Our range of turbochargers
More power, less fuel, lower emissions

Power and productivity
for a better world™
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A100-L
For the smallest to the largest 2-stroke marine diesel engines.

ABB Turbocharging’s A100-L series of advanced single stage turbochargers is conceived to give operators of low-speed 2-stroke marine engines market leading levels of performance, emissions compliance, application flexibility, total cost of ownership and operational safety. The engine application range extends from 4,000 kW to 30,000 kW.

**Characteristics**
- Record high turbocharger efficiency in excess of 75 %
- High pressure ratios up to 5.0 combined with high specific air volume flow
- Exceptionally wide compressor map for flexible and adaptable turbocharging
- Lower noise levels than predecessors in standard configuration
- Emergency lube oil system integrated into bearing casing
- Long exchange intervals
  - bearings: 36,000 operating hours
  - rotating parts: 100,000 operating hours

**Optional equipment**
- Turbocharger cut-out for dual rating applications, etc.
- Power turbine for enhanced engine efficiency with stand-alone generator or with steam turbine for recovery of both kinetic and thermal energy
- Air outlet silencer to further reduce engine room noise
- Filter silencer casing for ambient air suction, resulting in lower engine fuel consumption
A100-M/H radial
For most advanced medium- and high-speed engines.

Designed to meet the most demanding engine and application requirements in the current and future markets for both, medium- and high-speed diesel and gas engines, the A100-M/H turbochargers with radial turbines strive for the ultimate combination of technology, performance and optimum life cycle costs.

Being one step ahead, the A100-M/H focuses at all times on being one of the key technology enablers for high turbocharging and engine performance in combination with high reliability even under harsh operating conditions.

Setting the latest benchmark in single stage turbocharging with pressure ratios up to 5.8, the A100-M/H radial type turbocharger series, with its recent extension, the two larger frame sizes A150-M and A155-M, covers a wide range of turbocharged engine power from 400 kW to more than 5,000 kW per turbocharger.

**Characteristics**
- Highest single stage pressure ratios up to 5.8 at outstandingly high efficiencies
- Cooled and uncooled aluminum compressor stages for optimum matching to a maximum range of applications
- Overall installation dimensions compatible with earlier TPS-F turbocharger models
- Recent turbocharger range extensions by two larger frame sizes
- Modular design for high matching flexibility at minimum cost
- Multiple gas inlet casings for pulse charged applications
- Maintenance and service friendliness designed-in
- Covers engines with power outputs from 400 kW to well above 5,000 kW per turbocharger

**Options**
- State-of-the-art turbine cleaning and material characteristics for continuous operation on HFO
- Cooled bearing casings and advanced material characteristics for high turbine inlet temperatures on gas engines
TPS-F
For modern small medium-speed and large high-speed diesel and gas engines.

The TPS-F is a compact turbocharger featuring highest durability for modern small medium-speed and large high-speed diesel and gas engines in the 400 kW to 3,300 kW power range. Three series offer full-load pressure ratios of up to 4.75, 5.0 and 5.2.
TPS-D/E
For small medium-speed and high-speed diesel and gas engines.

The TPS-D/E turbocharger is designed for small medium-speed and high-speed diesel and gas engines with power outputs in a range from 500 kW to 3,000 kW.

**Characteristics**
- Mixed flow turbine with nozzle ring for constant pressure and pulse applications
- Versions with variable turbine geometry available
- Two different radial compressor designs for pressure ratios of up to 4.5
- Single-piece, oil-cooled bearing casing (water-cooled casing for gas engines)
- Internal plain bearing design with squeeze oil damping
- Clamp connection flanges for flexible casing orientation and easy disassembly
- Proven turbine containment with internal and external burst protection rings
- Oil inlet and exit located at bottom

![Graph](image-url)
TPL-C
For modern 4-stroke medium-speed diesel and gas engines.

The TPL-C turbocharger is designed for modern 4-stroke medium-speed diesel and gas engines in a power range from 3,000 to 12,000 kW per turbocharger.

**Characteristics**
- Modular, compact design featuring easy maintenance and variable positioning of casings and flanges
- Radial compressor and axial turbine for increased volume flows, efficiencies and pressure ratios
- Compressor stages with air recirculation for improved surge margin and enlarged map width
- Enabler for engine compliance with strict emissions legislations
- Axial and radial gas inlet casings, with one or more inlets, for pulse (TPL 67-C/TPL 71-C only) and quasi-constant charging systems
- Round gas outlet flange for TPL 67-C/TPL 71-C; rectangular-to-round adapter piece available for TPL 76-C and TPL 79-C
- Optional compressor cooling extends application range with aluminium wheels
- Robust foot and new filter silencer minimize vibration

### Volume flow at MCR

<table>
<thead>
<tr>
<th></th>
<th>TPL67</th>
<th>TPL71</th>
<th>TPL76</th>
<th>TPL79</th>
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</thead>
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<tr>
<td>without compressor cooling option</td>
<td>5.0</td>
<td>5.5</td>
<td>4.5</td>
<td>5.0</td>
</tr>
</tbody>
</table>

### Compressor pressure ratio

- C32
- C33
- C34
- C35
- C36

**Graph:**

- TPL 67-C
- TPL 71-C
- TPL 76-C
- TPL 79-C

TPL 76-C, TPL 79-C available only with suction branch
TPL-A
For 4-stroke medium to large diesel and gas engines.

The TPL-A turbocharger is designed for 4-stroke medium to large diesel and gas engines with outputs of 2,500 kW to 12,500 kW.

**Characteristics**
- Axial turbine, suitable for constant pressure and pulse turbocharging
- Variable turbine geometry (VTG) available for TPL 65A
- Different compressor designs cover the full range of pressure ratio and volume flow rate requirements
- Bearing assembly with free-floating thrust disk and squeeze oil damping
- Integrated turbine and compressor washing nozzles
- Round gas outlet flanges; no need to fit adapter pieces
- Oil inlet and exit located at bottom
- Modular design; flexible positioning of casings and flanges

<table>
<thead>
<tr>
<th>Compressor pressure ratio</th>
<th>A30</th>
<th>A10</th>
<th>A32</th>
<th>A33</th>
<th>A36</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume flow V [m³/s]</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

![Graph showing compressor pressure ratio and volume flow for different models of TPL-A turbocharger](image)
TPR
For 4-stroke diesel engines used on heavy-duty locomotives.

The TPR turbocharger platform was developed for 4-stroke diesel engines with outputs of 1,500 to 3,500 kW. Its unique construction includes numerous features designed specifically to ensure total reliability in heavy duty rail applications.

### Characteristics
- Compact, robust and rigid construction
- High overall efficiency at highest boost pressures
  - integral turbine without damping wire
  - single-piece radial compressor with flow stabilizer
  - optimized bearing assembly
- Uncooled gas casings
- Unique patented foot fixation
- Variable turbine geometry (VTG) as option (drop-in)
  - integrated actuator
  - boost pressure control
TPL-B
For large 2-stroke marine diesel engines.

The TPL-B turbocharger is designed primarily for large 2-stroke marine diesel engines. Five frame sizes cover an engine output range from 3,000 to 28,000 kW per turbocharger.

**Characteristics**

- Simple, robust and compact design
- Radial compressor, axial wide-chord turbine blades
- Very high efficiencies and volume flow rates
- Internal plain bearings, lubricated by engine lube oil
- Header lube oil tank (TPL 85-B and TPL 91-B with integrated emergency lube oil system)
- Uncooled casings, no water connections
- Integrated connection and nozzles for wet turbine and compressor cleaning

![Graph showing compressor pressure ratio against volume flow](image-url)
TPL 91-B
For the largest and most powerful 2-stroke diesel engines.

The TPL 91-B turbocharger is designed for the largest and most powerful 2-stroke diesel engines. Engine applications range from 20,000 kW to 28,000 kW per turbocharger.

**Characteristics**

- Length, volume and weight minimized
- Turbine with 2-piece diffuser
- Compact rotor
- Emergency lube oil system integrated into bearing casing
- Simplified oil inlet/outlet connections
- Rotor assembly can be removed as cartridge unit for service work
- Optional compressor cooling extends application range with aluminum wheels
- Inducer casing bleed system for low noise level
PTL power turbine
For use with high-efficiency 2-stroke marine engines.

ABB’s PTL 3200 power turbine, with a maximum electrical output of 3,200 kW, is designed for use with high-efficiency 2-stroke marine engines. It converts surplus exhaust gas energy from the ship’s main engine into onboard energy for a simultaneous reduction in engine emissions and fuel consumption. Two waste heat recovery configurations are available:

- Stand-alone PTL driving a generator via a reduction gearbox, for a 4 % saving in fuel and emissions.
- PTL in conjunction with a steam turbine for fuel and emissions savings in excess of 10 %.
The earlier generation

**VTR**
The VTR turbocharger is designed for 2-stroke, low-speed and 4-stroke, medium-speed heavy duty diesel engines (about 700 kW to 18,500 kW per turbocharger).

**VTC**
The VTC turbocharger covers a diesel engine output range from 1,500 to 3,200 kW. Compactness is achieved through the use of internal plain bearings lubricated by the engine lube oil system.
The RR is a lightweight, low-cost turbocharger of robust design, offering high efficiency, high gas-inlet temperature capability and good compressor characteristics. The RR is designed for an output range of about 500 kW to 1,800 kW.