



DE CARDENAS

**VENTILATORI ASSIALI
SERIE DXL**

DXL AXIAL FAN SERIES

A company of Boldrocchi Group

INFORMAZIONI GENERALI

I ventilatori sono stati sviluppati per la ventilazione ad uso civile, parcheggi, bypass per gallerie stradali e ferroviarie, impianti secondari di aerazione nelle metropolitane anche con presenza di atmosfera aggressiva.

La gamma completa di ventilatori DXL soddisfa ogni esigenza progettuale, sono disponibili con diametri girante da 310 mm a 1600 mm, con motori da 2, 4 e 6 poli.

L'intera gamma può essere fornita con flusso unidirezionale o reversibile (reversibilità > 95%). A richiesta, i ventilatori possono essere forniti con un "sistema intelligente" integrato per un monitoraggio in tempo reale dei parametri di vita, garantire una rapida inversione del flusso ed essere gestiti in remoto sia dal sistema di controllo della galleria sia da dispositivo wireless.

GENERAL INFORMATION

The fans have been developed for ventilation for civil use, car parks, bypasses for road and railway tunnels, secondary ventilation systems in subways even with the presence of an aggressive atmosphere.

The complete range of DXL fans satisfies every design requirement, they are available with impeller diameters from 310 mm to 1600 mm, with 2, 4 and 6 pole motors.

The entire range can be supplied with unidirectional or reversible flow (reversibility > 95%). On request, the fans can be supplied with an integrated "smart" device for real-time monitoring of life parameters, guaranteeing rapid flow inversion and being managed remotely by both the tunnel control system and a wireless device.

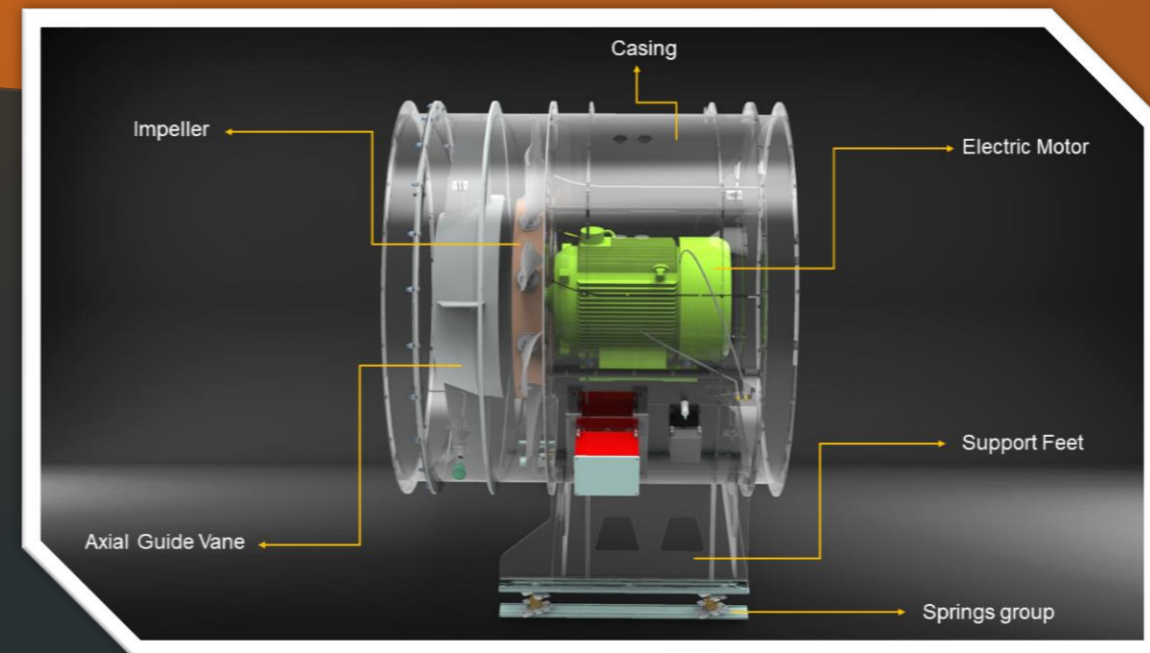
FAN CODIFICATION

DXL 80 U 21 11 (R)**Posizione morsettiere elettrica****Position of the electric junction box****(L) = left/sinistra (R) = right/destra****Potenza motore [kW]****Motor power [kW]****Angolo calettamento / Pitch Angle****Direzione del flusso / Airflow direction****R = Reversibile / reversible****U = Unidirezionale / unidirectional****Diametro Girante [cm]****Impeller diameter [cm]****Codice ventilatore assiale De Cardenas****De Cardenas axial fan series code**

PRODUCT DESCRIPTION

L'elettroventilatore assiale DXL è progettato e costruito per operare in servizio continuo nelle condizioni ambientali presenti nel sito di installazione e resistere alle azioni meccaniche, corrosive, termiche e di umidità alle quali sarà esposto durante l'esercizio.

The DXL is designed and built to operate in continuous service in the environmental conditions present at the installation site and withstand the mechanical, corrosive, thermal and humidity actions to which it will be exposed during operation.



GIRANTE

La girante è di tipo assiale direttamente accoppiata all'albero del motore. Le pale sono a profilo alare ad alta efficienza aeraulica (simmetriche se Reversibili) e sono fissate al mozzo attraverso dei blocchetti che permettono la regolazione dell'angolo di calettamento a girante ferma.

La girante può essere realizzata con pale in lega di alluminio, acciaio inossidabile e materiale plastico (PPG - PAG) per avere la massima versatilità di impiego.

Il mozzo, in acciaio legato protetto da trattamento anticorrosivo, è dotato di una sede che consente l'accoppiamento diretto all'albero motore.



IMPELLER

The impeller (axial type) is directly coupled to the motor shaft. The blades are airfoil with high aeraulic efficiency (symmetrical if Reversible) and are fixed to the hub through blocks that allow adjustment of the pitch angle with the impeller in stop position.

The impeller can be made with blades in aluminum alloy, stainless steel and plastic material (PPG - PAG) for maximum versatility of use.

The hub, in alloy steel protected by anti-corrosion treatment, is equipped with a seat that allows direct coupling to the crankshaft, provided with a special tab.

VOLUTA E SUPPORTI

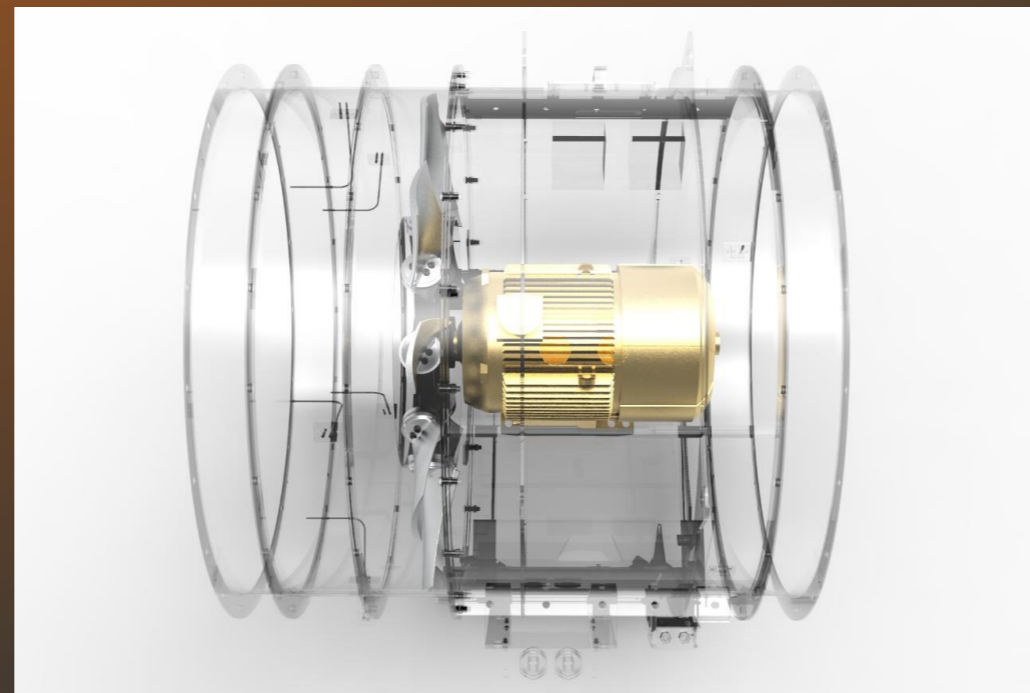
La voluta, o cassa a struttura cilindrica, è costruita con flange bordate o saldate e forate sia sul lato aspirante sia su quello premente, realizzate in accordo alla ISO 6580.

I Piedi sono progettati specificamente per ogni singola applicazione, permettendo al ventilatore di essere installato orizzontalmente (poggiato o appeso) e verticalmente.

La cassa è costruita in modo da non venire eccitata dalle frequenze proprie di funzionamento ed è inoltre predisposta per l'installazione di un sensore di vibrazione per un continuo monitoraggio dello stato vibratorio del ventilatore.

I supporti del motore sono progettati al fine di garantire la necessaria rigidità al sistema garantendo, nel contempo, una elevata efficienza aerodinamica.

La voluta può essere costruita con i supporti delle scatole morsettiere (potenza & segnali) sia su lato destro sia sul sinistro in modo da adattarsi a qualsiasi dorsale cavi pre-esistente nel sito di installazione.



CASING AND SUPPORTS

The casing with a cylindrical structure, is built with perforated flanges both on the suction side and on the blowing side, made in accordance with ISO 6580.

The feet are designed specifically for each individual application, allowing the fan to be installed horizontally (free-standing or hung) and vertically.

The case is constructed so as not to be excited by the natural operating frequencies and is also designed for the installation of a vibration sensor for continuous monitoring of the vibratory state of the fan.

The motor mounts are designed to ensure the necessary rigidity to the system while ensuring high aerodynamic efficiency.

The volute can be built with the supports of the terminal boxes (power & signals) both on the right and on the left side in order to adapt to any pre-existing cable in the jobsite.

MOTORE ELETTRICO

Il motore elettrico è a corrente alternata, ad induzione asincrona, trifase con rotore a gabbia di scoiattolo e raffreddamento secondo le norme IEC 34-6. Il motore è conforme alle Norme IEC 34-1 e 34-5 ed è adatto per avviamento diretto e tramite soft-starter con funzionamento in continuo in multi-tensione 400 V / 690 V.

Il motore può essere avviato e pilotato tramite inverter a 400V, nel caso in cui sia richiesto il funzionamento tramite inverter anche alla tensione di 690V, verrà effettuata una speciale impregnazione degli avvolgimenti e verrà dotato di particolari cuscinetti DE-NDE adatti allo scopo.

La costruzione è in forma B3 (codice I IMB3) al fine di garantire la massima efficienza del ventilatore, migliorando la qualità del flusso d'aria che investe la girante. Il motore è di tipo totalmente chiuso con ventolina di raffreddamento: TEFC (Totally Enclosed Air Over) ma viene raffreddato anche nel flusso d'aria del ventilatore. Il motore garantisce inoltre l'avviamento rapido del ventilatore, anche con una tensione ridotta del 15%.

La protezione meccanica del motore e della morsettiere è IP55 e la classe di isolamento del motore è F. I cuscinetti sono del tipo pre-lubrificato dimensionati secondo ISO 281 - L 10 per una vita di 20.000 ore, con una vita media del cuscinetto di 100.000 ore.

ELECTRIC MOTOR

The electric motor is alternating current, asynchronous induction, three-phase with squirrel cage rotor and cooling according to IEC 34-6 standards. The motor complies with IEC Standards 34-1 and 34-5 and is suitable for direct starting and via soft-starter with continuous operation in multi-voltage 400 V / 690 V.

The motor can be started by a 400V inverter, if is required even at a voltage of 690V, a special impregnation of the windings will be carried out and it will be equipped with special DE-NDE bearings suitable for the purpose.

The construction is in B3 form (code I IMB3) in order to ensure maximum fan efficiency, improving the quality of the air flow that hits the impeller. The motor is of the totally closed type without cooling fan: TEFC (Totally Enclosed Fan Cooled) but it is also cooled in the air flow of the fan. The motor also ensures rapid starting of the fan, even with a voltage reduced by 15%.

The mechanical protection of the motor and terminal box is IP55 and the motor insulation class is F. The bearings are of the pre-lubricated type sized according to ISO 281 - L 10 for a life of 20,000 hours, with an average life of the bearing of 100,000 hours.

ACCESSORI

Il ventilatore a richiesta può essere fornito con i seguenti accessori:

- Sistema intelligente di diagnosi (1)
- Ammortizzatori in gomma o con molle antivibranti
- Sistema di rilevamento delle vibrazioni multipunto (trasmettitore di vibrazioni aggiuntivo sul motore o sul corpo del ventilatore)
- Scaldiglie anticondensa
- Sistema di rilevamento della temperatura (PTC o PT100 su avvolgimenti / cuscinetti)
- Giunti antivibranti
- Silenziatori cilindrici
- Reti di protezione

(1) “Sistema intelligente” per il monitoraggio in tempo reale dei parametri di vita del ventilatore, gestito dal sistema di controllo della galleria o da dispositivo wireless. Per maggiori informazioni contattare l'ufficio tecnico De Cardenas.

ACCESSORIES

The fan can be supplied with the following accessories:

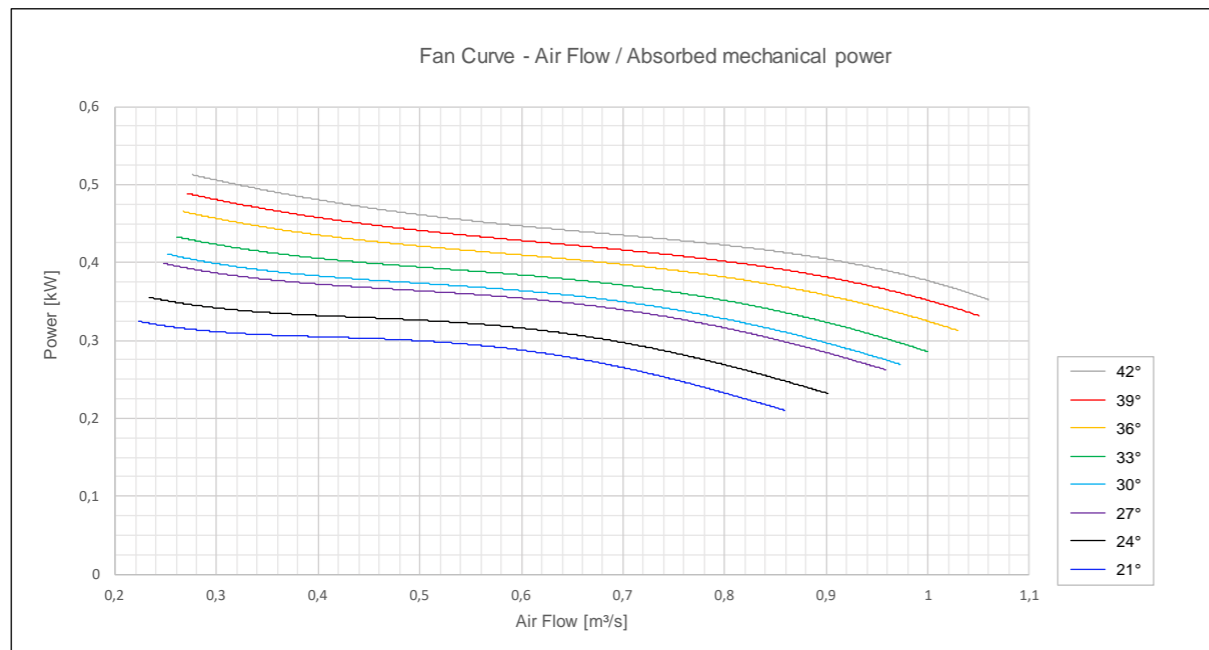
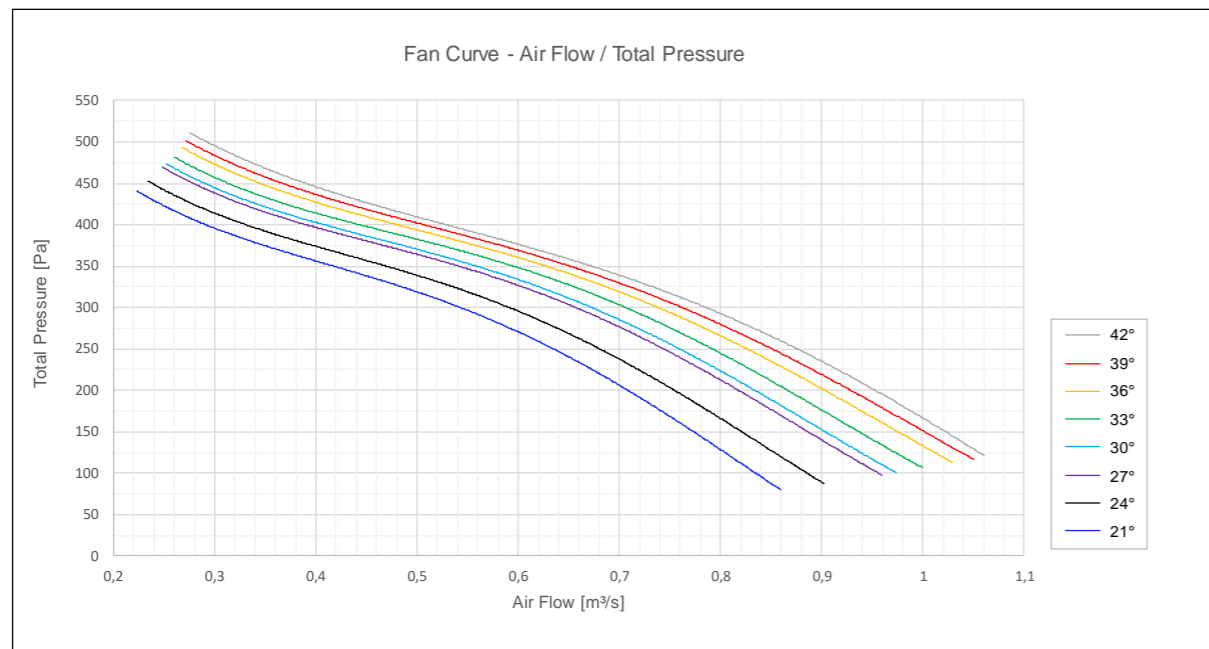
- Smart System (1)
- Rubber insulators or anti-vibration springs
- Multi-points Vibration detection system (additional vibration transmitter on motor or fan casing)
- Anti-condensation heater
- Temperature detection system (PTC or PT100 on windings / Bearings)
- Inlet / outlet joints
- Cylindrical silencers
- Protection grids

(1) “Smart system” for real-time monitoring of fan life parameters, managed by the tunnel control system or by wireless device. For more information, please contact De Cardenas technical office.

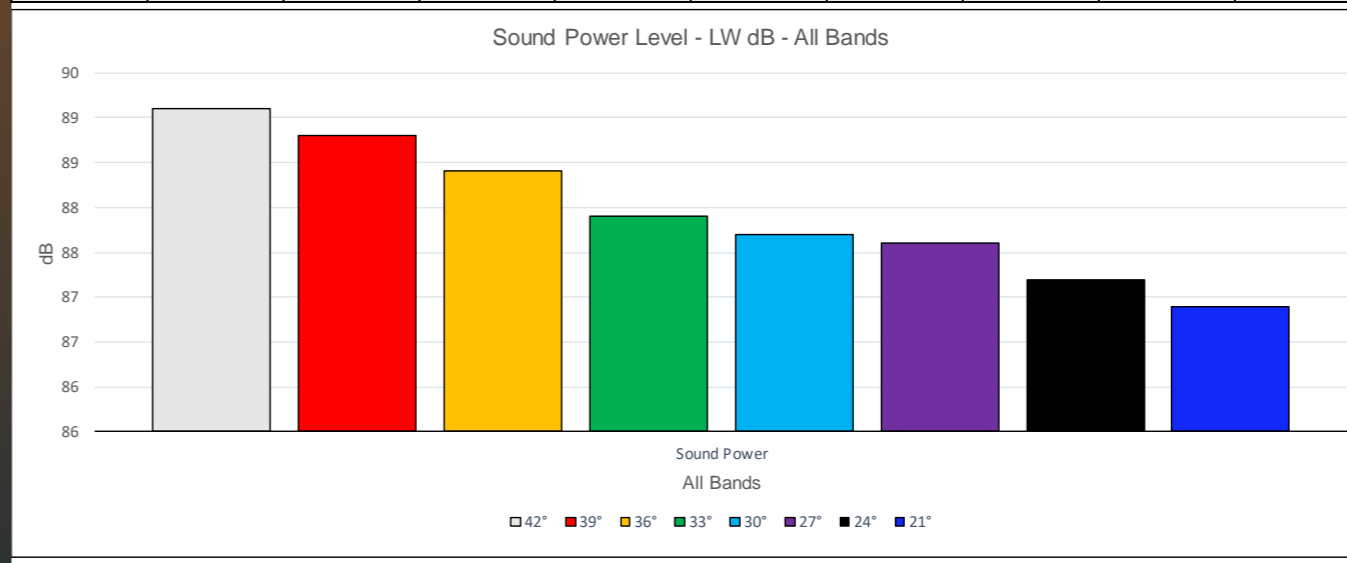
PRESTAZIONI / PERFORMANCE DATA – 2 POLE MOTOR

Impeller size 310 mm – (2900 rpm)

Curves and noise data



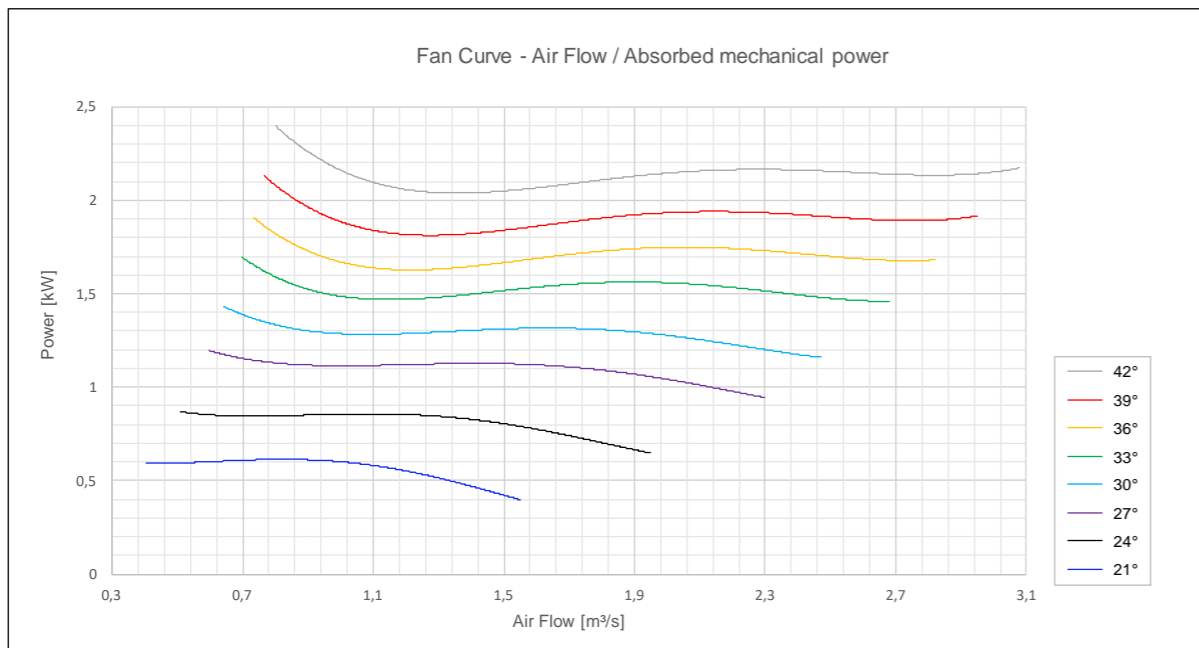
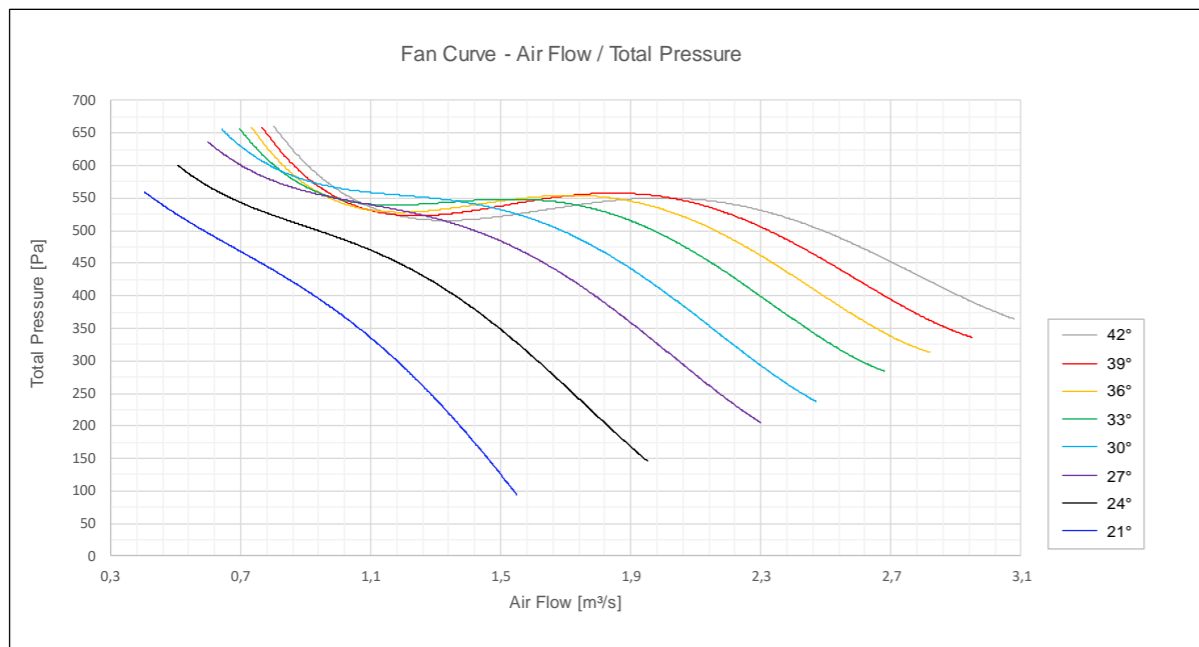
Pitch Angle	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power
	LW dB 63 Hz	LW dB 125 Hz	LW dB 250 Hz	LW dB 500 Hz	LW dB 1k Hz	LW dB 2k Hz	LW dB 4k Hz	LW dB 8k Hz	LW dB All bands Hz
42°	85	82	82	79	78	76	73	68	89
39°	85	82	81	79	78	76	73	67	89
36°	84	81	81	79	77	76	72	67	88
33°	84	81	81	78	77	76	72	67	88
30°	83	80	80	78	77	75	72	67	88
27°	83	80	80	78	76	75	72	67	88
24°	83	80	79	77	75	75	72	67	87
21°	83	80	78	77	75	74	71	66	87



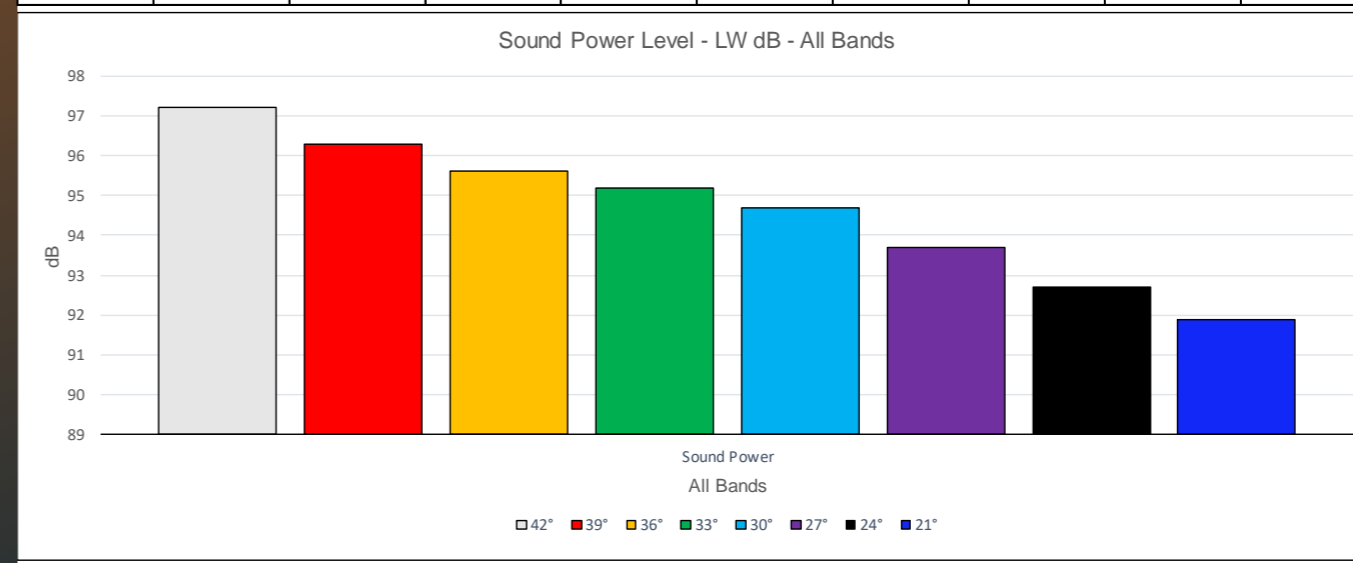
PRESTAZIONI / PERFORMANCE DATA – 2 POLE MOTOR

Impeller size 400 mm – (2900 rpm)

Curves and noise data



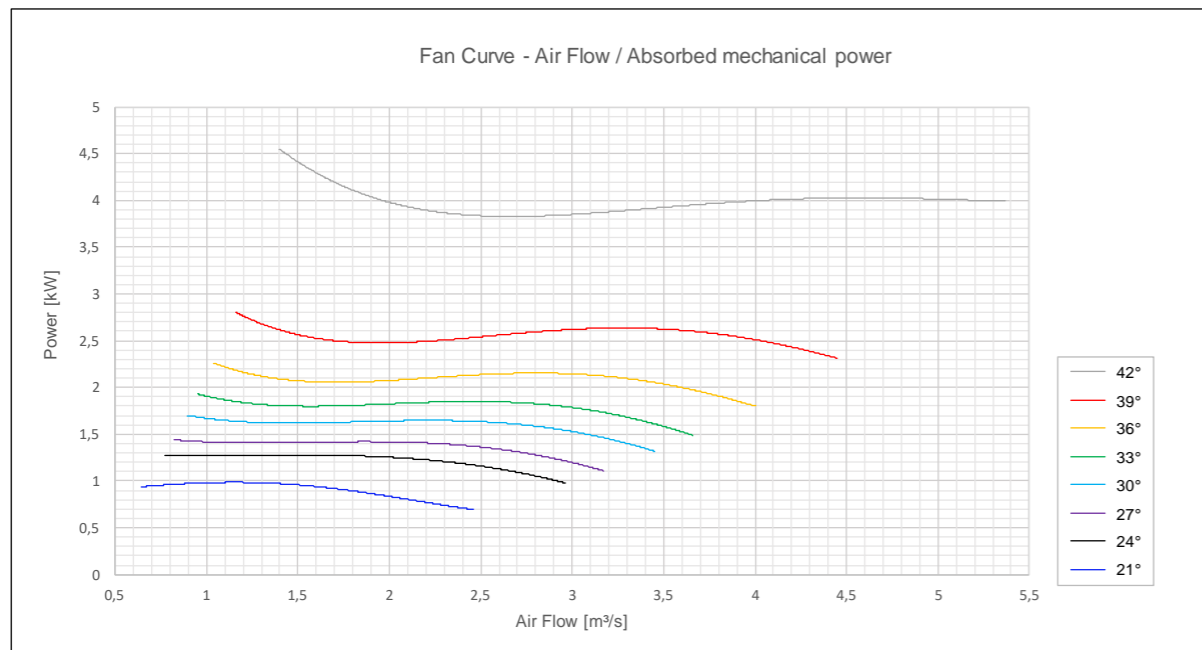
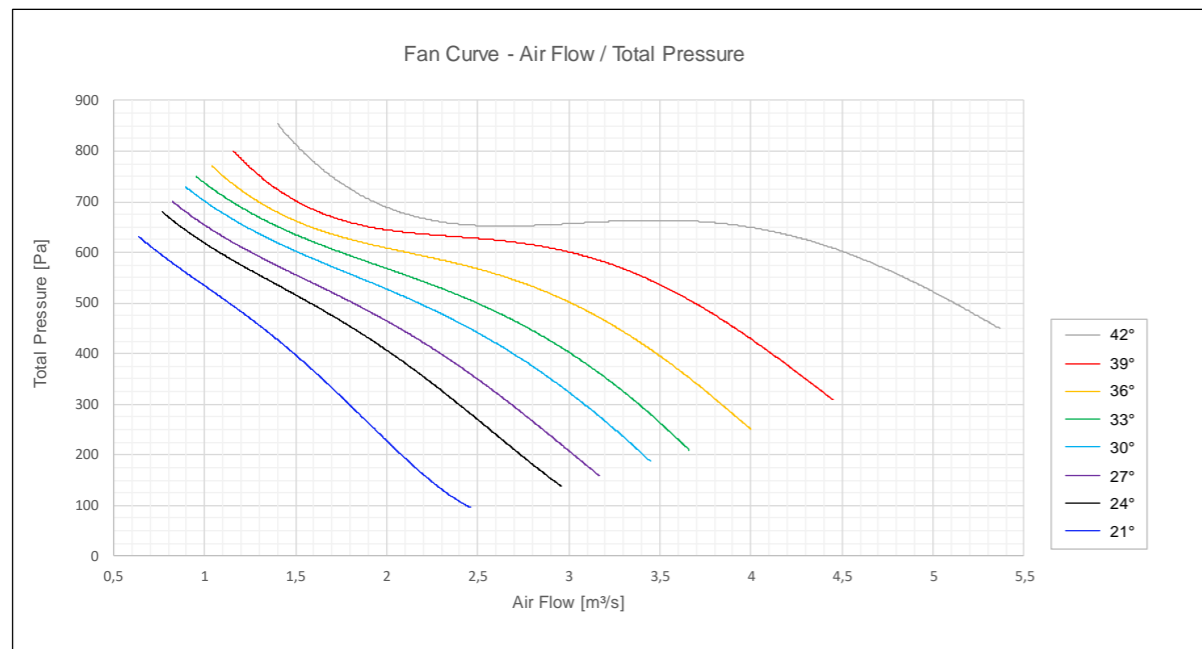
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	93	91	89	87	87	84	81	77	97
39°	92	90	88	86	86	83	80	76	96
36°	91	90	88	86	85	83	79	75	96
33°	91	89	87	85	84	82	78	74	95
30°	91	88	87	85	83	82	78	73	95
27°	89	86	86	84	83	81	78	72	94
24°	89	85	85	83	81	80	77	72	93
21°	89	85	83	81	79	79	76	72	92



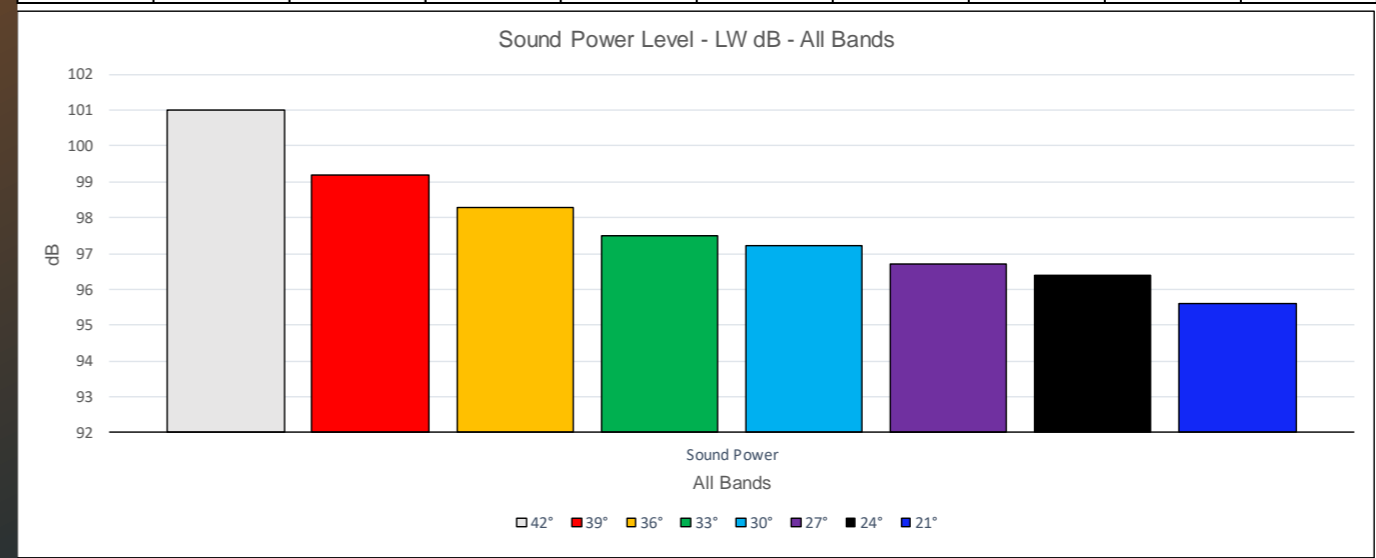
PRESTAZIONI / PERFORMANCE DATA – 2 POLE MOTOR

Impeller size 500 mm – (2900 rpm)

Curves and noise data



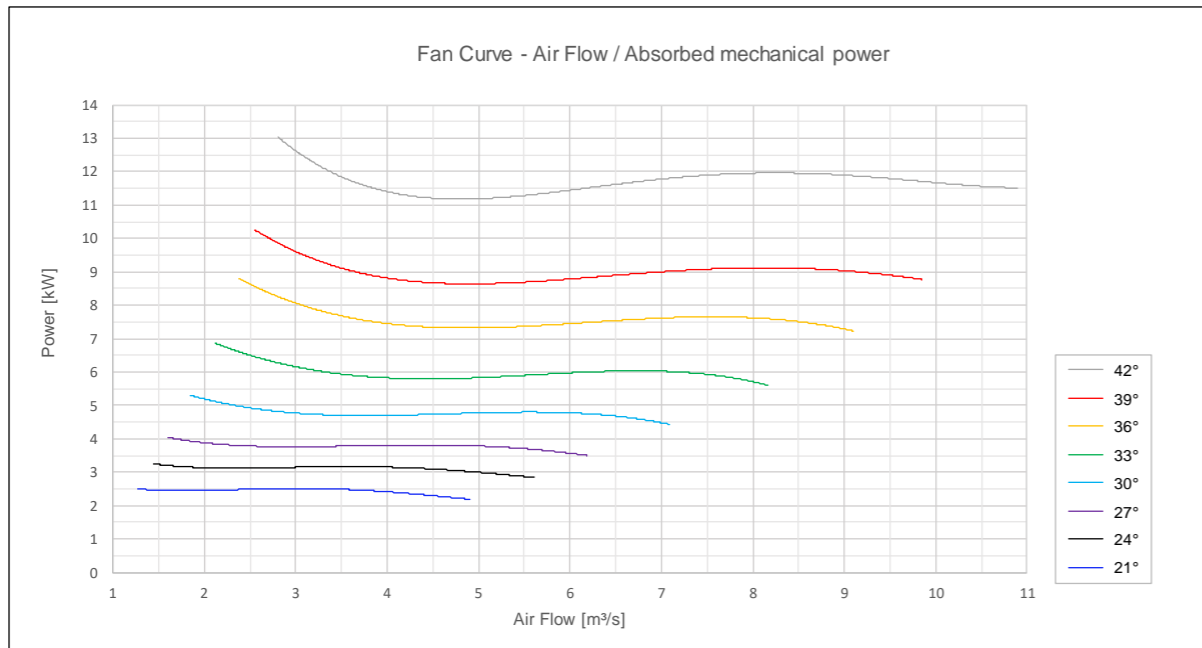
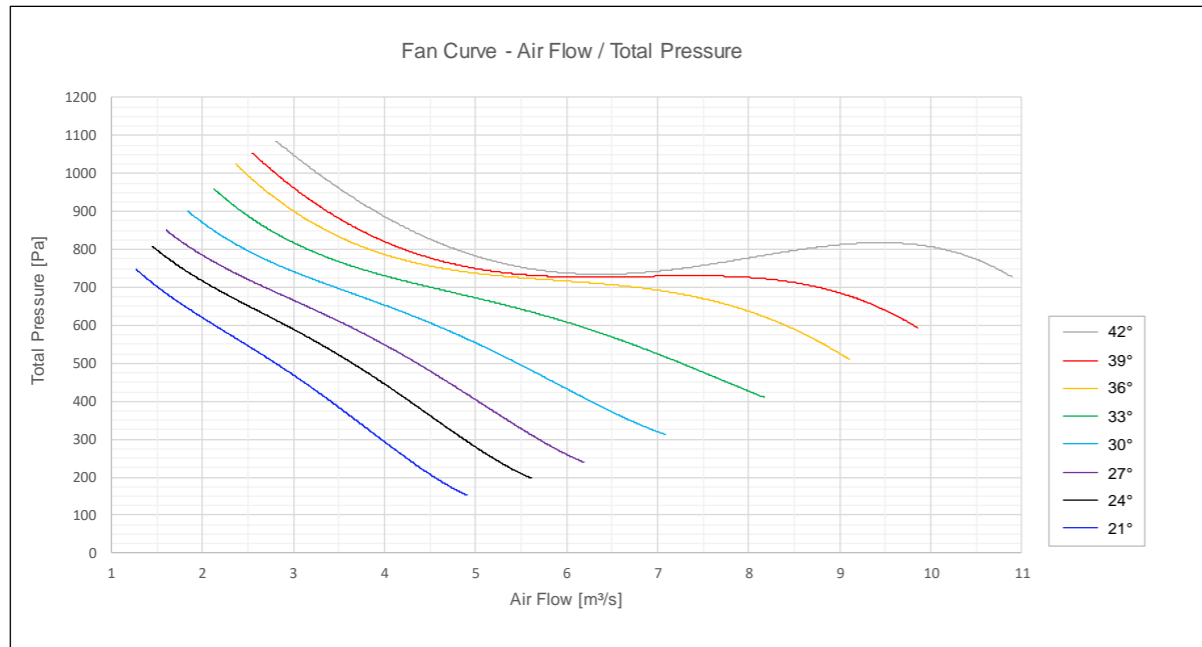
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	97	95	93	92	91	89	86	81	101
39°	95	92	92	89	88	86	83	78	99
36°	94	91	91	88	87	86	82	77	98
33°	93	90	90	88	87	85	82	76	98
30°	93	90	90	87	86	85	82	76	97
27°	93	90	89	87	85	84	81	76	97
24°	93	89	88	86	84	84	81	76	96
21°	92	89	86	85	83	83	80	76	96



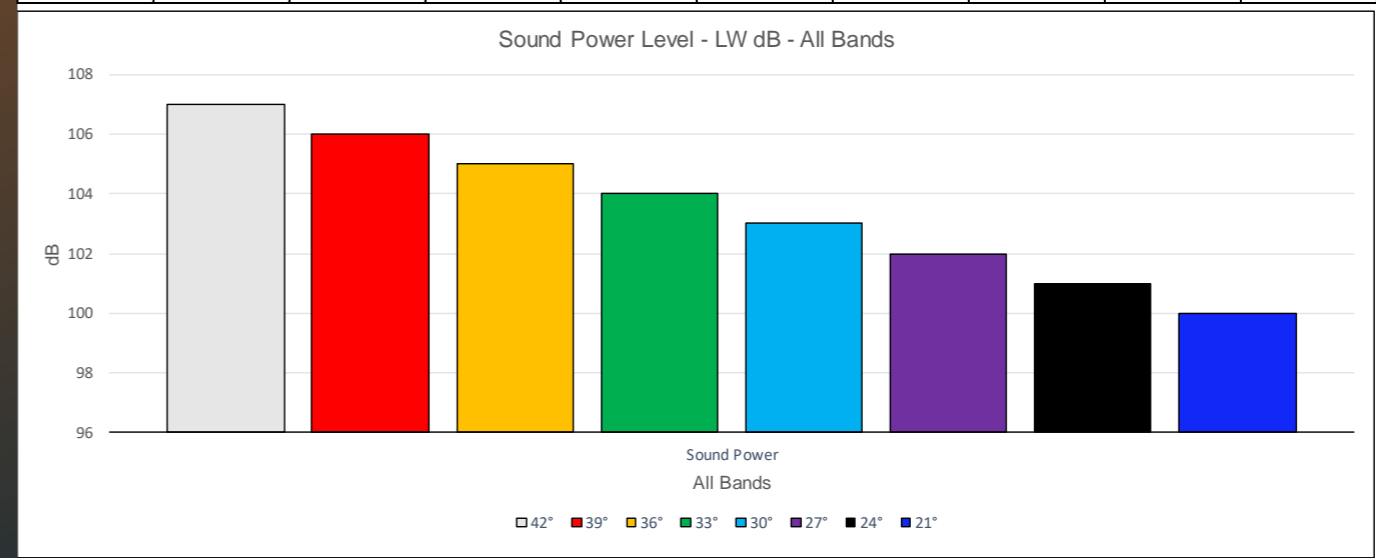
PRESTAZIONI / PERFORMANCE DATA – 2 POLE MOTOR

Impeller size 630 mm – (2900 rpm)

Curves and noise data



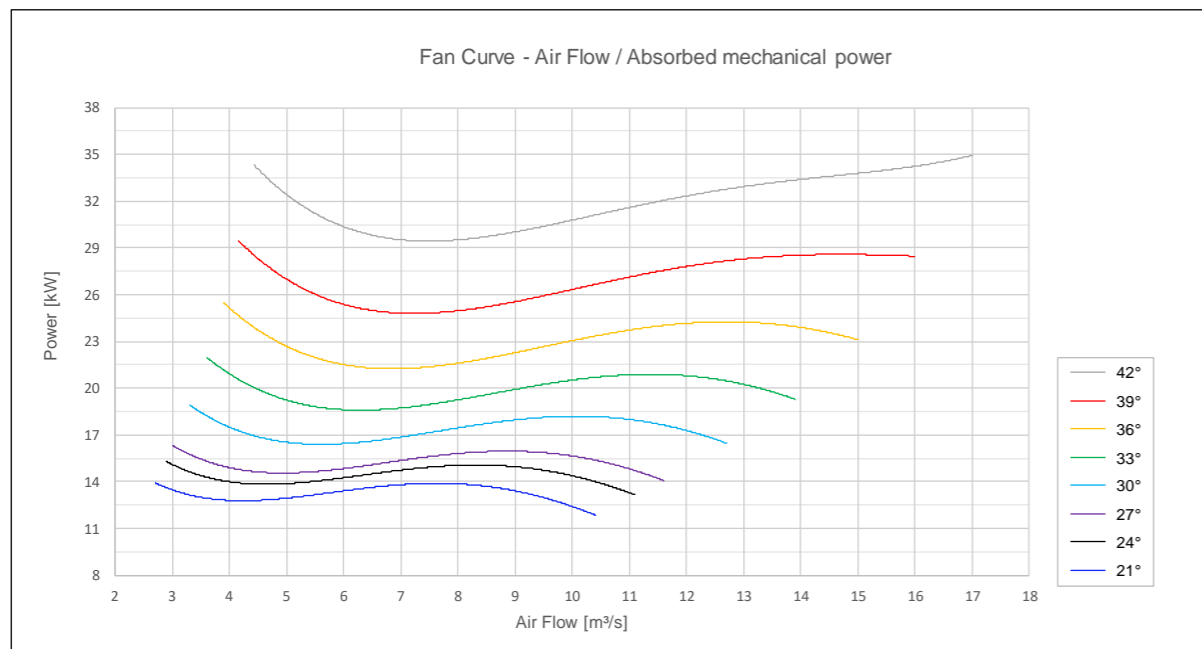
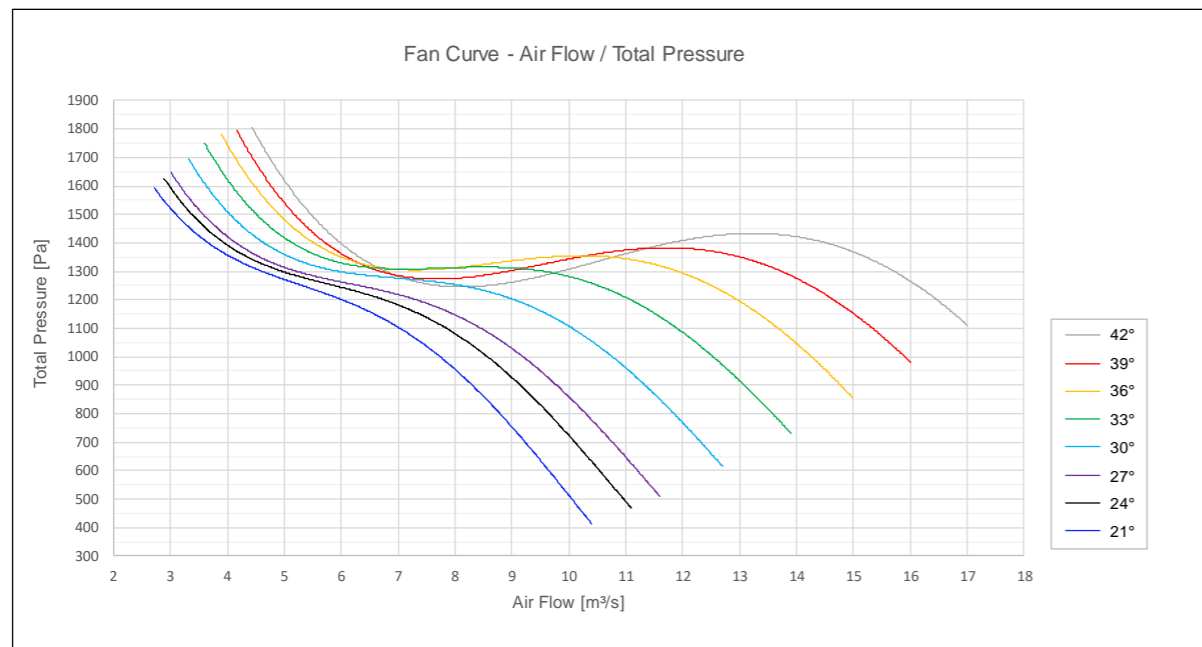
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	105	99	98	96	95	93	90	86	107
39°	103	99	97	95	94	92	90	86	106
36°	102	98	97	95	93	91	89	85	105
33°	100	97	95	94	92	90	89	84	104
30°	98	96	95	93	91	89	88	84	103
27°	97	96	95	93	91	89	88	84	102
24°	96	95	94	92	90	88	87	83	101
21°	94	94	93	91	89	88	86	82	100



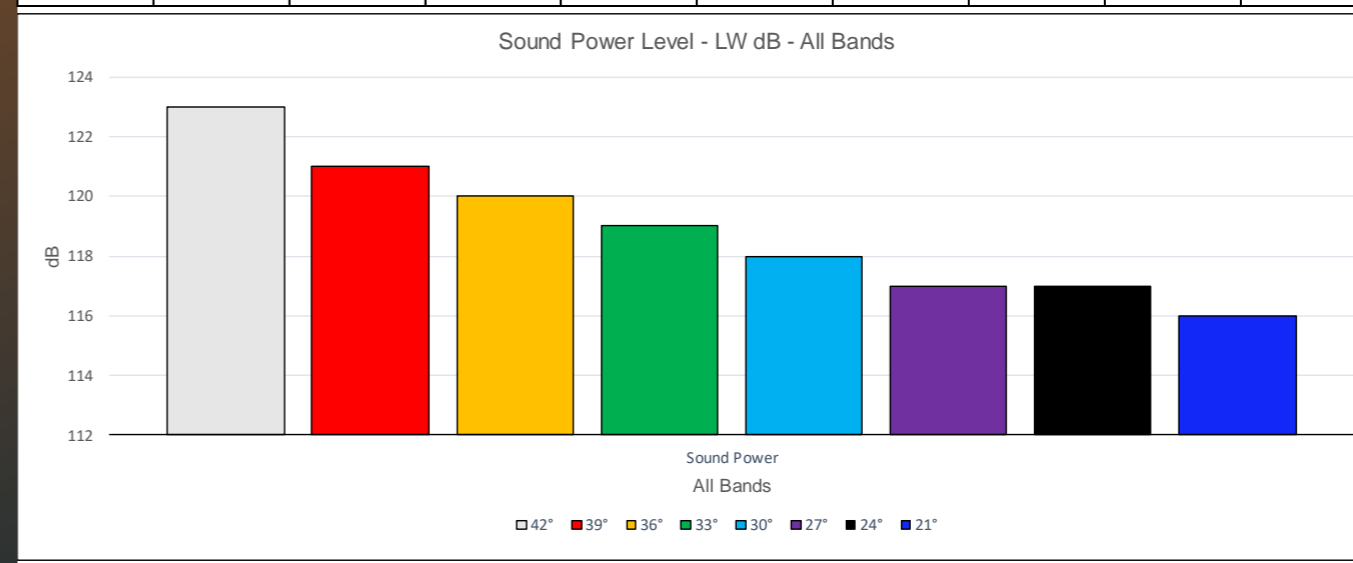
PRESTAZIONI / PERFORMANCE DATA – 2 POLE MOTOR

Impeller size 710 mm – (2900 rpm)

Curves and noise data



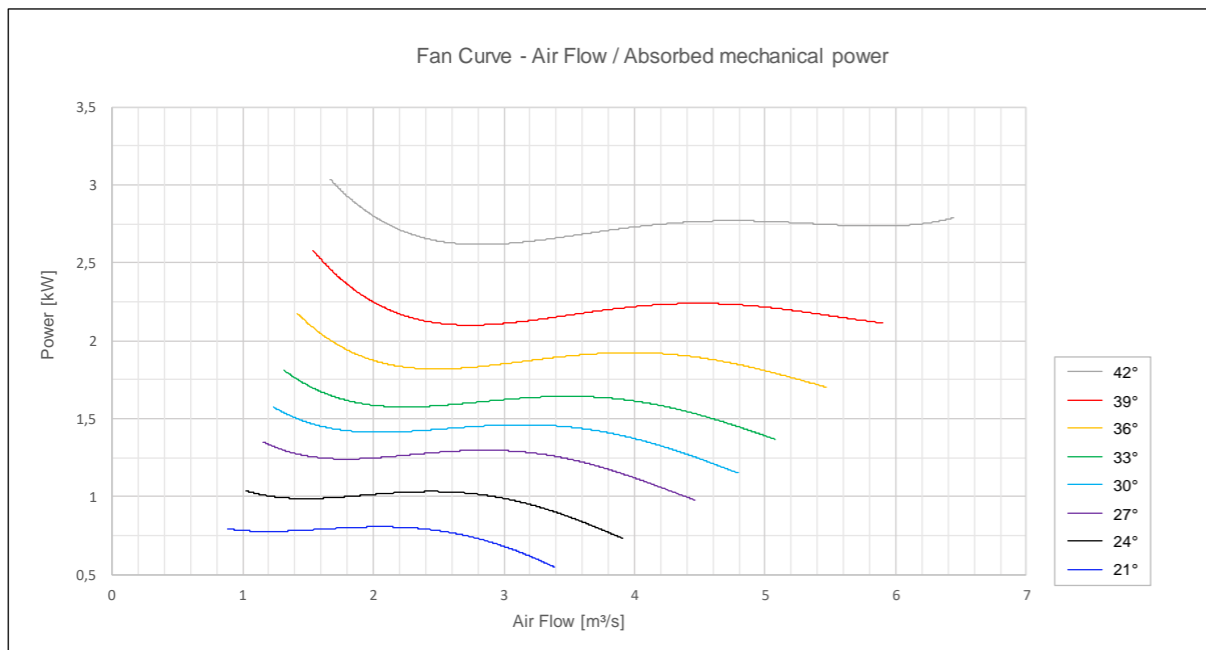
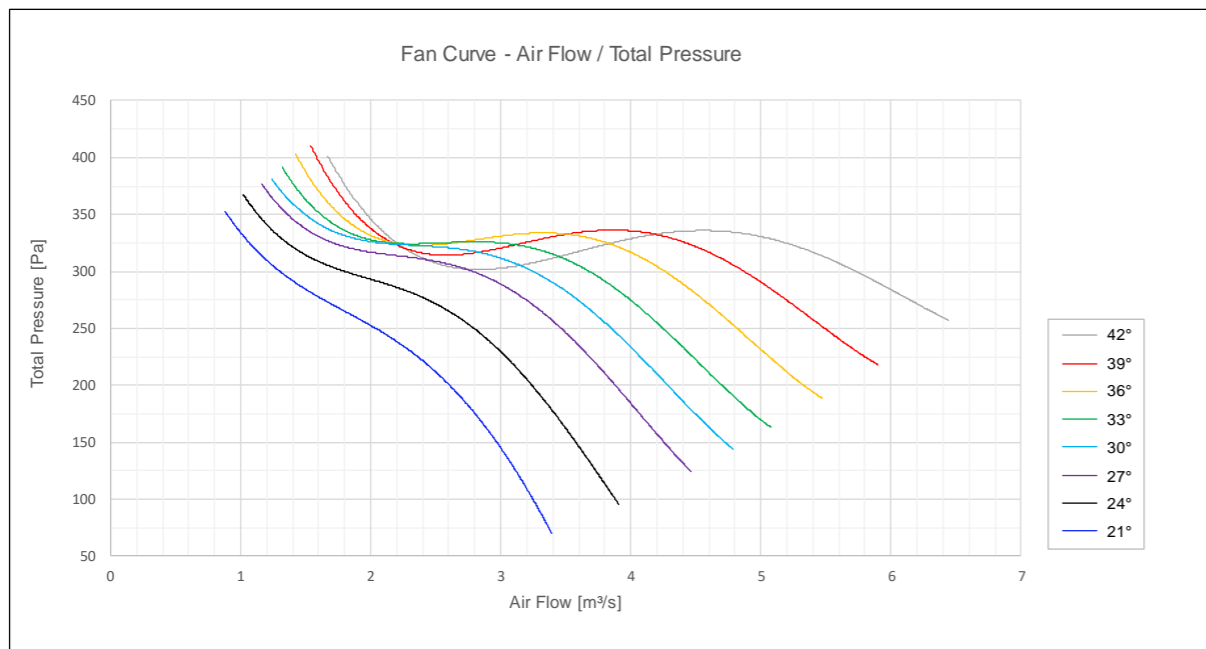
Pitch Angle	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power
	LW dB 63 Hz	LW dB 125 Hz	LW dB 250 Hz	LW dB 500 Hz	LW dB 1k Hz	LW dB 2k Hz	LW dB 4k Hz	LW dB 8k Hz	LW dB All bands Hz
42°	120	117	115	109	105	101	99	94	123
39°	117	116	114	109	105	101	99	94	121
36°	112	116	114	110	105	101	99	94	120
33°	109	115	113	110	106	101	100	95	119
30°	106	114	112	111	106	102	100	95	118
27°	104	112	111	111	107	102	100	95	117
24°	103	111	111	111	108	102	100	95	117
21°	101	109	111	111	108	102	100	95	116



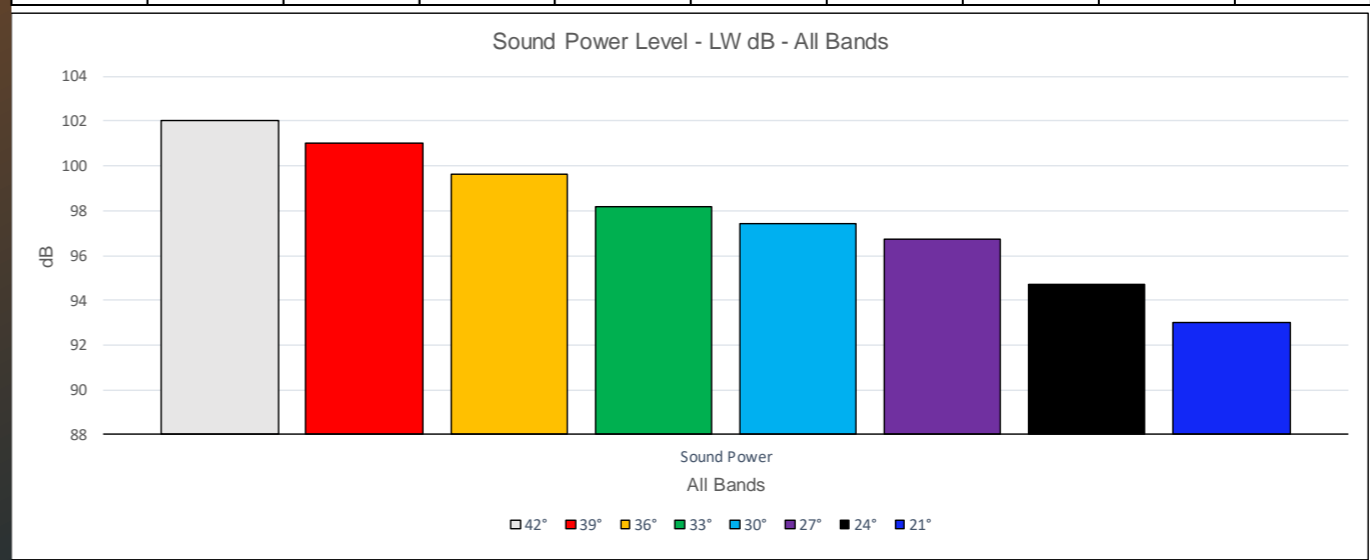
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 630 mm – (1480 rpm)

Curves and noise data



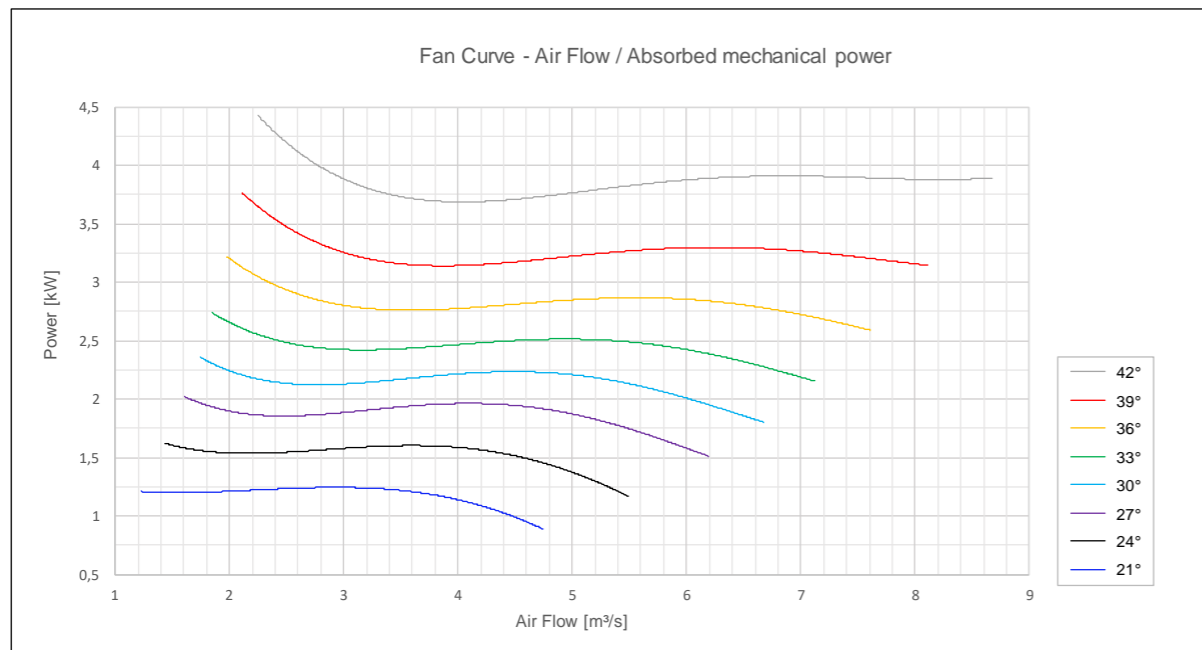
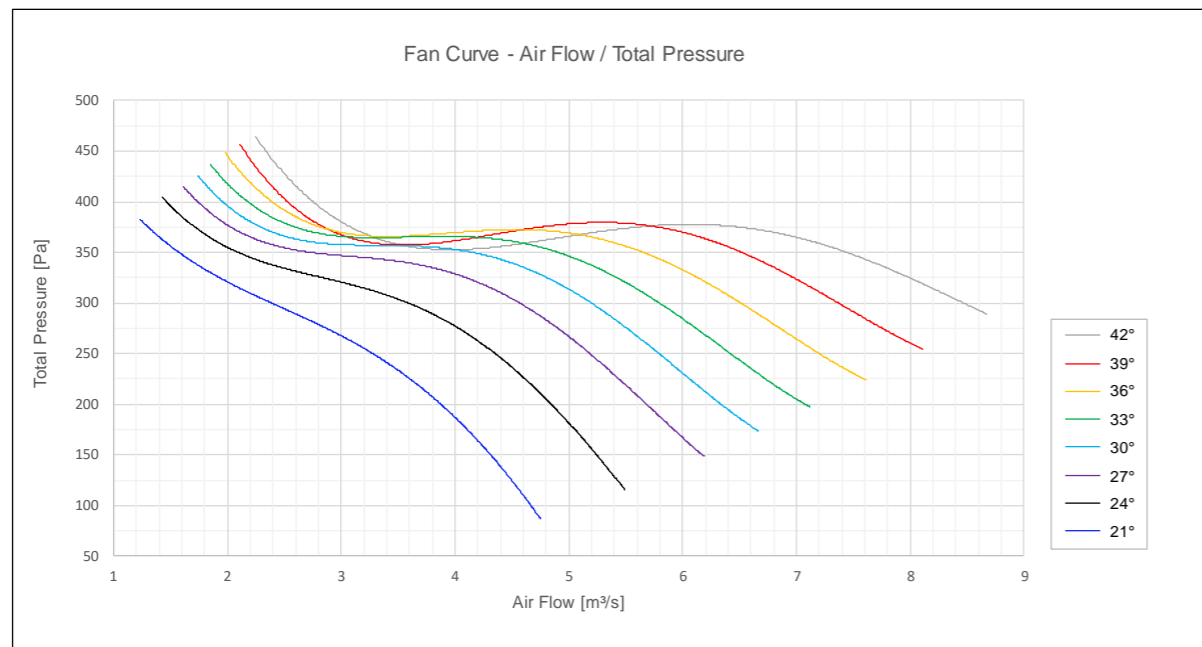
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	101	93	90	87	85	82	78	71	102
39°	99	93	90	87	84	81	78	71	101
36°	98	93	90	86	84	81	78	71	100
33°	95	92	90	86	83	80	78	72	98
30°	93	91	91	86	83	80	78	72	97
27°	93	90	90	85	82	80	78	71	97
24°	90	89	88	84	81	79	77	70	95
21°	83	88	88	84	81	77	75	70	93



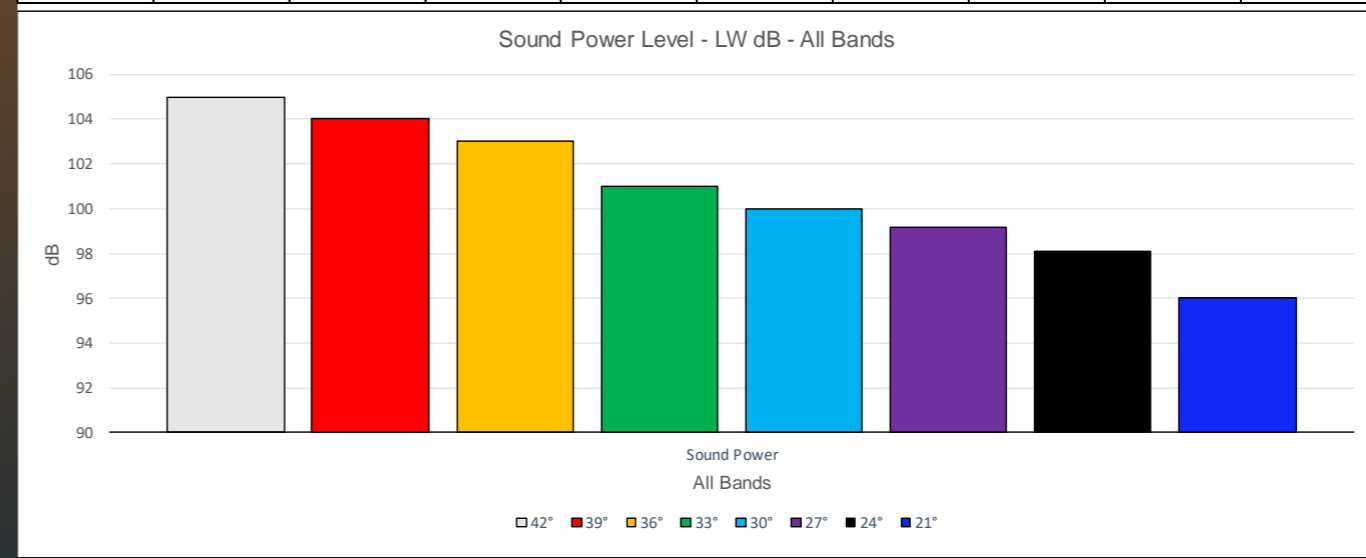
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 710 mm – (1480 rpm)

Curves and noise data



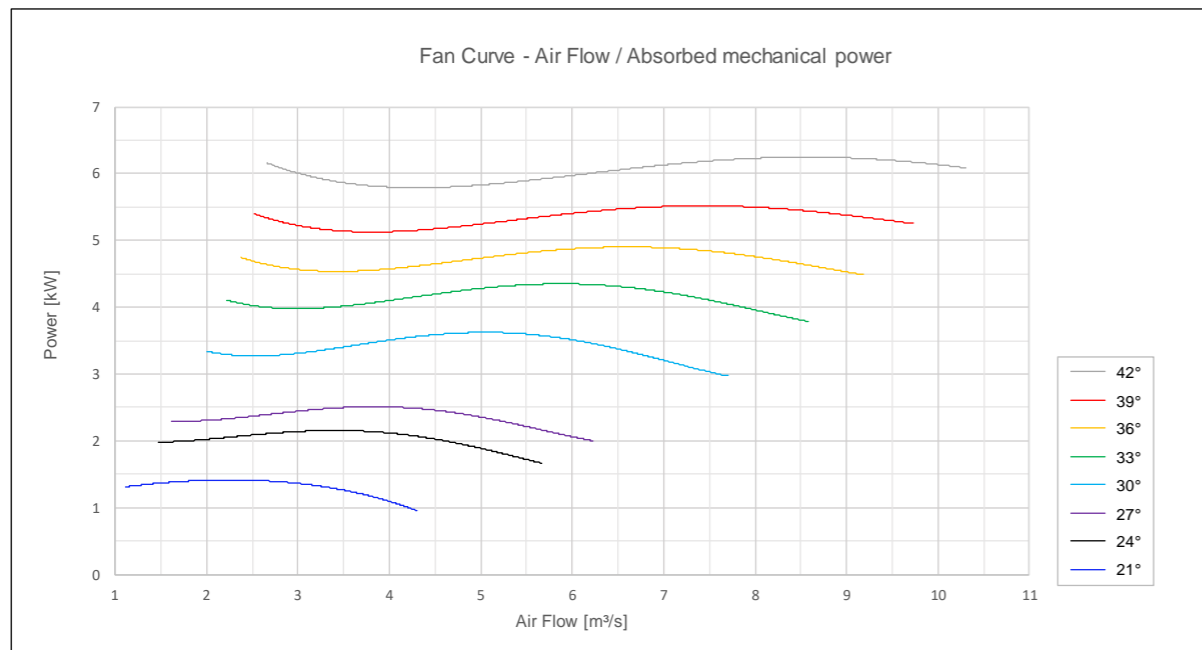
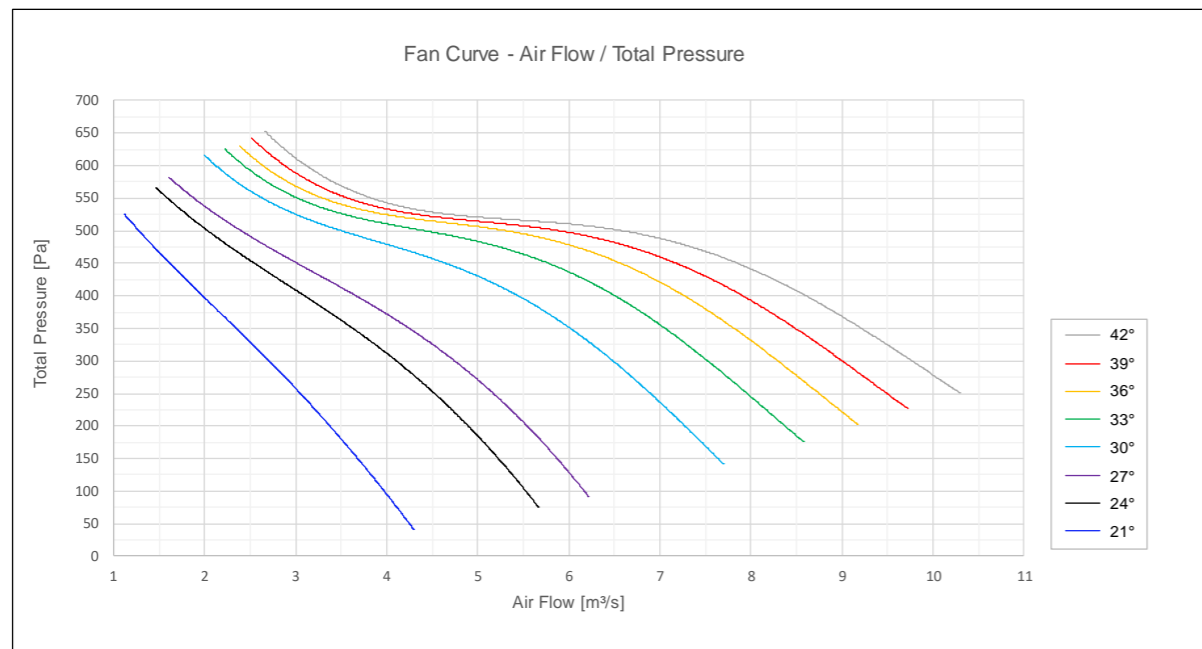
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	103	97	95	92	89	86	81	75	105
39°	101	97	94	91	89	86	81	75	104
36°	100	97	94	90	88	85	80	74	103
33°	98	95	93	89	87	84	80	73	101
30°	96	94	93	89	87	84	80	73	100
27°	95	93	93	89	87	84	80	73	99
24°	93	92	91	88	86	83	79	72	98
21°	87	91	90	87	85	82	78	72	96



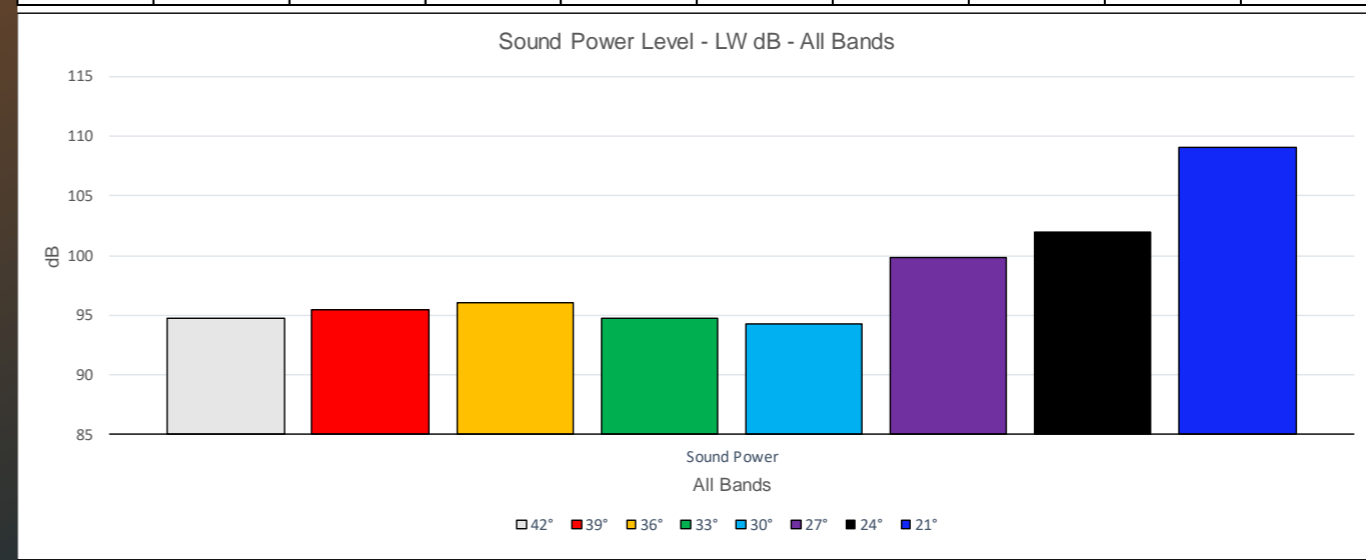
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 800 mm – (1480 rpm)

Curves and noise data



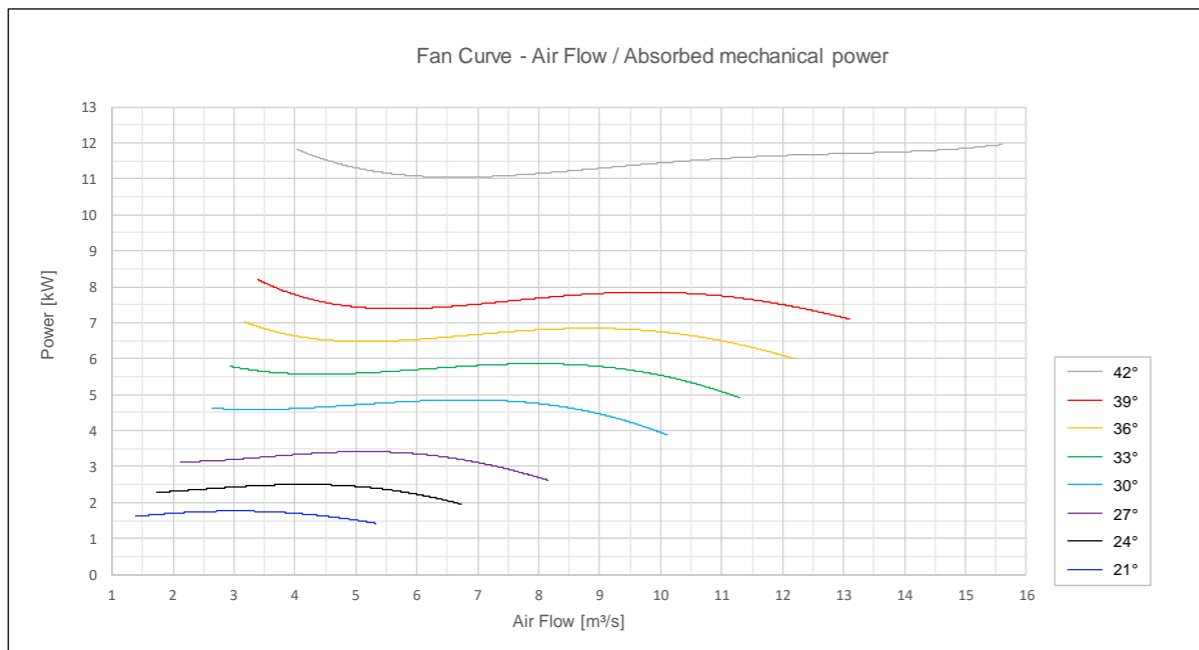
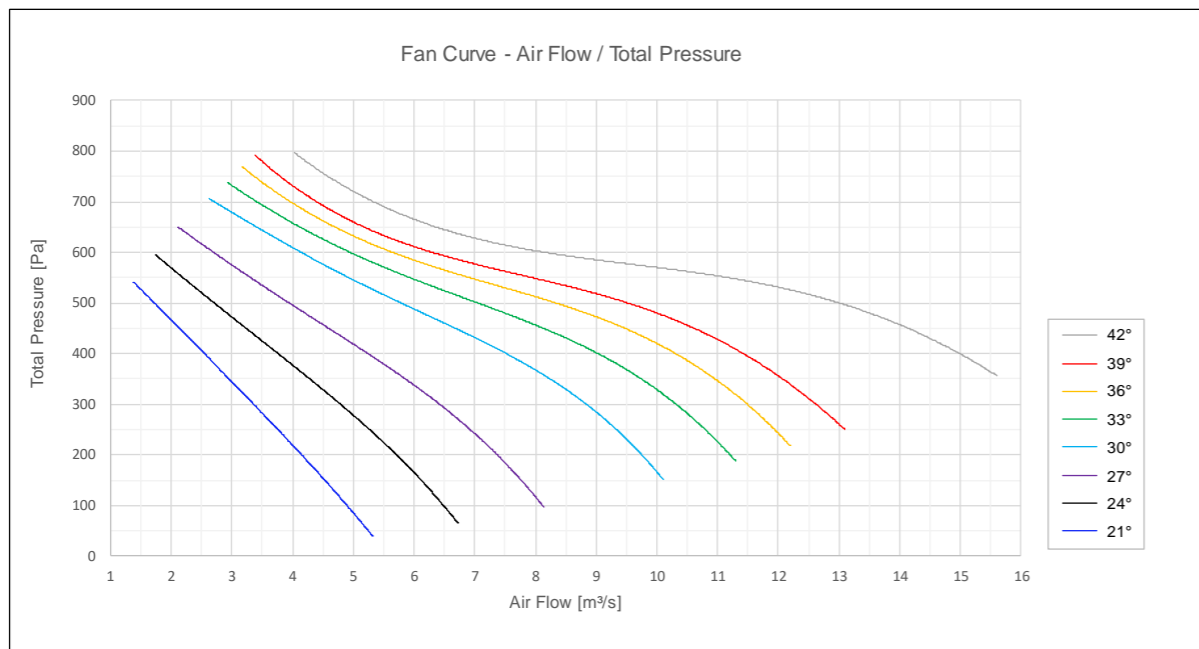
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	90	87	85	84	85	84	84	80	95
39°	91	87	86	85	85	84	84	80	95
36°	92	88	87	86	86	85	84	80	96
33°	90	87	85	85	85	84	84	80	95
30°	89	87	85	85	85	84	84	79	94
27°	91	90	95	93	91	86	86	81	100
24°	92	91	99	96	93	87	86	82	102
21°	95	95	107	102	99	89	88	84	109



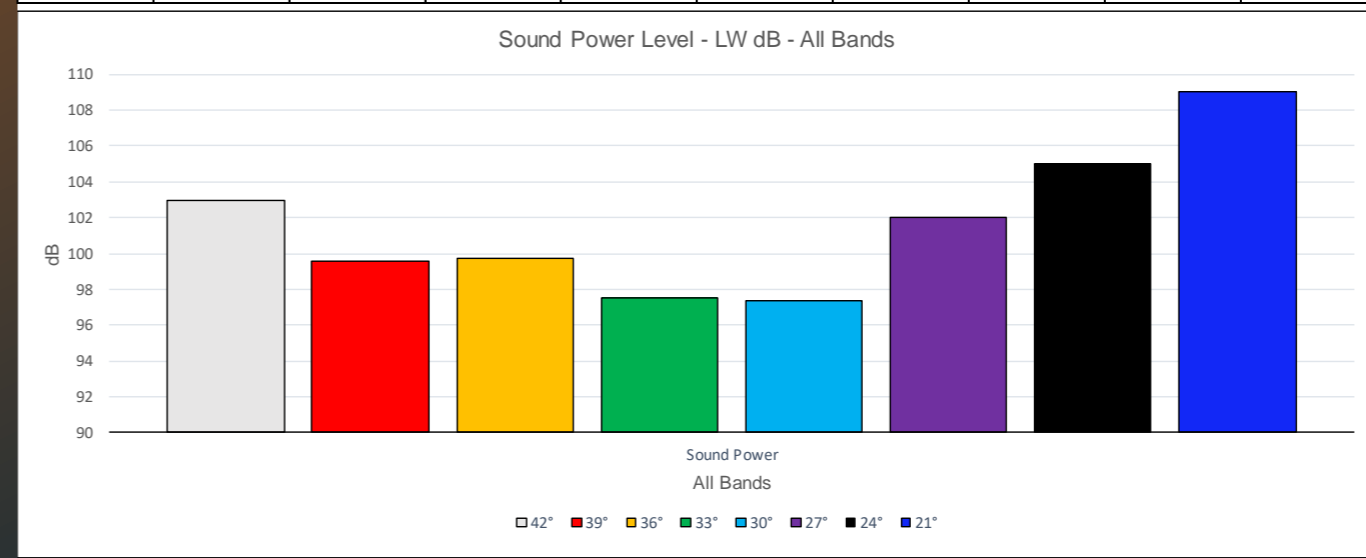
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 900 mm – (1480 rpm)

Curves and noise data



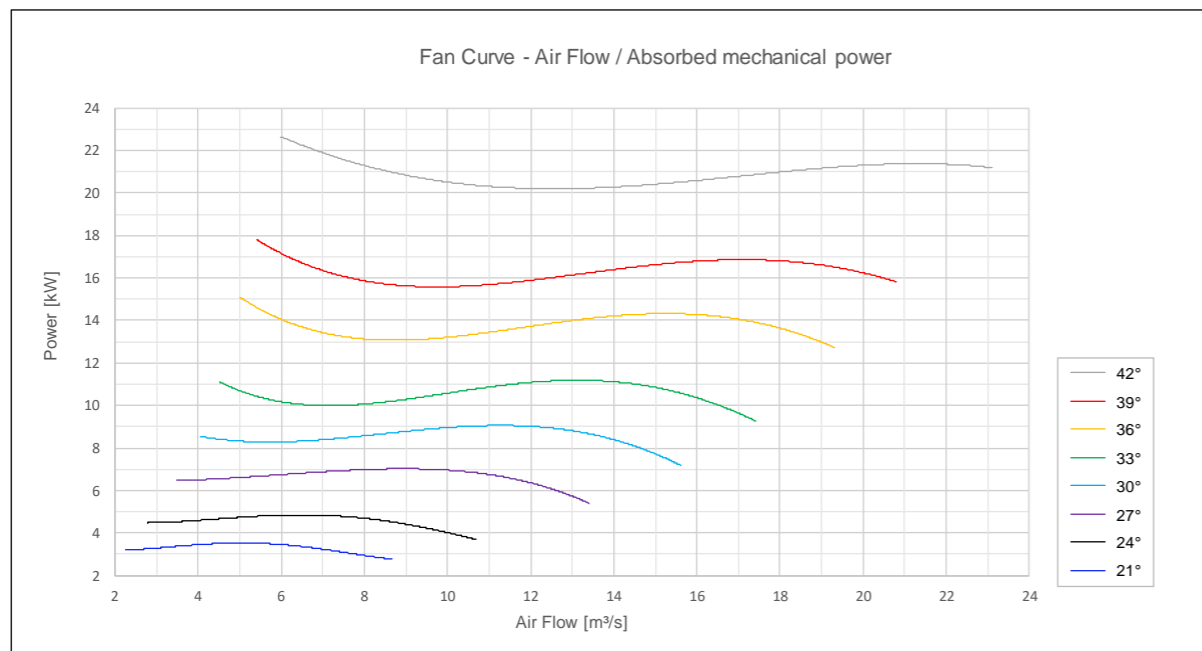
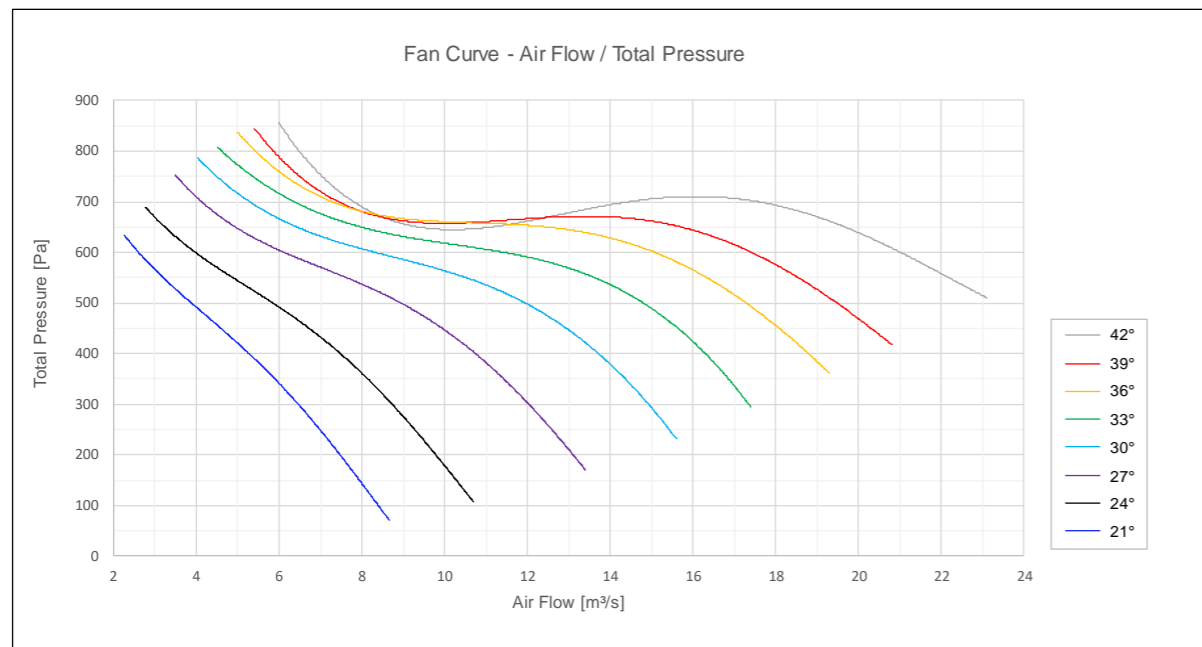
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	99	96	94	91	90	89	87	84	103
39°	96	92	91	89	88	87	85	82	100
36°	96	93	91	89	88	87	86	82	100
33°	93	90	88	88	87	87	85	81	98
30°	92	90	89	88	87	86	85	81	97
27°	94	96	96	94	91	87	86	81	102
24°	94	100	101	97	92	86	85	82	105
21°	95	103	105	100	94	86	85	82	109



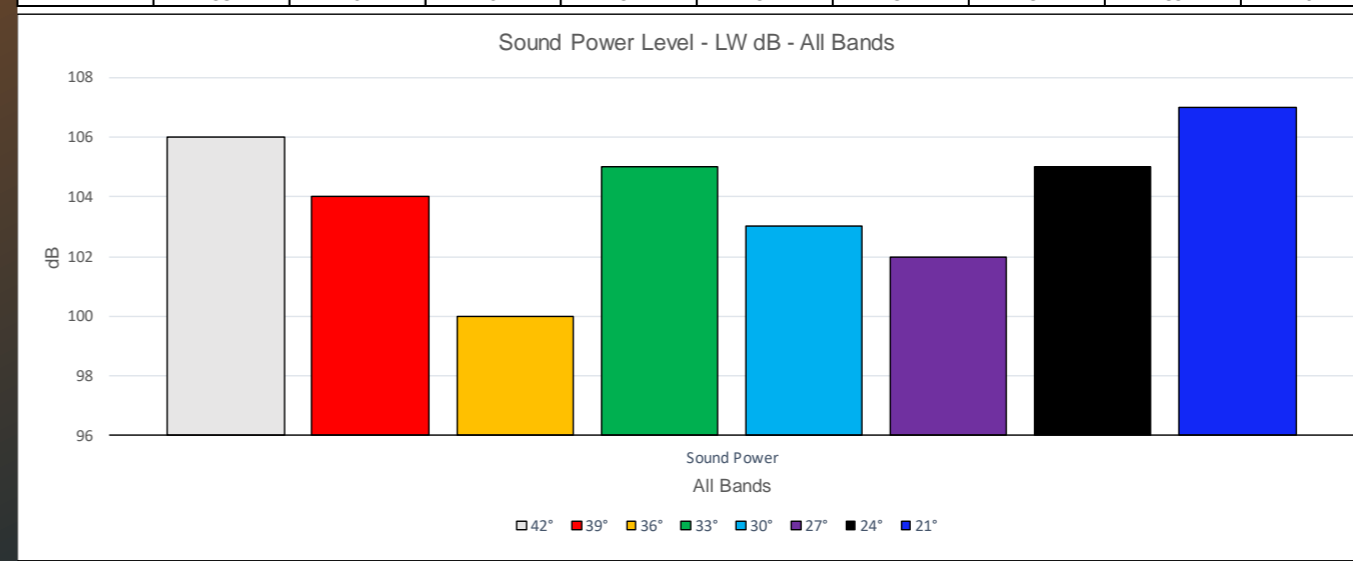
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 1000 mm – (1480 rpm)

Curves and noise data



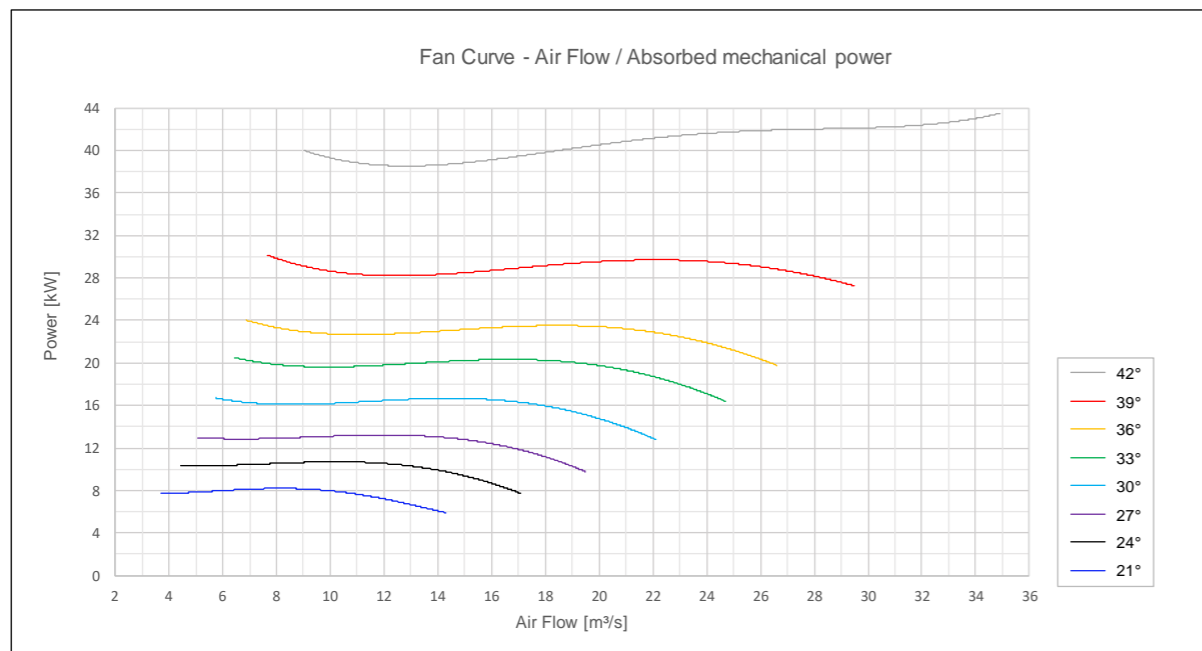
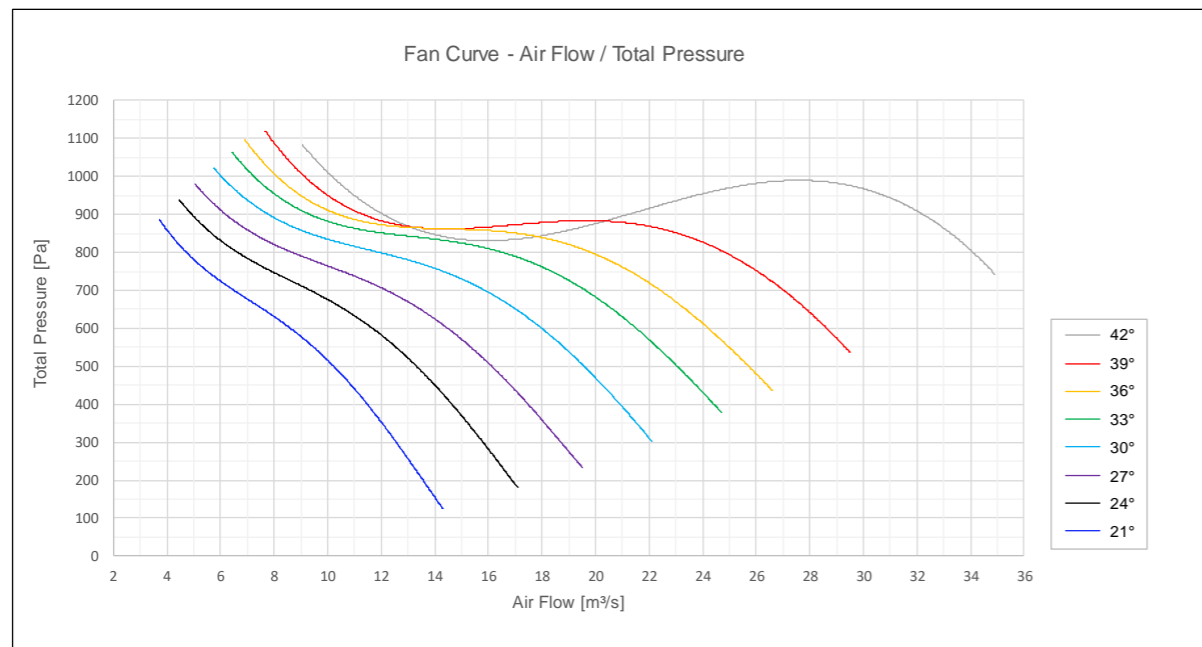
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	103	100	98	94	93	91	90	86	106
39°	100	98	96	93	92	91	90	86	104
36°	96	93	91	89	90	89	88	84	100
33°	100	99	97	94	93	91	89	85	105
30°	98	96	95	93	92	91	89	85	103
27°	97	94	93	92	92	90	88	84	102
24°	98	100	98	95	92	89	88	84	105
21°	98	104	102	97	92	87	87	83	107



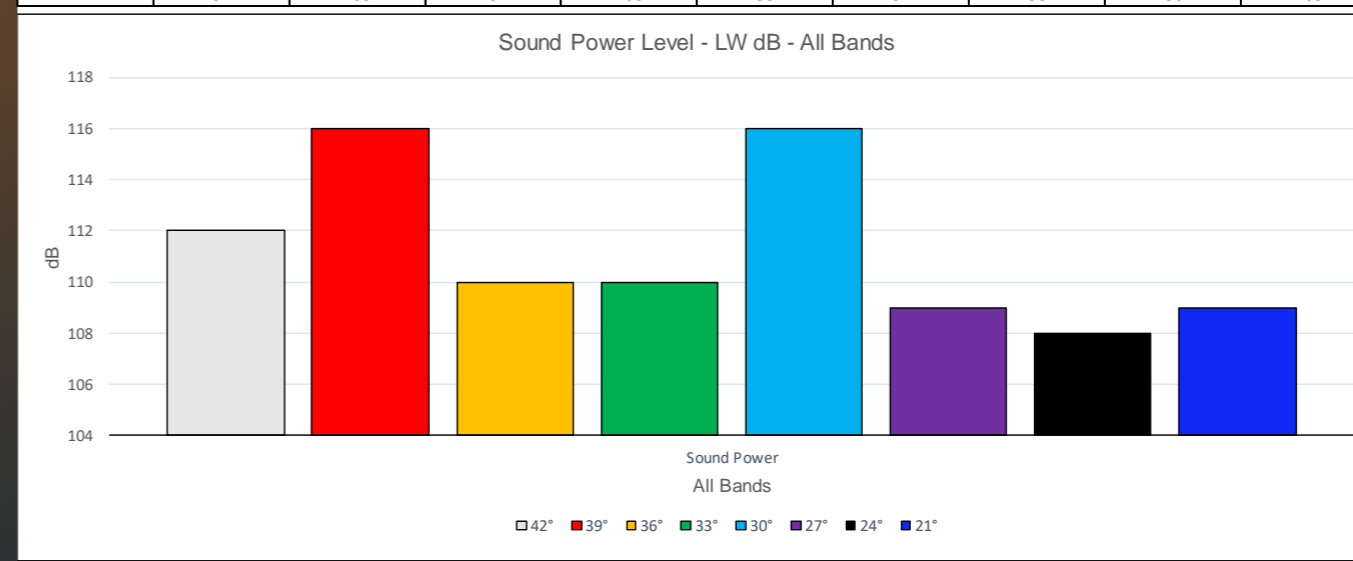
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 1120 mm – (1480 rpm)

Curves and noise data



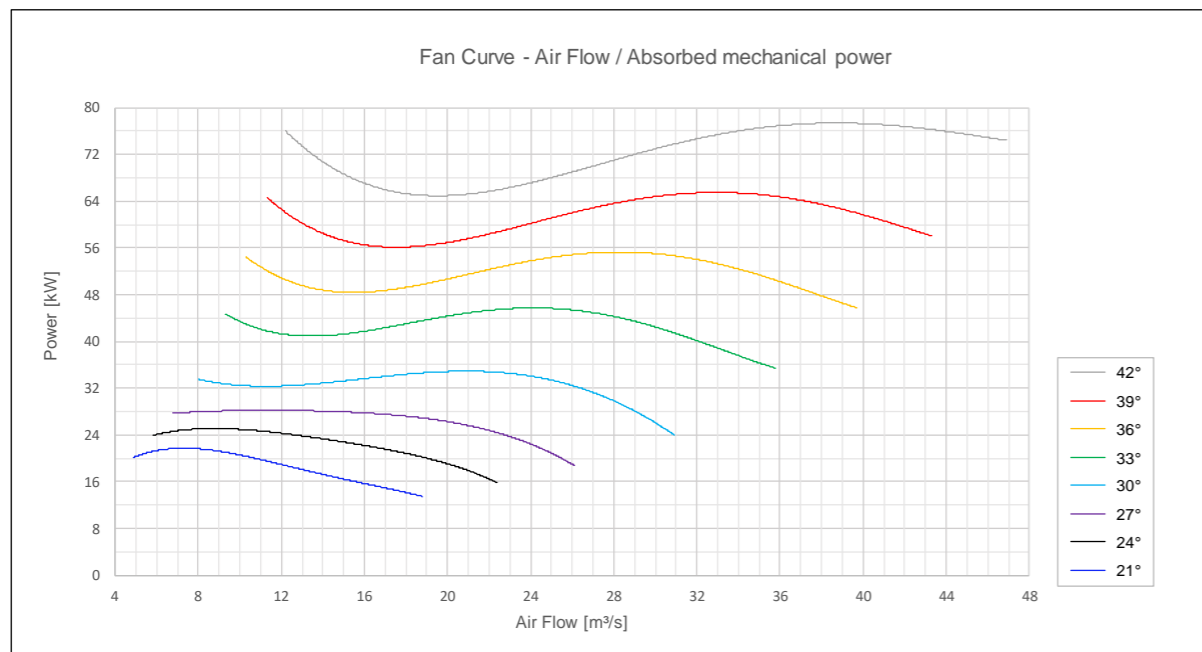
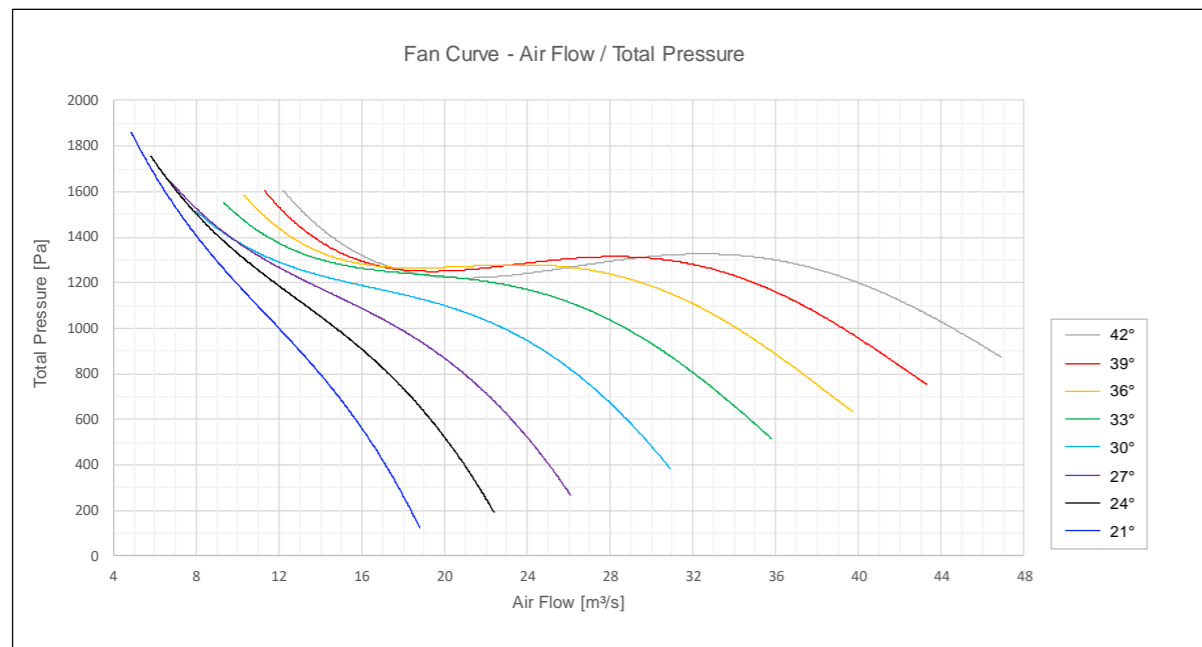
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	109	106	104	97	96	93	91	85	112
39°	113	110	108	100	97	94	92	86	116
36°	107	104	102	98	97	94	92	85	110
33°	106	103	103	99	98	94	92	85	110
30°	107	110	113	103	100	95	93	86	116
27°	100	102	104	101	100	95	93	85	109
24°	96	100	102	101	100	94	93	85	108
21°	94	105	104	103	99	94	93	86	109



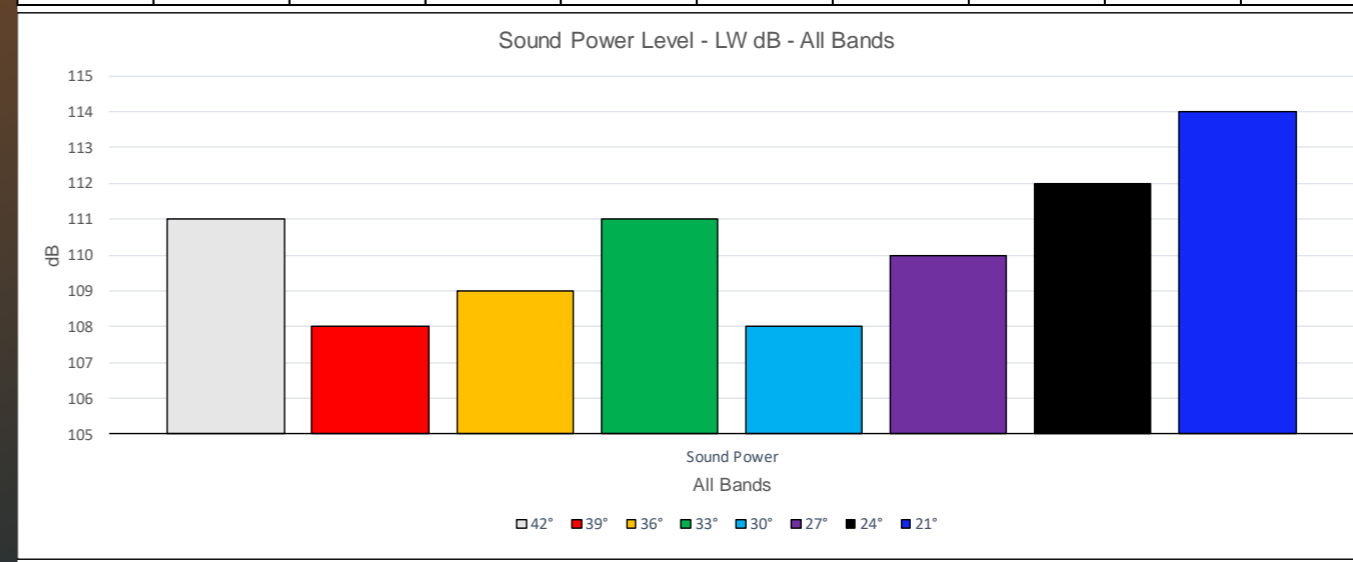
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 1250 mm – (1480 rpm)

Curves and noise data



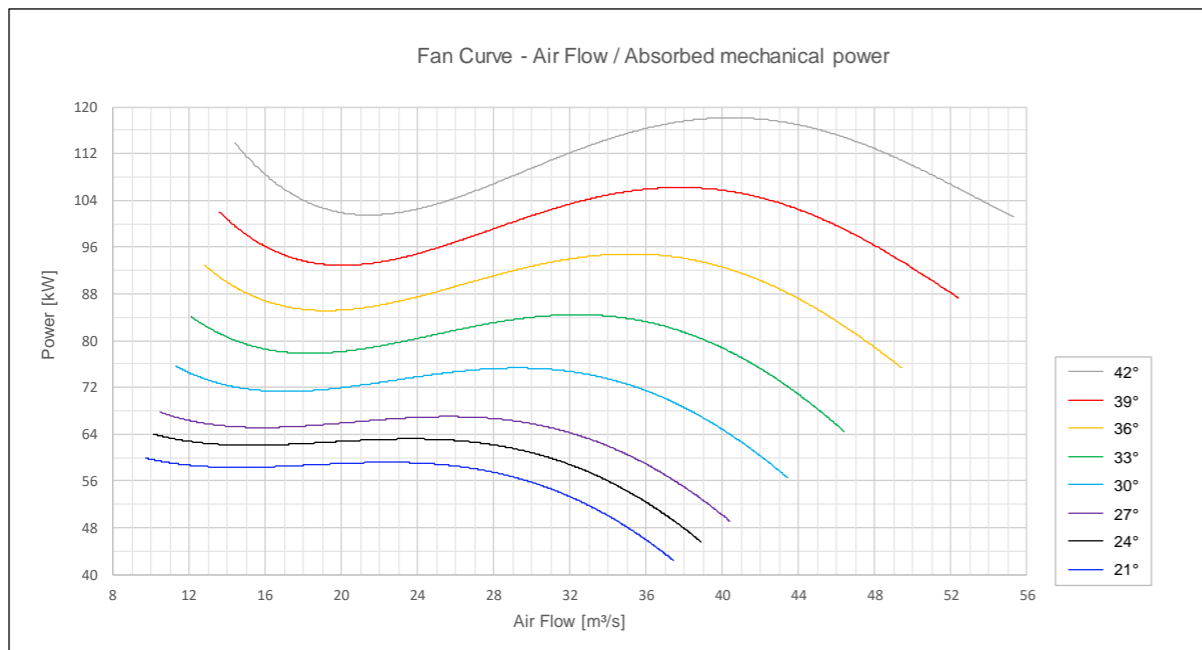
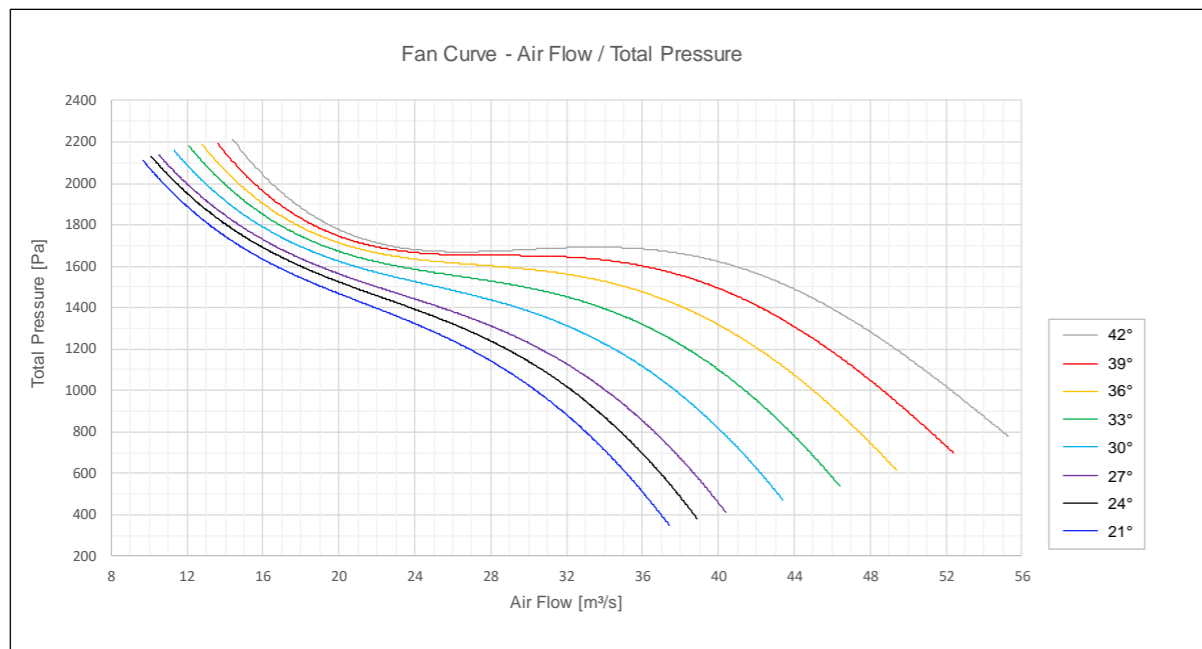
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	107	104	102	100	99	98	97	93	111
39°	104	101	99	98	98	97	96	93	108
36°	103	101	101	99	98	97	97	93	109
33°	104	105	105	102	100	99	97	94	111
30°	100	100	99	101	100	99	99	95	108
27°	102	103	103	103	101	98	97	93	110
24°	104	106	106	104	102	98	96	92	112
21°	105	109	109	106	103	97	95	91	114



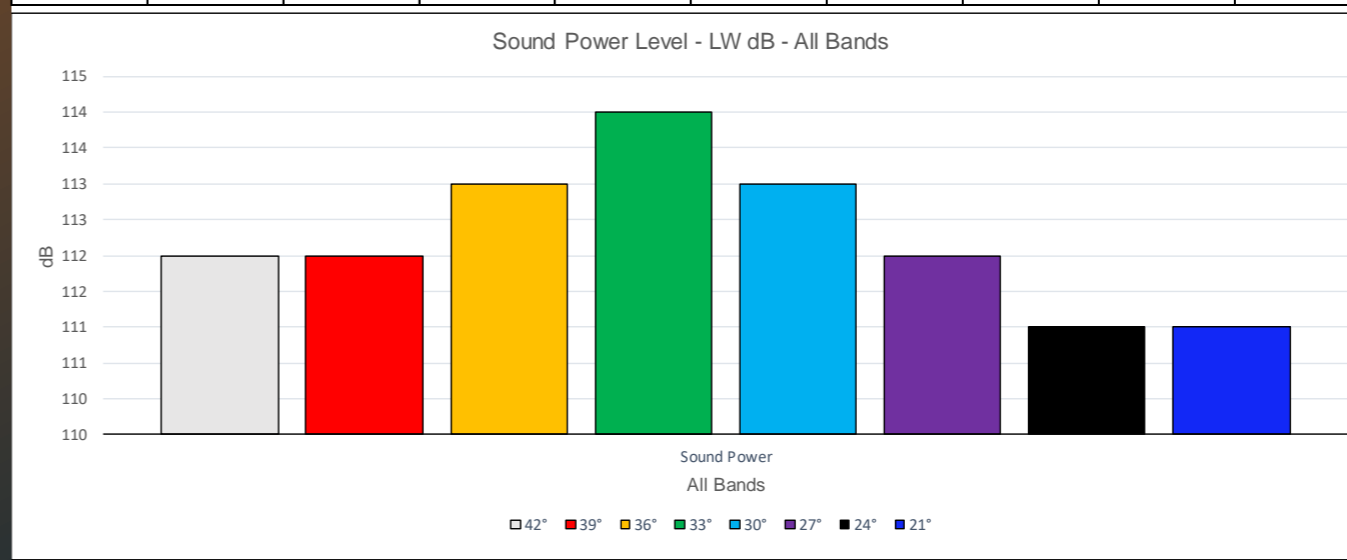
PRESTAZIONI / PERFORMANCE DATA – 4 POLE MOTOR

Impeller size 1400 mm – (1480 rpm)

Curves and noise data



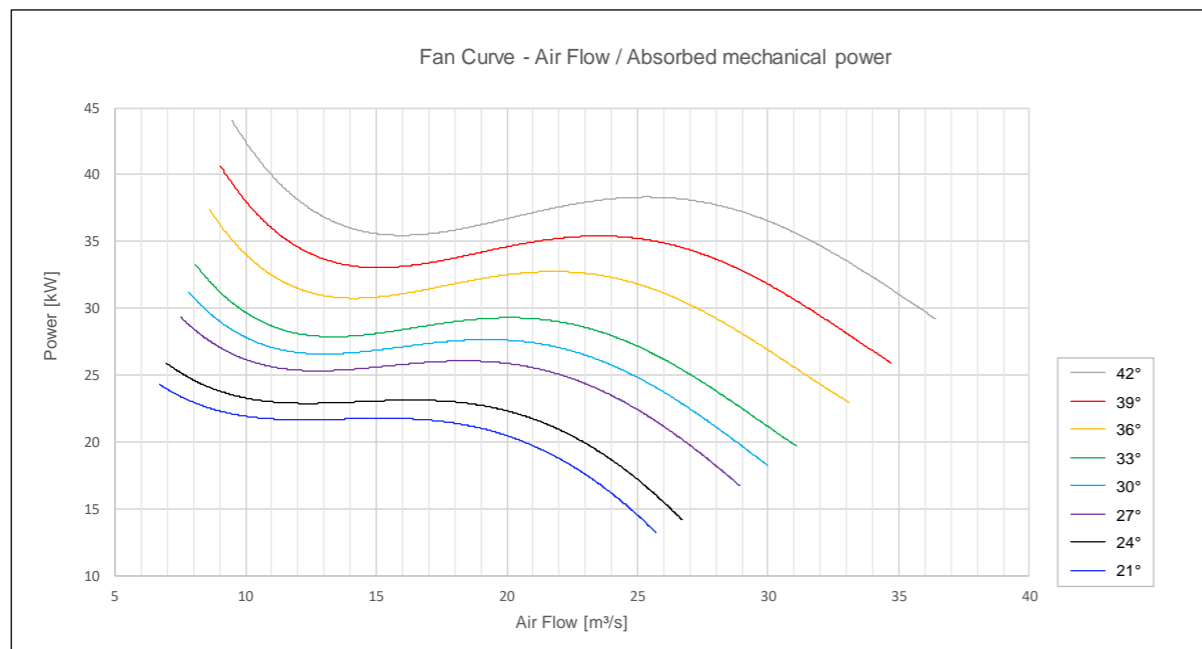
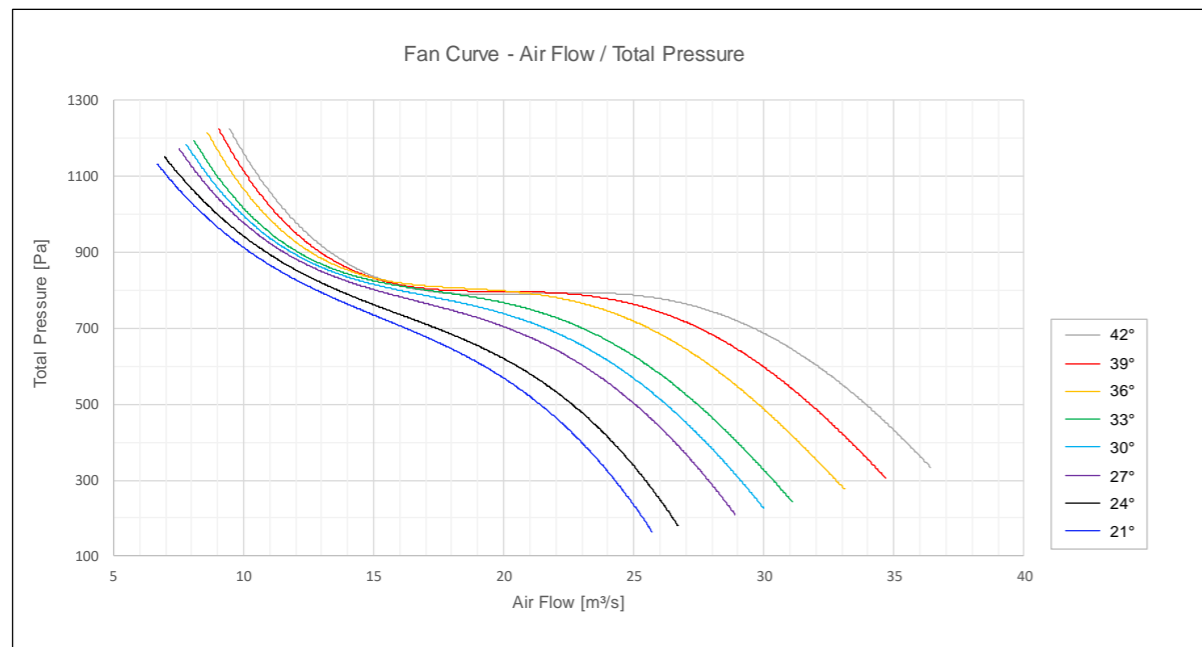
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	108	104	103	101	101	100	99	95	112
39°	107	104	103	102	101	100	99	95	112
36°	108	107	105	103	102	101	99	96	113
33°	109	108	106	105	103	101	100	96	114
30°	107	107	105	104	103	101	100	96	113
27°	104	104	104	104	103	101	100	96	112
24°	103	102	103	104	103	101	101	96	111
21°	103	104	104	104	103	101	100	96	111



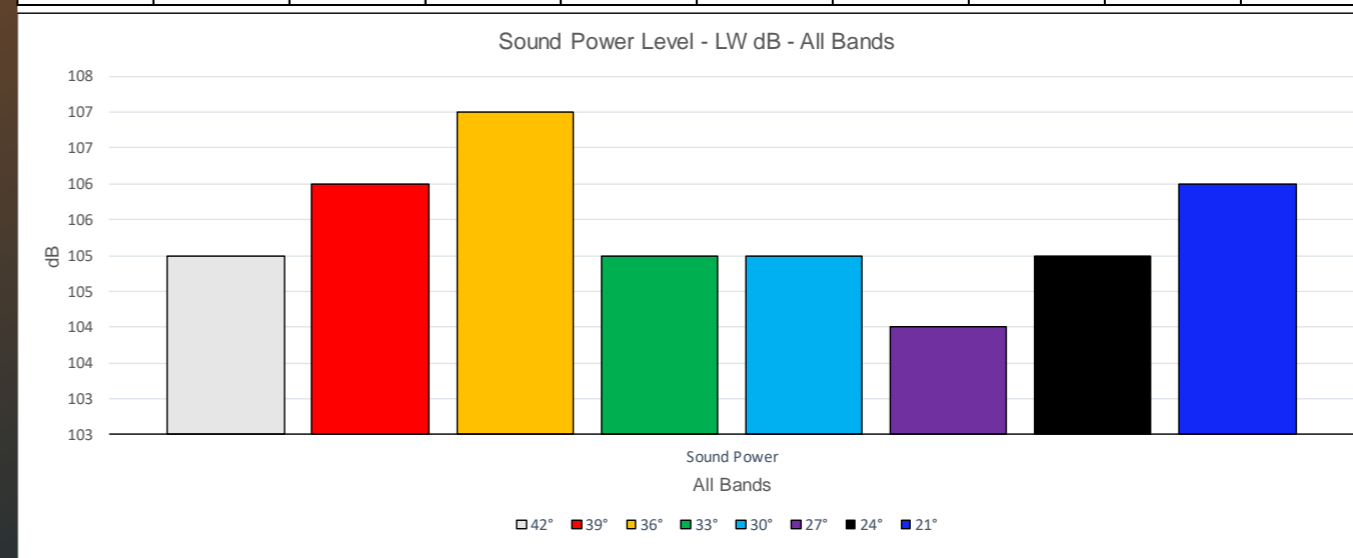
PRESTAZIONI / PERFORMANCE DATA – 6 POLE MOTOR

Impeller size 1400 mm – (980 rpm)

Curves and noise data



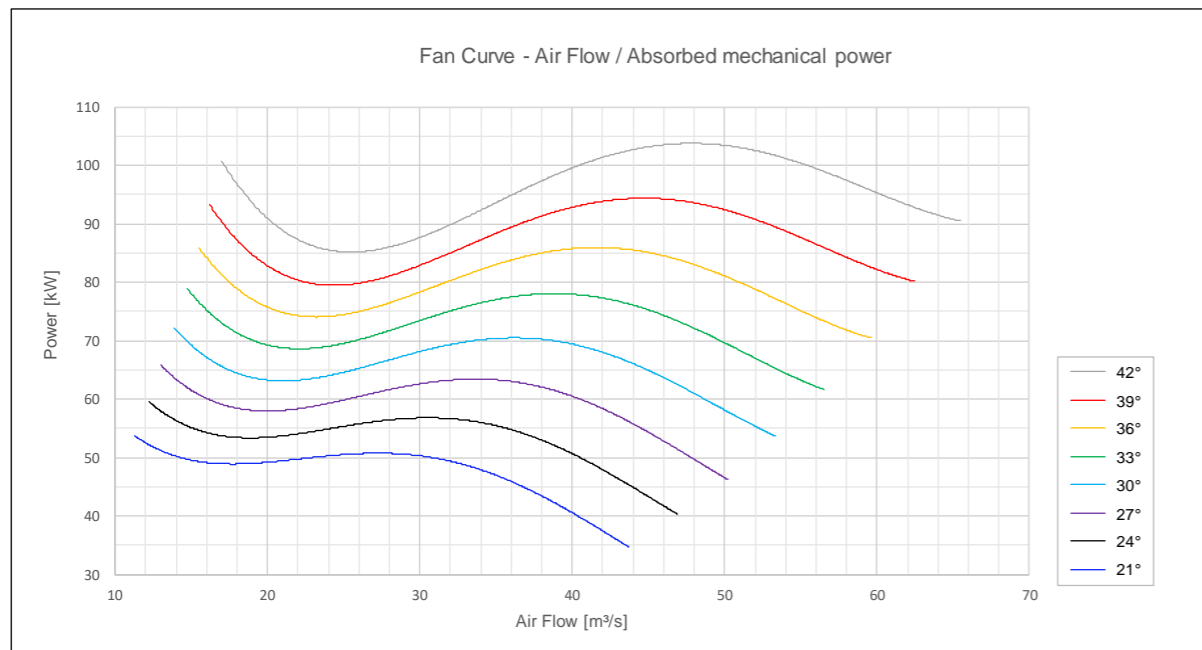
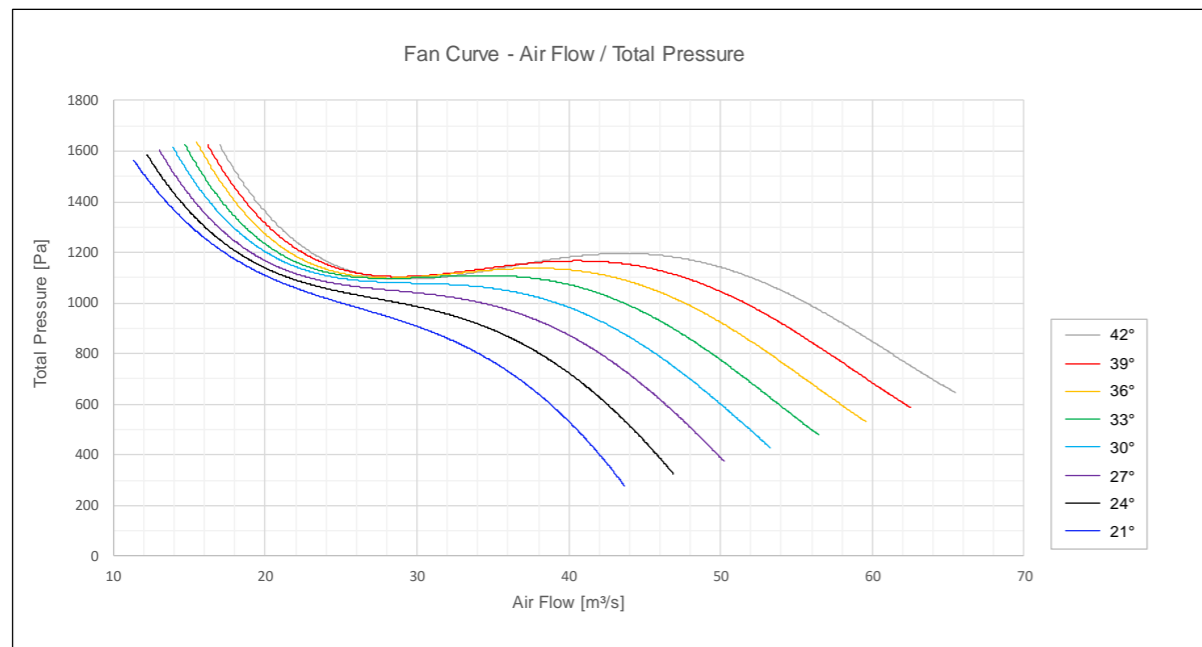
Pitch Angle	Sound Power LW dB 63 Hz	Sound Power LW dB 125 Hz	Sound Power LW dB 250 Hz	Sound Power LW dB 500 Hz	Sound Power LW dB 1k Hz	Sound Power LW dB 2k Hz	Sound Power LW dB 4k Hz	Sound Power LW dB 8k Hz	Sound Power LW dB All bands Hz
42°	100	98	96	94	94	93	92	88	105
39°	101	100	98	96	95	93	92	88	106
36°	101	101	99	97	96	94	93	89	107
33°	99	99	98	97	96	94	93	89	105
30°	97	97	97	97	96	95	94	89	105
27°	96	96	96	97	96	95	94	89	104
24°	97	99	98	98	96	94	93	88	105
21°	98	101	99	98	96	93	92	88	106



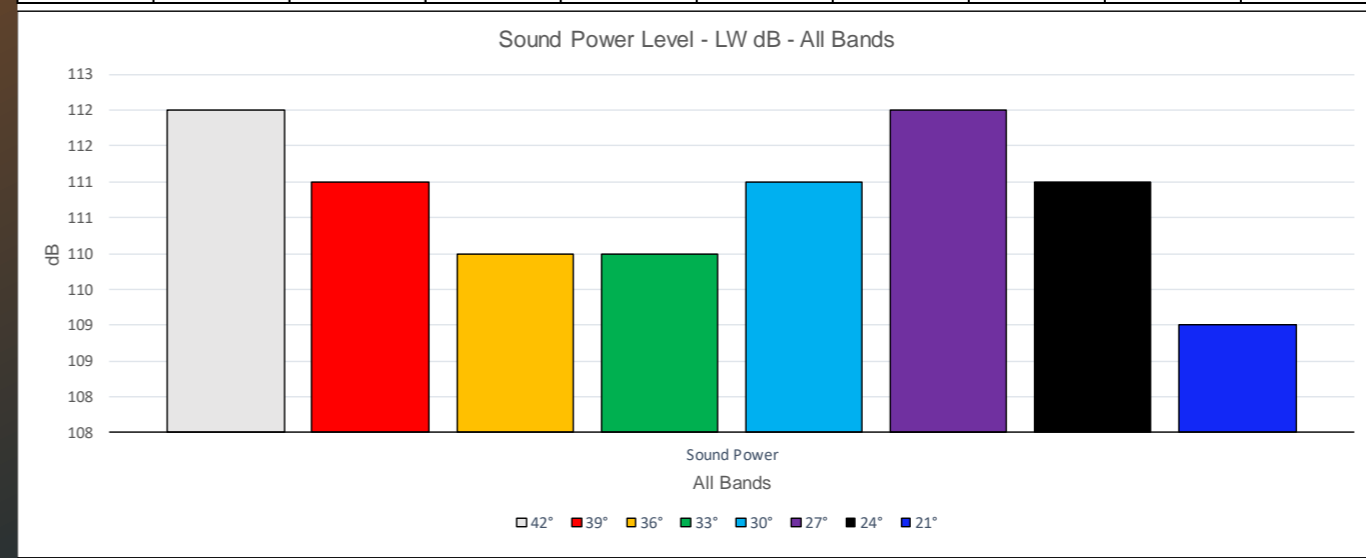
PRESTAZIONI / PERFORMANCE DATA – 6 POLE MOTOR

Impeller size 1600 mm – (980 rpm)

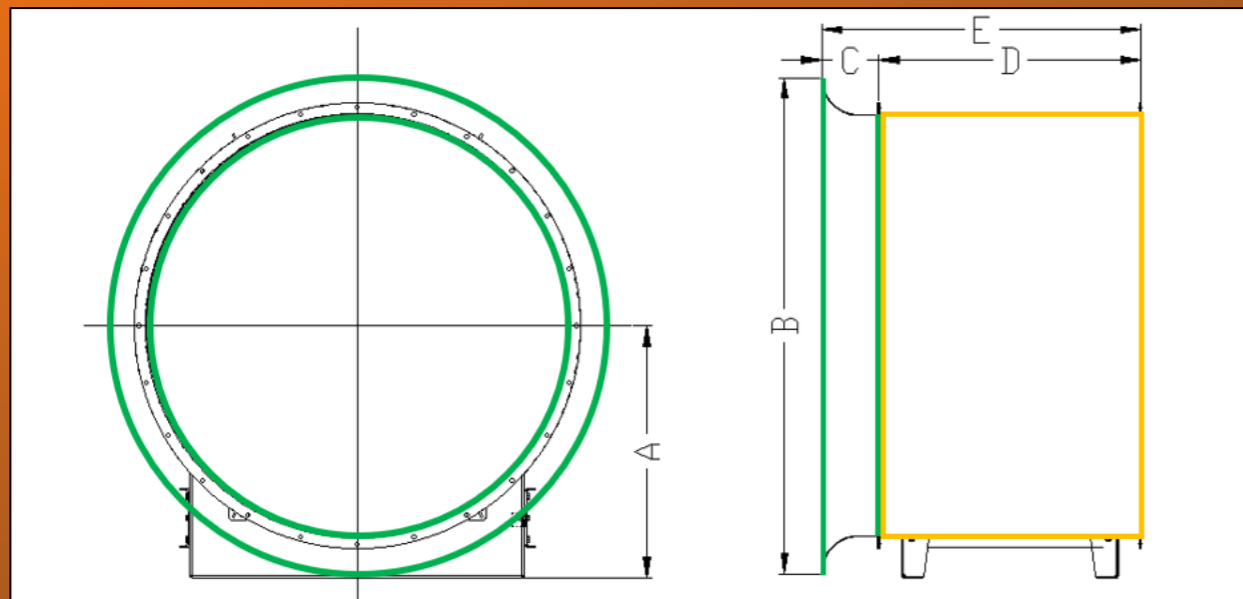
Curves and noise data



Pitch Angle	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power	Sound Power
	LW dB 63 Hz	LW dB 125 Hz	LW dB 250 Hz	LW dB 500 Hz	LW dB 1k Hz	LW dB 2k Hz	LW dB 4k Hz	LW dB 8k Hz	LW dB All bands Hz
42°	109	105	104	100	100	98	97	93	112
39°	107	104	102	100	100	98	97	93	111
36°	106	102	101	99	99	98	97	93	110
33°	106	103	101	99	99	98	96	92	110
30°	107	104	103	100	100	98	96	92	111
27°	107	106	104	102	100	98	96	92	112
24°	105	104	103	101	100	98	96	92	111
21°	103	103	102	101	100	98	96	92	109



DIMENSIONI PRINCIPALI / MAIN DIMENSIONS



"De Cardenas reserves the right to make technical changes"

TAGLIA DXL DXL SIZE	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
31	300	450	100	350	450
40	350	525	105	350	455
50	400	645	125	400	525
63	500	800	165	400	565
71	550	900	200	450	650
80	600	1000	200	450	650
90	650	1100	200	500	700
100	700	1220	200	500	700
112	800	1380	200	550	750
125	850	1500	200	750	950
140	950	1700	200	850	1050
160	1050	1900	200	1000	1200



DE CARDENAS

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