

Ø400 mm - Ø1250 mm - F400 (400 °C - 2h)

## EMAK SMOKE MANAGEMENT FANS



Technical and Commercial Information in this catalogue can be changed/modified according to Research&Development Studies done by EMAK A.Ş.

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## ABOUT EMAK

The **EMAK Company** was established in 1968 by dynamic and skillful sales and projecting specialists who before worked in a Dutch Refrigeration Co. In short time EMAK A.Ş. increased its production capacity, number of employees and turnover in a few years in its own field.

For EMAK A.Ş. The Quality is matter, as a result, all staff are totally involved maintaining quality standards in: research, technical and manufacturing departments, administrative and commercial sections. **EMAK A.Ş.** received from British Standard Institute (BSI) the highest international certification of quality, BS EN ISO 9001:2008.

Since 1968, EMAK A.Ş. involving with prestigious international and domestic turnkey contracts and industrial production, EMAK A.Ş. performing important logistic role in industries of Food, Constructing, Chemical, Textile, Ship Building and Tourism, wholesale marketing, with well known references in industrial ventilation systems. As a conclusion, EMAK A.Ş. will always be improving its' high quality, growing with professionals and will spend great effort to satisfy our customers.



# CERTIFICATES & QUALITY SYSTEMS

## THE QUALITY ASSURANCE PLAN of PRODUCTION AND TESTING FANS :

### EMAK Fans Are :

EMAK COMPANY's BSI EN ISO 9001 : 2008 Quality Control System is registered by the surveillance of British Standard Institute.

CE- 0086 CE Conformity Certificate - BSI (F200,F300,F400 Axial Smoke Fans) - CPR618996

CE Attestation Certification for Standard Axial Fans – Bureau Veritas TUR\_291\_06

CE Attestation Certification for Standard Centrifugal Fans – Bureau Veritas TUR\_292\_06

BSI-Kitemark – 618995 – All of Axial Smoke Fans Quality Documents

## ACCORDING TO EN 12101-3 STANDART-THE TESTS AND FINAL REPORTS OF SMOKE EXHAUST FANS

EFFECTIS-France Range Report(400°C – 120 min.) – COFRAC Accredited-1/1762 (B)

BSRIA Lab. UK Range Report (300°C – 90 min.) - UKAS Testing (EN 12101-3)

APPLUS Lab. Spain Range Report (200°C – 120 min.)-ENAC Accredited 13/6217 2406

APPLUS - (300 °C – 120 min.) Radial Jet Fan- Report No: (63/28 N)-0370-CPD-1365

APPLUS - (250 °C – 120 min.) Radial Jet Fan- Report No: (650 N)-QTR-179

Turkish Standards Institute - Quality Acceptance Standard 34 / 790 (1994) - EMAK

Fully Comply with AMCA Standard 99-3001 - EMAK

Tunnel Ventilation System Contracts in general complying with NFPA 130 Standard for fixed guide way Transit and Passenger Rail Systems. – by EMAK.

Ex Proof Fans are approved by Bureau Veritas, American Bureau of Shipping Turkish and German Lloyd's, TSE for Marine Applications.

All EMAK Reversible Fans are Patent Protected – TPE – TR 2003 02023 Y

EMAK Fans Preferred by The International Construction Contracts. Please ask for reference list for prestigious projects list.

### EMAK Fans Comply With :

Performance Test Code : ISO 5801 Methods of Testing Performance.

Similar to AMCA 210 and BS 848-1 (British Standards)

Fans are tested in Emak's own test laboratory.

EMAK Jet Fan tests : Executing According to ISO 13350, Comply with AMCA 250-12

Standard The Jet Fans are tested in Emak's own test laboratory.

All EMAK Fans are produced and assembled under rules of AMCA and CE Norms.

Fan (Impeller) Balance Quality and Vibration Level Adjustment Held According to ISO 1940 (G : 6.3 Norm and G : 2.5 Norm where necessary) - Similar Method AMCA Standard 204-96

Electric Motors, IEC / ISO / DIN / VDE / EU Standards IE2 as Standart (IE3 Where required)

Other materials supplied for ventilation systems and accessories also suit to the appreciated

TSE - ISO - BS - DIN and Internationally Known Norms and Certificated Producers.

All Emak Fans are bearing CE (Community European) Seal, Attested by Bureau Veritas.

Emak Company complies EICC (Laor - Healt&Safety - Enviromental – Ethics) Codes.

# ACCESSORIES

All EMAK Axial Flow Fan sizes can be supplied either

- a) With Long Type - Standard Length Casing (TAM)
- b) With Short Type - Wall Type Casing (DTK)
- c) Roof Type - Hooded with Axial Fan (CTF)

**DRIVE :** All Fans are direct driven by the Electric Motor (Unless otherwise agreed) Optional, belt driven Models available on request (AX).

**GUIDE VANE SECTION (GV):** Adding the guide vane section on the discharge side provides higher static pressure with the same horse-power.

**SILENCER (SK):** Pre-Galvanised construction, packaged sound-absorbent acoustic media, ready to match the fan flange easily, available all sizes. Dimensions on request.

**LOUVERS (PJ) and DAMPERS (DP):** EMAK FAN have a very large manufacturing programme of different kinds of Louvers - Dampers. Most of the products are aluminium with pre-galvanised mild steel.

- a) Fixed Blade Models
- b) Airstream / Hand operated
- c) Servomotor Operated (On/Off - Thermostatic)
- d) Fire dampers - Butterfly type dampers

**WIRE GUARDS (HT):** Impeller side guards, heavy - gauge spiral - wound wire is welded to ribs then painted or galvanised.

**MATCHING FLANGES (KF):** Companion Flanges are match to fit either discharge or inlet sides of casing.

**SQUARE FLANGES (DF):** For either Standard or Wall type Casing, Inlet / Discharge or both sides.

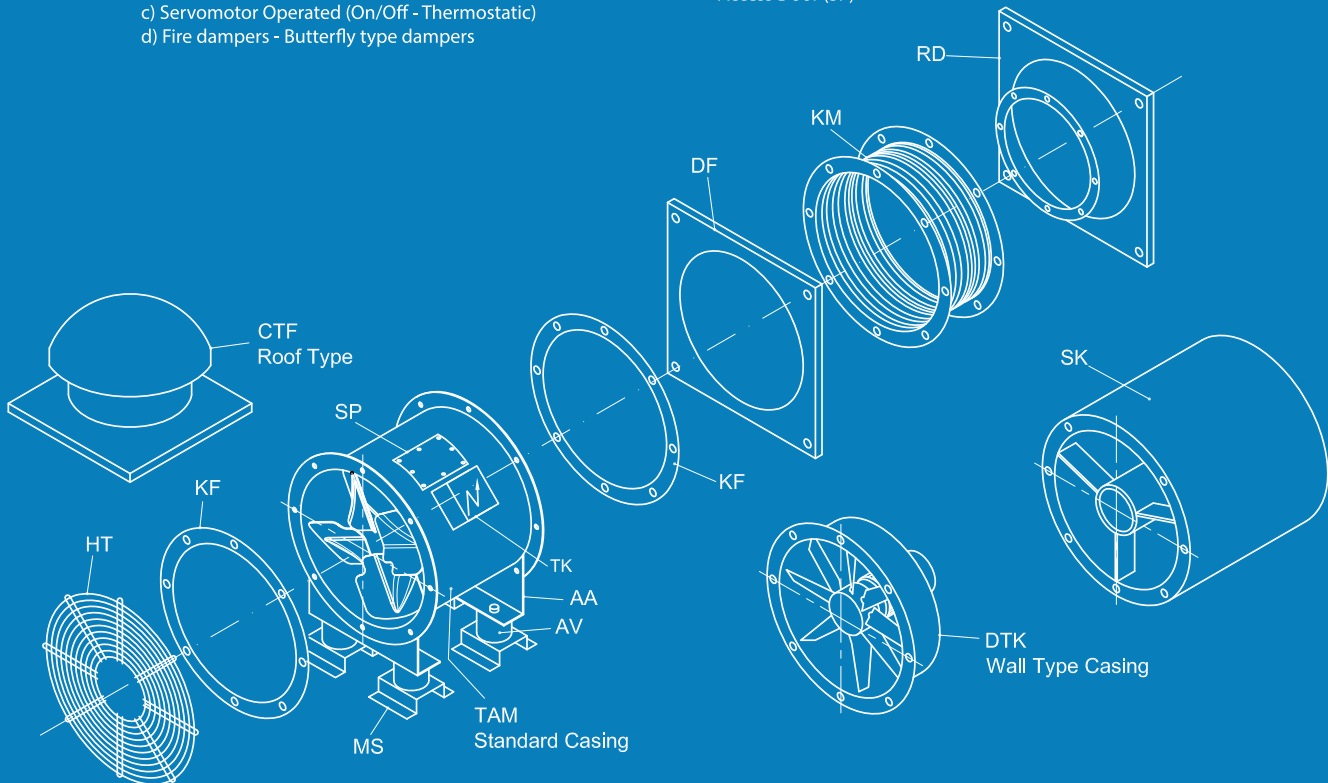
**FLEXIBLE CONNECTORS (KM):**

**CONES (RD):** Inlet Bell, Diffuser, Extension parts or any special design connection section orders are welcome.

"Available for each size, painted or galvanised."

**OTHER ANCILLARY EQUIPMENTS:**

- \* Mounting Feet (AA)
- \* Anti-vibration Mountings (AV)
- \* Electric Starters / Speed Controllers / Overloading or phase Protection (EA)
- \* Wall Hoods for protection Horizontal from Rain etc. (YK)
- \* Weather Hoods for Marine Applications. (MK)
- \* Outside fitted terminal box. (TK)
- \* Access Door (SP)



# GENERAL SPECIFICATIONS

## GENERAL SPECIFICATIONS of F400 (400°C - 2 h) EFF SERIES OF AXIAL FLOW FANS :

EMAK EFF (All Steel) SERIES of AXIAL FLOW FAN Products are manufactured in the range of Ø400 to Ø2800 mm (min.1.1 kW up to 250 kW) are Certified from B.S.I. (British Standards Institute) According to EN 12101-3 Standard. Infinitely variable between min. and max. diameters, different blades no's assembled on different hub sizes and each blade angle is variable, in different combinations, tailored to your individual needs.

EMAK EFF FANS are designed for mounting in any position from horizontal to vertical. Long or Short Cased or Roof Models.

Static and Dynamic Balance defects are completely recovered after production. The fans are suitable for Voltages 400-415 V. three phase 50 Hz as Standard. Other voltages or frequencies available on request. In addition to these technical advantages, we always offer high quality, competitive prices and prompt delivery for EMAK FANS with full range of ancillary equipment.

## TECHNICAL SPECIFICATIONS OF FAN PERFORMANCES AND CURVES :

EMAK FAN Performance data sheets stated in performance charts is based on measurements made in our own wind tunnel (test chambers) according to ISO 5801, Inlet side test duct (Conical Intel Method) at Nominal Voltage and frequency. Direction of Air Steam (In Standard Design) in all results is from motor to impeller. The results of all tests converted to Standard Air (Rho) 1.2 kg/m<sup>3</sup>

## MATERIALS USED IN EMAK EFF FANS :

### a) IMPELLER

High Efficiency impellers are designed to meet thought conditions, such as corrosion, fumes etc. and require minimum maintenance and operating cost.

### b) CASING (HOUSING)

EFF Fans are both available Long (TAM) or Short (DTK) type casing, Roof Models (CTF) as well. Casing part is constructed of rigid S235 JR heavy gauge Steel with internal supports, resulting in an extremely rigid structure, thickness, and other details given in dimensional data. Please check the wide ancillary options available.

TAM Models are delivered with AA Type Mounting Feet and TK outside fitted terminal box in Standard.

**Standard Paint :** RAL 7038 (Grey) Epoxy Finish.

**Optional :** Hot Dipped Galvanization for Steel Parts.

Special epoxy finish for acid, corrosives, fumes etc.

Other preferred Colors available on request.

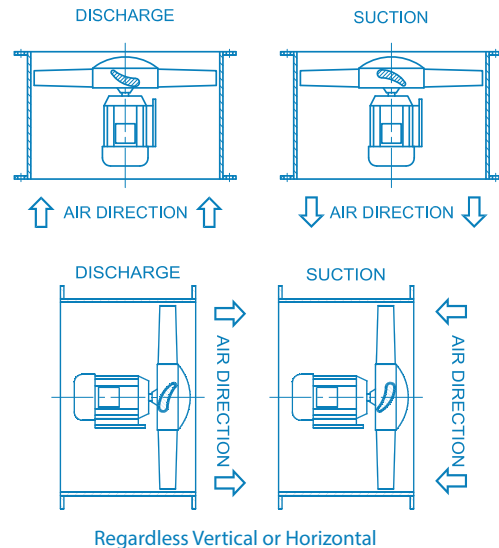
## NOISE LEVEL DATA :

The selection tables show the "A" scale sound power level, which is internationally recommended. Sound power levels are determined with a precision sound level meter, under optimum free field conditions at 3 m/1 m front discharge corner of the units, overall noise level consist of magnetic and bearing noise of Electric Motors. Written levels refer as a guide as the site acoustic conditions and not indicative of actual installation values. Together with other factors which create noise will combine overall noise level.

Please note that we recommend to use Axial Fans with wire guards (Type "HT") which supplied optional. Wire Guards considerably reduces noise level, protective as well. Also please note that Noise Level varies directly as Fan Speed and Fan Diameter.

**DIRECTION OF AIR STEAM**  
(In Standard Design)

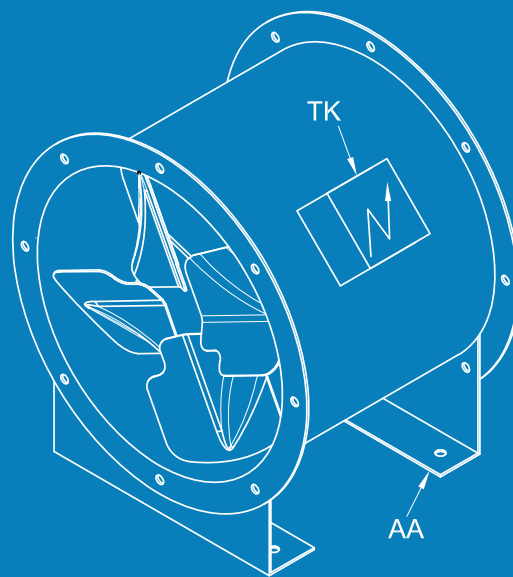
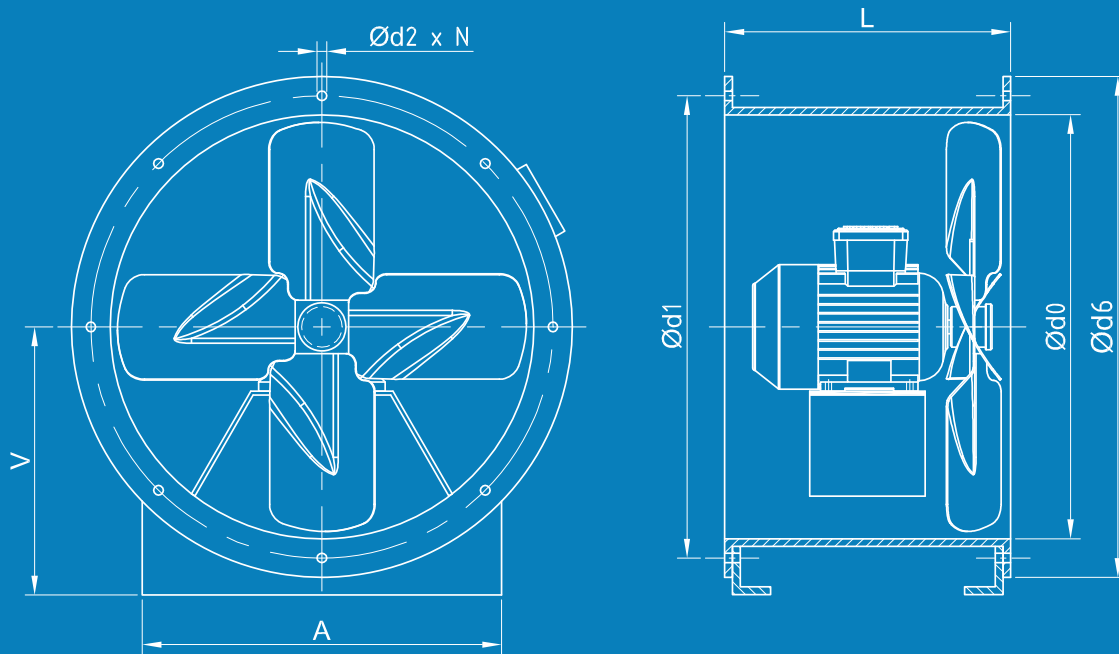
Either from motor to Impeller or Impeller to motor or truly reverse directions possible on request. Must be informed with in order. Fans should not be drive opposite side of the ARROW on the blades or casing, this reduces capacity abnormal.



Regardless Vertical or Horizontal

# TAM (INLINE) LONG TYPE FANS (F400)

TK: Terminal Box (optional)  
AA: Mounting Feet (optional)





## TAM (INLINE) LONG TYPE FANS (F400)

Model	Dimensions in mm							~Weight
	Ød0	Ød1	Ød6	Ød2 x N	L	A	V	max. (kg)
TAM 400	400	450	480	12 x 8	500	360	260	58
TAM 450	450	500	530	12 x 8	500	400	285	84
TAM 500	500	560	590	12 x 12	500	440	315	89
TAM 630	630	690	720	12 x 12	750	540	380	68
TAM 710	710	770	800	12 x 16	750	600	420	95
TAM 800	800	860	890	12 x 16	750	670	465	128
TAM 900	900	970	1010	15 x 16	750	740	525	173
TAM 1000	1000	1070	1110	15 x 16	750	800	575	306
TAM 1120	1120	1190	1230	15 x 20	1050	950	635	237
TAM 1250	1250	1320	1360	15 x 20	1050	1000	700	296

Dimensions are min  $\pm 2$ ; max  $\pm 13$  mm toleranced.

The continuous improvement of EMAK Products can cause some variations in the informations included in this Page.

- For over diameters Ø1250, please refer to our company.
- Weights are bound to the approximate weights in motor catalogues.



## Electrical characteristics 400°C - 120 min

### 2 poles - 3000 min<sup>-1</sup>

#### IP55 - 400 V - 50 HZ - CLASS H

Type	Rated power	Rated speed	Rated torque	Rated current	Power factor	Efficiency IEC 60034-2-1 2007	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight
	P <sub>n</sub> kW	N <sub>n</sub> min <sup>-1</sup>	M <sub>n</sub> N.m	I <sub>n</sub> (400 V) A	Cos φ 4/4	η 4/4	Is/In	Ms/Mn	M <sub>u</sub> /Mn	J kg.m <sup>2</sup>	IM B3 kg
FLSHT 80 LU	1.1	2874	3.7	2.3	0.84	79.4	7.8	3.6	3.4	0.0011	12.4
FLSHT 90 S	1.5	2881	4.8	3.0	0.90	77.5	8.3	3.8	3.6	0.0014	21.0
FLSHT 90 LU	1.8	2869	5.9	3.6	0.88	80.0	8.7	3.4	3.5	0.0025	25.0
FLSHT 90 LU	2.2	2874	7.3	4.3	0.87	82.4	8.5	4.2	3.7	0.0026	26.0
FLSHT 100 L	3	2879	10.1	5.8	0.89	83.5	8.4	2.9	3.3	0.0029	31.0
FLSHT 112 M	4	2903	13.0	7.8	0.88	82.3	8.5	3.0	3.5	0.0084	42.0
FLSHT 132 S	5.5	2922	18.0	10.5	0.88	86.4	8.4	2.8	3.4	0.0168	64.0
FLSHT 132 SM	7.5	2944	24.3	13.7	0.87	88.8	9.6	3.2	4.2	0.0236	71.0

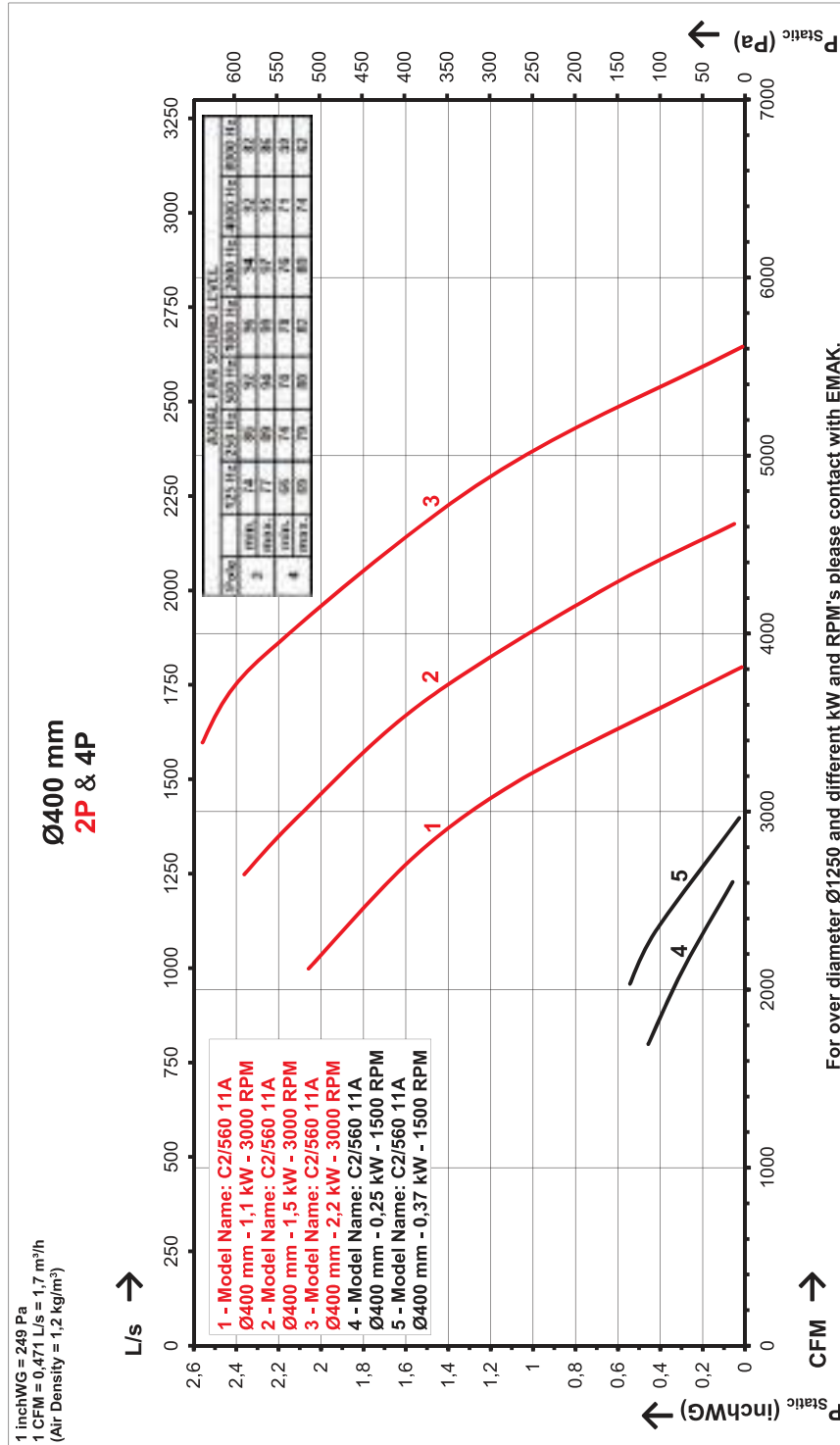
## Electrical characteristics 400°C - 120 min

### 4 poles - 1500 min<sup>-1</sup>

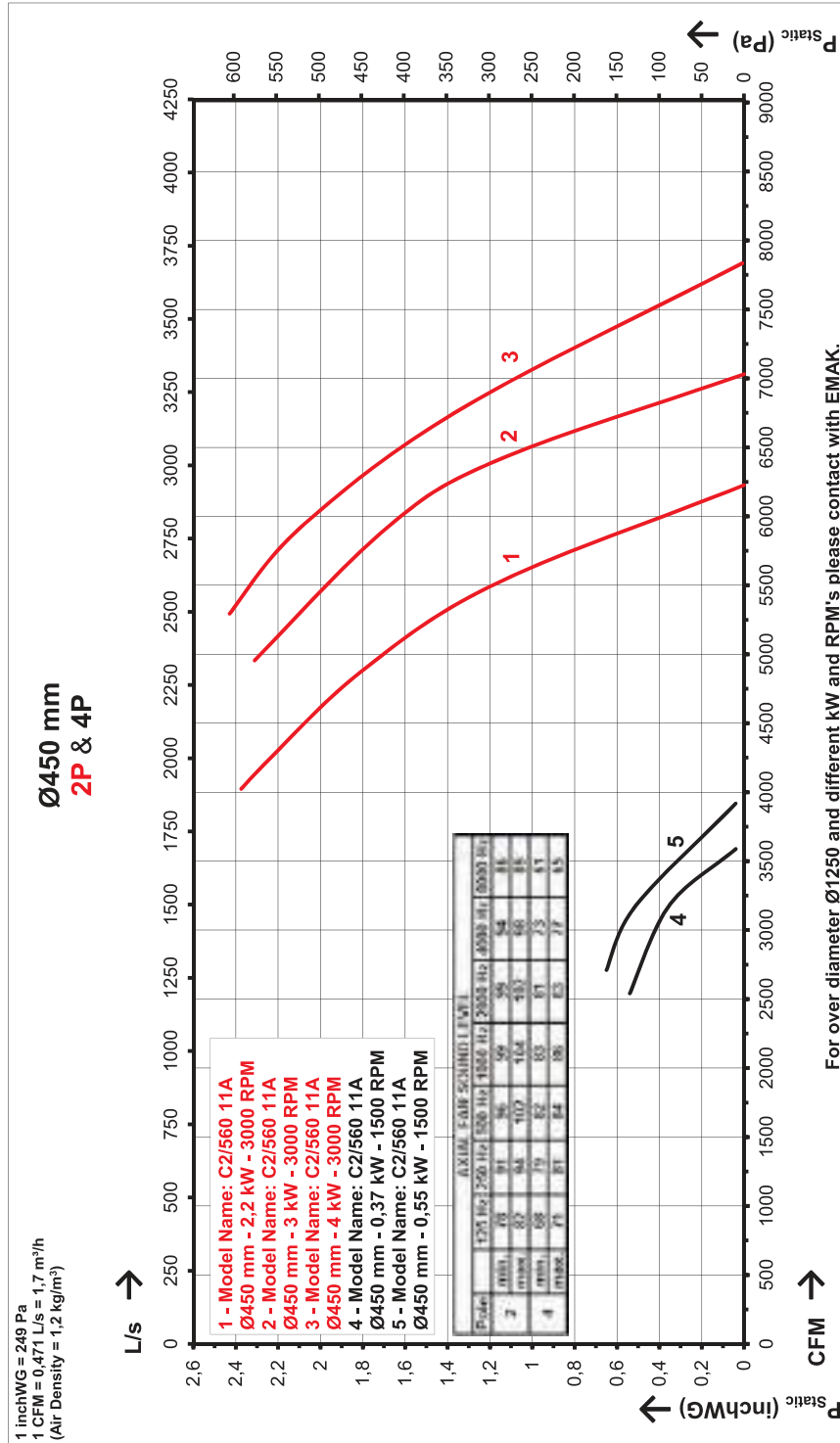
#### IP55 - 400 V - 50 HZ - CLASS H

Type	Rated power	Rated speed	Rated torque	Rated current	Power factor	Efficiency IEC 60034-2-1 2007	Starting current/ Rated current	Starting torque/ Rated torque	Maximum torque/ Rated torque	Moment of inertia	Weight
	P <sub>n</sub> kW	N <sub>n</sub> min <sup>-1</sup>	M <sub>n</sub> N.m	I <sub>n</sub> (400 V) A	Cos φ 4/4	η 4/4	Is/In	Ms/Mn	M <sub>u</sub> /Mn	J kg.m <sup>2</sup>	IM B3 kg
FLSHT 90 S	1.1	1436	7.3	2.5	0.81	75.9	5.7	2.0	2.5	0.0026	20.0
FLSHT 90 L	1.5	1431	9.9	3.4	0.81	76.7	5.8	2.0	2.7	0.0032	21.5
FLSHT 90 LU	1.8	1435	12.0	4.0	0.82	78.2	6.1	2.3	2.5	0.0038	25.3
FLSHT 100 L	2.2	1438	14.8	5.2	0.77	78.0	6.8	2.4	2.6	0.0051	31.0
FLSHT 100 LR	3	1435	19.6	6.8	0.78	78.0	7.1	2.5	2.7	0.0072	33.0
FLSHT 112 M	4	1455	26.4	8.2	0.83	83.3	7.2	2.3	3.3	0.0120	44.0
FLSHT 132 S	5.5	1453	36.3	10.7	0.86	84.3	7.8	2.3	3.3	0.0154	64.0
FLSHT 132 M	7.5	1457	49.3	14.3	0.86	87.0	8.4	2.4	3.4	0.0192	72.0
FLSHT 160 M	11	1455	72.2	21	0.86	87.0	7.8	2.6	3.3	0.0600	103.0
FLSHT 160 L	15	1455	98.4	28	0.86	89.1	7.8	2.6	3.3	0.0800	120.0
FLSHT 180 MR	18.5	1465	121	35	0.86	88.6	7.8	2.6	3.3	0.1000	135.0
FLSHT 180 L	22	1465	143	41	0.86	90.1	7.4	2.6	2.4	0.1370	184.0
FLSHT 200 L	30	1471	195	56	0.85	90.6	6.5	2.5	2.3	0.2400	260.0
FLSHT 225 ST	37	1476	239	70	0.82	92.6	7.0	2.6	2.4	0.2800	290.0
FLSHT 225 M	45	1483	290	79	0.87	93.0	7.0	2.5	2.6	0.7000	388.0
FLSHT 250 M	55	1479	355	101	0.84	93.4	6.5	2.4	2.5	0.7000	395.0
FLSHT 280 S	75	1483	483	137	0.84	92.7	7.7	2.9	3.0	0.8150	475.0
FLSHT 280 M	90	1478	582	162	0.85	93.4	7.6	3.0	3.1	1.0150	565.0

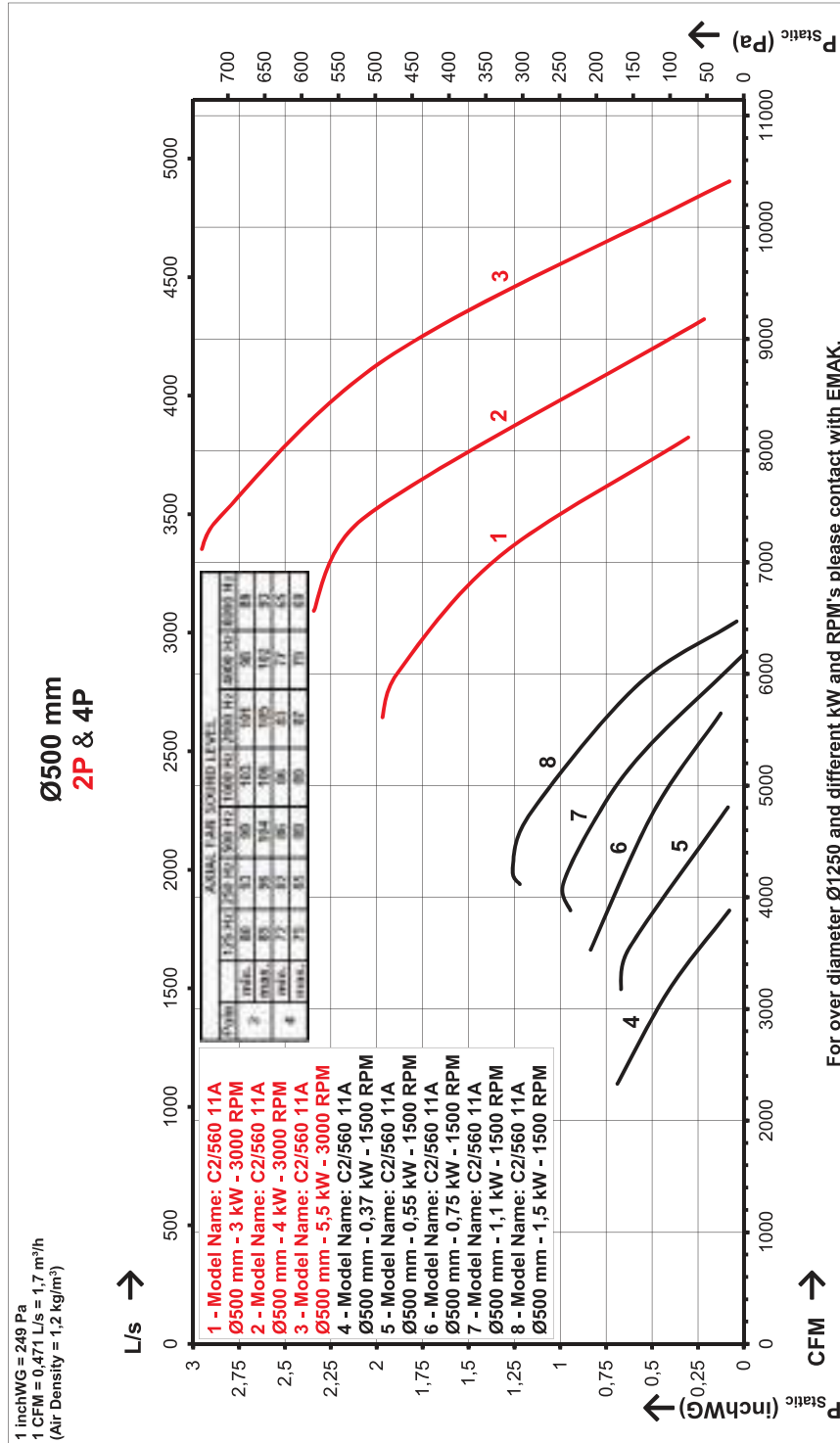
# EMAK – FAN PERFORMANCE CURVES



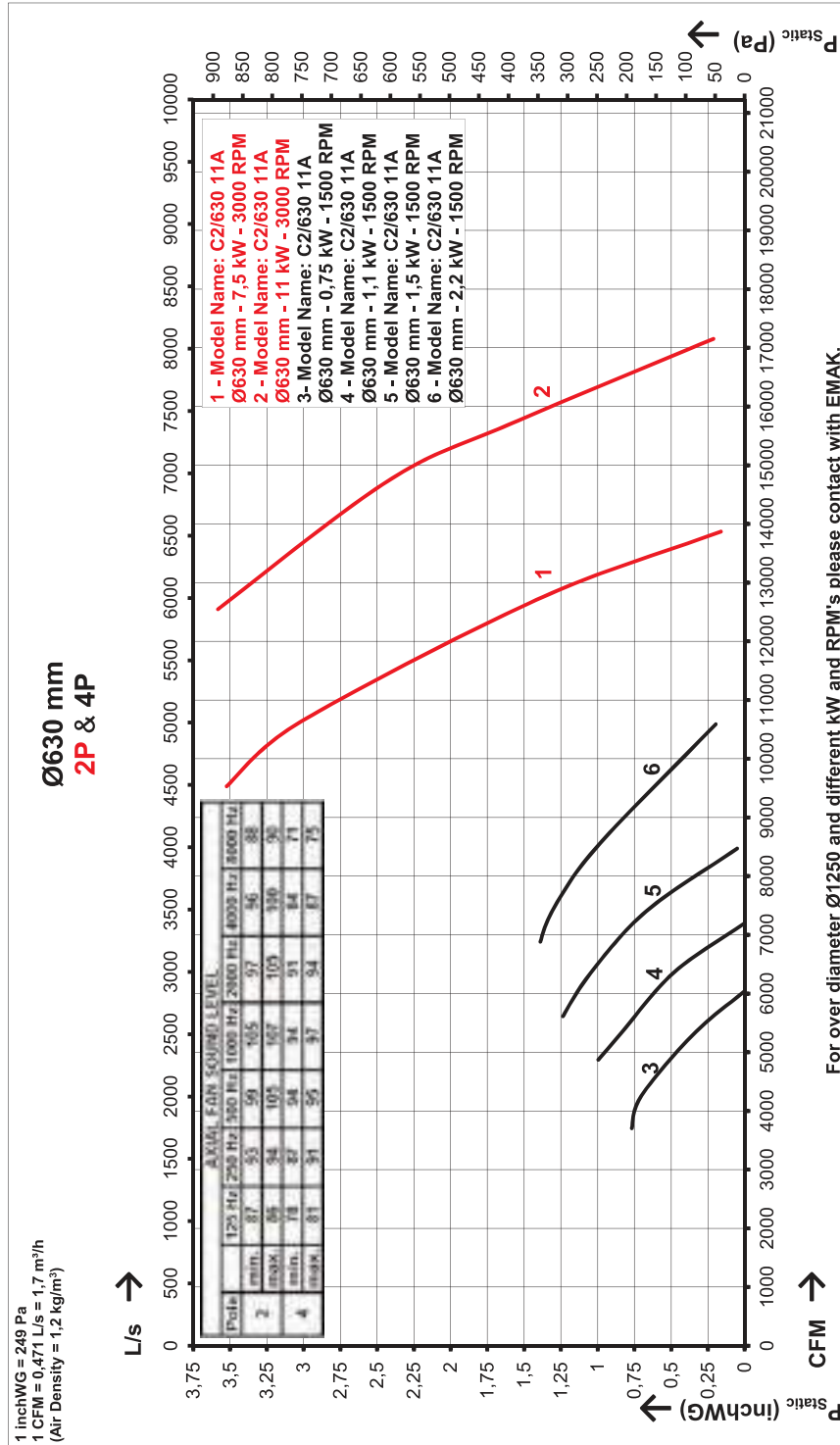
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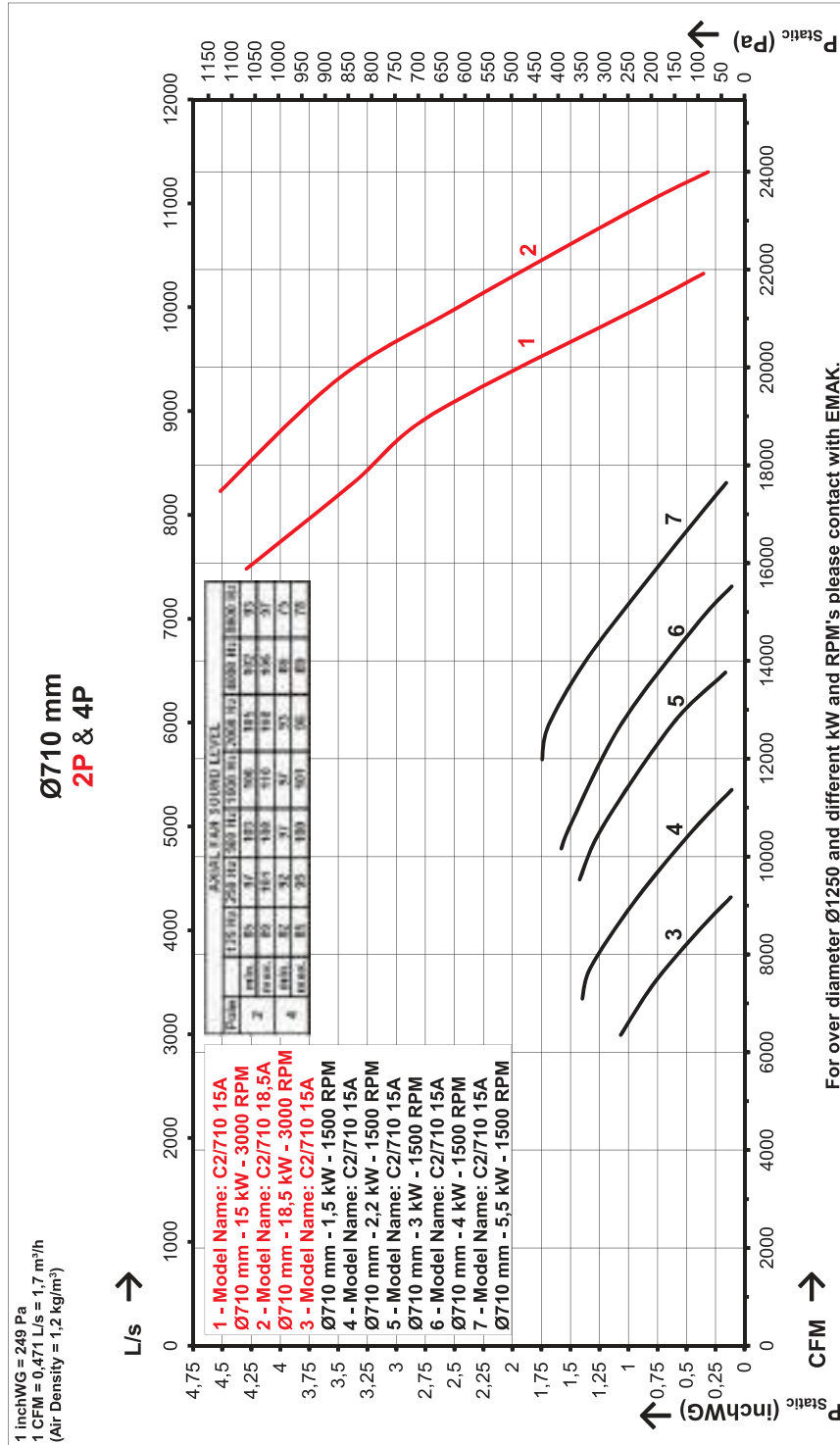
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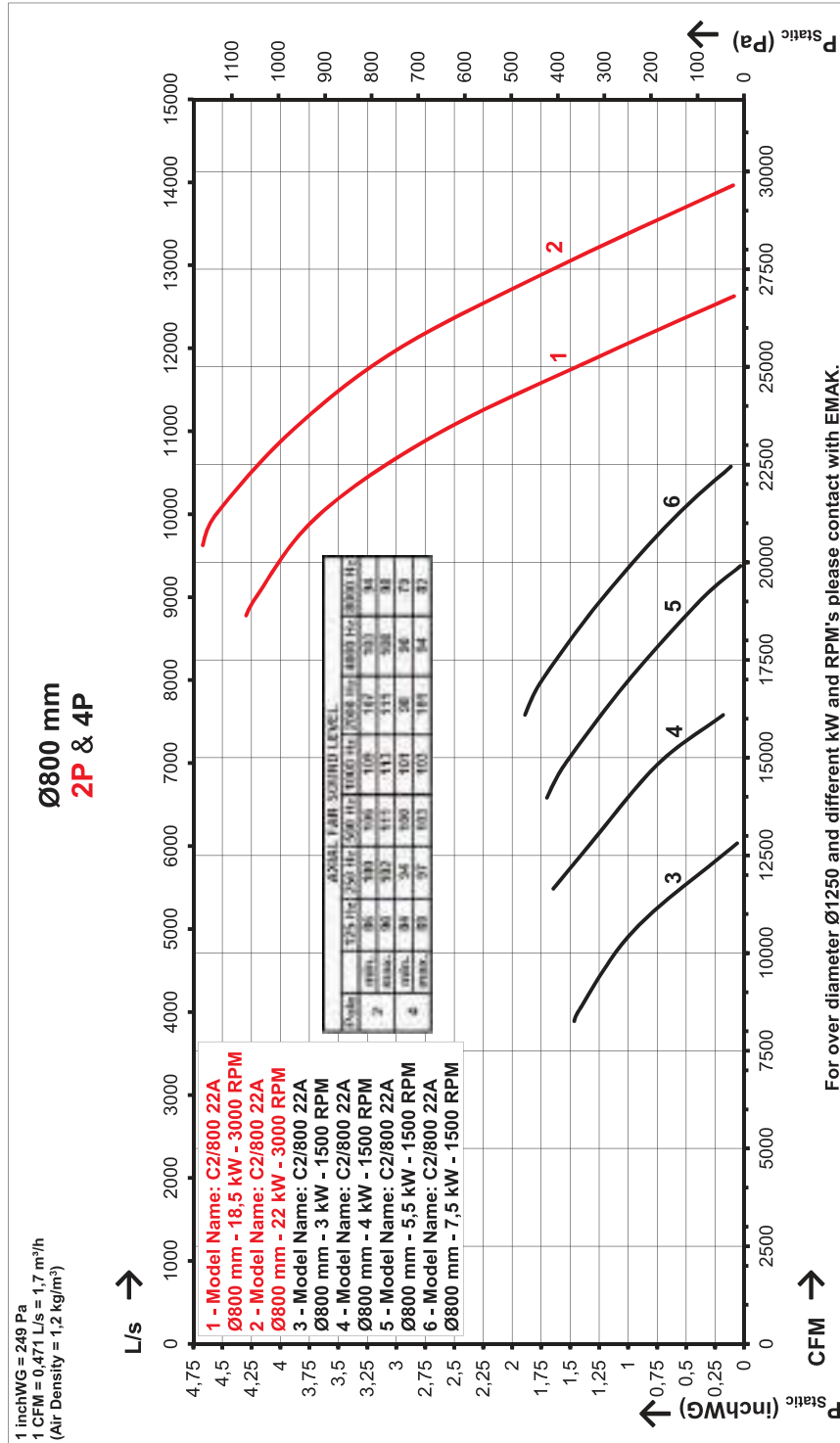
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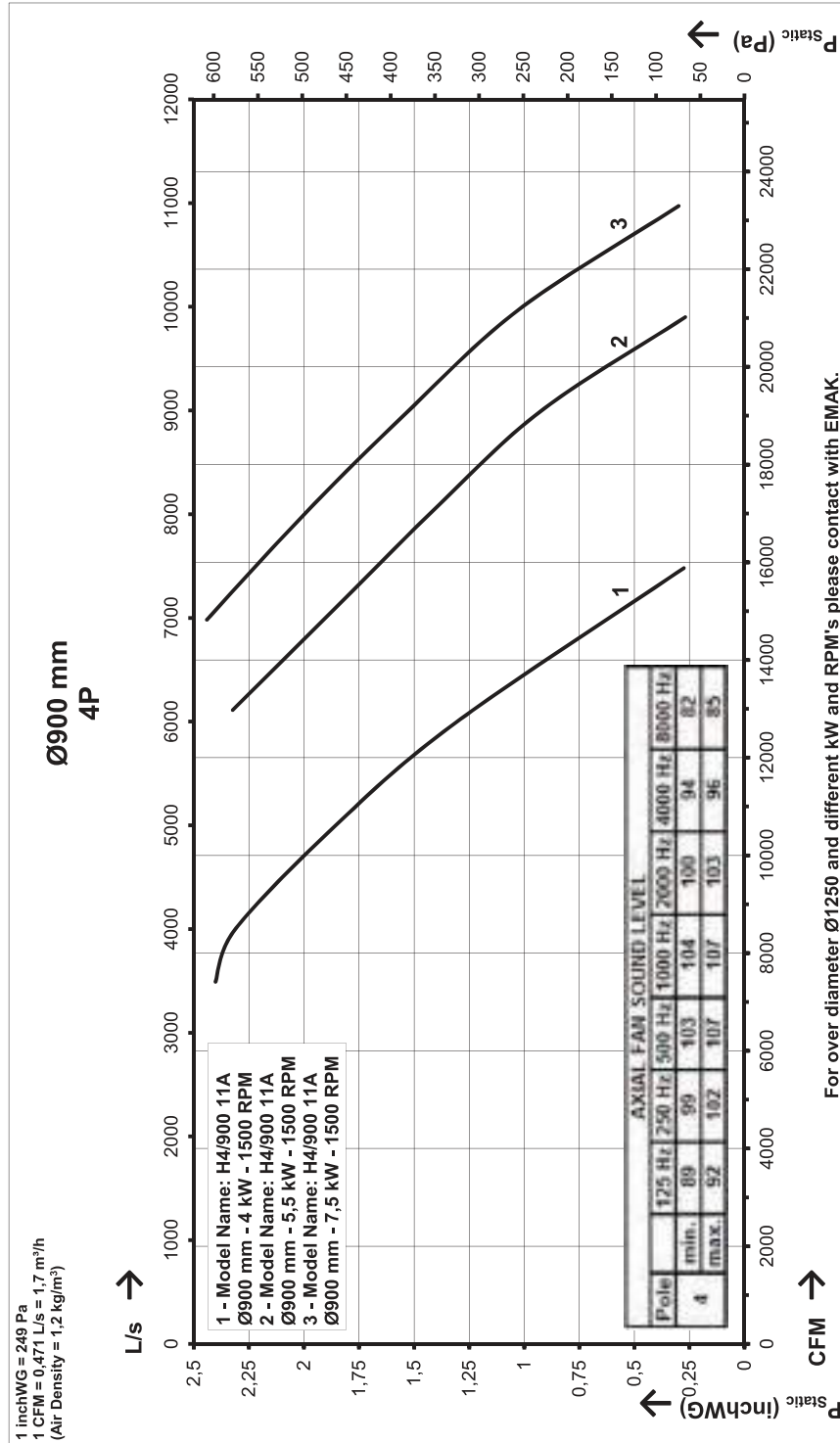


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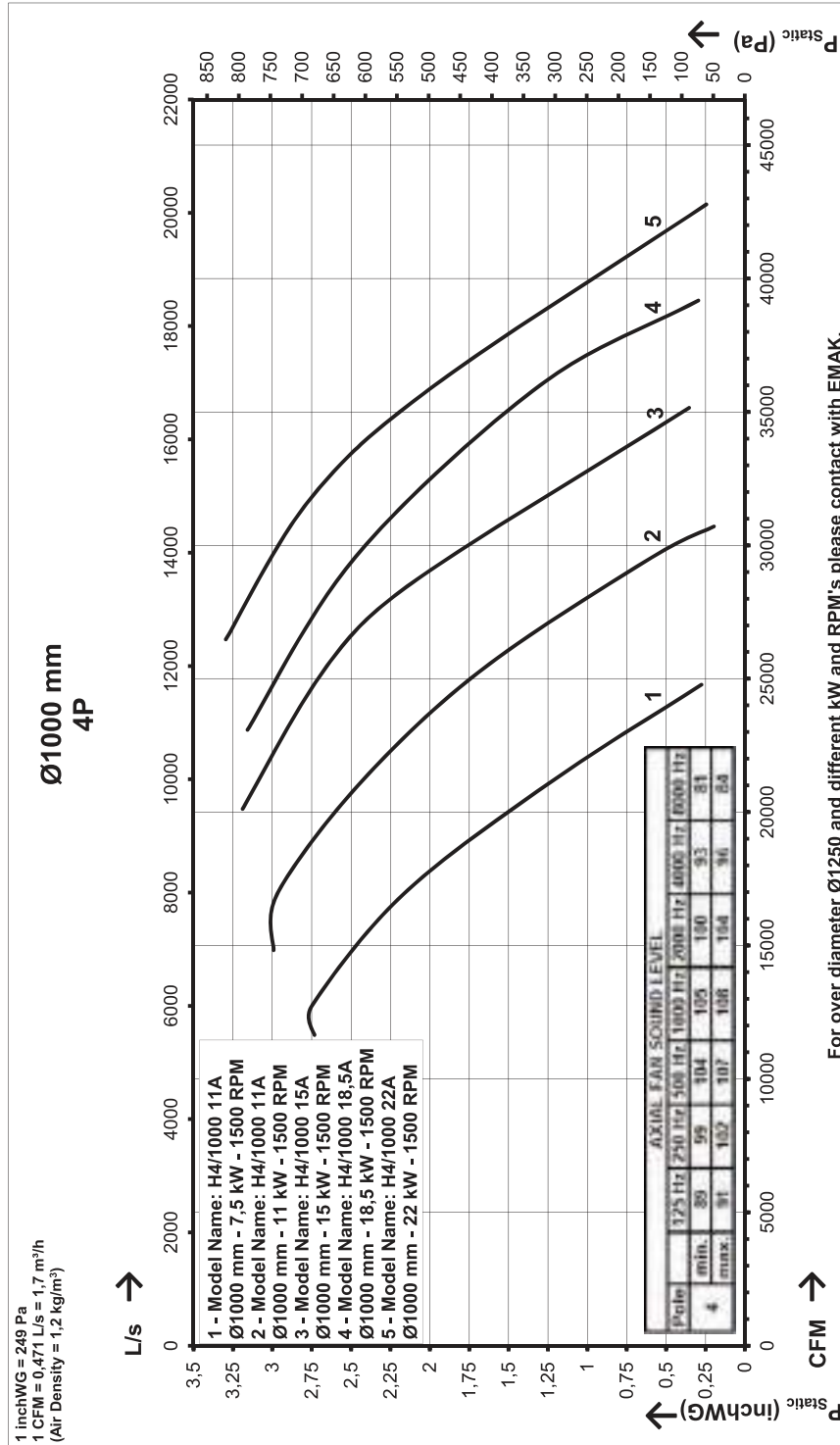




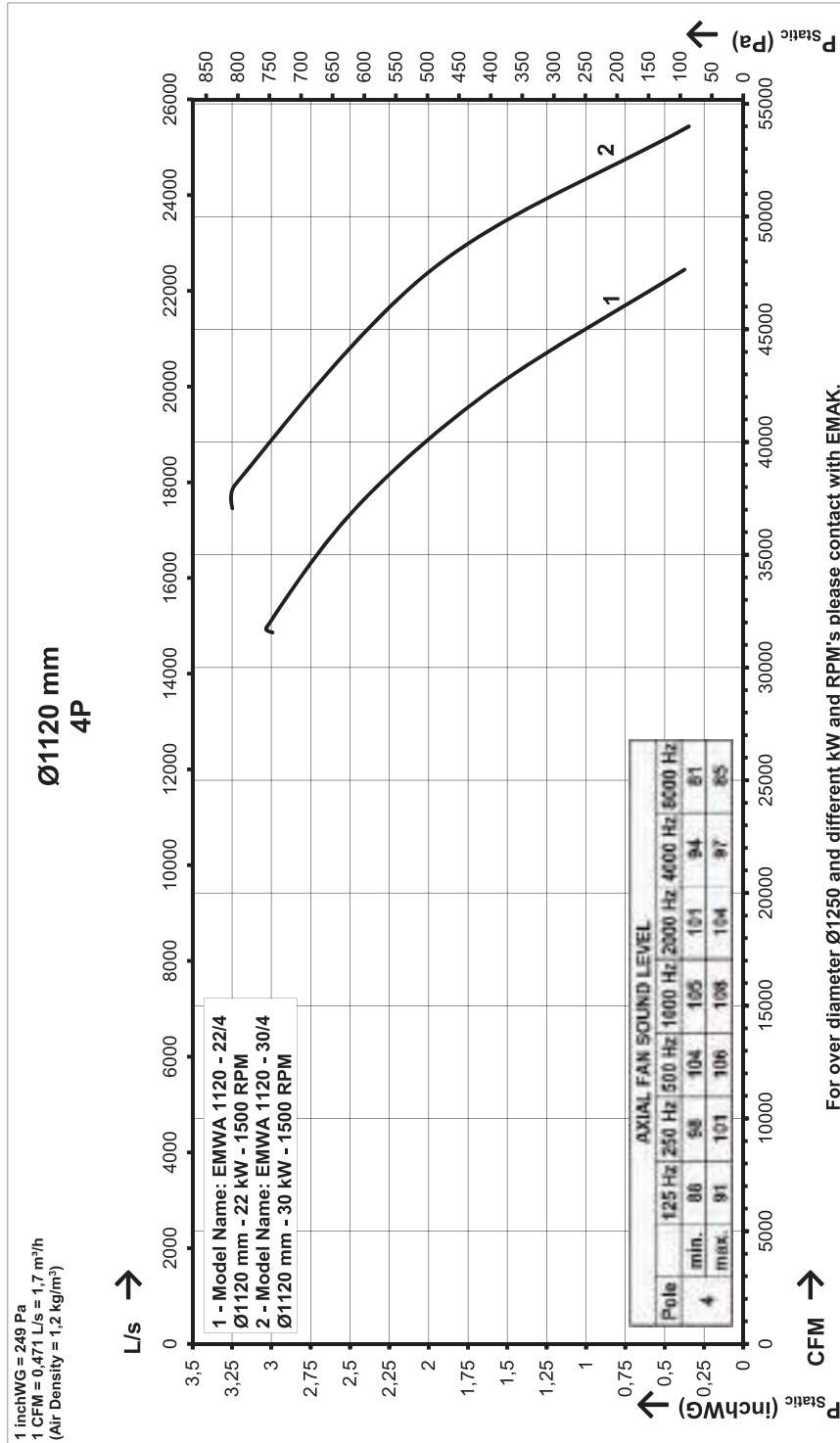
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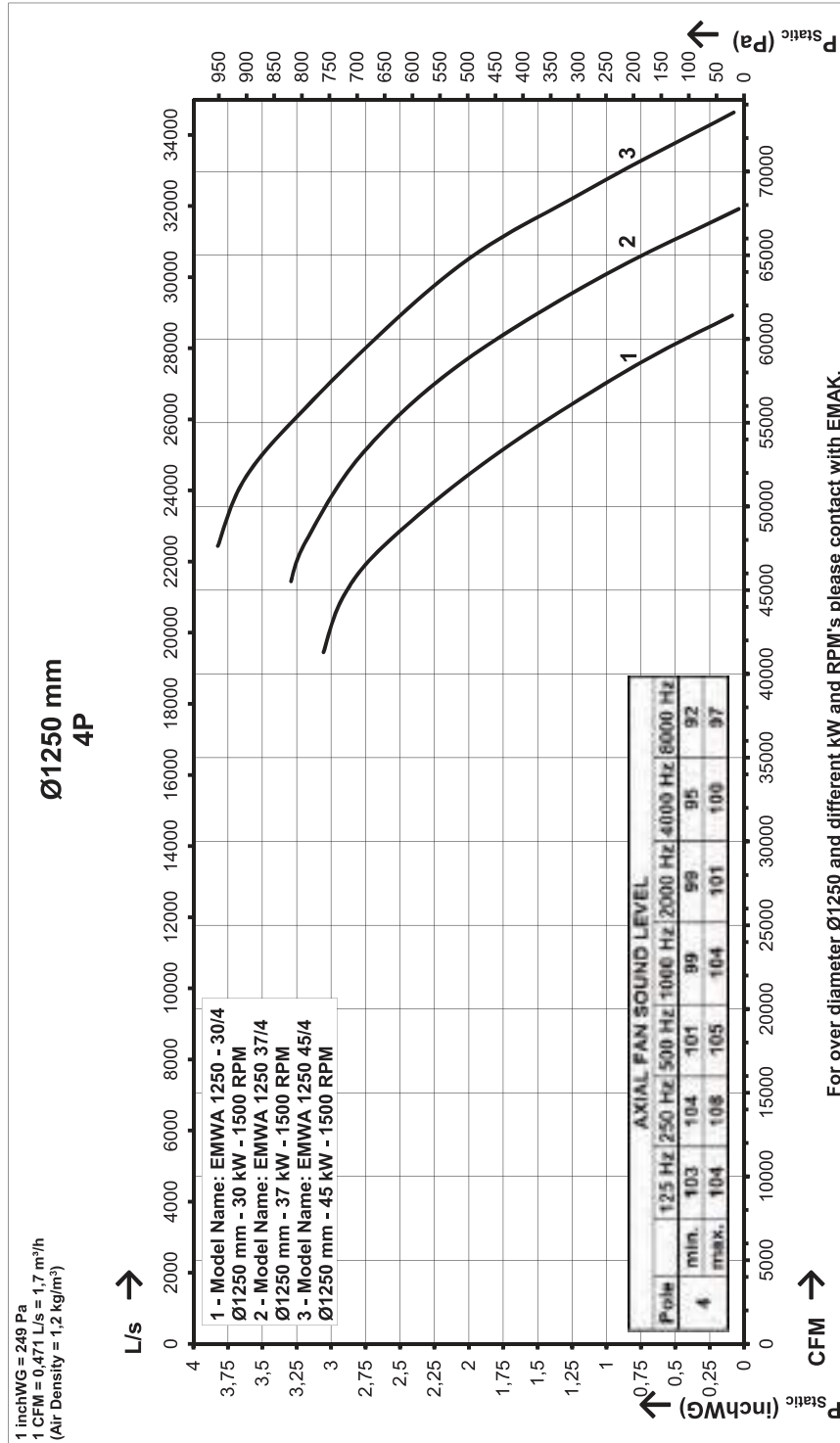
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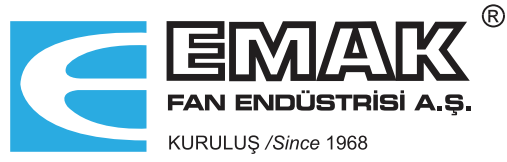


# EMAK – FAN PERFORMANCE CURVES



# EMAK – FAN PERFORMANCE CURVES





EN 12101 -3



0086 - CPR 618996  
F200 - F300 - F400



BSI - KITEMARK 618995



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