YE3 Series Ultra Efficiency Low-voltage Induction Motor

GB 18613-2012

Frame Size (80 ~ 355)

For Demanding Industrial Applications

Industries and applications:

[Mining Machinery, fans, pumps, blowers, gearboxes, compressors, conveyors, mixers, extruders used in process industries including:]

- Chemical, oil and gas
- Building materials - cement plant, mixer, lifting machines
- Pipeline pumping station
- Mining - crushers, conveyor, dryers
- Rubber and plastics
- Material handling
- Agriculture-threshers, briquette machines
- All demanding industries

Firmly Stood the Test of Time FIVESTAR

Catalog -2014

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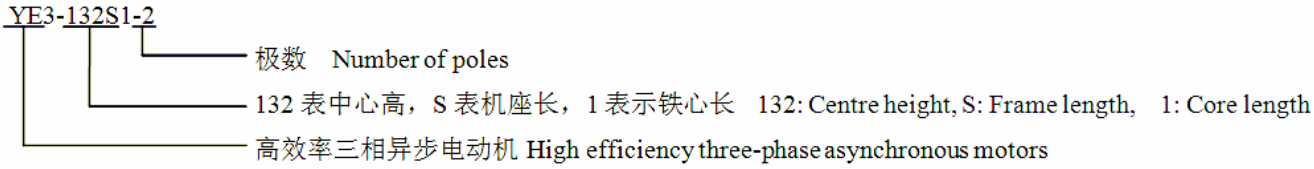
1. Overview

The YE3 series of high efficiency 3 phase asynchronous motors with cast iron housing is Totally Enclosed Fan Cooled (TEFC) with IP55 environmental protection, and applicable for general purpose use. These motors are designed and manufactured in accordance with ISO, IEC standards, GB standards. China announced a new national efficiency standard of motors (GB18613-2012) in 2012, the energy efficiency of the motor has 4 levels in the new standards. Class 4 correspond to international standards (IEC60034-30) IE1, and it is the high energy consumption motor, prohibit the sale. Class 3 is the market access level which consistent with the standard (IEC60034-30) IE2. Class 2 is the high efficiency motor consistent with (IEC60034-30) IE3. YE3 is the latest model of China's mass production efficiency motors, which has IE3 level. By switching to YE3 series motor, customer can save energy up to 10 %!

The YE3 series high efficiency motor is designed for constant or adjustable speed with continuous duty operation (S1) over a speed range.



2. Features of YE3 series High Efficiency Motor

1. Frame and connection box material: cast iron
2. The motor with china efficiency grade 2 according to GB18613-2012, and efficiency class IE3 according to IEC 60034-30.
3. Rated power range: 0.75 kw ~ 375 kw.
4. Rated voltage: 380v (50Hz); voltage can be customized 220v-440v (50/60Hz).
5. Standard mounting construction according to GB/T 997-2008 (IEC 60034-7): IM B3, IM B5, IM B35 and etc.
6. All motors are designed to IP55 degree of protection (GB/T 4942.1-2006; IEC 60034-5).
7. Insulation system is designed for temperature class 155℃ (F).
8. Self ventilated motors with radial-flow fans (cooling method IC411 according to GB/T 1993-1993(IEC 60034-6)) as standard, forced air cool with external separately driven fans as option.
9. The motor have one eyebolt for transport.
10. Terminal box on top and cable entry on right side (viewed from driven end). Variable location of connection boxes and cable entries as option.

3. Environmental

- Altitude shall not exceed 1000m above sea-level (IEC 60034-1).
- Allowed air temperature between -15 ℃ and 40 ℃ (IEC 60034-1).
- At outdoor application, the using of protective cover is recommended.
- At outdoor application the protection of shaft again jet-water is recommended.
- The use of a separately driven fan is recommended to increase motor utilization at low speed; When motor speed significantly higher than the synchronous speed, the separately fan is also recommended to be used. It can help reduce the motor noise.

4. Frame Size, Power and Speed Table

Frame Size	Synchronous speed (r/min)		
	3 000	1 500	1 000
	Power (kw)		
$80M_1$	0.75	-	-
$80M_2$	1.1	0.75	-
90S	1.5	1.1	0.75
90L	2.2	1.5	1.1
$100L_1$	3	2.2	1.5
$100L_2$		3	
112M	4	4	2.2
$132S_1$	5.5	5.5	3
$132S_2$	7.5		
$132M_1$	-	7.5	4
$132M_2$			5.5
$160M_1$	11	11	7.5
$160M_2$	15		
160L	18.5	15	11
180M	22	18.5	-
180L	-	22	15
$200L_1$	30	30	18.5
$200L_2$	37		22
225S	-	37	-
225M	45	45	30
250M	55	55	37
280S	75	75	45
280M	90	90	55
315S	110	110	75
315M	132	132	90
$315L_1$	160	160	110
$315L_2$	200	200	132
$355M_1$	250	250	160
$355M_2$			200
355L	315	315	250
355_1	355	355	-
355_2	375	375	315

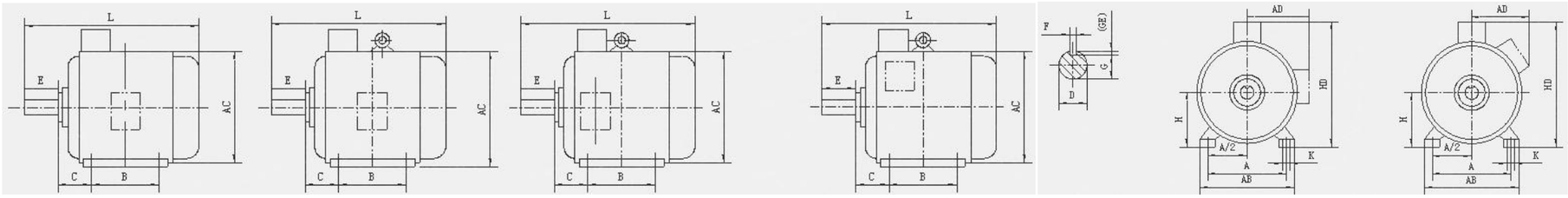
5. Installation Type

Frame Size	Mounting Structure Code（IM）
80～112	B14、B34、V18、V19
80～160	B3、B5、B6、B7、B8、B35、V1、V3、V5、V6、V15、V17、V35、V37
180～280	B3、B5、B35、V1
315～355	B3、B35、V1

6. Efficiency and Power Factor

Power (Kw)	Synchronous Speed r/min					
	3 000	1 500	1 000	3 000	1 500	1 000
	Efficiency（η）%			Power factor（$\cos\varphi$）		
0.75	80.7	82.5	78.9	0.82	0.75	0.71
1.1	82.7	84.1	81.0	0.83	0.76	0.73
1.5	84.2	85.3	82.5	0.84	0.77	0.73
2.2	85.9	86.7	84.3	0.85	0.81	0.74
3	87.1	87.7	85.6	0.87	0.82	0.74
4	88.1	88.6	86.8	0.88	0.82	0.74
5.5	89.2	89.6	88.0	0.88	0.83	0.75
7.5	90.1	90.4	89.1	0.88	0.84	0.79
11	91.2	91.4	90.3	0.89	0.85	0.80
15	91.9	92.1	91.2	0.89	0.86	0.81
18.5	92.4	92.6	91.7	0.89	0.86	0.81
22	92.7	93.0	92.2	0.89	0.86	0.81
30	93.3	93.6	92.9	0.89	0.86	0.83
37	93.7	93.9	93.3	0.89	0.86	0.84
45	94.0	94.2	93.7	0.90	0.86	0.85
55	94.3	94.6	94.1	0.90	0.86	0.86
75	94.7	95.0	94.6	0.90	0.88	0.84
90	95.0	95.2	94.9	0.90	0.88	0.85
110	95.2	95.4	95.1	0.90	0.89	0.85
132	95.4	95.6	95.4	0.90	0.89	0.86
160	95.6	95.8	95.6	0.91	0.89	0.86
200	95.8	96.0	95.8	0.91	0.90	0.87
250	95.8	96.0	95.8	0.91	0.90	0.87
315	95.8	96.0	95.8	0.91	0.90	0.86
355	95.8	96.0	-	0.91	0.88	-
375	95.8	96.0	-	0.91	0.88	-

7. Motor Dimensions and Tolerances



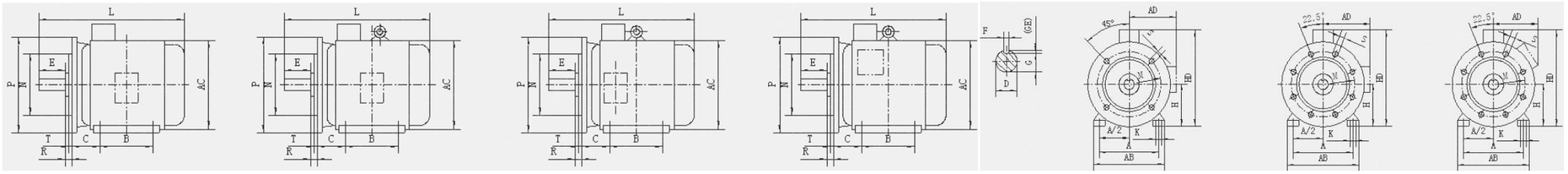
FS80～90 FS100～132 FS160～355 FS3551,3552 FS 80～355 $FS355_1,355_2$

NO.1 Motor frame with bottom feet and no flange on the end cap (FS: Frame Size, LD: Limit deviations)

FS	Poles	Installation dimensions and tolerances （mm）																	External dimensions (mm)				
		A	A/2	B	C	LD	D	LD	E	LD	F	LD	Ga	LD	H	LD	Kb	LD	Position Tolerance	AB	AC	AD	HD	L
80M	2,4,6	125	62.5	100	50	±1.5	19	+0.009 −0.004	40	±0.31	6	0 −0.030	15.5	0 −0.10	80	0 −0.5	10	+0.36 0	Φ1.0M	165	175	145	220	305
90S		140	70		56		24		50		8	0 −0.036	20	0 −0.20	90					180	205	170	265	360
90L				125																				390
100L		160	80	140	63	±2.0	28		60	±0.37			24		100		12	+0.43 0		205	215	180	270	435
112M		190	95		70										112					230	255	200	310	440
132S		216	108		89		38	+0.018 +0.002	80		10		33		132					270	310	230	365	510
132M				178																				550
160M		254	127	210	108	±3.0	42		110	±0.43	12	0 −0.052	37		160		14.5		Φ1.2M	320	340	260	425	730
160L				254																				760
180M		279	139.5	241	121		48				14		42.5		180					355	390	285	460	770
180L				279																				800
200L		318	159	305	133		55				16		49		200		18.5			395	445	320	520	860
225S	4	356	178	286	149	±4.0	60		140	±0.50	18	0 −0.043	53		225					435	495	350	575	830
225M	2			311			55		110	±0.43	16		49											830
	4,6						60		140	±0.50	18		53											860
250M	2	406	203	349	168										250		24		Φ2.0M	490	550	390	635	990
	4,6						65						58											
280S	2	457	228.5	368	190										280	0 −1.0				550	630	435	705	990
	4,6						75				20	0 −0.052	67.5											
280M	2			419			65	+0.030 +0.011			18	0 −0.043	58											1040
	4,6						75				20	0 −0.052	67.5											
315S	2	508	254	406	216		65				18	0 −0.043	58		315		28			635	645	530	845	1180
	4,6						80		170		22	0 −0.052	71											1290
315M	2			457			65		140	±0.50	18	0 −0.043	58											1210
	4,6						80		170		22	0 −0.052	71											1320
315L	2			508			65		140		18	0 −0.043	58											1210
	4,6						80		170		22		71											1320
355M	2	610	305	560	254		75		140		20		67.5		355					730	710	655	1010	1500
	4,6						95	+0.035 +0.013	170		25		86											1530
355L	2			630			75	+0.030 +0.011	140		20	0 −0.052	67.5											1500
	4,6						95	+0.035 +0.013	170		25		86											1530
3551 3552	2	630	315	800	224		80	+0.030 +0.011	170		22		71				35	+0.62 0		760	770	760	1130	1870
	4,6						110	+0.035 +0.013	210	±0.57	28		100											1920

[a] G=D-GE, GE Frame 80 Maximum tolerance is（$^{+0.10}_{0}$）, others is（$^{+0.20}_{0}$）.

[b] K-hole location tolerance to the axis of the shaft extension as a reference.



FS80～90 FS100～132 FS160～355 FS3551,3552 FS80～200 FS225～355 FS3551,3552

NO.2 Motor frame with bottom feet and has flange (With through hole) on the end cap (FS: Frame Size; LD: Limit Deviations; PT: Position Tolerance)

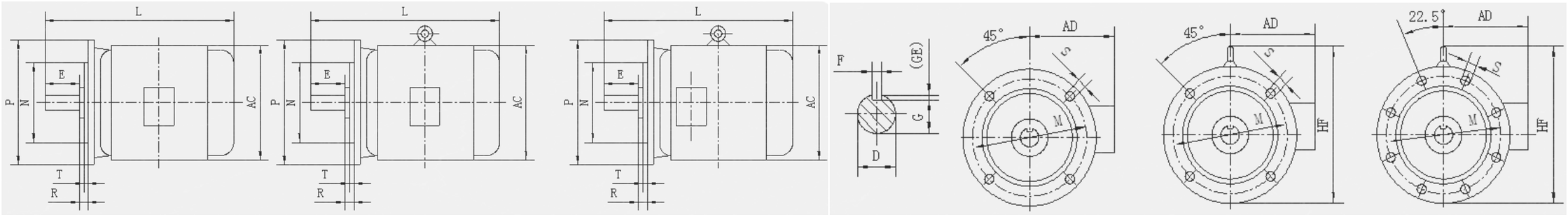
FS	Flange	Poles	Installation dimensions and tolerances （mm）																											External dimensions (mm)				
			A	A/2	B	C		D		E		F		Ga		H		Kb			M	N		P[c]	R[d]	S[b]			T		Flange holes	AB	AC	AD	HD	L
							LD		LD		LD		LD		LD		LD		LD	PT			LD		LD		PT		LD						
80M	FF165	2, 4, 6.	125	62.5	100	50	±1.5	19	+0.009 −0.004	40	±0.31	6	0 −0.030	15.5	0 −0.10	80	0 −0.5	10	+0.36 0	Φ1.0M	165	130	+0.014 −0.011	200	±1.5	12	+0.43 0	Φ1.0M	3.5	0 −0.12	44	165	175	145	220	305
90S			140	70		56		24		50		8	0 −0.036	20		90																180	205	170	265	395
90L					125																															425
100L	FF215		160	80	140	63	±2.0	28		60	±0.37			24		100		12	+0.43 0		215	180		250	±2.0	14.5		Φ1.2M	4			205	215	180	270	435
112M			190	95		70										112																230	255	200	310	475
132S	FF265		216	108		89		38	+0.018 +0.002	80		10		33		132					265	230	+0.016 −0.013	300								270	310	230	365	535
132M					178																															550
160M	FF300		254	127	210	108	±3.0	42		110	±0.43	12		37		160		14.5		Φ1.2M	300	250		350	±3.0	18.5			5			320	340	260	425	730
160L					254																															760
180M			279	139.5	241	121		48				14		42.5		180																355	390	285	460	805
180L					279																															835
200L	FF350		318	159	305	133		55				16		49		200		18.5			350	300	±0.016	400								395	445	320	520	890
225S	FF400	4	356	178	286	149	±4.0	60		140	±0.50	18		53		225					400	350	±0.018	450	±4.0						8	435	495	350	575	865
225M		2			311			55		110	±0.43	16		49																						865
		4,6						60		140		18		53																						895
250M	FF500	2	406	203	349	168		65						58		250		24	+0.52 0	Φ2.0M	500	450	±0.020	550								490	550	390	635	995
		4,6																																		
280S		2	457	228.5	368	190		75				20	0 −0.052	67.5		280	0 −1.0															550	630	435	705	1030
		4,6																																		
280M		2			419			65				18	0 −0.043	58																						1080
		4,6						75				20	0 −0.052	67.5																						
315S	FF600	2	508	254	406	216		65				18	0 −0.043	58		315		28			600	550	±0.022	660		24		Φ2.0M	6	0 −0.15		635	645	530	845	1180
		4,6						80		170		22	0 −0.052	71																						1290
315M		2			457			65		140		18	0 −0.043	58																						1210
		4,6						80		170		22	0 −0.052	71																						1320
315L		2			508			65		140		18	0 −0.043	58																						1210
		4,6						80		170		22		71																						1320
355M	FF740	2	610	305	560	254		75		140		20	0 −0.052	67.5		355					740	680	±0.025	800								730	710	655	1010	1500
		4,6						95	+0.035 +0.013	170		25		86																						1530
355L		2			630			75	+0.030 +0.011	140		20		67.5																						1500
		4,6						95	+0.035 +0.013	170		25		86																						1530
3551 3552	FF840	2	630	315	800	224		80	+0.030 +0.011	170		22		71				35	+0.62 0		840	780		900						0 −0.15		760	900	760	1130	1870
		4,6						110	+0.035 +0.013	210	±0.57	28		100																						1920

a G=D-GE, GE Frame 80 Maximum tolerance is （$^{+0.10}_{0}$）, others is （$^{+0.20}_{0}$）.

b K and S-hole location tolerance to the axis of the shaft extension as a reference.

c P is the maximum size limit.

d R is the flange mating surface to shaft ends distance



FS 80～90　　FS 100～132　　FS 160～280　　FS 80～90　　FS 100～200　　FS 225～280

NO.3 Frame without bottom feet, with flange (with through holes) on the motor end caps　(FS: Frame Size; LD: Limit Deviations; PT: Position Tolerance)

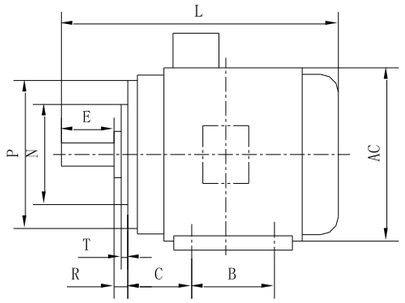
FS	Flange	Poles	Installation dimensions and tolerances （mm）																				External dimensions (mm)			
			D		E		F		G[a]		M	N		P[c]	R[d]		S[b]			T		Flange holes	AC	AD	HF	L
				LD		LD		LD		LD			LD			LD		LD	PT		LD					
80M	FF165	2,4,6	19	+0.009 −0.004	40	±0.31	6	0 −0.030	15.5	0 −0.10	165	130	+0.014 −0.011	200	0	±1.5	12	+0.43 0	Φ1.0M	3.5	0 −0.12	4	175	145		305
90S			24		50		8	0 −0.036	20	0 −0.20													205	170		395
90L																										425
100L	FF215		28		60	±0.37			24		215	180		250		±2.0	14.5			4			215	180	240	435
112M																							255	200	275	475
132S	FF265		38	+0.018 +0.002	80		10		33		265	230	+0.016 −0.013	300									310	230	335	535
132M																										550
160M	FF300		42		110	±0.43	12		37		300	250		350		±3.0	18.5	+0.52 0		5			340	260	390	730
160L																										760
180M			48				14		42.5														390	285	435	805
180L																										835
200L	FF350		55	+0.030 +0.011			16		49		350	300	±0.016	400									445	320	495	890
225S	FF400	4	60		140	±0.50	18		53		400	350	±0.018	450		±4.0						8	495	350	550	865
225M		2	55		110	±0.43	16		49																	865
		4,6	60		140	±0.50			53																	895
250M	FF500	2					18				500	450	±0.020	550									550	390	615	995
		4,6	65						58																	
280S		2																					630	435	675	1030
		4,6	75		140		20	0 −0.052	67.5																	
280M		2	65				18	0 −0.043	58																	1080
		4,6	75				20	0 −0.052	67.5																	

[a] G=D-GE, GE Frame 80 Maximum tolerance is （$^{+0.10}_{0}$）, others is （$^{+0.20}_{0}$）.

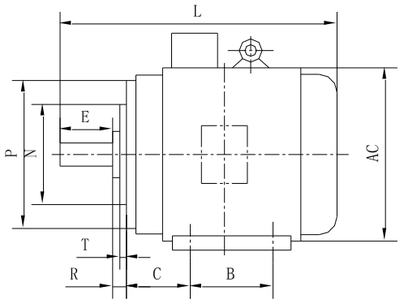
[b] S-hole location tolerance to the axis of the shaft extension as a reference.

[c] P is the maximum size limit.

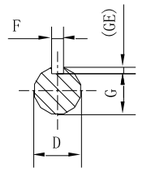
[d] R is the flange mating surface to shaft ends distance.

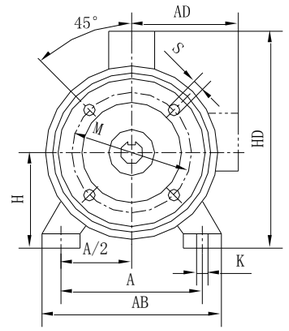


FS 80～90



FS 100～112



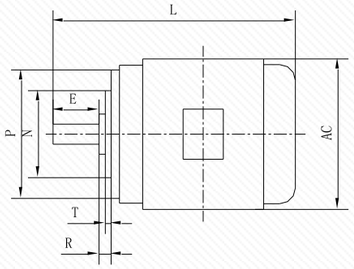


FS 80～112

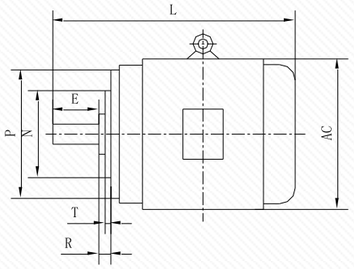
NO.4 Frame with bottom feet, with flange (with screw holes) on the motor end caps (FS: Frame Size; LD: Limit Deviations; PT: Position Tolerance)

FS	Flange	Poles	Installation dimensions and tolerances （mm）																											External dimensions (mm)				
			A	A/2	B	C		D		E		F		G[a]		H		K[b]			M	N		P[c]	R[d]		S[b]		T		Flange holes	AB	AC	AD	HD	L
							LD		LD		LD		LD		LD		LD	PT				LD			LD		PT		LD						
80M	FT100	2,4,6	125	62.5	100	50	±1.5	19	+0.009 −0.004	40	±0.31	6	0 −0.030	15.5	0 −0.10	80	0 −0.5	10	+0.36 0	Φ1.0M	100	80	+0.012 −0.007	120	0	±1.5	M6	Φ0.5M	3.0	0 −0.10	4	165	175	145	220	305
90S	FT115		140	70		56		24		50		8	0 −0.036	20	0 −0.20	90					115	95	+0.013 −0.009	140			M8	Φ1.0M				180	205	170	265	360
90L					125																															390
100L	FT130		160	80	140	63	±2.0	28		60	±0.37			24		100		12	+0.43 0		130	110		160					3.5	0 −0.12		205	215	180	270	435
112M			190	95		70										112																230	255	200	310	440

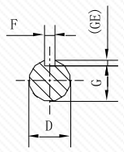
[a] G=D-GE, GE Frame 80 Maximum tolerance is（$^{+0.10}_{0}$）, others is（$^{+0.20}_{0}$）.
[b] K and S-hole location tolerance to the axis of the shaft extension as a reference.
[c] P is the maximum size limit.
[d] R is the flange mating surface to shaft ends distance.

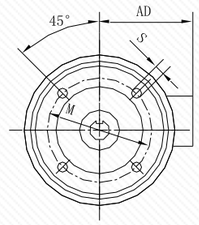


FS 80～90

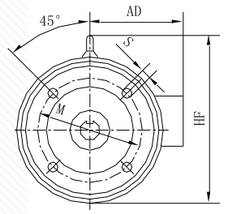


FS 100～112





FS 80～90



FS 100～112

NO.5 Frame without bottom feet, with flange (with screw holes) on the motor end caps (FS: Frame Size; LD: Limit Deviations; PT: Position Tolerance)

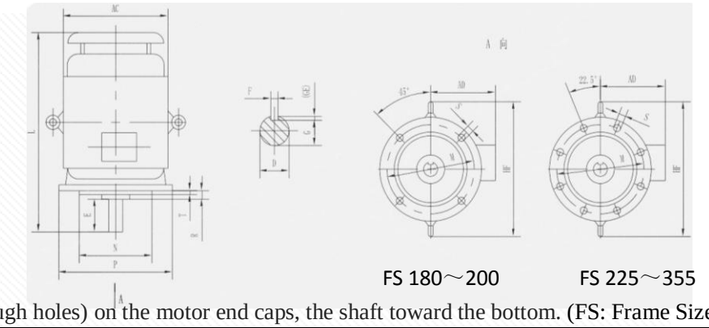
FS	Flange	Poles	Installation dimensions and tolerances （mm）																			External dimensions (mm)			
			D		E		F		G^a		M	N		P^c	R^d		S^b		T		Flange holes	AC	AD	HF	L
				LD		LD		LD		LD			LD			LD		PT		LD					
80M	FT100	2,4,6	19	$^{+0.009}_{-0.004}$	40	±0.31	6	$^{0}_{-0.030}$	15.5	$^{0}_{-0.10}$	100	80	$^{+0.012}_{-0.007}$	120	0	±1.5	M6	Φ0.5M	3.0	$^{0}_{-0.10}$	4	175	145		305
90S	FT115		24		50		8	$^{0}_{-0.036}$	20	$^{0}_{-0.20}$	115	95	$^{+0.013}_{-0.009}$	140			M8	Φ1.0M				205	170		360
90L																									390
100L	FT130		28		60	±0.37			24		130	110		160					3.5	$^{0}_{-0.12}$		215	180	245	435
112M																						255	200	275	440

[a] G=D-GE，GE Frame 80 Maximum tolerance is（$^{+0.10}_{0}$）, others is（$^{+0.20}_{0}$）.

[b] S-hole location tolerance to the axis of the shaft extension as a reference.

[c] P is the maximum size limit.

[d] R is the flange mating surface to shaft ends distance.



NO.6 Vertical installed Motor without bottom feet, with flange (with through holes) on the motor end caps, the shaft toward the bottom. (FS: Frame Size; LD: Limit Deviations; PT: Position Tolerance)

FS	Flange	Poles	Installation dimensions and tolerances （mm）																				External dimensions (mm)			
			D		E		F		G^a		M	N		P^c	R^d		S^b			T		Flange holes	AC	AD	HD	L
				LD		LD		LD		LD			LD			LD		LD	PT		LD					
180M	FF300	2,4,6	48	$^{+0.018}_{+0.002}$	110	±0.43	14	$^{0}_{-0.043}$	42.5	$^{0}_{-0.20}$	300	250	$^{+0.016}_{-0.013}$	350	0	±3.0	18.5	$^{+0.52}_{0}$	Φ1.2M	5	$^{0}_{-0.12}$	4	390	285	505	825
180L																										845
200L	FF350		55	+0.030 +0.011			16		49		350	300	±0.016	400									445	320	565	940
225S	FF400	4	60		140	±0.50	18		53		400	350	±0.018	450		±4.0						8	495	350	625	945
225M		2	55		110	±0.43	16		49																	945
		4,6	60		140	±0.50			53																	975
250M	FF500	2					18				500	450	±0.020	550									550	390	670	1095
		4,6	65						58																	
280S		2																					630	435	745	1155
		4,6	75				20	$^{0}_{-0.052}$	67.5																	
280M		2	65				18	$^{0}_{-0.043}$	58																	1195
		4,6	75				20	$^{0}_{-0.052}$	67.5																	
315S	FF600	2	65				18	$^{0}_{-0.043}$	58		600	550	±0.022	660			24		Φ2.0M	6	$^{0}_{-0.1}$		645	530	900	1280
		4,6	80		170		22	$^{0}_{-0.052}$	71																	1400
315M		2	65		140		18	$^{0}_{-0.043}$	58																	1310
		4,6	80		170		22	$^{0}_{-0.052}$	71																	1430
315L		2	65		140		18	$^{0}_{-0.043}$	58																	1310
		4,6	80		170		22	$^{0}_{-0.052}$	71																	1430
355M	FF740	2	75		140		20		67.5		740	680	±0.025	800									710	655	1010	1640
		4,6	95	+0.035 +0.013	170		25		86																	1670
355L		2	75	+0.030 +0.011	140		20		67.5																	1640
		4,6	95	+0.035 +0.013	170		25		86																	1670
3551	FF840	2	80	+0.030 +0.011	170		22		71		840	780		900							$^{0}_{-0.12}$		900	760	1220	1920
3552		4,6	110	+0.035 +0.013	210	±0.57	28		100																	1970

[a] G=D-GE, GE limit deviation（$^{+0.20}_{0}$）.

[b] S-hole location tolerance to the axis of the shaft extension as a reference.

[c] P is the maximum size limit.

[d] R is the flange mating surface to shaft ends distance.

8. The Shaft Extension Bond of Motor Dimensions and Tolerances Table

Shaft Diameter (mm)	Width of The Key (mm)	Height of The Key (mm)
19	$6^{0}_{-0.018}$	$6^{0}_{-0.018}$
24	$8^{0}_{-0.022}$	$7^{0}_{-0.090}$
28		
38	$10^{0}_{-0.022}$	$8^{0}_{-0.090}$
42	$12^{0}_{-0.027}$	
48	$14^{0}_{-0.027}$	$9^{0}_{-0.090}$
55	$16^{0}_{-0.027}$	$10^{0}_{-0.090}$
60	$18^{0}_{-0.027}$	$11^{0}_{-0.110}$
65		
75	$20^{0}_{-0.033}$	$12^{0}_{-0.110}$
80	$22^{0}_{-0.033}$	$14^{0}_{-0.110}$
95	$25^{0}_{-0.033}$	
110	$28^{0}_{-0.033}$	$16^{0}_{-0.110}$

8.1 Half the length of the shaft radial circular bound tolerance

Shaft Diameter (mm)	Circular bound tolerance
19～30	≤0.04
＞30～50	≤0.05
＞50～80	≤0.06
＞80～110	≤0.07

8.2 The radial Circular bound and end surface Circular bound tolerance

Diameter of flange ended ports	Circular bound tolerance
80～95	≤0.080
＞95～230	≤0.100
＞230～450	≤0.125
＞450～780	≤0.160

8.2 Parallelism tolerance of the axis of motor and bottom feet support surface

Frame Size	Parallelism tolerance
80～250	≤0.40
＞250～315	≤0.75
355	≤1.00

9. Under rated voltage, ratio of Stall Torque to Rated Torque Guaranteed Table

<table>
<tr><th rowspan="3">Power
kw</th><th colspan="3">Synchronous Speed (r/min)</th></tr>
<tr><th>3 000</th><th>1 500</th><th>1000</th></tr>
<tr><th colspan="3">Stall Torque / Rated Torque</th></tr>
<tr><td>0.75</td><td>2.3</td><td rowspan="6">2.3</td><td rowspan="15">2.0</td></tr>
<tr><td>1.1</td><td rowspan="5">2.2</td></tr>
<tr><td>1.5</td></tr>
<tr><td>2.2</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td>2.2</td></tr>
<tr><td>5.5</td><td rowspan="10">2.0</td><td rowspan="2">2.0</td></tr>
<tr><td>7.5</td></tr>
<tr><td>11</td><td rowspan="2">2.2</td></tr>
<tr><td>15</td></tr>
<tr><td>18.5</td><td rowspan="5">2.0</td></tr>
<tr><td>22</td></tr>
<tr><td>30</td></tr>
<tr><td>37</td></tr>
<tr><td>45</td></tr>
<tr><td>55</td><td>2.2</td></tr>
<tr><td>75</td><td rowspan="5">1.8</td><td rowspan="8">2.0</td></tr>
<tr><td>90</td></tr>
<tr><td>110</td></tr>
<tr><td>132</td></tr>
<tr><td>160</td><td rowspan="4">1.8</td></tr>
<tr><td>200</td></tr>
<tr><td>250</td><td rowspan="4">1.6</td></tr>
<tr><td>315</td></tr>
<tr><td>355</td><td rowspan="2">1.7</td><td rowspan="2">-</td></tr>
<tr><td>375</td></tr>
</table>

9.1 The guaranteed Table for ratio of Stall Current to Rated Current

Power kw	Synchronous Speed (r/min)		
	3 000	1 500	1 000
	Stall Current / Rated Current		
0.75	7.0	6.6	6.0
1.1	7.3	6.8	6.0
1.5	7.6	7.0	6.5
2.2	7.6	7.6	6.6
3	7.8	7.6	6.8
4	8.3	7.8	6.8
5.5	8.3	7.9	7.0
7.5	7.9	7.5	7.0
11	8.1	7.7	7.2
15	8.1	7.8	7.3
18.5	8.2	7.8	7.3

Power kw	Synchronous Speed (r/min)		
	3 000	1 500	1 000
	Stall Current / Rated Current		
22	8.2	7.8	7.4
30	7.6	7.3	6.9
37	7.6	7.4	7.1
45	7.7	7.4	7.3
55	7.7	7.4	7.3
75	7.1	6.9	6.6
90	7.1	6.9	6.7
110	7.1	7.0	6.7
132	7.1	7.0	6.8
160	7.2	7.1	6.8
200	7.2	7.1	6.8
250	7.2	7.1	6.8
315	7.2	7.1	6.8
355	7.2	7.0	-
375	7.2	7.0	-
Note: Calculated the ratio of stall current to rated current, without taking into account the tolerance.			

10. Electrical Performance

10.1 Electrical Performance Guaranteed Tolerance

NO.	Electrical Performance Term	Tolerance
1	Efficiency (η) Rated Power ≤ 150 kW Rated Power ＞ 150 kW	 -0.15(1- η) -0.10(1- η)
2	Power Factor ($\cos\varphi$)	-(1-$\cos\varphi$)/6, minimum -0.02, maximum -0.07
3	Stall Torque Multiples	Guaranteed value -15%,+25%
4	Minimum Torque Multiples	Guaranteed value -15%
5	Maximum Torque Multiples	Guaranteed value -10%
6	Stall Current Multiples	Guaranteed value +20%
7	Slip Ratio (Under full load and operating temperature) Rated Power ＜ 1 kw Rated Power ≥ 1 kw	 Slip Ratio guaranteed value ±30% Slip Ratio guaranteed value±20%
Slip Ratio guaranteed value =(Synchronous speed－Rated speed (Nameplate value)) / Synchronous speed		

10.2 Motor Stator Winding Temperature Rise

10.2.1 YE3 motor with 155 (F) grade insulation, when the altitude and the ambient air temperature meet the specified value, temperature rise of the motor stator windings (resistance method) assessment by 80K.

10.2.2 If altitude or ambient air temperature is not the same with the provisions, Limits temperature rise should correct by GB 755-2008.

10.2.3 Permissible motor bearing temperature (thermometer method) should not exceed 95 ℃.

10.3 Motor under no-load conditions, frame size ≤315: the motor can withstand the maximum safe operating speed is 1.2 times of rated speed; Frame size 355 motor can withstand maximum speed is 1.2 times of rated speed, with 2 min of overspeed test without harmful deformation.

10.4 Motor stator winding insulation resistance at hot or thermal test, shall be not less than 0.38 MΩ.

10.5 Noise figure A-weighted sound power level of the motor at no load measured is table 1; Motor load measured in A-weighted sound power level is table 2. Noise values of tolerance is + 3 dB (A).

Table 1: No load, maximum A-weighted sound power level value LWA (dB)

Center height mm	Synchronous speed r/min		
	3 000	1 500	1 000
80	62	56	
90	67	59	57
100	74	64	61
112	77	65	65
132	79	71	69
160	81	73	73
180	83	76	73
200	84	76	73
225	86	78	74
250	89	79	76
280	91	80	78
315	92	88	83
355	100	95	85
355_1、355_2	104	102	91

Table 2: Load, A-weighted sound power level of noise allowed maximum increase ΔLWA (dB)

Center height mm	Synchronous speed r/min		
	3 000	1 500	1 000
80≤H≤160	2	5	7
180≤H≤200	2	4	6
225≤H≤280	2	3	6
H=315	2	3	5
H=355	2	2	4

10.6 The motor has a cylindrical shaft, it allow the motor shaft made two when it need, the second shaft can transmit rated power, but only with coupling drive.

10.7 Junction Boxes: Motor has six outlet terminals; the motor Junction boxes located on the top of the chassis (also can customize the side of the chassis). Junction box has one ground terminal, Frame Size≥315 motor is also install a ground terminal on the chassis, with a firm ground symbol.

Table: Outlet Terminal Mark

Stator Windings Name	Outlet Terminal Mark	
	Beginning of Terminal	Ending of Terminal
First Phase	U1	U2
Second Phase	V1	V2
Third Phase	W1	W2

(Depending on the stretch from the main shaft, motor should rotated clockwise)

10.8 During starting, the motor terminal voltage should be not less than 85% of rated voltage. When the load for the fan and pump, rated torque and speed should not more than 35% of the rated torque.

The initial temperature of the motor same with the initial ambient temperature, allowing two consecutive starts, stopped between the two should be naturally. When the initial temperature of the motor is rated load operating temperature, allowing one time starting.

Motor speed ≥ 1500r/min, is not allowed to reverse after the shutdown.

10.9 Shaft of the motor and the flat keys add rubber sleeve rust protection, motor packaging moisture-proof bags.

11. Converter Fed Application

YE3 motors are suitable for pumps, fans, compressors, textile machine and mechanical machine applications where variable or constant speed is required. The design standard is GB/T 20161-2008 (IEC 60034-17).

Note:

In application where the motor is driven by a converter, the degree of electrical interference depends on the type of converter used (type, number of IGBTs, interference suppression measures, and manufacturer), cabling, distance and application requirements. The installation guidelines of the converter manufacturer with regards to electromagnetic compatibility must be considered at all times during the design and implementation phases.

When motor operating with a constant load by a speed lower than 50% of rated speed, External seperately driven fan.

Operating characteristics and operating performance of low-power inverter-driven induction motor drive system is constrained by the entire system, including the power supply system, inverter, induction motor, mechanical shaft and a control device. Each part has many types of technology; some of the standard quantitative values are only indicative performance.

Table：The allowed maximum safe operating speed of YE3 motors shows the diagram

Frame No.	2 Pole		4 Pole		6 Pole	
	Max.rpm	Max. Hz	Max.rpm	Max. Hz	Max.rpm	Max. Hz
80-112	5200	87	3600	120	2400	120
132-180	4500	75	2700	90	2400	120
200	4500	75	2300	90	1800	70
255-355	3600	60	2300	77	1400	70