

Applications for:

Fast Vessels WVS/WLS

Engine Rating up to 5,000 kW

Fast Ferries VLJ

Engine Rating up to 13,200 kW

Work Boats WAF/LAF

Engine Rating up to 1,200 kW

Work Boats WAF/LAF

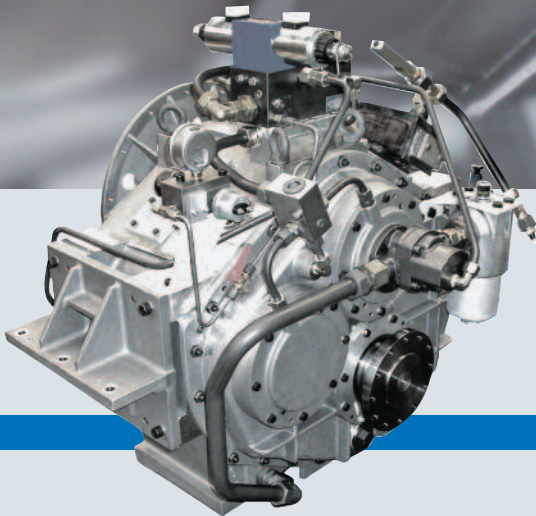
Engine Rating up to 3,650 kW

Work Boats WAF/LAF

Engine Rating up to 8,500 kW

# Fast Vessels 350 - 1,400 kW

## WVS/WLS 234/1 - 430/1



Work Boats VA

Engine Rating up to 6,000 kW

Work Boats DLG/DLGF

Engine Rating up to 15,000 kW

Work Boats SVA<sup>1</sup>/SVAL<sup>2</sup>

Engine Rating<sup>1</sup> up to 20,000 kW

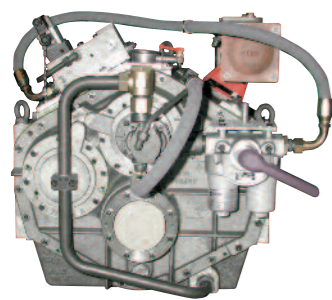
Engine Rating<sup>2</sup> up to 13,000 kW

Y O U R P A R T N E R F O R T H E F U T U R E

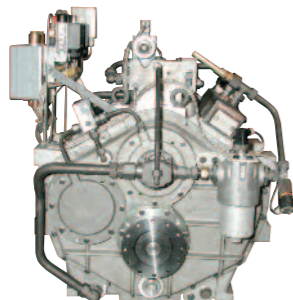


# Applications for Fast Vessels

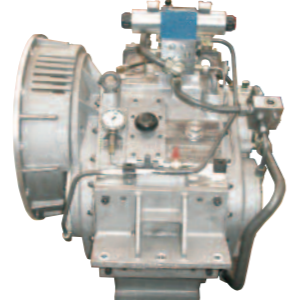
## WVS/WLS 234/1 - 430/1



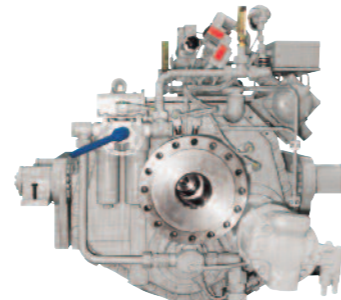
Reverse-reduction gearbox, special design, U-drive, vertically offset



Reduction gearbox with special supervision, vertically offset



Reverse-reduction gearbox with bell housing, vertically offset



Reverse-reduction gearbox output shaft above input shaft special design, vertically offset

### Advantages

WVS- and WLS-gearboxes have been specially designed for fast vessels such as naval units, patrol boats, yachts and other vessels with similarly high performance demands.

We have the backing of over 75 years of experience in marine gearbox production and use

state-of-the-art computation tools and production technologies.

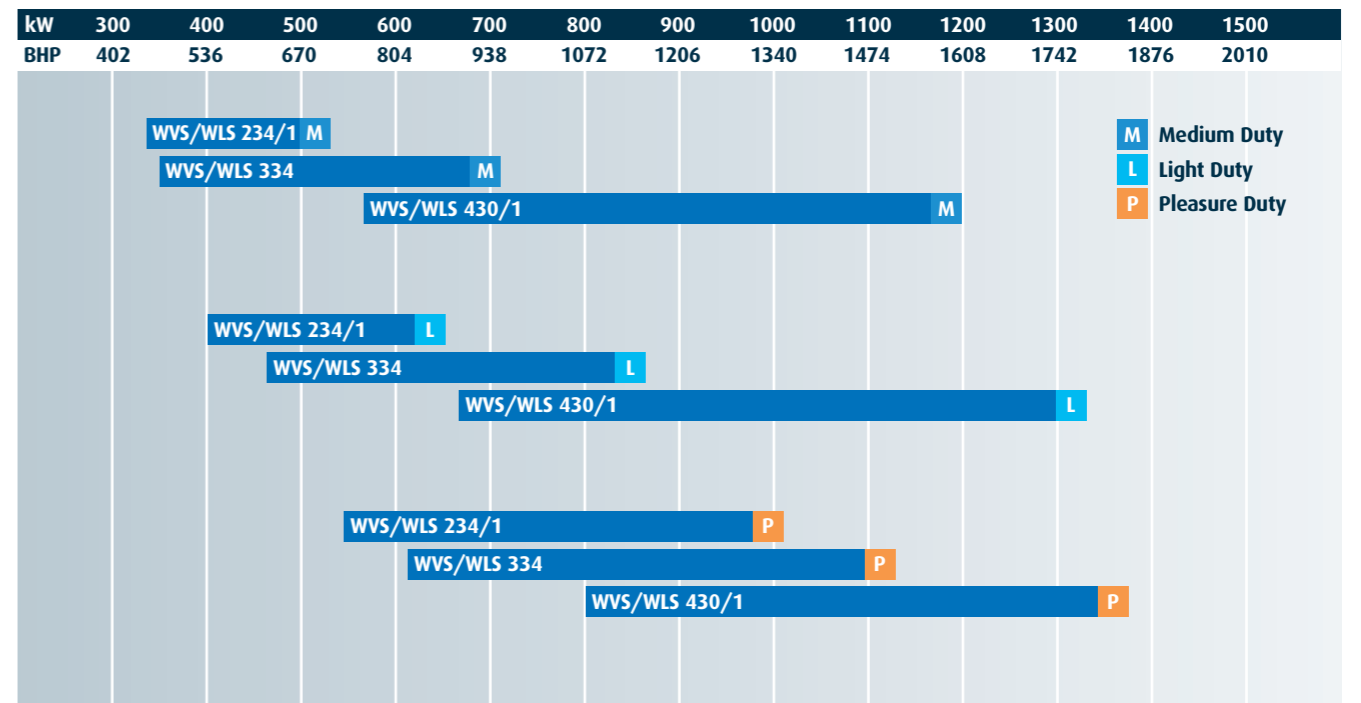
Owing to their design for specific areas of deployment, the hydraulically operated reverse-reduction gearboxes of the WVS series, as well as the reduction gearboxes of the WLS series offer various special advantages:

- High power-to-weight ratio
- Low performance weight due to weight-optimised design
- Finely tuned shifting
- Compact dimensions
- Low operating noise

### Gearbox Selection

The selection diagram opposite gives an overview of the performance ratings of the basic WVS types. These also apply for WVS U, WLS and WLS U units.

However, for the final selection of gearboxes only the ratings of the applicable gearbox selection table are binding.



DESIGNED FOR MEDIUM, LIGHT AND PLEASURE DUTY APPLICATIONS

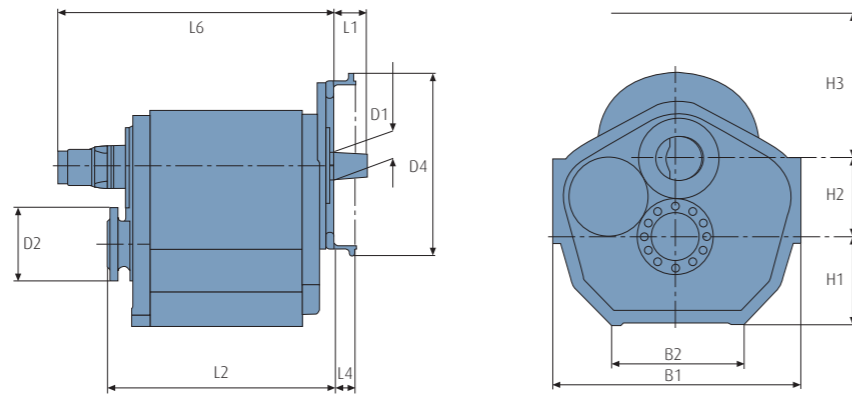


# Marine gearboxes

## WVS/WLS 234/1 - 430/1

### WVS/WLS 234/1 - 430/1

Reverse-reduction gearboxes with hydraulically operated clutches. Vertically offset. Input and output on opposite sides.

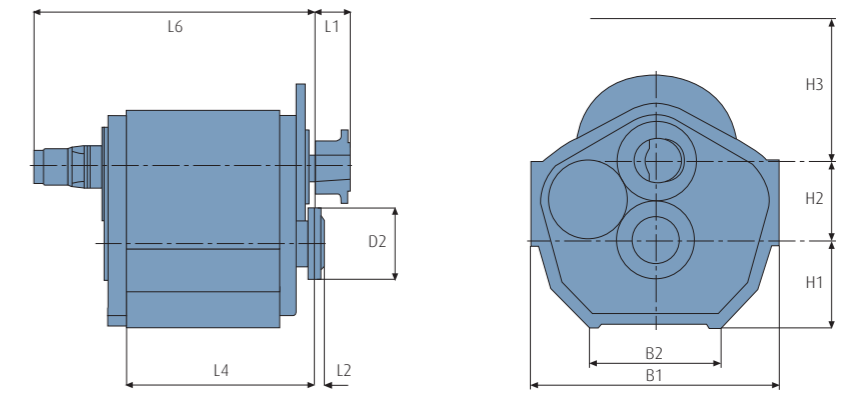


Gearbox	Main dimensions (mm)														Weight kg <sup>1)</sup>		
	WVS/WLS	B1	B2	D1	D2	D4 SAE 1	D4 SAE 0	H1	H2	H3	L1	L2	L4 SAE 1	L4 SAE 0	L6	WVS	WLS <sup>2)</sup>
234/1	640	475	55	220	511.2	-	200	200	420	69	483	64	-	680	295	240	265
334	720	530	62	180	511.2	647.7	240	215	420	100	564	109	109	700	340	275	300
430/1	730	400	75	220	511.2	647.7	260	235	390	100	675	60	102	840	490	390	450

<sup>1)</sup> Gearbox standard design (dry). Dimensions and weights not strictly binding. Subject to changes. <sup>2)</sup> Counter rotation <sup>3)</sup> Identical rotation

### WVS/WLS 234/1 U - 430/1 U

Reverse-reduction gearboxes with hydraulically operated clutches. Vertically offset. Input and output on the same side.

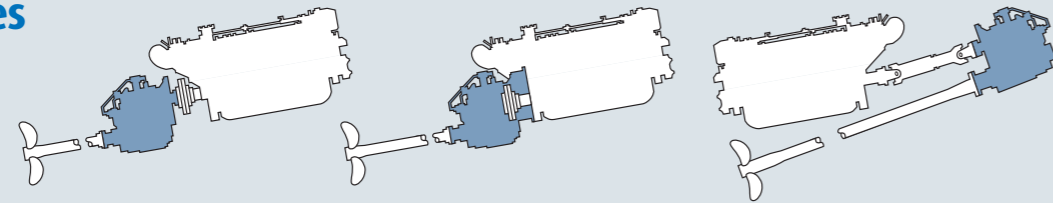


Gearbox	Main dimensions (mm)											Weight kg <sup>1)</sup>		
	WVS/WLS	B1	B2	D2	H1	H2	H3	L1	L2	L4	L6	WVS	WLS <sup>2)</sup>	WLS <sup>3)</sup>
234/1 U	640	520	180	235	200	240	72	48	390	680	305	250	275	
334 U	720	530	180	240	215	420	83	50	407	700	350	285	310	
430/1 U	730	400	220	260	235	390	100	60	531	840	500	400	460	

<sup>1)</sup> Gearbox standard design (dry). Dimensions and weights not strictly binding. Subject to changes. <sup>2)</sup> Counter rotation <sup>3)</sup> Identical rotation

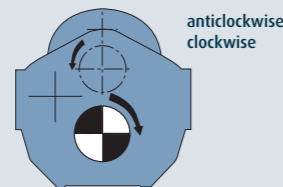
### WVS series

Free-standing  
Close-coupled  
U-drive



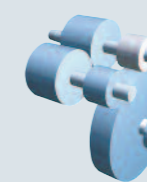
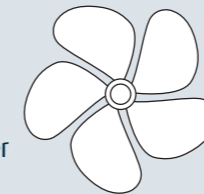
### Direction of rotation WVS/WLS

Seen from propeller onto engine flywheel

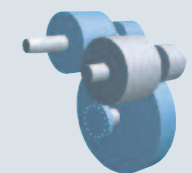


### WVS series

Reverse-reduction gearbox for propulsion with fixed pitch propeller



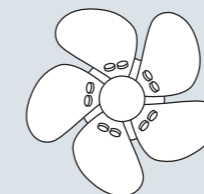
Input and output on opposite sides.



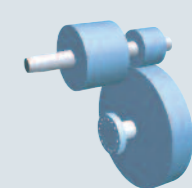
Input and output on the same side.

### WLS series

Reduction gearbox for propulsion with controllable pitch propeller



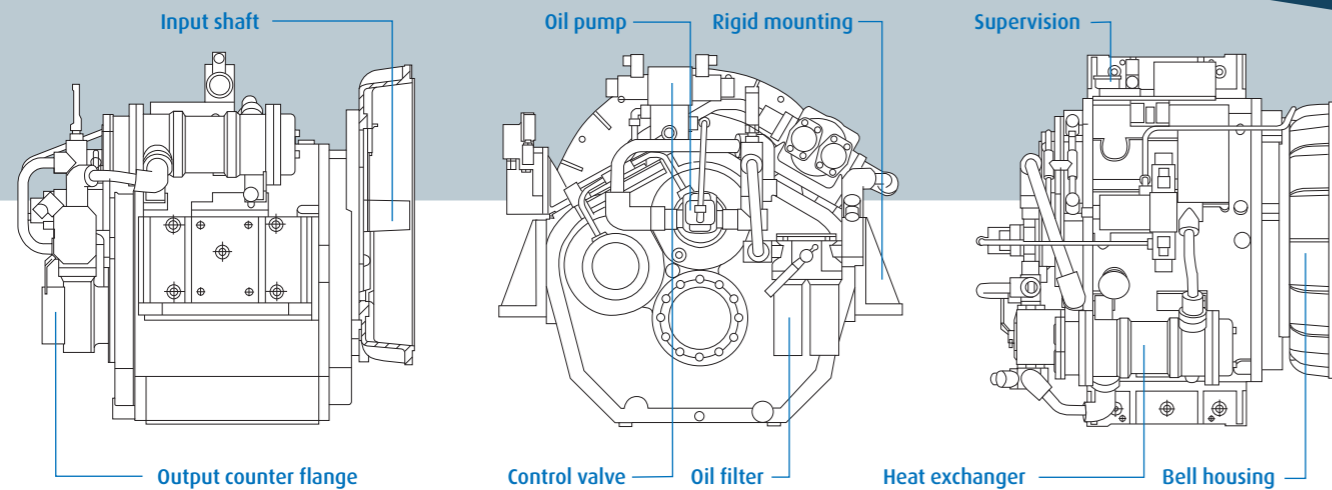
Input and output on opposite sides.



Input and output on the same side.



# Standards WVS/WLS 234/1 - 430/1



## O P T I O N S   A N D   F E A T U R E S



### Basic Equipment

- Housing made from aluminium alloy
- Prepared for mounting of SAE-bell housings
- Spur wheels helically toothed, case hardened and tooth flank ground
- Built-in hydraulically operated disc clutches with steel/sinter friction surface
- Smooth engagement by adapted pressure increase during shifting
- Full power transmission and same reduction in both output senses of rotation

- Fitted pressure gauge for operating pressure as well as connection facility for remote supervision of pressure and temperature
- Connection facility for remote supervision of pressure and temperature
- Built-on control valve, electrically operated
- Input: free shaft end with taper 1:30 (WVS and WLS). Input flange (WVS/U and WLS/U)
- Output: forged-on-flange
- Paint coating with synthetic resin varnish. Colour: RAL 7001 silver grey

- PTO
- Control valve, mechanically operated
- Resilient mounting
- Special reduction ratios

Subject to changes

### ADS (ACTIVE SPEED CONTROL SYSTEM) CLOSED LOOP OR CONTROLLED

The ADS is used for travelling at low propeller speeds. Speed is varied via the oil pressure in the clutch. The ADS can be engaged in both AHEAD or ASTERN propulsion modes. Reversals with operative ADS are also possible at low ship speeds.

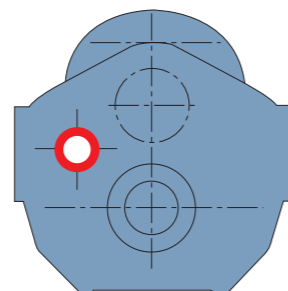
### Options

#### POWER TAKE OFF/IN

If required, the gearboxes can be fitted with additional Power Take Off (PTO) (application: hydraulic pumps) and Power Take In (PTI).

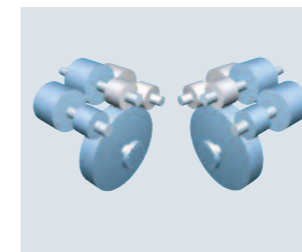
#### UNATTENDED MACHINERY SPACE

All gearboxes can be supplied with additional supervision instruments, according to classification society rules, enabling the operator to take all necessary information from the bridge.



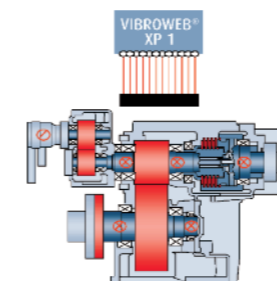
### TWO-SPEED GEARBOXES

Two selectable gear ratios are provided between input and output shaft. This ensures optimal operation of the ship.



### CONDITION MONITORING

Monitoring for all key data for proactive maintenance and management available.



### Duty Cycle Classification

#### MEDIUM DUTY

- M** ■ Intermittent operation with some variations in engine speed and power
- Average engine operating hours limit: 4,000 hours/year
- Allowable hull forms: planing, semi-planing, catamaran
- Allowable applications: private, charter and commercial craft, navy and police activity (example: crew boats, high speed ferries)

#### LIGHT DUTY

- L** ■ Intermittent operation with large variations in engine speed and power
- Average engine operating hours limit: 2,500 hours/year
- Allowable hull forms: planing, semi-planing, displacement
- Allowable applications: private, charter, sport/leisure activities, naval and police activities

#### PLEASURE DUTY

- P** ■ Intermittent operation with very large variations in engine speed and power
- Average engine operating hours limit: 500 hours/year
- Allowable hull forms: planing, semi-planing
- Allowable applications: private, non-commercial, non-charter, sport/leisure activities

### Scope of Supply

#### STANDARD

- Integrated oil sump. Common circuit for operating pressure and lube oil. Oil pump and oil filter accessible from the outside
- Fitted heat exchanger for cooling water inlet temperature of max. 32 °C, seawater resistant

#### EXTRAS

- Rigid mounting
- SAE bell housing
- Output counter flange
- Flexible coupling
- Supervision instruments
- Spare parts kit as per classification rules
- Paint coating with synthetic resin varnish in all RAL-colours
- Trolling Valve (ADS)



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