NOVENCO®
FAN CATALOGUE

NOVENCO
Marine & Offshore

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ZERAX® AXIAL FLOW FANS

PRODUCT

The Novenco ZerAx series of axial flow fans use innovative design to reduce power consumption and to better fan efficiency. The work environment is helped through lowered fan sound levels.

APPLICATION

ZerAx fans are well suited for both comfort and industrial ventilation. Versions for installation in ATEX zones in accordace with category 2G/D are also available.

RANGE

ZerAx fans for duct installation are designated AZN or AZW.
Fan casing thicknesses are either 2/4mm for AZN, and 10mm for AZW.
Hub sizes - AZN: Ø160, Ø350 or Ø560; AZW: Ø350
Impeller diameters - Ø250~Ø500 for Ø160 hubs; Ø500~Ø1250 for Ø350 hubs; Ø1000~Ø2000 for Ø560hubs.
Air flow rates run from 0.1 to 110 m^3/s and pressure
increases up to 3600 Pa.

MOTORS

Mounting: Depending on size, either enclosed in motor mount or displaced outside the fan casing through a long hub.
Terminal boxes: Boxes of steel or plastic mounted on fan casing
Dimension standard: IEC-72
Electrical standard: IEC-34
Enclosure: IP-55 or IP-56
Insulation: Class F or H
Balancing: IEC 60034-14
Structural shape: B14 and B5 for flanges

EFFICIENCY

The ZerAx fan efficiency goes above 90%, i.e. without taking the motor into account. ZerAx fans can run in reverse for shorter periods at speeds up to max. allowable speed for normal direction. In reverse the air flow is reduced to approx. 50% of normal and the pressure to 25%.

MATERIALS

Blades: Sea water resistant aluminium
Hub: Sea water resistant aluminium
Hub cover: Sea water resistant aluminium
Inner hub: Cast steel galvanised
Inner tube: AluZink
Fan casing: AluZink for light motors and hot-dip galvanished steel for heavy motors
Guide vanes and motor mount: Sea water resistant aluminium

CLASSIFICATIONS

Flange standards: EUROVENT 1/2 for AZN; DIN 24154 R4 for AZW
Technical capacity: BS 848-1:2007 and EN ISO 5801:2008
Environment: DS/EN ISO 12944-2, corrosion category C3, C4 or C5
Temperature range, standard: -20 to 50 °C
Temperature range, max: -40 to 120 °C

AIRBOX CALCULATION PROGRAM

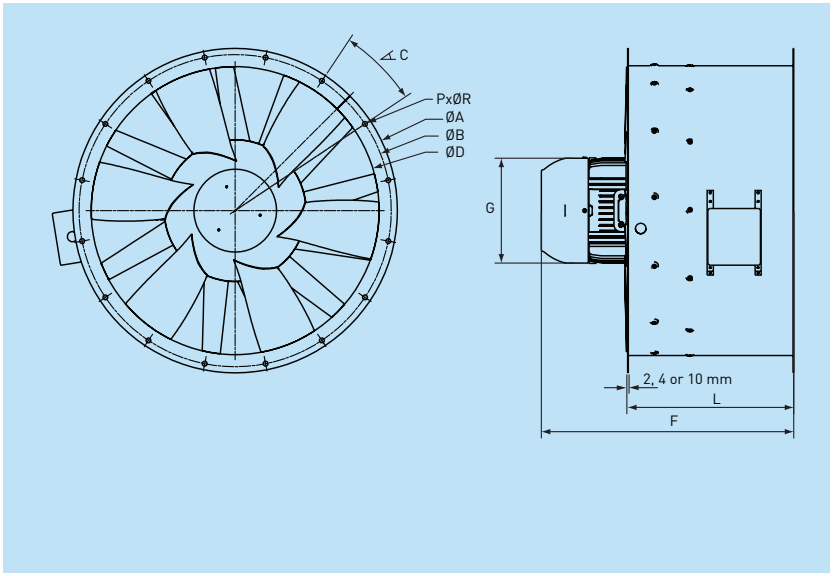
The AirBox program is Novenco's calculation and configuration tool. Input to the program are requirements for air flow and pressure as well as specific characteristics of the operating environment. Further requirements for the fan, motor and accessories are also input and form the basis for calculation of possible solutions.
Novenco AirBox is available on www.novencogroup.com in the download section. It requires registration, checks automatically for updates and is for free.

ACCESSORIES

- Fan casing extension
- Hub cover
- Inlet cone with wire guard
- Inlet wire guard
- Outlet wire guard
- Acoustic diffusers type YAD with core or type YAZ with or without core
- Short diffuser
- Long diffuser
- Silencers type YAA or YAH with or without core
- Painted for C4/5 environments
- Feet for horizontal mounting
- Plate for vertical mounting
- Anti-vibration mounting
- Anti-vibration mounting plate
- Flexible connection (PERL/Maritex)
- Counter flange
- Duct spigots
- Measuring pipe
- Roof hood type HAN
- Damper type SBC

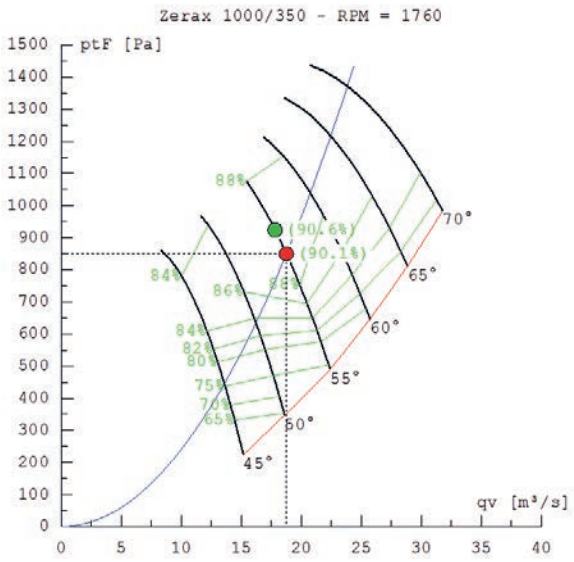
DIMENSION SKETCH

AZN FOR DUCT INSTALLATION



AZN CURVE

EXCAMPLE OF CURVE OUTPRINT FROM AIRBOX



Hub size [mm]	ØD [mm]	ØB [mm]	ØA [mm]	C [°]	P	ØR [mm]
Ø160	250	280	310	90	4	10
	280	320	350	90	4	10
	315	355	385	45	8	10
	355	395	435	45	8	10
	400	450	480	45	8	12
	450	500	530	45	8	12
	500	560	590	30	12	12
Ø350	500	560	590	30	12	12
	560	620	650	30	12	12
	630	690	720	30	12	12
	710	770	800	22.5	16	12
	800	860	890	22.5	16	12
	900	970	995	22.5	16	15
	1000	1070	1095	22.5	16	15
	1120	1190	1215	18	20	15
	1250	1320	1345	18	20	15
Ø560	1000	1070	1100	22.5	16	15
	1120	1190	1220	18	20	15
	1250	1320	1350	18	20	15
	1400	1470	1540	18	20	15
	1600	1680	1760	15	24	19
	1800	1880	1916	15	24	19
	2000	2080	2180	15	24	19

Hub size [mm]	Motor size	F [mm]	G [mm]	L [mm]
Ø160	71	450	141	450
	80	450	159	
	90	450	179	
	100	527	199	
	112	574	222	
Ø350	90S	452	179	410
	90L	477		
	100L	514	199	
	112M	531	222	
	132S	585	270	
	132M	623		
	160M	832	312	
	160L	876		
	180M	898	358	
	180L	936		
Ø560	132S	754.5	271	700
	132M	792.5		
	132M/L	817.5		
	160M	870.5	329	
	160L	914.5		
	180M	936.5	360	
	180L	974.5		
	200M	1001.5	402	
	200L	1039.5		
	225S/M	1338.5	455	
	250S/M	1417.5	486	
	280S/M	1523.5	599	

RIGID TYPE AXIAL FAN HACW

Rigid type axial fan HACW, normal type, is a robustly constructed fan with a downstream guide vane arrangement designed for incorporation into a duct system.

The standard range comprises 17 sizes with impeller diameters from 300 to 2000 mm and 9 hub diameters from 150 to 800 mm.

The fan casing is made in the shape of a cylindrical duct with flanges for connection of ducting at both ends and provided with an inspection door.
Flange holes and pitch cicle are according to maker standard, or in conformity with DIN 24154, series 4.

The impeller consists of a hub and a number of aerofoil blades; it is carefully balanced according to VDI 2060 and mounted directly on the motor shaft extension. The blade pitch may be varied steplessly within the range of 20° to 55°, depending on the fan size and speed.
The motor is a totally enclosed marine type flanged motor and is connected to a terminal box on the outside of the fan casing.

MATERIALS

Hub: Aluminium (two assembled disc halves forming cavities for blade pivots)
Blade: Aluminium
Casing and static parts: Heavy gauged steel plate, painted C3

ACCESSORIES

- Anti-vibration mountings
- Shaped inlet with protective screen
- Flexible connection
- Duct spigot
- Counter flange
- Silencer with or without core
- Hood
- Damper
- Brass lining opposite to the impeller

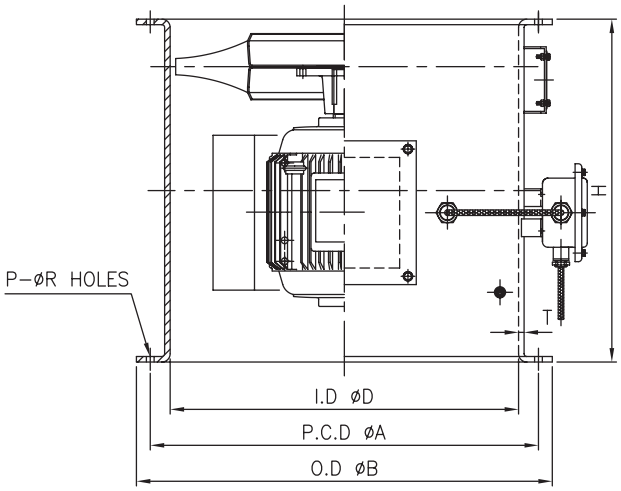
HAZW

RIGID TYPE AXIAL FAN (HIGH EFFICIENCY FAN)

HAZW is the same as HACW in outward form, but has got different impellers with high precision manufacturing.

Efficiency of rigid type axial fan: up to 87%

DIMENSION SKETCH



Type	ØD	ØA	ØB	H		T				P	R
	(I.D)	(P.C.D)	(O.D)	SHORT	LONG	T1	T2	T3	T4		
HACW-300	305	376	424	--	400	4.5	--	--	9.5	8	12
HACW-350	360	415	460	470	520	4.5	--	--	9.5	8	12
HACW-400	400	461	498	--	520	4.5	6.0	--	10.0	12	12
HACW-500	500	565	622	520	620	4.5	6.0	--	10.0	12	14
HACW-560	560	631	682	520	620	4.5	6.0	--	10.0	12	14
HACW-630	630	702	752	520	620	4.5	6.0	--	10.0	12	14
HACW-710	710	782	832	520	710	4.5	6.0	8.0	10.0	16	14
HACW-750	750	822	872	620	830	--	6.0	8.0	10.0	16	14
HACW-800	800	872	922	620	830	--	6.0	8.0	10.0	16	18
HACW-900	900	974	1022	710	930	--	6.0	8.0	10.0	16	18
HACW-1000	1000	1088	1152	800	900	--	6.0	8.0	10.0	20	18
HACW-1120	1120	1208	1272	800	900	--	6.0	8.0	10.0	20	22
HACW-1250	1250	1338	1402	900	1120	--	6.0	8.0	10.0	20	22
HACW-1400	1400	1488	1552	900	1120	--	--	8.0	10.0	20	22
HACW-1600	1600	1688	1752	900	1230	--	--	8.0	10.0	20	22
HACW-1800	1800	1900	1974	--	1500	--	--	--	10.0	24	22
HACW-2000	2000	2100	2174	--	1800	--	--	--	10.0	24	22

SWING-OUT TYPE FAN HACQ

Swing-out type fan HACQ, normal type, is a sturdy axial flow fan specially designed for easy motor servicing in installations where demounting of the fan will not be practicable. It is mainly used in shipboard installations for ventilation of engine rooms, boiler rooms, and cargo holds.

The standard range comprises 15 sizes with impeller diameters from 400 to 2000 mm and 9 hub diameters from 150 to 800 mm.

The fan casing is made in the shape of a cylindrical duct and of heavy gauge steel plate, and designed to withstand considerable mechanical forces. It is provided with an amply dimensioned, hinged inspection door through which impeller and motor can be easily demounted. The motor arms are designed as guide vanes, to ensure a high efficiency of the fan. Flange holes and pitch circle are according to maker standard, or in conformity with DIN 24154 series 4.

The impeller consists of a hub and a number of aerofoil blades; it is carefully balanced according to VDI 2060 and mounted directly on the motor shaft extension. The blade pitch may be varied steplessly within the range of 20° to 55°, depending on the fan size and speed. The motor is a totally enclosed foot mounted marine type motor and connected to a terminal box on the outside of the fan casing.

MATERIALS

Hub: Aluminium
Blade: Aluminium
Casing and static parts: Heavy gauged steel plate, painted C3

ACCESSORIES

- Silencer with or without core
- Hood

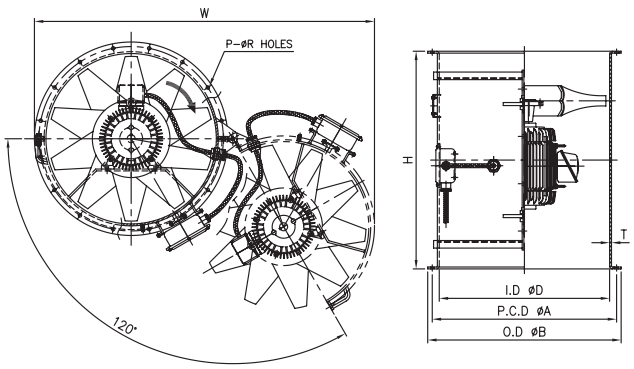
HAZQ

SWING-OUT TYPE AXIAL FAN (HIGH EFFICIENCY FAN)

HAZQ is the same as HACQ in outward form, but has got different impellers with high precision manufacturing.

Efficiency of swing-out type axial fans: up to 82%.

DIMENSION SKETCH



Type	ØD (I.D)	ØA (P.C.D)	ØB (O.D)	H SHORT	H LONG	T A	T B	P	ØR	W
HACQ-400	400	461	498	--	710	--	10.0	12	12	930
HACQ-500	500	565	622	--	710	8.0	10.0	12	14	1120
HACQ-560	560	631	682	710	830	8.0	10.0	12	14	1230
HACQ-630	630	702	752	710	830	8.0	10.0	12	14	1340
HACQ-710	710	782	832	830	930	8.0	10.0	16	14	1490
HACQ-750	750	822	872	830	930	8.0	10.0	16	14	1560
HACQ-800	800	872	922	830	930	8.0	10.0	16	18	1650
HACQ-900	900	974	1022	--	1150	8.0	10.0	16	18	1830
HACQ-1000	1000	1088	1152	1120	1230	8.0	10.0	20	18	2060
HACQ-1120	1120	1208	1272	1120	1230	8.0	10.0	20	22	2270
HACQ-1250	1250	1338	1402	1120	1230	10.0		20	22	2500
HACQ-1400	1400	1488	1552	1230	1500	10.0		20	22	2770
HACQ-1600	1600	1688	1752	1500	1700	10.0		20	22	3120
HACQ-1800	1800	1900	1974	1800	2100	10.0	12.0	24	22	3445
HACQ-2000	2000	2000	2174	2100	2400	10.0	12.0	24	22	3790

AXIAL FLOW FAN TYPE HHGC

PRODUCT & APPLICATION

The axial flow fan type HHGC is applicable for ventilation of pump rooms and as fans in mechanical ventilating systems in which explosive gases might occur and is designed according to the rules of the classification societies for "Non-sparking fans for hazardous locations on board ships".

Type HHGC complies with the requirements of the classification societies for fans handling explosive gases.

- Flame-proof motor mounted outside the air stream
- Bearing assembly incorporating seals prevents gases from penetrating into the motor
- Impeller cast in aluminium alloy rules out the risk of sparking in case of contact with the casing.

DESCRIPTION

HHGC consists of fan casing, weather hood, impeller, bearing assembly and electric motor.

The fan casing is designed with a view to attaining the best possible flow condition and the lowest possible loss in pressure. On the inside it is provided with a brass lining opposite to the impeller. The lower edge of the casing is provided with a flange for mounting the fan on top of a standpipe or post.

A protective screen of galvanised wire is fitted at the upper end of the casing.

The weather hood consists of a low conical top plate and a skirt providing effective protection against rough weather and spray.
The impeller, consisting of a hub and a number of aerofoil blades, is carefully balanced statically and dynamically.

The rotor consists of two assembled hub discs with cavities to house the blades at preset angles. The rotor is provided with a hub boss for mounting onto a shaft. The blades of the rotor can be factory adjusted to any angle between 20° and 55°, depending on speed of motors.

The bearing assembly comprises de-ep-grove ball bearings (lubricated for lift), shaft, housing, flexible coupling and gas-tight seals.

RANGE

The fan is available with impeller diameter from 300 to 1120 mm and 7 hub diameters from 150 to 800 mm.
Air quantity from 0.16 to 18 m^3/s.

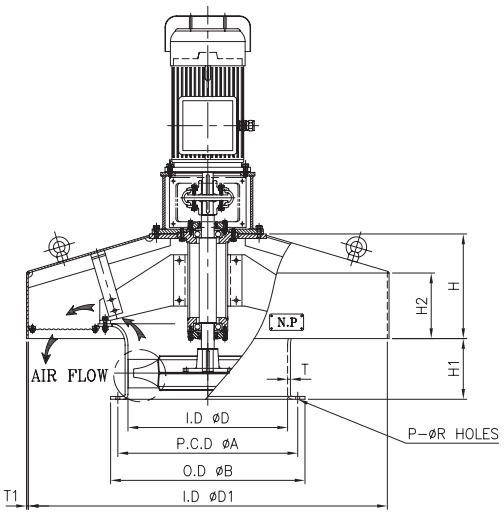
MATERIALS & SURFACE TREATMENT

Casing - heavy gauge steel plate, painted and brass lining.
Weather hood - heavy gauge steel plate, painted.
Balde - aluminium alloy (cast)

MOTORS

The motor, naturally cooled, is flame-proof in compliance with EEXde II C T4, approved by the classification societies.

DIMENSION SKETCH



Type	ØD (I.D)	ØA (P.C.D)	ØB (O.D)	ØD1 (I.D)	H1	H2	H	T1	T	P	ØR
HHGC-300	305	376	424	720	176	165	235	6.0	10	8	12
HHGC-350	360	415	460	755	176	165	235	6.0	10	8	12
HHGC-400	400	461	498	900	171	180	264	6.0	10	12	12
HHGC-500	500	565	622	1100	167	210	345	6.0	10	12	14
HHGC-560	560	631	682	1260	213	230	367	6.0	10	12	14
HHGC-630	630	702	752	1400	213	260	419	6.0	10	12	14
HHGC-710	710	782	832	1580	252	290	473	6.0	10	16	14
HHGC-800	800	872	922	1760	266	330	538	6.0	10	16	18
HHGC-900	900	974	1022	2000	252	350	610	6.0	10	16	18
HHGC-1000	1000	1088	1152	2224	280	406	661	6.0	10	20	18
HHGC-1120	1120	1208	1272	2436	310	456	721	6.0	10	20	22

AXIAL FLOW FAN TYPE HHGP

PRODUCT & APPLICATION

The axial flow fan type HHGP is applicable for ventilation of pump rooms and as fans in mechanical ventilating systems in which explosive gases might occur and is designed according to the rules of the classification societies for "Non-sparking fans for hazardous locations on board ships".

DESCRIPTION

HHGP is a study fan with flange on the inlet side especially designed for installation on coamings on deck of a ship.
The fan is "upward blowing" and consists of a fan casing, an impeller, an explosive proof electric motor and a coupling arrangement consisting of a bearing housing and an external flexible coupling. The coupling is of spark proof design.

The rotor consists of two assembled hub discs with cavities to house the blades at preset angles. The rotor is provided with a hub boss for mounting onto a shaft.

The cast aluminium blades of the rotor can be factory adjusted to any angle between 20° and 55°, depending on size and speed.

The painted fan casing is provided with flanges on the inlet side according to maker standard, or DIN 24154 and with a wire guard of stainless steel type AISI 304 with a mesh size of 13 x13 mm on the outlet side.

RANGE

HHGP is available in 11 sizes with impeller diameters from 500 to 1600 mm and 7 hub diameters from 230 to 578 mm. Air quantity from 0.66 to 40 m^3/s.

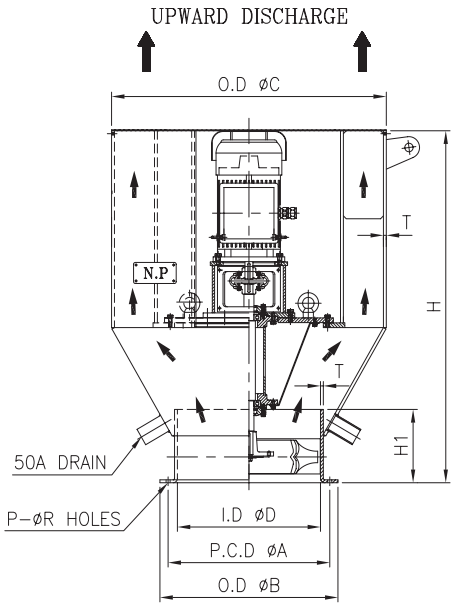
MATERIALS & SURFACE TREATMENT

Casing - heavy gauge steel plate, painted and brass lining.
Weather hood - heavy gauge steel plate, painted.
Balde - aluminium alloy (cast)

MOTORS

The motor, naturally cooled, is flame-proof in compliance with EEXde II C T4, approved by the classification societies.

DIMENSION SKETCH



Type	ØD (I.D)	ØA (P.C.D)	ØB (O.D)	ØC (O.D)	H	H1	T	P	ØR
HHGP-500	500	565	622	960	1200	300	10	12	14
HHGP-560	560	631	682	1060	1236	300	10	12	14
HHGP-630	630	702	752	1170	1266	300	10	12	14
HHGP-710	710	782	832	1317	1406	300	10	16	14
HHGP-800	800	872	922	1460	1606	300	10	16	18
HHGP-900	900	974	1022	1608	1716	300	10	16	18
HHGP-1000	1000	1088	1152	1768	1871	300	10	20	18
HHGP-1120	1120	1208	1272	1980	2001	300	10	20	22
HHGP-1250	1250	1338	1402	2186	2196	300	10	20	22
HHGP-1400	1400	1488	1552	2500	2326	300	10	20	22
HHGP-1600	1600	1688	1752	2732	2717	300	10	20	22

MU 15118 0517

Novenco develops and manufactures heating, ventilation, air conditioning, refrigeration and cooling systems marketed and distributed worldwide through subsidiaries and agents.

The company was founded in Denmark in 1947 and has become one of the world-leading suppliers of high quality energy efficient systems.

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