

TYPE APPROVAL CERTIFICATE

This is to certify:**That the fans for hazardous area**

with type designation(s)

**ACA(HACP), AKA(HACQ), AWAC, AWA(HACW), ELA(HELA), HKA(HAZQ), HWA(HAZW),
MNA(HHGP), MNAS(HHGPs), MXA, HCA(HHGC), NHCA(NHCAS), NXA, PVA, TTF(TTB)**

Issued to

Hi Air Korea Co., Ltd.**Gimhae-si, Gyeongsangnam-do, Republic of Korea**

is found to comply with

DNV GL rules for classification – Ships**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed
by DNV GL.**Issued at **Høvik** on **2021-01-27**This Certificate is valid until **2026-01-26**.for **DNV GL**DNV GL local station: **Essen**Approval Engineer: **Ole Henrik Kverndal Pedersen****Dalibor Bukarica**
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Places of production

-HI AIR KOREA Co., Ltd. 50 Jeongmal-gil Dochoen-myeon Changnyeong-gun -all models except TTF(TTB) Model
-Tai-il Blower Mfg. Co. Ltd. 50 Jeongmal-gil Dochoen-myeon Changnyeong-gun -only TTF(TTB) Model

Product description

Ventilation fans for use in hazardous area. Designed in accordance with the requirements given in DNV GL RU-SHIP Pt.5 Ch.5 Sec.6 [1.2] and Pt.5 Ch.6 Sec.10 [1.2].

Application/Limitation

Associated electric motors and motor starters shall be certified as required by DNV GL RU-SHIP Pt.4 Ch.8 Sec.1 Table 3. Electric fan motors shall not be installed in ventilation ducts for hazardous spaces unless the motor is certified for the same hazard zone as the space served.

For the below listed fans it shall be installed a wire mesh of not more than 13 mm square mesh in outside openings of the ventilation ducts:

AKA(HACQ)
AWA-(HACW)
HKA(HAZQ)
HWA(HAZW)
MXA
NXA
TTF

The fan capacities below are established in accordance with *ISO5801:1997 standard*.

Blower	Capacity, m3/h
ACA(HACP)-500	2500 - 24660
ACA(HACP)-560	2610 - 32670
ACA(HACP)-630	4510 - 54600
ACA(HACP)-710	6070 - 34460
ACA(HACP)-800	9160 - 48700
ACA(HACP)-900	18410 - 63070
ACA(HACP)-1000	27950 - 89440
ACA(HACP)-1120	27190 - 129880
ACA(HACP)-1250	31980 - 197380
AKA(HACQ)-400	790 - 12230
AKA(HACQ)-500	2500 - 24660
AKA(HACQ)-560	2610 - 32670
AKA(HACQ)-630	4510 - 54600
AKA(HACQ)-710	6070 - 34460
AKA(HACQ)-800	9160 - 48700
AKA(HACQ)-900	18410 - 63070
AKA(HACQ)-1000	27950 - 89440
AKA(HACQ)-1120	27190 - 129880

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AKA(HACQ)-1250	31980	- 197380
AKA(HACQ)-1400	39000	- 159630
AKA(HACQ)-1600	73790	- 236630
AWAC-1000	27950	- 83710
AWAC-1120	27190	- 129880
AWAC-1200	27190	- 197380
AWA(HACW)-300	400	- 4910
AWA(HACW)-350	710	- 8770
AWA(HACW)-400	790	- 12230
AWA(HACW)-500	2500	- 24660
AWA(HACW)-560	2610	- 32670
AWA(HACW)-630	4510	- 54600
AWA(HACW)-710	6070	- 34460
AWA(HACW)-800	9160	- 48700
AWA(HACW)-900	18410	- 63070
AWA(HACW)-1000	27950	- 89440
AWA(HACW)-1120	27190	- 129880
AWA(HACW)-1250	31980	- 197380
AWA(HACW)-1400	39000	- 159630
AWA(HACW)-1600	73790	- 236630
ELA(HELA)-300	400	- 4910
ELA(HELA)-350	710	- 8770
ELA(HELA)-400	790	- 12230
ELA(HELA)-500	2500	- 24660
HKA(HAZQ)-500	2500	- 24660
HKA(HAZQ)-560	2610	- 32670
HKA(HAZQ)-630	4510	- 54600
HKA(HAZQ)-710	6070	- 34460
HKA(HAZQ)-800	9160	- 48700
HKA(HAZQ)-900	18410	- 63070
HKA(HAZQ)-1000	27950	- 89440
HKA(HAZQ)-1120	27190	- 129880
HKA(HAZQ)-1250	31980	- 197380
HKA(HAZQ)-1400	39000	- 159630
HWA(HAZW)-800	9160	- 48700
HWA(HAZW)-900	18410	- 63070
HWA(HAZW)-1000	27950	- 89440
MNA(HHGP)-500	2500	- 24660
MNA(HHGP)-560	2610	- 32670
MNA(HHGP)-630	4510	- 54600
MNA(HHGP)-710	6070	- 34460
MNA(HHGP)-800	9160	- 48700

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MNA(HHGP)-900	18410	- 63070
MNA(HHGP)-1000	27950	- 89440
MNA(HHGP)-1120	27190	- 129880
MNA(HHGP)-1250	31980	- 197380
MNA(HHGP)-1400	39000	- 159630
MNA(HHGP)-1600	73790	- 236630
MNAS(HHGPS)-500	2500	- 24660
MNAS(HHGPS)-560	2610	- 32670
MNAS(HHGPS)-630	4510	- 54600
MNAS(HHGPS)-710	6070	- 34460
MNAS(HHGPS)-800	9160	- 48700
MNAS(HHGPS)-900	18410	- 63070
MNAS(HHGPS)-1000	27950	- 89440
MNAS(HHGPS)-1120	27190	- 129880
MNAS(HHGPS)-1250	31980	- 197380
MNAS(HHGPS)-1400	39000	- 159630
MNAS(HHGPS)-1600	73790	- 236630
MXA-500	2500	- 24660
MXA-560	2610	- 32670
MXA-630	4510	- 54600
MXA-710	6070	- 34460
MXA-800	9160	- 48700
MXA-900	18410	- 63070
HCA(HHGC)-300	400	- 4910
HCA(HHGC)-350	710	- 8770
HCA(HHGC)-400	790	- 12230
HCA(HHGC)-500	2500	- 24660
HCA(HHGC)-560	2610	- 32670
HCA(HHGC)-630	4510	- 54600
HCA(HHGC)-710	6070	- 34460
HCA(HHGC)-800	9160	- 48700
HCA(HHGC)-900	18410	- 63070
HCA(HHGC)-1000	27950	- 89440
NHCA(NHCAS)-710	6070	- 34460
NHCA(NHCAS)-800	9160	- 48700
NHCA(NHCAS)-900	18410	- 63070
NHCA(NHCAS)-1000	27950	- 89440
NHCA(NHCAS)-1120	27190	- 129880
NHCA(NHCAS)-1250	31980	- 197380
NHCA(NHCAS)-1400	39000	- 159630
NXA-400	790	- 12230
NXA-500	2500	- 24660

NXA-560	2610	- 32670
PVA-10C4	80	- 1050
PVA-12C4	560	- 1880
PVA-16C4	400	- 3850
TTF(TTB)-6.0-S1	30	- 90000
TTF(TTB)-5.5-S1	30	- 72000
TTF(TTB)-5.0-S1	30	- 59000
TTF(TTB)-4.5-S1	30	- 46000
TTF(TTB)-4.0-S1	30	- 44000
TTF(TTB)-3.5-S1	30	- 36000
TTF(TTB)-3.0-S1	30	- 23000
TTF(TTB)-2.5-S1	30	- 18000
TTF(TTB)-1.5-S1	30	- 9300

Type Approval documentation

Tests carried out

Capacity test in accordance with *ISO5801:1997 standard*.

Overspeed test – Impeller tested to overspeed to 20% above the design running speed for 5 minutes.

Marking of product

For traceability to this type approval the products are to be marked:

- Manufacturer's name or trademark
- Type designation
- Size

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.