Applications for:

Fast Vessels WVS/WLS
Engine Rating up to 1,400 kW

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 1,000 kW

Work Boats WAF/LAF
Engine Rating up to 8,500 kW

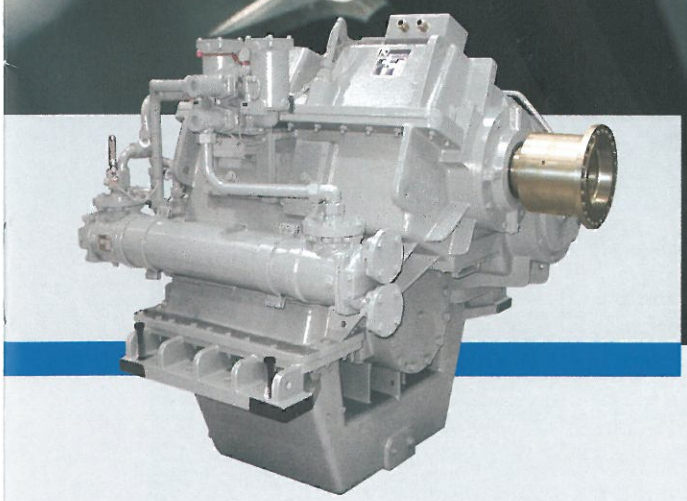
Work Boats 1,350-8,500 kW

WAF/LAF 2346-7760

Work Boats VA
Engine Rating up to 6,000 kW

Work Boats DLG/DLGF
Engine Rating up to 15,000 kW

Work Boats SVA[1]/SVAL[2]
Engine Rating[1] up to 20,000 kW
Engine Rating[2] up to 13,000 kW

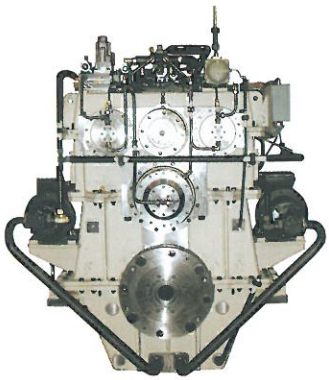


YOUR PARTNER FOR THE FUTURE

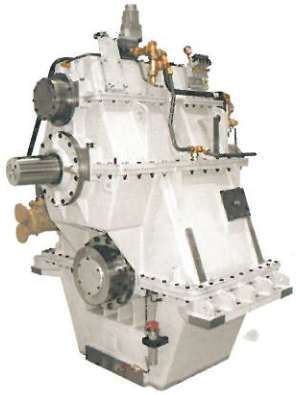
REINTJES

Applications for Work Boats

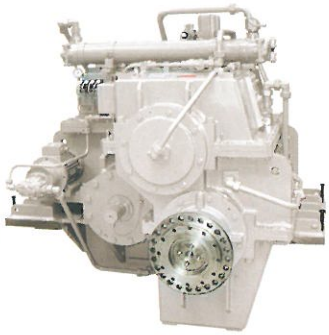
WAF/LAF 2346 - 7760



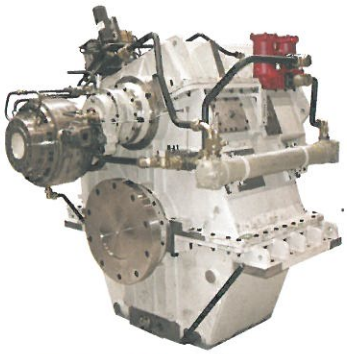
Reduction gearbox with built-in clutch, vertically offset PTO/PTH for special application



Reduction gearbox with built-in clutch, vertically offset



Reverse-reduction gearbox, horizontally offset



Reverse-reduction gearbox vertically offset shaft brake, GADS and UMS supervision

Advantages

Gearboxes of the WAF and LAF series have been specially designed for work boats such as tugs, container-vessels, inland waterway crafts, ferries and special-purpose ships 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 application, the hydraulically operated reverse-reduction gearboxes of the WAF series, as well as the reduction gearboxes of the LAF series offer various special advantages:

- High operating reliability
- Simple operation and maintenance
- Compact dimensions
- Low operating noise

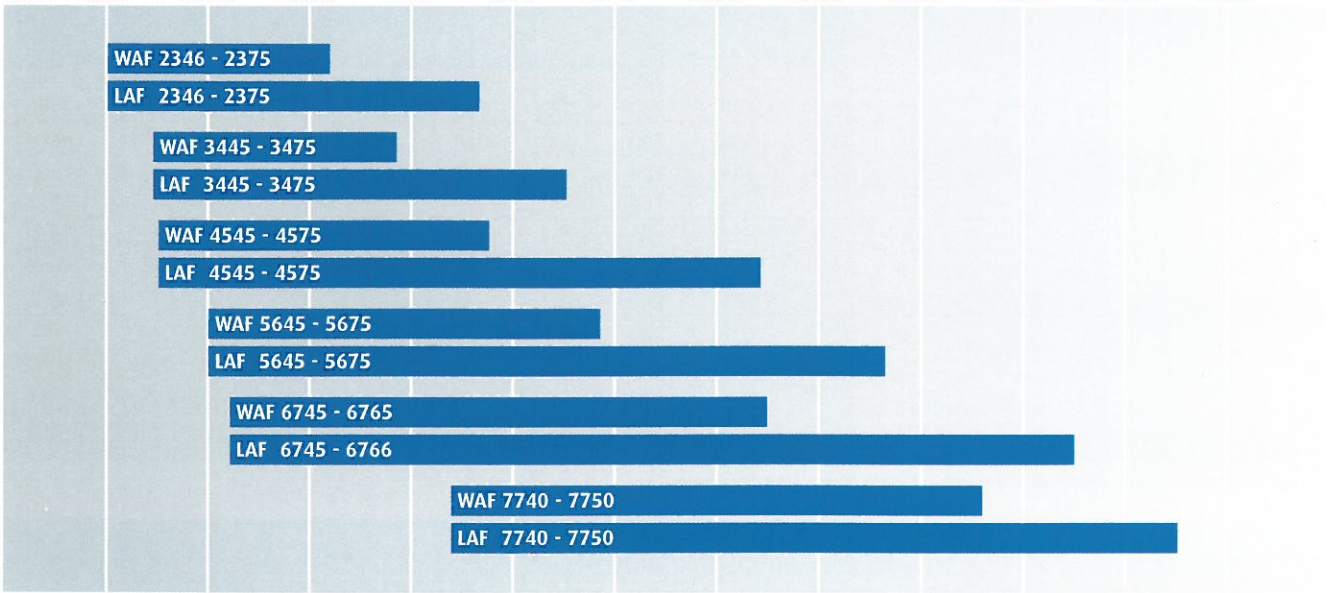
Gearbox Selection

The selection diagram opposite gives an overview of the performance ratings of the basic WAF and LAF types.

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

DESIGNED FOR HEAVY DUTY APPLICATIONS

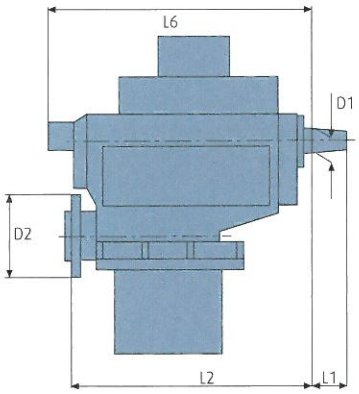
kW	1350	2000	2650	3300	3950	4600	5250	5900	6550	7200	7850	8500
BHP	1809	2680	3445	4422	5293	6440	7035	7906	8777	9648	10516	11390

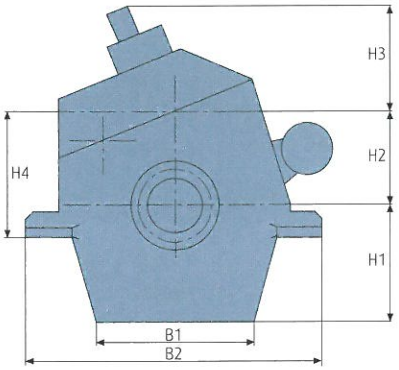


Marine gearboxes
WAF/LAF 2346 - 7760

WAF/LAF 2346 - 7760

Reverse-reduction/ Reduction gearbox with hydraulically operated clutches.
Vertically offset



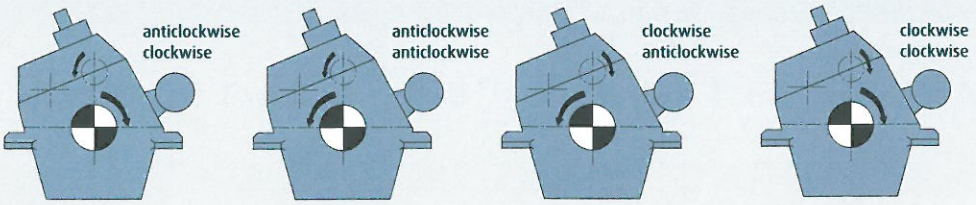


Gearbox WAF/ LAF	Main dimensions (mm) B1	B2	D1	D2	H1	H2	H3	H3	H4	L1	L2	L6	Weight kg[1] WAF	LAF
2346	1550	730	160	550	630	560	600	600	720	200	1475	1800	6000	5300
2355	1780	920	160	600	730	660	600	600	820	200	1470	1800	7000	6300
2365	2120	1050	160	600	770	760	600	600	920	200	1470	1800	8000	7200
2375	2120	900	160	650	875	865	700	700	1085	200	1480	1800	10000	9200
3445	1660	790	165	600	660	600	560	560	760	200	1540	1870	7100	6400
3455	1880	930	165	650	770	710	700	700	870	200	1550	1870	8500	7800
3465	2100	930	165	650	850	815	700	700	975	200	1550	1870	10400	9700
3475	2380	1150	165	670	970	925	700	700	1095	200	1570	1870	11500	10800
4545	1880	930	185	650	770	650	600	750	810	235	1630	1970	8900	8000
4555	1980	960	185	670	810	765	600	750	935	235	1655	1970	10500	9500
4566	2400	1240	185	710	935	885	730	750	1065	235	1695	2050	12600	11100
4575	2750	1480	185	710	1055	1010	730	750	1190	235	1695	2050	14100	13100
5645	1980	1100	195	670	810	690	700	900	860	250	1725	2090	11600	10600
5655	2240	1275	195	710	870	815	700	900	995	250	1765	2090	13200	12200
5666	2420	1395	195	750	980	935	700	900	1135	250	1770	2090	14800	13800
5675	2700	1600	195	800	1110	1055	700	900	1255	250	1810	2090	18000	17000
6745	2240	1275	215	710	870	735	950	900	915	265	1870	2220	15000	14000
6755	2280	1280	215	750	930	880	950	900	1080	265	1875	2220	17000	16000
6765	2450	1500	215	800	1040	1000	1000	900	1260	265	1915	2220	18000	17000
7740	2280	1280	215	750	930	800	900	900	1000	305	1985	2390	17000	16000
7750	2300	1300	215	800	910	900	900	900	1100	305	2030	2390	18000	17000
7760	2450	1500	215	900	1040	1050	1000	900	1310	305	2110	2390	25000	23500

[1] Gearbox standard design (dry). Dimensions and weights not strictly binding. Subject to changes.

Direction of rotation WAF/LAF

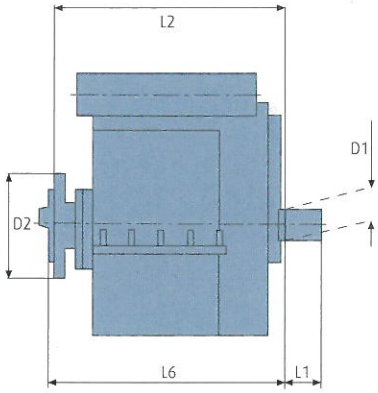
Seen from propeller onto engine flywheel in direction of travel ahead

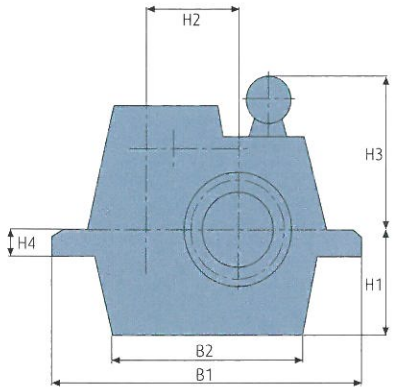


REINTJES

WAF/LAF 2346 - 6755

Reverse-reduction/ Reduction gearbox with hydraulically operated clutches.
Horizontally offset



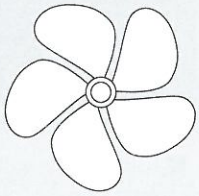


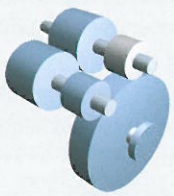
Gearbox WAF/ LAF	Main dimensions (mm) B1	B2	D1	D2	H1	H2	H3	H4	L1	L2	L6	Weight kg[1] WAF	LAF
2346	1980	1160	162	550	600	560	1250	160	198	1485	1800	7200	6500
2355	2180	1000	162	600	680	660	1250	160	198	1470	1800	7500	6800
3445	2060	1240	167	600	660	600	1150	160	198	1540	1880	8200	7500
3455	2430	1550	167	650	770	710	1200	160	198	1550	1880	9800	9100
4545	1950	1450	187	650	710	650	1350	380	237	1630	1970	10500	9600
4555	2470	1600	187	670	820	765	1300	170	237	1655	1970	11800	10800
5645	2050	1545	197	670	740	690	1350	400	251	1725	2080	13000	12000
6745	2150	1550	217	710	780	735	1350	410	263	1875	2210	15200	14200
6755	2590	1810	217	750	920	880	1380	425	263	1875	2210	17600	16600

[1] Gearbox standard design (dry). Dimensions and weights not strictly binding. Subject to changes.

WAF series

Reverse-reduction gearbox for propulsion with fixed pitch propeller

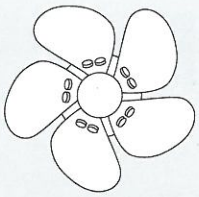




Counter or identical rotation of input and output as standard.

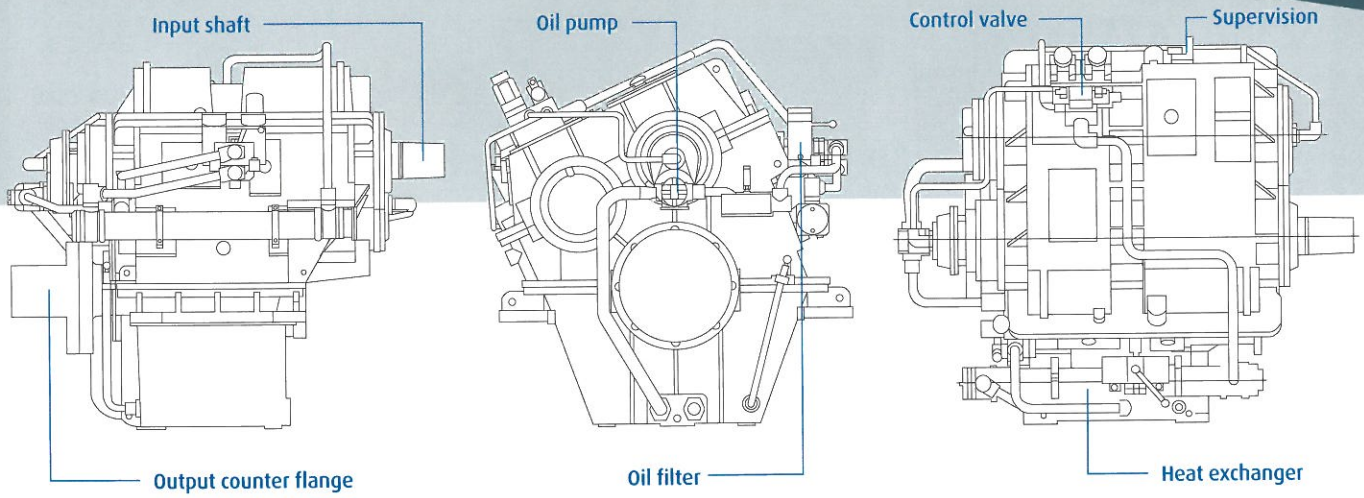
LAF series

Reduction gearbox with built-in clutch for propulsion with controllable pitch propeller



Counter rotation of input and output as standard, identical rotation available as option.

Standards WAF/LAF 2346 - 7760



Basic Equipment

- Housing made from grey cast iron or steel housing in torsion stiff design, rigid mounting
- 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
- Gearbox completely equipped with anti-friction bearings, incl. thrust bearing

Scope of Supply

STANDARD

- Integrated oil sump. Common circuit for operating pressure and lube oil. Oil pump and oil filter accessible form the outside
- Fitted heat exchanger for cooling water inlet tempeature of max. 32 °C, seawater resistant
- Connection facility for remote supervision of pressure and temperature
- Built-on control valve, electrically or pneumatically operated
- Emergency control: in case of failure of operating pressure mechanical force locking of the disc clutch is possible
- Input: free shaft end with taper 1:30
- Output: forged-on-flange
- Supervision
  1. pressure switch – operating pressure too low
  2. temperature sensor (2xPT100) - oil temperature behind heat exchanger
  3. filter contamination – electrical signal for "filter contaminated"
  4. thermometer – oil temperature behind heat exchanger
  5. pressure gauge for operating oil pressure
  6. connection facility for pressure switch: clutch ahead/ clutch astern engaged
- Paint coating with synthetic resin varnish. Colour: RAL 7023 concrete grey

EXTRAS

- Output counter flange
- Flexible coupling
- Supervision instruments
- Special PTO executions
- Spare part kit as per classification rules
- Paint coating with synthetic resin varnish in all RAL-colours
- Heat exchanger for cooling water temperature higher than 32 °C
- Trolling valve (ADS)
- Resilient mounting
- Special reduction ratios
- Connection facility for electrical stand-by or trailing pumps
- Built-in shaft brake, hydraulically operated

Subject to changes

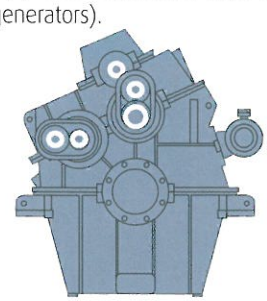
REINTJES

OPTIONS AND FEATURES

Options

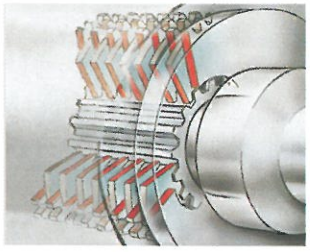
POWER TAKE OFF (PTO)

If required, the gearboxes can be fitted with additional power take off (PTO) and power take in (PTI) (application: hydraulic pumps and generators).



SHAFT BRAKE

The gearboxes can be fitted with a hydraulically operated multiple disk brake built in for assisting with reversing manoeuvres or serving as fixing/stopping brake on twin-screw vessels.

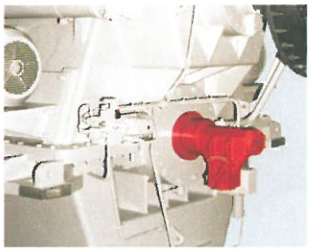


UNATTENDED MACHINERY SPACE

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.

OD-BOX

For all customary CPP systems, the output shaft can be provided with a central bore and a connection for the oil distributor box.



ADS (ACTIVE SPEED CONTROL SYSTEM) CLOSE 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.

*IGS (INTELLIGENT GEARBOX SYSTEM)

Controlled pressure build-up for optimized gear shiftings and minimized drop in engine speed. Thermal monitoring of the clutch for optimized utilization of the thermal limiting value. Preset "back-up"-system to avoid any inadmissibly high drops in engine speed during manoeuvring in "back-up"-mode. Accumulator for mechanical gear shifting in case of voltage failure.

*Available only for modified version

CONDITION MONITORING

Monitoring for all key data for proactive maintenance and management.

Duty Cycle Classification

CONTINUOUS DUTY

C

- Continuous operation with little or no variations in engine speed and power
- Average engine operating hours: unlimited
- Allowable hull forms: semi-displacement, displacement
- Allowable applications: commercial vessels

Other duty cycles on request.

REINTJES

XMH

YOUR CONNECTION
TO THE RIGHT MACHINE

XIN MING HUA PTE LTD
XMH ENGINEERING PTE LTD
No. 44 Sungei Kadut Avenue
Singapore 729667

Tel : (65) 6368 0188
Fax : (65) 6368 0633
Email : sales@engine.com.sg
Website : www.xmh.com.sg

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