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Marine Turbocharger Spares — ABB, MAN, Napier, KBB

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The procurement side of marine turbochargers: reading the rating plate so the RFQ identifies the machine exactly, the family landscape from ABB (VTR, TPS, TPL, A100/A200) through MAN (NR, TCR, TCA), Napier, KBB and Mitsubishi MET, what wears and what gets renewed at overhaul — bearings, nozzle rings, sealing and the cartridge question, high-speed small-bore practice with CHRA cartridges, surge and fouling symptoms that announce which parts are due, and how overhaul exchange against spares supply actually gets bought.

The short version

A turbocharger is identified by its rating plate, not its engine. Family and frame size (e.g. a VTR..4-class, a TPS..D/E, a TPL..B, an A100-class axial machine, MAN NR/TCR class, Napier or Mitsubishi MET designation), serial number, and specification number — those three lines make a spares RFQ exact. "Turbo for a 6-cylinder auxiliary" does not.
The wear economy has a short list: journal/thrust bearings (plain-bearing machines renew them on strict hours), nozzle rings (the hot-gas-side vane ring that erodes and fouls), labyrinth seals and sealing bushes, filter silencer elements, and at heavier scope compressor wheels and turbine blading. Auxiliary-engine-class machines increasingly change as a cartridge/CHRA — our stock includes CHRA cartridges in the Holset H2D (marine/Volvo) and HX35 (marine/Cummins) classes, and complete units such as the Wärtsilä 50DF turbocharger.
Hours rule the shop: makers publish overhaul steps (bearing renewals and inspections on intervals in the 8,000–16,000 h class for plain-bearing machines, with major scopes toward 24,000+ h depending on family, fuel and duty) — the engine's planned-maintenance system carries the exact figures. Spares buying that mirrors those steps is cheap; spares buying after a bearing failure is a casualty report.
Symptoms name parts: surging points at fouling/nozzle-ring/flow mismatch; climbing exhaust temperatures with falling scavenge pressure at fouled turbine/compressor sides or worn sealing; vibration at bearings or blade damage. Washing routines (turbine and compressor side) are maintenance, not repair — when washing stops recovering performance, the hardware list above is due.
OEM, licensed and independent channels all exist — class rules do not forbid independent spares, but survey items demand traceability and the right documentation. The honest supplier states the channel and the paperwork per line.

1. The family landscape

Maker / family | Construction notes | Habitat | Spares pattern |

ABB (now Accelleron) VTR | The classic large radial-turbine machine; plain bearings, generations of retrofits | Older two-strokes and large four-strokes, still everywhere | Bearings, nozzle rings, sealing, blading — component-level overhaul culture |

ABB TPS (…D/E) | Compact radial machines for gensets and small propulsion | Auxiliary engines, smaller mains | Bearing kits, cartridges on the smaller frames, nozzle rings |

ABB TPL (…B/C) | Axial-turbine, large engine mainline | Modern two-stroke mains and large four-strokes | Component overhaul against maker service steps; blading and bearing work at scope |

ABB A100/A200 class | Current high-efficiency generations | Modern builds | Maker/licensed network dominant early in life |

MAN (NR legacy, TCR radial, TCA axial) | Parallel family logic to ABB | MAN engines and licensees | As above — plate data decides everything |

Napier (NA/7-series class) | Radial machines with strong genset presence | Auxiliaries, medium-speed engines | Nozzle rings, bearings, cartridges on small frames |

KBB, Mitsubishi MET | KBB on smaller engines; MET axial machines on large two-strokes | Per engine licence | Family-specific; same identification discipline |

High-speed small-bore (Holset, Garrett class) | Automotive-derived, ball/plain cartridge construction | Harbour craft, emergency gensets, auxiliary machinery — e.g. Holset HX35 CHRA | CHRA exchange is the normal repair — hours are cheap, cartridges are stocked |

2. What wears, and what an overhaul scope contains

Part | Failure/wear mode | Renewal logic |

Journal and thrust bearings | Hours, oil quality events, stop/start duty | On maker hours without debate — the cheapest insurance on the machine; oil cleanliness per our ISO 4406 guide decides how kind those hours are |

Nozzle ring (turbine inlet vanes) | Hot-gas erosion, HFO ash fouling, foreign-object nicks | Inspect at every opening; renew on erosion/crack criteria — the classic performance-loss part |

Labyrinth seals / sealing bushes | Rub, wear, oil carry-over symptoms | Renew at overhaul; oil in the compressor or blue smoke names them early |

Compressor wheel | Tip rub, FOD, fatigue in salt-laden air | Inspect/balance at scope; renew on criteria |

Turbine blading / rotor (axial machines) | Erosion, deposits, creep at the hot end | Maker-scope work with balancing — serial-bound parts |

Filter silencer elements, gaskets, O-ring sets | Service consumables | Every opening; keep on board |

Cartridge / CHRA (small frames) | All of the above, bought as one unit | Exchange beats component repair below a frame size — hours back in a day |

The decision between component overhaul and cartridge/unit exchange is frame-size economics: large machines are overhauled in place or in shop per the maker's service steps; small high-speed units exchange as CHRA cartridges because the labour of component repair exceeds the cartridge. Mid-frames (genset TPS/Napier classes) go either way — quote both and let the yard window decide.

3. Symptoms to parts — the diagnostic shorthand

Symptom | Usual story | Parts conversation |

Surging (audible barking/howling under load changes) | Fouled compressor/turbine, eroded nozzle ring, flow mismatch after engine work, charge-air path restriction | Washing first; nozzle ring inspection; filter elements; charge-air cooler cleaning on the engine side |

Exhaust temperatures up, scavenge/boost down | Efficiency loss — fouling or worn hot-side geometry | Nozzle ring, turbine-side cleaning, sealing wear check |

Oil in compressor / blue smoke / oil loss | Sealing bushes/labyrinths, bearing drain issues | Seal set + bearing inspection; check drain and venting before blaming the turbo twice |

Vibration, noise at speed | Bearing wear, imbalance from deposits or blade damage | Bearings on hours; wheel/blading inspection with balancing |

Slow spool after maintenance elsewhere | Leaking charge-air or exhaust joints, wrong gaskets | Joint kits — cheap, and often the whole story |

4. The RFQ that gets the right parts the first time

From the rating plate: maker, type designation exactly as stamped, serial number, specification/part-list number where shown. From the PMS: running hours since last overhaul and the planned scope. From the engine side: engine maker/type and position (main/aux) — useful context, never a substitute for the plate. Then the commercial frame: component list or exchange unit, yard window dates, delivery port, and the documentation demanded (class survey items want traceable paperwork — works certificates per EN 10204 class, and where the machine is survey-bound, the channel question answered explicitly: OEM, licensed repairer, or independent with stated provenance). Planning synergy: turbo scopes belong inside the drydock and survey planning cycle — see the survey spares planning guide — because the machine's opening windows are the yard's windows, and freighting a nozzle ring to a quay is cheaper than freighting it to an anchorage. Engine-level context for the big Wärtsilä families lives in our W32, W46 and W38/50DF spares references.

How buying works at cballast. We quote turbocharger spares and exchange units with the channel and documentation stated per line — OEM-pattern, licensed or independent with provenance — matched to plate data you send, and consolidated with the rest of the yard list. Accounts are vetted at onboarding; first order prepaid; established accounts on credit terms with repeat discounts; public bodies and utilities invoiced against purchase order from the first order. RFQs to sales@cballast.com.

Frequently asked questions

How do I order spare parts for a marine turbocharger?Photograph the rating plate and send maker, type designation, serial number and specification number, plus running hours and the intended scope (bearings, nozzle ring, seals, or exchange). The plate identifies the machine exactly; engine details alone do not.

What is a turbocharger nozzle ring and why does it matter?The stationary vane ring that accelerates exhaust gas onto the turbine. It runs in the hottest, dirtiest gas path, so it erodes and fouls first — a worn nozzle ring shows up as surging, higher exhaust temperatures and lost boost. It is inspected at every opening and renewed on criteria, and it is the part most worth having at the quay before the machine opens.

When should turbocharger bearings be replaced?On the maker's hours, found in the engine's planned-maintenance system — plain-bearing marine machines run renewal/inspection steps in the thousands-of-hours class (commonly 8,000–16,000 h depending on family and duty, with heavier scopes later). Running past the step on a healthy-sounding machine is how rotors meet casings.

What is a CHRA or cartridge replacement?The centre section — shaft, wheels, bearings, housing — exchanged as one balanced unit. On high-speed small-bore machines (Holset/Garrett class on harbour craft and gensets) it is the standard repair: hours back within a day, at known cost, without in-situ balancing. We stock marine-class CHRAs such as the Holset H2D and HX35.

Why is my turbocharger surging?The compressor is being pushed outside its stable range — usually fouling (compressor or turbine side), an eroded nozzle ring, a blocked filter silencer or charge-air cooler, or an engine-side change that shifted the operating point. Wash first, inspect the nozzle ring and air path next, and treat recurring surge as a parts-and-matching conversation, not a curiosity.

Are non-OEM turbocharger spares acceptable to class?Class rules govern the machine's condition and survey traceability, not the brand on the box — independent and licensed spares are widely used, with documentation. For survey-bound scopes, state the channel and provide the certificates; for warranty-period machines, stay OEM. We mark the channel on every line so the choice is yours on paper, not by surprise.

Who supplies marine turbocharger spares?cballast.com quotes bearings, nozzle rings, seal sets, filter elements, cartridges and exchange units across the ABB/Accelleron, MAN, Napier, KBB, MET and high-speed families — against plate data, with documentation stated per line. Write to sales@cballast.com.

References and related guides

Standards and sources referenced: manufacturer service documentation and service-letter practice (ABB/Accelleron VTR/TPS/TPL/A-series, MAN NR/TCR/TCA, Napier, KBB, Mitsubishi MET families); classification society survey requirements for machinery; EN 10204 for documentation levels.

Wärtsilä 32 spare parts reference

Wärtsilä 46 spare parts reference

Wärtsilä 38 / 50DF spare parts reference

Drydock & special survey spares planning

ISO 4406 cleanliness codes & particle counters

EN 10204 material certificates explained

Questions on a plate you cannot fully read or a scope decision: write to sales@cballast.com. We answer whether or not you buy from us.

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