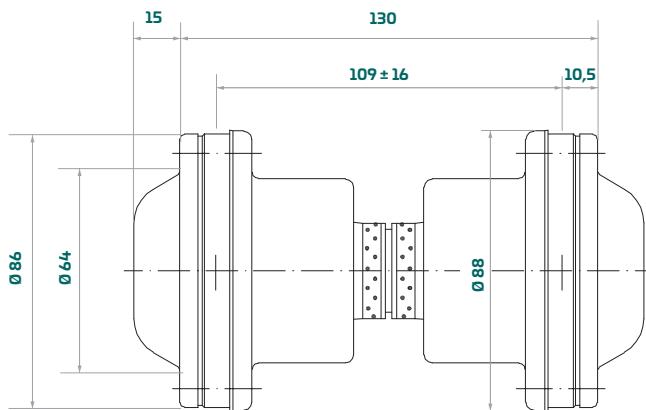
610 Nm / 450 lbf

Max. propeller shaft revolutions

4000 rpm

Max. continuous propeller thrust

6 kN / 1350 lbf



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Sailing boat</i>	25 (34)	3800	2.6 : 1
<i>Displacement motorboat</i>	20 (27)	2600	3.0 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B10 standard version accepts following propeller shaft ØA:

20 mm	22 mm	7/8 "	25 mm	1 "	1 1/8 "	30 mm
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Moduline B10



Max. static torque
($\emptyset A = 20$ mm)

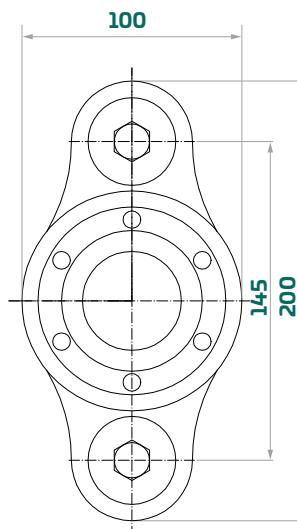
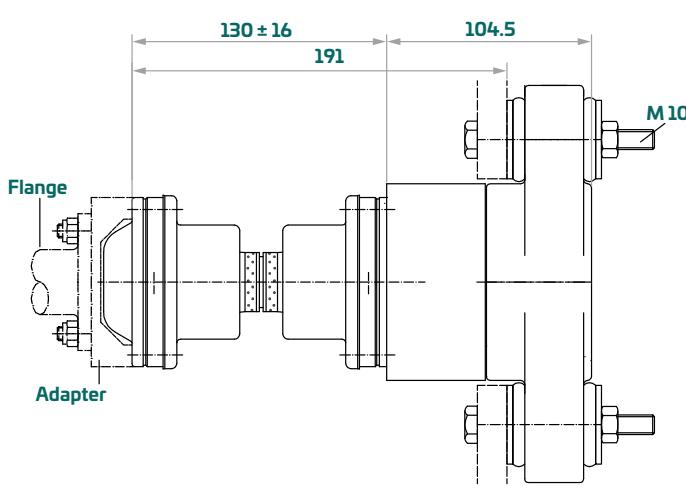
1034 Nm / 763 lbft

Max. propeller
shaft revolutions

4000 rpm

Max. continuous
propeller thrust

11 kN / 2475 lbf



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Sailing boat	33 (45)	3800	2.6 : 1
Displacement motorboat	26 (35)	2600	3.0 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B10 standard version accepts following propeller shaft ØA:

¾"	20 mm	22 mm	⁷/₈"	25 mm	1"	1 ¹/₈"	30 mm	1 ¼"	32 mm	35 mm	1 ½"	40 mm
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Oversize version with external clamp mechanics suits shaft diameters:

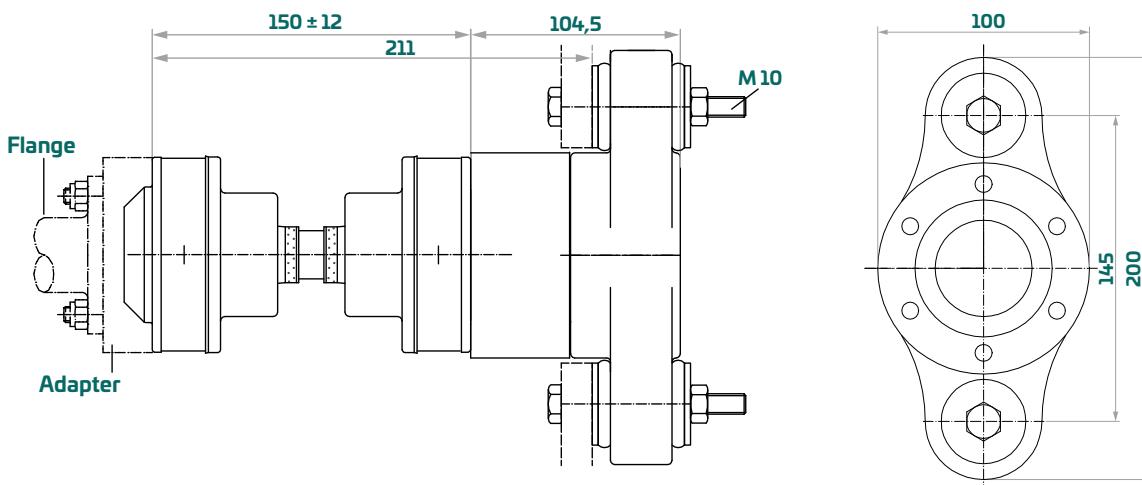
1 ¾"	45 mm	50 mm	2"
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All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B10

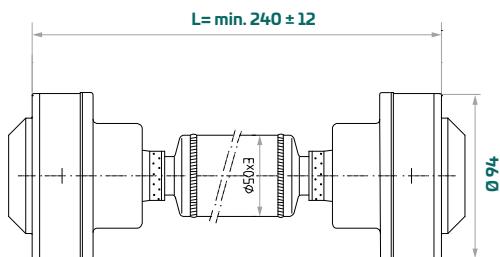


Max. static torque ($\emptyset A = 1 "$)	1300 Nm / 969 lbft
Max. propeller shaft revolutions	4000 rpm
Max. continuous propeller thrust	11 kN / 2475 lbf



CV 10

Custom-length CV 10 driveshaft is available in lengths from 150 mm (from 240 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Planing boat	62 (85)	3800	2.0 : 1
Sailing boat	55 (75)	3800	2.6 : 1
Displacement motorboat	40 (55)	2600	3.0 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B10 standard version accepts following propeller shaft ØA:

¾"	20 mm	22 mm	⅝"	25 mm	1"	1 ⅛"	30 mm	1 ¼"	32 mm	35 mm	1 ½"	40 mm
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Oversize version with external clamp mechanics suits shaft diameters:

1 ¾"	45 mm	50 mm	2"
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All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B10



Max. static torque
($\varnothing A = 1 \frac{1}{4}$ ")

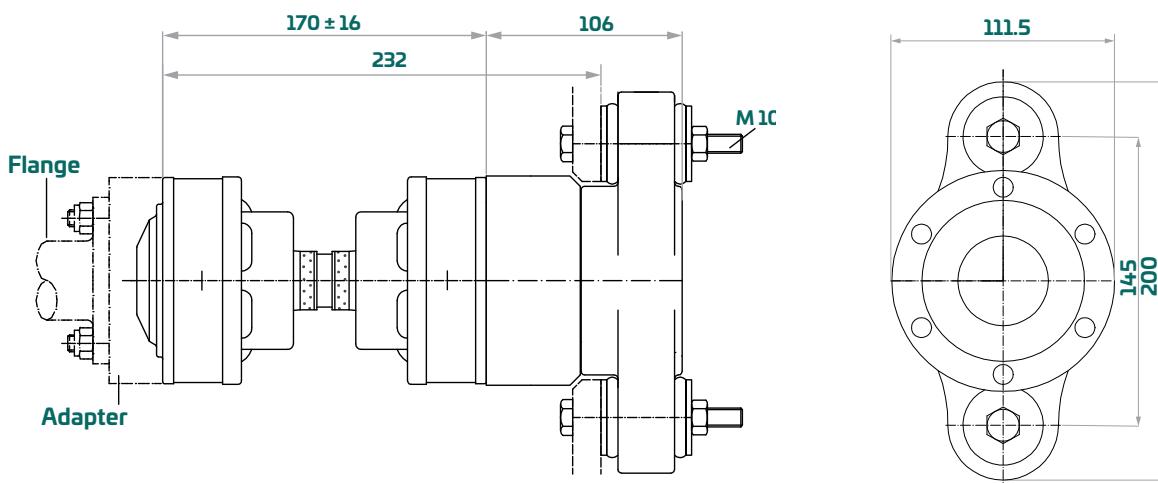
1625 Nm / 1200 lbft

Max. propeller
shaft revolutions

4000 rpm

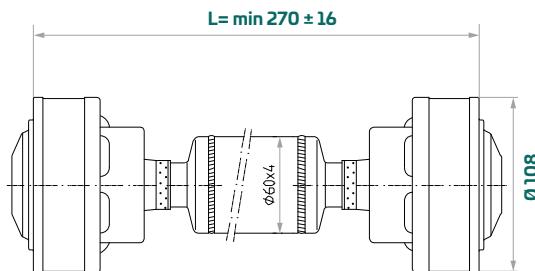
Max. continuous
propeller thrust

11 kN / 2475 lbf



CV 15

Custom-length CV 15 driveshaft is available in lengths from 170 mm (from 270 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Planing boat	114 (155)	3800	2.0 : 1
Semi-dis- placement motorboat	96 (130)	3300	2.2 : 1
Sailing boat	85 (115)	3300	2.6 : 1
Displacement motorboat	66 (90)	2600	3.0 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B10 standard version accepts following propeller shaft ØA:

¾"	20 mm	22 mm	7/8"	25 mm	1"	1 1/8"	30 mm	1 1/4"	32 mm	35 mm	1 1/2"	40 mm
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Oversize version with external clamp mechanics suits shaft diameters:

1 ¾ "	45 mm	50 mm	2 "
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All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B10



Max. static torque
($\emptyset A = 40$ mm)

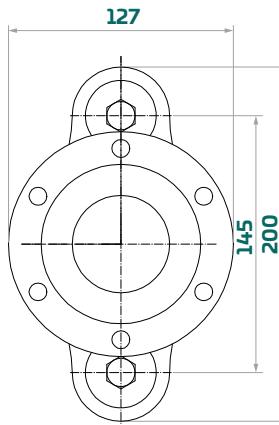
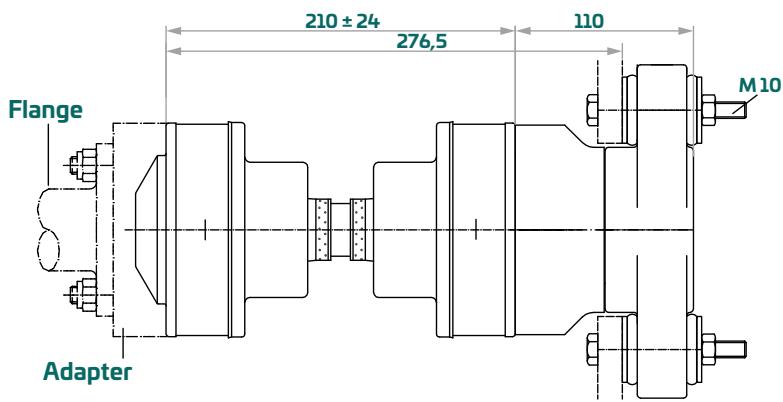
2068 Nm / 1526 lbft

Max. propeller
shaft revolutions

4000 rpm

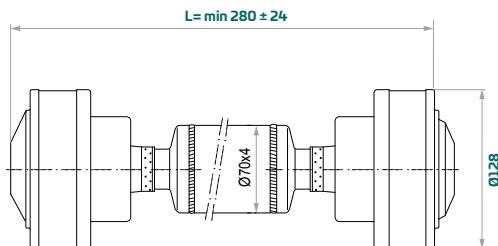
Max. continuous
propeller thrust

11 kN / 2475 lbf



CV 21

Custom-length CV 21 driveshaft is available in lengths from 210 mm (from 280 mm with tubeshaft design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Planing boat</i>	173 (235)	3800	2.0 : 1
<i>Semi-displacement motorboat</i>	147 (200)	3300	2.2 : 1
<i>Displacement motorboat</i>	96 (130)	2500	3.1 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B10 standard version accepts following propeller shaft ØA:

¾"	20 mm	22 mm	⁷/₈"	25 mm	1"	1 ¹/₈"	30 mm	1 ¹/₄"	32 mm	35 mm	1 ½"	40 mm
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Oversize version with external clamp mechanics suits shaft diameters:

1 ¾"	45 mm	50 mm	2"
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All B10 systems are also available with flange coupling to suit standard BW 5" propeller flange. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B20

aquadrive®
antivibration system

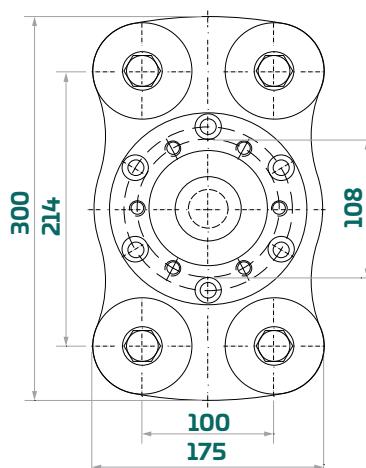
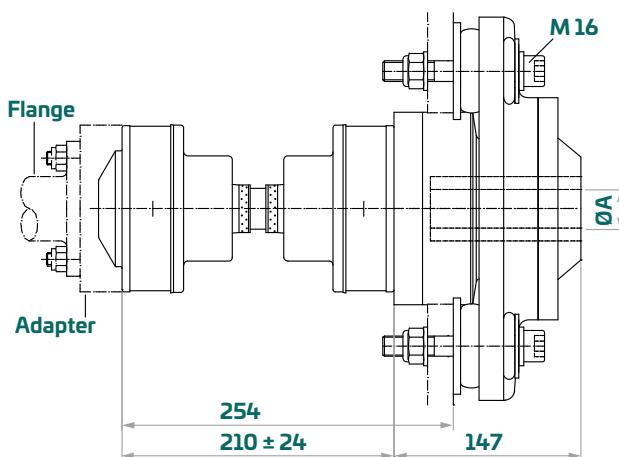


CVB 21.20

Max. static torque ($\varnothing A = 2 "$) 1400 Nm / 1034 lbf

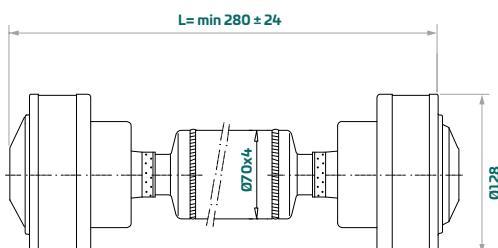
Max. propeller shaft revolutions 2000 rpm

Max. continuous propeller thrust 14 kN / 3150 lbf



CV 21

Custom-length CV 21 driveshaft is available in lengths from 210 mm (from 280 mm with tubeshaft design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	100 (135)	2600	3:1
Planing boat	165 (225)	3900	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 4-8° depending on shaft rpm.

Propeller shaft options

B20 standard version accepts following propeller shaft diameters:

ØA	35 mm	1 ½ "	40 mm	1 ¾ "	45 mm	50 mm	2 "
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All B20 systems are also available with flange coupling.

Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B20

aquadrive®
antivibration system

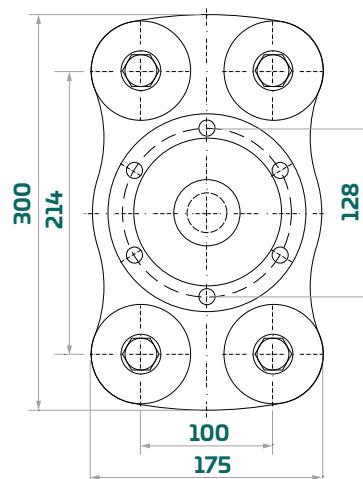
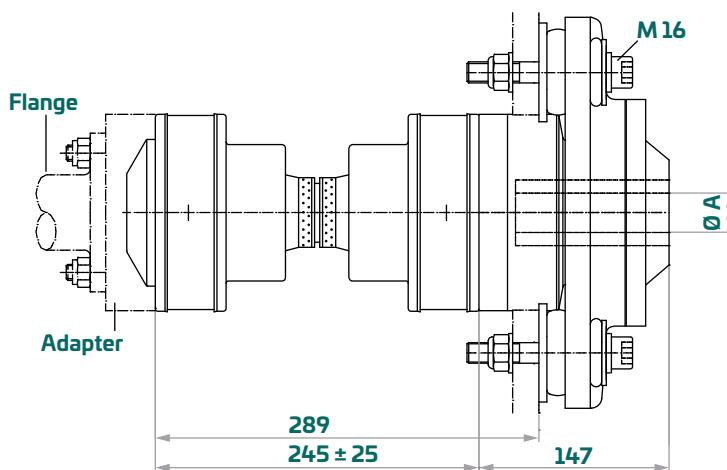


CVB 30.20

Max. static torque ($\varnothing A = 2''$) 1400 Nm / 1034 lbf

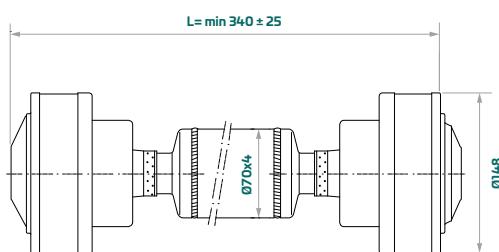
Max. propeller shaft revolutions 2000 rpm

Max. continuous propeller thrust 14 kN / 3150 lbf



CV 30

Custom-length CV 30 driveshaft is available in lengths from 245 mm (from 340 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	130 (175)	2600	3:1
Planing boat	200 (270)	3300	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

B20 standard version accepts following propeller shaft diameters:

ØA	35 mm	1 ½ "	40 mm	1 ¾ "	45 mm	50 mm	2 "
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All B20 systems are also available with flange coupling. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B30



Max. static torque
($\varnothing A = 65$ mm)

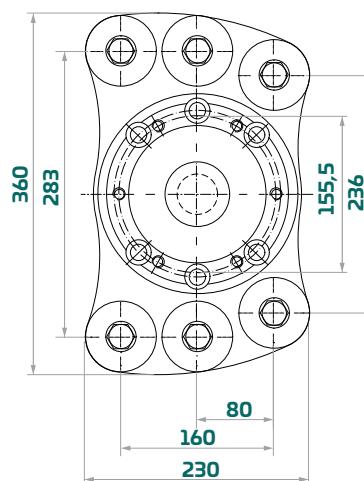
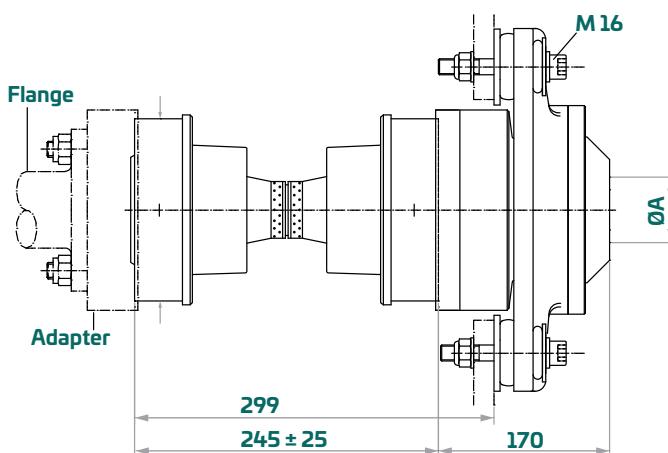
3000 Nm / 2215 lbf

Max. propeller
shaft revolutions

1700 rpm

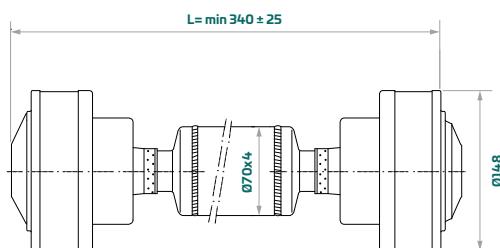
Max. continuous
propeller thrust

21 kN / 4725 lbf



CV 30

Custom-length CV 30 driveshaft is available in lengths from 245 mm (from 340 mm with tubeshaft design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	140 (190)	2600	3:1
Planing boat	180 (244)	3000	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

B30 standard version accepts following propeller shaft sizes:

$\varnothing A$	40 mm	1 3/4 "	45 mm	50 mm	2 "
2 1/4 "	60 mm	2 1/2 "	65 mm	70 mm	

All B30 systems are also available with flange coupling.
Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

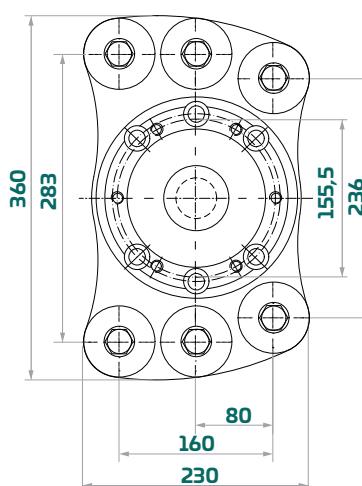
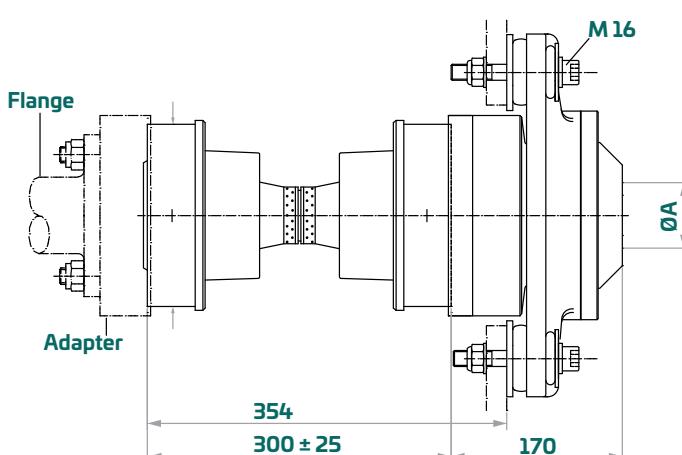
Moduline B30



Max. static torque ($\varnothing A = 65$ mm)	3000 Nm / 2215 lbf
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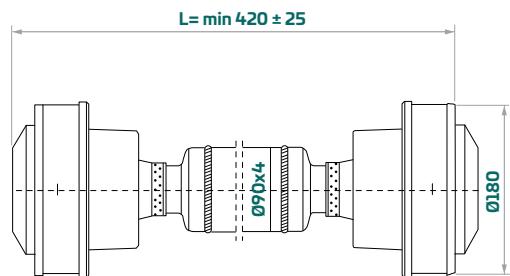
Max. propeller shaft revolutions	1700 rpm
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Max. continuous propeller thrust	21 kN / 4725 lbf
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CV 32

Custom-length CV 32 driveshaft is available in lengths from 300 mm (from 420 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	195 (265)	2600	3:1
Planing boat	270 (365)	3000	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

B30 standard version accepts following propeller shaft sizes:

ØA	40 mm	1 3/4 "	45 mm	50 mm	2 "
2 1/4 "	60 mm	2 1/2 "	65 mm	70 mm	

All B30 systems are also available with flange coupling. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Moduline B30



CVB 42.30

Max. static torque
($\varnothing A = 65$ mm)

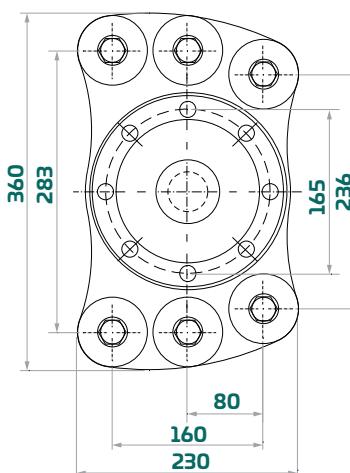
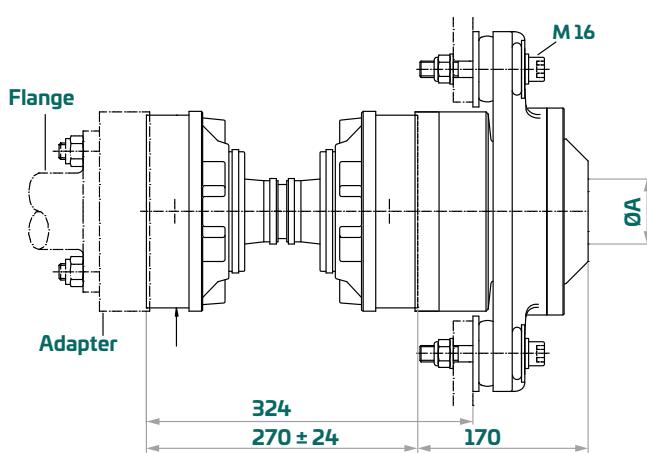
3000 Nm / 2215 lbf

Max. propeller
shaft revolutions

1700 giri al min.

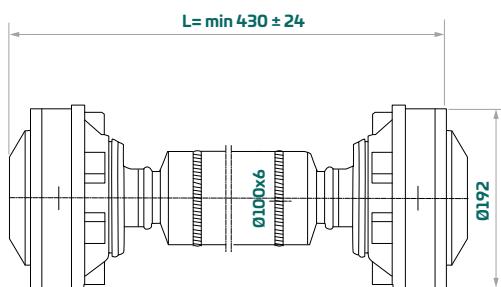
Max. continuous
propeller thrust

21 kN / 4725 lbf



CV 42

Custom-length CV 42 driveshaft is available in lengths from 270 mm (from 430 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	240 (325)	2800	3:1
Planing boat	310 (420)	2600	2.5:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

B30 standard version accepts following propeller shaft sizes:

ØA	40 mm	1 3/4 "	45 mm	50 mm	2 "
2 1/4 "	60 mm	2 1/2 "	65 mm	70 mm	

All B30 systems are also available with flange coupling. Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

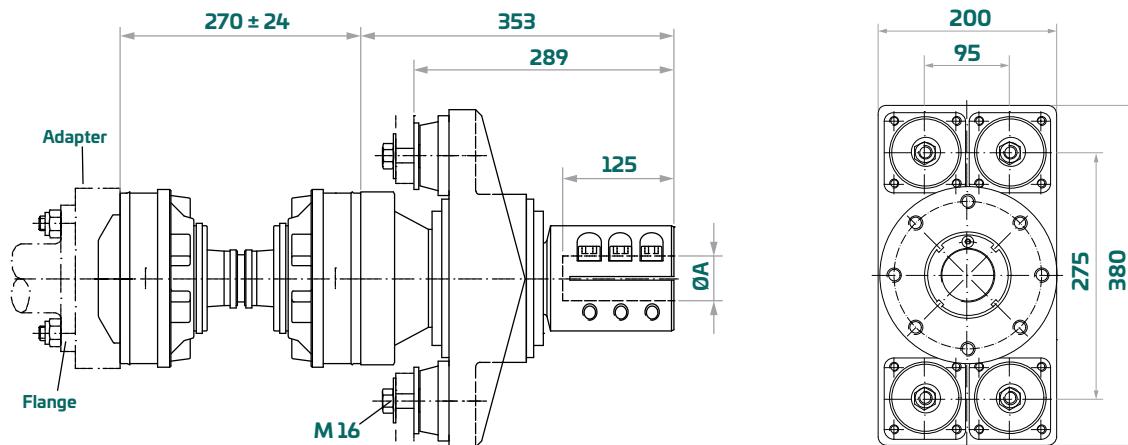


HDL 42.680

Max. static torque 10500 Nm / 7750 lbf

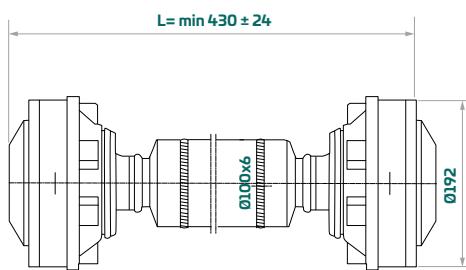
Max. propeller shaft revolutions 1700 rpm

Max. propeller thrust 40 kN / 9000 lbf



CV 42

Custom-length CV 42 driveshaft is available in lengths from 270 mm (from 430 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Displacement boat</i>	220 (300)	2100	3:1
<i>Planing boat</i>	420 (570)	2600	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

HDL 680 standard version accepts following propeller shaft sizes:

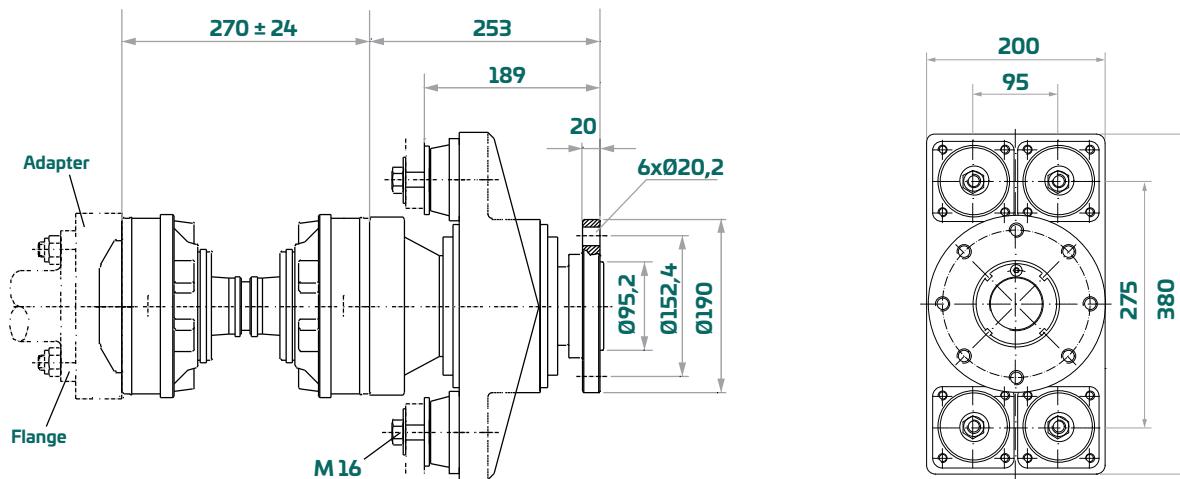
50 mm	2"	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
-------	----	-------	-------	-------	-------	-------

Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.



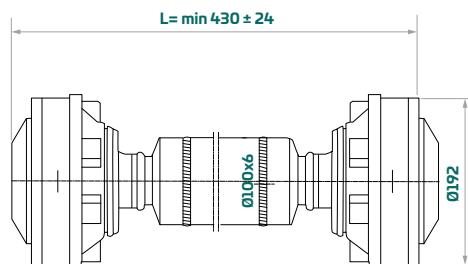
HDL 42.680 Flanged

Max. static torque	10500 Nm / 7750 lbf
Max. propeller shaft revolutions	1700 rpm
Max. propeller thrust	40 kN / 9000 lbf



CV 42

Custom-length CV 42 driveshaft is available in lengths from 270 mm (from 430 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	220 (300)	2100	3:1
Planing boat	420 (570)	2600	2:1

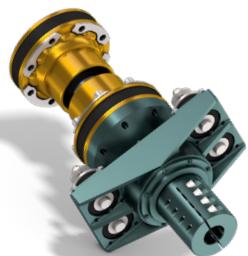
Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

HDL 680 standard version accepts following propeller shaft sizes:

50 mm	2"	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
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Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

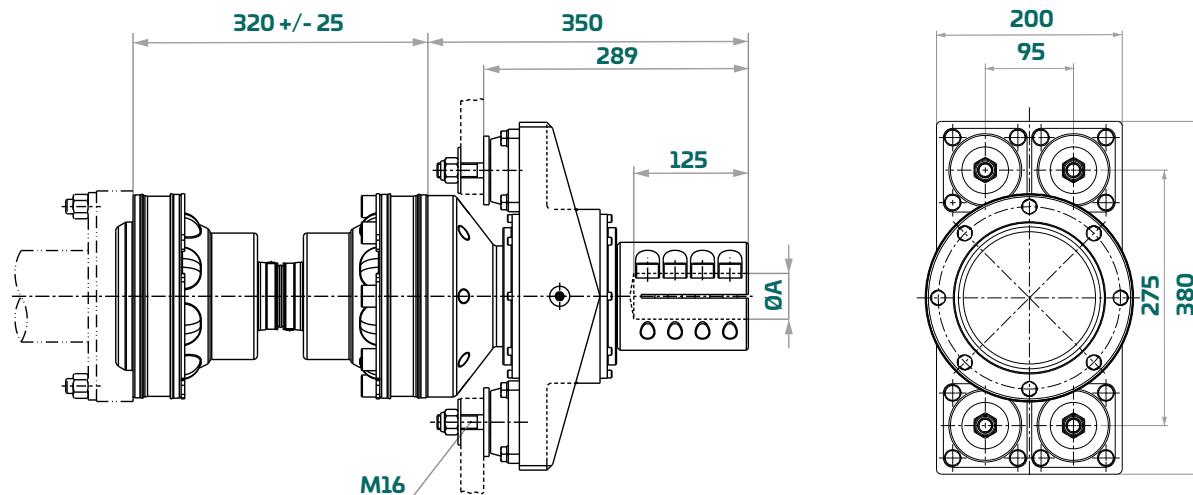


HDL 48.690

Max. static torque 12240 Nm / 9060 lbf

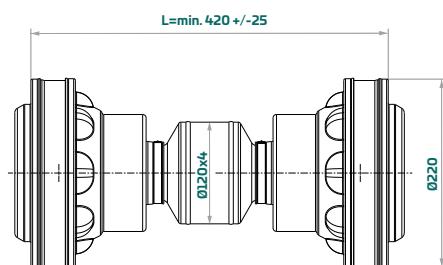
Max. propeller shaft revolutions 1700 rpm

Max. propeller thrust 40 kN / 9000 lbf



CV 48

Custom-length CV 48 driveshaft is available in lengths from 320 mm (from 420 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Displacement boat</i>	410 (550)	2100	3:1
<i>Planing boat</i>	670 (900)	2800	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

HDL 680 standard version accepts following propeller shaft sizes:

50 mm	2 "	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
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Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

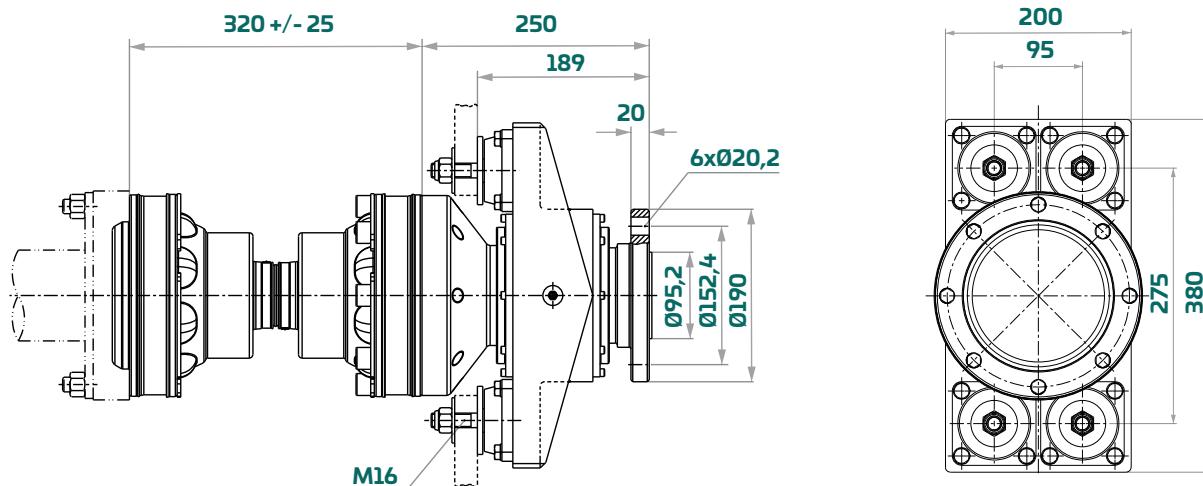


HDL 48.690 Flanged

Max. static torque 12240 Nm / 9060 lbf

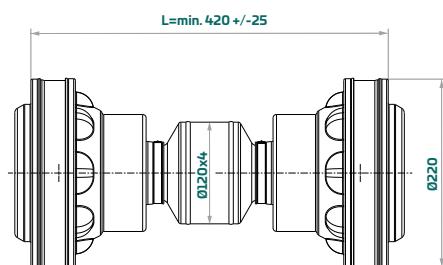
Max. propeller shaft revolutions 1700 rpm

Max. propeller thrust 40 kN / 9000 lbf



CV 48

Custom-length CV 48 driveshaft is available in lengths from 320 mm (from 420 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Displacement boat</i>	410 (550)	2100	3:1
<i>Planing boat</i>	670 (900)	2800	2:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°). The maximum allowable joint angle is 5-8° depending on shaft rpm.

Propeller shaft options

HDL 680 standard version accepts following propeller shaft sizes:

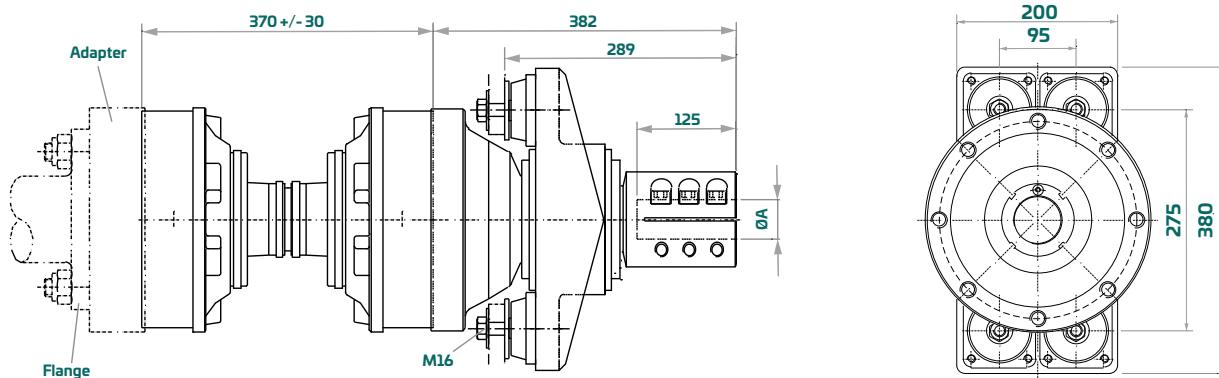
50 mm	2 "	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
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Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

Heavy Duty Line HDL

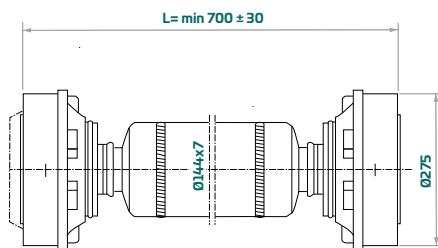


Max. static torque	12240 Nm / 9060 lbf
Max. propeller shaft revolutions	1700 rpm
Max. propeller thrust	40 kN / 9000 lbf



CV 60

Custom-length CV 60 driveshaft is available in lengths from 370 mm (from 700 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	370 (500)	1900	2.7 : 1
Planing boat	660 (900)	2300	1.75 : 1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher bending angles please consult our technical department.

Propeller shaft options

HDL 700 standard version accepts following propeller shaft sizes:

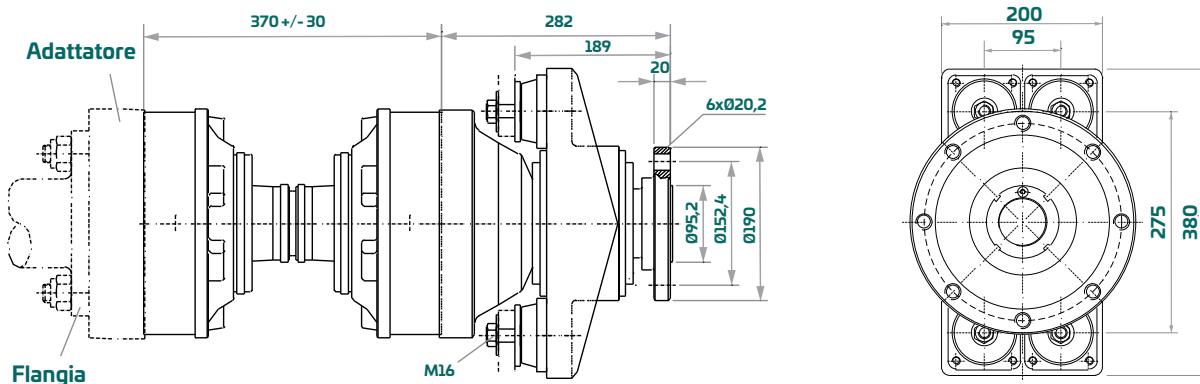
50 mm	2 "	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
-------	-----	-------	-------	-------	-------	-------

Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.



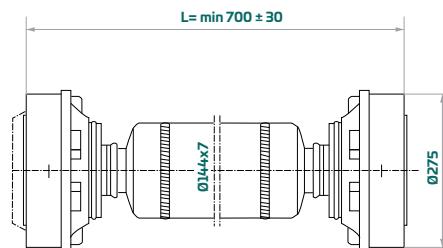
HDL 60.700 Flanged

Max. static torque	12240 Nm / 9060 lbf
Max. propeller shaft revolutions	1700 rpm
Max. propeller thrust	40 kN / 9000 lbf



CV 60

Custom-length CV 60 driveshaft is available in lengths from 370 mm (from 700 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	370 (500)	1900	2.7:1
Planing boat	660 (900)	2300	175:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher bending angles please consult our technical department.

Propeller shaft options

HDL 700 standard version accepts following propeller shaft sizes:

50 mm	2 "	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
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Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.



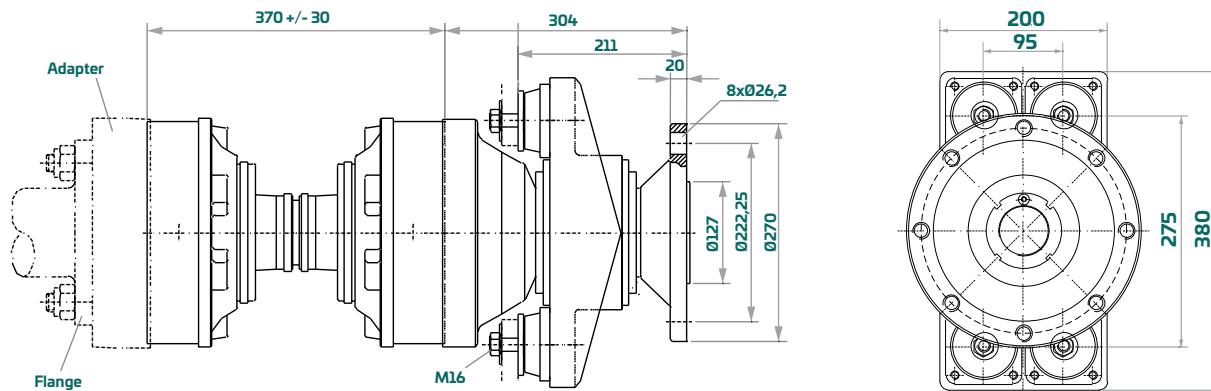
HDL 60.700 HT *

* HT – High tensile steel version

Max. static torque 22000 Nm / 16280 lbf

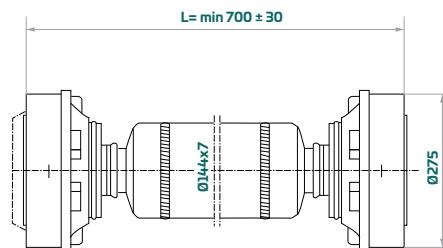
Max. propeller shaft revolutions 1700 rpm

Max. propeller thrust 40 kN / 9000 lbf



CV 60

Custom-length CV 60 driveshaft is available in lengths from 370 mm (from 700 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
Displacement boat	515 (700)	1900	3:1
Planing boat	735 (1000)	2300	2.5:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher bending angles please consult our technical department.

Propeller shaft options

HDL 700 standard version accepts following propeller shaft sizes:

50 mm	2 "	2 ¼ "	60 mm	2 ½ "	65 mm	70 mm
-------	-----	-------	-------	-------	-------	-------

Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

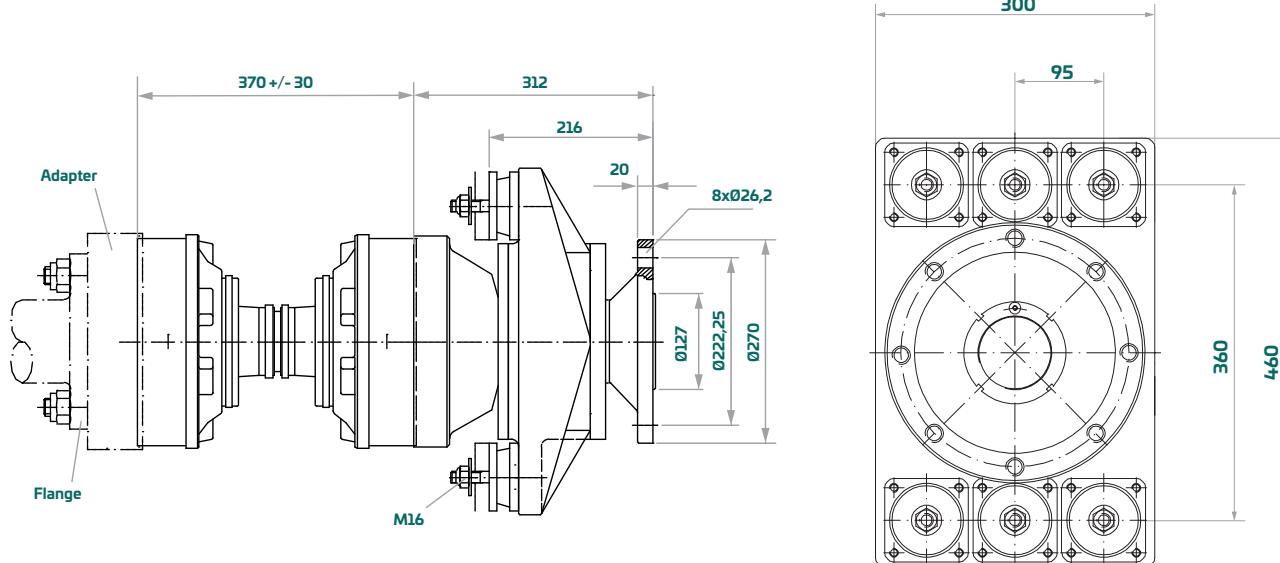
Heavy Duty Line HDL

aquadrive®
antivibration system



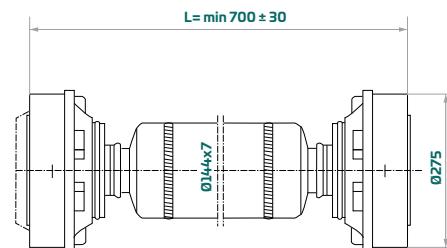
HDL 60.780 Flanged

Max. static torque	25000 Nm / 18500 lbf
Max. propeller shaft revolutions	1400 rpm
Max. propeller thrust	60 kN / 13500 lbf



CV 60

Custom-length CV 60 driveshaft is available in lengths from 370 mm (from 700 mm with tubeshift design). Maximum length depends on shaft rpm.



Application examples

	Rated power kw (HP)	Crankshaft rpm	Gearbox ratio
<i>Displacement boat</i>	590 (800)	2100	3:1
<i>Planing boat</i>	1100 (1500)	2300	175:1

Note: Above rating examples are based on optimum conditions with 2° for each CV joints. In case a CV joint will run at an angle greater than 2°, the max. permitted power must be reduced (normally by 8-9% for each degree over 2°).

The maximum allowable joint angle is 3° depending on shaft rpm. For higher bending angles please consult our technical department.

Propeller shaft options

HDL 700 standard version accepts following propeller shaft sizes:

50 mm	2"	2 1/4 "	60 mm	2 1/2 "	65 mm	70 mm
-------	----	---------	-------	---------	-------	-------

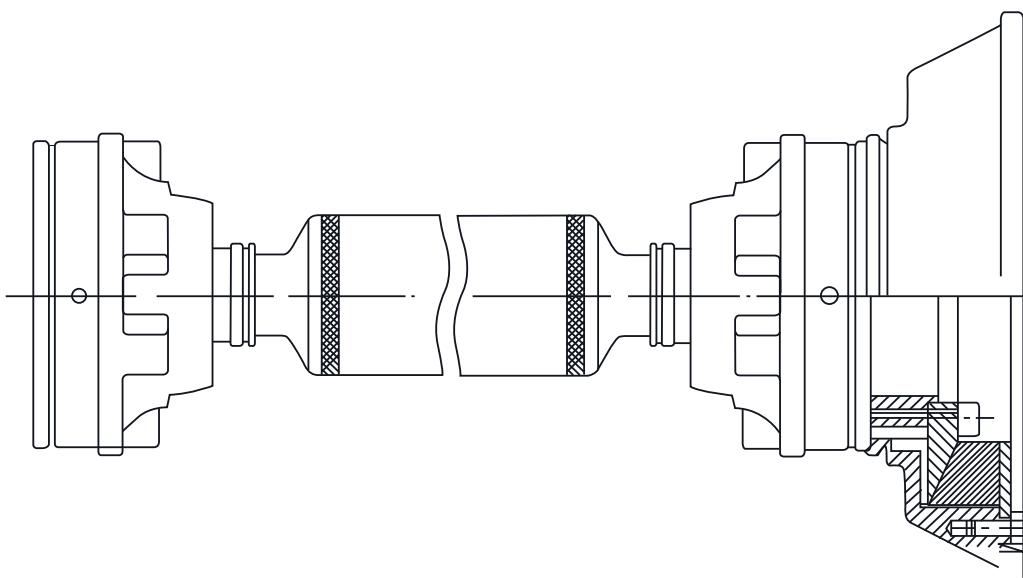
Please contact our technical department to assist you in selecting a suitable Aquadrive system for your application.

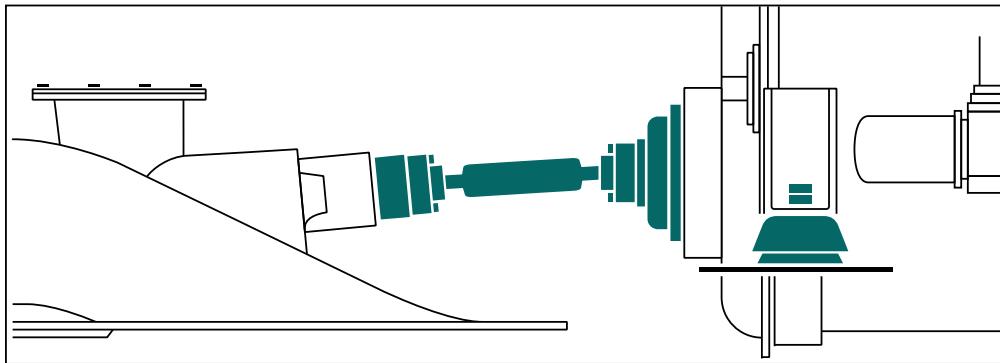
AQUADRIVE CVT – TORSIONAL DAMPING



Soft, flexible rubber elements are normally installed between the engine flywheel and gearbox to avoid torsional vibration.

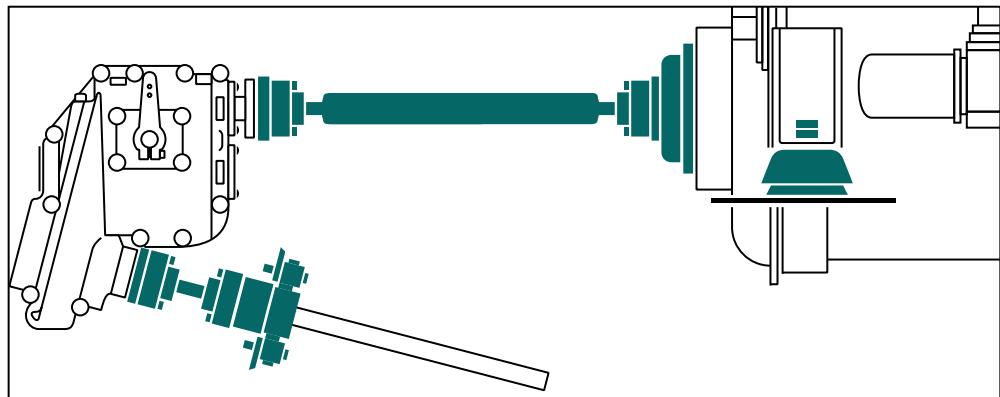
Aquadrive CV shafts can be directly coupled to those gearboxes without additional rubber or flexible elements (CVT units). For flywheel-mounted installations, Aquadrive is able to provide you with CV shafts combined with elastic torsional dampers as a customized solution in a full range of power applications involving remote mounted propulsion equipment, such as water-jets, stern-drives and remote v-drives.





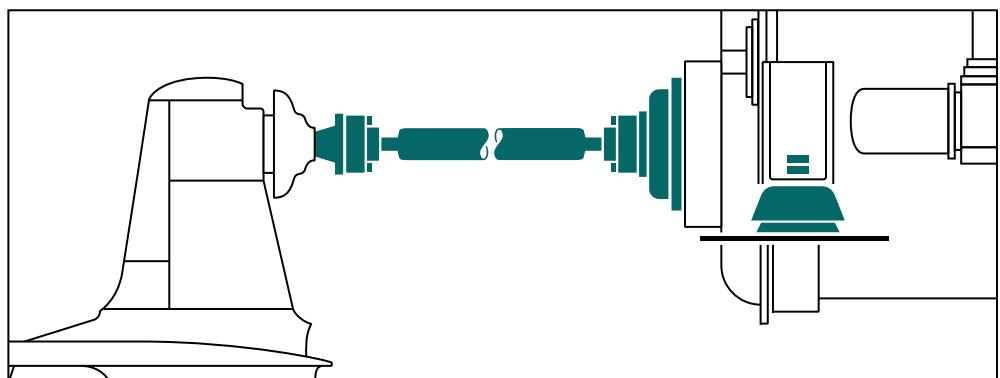
AQUADRIVE CVT FOR WATER-JET

The CVT unit consists of a CV shaft of variable length and a rubber element torsional damper designed to bolt directly to the engine flywheel. This is the ultimate combination of excellent torsional damping and total absorption of misalignment and movement between water-jets and soft mounted engines.



AQUADRIVE FOR REMOTE V-DRIVES

Demonstrable the best way to install a remote v-drive: The floating CVT unit with torsional damping between soft mounted engine and gearbox, then a CV shaft and thrust bearing that takes out the propeller thrust and allows soft mounted gearbox and free alignment. When required, "dual-rate couplings" are available to reduce "gear rattle".



AQUADRIVE CVT JACK-SHAFT

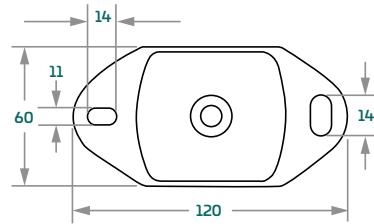
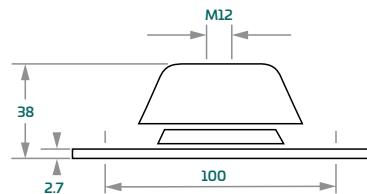
When splitting the engine and outboard stern drive, the best way to couple the flywheel to the stern drive is by means of a CVT unit. This surely offers a smoother and quieter solution, with considerably less wear on the bearings than any other drive shaft systems available.

AQUADRIVE ENGINE MOUNTS

The Aquadrive system creates free movement between the engine and the propeller shaft. One result is the engine's mountings can be much softer than normal, partly because the engine can vibrate freely relative to the shaft, and partly because no propeller thrust reaches the mounts and strains them forwards. Aquadrive engine mounts can be used with almost any marine engine, and our expert staff will rapidly select the correct rubber stiffness for the machinery involved.

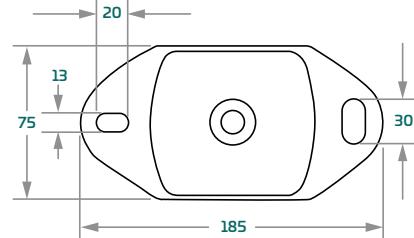
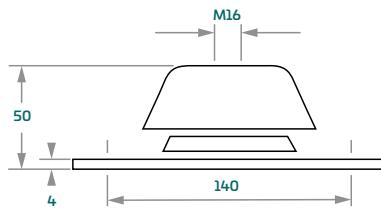
50210

The smallest engine mount of the range is available in four rubber grades for weights up to 60 kg per mount.



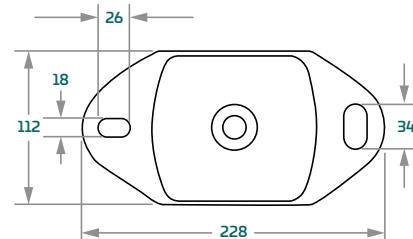
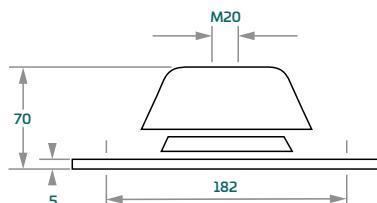
50220

The most versatile mount is available in five different rubber grades and takes weights up to 200 kg per mount.



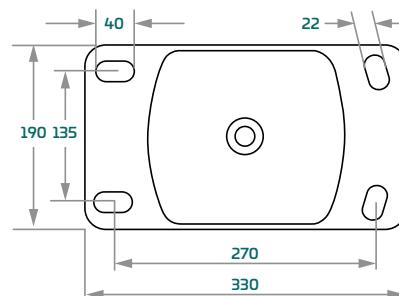
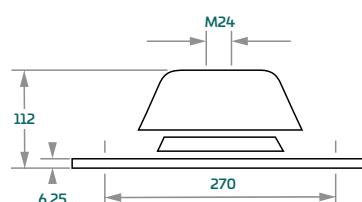
50230

This engine mount is available in four different rubber grades and will take weights up to 800 kg per mount.



50240

The largest of engine mount of the range is available in four rubber grades taking up to 3000 kg per mount.



Engine mount deflection chart

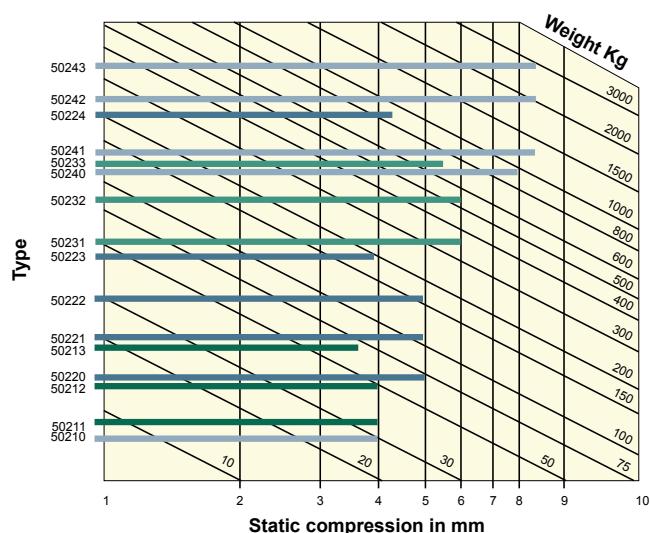
Selecting the correct rubber grade and mount for a particular engine or generator is a skilled task and our expert staff will advise. For those who wish to study the science, the chart above shows how much deflection will occur on each mount and rubber hardness given a particular weight on the mount. In general you should aim for 3 mm on the 50210, 4 mm on the 50220, 5 mm on the 50230 and 6 mm on the 50240.

■ 50210

■ 50230

■ 50220

■ 50240



REFERENCES

Discover the peace
and quiet of boating



Damrak Sunreef, Poland
Aquadrive HDL



Dana Cruz
Aquadrive HDL



Hinckley 44
Aquadrive Moduline



Norwegian Sea Rescue NSSR, Norway
Aquadrive CV Shafts



Oyster 82
Aquadrive HDL



US Navy
Aquadrive CV Shafts

PART NUMBERS OVERVIEW

MODULINE THRUST BEARINGS

Propeller shaft diameter / connection

System	Belonging CV shaft size	3/4"	20 mm	22 mm	7/8"	25 mm	1"	1 1/8"	30 mm	1 1/4"	32 mm	35 mm
CVB 05.05	CV05	-	6100201	6100202	6100203	6100204	6100205	6100206	6100207	-	-	-
CVB 05.10	CV05	6110200	6110201	6110202	6110203	6110204	6110205	6110206	6110207	6110208	6110209	6110210
CVB 10.10	CV10	6110300	6110301	6110302	6110303	6110304	6110305	6110306	6110307	6110308	6110309	6110310
CVB 15.10	CV15	6110400	6110401	6110402	6110403	6110404	6110405	6110406	6110407	6110408	6110409	6110410
CVB 21.10	CV21	6110500	6110501	6110502	6110503	6110504	6110505	6110506	6110507	6110508	6110509	6110510
CVB 21.20	CV21	-	-	-	-	-	-	-	-	-	-	61120510
CVB 30.20	CV30	-	-	-	-	-	-	-	-	-	-	61120610
CVB 30.30	CV30	-	-	-	-	-	-	-	-	-	-	-
CVB 32.30	CV32	-	-	-	-	-	-	-	-	-	-	-
CVB 42.30	CV42	-	-	-	-	-	-	-	-	-	-	-

PART NUMBERS OVERVIEW

MODULINE THRUST BEARINGS

Propeller shaft diameter / connection

System	Belonging CV shaft size	1 1/2 "	40 mm	1 3/4 "	45 mm	50 mm	2"	2 1/4 "	60 mm	2 1/2 "	65 mm	70 mm	Flanged
CVB 05.05	CV05	-	-	-	-	-	-	-	-	-	-	-	-
CVB 05.10	CV05	6110211	6110212	6110223	6110224	6110226	6110227	-	-	-	-	-	6110230
CVB 10.10	CV10	6110311	6110312	6110323	6110324	6110326	6110327	-	-	-	-	-	6110330
CVB 15.10	CV15	6110411	6110412	6110423	6110424	6110426	6110427	-	-	-	-	-	6110430
CVB 21.10	CV21	6110511	6110512	6110523	6110524	6110526	6110527	-	-	-	-	-	6110530
CVB 21.20	CV21	6120511	6120512	6120513	6120514	6120516	6120517	-	-	-	-	-	6120530
CVB 30.20	CV30	6120611	6120612	6120613	6120614	6120616	6120617	-	-	-	-	-	6120630
CVB 30.30	CV30	-	6130612	6130613	6130614	6130616	6130617	6130619	6130620	6130622	6130623	6130624	6130630
CVB 32.30	CV32	-	6130712A	6130713A	6130714A	6130716A	6130717A	6130719A	6130720A	6130722A	6130723A	6130724A	6130730A
CVB 42.30	CV42	-	6130812A	6130813A	6130814A	6130816A	6130817A	6130819A	6130820A	6130822A	6130823A	6130824A	6130830A

= with external clamp

The complete Aquadrive system consists of the thrustbearing from above spreadsheet and of a CV shaft in the attributed size
→ See separate **CV shafts table**

PART NUMBERS OVERVIEW

HEAVY DUTY LINE THRUST BEARINGS

System	Belonging CV shaft size	Propeller shaft diameter / connection								
		50 mm	2"	2 1/4"	60 mm	2 1/2"	65 mm	70 mm	Flange 7,5"	Flange 10,5"
HDL 42.680	CV42	6039205A	6039207A	6039208A	6039209A	6039210A	6039211A	6039212A	6039220A	6039221A
HDL 48.690	CV48	6039255	6039257	6039258	6039259	6039260	6039261	6039262	6039263	6039264
HDL 60.700	CV60	6039305	6039307	6039308	6039309	6039310	6039311	6039312	6039319	6039320
HDL 60.700 HT	CV60	-	-	-	-	-	-	-	-	6039322
HDL 60.780	CV60	-	-	-	-	-	-	-	-	6039519

The complete Aquadrive system consists of the thrustbearing from above spreadsheet and of a CV shaft in the attributed size
 → See separate **CV shafts table**

PART NUMBERS OVERVIEW

CV SHAFTS

Size	Short coupled shaft standard length (barshaft)	Custom length shaft (tubeshift)
CV05	6070001	6070005
CV10	6070006	6070019
CV15	6070025	6070035
CV21	6070040	6070049
CV30	6070090	6070095
CV32	6070097	6070098
CV42	6070083	6070087
CV48	6070150	6070156
CV60	6070100	6070108

Walterscheid Powertrain Group

Service Centre Locations



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Contact information on all our Service Centres can be found on the previous page.
For further information please visit us at www.aquadrive.com

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Walterscheid Powertrain Group - Global Footprint



Worldwide locations of our 9 Manufacturing Plants and 20 Service Centres