PF
PF/ATEX

PLUG FAN SYSTEM

- PLUG FAN TYPE HIGH EFFICIENCY FAN
- WITH AUTOMATIC FLOW CONTROL PRESSURE CONNECTION
- EASY INSTALLATION AND MAINTENANCE
- AIR TREATMENT APPLICATIONS

Identification no.
LOM 20.554U-C

SODECA®

ACCORDING ErP

PF | PF/ATEX

PLUG FAN TYPE HIGH EFFICIENCY
CENTRIFUGAL FANS

MEDIUM AND HIGH PRESSURE CENTRIFUGAL FANS

Since it was first established, SODECA has specialised in the design and manufacture of fans and accessories for industrial applications. Specifically, designs in this sector must be capable of adapting to the specifications of each project as well as being sufficiently flexible in terms of production in order to meet the individual needs of each client. The case-free Plug Fan type centrifugal fans made by SODECA are known for their compact design.

VERSATILITY

These fans have been designed and manufactured to adapt to the spaces found in the different applications. They are designed for ventilation and air conditioning systems, air handling units (AHUs), cooling systems, all type of machinery and clean rooms. Designed for medium and high pressure applications.

HIGH QUALITY

The Plug Fan type centrifugal fans made by SODECA are built using galvanised sheet steel and the impeller has reaction (backward curved) blades. These units have a pressure measurement connection point with an automatic flow control option and are easy to maintain. The finish of these fans is compliant with C3H requirements and optionally, with C4H or C5MH requirements.

SOLUTIONS COMPLIANT WITH THE ATEX DIRECTIVE: MAXIMUM SAFETY AND QUALITY

An ATEX zone is an area containing a mixture of air and flammable gas, flammable liquid vapour, combustible liquid mist or combustible dust, which if ignited, will cause an explosion. Many situations exist that may require specific types of fans that are suitable to operate in these explosive atmospheres. The construction of SODECA's equipment for ATEX is based on a non-sparking fan, powered by an electric motor that is compliant with the requirements of the most stringent standards. SODECA guarantees the quality of its products In order to maximise the safety of personnel and facilities.

In order to adapt its products to specific industrial applications, SODECA has standard production lines as well as a production line for building specials to the client's requirements. Its standard production line meets the most stringent standards of the European ATEX directive 2014/34/EU. The units are designed in accordance with standard EN 14986 to prevent sparks from being generated as a result of friction or impact between the moving and static parts of the fan. They are made using materials which can be combined to prevent the generation of sparks. They also include a copper inlet ring.

To prevent the risk of explosion in facilities with explosive atmospheres, it is essential to have certified equipment manufactured for this purpose. To comply with the standard, all painted parts of the fan are connected with earth cables to prevent sparks being generated by static electricity.

Any device installed in an explosive atmosphere must be designed and manufactured to prevent ignition and, consequently, prevent an explosion. This can lead to a considerable increase in the cost of equipment, maintenance and safety procedures in facilities with explosive atmospheres. For this reason, in most industries, there is a tendency to declassify the number of explosion risk zones where ever possible.

To fully or partially declassify an area, the area must be vented with air, free of explosive gases or dusts, in order to reduce the concentration of those gases or dusts to below the lower explosive limits. This venting process reduces the level of risk in the area or minimises the size of the classified zone, thus reducing the anti-explosive requirements of the equipment that is to be installed.

PF

Plug Fan type high efficiency centrifugal fans for air treatment applications

Fan:
- Galvanised sheet steel structure.
- Impeller with reaction (backward curved) blades made of sheet steel.
- Complete with a pressure measurement connection point for optional automatic flow and pressure control.

Motor:
- IE3 efficiency AC motors.
- Class F motors with ball bearings and IP55 protection.
- Three-phase 230/400 V 50 Hz (up to 4 kW) and 400/690 V 50 Hz (powers higher than 4 kW).
- Temperature of air to be carried: -25°C to +60°C.

Finish:
- Anti-corrosive finish on galvanised sheet steel.

On request:
- With 2-speed motors.
- Construction entirely of stainless steel.

Order code

PF — 1856 — 4T — 5.5

- ***PF*** — Plug Fan type high efficiency centrifugal fans for air treatment applications
- ***1856*** — Impeller size
- ***4T*** — Number of motor poles (4 = 1500 r/min 50 Hz, 6 = 1000 r/min 50 Hz); T = Three-phase
- ***5.5*** — Motor power (HP)

Technical characteristics

Model	Speed	Max. admissible current (A)			Installed power	Max. flow rate	Sound pressure level (1)	Approx. weight	According ErP*
	(r/min)	230 V	400 V	690 V	(kW)	(m^3/h)	dB(A)	(kg)	
PF-1240-4T-1 IE3	1420	2.82	1.62	-	0.75	4900	64	30	2020
PF-1650-4T-2 IE3	1440	5.41	3.11	-	1.50	9620	71	45	2020
PF-1856-4T-4 IE3	1440	10.70	6.15	-	3.00	14800	75	66	2020
PF-1856-6T-1 IE3	940	3.36	1.93	-	0.75	9900	66	50	2020
PF-1663-4T-5.5 IE3	1450	13.90	8.00	-	4.00	20000	78	84	2020
PF-1663-6T-1.5 IE3	945	4.68	2.69	-	1.10	13160	70	58	2020
PF-1871-4T-15 IE3	1470	-	20.90	12.10	11.00	26650	82	178	2020
PF-1871-6T-3 IE3	950	9.08	5.22	-	2.20	18770	73	100	2020
PF-2180-6T-5.5 IE3	960	15.60	8.99	-	4.00	25750	77	135	2020

*In accordance with the ErP 2020 draft
(1) Outlet sound pressure level in dB(A) at a distance of 3 m at maximum flow rate.

Erp. (Energy Related Products)

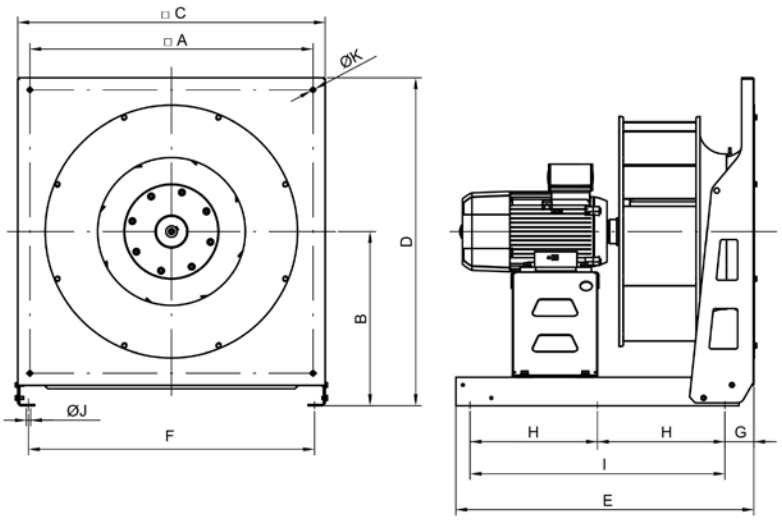
Information on Directive 2009/125/EC can be downloaded from the SODECA website or the QuickFan selector programme.

Acoustic characteristics

Sound power level Lw(A) in dB(A) per frequency band in Hz.

Model	63	125	250	500	1000	2000	4000	8000
PF-1240-4T-1 IE3	50	60	71	77	79	67	79	65
PF-1650-4T-2 IE3	57	66	77	84	86	73	86	72
PF-1856-4T-4 IE3	60	70	81	88	89	77	89	75
PF-1856-6T-1 IE3	52	61	72	79	80	68	80	67
PF-1663-4T-5.5 IE3	64	73	84	91	93	81	93	79
PF-1663-6T-1.5 IE3	55	65	76	83	84	72	84	70
PF-1871-4T-15 IE3	68	77	88	95	96	84	96	82
PF-1871-6T-3 IE3	59	68	79	86	88	76	88	74
PF-2180-6T-5.5 IE3	63	72	83	90	91	79	91	77

Dimensions mm

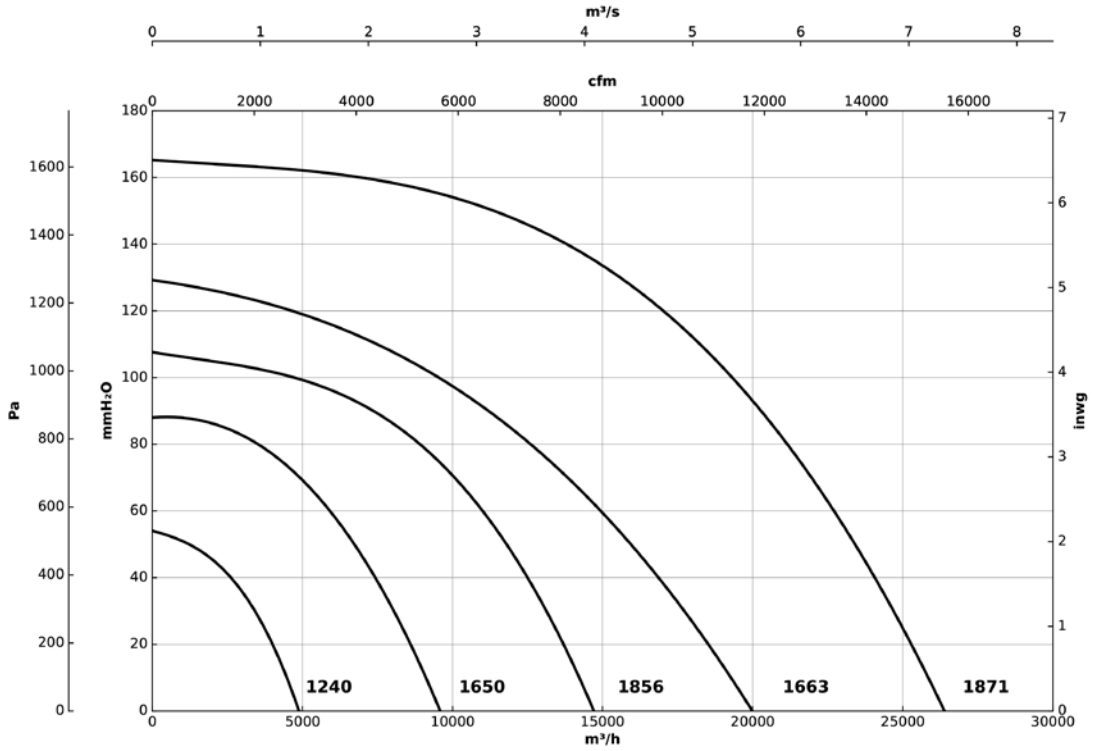


Model	A	B	C	D	E	F	G	H	I	ØJ	ØK
PF-1240-4T-1 IE3	475	270	500	520	555	445	70	-	445	9	9
PF-1650-4T-2 IE3	600	335	630	650	635	575	70	-	530	9	9
PF-1856-4T-4 IE3	700	430	760	810	735	710	70	-	630	9	9
PF-1856-6T-1 IE3	700	430	760	810	735	710	70	-	630	9	9
PF-1663-4T-5.5 IE3	700	430	760	810	795	710	70	-	690	11	9
PF-1663-6T-1.5 IE3	700	430	760	810	795	710	70	-	690	11	9
PF-1871-4T-15 IE3	800	545	960	1025	955	895	65	430	-	11	9
PF-1871-6T-3 IE3	800	545	960	1025	955	895	65	430	-	11	9
PF-2180-6T-5.5 IE3	900	545	960	1025	955	895	65	430	-	11	9

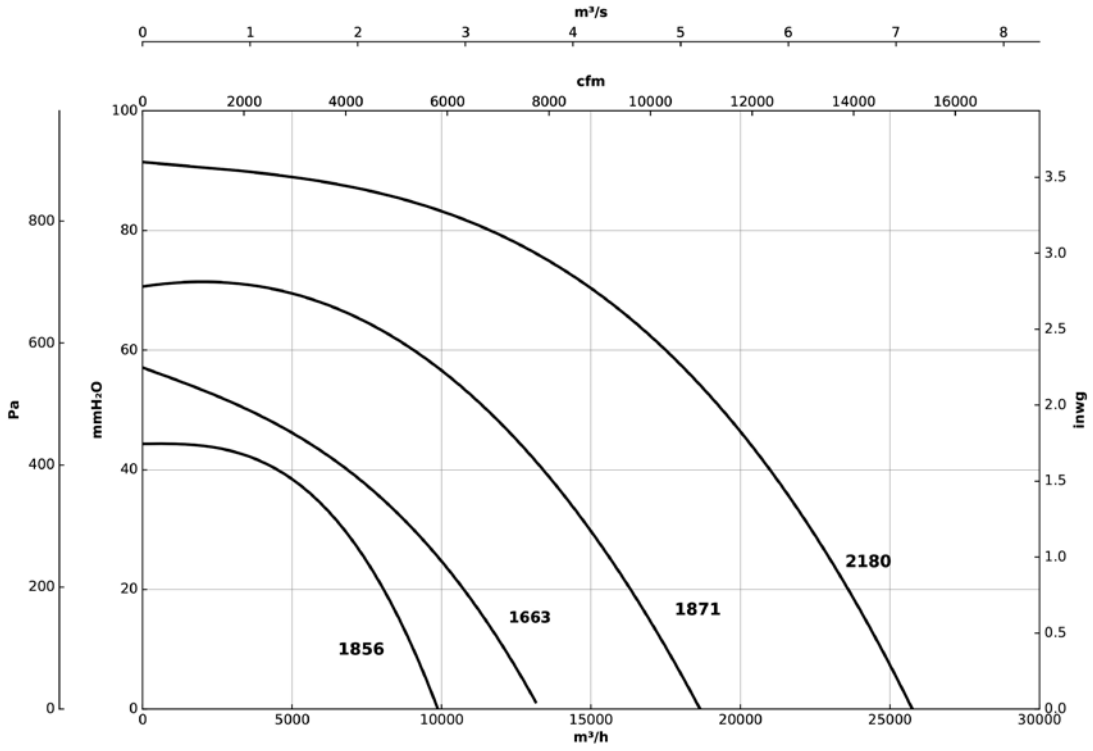
Characteristic curves

Flow rate in m^3/h, m^3/s and cfm. Static pressure in mmH_2O, Pa and inwg.

4T = 1500 r/min



6T = 1000 r/min



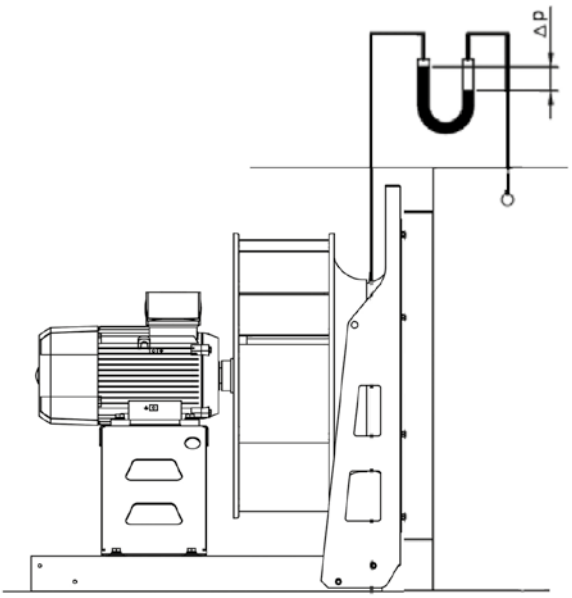
Pressure connection

Air Flow ⟶ Q [m³/h]
Calibration factor ⟶ K
Difference in pressure ⟶ Δp [Pa]

$$Q = K\,x\sqrt{\Delta p}$$

Model	K Factor*
PF-1240-4T-1	168
PF-1650-4T-2	225
PF-1856-4T-4	310
PF-1856-6T-1	310
PF-1663-4T-5.5	397
PF-1663-6T-1.5	397
PF-1871-4T-15	513
PF-1871-6T-3	513
PF-2180-6T-5.5	726

*Values given for ρ = 1.2 kg/m³ and at 20°C



Accessories


SI-PRESIÓN


INT


VSD3/A-RFT
VSD1/A-RFM


AET


RPA


B


BD

PF/ATEX

ATEX-certified, Plug Fan type high efficiency centrifugal fans for air treatment applications, with increased Ex II 2G Ex eb anti-explosion safety, Ex II 2G Ex db non-sparking safety or Ex II 2D tb or Ex II 3D tc casing protection motors for working in explosive atmospheres containing dust or gas

Ex eb marking: Ⓔx **II 2G Ex eb IIB T3 Gb**
Ex db marking: Ⓔx **II 2G Ex db IIB T4 Gb**
Ex tb marking: Ⓔx **II 2D Ex tb IIIC T135°C Db**
Ex tc marking: Ⓔx **II 3D Ex tc IIIB T135°C Dc**

Identification no.: LOM 20.554U-C

Fan:
- Galvanised sheet steel structure.
- Impeller with reaction (backward curved) blades made of sheet steel.
- Non-sparking inlet ring made of copper.
- Complete with a pressure measurement connection point for optional automatic flow and pressure control.
- Anti-vibration mounts included.

Motor:
- Class F motors with ball bearings and with ATEX certification, increased Ex eb anti-explosion safety and Ex db non-sparking safety or Ex tb or Ex tc casing protection.
- Motors with built-in PTC.
- Three-phase 230/400 V 50 Hz (up to 4 kW) and 400/690 V 50 Hz (powers higher than 4 kW).
- Temperature of air to be carried: -25°C to +60°C.

Finish:
- Anti-corrosive finish on galvanised sheet steel.

On request:
- Special windings for different voltages and frequencies.
- ATEX construction for different categories.

Order code

PF/ATEX — 1856 — 4T — 5.5 — Ex eb

ATEX-certified, Plug Fan type high efficiency centrifugal fans

Marking:
Ⓔx **II 2G Ex h IIB T3 Gb**
Ⓔx **II 2G Ex h IIB T4 Gb**
Ⓔx **II 2D Ex h IIIC T135°C Db**
Ⓔx **II 3D Ex h IIB T135°C Dc**

Impeller size

Number of motor poles
4 = 1500 r/min 50 Hz
6 = 1000 r/min 50 Hz

T = Three-phase

Motor power (HP)

Ex eb: increased safety for zone 1 and 2
Ex db: non-sparking for zone 1 and 2
Ex tb: for zone 21 and 22
Ex tc: for zone 22

Technical characteristics

Model	Speed	Max. admissible current (A)			Installed power	Max. flow rate	Sound pressure level (1)	Approx. weight (kg)	
	(r/min)	230 V	400 V	690 V	(kW)	(m³/h)	dB(A)	Ex e	Ex d
PF/ATEX-1240-4T-1	1410	3.81	2.20		0.75	4900	64	28	30
PF/ATEX-1650-4T-2	1400	6.93	4.00		1.50	9620	71	42	45
PF/ATEX-1856-4T-4	1440	12.30	7.10		3.00	14800	75	76	80
PF/ATEX-1856-6T-1	930	4.16	2.40		0.75	9900	66	57	59
PF/ATEX-1663-4T-5.5	1450	15.76	9.10		4.00	20000	78	61	61
PF/ATEX-1663-6T-1.5	910	5.89	3.40		1.10	13160	70	48	52
PF/ATEX-1871-4T-15	1460		23.80	13.74	11.00	26650	82	195	191
PF/ATEX-1871-6T-3	940	9.35	5.40		2.20	18770	73	97	106
PF/ATEX-2180-6T-5.5	950	18.88	10.90		4.00	25750	77	129	149

(1) Outlet sound pressure level in dB(A) at a distance of 3 m at maximum flow rate.

Acoustic characteristics

Sound power level Lw(A) in dB(A) per frequency band in Hz.

Model	63	125	250	500	1000	2000	4000	8000
PF/ATEX-1240-4T-1	50	60	71	77	79	67	79	65
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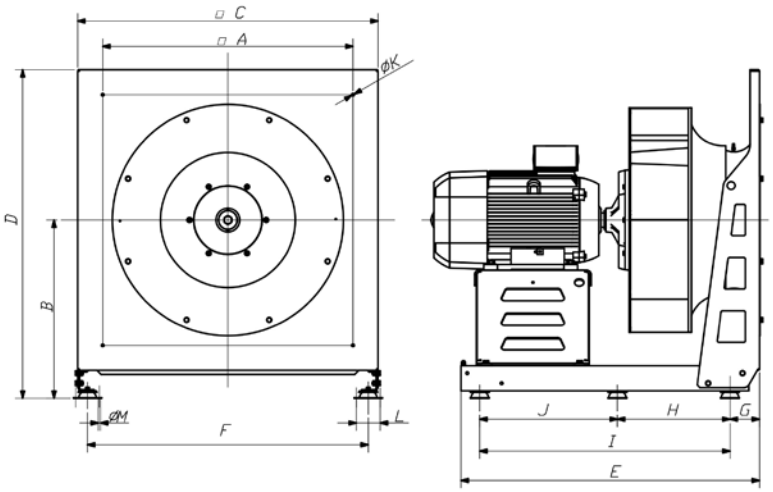
PF/ATEX-1871-6T-3	59	68	79	86	88	76	88	74
PF/ATEX-2180-6T-5.5	63	72	83	90	91	79	91	77

Dimensions mm



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PF/ATEX-1240-4T-1	475	290	500	540	555	450	70	-	400	-	9	52	6.2
PF/ATEX-1650-4T-2	600	360	630	675	635	580	70	-	500	-	9	76	6.2
PF/ATEX-1856-4T-4	700	455	760	835	735	710	70	-	580	-	9	76	6.2
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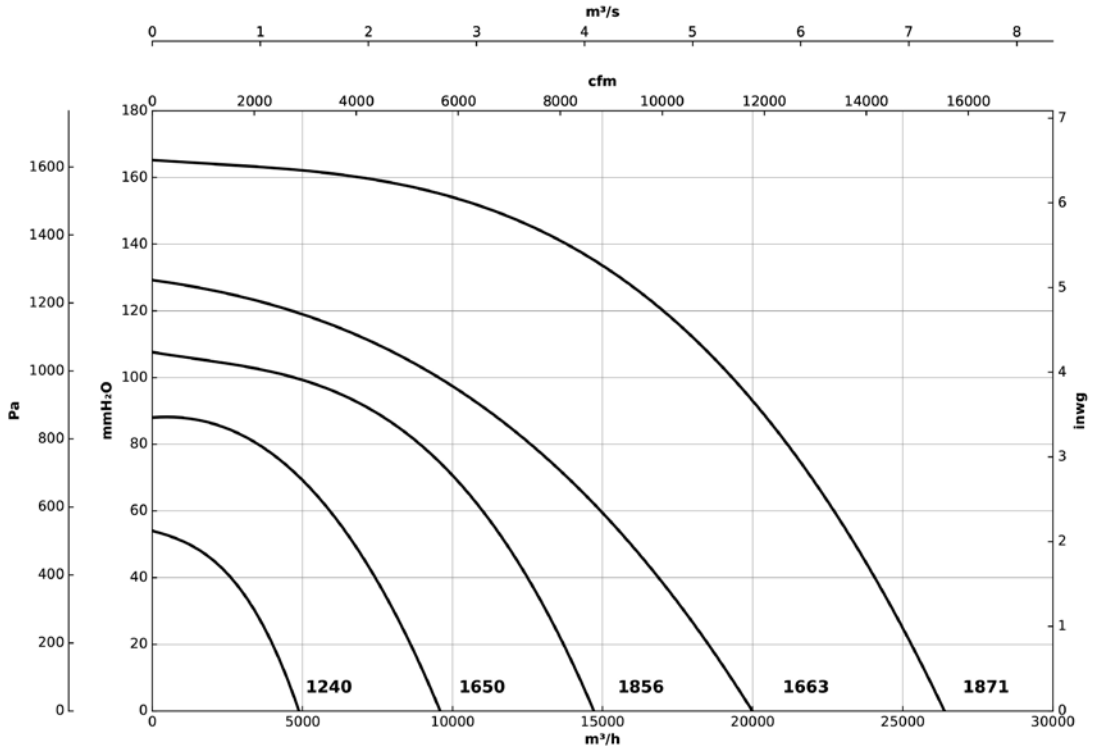
PF/ATEX-1663-4T-5.5	700	455	760	835	795	710	70	-	650	-	9	76	6.2
PF/ATEX-1663-6T-1.5	700	455	760	835	795	710	70	-	650	-	9	76	6.2
PF/ATEX-1871-4T-15	800	570	960	1050	955	900	65	360	-	440	9	76	6.2
PF/ATEX-1871-6T-3	800	570	960	1050	955	900	65	360	-	440	9	76	6.2
PF/ATEX-2180-6T-5.5	900	570	960	1050	955	900	65	360	-	440	9	76	6.2

Characteristic curves

Flow rate in m^3/h, m^3/s and cfm. Static pressure in mmH_2O, Pa and inwg.

4T = 1500 r/min



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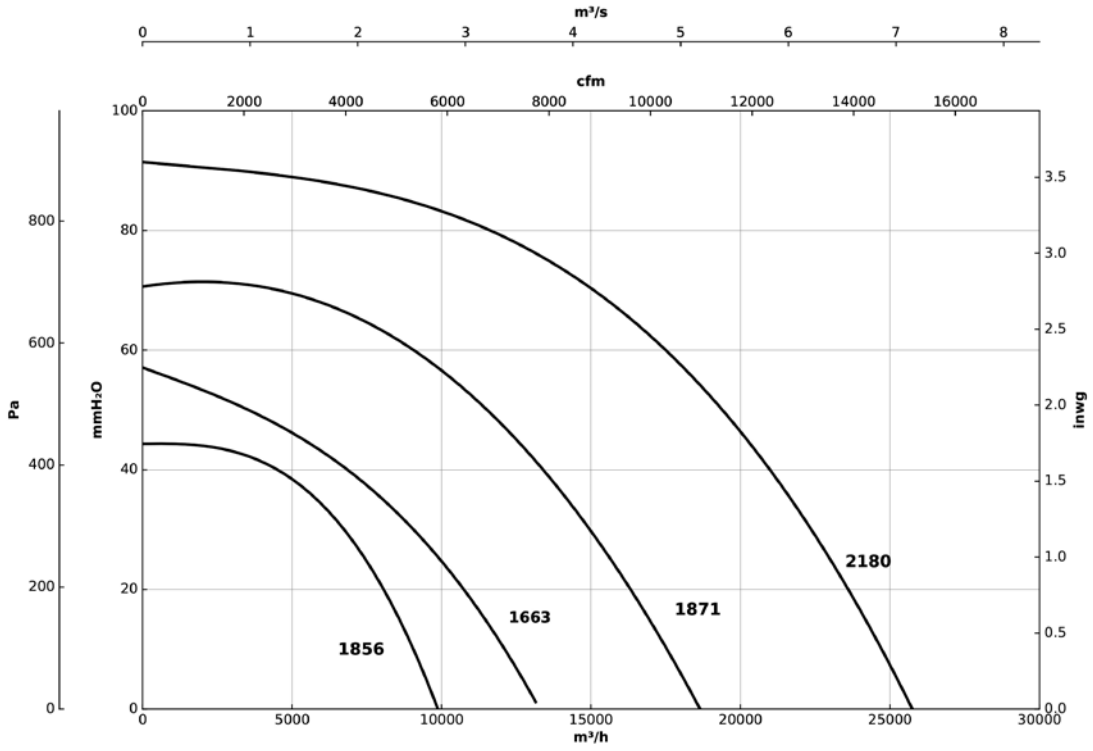

Pressure connection

Air Flow ⟶ Q [m³/h]
Calibration factor ⟶ K
Difference in pressure ⟶ Δp [Pa]

$$Q = K\, x\sqrt{\Delta p}$$

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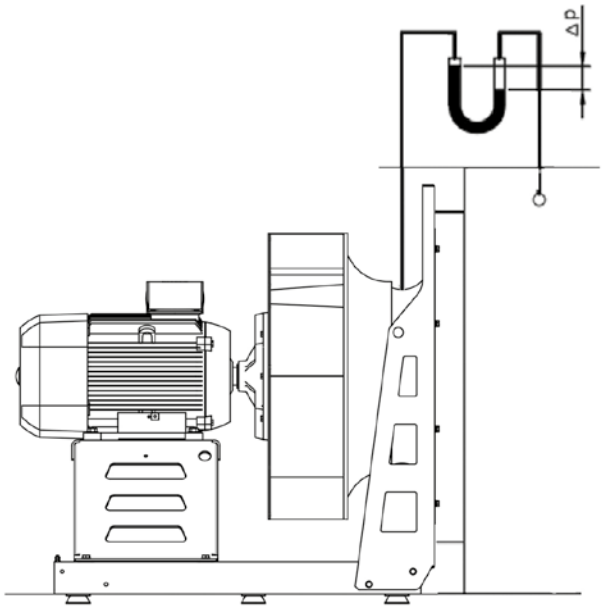
PF/ATEX-1663-6T-1.5	397
PF/ATEX-1871-4T-15	513
PF/ATEX-1871-6T-3	513
PF/ATEX-2180-6T-5.5	726

*Values given for ρ = 1.2 kg/m³ and at 20°C



Accessories


SI-PRESIÓN


INT/ATEX


VSD3/A-RFT
VSD1/A-RFM


AET


RPA


B


BD

Ref. 02/2021

HEADQUARTERS
Sodeca, S.L.U.

Pol. Ind. La Barricona
Carrer del Metall, 2
E-17500 Ripoll
Girona, SPAIN
Tel. +34 93 852 91 11
Fax +34 93 852 90 42
General sales: comercial@sodeca.com
Export sales: ventilation@sodeca.com

PRODUCTION PLANT
Sodeca, S.L.U.

Ctra. de Berga, km 0,7
E-08580 Sant Quirze de Besora
Barcelona, SPAIN
Tel. +34 93 852 91 11
Fax +34 93 852 90 42
General sales: comercial@sodeca.com
Export sales: ventilation@sodeca.com

SODECA Group

EUROPE

FINLAND
Sodeca Finland, Oy

HUITTINEN
Sales and Warehouse
Mr. Kai Yli-Sipilä
Metsälinnankatu 26
FI-32700 Huittinen
Tel. + 358 400 320 125
orders.finland@sodeca.com

HELSINKI
Smoke Control Solutions
Mr. Antti Kontkanen
Vilppulantie 9C
FI-00700 Helsinki
Tel. +358 400 237 434
akontkanen@sodeca.com

HYVINKÄÄ
Industrial Applications
Mr. Jaakko Tomperi
Niinistönkatu 12
FI-05800 Hyvinkää
Tel. +358 451 651 333
jtomperi@sodeca.com

ITALIA
Marelli Ventilazione, S.R.L.

Viale del Lavoro, 28
37036 San Martino B.A.
(VR), ITALY
Tel. +39 045 87 80 140
vendite@sodeca.com

PORTUGAL
Sodeca Portugal, Unip. Lda.

PORTO
Rua Veloso Salgado 1120/1138
4450-801 Leça de Palmeira
Tel. +351 229 991 100
geral@sodeca.pt

LISBOA
Pq. Emp. da Granja Pav. 29
2625-607 Vialonga
Tel. +351 219 748 491
geral@sodeca.pt

ALGARVE
Rua da Alegria, 33
8200-569 Ferreiras
Tel. +351 289 092 586
geral@sodeca.pt

UNITED KINGDOM
Sodeca Fans UK, Ltd.

Mr. Mark Newcombe
Tamworth Enterprise Centre
Philip Dix House, Corporation
Street, Tamworth , B79 7DN
UNITED KINGDOM
Tel. +44 (0) 1827 216 109
sales@sodeca.co.uk

AMERICA

CHILE
Sodeca Ventiladores, SpA.

Sra. Sofía Ormazábal
Santa Bernardita 12.005
(Esquina con Puerta Sur)
Bodegas 24 a 26,
San Bernado, Santiago, CHILE
Tel. +56 22 840 5582
ventas.chile@sodeca.com

COLOMBIA
Sodeca Latam, S.A.S.

Sra. Luisa Stella Prieto
Calle7 No. 13 A-44
Manzana 4 Lote1, Montana
Mosquera, Cundinamarca
Bogotá, COLOMBIA
Tel. +57 1 756 4213
ventascolombia@sodeca.co

PERU
Sodeca Perú, S.A.C.

Sr. Jose Luis Jiménez
C/ Mariscal Jose Luis de
Orbegoso 331. Urb. El pino.
15022 , San Luis. Lima, PERÚ
Tel. +51 1 326 24 24
Cel. +51 994671594
comercial@sodeca.pe

RUSSIA

RUSSIA
Sodeca, L.L.C.

Mr. Stanislav Alifanov
Severnoye Shosse, 10 room 201
Business Park Plaza Ramstars
140105 Ramenskoye,
Moscow region, RUSSIA
Tel. +7 495 955 90 50
alifanov@sodeca.com

ISO 9001 BUREAU VERITAS Certification

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www.sodeca.com