

Wärtsilä 32 & W46 / W50DF Marine Engine Spare Parts Reference — Piston, Cylinder Liner, Valve Seat, Injector Nozzle, Turbo

cBallast Technical Sourcing · Wärtsilä W32, W46, W46F, W50DF, W38 medium-speed marine and stationary engines · issued 2026-08-29 · cballast.com/documents/wartsila-32-marine-engine-spare-parts-reference-w32-w46-w50df

Wärtsilä 32, 46 and 50DF medium-speed engine spare parts reference. Wear-part groups: cylinder liner (W32 bore 320 mm, W46 bore 460 mm, W50DF bore 500 mm), piston with crown and skirt, piston rings (compression + oil-scraper), cylinder head with 2× intake + 2× exhaust valves and seats, injection nozzle for HFO / MDO / VLSFO / LNG dual-fuel service, high-pressure fuel injection pipe, connecting rod bearing, main bearing (S70MC-C reference for MAN B&W), turbocharger cartridge (ABB TPL / Napier NA / MHI MET typical), and lube-oil / fuel-oil filter elements. Class-society approved (DNV, ABS, LR, BV, RINA, KR, NK, CCS). cBallast supplies OEM Wärtsilä parts and IACS-approved equivalents on 24-72 h port drop.

Wärtsilä 32 & W46 / W50DF medium-speed engine spare parts reference

The Wärtsilä 32, 46 and 50DF engines are medium-speed four-stroke diesel and dual-fuel engines fitted as ship main propulsion, ship auxiliary and stationary power on offshore, cruise, container, tanker, ferry and floating-power platforms worldwide. Every scheduled overhaul carries a defined wear-part list — piston, ring set, cylinder liner, cylinder head (with valves and seats), fuel injector, injection pipe, connecting-rod and main bearings, and turbocharger cartridge overhaul. cBallast supplies OEM Wärtsilä parts and IACS-approved equivalents ex-EU stock with 24-72 h air-freight to major ports globally.

Engine family reference

Engine | Bore × stroke (mm) | Cylinder config | Rated power range | Typical service |

Wärtsilä W32 | 320 × 400 | L6, L8, L9, V12, V16, V18 | 3,240 kW - 9,720 kW | Ship auxiliary, offshore power, ferry propulsion |

Wärtsilä W38 | 380 × 475 | L6, L8, L9 | ~4,150 - 6,225 kW | Legacy medium-speed; often replaced by W32 or W46F on retrofit |

Wärtsilä W46 / W46F | 460 × 580 | L6, L7, L8, L9, V12, V16 | ~6,000 - 21,000 kW | Cruise ship, container, tanker main propulsion |

Wärtsilä W50DF (dual-fuel) | 500 × 580 | L6, L8, L9, V12, V16 | ~5,700 - 17,100 kW | LNG carriers, LNG-fuelled ships, power plants (gas-diesel dual-fuel) |

Wärtsilä W20 | 200 × 280 | L4, L6, L8, L9 | ~1,000 - 2,000 kW | Auxiliary genset |

Wärtsilä W26 (former Wichmann/W) | 260 × 320 | L6, L8, L9, V12, V16 | ~1,900 - 6,000 kW | Ferry, offshore auxiliary |

MAN B&W S70MC-C (adjacent) | 700 mm bore, two-stroke | L5-L8 | Large-bore slow-speed | Ship main propulsion; main bearings frequently RFQ'd |

Wear parts — scheduled overhaul list

Wear part | Typical service interval | Notes |

Cylinder liner | 16,000 - 24,000 h | Iron cast liner with anti-polish ring at TDC; measure wear at every scheduled overhaul |

Piston (crown + skirt assembly) | 16,000 - 24,000 h | Composite piston on W46/W50DF; check crown wear and ring-groove tolerance |

Piston ring set (compression + oil-scraper) | 8,000 - 16,000 h | Typically 3× compression + 1× oil-scraper; replace as complete set |

Cylinder head | 16,000 - 32,000 h (overhaul) | Includes intake and exhaust valve seat and valve guide overhaul; 4-valve head on W32/W46 |

Exhaust valve | 8,000 - 16,000 h | Nimonic stem, Stellite face; check seat contact pattern at every scheduled inspection |

Exhaust valve seat | 16,000 - 32,000 h | Interference-fit seat ring; replace on visible cracking or leakage |

Intake valve & seat | 16,000 - 32,000 h | Lower thermal load than exhaust; longer service interval |

Fuel injection nozzle | 4,000 - 8,000 h | Hardest-wearing part on the engine; HFO / VLSFO / MDO / dual-fuel variants per fuel service |

Fuel injection pump plunger & barrel | 16,000 - 24,000 h | Precision-honed pair; replace as matched set |

Fuel injection pipe (HP line) | Overhaul or as required | Fatigue-critical; visual inspection at every overhaul, replace on any indication of crack |

Connecting rod bearing (big-end) | 16,000 h | Split bearing shell, Al-Sn or Al-Cu-Ni depending on rating; replace as matched set |

Main bearing | 32,000 h | Precision white-metal or Al-Sn shell; specialised toolset for replacement |

Turbocharger cartridge | 24,000 - 32,000 h | ABB TPL, Napier NA/NA300, MHI MET; cartridge exchange usual practice |

Turbocharger nozzle ring | 8,000 - 16,000 h | Wear-checked at every borescope inspection |

Cooling water pump | 32,000 h | Engine-mounted centrifugal pump; scheduled seal replacement earlier |

Lube-oil filter (auto-backflush + fine) | Per SOM / PMS | Boll & Kirch or Alfa Laval filter element; scheduled per operator PMS |

Fuel-specific injector nozzle selection

The fuel injection nozzle is the highest-consumption wear part on any Wärtsilä engine. Nozzle selection depends on the fuel service:

HFO (heavy fuel oil, 380-700 cSt) — hardened nozzle with abrasion-resistant hole geometry; nozzle life ~4,000-6,000 h. All Wärtsilä 32/46 engines running HFO use this nozzle class.

MDO / MGO (marine distillate) — less aggressive service; longer nozzle life (~6,000-10,000 h). Some IMO NOx-compliant engines specify a distillate-only nozzle.

VLSFO (very-low-sulphur fuel oil, 0.5 % S post-IMO 2020) — new-blend fuels vary in cat-fine content and viscosity; may accelerate nozzle wear. Consult Wärtsilä technical bulletin on VLSFO fuel handling; may require harder nozzle-material spec.

Dual-fuel (W50DF, W46DF) — pilot fuel injector for gas mode + main diesel injector; both replaced on schedule. Pilot injector typically shorter life due to smaller hole geometry.

Ammonia / methanol future fuels — new-generation Wärtsilä 25/32DF variants; nozzle spec under continuous update. Verify against current OEM technical bulletin.

Piston 113003 for W46/50DF & large-engine composite pistons

Wärtsilä composite pistons on W46 and W50DF engines have a two-piece construction: a forged steel piston crown (top part, taking combustion pressure and thermal load) and a nodular cast iron piston skirt (bottom part, guiding in the liner). The two are bolted together at final assembly. Common Wärtsilä-referenced piston part numbers appear on service invoices in a 6-digit format (e.g. 113003 for a W46/W50DF piston). When ordering, always cite:

Engine model and cylinder count (e.g. "W6L46F", "W12V50DF").

Wärtsilä 6-digit part number from the parts book or previous PO.

Piston crown material spec if known (typically 42CrMo4 or equivalent forged steel).

Any special modifications (e.g. anti-polish ring, low-emission crown profile).

Wärtsilä composite piston overhauls typically consist of a crown replacement while re-using the skirt; scheduled crown-only overhaul is common practice on cruise-ship main-engine service. Skirt replacement is triggered by measured wear or by planned mid-life overhaul.

Turbocharger — typical Wärtsilä engine matches

Engine | Typical turbocharger family | Notes |

W32 (L6 - V16) | ABB TPL 65, TPL 71, TPL 77; Napier NA300 series | Cartridge exchange usual; check nozzle-ring wear at every borescope |

W46 / W46F (L6 - V16) | ABB TPL 77, TPL 85; MHI MET-71/83 | Larger-frame turbo; scheduled overhaul at 24,000 h |

W50DF (L6 - V16) | ABB A170, A175, A180; MHI MET-83/91 | Dual-fuel-rated turbo; gas-mode operating margin |

W38 (legacy) | ABB VTR 4-series; Napier NA200 | Retrofit opportunity to newer TPL cartridge |

W8L26 (Wichmann-heritage) | Napier NA153 or ABB VTR | Ask cBallast for exact turbo fitted on your vessel; varies by build year |

HS codes for shipping marine engine spare parts

Every Wärtsilä spare part shipped internationally requires a Harmonised System (HS) code declaration for customs. Common HS codes for marine engine spare parts:

Part category | HS Code | Description |

Marine diesel engine parts, cast iron / steel | 8409.99 | Parts suitable for use with engines of heading 8407 or 8408; other |

Injection pump & nozzle | 8409.99 / 8481.80 | Fuel injection equipment classed under engine parts |

Cylinder liner & piston | 8409.99 | Standard engine-parts classification |

Valve seat (cast steel, forged) | 8481.90 or 8409.99 | Depending on customs interpretation; typically engine-parts |

Fuel & lube filters | 8421.23 | Filtering / purifying machinery for liquids: fuel/oil filters |

Turbocharger (as spare) | 8414.80 | Superchargers & turbochargers |

Turbocharger cartridge kit | 8409.99 or 8414.90 | Cartridge kit typically classified as turbo part |

Bearing (main, connecting-rod) | 8483.30 | Plain shaft bearings |

Fuel HP injection pipe | 7304.90 or 8409.99 | Depending on nature (raw tube vs finished injection line) |

HS codes are the World Customs Organization's classification. Individual national tariff schedules may add 2-4 digits of extension code; consult the destination-country tariff for the full HS-code declaration. cBallast provides HS codes on every commercial invoice for smooth customs clearance.

Class-society approval & OEM/IACS equivalent parts

Marine main-engine spares typically must be OEM (Wärtsilä-supplied original) or from an IACS-approved equivalent supplier to satisfy class-society survey. Alternatives are accepted on a case-by-case basis with class-society approval and vessel-operator authorisation. cBallast supplies:

OEM Wärtsilä spare parts — through authorised distribution; ships with Wärtsilä material certification.

IACS-approved equivalent parts from certified suppliers — typically 15-30 % cost saving on non-warranty items; ships with material and dimensional certificates for class-society acceptance.

Refurbished / remanufactured parts — on turbochargers, cylinder heads and connecting rods where cost-effective.

Refurbishment done by IACS-approved workshops with re-certification.

Every RFQ received by cBallast is quoted with clear OEM vs equivalent labelling — the vessel operator or engine-team leader chooses per operating cost, warranty policy and class-society compliance requirement.

Common questions

Q: What is the injection-nozzle life on a Wärtsilä 32 running HFO? Typical scheduled interval is 4,000-6,000 h between nozzle replacements; poor fuel quality (high cat-fines, high asphaltene) reduces this to 3,000-4,000 h. Track nozzle-hour accumulation per cylinder in the ship's PMS.

Q: What is HS code for wartsila valve seat? Valve seats are typically classified under HS 8409.99 (parts suitable for use with engines of heading 8408 — compression-ignition internal combustion piston engines). Customs authorities may accept 8481.90 (valve parts) in some jurisdictions; declare 8409.99 unless the local customs specifies otherwise.

Q: Wartsila 32 injector nozzle for HFO and low-sulphur MGO — is it the same nozzle? The base nozzle-body geometry is common, but the injector NEEDLE and TIP hardness spec differs between HFO service (harder for cat-fine abrasion resistance) and MGO service (lighter-service option available). Verify the OEM Wärtsilä spec sheet for the specific injector class the vessel operator has authorised on the engine.

Q: What turbocharger is fitted to the Wärtsilä W8L26? The W8L26 (Wichmann-heritage) typically ships with a Napier NA153 or an equivalent ABB VTR-series unit; the specific turbo depends on the vessel-build year and any retrofit. Contact cBallast with your vessel name and IMO number for exact match.

Q: We have a MAN B&W S70MC-C main bearing that failed — can cBallast supply? Yes — while the S70MC-C is a MAN B&W large-bore two-stroke (not Wärtsilä), cBallast supplies MAN B&W spares across the full MC-C, ME-C, and G-series large-bore engines. Provide vessel name, IMO number, engine serial and the bearing part number from the MAN B&W parts book for a fast quote.

Related products on cBallast & RFQ instructions

All Wärtsilä products on cBallast

Wärtsilä 32 spare parts on cBallast

Wärtsilä injector nozzles on cBallast

Wärtsilä valve seats on cBallast

Wärtsilä cylinder liners on cBallast

MAN B&W large-bore engine spare parts on cBallast

Marine engine cooling water (SW/FW loop design)

Marine fuel oil viscosity & homogeniser (MDO/HFO/VLSFO)

Refrigerant transition HFC !' HFO (adjacent engineering-room service)

HS codes for marine & industrial parts

Class society type approval (DNV, ABS, LR, BV, ClassNK)

Wärtsilä brand hub on cBallast

How to request a Wärtsilä RFQ from cBallast

Fast-track your Wärtsilä RFQ by including: (1) engine model with cylinder count (e.g. "W6L32", "W12V46F", "W16V50DF"); (2) engine serial number from the nameplate; (3) vessel name and IMO number (for marine service) or plant tag (for stationary); (4) Wärtsilä 6-digit part number from the parts book or previous PO if available; (5) quantity per cylinder and per engine; (6) ship-to port and port-agent details; (7) required-on-board date and criticality (routine PMS vs urgent). cBallast responds within 8 business hours during EU working days with itemised quote, OEM vs equivalent labelling, lead-time and shipping options.

Wear-part intervals and part-family references above are compiled from Wärtsilä service-manual practice and industry norms. Actual overhaul schedules follow the operator's PMS and Wärtsilä's engine-specific service-bulletin recommendations. Wärtsilä is a trademark of Wärtsilä Corporation. cBallast is an authorised parts stockist and independent supplier; not the OEM. Original Wärtsilä parts are supplied under Wärtsilä's standard commercial terms; IACS-approved equivalents are supplied under supplier warranty as itemised on the quotation.

Part numbers and designations are those of the original manufacturers and are given for identification. cBallast is an independent supplier. © cBallast 2026 · cballast.com