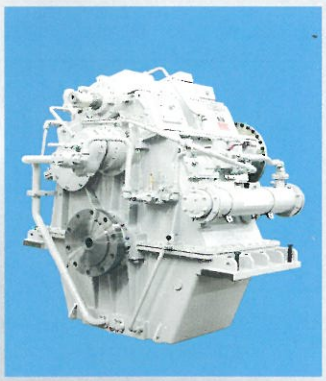
# WORK BOATS



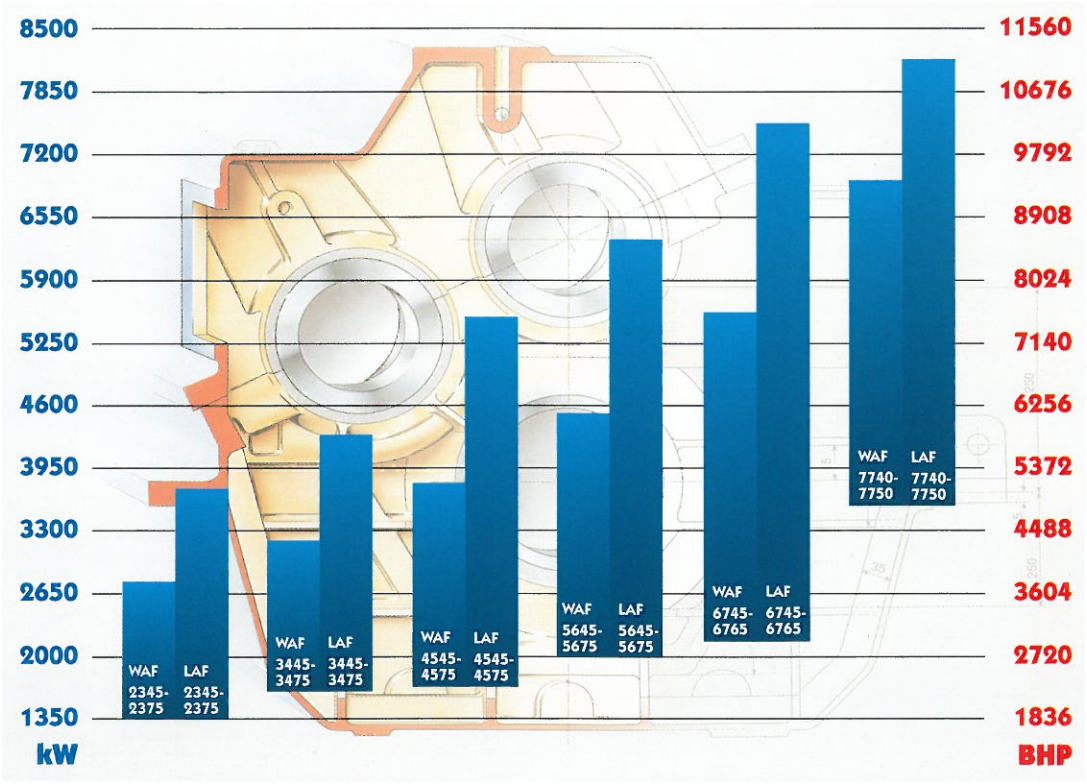
REINTJES

WAF 2345 – 7750

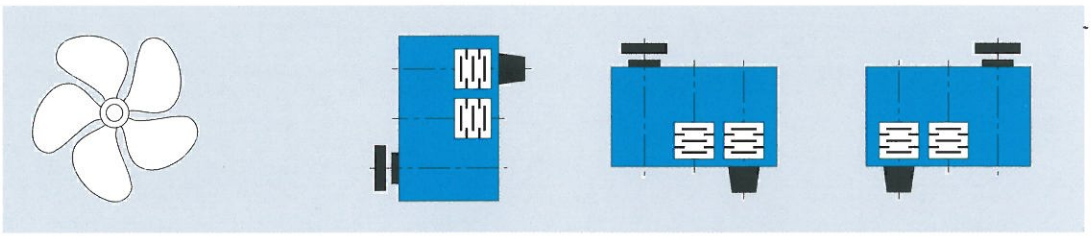
# WAF 2345 – 7750

The gears of the WAF series were developed specially for workboats, such as tugs, fishing vessels, inland waterway craft, ferries and special-purpose ships with similarly high requirements. We have the backing of over 70 years of experience in marine gears production and use state-of-the-art computation tools and manufacturing technologies. The hydraulically shifting reverse-reduction gears of the WAF series designed for workboats deployed under extremely difficult conditions have a number of special advantages:

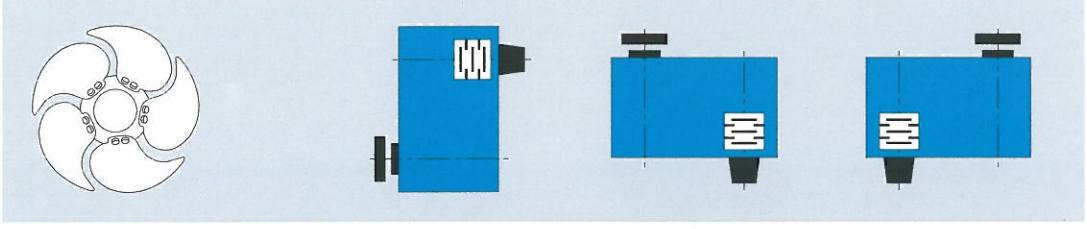
- Simple operation and maintenance
- High operating reliability
- Compact size for easy installation
- Optimally quiet running characteristics




**WAF series**
Reverse-reduction gear for propulsion with fixed propeller

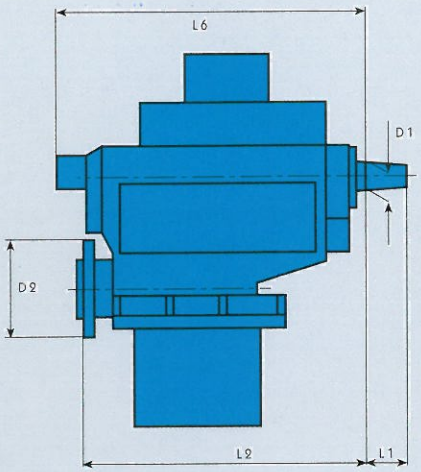


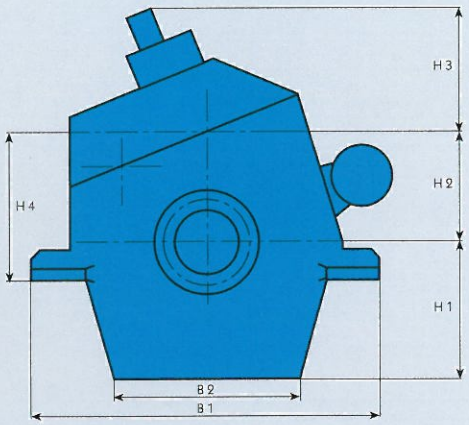
**LAF series**
Reduction gear for propulsion with controllable pitch propeller



## WAF 2345 – 7750

**Reverse-reduction gears** with hydraulically operated clutches. Vertically offset.

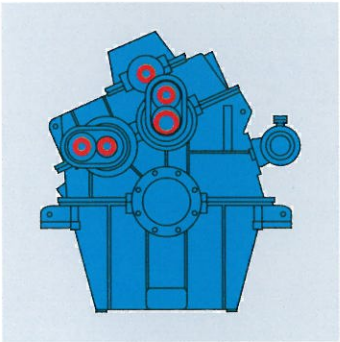



| Gearbox WAF / LAF | Main dimensions (mm) B1 | B2 | D1 | D2 | H1 | H2 | H3 WAF | H3 LAF | H4 | L1 | L2 | L6 | Weight (kg) (1 WAF | LAF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2345** | 1550 | 730 | 162 | 550 | 630 | 560 | 550 | 550 | 720 | 198 | 1476 | 1782 | 5750 | 4900 |
| **2355** | 1780 | 930 | 162 | 600 | 730 | 660 | 550 | 550 | 820 | 198 | 1469 | 1782 | 6900 | 5900 |
| **2365** | 2120 | 1050 | 162 | 600 | 770 | 760 | 550 | 550 | 920 | 198 | 1469 | 1782 | 8000 | 7200 |
| **2375** | 2240 | 960 | 162 | 650 | 875 | 865 | 550 | 550 | 1025 | 198 | 1479 | 1782 | 9300 | 8800 |
| **3445** | 1660 | 790 | 167 | 600 | 660 | 600 | 600 | 600 | 760 | 198 | 1537 | 1870 | 7100 | 6400 |
| **3455** | 1880 | 930 | 167 | 650 | 770 | 710 | 600 | 600 | 870 | 198 | 1547 | 1870 | 8500 | 7800 |
| **3465** | 2100 | 930 | 167 | 650 | 850 | 815 | 600 | 600 | 975 | 198 | 1547 | 1870 | 10000 | 9700 |
| **3475** | 2380 | 1150 | 167 | 670 | 970 | 925 | 600 | 600 | 1095 | 198 | 1572 | 1870 | 11500 | 10800 |
| **4545** | 1880 | 930 | 187 | 650 | 770 | 650 | 700 | 1150 | 810 | 237 | 1631 | 1970 | 8900 | 8600 |
| **4555** | 1980 | 960 | 187 | 670 | 810 | 765 | 700 | 1150 | 935 | 237 | 1656 | 1970 | 10000 | 9500 |
| **4566** | 2400 | 1240 | 187 | 710 | 935 | 885 | 700 | 1230 | 1065 | 237 | 1690 | 1970 | 12100 | 11100 |
| **4575** | 2750 | 1480 | 187 | 710 | 1055 | 1010 | 700 | 1230 | 1190 | 237 | 1690 | 1970 | 14100 | 13100 |
| **5645** | 1980 | 960 | 197 | 670 | 810 | 690 | 750 | 1170 | 860 | 251 | 1726 | 2090 | 11600 | 11000 |
| **5655** | 2240 | 1275 | 197 | 710 | 870 | 815 | 750 | 1170 | 995 | 251 | 1763 | 2090 | 13200 | 12200 |
| **5666** | 2440 | 1200 | 197 | 750 | 970 | 935 | 750 | 1170 | 1115 | 251 | 1765 | 2090 | 14800 | 13800 |
| **5675** | 2580 | 1600 | 197 | 800 | 1095 | 1055 | 750 | 1170 | 1315 | 251 | 1808 | 2090 | 16500 | 14800 |
| **6745** | 2240 | 1275 | 217 | 710 | 870 | 735 | 800 | 1230 | 915 | 263 | 1871 | 2230 | 13700 | 13200 |
| **6755** | 2280 | 1280 | 217 | 750 | 930 | 880 | 800 | 1230 | 1080 | 263 | 1876 | 2230 | 16100 | 16000 |
| **6765** | 2450 | 1500 | 217 | 800 | 1030 | 1000 | 800 | 1230 | 1260 | 263 | 1916 | 2230 | 18000 | 17000 |
| **7740** | 2100 | 1100 | 217 | 720 | 810 | 800 | 1000 | 1400 | 1000 | 306 | 2032 | 2370 | 17000 | 16000 |
| **7750** | 2300 | 1300 | 217 | 800 | 910 | 900 | 1000 | 1400 | 1100 | 306 | 2170 | 2370 | 18000 | 17000 |

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

## OPTIONS



### Power take off

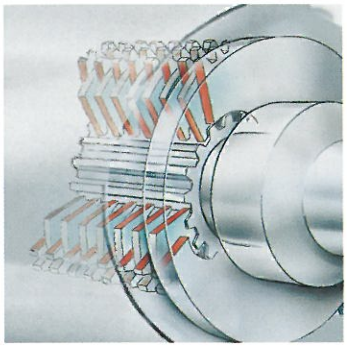
If required, the gears can be fitted with additional PTO/PTI. Our system offers many possibilities for this.

## OPTIONS

### Unattended operation

All gears can be supplied with additional units for unattended operation. The monitoring instruments are combined into a single system on the basis of the latest findings.

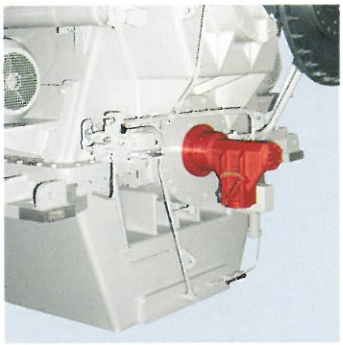
## OPTIONS



### Disk brake

The gears can be fitted with a disk brake for assisting with reversing manoeuvres or serving as stopping brake on twin-screw vessels.

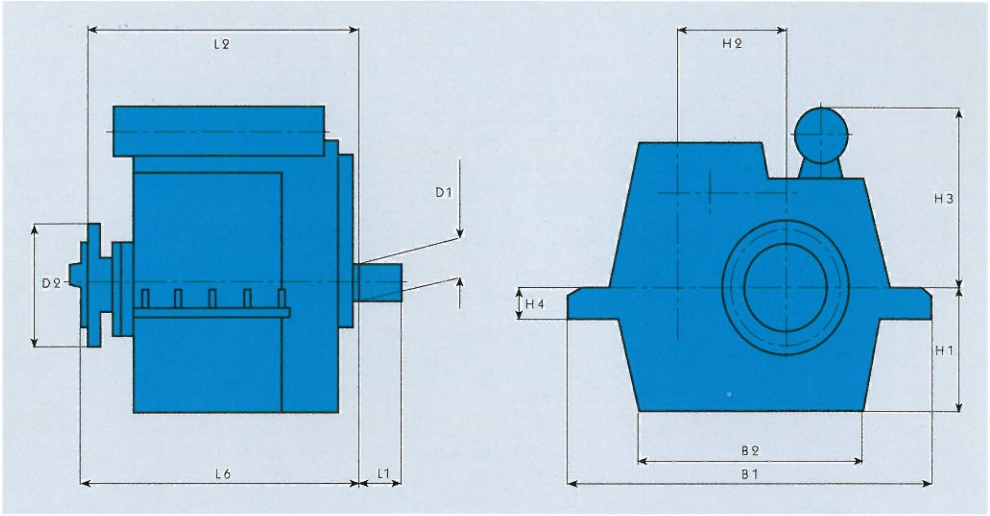
## OPTIONS



### Servo oil systems

The hydraulic system for the propeller pitch control may be combined with the reduction gear lubricating system.

**WAF 2345 - 7750**
**Reverse-reduction gears** with hydraulically operated clutches. Horizontally offset.



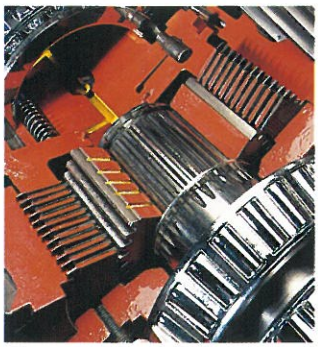

| Gearbox WAF / LAF | Main dimensions (mm) B1 | B2 | D1 | D2 | H1 | H2 | H3 | H4 | L1 | L2 | L6 | Weight (kg) (1 WAF | LAF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2345** | 1980 | 1280 | 162 | 550 | 630 | 560 | 1185 | 160 | 198 | 1476 | 1782 | 6000 | 5300 |
| **2355** | 2180 | 1000 | 162 | 600 | 680 | 660 | 1185 | 160 | 198 | 1469 | 1782 | 7200 | 6500 |
| **3445** | 2060 | 1360 | 167 | 600 | 660 | 600 | 1140 | 160 | 198 | 1537 | 1870 | 8200 | 7500 |
| **3455** | 2430 | 1640 | 167 | 650 | 770 | 710 | 1155 | 160 | 198 | 1537 | 1870 | 9700 | 9000 |
| **4545** | 1860 | 1450 | 187 | 650 | 710 | 650 | 1200 | 380 | 237 | 1631 | 1970 | 10100 | 9100 |
| **4555** | 2125 | 1510 | 187 | 670 | 820 | 765 | 1300 | 380 | 237 | 1656 | 1970 | 11800 | 10700 |
| **5645** | 1950 | 1550 | 197 | 670 | 740 | 690 | 1400 | 400 | 251 | 1726 | 2080 | 13000 | 11800 |
| **6745** | 2125 | 1545 | 217 | 710 | 780 | 735 | 1350 | 410 | 263 | 1871 | 2230 | 15200 | 13700 |
| **6755** | 2420 | 1790 | 217 | 750 | 920 | 880 | 1380 | 425 | 263 | 1876 | 2230 | 17600 | 16100 |

1) Gearbox standard design (dry). • Further types on request • Dimensions and weights not strictly binding. Subject to changes.

## OPTIONS

### ADS-Systems

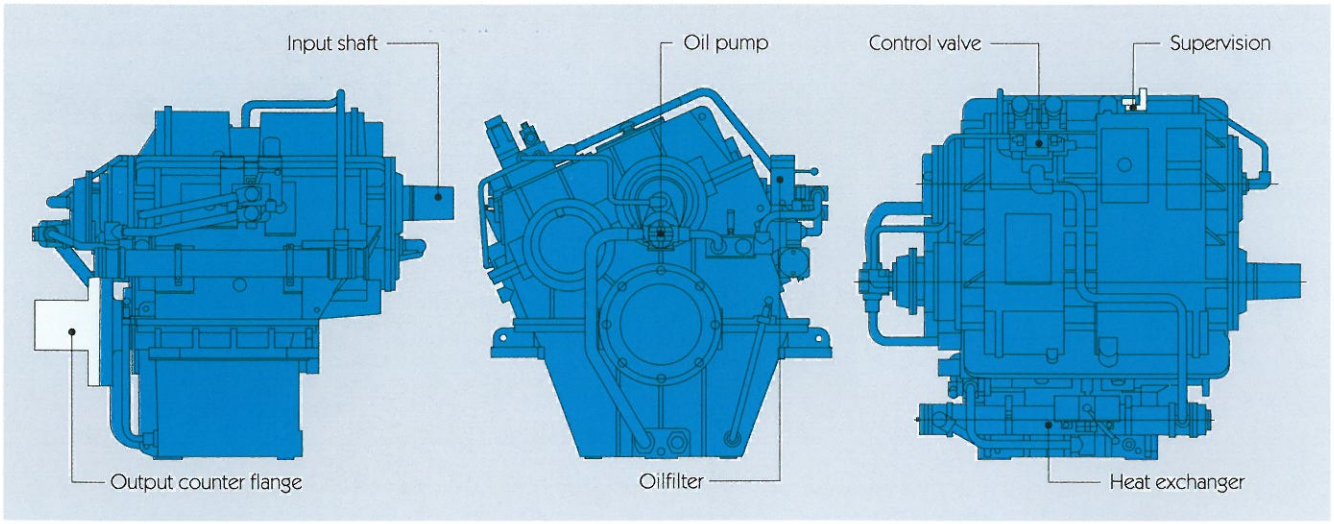
An optimal solution for manoeuvres at slow speed is provided by the electronically controlled creep speed unit ADS.
For this solution, speed is adjusted via the oil pressure in the gears´ clutch. Pressure is reduced on an infinitely variable basis via a special valve, facilitating precise and secure manoeuvring.
ADS operation makes possible an infinitely variable reduction of propeller speed.
An electronic control unit keeps the required propeller speed constant.
The ADS system can be operated in both >Ahead< and >Astern< direction.
Reversing manoeuvres can be carried out with no difficulty during operation.



### First class partner

Our worldwide service network and versatile system solutions guaranteeing cost-efficiency make us a first class partner.

You can rely on us as the experienced specialists for work boat gears.
**...THE EXPERTS.**




## 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 gears only the ratings of the applicable gears selection table are binding.

## Duty Cycle Classifications

### G Continuous Duty

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

## Basic Equipment

Grey cast iron resp. steel housing in torsion stiff design, rigid mounting.

Spur wheels helically toothed, carburized and tooth flank ground.

Built-in, hydraulically operated disc clutches with steel/sinter friction surface. Smooth engagement by adapted pressure increase during shifting.

Gearbox completely equipped with anti-friction bearings. Incl. the thrust bearing.

## Scope of Supply

### Standard

Independent oil supply. 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 degr. C, seawater resistant. (Max. permissible operating temperature for gearboxes and accessories is 70 degr. C).

Fitted pressure gauge for operating pressure as well as 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 mechan. 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 switch - oil temperature too high
3. filter contamination - electr. units 1.-3. wired to terminal box
4. thermometer - oil temperature before 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

### Options

Output counter flange

Flexible coupling

Supervision instruments

PTO executions

Spare parts kit as per classification rules

Paint coating with synthetic resin varnish in all RAL-colours

### Special

Heat exchanger for increased cooling water temperature higher than 32 degr. C. (Max. permissible operating temperature for gearbox and accessories is 70 degr. C.)

Trolling valve (ADS)

Special PTO executions

Resilient mounting

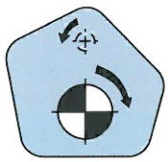
Special reduction ratios

Connection facility for electr. pumps

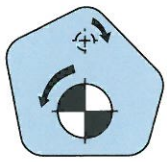
Built-in shaft brake, hydraulically operated

## Direction of rotation WAF and LAF

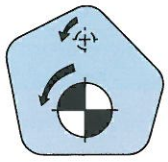
Seen from propeller onto engine flywheel



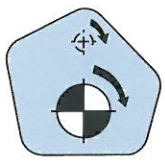
anticlockwise
clockwise



clockwise
anticlockwise



anticlockwise
anticlockwise



clockwise
clockwise

Subject to changes