www.emak.com.tr

EMAK®

PRODUCT CATALOGUE

FAN SOLUTIONS FOR LIFE

CE 0086 - CPR 618996
F200 - F300 - F400

ISO 9001-2018

EN 12101 - 3

efectis

BSI - KITEMARK 618995

BSRIA

Applus+

CEO'S MESSAGE

52 YEARS OF BUILDING RELATIONSHIPS

in Every Space of Life

Since 1968, the biggest value we created as EMAK is our rich relationships with our employees, customers and the community. We are a team of people who are passionate to deliver our products for every spaces of life. We are passionate about bringing them with excellence and quality.

Future is coming, we understand how important it is to be innovative and environment friendly. We have a responsibility to our customers, to community, to ourselves and future generations. Innovation and sustainability are key to that future.

We have a long history of pioneering new ideas and working in several Industries like Construction, Energy, Shipbuilding and Mining. We focused on best solutions for different environments with the precise selection procedures, state of art design and tailor made solutions.

In business world success is full of promise. The reason we are in business is to add tangible value from the very first consultation and throughout the entire life cycles of delivering our products and services. We want to provide you with the best and most comprehensive engineering services, products and complete solutions for all your HVAC-R needs in every spaces of life.

We would like to grow our relationships and expand in more countries in addition to the 50 countries we have already served and willing to be part of the green and sustainable future we all dream of,

With gratitude,

Ali Timurhan Güç

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ABOUT EMAK

EMAK was established by dynamic, innovative and passionate experts in 1968, with a focus to provide HVAC-R Solutions for every space of life as our current motto "Fan Solutions for Life" implies.

After a short period upon its establishment, EMAK's market share, its organization and turnover grew rapidly. In the 2020, EMAK is a well renowned player in HVAC-R Solutions and Fan Producers market, we are proud of our big family formed of our colleagues, business partners and customers around the world.

We continue on investing in innovation and research, to diversify our current product range including Jet Fans, Axial Fans, Centrifugal Fans, Smoke Rated Fans, Explosion Proof fans, applications of Scada in Metro and Road Tunnel Projects, Remote Controls and Remote-control Application with smart phones with state of art design and technology.

EMAK has been serving the Construction, Energy, Shipbuilding, Food Industry, Chemical Industry, Textile Industry and Mine Industry with our tailor-made HVAC-R Designs and high-quality production for more than fifty years. This year's innovative product is retrofit designed fans used for de-icing on Wind Turbines operating in cold regions.

When we look back, we are also proud of completed prestigious projects in segments like Metro, Road-Railway Tunnel Projects, Energy Projects, Housing Projects, Shopping Mall, Car Parks, Construction Industry, Ships & Chemical Tankers. We have not only timely delivered these various products to these projects, but also, we have excelled our quality in installation, commissioning, maintenance and all kinds of after-sales services as well.

We are rewired for a journey in this new era. Our quality and products are certified by ISO-9001 (2015), BSI, BSRIA, EFECTIS, TUV and APPLUS. Our policies are our promises for a better life; we have crafted them considering our core values and responsibilities globally. Our environmentally and socially conscious policies and practices center around our core values: sustainability, fairness and community.

We hope you will join us in our journey across the globe,

OUR POLICIES

EMAK's values are created considering that every individual and association has a duty to contribute common welfare of society and sustainability of life in our World.

Having our values in the core, we have formulated our policies with consideration to our employees, customers and the whole society. We develop and update them with regulations in the countries we serve, high customer satisfaction, operational efficiency, protection of natural capital, minimizing environmental and social risks, and more environment friendly production.

Our Policies can be found in EMAK's website,

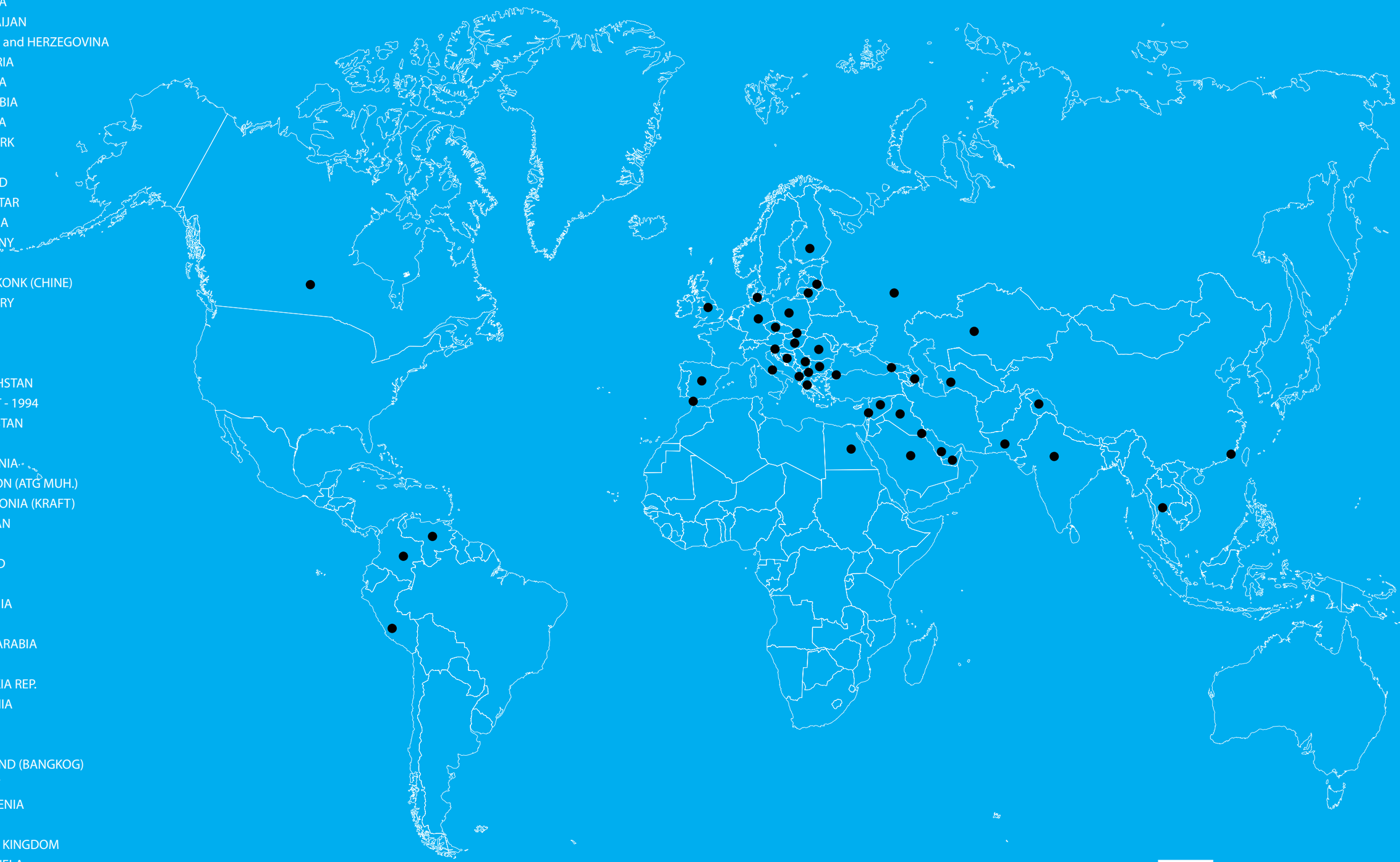
- Corporate Social Responsibility Policy
- Anti-Bribery and Corruption Policy
- Anti- Facilitation of Tax Evasion Policy
- Anti-Slavery and Human Trafficking Policy
- Business Ethics Policy
- Code of Conduct
- Equality, Diversion and Inclusion Policy,
- Environmental Policy
- Safety and Health Policy

QUALITY POLICY

In services of EMAK FAN that involves production of air conditioning systems, sales and services, we seek to; Produce high quality, high performance and satisfactory products that meet our customers' requirements, Comply with the quality control standards while production and service, manage and check the raw materials according to statutory protocols and perform the last controls according to the regulatory standards, Achieve our goals and realize our action plans that were annually set out for innovation and development, Provide opportunity of individual development and awareness among our employees through constant training courses, as a result giving them chance to contribute our constant development, Analyse the customer needs and perform a good quality service that meets or exceeds the customer's needs, Provide examination for our products and maintenance & part replacement service if necessary during "GUARANTEE" and "AFTER GUARANTEE" durations, therefore perpetuating our service; Commit ourselves for the maintenance of the certificates that we have been qualified.

COUNTRIES WITH EMAK FANS

- ALBANIA
- AZERBAIJAN
- BOSNIA and HERZEGOVINA
- BULGARIA
- CANADA
- COLOMBIA
- CZECHIA
- DENMARK
- EGYPT
- FINLAND
- GEBRELTAR
- GEORGIA
- GERMANY
- GREECE
- HONG KONK (CHINE)
- HUNGARY
- INDIA
- IRAQ
- ITALY
- KAZAKHSTAN
- KUWAIT - 1994
- KYRGYSTAN
- LATVIA
- LITHUANIA
- LEBANON (ATG MUH.)
- MACEDONIA (KRAFT)
- PAKISTAN
- PERU
- POLAND
- QATAR
- ROMANIA
- RUSSIA
- SAUDI ARABIA
- SIRBIA
- SLOVAKIA REP.
- SLOVENIA
- SPAIN
- SYRIA
- THAILAND (BANGKOG)
- TURKEY
- TURKMENIA
- U.A.E.
- UNITED KINGDOM
- VENEZUELA



EMAK®

AXIAL FLOW FANS

TAM - INLINE TYPE FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works vertical or horizontal
- High efficiency
- IP55 Protection Class for Motor and Terminal Box

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

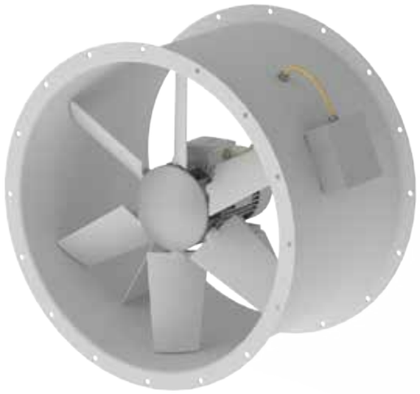
- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

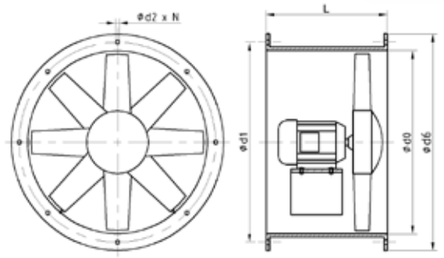
CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- The long casing covers impeller and electric motor sections.
- The gap clearances of impeller tips are made according to appropriate world standards.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1400 mm and bigger diameters please refer to EMWA Model.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.

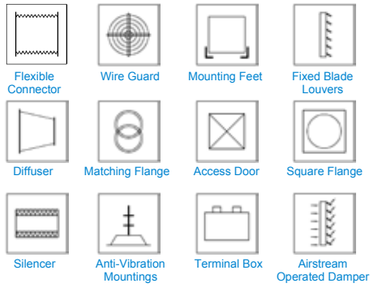




ÖLÇÜLER *Dimensions in mm*

Φd0	Φd1	Φd5	Φd2 x N	L
400	450	490	12 x 8	500
450	500	540	12 x 8	500
500	560	590	12 x 12	500
560	620	650	12 x 12	500
630	690	720	12 x 12	500
710	770	800	12 x 16	500
800	860	890	12 x 16	750
900	970	1010	15 x 16	750
1000	1070	1110	15 x 16	750
1120	1190	1230	15 x 20	960
1250	1320	1360	15 x 20	1050

ACCESSORIES



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

190729.ENG.TAM

DTK - WALL TYPE FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works vertical or horizontal
- High efficiency
- IP55 Protection Class for Motor and Terminal Box

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

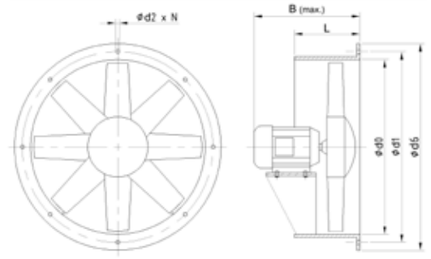
- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- Short casing covers the impeller section only, the motor section is outside of the casing.
- The gap clearances of impeller tips are made according to appropriate world standards.

OPTIONAL

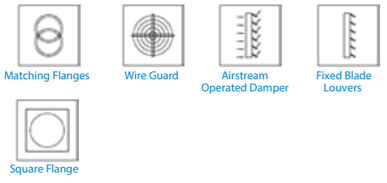
Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1400 mm and bigger diameters please contact to our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.



ÖLÇÜLER *Dimensions in mm*

Φd0	Φd1	Φd5	Φd2 x N	L	B (max.)
400	450	490	12 x 8	130	455
450	500	540	12 x 8	130	530
500	560	590	12 x 12	130	530
560	620	650	12 x 12	185	635
630	690	720	12 x 12	185	465
710	770	800	12 x 16	240	525
800	860	890	12 x 16	240	565
900	970	1010	15 x 16	240	565
1000	1070	1110	15 x 16	240	675
1120	1190	1230	15 x 20	470	860
1250	1320	1360	15 x 20	470	1015

ACCESSORIES



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

190729.ENG.DTK

CTF - ROOF TYPE FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard
- Works vertical - For Suction or Discharge
- High efficiency
- IP55 Protection Class for Motor and Terminal Box
- Roof Type Fan is with Terminal Box on the casing, Wire Guard at the impeller side and square shaped mounting base

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

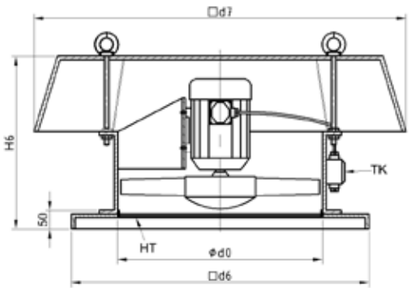
400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- The gap clearances of impeller tips are made according to appropriate world standards.



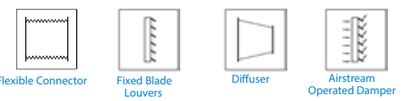
Ölçüler *Dimensions in* mm

Φd0	□d7	□d6	H6
400	650	500	565
450	650	550	605
500	800	620	600
560	800	680	665
630	1000	780	545
710	1070	825	715
800	1200	1010	595
900	1300	1110	635
1000	1535	1126	835
1120	1600	1470	910
1250	1800	1650	1045

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1400 mm and bigger diameters please contact to our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Material: Can be produced of Stainless Steel optinally.

ACCESSORIES



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

190729.ENG.CTF

EMAK

MTH - MARINE TYPE FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works vertical
- High efficiency Electric Motor
- IP55 Protection Class for Motor and Terminal Box
- This special type is designed with special futures to resist tough sea conditions on ships like increased steel thickness, hot dip galvanized casing and optional futures like IP56 water resistant electric motors, matching flanges, leak proof sea water cover.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between - 20˚C to +55˚C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000

IMPELLER

- The hub are made of Aluminum or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

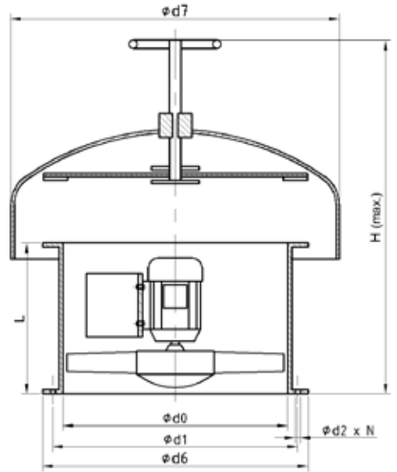
CASING

- The casing is formed from the S235JR (EN10025) steel sheet
- Hot dip galvanization is applied after production.
- The gap clearences of impeller tips are made according to appropriate world standarts.

OPTIONAL

Motors: Any other voltage and frequency motors are optional. IP56 protection class.
Dia: For Ø1120 mm and bigger please contact to our firm.

ACCESSORIES



ÖLÇÜLER *Dimensions in* mm

Φd0	Φd1	Φd6	Φd7	Φd2 x N	L	H (max.)
400	450	490	650	12 x 8	500	990
450	500	540	650	12 x 8	500	1025
500	560	590	800	12 x 12	500	1110
560	620	650	800	12 x 12	500	1135
630	690	720	1000	12 x 12	500	1260
710	770	800	1000	12 x 16	500	1300
800	860	900	1200	12 x 16	750	1740
900	970	1010	1300	15 x 16	750	1740
1000	1070	1110	1400	15 x 16	750	1800

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

190729.ENG.MTH

EMAK

CARPARK TYPE - AXIAL-MINI JET FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard.
- Works horizontal
- IP55 Protection Class for Motor and Terminal Box
- Certified according to EN12101-3
- Can be used for fresh air during standard conditions and for smoke exhaust in case of a fire
- The purpose of these fans is to make a smoke-free escape route for people in case of a fire.
- There is Wire Guard at suction side and Deflector at the discharge side of the unidirectional Jet Fans.
- Electrical Terminal Box delivered on unit.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

200 °C – 120 minutes (F200)
300 °C – 120 minutes (F300)
400 °C – 120 minutes (F400)

DIAMETERS (mm)

330 – 355 – 400 – 450 – 500

OPTIONAL

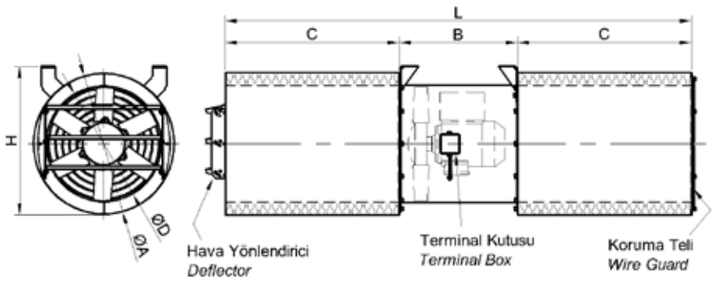
Motors: Any other voltage and frequency motors are optional.
Paint : Different colors are optional.
Protection : Hot Dip Galvanization is optional.
Material: Can be produced of Stainless Steel optinally.

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

BODY

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- The silencer inner side perforated steel, outer side pre-galvanized steel.
- The gap clearances of impeller tips are made according to appropriate world criterias.



ÖLÇÜLER *Dimensions in* mm						Thrust (N) (At High Speed)
ØD	ØA	B	C	L	H	
330	430	400	600	1600	450	40
355	455	500	600	1700	480	50
400	510	500	650	1800	535	80
450	560	500	750	2000	590	84
500	610	500	750	2000	640	106

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

190729.ENG.CAR

STF - PORTABLE FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard
- STF series are equipped with some accessories enables mobilization
- High efficiency Electric Motor
- IP55 Protection Class for Motor and Terminal Box

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000

IMPELLER

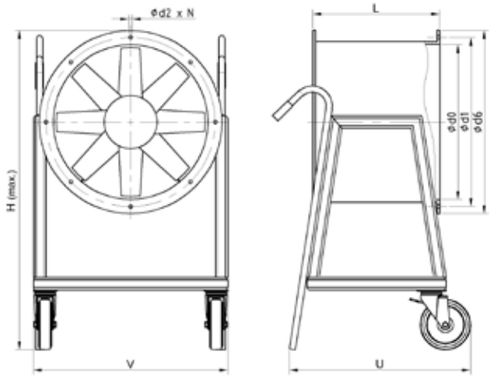
- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- The long casing covers impeller and electric motor sections.
- The gap clearances of impeller tips are made according to appropriate world standards.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1120 mm and bigger diameters please contact our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Material: Can be produced of Stainless Steel optinally.



ÖLÇÜLER *Dimensions in* mm							
Φd0	Φd1	Φd6	Φd2 x N	L	H (max.)	U	V
400	450	490	12 x 8	500	900	660	510
450	500	540	12 x 8	500	990	660	570
500	560	590	12 x 12	500	1080	660	635
560	620	650	12 x 12	500	1190	660	710
630	690	720	12 x 12	500	1320	660	800
710	770	800	12 x 16	500	1465	660	900
800	860	890	12 x 16	750	1650	990	1015
900	970	1010	15 x 16	750	1850	990	1145
1000	1070	1110	15 x 16	750	2030	990	1270

ACCESSORIES


Wire Guard


Terminal Box

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

190729.ENG.STF

AX - BELT DRIVEN FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard.
- Used in the situations that require only electric motor to be out of the air flow.
- Electric motor is coupled to the impeller shaft by belt drive mechanism.
- In need of %100 leak proof at the air way, HYF (Hermetically Sealed) model should be preferred.
- High efficiency.
- IP55 Protection Class for Motor and Terminal Box.
- Can work Horizontal or Vertical.

ELECTRIC MOTOR

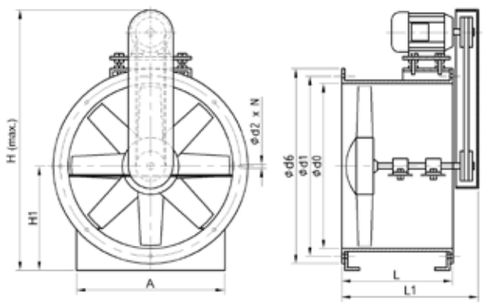
380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000



IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- Due to belt-driven mechanism, electric motor is located out of the air flow.
- The gap clearances of impeller tips are made according to appropriate world criterias.

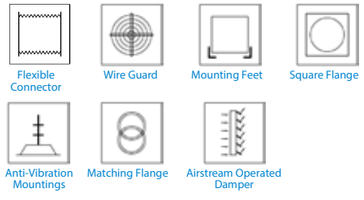
ÖLÇÜLER *Dimensions in mm*

ød0	ød1	ød6	ød2 x N	L	L1	A	H (max.)	H1
400	450	490	12 x 8	500	540	360	810	260
450	500	540	12 x 8	500	540	400	900	285
500	560	590	12 x 12	500	550	440	960	315
560	620	650	12 x 12	500	550	490	1080	345
630	690	720	12 x 12	500	550	540	1030	380
710	770	800	12 x 16	500	550	600	1140	420
800	860	890	12 x 16	750	790	670	1295	465
900	970	1010	15 x 16	750	800	740	1390	525
1000	1070	1110	15 x 16	750	825	800	1645	575

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1120 mm and bigger diameters please contact our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.

ACCESSORIES



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

190729.ENG.AX

HYF - HERMETIC BELT DRIVEN FAN

GENERAL SPECIFICATIONS

- Fan test according to ISO 5801:2017 standard
- Works vertical or horizontal
- HYF Models are specially designed for the applications where the electric motor, drive system and bearings should completely be out of air stream.
- The HYF Type fans are Hermetically Sealed V belt driven.
- HYF Models are made 100% leak-proof at their airway where the explosive, very dirty or overheated matter should be extracted or transferred. For the standard V-Belt applications EMAK AX Type should be preferred due to cheaper cost.
- High efficiency - IP55 Protection Class Electric Motor

ELECTRIC MOTOR

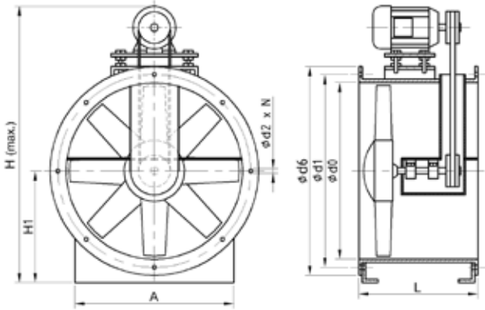
380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000



IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet
- RAL7038, paint finish is applied after production.
- Manufactured with circular flange as standard.
- The gap clearences of impeller tips are made according to appropriate world criterias.

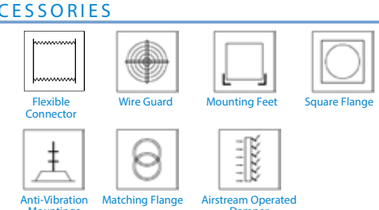
ÖLÇÜLER *Dimensions in mm*

ød0	ød1	ød6	ød2 x N	L	A	H (max.)	H1
400	450	490	12 x 8	500	360	810	260
450	500	540	12 x 8	500	400	900	285
500	560	590	12 x 12	500	440	960	315
560	620	650	12 x 12	500	490	1080	345
630	690	720	12 x 12	500	540	1030	380
710	770	800	12 x 16	500	600	1140	420
800	860	890	12 x 16	750	670	1295	465
900	970	1010	15 x 16	750	740	1390	525
1000	1070	1110	15 x 16	750	800	1645	575

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1400 mm and bigger diameters please refer to EMWA Model.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.

ACCESSORIES



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

190701.ENG.HYF

EM - LOW NOISE LEVEL FAN

GENERAL SPECIFICATIONS

- Electric motor is coupled to the impeller by belt driven mechanism.
- The louver section is automatically opens when Fan operated. Automatic front shutters prevents air bypass during the fan is switched off.
- EM model is delivered with, automatic louver, wire guards on both sides as standard.
- Range of EM type fans including four different models have the advantages of: high air flow rate, low cycle of motor, low sound level and low consumption of energy at low fan speed.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

IMPELLER

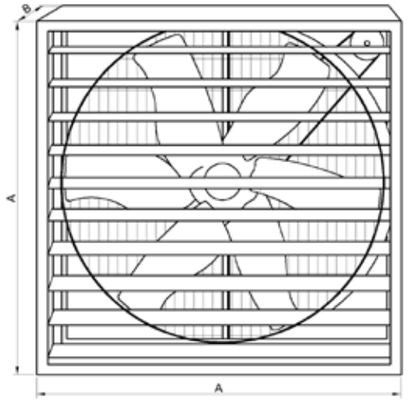
- Impellers are aerodynamic and made of stainless steel.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- Square formed.
- The body, louver and wire guards are formed from galvanized steel sheets.
- Protective drain holes preventing water accumulation inside the casing.

OPTIONAL

Motors: Any other voltage and frequency motors are optional, including one phase motors.
Material: Can be produced of Stainless Steel optinally.



MODEL	MOTOR		Ses Seviyesi *Sound Level* db(A)	Hava Debisi *Air Flow* m3/h	Pervane *Impeller*	Kaset *Casing*	Ölçüler (mm) *Dimensions (mm)*
	Rpm	kW - HP					A x A x B
EM 50	387	1.1 - 1.5	67	40.000	SS*	GS*	1380 x 1380 x 420
EM 45	387	0.55 - 0.75	65	26.000	SS*	GS*	1150 x 1150 x 420
EM 36	387	0.37 - 0.5	63	15.000	SS*	GS*	960 x 960 x 420
EM 30	387	0.37 - 0.5	63	10.000	SS*	GS*	810 x 810 x 420

* SS : Paslanmaz Çelik *Stainless Steel*
** Galvanizli Çelik *Galvanized Steel*

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

190729.TUR.EM

BCF - BIFURCATED FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works both horizontal and vertical
- High efficiency Electric Motor
- IP55 Protection Class for Motor and Terminal Box
- BFC is used where the electric motor is required to be completely out of air stream.
- Can be used in dangerous environments and in places where risk of explosion is present, as well as in environments where constant high temperature exists, along with dangerous chemical elements such as abrasive dust, particles, and acid.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +80˚C

DIAMETERS (mm)

450 – 500 – 560 – 630 – 710 – 800 900 – 1000

IMPELLER

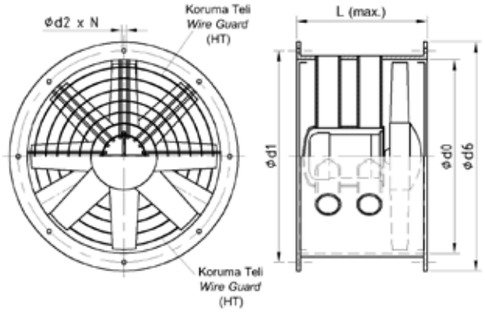
- The hub are made of Aluminium or Steel
- Impeller blades are made of Aluminum or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet
- RAL7038, paint finish is applied after production.
- Manufactured with circular flange as standard.
- The long casing covers impeller and electric motor sections.
- The gap clearences of impeller tips are made according to appropriate world standarts.

OPTIONAL

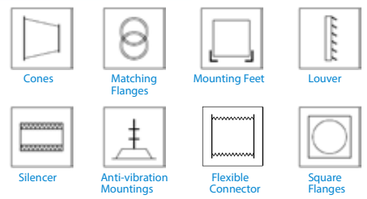
Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1120 mm and bigger diameters please contact our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Matching Flange is optional.
Material: Can be produced of Stainless Steel optinally.



ÖLÇÜLER *Dimensions in mm*

Φd0	Φd1	Φd6	Φd2 x N	L (max.)
450	500	540	12 x 8	770
500	560	590	12 x 12	830
560	620	650	12 x 12	920
630	690	720	12 x 12	785
710	770	800	12 x 16	830
800	860	890	12 x 16	830
900	970	1010	15 x 16	930
1000	1070	1110	15 x 16	1000

ACCESSORIES



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

190729.ENG.BCF

HAF - CELLED TYPE FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard
- Works horizontal or Vertical
- High efficiency Electric Motor
- IP55 Protection Class for Motor and Terminal Box
- Cell feature can be applied to Inline (TAM), Wall (DTK) and Exproof (AEX) type fans.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

IMPELLER

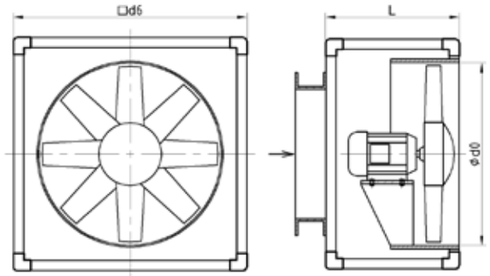
- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- The gap clearances of impeller tips are made according to appropriate world criterias.
- The sandwich panels may be isolated to noise, heat and negative/positive pressure.
- All body is assembled with bolts and can be disassembled easily.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1120 mm and bigger diameters please contact to our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Body: Cell walls can optionally be made with galvanized, painted, stainless steel, or PVC covered steel sheets.
Isolation: Insulating material can optionally be rock wool, glass wool or polyurethane.
Material: Can be produced of Stainless Steel optinally.



ÖLÇÜLER *Dimensions in* mm

Φd0	□d6	L
400	500	480
450	550	480
500	600	480
560	660	550
630	730	550
710	810	580
800	900	600
900	1000	640
1000	1100	790

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

190729.ENG.HAF

URF - ROOF TYPE FAN WITH BUILT IN DAMPER

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard
- Works vertical
- High efficiency Electric Motor
- IP55 Protection Class for Motor and Terminal Box
- URF types include Terminal Box (TK), Wire Guard (HT) at the impeller section and square-shaped mounting platform at the body.
- The damper opens automatically as URF starts and when not working the damper stays closed, therefore isolates outside environment.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Plastic, Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

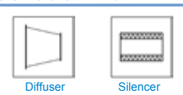
CASING

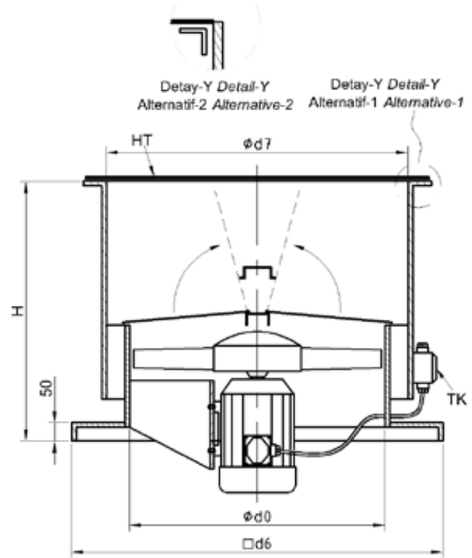
- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- The gap clearances of impeller tips are made according to appropriate world standards.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1120 mm and bigger diameters please contact to our firm.
Paint: Different colors are optional.
Material: Can be produced of Stainless Steel optinally.

ACCESSORIES





Ölçüler *Dimensions in* mm

Φd0	Φd7	□d6	H (max.)
400	465	500	490
450	535	550	515
500	585	620	550
560	645	680	580
630	720	780	600
710	795	910	645
800	895	1010	690
900	995	1110	745
1000	1110	1280	795

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

190701.ENG.URF

S & SM - TOWER FANS

S SERIE

GENERAL SPECIFICATIONS

- Designed to work Belt Driven Applications.

SM SERIE

GENERAL SPECIFICATIONS

- Designed to work with Gearbox Applications.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

Between 2m up to 10m

IMPELLER

- Fan blades are aerodynamic formed extruded Aluminum.
- Blade Pitch is adjustable proper to application.
- The Hub section is produced from steel, protected from rust with a special coating.
- Maybe driven clockwise or anticlockwise for air suction or discharge.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.

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

190729.ENG.S&SM

PNM - GAS PROOF PNEUMATIC FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works vertical or horizontal
- High efficiency
- Include Wire Guard at both sides as standard.
- Include Mounting Feet as standard.

PNEUMATIC MOTOR

Standard operation pressure 2 - 7 Bar
Optimum 5 Bar

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

- The hub is made of Steel.
- Impeller blades are made of Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

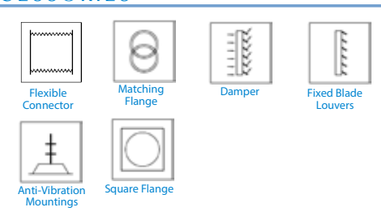
CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- The gap clearances of impeller tips are made according to appropriate world standards.

OPTIONAL

Dia: For ø400 mm and bigger diameters please refer to EMWA Model.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Flanges: Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.
Air Filter: Pre-filter

ACCESSORIES



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

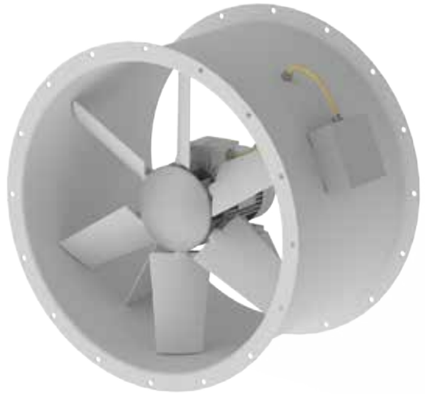
190902.ENG.PNM

FIRE & SMOKE RATED FANS

EFF - FIRE RATED FANS

GENERAL SPECIFICATIONS

- All models may be converted to fire / smoke exhaust type.
- EFF Type Fans are used where fire / smoke exhaust is required. EFF Type Fans are dual purpose. Can be used for smoke exhaust in case of a fire and can be used for fresh air ventilation during standard conditions.
- The purpose of the EFF Type Fans is to make a smoke-free escape route for people in case of a fire.
- EMAK has international certificates for F200, F300 and F400 according to BS EN 12101-3.
- IP55 Protection Class for Motor and Terminal Box.



ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph (Smoke Exhaust Motor)
440 - 480 V / 60 Hz / 3 Ph (Smoke Exhaust Motor)

WORKING TEMPERATURE

200 °C – 120 minutes (F200)
300 °C – 120 minutes (F300)
400 °C – 120 minutes (F400)

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheet.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- The gap clearances of impeller tips are made according to appropriate world criterias.

OPTIONAL

Electric Motors : Any other voltage or frequency motors are optional.
Dia : For Ø1400 mm and bigger diameters please contact to our firm.
Paint : Different colors are optional.
Protection : Hot Dip Galvanization is optional.
Flanges : Square Flange is optional.
Material: Can be produced of Stainless Steel optinally.

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

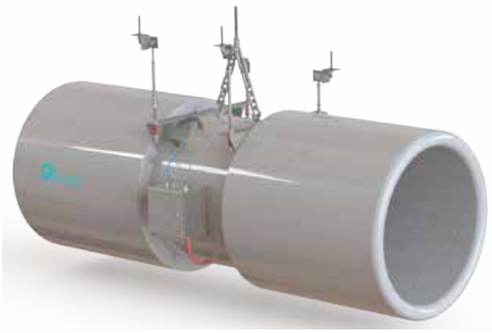
190729.ENG.EFF

TUNNEL JET FANS & METRO FANS

E-JET / E-JET R - TUNNEL JET FANS

GENERAL SPECIFICATIONS

- Jet Fan Performance Test according to ISO 13350: 2015 standard
- Works horizontal – Reversible/Unidirectional
- IP55 Protection Class for Motor and Terminal Box
- Emak Jet Fans are Fire Rated according to EN 12101-3 Standard
- Used for smoke exhaust in case of a fire and dual purpose fresh air ventilation during standard conditions.
- The purpose of the Jet Fans is to make a smoke-free escape route for people in case of a fire.



ELECTRIC MOTOR

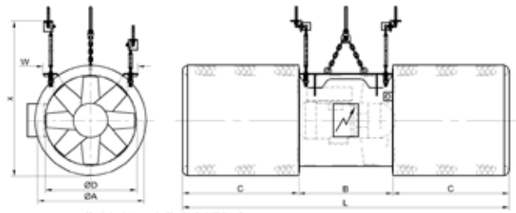
380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

200 °C – 120 minutes (F200)
300 °C – 120 minutes (F300)
400 °C – 120 minutes (F400)

DIAMETERS (mm)

560 – 630 – 710 – 800 – 900
1000 – 1120 – 1250 – 1400 – 1600



X : Askı detayına bağlı olarak değişkendir.
Depending on hanger detail is variable.

MODEL	Ölçüler Dimensions in mm					
	ØD	ØA	B	C	L	W
JET FAN - C2/560	560	700	650	800	2250	650
JET FAN - C2/630	630	770	650	800	2250	650
JET FAN - C2/710	710	920	750	1000	2750	800
JET FAN - C2/800	800	1000	750	1000	2750	800
JET FAN - H4/900	900	1110	750	1000	2750	1000
JET FAN - H4/1000	1000	1210	750	1250	3250	1000
JET FAN - EMWA 1120	1120	1250	855	1250	3355	1000
JET FAN - EMWA 1250	1200	1410	855	1250	3355	1000
JET FAN - EMWA 1400	1400	1610	855	1250	3355	1250
JET FAN - EMWA 1600	1600	1850	855	1250	3355	1250

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

BODY

- The casing is formed from the S235JR (EN10025) steel sheet.
- Inside of the silencer, perforated steel sheet and its outside, steel sheet wraps the insulated silencer.
- RAL7038 paint finish is applied after production.
- The gap clearances of impeller tips are made according to appropriate world criterias.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1800 mm and bigger diameters please contact our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Material: Can be produced of Stainless Steel optinally.

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

190729.ENG.E-JETR

EMWA /EMWA R - METRO (TVF/OTE/UPE) FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works Horizontal or Vertical
- IP55 Protection Class for Motor and Terminal Box
- EMWA Fans are Fire Rated According to EN 12101-3.
- Can be used for smoke exhaust in case of a fire or for fresh air ventilation during standard conditions.
- EMWA Fans used for make up smoke-free escape route for people in case of a fire in Metro Tunnels / Stations.
- Rigorously complied with the Fire Safety Standard NFPA 130 for railways and stations.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

200 °C – 120 minutes (F200)
300 °C – 120 minutes (F300)
400 °C – 120 minutes (F400)

DIAMETERS (mm)

Max. 3550mm

REVERSIBLE IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

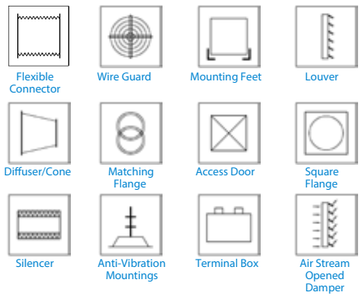
BODY

- The casing is formed from the S235JR (EN10025) steel sheet.
- Hot Dip Galvanization according to ISO 1461 standard.
- The gap clearances of impeller tips are made according to appropriate world criterias.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Paint: Different colors are optional.
Material: Can be produced of Stainless Steel optinally.

ACCESSORIES



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

190729.ENG.EMWA

SS/MS JET - TUNNELLING FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801: 2017 standard
- Works horizontal
- IP55 Protection Class for Motor and Terminal Box
- SS-MS Jet Fans, pumps fresh air using fan tubes to the depths of mine tunnels due to high static pressure. Whether by TBM, NATM or Classic Conventional Tunneling, SS-MS Jet Fans always deliver the calculated fresh air into the desired area.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

DIAMETERS (mm)

560 – 630 – 710 – 800 – 900 – 1000
1120 – 1200 – 1250 – 1400 – 1600

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium or Steel.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

BODY

- The casing is formed from the S235JR (EN10025) steel sheet.
- Inside of the silencer, perforated steel sheet and its outside, a steel sheet wraps the insulated silencer.
- SS-MS Jet Fans come with HT wire guard, suction cone, and Fan-Tube Adapter
- RAL7038 paint finish is applied after production.
- The gap clearances of impeller tips are made according to appropriate world criterias.

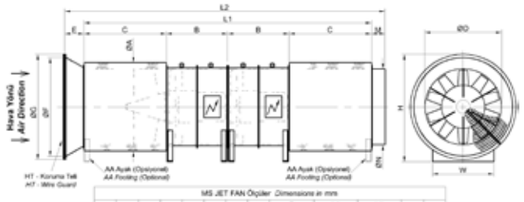
OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Dia: For Ø1800 mm and bigger diameters please contact our firm.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Material: Can be produced of Stainless Steel optinally.

SS JET FAN Ölçüler Dimensions in mm

ØO	ØA	B	E	ØF	ØG	M	ØN	C min	C max	L1 min	L1 max	L2 min	L2 max	H	W
560	700	650	140	722	777	250	550	600	1200	1850	3050	2240	3440	805	490
630	770	700	160	815	870	250	620	700	1230	2100	3160	2510	3570	900	540
710	850	750	180	918	983	250	700	800	1500	2350	3750	2780	4180	1015	600
800	1000	750	200	1031	1096	250	790	900	1600	2550	3950	3000	4400	1130	670
900	1100	800	225	1160	1235	250	890	1000	1700	2800	4200	3275	4675	1270	740
1000	1200	850	250	1289	1374	250	990	1100	2000	3050	4850	3550	5350	1410	800
1120	1320	900	280	1443	1529	250	1110	1220	2200	3340	5300	3870	5830	1565	950
1200	1410	930	300	1546	1652	250	1190	1250	2200	3430	5330	3980	5880	1690	1000
1250	1450	950	315	1614	1720	250	1240	1250	2300	3450	5550	4015	6115	1760	1000
1400	1620	1200	350	1804	1930	250	1390	1500	2500	4200	6200	4800	6800	1970	1120
1600	1850	1300	400	2062	2190	250	1590	1800	3000	4900	7300	5550	7950	2230	1500

AA Ayak : Opsiyonel veya Susturucu uzunluğu minimum 1.5xØD olduğunda uygulanır.
AA Footing : Optional or will be used in Case Silencer lenght is minimum 1.5xØD.



MS JET FAN Ölçüler Dimensions in mm

ØO	ØA	B	E	ØF	ØG	M	ØN	C min	C max	L1 min	L1 max	L2 min	L2 max	H	W
560	700	650	140	722	777	250	550	600	1200	2500	3700	2890	4090	805	490
630	770	700	160	815	870	250	620	700	1230	2800	3860	3210	4270	900	540
710	850	750	180	918	983	250	700	800	1500	3100	4500	3530	4930	1015	600
800	1000	750	200	1031	1096	250	790	900	1600	3300	4700	3756	5150	1136	670
900	1100	800	225	1160	1235	250	890	1000	1700	3600	5000	4075	5475	1270	740
1000	1200	850	250	1289	1374	250	990	1100	2000	3900	5700	4400	6200	1410	800
1120	1320	900	280	1443	1529	250	1110	1220	2200	4240	6200	4776	6730	1565	950
1200	1410	930	300	1546	1652	250	1190	1250	2200	4360	6260	4910	6810	1690	1000
1250	1450	950	315	1614	1720	250	1240	1250	2300	4400	6500	4965	7065	1760	1000
1400	1620	1200	350	1804	1930	250	1390	1500	2500	5400	7400	6006	8000	1970	1120
1600	1850	1300	400	2062	2190	250	1590	1800	3000	6200	8600	6850	9250	2230	1500

AA Ayak : Opsiyonel veya Susturucu uzunluğu minimum 1.5xØD olduğunda uygulanır.
AA Footing : Optional or will be used in Case Silencer lenght is minimum 1.5xØD.

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

190701.ENG.SS-MS JET

CENTRIFUGAL FANS

RADIAL FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- High efficiency Electric Motor
- Regarding to the usage, could be directly coupled, belt driven or coupling driven.

AREAS OF USAGE

- Used in air transfer in clean, dusty and oily environments.
- Used in transferring tiny particles (marble dust, wood/plastic shavings etc.) where middle pressured air is necessary.
- Used in transfer of extra dusty air and material (granulous material and etc.).
- Used in ventilation of extra dusty and oily environments and transfer of material (such as sawdust, plastic chippings etc.).
- Used in places where high pressured air is necessary (diesel fuel, LPG, and gas burners etc.).

ELECTRIC MOTORS

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +600˚C

ROTOR

- The rotor is formed from the S235JR (EN10025).
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

BODY

- The casing is formed from the S235JR (EN10025).
- Standart olarak emiş ağzı Dairesel olarak imal edilir.
- RAL 7024 Epoxy Rapid Paint finish is applied after the production.
- The gap clearances between rotor and body are made according to appropriate world standards.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Diameter: Please contact EMAK for the desired diameters.
Paint: Different colors are optional.
Protection: Hot Dip Galvanization is optional.
Accessories: Damper, Inlet Vane Control, Compansator, Pneumatic Damper, Pneumatic Sliding Damper, Silencer, Wire Guard.
Material : Body and Rotor can be made with Chromium Nickel or custom alloy material.
Exproof : We may get Third Party Inspection Certificate upon request. It is applicable for gas and dust. For details, please check the Exproof page.

CK - IN-LINE DUCT FANS

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- Works vertical or horizontal
- High efficiency – Low Noise Level
- CK is preferred in normal and damp environments.
- Aerodynamic construction reduces turbulences and friction loses.
- IP44 Protection Class for Motor and Built in Terminal Box
- Built in automatic thermistors protected, single phased, and with maintenance free bearings.

ELECTRIC MOTOR

220 - 240 V / 50 Hz / 1 Ph
110 - 120 V / 60 Hz / 1 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

IMPELLER

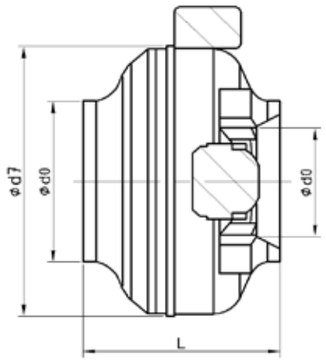
- Impeller blades are sparse and curved backward.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- Body material is galvanized steel sheet.
- RAL7038 paint finish is applied after production.
- The body is produced round as standard..

OPTIONAL

Speed Control Box: Speed control panel is installed to control the air flow from 0 % to 100 %.



Ölçüler *Dimensions in* mm

MODEL	ød0	ød7	L
CK 100	97	235	180
CK 125	120	235	185
CK 160	155	235	200
CK 200	195	330	220
CK 250	247	345	235
CK 315	310	400	300

190729.ENG.CK

PP - PLASTIC RADIAL FAN

GENERAL SPECIFICATIONS

- Fan Test according to ISO 5801:2017 standard
- PP is highly efficient steam aspirator that is preferred to be used in laboratories, fume hoods, damp steamy environments, purification facilities, galvanization workshops and acidic environments where corrosive gasses occurs.
- Because the body and the rotor is made of plastic, risk of sparks created by metal clashes are reduced. PP series are highly corrosion-resistant; as a result there is no rotting, rusting or dissolution.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -15˚C and +70˚C

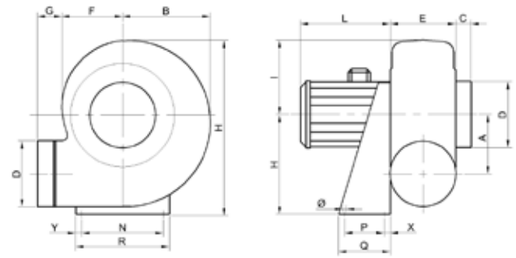
IMPELLER

- Impeller blades are sparse and curved backward.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

BODY

- Our anti-corrosive centrifugal fans are made in two materials; Polypropylene is used in the acidic environments, Polyethylene is used non acidic environments
- Body can rotate 360 degrees and can be installed according to the desired position.

FAN PROPOSITIONS



MODEL	MOTOR			ÖLÇÜLER *Dimensions in* mm																kg *	kg **
	Size	kW	rpm	A	B	C	D	E	F	G	H	I	L	N	P	Q	R	Y	X	Ø	
PP 204	63	0.12	1370	140	180	35	160	160	138	55	250	150	190	200	100	140	235	17.5	20	11	9	17
PP 202	63	0.18	2750	140	180	35	160	160	138	55	250	150	195	200	100	140	235	17.5	20	11	9	17
PP 224	63	0.12	1370	173	228	35	200	185	170	55	310	190	190	255	100	140	290	17.5	20	11	10	18
PP 222	63	0.25	2800	173	228	35	200	185	170	55	310	190	210	225	100	140	290	17.5	20	11	13	24
PP 254	63	0.12	1370	173	228	35	200	185	170	55	310	190	190	255	100	140	290	17.5	20	11	10	18
PP 252	71	0.37	2800	173	228	35	200	185	170	55	310	210	220	255	100	140	290	17.5	20	11	13	24
PP 284	63	0.18	1370	208	255	40	225	195	190	70	350	210	190	280	120	190	316	18	35	11	14	23
PP 282	80	0.75	2850	208	255	40	225	195	190	70	350	230	240	280	120	190	316	18	35	11	19	33
PP 316	71	0.18	930	240	280	40	250	200	210	70	410	230	210	320	150	230	355	17.5	40	11	19	30
PP 314	71	0.25	1400	240	280	40	250	200	210	70	410	230	220	320	150	230	355	17.5	40	11	19	30
PP 312	90	1.50	2850	240	280	40	250	200	210	70	410	270	290	320	150	230	355	17.5	40	11	26	45
PP 356	71	0.18	930	260	312	40	280	237	230	55	445	270	210	355	150	230	390	17.5	40	11	23	34
PP 354	71	0.37	1400	260	312	40	280	237	230	55	445	270	220	355	150	230	390	17.5	40	11	23	34
PP 352	90	2.20	2870	260	312	40	280	237	230	55	445	270	290	355	150	230	390	17.5	40	11	32	51
PP 406	71	0.25	920	290	356	40	315	252	264	55	495	295	220	325	170	250	365	20	40	11	30	41
PP 404	80	0.55	1410	290	356	40	315	252	264	55	495	295	240	325	170	250	365	20	40	11	33	47
PP 456	80	0.37	920	324	400	40	355	287	295	55	550	330	240	370	170	250	410	20	40	11	37	51
PP 454	90	1.10	1410	324	400	40	355	287	395	55	550	330	290	370	170	250	410	20	40	11	40	61
PP 452	100	4.00	2860	324	400	40	355	287	295	55	550	330	415	370	270	340	410	20	40	11	57	72

* Standart Motor Execution
** ATEX Execution

e.

190729.ENG.PP

ECRJ - RADIAL JET FAN

GENERAL SPECIFICATIONS

- Works horizontal
- IP55 Protection Class for Motor and Terminal Box
- Certified according to EN12101-3 for 300°C–250°C 120 minutes
- There is Wire Guard at the impeller side.
- There is Terminal Box on the casing.
- The purpose of these fans is to make a smoke-free escape route for people in case of a fire.
- Can be used for fresh air during standard conditions and for smoke exhaust in case of a fire.
- Low Sound Levels.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph
440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

ECRJ 60 - 300 °C – 120 minutes
ECRJ 75 - 250 °C – 120 minutes
ECRJ 100 - 250 °C – 120 minutes

IMPELLER

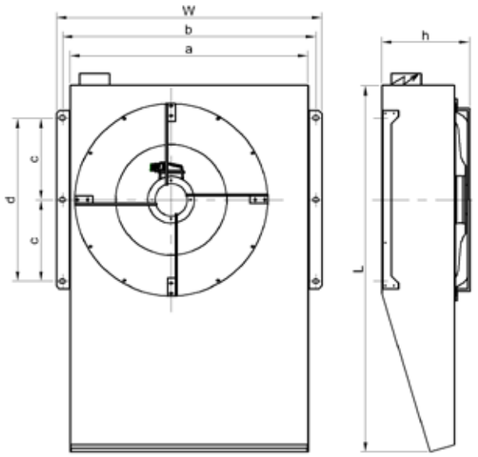
- The hub is made of Aluminium.
- Impeller blades are made of Steel Sheet.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) Pre-Galvaized Steel Sheet.

OPTIONAL

Motors: Any other voltage and frequency motors are optional.
Paint: Color finishing up to your needs.
Material: Can be produced of Stainless Steel optinally.



Model	Ölçüler *Dimensions in* mm						
	L	W	a	b	h	d	c
ECJR 60	1235	900	800	852	295	550	275
ECJR 75	1860	1250	1150	1200	315	800	400
ECJR 100	2000	1250	1150	1200	320	1000	500

190729.ENG.ECRJ

ITF - IN-LINE TWIN FANS

GENERAL SPECIFICATIONS

- The ITF range designed for induct installations and uses Twin Fans with backward curved Centrifugal impellers.
- Direct Drive Twin Fan (One & standby)
- Forward / Backward Curved Centrifugal Impellers
- Performance range up to 5000 m3/h
- Static Pressure Development up to 500Pa
- Quality assured production to BS EN ISO 9001-2015
- Performance code is ISO 5801:2017

CASING

Robustly construction fan boxes produced from Pre-galvanized sheet steel.

IMPELLER

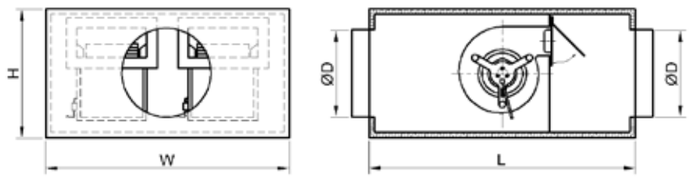
- Aerodynamically designed backward curved radial impeller constructed from S235JR (EN10025)Material.
- The Rotors and impellers are factory machined and statically and dynamically balanced on precision machines according to ISO 21940, class G : 6.3.

ELECTRIC MOTOR

- Maintenance free motors with life time lubricated bearings encapsulating a high temperature (+55°C) lubricant.
- The bearings allow for the fan to be mounted at any Fan position.
- Electric Motors are suitable, up to 3kW
  220 - 240 V / 50 Hz / 1 Ph
  110 - 120 V / 60 Hz / 1 Ph
  electrical supply.

OPTIONAL

- Auto Change – Over Switch.
- Maintenance (Power Off).
- Speed Controllable.
- Can be produced of Stainless Steel optinally.



TYPE	ÖLÇÜLER *Dimensions in* mm			
	L	W	H	D
ITF 01	480	415	270	100
ITF 03	535	415	285	100
ITF 04	680	290	330	150
ITF 05	680	470	385	150
ITF 06	785	450	435	150
ITF 12	520	360	260	150
ITF 17	680	385	325	250
ITF 28	890	770	420	250
ITF 36	980	1230	585	250

190729.ENG.ITF

RAT - CELLED TYPE FANS

GENERAL SPECIFICATIONS

- High efficiency – Double Inlet Type
- Centrifugal Fans
- IP55 Protection Class for Motor and Terminal Box
- Can be produced belt-driven or directly coupled

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph

440 - 480 V / 60 Hz / 3 Ph

WORKING TEMPERATURES

Between -20˚C and +55˚C

IMPELLER

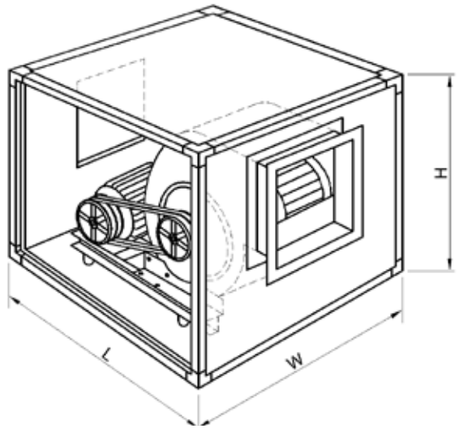
- Position of impeller must be described during the order.

CASING

- The cell panels are maybe uninsulated or isolated to noise, heat and negative/positive pressures.
- All body is assembled with bolts and can be disassembled easily.
- Motor and fan group is mounted on the frame of the cell by steel bolts.
- Fan, motor, belt-drive mechanism, and containers are constructed on a joint platform.

OPTIONAL

Motors: Any other voltage and frequency motors are optional. One phase electric motors are suitable up to 3kW.
Body: Cell walls can optionally be made with galvanized, painted, stainless steel, or PVC covered steel sheets.
Isolation: insulating material can optionally be rock wool, glass wool or polyurethane.



MODEL	Ölçüler *Dimension* (cm)		
	L	W	H
RAT 7	60	80	70
RAT 8	60	85	70
RAT 9	65	85	70
RAT 10	70	90	75
RAT 11	75	100	85
RAT 12	75	105	85
RAT 13	85	120	100
RAT 15	85	120	100
RAT 18	105	130	120
RAT 50	110	140	130
RAT 56	130	160	140
RAT 63	140	170	150
RAT 71	150	175	160
RAT 80	160	180	170
RAT 90	200	220	210
RAT 100	230	260	250

190729.ENG.RAT

AEX - EXPROOF FANS

GENERAL SPECIFICATIONS

- All models may be converted to Exproof type.
- Ventilation of premises where potentially explosive atmospheres possible.
- All Ex Proof Fans are produced and assembled under strict international standards with ATEX Certified Electric Motors.
- IP55 Protection Class for Motor and the Ex-proof Terminal Box.

ELECTRIC MOTOR

380 - 415 V / 50 Hz / 3 Ph (EEx dII BT4 Exproof Motor)
440 - 480 V / 60 Hz / 3 Ph (EEx dII BT4 Exproof Motor)

WORKING TEMPERATURE

Between -20 °C to +55 °C

DIAMETERS (mm)

400 – 450 – 500 – 560 – 630 – 710 800 – 900 – 1000 – 1120 – 1250

IMPELLER

- The hub is made of Aluminium or Steel.
- Impeller blades are made of Aluminium.
- The impeller blade angles are adjustable.
- Static and Dynamic vibration defects are recovered after production according to appropriate ISO 21940 norm.

CASING

- The casing is formed from the S235JR (EN10025) steel sheets.
- RAL7038 paint finish is applied after production.
- Manufactured with circular flange as standard.
- The gap clearances of impeller tips are made according to appropriate world criterias.
- AEX fans include Wire Guards that prevents foreign materials run into casing.

OPTIONAL

Motors : Any other voltage, frequency or Protection Class motors are optional.

Dia : For Ø1400 mm and bigger diameters please contact to our firm.

Paint : Different colors are optional.

Protection : Hot Dip Galvanization is optional.

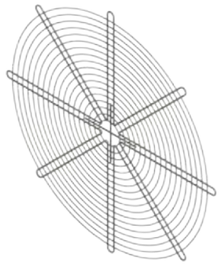
Flanges : Square Flange is optional.

Material: Can be produced of Stainless Steel optinally.

190729.ENG.AEX

WIRE GUARDS (HT)

Impeller side guards, heavy-gauge spiral wound wire is welded to ribs then painted or galvanised. Available for each size of fan.



MOUNTING FEET (AA)

MATCHING FLANGES (KF)

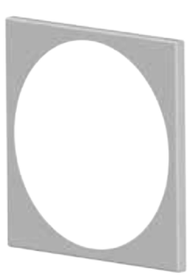
Companion flanges are match to fit either discharge or inlet sides of casing. Available for each size of fan.

ANTI-VIBRATION MOUNTINGS (VI)

Ağır çalışma koşullarına dayanıklı çelik yaydan imal edilen yaylı izolatörler, döküm gürültü önleyici ve kaymayan kauçuk alta taban ve kauçuk izoleli montaj deliğini sahiptir. Fandan kaynaklı ses ve titreşimin fanın sabitlendiği zemine iletilmesini azaltmaya yada yok etmeye yaramaktadır.

SQUARE FLANGES (DF)

For either standart or wall type casing, inlet / discharge or both sides. Avaliable for each size, painted or galvanized.



FLEXIBLE CONNECTORS (KM)

Available for each size, painted or galvanised. Havalandırma sisteminde cihaz ile rijit bölgeyi (kanal yada duvar olabilir) birbirine bağlantısında titreşim aktarımını engelleyen, salınım sebebiyle oluşabilecek ileri-geri hareketleri yutan ara bağlantı elemenıdır. Duman egzoz fanlarında yanmaz özellikte olanlar kullanılan taze hava fanlarında böyle bir özelliği gerek duyulmamaktadır.

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INLET CONES

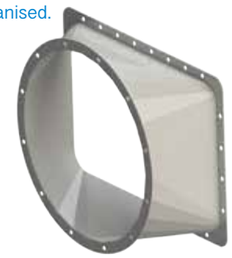
Inlet Bell, Diffuser, Extension parts or any special design connection section orders are welcome, available for each size, painted or galvanised.

SILENCER (SK)

Pre-galvanised construction, packaged sound-absorbent accoustic media, ready to match the fan flange easily, avaliable all sizes. Dimensions on request.

DIFFUSER

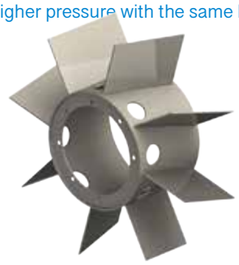
Inlet Bell, Diffuser, Extension parts or any special design connection section orders are welcome, available for each size, painted or galvanised.



OUTSIDE FITTED TERMINAL BOX (TK)

GUIDE VANE SECTION (GV)

Adding the guide vane section on the discharge side provides higher pressure with the same horse power.



ACCESS DOOR (SP)

190729.TUR.AKSESUAR

ACCESSORIES

DEFLECTOR

HDD Type DAMPERS (DP)

HDD Type Heavy Duty Dampers are designed and manufactured by EMAK's skillful staff. The material is all steel. Galvanization or epoxy coating is prefered after production. Electric ElectroHydraulic Pynomatic Actuators being used according to porject specifications.

LOUVERS (PJ)

Louvers are used for preventing foreign materials got get into the fan and when the aesthectic is important in the place. Frame profiles are galvanized or aluminium additionaly blades are fixed.

GAD Type DAMPERS (DP)

Galvanize casing and aluminium blades are used in GAD Serie. Blade opening mechanism is by linkage armed type parallel blade opening.

GDD Type DAMPERS (DP)

Blades are moved by face mounted linkage arms. Galvanize casing and aluminium blades are used in GDD serie. Small cros sectioned types can be operated with air pressure.

DAD Type DAMPERS (DP)

All aluminium type with plastic gears. Mosty prefered for A/C applications with opposite side blade openning.

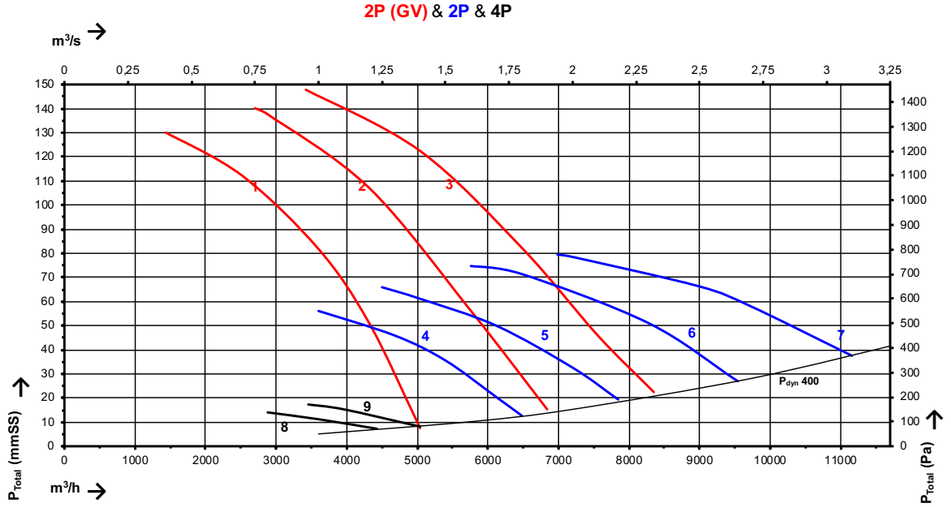
All aboe dampers production can be delivered with electro pneumatic or elector hydraulic actuators.

190729.TUR.AKSESUAR

DATA TABLES

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

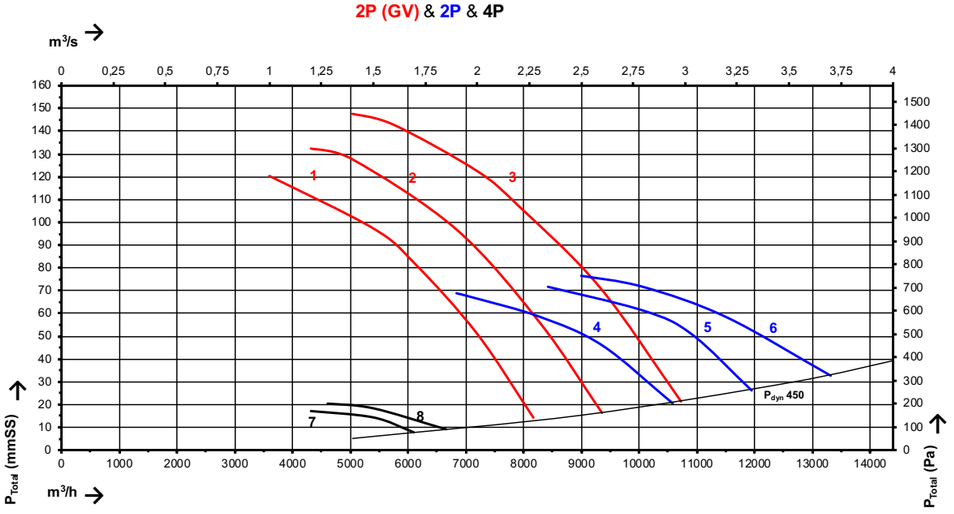
Ø400 mm
2P (GV) & 2P & 4P



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/560 11A *	Ø400	1,5	3000	90S	26	35	54	64	71	71	68	57	75,6
2 - C2/560 11A *	Ø400	2,2	3000	90L	26	36	56	65	72	72	69	58	76,6
3 - C2/560 11A *	Ø400	3	3000	100L	29	38	57	67	72	74	71	60	77,9
4 - C2/560 11A	Ø400	1,1	3000	80	36	44	52	60	63	61	56	47	66,7
5 - C2/560 11A	Ø400	1,5	3000	90S	36	45	53	59	64	62	56	47	67,3
6 - C2/560 11A	Ø400	2,2	3000	90L	39	47	54	61	65	63	58	49	68,5
7 - C2/560 11A	Ø400	3	3000	100L	43	51	58	65	68	67	62	53	72,5
8 - H4/560 11A	Ø400	0,25	1500	71	34	42	49	57	61	58	53	44	64,2
9 - H4/560 11A	Ø400	0,37	1500	71	34	43	49	58	61	59	54	44	64,7

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

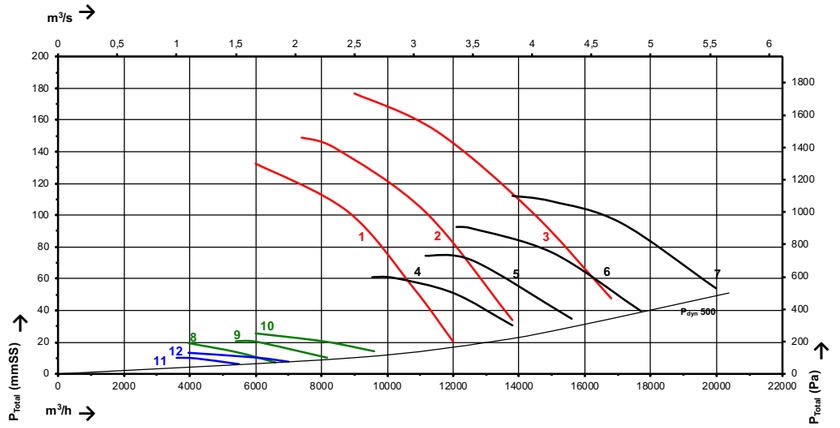
Ø450 mm
2P (GV) & 2P & 4P



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/560 11A *	Ø450	2,2	3000	90L	28	38	58	68	75	77	71	60	80,2
2 - C2/560 11A *	Ø450	3	3000	100L	29	39	59	71	76	78	73	62	81,5
3 - C2/560 11A *	Ø450	4	3000	112M	32	42	61	74	79	80	75	64	83,9
4 - C2/560 11A	Ø450	2,2	3000	90L	40	48	55	63	66	65	60	51	70,5
5 - C2/560 11A	Ø450	3	3000	100L	42	50	57	65	69	67	62	53	72,9
6 - C2/560 11A	Ø450	4	3000	112M	43	51	58	66	71	70	64	54	75,0
7 - HA/560 11A	Ø450	0,37	1500	71	32	39	47	54	58	55	52	42	61,2
8 - HA/560 11A	Ø450	0,55	1500	80	33	41	48	55	59	57	52	44	62,6

1 m³/s = 3600 m³/h
1 mmSS = 9,807 Pa

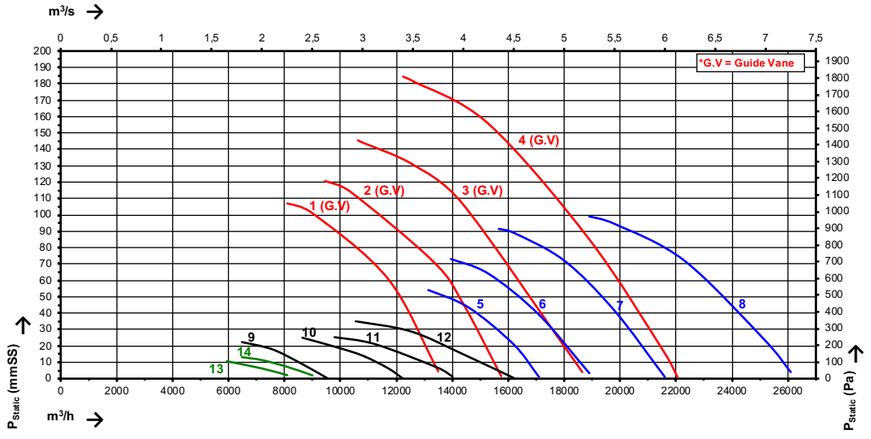
Ø500 mm - 2P (GV) & 2P & 4P & 6P



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/560 11A *	Ø500	4	3000	112M	33	41	61	73	79	80	76	64	84,0
2 - C2/560 11A *	Ø500	5,5	3000	132S	34	43	62	73	80	80	76	65	84,4
3 - C2/560 11A *	Ø500	7,5	3000	132S	34	44	64	76	82	82	78	67	86,5
4 - C2/560 11A	Ø500	3	3000	100L	43	51	59	67	69	69	64	54	74,1
5 - C2/560 11A	Ø500	4	3000	112M	45	53	62	68	73	71	66	56	76,7
6 - C2/560 11A	Ø500	5,5	3000	132S	47	55	61	70	73	72	68	58	77,6
7 - C2/560 11A	Ø500	7,5	3000	132S	55	63	69	78	81	80	76	66	85,5
8 - H4/560 11A	Ø500	0,37	1500	71	31	40	45	54	56	55	50	41	60,2
9 - H4/560 11A	Ø500	0,55	1500	80	32	41	46	54	58	56	52	42	61,6
10 - H4/560 11A	Ø500	0,75	1500	80	34	42	47	56	59	57	52	44	62,7

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

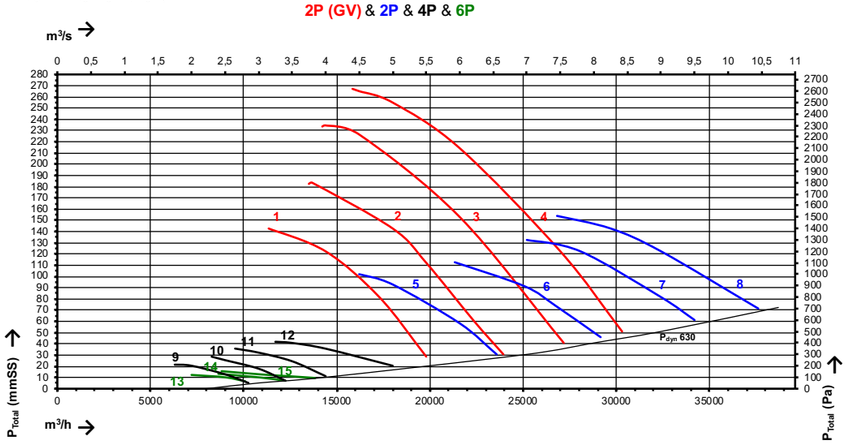
Ø560 mm
2P (GV) & 2P & 4P & 6P (50 Hz)



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/560 11A *	Ø560	4	3000	112M	34	43	62	75	81	82	77	65	85,8
2 - C2/560 11A *	Ø560	5,5	3000	132S	34	44	64	76	82	83	78	66	86,8
3 - C2/560 11A *	Ø560	7,5	3000	132S	36	45	65	78	83	83	79	68	87,6
4 - C2/560 11A *	Ø560	11	3000	160M	38	47	68	80	86	86	82	70	90,5
5 - C2/560 11A	Ø560	4	3000	112M	57	65	71	80	83	82	78	68	87,5
6 - C2/560 11A	Ø560	5,5	3000	132S	57	65	71	80	83	82	78	68	87,5
7 - C2/560 11A	Ø560	7,5	3000	132S	58	66	72	81	84	83	79	69	88,5
8 - C2/560 11A	Ø560	11	3000	160M	59	67	73	82	85	84	80	70	89,5
9 -H4/560 11A	Ø560	0,75	1500	80	34	42	47	56	59	57	52	44	62,7
10 - H4/560 11A	Ø560	1,1	1500	90S	34	43	49	58	61	59	54	45	64,7
11 - H4/560 11A	Ø560	1,5	1500	90L	34	43	51	57	62	59	54	45	65,0
12 - H4/560 11A	Ø560	2,2	1500	100L	37	45	54	60	65	62	57	48	68,0
13 - I6/560 11A	Ø560	0,37	1000	80	30	39	44	53	55	54	49	40	59,2
14 - I6/560 11A	Ø560	0,55	1000	80	31	40	45	54	56	55	50	41	60,2

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

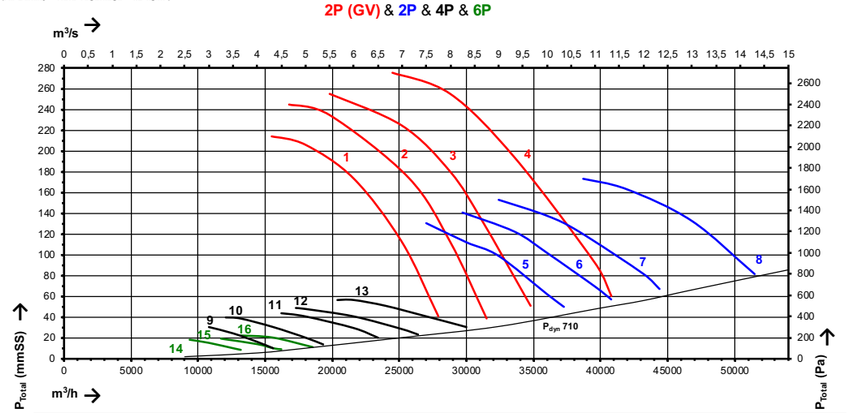
Ø630 mm
2P (GV) & 2P & 4P & 6P



Model	Dia/Çap	Motor			Noise Level / Ses Seviyesi (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/630 11A *	Ø630	7,5	3000	132S	36	44	65	77	84	84	78	67	88,1
2 - C2/630 11A *	Ø630	11	3000	160M	38	47	67	80	86	87	81	70	90,7
3 - C2/630 15A *	Ø630	15	3000	160M	39	49	69	82	88	89	83	72	92,7
4 - C2/630 18,A *	Ø630	18,5	3000	160L	42	50	71	82	90	92	85	73	95,0
5 - C2/630 11A	Ø630	7,5	3000	132S	48	56	65	71	74	74	68	59	78,8
6 - C2/630 11A	Ø630	11	3000	160M	48	58	64	71	75	74	69	60	79,3
7 - C2/630 15A	Ø630	15	3000	160M	62	70	76	85	88	87	83	73	92,5
8 - C2/630 18,5A	Ø630	18,5	3000	160L	63	71	77	86	89	88	84	74	93,5
9 - H4/630 11A	Ø630	0,75	1500	80	33	41	47	55	59	57	52	44	62,5
10 - H4/630 11A	Ø630	1,1	1500	90S	34	43	50	57	61	60	54	45	64,8
11 - H4/630 11A	Ø630	1,5	1500	90L	35	44	51	58	64	61	56	46	66,8
12 - H4/630 11A	Ø630	2,2	1500	100L	37	45	52	61	64	62	57	48	67,7
13 - I6/630 11A	Ø630	0,37	1000	80	30	39	44	53	55	54	49	40	59,2
14 - I6/630 11A	Ø630	0,55	1000	80	31	40	45	54	56	55	50	41	60,2
15 - I6/630 11A	Ø630	0,75	1000	90S	34	42	47	56	59	57	52	44	62,7

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

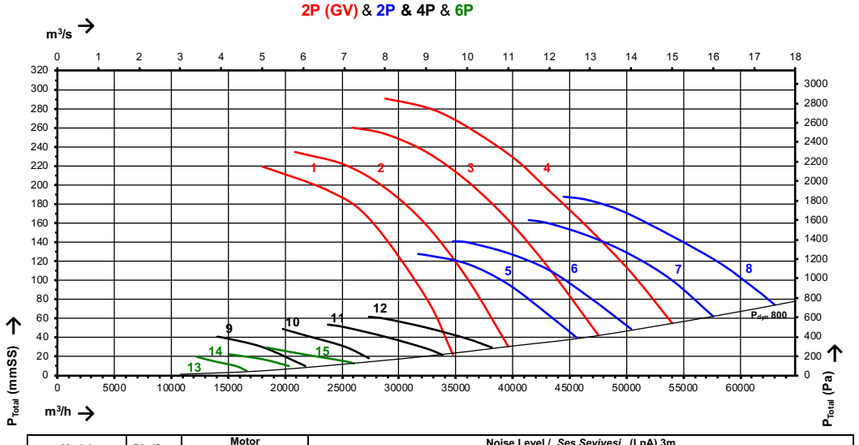
Ø710 mm
2P (GV) & 2P & 4P & 6P



Model	Dia/Çap	Motor			Noise Level / Ses Seviyesi (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/710 15A *	Ø710	15	3000	160M	40	48	68	81	87	88	82	71	91,7
2 - C2/710 18,5A *	Ø710	18,5	3000	160L	42	49	70	82	89	91	84	72	94,0
3 - C2/710 22 *	Ø710	22	3000	180M	43	52	72	85	91	92	86	75	95,7
4 - C2/710 30 *	Ø710	30	3000	200L	44	54	75	88	93	94	88	75	97,8
5 - C2/710 15A	Ø710	15	3000	160M	50	59	66	73	77	76	71	62	81,3
6 - C2/710 18,5A	Ø710	18,5	3000	160L	52	60	67	75	78	77	72	63	82,5
7 - C2/710 22	Ø710	22	3000	180M	57	65	72	80	83	82	77	68	87,5
8 - C2/710 30	Ø710	30	3000	200L	58	66	73	81	84	83	78	69	88,5
9 - H4/710 15A	Ø710	1,5	1500	90L	36	44	51	59	63	61	55	47	66,4
10 - H4/710 15A	Ø710	2,2	1500	100L	37	45	53	60	64	62	57	48	67,5
11 - H4/710 15A	Ø710	3	1500	100L	38	46	54	61	66	64	58	49	69,2
12 - H4/710 15A	Ø710	4	1500	112M	39	47	54	63	66	64	59	50	69,7
13 - H4/710 15A	Ø710	5,5	1500	132S	40	48	57	63	67	66	61	51	71,3
14 - I6/710 15A	Ø710	0,75	1000	90S	33	41	47	55	59	57	52	44	62,5
15 - I6/710 15A	Ø710	1,1	1000	90L	34	43	50	57	61	60	54	45	64,8
16 - I6/710 15A	Ø710	1,5	1000	100L	35	44	51	58	64	61	56	46	66,8

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

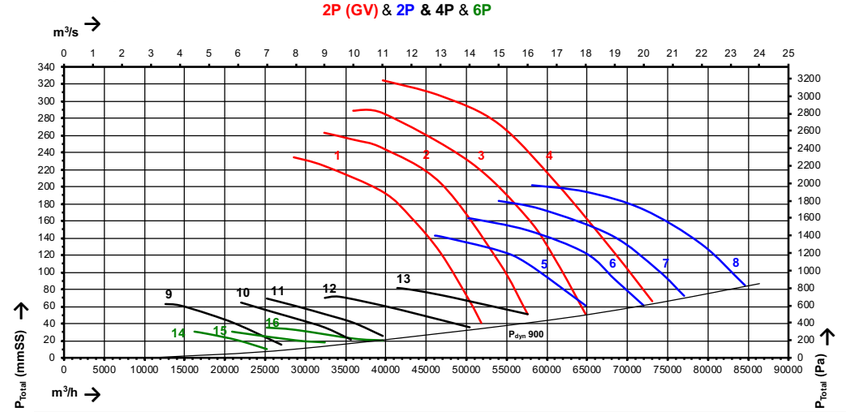
Ø800 mm
2P (GV) & 2P & 4P & 6P



Model	Dia/Çap	Motor			Noise Level / Ses Seviyesi (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/800 22A *	Ø800	18,5	3000	160L	41	50	71	84	89	90	85	74	93,9
2 - C2/800 22A *	Ø800	22	3000	180M	44	53	73	85	92	92	88	75	96,4
3 - C2/800 30A *	Ø800	30	3000	200L	45	54	75	87	93	94	88	75	97,7
4 - C2/800 37A *	Ø800	37	3000	200L	47	56	78	90	94	95	89	75	98,9
5 - C2/800 22A	Ø800	18,5	3000	160L	48	56	63	70	73	73	67	57	77,8
6 - C2/800 22A	Ø800	22	3000	180M	49	57	65	71	75	74	69	57	79,3
7 - C2/800 30A	Ø800	30	3000	200L	58	66	73	81	84	83	78	69	88,5
8 - C2/800 37A	Ø800	37	3000	200L	60	68	75	83	86	85	80	71	90,5
9 - H4/800 22A	Ø800	3	1500	100L	44	51	58	65	69	70	63	54	73,9
10 - H4/800 22A	Ø800	4	1500	112M	45	51	59	66	70	70	64	54	74,6
11 - H4/800 22A	Ø800	5,5	1500	132S	45	53	60	68	71	70	65	56	75,5
12 - H4/800 22A	Ø800	7,5	1500	132M	46	53	61	68	71	71	65	57	75,8
13 - I6/800 22A	Ø800	1,1	1000	90L	34	43	50	57	61	60	54	45	64,8
14 - I6/800 22A	Ø800	1,5	1000	100L	35	44	51	58	64	61	56	46	66,8
15 - I6/800 22A	Ø800	2,2	1000	112M	36	44	52	59	65	62	57	47	67,8

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

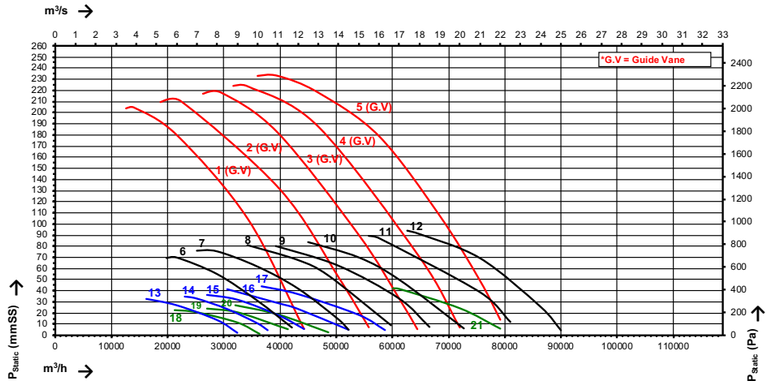
Ø900 mm
2P (GV) & 2P & 4P & 6P



Model	Dia/Çap	Motor			Noise Level / Ses Seviyesi (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - C2/900 30A *	Ø900	30	3000	200L	44	53	75	88	92	93	89	76	97,2
2 - C2/900 30A *	Ø900	37	3000	200L	46	56	77	89	94	95	91	76	99,1
3 - C2/900 30A *	Ø900	45	3000	225M	48	59	79	90	96	97	91	77	100,7
4 - C2/900 30A *	Ø900	55	3000	250M	49	59	81	92	96	98	91	77	101,3
5 - C2/900 30A	Ø900	30	3000	200L	58	66	73	81	84	83	78	69	88,5
6 - C2/900 30A	Ø900	37	3000	200L	60	68	75	83	86	85	80	71	90,5
7 - C2/900 30A	Ø900	45	3000	225M	64	72	79	87	90	89	84	75	94,5
8 - C2/900 30A	Ø900	55	3000	250M	67	75	82	90	93	92	87	78	97,5
9 - H4/900 11A	Ø900	4	1500	112M	42	51	58	65	69	68	63	54	73,3
10 - H4/900 11A	Ø900	5,5	1500	132S	43	51	59	66	69	68	63	53	73,5
11 - H4/900 11A	Ø900	7,5	1500	132M	44	52	60	67	71	70	64	55	75,2
12 - H4/900 11A	Ø900	11	1500	160M	43	51	58	65	68	68	62	52	72,8
13 - H4/900 15A	Ø900	15	1500	160L	44	52	59	66	69	69	63	53	73,8
14 - I6/900 11A	Ø900	2,2	1000	112M	35	44	51	58	64	61	56	46	66,8
15 - I6/900 11A	Ø900	3	1000	132S	37	45	53	60	66	63	58	48	68,7
16 - I6/900 11A	Ø900	4	1000	132M	38	46	54	61	66	64	59	49	69,7

1 m³/s = 3600 m³/h
1 mmSS = 9,807 Pa

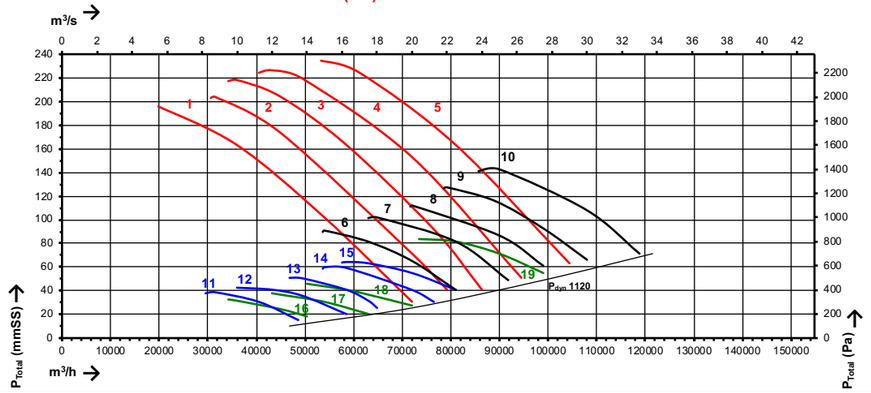
Ø1000 mm
4P (GV) & 4P & 6P & 8P (50 Hz)



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - H4/1000 18,5A *	Ø1000	18,5	1500	160L	38	47	65	71	79	78	69	56	82,4
2 - H4/1000 22A *	Ø1000	22	1500	180M	39	48	67	72	80	79	70	57	83,4
3 - H4/1000 30A *	Ø1000	30	1500	200L	40	49	68	75	81	79	71	60	84,3
4 - EMWA 1120 - 37/4 *	Ø1000	37	1500	200L	43	52	70	76	83	81	72	63	86,1
5 - EMWA 1120 - 37/4 *	Ø1000	45	1500	225M	45	55	73	78	84	82	75	66	87,4
6 - H4/1000 11A	Ø1000	7,5	1500	132M	46	54	62	69	73	72	66	57	77,2
7 - H4/1000 11A	Ø1000	11	1500	160M	48	56	63	71	74	73	68	59	78,5
8 - H4/1000 15A	Ø1000	15	1500	160L	49	57	64	72	76	74	69	60	79,9
9 - H4/1000 18,5A	Ø1000	18,5	1500	160L	49	57	65	73	76	75	70	60	80,4
10 - H4/1000 22A	Ø1000	22	1500	180M	51	59	68	74	78	77	72	62	82,3
11 - H4/1000 30A	Ø1000	30	1500	200L	55	63	72	78	82	81	76	66	86,3
12 - EMWA 1120 - 37/4 *	Ø1000	37	1500	200L	56	64	73	79	83	82	77	67	87,3
13 - I6/1000 11A	Ø1000	3	1000	132S	37	45	53	60	66	63	58	48	68,7
14 - I6/1000 11A	Ø1000	4	1000	132M	38	46	54	61	66	64	59	49	69,7
15 -I6/1000 11A	Ø1000	5,5	1000	132M	43	51	59	66	69	68	63	53	73,5
16 - I6/1000 11A	Ø1000	7,5	1000	160M	44	52	60	67	71	70	64	55	75,2
17 - I6/1000 11A	Ø1000	11	1000	160L	43	51	58	65	68	68	62	52	72,8
18 - J8/1000 11A	Ø1000	3	750	132S	33	41	48	55	59	57	52	43	62,6
19 - J8/1000 11A	Ø1000	4	750	132M	34	43	50	57	61	59	54	44	64,6
20 - J8/1000 11A	Ø1000	5,5	750	132M	36	44	52	59	63	61	56	46	66,5
21 - J8/1000 22A	Ø1000	22	750	200L	51	59	68	74	78	77	72	62	82,3

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

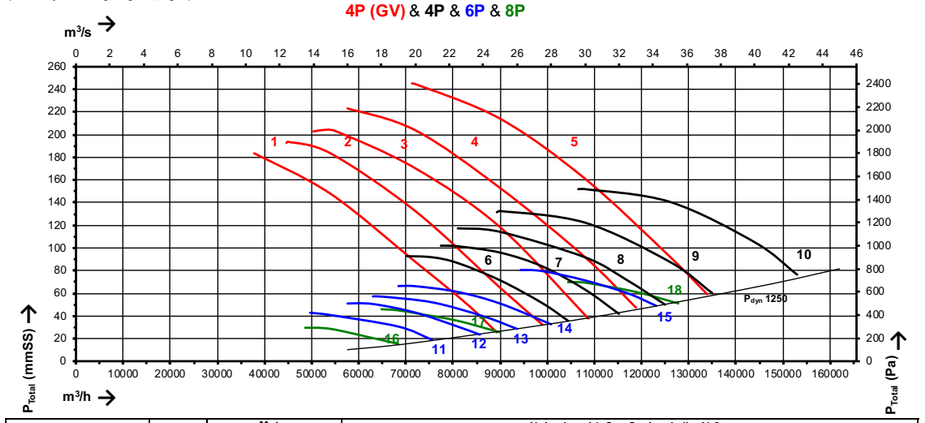
Ø1120 mm
4P (GV) & 4P & 6P & 8P



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - EMWA 1120 - 22/4 *	Ø1120	22	1500	180L	41	50	68	74	82	80	72	59	85,1
2 - EMWA 1120 - 30/4 *	Ø1120	30	1500	200L	41	51	69	77	83	81	73	62	86,3
3 - EMWA 1120 - 37/4 *	Ø1120	37	1500	225S	44	53	70	77	83	82	73	63	86,6
4 - EMWA 1250 - 45/4 *	Ø1120	45	1500	225M	46	56	73	79	86	83	76	65	88,9
5 - EMWA 1250 - 45/4 *	Ø1120	55	1500	250M	48	57	75	81	89	86	79	67	91,8
6 - EMWA 1120 - 22/4	Ø1120	22	1500	180L	56	64	72	79	83	82	77	66	87,3
7 - EMWA 1120 - 30/4	Ø1120	30	1500	200L	57	66	72	80	83	82	77	68	87,5
8 - EMWA 1120 - 37/4	Ø1120	37	1500	225S	56	64	73	79	83	82	77	67	87,3
9 - EMWA 1250 - 45/4	Ø1120	45	1500	225M	60	68	77	83	87	86	81	71	91,3
10 - EMWA 1250 - 45/4	Ø1120	55	1500	250M	63	71	80	86	90	89	84	74	94,3
11 - EMWA 1120 - 15/6	Ø1120	5,5	1000	132M	41	49	56	63	66	66	60	50	70,8
12 - EMWA 1120 - 15/6	Ø1120	7,5	1000	160M	42	50	57	64	67	67	61	51	71,8
13 - EMWA 1120 - 15/6	Ø1120	11	1000	160L	43	51	58	65	68	68	62	52	72,8
14 - EMWA 1120 - 15/6	Ø1120	15	1000	180L	47	55	62	69	72	72	66	56	76,8
15 - EMWA 1120 - 22/6	Ø1120	18,5	1000	200L	49	57	64	71	74	74	68	58	78,8
16 - EMWA 1120 - 15/8	Ø1120	5,5	750	160M	41	49	56	63	66	66	60	50	70,8
17 - EMWA 1120 - 15/8	Ø1120	7,5	750	160L	41	49	56	63	66	66	60	50	70,8
18 - EMWA 1120 - 15/8	Ø1120	11	750	180L	43	51	58	65	68	68	62	52	72,8
19 - EMWA 1120 - 30/8	Ø1120	30	750	250M	52	61	67	75	78	77	72	63	82,5

1 mmWG = 1 mmSS = 9,807 Pa
1 m³/s = 3600 m³/h
(Air Density = Hava Yoğunluğu = 1,2 kg/m³)

Ø1250 mm
4P (GV) & 4P & 6P & 8P



Model	Dia/*Çap*	Motor			Noise Level / *Ses Seviyesi* (LpA) 3m								
		kW	rpm	Body	63	125	250	500	1000	2000	4000	8000	Total
1 - EMWA 1250 - 30/4 *	Ø1250	30	1500	200L	43	52	70	79	85	83	75	64	88,3
2 - EMWA 1250 - 37/4 *	Ø1250	37	1500	225S	44	54	72	79	84	85	76	65	88,6
3 - EMWA 1250 - 45/4 *	Ø1250	45	1500	225M	45	55	73	80	87	85	77	67	90,2
4 - EMWA 1250 - 45/4 *	Ø1250	55	1500	250M	46	56	73	80	88	86	78	66	91,0
5 - EMWA 1250 - 45/4 *	Ø1250	75	1500	280S	49	58	75	80	89	87	79	66	92,0
6 - EMWA 1250 - 30/4	Ø1250	30	1500	200L	55	63	70	78	82	80	75	66	85,9
7 - EMWA 1250 - 37/4	Ø1250	37	1500	225S	55	63	71	79	81	81	75	66	86,0
9 - EMWA 1250 - 45/4	Ø1250	45	1500	225M	56	64	73	79	83	82	77	68	87,3
8 - EMWA 1250 - 45/4	Ø1250	55	1500	250M	63	71	80	86	90	89	84	74	94,3
10 - EMWA 1250 - 45/4	Ø1250	75	1500	280S	71	79	88	94	98	97	92	82	102,3
11 - EMWA 1250 - 30/6	Ø1250	11	1000	160L	43	51	58	65	68	68	62	52	72,8
12 - EMWA 1250 - 30/6	Ø1250	15	1000	180L	47	55	62	69	72	72	66	56	76,8
13 - EMWA 1250 - 30/6	Ø1250	18,5	1000	200L	49	57	64	71	74	74	68	58	78,8
14 - EMWA 1250 - 30/6	Ø1250	22	1000	200L	56	64	72	79	83	82	77	66	87,3
15 - EMWA 1250 - 37/6	Ø1250	37	1000	250M	56	64	73	79	83	82	77	67	87,3
16 - EMWA 1250 - 30/8	Ø1250	7,5	750	160L	42	50	57	64	67	67	61	51	71,8
17 - EMWA 1250 - 30/8	Ø1250	15	750	200L	45	53	60	67	70	70	64	54	74,8
18 - EMWA 1250 - 37/8	Ø1250	37	750	280S	55	63	71	79	81	81	75	66	86,0

ELECTRICAL MOTORS

CHARACTERISTICS OF STANDARD ELECTRICAL MOTORS

The housing of electrical motors are designed according to IEC and DIN norms in terms f long life and reliability. All motors have squirrel-cage structure with air cooled housing. Where necessary, motor protection systems need to be added by you. Motor cable connection diagrams are provided inside the terminal boxes.

The indicated motor data (S1) are valid for continuous operation. Motors operated at standard voltages 230 V, 400 V, 690 V-50 Hz can tolerate ±5% voltage fluctuations considering power drops. Unless there is a request for otherwise, motors are generally manufactured with footing. Based on your request, we can provide motor thermal switches, contactors, electronic rpm control devices and motors with double-cycle.

Motor Voltage
(Standard) : A.C. 3-phase 380 - 415 V (±%5) - 50 Hz (±%2)
A.C. Mono-phase 220/240 V - 50 Hz (Bazı modeller)
(Optional) : A.C 3-phase 440/480 V - 60 Hz
A.C. Mono-phase 110/120 V - 60 Hz

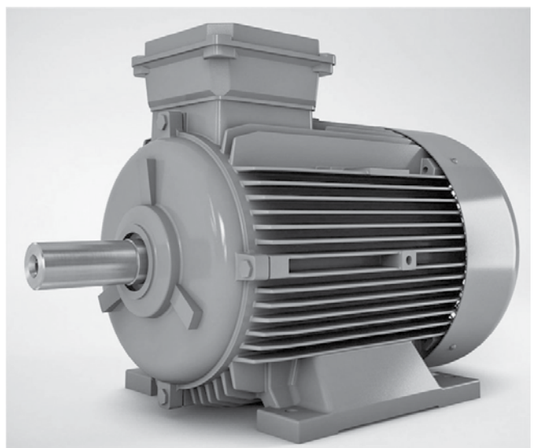
Motor Protection Class
(Standard) : IP 55 class motors are used
(Optional) : IP56 ,IP65

Isolation Class
(Standard) : F class motors are used
(Optional) : H class motors (at high temperature) (F200, F300, F400)

(Optional) : Ex-proof motors (in explosive medium) - ATEX

Motor Bearing
(Standard) : Life-long lubricated Z.Z. series rollers are used including and up to 132 Housing (7.5 kW).
Starting from 160 Housing (11 kW), external lubricated system is used.
Depending on customer requests, Z.Z series rollers can be used up to 315 Housing (200kW).

Efficiency : IE2/IE3



IE3

3-phase, 400 V, 50 Hz
Duty Type : S1 (continuous)
Degree or protection : IP 55
Insulation Class : F (155°C)
Temp. Rise : Class B (80K)

2 pole / 3000 rpm

Rated Output	Type	Full-load data							Starting data				Breakdown torque ratio M_K/M_N	Moment of inertia J	Weight approx. B3
		Speed	Current I_N	Torque M_N	Power Factor Cos φ	Efficiency η % IEC 60034-2-1:2007			Current Ratio I_A/I_N		Torque Ratio M_A/M_N				
kW		rpm	A	Nm		4/4	3/4	1/2	D.O.L	Y/Δ	D.O.L	Y/Δ		kgm^2	kg
ALUMINIUM HOUSING															
0,75	AGM2E 80 2a	2880	1,6	2,49	0,84	80,7	80,6	78,5	6,2	-	2,5	-	3,2	0,00066	8,8
1,1	AGM2E 80 2b	2900	2,3	3,62	0,83	82,7	82,5	80,6	5,9	-	2,6	-	3,7	0,00080	10,4
1,5	AGM2E 90 S 2	2900	3,3	4,94	0,78	84,2	84,0	82,5	6,3	-	3,1	-	3,7	0,0014	13,5
2,2	AGM2E 90 L 2	2900	4,5	7,24	0,83	85,9	85,4	85,0	6,6	-	2,9	-	3,5	0,0017	16
3	AGM2E 100 L 2	2900	5,8	9,9	0,87	87,1	86,9	85,3	7,6	-	3,4	-	4,0	0,0031	21,5
4	AGM2E 112 M 2	2920	7,4	13,1	0,88	88,1	88,0	87,2	7,2	2,3	2,8	0,9	3,5	0,0048	22,7
5,5	AGM2E 132 S 2a	2920	9,8	18,0	0,91	89,2	89,0	87,4	7,6	2,5	2,8	0,9	3,5	0,013	40
7,5	AGM2E 132 S 2b	2930	13,3	24,5	0,90	90,1	90,1	89,5	7,2	2,3	2,6	0,9	3,4	0,017	52
11	AGM2E 160 M 2a	2955	19,5	35,5	0,89	91,2	91,2	90,4	8,5	2,8	3,1	1,0	4,0	0,034	73
15	AGM2E 160 M 2b	2955	27	48,5	0,87	91,9	91,8	91,6	7,5	2,4	2,4	0,8	3,0	0,046	88
22	AGM2E 180 M 2	2960	38	71	0,90	92,7	92,6	92,2	7,0	2,3	2,4	0,8	3,0	0,075	147
30	AGM2E 200 L 2a	2980	52	96	0,89	93,3	93,3	92,8	8,5	2,7	2,8	0,9	3,5	0,15	190
37	AGM2E 200 L 2b	2980	63	119	0,90	93,7	93,7	93,1	8,3	2,7	2,8	0,9	3,1	0,17	220
CAST IRON HOUSING															
5,5	GM2E 132 S 2a	2920	9,8	18,0	0,91	89,2	89,0	87,4	7,6	2,5	2,8	0,9	3,5	0,013	52
7,5	GM2E 132 S 2b	2920	13,3	24,5	0,90	90,1	90,1	89,5	7,2	2,3	2,6	0,9	3,4	0,017	64
11	GM2E 160 M 2a	2945	19,1	35,5	0,91	91,2	91,2	90,4	8,5	2,8	3,1	1,0	4,0	0,034	105
15	GM2E 160 M 2b	2955	26,0	48,5	0,91	91,9	91,8	91,6	7,5	2,4	2,4	0,8	3,0	0,046	120
18,5	GM2E 160 L 2	2960	31,5	59,9	0,92	92,4	92,5	92,0	8,2	2,6	3,0	1,0	3,2	0,056	145
22	GM2E 180 M 2	2960	38	71	0,90	92,7	92,6	92,2	7,0	2,3	2,4	0,8	3,0	0,075	170
30	GM2E 200 L 2a	2980	52	96	0,89	93,3	93,3	92,8	8,5	2,7	2,8	0,9	3,5	0,15	240
37	GM2E 200 L 2b	2980	63	119	0,90	93,7	93,7	93,1	8,3	2,7	2,8	0,9	3,1	0,17	270
45	GM2E 225 M 2	2980	77	144	0,91	94,0	94,1	93,0	8,7	2,8	2,7	0,9	3,1	0,26	380
55	GM2E 250 M 2	2985	92	176	0,92	94,3	94,5	93,3	8,7	2,8	2,9	0,9	3,0	0,47	480
75	GM2E 280 S 2	2985	127	240	0,90	94,7	94,6	94,0	8,0	2,6	2,9	0,9	3,2	0,62	585
90	GM2E 280 M 2	2985	148	288	0,92	95,0	95,0	93,7	8,2	2,7	2,9	0,9	3,0	0,74	645
110	GM2E 315 S 2	2985	186	353	0,90	95,2	95,2	94,0	8,0	2,6	2,5	0,8	3,0	1,2	742
132	GM2E 315 M 2a	2985	223	423	0,90	95,4	95,4	94,1	8,0	2,6	2,4	0,8	3,5	1,4	812
160	GM2E 315 M 2b	2985	265	513	0,91	95,6	95,6	94,2	8,0	2,6	2,5	0,8	3,0	1,5	912
185	GMM2E 315 L 2a	2985	304	593	0,92	95,8	95,7	94,2	7,5	2,5	2,5	0,8	2,8	1,8	1110
200	GMM2E 315 L 2b	2985	324	641	0,93	95,8	95,8	94,6	7,5	2,5	2,5	0,8	2,8	1,8	1110
250	GMM2E 355 M 2a	2990	413	801	0,92	95,8	95,8	94,6	7,0	2,4	2,0	0,6	2,5	3,6	1170
315	GMM2E 355 M 2b	2990	516	1009	0,92	95,8	95,8	94,7	7,0	2,4	2,0	0,6	2,5	4,5	1360
355	GMM2E 355 M 2c	2990	575	1138	0,93	95,8	95,7	94,8	7,2	2,4	2,0	0,6	2,5	4,7	1420
400	GMM2E 355 L 2a	2990	660	1282	0,92	95,8	95,8	94,9	7,0	2,4	2,0	0,6	2,5	5,3	1630

Efficiency values are calculated with indirect measurement method according to IEC 60034-2-1 : 2014 standard. Additional losses are determined according to the test results obtained at variable loading.

190729.ENG.ELEC.MOTOR

CHARACTERISTICS OF STANDARD ELECTRICAL MOTORS

IE3

3-phase, 400 V, 50 Hz
Duty Type : S1 (continuous)
Degree or protection : IP 55
Insulation Class : F (155°C)
Temp. Rise : Class B (80K)

4 pole / 1500 rpm

Rated Output	Type		Full-load data							Starting data				Breakdown torque ratio M_K/M_N	Moment of inertia J	Weight approx. B3
			Speed	Current I_N	Torque M_N	Power Factor Cos φ	Efficiency η %			Current Ratio I_A/I_N		Torque Ratio M_A/M_N				
							IEC 60034-2-1:2007									
kW			rpm	A	Nm		4/4	3/4	1/2	D.O.L	Y/Δ	D.O.L	Y/Δ		kgm^2	kg
ALUMINIUM HOUSING																
0,75	AGM3E	80 4b	1440	2,0	4,97	0,66	82,5	82,5	80,8	5,5	-	2,7	-	3,0	0,0017	11,9
1,1	AGM3E	90 S 4	1440	2,6	7,35	0,73	84,1	84,1	82,8	5,1	-	2,5	-	3,0	0,0025	13,7
1,5	AGM3E	90 L 4	1440	3,3	9,95	0,77	85,3	85,3	84,0	6,5	-	3,6	-	3,7	0,0033	17,0
2,2	AGM3E	100 L 4a	1445	5,0	14,5	0,73	86,7	86,8	85,0	5,9	-	2,7	-	3,4	0,0052	21,1
3	AGM3E	100 L 4b	1445	6,6	19,8	0,75	87,7	87,8	86,1	6,4	-	3,2	-	3,8	0,0068	28
4	AGM3E	112 M 4	1460	7,9	26,2	0,82	88,6	88,5	88,0	7,2	2,4	3,0	1,0	3,6	0,012	36
5,5	AGM3E	132 S 4	1470	11,0	35,7	0,81	89,6	89,6	88,8	7,0	2,3	2,7	0,9	3,3	0,026	48
7,5	AGM3E	132 M 4	1470	15,4	48,7	0,78	90,4	90,5	89,6	7,5	2,5	3,0	1,0	3,6	0,032	56
11	AGM3E	160 M 4	1470	21,0	71,5	0,83	91,4	91,3	91,0	6,9	2,2	2,4	0,8	3,1	0,072	90
18,5	AGM3E	180 M 4	1475	34,5	120	0,84	92,6	92,6	91,6	7,8	2,6	3,2	1,0	3,8	0,15	160
22	AGM3E	180 L 4	1475	42,5	142	0,80	93,0	92,8	92,0	8,3	2,7	3,5	1,2	4,0	0,17	170
30	AGM3E	200 L 4	1475	55	194	0,84	93,6	93,5	93,3	7,9	2,6	2,8	0,9	3,7	0,25	190
CAST IRON HOUSING																
5,5	GM3E	132 S 4	1470	11,0	35,7	0,81	89,6	89,6	88,8	7,0	2,3	2,7	0,9	3,3	0,026	60
7,5	GM3E	132 M 4	1470	15,4	48,7	0,78	90,4	90,5	89,6	7,5	2,5	3,0	1,0	3,6	0,032	68
11	GM3E	160 M 4	1470	21,0	71,5	0,83	91,4	91,3	91,0	6,9	2,2	2,4	0,8	3,1	0,072	120
15	GM3E	160 L 4	1470	29,0	97,4	0,81	92,1	92,0	91,8	6,9	2,2	2,5	0,8	3,2	0,092	144
18,5	GM3E	180 M 4	1475	34,5	120	0,84	92,6	92,6	91,6	7,8	2,6	3,2	1,0	3,8	0,15	180
22	GM3E	180 L 4	1475	42,5	142	0,80	93,0	92,8	92,0	8,3	2,7	3,5	1,2	4,0	0,17	190
30	GM3E	200 L 4	1475	55	194	0,84	93,6	93,5	93,3	7,9	2,6	2,8	0,9	3,7	0,25	240
37	GM3E	225 S 4	1475	67	240	0,85	93,9	93,9	93,5	7,5	2,5	3,1	1,0	3,3	0,36	330
45	GM3E	225 M 4	1475	80	291	0,86	94,2	94,2	93,4	7,4	2,5	3,0	1,0	3,1	0,44	360
55	GM3E	250 M 4	1480	96	355	0,87	94,6	94,7	94,0	7,7	2,6	3,2	1,0	3,0	0,78	445
75	GM3E	280 S 4	1485	133	482	0,86	95,0	94,9	94,4	7,6	2,5	2,9	0,9	3,0	1,11	605
90	GM3E	280 M 4	1485	158	579	0,86	95,2	95,2	94,8	7,4	2,4	2,9	0,9	3,0	1,32	665
110	GM3E	315 S 4	1487	194	707	0,86	95,4	95,2	95,0	7,4	2,5	2,4	0,8	3,0	2,5	861
132	GM3E	315 M 4a	1487	230	848	0,87	95,6	95,4	95,3	7,4	2,5	2,4	0,8	3,0	2,8	882
160	GM3E	315 M 4b	1488	275	1027	0,88	95,8	95,6	95,6	6,9	2,3	2,2	0,7	2,9	3,0	930
185	GMM3E	315 L 4a	1488	321	1187	0,87	96,0	96,0	95,8	6,9	2,3	2,2	0,7	2,9	3,1	1015
200	GMM3E	315 L 4b	1488	350	1284	0,86	96,0	95,8	95,8	7,5	2,5	2,5	0,8	3,1	3,3	1100
250	GMM3E	355 M 4a	1490	430	1602	0,87	96,1	96,0	96,0	7,2	2,4	2,2	0,7	3,0	6,0	1400
315	GMM3E	355 M 4b	1490	540	2019	0,88	96,1	96,0	95,9	7,2	2,4	2,2	0,7	3,0	6,5	1438
355	GMM3E	355 M 4c	1490	610	2275	0,87	96,2	96,0	96,1	7,2	2,4	2,2	0,7	3,0	7,2	1490
400	GMM3E	355 L 4a	1490	690	2564	0,87	96,2	96,0	96,1	7,2	2,4	2,2	0,7	3,0	7,9	1720

Efficiency values are calculated with indirect measurement method according to IEC 60034-2-1 : 2014 standard. Additional losses are determined according to the test results obtained at variable loading.

190729.ENG.ELEC.MOTOR

IE3

3-phase, 400 V, 50 Hz
Duty Type : S1 (continuous)
Degree or protection : IP 55
Insulation Class : F (155°C)
Temp. Rise : Class B (80K)

6 pole / 1000 rpm

Rated Output	Type		Full-load data							Starting data				Breakdown torque ratio M_K/M_N	Moment of inertia J	Weight approx. B3
			Speed	Current I_N	Torque M_N	Power Factor Cos φ	Efficiency η %			Current Ratio I_A/I_N		Torque Ratio M_A/M_N				
							IEC 60034-2-1:2007									
kW			rpm	A	Nm		4/4	3/4	1/2	D.O.L	Y/Δ	D.O.L	Y/Δ		kgm^2	kg
ALUMINIUM HOUSING																
0,75	AGM3E	90 S 6	950	2	7,62	0,69	78,9	78,9	76,9	4,0	0,0	2,0	0,0	2,3	0,0038	13,3
1,1	AGM3E	90 L 6	940	2,9	11,18	0,68	81,0	81,0	78,3	4,0	0,0	2,0	0,0	2,4	0,0051	15,2
1,5	AGM3E	100 L 6	955	3,6	15	0,73	82,5	82,3	80,3	5,1	0,0	2,4	0,0	3,0	0,011	22,8
2,2	AGM3E	112 M 6	960	5,3	21,9	0,71	84,3	84,1	82,1	5,8	0,0	2,6	0,0	3,2	0,016	30
3	AGM3E	132 S 6	965	6,9	29,7	0,73	85,6	85,6	85,2	6,0	2,0	2,2	0,7	2,7	0,037	49
4	AGM3E	132 M 6a	965	9,0	39,6	0,74	86,8	86,7	86,4	6,0	2,0	2,2	0,7	2,7	0,051	55
5,5	AGM3E	132 M 6b	965	12,1	54,4	0,75	88,0	87,8	87,5	6,0	2,0	2,2	0,7	2,7	0,069	68
7,5	AGM3E	160 M 6	970	15	73,8	0,81	89,1	89,0	88,1	6,3	2,1	2,2	0,7	2,8	0,11	95
15	AGM3E	180 M 6	975	29	147	0,82	91,2	91,2	90,8	6,9	2,3	2,6	0,9	3,2	0,24	170
18,5	AGM3E	200 M 6a	975	36,5	181	0,81	91,7	91,6	91,3	7,0	2,3	2,6	0,9	3,2	0,26	175
22	AGM3E	200 L 6b	975	43	215	0,80	92,2	92,0	91,7	7,0	2,3	2,6	0,9	3,2	0,32	195
CAST IRON HOUSING																
3	GM3E	132 S 6	965	6,9	29,7	0,73	85,6	85,6	85,2	6,0	2,0	2,2	0,7	2,7	0,037	61
4	GM3E	132 M 6a	965	9,0	39,6	0,74	86,8	86,7	86,4	6,0	2,0	2,2	0,7	2,7	0,051	68
5,5	GM3E	132 M 6b	965	12,1	54,4	0,75	88,0	87,8	87,5	6,0	2,0	2,2	0,7	2,7	0,069	81
7,5	GM3E	160 M 6	970	15	73,8	0,81	89,1	89,0	88,1	6,3	2,1	2,2	0,7	2,8	0,11	126
11	GM3E	160 L 6	970	21,5	108,3	0,82	90,3	90,3	89,0	7,0	2,3	2,5	0,8	3,2	0,14	146
15	GM3E	180 L 6	975	29	147	0,82	91,2	91,2	90,8	6,9	2,3	2,6	0,9	3,2	0,24	209
18,5	GM3E	200 L 6a	975	36,5	181	0,80	91,7	91,6	91,3	7,0	2,3	2,6	0,9	3,2	0,26	225
22	GM3E	200 L 6b	975	43	215	0,80	92,2	92,0	91,7	7,0	2,3	2,6	0,9	3,2	0,32	245
30	GM3E	225 M 6	985	58	291	0,80	92,9	92,9	92,1	7,0	2,3	3,3	1,1	2,7	0,69	325
37	GM3E	250 M 6	987	70	358	0,82	93,3	93,2	92,9	7,0	2,3	2,8	0,9	2,6	0,99	440
45	GM3E	280 S 6	990	88	434	0,79	93,7	93,7	92,9	6,9	2,3	3,0	1,0	2,8	1,5	553
55	GM3E	280 M 6	990	107	531	0,79	94,1	94,1	92,8	7,3	2,4	3,3	1,1	3,2	1,7	578
75	GM3E	315 S 6	992	140	722	0,82	94,6	94,6	94,4	7,2	2,4	2,7	0,9	3,0	2,9	805
90	GM3E	315 M 6a	992	166	866	0,83	94,9	94,9	94,5	7,2	2,4	2,7	0,9	3,0	3,5	860
110	GM3E	315 M 6b	992	198	1058	0,84	95,1	95,1	94,9	7,2	2,4	2,7	0,9	3,0	4,2	980
132	GMM3E	315 L 6	992	235	1270	0,85	95,4	95,4	95,2	7,2	2,4	2,7	0,9	3,0	4,3	1150
160	GMM3E	355 M 6a	993	290	1538	0,83	95,6	95,6	95,0	7,0	2,3	2,4	0,8	3,2	6,8	1185
200	GMM3E	355 M 6b	993	345	1923	0,87	95,8	95,8	95,3	7,0	2,3	2,4	0,8	3,2	8,3	1390
250	GMM3E	355 M 6c	993	437	2404	0,86	95,8	95,8	95,4	7,0	2,3	2,4	0,8	3,2	10,4	1716
315	GMM3E	355 L 6a	993	555	3029	0,86	95,8	95,7	95,5	7,0	2,3	2,4	0,8	3,2	11,7	1890
355	GMM3E	355 L 6b	993	610	3414	0,88	95,8	95,7	95,5	7,0	2,3	2,4	0,8	3,2	13,2	2020
355	GMM3E	400 L 6a	995	610	3407	0,88	95,9	95,9	95,7	6,8	2,3	2,2	0,7	2,9	23,6	2450
400	GMM3E	400 L 6b	995	690	3839	0,87	95,9	95,9	95,7	6,8	2,3	2,2	0,7	2,9	26,6	2705

Efficiency values are calculated with indirect measurement method according to IEC 60034-2-1 : 2014 standard. Additional losses are determined according to the test results obtained at variable loading.

190729.ENG.ELEC.MOTOR

MOTOR OPERATION DETAILS

TERMINAL (END CONNECTOR) BOX
All end connector boxes conform to IP 55 protection class and placed at the top front part of the motor housing so that the cable entry can be made easily from both sides. In basic structure, the motors have six fixed ends and there is a grounding screw inside the terminal box. There is a connection diagram shown under the cover of each terminal box. The conductors of the feeding cable should be connected according to the connection diagram. The conformity of the grid/network to the plate values should always be checked. The cross section of the feeding cable should be selected according to the rated current and conditions specific to the facility. The connection of feeding cables should be made with special care so that a continuous and reliable contact is ensured. Safety nuts have been placed at motor ends to ensure that connections always stay tightened. Loose connections can cause overheating and motor malfunctions. All cable supports should be placed properly to avoid bending or tilting of feeding cable. Unused input holes should be closed tightly with stoppers. Check that all seals and settlement surfaces are in good condition and inserted correctly. Please replace the damaged ones.

DIRECTION OF ROTATION
All our motors can rotate in both directions.

If L1, L2, L3 feeding lines are connected to U1, V1, W1 ends, the motor rotates clockwise from the standpoint of motor shaft tip. If the feeding lines of any two ends are exchanged the motor rotates anticlockwise.

Before connecting the motor to the work machinery, check the direction of rotation by making a quick switch on-off action.

END CONNECTORS AND START-UP
Direct Start-up
The easiest start-up method for a caged asynchronous motor is directly connecting the motor to the grid. The necessary start-up fixture is just a direct starter. In this most preferred method, the rules and limitations of Electricity administrations should be borne in mind due to high start-up current.

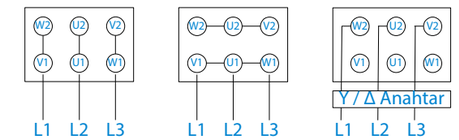
Star Triangle (Y / Δ) Start-up
If the start-up current of the motor is higher than the grid limit value, star triangle start-up method can be used. In triangle connection, a motor is started up with star connection wound for 380V or 400V. In this method, the start-up current and moment falls to about 1/3 of the direct start-up value. To limit current and moment impacts in transition from star to triangle, the transition should be made when the motor gets as close as possible to the rated speed (93%...95%).

Soft Start-up
In some cases, it is desired that the motors are started up softly, the start-up current is not important. In this case, a soft starter can be used. Thereby the start-up period can be set according to voltage requirement by constantly monitoring motor operation. In this manner, the losses can be minimized. When a soft starter is used, the moment curve of the motor should conform to the properties of the work machine.

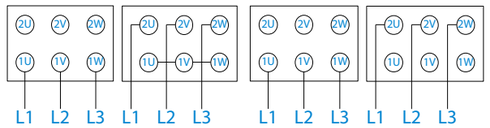
Number of Terminals	Output Power at nominal Voltage 380 V, 50 Hz. or 400 V,50 Hz (kW)	
	220 V (Δ) / 380 Y 220-240 V (Δ) / 380-415 V Y	380 V (Δ) 380-415 V (Δ)
2 and 4	≤ 3 kW	≥ 4 kW
6	≤ 2.2 kW	≥ 3 kW
8	≤ 1.5 kW	≥ 2.2 kW
Yol verme yöntemleri	Direct start-up	Direct start-up Y / Δ or others

PROTECTION OF MOTORS
The thermal protection of stator coils should be selected as most suitable to operating conditions. In addition to breakers providing delayed over-current protection (with bimetal mechanism), the motors can also be protected against over-loading by the help of thermistors (semi-conducting temperature sensors) placed in coils. Bimetal switches, i.e. thermostats, can also be placed in coils. As the thermal protection with thermistor control the temperature at the coil (the most critical point) and is independent of external factors or type of operation, it is safer as compared to other motor protection mechanisms. The fuses normally protect just the system, not the motor.

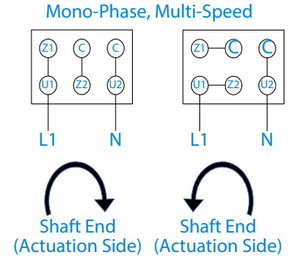
3-Phase, Mono-Speed



3-Phase, Multi-Speed



Mono-Phase, Multi-Speed



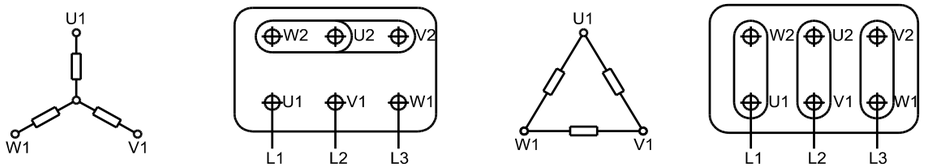
FINAL CHECKS
After installing a motor, the following checks and tests should be performed:
- Conformity of insulation and operating conditions to the plate data
- Correct placement and alignment of the motor
- Correct insertion of shaft components
- Sufficient insulation resistance
- Direction of rotation
- No obstruction in front of cooling air flow
- Free rotation of rotor
- Tightness of all tightening components and electrical connections
- The grounding connections should be made accurately
- Correct lubrication of bearings
- Correct insertion, connection and maintainability of fixtures
- All protective measures should be taken against contact with moving and live (voltage-bearing) parts
- Motor brake, if any, should be correctly fitted, connected and able to be maintained
- Start-up the motor in idle until it reaches full speed
- Check any noise or vibration at the bearings and covers
- If the motor is not rotating smoothly or there are extraordinary noises, deactivate the motor. Search the cause of noise while the motor is slowing down. If the failure ceases during slow-down, the reason is electrical or magnetic. Otherwise, the reason is mechanical.
- If the motor operated well in idle, it is loaded at rated power. Observe the smoothness of rotation and note down feeding voltage and motor operation values.
- Note down the temperature of coil and bearing until thermal equilibrium is reached.
- Switch on the breaker to stop the motor and wait for it to stop without braking and activate the heater, if any, that prevents water condensation.

To ensure that the thermal protection system does not cause any damage or injury while the motor is cooling down, the temperature sensors should be connected to prevent the motor to make an unexpected restart and these sensors should be checked.

The checklist provided above does not cover each and every possibility. Consequently, other measures can be taken by the installation and commissioning engineer that is familiar with the special conditions of the place and facility and is informed on relevant additional instructions.

THREE-PHASE MOTOR CONNECTIONS

Single-Cycle Motor Connection

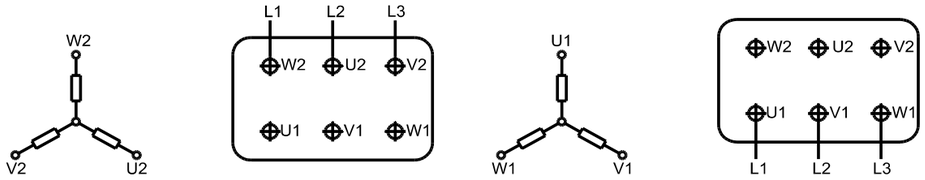


Star Connection

Triangle Connection

Speeds at 50 Hz frequency; 3000, 1500, 1000, 750

Double Cycle Motor Connection:

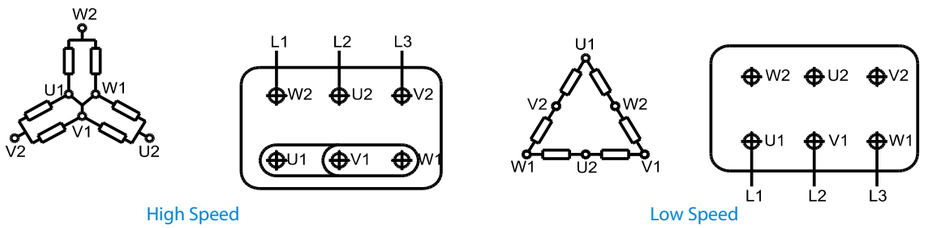


High Speed

Low Speed

Speeds at 50 Hz frequency; 3000/1000, 3000/750, 1500/1000, 1000/750

Double-Cycle Fixed-Torque Motor Connection with Dahlander System:



High Speed

Low Speed

Speeds at 50 Hz frequency; 3000/1500, 1500/750

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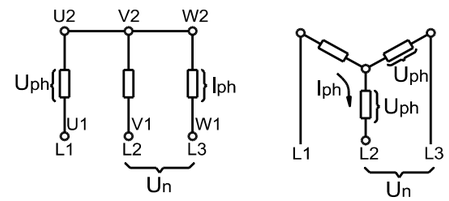
STAR CONNECTION

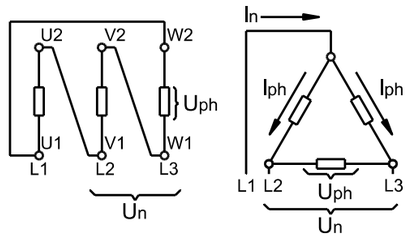
When 3-phase voltage is applied to U1,V1,W1 - the input ends of stator coils – and the output ends of the coils (U2,V2,W2) are short circuited, this connection is called star connection. Star connection is shown as "Y". Star connection can be made by applying grid voltage to U2,V2,W2 ends of coils while short circuiting U1,V1,W1 ends. This situation does not make a change in motor operation. Since there is 120^0 phase differential among coils in star connection, line voltage is √3 times of phase voltage; whereas line current is equal to phase current.



TRIANGLE CONNECTION

When the output end of the first phase on the motor connector is connected to the input end of the second phase, the output end of the second phase is connected to the input end of the third phase and the output end of the third phase is connected to the input end of the first phase, this type of connection is called a triangle connection. The ends should not be positioned opposite to each other in the connector box. This position of the ends does not pose a problem in star connection but is problematic in triangle connection. If the U1-U2, V1-V2, W1-W2 ends are connected when the end connections are made with brass bridges, the coil ends are short circuited and no current passes since one each end is left vacant and thus the motor does not operate. For this reason, the ends are connected in the order of U1,V1,W1, U2,V2,W2 and the ends U1-U2, V1-V2, W1-W2 are shirt circuited with brass bridges. Triangle connection is shown as (Δ). Line current in this connection is √3 times of phase current. Line voltage is equal to phase voltage in triangle connection.

The motors with (Δ) 400 V stated on its label are connected in triangle form. If 220/400 Volt is written on the label; this means that 220 Volt is applied when star operation is applied to one phase coil, whereas 400 Volt is applied for triangle operation.



STAR-TRIANGLE CONNECTION

The purpose in star-triangle starting is to operate the motor with star-connection at initial start-up, and then operate the motor in normal (triangle) connection afterwards. Thus, when the motor operated in star connection, the current collected from the grid falls at 1/3. The time to pass from star connection to triangle connection is very important. When the motor is started without load, the revolution quantity increases up to rated rpm (cycle). When the revolution quantity approaches rated rpm, it is passed on to triangle connection. Otherwise if the transition is made without approaching the rated rpm, high current is collected from the grid. The transition process needs to be completed within minimum 10 seconds although this duration varies with power.

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EMAK

REFERENCES

SHOPPING MALLS, RESIDENTIAL & COMMERCIAL CONSTRUCTION PROJECTS

UZUNKÖPRÜ CULTURAL CENTER - EDIRNE
SEYİT NİZAM CULTURAL CENTER - ISTANBUL
YILDIRAY DEMİRKAYA BUSINESS CENTER - ISTANBUL
MALTEPE SPORTS COMPLEX - ISTANBUL
NİLÜFER CITY BUILDING - BURSA
TBMM BUILDING - ANKARA
ZEKSAN GENERATOR BUILDING - ISTANBUL
İSMETPAŞA BAZAAR - ISTANBUL
KARTAL CITY BUILDING - ISTANBUL
SULTANGAZİ CITY BUILDING - ISTANBUL
ISTANBUL PALACES
EMAY NEWPORT - ISTANBUL
EMAY CENTRIUM - ISTANBUL
ÖZLÜCE - BURSA
KAYI PLAZA - BILECIK
KENT NERİVA - ISTANBUL
BOSP CITY 26.BLOCK - ISTANBUL
ATABİLGE RESIDENCES - ANKARA
SULTANBEYLİ BUILDING LOT - ISTANBUL
STAR TOWERS - ISTANBUL
BURSA COJENERATION
ŞEHREKÜSTÜ ADDITIONAL METRO BUILDING - BURSA
KENT NERIVA - ISTANBUL
CROWN PLAZA - BURSA
USAL PROJECT- ISTANBUL
ESENYURT DHL - ISTANBUL
NAZİLLİ CITY BUILDING - AYDIN
HAKFA PLAZA - ISTANBUL
STAR SHOPPING CENTER - YALOVA
METROCITY SHOPPING CENTER - BODRUM
METROCITY SHOPPING CENTER - ISTANBUL
AIRPORT PLAZA - ISTANBUL
ATATÜRK VOLEYBOL SALONU - IZMIR
ÇEKİR TRADE BUILDING - ISTANBUL
HAN PLUS - ISTANBUL
UMI PLAZA - BURSA
DRAGOS RESIDENCE - ISTANBUL
ÖNAY GARDEN - ISTANBUL
MDA SHOPPING CENTER - BURSA
SABIKA COMPLEX - KUWAIT
TARAD COMPLEX - KUWAIT
AL-DABAUS COMPLEX - KUWAIT
AL-NOMIS COMPLEX - KUWAIT
AL-ZAHID COMPLEX - KUWAIT
AL-JASSER SHOWROOM - KUWAIT
BEHBEHANI JEEPS / AHMADI - KUWAIT
BEHBEHANI JEEPS / AL-RAI - KUWAIT
SHEIKH SALIM COMPLEKS / SALMIYA - KUWAIT
FAIHA CO-OPER CLUB - KUWAIT
AL-YAH COMPLEKS / SULAIBIYA - KUWAIT
ABDUL KARIEM YAHYAH - KUWAIT
SHEIKH. METAIB-SALMIYAH - KUWAIT
MIRGAB COMPLEKS - KUWAIT
AL-KHASHAAB BUILDING / MAZIN AL SANI - KUWAIT
SOCIAL SECURITY CENTRE / AL-HABSHI - KUWAIT
HAMAD CENTRE / AL-SEEF - KUWAIT
CNR / WORLD TRADE CENTER - ISTANBUL
ARMADA SHOPPING GENTER - ANKARA
AKMERKEZ - ISTANBUL
CAPITOL BUSINESS CENTER - ISTANBUL
PROFILO SHOPPING CENTER - ISTANBUL
GALERIA SHOPPING CENTER - ISTANBUL

SMOKE EXHAUST AND PRESSURIZATION FANS

ALTINDAĞ SPORTS COMPLEX - ANKARA
AŞKABAT AIRPORT - TURKMENISTAN
ISTANBUL SGK CARPARK
BAKÜ / HAZAR TV - AZERBAIJAN
KUTAHYA 500 PERSON DORMITORY
ANALİZ GROUP - ISTANBUL
EYÜP PARK - ISTANBUL
MINISTRY OF LABOUR & SOCIAL SECURITY - ISTANBUL
MINISTRY OF SCIENCE AND TECHNOLOGY - ISTANBUL
ARİFOĞLU CARPARK 2 - ISTANBUL
GIRESUN ESPIYE 50 BED HOSPITAL
GIRESUN 150 BED HOSPITAL
TOYA VISTA - ISTANBUL
MOSB CAMPUS - MANISA
KBT - AZERBAIJAN
MARMARA UNIVERSITY - ISTANBUL
YTU TECHNOPARK - ISTANBUL
NİLÜFER MUNICIPALITY - BURSA
ULUDAĞ UNIVERSITY - BURSA
ERDEM HOSPITAL - ISTANBUL
ANTALYA CARPARK 2
BOLU STOREY CARPARK
HALKALI TOKİ BUILDING - ISTANBUL
TOMARZA HOSPITAL - KAYSERI
KONYA CULTURAL CENTER
BİZ CEVAHİR - ISTANBUL
KARTAL GOVERNMENT BUILDING - ISTANBUL
SULTANGAZİ MUNICIPALITY CARPARK - ISTANBUL
ÇIRAĞAN PALACE - ISTANBUL
ISTANBUL PALACES
SAMSUN COURT HOUSE
EMAY CENTRIUM - ISTANBUL
EMAY NEWPORT - ISTANBUL
ÖZLÜCE - ISTANBUL
KAYI PLAZA - BILECIK

ALPASLAN PROJECT - ISTANBUL
BOSP CITY 26TH BLOCK - ISTANBUL
ATABİLGE RESIDENCES - ISTANBUL
YTU - ISTANBUL
BURDUR CLOSED CARPARK
KENT NERİVA NER 52 - ISTANBUL
VATAN TAX PALACE - ISTANBUL
MUŞ PROJECT
BAHAR STREET CARPARK - BURSA
OFFICE 4000 PLAZA - ISTANBUL
GÜVEN PLAZA - ESKISEHIR
EGEMEN CONSTRUCTION - ISTANBUL
KRİSTAL PARK - ISTANBUL
ŞAHDAĞI TURİSM COMPLEX - AZERBAIJAN
AYMAK MECHANIC - BURSA
ATATÜRK VOLLEYBALL HALL - IZMIR
ÇİNİLİ CARPARK - ISTANBUL
UMI PLAZA - BURSA
ONAY GARDEN - ISTANBUL
DRAGOS KONUTLARI - ISTANBUL
CLUB 16 - BURSA
SARİSSA PROJECT - ISTANBUL
MTN HOSPITAL - AZERBAIJAN
PROTEC - PERU
PERCEP - BANGKONG
FAWAZ - SAUDI ARABIA
FIRESYS – CZECH REPUBLIC
AIR WORLD COMPANY - JORDAN
AL MASAFI - KUWAIT
STAR TOWER / AL MIRQAB - KUWAIT
HAMAM TOWER / AL MIRQAB - KUWAIT
QIBLA TOWER / AL MIRQAB - KUWAIT
MARIAM TOWER / SHARQ - KUWAIT
SHAIMA TOWER / SHARQ - KUWAIT
AL FANAR COMPLEKS / SALMIYA - KUWAIT

MADAKHAL TOWER / AL MIRQAB - KUWAIT
HATEM ALI RAZA AL SAYEGH / SHOIBA - KUWAIT
PAPER INDUSTRIES CO. / AT SHUAIBA - KUWAIT
AKBAR ALI ABDUL RAZA / SUWAIK - KUWAIT
YASRA DIST. CENTER / SUBHAN - KUWAIT
MAKHLAD MASHAAN AL MUTAIRY - KUWAIT
ABBAS SALIM AL SHATTI / ARDIYA - KUWAIT
AL-SHAKS CO & PARRTENER / ARDIYA - KUWAIT
AL-SHUYOUKH / JLEEB AL-SHUYOUKH - KUWAIT
SULEBIKHAT & AL. DOHA / SULAIBIKHAT - KUWAIT
JAMILAH SAHLEY BAQAR / FAHAHEEL - KUWAIT
NASER AL-NIMRAN FARWANIYA - KUWAIT
AL SABAH YOUSUF AL WAQYAN - KUWAIT
KUWAIT COTTON CO. / SABHAN - KUWAIT
MUSEAR MUTAIRAN / JAHARA - KUWAIT
SHAHEEN AL GHANIM / ARDIYA - KUWAIT
ADNAN AL AIDAN / SALMIYA - KUWAIT
REFRIGERATION INDUSTRIES CO - KUWAIT
MAWARD COMPANY AL KHALIJ - KUWAIT
TRAD COMPLEKS / SALMIYA - KUWAIT
MOHAMMED HADI AL NIMRAN - KUWAIT
SAIF ZAID RASHAD AL ZAID - KUWAIT
HAIF HAMOOD AL RASHIDI - KUWAIT
JALAWI AL ARABID - KUWAIT
KUWAIT OXYGEN PLAN - KUWAIT
ABDUL RAHMAN YOUSUF AL ZIBN - KUWAIT
ABDUL LATIF ABDUL KARIM. / ARDIYA - KUWAIT
SAAD JULAWI AL-ARBID / FARWANIYA - KUWAIT
TECHNICAL SCHOOL / KOSICE - SLOVAKIA
SHOPS LIDL / KOSICE - SLOVAKIA
MOUNTFIELD SHOPS in NITRA - SLOVAKIA
FURNITURE SHOPS ASKO - SLOVAKIA
VARIOUS SHOPPING CENTRE - SLOVAKIA
SEVERAL SHOP. AND ENTER. CEN. - SLOVAKIA
CLEAN AIR SERVICE - SLOVAKIA

RIZE PUBLIC HOSPITAL
BURSA CARPARK
FLEX RESIDENCE PROJECT - ISTANBUL
SİNPAŞ BOSPHOROUS CITY / GYO - ISTANBUL
ERİKLİ ŞAYPA SHOPPING CENTER - BURSA
BİZİMEVLER 2ND STAGE - ISTANBUL
ISTANBUL İBB MERTER CARPARK
HAVRAN DAM - BALIKESIR
HOLIDAYINN HOTEL / ALTUNIZE - ISTANBUL
LALEŞEHİR RESIDENCE - ISTANBUL
BAŞIBÜYÜK RESIDENCE - ISTANBUL
AVRUPA KONUTLARI / ATAKENT 2 - ISTANBUL
MILGEM PROJECT - ISTANBUL
ASTRUM TOWERS CARPARK - ISTANBUL
ELITKENT CARPARK - ISTANBUL
SKY RESIDENCE CARPARK - ISTANBUL
TAKSIM TALIMANE STOREY CARPARK - ISTANBUL
İBB ZEYTİNBURNU CARPARK - ISTANBUL
BOTAŞ PIPE LINE - ISTANBUL
ANKARA VOLLEYBALL FEDERATION
AVRUPA KONUTLARI / ATAKENT 1 - ISTANBUL
ARMADA SHOPPING CENTER - ANKARA
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PROFILO SHOPPING CENTER - ISTANBUL
CAPITOL SHOPPING CENTER - ISTANBUL
EFES PİLSEN FACTORY – IZMIR
EFES PİLSEN FACTORY - ISTANBUL
SABİHA GÖKÇEN AIRPORT - ISTANBUL

SCHOOLS, HOSPITALS, MEDICAL INDUSTRY, FACTORY PROJECTS

ÜSKÜDAR UNIVERSITY - ISTANBUL
GIRESUN ESPIYE 50 BED HOSPITAL
GIRESUN 150 BED HOSPITAL
ERDEM HOSPITAL - ISTANBUL
KAZIM KARABEKİR SCHOOL - ISTANBUL
BİGADİÇ HOSPITAL - BALIKESIR
KAYSERI TOMARZA HOSPITAL
MERSIN UNIVERSITY HOSPITAL
MEDIPOL BAĞCILAR HOSPITAL - ISTANBUL
MAI HOSPITAL - BURSA
GERMAN HOSPITAL - ISTANBUL
HARBİ HOSPITAL - BURSA
BAHAR HOSPITAL - BURSA
MTN HOSPITAL - AZERBAIJAN
ADAN HOSPITAL / AL-ADAN - KUWAIT
AL SALAM HOSPITAL - KUWAIT
JABRIYA UNIVERSITY DENTAL MEDICINE - KUWAIT
SALWA SCHOOL A MOHSIN M SHAHIN - KUWAIT
İÇDAŞ STEEL ENERGY PARTNERSHIP - ISTANBUL
ETİ MINES / BANDIRMA - BALIKESIR
ECZACIBAŞI MEDICINE INDUSTRIES - TEKIRDAG
BRİSA INC. - IZMIT
GENKA ENERGY SYSTEMS – ANKARA
BOMBARDIER TRANSPORTATION - ESKISEHIR
MUSTAFA NEVZAT MEDICINE IND. - ISTANBUL
ATG ENGINEERING - MACEDONIA
BAKPET FABRİKALARI - AZERBAIJAN
WEGAF KFT. - HUNGARY
ATLAS CARPET INC. / ÇORLU - TEKIRDAG

İŞBİR SYNTHETIC WEAVING IND. - BALIKESIR
BEKSA STEEL IND. INC. - IZMIT
MEAT & FISH PRODUCTS INC. - SAKARYA
LEVER GROUP OF COMPANIES – ISTANBUL
TOYOTA-SA – IZMIT FACTORY
PAŞABAHÇE KIRKLARELI GLASS IND. INC.
ANADOLU ISUZU OTOMOTİVE IND. INC. - GEBZE
AKADEMİ OFSET - ISTANBUL
BSH. PROFİLO INC. - ISTANBUL
EFES PİLSEN ERCİYES BEER INC. - ISTANBUL
COCA COLA INC. - ISTANBUL
PEPSİ KONNEKTAŞ INC. - ISTANBUL
FRUKO / TAMEK FRUIT JUICES - ISTANBUL
DIOMED MEDİKAL INC. - ISTANBUL
ISKENDERUN IRON & STEEL FACTORY
KARABUK IRON & STEEL FACTORY
DHL WORLDWIDE EXSPRESS - ISTANBUL
KODAK NEAR EAST INC. - ISTANBUL
MOĞUL TEKSTILE - GAZIANTEP
PLASSET MEDICAL EQUIPMENT - ISTANBUL
EREGLI IRON&STEEL IND. INC. - ZONGULDAK
ICDAS IRON & STEEL IND. INC. - ISTANBUL
ÖZLER AGRICULTURAL PRODUCTS - ADANA
NETAŞ - ISTANBUL
KIRKLARELI GOVERNMENTAL HOSPITAL
SAINT JOSEPH-PRIMARY SCHOOL - ISTANBUL
ATACAN EDUCATIONAL INSTITUTIONS - ISTANBUL
HEALTH SCIENCES CENTER / SALMIYA - KUWAIT
AL CHABA / CEMENT FACTORY - SYRIA

HOTELS, RESTAURANTS, CLUBS AND RECREATION FACILITIES

SARVANOĞLU HOTEL - IZMIR
SELAHATTİN ARDA HOTEL - BURSA
BİZ CEVAHİR - ISTANBUL
MIDTOWN 13 - ISTANBUL
CLUB 16 - BURSA
JLEEB AL-SHUYOUKH CO - KUWAIT
PUBLIC AUTHORITY FOR SPORTS - KUWAIT
KHALDIYA CO PORETIVE SOCIETY - KUWAIT
FARWANIA CO - PORETIVE SOCIETY - KUWAIT
ROYAL ATLANTIS HOTEL - ANTALYA
TECHNICAL CONSULTANCY - KUWAIT
TALAD COMPLEKS - KUWAIT
AL-DABAUS COMPLEX - KUWAIT

SEA CLUB / SALMIYAH - KUWAIT
AL-ZAHIM STORES - KUWAIT
FENESCO FACTORY - KUWAIT
SABAHIYA MARR. HALL - KUWAIT
TARAD OTEL - KUWAIT
ISTANBUL SWIMMING CLUB
HÜNKAR RESTAURANT - ISTANBUL
CAFE MARMARA / SUADİYE - ISTANBUL
SAINT JOSEPH'S ASSOCIATION - ISTANBUL
ISTANBUL SAILING CLUB
MARRIOTT HOTEL - KUWAIT
PRINCESS HOTEL - ISTANBUL
MARMARA HOTEL - ISTANBUL

TUNNEL VENTILATION SYSTEMS

All systems are built according to NFPA 130 Standard, 250 °C – 1 h. Certified Heat Resistant material. Also EMAK have F300 and F400 certificate for all of our fans axial. The System Fans are tested by Fan Performance Test Code ISO 5801 – TPE – TR 2003 02023 Y

DUDULLU BOSTANCI METROLINE - ISTANBUL
(ONGOING PROJECT)
Tunnel / Platform EXF and INF fans
Car Park and Administration Building's Jet Fans

ANKARA METRO SYSTEM-M4 METROLINE (2015)
37 Pieces – 100 m3/s (2240 – 160 kW) – F400 / Tunnel Ventilation Fans (TVF)
35 Pieces – Various Jet Fans – F400
38 Pieces – Fire Dampers and complete MCC Electrical Control Systems

ANKARA KEÇİÖREN METRO SYSTEM-STATION FANS (2013)
3 Pieces 12 m3/s (900 – 11 kW) – F400
2 Pieces – 12,5 m3/s (900 – 15 kW) – F400
2 Pieces – 14 m3/s (1000 – 15 kW) – F400
1 Pieces – 14 m3/s (1000 – 11 kW) – F400
5 Pieces – 17,4 m3/s (1000 – 18,5 kW) – F400
2 Pieces – 20 m3/s (1120 – 22 kW) – F400
3 Pieces – 18 m3/s (1120 – 18,5 kW) – F400

SIVAS DELIKTAS TUNNEL (2013)
2 Pieces – 62 m3/s (1800 – 160 kW) – F400

İZRAY (İzmir Metro System) (2011) Phase II–Part I
6 Pieces – 22 m3/s (37 – 45 kW) – F300
4 Pieces – 30 m3/s (90 –110 kW) – F300
6 Pieces – 50 m3/s (110 –160 kW) – F300
2 Pieces – 70 m3/s (132 – 200 kW) – F300
4 Pieces – 100 m3/s (250 kW) – F400

GEORGIA – RIKOTI TUNNEL (2011)
2 Pieces 105 m3/s (360.000 m3/h) – 200 kW – Tunnel Ventilation Fans
2 Pieces 105 m3/s (378.000 m3/h) – 250 kW – F400 (400 °C – 2h) – Smoke Fans and Dampers

BURSARAY LRTS SYSTEM (2003) – Peron Fans – BURSA

BURSARAY (Bursa City Turkey) LRTS SYSTEM (2003)
Phase 1 & Phase 2 - TVF FANS
Total 16 Pieces – 108 m3/s (390.000 m3/h – 250 W) – 250°C–1 h.
Each Smoke Fans, Smoke Dampers, Automation system, Silencers, Electric Control Panels with Frequence Drivers, Remote Operator Panels and SCADA Integration.

IZRAY (Izmir – Turkey) LRTS System (2001)
Phase 1. 250 °C – 1 h.
Smoke Fans, Smoke Dampers, Automation system, Silencers, Electric Control Panels with FrequenceDrivers, Remote Operator Panels and SCADA Integration.

IZRAY OTE FAN SYSTEM
(Total Capacity 10 Pieces 50 m3/s – 55 kW) – 250 °C – 1 h.

TUNNEL JET FANS

Fans are tested according to the ISO 13350 (ANSI / AMCA 250) Jet fan performance test standarts.

MERSIN / ANAMUR BUILDING SITE
28 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

IZMIT KÖRFEZİ / SAMANLI TUNNELS
76 Pieces of Jet Fans - (E JET R 1200/ 45 kW – F300)

TRABZON / GÜMÜŞHANE TUNNELS
40 Pieces of Jet Fans - (E JET R 1000 / 30 kW-F300)

ISTANBUL / HASKÖY TUNNEL
28 Pieces of Jet Fans - (E JET R 1000 / 30 kW-F300)

MALATYA / KARAHAN TUNNEL
20 Pieces of Jet Fans - (E JET R 1000 / 30 kW-F300)

QATAR - CP07-B LUSAIL PROJECT (2018)
24 Pieces of Jet Fans - (EMWA R 1250 - 30 kW - F300)
20 Pieces of Jet Fans - (EMWA R 1600 - 55 kW - F300)

ESKISEHIR – TER. ENTRANCE TUN. PRJ. (2018)
20 Pieces of Jet Fans - (E JET R 710 - 22 kW - F300)

BITLIS TUNNEL PROJECT (2018)
8 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

MERSIN - SİLİFKE TAŞUCU TUNNELS
32 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

GUMUSHANE – HİGHWAY TUNNELS
98 Pieces of Jet Fans - (E JET R 1200 - 45 kW - F300)

ANKARA - BAŞKENTRAY PROJECT
8 Pieces of Jet Fans - (E JET R 710 - 22 kW - F300)

K.MARAS - ÇAĞLAYAN and TEKİR TUNNELS
52 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

ISTANBUL - ÇAMLICA TUNNEL
46 Pieces of Jet Fans - (E JET R 1200 - 45 kW - F300)
4 Pieces of Jet Fans - (E JET R 710 - 22 kW - F300)

ZONGULDAK - DEĞİRMENAĞZI TUNNEL
12 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

MERSIN - ANAMUR T4 TUNNELS
16 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

ZONGULDAK - SAPÇA ve ÜZÜLMEZ TUNNELS
20 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

MALATYA - ERKENEK TUNNELS
36 Pieces of Jet Fans - (E JET R 1000 - 30 kW - F300)

QATAR - HYUNDAI PROJECT
60 Pieces of Jet Fans - (ECRJ - IDV650 / 30 kW - F300)

QATAR - LUSAIL PROJECT
32 Pieces of Jet Fans - (E JET R 1250 / 30 kW - F300)

ŞIRNAK - CUDİ TUNNEL
16 Pieces of Jet Fans - (E JET R 1200 - 45 kW - F300)

IRAK - GALI ZAKHO TUNNEL
52 Pieces of Jet Fans - (E JET R 1000 - 15 kW - F300)

CANKIRI - KASTAMONU ILGAZ TUNNEL
72 Pieces of Jet Fans - (E JET R 1200 - 45 kW – F300)

ARTVIN HOPA CANKURTARAN+T1 TUNNELS
96 Pieces of Jet Fans - (E JET R 1200 - 45 kW - F300)

SINOP TUNNEL
5 Pieces of Jet Fans - (E JET R 1000 / 30 kW - F300)

AMASYA / AKDAĞ TUNNEL
6 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

MALATYA / ÇEPİÇ TUNNEL
12 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

BURSA-IZMIT/SELÇUKGAZİ TUNNEL
36 Pieces of Jet Fans - (E JET R 1200 / 45 kW – F300)

ARTVIN / YUSUFELİ TUNNEL
24 Pieces of Jet Fans - (E JET R 1000/ 15 kW – F300)

ALANYA / KUŞYUVASI TUNNEL
24 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

TRABZON / SALMANKAŞ TUNNEL
66 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

ARTVIN-ERZURUM / RİPAJ TUNNELS
26 Pieces of Jet Fans - (E JET R 1000/ 15 kW – F300)

BITLIS TUNNELS
36 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

BARTIN / AMASRA TUNNEL
12 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

MUGLA / GÖCEK TUNNEL
10 Pieces of Jet Fans - (E JET R 1000/ 30 kW – F300)

ANKARA METRO M4 LINE
35 Pieces of Jet Fans - (E JET R 1200/ 30 kW – F400)
(E JET R 1200/ 45 kW – F400)
(E JET R 710/ 15 kW – F400)

ZONGULDAK / ÇAKRAZ TUNNEL
16 Pieces of Fans - (E JET R 1000 / 30 kW-F300)

AZERBAIJAN / XUTOR KAVŞAĞI TUNNEL
12 Pieces of Fans - (E JET R 710 / 22 kW-F300)

SIVAS / DELİKTAŞ TUNNEL
4 Pieces of Fans - (E JET R 630 / 11 kW-F300)

ARTVIN / HES RELOKASYON TUNNEL
54 Pieces of Fans - (E JET R 1000 / 30 kW – F300)

ISTANBUL / TAKSİM UNDERPASS
14 Pieces of Fans - (E JET R 900 / 22 kW – F300)

ERZURUM / ARKUN BARAJI & HES TUNNEL
10 Pieces of Fans - (E JET R 1000 / 30 kW – F300)

ISTANBUL / ZORLU TUNNEL
8 Pieces of Fans - (E JET 630 / 22 kW – F300)

ANKARA / HASKÖY TUNNEL
8 Pieces of Fans - (E JET R 1200 / 45 kW – F300)

ARTVIN / HES VARYANT TUNNEL
6 Pieces of Fans - (E JET R 1120 / 30 kW – F300)

DUZCE AKÇAKOCA TUNNEL STAGE II- BOLU
10 Pieces of Fans - (E JET R 1120 / 30 kW – F300)

GEORGİA / GORİ TUNNEL
16 Pieces of Fans - (E JET R 1200 / 37 kW – F300)

ARTVIN / ERZURUM TUNNEL
68 Pieces of Fans - (E JET R 1000 / 15 kW – F300)

BOLU / DORUKHAN TUNNEL
8 Pieces of Fans - (E JET R 1200/ 30 kW – F300)

BURSARAY- BURSA METRO
8 Pieces of Fans – (E JET R 630 / 15 kW – F300)

HOPA-SARP OTOBANI / SELİMİYE TUNNEL
8 Pieces of Fans - (E JET R 1200 / 30 kW – F300)

VAN / KUSGUNKIRAN TUNNEL
14 Pieces of Fans - (E JET R 1200 / 30 kW – F300)

KONYA / ERMENEK DSİ TUNNELS
2 Pieces of Fans - (E JET R 1000 / 22 (22 kW) – F300)

DUZCE-AKÇAKOCA / KRDZ.EREĞLİ TUNNELS
6 Pieces of Fans - (E JET R 1200 / 30 kW – F300)

ISTANBUL / İBB.ÇAĞLAYAN TUNNELS
5 Pieces of Fans - (E JET R 800 / 37(37 kW) – F300)
16 Pieces of Fans - (E JET R 710 / 22 (22 kW) – F300)

KARABUK / SUÇATI TUNNEL
6 Pieces of Fans - (E JET R 1200 / 30 kW – F300)

SARIYER / ÇAYIRBAŞI TUNNEL
24 Pieces of Fans - (E JET R 1200 / 37 (37 kW) – F300)

ARTVIN / BİTLİS TUNNEL
10 Pieces of Fans - (E JET R 1200 / 30 (30 kW) – F300)

ARTVIN / BOÇKA TUNNEL
20 Pieces of Fans - (E JET R 900 / 15 (15 kW) – F300)

ANTALYA / KEMER TUNNEL
28 Pieces of Fans - (E JET R 1000 / 30 (30 kW) – F300)

KAVAK / MERZİFON TUNNEL
12 Pieces of Fans - (E JET R 1200 / 30 (30 kW) – F300)

SINOP / BOYABAT TUNNELS
10 Pieces of Fans - (E JET R 1200 / 30 (30 kW) – F300)

ANKARA / POZANTI HIGHWAY
59 Pieces of Fans - (E JET R 1200 / 30 (30 kW) – F300)
(E JET R 1200 / 45 (45 kW) – F300)

ISTANBUL / AYAZAĞA TUNNEL
8 Pieces of Fans - (E JET R 500 / 7.5 (7.5 kW) – F300)

BLACK SEA TUNNELS (18 TUNNELS)
140 Pieces of Fans - (E JET R 1200 / 45 (45 kW) – F300)

BILECIK / MEKECE TUNNELS
50 Pieces of Fans - (E JET R 1120 / 30 (30 kW) – F300)

ISTANBUL / AVCILAR UNDERPASS
8 Pieces of Fans - (E JET R 630 / 15 (15 kW) – F300)

ISTANBUL / SULTANBEYLİ TUNNEL
10 Pieces of Fans - (E JET R 630 / 15 (15 kW) – F300)

DALAMAN / GÖCEK TUNNEL
4 Pieces of Fans - (E JET R 710 / 11 (11 kW) – F300)

ANTALYA / ALANYA HIGHWAY
12 Pieces of Fans - (E JET R 1200 / 30 (30 kW) – F300)

TRABZON / ÇAMBURNU TUNNEL
4 Pieces of Fans - (E JET R 1200 / 45 (45 kW) – F300)

TUNNEL & MINING CONSTRUCTIONS (MULTI-STAGE) JET FANS

Tests Accordlng to ISO 5801 Fan Performance Standard.

MARMOTEK MINING
1 Piece Single Stage Jet Fan (1x30 kW)

KOYUNOĞLU MINING
1 Piece Single Stage Jet Fan (1x11 kW)

KOLİN INC.
2 Pieces Multi stage Jet Fans (2x55 kW)

ENEZ CONSTRUCTION
4 Pieces Multi stage Jet Fans (2x90 kW)

MÖN CONSTRUCTION
2 Pieces Multi stage Jet Fans (2x75 kW)

MURTEZAOĞLU CONSTRUCTION
4 Pieces Multi stage Jet Fans (2x55 kW)

GÜÇLÜ CONSTRUCTION
1 Piece Multi stage Jet Fan (2x1,5 kW)

HAYRİ ÖĞELMAN MINING
1 Piece Multi stage Jet Fan (2x7,5 kW)

ŞENBAY - KOLİN - KALYON
4 Pieces Multi stage Jet Fans (2x90 kW)

E-BERK INC.
1 Piece Multi stage Jet Fan (2x22 kW)

EĞRİBEL TUNNEL
2 Pieces Multi Stage Jet Fans (4x90 kW)

MINESTRADE BULGARIA
1 Piece Single Stage Jet Fan (1x45 kW)

ELMACI MINING
1 Piece Single Stage Jet Fan (1x55 kW)

ZORGÜN CONSTRUCTION
5 Pieces Single Stage Jet Fans (1x55 kW) (4x45 kW)

GAZİANTEP / BAKIRLI IRON FURNACE
1 Piece Multi stage Jet Fan (1x7,5 kW)

KOZA CONSTRUCTION
1 Piece Single Stage Jet Fan (1x15 kW)

KARTAŞ CONSTRUCTION
1 Piece Single Stage Jet Fan (1x75 kW)

TEKNA MACHINE
1 Piece Single Stage Jet Fan (1x11 kW)

ECETUR CONSTRUCTION
1 Piece Single Stage Jet Fan (1x45 kW)

KONYAALTI CONSTRUCTION
2 Pieces Multi Stage MS Jet Fans (2x1,5 kW)

PERCEP/BANGKOK
1 Piece Single Stage Jet Fan (1x55 kW)

KOMANA MINING
1 Piece Single Stage Jet Fan (1x22 kW)

PLATFORM METAL
2 Pieces Multi Stage Jet Fans (2x22 kW)

OZKAR CONSTRUCTION
4 Pieces Multi Stage Jet Fans (4x110 kW)

DEMİRKIRAN MINING
2 Pieces Single Stage Jet Fans (2x37 kW)

CANAKKALE MINING
1 Piece Single Stage Jet Fan (1x30 kW)

GIRESUN / HOPA TUNNEL
4 Pieces Single Stage Jet Fans (4x90 kW)

OSMANELİ HIGH SPEED TRAIN BUILDING SITE
2 Pieces Multi Stage Jet Fans (2x110 kW)

ÜMRANİYE/ÇEKMEKÖY METRO PROJECT
2 Pieces Single Stage Jet Fans (2x90 kW)
1 Piece Single stage Jet Fan (1x55 kW)

MARMARAY BC1 PROJECT
10 Pieces Multi stage Jet Fans (10x15 kW)

USKUDAR/ÇEKMEKÖY METRO PROJECT
1 Piece Multi stage Jet Fan (2x55 kW)
1 Piece Single Stage Jet Fan (1x75 kW)
1 Piece Single Stage Jet Fan (1x90 kW)

KAYSERI/ÖZKOYUNCU MINING COMPANY
1 Piece of (2 un.) Multi Stage Jet Fan (1x37 kW)

BARTIN TUNNEL
1 Piece of Single Stage Jet Fan (1x90 kW)

KIRIKKALE/ KOZ MINING
1 Piece of Single Stage Jet Fan (1x22 kW / 2)

SANLI URFA – HYDROELECTRIC POWER STATION
1 Unit of Multi Stage Jet Fan 900–150/2 (2x75 kW)

SAUDİ ARABİA TUNNEL PROJECT
2 Units of Multi Stage Jet Fans 900–110/2 (2x55 kW)

ERZURUM / AYVALI DAM
6 Pieces of Multi Stage Jet Fans (6x90 kW)

ERZURUM / İSPİR TÜNEL PROJECT
2 Piece of Multi Stage Jet Fan (3x37 kW)

ARTVIN PROJECT
4 Pieces of (2 un.) Multi Stage Jet Fans (4x75 kW)

AYSON CONSTRUCTION
2 Pieces of Multi Stage Jet Fans (2x55 kW)

KARABUK-ORDU/ZAMANTI MINING
1 Piece of Multi Stage Jet Fan–1x18,5 kW
1 Unit of Multi Stage Jet Fan –1x45 kW

KARABÜK HES PROJECT
2 Units of Multi Stage Jet Fans (2x75 kW)

KARABÜK-ORDU/ZAMANTI MINING
2 Units of Multi Stage Jet Fans (2x30 kW)

HYDROELECTRIC POWER STATION PROJECT
4 Pieces of Multi Stage Jet Fans (2x30 kW)
1 Piece of Multi Stage Jet Fan (2x22 kW)

ARKUN DAM–ERZURUM
1 Unit of 75 kW single stage

MARMARAY PROJESİ
1 Piece of Multi Stage Jet Fan 110/4-(2x55 kW)

AKKORT CONSTRUCTION – GEORGIA
2 Units of Multi Stage Jet Fans 220/4(2x110 kW)

AKKOPRU/HYDROELECTRIC POWER STATION PROJECT
2 Pieces of Multi Stage Jet Fans (2 Tk. 2x37 kW)

SIVAS-ANKARA/FAST TRAIN TUNNEL PROJECT
2 Pieces of Multi Stage Jet fans (2 Tk.2x110 kW)

SAMSUN TUNNEL PROJECT
1 Piece of Multi stage MS Jet Fan (3 x 37 kW)

BILECIK TUNNEL PROJECT
2 Pieces of Multi Stage Jet Fans (2 x 110 kW)

KÜÇÜKSU İSKİ TUNNEL PROJECT
1 Piece of Multi Stage Jet fan (2 x 15 kW)

KADIKÖY-KARTAL METRO PROJECT
1 Piece of Multi Stage Jet fan (2 x 55 kW)
2 Pieces of Multi Stage Jet fans (2 x 30 kW)

VAKFIKEBIR/TRABZON DRINKING WATER PROJECT
1 Piece of Multi Stage Jet fan (2 x 45 kW)

ARTVIN DSİ TUNNEL
1 Piece of Multi Stage Jet fan (2 x 30 kW)

GIRESUN/H.E.S PROJECT
5 Pieces of Multi Stage Jet fans (2 x 37 kW)

OTAGAR BAĞCILAR METRO PROJECT
2 Pieces of Multi Stage Jet fans (2 x 55 kW)

KAVACIK BEYKOZ PURIFICATION TUNNEL
1 Piece of Multi Stage Jet fan (2 x 7.5 kW)

SAZLIDERE DAM
1 Piece of Multi Stage Jet fan (2 x 7.5 kW)

MARMARAY PROJECT
1 Piece of Multi Stage Jet fan (45 – 37 kW)

MARMARAY PROJECT
1 Piece of Multi Stage Jet fan (2 x 30 kW)

EDİRNEKAPI SULTANÇİFTLİĞİ METRO PROJECT
2 Pieces of Multi Stage Jet fans (2 x 15 kW)

QUALITY DOCUMENTS

QUALITY DOCUMENTS

THE QUALITY ASSURANCE PLAN of PRODUCTION AND TESTING FANS :

EMAK FANS ARE :

EMAK COMPANY's BSI EN ISO 9001: 2015 Quality Control System is registered by the surveillance of British Standard Institute.

CE- 0086 CE Conformity Certificate - BSI (F200,F300,F400 Axial Smoke Fans)- CPR719419

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

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

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

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 008146 – TSEK 01/05 - EMAK

Fully Comply with AMCA (Dimensional) Standard 99-3001 and Eurovent/Cecomaf 1/2

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, RINA, TSE for Marine Applications.

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

ISO 45001-2018 Occupational Health and Safety Management System.

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 (2007) Methods of Testing Performance. Industrial Fans — Performance testing using standardized airways Former BS 848-1, Similar to AMCA 210 Fans are tested in Emak's own test laboratory.
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.
Sound Level Determinat. :	ISO 3744 - Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure Eng. methods for an essentially free field over a reflecting plane

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 21940
(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 Standard (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 (Labor – Health & Safety - Environmental – Ethics) Codes.

QUALITY DOCUMENTS

BUREAU VERITAS

CE

Energy & Process

CERTIFICATE OF ATTESTATION

B.V. Job Ref: IDD.136.06.D21.Rev1

Project/Installation: Emak Soğutma Ltd. Şti.'s CE Technical File Review For The Scope Of 98/37/EC Machinery Directive, 73/23/EEC Low Voltage Directive and 89/336/EEC Electromagnetic Compatibility Directive.

B.V. No: TUR_291_06

Inspection ordered to B.V. by (1) :
Emak Soğ. Isıtma Ve End. Ürün. İml. Ve Mon. San. Tic. Ltd. Şti.

Ref of the Order to B.V.: IDD.136.06.D21.Rev1

Supplier: Emak Soğ. Isıtma Ve End. Ürün. İml. Ve Mon. San. Tic. Ltd. Şti.

Copies to: Emak Soğutma Ltd. Şti., BV Master

File Sub-supplier, if any: NIL

(1) the addressee of the original of this report.

Description of the Supply / Subject of inspection:
CE Technical File Review For The Scope Of 98/37/EC Machinery Directive, 73/23/EEC Low Voltage Directive and 89/336/EEC Electromagnetic Compatibility Directive Same As Declaration Of Conformity's Trade Mark: :

TAM, DTK, CTF, URF, KF, AX, BCF, STF, MTH, HYF, AEX, EFF, E-JET Axial Fan

This report covers the whole of the supply: x=YES (no more inspection planned). NO (part of the supply still to be inspected)

Scope of the B.V. Survey:

Reviewing Technical File, Test Reports, Application and Settlement Of CE Directive's Rules.

This supply complies with the following applicable document (s): (2)

BV Rules,

98/37/EC Machinery Directive,
73/23/EEC Low Voltage Directive,
89/336/EEC Electromagnetic Compatibility Directive,

EN 292-1, EN 292-2, EN 1050, EN 287-1, EN 287-2, BS 848-1, BS EN 12101-3, BS 7346-2, ISO 1940, ANSI AMCA 250, AMCA 99-3001.

(2) and only for parts of the document(s) which concern the certification or the relevant service provided by Bureau Veritas.

List of enclosures: NIL
(or reference to enclosed list)
The report is valid together with enclosures (if listed). Only pages of enclosures (or parts of pages) which are signed/stamped, are considered as part of this report.

Marking and Stamping on the Items: CE Marking.

Particulars or comments: THE UNDERSIGNED REPORT THAT IS ABOVE MENTIONED SUPPLY WAS INSPECTED IN CONFORMITY WITH 98/37/EC MACHINERY DIRECTIVE, 73/23/EEC LOW VOLTAGE DIRECTIVE AND 89/336/EEC ELECTROMAGNETIC COMPATIBILITY DIRECTIVE.

Date of Issuance: 01.06.2006

Inspected by:
Name: Fuat SANCAK
Sign:

Validated by:
Name: Yakup UCAR
Sign:

Location of inspection : Hekimsuyu Cad. 559 Sok. No:37 34080 Küçükköy - Istanbul / TÜRKİYE

This report is delivered within the limits of the General Conditions of Services of Bureau Veritas.
This report is issued further to an inspection whose duration and scope were limited by the terms and conditions of the contract with BV principal.
This report is NOT an indication that the item(s) is (are) fit for any specific purpose and does not release the manufacturer, supplier and any party from their respective duty, guarantee, obligation and/or indemnity relating to, without limitation, passels, workmanship, materials, safety, performance in operation and/or otherwise.

Applus laboratories

CONCLUSION:

As indicated in the technical justification section and after performing the tests according to the UNE EN 12101-3:2002 and UNE EN 12101-3: 2002/AC:2006 Standard, "Smoke and heat control systems- part 3: Specification for powered smoke and heat exhaust ventilators", the motor range reference "GMD/GM2ED/GM3ED/GM2ELD/GM3ELD" by Gamak, can be classified as:

Motor range "GMD/GM2ED/GM3ED/GM2ELD/GM3ELD" from GAMAK:

- Motor size: from 80 à 225 (motors at 4p. 6p)
- Power:
  - 4p: from 0,55 kW to 45 kW
  - 6p: 22 kW
- Voltage: 400 V
- Frequency: 50 Hz
- Trifasic motors
- Motors according to the specified at EN 60034-1
- Insulation class: H
- Protection: IP 55
- Bearings: C4
- Grease: Ducom ISPL 226 Kinitos

CLASS F 300, 60 minutes
UNCLASSIFIED 300 ºC, 120 minutes

Fire Laboratory Responsible
LGAI Technological Center S.A.

Fire Resistance Responsable
LGAI Technological Center S.A.

The results exclusively refer to the sample, product or material provided to the Laboratory which have been tested under the conditions mentioned in this document.

Quality Assurance of the Service

Applus+, guarantees that the work has been carried out under the terms and conditions of our Quality and Sustainability System as well as conforming to the contractual conditions and the standards.
In order to improve the quality of our services, we look forward your suggestions. Please, address your suggestions to the signatory of this document or email the Director of our Department of Quality, (satisfaccion.clientes@applus.com).

File number: 15/38054.301

Page: 5

bsi.

By Royal Charter

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

EMAK FAN ENDUSTRISI A.S.
İlk Belediye Cad. No:2 Tunel
34420 Beroglu
Istanbul
34420
Turkey

Holds Certificate No:

FM 98140

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

Design and Manufacturing of Industrial Axial Fans and Jet Fans

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 2006-04-03
Latest Revision Date: 2018-08-03

Effective Date: 2017-10-13
Expiry Date: 2020-10-12

Page: 1 of 2

...making excellence a habit."

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract.
An electronic certificate can be authenticated online.
Printed copies can be validated at www.bsigroup.com/ClientDirectory

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 345 080 9000

BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.

bsi.

By Royal Charter

Certificate of Constancy of Performance

This is to certify that:

Emak Fan Endustrisi A.S.
5.5 Yalova Orta Ölçekli
Sanayiciler Küçük Sanayi Sitesi
No:2 Handere Mevkii, Taskopru
Çiftlikköy - Yalova
Turkey

Holds Certificate Number:

0086-CPR-618996

In respect of:

EN 12101-3:2015
Powered smoke and heat exhaust ventilators.

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the above construction product. This certificate attests that all the provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the above standard(s) under system 1 are applied and that the product fulfils (products fulfil) all the prescribed requirements set out above. This certificate remains valid as long as the test methods and/or factory production control requirements included in the harmonised standard(s), used to assess the performance of the declared essential characteristics, do not change and the product(s), and the manufacturing conditions in the plants(s) are not modified significantly.

For and on behalf of BSI, a Notified Body for the above Regulation (Notified Body Number 0086):

Chris Lewis - Certification Director, Product Certification

First Issued: 2014-11-13

Latest Issue: 2017-11-27

Page: 1 of 5

...making excellence a habit."

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To check its validity telephone +44 (0) 345 080 9000. An electronic certificate can be authenticated online.

BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A member of BSI Group of Companies.

bsi.

By Royal Charter

Kitemark™ Certificate

This is to certify that:

Emak Fan Endustrisi A.S.
5.5 Yalova Orta Ölçekli
Sanayiciler Küçük Sanayi Sitesi
No:2 Handere Mevkii, Taskopru
Çiftlikköy - Yalova
Turkey

Holds Certificate Number:

KM 618995

In respect of:

BS EN 12101-3: 2015
Powered smoke and heat exhaust ventilators

This issues the right and licence to use the Kitemark in accordance with the Kitemark Terms and Conditions governing the use of the Kitemark, as may be updated from time to time by BSI Assurance UK Ltd (the "Conditions"). All defined terms in this Certificate shall have the same meaning as in the Conditions.

The use of the Kitemark is authorized in respect of the Product(s) detailed on this Certificate provided at or from the above address.

For and on behalf of BSI:

Chris Lewis - Certification Director, Product Certification

First Issued: 2014-11-13
Latest Issue: 2017-11-27

Effective Date: 2017-11-27
Expiry Date: 2020-11-26

Page: 1 of 5

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TSEK

TÜRK STANDARDLARI ENSTİTÜSÜ
KRİTERE UYGUNLUK BELGESİ
TURKISH STANDARDS INSTITUTION
CERTIFICATE OF CONFORMANCE TO CRITERIA

Markanın Tanımı — Description of the Mark

TSEK

BELGE NUMARASI REFERANCE NUMBER OF LICENCE	00B146 TSEK-0155
BELGENİN İLK VERİLİŞ TARİHİ DATE OF FIRST ISSUE OF LICENCE	28.11.1994
BELGENİN SON GEÇERLİLİK TARİHİ LICENCE VALID UNTIL	28.11.2018
BELGE SAHİBİ KURULUŞUN ADI NAME OF THE LICENCE HOLDER	EMAK FAN ENDUSTRISI ANONIM ŞİRKETİ
BELGE SAHİBİ KURULUŞUN ADRESİ ADRESS OF THE LICENCE HOLDER	KARAYOLLARI MAHSEMT 559. SK. NO:37 A. GAZİOSMANPAŞA İSTANBUL
ÜRETİM YERİ ADI NAME OF THE MANUFACTURING PLACE	EMAK FAN ENDUSTRISI ANONIM ŞİRKETİ YALOVA ŞUBESİ
ÜRETİM YERİ ADRESİ ADRESS OF THE MANUFACTURING PLACE	SINIRLI SORUMLU YALOVA ORTA ÖLÇEKLİ SANAYİCİLER KÜÇÜK SANAYİ SİTESİ HANDERE MEVKİ NO:2 TAŞKÖPRÜÇİFTLİKKÖY YALOVA
TESCİLLİ TİCARİ MARKASI REGISTERED TRADE MARK	EMAK
İLGİLİ BELGELENDİRME KRİTERİ RELATED TURKISH STANDARD	TSE K 453 / Temel - Endüstriyel Fanlar / 15.07.2013
BELGE KAPSAMI SCOPE OF LICENCE	[illegible]

08/01/2018

Belgelendirme Merkezi Başkanı Adına
ASU KORKMAZ
TSE BURSA BELGELENDİRME MÜDÜRÜ


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BSI - KITEMARK 618995

BSRIA

Applus

CE 0086 - CPR 618996
F200 - F300 - F400

ISO 9001-2015

EN 12101 - 3

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