



IE5/IE4 Permanent Magnet Synchronous Motors

EWST Series & EWSTF Series

- Precise and smart control
- Ultra premium efficiency
- Compact structure and less volume
- Lower temperature rise level
- Ultra stability and credibility

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EWST Series

Permanent Magnet Synchronous Motors (IE5/IE4)

1. General information

1.1. Brief

The EWST Series permanent magnet synchronous motor is self-developed by Wonder Electric, which achieves energy efficiency levels of IE5 and IE4 according to IEC 60034.

The EWST motors are supplied with build-in permanent magnetic steel produced from rare earth PM material (NdFeB) which is with high coercive force and hypertonic magnetic induction force. The motor guarantees high performance while offering higher power density. Even in the case of overload, the motor can also show excellent electrical characteristics.

EWST Series features series of advantages such as superior energy-saving effect, low temperature rise, precise and smart control, compact structure, etc. The motors are widely used where speed variation, high efficiency and reduced volume are mandatory.

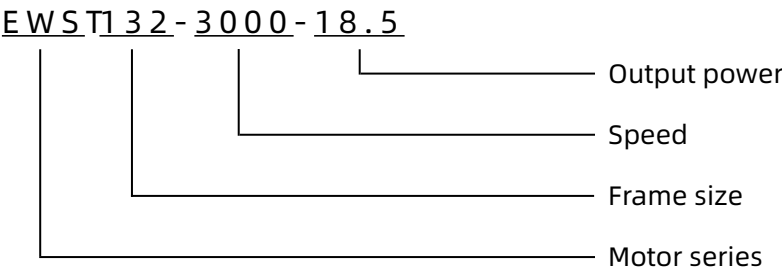
1.2. Standard and qualifications

Enertech products meet the IEC international standards and can also be provided to comply with specific regulations in other countries. Please refer to the table below for the standards that Enertech products are based on.

Enertech has also obtained qualifications of ISO9001, ISO14001 and ISO45001, with the support of the perfect quality management and control system.

Title	DIN / VDE / EN	IEC standard	GB standard
General regulations for rotating electrical machines	DIN EN 60034-1	IEC 60034-1	GB 755-2019
Noise for rotating electrical machines	-	IEC 60034-9	GB 10069.1
AC induction motors for general use with standardized dimensions and power	DIN EN 50347	IEC 60072	GB/T 4772.1-1999 Part 1
Terminal markings and direction of rotation for rotating electrical machines	DIN VDE 0530	IEC 60034-8 Part 8	GB1971-2006
Designation for type of construction, installation and terminal box position	DIN EN 60034-7	IEC 60034-7	GB/T 997-2008
IEC standard voltages	DIN IEC 60038	IEC 60038	-
Cooling methods for rotating electrical machines	DIN EN 60034-6	IEC 60034-6	GB/T 1993-1993
Mechanical vibrations of rotating electrical machines	DIN EN 60034-14	IEC 60034-14	GB 10068-2020
Degrees of protection for rotating electrical machines	DIN EN 60034-5	IEC 60034-5	GB/T 4942.1-2016

1.3. Explanation of the product code



1.4. Nameplate

An example of nameplate is shown below, and the description of the designation is listed in the table:

		PM Motors			IE		
TYPE				No.			
kW		Nm	In=	A	η=	%	
	S.F.	S.F.A	A	Poles			
Rated speed		r/min	Frequency		Hz		
Voltage Constant		Ke=	Vs		S1		
Torque Constant		Kt =	Nm/A		In.Cl.		
BEMF at		r/min	KE =	V	IP		
		T.amb.			°C	kg	
www.enertechmotors.com.au						IEC60034	

Designation on nameplate	Description
IE+number	Efficiency level
Type	Specification of motor
No.	Serial number
kW	Rated output
Nm	Rated torque
In	Rated current
η	Efficiency
S.F.	Service factor
S.F.A	Current at the service factor
r/min	Rated speed
Hz	Frequency
Ke	Voltage constant
Kt	Torque constant
In.Cl.	Insulation class
S1	Duty
BEMF	Back Electromotive Force
IP	Protection class
T.amb	Ambient temperature
	Bearing type for DE and NDE
kg	Weight
IEC60034	Standard

2. Electrical characteristics

2.1. Main technical parameters

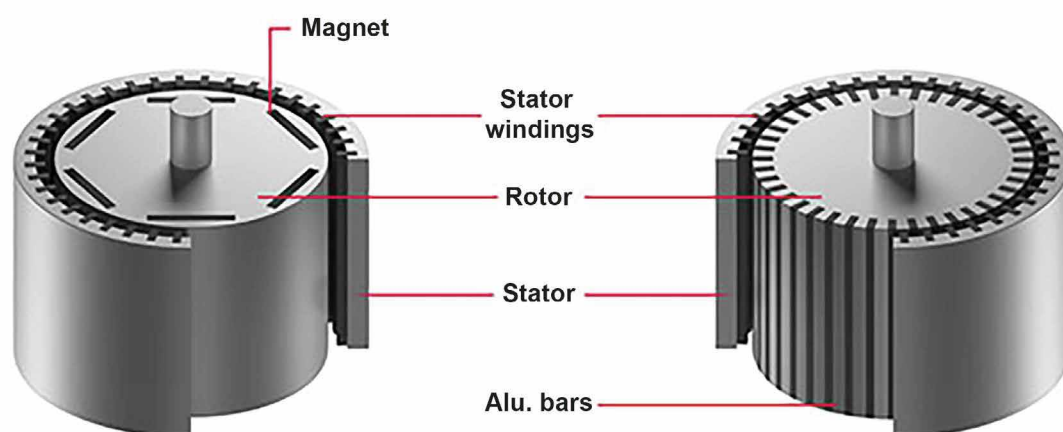
Please refer to the table below for the standard data and options of the EWST Series.

Item	Main technical parameters	
	Standard	Options
Frame size	71 ~ 315	
Output power range	0.55 ~ 450kW	
Speed	1500/1800/3000/3600/4500 r/min	The speed can be customized within the range 750 ~ 4500 r/min.
Voltage range of VFD	380 ~ 460V (rated voltage 400V)	200 ~ 240V (rated voltage 200V)
Frequency of VFD	50/60Hz	
Duty	S1	S2, S3
Efficiency level	IE5/IE4	
Mounting arrangement	B3, B35 and V1 for FS71-FS315 B5 for FS71-FS280 B34 and B14 for FS71-FS132	
Insulation class	F	H
Temperature rise	B (Δ T 80K)	
Protection class	IP55	IP56, IP65, IP66
Cooling method	IC411	IC416, IC410
Altitude	≤ 1000m	The motor can be customized to operate at high altitude.
Ambient temperature	-20°C ~ 40°C	-40 ~ 60°C
Air humidity	≤ 60% at a temperature of 40°C	

2.2. Comparison of the internal structure of PMSM and IM

Permanent Magnet Motor

Induction Motor



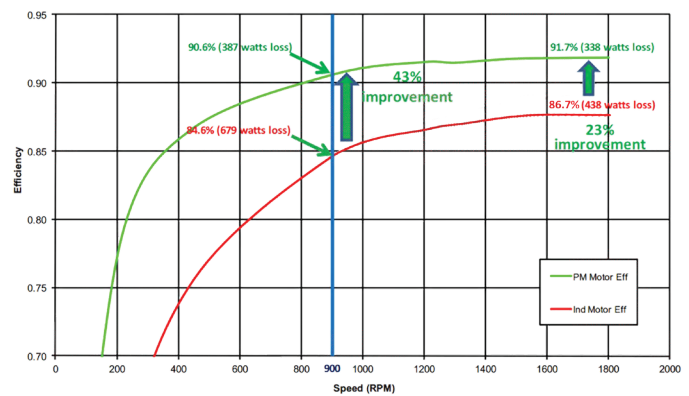
2.3. Characteristics of EWST Series

2.3.1. Ultra-premium efficiency

PM motors do not require reactive power excitation current, resulting in a higher power factor and exceptional energy-saving capabilities.

Unlike the cast aluminum rotors of traditional asynchronous motors, PM motors utilize rare-earth permanent magnets, minimizing rotor losses and enhancing material efficiency. PM motors consistently exhibit outstanding electrical performance, regardless of whether operating under full load or partial load conditions.

Efficiency Curve Comparison of PMSM and IM



(Data based on 2.2kW 1500r/min)

2.3.2. Lower temperature rise

Thanks to the electric design that leads to lower stator currents and the rotor without aluminum squirrel cage, the temperature rise of most types of EWST Series is around 40-50K, which is obviously lower compared with standard induction motors (normally 60+k).

The sum of these minimised heat contributions remarkably prolongs the lifespan of the motors.

2.3.3. High torque density

EWST series PM motors use high-performance permanent magnet materials to provide the air gap magnetic field for motor energy conversion. This magnetic field has a significant improvement compared with traditional asynchronous motors, so that permanent magnet synchronous motors have higher starting torque and overload capacity than traditional asynchronous motors.

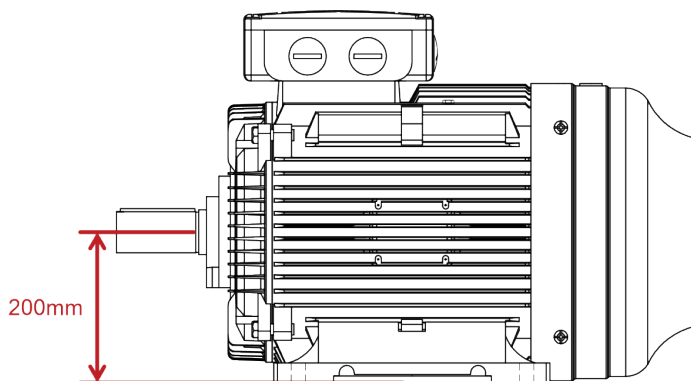


Rotor of PM motor and PM steel

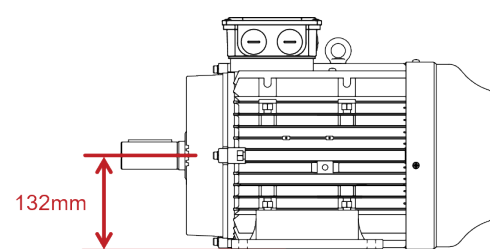
2.3.4. High power density

Compared with the same power asynchronous motor, the frame size of EWST Series can be significantly reduced. While saving installation space, it greatly improves power density.

The scale graphics below represent the comparison of motor frame size based on same output power and speed (30kW/3000rpm).



Asynchronous induction motor

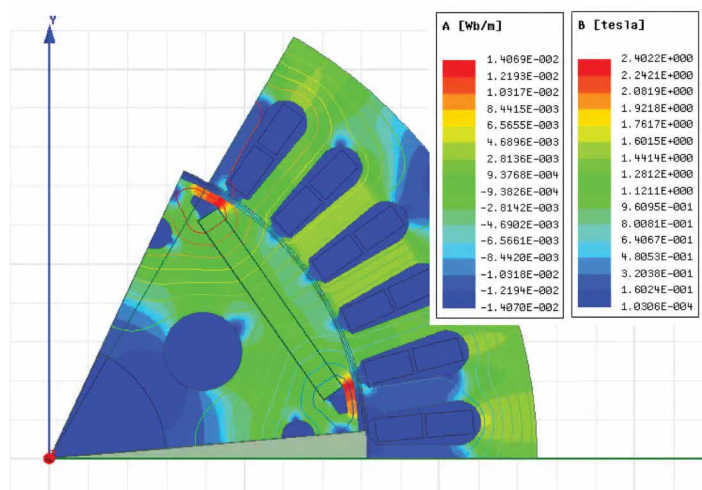


Permanent magnet synchronous motor

2.3.5. Precise and smart control

PM motors have electromagnetic coupling between the stator and rotor, and they operate without slip. This allows for precise control and fast response, making them suitable for applications that require high speed and position control accuracy.

PM motors are compatible with a variety of controllers, which can be used to output the torque and speed required by the environment to achieve intelligent control.



High accuracy modeling of PMSM

2.3.6. Strong overload capability

The high density of magnetic flux of PM motor brings the outstanding overload capability. WST Series allows 110% overload, when some types can reach 120%. The series can withstand 150% overload for 60 seconds.

2.3.8. Open loop control (no encoder needed)

No encoder will reduce the purchasing cost of motor, as well as the maintenance or replacement cost of encoder.

2.3.7. Constant torque/power at variable speed

PM motors can operate in constant power or constant torque mode depending on the application requirements.

Constant torque mode is suitable for applications with heavy mechanical load and the need to maintain a stable load, such as cranes, hoists, and fans. In this case, constant torque mode can ensure the stability and consistency of the equipment.

Constant power mode is suitable for applications with light load and the need to control speed and power, such as machine tools, conveyor belts, and injection molding machines. In this case, using constant power mode can improve production efficiency and energy efficiency.

2.4. Comparison of electrical features of PMSM and IM

Features	WST Series PM motor	Conventional induction motor
Efficiency	Generally higher than induction motor	Lower than PMSM
Power factor	High power factor	Lower than PMSM
Torque	High torque	Lower than PMSM
Speed range	Being designed, the speed range can reach 3 times the rated speed.	Up to 2 times the rated speed
Volume and weight	Small size, light weight	Big size, heavy weight
Output power	Higher power density compared to induction motor	IEC standard
Speed	Synchronous and no slip. Fast and precise response.	With slip
Rotor	With magnetic steel	With aluminum squirrel cage
Temperature rise	The temp. rise of most types is within the range of 40-50K.	60+K
Starting mode	VFD	Direct starting/VFD
Power supply	Variable-frequency power supply	Power frequency power supply/VF power supply
Voltage	Back EMF	Power frequency voltage
Frequency	According to the rated speed and number of pole pairs: $f = n * p / 60$	50Hz/60Hz
Pole	6/8	2/4/6/8
Connecting type	Y	Δ /Y
Mounting arrangement	Align with IEC standard based on same frame size	IEC standard
Leads	Wire diameter is bigger than IM	IEC standard

2.5. Ambient temperatures and high altitudes

Standard motors are designed for operation at a maximum ambient temperature of 40°C and at a maximum altitude of 1000 meters above sea level. If a motor is operated at higher ambient temperatures or altitude, it should be de-rated. Please refer to the below chart of Factor kHT for different site altitudes and/or coolant temperature.

Factor kHT for different site altitudes and/or coolant temperature

Site altitude above sea level	Site altitude above sea level coolant temperature					
	<30°C	30~40°C	45°C	50°C	55°C	60°C
1000m	1.07	1.00	0.96	0.92	0.87	0.82
1500m	1.04	0.97	0.93	0.89	0.84	0.79
2000m	1.00	0.94	0.90	0.86	0.82	0.77
2500m	0.96	0.90	0.86	0.83	0.78	0.74
3000m	0.92	0.86	0.82	0.79	0.75	0.70
3500m	0.88	0.82	0.79	0.75	0.71	0.67
4000m	0.82	0.77	0.74	0.71	0.67	0.63

2.6. Insulation

EnerTech adopts class F insulation with temperature rise B, which is the common requirement amongst industries today and gives EnerTech motors a 25°C safety margin. The application of B-class temperature rise and F-class insulation in motors can enhance their reliability, safety, and voltage withstand capability. It helps prolong the motor's service life and ensures its normal operation.

Thermal class 130 (B)

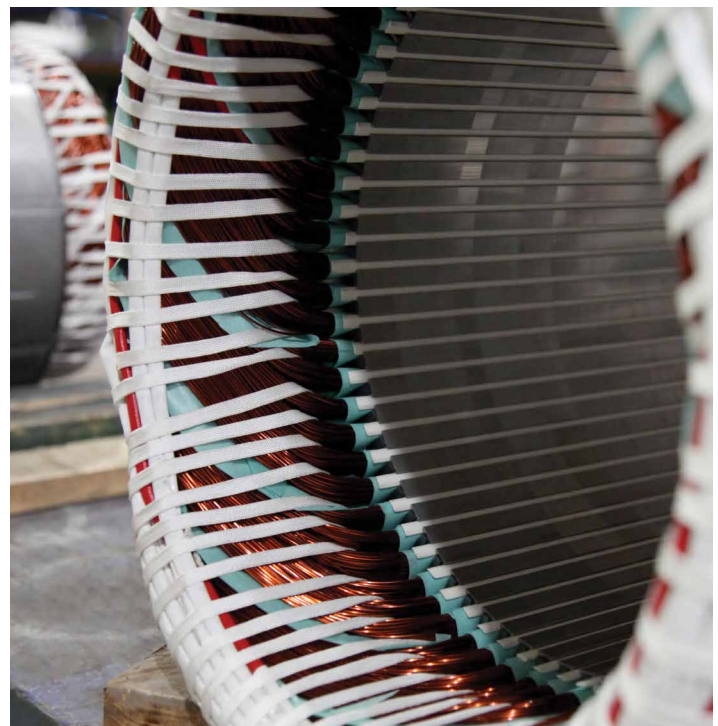
- Nominal ambient temperature 40°C
- Max permissible temperature rise 80K
- Hot spot temperature margin 10K

Thermal class 155 (F)

- Nominal ambient temperature 40°C
- Max permissible temperature rise 105K
- Hot spot temperature margin 10K

Thermal class 180 (H)

- Nominal ambient temperature 40°C
- Max permissible temperature rise 125K
- Hot spot temperature margin 10K



2.7. Various applications of EWST Series

EWST Series has a wide range of application prospects due to their excellent energy-saving performance and electrical properties. In the fields of pumps, fans, air compressors, textile machinery, rubber and plastic machinery, stone machinery, construction machinery, agricultural machinery and so on, PM motors are the ideal choice for equipment upgrades.



3. Motor structure conditions

3.1. Motor frame

From FS71 to FS132, the motor frame is made of aluminum. From FS160 to FS315, the motor frame is made of cast iron.



Aluminum frame



Cast iron frame

3.2. Terminal box

According to the IEC 60034 standard, the terminal box is installed on the top of the drive end. The terminal box is fixed to the motor frame using 4 cross screws or hex screws, all of which complying with the DIN standard. One of the screws is made of brass, while the other three are made of galvanized steel with a grade of 8.8.

An earth terminal must be placed inside the terminal box.

The terminal box can be rotated horizontally by 90°, allowing the outgoing wires to be drawn from various directions.

The auxiliary terminal box is optional.

The dimensions of the cable entry and of the terminal box are listed in the right table:

Dimensions of terminal box

Frame size	Terminal Box		
	Cable entry (mm)	Auxiliary cable entry (mm)	Overall dimensions (mm)
71	2-M20x1.5	--	103x103x38
80	2-M25x1.5	--	115x115x51
90	2-M25x1.5	--	115x115x51
100	2-M25x1.5	1-M20x1.5	115x115x51
112	2-M25x1.5	1-M20x1.5	115x115x51
132	2-M32x1.5	1-M20x1.5	138x138x57
160	2-M40x1.5	2-M20x1.5	200x160x80
180	2-M40x1.5	2-M20x1.5	200x160x80
200	2-M50x1.5	2-M20x1.5	250x200x92
225	2-M50x1.5	2-M20x1.5	250x200x92
250	2-M63x1.5	2-M20x1.5	340x210x106
280	2-M63x1.5	2-M20x1.5	340x210x106
315	2-M63x1.5	2-M20x1.5	413x258x165

3.3. Bearings

Enertech adopts single-row deep-groove ball bearings to standard motors. For some types of FS315 motors, NU roller bearings or angular contact ball bearings are recommended. The types are listed in the right table.

All motors are equipped as standard with an axially locked bearing. General at D-end.

Bearing types

Frame size	Bearings	
	DE	NDE
71	6202-2Z	6202-2Z
80	6204-2Z/C3	6203-2Z/C3
90	6205-2Z/C3	6204-2Z/C3
100	6306-2Z/C3	6205-2Z/C3
112	6306-2Z/C3	6205-2Z/C3
132	6308-2Z/C3	6206-2Z/C3
160	6309/C3	6209/C3
180	6311/C3	6211/C3
200	6312/C3	6212/C3
225	6313/C3	6312/C3
250	6315/C3	6313/C3
280	6317/C3	6314/C3
315	6319/C3/NU319	6319/C3/7319B(V1)

3.4. Lubrication

For frame sizes below 160, the bearings are non-serviceable bearings which do not need regreasing. Please refer to the table below for bearing regreasing intervals in hours and grease volumes at the ambient temperature of 40 ° C.

Frame size	Amount of grease (g)	2P (for speed: 3000/3600 r/min)		4P (for speed: 1500/1800 r/min)	
		B3 B5 B35	V1	B3 B5 B35	V1
160	25	5200	2600	9000	4500
180	30	3400	1700	7000	3500
200	40	3000	1500	6400	3200
225	50	2400	1200	6200	3100
250	60	2200	1100	6000	3000
280	35	2200	1100	-	-
	70	-	-	4800	2400
315	35	1400	700	-	-
	90	-	-	4200	2100

3.5. Oil seals

The right table presents the standard types of bearing oil seals per motor size.

Oil seal types

Frame size	Oil Seal	
	DE	NDE
71	VA-015 / TC15x25x5	VA-015
80	VA-020 / TC20x30x7	/
90	VA-025 / TC25x37x7	/
100	VA-030 / TC30x42x7	/
112	VA-030 / TC30x42x7	/
132	VA-040 / TC40x58x7	VA-030
160	VA-045 / TC45x60x7	VA-045
180	VA-055 / TC55x70x8	VA-055
200	VA-060 / TC60x80x12	VA-060
225	VA-065 / TC65x90x12	VA-060
250	VA-075 / TC75x90x12	VA-065
280	VA-085 / TC85x100x12	VA-070
315	VA-095 / TC95x120x10	VA-095

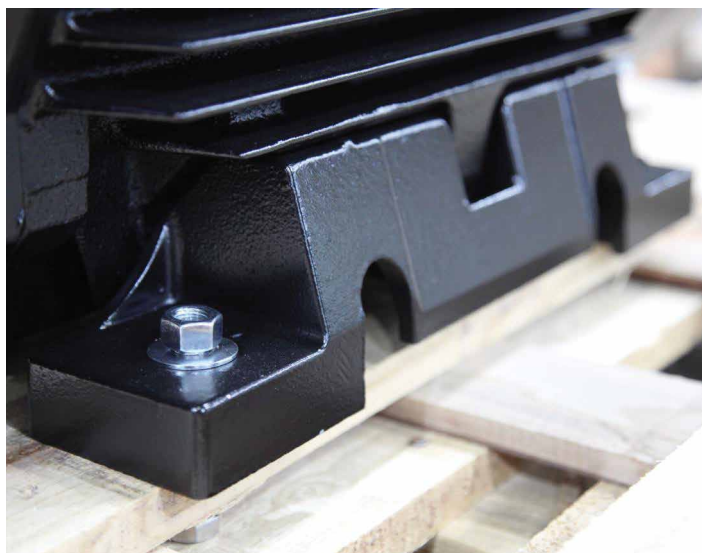
3.6. Drain holes

The standard design of Enertech motors includes the use of a drain hole to allow for the drainage of condensated water. The motor protection rating meets IP55.

The drain hole can be located either on the stator frame (for FS160 and above) or on the side of the end shield/flnge (for FS71 to FS132), ensuring it is positioned at the lowest point of the motor.

3.7. Detachable feet

Enertech motors provide maximum flexibility to customers. All FS80-FS250 motors feature detachable feet that allow for flexible mounting and terminal box location. This design reduces customer modification time and can reduce motor stock.



3.8. Surface treatment

The motor parts are all painted, including the interior of the fan cover and the grooves of the B5/B14 flnges. The mounting surfaces of the shaft and flnge are not painted but protected with anti-rust oil.

The painting process and thickness make the motor suitable for ISO12944 C2 classification.

The standard colors for Enertech motors are RAL9005 (black) and RAL5015 (blue).

3.9. Vibration

Enertech motor meets the requirements of class A vibration based on IEC60034-14 standard.

4. Technical specifications

Type	Frame size	Rated speed nN (r/min)	Rated power PN (kW)	Rated torque Mn (Nm)	Peak torque Mpk (Nm)	Voltage constant Ke (Vs)	Torque constant Kt (Nm/A)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η(%)	Moment of inertia J (kg m ²)	Weight (kg)
1500r/min 6p 75Hz												
EWST71-1500-0.55	71	1500	0.55	3.5	10.5	1.742	3.017	273.5	1.2	86.7	0.001	5.8
EWST71-1500-0.75	71	1500	0.75	4.8	14.4	1.742	3.017	273.5	1.6	88.1	0.001	6.8
EWST71-1500-1.1	71	1500	1.1	7.0	21.0	1.742	3.017	273.5	2.3	89.1	0.001	7.3
EWST71-1500-1.5	71	1500	1.5	9.6	28.8	1.742	3.017	273.5	3.1	89.1	0.001	9.0
EWST80-1500-0.55	80	1500	0.55	3.5	7.0	1.822	3.155	286	1.2	83.9	0.001	10.5
EWST80-1500-0.75	80	1500	0.75	4.8	12.0	1.822	3.155	286	1.6	85.7	0.001	11
EWST80-1500-1.1	80	1500	1.1	7.0	21.0	1.815	3.144	285	2.2	87.2	0.002	12
EWST80-1500-1.5	80	1500	1.5	9.6	28.8	1.815	3.144	285	3.0	88.2	0.003	13
EWST80-1500-2.2	80	1500	2.2	14.0	42	1.822	3.155	286	4.4	89.2	0.004	14.5
EWST90-1500-1.5	90L	1500	1.5	9.6	28.8	1.837	3.180	288	3.0	91.0	0.003	13.1
EWST90-1500-2.2	90L	1500	2.2	14.0	42.0	1.837	3.180	288	4.4	91.6	0.004	14.6
EWST90-1500-3.0	90L	1500	3.0	19.1	57.3	1.837	3.180	288	6.0	92.1	0.005	17.0
EWST90-1500-4.0	90L	1500	4.0	25.5	76.4	1.837	3.180	288	8.0	92.2	0.005	19.0
EWST100-1500-2.2	100L	1500	2.2	14.0	28.0	1.866	3.232	293	4.6	89.5	0.005	17.3
EWST100-1500-3.0	100L	1500	3.0	19.1	38.2	1.841	3.188	289	6.2	90.4	0.006	18.5
EWST100-1500-4.0	100L	1500	4.0	25.5	51.0	1.866	3.232	293	9.1	91.1	0.009	20.9
EWST100-1500-5.5	100L	1500	5.5	35.0	70.0	1.866	3.232	293	11.0	91.9	0.012	24.5
EWST100-1500-7.5	100L	1500	7.5	47.8	95.6	1.847	3.199	290	15.0	92.6	0.015	27.5
EWST112-1500-4.0	112M	1500	4.0	25.5	76.4	1.837	3.180	288	8.0	92.2	0.011	25.0
EWST112-1500-5.5	112M	1500	5.5	35.0	105	1.837	3.180	288	11.0	92.4	0.014	29.0
EWST112-1500-7.5	112M	1500	7.5	47.8	143	1.837	3.180	288	15.0	92.9	0.017	34.0
EWST112-1500-11	112M	1500	11	70.0	210	1.837	3.180	288	22.0	92.9	0.019	36.0
EWST132-1500-11	132M	1500	11	70.0	210	1.887	3.245	294	21.6	94.3	0.034	54.0
EWST132-1500-15	132M	1500	15	95.5	287	1.887	3.245	294	29.4	94.5	0.041	61.0
EWST132-1500-18.5	132M	1500	18.5	118	353	1.887	3.245	294	36.2	94.6	0.043	68.0
EWST160-1500-18.5	160M	1500	18.5	118	283	2.115	3.663	332	33	94.8	0.088	125
EWST160-1500-22	160M	1500	22	140	336	2.115	3.663	331	39.5	94.9	0.101	132
EWST160-1500-30	160L	1500	30	191	420	2.134	3.696	335	53	95.2	0.130	152
EWST180-1500-30	180M	1500	30	191	458	2.166	3.751	340	54	94.9	0.136	155
EWST180-1500-37	180L	1500	37	236	565	2.166	3.751	341	64.5	95.2	0.163	169
EWST180-1500-45	180L	1500	45	287	688	2.166	3.751	343	81	95.4	0.197	184
EWST200-1500-45	200L	1500	45	287	688	2.229	3.861	350	79	95.4	0.341	230
EWST200-1500-55	200L	1500	55	350	840	2.261	3.916	355	94.6	95.7	0.398	245
1500r/min 8p 100Hz												
EWST225-1500-55	225M	1500	55	350	840	2.229	3.861	350	98.6	95.7	0.576	311
EWST225-1500-75	225M	1500	75	478	1146	2.261	3.916	355	132	96.0	0.752	376
EWST250-1500-75	250M	1500	75	478	1051	2.216	3.838	348	137	96.0	0.678	426
EWST250-1500-90	250M	1500	90	573	1261	2.267	3.926	356	161	96.2	0.790	467
EWST280-1500-110	280M	1500	110	700	1540	2.248	3.894	353	196.4	96.3	2.034	608
EWST280-1500-132	280M	1500	132	840	1848	2.248	3.894	353	234	96.4	2.289	669
EWST280-1500-160	280M	1500	160	1019	2242	2.261	3.916	355	283	96.6	2.641	736
EWST315-1500-110	315S	1500	110	700	1540	2.242	3.883	352	196	96.3	3.785	863
EWST315-1500-132	315S	1500	132	840	1848	2.255	3.905	354	233	96.6	4.369	920
EWST315-1500-160	315S	1500	160	1019	2242	2.248	3.894	353	284	96.7	5.188	996
EWST315-1500-180	315M/L	1500	180	1146	2521	2.242	3.883	352	321	96.7	5.447	1049
EWST315-1500-200	315M/L	1500	200	1273	2801	2.261	3.916	355	354	96.7	5.771	1078
EWST315-1500-220	315M/L	1500	220	1401	3082	2.261	3.916	355	389	96.8	6.096	1112
EWST315-1500-250	315M/L	1500	250	1592	3502	2.236	3.872	351	447	96.8	6.809	1181
EWST315-1500-315	315M/L	1500	315	2006	4413	2.274	3.938	357	556	97.0	7.976	1306

Type	Frame size	Rated speed nN (r/min)	Rated power PN (kW)	Rated torque Mn (Nm)	Peak torque Mpk (Nm)	Voltage constant Ke (Vs)	Torque constant Kt (Nm/A)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η(%)	Moment of inertia J (kg m ²)	Weight (kg)
1800r/min 6p 90Hz												
EWST71-1800-0.55	71	1800	0.55	2.9	8.8	1.452	2.515	273.5	1.2	87.3	0.001	5.0
EWST71-1800-0.75	71	1800	0.75	4.0	11.9	1.452	2.515	273.5	1.6	88.5	0.001	5.7
EWST71-1800-1.1	71	1800	1.1	5.8	17.5	1.452	2.515	273.5	2.3	89.7	0.001	6.5
EWST71-1800-1.5	71	1800	1.5	8.0	23.9	1.452	2.515	273.5	3.1	90.3	0.001	7.4
EWST80-1800-0.55	80	1800	0.55	2.9	5.8	1.518	2.629	286	1.2	83.9	0.001	10.0
EWST80-1800-0.75	80	1800	0.75	4.0	8.0	1.518	2.629	286	1.6	85.7	0.001	11.0
EWST80-1800-1.1	80	1800	1.1	11.7	35.0	1.513	2.620	285	2.2	87.2	0.002	11.5
EWST80-1800-1.5	80	1800	1.5	8.0	23.9	1.523	2.638	287	3.0	88.2	0.002	12.5
EWST80-1800-2.2	80	1800	2.2	11.7	35.0	1.529	2.648	288	4.4	89.2	0.003	14.0
EWST90-1800-1.5	90L	1800	1.5	8.0	23.9	1.525	2.640	288	3.0	91.2	0.003	10.5
EWST90-1800-2.2	90L	1800	2.2	11.7	35.0	1.525	2.640	288	4.4	91.7	0.004	12.6
EWST90-1800-3.0	90L	1800	3.0	15.9	47.7	1.525	2.640	288	6.0	92.3	0.005	14.7
EWST90-1800-4.0	90L	1800	4.0	21.2	63.7	1.525	2.640	288	8.0	92.4	0.005	17.8
EEWST100-1800-2.2	100L	1800	2.2	11.7	23.4	1.550	2.684	292	4.6	89.5	0.004	16.1
EWST100-1800-3.0	100L	1800	3.0	15.9	31.8	1.534	2.657	289	6.2	90.4	0.005	17.3
EWST100-1800-4.0	100L	1800	4.0	21.2	42.4	1.560	2.703	294	8.1	91.1	0.007	19.1
EWST100-1800-5.5	100L	1800	5.5	29.2	58.4	1.529	2.648	288	11.0	91.9	0.010	22.1
EWST100-1800-7.5	100L	1800	7.5	39.8	79.6	1.540	2.666	290	15.0	92.6	0.014	26.3
EWST112-1800-4.0	112M	1800	4.0	21.2	63.7	1.525	2.640	288	8.0	92.0	0.011	25.0
EWST112-1800-5.5	112M	1800	5.5	29.2	87.5	1.525	2.640	288	11.0	92.8	0.014	29.0
EWST112-1800-7.5	112M	1800	7.5	39.8	119	1.525	2.640	288	14.9	93.4	0.017	34.0
EWST112-1800-11	112M	1800	11	58.4	175	1.525	2.640	288	21.6	93.6	0.018	35.0
EWST132-1800-11	132M	1800	11	58.4	175	1.564	2.708	294	21.6	94.3	0.034	54.0
EWST132-1800-15	132M	1800	15	79.6	239	1.564	2.708	294	29.3	94.7	0.041	61.0
EWST132-1800-18.5	132M	1800	18.5	98.1	294	1.564	2.708	294	36.1	94.8	0.043	68.0
EWST160-1800-18.5	160M	1800	18.5	98.0	235	1.762	3.052	332	33.5	94.6	0.075	117
EWST160-1800-22	160M	1800	22	117	281	1.757	3.043	331	39.5	94.9	0.088	124
EWST160-1800-30	160L	1800	30	159	382	1.762	3.052	332	53.5	95.3	0.117	145
EWST180-1800-30	180M	1800	30	159	382	1.805	3.127	340	54	94.9	0.136	155
EWST180-1800-37	180L	1800	37	196	472	1.767	3.061	333	66	95.4	0.163	169
EWST180-1800-45	180L	1800	45	239	574	1.778	3.08	335	81.5	95.6	0.197	184
EWST200-1800-45	200L	1800	45	239	574	1.858	3.218	350	80	95.4	0.309	219
EWST200-1800-55	200L	1800	55	292	701	1.858	3.218	350	98	95.7	0.357	235
1800r/min 8p 120Hz												
EWST225-1800-55	225M	1800	55	292	701	1.858	3.218	350	99	95.7	0.521	291
EWST225-1800-75	225M	1800	75	398	955	1.874	3.245	353	134	96.0	0.671	346
EWST250-1800-75	250M	1800	75	398	955	1.847	3.199	348	137	96.0	0.678	426
EWST250-1800-90	250M	1800	90	478	1147	1.847	3.199	348	165	96.2	0.774	461
EWST280-1800-110	280M	1800	110	584	1402	1.884	3.264	355	194	96.3	1.744	565
EWST280-1800-132	280M	1800	132	700	1680	1.874	3.245	353	234	96.4	2.034	608
EWST280-1800-160	280M	1800	160	849	2038	1.879	3.254	354	284	96.6	2.353	681
EWST315-1800-110	315S	1800	110	584	1285	1.884	3.264	355	195	96.3	3.266	810
EWST315-1800-132	315S	1800	132	700	1540	1.874	3.245	353	234	96.4	3.720	854
EWST315-1800-160	315S	1800	160	849	1868	1.879	3.254	354	287	96.6	4.369	921
EWST315-1800-180	315M/L	1800	180	955	2101	1.852	3.208	349	320	96.7	4.669	970
EWST315-1800-200	315M/L	1800	200	1061	2334	1.895	3.282	357	354	96.7	4.928	993
EWST315-1800-220	315M/L	1800	220	1167	2567	1.890	3.273	356	390	96.7	5.188	1020
EWST315-1800-250	315M/L	1800	250	1326	2917	1.890	3.273	356	444	96.7	5.836	1083
EWST315-1800-315	315M/L	1800	315	1671	3676	1.895	3.282	357	560	96.9	6.744	1181

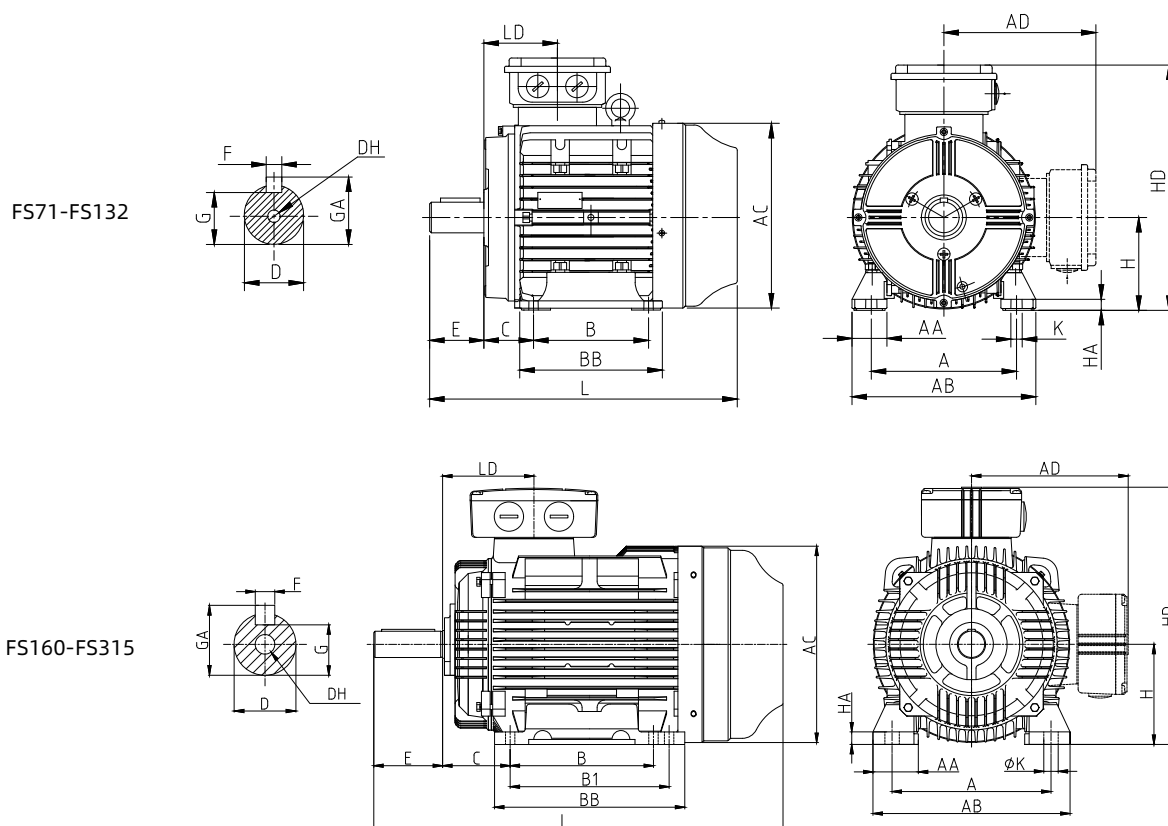
Type	Frame size	Rated speed nN (r/min)	Rated power PN (kW)	Rated torque Mn (Nm)	Peak torque Mpk (Nm)	Voltage constant Ke (Vs)	Torque constant Kt (Nm/A)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η(%)	Moment of inertia J (kg m ²)	Weight (kg)
3000r/min 6p 150Hz												
EWST71-3000-0.75	71	3000	0.75	2.4	7.2	0.861	1.491	273.5	1.6	89.1	0.000545	5.0
EWST71-3000-1.1	71	3000	1.1	3.5	10.5	0.861	1.491	273.5	2.3	90.6	0.000662	5.4
EWST71-3000-1.5	71	3000	1.5	4.8	14.3	0.861	1.491	273.5	3.3	91.3	0.000837	6.3
EWST71-3000-2.2	71	3000	2.2	7.0	21.0	0.861	1.491	273.5	4.6	92.0	0.00101	7.0
EWST80-3000-0.75	80	3000	0.75	2.4	7.2	0.914	1.583	287	1.6	83.5	0.000824	10.0
EWST80-3000-1.1	80	3000	1.1	3.5	10.5	0.911	1.578	286	2.3	85.2	0.000989	10.5
EWST80-3000-1.5	80	3000	1.5	4.8	14.3	0.908	1.572	285	3.1	86.5	0.001319	11.0
EWST80-3000-2.2	80	3000	2.2	7.0	21.0	0.908	1.572	285	4.5	88.0	0.001978	12.0
EWST80-3000-3.0	80	3000	3.0	9.6	28.7	0.908	1.572	285	6.0	89.1	0.002637	13.0
EWST80-3000-4.0	80	3000	4.0	12.7	38.2	0.920	1.594	289	8.0	90.0	0.003296	14.0
EWST90-3000-2.2	90L	3000	2.2	7.0	21.0	0.918	1.590	288	4.4	91.5	0.002379	10.5
EWST90-3000-3.0	90L	3000	3.0	9.6	28.7	0.918	1.590	288	6.0	92.1	0.00299	12.6
EWST90-3000-4.0	90L	3000	4.0	12.7	38.2	0.918	1.590	288	8.0	92.5	0.003806	14.7
EWST90-3000-5.5	90L	3000	5.5	17.5	52.5	0.918	1.590	288	11.0	93.0	0.004417	16.8
EWST100-3000-3.0	100L	3000	3.0	9.6	24.0	0.933	1.616	293	6.3	89.1	0.003783	15.5
EWST100-3000-4.0	100L	3000	4.0	12.7	38.2	0.933	1.616	293	8.2	90.0	0.005405	17.3
EWST100-3000-5.5	100L	3000	5.5	17.5	52.5	0.930	1.611	292	11.0	90.9	0.007026	19.1
EWST100-3000-7.5	100L	3000	7.5	23.9	71.6	0.917	1.589	288	15.0	91.7	0.009728	22.1
EWST100-3000-11	100L	3000	11.0	35.0	105.0	0.914	1.583	287	22.0	92.6	0.013512	26.3
EWST112-3000-5.5	112M	3000	5.5	17.5	52.5	0.918	1.590	288	11.0	93.0	0.0087839	22.0
EWST112-3000-7.5	112M	3000	7.5	23.9	71.6	0.918	1.590	288	14.9	93.8	0.0112328	25.0
EWST112-3000-11	112M	3000	11	35.0	105	0.918	1.590	288	21.5	94.4	0.0149689	30.0
EWST112-3000-15	112M	3000	15	47.8	143	0.918	1.590	288	29.1	94.8	0.0192107	36.0
EWST132-3000-15	132M	3000	15	47.8	143	0.936	1.662	294	29.2	94.7	0.029118	54.0
EWST132-3000-18.5	132M	3000	18.5	58.9	177	0.936	1.662	294	36.0	95.0	0.0337329	61.0
EWST132-3000-22	132M	3000	22	70.0	210	0.936	1.662	294	42.6	95.2	0.0383478	68.0
EWST132-3000-30	132M	3000	30	95.4	286	0.936	1.662	294	58.0	95.5	0.042822	75.0
EWST160-3000-22	160M	3000	22	70.0	168	1.061	1.836	333	39.5	94.8	0.08770068	113
EWST160-3000-30	160M	3000	30	96.0	229	1.067	1.848	335	53.0	95.2	0.10079122	120
EWST160-3000-37	160M	3000	37	118	283	1.080	1.870	339	66.0	95.4	0.12995566	129
EWST180-3000-37	180M	3000	37	118	283	13.070	1.853	336	65.5	95.0	0.10902183	143
EWST180-3000-45	180M	3000	45	143	344	13.070	1.853	332	81.0	95.3	0.12425742	151
EWST180-3000-55	180L	3000	55	175	420	1.086	1.881	341	97.0	95.5	0.15159726	164
EWST200-3000-55	200L	3000	55	175	420	1.121	1.942	352	97.0	95.8	0.26788241	203
EWST200-3000-75	200L	3000	75	239	574	1.118	1.936	351	134	96.0	0.34105343	230
3000r/min 8p 200Hz												
EWST225-3000-75	225M	3000	75	239	574	1.108	1.920	348	136	96.0	0.46708661	271
EWST225-3000-90	225M	3000	90	287	688	1.099	1.903	345	164	96.2	0.52143863	291
EWST225-3000-110	225M	3000	110	350	840	1.102	1.909	346	198	96.3	0.60296667	321
EWST250-3000-110	250M	3000	110	350	770	1.108	1.920	348	202	96.0	0.67788798	426
EWST250-3000-132	250M	3000	132	420	924	1.108	1.920	348	243	96.2	0.82246837	461
EWST280-3000-132	280M	3000	132	420	924	1.143	1.980	359	233	96.2	1.45505647	510
EWST280-3000-160	280M	3000	160	509	1120	1.131	1.958	355	286	96.4	1.67949513	553
EWST280-3000-180	280M	3000	180	573	1261	1.150	1.991	361	313	96.5	1.80774579	578
EWST280-3000-200	280M	3000	200	637	1402	1.124	1.947	353	360	96.6	2.03392831	608
EWST315-3000-132	315S	3000	132	420	840	1.105	1.914	347	242	96.2	2.98312336	777
EWST315-3000-160	315S	3000	160	509	1018	1.127	1.953	354	289	96.3	3.50185667	830
EWST315-3000-180	315S	3000	180	573	1146	1.118	1.936	351	325	96.3	3.69638166	846
EWST315-3000-200	315M/L	3000	200	637	1401	1.127	1.953	354	358	96.5	3.95574831	894
EWST315-3000-220	315M/L	3000	220	700	1540	1.118	1.936	351	394	96.5	4.21511497	922
EWST315-3000-250	315M/L	3000	250	796	1751	1.118	1.936	351	449	96.5	4.53932328	950
EWST315-3000-315	315M/L	3000	315	1003	2207	1.121	1.942	352	563	96.6	5.44710657	1048
EWST315-3000-355	315M/L	3000	355	1130	2451	1.121	1.942	352	634	96.7	6.03068155	1099
EWST315-3000-400	315M/L	3000	400	1273	2801	1.121	1.942	352	712	96.8	6.80878151	1181

Type	Frame size	Rated speed nN (r/min)	Rated power PN (kW)	Rated torque Mn (Nm)	Peak torque Mpk (Nm)	Voltage constant Ke (Vs)	Torque constant Kt (Nm/A)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η(%)	Moment of inertia J (kg m ²)	Weight (kg)
3600r/min 6p 180Hz												
EWST71-3600-0.75	71	3600	0.75	2.0	6.0	0.732	1.268	273.5	1.6	88.3	0.000545	5.0
EWST71-3600-1.1	71	3600	1.1	2.9	8.8	0.732	1.268	273.5	2.3	89.9	0.000662	5.7
EWST71-3600-1.5	71	3600	1.5	4.0	11.9	0.732	1.268	273.5	3.4	90.9	0.000837	6.3
EWST71-3600-2.2	71	3600	2.2	5.8	17.5	0.732	1.268	273.5	4.5	91.9	0.00101	7.0
EWST80-3600-1.1	80	3600	1.1	2.9	8.8	0.758	1.315	286	2.3	85.2	0.000824	10.0
EWST80-3600-1.5	80	3600	1.5	4.0	11.9	0.754	1.305	284	3.1	86.5	0.000989	10.5
EWST80-3600-2.2	80	3600	2.2	5.8	17.5	0.756	1.310	285	4.5	88.0	0.001682	11.5
EWST80-3600-3.0	80	3600	3.0	8.0	23.9	0.762	1.319	287	6.1	89.1	0.002307	12.5
EWST80-3600-4.0	80	3600	4.0	10.6	31.8	0.756	1.310	285	8.0	90.0	0.002637	13.0
EWST90-3600-2.2	90L	3600	2.2	5.8	17.5	0.766	1.327	288	4.4	91.7	0.002379	10.5
EWST90-3600-3.0	90L	3600	3.0	8.0	23.9	0.766	1.327	288	6.0	92.4	0.00299	12.6
EWST90-3600-4.0	90L	3600	4.0	10.6	31.8	0.766	1.327	288	8.0	92.9	0.003806	14.7
EWST90-3600-5.5	90L	3600	5.5	14.6	43.8	0.766	1.327	288	11.0	93.4	0.004417	16.8
WST100-3600-3.0	100L	3600	3.0	8.0	20.0	0.780	1.351	294	6.3	89.1	0.003243	15.0
EWST100-3600-4.0	100L	3600	4.0	10.6	31.8	0.772	1.338	291	8.2	90.0	0.004324	16.1
EWST100-3600-5.5	100L	3600	5.5	14.6	43.8	0.770	1.333	290	11.0	90.9	0.005945	17.9
EWST100-3600-7.5	100L	3600	7.5	19.9	59.7	0.764	1.324	288	15.0	91.7	0.008107	20.3
EWST100-3600-11	100L	3600	11.0	29.2	87.5	0.780	1.351	294	22.0	92.6	0.01189	24.5
EWST112-3600-5.5	112M	3600	5.5	14.6	43.8	0.766	1.327	288	11.0	93.0	0.0082227	21.0
EWST112-3600-7.5	112M	3600	7.5	19.9	59.7	0.766	1.327	288	15.0	93.7	0.0100623	24.0
EWST112-3600-11	112M	3600	11	29.2	87.5	0.766	1.327	288	21.3	94.4	0.0137428	30.0
EWST112-3600-15	112M	3600	15	39.8	119	0.766	1.327	288	29.0	94.9	0.0185707	36.0
EWST132-3600-15	132M	3600	15	39.8	119	0.779	1.350	294	29.5	94.1	0.0268107	54.0
EWST132-3600-18.5	132M	3600	18.5	49.4	147	0.779	1.350	294	35.9	94.8	0.0314256	61.0
EWST132-3600-22	132M	3600	22	58.4	175	0.779	1.350	294	42.6	95.0	0.0360404	68.0
EWST132-3600-30	132M	3600	30	79.6	239	0.779	1.350	294	57.9	95.4	0.040528	75.0
EWST160-3600-22	160M	3600	22	58.0	140	0.881	1.526	332	40.0	94.3	0.05632	107
EWST160-3600-30	160M	3600	30	80.0	191	0.881	1.526	332	54.0	94.7	0.074611	117
EWST160-3600-37	160M	3600	37	98.0	235	0.878	1.521	331	67.0	95.0	0.090316	127
EWST180-3600-37	180M	3600	37	98.0	236	0.894	1.549	337	67.0	94.8	0.105229	141
EWST180-3600-45	180M	3600	45	119	287	0.916	1.586	345	80.5	95.0	0.120464	149
EWST180-3600-55	180L	3600	55	146	350	0.899	1.558	339	96.5	95.3	0.139443	159
EWST200-3600-55	200L	3600	55	146	350	0.939	1.627	354	96.5	95.5	0.2435583	193
EWST200-3600-75	200L	3600	75	199	478	0.950	1.646	358	130	95.9	0.30853916	219
3600r/min 8p 240Hz												
EWST225-3600-75	225M	3600	75	199	478	0.918	1.590	346	137	95.6	0.41273459	251
EWST225-3600-90	225M	3600	90	239	534	0.924	1.600	348	163	95.9	0.46708661	271
EWST225-3600-110	225M	3600	110	292	701	0.942	1.632	355	195	96.2	0.54861465	301
EWST250-3600-110	250M	3600	110	292	701	0.921	1.595	347	204	96.0	0.58150095	391
EWST250-3600-132	250M	3600	132	350	840	0.924	1.600	348	244	96.2	0.66182348	420
EWST280-3600-132	280M	3600	132	350	840	0.939	1.627	354	238	96.2	1.29474315	480
EWST280-3600-160	280M	3600	160	424	1018	0.934	1.618	352	290	96.3	1.48711914	517
EWST280-3600-180	280M	3600	180	478	1147	0.937	1.623	353	323	96.3	1.6153698	541
EWST280-3600-200	280M	3600	200	531	1274	0.937	1.623	353	354	96.5	1.74362046	565
EWST315-3600-132	315S	3600	132	350	770	0.926	1.604	349	241	96.2	2.59407338	737
EWST315-3600-160	315S	3600	160	424	935	0.921	1.595	347	294	96.3	2.98312336	778
EWST315-3600-180	315S	3600	180	478	1052	0.932	1.613	351	325	96.3	3.17764835	794
EWST315-3600-200	315M/L	3600	200	531	1168	0.937	1.623	353	364	96.5	3.37217334	835
EWST315-3600-220	315M/L	3600	220	584	1285	0.937	1.623	353	395	96.5	3.63153999	863
EWST315-3600-250	315M/L	3600	250	663	1459	0.934	1.618	352	450	96.5	3.89090665	885
EWST315-3600-315	315M/L	3600	315	836	1839	0.926	1.604	349	568	96.6	4.61435208	962
EWST315-3600-355	315M/L	3600	355	942	2043	0.934	1.618	352	632	96.6	5.12289826	1007
EWST315-3600-400	315M/L	3600	400	1061	2334	0.937	1.623	353	712	96.6	5.77131489	1076

Type	Frame size	Rated speed nN (r/min)	Rated power PN (kW)	Rated torque Mn (Nm)	Peak torque Mpk (Nm)	Voltage constant Ke (Vs)	Torque constant Kt (Nm/A)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η(%)	Moment of inertia J (kg m ²)	Weight (kg)
4500r/min 6p 225Hz												
EWST71-4500-1.1	71	4500	1.1	2.3	7.0	0.571	0.989	273.5	2.4	89.1	0.000487	5.0
EWST71-4500-1.5	71	4500	1.5	3.2	9.6	0.577	0.999	273.5	3.2	90.6	0.000603	5.7
EWST71-4500-2.2	71	4500	2.2	4.7	14.0	0.585	1.013	273.5	4.6	91.7	0.000778	6.5
EWST71-4500-3.0	71	4500	3.0	6.4	19.1	0.605	1.048	273.5	6.1	92.6	0.000953	7.4
EWST90-4500-3.0	90L	4500	3.0	6.4	19.1	0.623	1.060	288	6.0	91.8	0.002583	10.5
EWST90-4500-4.0	90L	4500	4.0	8.5	25.5	0.623	1.060	288	8.0	92.4	0.003194	12.6
EWST90-4500-5.5	90L	4500	5.5	11.7	35.0	0.623	1.060	288	11.0	93.0	0.003806	14.7
EWST90-4500-7.5	90L	4500	7.5	15.9	47.8	0.623	1.060	288	15.0	93.5	0.004417	17.8

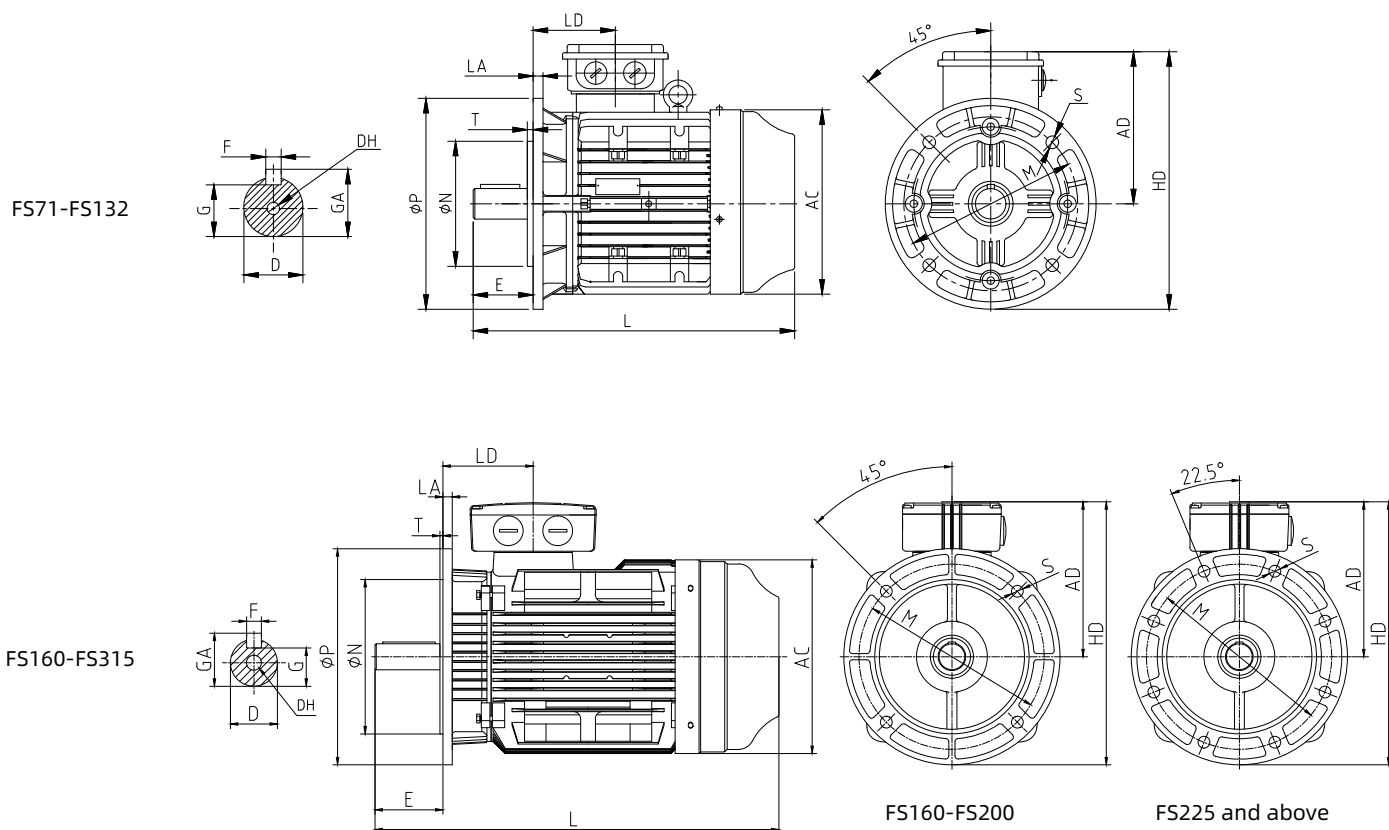
5. Overall dimensions

5.1. B3 Mounting and overall dimensions



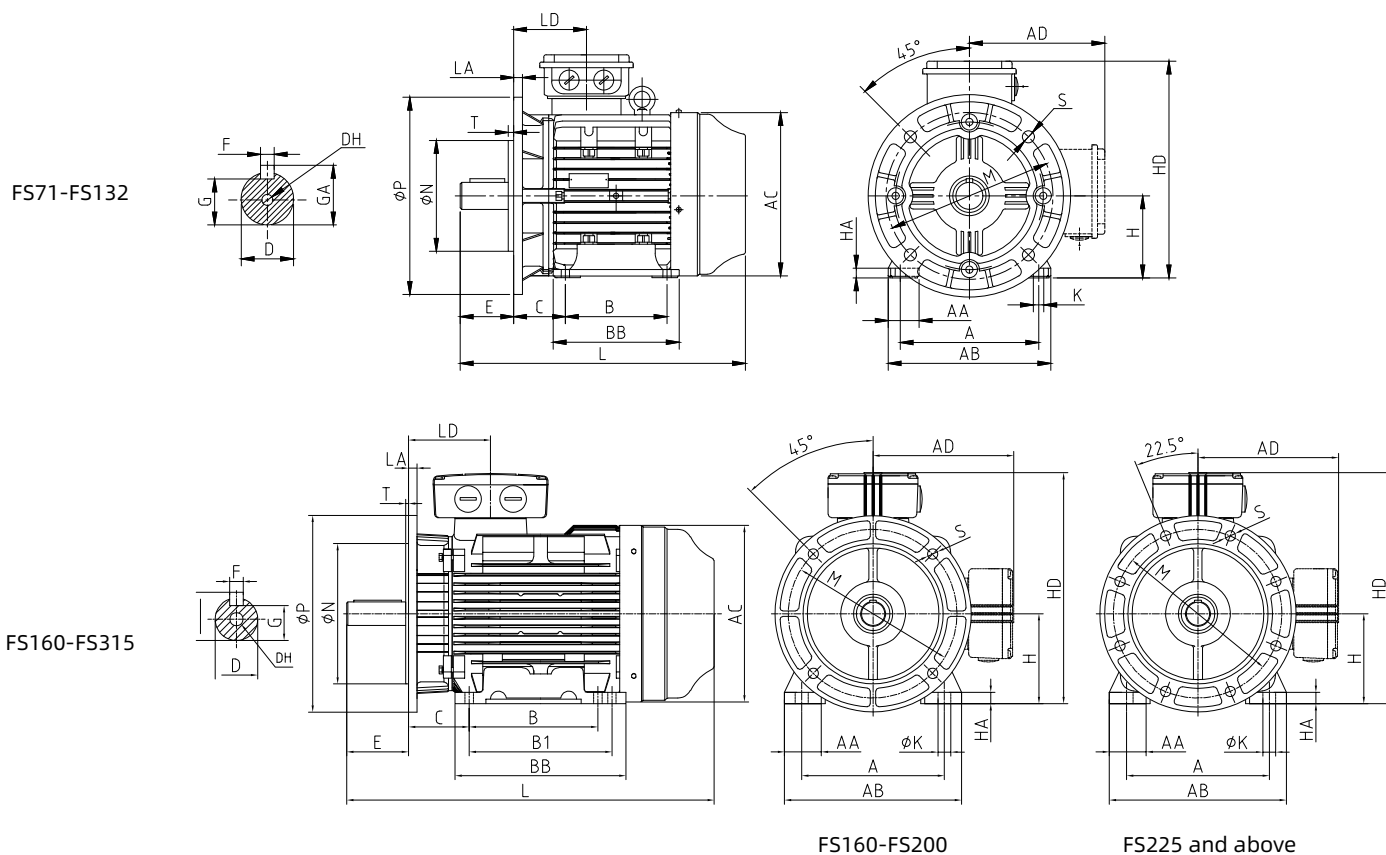
Frame size	Mounting dimensions (mm)												Overall dimensions (mm)								
	A	B	B1	C	D	E	F	G	H	K	DH	GA	AA	AB	AC	AD	HA	HD	BB	LD	L
71	112	90	/	45	14	30	5	11	71	7	M5×13	16	27.5	136	137	107	10	178	110	66	247
80	125	100	/	50	19	40	6	15.5	80	10	M6×16	21.5	32	154	157	122	10	202	125	75	296
90L	140	125	/	56	24	50	8	20	90	10	M8×20	27	37	180	175	141	10	231	153	87	324
100L	160	140	/	63	28	60	8	24	100	12	M10×22	31	37	200	199	157	12	257	170	78	374
112M	190	140	/	70	28	60	8	24	112	12	M10×22	31	47	230	222	167	12	279	170	85	381
132M	216	178	/	89	38	80	10	33	132	12	M12×28	41	54	264	260	191	15	323	210	129	463
160M	254	210	/	108	42	110	12	37	160	15	M16×36	45	64	315	314	244	20	404	260	146	610
160L	254	254	/	108	42	110	12	37	160	15	M16×36	45	64	315	314	244	20	404	304	146	654
180M	279	241	/	121	48	110	14	42.5	180	15	M16×36	51.5	68	351	355	264	22	444	311	161	684
180L	279	279	/	121	48	110	14	42.5	180	15	M16×36	51.5	68	351	355	264	22	444	349	161	722
200L	318	305	/	133	55	110	16	49	200	19	M20×42	59	70	388	397	296	25	496	369	186	774
225M	356	311	/	149	60	140	18	53	225	19	M20×42	64	79	430	445	319	28	544	386	189	846
250S/M	406	311	349	168	65	140	18	58	250	24	M20×42	69	97	484	484	370	32	620	445	208	911
280M	457	419	/	190	75	140	20	67.5	280	24	M20×42	79.5	85	542	546	400	35	680	536	217	1016
315S	508	406	/	216	80	170	22	71	315	28	M20×46	85	120	628	620	502	45	817	570	257	1231
315M/L	508	457	508	216	80	170	22	71	315	28	M20×46	85	120	628	620	502	45	817	680	257	1341

5.2. B5 Mounting and overall dimensions



Frame size	Mounting dimensions (mm)											Overall dimensions (mm)					
	D	E	F	G	M	N	P	S	T	DH	GA	AC	AD	HD	LA	LD	L
71	14	30	5	11	130	110	160	4-Φ10	3.5	M5×13	16	137	107	187	9	66	247
80	19	40	6	15.5	165	130	200	4-Φ12	3.5	M6×16	21.5	157	122	222	9.5	75	296
90L	24	50	8	20	165	130	200	4-Φ12	3.5	M8×20	27	175	141	241	10	87	324
100L	28	60	8	24	215	180	250	4-Φ14.5	4	M10×22	31	199	157	282	12	78	374
112M	28	60	8	24	215	180	250	4-Φ14.5	4	M10×22	31	222	167	292	12	85	381
132M	38	80	10	33	265	230	300	4-Φ14.5	4	M12×28	41	260	191	341	14	129	463
160M	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	244	419	15	146	610
160L	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	244	419	15	146	654
180M	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	264	439	15	161	684
180L	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	264	439	15	161	722
200L	55	110	16	49	350	300	400	4-Φ19	5	M20×42	59	397	296	496	17	186	774
225M	60	140	18	53	400	350	450	8-Φ19	5	M20×42	64	445	319	544	20	189	846
250S,M	65	140	18	58	500	450	550	8-Φ19	5	M20×42	69	484	370	645	22	208	911
280M	75	140	20	67.5	500	450	550	8-Φ19	5	M20×42	79.5	546	400	675	22	217	1016

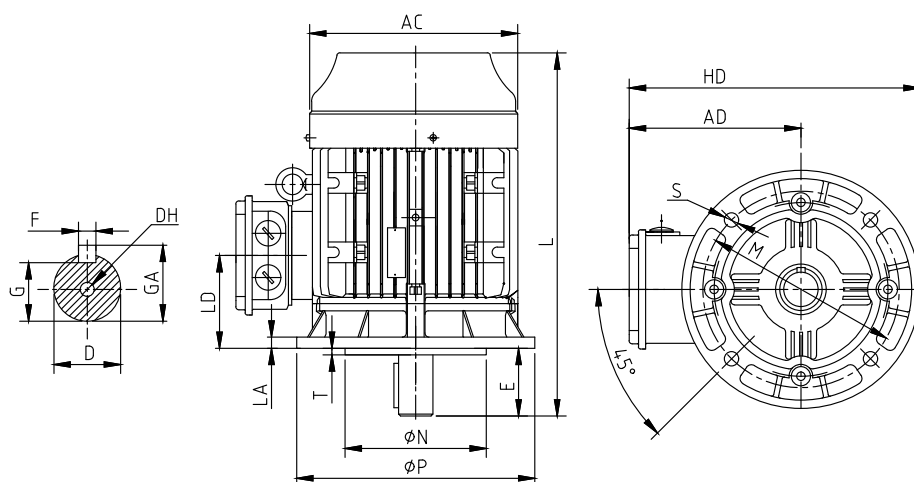
5.3. B35 Mounting and overall dimensions



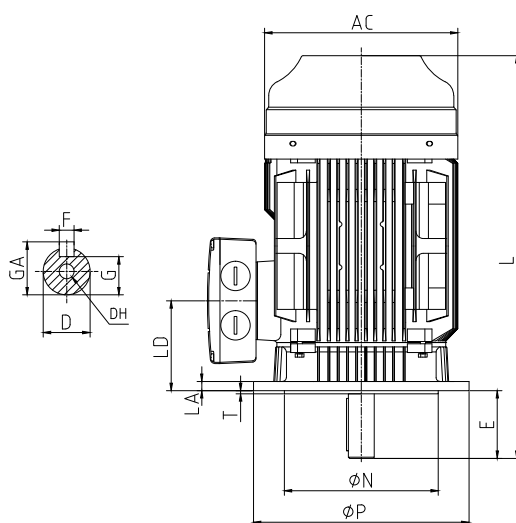
Frame size	Mounting dimensions (mm)																	Overall dimensions (mm)										
	A	B	B1	C	D	E	F	G	H	K	M	N	P	S	T	DH	GA	AA	AB	AC	AD	HA	HD	BB	LA	LD	L	
71	112	90	/	45	14	30	5	11	71	7	130	110	160	4-Φ10	3.5	M5×13	16	27.5	136	137	107	10	178	110	9	66	247	
80	125	100	/	50	19	40	6	15.5	80	10	165	130	200	4-Φ12	3.5	M6×16	21.5	32	154	157	122	10	202	125	9.5	75	296	
90L	140	125	/	56	24	50	8	20	90	10	165	130	200	4-Φ12	3.5	M8×20	27	37	180	175	141	10	231	153	10	87	324	
100L	160	140	/	63	28	60	8	24	100	12	215	180	250	4-Φ14.5	4	M10×22	31	37	200	199	157	12	257	170	12	78	374	
112M	190	140	/	70	28	60	8	24	112	12	215	180	250	4-Φ14.5	4	M10×22	31	47	230	222	167	12	279	170	12	85	381	
132M	216	178	/	89	38	80	10	33	132	12	265	230	300	4-Φ14.5	4	M12×28	41	54	264	260	191	15	323	210	14	129	463	
160M	254	210	/	108	42	110	12	37	160	15	300	250	350	4-Φ19	5	M16×36	45	64	315	314	244	20	404	260	15	146	610	
160L	254	254	/	108	42	110	12	37	160	15	300	250	350	4-Φ19	5	M16×36	45	64	315	314	244	20	404	304	15	146	654	
180M	279	241	/	121	48	110	14	42.5	180	15	300	250	350	4-Φ19	5	M16×36	51.5	68	351	355	264	22	444	311	15	161	684	
180L	279	279	/	121	48	110	14	42.5	180	15	300	250	350	4-Φ19	5	M16×36	51.5	68	351	355	264	22	444	349	15	161	722	
200L	318	305	/	133	55	110	16	49	200	19	350	300	400	4-Φ19	5	M20×42	59	70	388	397	296	25	496	369	17	186	774	
225M	356	311	/	149	60	140	18	53	225	19	400	350	450	8-Φ19	5	M20×42	64	79	430	445	319	28	544	386	20	189	846	
250S/M	406	311	349	168	65	140	18	58	250	24	500	450	550	8-Φ19	5	M20×42	69	97	484	484	370	32	620	445	22	208	911	
280M	457	419	/	190	75	140	20	67.5	280	24	500	450	550	8-Φ19	5	M20×42	79.5	85	542	546	400	35	680	536	22	217	1016	
315S	508	406	/	216	80	170	22	71	315	28	600	550	660	8-Φ24	6	M20×46	85	120	628	620	502	45	817	570	22	257	1231	
315M/L	508	457	508	216	80	170	22	71	315	28	600	550	660	8-Φ24	6	M20×46	85	120	628	620	502	45	817	680	22	257	1341	

5.4. V1 Mounting and overall dimensions

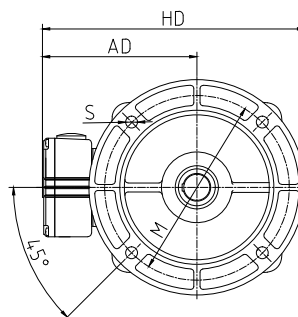
FS71-FS132



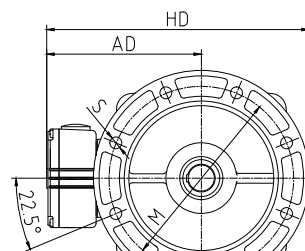
FS160-FS315



FS160-FS200

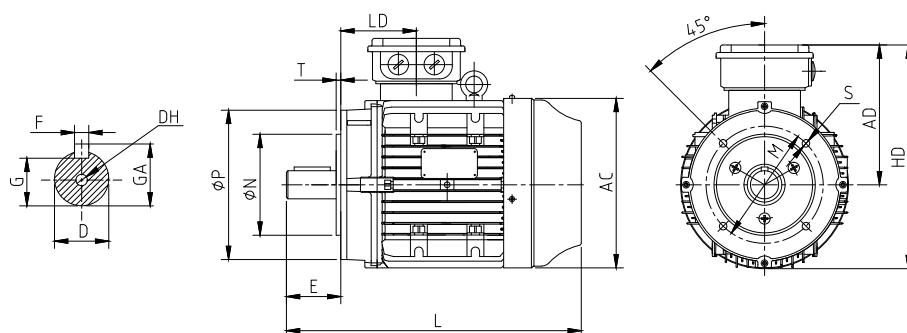


FS225 and above



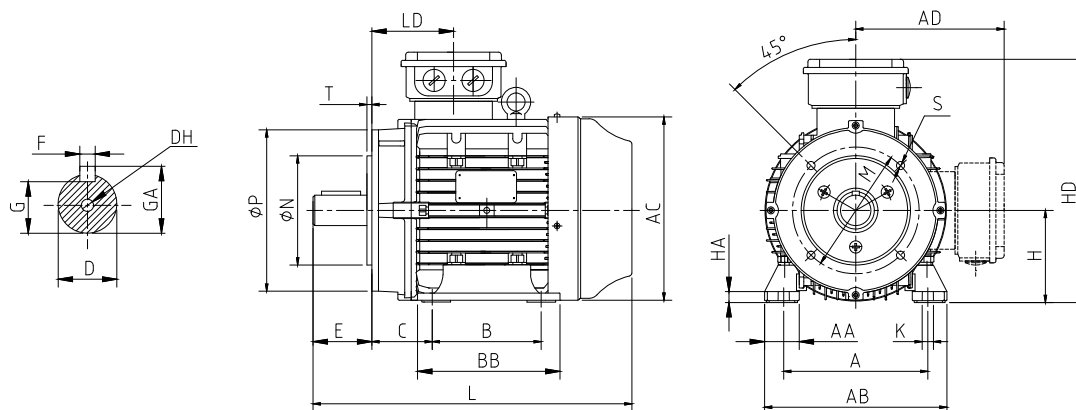
Frame size	Mounting dimensions (mm)											Overall dimensions (mm)						
	D	E	F	G	M	N	P	S	T	DH	GA	AC	AD	HD	LA	LD	L	
71	14	30	5	11	130	110	160	4-Φ10	3.5	M5×13	16	137	107	187	9	66	247	
80	19	40	6	15.5	165	130	200	4-Φ12	3.5	M6×16	21.5	157	122	222	9.5	75	296	
90L	24	50	8	20	165	130	200	4-Φ12	3.5	M8×20	27	175	141	241	10	87	324	
100L	28	60	8	24	215	180	250	4-Φ14.5	4	M10×22	31	199	157	282	12	78	374	
112M	28	60	8	24	215	180	250	4-Φ14.5	4	M10×22	31	222	167	292	12	85	381	
132M	38	80	10	33	265	230	300	4-Φ14.5	4	M12×28	41	260	191	341	14	129	463	
160M	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	244	419	15	146	610	
160L	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	244	419	15	146	654	
180M	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	264	439	15	161	684	
180L	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	264	439	15	161	722	
200L	55	110	16	49	350	300	400	4-Φ19	5	M20×42	59	397	296	496	17	186	774	
225M	60	140	18	53	400	350	450	8-Φ19	5	M20×42	64	445	319	544	20	189	846	
250S/M	65	140	18	58	500	450	550	8-Φ19	5	M20×42	69	484	370	645	22	208	911	
280M	75	140	20	67.5	500	450	550	8-Φ19	5	M20×42	79.5	546	400	675	22	217	1016	
315S	80	170	22	71	600	550	660	8-Φ24	6	M20×46	85	620	502	832	22	257	1231	
315M/L	80	170	22	71	600	550	660	8-Φ24	6	M20×46	85	620	502	832	22	257	1341	

5.5. B14 Mounting and overall dimensions



Frame size	Mounting dimensions (mm)											Overall dimensions (mm)				
	D	E	F	G	M	N	P	S	T	DH	GA	AC	AD	HD	LD	L
71	14	30	5	11	85	70	105	4-M6	2.5	M5×13	16	137	107	176	66	247
80	19	40	6	15.5	100	80	120	4-M6	3	M6×16	21.5	157	122	200	75	296
90L	24	50	8	20	115	95	140	4-M8	3	M8×20	27	175	141	229	87	324
100L	28	60	8	24	130	110	160	4-M8	3.5	M10×22	31	199	157	256	78	374
112M	28	60	8	24	130	110	160	4-M8	3.5	M10×22	31	222	167	278	85	381
132M	38	80	10	33	165	130	200	4-M10	3.5	M12×28	41	260	191	321	129	463

5.6. B34 Mounting and overall dimensions



Frame size	Mounting dimensions (mm)																Overall dimensions (mm)									
	A	B	C	D	E	F	G	H	K	M	N	P	S	T	DH	GA	AA	AB	AC	AD	HA	HD	BB	LD	L	
71	112	90	45	14	30	5	11	71	7	85	70	105	4-M6	2.5	M5×13	16	27.5	136	137	107	10	178	110	66	247	
80	125	100	50	19	40	6	15.5	80	10	100	80	120	4-M6	3	M6×16	21.5	32	154	157	122	10	202	125	75	296	
90L	140	125	56	24	50	8	20	90	10	115	95	140	4-M8	3	M8×20	27	37	180	175	141	10	231	153	87	324	
100L	160	140	63	28	60	8	24	100	12	130	110	160	4-M8	3.5	M10×22	31	37	200	199	157	12	257	170	78	374	
112M	190	140	70	28	60	8	24	112	12	130	110	160	4-M8	3.5	M10×22	31	47	230	222	167	12	279	170	85	381	
132M	216	178	89	38	80	10	33	132	12	165	130	200	4-M10	3.5	M12×28	41	54	264	260	191	15	323	210	129	463	

EWSTF Series

Inverter-integrated PM Syn. Motors (IE5)



1. General information

1.1. Brief

The Enertech EWSTF Series Inverter-integrated permanent synchronous motors are specially developed for secondary water supply applications. The series can achieve highly intelligent motor control through the integrated design of PM synchronous motor and inverter.

The efficiency of the EWSTF Series complies with the IE5 level of IEC60034.

1.2. Features of EWSTF Series

Extreme energy efficiency

The EWSTF series motors can achieve IE5 Ultra Premium high efficiency performance, resulting in significant energy savings. High energy efficiency and power factor will significantly reduce terminal energy consumption and production costs, and accelerate investment return cycles.

Lower temperature rise

The temperature rise of EWSTF Series is around 40-50K, which is obviously lower compared with induction motors. This will help to reduce loss and prolong the lifespan of motor.

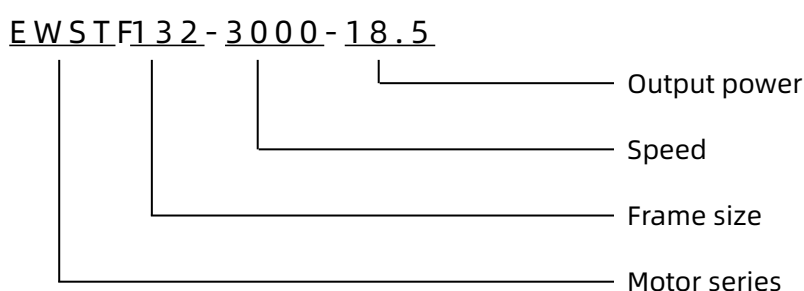
Precise and intelligent operation

The EWSTF Series is equipped with high-performance VFD. It can dynamically adjust speed according to load requirements, provide the required torque and speed, and achieve fast response and precise control.

Professional adaptation of secondary water supply pumps

Designed specially for mainstream market water pumps, the EWSTF series motors are tailored to match popular pump sizes, power ranges, and installation methods. They provide professional energy efficiency upgrade solutions for various application scenarios.

1.3. Explanation of the product code



2. Electrical characteristics

2.1. Standard characteristics

Please refer to the table below for the standard data of the EWSTF Series.

Item	Electrical characteristics
Frame size	80, 100, 112, 132
Output power range	0.75 ~ 22kW
Speed	3000/3600 r/min
Carrier frequency	8 ~ 15kHz/3 ~ 13kHz
Input voltage	AC 3PH 380 ~ 460V(±10%) 50/60Hz±5%
Motor type and control type	PM synchronous motor/sensorless vector control
Efficiency level	IE5
Speed control accuracy	±0.1%
Speed fluctuation	±0.1%
Overload capacity	110%/60s
Ambient temperature	-20°C ~ 40°C
Storage temperature	-25°C ~ 70°C
Air humidity	5~95%
Insulation class	F
Temperature rise	B
Protection class	IP55
Vibration resistance class	1.5g
Mounting arrangement	V18 for FS80 and FS100 V1 for FS112 and FS132
Cooling method	IC411
Standard	EN61800/GB12668

3. Motor structure conditions

3.1. Motor frame

The motor frame of EWSTF Series is made of aluminum.
For FS80 and FS100, the V18 end shield is made of cast iron.
For FS112 and FS132, the V1 flnge is made of cast iron.

3.2. Drain holes

The drain holes of the EWSTF Series motors are located on the side of the V18 end cover and V1 flnge.

3.3. Bearings and oil seals

Single-row deep-groove ball bearings and TC skeleton seals are applied to EWSTF Series. The types of bearing and oil seal are listed in the right table:



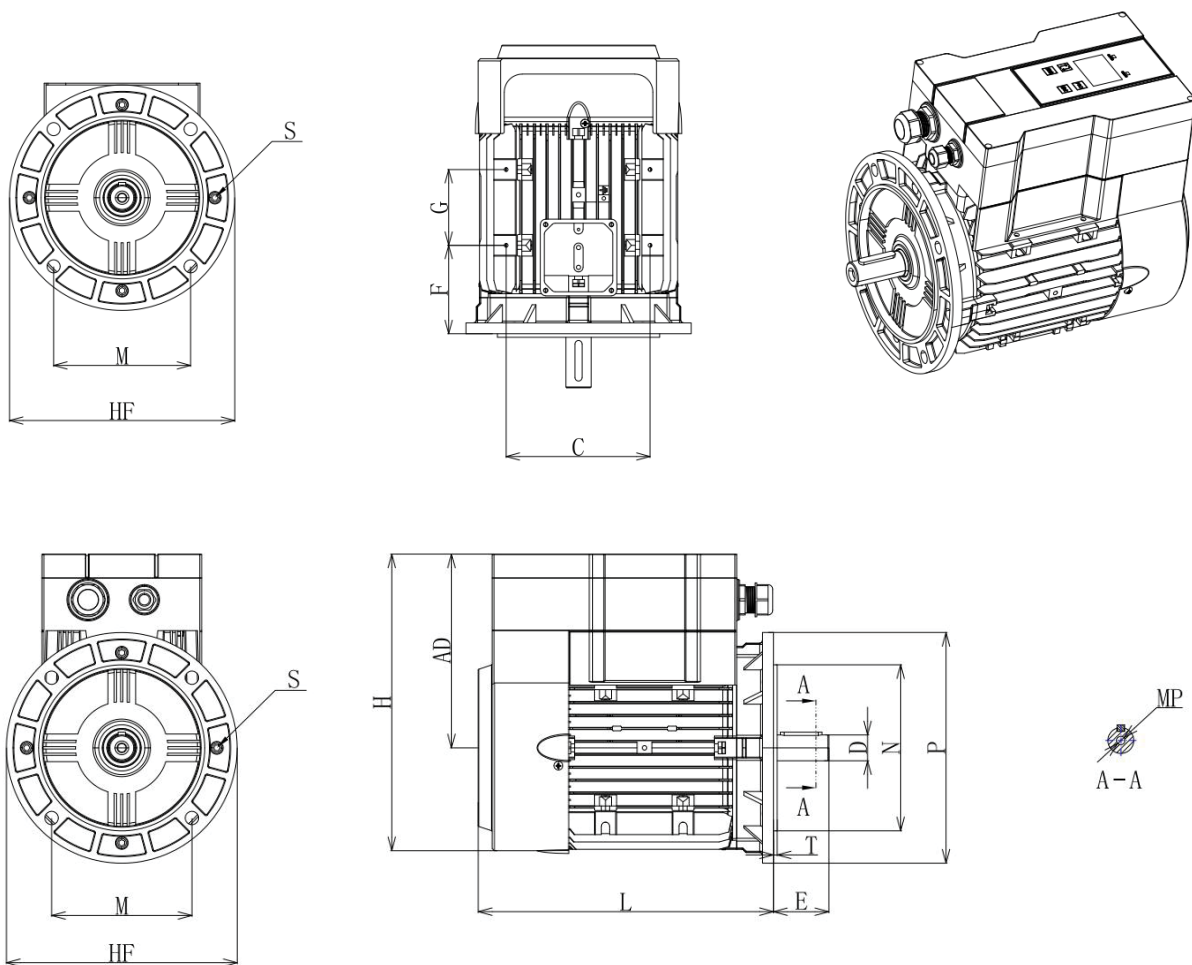
Bearing and oil seals types

Frame size	Bearings		Oil Seals	
	DE	NDE	DE	NDE
80	6204-2Z/C3	6203-2Z/C3	TC20x30x7	TC17x36x5
100	6306-2Z/C3	6205-2Z/C3	TC30x42x7	TC25x41x6
112	6310-2Z/C3	6206-2Z/C3	TC40x58x7	TC25x41x6
132	6310-2Z/C3	6307-2Z/C3	TC50x68x7	TC30x46x7

4. Technical specifications

Type	Frame size	Rated speed nN (r/min)	Rated frequency (Hz)	Rated power PN (kW)	Rated torque Mn (Nm)	BEMF at rated EN (V)	Rated current IN (Arms)	Efficiency η (%)	Sound LP dB(A)	Vibration (mm/s)	Weight (kg)
EWSTF80-3000-0.75	80M	3000	150	0.75	2.4	340	1.40	86.3	61	1.6	10
EWSTF80-3000-1.1	80M	3000	150	1.1	3.5	340	2.10	87.8	62	1.6	10.5
EWSTF80-3000-1.5	80M	3000	150	1.5	4.8	340	2.8	88.9	64	1.6	11
EWSTF80-3000-2.2	80M	3000	150	2.2	7.0	340	4.0	90.2	64	1.6	13
EWSTF100-3000-3.0	100L	3000	150	3	9.6	340	5.6	91.1	67	1.6	17.5
EWSTF100-3000-4.0	100L	3000	150	4	12.7	340	7.5	91.8	69	1.6	19
EWSTF112-3000-5.5	112M	3000	150	5.5	17.5	340	10.0	92.6	70	1.6	41
EWSTF112-3000-7.5	112M	3000	150	7.5	23.9	340	13.5	93.3	71	1.6	45
EWSTF132-3000-11	132M1	3000	150	11	35.0	340	20.0	94.0	72	2.2	54
EWSTF132-3000-15	132M1	3000	150	15	47.8	340	27.0	94.5	74	2.2	62
EWSTF132-3000-18.5	132M1	3000	150	18.5	58.9	340	32.5	94.9	75	2.2	70
EWSTF132-3000-22	132M2	3000	150	22	70.0	340	38.0	95.1	75	2.2	80
EWSTF80-3600-0.75	80M	3600	180	0.75	2.4	340	1.40	86.3	63	1.6	10
EWSTF80-3600-1.1	80M	3600	180	1.1	3.5	340	2.10	87.8	64	1.6	10
EWSTF80-3600-1.5	80M	3600	180	1.5	4.8	340	2.8	88.9	66	1.6	10.5
EWSTF80-3600-2.2	80M	3600	180	2.2	7.0	340	4.0	90.2	66	1.6	12
EWSTF100-3600-3.0	100L	3600	180	3	9.6	340	5.6	91.1	69	1.6	16.5
EWSTF100-3600-4.0	100L	3600	180	4	12.7	340	7.5	91.8	71	1.6	18
EWSTF112-3600-5.5	112M	3600	180	5.5	17.5	340	10.0	92.6	72	1.6	40
EWSTF112-3600-7.5	112M	3600	180	7.5	23.9	340	13.5	93.3	73	1.6	43
EWSTF132-3600-11	132M1	3600	180	11	35.0	340	20.0	94.0	74	2.2	50
EWSTF132-3600-15	132M1	3600	180	15	47.8	340	27.0	94.5	76	2.2	58
EWSTF132-3600-18.5	132M1	3600	180	18.5	58.9	340	32.5	94.9	77	2.2	66
EWSTF132-3600-22	132M2	3600	180	22	70.0	340	38.0	95.1	77	2.2	76

5. Overall dimensions



Frame size	Overall dimensions (mm)											
	D	E	MP	N	M	S	T	L	AD	HF	H	P
80	19	40	5	80	71	4-M6	3	257.5	147	155	225.5	155
100	28	60	9	110	92	4-M6	3.5	314	183	197	281	197
112	28	60	9.2	180	152	4-M8	4	319.8	210	250	335	250
132	38	80	10.6	230	187	4-M8	4	383	220	300	375	300



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