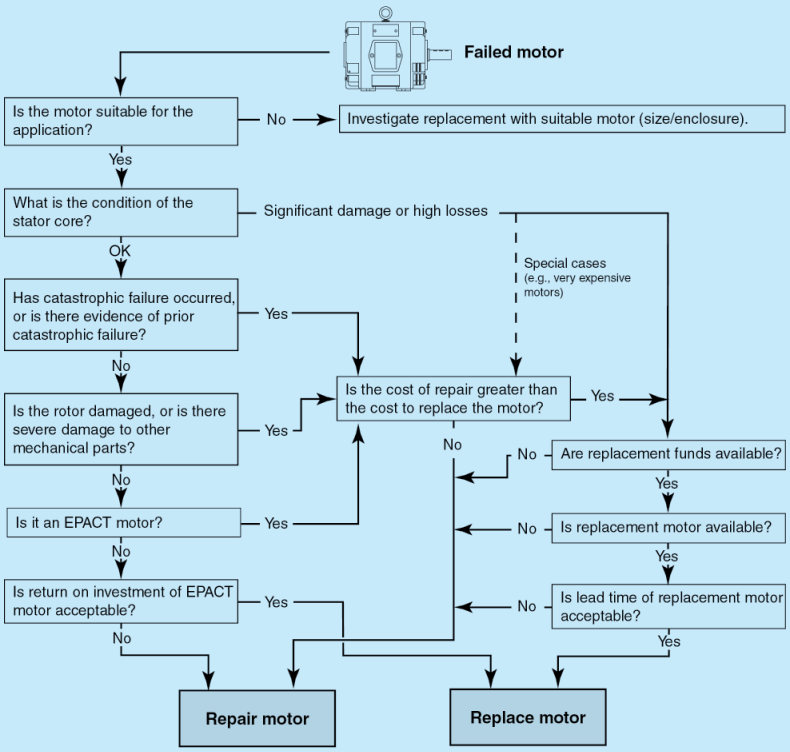
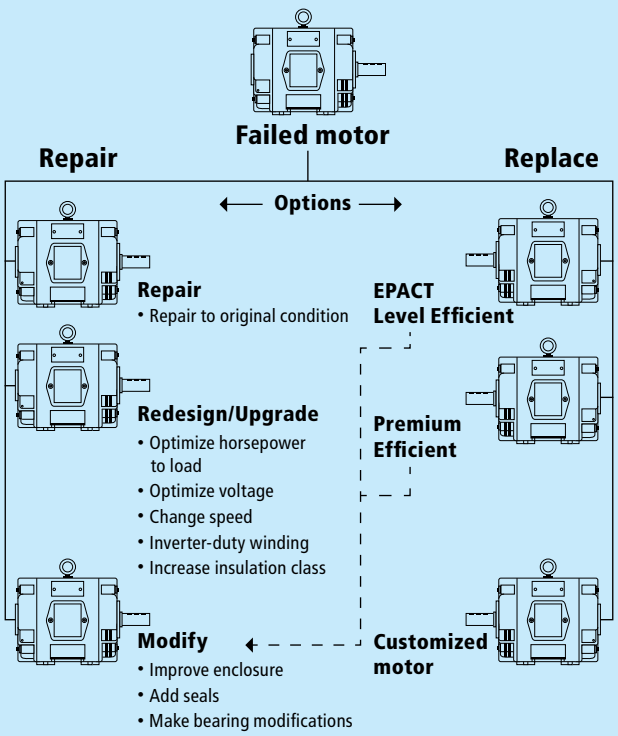
REPAIR OR REPLACE MOTOR DECISION PROCESS



- Additional considerations include increased reliability, life expectancy and benefits of additional features, upgrades or modifications.

REPAIR OR REPLACE MOTOR OPTIONS



Motor Amps @ Full Load*

hp	Alternating Current		DC	hp	Alternating Current		DC
	Single-Phase	3-Phase			Single-Phase	3-Phase	
1/2	4.9	2.0	2.7	25	-	60	92
1	8.0	3.4	4.8	30	-	75	110
1-1/2	10.0	4.8	6.6	40	-	100	146
2	12.0	6.2	8.5	50	-	120	180
3	17.0	8.6	12.5	60	-	150	215
5	28	14.4	20	75	-	180	268
7-1/2	40	21.0	29	100	-	240	355
10	50	26.0	38	125	-	300	443
15	-	38.0	56	150	-	360	534
20	-	50.0	74	200	-	480	712

* Baseline only; varies by manufacturer.

Values are for all speeds and frequencies @ 230 volts. Amperage other than 230 volts can be figured:

$$A = \frac{230 \text{ X Amp from Table}}{\text{New Voltage}}$$

Example:

For 60 hp, 3 phase @ 550 volts: $\frac{(230 \text{ X } 150)}{550} = 62$ amps.

Power Factor estimated @ 80% for most motors. Efficiency is usually 80-90%.

NEMA Electrical Enclosure Types

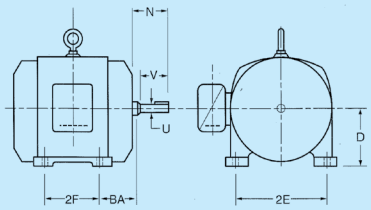
Type	Description
NEMA Type 1 (General Purpose)	For indoor use wherever oil, dust or water is not a problem.
NEMA Type 2 (Driptight)	Used indoors to exclude falling moisture and dirt.
NEMA Type 3 (Weatherproof)	Provides protection against rain, sleet and snow.
NEMA Type 4 (Watertight)*	Needed when subject to great amounts of water from any angle—such as areas which are repeatedly hosed down.
NEMA Type 4x (Corrosion Resistant)	Needed when subject to great amounts of water from any angle—such as areas which are repeatedly hosed down; corrosion resistant.
NEMA Type 5 Dust Tight (Non-Hazardous)	Used for excluding dust. (All NEMA 12 enclosures are usually suitable for NEMA 5 use.)
NEMA Type 9 Dust Tight (Hazardous)**	For locations where combustible dusts are present.
NEMA Type 12 (Industrial Use)	Used for excluding oil, coolant, flying dust, lint, etc.

* Not designed to be submerged.
** Class II Groups E, F and G.

Information used with permission of ABB Motors and Mechanical Inc.

AC Critical Motor Mounting Dimensions

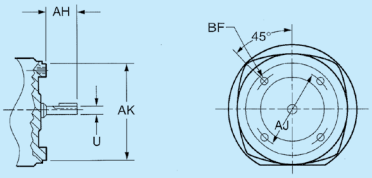
48-449T FRAMES



Frame Size	2F	BA	N		V	U	2E	D
			TEFC/TENV	XP				
48	2.75	2.50	1.56	1.56	1.50	0.500	4.24	3.00
56	3.00	2.75	1.94	1.94	1.88	0.625	4.88	3.50
143T	4.00	2.25	2.31	2.31	2.25	0.875	5.50	3.50
145T	5.00	2.75	2.31	2.31	2.25	0.875	5.50	3.50
182T	4.50	2.75	3.00	2.81	2.50	1.125	7.50	4.50
184T	5.50	2.75	3.00	2.81	2.50	1.125	7.50	4.50
213T	5.50	3.50	3.62	3.44	3.12	1.375	8.50	5.25
215T	7.00	3.50	3.62	3.44	3.12	1.375	8.50	5.25
254T	8.25	4.25	4.12	4.06	3.75	1.625	10.00	6.25
256T	10.00	4.25	4.12	4.06	3.75	1.625	10.00	6.25
284T	9.50	4.75	5.00	4.69	4.38	1.875	11.00	7.00
284TS	9.50	4.75	3.62	3.31	3.00	1.625	11.00	7.00
286T	11.00	4.75	5.00	4.69	4.38	1.875	11.00	7.00
286TS	11.00	4.75	3.62	3.31	3.00	1.625	11.00	7.00
324T	10.50	5.25	5.62	5.62	5.00	2.125	12.50	8.00
324TS	10.50	5.25	4.12	4.12	3.50	1.875	12.50	8.00
326T	12.00	5.25	5.62	5.62	5.00	2.125	12.50	8.00
326TS	12.00	5.25	4.12	4.12	3.50	1.875	12.50	8.00
364T	11.25	5.88	6.25	6.00	5.62	2.375	14.00	9.00
364TS	11.25	5.88	4.12	3.88	3.50	1.875	14.00	9.00
365T	12.25	5.88	6.25	6.00	5.62	2.375	14.00	9.00
365TS	12.25	5.88	4.12	3.88	3.50	1.875	14.00	9.00
404T	12.25	6.63	7.50	7.50	7.00	2.875	16.00	10.00
404TS	12.25	6.63	4.50	4.50	4.00	2.125	16.00	10.00
405T	13.75	6.63	7.50	7.50	7.00	2.875	16.00	10.00
405TS	13.75	6.63	4.50	3.50	4.00	2.125	16.00	10.00
444T	14.50	7.50	8.94	8.94	8.25	3.375	18.00	11.00
444TS	14.50	7.50	5.19	5.19	4.50	2.375	18.00	11.00
445T	16.50	7.50	8.94	8.94	8.25	3.375	18.00	11.00
445TS	16.50	7.50	5.19	5.19	4.50	2.375	18.00	11.00
447T	20.00	7.50	8.50	8.50	8.25	3.375	18.00	11.00
447TS	20.00	7.50	4.75	4.75	4.50	2.375	18.00	11.00
449T	25.00	7.50	8.50	8.50	8.25	3.375	18.00	11.00
449TS	25.00	7.33	4.75	4.75	4.50	2.375	18.00	11.00

Note: Dimensions are for estimating purposes only.

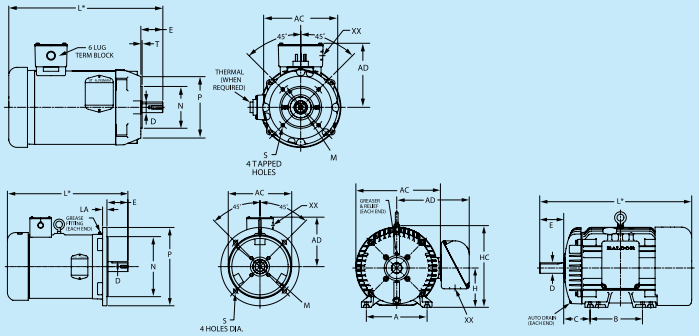
C-FACE 56C-365TC

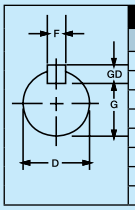


Frame Size	AH	AJ	AK	BF	No.	Depth	U	Key Sq.	Key Length
56C	2.06	5.88	4.500	3/8-16	4	0.56	0.625	0.188	1.25
143-145TC	2.12	5.88	4.500	3/8-16	4	0.56	0.875	0.188	1.25
182-184TC	2.62	7.25	8.500	1/2-13	4	0.75	1.125	0.250	1.75
213-215TC	3.12	7.25	8.500	1/2-13	4	0.75	1.375	0.312	2.38
254-256TC	3.75	7.25	8.500	1/2-13	4	0.75	1.625	0.375	2.88
284-286TC	4.38	9.00	10.500	1/2-13	4	0.75	1.875	0.500	3.25
324-326TC	5.00	11.00	12.500	5/8-11	4	0.94	2.125	0.500	3.88
364-365TC	5.62	11.00	12.500	5/8-11	4	0.94	2.375	0.625	4.25

Note: Dimensions are for estimating purposes only.

Information used with permission of ABB Motors and Mechanical Inc.





Key and Keyseat Dimensions										
Frame	D	G	F	GD	Frame	D	G	F	GD
63	11	8.5	4	4	180	48	42.5	14	9
71	14	11	5	5	200	55	49	16	10
80	19	15.5	6	6	225	60	53	18	11
90	24	20	8	7	250	70	67.5	20	12
100	28	24	8	7	280	80	71	22	14
112	28	24	8	7	315	85	76	22	14
132	38	33	10	8	355	85	76	22	14
160	42	37	12	8					

Drawings represent standard TEFC general purpose motors.

*Dimensions are for reference only.

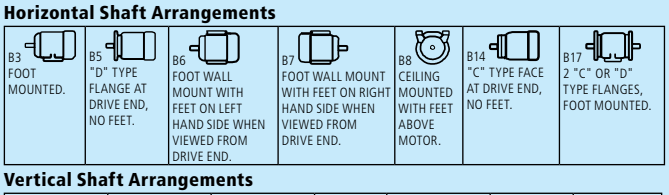
L dimension not designated by IEC

IEC QUICK REFERENCE CHART

IEC Frame	Type	Foot Mounting				Shaft		B5 Flange						B14 Face					General				
		A	B	C	H	D	E	LA	M	N	P	S	T	M	N	P	S	T	L	AC	AD	HC	XX
63	300	100 3.937	80 3.150	40 1.570	63 2.480	11 .433	23 .906	8 .313	115 4.528	95 3.740	140 5.512	9 .354	3 .118	75 2.953	60 2.362	90 3.540	M5	2.5 0.98	*	119 4.690	102 4 116d 4.567d	121 4.760 136d 5.375d	13 .500 22d .880d
71	300 400	112 4.409	90 3.543	45 1.770	71 2.800	14 .551	30 1.181	8 .313	130 5.118	110 4.331	160 6.299	10 .393	3.5 .138	85 3.347	70 2.756	105 4.130	M6	2.5 .098	*	119 4.690 145d 5.690d	102 4	131 5.140 149d 5.880d	18 .690 21d .844d
80	400 500	125 4.921	100 3.937	50 1.969	80 3.150	19 .748	40 1.575	13 .500	165 6.496	130 5.118	200 7.874	11 .430	3.5 .138	100 3.937	80 3.150	120 4.724	M6	3 .118	*	145 5.690 168d 6.614d	116 4.510 130 5.120	152 6 162d 6.380d	22 .880 21d .844d
90	S L	140 5.511	100 3.937 125 4.921	56 2.205	90 3.543	24 .945	50 1.969	13 .500	165 6.496	130 5.118	200 7.874	12 .472	3.5 .138	115 4.530	95 3.740	140 5.512	M8	3 .118	*	168 6.614 144d 5.687d	130 5.120 107d 4.250d	173 6.810 165d 6.531d	22 .880 21d .844d
100	S L	160 6.300	112 4.409 140 5.512	63 2.480	100 3.937	28 1.102	60 2.362	14 .562	215 8.465	180 7.087	250 9.840	14 .560	4 .160	130 5.108	110 4.331	160 6.299	M8	3.5 .138	*	200 7.875	149 5.875 153d 6.060d	180 7.906 239d 9.440d	27 1.062
112	S M	190 7.480	114 4.488 140 5.512	70 2.760	112 4.409	28 1.102	60 2.362	14 .562	215 8.465	180 7.087	250 9.840	14 .560	4 .160	130 5.108	110 4.331	160 6.299	M8	3.5 .138	*	243 7.875	149 5.875	214 8.437	27 1.062
132	S M	216 8.504	140 5.512 178 7.008	89 3.504	132 5.197	38 1.496	80 3.150	14 .562	265 10.433	230 9.055	300 11.811	14 .560	4 .160	165 6.496	130 5.118	200 7.874	M8	3.5 .138	*	243 9.562	187 7.375	256 10.062	27 1.062
160	M L	254 10	210 8.268 254 10	108 4.252	160 6.299	42 1.654	110 4.331	20 .787	300 11.811	250 9.842	350 13.780	19 .748	5 .200	215 8.465	180 7.087	250 9.840	M12	4 .160	*	329 12.940	242 9.510	329 12.940	35 1.375
180	M L	279 10.984	241 9.488 279 10.984	121 4.764	180 7.087	48 1.890	110 4.331	20 .787	300 11.811	250 9.842	350 13.780	19 .748	5 .200						*	395 15.560	333 13.120	372 14.640	51 2.008
200	L M	318 12.520	267 10.512 305 12.008	133 5.236	200 7.874	55 2.165	110 4.331	27 1.062	350 13.780	300 11.811	400 15.748	19 .748	5 .200						*	441 17.375	359 14.125	416 16.375	63 2.500
225	S M	356 14.016	286 11.260 311 12.244	149 5.866	225 8.858	60 2.362	140 5.512	19 .748	400 15.748	350 13.780	450 17.716	19 .748	6 .236						*	495 19.488	383 15.079	483 19.016	63 2.500
250	S M	406 15.984	311 12.244 349 13.740	168 6.614	250 9.843	70 2.756	140 5.512												*	520 20.472	457 17.992	513 20.197	63 2.500
280	S M	457 17.992	368 14.488 419 16.496	190 7.485	280 11.025	80 3.150	170 6.693												*	616 24.252	497 19.567	581 22.874	63 2.500
315	S M	508 20	406 16 457 18	216 8.500	315 12.400	85 3.346	170 6.693												*	759 29.900	683 26.880	682 26.840	102 4
355	S L	610 24	500 19.690 630 24.800	254 10	355 13.980	85 3.346	170 6.693												*	759 29.900	683 26.880	719 28.320	102 4

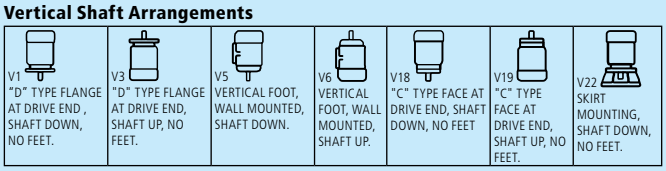
LEGEND
Metric (MM) Dimensions in Black
Inch Dimensions in Gray
d = DC Motors
1 mm = .03937" 1" = 25.40 mm

Horizontal Shaft Arrangements



B3	B5	B6	B7	B8	B14	B17
FOOT MOUNTED.	"D" TYPE FLANGE AT DRIVE END, NO FEET.	FOOT WALL MOUNT WITH FEET ON LEFT HAND SIDE WHEN VIEWED FROM DRIVE END.	FOOT WALL MOUNT WITH FEET ON RIGHT HAND SIDE WHEN VIEWED FROM DRIVE END.	CEILING MOUNTED WITH FEET ABOVE MOTOR.	"C" TYPE FACE AT DRIVE END, NO FEET.	2 "C" OR "D" TYPE FLANGES, FOOT MOUNTED.

Vertical Shaft Arrangements



V1	V3	V5	V6	V18	V19	V22
"D" TYPE FLANGE AT DRIVE END , SHAFT DOWN, NO FEET.	"D" TYPE FLANGE AT DRIVE END, SHAFT UP, NO FEET.	VERTICAL FOOT, WALL MOUNTED, SHAFT DOWN.	VERTICAL FOOT, WALL MOUNTED, SHAFT UP.	"C" TYPE FACE AT DRIVE END, SHAFT DOWN, NO FEET	"C" TYPE FACE AT DRIVE END, SHAFT UP, NO FEET.	SKIRT MOUNTING, SHAFT DOWN, NO FEET.

Reference chart courtesy of ABB Motors and Mechanical Inc.

IP Protection

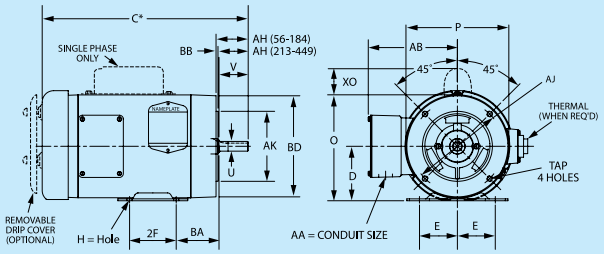
IP22 = Open Drip Proof AC or DC Motors.
IP54 = All standard TEFC AC and DC Motors.
IP55 = All TEFC Chemical Processing, Dirty Duty, and Washdown Duty Motors.

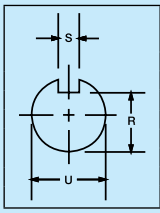
SUMMARY OF IP PROTECTION NUMBERS

First #
Protection Against Solid Objects
IP TESTS
0 NO PROTECTION
1 Protection against solid objects up to 50 mm. (E.G. Accidental touch by hands.)
2 Protection against solid objects up to 12 mm. (E.G. Fingers)
3 Protection against solid objects over 2.5 mm. (E.G. Tools,Wires)
4 Protection against solid objects over 1 mm. (E.G. Tools, Wires, and Small Wires)
5 Protection against dust - limited ingress (No harmful deposits).
6 Totally protected against all dust.

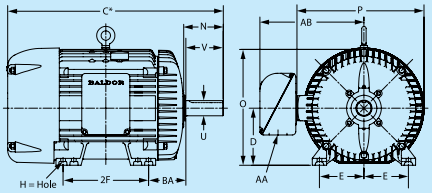
Second #
Protection Against Liquids
0 NO PROTECTION
1 Protection against vertical drops of water. (E.G. Condensation).
2 Protection against falling water up to 15 degrees from the vertical.
3 Protection against falling water up to 60 degrees from the vertical.
4 Protection against splashing water from all directions, limited ingress.
5 Protection against low pressure jets of water from all directions, limited ingress.
6 Protection against strong jets of water. (E.G. Use on ship decks, limited ingress.)
7 Protection against immersion.
8 Protection against submersion.

NEMA Quick Reference





NEMA Shaft	Keyseat Dimensions		NEMA Shaft	Keyseat Dimensions	
(U)	(R)	(S)	(U)	(R)	(S)
3/8	21/64	FLAT	1-7/8	1-19/32	1/2
1/2	29/64	FLAT	2-1/8	1-27/32	1/2
5/8	33/64	3/16	2-3/8	2-1/64	5/8
7/8	49/64	3/16	2-1/2	2-3/16	5/8
1-1/8	63/64	1/4	2-7/8	2-29/64	3/4
1-3/8	1-13/64	5/16	3-3/8	2-7/8	7/8
1-5/8	1-13/32	3/8	3-7/8	3-5/16	1



Drawings represent standard TEFC general purpose motors.

C dimension not designated by NEMA.

* Dimensions are for reference only.

Inch Dimensions

NEMA QUICK REFERENCE CHART

NEMA FRAME	D	E	2F	H	N	O	P	U	V	AA	AB	AH	AJ	AK	BA	BB	BD	XO	TAP
42	2-5/8	1-3/4	1-11/16	9/32 SLOT	1-1/2	5	4-11/16	3/8	1-1/8	3/8	4-1/32	1-5/16	3-3/4	3	2-1/16	1/8	4-5/8	1-9/16	1/4-20
48	3	2-1/8	2-3/4	11/32 SLOT	1-7/8	5-7/8	5-11/16	1/2	1-1/2	1/2	4-3/8	1-11/16	3-3/4	3	2-1/2	1/8	5-5/8	2-1/4	1/4-20
56 56H	3-1/2	2-7/16	3 5	11/32 SLOT	2-7/16 2-1/8	6-7/8	6-5/8	5/8	1-7/8	1/2	5	2-1/16	5-7/8	4-1/2	2-3/4	1/8	6-1/2	2-1/4	3/8-16
143T 145T	3-1/2	2-3/4	4 5	11/32	2-1/2	6-7/8	6-5/8	7/8	2-1/4	3/4	5-1/4	2-1/8	5-7/8	4-1/2	2-1/4	1/8	6-1/2	2-1/4	3/8-16
182 184 182T 184T	4-1/2	3-3/4	4-1/2 5-1/2 4-1/2 5-1/2	13/32	2-11/16 2-11/16 3-9/16 3-9/16	8-11/16	7-7/8	7/8 7/8 1-1/8 1-1/8	2-1/4 2-1/4 2-3/4 2-3/4	3/4	5-7/8	2-1/8 2-1/8 2-5/8 2-5/8	5-7/8 5-7/8 7-1/4 7-1/4	4-1/2 4-1/2 8-1/2 8-1/2	2-3/4	1/8 1/8 1/4 1/4	6-1/2 6-1/2 9 9	2-3/8	3/8-16 3/8-16 1/2-13 1/2-13
213 215 213T 215T	5-1/4	4-1/4	5-1/2 7 5-1/2 7	13/32	3-1/2 3-1/2 3-7/8 3-7/8	10-1/4	9-9/16	1-1/8 1-1/8 1-3/8 1-3/8	3 3 3-3/8 3-3/8	3/4	7-3/8	2-3/4 2-3/4 3-1/8 3-1/8	7-1/4	8-1/2	3-1/2	1/4	9	2-3/4	1/2-13
254U 256U 254T 256T	6-1/4	5	8-1/4 10 8-1/4 10	17/32	4-1/16 4-1/16 4-5/16 4-5/16	12-7/8	12-15/16	1-3/8 1-3/8 1-5/8 1-5/8	3-3/4 3-3/4 4 4	1	9-5/8	3-1/2 3-1/2 3-3/4 3-3/4	7-1/4	8-1/2	4-1/4	1/4	10	—	1/2-13
284U 286U 284T 286T 284TS 286TS	7	5-1/2	9-1/2 11 9-1/2 11 9-1/2 11	17/32	5-1/8 5-1/8 4-7/8 4-7/8 3-3/8 3-3/8	14-5/8	14-5/8	1-5/8 1-5/8 1-7/8 1-7/8 1-5/8 1-5/8	4-7/8 4-7/8 4-5/8 4-5/8 3-1/4 3-1/4	1-1/2	13-1/8	4-5/8 4-5/8 4-3/8 4-3/8 3 3	9	10-1/2	4-3/4	1/4	11-1/4	—	1/2-13
324U 326U 324T 326T 324TS 326TS	8	6-1/4	10-1/2 12 10-1/2 12 10-1/2 12	21/32	5-7/8 5-7/8 5-1/2 5-1/2 3-15/16 3-15/16	16-1/2	16-1/2	1-7/8 1-7/8 2-1/8 2-1/8 1-7/8 1-7/8	5-5/8 5-5/8 5-1/4 5-1/4 3-3/4 3-3/4	2	14-1/8	5-3/8 5-3/8 5 5 3-1/2 3-1/2	11	12-1/2	5-1/4	1/4	13-3/8	—	5/8-11
364U 365U 364T 365T 364TS 365TS	9	7	11-1/4 12-1/4 11-1/4 12-1/4 11-1/4 12-1/4	21/32	6-3/4 6-3/4 6-1/4 6-1/4 4 4	18-1/2	18-1/4	2-1/8 2-1/8 2-3/8 2-3/8 1-7/8 1-7/8	6-3/8 6-3/8 5-7/8 5-7/8 3-3/4 3-3/4	2-1/2	15-1/16	6-1/8 6-1/8 5-5/8 5-5/8 3-1/2 3-1/2	11	12-1/2	5-7/8	/4	13-3/8	—	5/8-11
404U 405U 404T 405T 404TS 405TS	10	8	12-1/4 13-3/4 12-1/4 13-3/4 12-1/4 13-3/4	13/16	7-3/16 7-3/16 7-5/16 7-5/16 4-1/2 4-1/2	20-5/16	20-1/8	2-3/8 2-3/8 2-7/8 2-7/8 2-1/8 2-1/8	7-1/8 7-1/8 7-1/4 7-1/4 4-1/4 4-1/4	3	18	6-7/8 6-7/8 7 7 4 4	11	12-1/2	6-5/8	1/4	13-7/8	—	5/8-11
444U 445U 444T 445T 447T 449T 444TS 445TS 447TS 449TS	11	9	14-1/2 16-1/2 14-1/2 16-1/2 20 25 14-1/2 16-1/2 20 25	13/16	8-5/8 8-5/8 8-1/2 8-1/2 8-15/16 8-15/16 5-3/16 5-3/16 4-15/16 4-15/16	22-7/8 22-7/8 22-7/8 22-7/8 22-15/16 22-15/16 22-7/8 22-7/8 22-15/16 22-15/16	22-3/8 22-3/8 22-3/8 22-3/8 23-3/4 23-3/4 22-3/8 22-3/8 23-3/4 23-3/4	2-7/8 2-7/8 3-3/8 3-3/8 3-3/8 3-3/8 2-3/8 2-3/8 2-3/8 2-3/8	8-5/8 8-5/8 8-1/2 8-1/2 8-1/2 8-1/2 4-3/4 4-3/4 4-3/4 4-3/4	3 4NPT 4NPT	19-9/16 19-9/16 19-9/16 19-9/16 21-11/16 21-11/16 19-9/16 19-9/16 21-11/16 21-11/16	8-3/8 8-3/8 8-1/4 8-1/4 8-1/4 8-1/4 4-1/2 4-1/2 4-1/2 4-1/2	14	16	7-1/2	1/4	16-3/4	—	5/8-11

Slight differences may exist between suppliers.

5000 FRAME	D	E	2F	H	O	P	U	V	AA	AB	BA
5007S	12-1/2	10	22	15/16	26-27/32	30	2-1/2	6-1/2	4-NPT	26-7/8	8-1/2
5007L	12-1/2	10	22	15/16	26-27/32	30	3-7/8	11-1/8	4-NPT	26-7/8	8-1/2
5009S	12-1/2	10	28	15/16	26-27/32	30	2-1/2	6-1/2	4-NPT	26-7/8	8-1/2
5009L	12-1/2	10	28	15/16	26-27/32	30	3-7/8	11-1/8	4-NPT	26-7/8	8-1/2
5011S	12-1/2	10	36	15/16	26-27/32	30	2-1/2	6-1/2	4-NPT	26-7/8	8-1/2
5011L	12-1/2	10	36	15/16	26-27/32	30	3-7/8	11-1/8	4-NPT	26-7/8	8-1/2

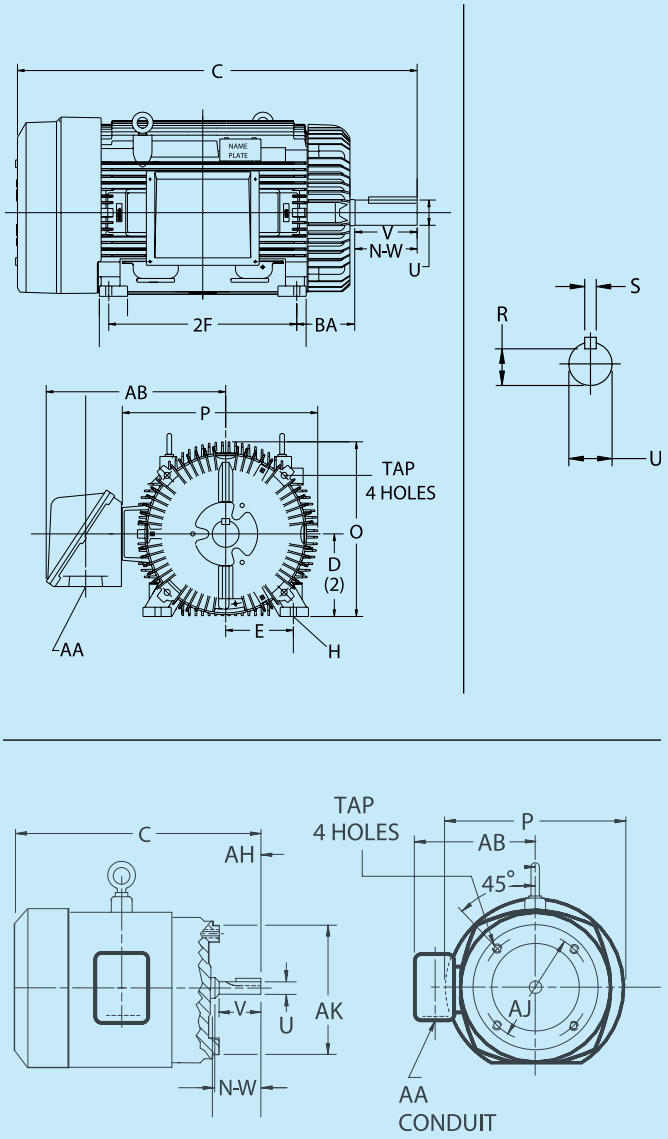
Reference chart courtesy of ABB Motors and Mechanical Inc.

NEMA C-Face	BA Dimensions
143-5TC	2-3/4
182-4TC	3-1/2
213-5TC	4-1/4
254-6TC	4-3/4

Frame	NEMA FRAMES PRIOR TO 1953						
	D	E	F	N	U	V	BA
66	4-1/8	2-15/16	2-1/2	2-1/4	3/4	2-1/4	3-1/8
203	5	4	2-3/4	2-7/16	3/4	2	3-1/8
204			3-1/4				
224	5-1/2	4-1/2	3-3/8	3-1/4	1	3	3-1/2
225			3-3/4				
254	6-1/4	5	4-1/8	3-7/16	1-1/8	3-3/8	4-1/4
284	7	5-1/2	4-3/4	4-1/4	1-1/4	3-3/4	4-3/4
324	8	6-1/4	5-1/4	5-3/8	1-5/8	4-7/8	5-1/4
326			6				
364	9	7	5-5/8	5-5/8	1-7/8/8	5-3/8	5-7/8
365			6-1/8				
404	10	8	6-1/8	6-3/8	2-1/8	6-1/8	6-5/8
405			6-7/8				
444	11	9	7-1/4	7-1/8	2-3/8	6-7/8	7-1/2
445			8-1/4				
504	12-1/2	10	8	8-5/8	2-7/8	8-3/8	8-1/2
505			9				

Motor Frame Dimensions

Frame Size	D	E	2F	H Dia. (4) Holes	U Dia.	BA	V Min.	Key
48	3	2-1/8	2-3/4	11/32	1/2	2-1/2	-	3/64 Flat
56	3-1/2	2-7/16	3	11/32	5/8	2-3/4	-	3/16 x 3/16 x 1-3/8
143T	3-1/2	2-3/4	4	11/32	7/8	2-1/4	2	3/16 x 3/16 x 1-3/8
145T	3-1/2	2-3/4	5	11/32	7/8	2-1/4	2	3/16 x 3/16 x 1-3/8
182T	4-1/2	3-3/4	4-1/2	13/32	1-1/8	2-3/4	2-1/2	1/4 x 1/4 x 1-3/4
184T	4-1/2	3-3/4	5-1/2	13/32	1-1/8	2-3/4	2-1/2	1/4 x 1/4 x 1-3/4
213T	5-1/4	4-1/4	5-1/2	13/32	1-3/8	3-1/2	3-1/8	5/16 x 5/16 x 2-3/8
215T	5-1/4	4-1/4	7	13/32	1-3/8	3-1/2	3-1/8	5/16 x 5/16 x 2-3/8
254U	6-1/4	5	8-1/4	17/32	1-3/8	4-1/4	3-1/2	5/16 x 5/16 x 2-3/4
254T	6-1/4	5	8-1/4	17/32	1-5/8	4-1/4	3-3/4	3/8 x 3/8 x 2-7/8
256U	6-1/4	5	10	17/32	1-3/8	4-1/4	3-1/2	5/16 x 5/16 x 2-3/4
256T	6-1/4	5	10	17/32	1-5/8	4-1/4	3-3/4	3/8 x 3/8 x 2-7/8
284U	7	5-1/2	9-1/2	17/32	1-5/8	4-3/4	4-5/8	3/8 x 3/8 x 3-3/4
284T	7	5-1/2	9-1/2	17/32	1-7/8	4-3/4	4-3/8	1/2 x 1/2 x 3-1/4
284TS	7	5-1/2	9-1/2	17/32	1-5/8	4-3/4	3	3/8 x 3/8 x 1-7/8
286U	7	5-1/2	11	17/32	1-5/8	4-3/4	4-5/8	3/8 x 3/8 x 3-3/4
286T	7	5-1/2	11	17/32	1-7/8	4-3/4	4-3/8	1/2 x 1/2 x 3-1/4
286TS	7	5-1/2	11	17/32	1-5/8	4-3/4	3	3/8 x 3/8 x 1-7/8
324U	8	6-1/4	10-1/2	21/32	1-7/8	5-1/4	5-3/8	1/2 x 1/2 x 4-1/4
324T	8	6-1/4	10-1/2	21/32	2-1/8	5-1/4	5	1/2 x 1/2 x 3-7/8
324TS	8	6-1/4	10-1/2	21/32	1-7/8	5-1/4	3-1/2	1/2 x 1/2 x 2
326U	8	6-1/4	12	21/32	1-7/8	5-1/4	5-3/8	1/2 x 1/2 x 4-1/4
326T	8	6-1/4	12	21/32	2-1/8	5-1/4	5	1/2 x 1/2 x 3-7/8
326TS	8	6-1/4	12	21/32	1-7/8	5-1/4	3-1/2	1/2 x 1/2 x 2
364U	9	7	11-1/4	21/32	2-1/8	5-7/8	6-1/8	1/2 x 1/2 x 5
364US	9	7	11-1/4	21/32	1-7/8	5-7/8	3-1/2	1/2 x 1/2 x 2
364T	9	7	11-1/4	21/32	2-3/8	5-7/8	5-5/8	5/8 x 5/8 x 4-1/4
364TS	9	7	11-1/4	21/32	1-7/8	5-7/8	3-1/2	1/2 x 1/2 x 2
365U	9	7	12-1/4	21/32	2-1/8	5-7/8	6-1/8	1/2 x 1/2 x 5
365US	9	7	12-1/4	21/32	1-7/8	5-7/8	3-1/2	1/2 x 1/2 x 2
365T	9	7	12-1/4	21/32	2-3/8	5-7/8	5-5/8	5/8 x 5/8 x 4-1/4
365TS	9	7	12-1/4	21/32	1-7/8	5-7/8	3-1/2	1/2 x 1/2 x 2
404U	10	8	12-1/4	13/16	2-3/8	6-5/8	6-7/8	5/8 x 5/8 x 5-1/2
404US	10	8	12-1/4	13/16	2-1/8	6-5/8	4	1/2 x 1/2 x 2-3/4
404T	10	8	12-1/4	13/16	2-7/8	6-5/8	7	3/4 x 3/4 x 5-5/8
404TS	10	8	12-1/4	13/16	2-1/8	6-5/8	4	1/2 x 1/2 x 2-3/4
405U	10	8	13-3/4	13/16	2-3/8	6-5/8	6-7/8	5/8 x 5/8 x 5-1/2
405US	10	8	13-3/4	13/16	2-1/8	6-5/8	4	1/2 x 1/2 x 2-3/4
405T	10	8	13-3/4	13/16	2-7/8	6-5/8	7	3/4 x 3/4 x 5-5/8
405TS	10	8	13-3/4	13/16	2-1/8	6-5/8	4	1/2 x 1/2 x 2-3/4
444U	11	9	14-1/2	13/16	2-7/8	7-1/2	8-3/8	3/4 x 3/4 x 7
444US	11	9	14-1/2	13/16	2-1/8	7-1/2	4	1/2 x 1/2 x 2-3/4
444T	11	9	14-1/2	13/16	3-3/8	7-1/2	8-1/4	7/8 x 7/8 x 6-7/8
444TS	11	9	14-1/2	13/16	2-3/8	7-1/2	4-1/2	5/8 x 5/8 x 3
445U	11	9	16-1/2	13/16	2-7/8	7-1/2	8-3/8	3/4 x 3/4 x 7
445US	11	9	16-1/2	13/16	2-1/8	7-1/2	4	1/2 x 1/2 x 2-3/4
445T	11	9	16-1/2	13/16	3-3/8	7-1/2	8-1/4	7/8 x 7/8 x 6-7/8
445TS	11	9	16-1/2	13/16	2-3/8	7-1/2	4-1/2	5/8 x 5/8 x 3



Information used with permission of ABB Motors and Mechanical Inc.

Frame Assignments

hp	Motor Speed, rpm				hp	Motor Speed, rpm			
	3600	1800	1200	900		3600	1800	1200	900
1/8	-	48	-	-	15	254T,256U	254T,284U	284T,284TS,324U	286T,326U
1/6	-	48	-	-	20	256T,286U	256T,286U	286T,286TS,326U	324T,364U
1/4	48	48	48	56	25	284TS,324US	284T,284TS,324U	324T,324TS,364U	326T,365U
1/3	48	48,56	56	56	30	286TS,326US	286T,284TS,326U	326T,326TS,365U	364T,404U
1/2	48,56	48,56	56	56	40	324TS,364US	324T,324TS,364U	354T,404U	365T,405
3/4	56	56	56,143T, 182U	56,145T	50	326TS,365US	326T,326TS,365U	365T,405U	404T
1	56,143T,182U	56,143T,182U	56, 143T, 184U	182T	60	364TS	364T,364TS	404T	405T
1-1/2	56,143T,182U	56,145T,184U	145T, 184U	184T	75	365TS	365T,365TS	405T	444T
2	56,145T,184U	56,145T,184U	184T, 213U	213T	100	405TS	405T,405TS	444T	445T
3	56,145T,182T,184U	182T,213U	213T, 215U	215T,254U	125	444TS	444T,444TS	445T	-
5	184T,213U	184T,215U	215T,254U	254T,256U	150	445TS	445T,445TS	-	-
7-1/2	213T,215U	213T,254U	254T,256U	256T,284U	200	445TS	445T,445TS	-	-
10	215T,254U	215T,256U	256T,284U	284T,286U	250	447TS	447T,447TS	-	-

AC Motor Selection Guide

Date:_____

Service Center:_____ Service Center Contact:_____

Customer:_____

Address:_____

City:_____State:_____Zip:_____

Contact:_____Phone:_____

Fax:_____

E-mail:_____

Application Information

Please describe the application in detail:_____

_____

Application: _____New _____Replacement Why?_____

Speed Required: _____rpm

Torque Required: _____#/in. (if known)

Starting Torque Required: _____#/in. (if known)

Ambient Temp Range: _____˚F to _____˚F

Environment: _____Wet _____Humid _____Dusty/Dirty _____Clean

Chemical Stress: _____No _____Yes Explain_____

Operating Time: _____Hours per Day

Starting Methods: _____Starter _____VFD _____Other Explain_____

Starts/Stops: _____per Hour

Reversing: _____Times per Hour

Brake Required: _____No _____Yes Torque?_____#/ft Where?_____

Size/Space/Weight Limitations: _____No _____Yes Explain_____

Motor Specifications

Electric Motor: _____hp _____rpm _____Frame _____Foot Mount or _____C-Face (check one)

_____Voltage _____Phase _____Full Load Amps

Enclosure: (check one) _____Open Dripproof _____Totally Enclosed-Fan Cooled

_____X-proof (Class & Group?) _____

Spec. Paint or Coating: _____No _____Yes Explain_____

Spec. Lubricant: _____No _____Yes Explain_____

Other Considerations:_____

_____

Speed Reducer / Gearmotor Selection Guide

Date:_____

Service Center:_____ Service Center Contact:_____

Customer:_____

Address:_____

City:_____ State:_____ Zip:_____

Contact:_____ Phone:_____

Fax:_____

E-mail:_____

Application Information

Please describe the application in detail:_____

_____

_____

_____

Application: _____New _____Replacement Why?_____

Speed Required: _____rpm

Torque Required: _____#/in. (if known)

Starting Torque Required: _____#/in. (if known)

Ambient Temp Range: _____˚F to _____˚F

Environment: _____Wet _____Humid _____Dusty/Dirty _____Clean

Chemical Stress: _____No _____Yes Explain_____

Operating Time: _____Hours per Day

Starts/Stops: _____per Hour

Reversing: _____Times per Hour

Brake Required: _____No _____Yes Torque?_____#/ft Where?_____

Size/Space/Weight Limitations: _____No _____Yes Explain_____

Prime Mover

Electric Motor: _____hp _____rpm _____Frame _____Foot Mount or _____C-Face (check one)

_____Voltage _____Phase _____Full Load Amps

Internal Combustion Engine: _____hp or _____Torque _____rpm _____No. of Cylinders

Other: _____hp or _____Torque _____rpm

Continued on next page.

Speed Reducer / Gearmotor Selection Guide

Continued from previous page.

Reducer Information

Ratio:_____

Configuration: (check one)	_____Concentric (in-line)	_____Right Angle	_____Offset Parallel
Mounting Style: (check one)	_____Base (foot)	_____Flanged Output	_____Shaft Mount
	_____Screw Conveyor Drive		
Input Style: (check one)	_____C-Face	_____Input Shaft	_____Integral Motor
Output Style: (check one)	_____Solid Shaft	_____Hollow Shaft	_____Double Extended
Motor Mount: (check one)	_____None Req'd	_____Scoop	_____Top Mount
	_____Motorbase		

Backstop: _____No____Yes Rotation viewing end of L.S. shaft _____CW____CCW

Spec. Paint or Coating: _____No____Yes Explain_____

Spec. Lubricant: _____No____Yes Explain_____

Other Considerations: _____

_____

Sketch existing drive: