

Product information

ABB Turbocharging CPEX – Customer Part Exchange Program

Factory reconditioning by ABB Turbocharging The “OEM Advantage”.

Knowledge, technology and expertise

All CPEX reconditioning operations benefit from the huge fund of technology, production know-how and sheer product knowledge available only to the Original Equipment Manufacturer (OEM). The reconditioning of parts and assemblies takes place at the origin of their design and place of first manufacture: ABB Turbocharging's main works in Baden, Switzerland, supported by a number of qualified sites within the ABB Turbocharging Service network.

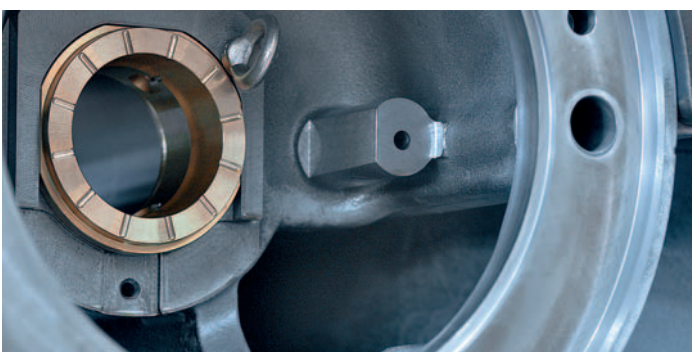
As well as using the same high technology equipment employed in the manufacture of new components, like high precision machining and grinding facilities, the CPEX reconditioning process employs the most modern metal repair techniques, including laser welding for material replacement.

A guarantee of performance

A major aspect of restoring turbocharger performance is replicating the original aerodynamic performance of principal components such as turbine blades and compressor wheels. With the access to original drawings and data exclusive to an OEM, ABB Turbocharging Service faithfully recreates original geometries and manufacturing tolerances in all CPEX reconditioned parts.

Right first time

The benefit is the regeneration of optimum turbocharger performance and hence the renewal of engine power, fuel economy and lower emissions. And with our OEM quality and OEM-qualified technicians, we have the desirable habit of getting maintenance, repairs and overhauls right first time.



CPEX – the innovative exchange parts program from the ABB Turbocharging Service network

CPEX stands for Customer Part Exchange and offers end users of ABB turbochargers a cost effective and environmentally aware alternative to new parts.

Based on a selected range of OEM-reconditioned, globally consistent exchange parts from popular turbocharger types, CPEX targets reduced downtime and lower service costs.

The CPEX commitment

The CPEX program is based on ABB Turbocharging's clear commitment to invest significant resources in the strategic stocking of reconditioned components and remanufactured assemblies and modules throughout our global ABB Turbocharging Service network.

With over 100 strategically located service stations, this investment means faster, more rational supply of vital high duty turbocharger components.

Quality and reliability at short notice

All these benefits mean that when you need a CPEX part for your ABB turbocharger, your local ABB Turbocharging Service Station can exchange your part or assembly for a reconditioned replacement from local stocks or from the global warehouse at the Service Center in Switzerland.

For your peace of mind – and your turbocharger's safety and reliability – CPEX parts are refurbished to the highest OEM standards. They carry the ABB global service warranty, and to ensure rapid delivery, CPEX parts are offered under ABB Turbocharging's standard service parts availability.

Fast, economical and sustainable

As well as saving costs via reduced turbocharger downtime and the exchange of used parts for reconditioned parts, CPEX also promotes sustainability. The value ABB Turbocharging adds during the manufacturing of original parts is retained and recycled under the CPEX program.



The CPEX offering

The expanding offering of CPEX parts from the ABB Turbocharging Service network currently includes:

- Shafts for TPS turbochargers sizes TPS 48, TPS 52 and TPS 57 installed on specific engines
- Bearing casings for TPS turbocharger sizes TPS 48, TPS 52 and TPS 57
- Turbine blades for TPL turbochargers
- Turbine blades, bearings and pumps for VTR and VTC turbochargers
- VTG modules for TPS and TPL turbochargers

CPEX component selection

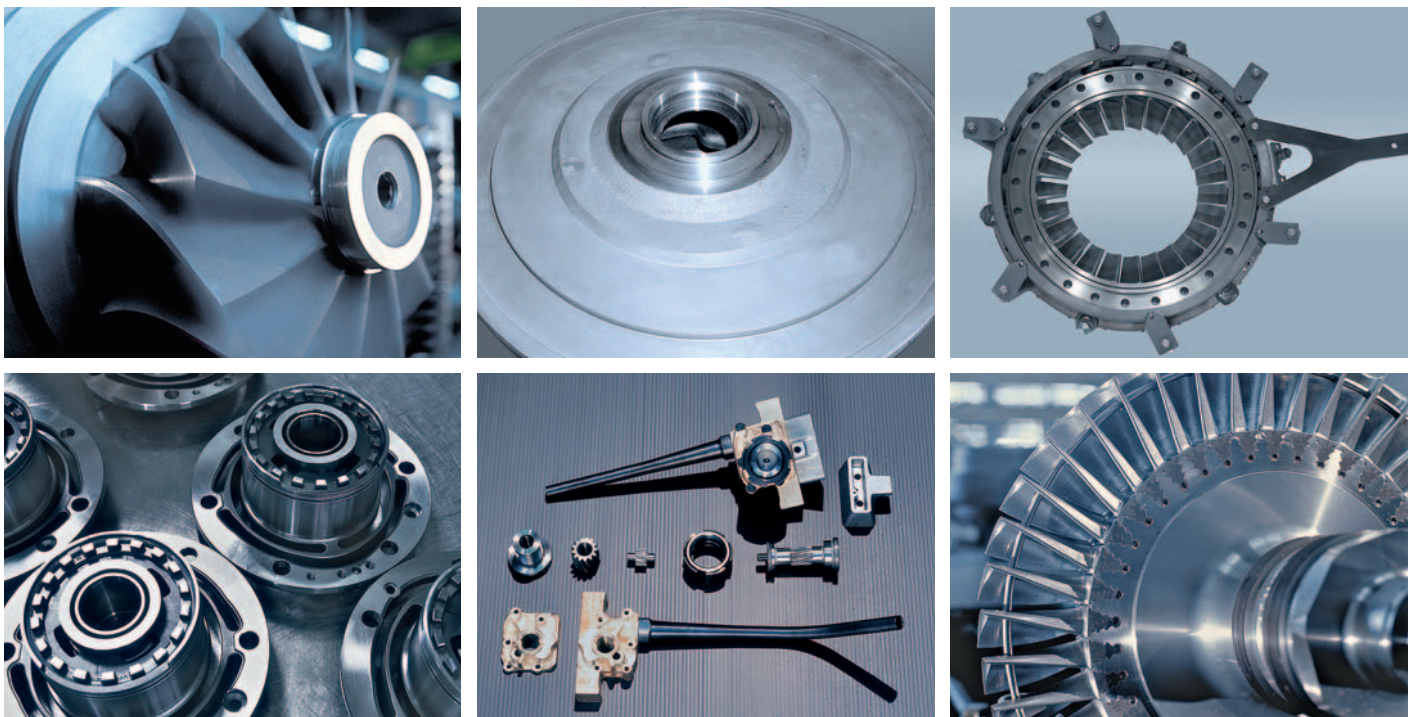
The CPEX offering is based on comprehensive research, testing and statistical analysis by ABB Turbocharging Service in order to establish the reconditioning potential for each ABB turbocharger component.

Safe and dependable

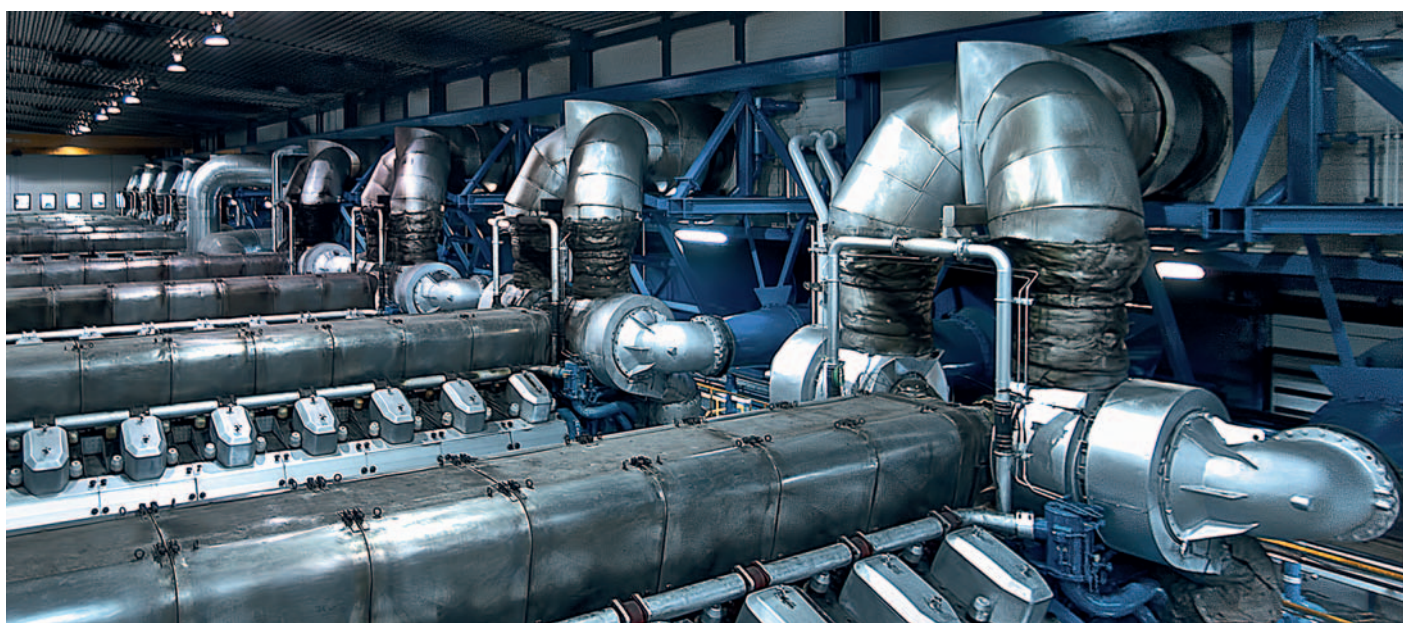
Our goals are maximized operational safety and the reliability you expect of our products. Testing determines the long term mechanical integrity of CPEX parts in operation and ranges from material analyses to high cycle fatigue tests and rigorous checks of geometry, especially in the case of TPS shafts.

Building on firm foundations

An important cornerstone in the selection of parts for CPEX is ABB Turbocharging's comprehensive ATURB product documentation system. Exclusive to the OEM, this data source allows the history of every ABB turbocharger component to be precisely traced and its long term performance accurately assessed.



Qualifying for CPEX



Are your parts CPEX-able?

To ensure the rapid supply of reconditioned parts from stock, ABB Turbocharging requires a corresponding input of parts in reconditionable condition to the CPEX program.

Parts presented for CPEX exchange must therefore meet specified CPEX acceptance criteria. Full information regarding CPEX qualification conditions is available from your local ABB Turbocharging service station.

CPEX qualification criteria

Important conditions aimed at ensuring the highest performance from CPEX parts and assemblies are:

- Compliance with ABB safety and reliability criteria, including
 - No foreign object or transportation damage
 - In the case of bearings and pumps, no unauthorised 3rd party repairs
- CPEX exchange of rotating parts is offered in the first half of their assigned "SIKO" lifespan.
- CPEX rotating parts may only go through the CPEX program once

About SIKO

The SIKO safety design concept is ABB Turbocharging's established benchmark for defining the effective life of key components on ABB turbochargers. It is thus the central tool in establishing running time parameters for CPEX qualification of rotating parts.

SIKO is conceived to maximize the safety and reliability of our equipment by defining the optimum number of running hours before replacement of key components on the basis of statistical analysis.

Facts and figures

Consider: SIKO is important because of the forces at play in a turbocharger: the blade tips of the rotor can turn at up to around 600 meters per second, i.e. almost 2100 km/h; the centrifugal force exerted by a turbine blade on its fixation can be almost 100 tons per blade, i.e. the weight of a locomotive; the centrifugal force of all blades can amount to 3200 tons, i.e. around maximum take-off weight of ten Jumbo Jets.

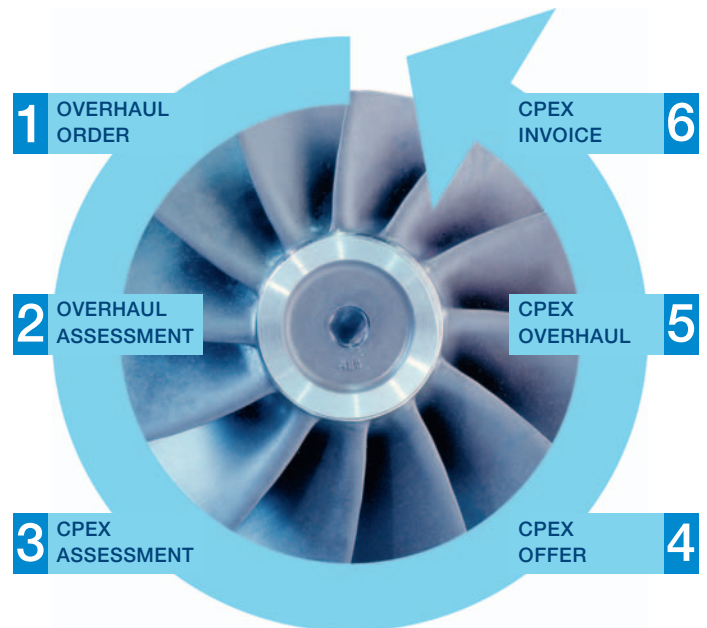
How CPEX works

Six steps to CPEX.

Economic and transparent

Restoring turbocharger efficiency and performance via an ABB overhaul by OEM qualified technicians using CPEX reconditioned parts and assemblies is a streamlined and above all cost effective process.

- Customer orders overhaul of turbocharger or cartridge to ABB's unique OEM standards.
- ABB Service Station dismantles turbocharger or cartridge to assess replacement part requirements.
- Existing components are assessed for CPEX-ability based on their condition and their SIKO running hours.
- ABB offers overhaul option using favorably priced CPEX parts where possible.
- Customer accepts offer and ABB carries out CPEX overhaul.
- ABB invoices customer based on attractive CPEX component prices.



CPEX – application case study

End users opting for CPEX can expect rapid payback.

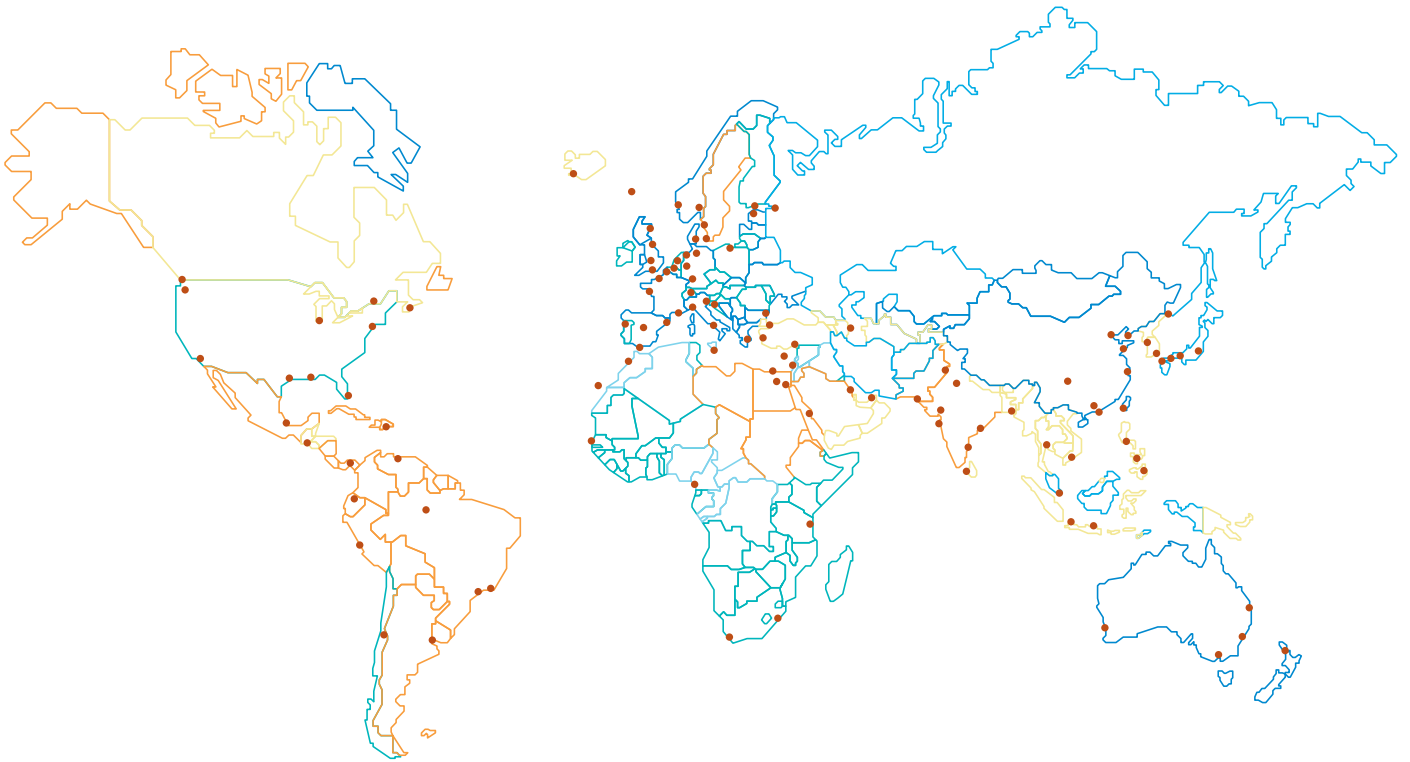
Application:

Turbocharger:	TPL 77
Engine:	50 cm bore 2-stroke, 10 MW
Average operating hours:	6000 per year
Repair:	replacement of worn axial turbine blades
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Result:	fully restored turbocharger and engine efficiency
Annual savings:	fuel savings: 45 tons
Cost effectiveness:	ratio of fuel savings to CPEX repair: 5:1

The study emphasises that to regenerate turbocharger efficiency and engine performance, only a single overhaul using CPEX exchange parts is needed during the turbocharger's SIKO defined effective life. The result is a fuel saving of around 5 times the cost of the repair.



ABB Turbocharging Service network



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