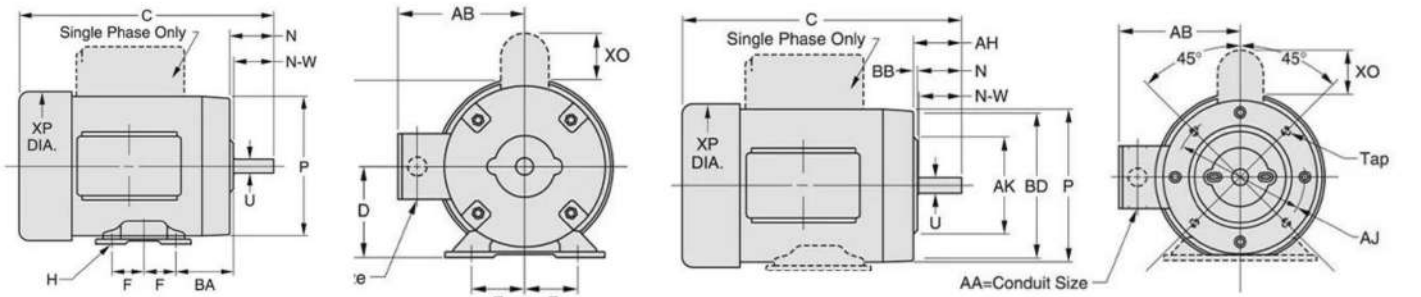


NEMA Quick Reference Motor Data



NEMA Frame Dimensions

NEMA* Frame	D	E	F	H	U	N-W	AH	AJ	AK	BA	BD	XO	TAP	KEY
42	2 5/8	1 3/4	27/32	9/32 SLOT	3/8	1 1/8	1 5/16	3 3/4	3	2 1/16	4 7/8	1 5/8	1/4-20(4)	Size Sq.
48	3	2 1/8	1 3/8	11/32 SLOT	1/2	1 1/2	1 11/16	3 3/4	3	2 1/2	5 1/2	2 1/4	1/4-20(4)	3/64 FLAT
56	3 1/2	2 7/16	1 1/2	11/32 SLOT	5/8	1 7/8	2 1/16	5 7/8	4 1/2	2 3/4	6 1/2	2 1/4	3/8-16(4)	3/16
56H			2 1/2											
143T	3 1/2	2 3/4	2	11/32	7/8	2 1/4	2 1/8	5 7/8	4 1/2	2 1/4	6 1/2	2 1/4	3/8-16(4)	3/16
143T			2 1/2											
182T	4 1/2	3 3/4	2 1/4	13/32	1 1/8	2 3/4	2 5/8	7 1/4	8 1/2	2 3/4	8 1/2	2 1/4	1/2-13(4)	1/4
184T			2 3/4											
213T	5 1/4	4 1/4	2 3/4	13/32	1 3/8	3 3/8	3 1/8	7 1/4	8 1/2	3 1/2	9	2 1/4	1/2-13(4)	5/16
215T			3 1/2											
254T	6 1/4	5	4 1/8	17/32	1 5/8	4	3 3/4	7 1/4	8 1/2	4 1/4	10		1/2-13(4)	3/8
256T			5											
284T			4 3/4											
284TS	7	5 1/2		17/32	1 7/8	4 5/8	4 3/8	9	10 1/2	4 3/4	11 1/4		1/2-13(4)	1/2
286T			5 1/2											
286TS														
324T			5 1/4											
324TS	8	6 1/4		21/32	1 7/8	3 3/4	3 1/2	11	12 1/2	5 1/4	14		5/8-11(4)	1/2
326T			6											
326TS														
364T			5 5/8											
364TS	9	7		21/32	1 7/8	3 3/4	3 1/2	11	12 1/2	5 7/8	14		5/8-11(8)	5/8
365T			6 1/8											
365TS														
404T			6 1/8											
404TS	10	8		13/16	2 1/8	4 1/4	4	11	12 1/2	6 5/8	15 1/2		5/8-11(8)	3/4
405T			6 7/8											
405TS														
444T			7 1/4											
444TS	11	9		13/16	2 3/8	4 3/4	4 1/2	14	16	7 1/2	18		5/8-11(8)	7/8
445T			8 1/4											
445TS			10											
447T			10											
447TS	11	9		13/16	3 3/8	8 1/2	8 1/4	14	16	7 1/2	18		5/8-11(8)	5/8
449T			12 1/2											
449TS			12 1/2											

Fraction/Decimal/Millimeter Conversions

Fraction	Decimal	Millimeter	Fraction	Decimal	Millimeter	Fraction	Decimal	Millimeter
1/64	0.015625	0.397	33/64	0.515625	13.097	1	1.009	
1/32	0.03125	0.794	17/32	0.53125	13.494	2	2.019	
3/64	0.046875	1.191	29/64	0.453125	11.591	3	3.028	
1/16	0.0625	1.588	9/16	0.5625	14.288	4	4.037	
5/64	0.078125	1.984	25/64	0.390625	10.063	5	5.046	
3/32	0.09375	2.381	19/32	0.59375	15.093	6	6.055	
7/64	0.109375	2.778	39/64	0.609375	15.478	7	7.064	
1/8	0.125	3.175	5/8	0.625	15.875	8	8.073	
9/64	0.140625	3.572	43/64	0.671875	17.066	9	9.082	
5/32	0.15625	3.969	21/32	0.65625	16.669	10	10.091	
11/64	0.171875	4.366	49/64	0.765625	19.447	11	11.099	
3/16	0.1875	4.762	11/16	0.6875	17.462	12	12.108	
13/64	0.203125	5.159	45/64	0.703125	17.859	13	13.117	
7/32	0.21875	5.556	23/32	0.71875	18.256	14	14.126	
15/64	0.234375	5.953	47/64	0.734375	18.653	15	15.135	
1/4	0.25	6.350	3/4	0.75	19.050	16	16.144	
17/64	0.265625	6.747	49/64	0.765625	19.447	17	17.153	
9/32	0.28125	7.144	25/32	0.78125	19.844	18	18.162	
19/64	0.296875	7.541	53/64	0.828125	21.041	19	19.171	
5/16	0.3125	7.938	13/16	0.8125	20.638	20	20.180	
21/64	0.328125	8.334	59/64	0.921875	23.416	21	21.189	
11/32	0.34375	8.731	27/32	0.84375	21.431	22	22.198	
23/64	0.359375	9.128	55/64	0.859375	21.828	23	23.199	
3/8	0.375	9.525	7/8	0.875	22.225	24	24.199	
25/64	0.390625	9.922	57/64	0.890625	22.622	25	25.200	
13/32	0.40625	10.319	29/32	0.90625	23.019	26	26.200	
27/64	0.421875	10.716	59/64	0.921875	23.416	27	27.200	
7/16	0.4375	11.113	15/16	0.9375	23.812	28	28.200	
29/64	0.453125	11.509	63/64	0.953125	24.209	29	29.200	
15/32	0.46875	11.906	31/32	0.96875	24.606	30	30.200	
17/32	0.5203125	13.200	63/64	0.984375	25.003	31	31.200	
1/2	0.50	12.700	1	1.00	25.400	32	32.200	

Effect of Voltage on Performance of Induction Motors

Characteristic	Voltage 100%	Voltage 95%
Starting Torque	Up 21%	Down 15%
Maximum Torque	Up 15%	Down 10%
Power Factor	Down 10-15%	Up 10-15%
Efficiency, Full Load	Down 0.5%	Down 0.5%
1/2 Load	Down 0.5%	Down 0.5%
Power Factor, Full Load	Down 0.5%	Down 0.5%
1/2 Load	Down 0.5%	Down 0.5%
Starting Current	Down 10-15%	Down 10-15%
Full Load Temperature Rise	Up 10%	Down 10-15%
Maximum Overload Capacity	Up 10%	Down 10-15%
Magnetic Noise	Up 10%	Down 10-15%

IEC/NEMA Comparison

Dimensions in Millimeter										kW/HP** Frame Assignments			
IEC	NEMA	H	A	B	K	D	C	E	N/W	3 Phase – TEFC	4 Pole	6 Pole	
56	NA	56	90	71	5.8	9	36	20	3 Pole				
63		63	100	80	7	11	40	23	25kW	18kW			
		48	67	68.8	62.9	7.1	35	22.4	28.6	1/3 HP	1/4 HP		
71		71	112	90	7	14	45	30	35	3			
		42	76.2	108	69.8	8.7	12.7	63.5	38.1	3/4	1/2		
80		80	125	100	8	16	50	40	44	1.1	1.1		
56		88.9	125	100	8	16	50.8	60.9	47.8	1 1/2	1	5/4 kW	
90		90	140	100	9	18	56	50	55	1.5	1.5		
143T		88.9	190	101.6	8.7	22.2	57.2	57.2	2	1 1/2	1		
145T		90	140	125	10	24	56	50	55	2.2	1.5	1.1	
180L		90	180	132	12	27.2	57.2	57.2	3	2	2	1 1/2	
100L		100	160	140	12	28	63	43	3	2.2	1.5		
									4	3	2		
112L		112	190	114	12	38	70	60	3	7.2	1.5		
182T		112	190.5	114.2	14	38	69.9	5	5	3	1		
112M		112	190	140	12	39	70	60	3.7	4	1.5		
184T		114.3	190.5	139.7	10.4	28.6	69.9	69.9	5	5.4/5			
132S		132	216	140	12	38	89	80	7.5	9.5			
218T		132.1	215.9	139.2	14	38	88.9	80	10	7.2/2			
132M		132	216	178	12	39	89	80		7.5	9.5		
218T		133.4	215.9	177.8	10.4	34.9	88.9	85.9		10	7.1/2		
160M*		160	254	210	15	42	108	110	15	11	7.5		
254T		158.8	254	203.2	15	42	106	102.6	20	10	7.5		
160L*		160	254	254	15	42	108	110	18.5	15	11		
256T		158.8	254	254	15.3	43.9	108	101.6	25	20	15		
180M*		180	279	341	15	48	121	110	22	38.5			
284T		177.8	279.4	341.3	15.6	48	120.7	114	25	38			
180L*		180	279	294	16	48	121	130	22	22	15		
284T		186.7	279.4	279.4	13.5	47.6	120.7	117.2	30	30	20		
200M*		200	318	267	19	55	133	110	30				
324T		201.2	317.5	266.7	19.5	55	132.4	110	33.4	40			
200L*		200	318	305	19	55	133	110	30	37	22		
326T		201.2	317.5	304.8	16.7	54	133.4	133.4	50	50	30		
225S*		225	355	286	19	60	140	140	37	30	30		
364T		225.4	355.2	285.6	16.7	60.3	140.4	140.4	50/75	50	30		
225M*		225	356	311	17	60	140	140	45	37			
365T		228.6	356	311.2	16.7	60.3	140.4	140.4	60/75	60/75	50		
250M*		250	400	340	24	68	160	140	40	40	30		
401T		254	406.4	340.3	20.6	73	166.4	144	75/100	75/100			
280S*		280	457	368	24	75	190	180	50		43		
444T		289.4	457.2	368.3	20	85.7	190.5	215.9			60/100		
380M*		289.4	457	419	24	75	190	140	50				
445T		298.4	457.2	419.1	20.6	86.7	190.5	215.9			75/125		