

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Power Turbine**

with type designation(s)
PTL3200-B

Issued to

ABB Turbo Systems AG
Baden, AG, Switzerland

is found to comply with

DNV GL rules for classification – Ships

DNV GL rules for classification – High speed and light craft

Application :

The turbochargers are approved for use on internal combustion engines with application data as given in the certificate.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2019-12-17**

This Certificate is valid until **2024-12-16** .

DNV GL local unit: **Augsburg**

for **DNV GL**

Approval Engineer: **Andreas Wolf**

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Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Exhaust gas driven power turbine for generator drive.

Alternative place of production

ABB Jiangjin Turbo Systems Co. Ltd

No. 23, Dong Jiang Lu, Degan Jie Dao Degan (Industrial Zone), Jiangjin District
Chongqing, 4002284, P.R. China

Application/Limitation

The power turbine are approved for the following rating:

Type	Hub diameter (mm)	T _{max} (Nm)	N _{max} (s ⁻¹)	T _{max} (° C)
PTL 3200-B	223	1867	379	550

The stated speeds and temperatures are maximum allowed values for continuous load applications. For cyclic load applications the ratings shall be corrected according to ABB's SiKo instructions.

ALARM LEVELS:

Overspeed	
Condition:	Alarm level:
$N_{Mmax} \geq 1.02 \times N_{Bmax}$	$N_{Alarm} \geq 1.02 \times N_{Bmax}$
$1.01 \times N_{Bmax} \leq N_{Mmax} < 1.02 \times N_{Bmax}$	$N_{Alarm} = N_{Bmax}$
$N_{Bmax} \leq N_{Mmax} < 1.01 \times N_{Bmax}$	$N_{Alarm} \geq 0.99 \times N_{Bmax}$

N_{Mmax} is the turbocharger operational limit at 110% short duration engine load as stated on the rating plate.

N_{Bmax} is the turbocharger operational limit at 100% engine load, as stated on the rating plate.

N_{Alarm} is the application dependent alarm level value based on ABB's SiKo and HCF safety concept.

The overspeed alarm value shall be specified in the individual turbocharger DNV Product Certificate.

High exhaust temperature at turbine entry, maximum alarm level: T_{Mmax} -15°C.

T_{Mmax} is the turbocharger operational limit at engine overload (110%), as stated on the rating plate.

Low lubrication oil pressure at turbocharger inlet, minimum alarm level shall be set in accordance with ABB Operation Manual PTL3200-B / Chapter 3.1 (HZTL2492 Rev. A)

Maximum lubrication oil outlet temperature (alarm level) shall be set in accordance with ABB Operation Manual PTL3200-B / Chapter 3.1 (HZTL2492 Rev. A)

Application constraints

Engine induced vibration to be within the specified limits given in ABB OEM Manual PTL3200-B / Chapter 4 (HZTL90648 Rev. A).

Allowable inclination of turbochargers during operation is limited to +/- 22.5° in longitudinal direction and +/-15° in lateral direction.

Type Approval documentation

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

In cases where the type approved product is manufactured at other companies, periodical assessments shall be carried out randomly at these companies. All companies shall be assessed at least once in the period of validity of the TA certificate.

This will be according to Class Guideline DNVGL-CG-0338, Section 4.

Other conditions

This certificate replaces GL AC 61 857 - 14 HH.

END OF CERTIFICATE