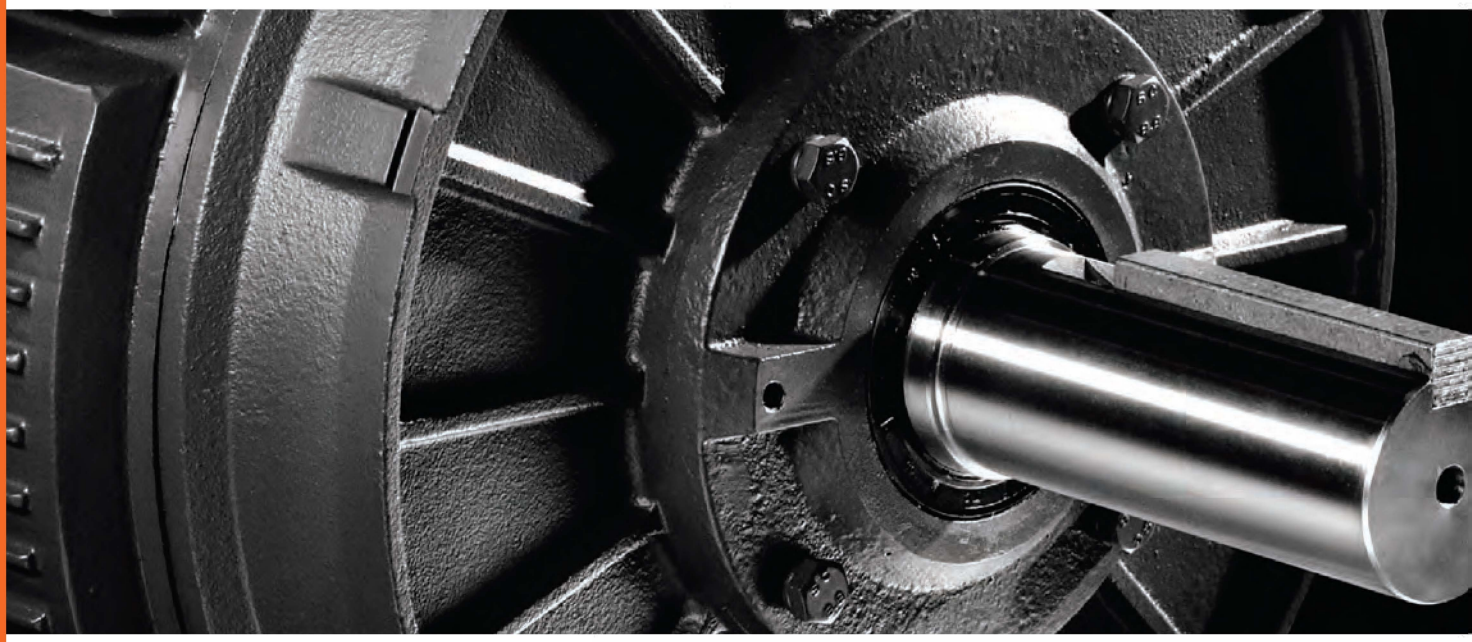
TECHTOP



Catalogue



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MOVE FORWARD. FASTER.

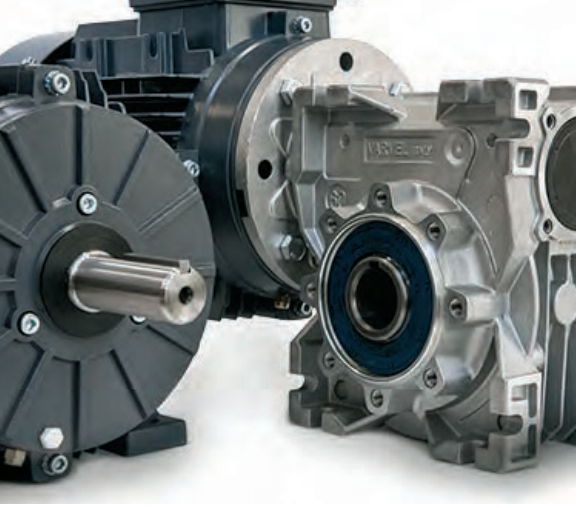
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TECHTOP
TECHTOPCANADA.COM

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A Message from the President of Techtop Canada

Thanks for your support

In 2017 we celebrated our 34th year in business, first as Maple Leaf Drives, and since 2013 as Techtop Canada. In that time, we've grown our team and product line, expanded across Canada, and made a lot of new friends along the way. And we're just getting started.

We'll soon have some exciting new products we can't wait to share with you. We've also refreshed the look of our brand and refined our message, all while staying committed to knowledge, integrity, and great customer service.

If you're a long-time customer of Techtop Canada, we can't thank you enough for your support. If you're a new customer, welcome! We look forward to getting to know you better. If these past years have taught us anything, it's that people—our customers, our suppliers and our team—make all the difference.

We look forward to working with you for another 30 years, or more!

Best regards,

Joe Kelly, President

TECHTOP

The Story of Techtop China

The little motor company that could.

It's 1985—Nintendo makes its American debut, Michael Jordan is named Rookie of the Year and, on the southeast coast of China, Yin Lin, a new father and Operations Manager at a local motor company, builds his first motor in the loft of his home in an effort to pay off his son's medical bills. What started as a modest way to supplement his family's income has grown into a global enterprise and a leader in the electric motor market.

Now headquartered in Shanghai and still a family-owned company, Techtop has thrived under the same principles that guided Lin over three decades ago: an uncompromising commitment to quality, innovation, value, and perseverance. It's performance, not cost, that drives their manufacturing, and it's this old-fashioned approach, combined with modern ingenuity, that has made Techtop one of the largest exporters in China, and the world's premier aluminum motor manufacturer.

Together with its partners in the USA, Canada, Italy, Spain, Germany, the UK, Holland, Dubai, Singapore and Australia, Techtop continues to challenge the industry and keep the competition on its toes with higher standards, thoughtful design, feature-rich products, and knowledgeable service.

With a humble origin behind them and a bright future ahead, their story makes two things clear: You can't keep a good idea down, and you can't top a Techtop.

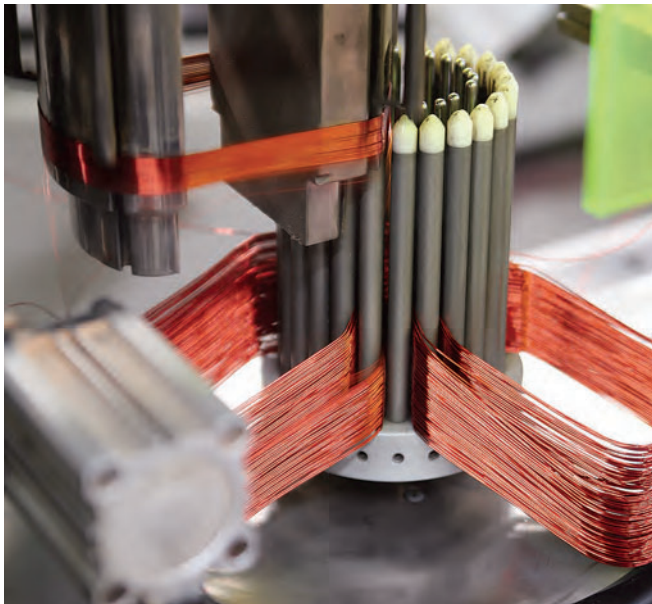


Yin Lin, Founder of Techtop











Shane Hickey, VP & Joe Kelly, President











The Story of Techtop Canada

A business that's powered by people.

At the same time Yin Lin was starting Techtop, Joe Kelly was building his business from the basement of his Mississauga, Ontario home. A regional wholesaler that brought US products to the Canadian market, Maple Leaf Drives (MLD) enjoyed significant growth until the early 2000s when the US corporations it represented expanded north of the border. Facing a shrinking product list, Joe began searching for a like-minded business he could connect with. He found that connection with Techtop.

It was a natural partnership: Both are family-owned, both value knowledge, integrity, and clarity, and both were born from a passion, vision and drive to create something better. In four short years, Techtop shifted its role from primary supplier to part-owner of MLD, purchasing a 50% stake in the business. In 2013, MLD changed its name to Techtop Canada Inc. and each year has been better than the last.

It's not just the great products that are behind their success—it's the people, too. Everyone at Techtop Canada understands that openness and unity are key to creating a dynamic and ethical work environment, where passion is greater than profit, and ethics trump ego. To them, the old saying "Business is business, it's not personal" doesn't ring true. They believe that good business relationships rely on the power of personal connections, and that individual contributions, together with a conviction to do what's right, form the foundation of their company. At Techtop Canada, business is personal.

Learn more at TechtopCanada.com

NEMA MOTORS

GENERAL PURPOSE MOTORS

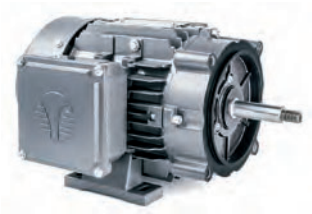


THREE PHASE

- 1/4 - 250HP
- 2, 4 and 6 Pole
- 56C - 449T
- TEFC

See pages 2-17

PUMP MOTORS



THREE PHASE

- 1/3 - 75HP
- 2, 4 and 6 Pole
- 56J - 365JM/JP
- TEFC
- 300 Series SS Shaft

See pages 18-31

BRAKE MOTORS



THREE PHASE

- 1/3 - 10HP
- 2, 4 and 6 Pole
- 56C - 215T
- TEFC
- DC Brake

See pages 32-38

GENERAL PURPOSE MOTORS



SINGLE PHASE

- 1/4 - 2HP
- 2 and 4 Pole
- 56 - 56H
- TEFC

See pages 39-42

FARM DUTY MOTORS



SINGLE PHASE

- 1/3 - 10HP
- 4 Pole
- 56 - 215T
- TEFC
- Manual Reset O/L

See pages 43-46

PERMANENT MAGNET DC MOTORS



PM DC

- 1/8 - 3HP
- 4 Pole
- 90 and 180VDC
- TEFC
- TENV

See pages 47-49



IEC MOTORS

GENERAL PURPOSE MOTORS



THREE PHASE

- 0.09 - 160kW
- 2, 4 and 6 Pole
- 56-80/90S-315L Frame
- TEFC

See pages 54-63

BRAKE MOTORS

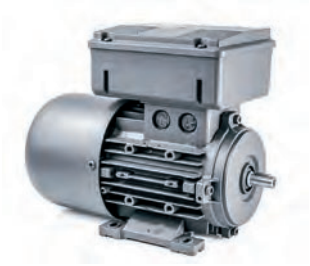


THREE PHASE

- 0.09 - 7.5kW
- 2, 4 and 6 Pole
- 63 - 132M Frame
- TEFC
- DC Brake

See pages 64-68

SINGLE PHASE MOTORS



HIGH TORQUE

- 0.09 - 2.2kW
- 2 and 4 Pole
- 56 - 100L Frame
- TEFC
- Mechanical Switch

See pages 69-72

GEARING

VARVEL
MOTION CONTROL SINCE 1955
EXCLUSIVE SUPPLIER



RT RIGHT ANGLE WORM GEAR REDUCERS

- Sizes RT28 - RT110
- Inch and Metric Options
- Aluminum & Cast Iron
- Power Ratings 0.12-10HP
- Ratios 5:1 - 10,000:1

See pages 76-80



RD HELICAL INLINE GEAR REDUCERS

- Sizes RD0 - RD6
- Inch and Metric Shafts
- Aluminum & Cast Iron
- Power Ratings 0.12-30HP
- Ratios 2.5:1 - 630:1

See pages 81-83



XA HELICAL PRE-STAGE GEAR REDUCERS

- Sizes XA63-XA100
- Single Stage Reducer
- Power Ratings 0.12-5HP
- Ratios 3.4:1 - 8.4:1

See page 84



RP FARM FEEDING AUGER REDUCERS

- Size RP90
- Power Ratings 0.25-2HP
- Ratios 4.71:1 -7:1
- Single or Double Hole Shafts
- Output Torque to 310 in-lbs

See page 85

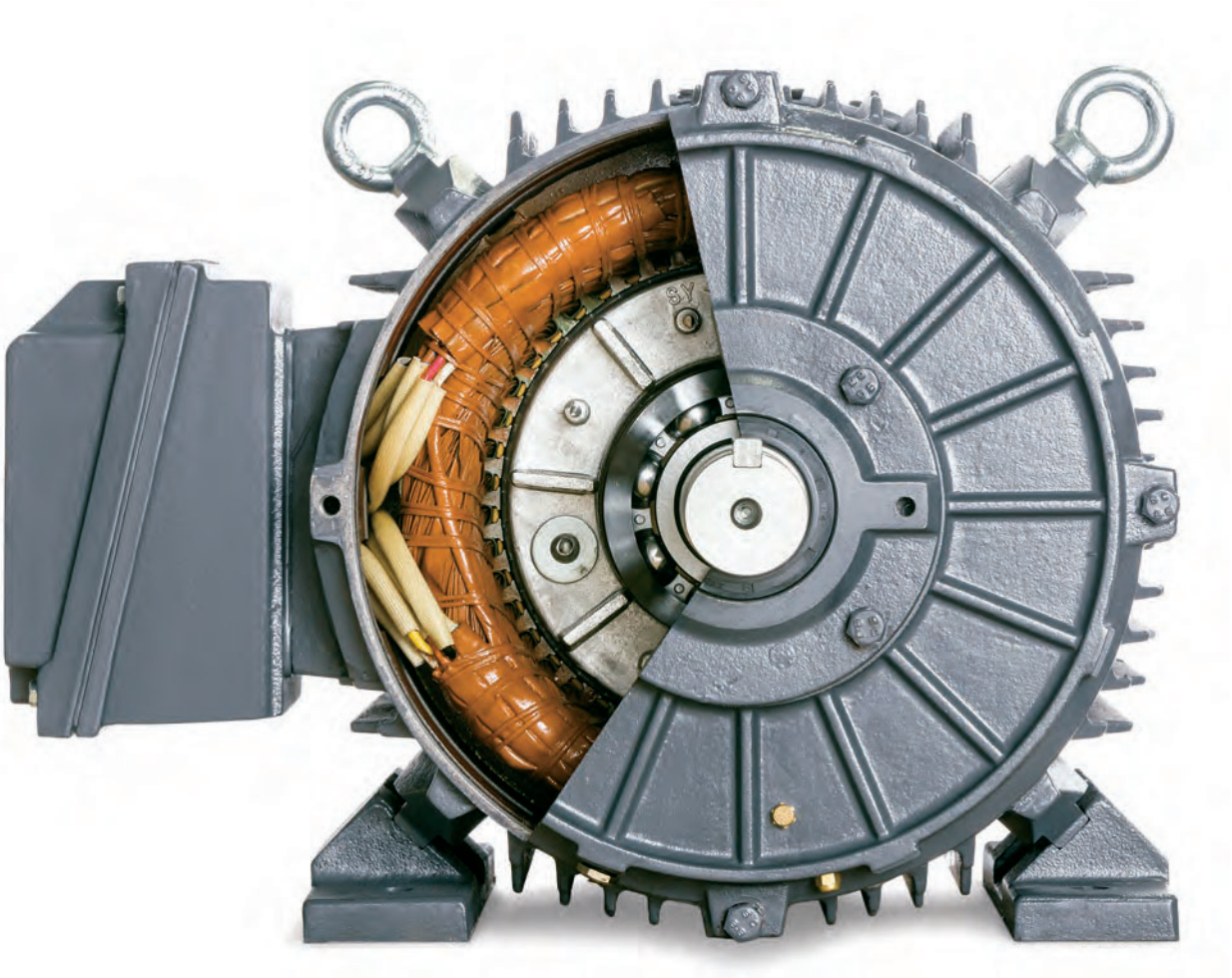


VS MECHANICAL VARIATORS

- Sizes VS63-VS112
- Power Ratings 0.33-5HP
- 5:1 Variable Speed Range

See page 86

When you need it: **efficient**
durable
reliable
affordable
right away



ECOTOP PREMIUM EFFICIENT

WATERPROOF RATED IP55

INVERTER DUTY 15:1 CT

You can't top a TECHTOP

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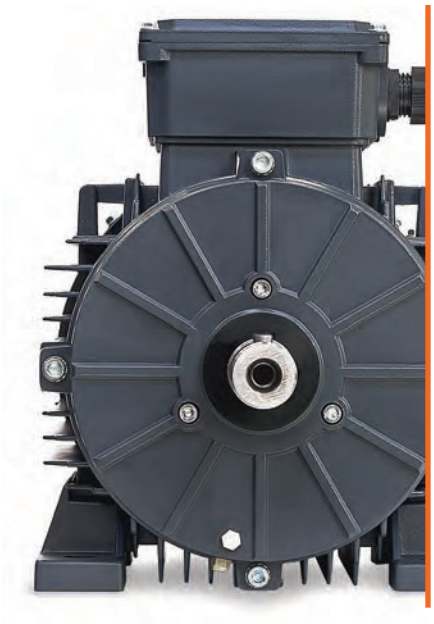
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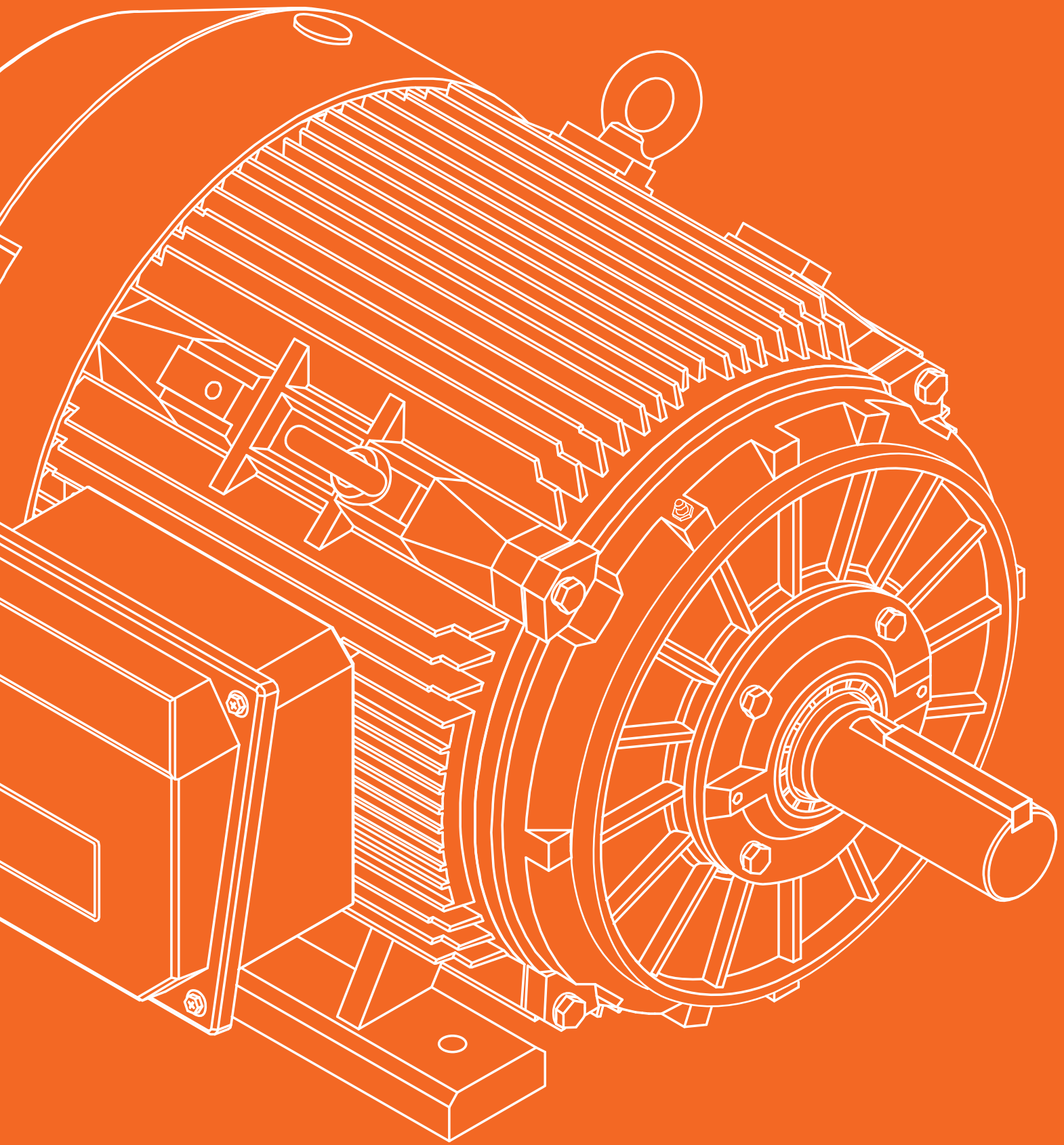
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NEMA

PREMIUM PERFORMANCE

LOW VOLTAGE ELECTRIC MOTORS

TECHTOP

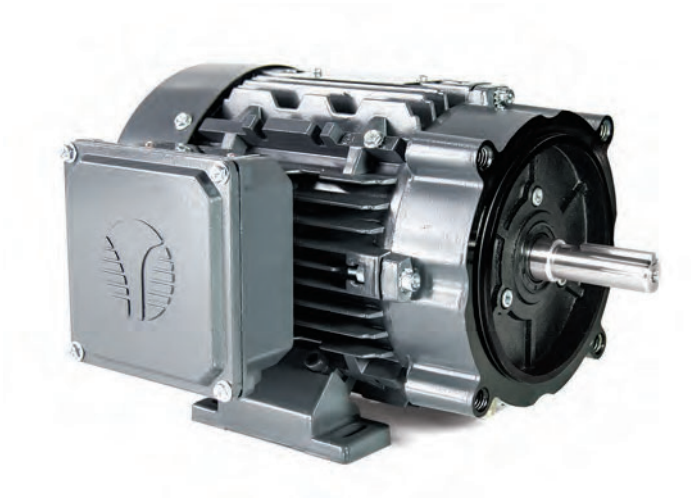
EPACT 56C ALUMINUM MOTORS

1/3 - 3HP, EPACT RATED, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Lightweight three phase, enhanced performance cast aluminum 56C frame NEMA design B motors. Features a multi-mount arrangement incorporating bolt on feet with 56C mount configuration. 2 and 4 pole, 1/3 to 3HP, ideal applications include packaging, conveying, blowers, etc.



BASIC SPECIFICATIONS

- Power Ratings from 1/3 to 3HP
- Three Phase, 2 and 4 pole, 60Hz
- 208-230/460V & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.15 Service Factor with 60Hz operation
- 24 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flanges
- Class I, Division II, Groups A, B, C and D compliant
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- Dual oversized shielded bearings size 6204ZZ
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

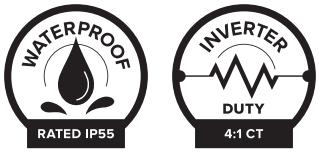
- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 4:1 Constant Torque, 10:1 Variable Torque (1.0 S.F. on VFD Power). Meets NEMA MG 1 part 30 standards



C SA US 224693 CE

PURCHASING DATA

56C Frame Foot-Mount — **NEMA EPAct Efficiency**

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
					208V	230V	460V	575V				
1/3	**BLA.332[ ]-C**	TFA561/3U2B	3600	56C	1.35	1.46	0.73	0.58	62.0	17.0	11.5	$278
	BLA.334[ ]-C	TFA561/3U4B	1800	56C	1.5	1.7	0.85	0.58	63.7	17.4	11.5	$270
1/2	**BLA.502[ ]-C**	TFA561/2U2B	3600	56C	1.8	1.9	0.95	0.76	66.5	17.4	11.5	$293
	BLA.504[ ]-C	TFA561/2U4B	1800	56C	1.9	2.08	1.04	0.83	70.6	18.3	11.5	$285
3/4	**BLA.752[ ]-C**	TFA563/4U2B	3600	56C	2.5	2.56	1.28	1.0	70.0	19.0	11.5	$311
	BLA.754[ ]-C	TFA563/4U4B	1800	56C	2.6	2.76	1.38	1.1	74.8	20.3	11.5	$309
1	**BLA0002[ ]-C**	TFA561U2B	3600	56C	3.1	3.18	1.59	1.27	76.8	20.3	11.5	$326
	BLA0004[ ]-C	TFA561U4B	1800	56C	3.3	3.24	1.62	1.3	78.5	22.3	11.5	$349
1.5	**BLA0012[ ]-C**	TFA561.5U2B	3600	56C	4.3	4.2	2.1	1.68	81.3	22.5	11.5	$341
	BLA0014[ ]-C	TFA561.5U4B	1800	56C	4.65	4.5	2.25	1.8	82.0	26.0	11.5	$389
2	**BLA0022[ ]-C**	TFA562U2B	3600	56C	5.6	5.48	2.74	2.19	83.8	26.5	11.5	$356
	BLA0024[ ]-C	TFA562U4B	1800	56C	6.25	6.06	3.03	2.42	83.0	30.2	11.5	$429
3	**BLA0032[ ]-C**	TFA563U2B	3600	56C	8.1	7.64	3.82	3.05	85.0	30.4	11.5	$433

Voltage: Replace [ ] with D for 208-230/460V, or F for 575V

DIMENSIONAL DRAWINGS

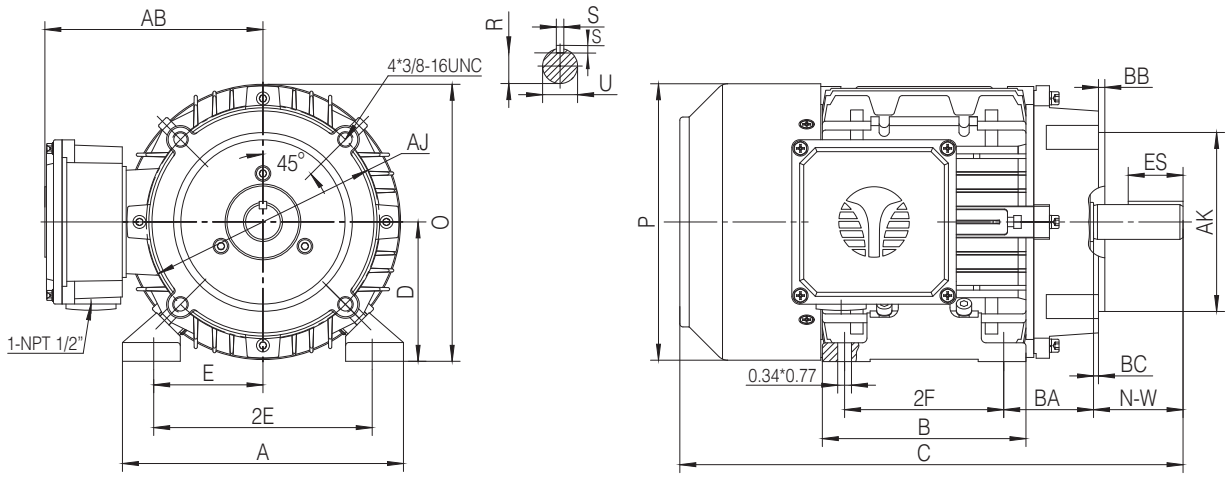


Figure 1 - Foot Mount, C-Faced

Dimensions are in **inches**

NEMA Frame	Foot Mounting						Shaft					General					NEMA C-Flange			
	E	2E	2F	A	B	BA*	N-W	U	S	R	ES	C	D	O	P	AB	AJ	AK	BB	BC
56C	2.44	4.88	3.0	6.3	3.85	2.75	1.88	0.625	0.188	0.517	1.41	11.5	3.5	6.6	6.2	5.2	5.875	4.5	0.16	0.19

*Non-standard NEMA BA dimension for c-flanged models

EPACT 56C ALUMINUM MOTORS

1/3 - 3HP, EPACT RATED, THREE PHASE, TEFC

TECHTOP

HIGH EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/3	3600	56C	3470	62.0	0.69	1.35	1.46	0.73	0.58	L	17.0	6204ZZ		11.5
	1800	56C	1725	63.7	0.58	1.5	1.7	0.85	0.58	K	17.4	6204ZZ		11.5
1/2	3600	56C	3470	66.5	0.73	1.8	1.9	0.95	0.76	K	17.4	6204ZZ		11.5
	1800	56C	1725	70.6	0.63	1.9	2.08	1.04	0.83	J	18.3	6204ZZ		11.5
3/4	3600	56C	3470	70.0	0.77	2.5	2.56	1.28	1.0	K	19.0	6204ZZ		11.5
	1800	56C	1725	74.8	0.67	2.6	2.76	1.38	1.1	J	20.3	6204ZZ		11.5
1	3600	56C	3470	76.8	0.77	3.1	3.18	1.59	1.27	K	20.3	6204ZZ		11.5
	1800	56C	1725	78.5	0.74	3.3	3.24	1.62	1.3	H	22.3	6204ZZ		11.5
1.5	3600	56C	3470	81.3	0.81	4.3	4.2	2.1	1.68	K	22.5	6204ZZ		11.5
	1800	56C	1725	82.0	0.75	4.65	4.5	2.25	1.8	H	26.0	6204ZZ		11.5
2	3600	56C	3470	83.8	0.82	5.6	5.48	2.74	2.19	K	26.5	6204ZZ		11.5
	1800	56C	1725	83.0	0.75	6.25	6.06	3.03	2.42	J	30.2	6204ZZ		11.5
3	3600	56C	3470	85.0	0.85	8.1	7.64	3.82	3.05	K	30.4	6204ZZ		11.5

READY TO ORDER?

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or visit **TechtopCanada.com**

PRODUCT OVERVIEW

Lightweight three phase, Premium Efficient cast aluminum 56C frame NEMA design B motors. Features a multi-mount arrangement incorporating bolt on feet with 56C mount configuration. 2, 4 and 6 pole, 1/4 to 5HP, ideal applications include packaging, conveying, blowers, etc.



BASIC SPECIFICATIONS

- Power Ratings from 1/4 to 5HP
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 208-230/460V & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flanges
- Class I, Division II, Groups A, B, C and D compliant
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- Dual oversized shielded bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 15:1 CT

224693 · CC096A

PREMIUM 56C ALUMINUM MOTORS

1/4 - 5HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PURCHASING DATA

56C Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
					208V	230V	460V	575V				
1/4	**BLA.254[ ]P-C**	TXA561/4U4B	1800	56C	1.05	1.1	0.55	0.44	70.0	14.9	11.5	$307
	BLA.256[ ]P-C	TXA561/4U6B	1200	56C	1.01	1.02	0.51	0.41	72.0	15.8	11.5	$451
1/3	**BLA.332[ ]P-C**	TXA561/3U2B	3600	56C	1.22	1.24	0.62	0.50	72.0	14.9	11.5	$325
	BLA.334[ ]P-C	TXA561/3U4B	1800	56C	1.30	1.34	0.67	0.53	74.0	15.8	11.5	$316
	BLA.336[ ]P-C	TXA561/3U6B	1200	56C	1.37	1.38	0.69	0.55	73.0	17.4	11.5	$473
1/2	**BLA.502[ ]P-C**	TXA561/2U2B	3600	56C	1.71	1.74	0.87	0.70	74.0	15.5	11.5	$342
	BLA.504[ ]P-C	TXA561/2U4B	1800	56C	1.76	1.80	0.90	0.72	78.5	17.7	11.5	$333
	BLA.506[ ]P-C	TXA561/2U6B	1200	56C	1.87	1.86	0.93	0.74	75.5	20.3	11.5	$492
3/4	**BLA.752[ ]P-C**	TXA563/4U2B	3600	56C	2.38	2.40	1.20	0.96	77.0	17.1	11.5	$364
	BLA.754[ ]P-C	TXA563/4U4B	1800	56C	2.48	2.50	1.25	0.99	81.5	20.2	11.5	$362
	BLA.756[ ]P-C	TXA563/4U6B	1200	56HC	2.58	2.56	1.28	1.02	81.5	30.8	13.6	$545
1	**BLA0002[ ]P-C**	TXA561U2B	3600	56C	3.10	3.10	1.55	1.24	79.0	18.2	11.5	$382
	BLA0004[ ]P-C	TXA561U4B	1800	56C	3.18	3.18	1.59	1.28	85.5	25.7	11.5	$409
	BLA0006[ ]P-C	TXA561U6B	1200	56HC	3.36	3.26	1.63	1.30	82.5	36.5	13.6	$605
1.5	**BLA0012[ ]P-C**	TXA561.5U2B	3600	56C	4.20	3.90	1.95	1.56	84.0	24.1	11.5	$399
	BLA0014[ ]P-C	TXA561.5U4B	1800	56HC	4.40	4.26	2.13	1.70	86.5	34.5	13.6	$486
2	**BLA0022[ ]P-C**	TXA562U2B	3600	56C	5.50	5.24	2.62	2.09	85.5	26.5	11.5	$417
	BLA0024[ ]P-C	TXA562U4B	1800	56HC	5.91	5.72	2.86	2.29	86.5	39.5	13.6	$514
3	**BLA0032[ ]P-C**	TXA563U2B	3600	56HC	7.86	7.26	3.63	2.90	86.5	38.0	13.6	$562
	BLA0034[ ]P-C	TXA563U4B	1800	L56HC	8.65	8.22	4.11	3.29	89.5	43.9	14.3	$756
5	**BLA0052[ ]P-C**	TXA565U2B	3600	L56HC	13.0	12.1	6.05	4.83	88.5	42.6	14.3	$788

Voltage: Replace [ ] with D for 208-230/460V, or F for 575V

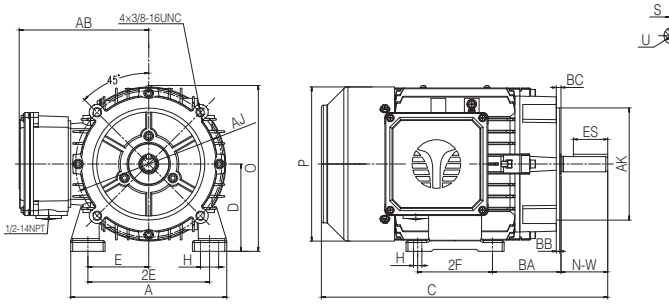


Figure 1 - Foot Mount, 56C

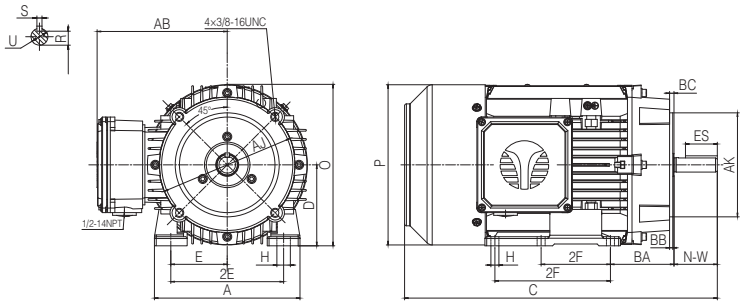


Figure 2 - Foot Mount, 56HC

Dimensions are in **inches**

NEMA Frame	Foot Mounting						Shaft					General					NEMA C-Flange			
	E	2E	2F	A	BA*	H	N-W	U	S	R	ES	C	D	O	P	AB	AJ	AK	BB	BC
56C	2.44	4.88	3.0	6.3	2.75	0.34*0.77	1.875	0.625	0.1875	0.517	1.41	11.5	3.5	6.65	6.2	5.2	5.875	4.5	0.16	0.19
56HC	2.44	4.88	3.0/5.0	6.3	2.75	0.34*0.77	1.875	0.625	0.1875	0.517	1.41	13.6	3.5	7.0	6.95	5.65	5.875	4.5	0.16	0.19
L56HC	2.44	4.88	3.0/5.0	6.3	2.75	0.34*0.77	1.875	0.625	0.1875	0.517	1.41	14.3	3.5	7.0	6.95	5.65	5.875	4.5	0.16	0.19

*Non-standard NEMA BA dimension for c-flanged models

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/4	1800	56C	1750	70.0	0.58	1.05	1.10	0.55	0.44	K	14.9	6204ZZ		11.5
	1200	56C	1150	72.0	0.61	1.01	1.02	0.51	0.41	J	15.8	6204ZZ		11.5
1/3	3600	56C	3520	72.0	0.70	1.22	1.24	0.62	0.50	M	14.9	6204ZZ		11.5
	1800	56C	1750	74.0	0.63	1.30	1.34	0.67	0.53	K	15.8	6204ZZ		11.5
	1200	56C	1150	73.0	0.62	1.37	1.38	0.69	0.55	J	17.4	6204ZZ		11.5
1/2	3600	56C	3490	74.0	0.72	1.71	1.74	0.87	0.70	L	15.5	6204ZZ		11.5
	1800	56C	1750	78.5	0.66	1.76	1.80	0.90	0.72	L	17.7	6204ZZ		11.5
	1200	56C	1140	75.5	0.66	1.87	1.86	0.93	0.74	H	20.3	6204ZZ		11.5
3/4	3600	56C	3500	77.0	0.75	2.38	2.40	1.20	0.96	L	17.1	6204ZZ		11.5
	1800	56C	1750	81.5	0.68	2.48	2.50	1.25	0.99	L	20.2	6204ZZ		11.5
	1200	56HC	1160	81.5	0.66	2.58	2.56	1.28	1.02	J	30.8	6205ZZ		13.6
1	3600	56C	3490	79.0	0.77	3.10	3.10	1.55	1.24	K	18.2	6204ZZ		11.5
	1800	56C	1745	85.5	0.69	3.18	3.18	1.59	1.28	L	25.7	6204ZZ		11.5
	1200	56HC	1145	82.5	0.70	3.36	3.26	1.63	1.30	H	36.5	6205ZZ		13.6
1.5	3600	56C	3500	84.0	0.84	4.20	3.90	1.95	1.56	M	24.1	6204ZZ		11.5
	1800	56HC	1745	86.5	0.75	4.40	4.26	2.13	1.70	L	34.5	6205ZZ		13.6
2	3600	56C	3500	85.5	0.84	5.50	5.24	2.62	2.09	L	26.5	6204ZZ		11.5
	1800	56HC	1740	86.5	0.76	5.91	5.72	2.86	2.29	L	39.5	6205ZZ		13.6
3	3600	56HC	3490	86.5	0.88	7.86	7.26	3.63	2.90	K	38.0	6205ZZ		13.6
	1800	L56HC	1730	89.5	0.75	8.65	8.22	4.11	3.29	H	43.9	6205ZZ		14.3
5	3600	L56HC	3500	88.5	0.87	13.0	12.1	6.05	4.83	J	42.6	6205ZZ		14.3

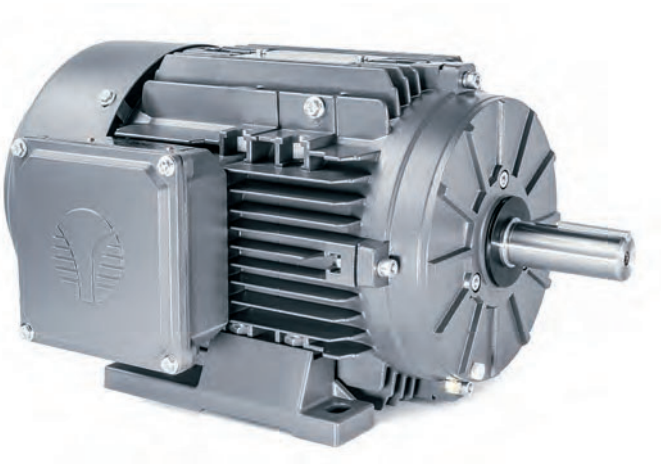
PREMIUM T-FRAME ALUMINUM MOTORS

1 - 15HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PRODUCT OVERVIEW

Three phase, enhanced performance cast aluminum, premium efficient NEMA design B motors. Features a multi-mount arrangement incorporating bolt on feet or flange mount configuration. 2, 4 and 6 pole, 1 to 15HP, ideal for when “lighter” weight is advantageous.



BASIC SPECIFICATIONS

- Power Ratings from 1 to 15HP
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flange kits available
- Compact lightweight design
- CSA Certified for Class I, Division II, Groups A, B, C and D / Class I, Zone 2, Groups IIC, IIB, IIA
- Anti-microbial (tropicalization) on stator winding
- Shielded bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 15:1 CT

C SA US 224693 · SA Energy Verified Only · CE · c UL us · ee CC096A · NEMA Premium®

PURCHASING DATA

143T - 215T Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price		
					208V	230V	460V	575V				Rigid	C-Flange	D-Flange
1	**GRA0002[ ]-01**	TXA143T1U2B	3600	143T	3.1	3.12	1.56	1.29	77.0	22.0	13.7	$442	$482	$545
	GRA0004[ ]-01	TXA143T1U4B	1800	143T	3.1	2.98	1.49	1.19	85.5	28.0	13.7	$422	$462	$525
	GRA0006[ ]-01	TXA145T1U6B	1200	145T	3.36	3.26	1.63	1.3	82.5	34.5	13.7	$475	$515	$578
1.5	**GRA0012[ ]-01**	TXA143T1.5U2B	3600	143T	4.2	4.12	2.06	1.64	84.0	25.0	13.7	$444	$484	$547
	GRA0014[ ]-01	TXA145T1.5U4B	1800	145T	4.48	4.36	2.18	1.73	86.5	34.5	13.7	$459	$499	$562
	GRA0016[ ]-01	TXA182T1.5U6B	1200	182T	4.76	4.64	2.32	1.86	87.5	39.5	16.1	$560	$618	$721
2	**GRA0022[ ] -01**	TXA145T2U2B	3600	145T	5.58	5.18	2.59	2.07	85.5	29.5	13.7	$492	$532	$595
	GRA0024[ ]-01	TXA145T2U4B	1800	145T	5.95	5.58	2.79	2.23	86.5	39.5	13.7	$491	$531	$594
	GRA0026[ ]-01	TXA184T2U6B	1200	184T	6.36	6.26	3.13	2.5	88.5	62.0	16.1	$656	$714	$817
3	**GRA0032[ ]S-01**	TXA145T3U4B	3600	145T	7.86	7.26	3.63	2.9	86.5	38.0	13.7	$584	$601	$687
	GRA0032[ ]-01	TXA182T3U2B	3600	182T	7.77	7.17	3.59	2.87	86.5	50.0	16.1	$651	$709	$812
	GRA0034[ ]-01	TXA182T3U4B	1800	182T	8.03	7.62	3.81	3.05	89.5	62.0	16.1	$639	$697	$800
	GRA0036[ ]-01	TXA213T3U6B	1200	213T	9.23	8.58	4.29	3.48	89.5	73.5	19.0	$901	$990	$1,106
5	**GRA0052[ ]-01**	TXA184T5U2B	3600	184T	12.7	11.5	5.77	4.61	88.5	62.0	16.1	$714	$772	$875
	GRA0054[ ]-01	TXA184T5U4B	1800	184T	13.2	12.4	6.18	4.94	89.5	73.5	16.1	$721	$779	$882
	GRA0056[ ]-01	TXA215T5U6B	1200	215T	15.4	14.2	7.11	5.69	89.5	113.0	19.0	$1,175	$1,264	$1,380
7.5	**GRA0072[ ]S-01**	TXA184T7.5U2B	3600	184T	18.9	17.1	8.55	6.84	89.5	75.0	16.1	$926	$954	$1,087
	GRA0072[ ]-01	TXA213T7.5U2B	3600	213T	18.7	17.0	8.48	6.78	89.5	95.0	19.0	$1,003	$1,092	$1,208
	GRA0074[ ]-01	TXA213T7.5U4B	1800	213T	19.2	17.7	8.86	7.08	91.7	113.0	19.0	$1,017	$1,106	$1,222
10	**GRA0102[ ]-01**	TXA215T10U2B	3600	215T	25.8	22.6	11.3	9.07	90.2	115.0	19.0	$1,150	$1,239	$1,355
	GRA0104[ ]-01	TXA215T10U4B	1800	215T	26.3	23.9	12.0	9.55	91.7	131.0	19.0	$1,163	$1,252	$1,368
15	**GRA0152[ ]S-01**	TXA215T15U2B	3600	215T	35.6	33.0	16.5	13.2	91.0	135.0	19.0	$1,825	$1,914	$2,030

Voltage: Replace [ ] with D for 230/460V, or F for 575V

Flange: Add "-TC" to the end of Model for C-Flange or "-TD" for D-Flange

For Flange Kits refer to Motor Accessories on page 50

DIMENSIONAL DRAWINGS

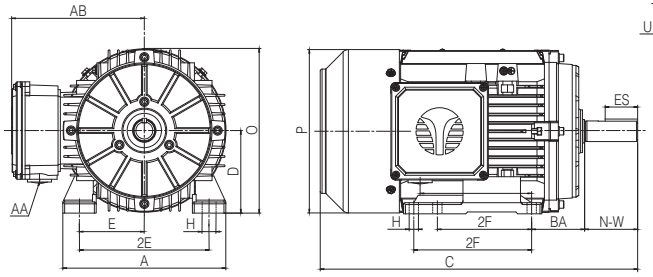


Figure 1 - Foot Mount, 140T

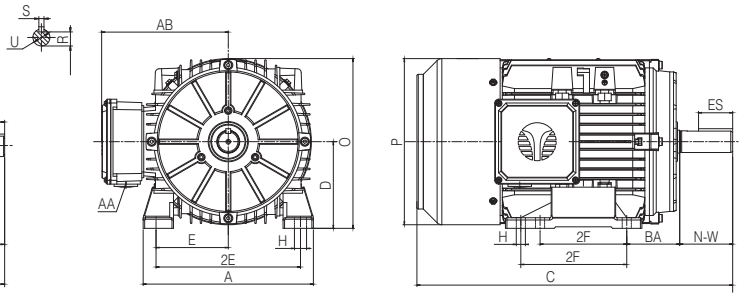
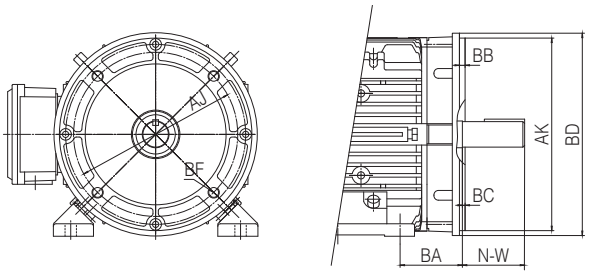


Figure 2 - Foot Mount, 180T/210T

Dimensions are in **inches**

NEMA Frame	Foot Mounting					Shaft					General					
	E	2E	2F	H	BA	N-W	U	S	R	ES	A	C	D	P	AA	AB
143T	2.75	5.5	4.0/5.0	0.34 *0.5	2.25	2.25	0.875	0.1875	0.771	1.41	6.9	13.7	3.5	6.95	1-NPT 3/4"	5.65
145T																
182T	3.75	7.5	4.5/5.5	0.59 *0.43	2.75	2.75	1.125	0.25	0.986	1.78	8.85	16.1	4.5	8.65	1-NPT 3/4"	6.6
184T																
213T	4.25	8.5	5.5/7.0	0.59 *0.43	3.5	3.375	1.375	0.312	1.201	2.41	10.3	19.0	5.25	10.3	1-NPT 1"	7.4
215T																

Figure 3 - C-Flange

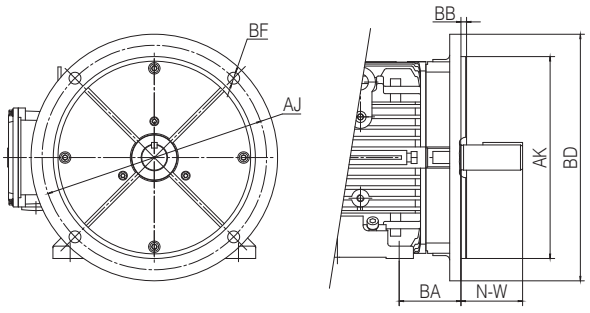


Dimensions are in **inches**

NEMA Frame	NEMA C-Flange							
	AJ	AK	BA*	BB	BC	BD	BF	N-W
143TC	5.875	4.5	2.25	0.16	0.125	6.5	4*3/8-16UNC	2.25
145TC								
182TC	7.25	8.5	2.75	0.25	0.125	8.95	4*1/2-13UNC	2.75
184TC								
213TC	7.25	8.5	3.5	0.25	0.25	9.0	4*1/2-13UNC	3.38
215TC								

*Non-standard NEMA BA dimension for c-flanged models

Figure 4 - D-Flange



Dimensions are in **inches**

NEMA Frame	NEMA D-Flange							
	AJ	AK	BA*	BB	BC	BD	BF	N-W
143TD	10.0	9.0	2.25	0.25	--	11.0	4*0.53	2.25
145TD								
182TD	10.0	9.0	2.75	0.25	--	11.0	4*0.53	2.75
184TD								
213TD	10.0	9.0	3.5	0.25	--	11.0	4*0.53	3.38
215TD								

*Non-standard NEMA BA dimension for d-flanged models

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)					Rated Torque (%FL)			Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT	BDT	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1	3600	143T	3490	77.0	0.80	3.1	3.12	1.56	1.29	K	240%	330%	22.0	6205ZZ		13.7
	1800	143T	1730	85.5	0.74	3.1	2.98	1.49	1.19	K	220%	270%	28.0	6205ZZ		13.7
	1200	145T	1145	82.5	0.70	3.36	3.26	1.63	1.3	H	210%	250%	34.5	6205ZZ		13.7
1.5	3600	143T	3500	84.0	0.80	4.2	4.12	2.06	1.64	L	310%	350%	25.0	6205ZZ		13.7
	1800	145T	1740	86.5	0.74	4.48	4.36	2.18	1.73	K	310%	350%	34.5	6205ZZ		13.7
	1200	182T	1175	87.5	0.68	4.76	4.64	2.32	1.86	L	260%	360%	39.5	6306ZZ	6206ZZ	16.1
2	3600	145T	3500	85.5	0.85	5.58	5.18	2.59	2.07	L	280%	360%	29.5	6205ZZ		13.7
	1800	145T	1740	86.5	0.78	5.95	5.58	2.79	2.23	K	280%	300%	39.5	6205ZZ		13.7
	1200	184T	1175	88.5	0.68	6.36	6.26	3.13	2.50	L	270%	350%	62.0	6306ZZ	6206ZZ	16.1
3	3600	145T	3490	86.5	0.88	7.86	7.26	3.63	2.9	K	320%	330%	38.0	6205ZZ		13.7
	3600	182T	3515	86.5	0.89	7.77	7.17	3.59	2.87	K	460%	330%	50.0	6306ZZ	6206ZZ	16.1
	1800	182T	1760	89.5	0.81	8.03	7.62	3.81	3.05	L	290%	380%	62.0	6306ZZ	6206ZZ	16.1
	1200	213T	1175	89.5	0.71	9.23	8.58	4.29	3.48	K	250%	340%	73.5	6308ZZ	6208ZZ	19.0
5	3600	184T	3510	88.5	0.91	12.7	11.5	5.77	4.61	L	280%	380%	62.0	6306ZZ	6206ZZ	16.1
	1800	184T	1750	89.5	0.84	13.2	12.4	6.18	4.94	L	250%	360%	73.5	6306ZZ	6206ZZ	16.1
	1200	215T	1170	89.5	0.73	15.4	14.2	7.11	5.69	J	240%	320%	113.0	6308ZZ	6208ZZ	19.0
7.5	3600	184T	3510	89.5	0.90	18.9	17.1	8.55	6.84	L	330%	390%	75.0	6306ZZ	6206ZZ	16.1
	3600	213T	3520	89.5	0.91	18.7	17.0	8.48	6.78	K	210%	320%	95.0	6308ZZ	6208ZZ	19.0
	1800	213T	1765	91.7	0.85	19.2	17.7	8.86	7.08	L	260%	380%	113.0	6308ZZ	6208ZZ	19.0
10	3600	215T	3520	90.2	0.92	25.8	22.6	11.3	9.07	L	250%	350%	115.0	6308ZZ	6208ZZ	19.0
	1800	215T	1760	91.7	0.86	26.3	23.9	12.0	9.55	L	270%	380%	131.0	6308ZZ	6208ZZ	19.0
15	3600	215T	3530	91.0	0.92	35.6	33.0	16.5	13.2	L	360%	470%	135.0	6308ZZ	6208ZZ	19.0

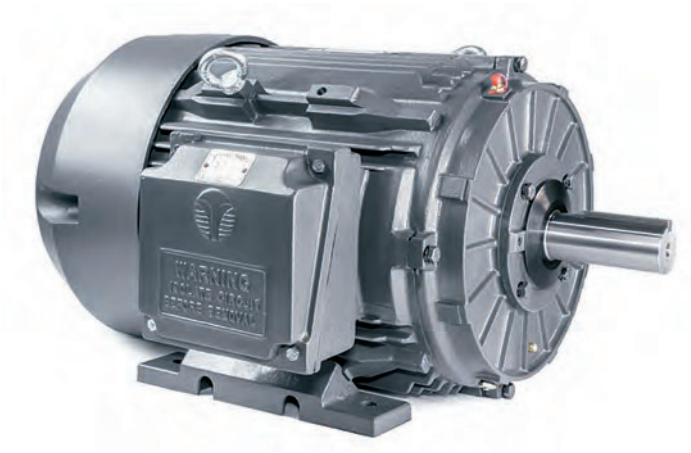
PREMIUM T-FRAME CAST IRON MOTORS

1 - 250HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PRODUCT OVERVIEW

Three phase, enhanced performance cast iron, premium efficient NEMA design B torque motors. Features a multi-mount arrangement incorporating bolt on feet* or flange mount configuration. 2, 4 and 6 pole, 1 to 250HP, ideal for numerous light and heavy duty industrial and severe applications.



BASIC SPECIFICATIONS

- Power Ratings from 1 to 250HP
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 230/460V (Usable @ 208V), 460V & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- *Removable feet F1, F2, F0 field convertible up to and including 326T frame, F2 convertible 364T and larger
- 1.25 Service Factor through 326T frame, 1.15 Service Factor for larger frames with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Cast iron construction with C and D flange kits available
- Cast iron fan cover standard for all frame sizes
- Cast iron Conduit Box is 90° rotatable
- 1045 Steel shaft though 405T, 4140 grade for 444T and larger
- Regreasable bearings 254T frame and larger
- Mobil Polyrex EM polyurea grease
- CSA Certified for Class I, Division II, Groups A, B, C and D / Class I, Zone 2, Groups IIC, IIB, IIA
- IEEE 45 Marine Duty
- Anti-microbial (tropicalization) on stator winding
- Surface finish:
  - 2-Part epoxy coating RAL7024 - Graphite Gray
- Stainless steel nameplate
- Corrosion resistant hardware
- Ultra high strength, reusable lifting straps included with motors 254T frame and larger

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

Up to and including 215T Frame:

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

254T Frame and larger:

- 12-Lead 230V parallel-delta / 460V delta connection
- 6-Lead 460V or 575V single voltage delta connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed including nipple seals between conduit box and stator body. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 15:1 CT

C SA US 224693 · SA Energy Verified Only · CE · c UL us · ee CC096A · NEMA Premium®

PURCHASING DATA

143T - 449T Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price		
					208V	230V	460V	575V				Rigid	C-Flange	D-Flange
1	GRC0002[ ]	TXC143T1U2B	3600	143T	3.36	3.04	1.52	1.22	77.0	41.2	13.38	$422	$462	$525
	GRC0004[ ]	TXC143T1U4B	1800	143T	3.32	3.00	1.50	1.20	85.5	46.3	13.38	$422	$462	$525
	GRC0006[ ]	TXC145T1U6B	1200	145T	3.75	3.39	1.69	1.36	82.5	52.9	14.38	$475	$515	$578
1.5	GRC0012[ ]	TXC143T1.5U2B	3600	143T	4.42	4.00	2.00	1.61	84.0	41.9	13.38	$444	$484	$547
	GRC0014[ ]	TXC145T1.5U4B	1800	145T	4.79	4.33	2.16	1.73	86.5	54.0	14.38	$459	$499	$562
	GRC0016[ ]	TXC182T1.5U6B	1200	182T	5.30	4.79	2.40	1.92	87.5	93.7	15.90	$560	$618	$721
2	GRC0022[ ]	TXC145T2U2B	3600	145T	5.70	5.15	2.58	2.06	85.5	48.5	14.38	$492	$532	$595
	GRC0024[ ]	TXC145T2U4B	1800	145T	6.14	5.55	2.78	2.22	86.5	59.5	14.38	$491	$531	$594
	GRC0026[ ]	TXC184T2U6B	1200	184T	6.88	6.22	3.11	2.49	88.5	112.5	16.90	$656	$714	$817
3	GRC0032[ ]	TXC182T3U2B	3600	182T	8.07	7.30	3.65	2.92	86.5	82.7	15.90	$651	$709	$812
	GRC0034[ ]	TXC182T3U4B	1800	182T	8.79	7.95	3.97	3.18	89.5	94.8	15.90	$639	$697	$800
	GRC0036[ ]	TXC213T3U6B	1200	213T	9.78	8.84	4.42	3.54	89.5	147.7	19.10	$901	$990	$1,106
5	GRC0052[ ]	TXC184T5U2B	3600	184T	13.00	11.76	5.88	4.70	88.5	97.0	16.90	$714	$772	$875
	GRC0054[ ]	TXC184T5U4B	1800	184T	13.94	12.60	6.30	5.04	89.5	110.3	16.90	$721	$779	$882
	GRC0056[ ]	TXC215T5U6B	1200	215T	15.22	13.77	6.88	5.51	89.5	172.0	20.60	$1,175	$1,264	$1,380
7.5	GRC0072[ ]	TXC213T7.5U2B	3600	213T	19.07	17.24	8.62	6.90	89.5	140.0	19.10	$1,003	$1,092	$1,208
	GRC0074[ ]	TXC213T7.5U4B	1800	213T	20.16	18.23	9.12	7.29	91.7	158.8	19.10	$1,017	$1,106	$1,222
	GRC0076[ ]	TXC254T7.5U6B	1200	254T	22.46	20.31	10.15	8.12	91.0	247.0	24.28	$1,463	$1,591	$1,808
10	GRC0102[ ]	TXC215T10U2B	3600	215T	24.95	22.57	11.28	9.03	90.2	165.4	20.60	$1,150	$1,239	$1,355
	GRC0104[ ]	TXC215T10U4B	1800	215T	26.54	24.00	12.00	9.61	91.7	181.9	20.60	$1,163	$1,252	$1,368
	GRC0106[ ]	TXC256T10U6B	1200	256T	29.55	26.73	13.36	10.69	91.0	277.8	26.01	$1,900	$2,028	$2,245
15	GRC0152[ ]	TXC254T15U2B	3600	254T	38.79	35.08	17.54	14.03	91.0	254.7	24.28	$1,679	$1,807	$2,024
	GRC0154[ ]	TXC254T15U4B	1800	254T	40.02	36.19	18.10	14.48	92.4	278.9	24.28	$1,682	$1,810	$2,027
	GRC0156[ ]	TXC284T15U6B	1200	284T	44.57	40.30	20.15	16.12	91.7	363.8	27.73	$2,376	$2,569	$2,811
20	GRC0202[ ]	TXC256T20U2B	3600	256T	50.01	45.23	22.61	18.09	91.0	275.6	26.01	$1,951	$2,079	$2,296
	GRC0204[ ]	TXC256T20U4B	1800	256T	50.60	45.76	22.88	18.31	93.0	330.8	26.01	$1,970	$2,098	$2,315
	GRC0206[ ]	TXC286T20U6B	1200	286T	56.45	51.05	25.53	20.42	91.7	403.5	29.23	$2,716	$2,909	$3,151
25	GRC0252[ ]S	TXC256T25U2B	3600	256T	66.41	60.1	30.03	24.0	91.7	341.0	26.01	$2,285	$2,413	$2,630
	GRC0252[ ]	TXC284TS25U2B	3600	284TS	66.42	60.06	30.03	24.02	91.7	353.9	26.36	$2,325	$2,518	$2,760
	GRC0254[ ]	TXC284T25U4B	1800	284T	65.07	58.84	29.42	23.54	93.6	366.0	27.73	$2,352	$2,545	$2,787
	GRC0256[ ]	TXC324T25U6B	1200	324T	67.88	61.39	30.69	24.56	93.0	500.5	30.20	$3,576	$3,819	$4,174
30	GRC0302[ ]	TXC286TS30U2B	3600	286TS	77.87	70.42	35.21	28.17	91.7	374.9	27.86	$2,780	$2,973	$3,215
	GRC0304[ ]	TXC286T30U4B	1800	286T	76.29	68.99	34.49	27.60	93.6	396.9	29.23	$2,772	$2,965	$3,207
	GRC0306[ ]	TXC326T30U6B	1200	326T	80.48	72.78	36.39	29.11	93.0	648.3	31.70	$4,145	$4,388	$4,743
40	GRC0402[ ]S	TXC286T40U2B	3600	286TS	99.61	90.1	45.04	36.0	92.4	423.4	27.86	$3,365	$3,558	$3,800
	GRC0402[ ]	TXC324TS40U2B	3600	324TS	99.60	90.07	45.04	36.03	92.4	485.1	28.70	$3,535	$3,778	$4,133
	GRC0404[ ]	TXC324T40U4B	1800	324T	107.34	97.07	48.54	38.83	94.1	539.1	30.20	$3,626	$3,869	$4,224
	GRC0406[ ]	TXC364T40U6B	1200	364T	103.55	93.65	46.82	37.46	94.1	725.4	33.83	$4,980	$5,338	$6,007
50	GRC0502[ ]	TXC326TS50U2B	3600	326TS	125.09	113.12	56.56	45.25	93.0	529.2	30.20	$4,168	$4,411	$4,766
	GRC0504[ ]	TXC326T50U4B	1800	326T	130.43	117.95	58.98	47.18	94.5	600.9	31.70	$4,314	$4,557	$4,912
	GRC0506[ ]	TXC365T50U6B	1200	365T	132.56	119.88	59.94	47.95	94.1	791.6	34.83	$6,242	$6,600	$7,269

Voltage: Replace [ ] with D for 230/460V, or F for 575V

Flange: Add "-TC" to the end of Model for C-Flange or "-TD" for D-Flange

For Flange Kits refer to Motor Accessories on page 50

PREMIUM T-FRAME CAST IRON MOTORS

1 - 250HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PURCHASING DATA

143T - 449T Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)			FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price		
					230V	460V	575V				Rigid	C-Flange	D-Flange
60	**GRC0602[ ]**	TXC364TS60U2B	3600	364TS	136.41	68.20	54.56	93.6	761.8	31.70	$5,739	$6,097	$6,766
	GRC0604[ ]	TXC364T60U4B	1800	364T	135.94	67.97	54.38	95.0	782.8	33.83	$5,747	$6,105	$6,774
	GRC0606[ ]	TXC404T60U6B	1200	404T	141.54	70.77	56.62	94.5	975.7	38.75	$7,355	$7,849	$8,469
75	**GRC0752[ ]**	TXC365TS75U2B	3600	365TS	166.72	83.36	66.69	93.6	785.0	32.70	$6,685	$7,043	$7,712
	GRC0754[ ]	TXC365T75U4B	1800	365T	167.29	83.65	66.92	95.4	873.2	34.83	$6,801	$7,159	$7,828
	GRC0756[ ]	TXC405T75U6B	1200	405T	172.81	86.41	69.13	94.5	1045.2	38.75	$7,978	$8,472	$9,092
100	**GRC1002[ ]**	TXC405TS100U2B	3600	405TS	218.69	109.34	87.47	94.1	1020.9	35.75	$8,130	$8,624	$9,244
	GRC1004[ ]	TXC405T100U4B	1800	405T	230.93	115.47	92.37	95.4	1025.3	38.75	$8,168	$8,662	$9,282
	GRC1006[ ]	TXC444T100U6B	1200	444T	229.21	114.60	91.68	95.0	1589.8	44.52	$12,373	$12,994	$13,641
125	**GRC1252[ ]**	TXC444TS125U2B	3600	444TS	--	136.89	109.51	95.0	1437.7	40.77	$12,345	$12,966	$13,613
	GRC1254[ ]	TXC444T125U4B	1800	444T	--	142.65	114.12	95.4	1479.6	44.52	$12,417	$13,038	$13,685
	GRC1256[ ]	TXC445T125U6B	1200	445T	--	148.43	118.74	95.0	1730.9	44.52	$13,665	$14,286	$14,933
150	**GRC1502[ ]**	TXC445TS150U2B	3600	445TS	--	164.27	131.42	95.0	1543.5	40.77	$14,725	$15,346	$15,993
	GRC1504[ ]	TXC445T150U4B	1800	445T	--	168.51	134.81	95.8	1631.7	44.52	$14,845	$15,466	$16,113
	GRC1506[ ]	TXC447T150U6B	1200	447T	--	183.26	146.61	95.8	2041.8	53.02	$17,273	$17,894	$18,541
200	**GRC2002[ ]**	TXC447TS200U2B	3600	447TS	--	218.10	174.48	95.4	1858.8	49.27	$17,701	$18,322	$18,969
	GRC2004[ ]	TXC447T200U4B	1800	447T	--	223.75	179.00	96.2	2055.1	53.02	$18,559	$19,180	$19,827
	GRC2006[ ]	TXC449T200U6B	1200	449T	--	232.70	186.16	95.8	2244.7	53.02	$21,594	$22,215	$22,862
250	**GRC2502[ ]**	TXC449TS250U2B	3600	449TS	--	271.49	217.19	95.8	2024.2	49.27	$20,086	$20,707	$21,354
	GRC2504[ ]	TXC449T250U4B	1800	449T	--	273.40	218.72	96.2	2288.8	53.02	$21,060	$21,681	$22,328

Voltage: Replace [ ] with D for 230/460V, F for 575V, or E for 460V

Flange: Add "-TC" to the end of Model for C-Flange or "-TD" for D-Flange

For Flange Kits refer to Motor Accessories on page 50

DIMENSIONAL DRAWINGS

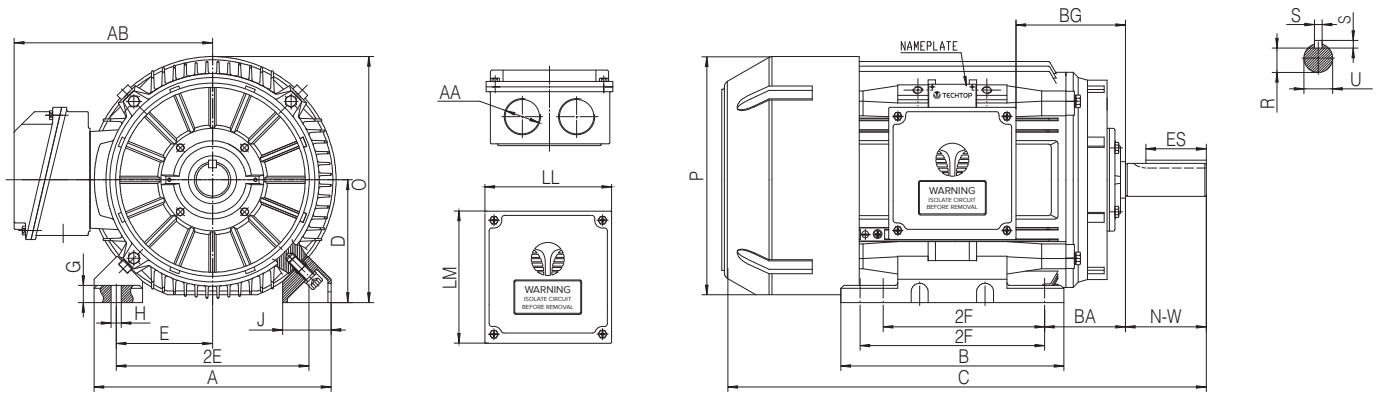


Figure 1 - Foot Mount

Dimensions are in **inches**

NEMA Frame	Foot Mounting					Shaft					General								Terminal Box				
	2E	2F	2F	H	BA	N-W	U	S	R	ES	A	B	C	D	G	J	O	P	AA	AB	BG	LL	LM
143T	5.5	4.0	--	0.34	2.25	2.25	0.875	0.188	0.771	1.41	7.0	5.12	13.38	3.5	0.55	1.46	7.01	6.93	1-NPT 3/4"	5.9	1.94	4.57	4.8
145T		5.0	--									6.1	14.38								2.43		
182T	7.5	4.5	--	0.41	2.75	2.75	1.125	0.25	0.986	1.78	9.0	6.1	15.90	4.5	0.675	1.77	8.83	8.66	1-NPT 3/4"	7.17	2.17	5.67	5.75
184T		5.5	--									7.09	16.90								2.67		
213T	8.5	5.5	--	0.41	3.5	3.38	1.375	0.312	1.201	2.41	10.27	7.48	19.10	5.25	0.71	1.81	10.35	10.2	1-NPT 1"	7.95	2.22	5.67	5.75
215T		7.0	--									8.98	20.60										
254T	10.0	8.25	--	0.53	4.25	4.0	1.625	0.375	1.416	2.91	12.36	10.35	24.28	6.25	0.63	2.36	12.44	12.36	1-NPT 1-1/4"	10.1	3.48	6.54	6.77
256T			10.0									12.05	26.01										
284T	11.0	9.5	--	0.53	4.75	4.62	1.875	0.50	1.591	3.28	13.8	12.2	27.73	7.0	0.985	2.95	13.9	13.78	1-NPT 1-1/2"	10.83	6.23	6.54	6.77
286T			11.0									13.7	29.23								6.98		
284TS			--			3.25	1.625	0.375	1.416	1.91		12.2	26.36								6.23		
286TS			11.0									13.7	27.86								6.98		
324T	12.5	10.5	--	0.66	5.25	5.25	2.125	0.50	1.845	3.91	15.4	13.0	30.20	8.0	1.12	3.15	15.9	15.71	1-NPT 2"	13.0	6.37	8.27	8.62
326T			12.0									14.5	31.70								7.12		
324TS			--			3.75	1.875	0.50	1.591	2.03		13.0	28.70								6.37		
326TS			12.0									14.5	30.20								7.12		
364T	14.0	11.25	--	0.66	5.88	5.88	2.375	0.625	2.021	4.28	17.17	14.2	33.83	9.0	1.24	3.15	18.0	--	1-NPT 2"	14.2	7.36	8.27	8.62
365T			12.25									15.2	34.83								7.85		
364TS			--			3.75	1.875	0.50	1.591	2.03		14.2	31.70								7.36		
365TS			12.25									15.2	32.70								7.85		
404T	16.0	12.25	13.75	0.81	6.62	7.25	2.875	0.75	2.45	5.65	19.06	17.44	38.75	10.0	1.33	3.15	20.0	--	1-NPT 3"	15.3	8.53	9.92	11.1
405T																							
404TS						4.25	2.125	0.50	1.845	2.78			35.75										
405TS																							
444T	18.0	14.5	16.5	0.81	7.5	8.5	3.375	0.875	2.88	6.91	21.93	20.08	44.52	11.0	1.315	3.94	22.0	--	1-NPT 3"	18.0	9.685	12.13	13.98
445T																							
444TS						4.75	2.375	0.625	2.021	3.03			40.77										
445TS																							
447T	18.0	20.0	25.0	0.81	7.5	8.5	3.375	0.875	2.88	6.91	21.93	28.6	53.02	11.0	1.315	3.94	22.0	--	1-NPT 3"	18.0	13.94	12.13	13.98
449T																							
447TS						4.75	2.375	0.625	2.021	3.03			49.27										
449TS																							

DIMENSIONAL DRAWINGS

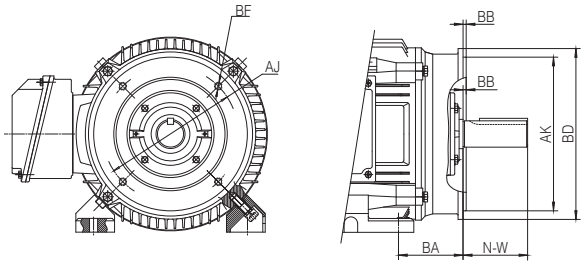


Figure 2 - C-Flange

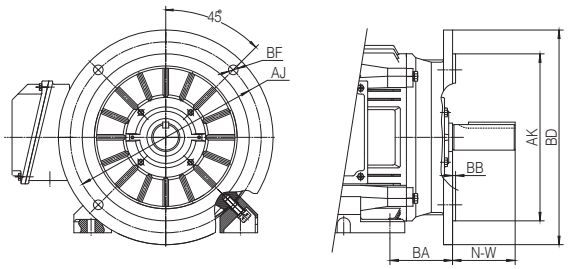


Figure 3 - D-Flange

Dimensions are in **inches**

NEMA Frame	NEMA C-Flange Dimensions								NEMA D-Flange Dimensions						
	AJ	AK	BA*	BB	BC	BD	BF	N-W	AJ	AK	BA	BB	BD	BF	N-W
143T	5.875	4.5	2.25	0.16	0.12	6.5	4-UNC 3/8-16	2.25	10.0	9.0	2.25	0.25	11.0	4* 0.53	2.25
145T															
182T	7.25	8.5	2.75	0.25	0.12	9.0	4-UNC 1/2-13	2.75	10.0	9.0	2.75	0.25	11.0	4* 0.53	2.75
184T															
213T	7.25	8.5	3.5	0.25	0.25	8.95	4-UNC 1/2-13	3.38	10.0	9.0	3.5	0.25	11.0	4* 0.53	3.38
215T															
254T	7.25	8.5	4.25	0.25	0.25	10.0	4-UNC 1/2-13	4.0	12.5	11.0	4.25	0.25	14.0	4* 0.81	4.0
256T															
284/6T	9.0	10.5	4.75	0.25	0.25	11.25	4-UNC 1/2-13	4.62	12.5	11.0	4.75	0.25	14.0	4* 0.81	4.62
284/6TS								3.25							3.25
324/6T	11.0	12.5	5.25	0.25	0.25	14.0	4-UNC 5/8-11	5.25	16.0	14.0	5.25	0.25	18.0	4* 0.81	5.25
324/6TS								3.75							3.75
364/5T	11.0	12.5	5.88	0.25	0.25	14.0	8-UNC 5/8-11	5.88	16.0	14.0	5.88	0.25	18.0	4* 0.81	5.88
364/5TS								3.75							3.75
404/5T	11.0	12.5	6.62	0.25	0.25	15.5	8-UNC 5/8-11	7.25	20.0	18.0	6.62	0.25	22.0	8* 0.81	7.25
404/5TS								4.25							4.25
444/5T	14.0	16.0	7.5	0.25	0.25	18.0	8-UNC 5/8-11	8.5	20.0	18.0	7.5	0.25	22.0	8* 0.81	8.5
444/5TS								4.75							4.75
447/9T	14.0	16.0	7.5	0.25	0.25	18.0	8-UNC 5/8-11	8.5	20.0	18.0	7.5	0.25	22.0	8* 0.81	8.5
447/9TS								4.75							4.75

*Non-standard NEMA BA dimension for flanged models frames 143T - 256T frame

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)					Rated Torque (%FL)			Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT	BDT	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1	3600	143T	3450	77.0	0.80	3.36	3.04	1.52	1.22	L	240%	330%	41.2	6205ZZ		13.38
	1800	143T	1735	85.5	0.73	3.32	3.00	1.50	1.20	J	220%	270%	46.3	6205ZZ		13.38
	1200	145T	1150	82.5	0.67	3.75	3.39	1.69	1.36	H	210%	250%	52.9	6205ZZ		14.38
1.5	3600	143T	3450	84.0	0.83	4.42	4.00	2.00	1.61	K	310%	350%	41.9	6205ZZ		13.38
	1800	145T	1715	86.5	0.75	4.79	4.33	2.16	1.73	L	310%	350%	54.0	6205ZZ		14.38
	1200	182T	1150	87.5	0.67	5.30	4.79	2.40	1.92	L	260%	360%	93.7	6306ZZ		15.90
2	3600	145T	3450	85.5	0.85	5.70	5.15	2.58	2.06	L	280%	360%	48.5	6205ZZ		14.38
	1800	145T	1730	86.5	0.78	6.14	5.55	2.78	2.22	K	280%	300%	59.5	6205ZZ		14.38
	1200	184T	1150	88.5	0.68	6.88	6.22	3.11	2.49	L	270%	350%	112.5	6306ZZ		16.90
3	3600	182T	3510	86.5	0.89	8.07	7.30	3.65	2.92	K	460%	330%	82.7	6306ZZ		15.90
	1800	182T	1755	89.5	0.79	8.79	7.95	3.97	3.18	L	290%	380%	94.8	6306ZZ		15.90
	1200	213T	1170	89.5	0.71	9.78	8.84	4.42	3.54	L	250%	340%	147.7	6308ZZ		19.10
5	3600	184T	3510	88.5	0.90	13.00	11.76	5.88	4.70	L	280%	380%	97.0	6306ZZ		16.90
	1800	184T	1745	89.5	0.83	13.94	12.60	6.30	5.04	K	250%	360%	110.3	6306ZZ		16.90
	1200	215T	1165	89.5	0.76	15.22	13.77	6.88	5.51	K	240%	320%	172.0	6308ZZ		20.60
7.5	3600	213T	3520	89.5	0.91	19.07	17.24	8.62	6.90	J	210%	320%	140.0	6308ZZ		19.10
	1800	213T	1750	91.7	0.84	20.16	18.23	9.12	7.29	L	260%	380%	158.8	6308ZZ		19.10
	1200	254T	1170	91.0	0.76	22.46	20.31	10.15	8.12	J	210%	250%	247.0	6309 C3		24.28
10	3600	215T	3520	90.2	0.92	24.95	22.57	11.28	9.03	K	250%	350%	165.4	6308ZZ		20.60
	1800	215T	1750	91.7	0.85	26.54	24.00	12.00	9.61	L	270%	380%	181.9	6308ZZ		20.60
	1200	256T	1170	91.0	0.77	29.55	26.73	13.36	10.69	J	200%	250%	277.8	6309 C3		26.01
15	3600	254T	3540	91.0	0.88	38.79	35.08	17.54	14.03	L	240%	360%	254.7	6309 C3		24.28
	1800	254T	1760	92.4	0.84	40.02	36.19	18.10	14.48	K	270%	340%	278.9	6309 C3		24.28
	1200	284T	1175	91.7	0.76	44.57	40.30	20.15	16.12	M	280%	370%	363.8	6311 C3		27.73
20	3600	256T	3530	91.0	0.91	50.01	45.23	22.61	18.09	K	290%	320%	275.6	6309 C3		26.01
	1800	256T	1760	93.0	0.88	50.60	45.76	22.88	18.31	K	260%	320%	330.8	6309 C3		26.01
	1200	286T	1175	91.7	0.80	56.45	51.05	25.53	20.42	L	280%	340%	403.5	6311 C3		29.23
25	3600	256T	3550	91.7	0.84	66.41	60.1	30.03	24.0	M	320%	450%	341.0	6309 C3		26.01
	3600	284TS	3550	91.7	0.85	66.42	60.06	30.03	24.02	M	320%	450%	353.9	6311 C3		26.36
	1800	284T	1770	93.6	0.85	65.07	58.84	29.42	23.54	K	280%	360%	366.0	6311 C3		27.73
	1200	324T	1180	93.0	0.82	67.88	61.39	30.69	24.56	M	310%	360%	500.5	6312 C3		30.20
30	3600	286TS	3550	91.7	0.87	77.87	70.42	35.21	28.17	L	290%	360%	374.9	6311 C3		27.86
	1800	286T	1770	93.6	0.87	76.29	68.99	34.49	27.60	K	280%	330%	396.9	6311 C3		29.23
	1200	326T	1180	93.0	0.83	80.48	72.78	36.39	29.11	M	310%	410%	648.3	6312 C3		31.70
40	3600	286TS	3560	92.4	0.90	99.61	90.1	45.04	36.0	H	220%	240%	423.4	6311 C3		27.86
	3600	324TS	3560	92.4	0.90	99.60	90.07	45.04	36.03	H	220%	240%	485.1	6312 C3		28.70
	1800	324T	2770	94.1	0.82	107.34	97.07	48.54	38.83	L	370%	340%	539.1	6312 C3		30.20
	1200	364T	1180	94.1	0.85	103.55	93.65	46.82	37.46	J	260%	290%	725.4	6313 C3		33.83
50	3600	326TS	3560	93.0	0.89	125.09	113.12	56.56	45.25	H	280%	290%	529.2	6312 C3		30.20
	1800	326T	1770	94.5	0.84	130.43	117.95	58.98	47.18	K	340%	330%	600.9	6312 C3		31.70
	1200	365T	1180	94.1	0.83	132.56	119.88	59.94	47.95	H	220%	250%	791.6	6313 C3		34.83
60	3600	364TS	3560	93.6	0.88	--	136.41	68.20	54.56	L	430%	360%	761.8	6313 C3		31.70
	1800	364T	1775	95.0	0.87	--	135.94	67.97	54.38	L	350%	320%	782.8	6313 C3		33.83
	1200	404T	1185	94.5	0.84	--	141.54	70.77	56.62	J	240%	240%	975.7	NU316	6314 C3	38.75
75	3600	365TS	3560	93.6	0.90	--	166.72	83.36	66.69	K	360%	330%	785.0	6313 C3		32.70
	1800	365T	1775	95.4	0.88	--	167.29	83.65	66.92	L	330%	380%	873.2	6313 C3		34.83
	1200	405T	1185	94.5	0.86	--	172.81	86.41	69.13	H	220%	250%	1045.2	NU316	6314 C3	38.75
100	3600	405TS	3570	94.1	0.91	--	218.69	109.34	87.47	K	290%	310%	1020.9	6314 C3		35.75
	1800	405T	1780	95.4	0.85	--	230.93	115.47	92.37	K	340%	290%	1025.3	6316 C3	6314 C3	38.75
	1200	444T	1180	95.0	0.86	--	229.21	114.60	91.68	H	220%	200%	1589.8	NU319	6319 C3	44.52
125	3600	444TS	3575	95.0	0.90	--	--	136.89	109.51	K	350%	440%	1437.7	6316 C3		40.77
	1800	444T	1780	95.4	0.86	--	--	142.65	114.12	L	350%	360%	1479.6	6319 C3		44.52
	1200	445T	1180	95.0	0.83	--	--	148.43	118.74	L	300%	350%	1730.9	NU319	6319 C3	44.52
150	3600	445TS	3575	95.0	0.90	--	--	164.27	131.42	K	350%	400%	1543.5	6316 C3		40.77
	1800	445T	1780	95.8	0.87	--	--	168.51	134.81	K	270%	290%	1631.7	6319 C3		44.52
	1200	447T	1180	95.8	0.80	--	--	183.26	146.61	L	300%	250%	2041.8	NU319	6319 C3	53.02
200	3600	447TS	3575	95.4	0.90	--	--	218.10	174.48	K	350%	400%	1858.8	6316 C3		49.27
	1800	447T	1780	96.2	0.87	--	--	223.75	179.00	K	350%	280%	2055.1	6319 C3		53.02
	1200	449T	1180	95.8	0.84	--	--	232.70	186.16	K	260%	250%	2244.7	NU319	6319 C3	53.02
250	3600	449TS	3575	95.8	0.90	--	--	271.49	217.19	K	350%	400%	2024.2	6316 C3		49.27
	1800	449T	1780	96.2	0.89	--	--	273.40	218.72	K	350%	400%	2288.8	6319 C3		53.02

EPACT 56J JET PUMP MOTORS

1/3 - 3HP, EPACT RATED, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Lightweight three phase, enhanced performance cast aluminum 56J frame NEMA design B jet pump motors. Features a multi-mount arrangement incorporating bolt on feet with 56J mount configuration. 2 and 4 pole, 1/3 to 3HP, ideal for water treatment, processing and pumping applications.



BASIC SPECIFICATIONS

- Power Ratings from 1/3 to 3HP
- Three Phase, 2 and 4 pole, 60Hz
- 208-230/460V & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.15 Service Factor with 60Hz operation
- 24 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flanges
- Class I, Division II, Groups A, B, C and D compliant
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- Dual oversized shielded bearings size 6204ZZ
- AISI 304 grade stainless steel threaded shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

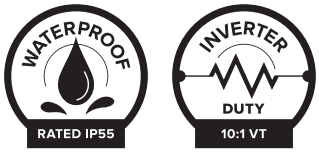
- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 4:1 Constant Torque, 10:1 Variable Torque (1.0 S.F. on VFD Power). Meets NEMA MG 1 part 30 standards



C SA US 224693 CE

PURCHASING DATA

56J Frame Foot-Mount — **NEMA EPAct Efficiency**

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
					208V	230V	460V	575V				
1/3	**JEP.332[ ]**	TFA561/3U2B	3600	56J	1.35	1.46	0.73	0.58	62.0	17.0	12.0	$278
	JEP.334[ ]	TFA561/3U4B	1800	56J	1.5	1.7	0.85	0.58	63.7	17.4	12.0	$270
1/2	**JEP.502[ ]**	TFA561/2U2B	3600	56J	1.8	1.9	0.95	0.76	66.5	17.4	12.0	$293
	JEP.504[ ]	TFA561/2U4B	1800	56J	1.9	2.08	1.04	0.83	70.6	18.3	12.0	$285
3/4	**JEP.752[ ]**	TFA563/4U2B	3600	56J	2.5	2.56	1.28	1.0	70.0	19.0	12.0	$311
	JEP.754[ ]	TFA563/4U4B	1800	56J	2.6	2.76	1.38	1.1	74.8	20.3	12.0	$309
1	**JEP0002[ ]**	TFA561U2B	3600	56J	3.1	3.18	1.59	1.27	76.8	20.3	12.0	$326
	JEP0004[ ]	TFA561U4B	1800	56J	3.3	3.24	1.62	1.3	78.5	22.3	12.0	$349
1.5	**JEP0012[ ]**	TFA561.5U2B	3600	56J	4.3	4.2	2.1	1.68	81.3	22.5	12.0	$341
	JEP0014[ ]	TFA561.5U4B	1800	56J	4.65	4.5	2.25	1.8	82.0	26.0	12.0	$389
2	**JEP0022[ ]**	TFA562U2B	3600	56J	5.6	5.48	2.74	2.19	83.8	26.5	12.0	$356
	JEP0024[ ]	TFA562U4B	1800	56J	6.25	6.06	3.03	2.42	83.0	30.2	12.0	$429
3	**JEP0032[ ]**	TFA563U2B	3600	56J	8.1	7.64	3.82	3.05	85.0	30.4	12.0	$433

Voltage: Replace [ ] with D for 208-230/460V, or F for 575V

DIMENSIONAL DRAWINGS

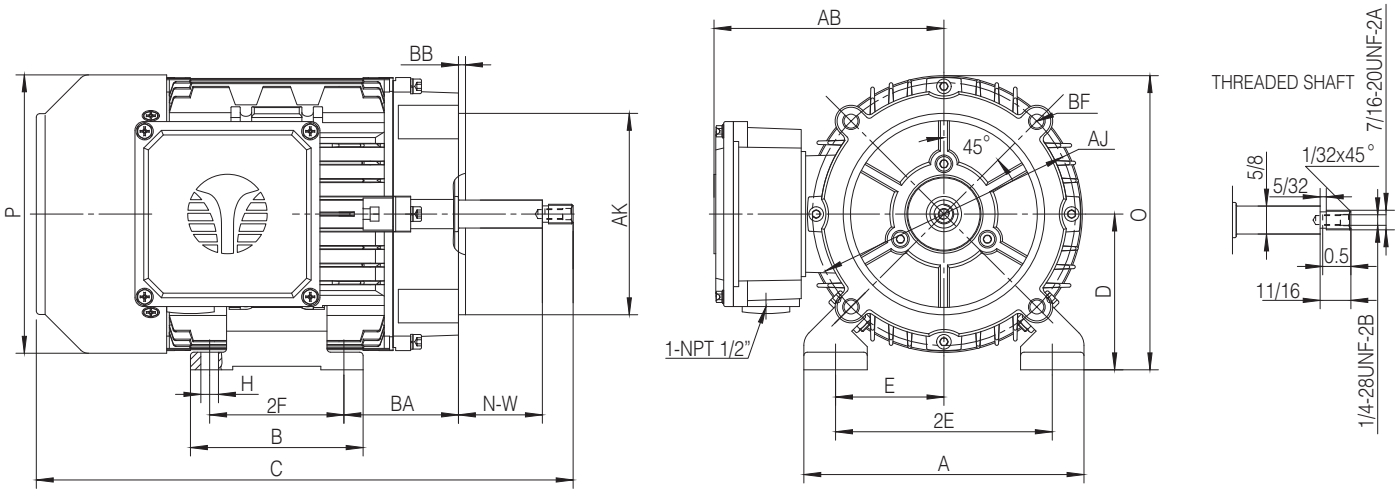


Figure 1 - Foot Mount, 56J

Dimensions are in **inches**

NEMA Frame	Foot Mounting							Shaft	General					NEMA C-Flange			
	E	2E	2F	H	B	A	BA	N-W	C	D	O	P	AB	AJ	AK	BB	BF
56J	2.44	4.88	3.0	0.39	3.85	6.3	2.56	1.88	12.0	3.5	6.6	6.2	5.2	5.875	4.5	0.16	4.375

EPACT 56J JET PUMP MOTORS

1/3 - 3HP, EPACT RATED, THREE PHASE, TEFC

HIGH EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/3	3600	56J	3470	62.0	0.69	1.35	1.46	0.73	0.58	L	17.0	6204ZZ		12.0
	1800	56J	1725	63.7	0.58	1.5	1.7	0.85	0.58	K	17.4	6204ZZ		12.0
1/2	3600	56J	3470	66.5	0.73	1.8	1.9	0.95	0.76	K	17.4	6204ZZ		12.0
	1800	56J	1725	70.6	0.63	1.9	2.08	1.04	0.83	J	18.3	6204ZZ		12.0
3/4	3600	56J	3470	70.0	0.77	2.5	2.56	1.28	1.0	K	19.0	6204ZZ		12.0
	1800	56J	1725	74.8	0.67	2.6	2.76	1.38	1.1	J	20.3	6204ZZ		12.0
1	3600	56J	3470	76.8	0.77	3.1	3.18	1.59	1.27	K	20.3	6204ZZ		12.0
	1800	56J	1725	78.5	0.74	3.3	3.24	1.62	1.3	H	22.3	6204ZZ		12.0
1.5	3600	56J	3470	81.3	0.81	4.3	4.2	2.1	1.68	K	22.5	6204ZZ		12.0
	1800	56J	1725	82.0	0.75	4.65	4.5	2.25	1.8	H	26.0	6204ZZ		12.0
2	3600	56J	3470	83.8	0.82	5.6	5.48	2.74	2.19	K	26.5	6204ZZ		12.0
	1800	56J	1725	83.0	0.75	6.25	6.06	3.03	2.42	J	30.2	6204ZZ		12.0
3	3600	56J	3470	85.0	0.85	8.1	7.64	3.82	3.05	K	30.4	6204ZZ		12.0

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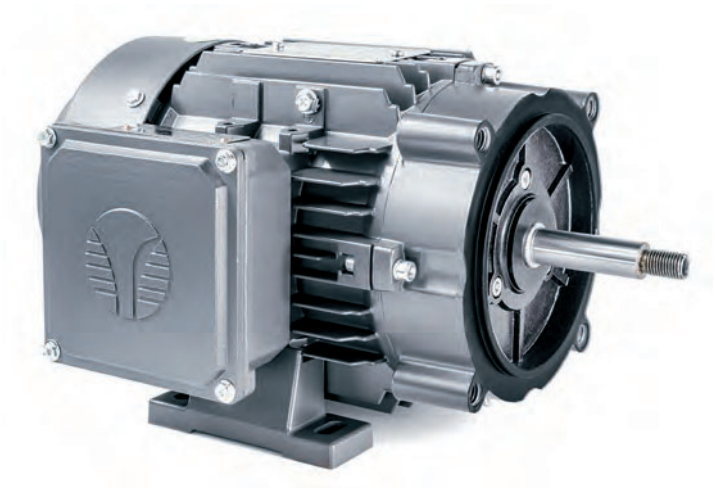
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PRODUCT OVERVIEW

Lightweight three phase, enhanced performance cast aluminum 56J frame NEMA design B jet pump motors. Features a multi-mount arrangement incorporating bolt on feet with 56J mount configuration. 2 and 4 pole, 1/3 to 5HP, ideal for water treatment, processing and pumping applications.



BASIC SPECIFICATIONS

- Power Ratings from 1/3 to 5HP
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 208-230/460V & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flanges
- Class I, Division II, Groups A, B, C and D compliant
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- Dual oversized shielded bearings
- AISI 304 grade stainless steel threaded shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 30:1 VT

224693 · CC096A

PREMIUM 56J JET PUMP MOTORS

1/3 - 5HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PURCHASING DATA

56J Frame Foot-Mount — **NEMA Premium Efficiency**

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
					208V	230V	460V	575V				
1/3	**JEP.332[ ]P**	TXA561/3U2B	3600	56J	1.22	1.24	0.62	0.50	72.0	14.9	12.0	$335
	JEP.334[ ]P	TXA561/3U4B	1800	56J	1.30	1.34	0.67	0.53	74.0	15.8	12.0	$326
1/2	**JEP.502[ ]P**	TXA561/2U2B	3600	56J	1.71	1.74	0.87	0.70	74.0	15.5	12.0	$353
	JEP.504[ ]P	TXA561/2U4B	1800	56J	1.76	1.80	0.90	0.72	78.5	17.7	12.0	$343
3/4	**JEP.752[ ]P**	TXA563/4U2B	3600	56J	2.38	2.40	1.20	0.96	77.0	17.1	12.0	$375
	JEP.754[ ]P	TXA563/4U4B	1800	56J	2.48	2.50	1.25	0.99	81.5	20.2	12.0	$373
1	**JEP0002[ ]P**	TXA561U2B	3600	56J	3.10	3.10	1.55	1.24	79.0	18.2	12.0	$394
	JEP0004[ ]P	TXA561U4B	1800	56J	3.18	3.18	1.59	1.28	85.5	25.7	12.0	$422
1.5	**JEP0012[ ]P**	TXA561.5U2B	3600	56J	4.20	3.90	1.95	1.56	84.0	24.1	12.0	$411
	JEP0014[ ]P	TXA561.5U4B	1800	56HJ	4.40	4.26	2.13	1.70	86.5	34.5	14.1	$501
2	**JEP0022[ ]P**	TXA562U2B	3600	56J	5.50	5.24	2.62	2.09	85.5	26.5	12.0	$430
	JEP0024[ ]P	TXA562U4B	1800	56HJ	5.91	5.72	2.86	2.29	86.5	39.5	14.1	$530
3	**JEP0032[ ]P**	TXA563U2B	3600	56HJ	7.86	7.26	3.63	2.90	86.5	38.0	14.1	$579
5	**JEP0052[ ]P**	TXA565U2B	3600	L56HJ	13.0	12.1	6.05	4.83	88.5	42.6	14.8	$812

Voltage: Replace [ ] with D for 208-230/460V, or F for 575V

DIMENSIONAL DRAWINGS

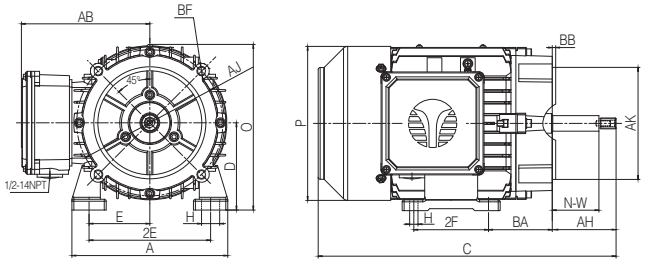


Figure 1 - Foot Mount, 56J

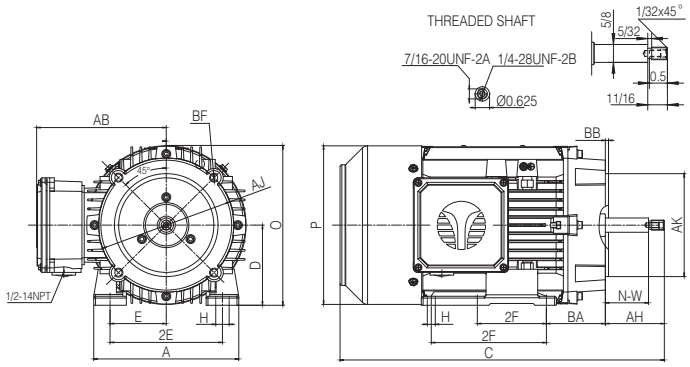


Figure 2 - Foot Mount, 56HJ

Dimensions are in **inches**

NEMA Frame	Foot Mounting						Shaft		General					NEMA C-Flange			
	E	2E	2F	A	BA	H	AH	N-W	C	D	O	P	AB	AJ	AK	BB	BF
56J	2.44	4.88	3.0	6.3	2.56	0.34*0.77	2.563	1.875	12.0	3.5	6.65	6.2	5.2	5.875	4.5	0.16	4.375
56HJ	2.44	4.88	3.0/5.0	6.3	2.56	0.34*0.77	2.563	1.875	14.1	3.5	7.0	6.95	5.65	5.875	4.5	0.16	4.375
L56HJ	2.44	4.88	3.0/5.0	6.3	2.56	0.34*0.77	2.563	1.875	14.8	3.5	7.0	6.95	5.65	5.875	4.5	0.16	4.375

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/3	3600	56C	3520	72.0	0.70	1.22	1.24	0.62	0.50	M	14.9	6204ZZ		12.0
	1800	56C	1750	74.0	0.63	1.30	1.34	0.67	0.53	K	15.8	6204ZZ		12.0
1/2	3600	56C	3490	74.0	0.72	1.71	1.74	0.87	0.70	L	15.5	6204ZZ		12.0
	1800	56C	1750	78.5	0.66	1.76	1.80	0.90	0.72	L	17.7	6204ZZ		12.0
3/4	3600	56C	3500	77.0	0.75	2.38	2.40	1.20	0.96	L	17.1	6204ZZ		12.0
	1800	56C	1750	81.5	0.68	2.48	2.50	1.25	0.99	L	20.2	6204ZZ		12.0
1	3600	56C	3490	79.0	0.77	3.10	3.10	1.55	1.24	K	18.2	6204ZZ		12.0
	1800	56C	1745	85.5	0.69	3.18	3.18	1.59	1.28	L	25.7	6204ZZ		12.0
1.5	3600	56C	3500	84.0	0.84	4.20	3.90	1.95	1.56	M	24.1	6204ZZ		12.0
	1800	56HC	1745	86.5	0.75	4.40	4.26	2.13	1.70	L	34.5	6205ZZ		14.1
2	3600	56C	3500	85.5	0.84	5.50	5.24	2.62	2.09	L	26.5	6204ZZ		12.0
	1800	56HC	1740	86.5	0.76	5.91	5.72	2.86	2.29	L	39.5	6205ZZ		14.1
3	3600	56HC	3490	86.5	0.88	7.86	7.26	3.63	2.90	K	38.0	6205ZZ		14.1
5	3600	L56HC	3500	88.5	0.87	13.0	12.1	6.05	4.83	J	42.6	6205ZZ		14.8

EPACT JM-JP PUMP MOTORS

1 - 50HP, EPACT RATED, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Three phase, enhanced performance close-coupled pump motors. Cast aluminum 215JM/JP and below, cast iron 254JM/JP and above, EPAct rated. Features a multi-mount arrangement incorporating bolt on feet and flange mount configuration. 2 and 4 pole, 1 to 50HP.



BASIC SPECIFICATIONS

- Power Ratings from 1 to 50HP
- Three Phase, 2 and 4 pole, 60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation
- 24 Month warranty
- Conduit Box is 90° rotatable
- CSA Certified for Class I, Division II, Groups A, B, C and D / Class I, Zone 2, Groups IIC, IIB, IIA
- Anti-microbial (tropicalization) on stator winding
- Regreasable bearings 254JM/JP frame and larger
- Mobil Polyrex EM polyurea grease
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - 2-Part epoxy coating RAL7024 - Graphite Gray (cast iron models only)
  - Black oxide surface treatment for increased corrosion resistance (aluminum models only)
- Stainless steel nameplate
- Corrosion resistant hardware
- Ultra high strength, reusable lifting straps included with motors 254JM/JP frame and larger

Cast Aluminum: 143JM/JP to 215JM/JP
Cast Iron: 254JM/JP to 326JM/JP

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

Up to and including 215JM/JP Frame:

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

254JM/JP Frame and larger:

- 12-Lead 230V parallel-delta / 460V delta connection
- 6-Lead 575V single voltage delta connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed including nipple seals between conduit box and stator body. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 10:1 Constant Torque, 20:1 Variable Torque (1.0 S.F. on VFD Power) per NEMA MG 1 part 31 standards

WATERPROOF RATED IP55

INVERTER DUTY 20:1 VT

C SA US 224693 CE c UL us ee CC096A

PURCHASING DATA

143JM/JP - 326JM/JP Frame Foot-Mount — NEMA EPAct Efficiency

HP	MODEL*	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)		List Price
					208V	230V	460V	575V			JM	JP	
1	**JMA0004[ ]**	TFA143T1U4B	1800	143JM or JP	3.18	3.16	1.58	1.26	82.5	28.0	15.2	18.3	$367
1.5	**JMA0012[ ]**	TFA143T1.5U2B	3600	143JM or JP	4.22	4.24	2.12	1.69	82.5	25.0	15.2	18.3	$378
	JMA0014[ ]	TFA145T1.5U4B	1800	145JM or JP	4.59	4.56	2.28	1.82	84.0	34.5	16.2	19.3	$431
2	**JMA0022[ ]**	TFA145T2U2B	3600	145JM or JP	5.56	5.42	2.71	2.17	84.5	29.5	16.2	19.3	$435
	JMA0024[ ]	TFA145T2U4B	1800	145JM or JP	6.18	5.98	2.99	2.39	84.0	39.5	16.2	19.3	$456
3	**JMA0032[ ]S**	TFA145T3U2B	3600	145JM or JP	7.98	7.78	3.89	3.11	85.5	38.0	16.2	19.3	$547
	JMA0032[ ]	TFA182T3U2B	3600	182JM or JP	8.04	7.70	3.85	3.08	85.5	50.0	17.3	20.4	$659
	JMA0034[ ]	TFA182T3U4B	1800	182JM or JP	8.40	8.08	4.04	3.24	87.5	62.0	17.3	20.4	$658
5	**JMA0052[ ]**	TFA184T5U2B	3600	184JM or JP	12.80	11.8	5.90	4.72	87.5	62.0	18.3	21.4	$719
	JMA0054[ ]	TFA184T5U4B	1800	184JM or JP	13.80	12.6	6.32	5.05	87.5	73.5	18.3	21.4	$742
7.5	**JMA0072[ ]S**	TFA184T7.5U2B	3600	184JM or JP	18.90	17.3	8.66	6.93	88.5	76.0	18.3	21.4	$869
	JMA0072[ ]	TFA213T7.5U2B	3600	213JM or JP	18.70	17.0	8.50	6.85	88.5	95.0	19.9	23.8	$968
	JMA0074[ ]	TFA213T7.5U4B	1800	213JM or JP	19.70	18.4	9.18	7.35	89.5	113.0	19.9	23.8	$1,032
10	**JMA0102[ ]**	TFA215T10U2B	3600	215JM or JP	25.20	22.8	11.4	9.15	89.5	115.0	21.4	25.3	$1,081
	JMA0104[ ]	TFA215T10U4B	1800	215JM or JP	26.70	24.4	12.2	9.78	89.5	131.0	21.4	25.3	$1,197
15	**JMA0152[ ]S**	TFA215T15U2B	3600	215JM or JP	--	33.2	16.6	13.3	90.2	135.0	21.4	25.3	$1,424
	JMC0152[ ]	TFC254T15U2B	3600	254JM or JP	--	35.2	17.6	14.08	90.2	278.0	25.8	28.17	$1,731
	JMC0154[ ]	TFC254T15U4B	1800	254JM or JP	--	37.2	18.6	14.88	91.0	280.0	25.8	28.17	$1,684
20	**JMC0202[ ]**	TFC256T20U2B	3600	256JM or JP	--	46.4	23.2	18.56	90.2	295.0	27.53	29.9	$1,984
	JMC0204[ ]	TFC256T20U4B	1800	256JM or JP	--	47.0	23.5	18.80	91.0	315.0	27.53	29.9	$1,914
25	**JMC0252[ ]S**	TFC256T25U2B	3600	256JM or JP	--	57.8	28.9	23.12	91.0	331.0	27.53	29.9	$2,272
	JMC0252[ ]	TFC284TS25U2B	3600	284JM or JP	--	57.8	28.9	23.12	91.0	353.0	28.13	31.0	$2,317
	JMC0254[ ]	TFC284T25U4B	1800	284JM or JP	--	59.2	29.6	23.68	92.4	406.0	28.13	31.0	$2,321
30	**JMC0302[ ]**	TFC286TS30U2B	3600	286JM or JP	--	69.0	34.5	27.60	91.0	419.0	29.63	32.5	$2,688
	JMC0304[ ]	TFC286T30U4B	1800	286JM or JP	--	71.0	35.5	28.43	92.4	404.0	29.63	32.5	$2,674
40	**JMC0402[ ]S**	TFC286TS40U2B	3600	286JM or JP	--	93.0	46.5	37.19	91.7	442.0	29.63	32.5	$3,497
	JMC0402[ ]	TFC324TS40U2B	3600	324JM or JP	--	93.0	46.5	37.19	91.7	523.0	31.34	32.97	$3,491
	JMC0404[ ]	TFC324T40U4B	1800	324JM or JP	--	94.2	47.1	37.69	93.0	584.0	31.34	32.97	$3,485
50	**JMC0502[ ]**	TFC326TS50U2B	3600	326JM or JP	--	117.0	58.5	46.81	92.4	551.0	32.84	34.47	$3,964
	JMC0504[ ]	TFC326T50U4B	1800	326JM or JP	--	118.4	59.2	47.35	93.0	606.0	32.84	34.47	$3,959

Voltage: Replace [ ] with D for 230/460V, F for 575V, or E for 460V

*Replace "JM" with "JP" in Model # for JP type shaft

EPACT JM-JP PUMP MOTORS

1 - 50HP, EPACT RATED, THREE PHASE, TEFC

DIMENSIONAL DRAWINGS

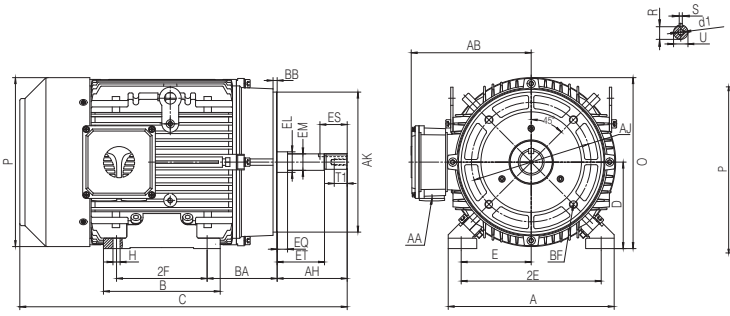


Figure 1 - Cast Aluminum JM/JP Model

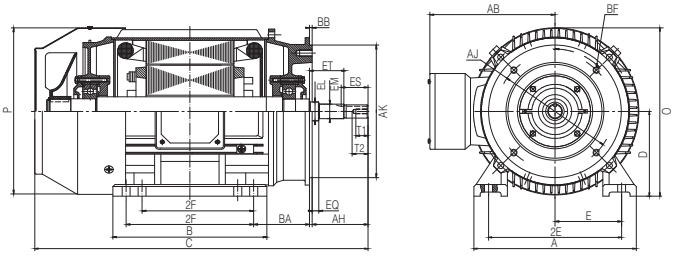


Figure 2 - Cast Iron JM/JP Model

Dimensions are in **inches**

NEMA Frame	Foot Mounting						General							NEMA C-Flange			
	E	2E	2F	2F	H	BA	A	B	D	O	P	AA	AB	AJ	AK	BB	BF
143JM/JP	2.75	5.5	4.0	--	0.34 *0.5	2.75	7.0	5.1	3.5	7.0	6.93	1-NPT 3/4"	5.5	5.875	4.5	0.125	4*3/8-16UNC
145JM/JP			5.0					6.1									
182JM/JP	3.75	7.5	4.5	--	0.59 *0.43	3.5	9.0	5.8	4.5	8.85	8.65	1-NPT 3/4"	6.6	5.875	4.5	0.125	4*3/8-13UNC
184JM/JP			5.5					6.8									
213JM/JP	4.25	8.5	5.5	--	0.59 *0.43	4.25	10.1	7.1	5.25	10.4	10.3	1-NPT 1"	7.3	7.25	8.5	0.25	4*1/2-13UNC
215JM/JP			7.0					8.6									
254JM/JP	5	10.0	8.25	--	0.53	4.75	12.36	10.35	6.25	12.44	12.36	1-NPT 1-1/4"	10.0	7.25	8.5	0.25	4*1/2-13UNC
256JM/JP				10.0				12.05									
284JM/JP	5.5	11.0	9.5	--	0.53	4.75	13.8	12.2	7.0	13.9	13.78	1-NPT 1-1/2"	10.83	11.0	12.5	0.25	4*5/8-11UNC
286JM/JP				11.0				13.7									
324JM/JP	6.25	12.5	10.5	--	0.66	5.25	15.4	13.0	8.0	15.9	15.71	1-NPT 2"	13.0	11.0	12.5	0.25	4*5/8-11UNC
326JM/JP				12.0				14.5									

Dimensions are in **inches**

NEMA Frame	Shaft End - Type JM													Shaft End - Type JP										
	Lengths			Diameters			Keyway			Threaded Hole			JM	Lengths			Diameters			Keyway			Threaded Hole			JP
	AH	EQ	ET	U	EM	EL	S	R	ES	d1 (UNC)	T1	T2	C	AH	EQ	ET	U	EM	EL	S	R	ES	d1 (UNC)	T1	T2	C
143JM/JP	4.25	0.625	2.875	0.874	1.0	1.156	0.187	0.771	1.65	3/8-16	0.75	1.1	15.2	7.312	1.563	5.937	0.874	1.0	1.156	0.187	0.771	1.65	3/8-16	0.75	1.1	18.3
145JM/JP													16.2													19.3
182JM/JP	4.25	0.625	2.875	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	17.3	7.312	1.563	5.937	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	20.4
184JM/JP													18.3													21.4
213JM/JP	4.25	0.625	2.875	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	19.9	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	3/8-16	0.75	1.1	23.8
215JM/JP													21.4													25.3
254JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	25.8	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	28.17
256JM/JP													27.53													29.9
284JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	28.13	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	31.0
286JM/JP													29.63													32.5
324JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	31.34	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	32.97
326JM/JP													32.84													34.47

HIGH EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						JM Bearings		JP Bearings	
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	DE	NDE
1	1800	143JM or JP	1730	82.5	0.72	3.18	3.16	1.58	1.26	K	28.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
1.5	3600	143JM or JP	3490	82.5	0.79	4.22	4.24	2.12	1.69	K	25.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1800	145JM or JP	1730	84.0	0.72	4.59	4.56	2.28	1.82	K	34.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
2	3600	145JM or JP	3500	84.5	0.82	5.56	5.42	2.71	2.17	L	29.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1800	145JM or JP	1730	84.0	0.75	6.18	5.98	2.99	2.39	K	39.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
3	3600	145JM or JP	3490	85.5	0.83	7.98	7.78	3.89	3.11	L	50.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	3600	182JM or JP	3520	85.5	0.84	8.04	7.70	3.85	3.08	M	50.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1800	182JM or JP	1750	87.5	0.78	8.40	8.08	4.04	3.24	L	62.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
5	3600	184JM or JP	3510	87.5	0.90	12.80	11.8	5.90	4.72	L	62.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1800	184JM or JP	1740	87.5	0.84	13.80	12.6	6.32	5.05	K	73.5	6207ZZ	6206ZZ	6207ZZ	6206ZZ
7.5	3600	184JM or JP	3500	88.5	0.90	18.90	17.3	8.66	6.93	K	95.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	3600	213JM or JP	3510	88.5	0.91	18.70	17.0	8.50	6.85	K	95.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1800	213JM or JP	1750	89.5	0.84	19.70	18.4	9.18	7.35	K	113.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
10	3600	215JM or JP	3520	89.5	0.92	25.20	22.8	11.4	9.15	L	115.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1800	215JM or JP	1750	89.5	0.86	26.70	24.4	12.2	9.78	L	131.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
15	3600	215JM or JP	3520	90.2	0.92	--	33.2	16.6	13.3	L	135.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	3600	254JM or JP	3540	90.2	0.89	--	35.2	17.6	14.08	G	278.0	6309 C3		6309 C3	
	1800	254JM or JP	1760	91.0	0.83	--	37.2	18.6	14.88	G	280.0	6309 C3		6309 C3	
20	3600	256JM or JP	3530	90.2	0.90	--	46.4	23.2	18.56	F	295.0	6309 C3		6309 C3	
	1800	256JM or JP	1760	91.0	0.84	--	47.0	23.5	18.80	G	315.0	6309 C3		6309 C3	
25	3600	256JM or JP	3550	91.0	0.90	--	57.8	28.9	23.12	F	353.0	6309 C3		6309 C3	
	3600	284JM or JP	3550	91.0	0.90	--	57.8	28.9	23.12	F	353.0	6311 C3		6311 C3	
	1800	284JM or JP	1770	92.4	0.86	--	59.2	29.6	23.68	G	406.0	6311 C3		6311 C3	
30	3600	286JM or JP	3550	91.0	0.90	--	69.0	34.5	27.60	F	419.0	6311 C3		6311 C3	
	1800	286JM or JP	1770	92.4	0.86	--	71.0	35.5	28.43	F	404.0	6311 C3		6311 C3	
40	3600	286JM or JP	3560	91.7	0.90	--	93.0	46.5	37.19	G	523.0	6311 C3		6311 C3	
	3600	324JM or JP	3560	91.7	0.90	--	93.0	46.5	37.19	G	523.0	6312 C3		6312 C3	
	1800	324JM or JP	1770	93.0	0.87	--	94.2	47.1	37.69	E	584.0	6312 C3		6312 C3	
50	3600	326JM or JP	3560	92.4	0.90	--	117.0	58.5	46.81	F	551.0	6312 C3		6312 C3	
	1800	326JM or JP	1770	93.0	0.87	--	118.4	59.2	47.35	E	606.0	6312 C3		6312 C3	

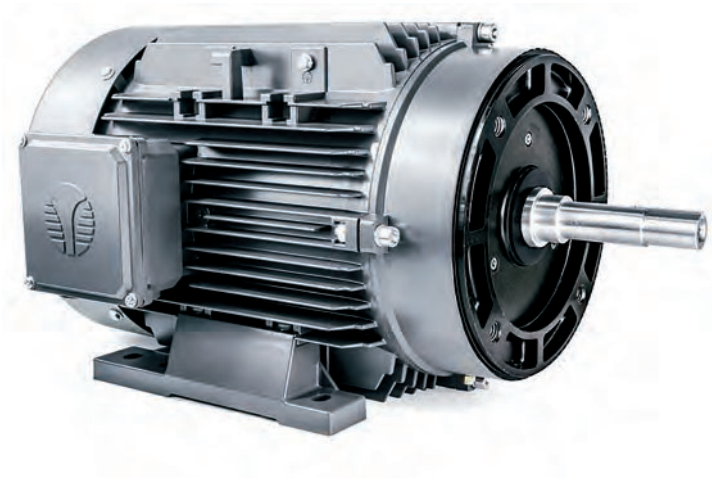
PREMIUM JM-JP PUMP MOTORS

1 - 75HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PRODUCT OVERVIEW

Three phase, enhanced performance close-coupled pump motors. Cast aluminum 215JM/JP and below, cast iron 254JM/JP and above, NEMA Premium Efficient. Features a multi-mount arrangement incorporating bolt on feet and flange mount configuration. 2 ,4 and 6 pole, 1 to 75HP.



BASIC SPECIFICATIONS

- Power Ratings from 1 to 75HP
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible up to and including 326T frame, F2 convertible 364T and larger
- 1.25 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- CSA Certified for Class I, Division II, Groups A, B, C and D / Class I, Zone 2, Groups IIC, IIB, IIA
- IEEE 45 Marine Duty 254JM/JP frame and larger
- Anti-microbial (tropicalization) on stator winding
- Cast iron fan covers on 254JM/JP frame and larger
- Regreasable bearings 254JM/JP frame and larger
- Mobil Polyrex EM polyurea grease
- AISI 304 grade stainless steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance (aluminum models only)
- Stainless steel nameplate
- Corrosion resistant hardware
- Ultra high strength, reusable lifting straps included with motors 254JM/JP frame and larger

Cast Aluminum: 143JM/JP to 215JM/JP
Cast Iron: 254JM/JP to 365JM/JP

ECOTOP PREMIUM EFFICIENT

WATERPROOF RATED IP55

INVERTER DUTY 1000:1 VT

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

Up to and including 215JM/JP Frame:

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 3-Lead 575V wye connection

254JM/JP Frame and larger:

- 12-Lead 230V parallel-delta / 460V delta connection
- 6-Lead 575V single voltage delta connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed including nipple seals between conduit box and stator body. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 1000:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

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PURCHASING DATA

143JM/JP - 365JM/JP Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL*	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)		List Price
					208V	230V	460V	575V			JM	JP	
1	**JMA0004[ ]P**	TXA143T1U4B	1800	143JM or JP	3.1	2.98	1.49	1.19	85.5	28.0	16.2	19.3	$432
	JMA0006[ ]P	TXA145T1U6B	1200	145JM or JP	3.36	3.26	1.63	1.3	82.5	34.5	16.2	19.3	$529
1.5	**JMA0012[ ]P**	TXA143T1.5U2B	3600	143JM or JP	4.2	4.12	2.06	1.64	84.0	25.0	16.2	19.3	$443
	JMA0014[ ]P	TXA145T1.5U4B	1800	145JM or JP	4.48	4.36	2.18	1.73	86.5	34.5	16.2	19.3	$503
	JMA0016[ ]P	TXA182T1.5U6B	1200	182JM or JP	4.76	4.64	2.32	1.86	87.5	39.5	18.3	21.4	$796
2	**JMA0022[ ]P**	TXA145T2U2B	3600	145JM or JP	5.58	5.18	2.59	2.07	85.5	29.5	16.2	19.3	$509
	JMA0024[ ]P	TXA145T2U4B	1800	145JM or JP	5.95	5.58	2.79	2.23	86.5	39.5	16.2	19.3	$531
	JMA0026[ ]P	TXA184T2U6B	1200	184JM or JP	6.36	6.26	3.13	2.5	88.5	62.0	18.3	21.4	$897
3	**JMA0032[ ]PS**	TXA145T3U2B	3600	145JM or JP	7.86	7.26	3.63	2.9	86.5	50.0	16.2	19.3	$636
	JMA0032[ ]P	TXA182T3U2B	3600	182JM or JP	7.77	7.17	3.59	2.87	86.5	50.0	18.3	21.4	$773
	JMA0034[ ]P	TXA182T3U4B	1800	182JM or JP	8.03	7.62	3.81	3.05	89.5	62.0	18.3	21.4	$770
	JMA0036[ ]P	TXA213T3U6B	1200	213JM or JP	9.23	8.58	4.29	3.48	89.5	73.5	20.6	24.5	$1,130
5	**JMA0052[ ]P**	TXA184T5U2B	3600	184JM or JP	12.7	11.5	5.77	4.61	88.5	62.0	18.3	21.4	$842
	JMA0054[ ]P	TXA184T5U4B	1800	184JM or JP	13.2	12.4	6.18	4.94	89.5	73.5	18.3	21.4	$869
	JMA0056[ ]P	TXA215T5U6B	1200	215JM or JP	15.4	14.2	7.11	5.69	89.5	113.0	20.6	24.5	$1,396
7.5	**JMA0072[ ]PS**	TXA184T7.5U2B	3600	184JM or JP	18.9	17.1	8.55	6.84	89.5	95.0	18.3	21.4	$1,010
	JMA0072[ ]P	TXA213T7.5U2B	3600	213JM or JP	18.7	17.0	8.48	6.78	89.5	95.0	20.6	24.5	$1,135
	JMA0074[ ]P	TXA213T7.5U4B	1800	213JM or JP	19.2	17.7	8.86	7.08	91.7	113.0	20.6	24.5	$1,224
	JMC0076[ ]P	TXC254T7.5U6B	1200	254JM or JP	22.46	20.31	10.15	8.12	91.0	243.0	26.39	29.27	$1,659
10	**JMA0102[ ]P**	TXA215T10U2B	3600	215JM or JP	25.8	22.60	11.30	9.07	90.2	115.0	20.6	24.5	$1,252
	JMA0104[ ]P	TXA215T10U4B	1800	215JM or JP	26.3	23.90	12.00	9.55	91.7	131.0	20.6	24.5	$1,427
	JMC0106[ ]P	TXC256T10U6B	1200	256JM or JP	29.55	26.73	13.36	10.69	91.0	284.0	28.13	31.01	$1,977
15	**JMA0152[ ]PS**	TXA215T15U2B	3600	215JM or JP	35.6	33.0	16.50	13.2	91.0	135.0	20.6	24.5	$1,656
	JMC0152[ ]P	TXC254T15U2B	3600	254JM or JP	38.79	35.1	17.54	14.0	91.0	278.0	26.39	29.27	$2,092
	JMC0154[ ]P	TXC254T15U4B	1800	254JM or JP	40.02	36.2	18.10	14.5	92.4	280.0	26.39	29.27	$2,039
	JMC0156[ ]P	TXC284T15U6B	1200	284JM or JP	44.57	40.3	20.15	16.1	91.7	366.0	28.48	31.36	$2,635
20	**JMC0202[ ]P**	TXC256T20U2B	3600	256JM or JP	50.01	45.2	22.61	18.1	91.0	295.0	28.13	31.01	$2,378
	JMC0204[ ]P	TXC256T20U4B	1800	256JM or JP	50.60	45.8	22.88	18.3	93.0	315.0	28.13	31.01	$2,306
	JMC0206[ ]P	TXC286T20U6B	1200	286JM or JP	56.45	51.1	25.53	20.4	91.7	395.0	29.98	32.86	$2,907
25	**JMC0252[ ]PS**	TXC256T25U2B	3600	256JM or JP	66.41	60.1	30.03	24.0	91.7	353.0	28.13	31.01	$2,589
	JMC0252[ ]P	TXC284TS25U2B	3600	284JM or JP	66.42	60.1	30.03	24.0	91.7	353.0	28.48	31.36	$2,755
	JMC0254[ ]P	TXC284T25U4B	1800	284JM or JP	65.07	58.8	29.42	23.5	93.6	406.0	28.48	31.36	$2,775
	JMC0256[ ]P	TXC324T25U6B	1200	324JM or JP	67.88	61.4	30.69	24.6	93.0	523.0	30.13	33.01	$3,588
30	**JMC0302[ ]P**	TXC286TS30U2B	3600	286JM or JP	77.87	70.4	35.21	28.2	91.7	419.0	29.98	32.86	$3,231
	JMC0304[ ]P	TXC286T30U4B	1800	286JM or JP	76.29	69.0	34.49	27.6	93.6	404.0	29.98	32.86	$3,264
	JMC0306[ ]P	TXC326TU306B	1200	326JM or JP	80.48	72.8	36.39	29.1	93.0	536.0	31.73	34.61	$4,405
40	**JMC0402[ ]PS**	TXC286TS40U2B	3600	286JM or JP	99.61	90.1	45.04	36.0	92.4	523.0	29.98	32.86	$4,197
	JMC0402[ ]P	TXC324TS40U2B	3600	324JM or JP	99.60	90.1	45.04	36.0	92.4	523.0	30.13	33.01	$3,743
	JMC0404[ ]P	TXC324T40U4B	1800	324JM or JP	107.34	97.1	48.54	38.8	94.1	584.0	30.13	33.01	$4,361
	JMC0406[ ]P	TXC364T40U6B	1200	364JM or JP	103.55	93.6	46.82	37.5	94.1	708.0	33.45	36.33	$5,551
50	**JMC0502[ ]P**	TXC326TS50U2B	3600	326JM or JP	125.09	113.1	56.56	45.2	93.0	551.0	31.73	34.61	$4,754
	JMC0504[ ]P	TXC326T50U4B	1800	326JM or JP	130.43	118.0	58.98	47.2	94.5	606.0	31.73	34.61	$4,947
	JMC0506[ ]P	TXC365T50U6B	1200	365JM or JP	132.56	119.9	59.94	48.0	94.1	772.0	34.45	37.33	$6,177
60	**JMC0602[ ]P**	TXC364TS60U2B	3600	364JM or JP	--	136.4	68.20	54.6	93.6	767.0	33.45	36.33	$5,543
	JMC0604[ ]P	TXC364T60U4B	1800	364JM or JP	--	135.9	67.97	54.4	95.0	831.0	33.45	36.33	$6,221
75	**JMC0752[ ]P**	TXC365TS75U2B	3600	365JM or JP	--	166.7	83.36	66.7	93.6	858.0	34.45	37.33	$6,244
	JMC0754[ ]P	TXC365T75U4B	1800	365JM or JP	--	167.3	83.65	66.9	95.4	904.0	34.45	37.33	$7,200

Voltage: Replace [ ] with D for 230/460V, F for 575V, or E for 460V

*Replace "JM" with "JP" in Model # for JP type shaft

DIMENSIONAL DRAWINGS

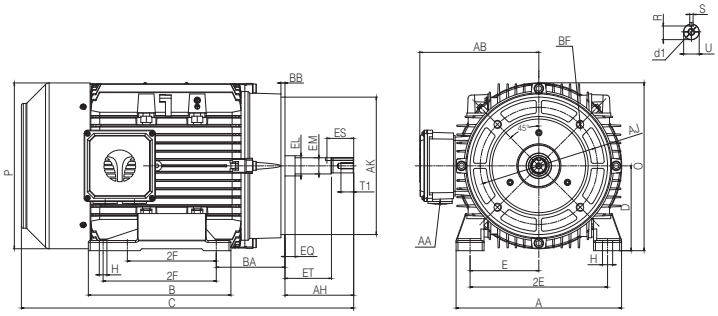


Figure 1 - Cast Aluminum JM/JP Model

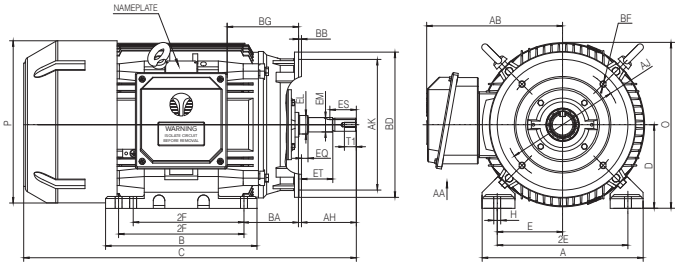


Figure 2 - Cast Iron JM/JP Model

Dimensions are in **inches**

NEMA Frame	Foot Mounting						General							NEMA C-Flange			
	E	2E	2F	2F	H	BA	A	B	D	O	P	AA	AB	AJ	AK	BB	BF
143JM/JP	2.75	5.5	4.0	5.0	0.34 *0.5	2.75	6.9	5.86	3.5	7.0	6.95	1-NPT 3/4"	5.65	5.875	4.5	0.125	4*3/8-16UNC
145JM/JP																	
182JM/JP	3.75	7.5	4.5	5.5	0.59 *0.43	3.5	8.85	7.1	4.5	8.85	8.65	1-NPT 3/4"	6.6	5.875	4.5	0.125	4*3/8-13UNC
184JM/JP																	
213JM/JP	4.25	8.5	5.5	7.0	0.59 *0.43	4.25	10.3	8.85	5.25	10.4	10.3	1-NPT 1"	7.4	7.25	8.5	0.25	4*1/2-13UNC
215JM/JP																	
254JM/JP	5	10.0	8.25	--	0.53	4.75	12.36	10.35	6.25	12.44	12.36	1-NPT 1-1/4"	10.0	7.25	8.5	0.25	4*1/2-13UNC
256JM/JP				10.0				12.05									
284JM/JP	5.5	11.0	9.5	--	0.53	4.75	13.8	12.2	7.0	13.9	13.78	1-NPT 1-1/2"	10.83	11.0	12.5	0.25	4*5/8-11UNC
286JM/JP				11.0				13.7									
324JM/JP	6.25	12.5	10.5	--	0.66	5.25	15.4	13.0	8.0	15.9	15.71	1-NPT 2"	13.0	11.0	12.5	0.25	4*5/8-11UNC
326JM/JP				12.0				14.5									
364JM/JP	7.0	14.0	11.25	--	0.66	5.88	17.17	14.2	9.0	18.0	--	1-NPT 2"	14.2	11.0	12.5	0.25	8*5/8-11UNC
365JM/JP				12.25				15.2									

Dimensions are in **inches**

NEMA Frame	Shaft End - Type JM													Shaft End - Type JP										
	Lengths			Diameters			Keyway			Threaded Hole			JM	Lengths			Diameters			Keyway			Threaded Hole			JP
	AH	EQ	ET	U	EM	EL	S	R	ES	d1 (UNC)	T1	T2	C	AH	EQ	ET	U	EM	EL	S	R	ES	d1 (UNC)	T1	T2	C
143JM/JP	4.25	0.625	2.875	0.874	1.0	1.156	0.187	0.771	1.65	3/8-16	0.75	1.1	16.2	7.312	1.563	5.937	0.874	1.0	1.156	0.187	0.771	1.65	3/8-16	0.75	1.1	19.3
145JM/JP																										
182JM/JP	4.25	0.625	2.875	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	18.3	7.312	1.563	5.937	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	21.4
184JM/JP																										
213JM/JP	4.25	0.625	2.875	0.874	1.0	1.25	0.187	0.771	1.65	3/8-16	0.75	1.1	20.6	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	3/8-16	0.75	1.1	24.5
215JM/JP																										
254JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	26.39	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	29.27
256JM/JP													28.13													31.01
284JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	28.48	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	31.36
286JM/JP													29.98													32.86
324JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	30.13	8.125	2.375	5.875	1.249	1.375	1.75	0.252	1.112	2.53	1/2-13	1.0	1.5	33.01
326JM/JP													31.73													34.61
364JM/JP	5.25	0.625	3.0	1.249	1.375	1.75	0.25	1.105	2.53	1/2-13	1.25	1.5	33.45	8.125	2.375	5.875	1.625	1.75	2.125	0.375	1.413	2.53	1/2-13	1.0	1.5	36.33
365JM/JP													34.45													37.33

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						JM Bearings		JP Bearings	
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	DE	NDE
1	1800	143JM or JP	1730	85.5	0.74	3.1	2.98	1.49	1.19	K	28.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1200	145JM or JP	1145	82.5	0.70	3.36	3.26	1.63	1.3	H	34.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
1.5	3600	143JM or JP	3500	84.0	0.80	4.2	4.12	2.06	1.64	L	25.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1800	145JM or JP	1740	86.5	0.73	4.48	4.36	2.18	1.73	K	34.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1200	182JM or JP	1175	87.5	0.68	4.76	4.64	2.32	1.86	L	39.5	6207ZZ	6206ZZ	6207ZZ	6206ZZ
2	3600	145JM or JP	3500	85.5	0.85	5.58	5.18	2.59	2.07	L	29.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1800	145JM or JP	1740	86.5	0.78	5.95	5.58	2.79	2.23	K	39.5	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	1200	184JM or JP	1175	88.5	0.68	6.36	6.26	3.13	2.5	L	62.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
3	3600	145JM or JP	3490	86.5	0.88	7.86	7.26	3.63	2.9	K	50.0	6206ZZ	6205ZZ	6206ZZ	6205ZZ
	3600	182JM or JP	3515	86.5	0.89	7.77	7.17	3.59	2.87	K	50.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1800	182JM or JP	1760	89.5	0.81	8.03	7.62	3.81	3.05	L	62.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1200	213JM or JP	1175	89.5	0.72	9.23	8.58	4.29	3.48	K	73.5	6308ZZ	6208ZZ	6210ZZ	6208ZZ
5	3600	184JM or JP	3510	88.5	0.92	12.7	11.5	5.77	4.61	L	62.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1800	184JM or JP	1750	89.5	0.85	13.2	12.4	6.18	4.94	L	73.5	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	1200	215JM or JP	1170	89.5	0.74	15.4	14.2	7.11	5.69	J	113.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
7.5	3600	184JM or JP	3510	89.5	0.90	18.9	17.1	8.55	6.84	L	95.0	6207ZZ	6206ZZ	6207ZZ	6206ZZ
	3600	213JM or JP	3520	89.5	0.91	18.7	17.0	8.48	6.78	K	95.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1800	213JM or JP	1765	91.7	0.85	19.2	17.7	8.86	7.08	L	113.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1200	254JM or JP	1170	91.0	0.75	22.46	20.31	10.15	8.12	J	243.0	6309 C3		6309 C3	
10	3600	215JM or JP	3520	90.2	0.92	25.8	22.60	11.30	9.07	L	115.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1800	215JM or JP	1760	91.7	0.86	26.3	23.90	12.00	9.55	L	131.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	1200	256JM or JP	1170	91.0	0.77	29.55	26.73	13.36	10.69	J	284.0	6309 C3		6309 C3	
15	3600	215JM or JP	3530	91.0	0.92	35.6	33.0	16.50	13.2	L	135.0	6308ZZ	6208ZZ	6210ZZ	6208ZZ
	3600	254JM or JP	3540	91.0	0.87	38.79	35.1	17.54	14.0	L	278.0	6309 C3		6309 C3	
	1800	254JM or JP	1760	92.4	0.83	40.02	36.2	18.10	14.5	K	280.0	6309 C3		6309 C3	
	1200	284JM or JP	1175	91.7	0.75	44.57	40.3	20.15	16.1	M	366.0	6311 C3		6311 C3	
20	3600	256JM or JP	3530	91.0	0.91	50.01	45.2	22.61	18.1	K	295.0	6309 C3		6309 C3	
	1800	256JM or JP	1760	93.0	0.88	50.60	45.8	22.88	18.3	K	315.0	6309 C3		6309 C3	
	1200	286JM or JP	1175	91.7	0.80	56.45	51.1	25.53	20.4	L	395.0	6311 C3		6311 C3	
25	3600	256JM or JP	3550	91.7	0.84	66.41	60.1	30.03	24.0	M	341.0	6309 C3		6309 C3	
	3600	284JM or JP	3550	91.7	0.84	66.42	60.1	30.03	24.0	M	353.0	6311 C3		6311 C3	
	1800	284JM or JP	1770	93.6	0.84	65.07	58.8	29.42	23.5	K	406.0	6311 C3		6311 C3	
	1200	324JM or JP	1180	93.0	0.81	67.88	61.4	30.69	24.6	M	523.0	6312 C3		6312 C3	
30	3600	286JM or JP	3550	91.7	0.86	77.87	70.4	35.21	28.2	L	419.0	6311 C3		6311 C3	
	1800	286JM or JP	1770	93.6	0.86	76.29	69.0	34.49	27.6	K	404.0	6311 C3		6311 C3	
	1200	326JM or JP	1180	93.0	0.82	80.48	72.8	36.39	29.1	M	536.0	6312 C3		6312 C3	
40	3600	286JM or JP	3560	92.4	0.90	99.61	90.1	45.04	36.0	H	423.4	6311 C3		6311 C3	
	3600	324JM or JP	3560	92.4	0.90	99.60	90.1	45.04	36.0	H	523.0	6312 C3		6312 C3	
	1800	324JM or JP	2770	94.1	0.82	107.34	97.1	48.54	38.8	L	584.0	6312 C3		6312 C3	
	1200	364JM or JP	1180	94.1	0.85	103.55	93.6	46.82	37.5	J	708.0	6313 C3		6313 C3	
50	3600	326JM or JP	3560	93.0	0.88	125.09	113.1	56.56	45.2	H	551.0	6312 C3		6312 C3	
	1800	326JM or JP	1770	94.5	0.83	130.43	118.0	58.98	47.2	K	606.0	6312 C3		6312 C3	
	1200	365JM or JP	1180	94.1	0.82	132.56	119.9	59.94	48.0	H	772.0	6313 C3		6313 C3	
60	3600	364JM or JP	3560	93.6	0.88	--	136.4	68.20	54.6	L	767.0	6313 C3		6313 C3	
	1800	364JM or JP	1775	95.0	0.87	--	135.9	67.97	54.4	L	831.0	6313 C3		6313 C3	
75	3600	365JM or JP	3560	93.6	0.88	--	166.7	83.36	66.7	K	858.0	6313 C3		6313 C3	
	1800	365JM or JP	1775	95.4	0.87	--	167.3	83.65	66.9	L	904.0	6313 C3		6313 C3	

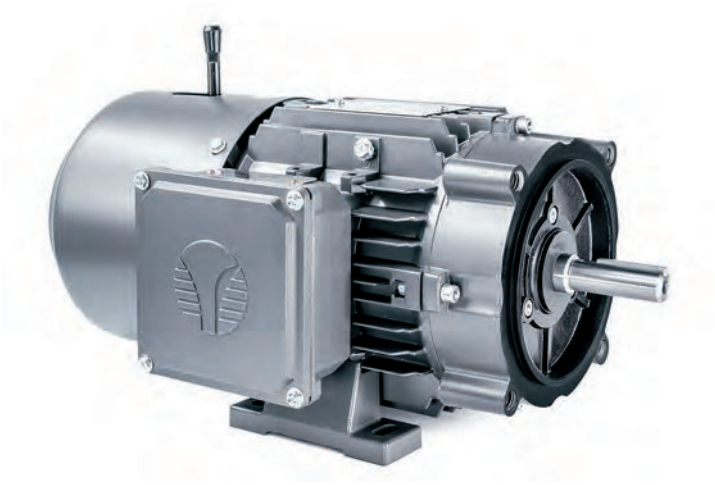
PREMIUM 56C BRAKE MOTORS

1/3 - 3HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PRODUCT OVERVIEW

Three phase motors fitted with electromagnetic spring-loaded Fail-Safe DC brakes. Enhanced performance cast aluminum NEMA frame with design B torque characteristics. Features a multi-mount arrangement incorporating bolt on feet with flange mount configurations available. 2,4 and 6 pole, 1/3 to 3HP.



BASIC SPECIFICATIONS

- Power Ratings from 1/3 to 3HP
- Three Phase, 2, 4 and 6 pole, 60Hz
- 208-230/460V & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flanges
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- Dual oversized shielded bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware
- Normally closed brake
- Bridge rectifier used for AC to DC conversion, located inside motor terminal box
- Manual brake release included
- Adjustable brake torque
- Alternate brake voltages and rectifiers available

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
  - Standard with full-wave rectifier and 205VDC brake
- 3-Lead 575V wye connection
  - Standard with half-wave rectifier and 250VDC brake

INGRESS PROTECTION

The standard degree of motor enclosure protection is IP55 (increased IP protection is available). Brake mechanical components rated IP23. Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE/NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 15:1 CT

C SA US 224693 · SA Energy Verified Only · CE · c UL us · ee CC096A · NEMA Premium®

PURCHASING DATA

56C Frame Foot-Mount — **NEMA Premium Efficiency**

HP	MODEL	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Brake Torque		Brake Size	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
				208V	230V	460V	575V		(Nm)	(ft.lb)				
1/3	**BMB.332[ ]-C**	3600	56C	1.22	1.24	0.62	0.50	72.0	4.0	3.0	08A	22.1	14.15	$883
	BMB.334[ ]-C	1800	56C	1.30	1.34	0.67	0.53	74.0	4.0	3.0	08A	23.0	14.15	$872
	BMB.336[ ]-C	1200	56C	1.37	1.38	0.69	0.55	73.0	8.0	5.9	08A	24.6	14.15	$1,072
1/2	**BMB.502[ ]-C**	3600	56C	1.71	1.74	0.87	0.70	74.0	4.0	3.0	08A	22.7	14.15	$905
	BMB.504[ ]-C	1800	56C	1.76	1.80	0.90	0.72	78.5	8.0	5.9	08A	24.9	14.15	$894
	BMB.506[ ]-C	1200	56C	1.87	1.86	0.93	0.74	75.5	8.0	5.9	08A	27.5	14.15	$1,097
3/4	**BMB.752[ ]-C**	3600	56C	2.38	2.40	1.20	0.96	77.0	8.0	5.9	08A	24.3	14.15	$933
	BMB.754[ ]-C	1800	56C	2.48	2.50	1.25	0.99	81.5	8.0	5.9	08A	27.4	14.15	$930
	BMB.756[ ]-C	1200	56HC	2.58	2.56	1.28	1.02	81.5	12.0	8.9	10A	44.3	15.95	$1,292
1	**BMB0002[ ]-C**	3600	56C	3.10	3.10	1.55	1.24	79.0	8.0	5.9	08A	25.4	14.15	$956
	BMB0004[ ]-C	1800	56C	3.18	3.18	1.59	1.28	85.5	12.0	8.9	08A	32.9	14.15	$1,066
	BMB0006[ ]-C	1200	56HC	3.36	3.26	1.63	1.30	82.5	16.0	11.8	10A	46.7	15.95	$1,369
1.5	**BMB0012[ ]-C**	3600	56C	4.20	3.90	1.95	1.56	84.0	8.0	5.9	08A	31.1	14.15	$978
	BMB0014[ ]-C	1800	56HC	4.40	4.26	2.13	1.70	86.5	16.0	11.8	10A	48.0	15.95	$1,314
2	**BMB0022[ ]-C**	3600	56C	5.50	5.24	2.62	2.09	85.5	12.0	8.9	08A	40.0	14.15	$1,000
	BMB0024[ ]-C	1800	56HC	5.91	5.72	2.86	2.29	86.5	23.0	17.0	10A	53.0	15.95	$1,355
3	**BMB0032[ ]-C**	3600	56HC	7.86	7.26	3.63	2.90	86.5	16.0	11.8	10A	51.5	15.95	$1,395

Voltage: Replace [ ] with D for 208-230/460V, or F for 575V

DIMENSIONAL DRAWINGS

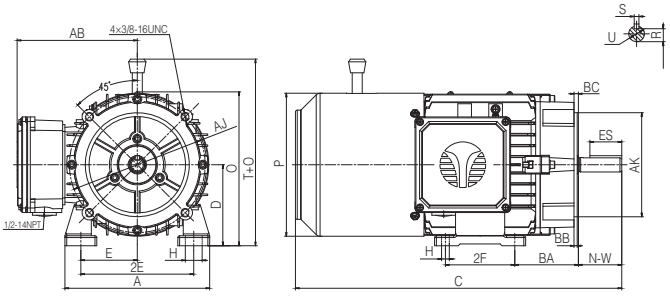


Figure 1 - Foot Mount, 56C

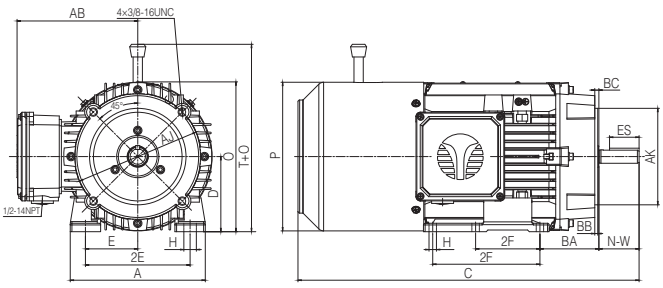


Figure 2 - Foot Mount, 56HC

Dimensions are in **inches**

NEMA Frame	Foot Mounting						Shaft					General						NEMA C-Flange			
	E	2E	2F	A	BA*	H	N-W	U	S	R	ES	C	D	O	T+O	P	AB	AJ	AK	BB	BC
56C	2.44	4.88	3.0	6.3	2.75	0.34 *0.77	1.875	0.625	0.1875	0.517	1.41	14.15	3.5	6.65	8.1	6.2	5.2	5.875	4.5	0.16	0.19
56HC	2.44	4.88	3.0/5.0	6.3	2.75	0.34 *0.77	1.875	0.625	0.1875	0.517	1.41	15.95	3.5	7.0	8.75	6.95	5.65	5.875	4.5	0.16	0.19

*Non-standard NEMA BA dimension for c-flanged models

PREMIUM 56C BRAKE MOTORS

1/3 - 3HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)						Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/3	3600	56C	3520	72.0	0.70	1.22	1.24	0.62	0.50	M	22.1	6204ZZ		14.15
	1800	56C	1750	74.0	0.63	1.30	1.34	0.67	0.53	K	23.0	6204ZZ		14.15
	1200	56C	1150	73.0	0.62	1.37	1.38	0.69	0.55	J	24.6	6204ZZ		14.15
1/2	3600	56C	3490	74.0	0.72	1.71	1.74	0.87	0.70	L	22.7	6204ZZ		14.15
	1800	56C	1750	78.5	0.66	1.76	1.80	0.90	0.72	L	24.9	6204ZZ		14.15
	1200	56C	1140	75.5	0.66	1.87	1.86	0.93	0.74	H	27.5	6204ZZ		14.15
3/4	3600	56C	3500	77.0	0.75	2.38	2.40	1.20	0.96	L	24.3	6204ZZ		14.15
	1800	56C	1750	81.5	0.68	2.48	2.50	1.25	0.99	L	27.4	6204ZZ		14.15
	1200	56HC	1160	81.5	0.66	2.58	2.56	1.28	1.02	J	44.3	6205ZZ		15.95
1	3600	56C	3490	79.0	0.77	3.10	3.10	1.55	1.24	K	25.4	6204ZZ		14.15
	1800	56C	1745	85.5	0.69	3.18	3.18	1.59	1.28	L	32.9	6204ZZ		14.15
	1200	56HC	1145	82.5	0.70	3.36	3.26	1.63	1.30	H	46.7	6205ZZ		15.95
1.5	3600	56C	3500	84.0	0.84	4.20	3.90	1.95	1.56	M	31.1	6204ZZ		14.15
	1800	56HC	1745	86.5	0.75	4.40	4.26	2.13	1.70	L	48.0	6205ZZ		15.95
2	3600	56C	3500	85.5	0.84	5.50	5.24	2.62	2.09	L	40.0	6204ZZ		14.15
	1800	56HC	1740	86.5	0.76	5.91	5.72	2.86	2.29	L	53.0	6205ZZ		15.95
3	3600	56HC	3490	86.5	0.88	7.86	7.26	3.63	2.90	K	51.5	6205ZZ		15.95

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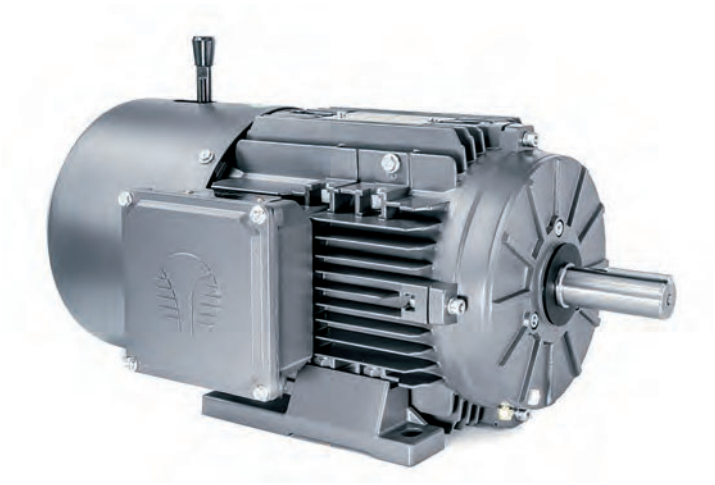
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PRODUCT OVERVIEW

Three phase motors fitted with electromagnetic spring-loaded Fail-Safe DC brakes. Enhanced performance cast aluminum NEMA frame with design B torque characteristics. Features a multi-mount arrangement incorporating bolt on feet with flange mount configurations available. 2,4 and 6 pole, 1 to 10HP.



BASIC SPECIFICATIONS

- Power Ratings from 1 to 10HP
- Three Phase, 2, 4 and 6 pole, 60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.25 Service Factor with 60Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum c-flange kits available
- Compact lightweight design
- Anti-microbial (tropicalization) on stator winding
- Shielded bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware
- Normally closed brake
- Bridge rectifier used for AC to DC conversion, located inside motor terminal box
- Manual brake release included
- Adjustable brake torque
- Alternate brake voltages and rectifiers available

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
  - Standard with full-wave rectifier and 205VDC brake
- 3-Lead 575V wye connection
  - Standard with half-wave rectifier and 250VDC brake

INGRESS PROTECTION

The standard degree of motor enclosure protection is IP55 (increased IP protection is available). Brake mechanical components rated IP23. Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE/NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT · WATERPROOF RATED IP55 · INVERTER DUTY 15:1 CT

224693 · CC096A

PREMIUM T-FRAME BRAKE MOTORS

1 - 10HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PURCHASING DATA

143T - 215T Frame Foot-Mount — NEMA Premium Efficiency

HP	MODEL	Sync. RPM	NEMA Frame	Full Load Current I_n (A)				FL Eff. (%)	Brake Torque		Brake Size	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price		
				208V	230V	460V	575V		(Nm)	(ft.lb)				Rigid	C-Flange	D-Flange
1	**BMG0004[ ]**	1800	143T	3.1	2.98	1.49	1.19	85.5	16.0	11.8	10A	42.8	16.0	$1,206	$1,246	$1,309
	BMG0006[ ]	1200	145T	3.36	3.26	1.63	1.3	82.5	16.0	11.8	10A	46.4	16.0	$1,334	$1,374	$1,437
1.5	**BMG0012[ ]**	3600	143T	4.2	4.12	2.06	1.64	84.0	12.0	8.9	10A	38.5	16.0	$1,192	$1,232	$1,295
	BMG0014[ ]	1800	145T	4.48	4.36	2.18	1.73	86.5	16.0	11.8	10A	48.5	16.0	$1,322	$1,362	$1,425
	BMG0016[ ]	1200	182T	4.76	4.64	2.32	1.86	87.5	45.0	33.2	14A	90.5	18.9	$2,021	$2,079	$2,182
2	**BMG0022[ ]**	3600	145T	5.58	5.18	2.59	2.07	85.5	16.0	11.8	10A	43.5	16.0	$1,285	$1,325	$1,388
	BMG0024[ ]	1800	145T	5.95	5.58	2.79	2.23	86.5	23.0	17.0	10A	53.5	16.0	$1,367	$1,407	$1,470
	BMG0026[ ]	1200	184T	6.36	6.26	3.13	2.5	88.5	45.0	33.2	14A	102.9	18.9	$2,161	$2,219	$2,322
3	**BMG0032[ ]**	3600	182T	7.77	7.17	3.59	2.87	86.5	45.0	33.2	14A	77.9	18.9	$1,988	$2,046	$2,149
	BMG0034[ ]	1800	182T	8.03	7.62	3.81	3.05	89.5	45.0	33.2	14A	89.9	18.9	$2,015	$2,073	$2,176
	BMG0036[ ]	1200	213T	9.23	8.58	4.29	3.48	89.5	60.0	44.3	16A	141.3	22.9	$2,690	$2,779	$2,895
5	**BMG0052[ ]**	3600	184T	12.7	11.5	5.77	4.61	88.5	45.0	33.2	14A	62.0	18.9	$2,084	$2,142	$2,245
	BMG0054[ ]	1800	184T	13.2	12.4	6.18	4.94	89.5	60.0	44.3	14A	99.9	18.9	$2,175	$2,233	$2,336
	BMG0056[ ]	1200	215T	15.4	14.2	7.11	5.69	89.5	80.0	59.0	16A	161.3	22.9	$3,059	$3,148	$3,264
7.5	**BMG0072[ ]**	3600	213T	18.7	17.0	8.48	6.78	89.5	60.0	44.3	16A	136.0	22.9	$2,697	$2,786	$2,902
	BMG0074[ ]	1800	213T	19.2	17.7	8.86	7.08	91.7	80.0	59.0	16A	154.0	22.9	$2,821	$2,910	$3,026
10	**BMG0102[ ]**	3600	215T	25.8	22.6	11.3	9.07	90.2	60.0	44.3	16A	154.3	22.9	$2,860	$2,949	$3,065
	BMG0104[ ]	1800	215T	26.3	23.9	12.0	9.55	91.7	100.0	73.8	16A	170.3	22.9	$3,103	$3,192	$3,308

Voltage: Replace [ ] with D for 230/460V, or F for 575V

Flange: Add "-TC" to the end of Model for C-Flange or "-TD" for D-Flange

For Flange Kits refer to Motor Accessories on page 50

DIMENSIONAL DRAWINGS

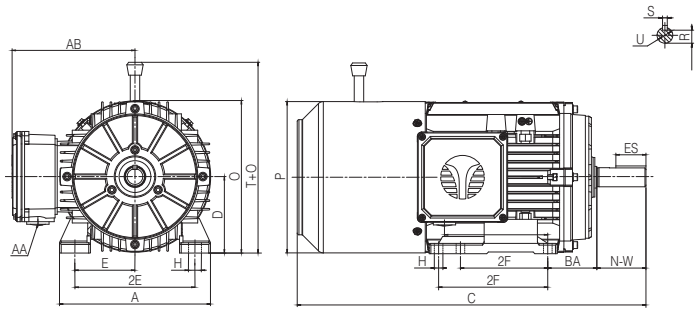


Figure 1 - Foot Mount, 140T

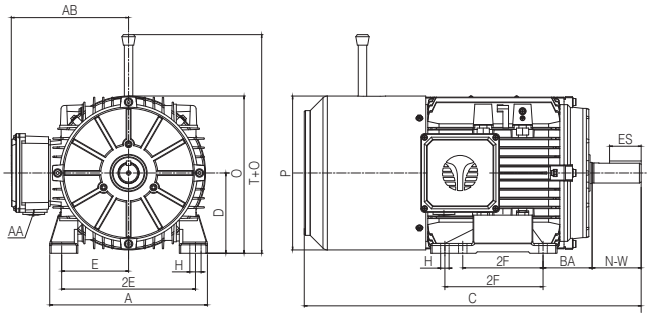
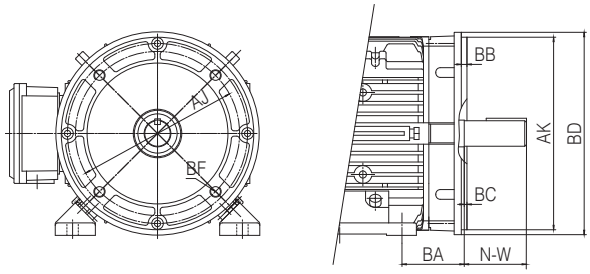


Figure 2 - Foot Mount, 180T/210T

Dimensions are in **inches**

NEMA Frame	Foot Mounting					Shaft					General							
	E	2E	2F	H	BA	N-W	U	S	R	ES	A	C	D	P	AA	AB	O	T+O
143T	2.75	5.5	4.0/5.0	0.34 *0.5	2.25	2.25	0.875	0.188	0.771	1.41	6.9	16.0	3.5	6.95	1-NPT 3/4"	5.65	7.0	8.75
145T																		
182T	3.75	7.5	4.5/5.5	0.59 *0.43	2.75	2.75	1.125	0.25	0.986	1.78	8.85	18.9	4.5	8.65	1-NPT 3/4"	6.6	8.85	12.3
184T																		
213T	4.25	8.5	5.5/7.0	0.59 *0.43	3.5	3.38	1.375	0.312	1.201	2.41	10.3	22.9	5.25	10.3	1-NPT 1"	7.4	10.4	14.8
215T																		

Figure 3 - C-Flange

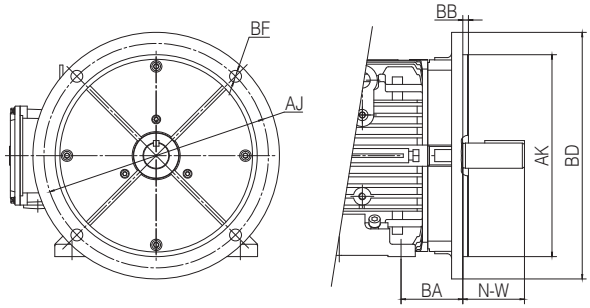


Dimensions are in **inches**

NEMA Frame	NEMA C-Flange							
	AJ	AK	BA*	BB	BC	BD	BF	N-W
143TC	5.875	4.5	2.25	0.16	0.125	6.5	4*3/8-16UNC	2.25
145TC								
182TC	7.25	8.5	2.75	0.25	0.125	8.95	4*1/2-13UNC	2.75
184TC								
213TC	7.25	8.5	3.5	0.25	0.25	9.0	4*1/2-13UNC	3.38
215TC								

*Non-standard NEMA BA dimension for c-flanged models

Figure 4 - D-Flange



Dimensions are in **inches**

NEMA Frame	NEMA D-Flange							
	AJ	AK	BA*	BB	BC	BD	BF	N-W
143TD	10.0	9.0	2.25	0.25	--	11.0	4*0.53	2.25
145TD								
182TD	10.0	9.0	2.75	0.25	--	11.0	4*0.53	2.75
184TD								
213TD	10.0	9.0	3.5	0.25	--	11.0	4*0.53	3.38
215TD								

*Non-standard NEMA BA dimension for d-flanged models

PREMIUM T-FRAME BRAKE MOTORS

1 - 10HP, PREMIUM EFFICIENT, THREE PHASE, TEFC

NEMA Premium® TECHTOP

PREMIUM EFFICIENCY 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)					Rated Torque (%FL)			Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT	BDT	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1	1800	143T	1730	85.5	0.74	3.1	2.98	1.49	1.19	K	220%	270%	42.8	6205ZZ		16.0
	1200	145T	1145	82.5	0.70	3.36	3.26	1.63	1.3	H	210%	250%	46.4	6205ZZ		16.0
1.5	3600	143T	3500	84.0	0.80	4.2	4.12	2.06	1.64	L	310%	350%	38.5	6205ZZ		16.0
	1800	145T	1740	86.5	0.74	4.48	4.36	2.18	1.73	K	310%	350%	48.5	6205ZZ		16.0
	1200	182T	1175	87.5	0.68	4.76	4.64	2.32	1.86	L	260%	360%	90.5	6306ZZ	6206ZZ	18.9
2	3600	145T	3500	85.5	0.85	5.58	5.18	2.59	2.07	L	280%	360%	43.5	6205ZZ		16.0
	1800	145T	1740	86.5	0.78	5.95	5.58	2.79	2.23	K	280%	300%	53.5	6205ZZ		16.0
	1200	184T	1175	88.5	0.68	6.36	6.26	3.13	2.50	L	270%	350%	102.9	6306ZZ	6206ZZ	18.9
3	3600	182T	3515	86.5	0.89	7.77	7.17	3.59	2.87	K	460%	330%	77.9	6306ZZ	6206ZZ	18.9
	1800	182T	1760	89.5	0.81	8.03	7.62	3.81	3.05	L	290%	380%	89.9	6306ZZ	6206ZZ	18.9
	1200	213T	1175	89.5	0.71	9.23	8.58	4.29	3.48	K	250%	340%	141.3	6308ZZ	6208ZZ	22.9
5	3600	184T	3510	88.5	0.91	12.7	11.5	5.77	4.61	L	280%	380%	62.0	6306ZZ	6206ZZ	18.9
	1800	184T	1750	89.5	0.84	13.2	12.4	6.18	4.94	L	250%	360%	99.9	6306ZZ	6206ZZ	18.9
	1200	215T	1170	89.5	0.73	15.4	14.2	7.11	5.69	J	240%	320%	161.3	6308ZZ	6208ZZ	22.9
7.5	3600	213T	3520	89.5	0.91	18.7	17.0	8.48	6.78	K	210%	320%	136.0	6308ZZ	6208ZZ	22.9
	1800	213T	1765	91.7	0.85	19.2	17.7	8.86	7.08	L	260%	380%	154.0	6308ZZ	6208ZZ	22.9
10	3600	215T	3520	90.2	0.92	25.8	22.6	11.3	9.07	L	250%	350%	154.3	6308ZZ	6208ZZ	22.9
	1800	215T	1760	91.7	0.86	26.3	23.9	12.0	9.55	L	270%	380%	170.3	6308ZZ	6208ZZ	22.9

PRODUCT OVERVIEW

Single phase, enhanced performance cold rolled steel, dual capacitor energy-saving, high torque design. 2 & 4 pole, 1/4 to 2HP, ideal for numerous general purpose and industrial applications where high starting torque and low current draw is required.



BASIC SPECIFICATIONS

- Power Ratings from 1/4 to 2HP
- Single Phase, 2 & 4 pole, Capacitor-Start Capacitor-Run
- 115/208-230 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Klixon manual reset thermal overload protectors (FDR models only)
- Over 300% starting torque
- 1.15 Service Factor
- 18 Month warranty
- High quality Japanese switches with beryllium coated contacts
- Cold rolled steel construction with cast iron end bells and c-flange kits
- Rubber sealed bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide under coat surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

INGRESS PROTECTION

The standard degree of enclosure protection is IP54 (Weather Proof). Both drive end and non-drive end are fitted with v-seals. Motors include high quality molded capacitor cover gaskets. Conduit box lid and body are sealed with fitted rubber gaskets. DE/NDE end bell fitted with sintered brass one-way drain.

INSULATION RATING

- Class F Insulation
- Vacuum Impregnated
- Designed to Class B temperature rise

C US 224693

GENERAL PURPOSE SINGLE PHASE MOTORS

ENERGY SAVER, HIGH TORQUE, SINGLE PHASE, TEFC

TECHTOP

PURCHASING DATA

56 - 145T Frame Foot-Mount — High Efficiency Energy Saver

HP	MODEL (Rigid)	MODEL (With C-Flange)	Sync. RPM	NEMA Frame	Full Load Current I_n (A)			O/L Prot.	FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price	
					115V	208V	230V					Rigid	C-Flange
1/4	**GPS.254C-01**	**GPS.254C-C-01**	1800	56	3.0	1.6	1.5	None	65.0	21	11.3	$219	$254
1/3	**FDR.332C-01**	**FDR.332C-C-01**	3600	56	3.6	1.95	1.8	Man.	68.0	21	11.3	$270	$305
	GPS.334C-01	**GPS.334C-C-01**	1800	56	3.7	2.0	1.85	None	67.0	23	11.3	$234	$269
1/2	**FDR.502C-01**	**FDR.502C-C-01**	3600	56	5.0	2.7	2.5	Man.	71.0	24	11.9	$279	$314
	GPS.504C-01	**GPS.504C-C-01**	1800	56	5.2	2.9	2.6	None	70.0	27	11.9	$258	$293
3/4	**FDR.752C-01**	**FDR.752C-C-01**	3600	56	7.2	4.0	3.6	Man.	73.0	27	12.5	$308	$343
	GPS.754C-01	**GPS.754C-C-01**	1800	56	7.4	4.1	3.7	None	72.0	30	12.5	$282	$317
1	**FDR0002C-01**	**FDR0002C-C-01**	3600	56H	9.6	5.3	4.8	Man.	74.0	35	12.9	$350	$385
	GPS0004C-01	**GPS0004C-C-01**	1800	56H	9.3	4.95	4.65	None	77.5	41	12.9	$347	$382
1.5	**FDR0012C-01**	**FDR0012C-C-01**	3600	56H	13.4	7.4	6.7	Man.	76.0	40	13.7	$418	$453
	FDR0012C-T-01	**FDR0012C-TC-01**	3600	143T	13.4	7.4	6.7	Man.	76.0	40	14.1	$445	$480
	GPS0014C-01	**GPS0014C-C-01**	1800	56H	13.3	7.2	6.65	None	79.5	48	13.7	$407	$442
2	**FDR0022C-01**	**FDR0022C-C-01**	3600	56H	18.2	10.0	9.1	Man.	77.0	43	13.7	$481	$516
	FDR0022C-T-01	**FDR0022C-TC-01**	3600	145T	18.2	10.0	9.1	Man.	77.0	43	14.1	$501	$536
	GPS0024C-01	**GPS0024C-C-01**	1800	56H	17.3	10.4	8.65	None	81.5	53	14.5	$464	$499

C-Flange: Add "-C" to the end of 56 frame Model or "-TC" for T-frame Model for C-Flange

FDR Models come with manual reset thermal overload protectors

For Flange Kits refer to Motor Accessories on page 50



56C Frame Round Body — High Efficiency Energy Saver

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)			O/L Prot.	FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
					115V	208V	230V					
1/4	**GPS.254C-C-RND-01**	SLF561/4Z4L	1800	56C	3.0	1.6	1.5	None	65.0	21	11.3	$226
1/3	**FDR.332C-C-RND-01**	SLF561/3Z2L	3600	56C	3.6	1.95	1.8	Man.	68.0	21	11.3	$295
	GPS.334C-C-RND-01	SLF561/3Z4L	1800	56C	3.7	2.0	1.85	None	67.0	23	11.3	$241
1/2	**FDR.502C-C-RND-01**	SLF561/2Z2L	3600	56C	5.0	2.7	2.5	Man.	71.0	24	11.9	$304
	GPS.504C-C-RND-01	SLF561/2Z4L	1800	56C	5.2	2.9	2.6	None	70.0	27	11.9	$266
3/4	**FDR.752C-C-RND-01**	SLF563/4Z2L	3600	56C	7.2	4.0	3.6	Man.	73.0	27	12.5	$333
	GPS.754C-C-RND-01	SLF563/4Z4L	1800	56C	7.4	4.1	3.7	None	72.0	30	12.5	$290
1	**FDR0002C-C-RND-01**	SLF561Z2L	3600	56HC	9.6	5.3	4.8	Man.	74.0	35	12.9	$375
	GPS0004C-C-RND-01	SLF561Z4L	1800	56HC	9.3	4.95	4.65	None	77.5	41	12.9	$377
1.5	**FDR0012C-C-RND-01**	SLF561.5Z4L	3600	56HC	13.4	7.4	6.7	Man.	76.0	40	13.7	$443
	GPS0014C-C-RND-01	SLF561.5Z4L	1800	56HC	13.3	7.2	6.65	None	79.5	48	13.7	$420
2	**FDR0022C-C-RND-01**	SLF562Z2L	3600	56HC	18.2	10.0	9.1	Man.	77.0	43	13.7	$506
	GPS0024C-C-RND-01	SLF562Z4L	1800	56HC	17.3	10.4	8.65	None	81.5	53	14.5	$478

DIMENSIONAL DRAWINGS

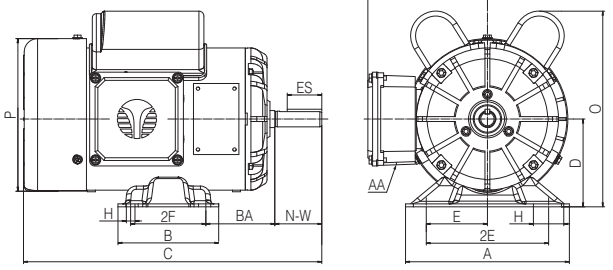


Figure 1 - Foot Mount, 56 Frame

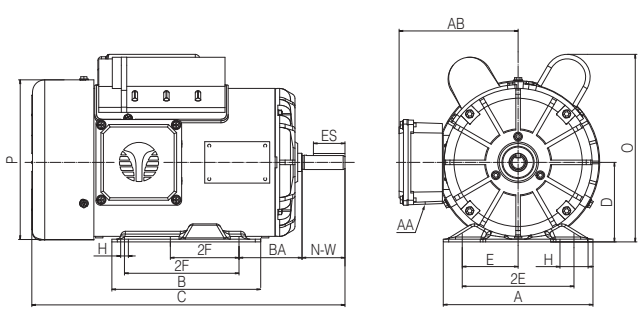
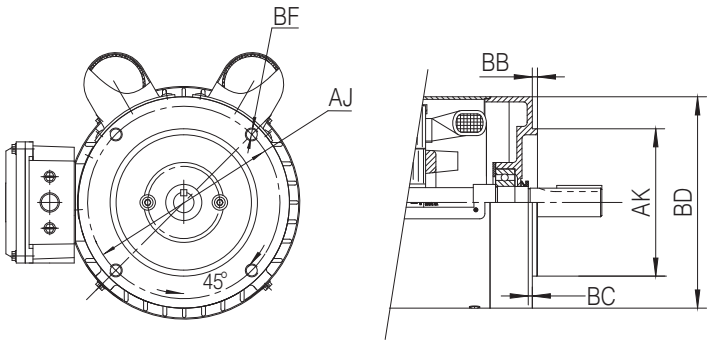


Figure 2 - Foot Mount, 56H/140T Frame

Dimensions are in **inches**

NEMA Frame (HP)	Foot Mounting						Shaft					General								
	E	2E	2F	2F	H	BA	N-W	U	S	R	ES	A	B	C	D	T	O	P	AA	AB
56 (1/4)	2.44	4.88	3.0	--	0.34 Slot	2.75	1.88	0.625	0.188	0.517	1.41	6.54	4.02	11.3	3.5	--	7.8	6.42	0.88	4.77
56 (1/3)														11.3						
56 (1/2)														11.9						
56 (3/4)														12.5						
56H (1)	2.44	4.88	3.0	5.0	0.34 Slot	2.75	1.88	0.625	0.188	0.517	1.41	6.54	6.5	12.9	3.5	--	8.22	7.21	0.88	5.2
56H (1.5)														13.7						
56H (2) 2P														13.7						
56H (2) 4P														14.5						
143T	2.75	5.5	4.0	5.0	0.34 Slot	2.25	2.25	0.875	0.188	0.771	1.41	6.54	5.91	13.3	3.5	--	8.22	7.21	0.88	5.2
145T (1.5)														14.1						
145T (2) 2P														14.1						
145T (2) 4P														14.9						

Figure 3 - C-Flange



NEMA Frame	NEMA C-Flange					
	AJ	AK	BB	BC	BD	BF
56C	5.875	4.5	0.16	0.19	5.67	4*3/8-16UNC
56HC					6.5	
143TC	5.875	4.5	0.16	0.12	6.5	4*3/8-16UNC
145TC						

ENERGY SAVER 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)				Start Capacitor		Run Capacitor			Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	115V	208V	230V	KVA Code	Cap. (μF)	Volt (V)	Cap. (μF)	Volt (V)	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/4	1800	56	1725	65.0	0.84	3.0	1.6	1.5	K	150	125	25	250	21	6203 2RS	6202 2RS	11.3
1/3	3600	56	3450	68.0	0.90	3.6	1.95	1.8	L	200	125	30	250	21	6203 2RS	6202 2RS	11.3
	1800	56	1725	67.0	0.90	3.7	2.0	1.85	K	200	125	30	250	23	6203 2RS	6202 2RS	11.3
1/2	3600	56	3450	71.0	0.90	5.0	2.7	2.5	K	250	125	40	250	24	6203 2RS	6202 2RS	11.9
	1800	56	1725	70.0	0.90	5.2	2.9	2.6	K	250	125	40	250	27	6203 2RS	6202 2RS	11.9
3/4	3600	56	3450	73.0	0.90	7.2	4.0	3.6	K	300	125	60	250	27	6203 2RS	6202 2RS	12.5
	1800	56	1725	72.0	0.90	7.4	4.1	3.7	J	300	125	60	250	30	6203 2RS	6202 2RS	12.5
1	3600	56H	3460	74.0	0.93	9.6	5.3	4.8	J	400	165	80	250	35	6204 2RS	6203 2RS	12.9
	1800	56H	1750	77.5	0.90	9.3	4.95	4.65	J	300	165	60	250	41	6204 2RS	6203 2RS	12.9
1.5	3600	56H	3460	76.0	0.93	13.4	7.4	6.7	J	450	165	100	250	40	6204 2RS	6203 2RS	13.7
	3600	143T	3460	76.0	0.93	13.4	7.4	6.7	J	450	165	100	250	40	6205 2RS	6203 2RS	14.1
	1800	56H	1740	79.5	0.92	13.3	7.2	6.65	H	400	165	80	250	48	6204 2RS	6203 2RS	13.7
2	3600	56H	3460	77.0	0.93	18.2	10.0	9.1	J	500	165	115	250	43	6204 2RS	6203 2RS	13.7
	3600	145T	3460	77.0	0.93	18.2	10.0	9.1	J	500	165	115	250	43	6205 2RS	6203 2RS	14.1
	1800	56H	1740	81.5	0.92	17.3	10.4	8.65	H	500	165	80	250	53	6204 2RS	6203 2RS	14.5

PRODUCT OVERVIEW

Single phase, enhanced performance cold rolled steel, dual capacitor energy-saving, high torque design. 4 pole, 1/3 to 10HP, ideal for numerous farming and industrial applications where high starting torque and low current draw is required.



BASIC SPECIFICATIONS

- Power Ratings from 1/3 to 10HP
- Single Phase, 4 pole, Capacitor-Start Capacitor-Run
- 115/208-230 & 208-230V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Klixon manual reset thermal overload protectors
- Over 300% starting torque
- 1.15 Service Factor
- 18 Month warranty
- High quality Japanese switches with beryllium coated contacts
- Cold rolled steel construction with cast iron end bells and c-flange kits
- Rubber sealed bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide under coat surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

INGRESS PROTECTION

The standard degree of enclosure protection is IP54 (Weather Proof). Both drive end and non-drive end are fitted with v-seals. Motors include high quality molded capacitor cover gaskets. Conduit box lid and body are sealed with fitted rubber gaskets. DE/NDE end bell fitted with sintered brass one-way drain.

INSULATION RATING

- Class F Insulation
- Vacuum Impregnated
- Designed to Class B temperature rise

C US 224693

PURCHASING DATA

56 - 215T Frame Foot-Mount — High Efficiency Energy Saver

HP	MODEL (Rigid)	MODEL (With C-Flange)	Sync. RPM	NEMA Frame	Full Load Current I_n (A)			FL Eff. (%)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price	
					115V	208V	230V				Rigid	C-Flange
1/3	**FDR.334C-01**	**FDR.334C-C-01**	1800	56	3.7	2.0	1.85	67.0	23.0	11.3	$280	$315
1/2	**FDR.504C-01**	**FDR.504C-C-01**	1800	56	5.2	2.9	2.6	70.0	27.0	11.9	$289	$324
3/4	**FDR.754C-01**	**FDR.754C-C-01**	1800	56	7.4	4.1	3.7	72.0	30.0	12.5	$318	$353
1	**FDR0004C-01**	**FDR0004C-C-01**	1800	56H	9.3	4.95	4.65	77.5	41.0	12.9	$365	$400
	FDR0004C-T-01	**FDR0004C-TC-01**	1800	56H	9.3	4.95	4.65	77.5	41.0	13.3	$375	$410
1.5	**FDR0014C-01**	**FDR0014C-C-01**	1800	56H	13.3	7.2	6.65	79.5	48.0	13.7	$433	$468
	FDR0014C-T-01	**FDR0014C-TC-01**	1800	143T	13.3	7.2	6.65	79.5	48.0	14.1	$445	$480
2	**FDR0024C-01**	**FDR0024C-C-01**	1800	56H	17.3	10.4	8.65	81.5	53.0	14.1	$501	$536
	FDR0024C-T-01	**FDR0024C-TC-01**	1800	145T	17.3	10.4	8.65	81.5	53.0	14.9	$501	$536
3	**FDR0034B-01**	**FDR0034B-TC-01**	1800	182T	--	14.3	12.9	80.0	92.0	16.2	$730	$798
5	**FDR0054B-01**	**FDR0054B-TC-01**	1800	184T	--	23.2	21.0	82.0	110.0	17.6	$866	$934
7.5	**FDR0074B-01**	**FDR0074B-TC-01**	1800	213TZ	--	34.3	31.0	82.0	185.0	19.9	$1,274	$1,379
10	**FDR0104B-01**	**FDR0104B-TC-01**	1800	215T	--	46.3	41.8	83.0	207.0	21.3	$1,534	$1,639

C-Flange: Add "-C" to the end of 56 frame Model or "-TC" for T-frame Model for C-Flange

For Flange Kits refer to Motor Accessories on page 50



56C Frame Round Body — High Efficiency Energy Saver

HP	MODEL	MFG Number	Sync. RPM	NEMA Frame	Full Load Current I_n (A)			FL Eff. (%)	Weight (lbs.)	Dim "C" (in.)	List Price
					115V	208V	230V				
1/3	**FDR.334C-C-RND-01**	SLF561/3Z4L	1800	56C	3.7	2.0	1.85	67.0	23	11.3	$305
1/2	**FDR.504C-C-RND-01**	SLF561/2Z4L	1800	56C	5.2	2.9	2.6	70.0	27	11.9	$315
3/4	**FDR.754C-C-RND-01**	SLF563/4Z4L	1800	56C	7.4	4.1	3.7	72.0	30	12.5	$344
1	**FDR0004C-C-RND-01**	SLF561Z4L	1800	56HC	9.3	4.95	4.65	77.5	41	12.9	$391
1.5	**FDR0014C-C-RND-01**	SLF561.5Z4L	1800	56HC	13.3	7.2	6.65	79.5	48	13.7	$459
2	**FDR0024C-C-RND-01**	SLF562Z4L	1800	56HC	17.3	10.4	8.65	81.5	53	14.1	$527

DIMENSIONAL DRAWINGS

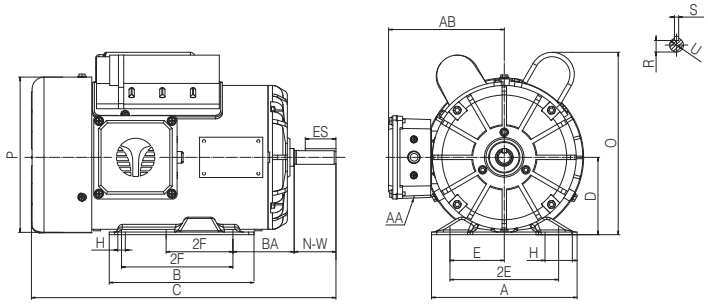


Figure 1 - Foot Mount, 56/56H/140T Frame

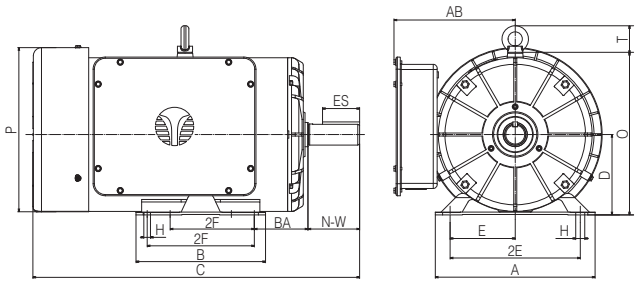
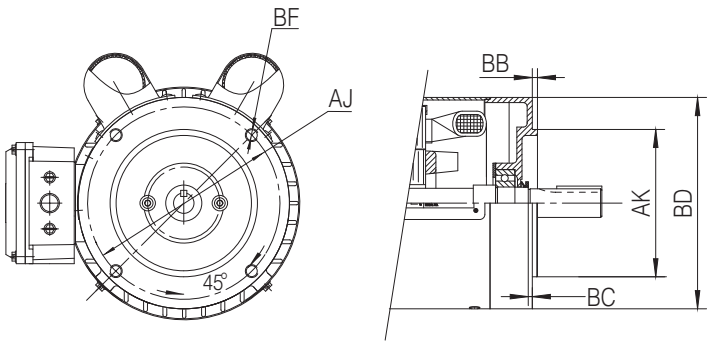


Figure 2 - Foot Mount, 180T/210T Frame

Dimensions are in **inches**

NEMA Frame (HP)	Foot Mounting						Shaft					General								
	E	2E	2F	2F	H	BA	N-W	U	S	R	ES	A	B	C	D	T	O	P	AA	AB
56 (1/3)	2.44	4.88	3.0	--	0.34 Slot	2.75	1.88	0.625	0.188	0.517	1.41	6.54	4.02	11.3	3.5	--	7.8	6.42	0.88	4.77
56 (1/2)														11.9						
56 (3/4)														12.5						
56H (1)	2.44	4.88	3.0	5.0	0.34 Slot	2.75	1.88	0.625	0.188	0.517	1.41	6.54	6.5	12.9	3.5	--	8.22	7.21	0.88	5.2
56H (1.5)														13.7						
56H (2)														14.5						
143T	2.75	5.5	4.0	5.0	0.34 Slot	2.25	2.25	0.875	0.188	0.771	1.41	6.54	5.91	13.3	3.5	--	8.22	7.21	0.88	5.2
145T (1.5)														14.1						
145T (2)														14.9						
182T	3.75	7.5	4.5	5.5	0.43 Slot	2.75	2.75	1.125	0.25	0.986	1.78	8.51	6.5	16.2	4.5	1.73	9.11	9.7	1.1	6.78
184T														17.6						
213TZ	4.25	8.5	5.5	7.0	0.43 Slot	3.5	3.38	1.125	0.25	0.986	2.41	10.44	8.47	19.9	5.25	1.75	10.63	11.36	1.1	7.92
215T								1.375	0.312	1.201	2.41			21.3						

Figure 3 - C-Flange



NEMA Frame	NEMA C-Flange					
	AJ	AK	BB	BC	BD	BF
56C	5.875	4.5	0.16	0.19	5.67	4*3/8-16UNC
56HC					6.5	
143TC	5.875	4.5	0.16	0.12	6.5	4*3/8-16UNC
145TC						
182TC	7.25	8.5	0.25	0.12	8.95	4*1/2-13UNC
184TC						
213TC	7.25	8.5	0.25	0.25	9.0	4*1/2-13UNC
215TC						

ENERGY SAVER 60HZ PERFORMANCE DATA

			Full Load Data			Full Load Current I_n (A)				Start Capacitor		Run Capacitor			Bearings		
HP	Sync. Speed	NEMA Frame	RPM (r/min)	Eff. (%)	PF (Cosθ)	115V	208V	230V	KVA Code	Cap. (μF)	Volt (V)	Cap. (μF)	Volt (V)	Weight (lbs.)	DE	NDE	"C" Dim. (in.)
1/3	1800	56	1725	67.0	0.90	3.7	2.0	1.85	K	200	125	30	250	23	6203 2RS	6202 2RS	11.3
1/2	1800	56	1725	70.0	0.90	5.2	2.9	2.6	K	250	125	40	250	27	6203 2RS	6202 2RS	11.9
3/4	1800	56	1725	72.0	0.90	7.4	4.1	3.7	J	300	125	60	250	30	6203 2RS	6202 2RS	12.5
1	1800	56H	1750	77.5	0.90	9.3	4.95	4.65	J	300	165	60	250	41	6204 2RS	6203 2RS	12.9
	1800	143T	1750	77.5	0.90	9.3	4.95	4.65	J	300	165	60	250	41	6205 2RS	6203 2RS	13.3
1.5	1800	56H	1740	79.5	0.92	13.3	7.2	6.65	H	400	165	80	250	48	6204 2RS	6203 2RS	13.7
	1800	143T	1740	79.5	0.92	13.3	7.2	6.65	H	400	165	80	250	48	6205 2RS	6203 2RS	14.1
2	1800	56H	1740	81.5	0.92	17.3	10.4	8.65	H	500	165	80	250	53	6204 2RS	6203 2RS	14.1
	1800	145T	1740	81.5	0.92	17.3	10.4	8.65	H	500	165	80	250	53	6205 2RS	6203 2RS	14.9
3	1800	182T	1740	80.0	0.93	--	14.3	12.9	H	250	330	40	450	92	6206 2RS	6205 2RS	16.2
5	1800	184T	1740	82.0	0.93	--	23.2	21.0	G	350	330	60	450	110	6206 2RS	6205 2RS	17.6
7.5	1800	213TZ	1740	82.0	0.94	--	34.3	31.0	H	400 ×2	350	80	450	185	6208 2RS	6206 2RS	19.9
10	1800	215T	1740	83.0	0.94	--	46.3	41.8	H	500 ×2	350	100	450	207	6208 2RS	6206 2RS	21.3

PRODUCT OVERVIEW

Designed for use on SCR and PWM type direct current adjustable speed drives and on across-the-line DC controls. Ideal applications include conveyors, turntables, packaging or anywhere adjustable speed and constant torque is required.



BASIC SPECIFICATIONS

- Power Ratings from 1/8 to 3HP
- Direct Current, 4 pole motors
- 90 and 180VDC
- Totally Enclosed Fan Cooled (TEFC)
- Totally Enclosed Non-Ventilated (TENV)

STANDARD FEATURES

- SCR Rated
- 20:1 Constant Torque speed range
- 1.15 Service Factor
- 12 Month warranty
- Cold rolled steel construction with NEMA c-flanges and removable bases
- Double shielded permanently lubricated ball bearings
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
- Corrosion resistant hardware
- Replacement parts available

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

INGRESS PROTECTION

The standard degree of enclosure protection is IP44 (Weather Proof). Conduit box lid and body are sealed with fitted foam gaskets.

INSULATION RATING

- 20:1 Constant Torque speed range
- Class F Insulation
- Designed to Class B temperature rise

PURCHASING DATA

56C - 145TC Frame Foot-Mount — SCR Rated PM DC Motors

HP	MODEL	Sync. RPM	NEMA Frame	Enclosure	Voltage	Full Load Amps (A)	Shipping Weight (lbs.)	"C" Dim. (in.)	List Price
1/4	**DC38**	1800	56C	TEFC	90	2.9	21	11.6	$205
	DC38N	1800	56C	TENV	90	2.9	21	11.2	$205
1/3	**DC40N**	1800	56C	TENV	90	3.6	23	11.2	$222
1/2	**DC41**	1800	56C	TEFC	90	5.2	25	12.4	$262
	DC41N	1800	56C	TENV	90	5.2	25	12.0	$262
	DC60	1800	56C	TEFC	180	2.6	25	12.4	$262
3/4	**DC43**	1800	56C	TEFC	90	7.8	30	13.9	$288
	DC61	1800	56C	TEFC	180	3.9	30	13.9	$288
1	**DC44**	1800	56C	TEFC	90	10.4	33	14.8	$328
	DC62	1800	56C	TEFC	180	5.2	33	14.8	$328
1.5	**DC80**	1800	145TC	TEFC	180	7.2	45	16.0	$806
2	**DC81**	1800	145TC	TEFC	180	10.4	55	16.8	$900
3	**DC82**	1800	145TC	TEFC	180	17.0	70	17.7	$1,010



IEC 63 B14 Frame Round Body — SCR Rated PM DC Motors

HP	MODEL	Sync. RPM	IEC Frame	Enclosure	Voltage	Full Load Amps (A)	Shipping Weight (lbs.)	"C" Dim. (mm)	List Price
1/8	**DC18**	1800	63 B14	TENV	90	1.4	6	167	$250
1/4	**DC14**	1800	63 B14	TENV	90	2.8	8	216	$262



PM DC Motor Replacement Parts

MODEL	Description	List Price
DCB2	Carbon Brush for IEC 63 B14 frame motor, 10mm x 5mm	$25
DCC2	Brush Cap for IEC 63 B14 frame motor	$9
DCB3	Carbon Brush for NEMA 56C frame motor, 16mm x 6mm	$25
DCC3	Brush Cap for NEMA 56C frame motor	$9
DCB8	Carbon Brush for NEMA 145TC frame motor, 18mm x 10mm	$39
DCC8	Brush Cap for NEMA 145TC frame motor	$9

DIMENSIONAL DRAWINGS

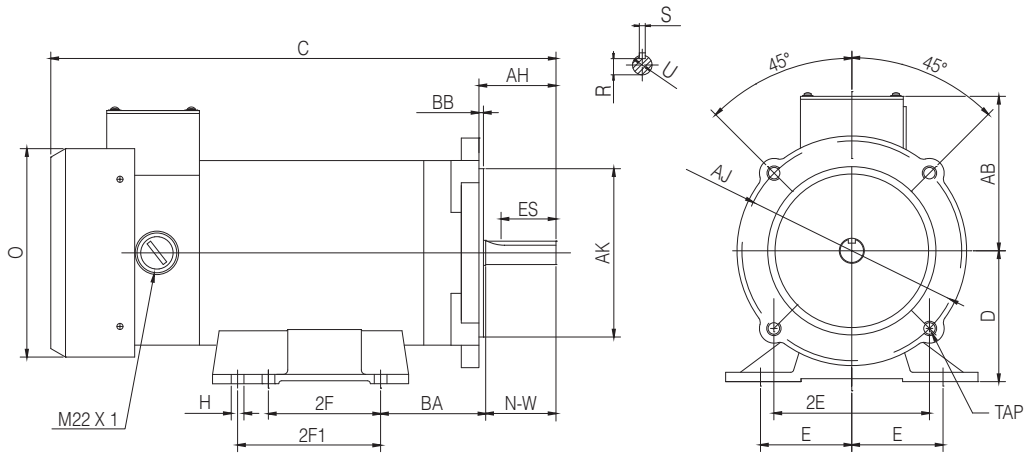


Figure 1 - NEMA 56C/140TC Frame

Dimensions are in **inches**

NEMA Frame (HP)	Encl.	Foot Mounting					Shaft						General				NEMA C-Flange			
		2E	2F	2F1	H	BA	N-W	U	S	R	ES	AH	C	D	O	AB	AJ	AK	BB	TAP
56C (1/4)	TEFC	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	11.63	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1/4)	TENV	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	11.18	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1/3)	TEFC	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	11.63	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1/3)	TENV	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	11.18	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1/2)	TEFC	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	12.44	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1/2)	TENV	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	12.01	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (3/4)	TEFC	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	13.94	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
56C (1)	TEFC	4.88	3.0	--	0.34	2.75	1.875	0.625	0.188	0.517	1.41	2.063	14.75	3.5	5.625	4.0	5.875	4.50	0.125	3*75-16
145TC (1.5)	TEFC	5.5	4.0	5.0	0.32	2.75	2.0	0.875	0.188	0.771	1.41	2.120	16.00	3.5	7.0	4.5	5.875	4.50	0.125	3*75-16
145TC (2)	TEFC	5.5	4.0	5.0	0.32	2.75	2.0	0.875	0.188	0.771	1.41	2.120	16.75	3.5	7.0	4.5	5.875	4.50	0.125	3*75-16
145TC (3)	TEFC	5.5	4.0	5.0	0.32	2.75	2.0	0.875	0.188	0.771	1.41	2.120	17.72	3.5	7.0	4.5	5.875	4.50	0.125	3*75-16

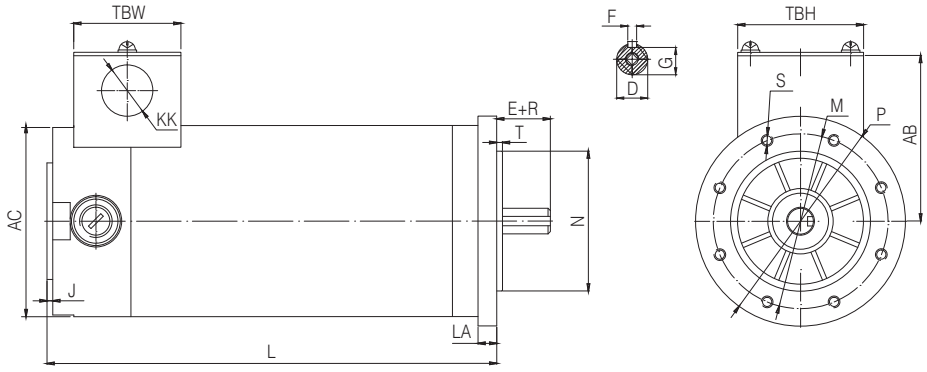


Figure 2 - IEC 63 B14 C-Flange

Dimensions are in **mm**

IEC Frame (HP)	Encl.	Shaft				General							IEC B14 C-Flange					
		D	F	G	E+R	AC	AD	L	J	TBW	TBH	KK	M	N	P	T	LA	S
63 B14 (1/8)	TENV	Ø11	4	8.5	23	Ø82	71	144	2.5	65	54	Ø22	Ø75	Ø60	Ø90	2.5	8	8-M5
63 B14 (1/4)	TENV	Ø11	4	8.5	23	Ø82	71	193	2.5	65	54	Ø22	Ø75	Ø60	Ø90	2.5	8	8-M5

PURCHASING DATA

NEMA Aluminum 140T - 210T C-Flange & D-Flange Kits

MODEL	Description	List Price
CFK140T-AL-01	140TC Aluminum C-Flange Kit	$40
CFK180T-AL-01	180TC Aluminum C-Flange Kit	$58
CFK210T-AL-01	210TC Aluminum C-Flange Kit	$89

MODEL	Description	List Price
DFK140T-AL-01	140TD Cast Iron D-Flange Kit for Aluminum Motors	$103
DFK180T-AL-01	180TD Cast Iron D-Flange Kit for Aluminum Motors	$161
DFK210T-AL-01	210TD Cast Iron D-Flange Kit for Aluminum Motors	$205

NEMA Cast Iron 140T - 440T C-Flange & D-Flange Kits

MODEL	Description	List Price
CFK-140T	140TC Cast Iron C-Flange Kit	$40
CFK-180T	180TC Cast Iron C-Flange Kit	$58
CFK-210T	210TC Cast Iron C-Flange Kit	$89
CFK-250T	250TC Cast Iron C-Flange Kit	$128
CFK-280T	280TC Cast Iron C-Flange Kit	$193
CFK-320T	320TC Cast Iron C-Flange Kit	$243
CFKG-360T	360TC Cast Iron C-Flange Kit	$358
CFKG-400T	400TC Cast Iron C-Flange Kit	$494
CFKG-440T	440TC Cast Iron C-Flange Kit	$621

MODEL	Description	List Price
DFK-140T	140TD Cast Iron D-Flange Kit	$103
DFK-180T	180TD Cast Iron D-Flange Kit	$161
DFK-210T	210TD Cast Iron D-Flange Kit	$205
DFK-250T	250TD Cast Iron D-Flange Kit	$345
DFK-280T	280TD Cast Iron D-Flange Kit	$435
DFK-320T	320TD Cast Iron D-Flange Kit	$598
DFK-360T	360TD Cast Iron D-Flange Kit	$1027
DFK-400T	400TD Cast Iron D-Flange Kit	$1114
DFK-440T	440TD Cast Iron D-Flange Kit	$1268

Farm Duty/General Purpose NEMA 56C - 210TC Frame C-Flange Kits

MODEL	Description	List Price
CFK56-RS-TF-1-S-01	1/4 - 3/4HP 56C C-Flange Kit	$35
CFK56-RS-TF-1-01	1 - 2HP 56C C-Flange Kit	$35
CFK140T-RS-TF-1-01	140TC C-Flange Kit	$35
CFK180T-RS-TF-1-01	180TC C-Flange Kit	$68
CFK210T-RS-TF-1-01	210TC C-Flange Kit	$105

PURCHASING DATA

56 - 449T Frame Slide Bases

MODEL	Frame	Adjusting Screws	List Price
B56	56	1	$37
B143T	143T	1	$46
B145T	145T	1	$46
B182T	182T	1	$76
B184T	184T	2	$76
B213T	213T	2	$97
B215T	215T	2	$97
B254T	254T	2	$138
B256T	256T	2	$138
B284T	284T	2	$151
B286T	286T	2	$151
B324T	324T	2	$202
B326T	326T	2	$202
B364T	364T	2	$257
B365T	365T	2	$257
B404T	404T	2	$377
B405T	405T	2	$377
B444T	444T	2	$469
B445T	445T	2	$469
B447T	447T	2	$642
B449T	449T	2	$661



FEATURES:

- Allows adjustment of motor mounting position
- Double adjusting bolts for frames 184T - 449T
- Manufactured to precise dimensional standards
- Heavy duty steel construction
- All “D” bolts are fixed to the exact motor foot pattern
- Bases are provided with washers

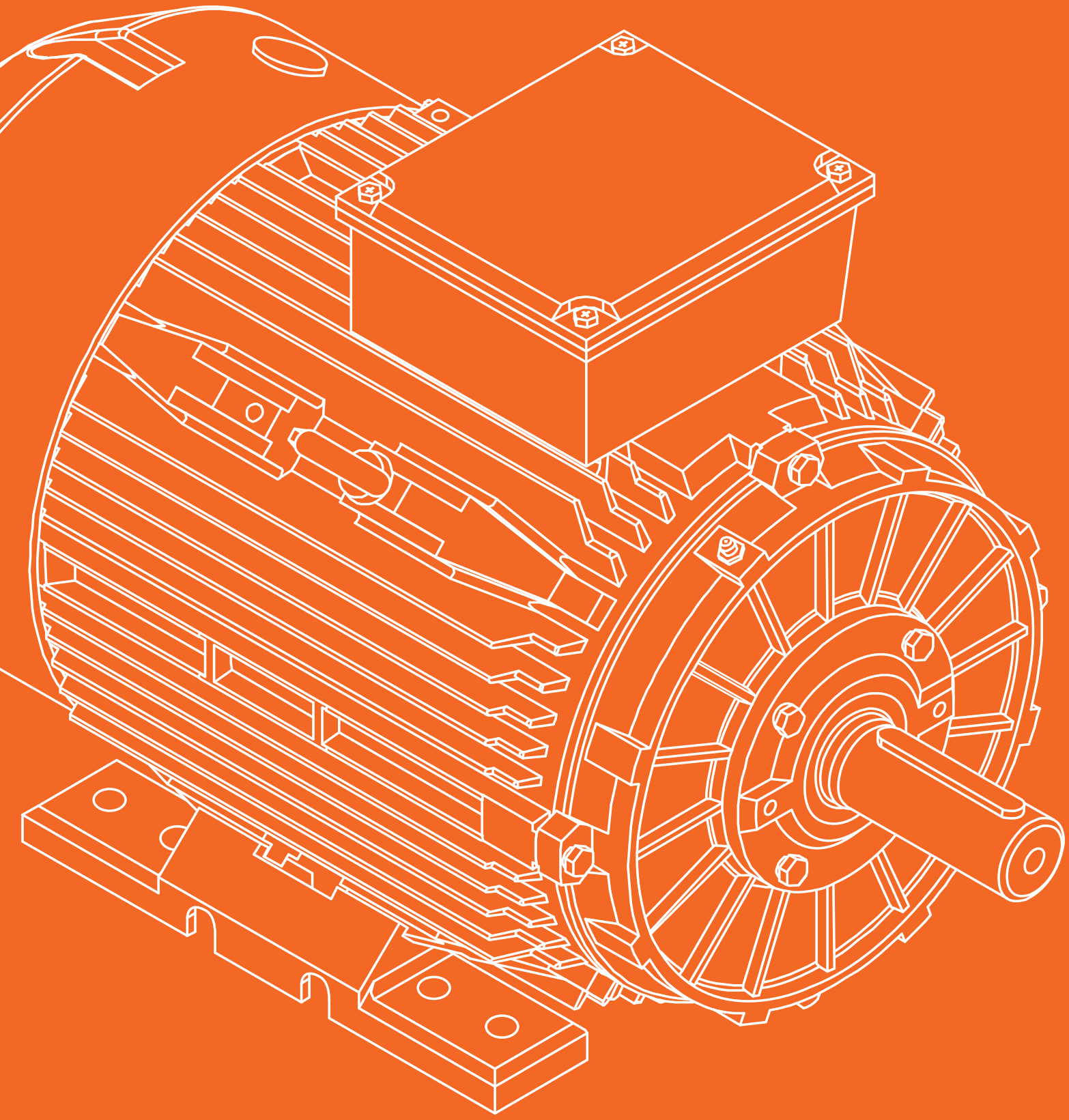
143T - 405T Frame Conversion Bases

MODEL	Converts From “U” Frame	Converts To “T” Frame	List Price
CB1814T	182/184	143T/145T	$39
CB2118T	213/215	182T/184T	$61
CB2521T	254U/256U	213T/215T	$71
CB2825T	284U/286U	254T/256T	$95
CB3228T	324U/326U	284T/286T	$133
CB3632T	364U/365U	324T/326T	$170
CB4036T	404U/405U	364T/365T	$231
CB4440T	444U/445U	404T/405T	$292



FEATURES:

- Manufactured to precise dimensional standards
- Heavy duty steel construction
- Bases are provided with washers and nuts



IEC

PREMIUM PERFORMANCE

LOW VOLTAGE ELECTRIC MOTORS

TECHTOP

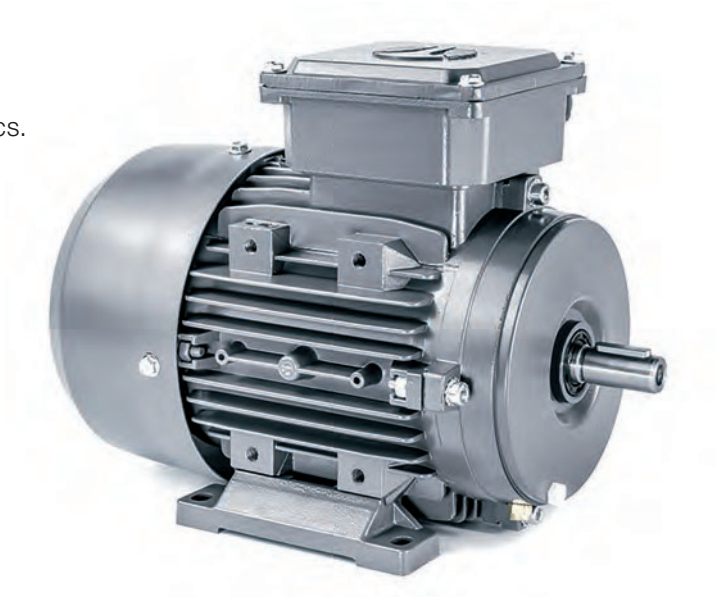
METRIC IE1 ALUMINUM MOTORS

0.09 - 1.5KW, IE1 EFFICIENCY, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Lightweight three phase, enhanced performance cast aluminum IEC frame with Design B torque characteristics. Features a multi-mount arrangement incorporating bolt on feet with flange mount configurations available. 2, 4 and 6 pole, 0.09 to 1.5kW, ideal applications include packaging, conveying, blowers, etc.



BASIC SPECIFICATIONS

- Power Ratings from 0.09 to 1.5kW
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible (standard F0)
- 1.15 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 24 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum B5/B14 and increase/reduction flange kits
- Standard B3 foot mount or B5/B14 round body
- Class I, Division II, Groups A, B, C and D compliant
- Anti-microbial (tropicalization) on stator winding
- Compact lightweight design
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware
- Metric threaded cable gland included with motors

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 6-Lead 575V wye connection
- Motors fitted with standard IEC marked terminal block
- Dual rated motors pre-wired High Voltage

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed including nipple seals between conduit box and stator body. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F insulation
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 4:1 Constant Torque, 10:1 Variable Torque (1.0 S.F. on VFD Power) per NEMA MG 1 part 30 standards

WATERPROOF RATED IP55

INVERTER DUTY 4:1 CT

C SA US 224693

CE

PURCHASING DATA

56 - 80 Frame Foot or Flanged — IEC IE1 Efficiency

Pole	MODEL	MFG Number	HP	kW	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
					208V	230V	460V	575V				B3	B5	B14
2	**MTP56A2[ ]**	TM562-2	0.18	0.135	0.72	0.70	0.35	0.28	65.9	6.6	196	$204	$236	$236
3600 RPM	**MTP63A2[ ]**	TM631-2	0.25	0.18	0.90	0.88	0.44	0.35	69.5	8.8	220	$222	$262	$262
	MTP63B2[ ]	TM632-2	0.35	0.25	1.16	1.14	0.57	0.45	72.0	9.24	220	$228	$268	$268
	MTP63C2[ ]	TM633-2	0.50	0.37	1.66	1.64	0.82	0.65	74.5	10.34	220	$241	$281	$281
	MTP71A2[ ]	TM711-2	0.50	0.37	1.66	1.62	0.81	0.64	74.5	11.44	241	$259	$305	$305
	MTP71B2[ ]	TM712-2	0.75	0.55	2.39	2.34	1.17	0.93	75.5	13.2	241	$276	$322	$322
	MTP71C2[ ]	TM713-2	1.00	0.75	3.20	3.12	1.56	1.24	76.4	15.4	255	$310	$356	$356
	MTP80A2[ ]	TM801-2	1.00	0.75	3.13	3.02	1.51	1.20	77.0	19.14	289	$352	$400	$400
	MTP80B2[ ]	TM802-2	1.50	1.10	4.41	4.24	2.12	1.69	79.5	22.0	289	$373	$421	$421
	MTP80C2[ ]	TM803-2	2.00	1.50	6.01	5.56	2.78	2.22	81.4	24.64	289	$417	$465	$465
4	**MTP56A4[ ]**	TM562-4	0.12	0.09	0.77	0.76	0.38	0.30	54.6	7.04	196	$186	$218	$218
1800 RPM	**MTP63A4[ ]**	TM631-4	0.18	0.135	0.99	0.98	0.49	0.39	59.5	8.14	220	$215	$255	$255
	MTP63B4[ ]	TM632-4	0.25	0.18	1.26	1.25	0.63	0.50	62.4	9.24	220	$225	$265	$265
	MTP63C4[ ]	TM633-4	0.35	0.25	1.57	1.56	0.78	0.62	66.1	11.0	220	$231	$271	$271
	MTP71A4[ ]	TM711-4	0.35	0.25	1.38	1.37	0.68	0.55	68.5	11.0	241	$245	$291	$291
	MTP71B4[ ]	TM712-4	0.50	0.37	1.90	1.88	0.94	0.75	72.5	12.76	241	$268	$314	$314
	MTP71C4[ ]	TM713-4	0.75	0.55	2.80	2.76	1.38	1.10	73.5	14.3	255	$299	$345	$345
	MTP80A4[ ]	TM801-4	0.75	0.55	2.75	2.72	1.36	1.08	73.5	17.82	289	$321	$369	$369
	MTP80B4[ ]	TM802-4	1.00	0.75	3.48	3.40	1.70	1.36	77.0	22.0	289	$364	$412	$412
	MTP80C4[ ]	TM803-4	1.50	1.10	4.95	4.80	2.40	1.92	79.1	25.74	289	$422	$470	$470
6	**MTP63A6[ ]**	TM631-6	0.12	0.09	0.81	0.80	0.40	0.32	48.5	9.9	220	$243	$283	$283
1200 RPM	**MTP63B6[ ]**	TM632-6	0.18	0.135	1.17	1.16	0.58	0.46	52.5	10.8	220	$254	$294	$294
	MTP71A6[ ]	TM711-6	0.25	0.18	1.29	1.26	0.63	0.50	61.0	13.5	241	$306	$352	$352
	MTP71B6[ ]	TM712-6	0.35	0.25	1.63	1.60	0.80	0.64	63.3	14.0	241	$324	$370	$370
	MTP71C6[ ]	TM713-6	0.50	0.37	2.35	2.30	1.15	0.92	65.0	16.9	255	$374	$420	$420
	MTP80A6[ ]	TM801-6	0.50	0.37	2.16	2.10	1.05	0.84	66.0	18.8	289	$403	$451	$451
	MTP80B6[ ]	TM802-6	0.75	0.55	2.95	2.90	1.45	1.16	70.0	19.5	289	$438	$486	$486
	MTP80C6[ ]	TM803-6	1.00	0.75	3.96	3.90	1.95	1.56	71.0	21.3	289	$484	$532	$532

Voltage: Replace [ ] with D for 230/460V, F for 575V

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

METRIC IE1 ALUMINUM MOTORS

0.09 - 1.5KW, IE1 EFFICIENCY, THREE PHASE, TEFC

DIMENSIONAL DRAWINGS

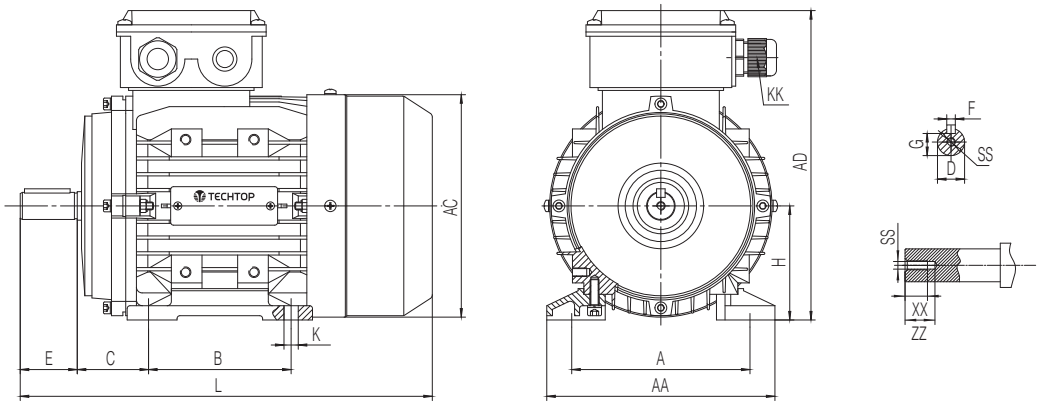
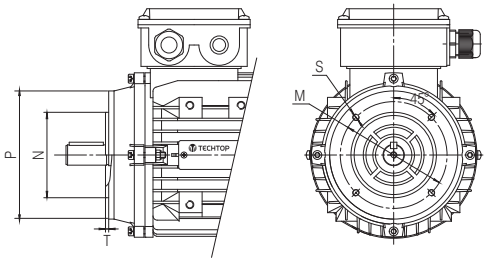


Figure 1 - Foot Mount B3

Dimensions are in **mm**

IEC Frame	Foot Mounting					Shaft							General				
	H	A	B	C	K	D	E	F	G	SS	XX	ZZ	AA	AC	AD	L	KK
56	56	90	71	36	5.8*8.8	Ø9	20	3	7.2	M3	9	16	110	Ø90	156	196	1-M16X1.5
63	63	100	80	40	7*10	Ø11	23	4	8.5	M4	10	14	120	Ø130	171	220	1-M16X1.5
71A/B	71	112	90	45	7*10	Ø14	30	5	11	M5	12	17	132	Ø139.6	179	241	1-M20X1.5
71C	71	112	90	45	7*10	Ø14	30	5	11	M5	12	17	132	Ø139.6	179	255	1-M20X1.5
80	80	125	100	50	10*13	Ø19	40	6	15.5	M6	16	21	160	Ø156	217	289	1-M20X1.5

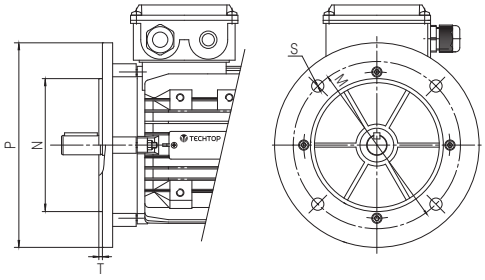
Figure 2 - C-Flange B14/B14I



Dimensions are in **mm**

IEC Frame	IEC B14 C-Flange Dimensions					B14I Increased to Frame	IEC B14I Increase Dimensions				
	M	N	P	T	S		M	N	P	T	S
56	Ø65	Ø50	Ø80	2.5	4-M5	--	--	--	--	--	--
63	Ø75	Ø60	Ø90	2.5	4-M5	80	Ø100	Ø80	Ø120	3	4-M6
71	Ø85	Ø70	Ø105	2.5	4-M6	90	Ø115	Ø95	Ø140	3	4-M8
80	Ø100	Ø80	Ø120	3	4-M6	100/112	Ø130	Ø110	Ø160	3.5	4-M8

Figure 3 - D-Flange B5/B5R



Dimensions are in **mm**

IEC Frame	IEC B5 D-Flange Dimensions					B5R Reduced to Frame	IEC B5R Reduction Dimensions				
	M	N	P	T	S		M	N	P	T	S
56	Ø100	Ø80	Ø120	3	4-Ø7	--	--	--	--	--	--
63	Ø115	Ø95	Ø140	3	4-Ø10	--	--	--	--	--	--
71	Ø130	Ø110	Ø160	3.5	4-Ø10	63	Ø115	Ø95	Ø140	3.5	4-Ø10
80	Ø165	Ø130	Ø200	3.5	4-Ø12	71	Ø130	Ø110	Ø160	3.5	4-Ø10

IE1 EFFICIENCY 60HZ PERFORMANCE DATA

				Full Load Data			Full Load Current I_n (A)							Bearings		
Pole	MODEL	HP	kW	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT (%FL)	Weight (lbs.)	DE	NDE	"L" Dim. (mm)
2	**MTP 56 A2**	0.18	0.135	3330	65.9	0.73	0.72	0.70	0.35	0.28	H	320%	6.6	6201ZZ		196
	MTP 63 A2	0.25	0.18	3330	69.5	0.74	0.90	0.88	0.44	0.35	H	300%	8.8	6201ZZ		220
	MTP 63 B2	0.35	0.25	3330	72.0	0.76	1.16	1.14	0.57	0.45	H	320%	9.24	6201ZZ		220
	MTP 63 C2	0.50	0.37	3330	74.5	0.76	1.66	1.64	0.82	0.65	H	300%	10.34	6201ZZ		220
	MTP 71 A2	0.50	0.37	3390	74.5	0.77	1.66	1.62	0.81	0.64	J	350%	11.44	6202ZZ		241
	MTP 71 B2	0.75	0.55	3400	75.5	0.78	2.39	2.34	1.17	0.93	K	350%	13.2	6202ZZ		241
	MTP 71 C2	1.00	0.75	3400	76.4	0.79	3.20	3.12	1.56	1.24	K	350%	15.4	6202ZZ		255
	MTP 80 A2	1.00	0.75	3440	77.0	0.81	3.13	3.02	1.51	1.20	J	260%	19.14	6204ZZ		289
	MTP 80 B2	1.50	1.10	3440	79.5	0.82	4.41	4.24	2.12	1.69	J	260%	22.0	6204ZZ		289
	MTP 80 C2	2.00	1.50	3440	81.4	0.83	6.01	5.56	2.78	2.22	J	270%	24.64	6204ZZ		289
4	**MTP 56 A4**	0.12	0.09	1640	54.6	0.55	0.77	0.76	0.38	0.30	K	320%	7.04	6201ZZ		196
	MTP 63 A4	0.18	0.135	1640	59.5	0.58	0.99	0.98	0.49	0.39	J	300%	8.14	6201ZZ		220
	MTP 63 B4	0.25	0.18	1640	62.4	0.58	1.26	1.25	0.63	0.50	J	320%	9.24	6201ZZ		220
	MTP 63 C4	0.35	0.25	1650	66.1	0.6	1.57	1.56	0.78	0.62	J	300%	11.0	6201ZZ		220
	MTP 71 A4	0.35	0.25	1680	68.5	0.67	1.38	1.37	0.68	0.55	J	280%	11.0	6202ZZ		241
	MTP 71 B4	0.50	0.37	1690	72.5	0.68	1.90	1.88	0.94	0.75	J	320%	12.76	6202ZZ		241
	MTP 71 C4	0.75	0.55	1690	73.5	0.68	2.80	2.76	1.38	1.10	J	320%	14.3	6202ZZ		255
	MTP 80 A4	0.75	0.55	1700	73.5	0.69	2.75	2.72	1.36	1.08	J	280%	17.82	6204ZZ		289
	MTP 80 B4	1.00	0.75	1710	77.0	0.72	3.48	3.40	1.70	1.36	J	280%	22.0	6204ZZ		289
	MTP 80 C4	1.50	1.10	1700	79.1	0.73	4.95	4.80	2.40	1.92	J	280%	25.74	6204ZZ		289
6	**MTP 63 A6**	0.12	0.09	1030	48.5	0.49	0.81	0.80	0.40	0.32	H	240%	9.9	6201ZZ		220
	MTP 63 B6	0.18	0.135	1050	52.5	0.56	1.17	1.16	0.58	0.46	H	240%	10.8	6201ZZ		220
	MTP 71 A6	0.25	0.18	1080	61.0	0.59	1.29	1.26	0.63	0.50	H	240%	13.5	6202ZZ		241
	MTP 71 B6	0.35	0.25	1100	63.3	0.62	1.63	1.60	0.80	0.64	H	240%	14.0	6202ZZ		241
	MTP 71 C6	0.50	0.37	1100	65.0	0.74	2.35	2.30	1.15	0.92	H	240%	16.9	6202ZZ		255
	MTP 80 A6	0.50	0.37	1100	66.0	0.67	2.16	2.10	1.05	0.84	J	260%	18.8	6204ZZ		289
	MTP 80 B6	0.75	0.55	1100	70.0	0.68	2.95	2.90	1.45	1.16	H	260%	19.5	6204ZZ		289
	MTP 80 C6	1.00	0.75	1100	71.0	0.71	3.96	3.90	1.95	1.56	H	260%	21.3	6204ZZ		289

For Flange Kits refer to Motor Accessories on page 73

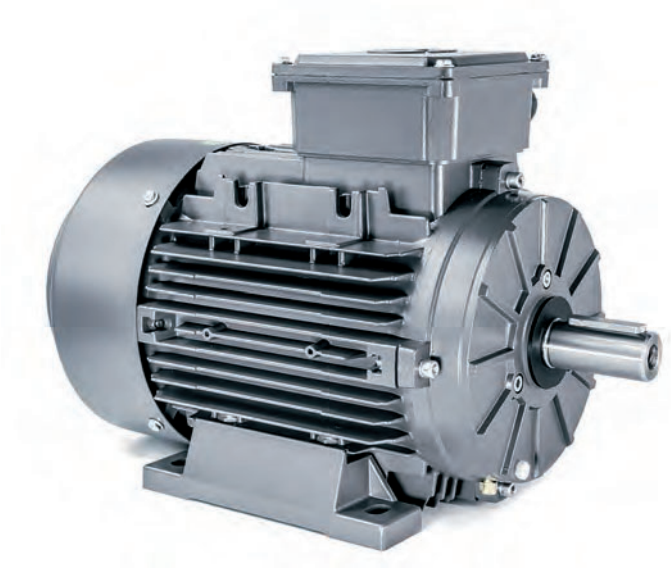
METRIC IE3 PREMIUM MOTORS

0.75 - 160KW, IE3 EFFICIENCY, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Three phase, enhanced performance cast aluminum and cast iron, premium efficient IEC frames with Design B torque characteristics. Features a multi-mount arrangement incorporating bolt on feet* with flange mount configurations available. 2, 4 and 6 pole, 0.75 to 160kW, ideal applications including packaging, conveying, blowers, etc.



BASIC SPECIFICATIONS

- Power Ratings from 0.75 to 160kW
- Three Phase, 2, 4 and 6 pole, 50/60Hz
- 230/460V (Usable @ 208V), 460V & 575V 60Hz, 190/380V 50Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- *Removable feet F1, F2, F0 field convertible up to and including 225 frame (standard F0)
- 1.15 Service Factor with 60Hz operation / 1.0 Service Factor with 50Hz operation
- 36 Month warranty
- Conduit Box is 90° rotatable
- B5/B14 and increase/decrease flanges available
- Class I, Division II, Groups A, B, C and D compliant
- IEEE 45 Marine Duty 160M frame and larger
- Anti-microbial (tropicalization) on stator winding
- Cast iron fan covers standard 160M frame and larger
- Regreasable bearings 160M frame and larger
- Mobil Polyrex EM polyurea grease
- 1045 Steel shaft
- Surface finish:
  - 2-part epoxy coating (cast iron models only)
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance (aluminum models only)
- Stainless steel nameplate
- Corrosion resistant hardware
- Metric threaded cable gland included with motors
- Ultra high strength, reusable lifting straps included with motors 160M frame and larger

Cast Aluminum: 80-132M Frame

Cast Iron: 160M-315L Frame



OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

Up to and Including 132M Frame (IEC standard terminal block):

- 9-Lead 230V parallel-wye / 460V series-wye connection
- 6-Lead 575V wye connection

160M Frame and Larger (IEC standard terminal block):

- 12-Lead 230V parallel-delta / 460V delta connection
- 6-Lead 460V or 575V single voltage delta connection

INGRESS PROTECTION

The standard degree of enclosure protection is IP55 (increased IP protection is available). Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed including nipple seals between conduit box and stator body. DE and NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2



PURCHASING DATA

80 - 315L Frame Foot or Flanged — IEC IE3 Efficiency

Pole	MODEL	MFG Number	HP	kW	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
					208V	230V	460V	575V				B3	B5	B14
2	**MTP80A2[ ]P**	TAX801-2	1	0.75	3.34	3.10	1.55	1.24	79.0	20	277	$386	$434	$434
3600 RPM	**MTP80B2[ ]P**	TAX802-2	1.5	1.1	4.20	3.90	1.95	1.56	84.0	23	277	$418	$466	$466
	MTP80C2[ ]P	TAX803-2	2	1.5	5.50	5.24	2.62	2.09	85.5	25	277	$429	$477	$477
	MTP90SA2[ ]-01	TAX90S-2	2	1.5	5.58	5.18	2.59	2.07	85.5	28	312	$504	$568	$568
	MTP90LA2[ ]-01	TAX90L-2	3	2.2	7.86	7.26	3.63	2.90	86.5	34	337	$594	$658	$658
	MTP100LA2[ ]-01	TAX100L-2	4	3	10.2	9.56	4.78	3.82	88.5	56	375	$704	$784	$784
	MTP100LB2[ ]-01	TAX100L-2	5.5	4	13.8	12.70	6.35	5.08	88.5	56	375	$793	$873	$873
	MTP112MA2[ ]-01	TAX112M-2	5.5	4	13.6	12.60	6.30	5.04	88.5	64	397	$869	$979	$979
	MTP112MB2[ ]-01	TAX112M-2	7.5	5.5	18.9	17.10	8.55	6.84	89.5	64	397	$1,192	$1,302	$1,302
	MTP132SA2[ ]-01	TAX132S1-2	7.5	5.5	18.7	17.00	8.48	6.78	89.5	96	460	$1,141	$1,309	$1,309
	MTP132SB2[ ]-01	TAX132S2-2	10	7.5	25.8	22.60	11.30	9.07	90.2	114	460	$1,271	$1,439	$1,439
	MTP132MA2[ ]-01	TAX132M-2	15	11	35.6	33.00	16.50	13.20	91.0	131	498	$2,159	$2,327	$2,327
	MTP160MA2[ ]	TCX160M1-2	15	11	38.92	35.20	17.60	14.08	91.0	278	620	$1,966	$2,206	$2,206
	MTP160MB2[ ]	TCX160M2-2	20	15	51.31	46.40	23.20	18.56	91.0	295	620	$2,404	$2,644	$2,644
	MTP160LA2[ ]	TCX160L1-2	25	18.5	63.91	57.80	28.90	23.12	91.7	353	665	$2,741	$2,981	$2,981
	MTP160LB2[ ]	TCX160L2-2	30	22	76.3	69.00	34.50	27.60	91.7	401	665	$3,283	$3,523	$3,523
	MTP180MA2[ ]	TCX180M-2	30	22	76.3	69.00	34.50	27.60	91.7	419	696	$3,498	$3,823	--
	MTP200LA2[ ]	TCX200L1-2	40	30	102.8	92.97	46.48	37.19	92.4	523	779	$4,559	$4,964	--
	MTP200LB2[ ]	TCX200L2-2	50	37	129.4	117.02	58.51	46.81	93.0	551	779	$5,037	$5,442	--
	MTP225MA2[ ]	TCX225M-2	60	45	--	135.00	67.50	54.00	93.6	767	814	$6,291	$6,836	--
	MTP250MA2[ ]	TCX250M-2	75	55	--	168.60	84.30	67.44	93.6	858	929	$7,855	$8,485	--
	MTP280SA2[ ]	TCX280S-2	100	75	--	200.04	100.02	80.02	94.1	994	996	$9,713	$10,523	--
	MTP280MA2[ ]	TCX280M-2	125	90	--	--	136.96	109.57	95.0	1367	1047	$11,131	$11,941	--
4	**MTP80B4[ ]P**	TAX803-4	1	0.75	3.43	3.18	1.59	1.28	85.5	26	277	$389	$437	$437
1800 RPM	**MTP90SA4[ ]-01**	TAX90S-4	1.5	1.1	4.48	4.36	2.18	1.73	86.5	33	312	$471	$535	$535
	MTP90LA4[ ]-01	TAX90L-4	2	1.5	5.95	5.58	2.79	2.23	86.5	40	337	$557	$621	$621
	MTP100LA4[ ]-01	TAX100L1-4	3	2.2	8.1	7.71	3.86	3.09	89.5	58	375	$670	$750	$750
	MTP100LB4[ ]-01	TAX100L2-4	4	3	11.1	10.60	5.32	4.26	89.5	63	375	$739	$819	$819
	MTP112MA4[ ]-01	TAX112M-4	5.5	4	14.2	13.20	6.60	5.28	89.5	74	397	$913	$1,023	$1,023
	MTP132SA4[ ]-01	TAX132S-4	7.5	5.5	19.2	17.70	8.86	7.08	91.7	114	460	$1,178	$1,346	$1,346
	MTP132MA4[ ]-01	TAX132M-4	10	7.5	26.3	23.90	12.00	9.55	91.7	134	498	$1,360	$1,528	$1,528
	MTP160MA4[ ]	TCX160M-4	15	11	41.13	37.20	18.60	14.88	92.4	280	620	$2,249	$2,489	$2,489
	MTP160LA4[ ]	TCX160L-4	20	15	51.97	47.00	23.50	18.80	93.0	315	665	$2,549	$2,789	$2,789
	MTP180MA4[ ]	TCX180M-4	25	18.5	65.46	59.20	29.60	23.68	93.6	406	696	$3,215	$3,540	--
	MTP180LA4[ ]	TCX180L-4	30	22	78.58	71.06	35.53	28.43	93.6	404	734	$3,634	$3,959	--
	MTP200LA4[ ]	TCX200L-4	40	30	104.2	94.23	47.12	37.69	94.1	584	779	$4,708	$5,113	--
	MTP225SA4[ ]	TCX225S-4	50	37	130.9	118.38	59.19	47.35	94.5	606	819	$5,809	$6,354	--
	MTP225MA4[ ]	TCX225M-4	60	45	--	138.80	69.40	55.52	95.0	831	844	$6,497	$7,042	--
	MTP250MA4[ ]	TCX250M-4	75	55	--	172.40	86.20	68.96	95.4	904	929	$8,049	$8,679	--
	MTP280SA4[ ]	TCX280S-4	100	75	--	228.00	114.00	91.20	95.4	1032	996	$10,223	$11,033	--
	MTP280MA4[ ]	TCX280M-4	125	90	--	--	140.99	112.79	95.0	1779	1047	$11,578	$12,388	--
	MTP315SA4[ ]	TCX315S-4	150	110	--	--	169.00	135.00	95.8	1868	1235	$18,792	$19,802	--
	MTP315LA4[ ]	TCX315L1-4	215	160	--	--	233.00	186.00	96.2	2249	1385	$23,387	$24,397	--

Voltage: Replace [ ] with D for 230/460V, F for 575V or E for 460V

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

METRIC IE3 PREMIUM MOTORS

0.75 - 160KW, IE3 EFFICIENCY, THREE PHASE, TEFC

TECHTOP

PURCHASING DATA

80 - 315L Frame Foot or Flanged — IEC IE3 Efficiency

Pole	MODEL	MFG Number	HP	kW	Full Load Current I_n (A)				FL Eff. (%)	Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
					208V	230V	460V	575V				B3	B5	B14
6	**MTP90SA6[ ]-01**	TAX90S-6	1	0.75	3.36	3.26	1.63	1.30	82.5	33	312	$591	$655	$655
1200 RPM	**MTP100LA6[ ]-01**	TAX100L-6	1.5	1.1	5.01	4.92	2.46	1.97	87.5	56	375	$755	$835	$835
	MTP112MA6[ ]-01	TAX112M-6	3	2.2	9.16	8.94	4.47	3.58	89.5	84	397	$1,034	$1,144	$1,144
	MTP132SA6[ ]-01	TAX132S-6	4	3	12	11.80	5.92	4.74	89.5	112	460	$1,368	$1,536	$1,536
	MTP132MA6[ ]-01	TAX132M1-6	5.5	4	15.9	14.80	7.38	5.90	89.5	134	498	$1,420	$1,588	$1,588
	MTP132MB6[ ]-01	TAX132M2-6	7.5	5.5	21.1	20.20	10.10	8.08	91.0	147	498	$1,618	$1,786	$1,786
	MTP160MA6[ ]	TCX160M-6	10	7.5	30.3	27.40	13.70	11.00	91.0	284	620	$2,737	$2,977	$2,977
	MTP160LA6[ ]	TCX160L-6	15	11	42.68	38.60	19.30	15.40	91.7	366	665	$3,058	$3,298	$3,298
	MTP180LA6[ ]	TCX180L-6	20	15	57.06	51.60	25.80	20.60	91.7	395	734	$3,993	$4,318	--
	MTP200LA6[ ]	TCX200L1-6	25	18.5	70.55	63.80	31.90	25.50	93.0	523	779	$4,381	$4,786	--
	MTP200LB6[ ]	TCX200L2-6	30	22	84.04	76.00	38.00	30.40	93.0	536	779	$4,605	$5,010	--
	MTP225MA6[ ]	TCX225M-6	40	30	104.83	94.80	47.40	37.90	94.1	708	844	$6,056	$6,601	--
	MTP250MA6[ ]	TCX250M-6	50	37	130.92	118.40	59.20	47.40	94.1	772	929	$7,453	$8,083	--
	MTP280SA6[ ]	TCX280S-6	60	45	--	140.00	70.00	56.00	94.5	966	996	$9,382	$10,192	--
	MTP280MA6[ ]	TCX280M-6	75	55	--	175.40	87.68	70.10	94.5	1052	1047	$10,650	$11,460	--
	MTP315SA6[ ]	TCX315S-6	100	75	--	228.00	114.00	91.20	95.0	1632	1235	$18,587	$19,597	--

Voltage: Replace [ ] with D for 230/460V, F for 575V

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

DIMENSIONAL DRAWINGS

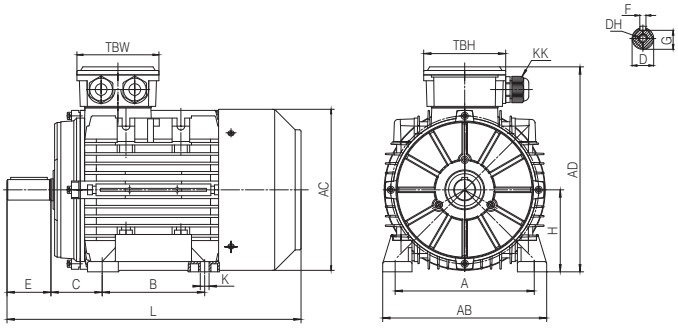


Figure 1 - Cast Aluminum B3 Model

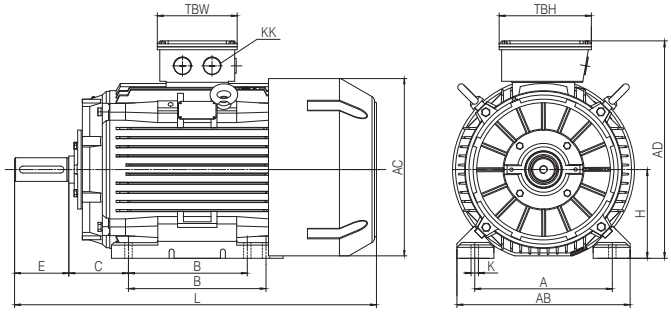


Figure 2 - Cast Iron B3 Model

Dimensions are in **mm**

IEC Frame		Foot Mounting						Shaft					General						
		H	A	B	B	C	K	D	E	F	G	DH	AB	AC	AD	L	TBH	TBW	KK
80		80	125	100	--	50	Ø10	19	40	6	15.5	M6	160	158	210	277	105	105	1-M20X1.5
90S		90	140	100	--	56	Ø10	Ø24	50	8	20	M8	176	177	231	312	105	105	1-M20X1.5
90L				125	--											337			
100L		100	160	140	--	63	Ø12	Ø28	60	8	24	M10	200	199	255	375	112	112	1-M20X1.5
112M		112	190	140	--	70	Ø12	Ø28	60	8	24	M10	224	220	278	397	112	112	2-M25X1.5
132S		132	216	140	--	89	Ø12	Ø38	80	10	33	M12	260	261	318	460	112	112	2-M25X1.5
132M				178	--											498			
160M		160	254	210	--	108	Ø15	Ø42	110	12	37	M16	316	324	404	620	187	162	2-M32X1.5
160M/L*					254											665			
180M		180	279	241	--	121	Ø15	Ø48	110	14	42.5	M16	354	369	445	696	187	162	2-M32X1.5
180M/L*					279											734			
200L		200	318	305	--	133	Ø19	Ø55	110	16	49	M20	392	408	500	779	233	186	2-M40X1.5
225S		225	356	286	--	149	Ø19	Ø60	140	18	53	M20	438	468	557	819	233	186	2-M50X1.5
225S/M*	2	225	356	286	311	149	Ø19	Ø55	110	16	49	M20	438	468	557	814	233	186	2-M50X1.5
	4,6							Ø60	140	18	53					844			
250S/M*	2	250	406	311	349	168	Ø24	Ø60	140	18	53	M20	484	516	616	929	260	218	2-M50X1.5
	4,6							Ø65	140	18	58					929			
280S	2	280	457	368	--	190	Ø24	Ø65	140	18	58	M20	557	568	673	996	260	218	2-M50X1.5
	4,6							Ø75	140	20	67.5					996			
280S/M	2	280	457	368	419	190	Ø24	Ø65	140	18	58	M20	557	568	690	1047	280	245	2-M50X1.5
	4,6							Ø75	140	20	67.5					1047			
315S	2	315	508	406	--	216	Ø28	Ø65	140	18	58	M20	628	651	845	1205	320	280	2-M63X1.5
	4,6							Ø80	170	22	71					1235			
315M/L	2	315	508	457	508	216	Ø28	Ø65	140	18	58	M20	628	651	845	1355	320	280	2-M63X1.5
	4,6							Ø80	170	22	71					1385			

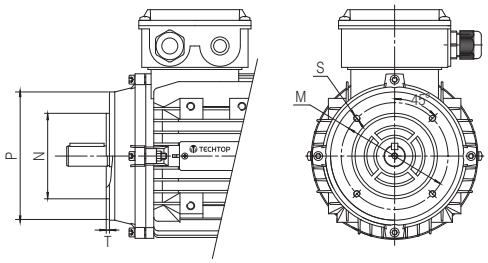
*Feet double drilled as of 2016-04

METRIC IE3 PREMIUM MOTORS

0.75 - 160KW, IE3 EFFICIENCY, THREE PHASE, TEFC

DIMENSIONAL DRAWINGS

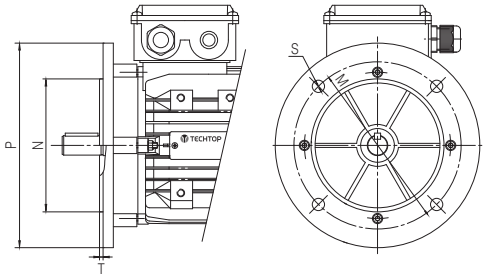
Figure 3 - C-Flange B14/B14I



Dimensions are in **mm**

IEC Frame	IEC B14 C-Flange Dimensions					B14I Increased to Frame	IEC B14I Increase Dimensions				
	M	N	P	T	S		M	N	P	T	S
90	Ø115	Ø95	Ø140	3	4-M8	100/112	130	110	160	3.5	4-M8
100	Ø130	Ø110	Ø160	3.5	4-M8	132	165	130	200	3.5	4-M10
112	Ø130	Ø110	Ø160	3.5	4-M8	132	165	130	200	3.5	4-M10
132	Ø165	Ø130	Ø200	3.5	4-M10	--	--	--	--	--	--
160	Ø215	Ø180	Ø250	4	4-M12	--	--	--	--	--	--

Figure 4 - D-Flange B5/B5R



Dimensions are in **mm**

IEC Frame	IEC B5 D-Flange Dimensions					B5R Reduced to Frame	IEC B5R Reduction Dimensions				
	M	N	P	T	S		M	N	P	T	S
90	Ø165	Ø130	Ø200	3.5	4-Ø12	71	Ø130	Ø110	Ø160	3.5	4-Ø10
100	Ø215	Ø180	Ø250	4	4-Ø15	80/90	Ø165	Ø130	Ø200	3.5	4-Ø12
112	Ø215	Ø180	Ø250	4	4-Ø15	80/90	Ø165	Ø130	Ø200	3.5	4-Ø12
132	Ø265	Ø230	Ø300	4	4-Ø15	100/112	Ø215	Ø180	Ø250	4	4-Ø15
160	Ø300	Ø250	Ø350	5	4-Ø19	--	--	--	--	--	--
180	Ø300	Ø250	Ø350	5	4-Ø19	--	--	--	--	--	--
200	Ø350	Ø300	Ø400	5	4-Ø19	--	--	--	--	--	--
225	Ø400	Ø350	Ø450	5	8-Ø19	--	--	--	--	--	--
250	Ø500	Ø450	Ø550	5	8-Ø19	--	--	--	--	--	--
280	Ø500	Ø450	Ø550	5	8-Ø19	--	--	--	--	--	--
315	Ø600	Ø550	Ø660	6	8-Ø24	--	--	--	--	--	--

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IE3 EFFICIENCY 60HZ PERFORMANCE DATA

				Full Load Data			Full Load Current I_n (A)							Bearings		
Pole	MODEL	HP	kW	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT (%FL)	Weight (lbs.)	DE	NDE	"L" Dim. (mm)
2	MTP 80 A2 P	1	0.75	3490	79.0	0.78	3.34	3.10	1.55	1.24	K	270%	20	6204ZZ	6204ZZ	277
	MTP 80 B2 P	1.5	1.1	3500	84.0	0.80	4.20	3.90	1.95	1.56	M	380%	23	6204ZZ	6204ZZ	277
	MTP 80 C2 P	2	1.5	3500	85.5	0.79	5.50	5.24	2.62	2.09	L	280%	25	6204ZZ	6204ZZ	277
	MTP 90S A2	2	1.5	3500	85.5	0.85	5.58	5.18	2.59	2.07	L	280%	28	6205ZZ	6205ZZ	312
	MTP 90L A2	3	2.2	3490	86.5	0.88	7.86	7.26	3.63	2.90	K	260%	34	6205ZZ	6205ZZ	337
	MTP 100L A2	4	3	3520	88.5	0.89	10.2	9.56	4.78	3.82	M	380%	56	6206ZZ	6206ZZ	375
	MTP 100L B2	5.5	4	3510	88.5	0.89	13.8	12.70	6.35	5.08	L	300%	56	6206ZZ	6206ZZ	375
	MTP 112M A2	5.5	4	3510	88.5	0.90	13.6	12.60	6.30	5.04	L	310%	64	6306ZZ	6206ZZ	397
	MTP 112M B2	7.5	5.5	3510	89.5	0.90	18.9	17.10	8.55	6.84	L	280%	64	6306ZZ	6206ZZ	397
	MTP 132S A2	7.5	5.5	3520	89.5	0.91	18.7	17.00	8.48	6.78	K	260%	96	6308ZZ	6208ZZ	460
	MTP 132S B2	10	7.5	3520	90.2	0.92	25.8	22.60	11.30	9.07	L	270%	114	6308ZZ	6208ZZ	460
	MTP 132M A2	15	11	3530	91.0	0.92	35.6	33.00	16.50	13.20	L	340%	131	6308ZZ	6208ZZ	498
	MTP 160M A2	15	11	3540	91.0	0.88	38.92	35.20	17.60	14.08	K	240%	278	6309C3		620
	MTP 160M B2	20	15	3530	91.0	0.89	51.31	46.40	23.20	18.56	H	240%	295	6309C3		620
	MTP 160L A2	25	18.5	3550	91.7	0.89	63.91	57.80	28.90	23.12	H	280%	353	6309C3		665
	MTP 160L B2	30	22	3550	91.7	0.90	76.3	69.00	34.50	27.60	H	260%	401	6309C3		665
	MTP 180M A2	30	22	3550	91.7	0.90	76.3	69.00	34.50	27.60	H	260%	419	6311C3		696
	MTP 200L A2	40	30	3560	92.4	0.89	102.8	92.97	46.48	37.19	H	270%	523	6312C3		779
	MTP 200L B2	50	37	3560	93.0	0.90	129.4	117.02	58.51	46.81	H	280%	551	6312C3		779
	MTP 225M A2	60	45	3560	93.6	0.89	--	135.00	67.50	54.00	H	300%	767	6313C3		814
	MTP 250M A2	75	55	3560	93.6	0.90	--	168.60	84.30	67.44	H	300%	858	6314C3		929
	MTP 280S A2	100	75	3570	94.1	0.90	--	200.04	100.02	80.02	H	300%	994	6316C3		996
	MTP 280M A2	125	90	3575	95.0	0.90	--	--	136.96	109.57	F	220%	1367	6316C3		1047
4	MTP 80 B4 P	1	0.75	1745	85.5	0.72	3.43	3.18	1.59	1.28	L	310%	26	6204ZZ	6204ZZ	277
	MTP 90S A4	1.5	1.1	1740	86.5	0.74	4.48	4.36	2.18	1.73	K	300%	33	6205ZZ	6205ZZ	312
	MTP 90L A4	2	1.5	1740	86.5	0.78	5.95	5.58	2.79	2.23	K	300%	40	6205ZZ	6205ZZ	337
	MTP 100L A4	3	2.2	1760	89.5	0.80	8.1	7.71	3.86	3.09	L	300%	58	6206ZZ	6206ZZ	375
	MTP 100L B4	4	3	1755	89.5	0.79	11.1	10.60	5.32	4.26	L	320%	63	6206ZZ	6206ZZ	375
	MTP 112M A4	5.5	4	1750	89.5	0.85	14.2	13.20	6.60	5.28	K	280%	74	6306ZZ	6206ZZ	397
	MTP 132S A4	7.5	5.5	1765	91.7	0.85	19.2	17.70	8.86	7.08	L	260%	114	6308ZZ	6208ZZ	460
	MTP 132M A4	10	7.5	1760	91.7	0.86	26.3	23.90	12.00	9.55	L	310%	134	6308ZZ	6208ZZ	498
	MTP 160M A4	15	11	1760	92.4	0.81	41.13	37.20	18.60	14.88	J	260%	280	6309C3		620
	MTP 160L A4	20	15	1760	93.0	0.83	51.97	47.00	23.50	18.80	J	280%	315	6309C3		665
	MTP 180M A4	25	18.5	1770	93.6	0.85	65.46	59.20	29.60	23.68	H	250%	406	6311C3		696
	MTP 180L A4	30	22	1770	93.6	0.85	78.58	71.06	35.53	28.43	H	260%	404	6311C3		734
	MTP 200L A4	40	30	1770	94.1	0.86	104.2	94.23	47.12	37.69	J	300%	584	6312C3		779
	MTP 225S A4	50	37	1770	94.5	0.87	130.9	118.38	59.19	47.35	J	300%	606	6313C3		819
	MTP 225M A4	60	45	1775	95.0	0.86	--	138.80	69.40	55.52	H	280%	831	6313C3		844
	MTP 250M A4	75	55	1775	95.4	0.87	--	172.40	86.20	68.96	H	280%	904	6314C3		929
	MTP 280S A4	100	75	1780	95.4	0.86	--	228.00	114.00	91.20	H	280%	1032	6316C3		996
	MTP 280M A4	125	90	1780	95.0	0.88	--	--	140.99	112.79	J	300%	1779	6316C3		1047
	MTP 315S A4	150	110	1780	95.8	0.88	--	--	169.00	135.00	H	260%	1868	NU319	6319C3	1235
	MTP 315L A4	215	160	1780	96.2	0.90	--	--	233.00	186.00	H	265%	2249	NU319	6319C3	1385
6	MTP 90S A6	1	0.75	1145	82.5	0.70	3.36	3.26	1.63	1.30	H	220%	33	6205ZZ	6205ZZ	312
	MTP 100L A6	1.5	1.1	1170	87.5	0.64	5.01	4.92	2.46	1.97	L	290%	56	6206ZZ	6206ZZ	375
	MTP 112M A6	3	2.2	1175	89.5	0.69	9.16	8.94	4.47	3.58	L	300%	84	6306ZZ	6206ZZ	397
	MTP 132S A6	4	3	1170	89.5	0.71	12	11.80	5.92	4.74	K	260%	112	6308ZZ	6208ZZ	460
	MTP 132M A6	5.5	4	1170	89.5	0.76	15.9	14.80	7.38	5.90	J	230%	134	6308ZZ	6208ZZ	498
	MTP 132M B6	7.5	5.5	1170	91.0	0.75	21.1	20.20	10.10	8.08	L	300%	147	6308ZZ	6208ZZ	498
	MTP 160M A6	10	7.5	1170	91.0	0.76	30.3	27.40	13.70	11.00	J	220%	284	6309C3		620
	MTP 160L A6	15	11	1175	91.7	0.80	42.68	38.60	19.30	15.40	L	280%	366	6309C3		665
	MTP 180L A6	20	15	1175	91.7	0.80	57.06	51.60	25.80	20.60	J	240%	395	6311C3		734
	MTP 200L A6	25	18.5	1180	93.0	0.81	70.55	63.80	31.90	25.50	J	300%	523	6312C3		779
	MTP 200L B6	30	22	1180	93.0	0.82	84.04	76.00	38.00	30.40	H	280%	536	6312C3		779
	MTP 225M A6	40	30	1180	94.1	0.84	104.83	94.80	47.40	37.90	H	250%	708	6313C3		844
	MTP 250M A6	50	37	1180	94.1	0.84	130.92	118.40	59.20	47.40	H	280%	772	6314C3		929
	MTP 280S A6	60	45	1185	94.5	0.85	--	140.00	70.00	56.00	H	200%	966	6316C3		996
	MTP 280M A6	75	55	1185	94.5	0.86	--	175.40	87.68	70.10	H	200%	1052	6316C3		1047
	MTP 315S A6	100	75	1180	95.0	0.87	--	228.00	114.00	91.20	H	185%	1632	NU319	6319C3	1235

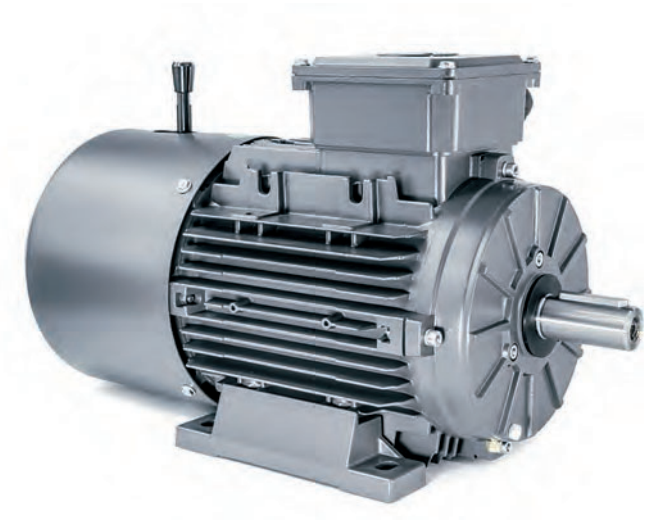
METRIC IE1/IE3 BRAKE MOTORS

0.09 - 7.5KW, IE1/IE3 EFFICIENCY, THREE PHASE, TEFC

TECHTOP

PRODUCT OVERVIEW

Three phase motors fitted with electromagnetic spring-loaded Fail-Safe DC brakes. Enhanced performance cast aluminum IEC frame with Design B torque characteristics. Features a multi-mount arrangement incorporating bolt on feet with flange mount configurations available. 2, 4 and 6 pole, 0.09 to 7.5kW.



BASIC SPECIFICATIONS

- Power Ratings from 0.09 to 7.5kW
- Three Phase, 2, 4 and 6 pole, 60Hz
- 230/460V (Usable @ 208V) & 575V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible
- 1.15 Service Factor
- 36 Month warranty
- Conduit Box is 90° rotatable
- B5/B14 and increase/decrease flanges available
- Anti-microbial (tropicalization) on stator winding
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
  - Black oxide surface treatment for increased corrosion resistance
- Stainless steel nameplate
- Corrosion resistant hardware
- Metric threaded cable gland included with motors
- Normally closed brake
- Bridge rectifier used for AC to DC conversion, located inside motor terminal box
- Manual brake release included
- Adjustable brake torque
- Alternate brake voltages and rectifiers available

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

CONNECTION

- 9-Lead 230V parallel-wye / 460V series-wye connection
  - Standard with full-wave rectifier and 205VDC brake
- 6-Lead 575V wye connection
  - Standard with half-wave rectifier and 250VDC brake
- Motors fitted with standard IEC marked terminal block
- Dual rated motors pre-wired High Voltage

INGRESS PROTECTION

The standard degree of motor enclosure protection is IP55 (increased IP protection is available). Brake mechanical components rated IP23. Both drive end and non-drive end are fitted with double lip oil seals, including a rubber shaft slinger on the drive end. Terminal box is double gasketed. DE/NDE end bell fitted with sintered brass one-way drain.

INSULATION AND INVERTER RATING

- Class F Insulation (Impregnation resin, magnet wire and insulation materials are Class H)
- Designed to Class B temperature rise
- Vacuum Impregnated
- Inverter Rated 15:1 Constant Torque, 30:1 Variable Torque (1.0 S.F. on VFD Power).
- Exceeds NEMA MG 1 Part 31.4.4.2

ECOTOP PREMIUM EFFICIENT
WATERPROOF RATED IP55
INVERTER DUTY 15:1 CT

C SA US 224693
SA Energy Verified Only
CE
c UL us
ee CC096A

PURCHASING DATA

56 - 132M Frame Foot or Flanged — IEC IE1 & IE3 Efficiency

Pole	MODEL	HP	kW	Full Load Current I_n (A)				Eff. Rating	FL Eff. (%)	Brake Torque (Nm)	Brake Size	Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
				208V	230V	460V	575V							B3	B5	B14
2	BMM56A2[ ]	0.18	0.135	0.72	0.70	0.35	0.28	IE1	65.9	4.0	06A	11.6	238	$515	$547	$547
	BMM63A2[ ]	0.25	0.18	0.9	0.88	0.44	0.35	IE1	69.5	4.0	06A	13.8	268	$526	$566	$566
	BMM63B2[ ]	0.35	0.25	1.16	1.14	0.57	0.45	IE1	72.0	4.0	06A	14.2	268	$536	$576	$576
	BMM63C2[ ]	0.50	0.37	1.66	1.64	0.82	0.65	IE1	74.5	4.0	06A	15.3	268	$548	$588	$588
	BMM71A2[ ]	0.50	0.37	1.66	1.62	0.81	0.64	IE1	74.5	4.0	06A	18.9	290	$580	$626	$626
	BMM71B2[ ]	0.75	0.55	2.39	2.34	1.17	0.93	IE1	75.5	4.0	06A	20.7	290	$594	$640	$640
	BMM71C2[ ]	1	0.75	3.2	3.12	1.56	1.24	IE1	76.4	6.0	06A	22.9	304	$609	$655	$655
	BMM80A2[ ]	1	0.75	3.13	3.02	1.51	1.20	IE1	77.0	8.0	08A	26.6	343	$907	$955	$955
	BMM80A2[ ]P	1	0.75	3.34	3.10	1.55	1.24	IE3	79.0	8.0	08A	27.0	343	$998	$1,046	$1,046
	BMM80B2[ ]	1.5	1.1	4.41	4.24	2.12	1.69	IE1	79.5	8.0	08A	29.5	343	$945	$993	$993
3600 RPM	BMM80B2[ ]P	1.5	1.1	4.20	3.90	1.95	1.56	IE3	84.0	8.0	08A	30.0	343	$1,040	$1,088	$1,088
	BMM80C2[ ]	2	1.5	6.01	5.56	2.78	2.22	IE1	81.4	12.0	08A	32.1	343	$1,080	$1,128	$1,128
	BMM80C2[ ]P	2	1.5	5.50	5.24	2.62	2.09	IE3	85.5	12.0	08A	33.0	343	$1,134	$1,182	$1,182
	BMM90SA2[ ]	2	1.5	5.58	5.18	2.59	2.07	IE3	85.5	16.0	10A	42.0	372	$1,199	$1,263	$1,263
	BMM90LA2[ ]	3	2.2	7.86	7.26	3.63	2.90	IE3	86.5	16.0	10A	47.5	397	$1,283	$1,347	$1,347
	BMM100LA2[ ]	4	3	10.2	9.56	4.78	3.82	IE3	88.5	23.0	12A	76.3	443	$1,685	$1,765	$1,765
	BMM100LB2[ ]	5.5	4	13.8	12.7	6.35	5.08	IE3	88.5	32.0	12A	76.3	443	$1,840	$1,920	$1,920
	BMM112MA2[ ]	5.5	4	13.6	12.6	6.30	5.04	IE3	88.5	45.0	14A	89.6	470	$2,033	$2,143	$2,143
	BMM112MB2[ ]	7.5	5.5	18.9	17.1	8.55	6.84	IE3	89.5	45.0	14A	89.6	470	$2,261	$2,371	$2,371
	BMM132SA2[ ]	7.5	5.5	18.7	17.0	8.48	6.78	IE3	89.5	60.0	16A	134.5	550	$2,816	$2,984	$2,984
	BMM132SB2[ ]	10	7.5	25.8	22.6	11.3	9.07	IE3	90.2	60.0	16A	152.5	550	$2,933	$3,101	$3,101
4	BMM56A4[ ]	0.12	0.09	0.77	0.76	0.38	0.30	IE1	54.6	4.0	06A	12.0	238	$520	$552	$552
	BMM63A4[ ]	0.18	0.135	0.99	0.98	0.49	0.39	IE1	59.5	4.0	06A	13.1	268	$532	$572	$572
	BMM63B4[ ]	0.25	0.18	1.26	1.25	0.63	0.50	IE1	62.4	4.0	06A	14.2	268	$535	$575	$575
	BMM63C4[ ]	0.35	0.25	1.57	1.56	0.78	0.62	IE1	66.1	4.0	06A	16.0	268	$549	$589	$589
	BMM71A4[ ]	0.35	0.25	1.38	1.37	0.68	0.55	IE1	68.5	4.0	06A	18.5	290	$583	$629	$629
	BMM71B4[ ]	0.50	0.37	1.9	1.88	0.94	0.75	IE1	72.5	6.0	06A	20.3	290	$598	$644	$644
	BMM71C4[ ]	0.75	0.55	2.8	2.76	1.38	1.10	IE1	73.5	6.0	06A	21.8	304	$618	$664	$664
	BMM80A4[ ]	0.75	0.55	2.75	2.72	1.36	1.08	IE1	73.5	8.0	08A	25.3	343	$740	$788	$788
	BMM80B4[ ]	1	0.75	3.48	3.40	1.70	1.36	IE1	77.0	12.0	08A	29.5	343	$945	$993	$993
1800 RPM	BMM80B4[ ]P	1	0.75	3.43	3.18	1.59	1.28	IE3	85.5	12.0	08A	30.0	343	$964	$1,012	$1,012
	BMM80C4[ ]	1.5	1.1	4.95	4.80	2.40	1.92	IE1	79.1	12.0	08A	33.2	343	$972	$1,020	$1,020
	BMM90SA4[ ]	1.5	1.1	4.48	4.36	2.18	1.73	IE3	86.5	16.0	10A	47.0	372	$1,121	$1,185	$1,185
	BMM90LA4[ ]	2	1.5	5.95	5.58	2.79	2.23	IE3	86.5	23.0	10A	53.7	397	$1,262	$1,326	$1,326
	BMM100LA4[ ]	3	2.2	8.1	7.71	3.86	3.09	IE3	89.5	32.0	12A	77.8	443	$1,671	$1,751	$1,751
	BMM100LB4[ ]	4	3	11.1	10.6	5.32	4.26	IE3	89.5	46.0	12A	82.8	443	$1,781	$1,861	$1,861
	BMM112MA4[ ]	5.5	4	14.2	13.2	6.60	5.28	IE3	89.5	60.0	14A	100.1	470	$2,209	$2,319	$2,319
	BMM132SA4[ ]	7.5	5.5	19.2	17.7	8.86	7.08	IE3	91.7	80.0	16A	152.5	550	$2,796	$2,964	$2,964
	BMM132MA4[ ]	10	7.5	26.3	23.9	12.0	9.55	IE3	91.7	100.0	16A	173.2	588	$3,062	$3,230	$3,230

Voltage: Replace [ ] with D for 230/460V, F for 575V

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

METRIC IE1/IE3 BRAKE MOTORS

0.09 - 7.5KW, IE1/IE3 EFFICIENCY, THREE PHASE, TEFC

TECHTOP

PURCHASING DATA

56 - 132M Frame Foot or Flanged — IEC IE1 & IE3 Efficiency

Pole	MODEL	HP	kW	Full Load Current I_n (A)				Eff. Rating	FL Eff. (%)	Brake Torque (Nm)	Brake Size	Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
				208V	230V	460V	575V							B3	B5	B14
6	**BMM63A6[ ]**	0.12	0.09	0.09	0.80	0.40	0.32	IE1	48.5	4.0	06A	14.9	268	$610	$650	$650
1200 RPM	**BMM63B6[ ]**	0.18	0.135	0.135	1.16	0.58	0.46	IE1	52.5	4.0	06A	15.8	268	$620	$660	$660
	BMM71A6[ ]	0.25	0.18	0.18	1.26	0.63	0.50	IE1	61.0	4.0	06A	21.0	290	$672	$718	$718
	BMM71B6[ ]	0.35	0.25	0.25	1.60	0.80	0.64	IE1	63.3	6.0	06A	21.5	290	$687	$733	$733
	BMM71C6[ ]	0.50	0.37	0.37	2.30	1.15	0.92	IE1	65.0	6.0	06A	24.4	304	$729	$775	$775
	BMM80A6[ ]	0.50	0.37	0.37	2.10	1.05	0.84	IE1	66.0	8.0	08A	26.3	343	$852	$900	$900
	BMM80B6[ ]	0.75	0.55	0.55	2.90	1.45	1.16	IE1	70.0	12.0	08A	27.0	343	$884	$932	$932
	BMM80C6[ ]	1	0.75	0.75	3.90	1.95	1.56	IE1	71.0	12.0	08A	28.8	343	$925	$973	$973
	BMM90SA6[ ]	1	0.75	3.36	3.26	1.63	1.30	IE3	82.5	16.0	10A	42.6	372	$1,291	$1,355	$1,355
	BMM100LA6[ ]	1.5	1.1	5.01	4.92	2.46	1.97	IE3	87.5	32.0	12A	76.2	443	$1,941	$2,021	$2,021
	BMM112MA6[ ]	3	2.2	9.16	8.94	4.47	3.58	IE3	89.5	60.0	14A	110.3	470	$2,284	$2,394	$2,394
	BMM132SA6[ ]	4	3	12.0	11.8	5.92	4.74	IE3	89.5	80.0	16A	150.3	550	$3,074	$3,242	$3,242
	BMM132MA6[ ]	5.5	4	15.9	14.8	7.38	5.90	IE3	89.5	80.0	16A	154.0	588	$3,149	$3,317	$3,317
	BMM132MB6[ ]	7.5	5.5	21.1	20.2	10.1	8.08	IE3	91.0	100.0	16A	168.3	588	$3,439	$3,607	$3,607

Voltage: Replace [ ] with D for 230/460V, F for 575V

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

DIMENSIONAL DRAWINGS

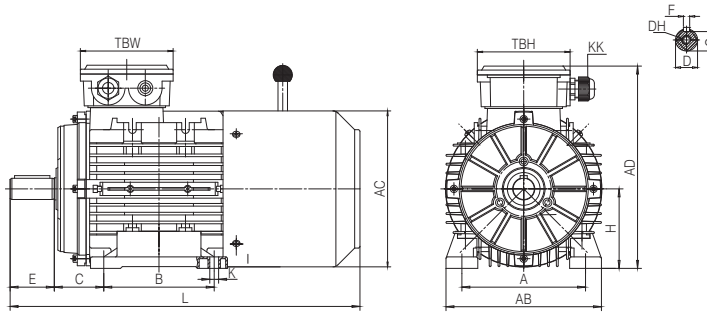


Figure 1 - B3 Foot Mount 63-100 Frame

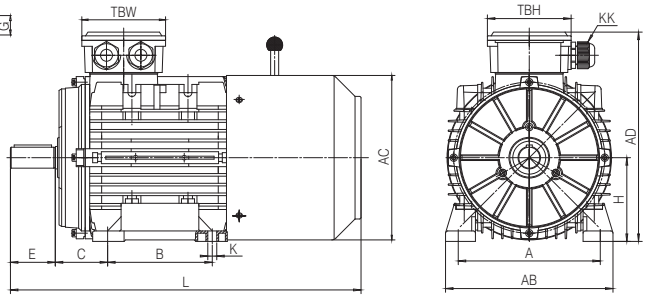
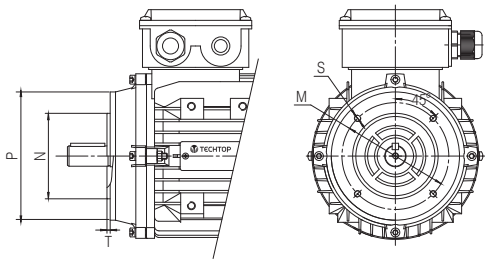


Figure 2 - B3 Foot Mount 112/132 Frame

Dimensions are in **mm**

IEC Frame	Foot Mounting					Shaft					General						
	H	A	B	C	K	D	E	F	G	DH	AB	AC	AD	L	TBH	TBW	KK
63	63	100	80	40	7*10	Ø11	23	4	8.5	M4	120	Ø130	171	268	94	94	1-M16X1.5
71A/B	71	112	90	45	7*10	Ø14	30	5	11	M5	132	Ø139.6	179	290	94	94	1-M20X1.5
71C	71	112	90	45	7*10	Ø14	30	5	11	M5	132	Ø139.6	179	304	94	94	1-M20X1.5
80	80	125	100	50	10*13	Ø19	40	6	15.5	M6	160	Ø156	217	343	105	105	1-M20X1.5
90S	90	140	110	56	Ø10	Ø24	50	8	20	M8	175	Ø177	228	372	105	105	1-M20X1.5
90L	90	140	125	56	Ø10	Ø24	50	8	20	M8	175	Ø177	228	397	105	105	1-M20X1.5
100L	100	160	140	63	Ø12	Ø28	60	8	24	M10	200	Ø200	258	443	112	112	1-M20X1.5
112M	112	190	140	70	Ø12	Ø28	60	8	24	M10	230	Ø220	280	470	112	112	2-M25X1.5
132S	132	216	140	89	Ø12	Ø38	80	10	33	M12	255	Ø261	319	550	112	112	2-M25X1.5
132M	132	216	178	89	Ø12	Ø38	80	10	33	M12	255	Ø261	319	588	112	112	2-M25X1.5

Figure 3 - C-Flange B14/B14I

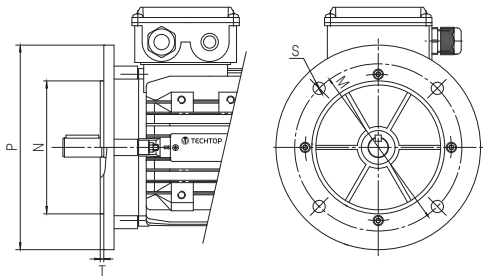


Dimensions are in **mm**

IEC Frame	IEC B14 C-Flange Dimensions					B14I Increased to Frame	IEC B14I Increase Dimensions				
	M	N	P	T	S		M	N	P	T	S
63	Ø75	Ø60	Ø90	2.5	4-M5	80	Ø100	Ø80	Ø120	3	4-M6
71	Ø85	Ø70	Ø105	2.5	4-M6	90	Ø115	Ø95	Ø140	3	4-M8
80*	Ø100	Ø80	Ø120	3	4-M6	100/112	Ø130	Ø110	Ø160	3.5	4-M8
90	Ø115	Ø95	Ø140	3	4-M8	100/112	Ø130	Ø110	Ø160	3.5	4-M8
100	Ø130	Ø110	Ø160	3.5	4-M8	132	Ø165	Ø130	Ø200	3.5	4-M10
112	Ø130	Ø110	Ø160	3.5	4-M8	132	Ø165	Ø130	Ø200	3.5	4-M10
132	Ø165	Ø130	Ø200	3.5	4-M10	--	--	--	--	--	--

*80B14R71 Kit also available

Figure 4 - D-Flange B5/B5R



Dimensions are in **mm**

IEC Frame	IEC B5 D-Flange Dimensions					B5R Reduced to Frame	IEC B5R Reduction Dimensions				
	M	N	P	T	S		M	N	P	T	S
63	Ø115	Ø95	Ø140	3	4-Ø10	--	--	--	--	--	--
71	Ø130	Ø110	Ø160	3.5	4-Ø10	63	Ø115	Ø95	Ø140	3.5	4-Ø10
80	Ø165	Ø130	Ø200	3.5	4-Ø12	71	Ø130	Ø110	Ø160	3.5	4-Ø10
90	Ø165	Ø130	Ø200	3.5	4-Ø12	71	Ø130	Ø110	Ø160	3.5	4-Ø10
100	Ø215	Ø180	Ø250	4	4-Ø15	80/90	Ø165	Ø130	Ø200	3.5	4-Ø12
112	Ø215	Ø180	Ø250	4	4-Ø15	80/90	Ø165	Ø130	Ø200	3.5	4-Ø12
132	Ø265	Ø230	Ø300	4	4-Ø15	100/112	Ø215	Ø180	Ø250	4	4-Ø15

METRIC IE1/IE3 BRAKE MOTORS

0.09 - 7.5KW, IE1/IE3 EFFICIENCY, THREE PHASE, TEFC

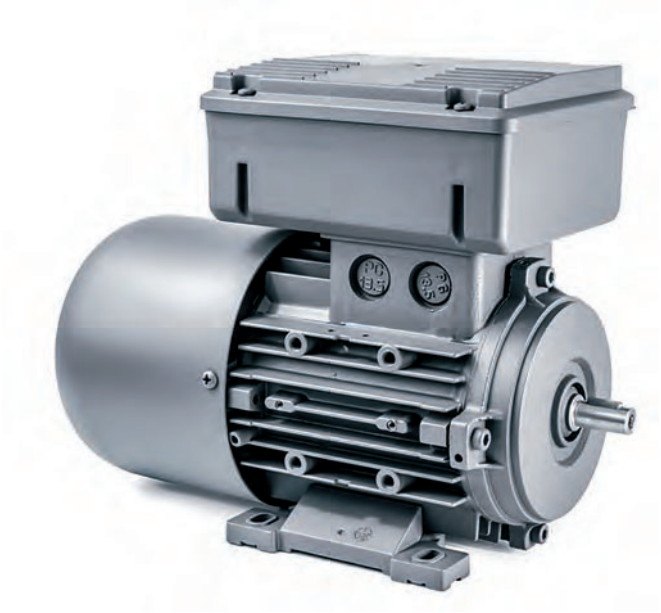
TECHTOP

IE1 & IE3 EFFICIENCY 60HZ PERFORMANCE DATA

				Full Load Data			Full Load Current I_n (A)							Bearings		
Pole	MODEL	HP	kW	RPM (r/min)	Eff. (%)	PF (Cosθ)	208V	230V	460V	575V	KVA Code	LRT (%FL)	Weight (lbs.)	DE	NDE	"L" Dim. (mm)
2	BMM 56 A2	0.18	0.135	3330	65.9	0.73	0.72	0.70	0.35	0.28	H	320%	11.6	6201ZZ		238
	BMM 63 A2	0.25	0.18	3330	69.5	0.74	0.90	0.88	0.44	0.35	H	300%	13.8	6201ZZ		268
	BMM 63 B2	0.35	0.25	3330	72.0	0.76	1.16	1.14	0.57	0.45	H	320%	14.2	6201ZZ		268
	BMM 63 C2	0.50	0.37	3330	74.5	0.76	1.66	1.64	0.82	0.65	H	300%	15.3	6201ZZ		268
	BMM 71 A2	0.50	0.37	3390	74.5	0.77	1.66	1.62	0.81	0.64	J	350%	18.9	6202ZZ		290
	BMM 71 B2	0.75	0.55	3400	75.5	0.78	2.39	2.34	1.17	0.93	K	350%	20.7	6202ZZ		290
	BMM 71 C2	1	0.75	3400	76.4	0.79	3.20	3.12	1.56	1.24	K	350%	22.9	6202ZZ		304
	BMM 80 A2	1	0.75	3440	77.0	0.81	3.13	3.02	1.51	1.20	J	260%	26.6	6204ZZ		343
	BMM 80 A2 P	1	0.75	3490	79.0	0.78	3.34	3.10	1.55	1.24	K	270%	27.0	6204ZZ		343
	BMM 80 B2	1.5	1.1	3440	79.5	0.82	4.41	4.24	2.12	1.69	J	260%	29.5	6204ZZ		343
	BMM 80 B2 P	1.5	1.1	3500	84.0	0.80	4.20	3.90	1.95	1.56	M	380%	30.0	6204ZZ		343
	BMM 80 C2	2	1.5	3440	81.4	0.83	6.01	5.56	2.78	2.22	J	270%	32.1	6204ZZ		343
	BMM 80 C2 P	2	1.5	3500	85.5	0.79	5.50	5.24	2.62	2.09	L	280%	33.0	6204ZZ		343
	BMM 90S A2	2	1.5	3500	85.5	0.85	5.58	5.18	2.59	2.07	L	280%	42.0	6205ZZ	6205ZZ	372
	BMM 90L A2	3	2.2	3490	86.5	0.88	7.86	7.26	3.63	2.90	K	260%	47.5	6205ZZ	6205ZZ	397
	BMM 100L A2	4	3	3520	88.5	0.89	10.2	9.56	4.78	3.82	M	380%	76.3	6206ZZ	6206ZZ	443
	BMM 100L B2	5.5	4	3510	88.5	0.89	13.8	12.7	6.35	5.08	L	300%	76.3	6206ZZ	6206ZZ	443
	BMM 112M A2	5.5	4	3510	88.5	0.90	13.6	12.6	6.30	5.04	L	310%	89.6	6306ZZ	6206ZZ	470
	BMM 112M B2	7.5	5.5	3510	89.5	0.90	18.9	17.1	8.55	6.84	L	280%	89.6	6306ZZ	6206ZZ	470
	BMM 132S A2	7.5	5.5	3520	89.5	0.91	18.7	17.0	8.48	6.78	K	260%	134.5	6308ZZ	6208ZZ	550
	BMM 132S B2	10	7.5	3520	90.2	0.92	25.8	22.6	11.3	9.07	L	270%	152.5	6308ZZ	6208ZZ	550
4	BMM 56 A4	0.12	0.09	1640	54.6	0.55	0.77	0.76	0.38	0.30	K	320%	12.0	6201ZZ		238
	BMM 63 A4	0.18	0.135	1640	59.5	0.58	0.99	0.98	0.49	0.39	J	300%	13.1	6201ZZ		268
	BMM 63 B4	0.25	0.18	1640	62.4	0.58	1.26	1.25	0.63	0.50	J	320%	14.2	6201ZZ		268
	BMM 63 C4	0.35	0.25	1650	66.1	0.6	1.57	1.56	0.78	0.62	J	300%	16.0	6201ZZ		268
	BMM 71 A4	0.35	0.25	1680	68.5	0.67	1.38	1.37	0.68	0.55	J	280%	18.5	6202ZZ		290
	BMM 71 B4	0.50	0.37	1690	72.5	0.68	1.90	1.88	0.94	0.75	J	320%	20.3	6202ZZ		290
	BMM 71 C4	0.75	0.55	1690	73.5	0.68	2.80	2.76	1.38	1.10	J	320%	21.8	6202ZZ		304
	BMM 80 A4	0.75	0.55	1700	73.5	0.69	2.75	2.72	1.36	1.08	J	280%	25.3	6204ZZ		343
	BMM 80 B4	1	0.75	1710	77.0	0.72	3.48	3.40	1.70	1.36	J	280%	29.5	6204ZZ		343
	BMM 80 B4 P	1	0.75	1745	85.5	0.72	3.43	3.18	1.59	1.28	L	310%	30.0	6204ZZ		343
	BMM 80 C4	1.5	1.1	1700	79.1	0.73	4.95	4.80	2.40	1.92	J	280%	33.2	6204ZZ		343
	BMM 90S A4	1.5	1.1	1740	86.5	0.74	4.48	4.36	2.18	1.73	K	300%	47.0	6205ZZ	6205ZZ	372
	BMM 90L A4	2	1.5	1740	86.5	0.78	5.95	5.58	2.79	2.23	K	300%	53.7	6205ZZ	6205ZZ	397
	BMM 100L A4	3	2.2	1760	89.5	0.80	8.1	7.71	3.86	3.09	L	300%	77.8	6206ZZ	6206ZZ	443
	BMM 100L B4	4	3	1755	89.5	0.79	11.1	10.6	5.32	4.26	L	320%	82.8	6206ZZ	6206ZZ	443
	BMM 112M A4	5.5	4	1750	89.5	0.85	14.2	13.2	6.60	5.28	K	280%	100.1	6306ZZ	6206ZZ	470
	BMM 132S A4	7.5	5.5	1765	91.7	0.85	19.2	17.7	8.86	7.08	L	260%	152.5	6308ZZ	6208ZZ	550
	BMM 132M A4	10	7.5	1760	91.7	0.86	26.3	23.9	12.0	9.55	L	310%	173.2	6308ZZ	6208ZZ	588
6	BMM 63 A6	0.12	0.09	1030	48.5	0.49	0.81	0.80	0.40	0.32	H	240%	14.9	6201ZZ		268
	BMM 63 B6	0.18	0.135	1050	52.5	0.56	1.17	1.16	0.58	0.46	H	240%	15.8	6201ZZ		268
	BMM 71 A6	0.25	0.18	1080	61.0	0.59	1.29	1.26	0.63	0.50	H	240%	21.0	6202ZZ		290
	BMM 71 B6	0.35	0.25	1100	63.3	0.62	1.63	1.60	0.80	0.64	H	240%	21.5	6202ZZ		290
	BMM 71 C6	0.50	0.37	1100	65.0	0.74	2.35	2.30	1.15	0.92	H	240%	24.4	6202ZZ		304
	BMM 80 A6	0.50	0.37	1100	66.0	0.67	2.16	2.10	1.05	0.84	J	260%	26.3	6204ZZ		343
	BMM 80 B6	0.75	0.55	1100	70.0	0.68	2.95	2.90	1.45	1.16	H	260%	27.0	6204ZZ		343
	BMM 80 C6	1	0.75	1100	71.0	0.71	3.96	3.90	1.95	1.56	H	260%	28.8	6204ZZ		343
	BMM 90S A6	1	0.75	1145	82.5	0.70	3.36	3.26	1.63	1.30	H	220%	42.6	6205ZZ	6205ZZ	372
	BMM 100L A6	1.5	1	1170	87.5	0.64	5.01	4.92	2.46	1.97	L	250%	76.2	6206ZZ	6206ZZ	443
	BMM 112M A6	3	2.2	1175	89.5	0.69	9.16	8.94	4.47	3.58	L	300%	110.3	6306ZZ	6206ZZ	470
	BMM 132S A6	4	3	1170	89.5	0.71	12.0	11.8	5.92	4.74	K	260%	150.3	6308ZZ	6208ZZ	550
	BMM 132M A6	5.5	4	1170	89.5	0.76	15.9	14.8	7.38	5.90	J	230%	154.0	6308ZZ	6208ZZ	588
	BMM 132M B6	7.5	5.5	1170	91.0	0.75	21.1	20.2	10.1	8.08	L	300%	168.3	6308ZZ	6208ZZ	588

PRODUCT OVERVIEW

Lightweight single phase, enhanced performance cast aluminum IEC frame, dual capacitor high torque design. Features a multi-mount arrangement incorporating bolt on feet with flange mount configurations available. 2 & 4 pole, 0.09 to 2.2kW, ideal applications include packaging, conveying, blowers, etc.



BASIC SPECIFICATIONS

- Power Ratings from 0.09 to 2.2kW
- Single Phase, 2 and 4 pole, 60Hz
- 15/230V, 115V and 230V 60Hz
- Totally Enclosed Fan Cooled (TEFC)

STANDARD FEATURES

- Removable feet F1, F2, F0 field convertible (standard F0)
- 1.0 Service Factor 60Hz operation
- 18 Month warranty
- Conduit Box is 90° rotatable
- Cast aluminum construction with cast aluminum B5/B14 and increase/reduction flange kits available
- Compact lightweight design
- 1045 Steel shaft
- Surface finish:
  - Alkyd enamel RAL7024 - Graphite Gray
- Corrosion resistant hardware
- Cable gland fixed to connection box
- Reliable mechanical centrifugal switch design

OPERATING PARAMETERS

- Continuous (S1) duty
- Ambient temperatures up to 40°C
- Installation up to 1000 MASL (3300 ft.)

INGRESS PROTECTION

The standard degree of enclosure protection is IP54 (Weather Proof). Both drive end and non-drive end are fitted with v-seals. Conduit box lid and body is sealed with a fitted rubber gasket.

INSULATION RATING

- Class F insulation
- Designed to Class B temperature rise

CE cULus
File Nr. E365718

METRIC SINGLE PHASE MOTORS

0.09 - 2.2KW, HIGH TORQUE, SINGLE PHASE, TEFC

TECHTOP

PURCHASING DATA

IEC56 - IEC100 Frame Foot or Foot & Flange — IEC High Efficiency Energy Saver

Pole	MODEL	MFG Number	HP	kW	Full Load Amps (A)		Shipping Weight (lbs.)	"L" Dim. (mm)	List Price		
					115V	230V			B3	B5	B14
2	**MSPH63A2C**	EMUD63a-2	0.25	0.18	3.6	1.8	10.1	259	$559	$606	$606
	MSPH63B2C	EMUD63b-2	0.33	0.25	4.1	2.1	11	259	$578	$625	$625
	MSPH71A2C	EMUD71a-2	0.50	0.37	6.4	3.2	16.5	274	$621	$677	$677
	MSPH71B2C	EMUD71b-2	0.75	0.55	8.6	4.3	16.3	274	$654	$710	$710
	MSPH80A2C	EMUD80a-2	1	0.75	10.6	5.3	21	314	$715	$781	$715
	MSPH80B2C	EUMD80b-2	1.5	1.1	14.7	7.4	26.4	314	$744	$810	$810
	MSPH90SA2A	EMU90Sb-2	2	1.5	18.4	--	26	335	$944	$1,014	$1,014
	MSPH90SA2B	EMU90Sb-2	2	1.5	--	9.2	26	335	$944	$1,014	$1,014
	MSPH90LA2B	EMU90Lb-2	3	2.2	--	13.6	36.3	360	$1,013	$1,097	$1,097
4	**MSPH56A4C***	EMU56-4	0.12	0.09	2.4	1.2	6.4	189	$568	$613	$613
	MSPH63A4C	EMUD63b-4	0.25	0.18	3.8	2	11	259	$575	$622	$622
	MSPH71A4C	EMUD71a-4	0.33	0.25	4	2.1	12.7	274	$614	$670	$670
	MSPH71B4C	EMUD71b-4	0.50	0.37	6.4	3.2	16.3	274	$636	$692	$692
	MSPH80A4C	EMUD80a-4	0.75	0.55	8.8	4.6	18.7	314	$705	$771	$771
	MSPH80B4C	EMUD80b-4	1	0.75	11.8	6.1	21.8	314	$738	$804	$804
	MSPH90SA4A	EMU90Sb-4	1.5	1.1	15	--	29.3	335	$904	$974	$974
	MSPH90SA4B	EMU90Sb-4	1.5	1.1	--	7	29.3	335	$904	$974	$974
	MSPH90LA4A	EMU90La-4	2	1.5	18.6	--	35.8	360	$975	$1,045	$1,045
	MSPH90LA4B	EMU90La-4	2	1.5	--	9.3	35.8	360	$975	$1,045	$1,045
	MSPH100LA4B	EMU100Lb-4	3	2.2	--	14	52.8	389	$1,244	$1,328	$1,328

*IEC 56 frame is single capacitor design with no removable feet

Flange: Add "-B14" to the end of Model for C-Flange or "-B5" for D-Flange round body
Add "-B34" or "-B35" for foot and flange

For Flange Kits refer to Motor Accessories on page 73

DIMENSIONAL DRAWINGS

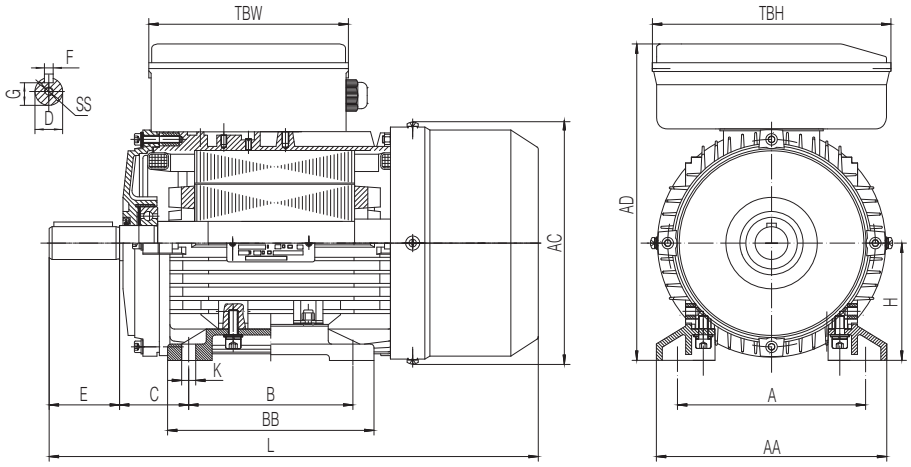
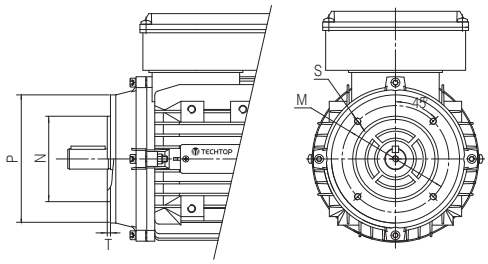


Figure 1 - Foot Mount B3

Dimensions are in **mm**

IEC Frame	Foot Mounting					Shaft					General						
	H	A	B	C	K	D	E	F	G	SS	AA	BB	AC	AD	TBH	TBW	L
56	56	90	71	36	6*11	Ø9	20	3	7.2	M3	109	91	Ø115	171	93	121	189
63	63	100	80	40	7*12	Ø11	23	4	8.5	M4	120	106	Ø123	198	120	147	259
71	71	112	90	45	7*12	Ø14	30	5	11	M5	136	108	Ø147	216	120	147	274
80	80	125	100	50	9.5*17	Ø19	40	6	15.5	M6	160	125	Ø161	240	120	147	314
90S	90	140	100	56	9.5*17	Ø24	50	8	20	M8	170	131	Ø181	255	120	147	335
90L	90	140	125	56	9.5*17	Ø24	50	8	20	M8	170	156	Ø181	255	120	147	360
100L	100	160	140	63	11*21	Ø28	60	8	24	M10	200	170	Ø198	265	120	147	389

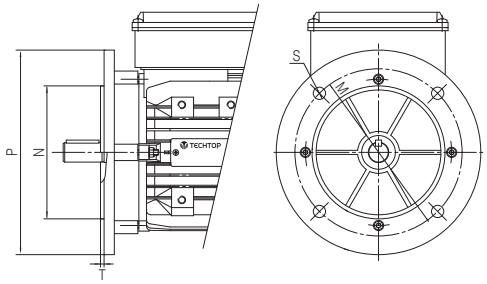
Figure 2 - C-Flange B14/B14I



Dimensions are in **mm**

IEC Frame	IEC B14 C-Flange Dimensions					B14R Reduced Kit	B14I Increased Kit
	M	N	P	T	S		
56	Ø65	Ø50	Ø80	2.5	4-M5	--	--
63	Ø75	Ø60	Ø90	2.5	4-M5	--	80
71	Ø85	Ø70	Ø105	2.5	4-M6	63	80 or 90
80	Ø100	Ø80	Ø120	3	4-M6	71	90
90	Ø115	Ø95	Ø140	3	4-M8	--	100/112
100	Ø130	Ø110	Ø160	3.5	4-M8	90	132

Figure 3 - D-Flange B5/B5R



Dimensions are in **mm**

IEC Frame	IEC B5 D-Flange Dimensions					B5R Reduced Kit	B5I Increased Kit
	M	N	P	T	S		
56	Ø100	Ø80	Ø120	3	4-Ø7	--	--
63	Ø115	Ø95	Ø140	3	4-Ø10	--	--
71	Ø130	Ø110	Ø160	3.5	4-Ø10	63	--
80	Ø165	Ø130	Ø200	3.5	4-Ø12	70	--
90	Ø165	Ø130	Ø200	3.5	4-Ø12	71	--
100	Ø215	Ø180	Ø250	4	4-Ø15	--	--

METRIC SINGLE PHASE MOTORS

0.09 - 2.2KW, HIGH TORQUE, SINGLE PHASE, TEFC

TECHTOP

HIGH TORQUE 60HZ PERFORMANCE DATA

				Full Load Data			Full Load Amps (A)		Start Capacitor		Run Capacitor			Bearings		
Pole	MODEL	HP	kW	RPM (r/min)	Eff. (%)	PF (Cosθ)	115V	230V	Cap. (μF)	Voltage (V)	Cap. (μF)	Voltage (V)	Weight (lbs.)	DE	NDE	"L" Dim. (mm)
2	**MSPH 63 A2 C**	0.25	0.18	3480	45.8	0.95	3.6	1.8	40	450	20	450	10.1	6202-2RS		259
	MSPH 63 B2 C	0.33	0.25	3480	57.5	0.90	4.1	2.1	63-80	320	25	450	11.0	6202-2RS		259
	MSPH 71 A2 C	0.50	0.37	3480	52.9	0.95	6.4	3.2	63-80	320	30	450	16.5	6202-2RS		274
	MSPH 71 B2 C	0.75	0.55	3480	61.8	0.90	8.6	4.3	80-100	320	40	450	16.3	6202-2RS		274
	MSPH 80 A2 C	1	0.75	3360	68.4	0.90	10.6	5.3	100-125	320	60	450	21.0	6204-2RS		314
	MSPH 80 B2 C	1.5	1.1	3410	71.8	0.90	14.7	7.4	100-125	320	70	450	26.4	6204-2RS		314
	MSPH 90S A2 A	2	1.5	3350	78.8	0.90	18.4	--	145-174	320	70 (x2)	450	26.0	6205-2RS		335
	MSPH 90S A2 B	2	1.5	3350	78.8	0.90	--	9.2	100-125	320	45	450	26.0	6205-2RS		335
	MSPH 90L A2 B	3	2.2	3380	78.1	0.90	--	13.6	100-125	320	50	450	36.3	6205-2RS		360
4	**MSPH 56 A4 C**	0.12	0.09	1605	37.1	0.88	2.4	1.2	--	--	16	450	6.4	6201-2RS		189
	MSPH 63 A4 C	0.25	0.18	1710	44.5	0.88	3.8	2	63-80	320	30	450	11.0	6202-2RS		259
	MSPH 71 A4 C	0.33	0.25	1610	60.9	0.85	4	2.1	63-80	320	35	450	12.7	6202-2RS		274
	MSPH 71 B4 C	0.50	0.37	1610	59.1	0.85	6.4	3.2	80-100	320	40	450	16.3	6202-2RS		274
	MSPH 80 A4 C	0.75	0.55	1690	57.8	0.90	8.8	4.6	80-100	320	50	450	18.7	6204-2RS		314
	MSPH 80 B4 C	1	0.75	1700	59.4	0.90	11.8	6.1	100-125	320	60	450	21.8	6204-2RS		314
	MSPH 90S A4 A	1.5	1.1	1700	75.0	0.85	15	--	100-125	320	40 (x2)	450	29.3	6205-2RS		335
	MSPH 90S A4 B	1.5	1.1	1700	80.4	0.85	--	7	63-80	320	35	450	29.3	6205-2RS		335
	MSPH 90L A4 A	2	1.5	1700	82.5	0.85	18.6	--	145-174	330	70 (x2)	450	35.8	6205-2RS		360
	MSPH 90L A4 B	2	1.5	1700	82.5	0.85	--	9.3	100-125	320	40	450	35.8	6205-2RS		360
	MSPH 100L A4 B	3	2.2	1710	74.3	0.92	--	14	100-125	320	50	450	52.8	6205-2RS		389

PURCHASING DATA

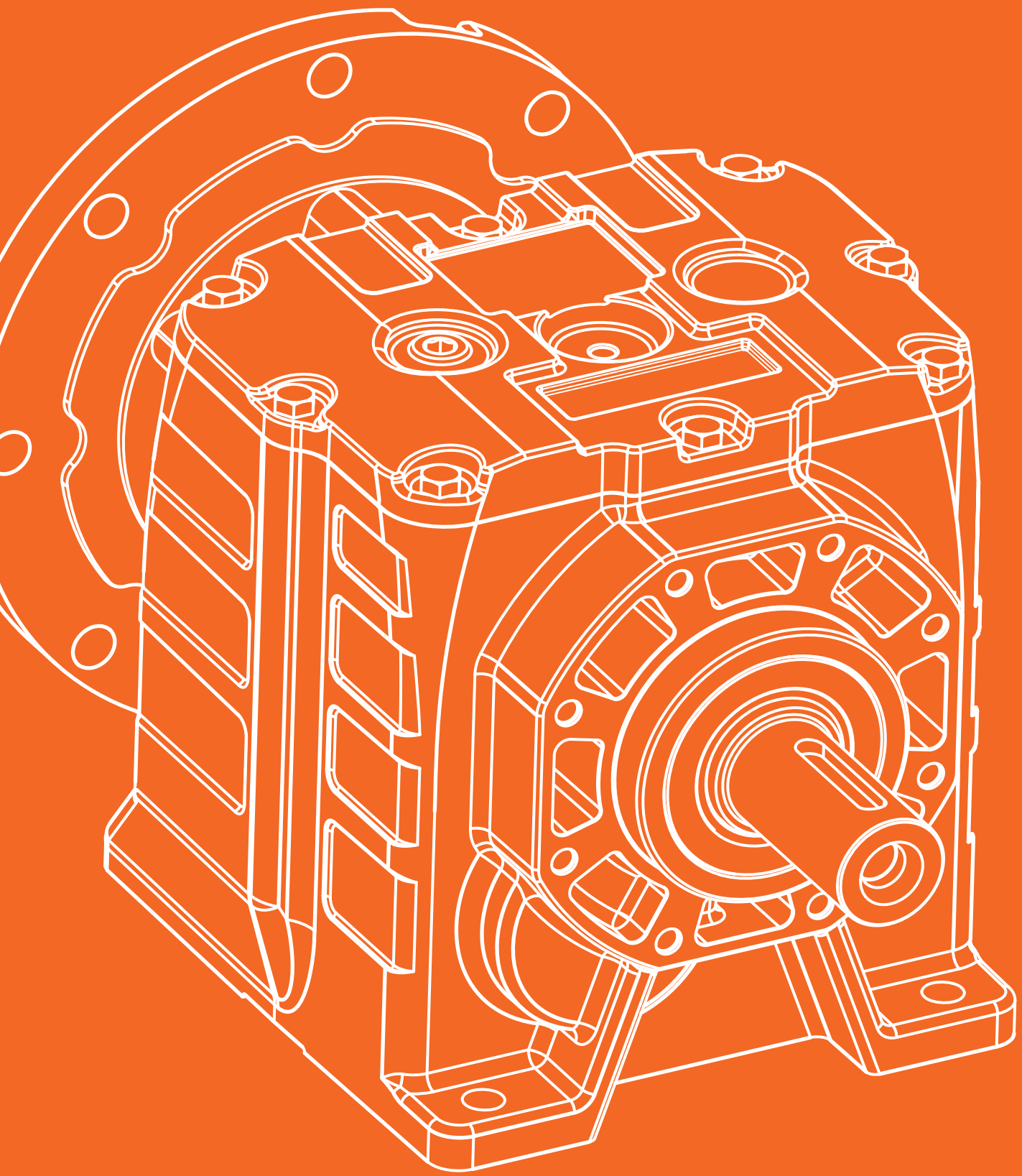
IEC Three Phase Motors 56 - 315L Flange Kits

IEC Frame	IEC B14 C-Flange		IEC B14I Increase		IEC B5 D-Flange		IEC B5R Reduction	
	MODEL	List Price	MODEL	List Price	MODEL	List Price	MODEL	List Price
56	B14KIT56	$32	--		B5KIT56	$32	--	
63	B14KIT63	$40	B14IKIT63-80	$64	B5KIT63	$40		
71	B14KIT71	$46	B14IKIT71-90	$68	B5KIT71	$46	B5RKIT71-63	$64
80	B14KIT80	$48	B14IKIT80-100/112	$72	B5KIT80	$48	B5RKIT80-71	$68
90	B14KIT90	$64	B14IKIT90-100/112	$128	B5KIT90	$64	B5RKIT90-71	$72
100	B14KIT100	$80	B14IKIT100-132	$128	B5KIT100	$80	B5RKIT100-80/90	$128
112	B14KIT112	$110	B14IKIT112-132	$208	B5KIT112	$110	B5RKIT112-80/90	$128
132	B14KIT132	$168			B5KIT132	$168	B5RKIT132-100/112	$208
160	B14KIT160	$240			B5KIT160	$240		
180					B5KIT180	$325		
200					B5KIT200	$405		
225	--		--		B5KIT225	$545	--	
250					B5KIT250	$630		
280					B5KIT280	$810		
315					B5KIT315	$1010		

*B14RKIT80-71P Kit also available

IEC Single Phase High Torque Motors 56 - 100L Flange Kits

IEC Frame	IEC B14 C-Flange		IEC B14I Increase		IEC B14R Decrease		IEC B5 D-Flange		IEC B5R Reduction	
	MODEL	List	MODEL	List	MODEL	List	MODEL	List	MODEL	List
56	B14KIT56-MSP	$45	--		--		B5KIT56-MSP	$45	--	
63	B14KIT63-MSP	$47	B14IKIT63-80-MSP	$70			B5KIT63-MSP	$47		
71	B14KIT71-MSP	$56	B14IKIT71-80-MSP	$75	B14RKIT71-63-MSP	$56	B5KIT71-MSP	$56	B5RKIT71-63-MSP	$56
71	--		B14IKIT71-90-MSP	$75	--		--		--	
80	B14KIT80-MSP	$66	B14IKIT80-90-MSP	$94	B14RKIT80-71-MSP	$70	B5KIT80-MSP	$66	B5RKIT80-71-MSP	$70
90	B14KIT90-MSP	$70	B14IKIT90-100/112-MSP	$94	--		B5KIT90-MSP	$70	B5RKIT90-71-MSP	$75
100	B14KIT100-MSP	$84	B14IKIT100-132-MSP	$131	B14RKIT100-90-MSP	$113	B5KIT100-MSP	$84	--	



VARVEL

SUPERIOR QUALITY

GEARING

TECHTOP

RT RIGHT ANGLE WORM GEAR REDUCERS

SIZES RT28 - RT110, INCH AND METRIC OPTIONS

VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

TECHTOP

RT GEARBOXES

Build your gearbox. Select one option from each **category**. Highlighted in orange is an example: **FRT50 B3 20 N56 AC1.00**

Input Style	Type	Size			Mount Option	Ratio			Input Flange		Output Style	Output Size		
		A	B	C		A	B	C	NEMA	IEC		RT	(in.)	(mm)
M Motorized	RT Single Reduction	28	28/28	63/40	**B3** Universal	5	280	25	N42	B5 Include Motor Frame size	**AC** Hollow Bore	28	0.625	14
	RT/RT Double Reduction	40	28/40	63/50		7	420	...	N48			40	0.75	(18) 19 (20)
	TA Helical Worm	**50**	28/50	71/50		10	560	63	**N56**			50	**1.00**	24 (25)
F Flange Input		60	28/60	63/60	**F, FV, FL** Output Flange	15	784	95	N140		**AS** Single Output	60	1.125	25
		70	40/70	71/60		**20**	1120	126	N180	B14 Include Motor Frame size		70	1.25	28 (30)
		85	40/85	...		28	1568	176				85	1.375	32 (35)
		110	50/110	100/150		40	2240	252				110	1.625	42
NIL Solid Shaft					**TA** Torque Arm	49	2800	309			**AD** Double Output			
						56	4000	353						
						70	5600	441						
						80	8000	...						
						100	10000	800						

( ) Option available upon request

BASIC SPECIFICATIONS

- Power Ratings from 0.12 to 10HP
- Output Torque to 27,400 in-lbs
- Ratios from 5:1 through 10,000:1
- 7 Sizes available from stock



TECHNICAL SELECTION CATALOG

A **RT - Worm Gearboxes**
See Varvel RT/RS Catalog Pg 20-23

B **RT/RT - Double Worm Gearboxes**
See Varvel RT/RS Catalog Pg 27

C **TA - Helical Worm Gearboxes**
See Varvel RT/RS Catalog Pg 24-26

STANDARD FEATURES

- Vent free design, factory lubricated with premium synthetic long life gear lubricant with an operating temperature range of -4°F to 131°F (-20°C to +55°C)
- Precision machined single-piece aluminum alloy housing up to size 85, cast iron construction for larger sizes
- Unparalleled flexibility: housings accept both NEMA and IEC input flanges and Imperial and Metric output shafts / hollow bores
- G-coupling mount (fretting corrosion eliminated)
- Hardened and ground worm and alloy bronze gear for greater wear life
- Oversized bearings for higher shock and radial load capacity
- Worm-worm and Helical-worm double reduction combinations also available from stock



GEARBOX PURCHASING DATA

Dimensions are in **inches / mm**



Ratios: 5 - 100

Single Reduction

MODEL	RT Imperial (inch Bore)		RT Metric (mm Bore)		Available Input Flanges	
	RT List	Bore Size	RT List	Bore Size	NEMA	IEC (B5/B14)
RT28	$290	0.625"	$290	14	42/48	56/63
RT40	$349	0.75"	$349	(18) 19 (20)	42/48/56	56/63/71
RT50	$456	1.00"	$456	24 (25)	56	63/71/80
RT60	$635	1.125"	$635	25	56/140	71/80/90
RT70	$688	1.25"	$688	28 (30)	56/140/180	71/80/90/100
RT85	$971	1.375"	$971	32 (35)	56/140/180	80/90/100/112
RT110	$1,758	1.625"	$1,758	42	56/140/180	90B5/100/112



Ratios: 200 - 10000

*Double Reduction

MODEL	RT/RT Imperial (inch Bore)		RT/RT Metric (mm Bore)		Available Input Flanges	
	RT/RT List	Bore Size	RT/RT List	Bore Size	NEMA	IEC (B5/B14)
RT28/28	$690	0.625"	$690	14	42/48	56/63
RT28/40	$749	0.75"	$749	(18) 19 (20)	42/48	56/63
RT28/50	$856	1.00"	$856	24 (25)	42/48	56/63
RT28/60	$1,035	1.125"	$1,035	25	42/48	56/63
RT40/70	$1,148	1.25"	$1,148	28 (30)	42/48/56	56/63/71
RT40/85	$1,431	1.375"	$1,431	32 (35)	42/48/56	56/63/71
RT50/110	$2,402	1.625"	$2,402	42	56	63/71/80



Ratios: 32 - 800

Helical Worm Reduction

MODEL	TA Imperial (inch Bore)		TA Metric (mm Bore)		Available Input Flanges	
	TA List	Bore Size	TA List	Bore Size	NEMA	IEC (B5/B14)
TA63/40	$649	0.75"	$649	(18) 19 (20)	--	56/63
TA63/50	$756	1.00"	$756	24 (25)	--	56/63
TA71/50	$808	1.00"	$808	24 (25)	--	71
TA63/60	$935	1.125"	$935	25	--	56/63
TA71/60	$987	1.125"	$987	25	--	71
TA80/60	$1,064	1.125"	$1,064	25	--	80/90
TA71/70	$1,040	1.25"	$1,040	28 (30)	--	71
TA80/70	$1,117	1.25"	$1,117	28 (30)	--	80/90
TA71/85	$1,323	1.375"	$1,323	32 (35)	--	71
TA80/85	$1,400	1.375"	$1,400	32 (35)	--	80/90
TA80/110	$2,187	1.625"	$2,187	42	--	80/90
TA100/110	$2,877	1.625"	$2,877	42	56/140/180	80/90/100/112

*Alternative double reduction combinations available from stock: RT 40/50, 40/60, 50/70, 60/110, 70/110

( ) Option available upon request

ACCESSORIES PURCHASING DATA

Dimensions are in **inches / mm**

Accessories

MODEL	Single Output Shaft Kit			Double Output Shaft Kit		KISM Input Shaft Kit		Mounting Options	
	Kit List	Shaft Size (inch)	Shaft Size (mm)	Kit List	Shaft Size (mm)	Kit List	Shaft Size (mm)	Output Flange	Torque Arm
RT28	$24	0.50"/0.625"	14	$35	14	--	--	$16	$39
RT40	$30	0.75"	(18) 19	$67	19	$128	11	$22	$41
RT50	$39	1.00"	24 (25)	$76	24	$128	14	$28	$44
RT60	$45	1.125"	25	$98	25	$141	19	$29	$58
RT70	$49	1.25"	28	$105	28	$155	19	$39	$60
RT85	$72	1.375"	32 (35)	$118	32	$195	24	$42	$80
RT110	$122	1.625"	42	$178	42	$229	28	$178	$119

( ) Option available upon request

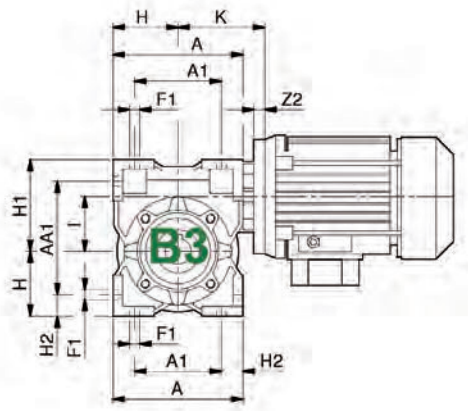
RT RIGHT ANGLE WORM GEAR REDUCERS

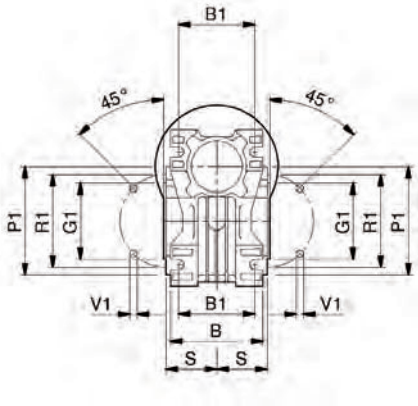
SIZES RT28 - RT110, INCH AND METRIC OPTIONS

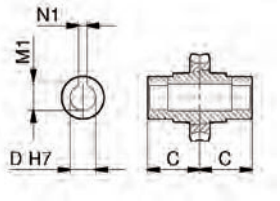
VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

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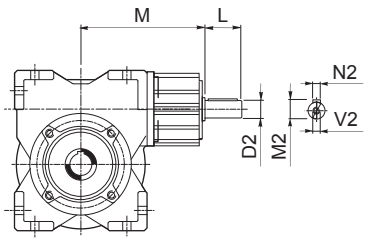
DIMENSIONAL DRAWINGS







KISM input shaft kit



( ) Option available upon request

Dimensions are in **inches / mm**

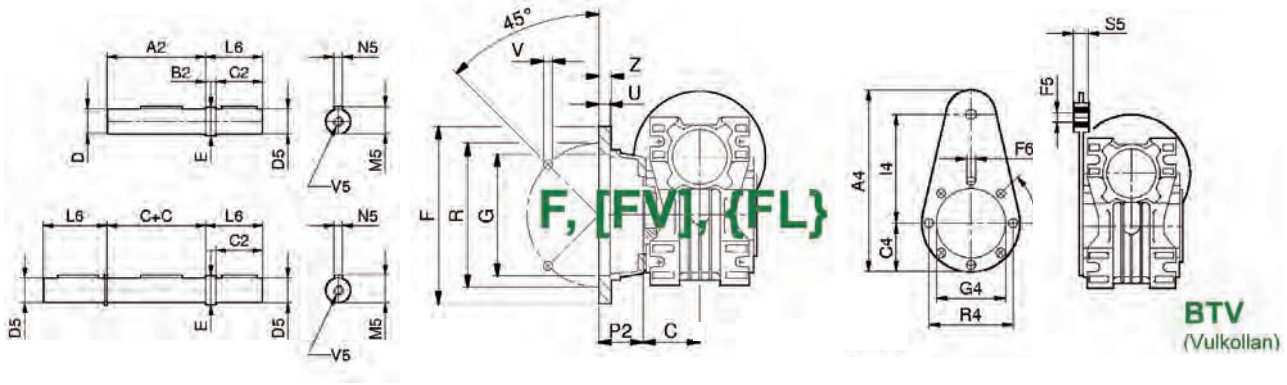
Type FRT (B3) Dimensions

General Dimensions							
RT	**28**	**40**	**50**	**60**	**70**	**85**	**110**
A	3.15 80	3.94 100	4.72 120	5.67 144	6.77 172	8.11 206	10.04 255
A_1	2.13 54	2.76 70	3.15 80	3.94 100	4.72 120	5.51 140	6.69 170
AA_1	2.80 71	3.60 91.5	4.09 104	5.12 130	6.02 153	6.77 172	8.27 210
B	2.09 53	2.80 71	3.35 85	3.94 100	4.41 112	5.12 130	5.67 144
B_1	1.73 44	2.36 60	2.76 70	3.35 85	3.54 90	3.94 100	4.53 115
C	1.18 30	1.61 41	1.93 49	2.36 60	2.36 60	2.40 61	3.05 77.5
D (H7)	0.625 14	0.75 (18) 19 (20)	1.00 24 (25)	1.125 25	1.25 28 (30)	1.375 32 (35)	1.625 42
D2	(9)	11	14	19	19	24	28
G_1 (h8)	2.17 55	2.36 60	2.76 70	3.15 80	3.74 95	4.33 110	5.12 130
H	1.57 40	1.97 50	2.36 60	2.83 72	3.39 86	4.06 103	5.02 127.5
H_1	2.24 57	2.81 71.5	3.31 84	4.02 102	4.69 119	5.31 135	6.59 167.5
H_2	0.51 13	0.59 15	0.79 20	0.87 22	1.02 26	1.30 33	1.67 42.5
I	1.10 28	1.57 40	1.97 50	2.36 60	2.76 70	3.35 85	4.33 110
K	2.26 57.5	2.78 70.5	3.82 83 - 88*	4.06 93 - 94*	4.96 117 - 118*	6.30 134 - 137*	5.94 151 - 153*
L	0.79 (20)	0.91 23	1.18 30	1.57 40	1.57 40	1.97 50	2.36 60
M	1.97 (50)	4.35 110.5	4.88 124	5.35 135.8	6.53 165.8	7.11 180.5	8.03 204
M_1	0.71 16.3	0.84 21.8	1.12 27.3	1.25 28.3	1.37 31.3	1.52 35.3	1.80 45.3
M_2	0.40 10.2	0.49 12.5	0.63 16	0.89 22.5	0.89 22.5	1.06 27	1.22 31
N_1	0.19 5	0.24 6	0.25 8	0.25 8	0.25 8	0.31 10	0.38 12
N_2	0.12 3	0.16 4	0.20 5	0.24 6	0.24 6	0.31 8	0.31 8
P_1	2.95 75	3.39 86	3.94 100	4.33 110	5.12 130	6.30 160	7.87 200
R_1	2.56 65	2.95 75	3.35 85	3.74 95	4.53 115	5.12 130	6.50 165
S	1.08 27.5	1.52 38.5	1.83 46.5	2.24 57	2.24 57	2.64 67	2.91 74
V_1/V_2	(V1) M6x10 (V2) M4x10	(V1) M6x8.5 (V2) M4x10	(V1) M8x10 (V2) M6x15	(V1) M8x16 (V2) M8x20	(V1) M8x16 (V2) M8x20	(V1) M10x18 (V2) M8x20	(V1) M10x21 (V2) M8x20
Z_2	0.51 13	0.51 13	0.52 - 0.73 13 - 18.5	0.55 - 0.59 14 - 15	0.61 - 0.69 15.5 - 17.5	0.61 - 0.73 15.5 - 18.5	0.71 - 0.79 18 - 20

DIMENSIONAL DRAWINGS

AS
Solid single output shaft

AD
Solid double output shaft



( ) Option available upon request

Dimensions are in **inches / mm**

General Dimensions								
	RT	28	40	50	60	70	85	110
Output Shaft (AS/AD)	A_2	2.28 58	3.16 80	3.74 95	4.61 117	4.61 117	4.69 119	6.02 153
	C	1.18 30	1.61 41	1.93 49	2.36 60	2.36 60	2.40 61	3.05 77.5
	C_2	1.375 30	1.57 40	1.97 45	2.36 50	2.36 60	2.76 70	3.15 110
	D_5	0.625 14	0.75 (18) 19 (20)	1.00 24 (25)	1.125 25	1.25 28 (30)	1.375 32 (35)	1.625 42
	E	0.82 14	0.98 22	1.25 28	1.37 30	1.49 34	1.69 38	1.95 50
	L_6	1.42 31	1.97 50	2.37 60	2.76 70	2.76 70	3.15 80	3.54 110
	M_5	0.70 18	0.83 21.5	1.10 27	1.23 28	1.36 31	1.51 35	1.79 45
	N_5	3/16 5	3/16 6	1/4 8	1/4 8	1/4 8	5/16 10	3/8 12
	V_5	1/4"-20 M5x10	1/4"-20 M8x20	3/8"-16 M8x20	3/8"-16 M8x20	1/2"-13 M8x20	1/2"-13 M10x25	5/8"-11 M10x25
Output Flanges	C	30	41	49	60	60	61	77.5
	F	80	110{110}	125[160]{125}	180{180}	200	210	270
	G	50	60{60}	70[110]{70}	115{115}	130	152	170
	P_2	23	28{58}	44[41.5]{74}	25{56}	51	50	53.5
	R	68	87{87}	90[130]{90}	150.5{150.5}	165	175	230
	U	10	4{4}	5[11]{5}	6.5{6.5}	12	6	5
	Z	7	6{8}	10[13]{10}	10{10}	14	16	18
	V	7	9{9}	11[9]{9}	11{11}	13	13	14
Torque Arm (BTV)	A_4	5.43 138	6.61 168	7.28 185	9.25 235	11.61 295	12.32 313	15.28 388
	C_4	1.50 38	1.69 43	2.36 60	2.17 55	2.56 65	2.95 75	3.94 100
	F_5	0.39 10	0.39 10	0.39 10	0.39 10	0.39 10	0.79 20	0.79 20
	F_6	0.28 7	0.28 7	0.35 9	0.35 9	0.35 9	0.47 12	0.51 13
	G_4	2.17 55	2.36 60	2.76 70	3.15 80	3.74 95	4.33 110	5.12 130
	I_4	3.15 80	3.93 100	3.94 100	5.91 150	7.87 200	7.87 200	9.84 250
	R_4	2.56 65	2.95 75	3.35 85	3.74 95	4.53 115	5.12 130	6.50 165
	S_5	0.59 15	0.59 15	0.59 15	0.79 20	0.79 20	0.98 25	0.98 25

RT RIGHT ANGLE WORM GEAR REDUCERS

SIZES RT28 - RT110, INCH AND METRIC OPTIONS

VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

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RT GEARBOX SELECTION TABLE

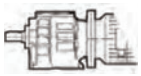
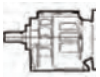
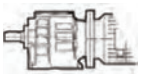
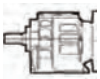
1800 RPM input - S.F. 1.0 — **RT Worm Gear Reducers**

1800 RPM	Ratio	5	7	10	15	20	28	40	49	56	70	80	100
	Output RPM	360	257	180	120	90	64	45	37	32	26	23	18
RT 28 1.10" CD	HP	--	0.75	0.55	0.39	0.27	0.27	0.17	0.15	0.13	0.10	0.08	0.05
	in-lb	--	159	159	159	142	177	150	150	133	106	106	71
	eff.	--	0.84	0.81	0.77	0.74	0.66	0.62	0.57	0.51	0.45	0.45	0.43
RT 40 1.57" CD	HP	1.87	1.84	1.36	0.92	0.64	0.62	0.42	0.35	0.30	0.23	0.20	0.15
	in-lb	398	398	407	389	345	425	372	363	336	319	283	257
	eff.	0.87	0.85	0.83	0.78	0.75	0.68	0.61	0.58	0.56	0.52	0.50	0.46
RT 50 1.97" CD	HP	4.53	3.02	2.18	1.56	1.06	1.06	0.69	0.62	0.52	0.42	0.34	0.22
	in-lb	717	664	664	655	575	752	637	673	628	558	513	381
	eff.	0.88	0.86	0.84	0.78	0.76	0.71	0.64	0.62	0.60	0.53	0.52	0.47
RT 60 2.36" CD	HP	6.87	4.69	3.86	2.68	2.01	1.68	1.26	1.04	0.91	0.77	0.62	0.42
	in-lb	1106	1000	1177	1151	1080	1230	1195	1133	1089	1080	938	735
	eff.	0.89	0.86	0.84	0.81	0.77	0.71	0.66	0.62	0.60	0.55	0.53	0.49
RT 70 2.76" CD	HP	9.55	6.71	5.20	3.69	3.02	2.51	2.01	1.41	1.24	0.97	0.84	0.62
	in-lb	1558	1469	1593	1664	1717	1912	2106	1673	1593	1443	1363	1151
	eff.	0.89	0.88	0.86	0.83	0.81	0.75	0.71	0.67	0.64	0.59	0.56	0.52
RT 85 3.35" CD	HP	15.52	10.39	7.71	5.70	4.86	3.69	2.68	2.35	2.01	1.61	1.44	0.92
	in-lb	2469	2292	2372	2558	2850	2823	2876	2797	2699	2567	2478	1859
	eff.	0.90	0.88	0.86	0.83	0.82	0.76	0.72	0.67	0.68	0.63	0.60	0.56
RT 110 4.33" CD	HP	--	20.95	15.09	10.90	9.55	7.38	5.87	4.53	3.69	3.35	2.51	1.84
	in-lb	--	4646	4708	4956	5726	5682	6115	5584	5266	5620	4646	4151
	eff.	--	0.88	0.87	0.84	0.83	0.76	0.73	0.71	0.70	0.67	0.66	0.61

MODEL	RT 28	RT 40	RT 50	RT 60	RT 70	RT 85	RT 110
Weight (lbs.)	2.43	5.51	8.38	14.33	19.84	29.76	85.98
Oil Vol. (pre-filled) (L)	0.03	0.08	0.13	0.25	0.35	0.60	1.50

RD GEARBOXES

Build your gearbox. Select one option from each **category**. Highlighted in orange is an example: **FRD32 B3 31.5 N56 AU1.25**

Input Style	Type	Size		Mount Option	Ratio		Input Flange		Output Style	Output Size		
		A	B		A	B	NEMA	IEC		RD	(in.)	(mm)
M  Motorized	RD Helical Inline	02	03	**B3**  Foot Mount	2.5	40	**N56**	B5 Include Motor Frame size	**AU**  Solid Output	0	0.625	14
		12	13		3.15	50	N140			1	0.75	(18) 19 (20)
		22	23		4.0	63	N180			2	1.00	24 (25)
F  Flange Input		**32**	33	**B5**  Flange Mount	4.0	80	N210			3	1.125	25
		42	43		5.0	100		B14 Include Motor Frame size		4	**1.25**	28 (30)
		52	53		6.3	125				5	1.375	32 (35)
		62	63		8.0	160				6	1.625	42
					10.0	200						
					12.5	250						
					16.0	315						
					20.0	400						
					25.0	500						
					31.5	630						
					40.0							
					50.0							
					63.0							

( ) Option available upon request

BASIC SPECIFICATIONS

- Power Ratings from 0.12 to 30HP
- Output Torque to 20,355 in-lbs
- Ratios from 2.5:1 through 630:1
- 7 Sizes available from stock



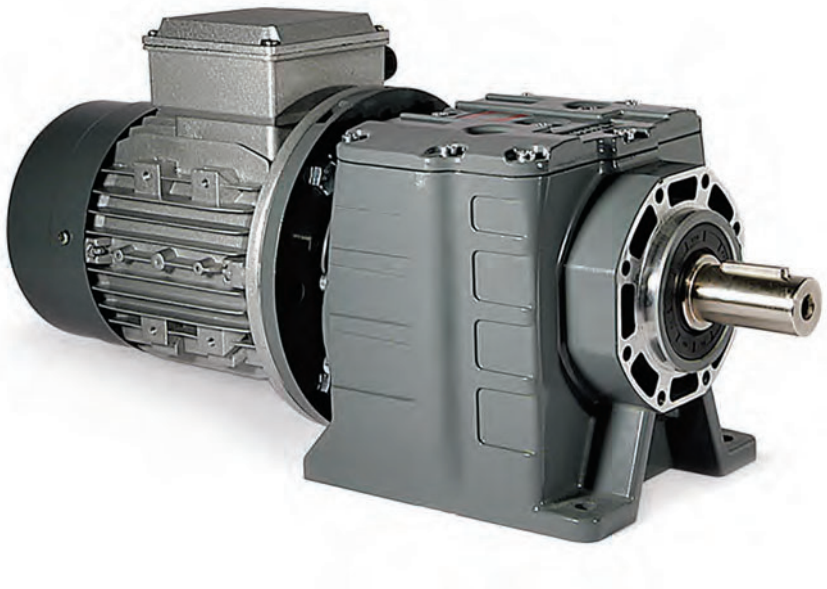
TECHNICAL SELECTION CATALOG

A **RD - Helical Two Stage Gearboxes**
See Varvel RD Catalog

B **RD - Helical Three Stage Gearboxes**
See Varvel RD Catalog

STANDARD FEATURES

- Vent free design, factory lubricated with premium synthetic long life gear lubricant with an operating temperature range of -4°F to 131°F (-20°C to 55°C)
- One-piece cast housing complete with inner support to accommodate 2 or 3 gear stages
- Size 0 to 4 aluminum; Size 5-6 cast iron
- Unparalleled flexibility: housings accept both NEMA and IEC input flanges and Imperial and Metric output shafts
- G-coupling mount (fretting corrosion eliminated)
- Helical gears in alloy steel, case hardened, tempered and shaved
- Oversized bearings for higher shock and radial load capacity
- Significant strains caused by the effects of torque and external loads do not deflect the monolithic ribwork of the housing



RD HELICAL INLINE GEAR REDUCERS

SIZES RD0 - RD6, INCH AND METRIC SHAFTS

VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

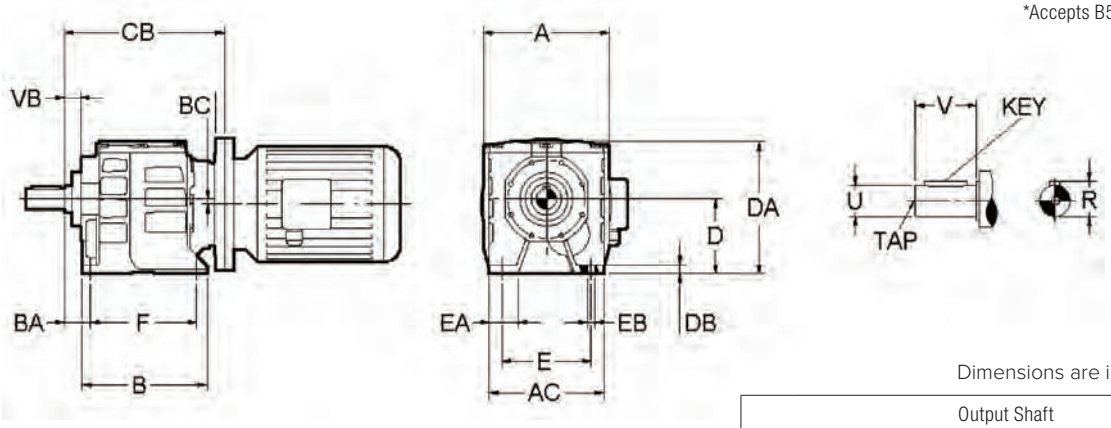
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GEARBOX PURCHASING DATA

( ) Option available upon request

	MODEL	Stage List		Output Shaft Sizes		Available Input Flanges: NEMA		IEC (B5/B14)	
		2 Stages	3 Stages	Inch	Metric	2-Stage	3-Stage	2-Stage	3-Stage
Type RD	RD0	$716	$934	0.625"	17 (20)	48/56	42/48	56/63/71/80	56/63/71
	RD1	$848	$1,060	0.75"	20 (25)	56/140	56	56*/63/71/80/90	56*/63/71
	RD2	$1,052	$1,285	1.00"	25 (30)	56/140/180	56/140	71/80/90/100/112	63*/71/80/90
	RD3	$1,292	$1,528	1.25"	30 (32) (35)	56/140/180	56/140	71/80/90/100/112	71/80/90
	RD4	$1,551	$1,886	1.375"	35 (40)	56/140/180		71/80/90/100/112	71/80/90/100
	RD5	$2,756	$2,979	2.125"	40 (50)	56/140/180/210/250		80*-112*/132/160/180*	80*/90*/100*/112*
	RD6	$5,444	$5,955	2.375"	50 (60)	56/140/180/210/250		80*-112*/132/160/180*	80*-112*/132

*Accepts B5 input flange only



Dimensions are in **inches / mm**

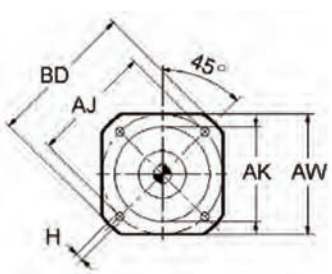
	RD	General														Output Shaft: Imperial (inch)					Metric (mm)				
		A	AC	B	BA	BC	CB	D	DA	DB	E	EA	EB	F	VB	U	V	R	KEY	TAP	U	V	R	KEY	TAP
Type RD Dimensions	0	3.94 100	3.78 96	4.53 115	0.81 20.5	0.18 4.5	6.10 155	2.36 60	4.37 111	0.26 6.5	3.15 80	0.91 23	0.35 9	3.74 95	0.39 10	0.625	1.38	0.705	3/16* 3/16	1/4-20	17 (20)	35	19	5*5	M6
	1	5.51 140	5.31 135	5.20 132	0.71 18	0.20 5	6.89 175	2.95 75	5.17 131	0.31 8	4.33 110	1.50 38	0.35 9	4.33 110	0.39 10	0.75	1.57	0.83	3/16* 3/16	1/4-20	20 (25)	40	22.5	6*6	M6
	2	6.10 155	5.51 140	6.02 153	0.98 25	0.24 6	8.58 218	3.54 90	6.22 158	0.39 10	4.33 110	1.46 37	0.35 9	5.12 130	0.51 13	1.00	1.97	1.11	1/4* 1/4	3/8-16	25 (30)	50	28	8*7	M10
	3	7.48 190	6.81 173	7.68 195	1.18 30	0.33 8.5	10.31 262	4.53 115	7.80 198	0.55 14	5.31 135	1.73 44	0.45 11.5	6.50 165	0.51 13	1.25	2.36	1.36	1/4* 1/4	1/2-13	30 (35)	60	33	8*7	M10
	4	8.46 215	7.68 195	8.70 221	1.18 30	0.37 9.5	13.03 331	5.12 130	8.74 222	0.59 15	5.91 150	1.97 50	0.53 13.5	7.68 195	0.59 15	1.375	2.76	1.51	5/16* 5/16	1/2-13	35 (40)	70	38	10*8	M12
	5	11.18 284	10.0 254	10.0 254	1.38 35	0 0	13.9 353	5.51 140	10.04 255	0.79 20	6.69 170	3.03 77	0.71 18	8.07 205	0.71 18	2.125	3.94	2.35	1/2* 1/2	3/4-10	40 (50)	80	43	12*8	M12
	6	13.39 340	11.81 300	12.01 305	1.57 40	0 0	16.14 410	7.09 180	11.89 302	0.94 24	8.46 215	3.23 82	0.71 18	10.24 260	0.71 18	2.375	4.72	2.63	5/8* 5/8	3/4-10	50 (60)	100	53.5	14*9	M16

( ) Option available upon request

ACCESSORIES PURCHASING DATA

Dimensions are in **mm**

	MODEL	Output Flange	
		List Adder	Available Sizes (mm)
RD Accessories	RD0	$39	120/140/160
	RD1	$39	120/140/160
	RD2	$52	140/160/200
	RD3	$65	160/200/250
	RD4	$99	200/250/300
	RD5	$188	250/300/350
	RD6	$188	250/300/350



B5 Mounting Output Flange

Size (mm)	DFU Dimensions				
	AJ	AK	AW	BD	H
120	100	80	100	120	7
140	115	95	115	140	9
160	130	110	130	160	9
200	165	130	165	200	11
250	215	180	215	250	13.5
300	265	230	265	300	17.5
350	300	250	300	350	17.5

GEARBOX SELECTION TABLE

1800 RPM input - S.F. 1.0 — **Helical Inline RD**

2-Stage Gear Reduction

Nominal		RD02			RD12			RD22			RD32			RD42			RD52			RD62		
Ratio	RPM	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb
2.50	720	2.57	3.05*	266	2.53	4.19*	398	2.55	8.36 *	752	2.70	17.58	1682	2.49	29.67	2655	2.56	54.75	5576	2.62	117.34	11506
3.15	571	3.28	2.63*	292	3.08	3.70*	398	3.13	7.33 *	797	3.32	15.39	1814	3.11	25.65	2832	3.24	48.31	6107	3.32	100.57	12391
4	450	4.26	2.21*	319	4.01	3.08*	443	3.92	6.29 *	885	4.16	13.19	1947	3.96	23.80	3363	3.93	46.70	6638	4.02	97.22	14161
5	360	5.28	1.89*	336	5.07	2.60*	487	5.01	5.23 *	929	5.33	10.98	2080	4.83	20.62	3540	4.84	43.16	7523	4.96	92.86	15931
6.3	286	6.25	2.04	425	6.69	3.45*	797	6.72	6.92 *	1549	6.26	15.61	3275	6.29	25.48	5487	6.45	44.12	10267	6.57	78.45	17702
8	225	7.98	1.63	434	8.13	2.87*	797	8.27	5.68 *	1593	7.72	12.79	3275	7.86	20.62	5487	8.19	35.11	10356	8.33	61.35	17702
10	180	10.36	1.31	443	10.58	2.23*	797	10.33	4.59 *	1593	9.66	10.34	3319	10.00	16.43	5487	9.92	29.15	10444	10.10	53.14	18587
12.5	144	12.84	1.04	443	13.38	1.78*	797	13.23	3.64 *	1593	12.38	8.16	3363	12.20	13.41	5487	12.22	23.83	10533	12.44	43.08	18587
16	113	16.32	0.82	451	16.31	1.48	797	16.29	2.98 *	1637	16.45	6.24	3452	15.22	11.06	5753	15.45	19.00	10621	15.73	34.03	18587
20	90	21.53	0.64	451	20.39	1.19	797	20.67	2.38 *	1682	19.36	5.35	3452	19.64	9.55	5753	20.30	14.65	10798	20.67	25.98	18587
25	72	26.75	0.52	460	26.52	0.94	841	26.73	1.86	1682	25.26	4.16	3496	24.48	7.04	5753	25.99	11.59	10887	24.62	21.79	18587
31.5	57	30.22	0.45	460	32.65	0.77	841	31.48	1.59	1682	33.21	2.82	3540	29.64	5.87	5753	31.43	9.66	10975	33.20	16.76	19649
35.5	51	34.68	0.27	310	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
40	45	43.07	0.22	310	39.08	0.45	620	39.39	0.89	1239	38.57	1.84	2522	41.54	2.51	3983	40.48	5.15	7523	40.50	10.06	14161
50	35	48.67	0.18	310	48.12	0.37	620	50.76	0.69	1239	50.73	1.42	2522	50.30	2.01	3983	53.33	3.86	7523	49.80	8.21	14161
63	29	--	--	--	61.67	0.28	620	62.13	0.57	1239	63.33	1.16	2522	62.96	1.84	3983	66.67	3.06	7523	56.00	7.21	14161

3-Stage Gear Reduction

Nominal		RD03			RD13			RD23			RD33			RD43			RD53			RD63		
Ratio	RPM	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb	Ratio	HP	in-lb
40	45	36.89	0.37	460	40.10	0.64	841	40.76	1.26	1770	38.06	2.82	3717	41.88	4.19	6196	39.33	8.05	11241	39.71	14.42	19472
50	36	47.07	0.30	460	52.20	0.49	841	52.17	0.99	1770	48.77	2.23	3717	51.08	3.52	6196	47.98	6.60	11329	48.95	11.73	19472
63	29	61.14	0.23	460	66.03	0.39	841	64.26	0.80	1770	64.84	1.69	3717	63.75	2.51	6196	59.88	5.48	11418	61.88	9.22	19472
80	23	75.78	0.18	460	80.43	0.32	885	81.52	0.65	1770	76.31	1.46	3717	82.25	2.85	6196	77.26	4.19	11506	81.29	7.38	20357
100	18	96.29	0.15	460	100.60	0.27	885	105.43	0.50	1770	99.54	1.12	3762	102.50	1.84	6196	96.28	3.38	11506	104.08	6.20	20357
125	14	127.05	0.12	460	130.84	0.20	885	124.16	0.42	1770	130.90	0.85	3762	124.13	1.51	6196	129.80	2.58	11506	125.87	5.70	20357
160	11	157.81	0.08	460	165.08	0.17	885	164.94	0.32	1770	167.80	0.67	3762	160.69	1.17	6196	157.14	2.09	11506	157.33	4.69	20357
180	10	178.31	0.08	460	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
200	9	204.58	0.05	319	206.46	0.13	885	209.25	0.25	1770	197.50	0.57	3762	207.34	1.01	6196	195.82	1.77	11506	201.57	3.02	20357
250	7	254.11	0.03	319	268.54	0.10	885	270.63	0.20	1770	257.60	0.44	3806	258.38	0.67	6196	264.00	1.29	11506	265.60	2.35	20357
280	6	287.13	0.03	319	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
315	6	324.44	0.03	319	330.62	0.08	885	318.70	0.17	1770	307.21	0.37	3806	312.30	0.59	6196	332.31	0.72	7966	332.00	1.84	20357
400	5	--	--	--	395.72	0.05	620	398.80	0.10	1239	393.43	0.18	2567	438.46	0.37	4071	402.42	0.56	7966	373.33	2.68	20357
500	4	--	--	--	487.20	0.03	620	513.92	0.07	1239	517.42	0.15	2567	530.98	0.20	4071	503.70	0.48	7966	448.00	1.34	20357
630	3	--	--	--	624.41	0.03	620	629.04	0.07	1239	646.00	0.12	2567	664.61	0.18	4071	629.63	0.40	7966	560.00	1.17	20357

MODEL	RD02	RD03	RD12	RD13	RD22	RD23	RD32	RD33	RD42	RD43	RD52	RD53	RD62	RD63
Weight (lbs.)	7	7	11	11	18	19	30	33	45	48	110	117	139	157
Oil Vol. Horiz. (L)	0.20	0.30	0.50	0.50	0.80	0.80	1.30	1.60	2.20	2.20	4.50	4.50	7.0	7.0
Oil Vol. Vert. (L)	0.28	0.38	0.70	0.85	1.00	1.25	1.80	2.10	3.00	3.40	5.50	6.50	9.00	11.0

*Recommended input in-line coupling drive

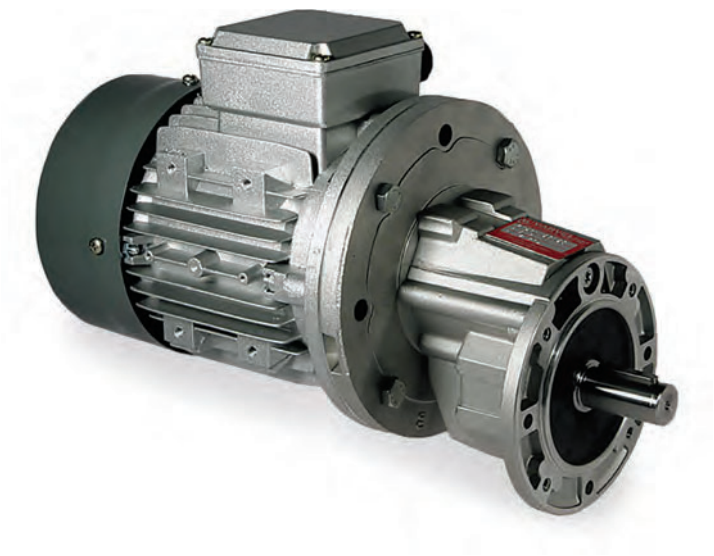
XA HELICAL PRE-STAGE GEAR REDUCERS

SIZES XA63 - XA100, SINGLE STAGE REDUCER

VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

TECHTOP

XA GEARBOXES



BASIC SPECIFICATIONS

- Power Ratings from 0.12 to 5HP
- Output Torque to 75 in-lbs
- Ratios from 3.4:1 to 8.4:1
- 4 Sizes available from stock

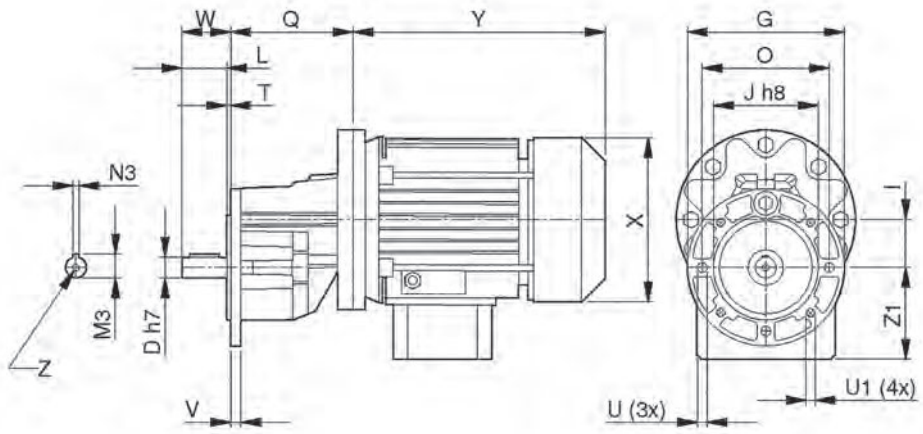
APPLICATIONS

- General purpose flange mounting B14
- Independent helical stage for fitting to FRT input for helical worm reduction

STANDARD FEATURES

- Vent free design, factory lubricated with premium synthetic long life gear lubricant with an operating temperature range of -4°F to 131°F (-20°C to 55°C)
- Precision machined single-piece aluminum alloy housing designed for lightweight with high tensile strength mountable to RT models
- Unparalleled flexibility: some sizes accept both NEMA and IEC inputs

	MODEL	XA Reducer		Ratios	Available Input Flanges	
		List	Shaft Size (mm)	Available	NEMA	IEC (B5/B14)
Type XA	XA63	$300	14	3.5, 6.2, 7.8	--	56/63
	XA71	$352	19	3.5, 6.4, 8.0	--	71
	XA80	$429	24	3.4, 6.4, 8.3	--	80/90
	XA100	$1,119	28	3.9, 6.2, 8.4	56/140/180	80/90/100/112



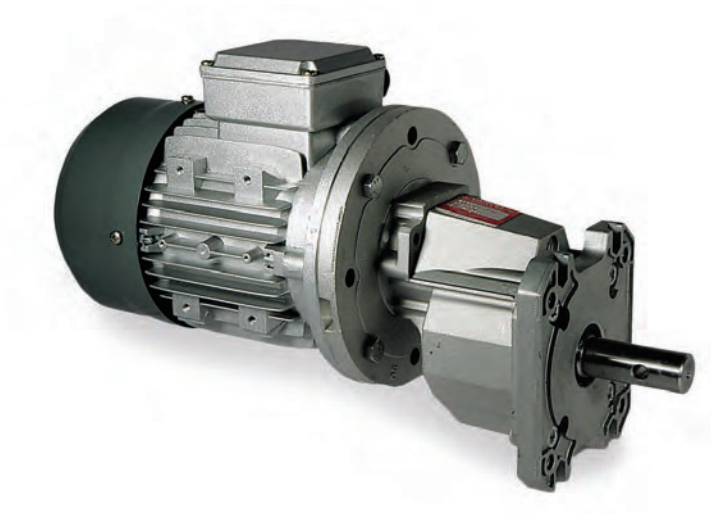
Dimensions are in **mm**

	XA	Output Shaft				Output Flange							General	
		D H7	W	L	Z	G	O	J H8	T	V	U	U1	Q	I
Dimensions	63	14	32.5	30	M5x10	105	85	70	2.5	7	6.5	M6	83	32
	71	19	42.5	40	M8x20	120	100	80	2.5	7.5	6.5	M6	90	40
	80	24	52	49.5	M8x20	140	115	95	2.5	10.5	9	M8	114	50
	100	28	60	57.5	M10x22	200	165	130	2.5	12	10.5	10.5	177	63

RP GEARBOXES

BASIC SPECIFICATIONS

- Power Ratings from 0.25 to 2HP
- Output Torque to 310 in-lbs
- 4.71:1 and 7:1 ratio available
- Single or double hole shafts



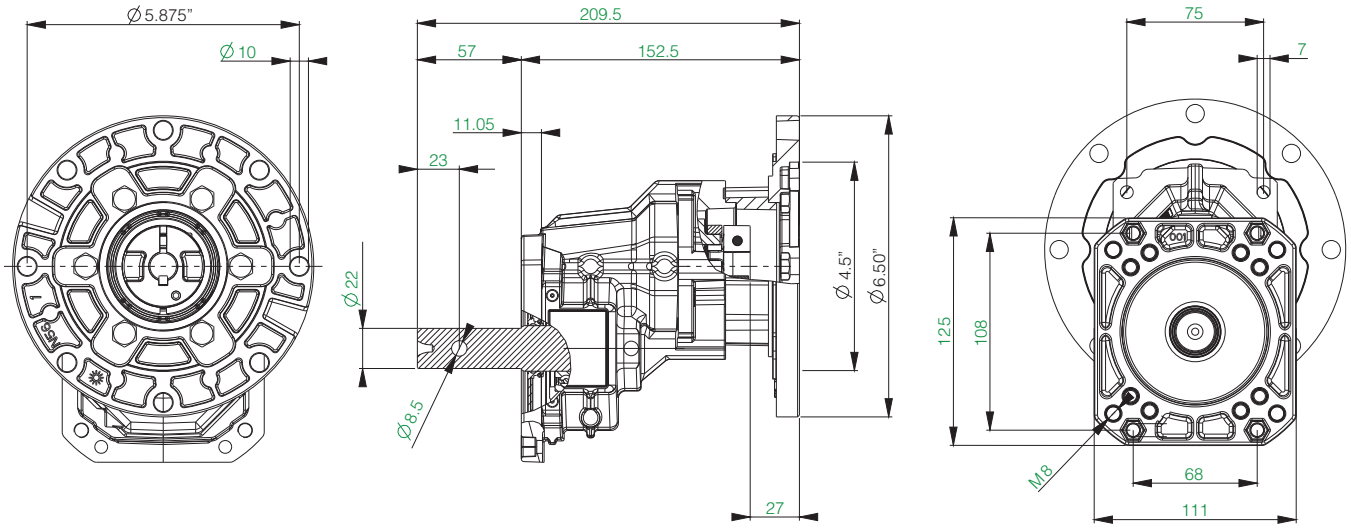
APPLICATIONS

- Animal livestock systems and auger feeders; driving (screw conveyors) in-floor feeding applications.

STANDARD FEATURES

- Vent free design, factory lubricated with premium synthetic long life gear lubricant with an operating temperature range of -4°F to 131°F (-20°C to 55°C)
- Multiple mounting positions specifically designed for auger feeding systems
- Unparalleled flexibility: housings accept both NEMA 56C and IEC input flanges, no auger adapter flange required

						Available Input Flanges	
MODEL	**Part Number**	**List**	**Ratio**	**RPM**	**Shaft Holes**	**NEMA**	**IEC (B5/B14)**
RP90	FRP-G 90 SQ/1 1:4.73 N56	$319	4.71	370	1	56Y/56C	71/80/90
RP90	FRP-G 90 SQ/1 1:4.73 N56 - SP	$319	4.73	370	2	56Y/56C	71/80/90



VS MECHANICAL VARIATORS

SIZES VS63 - VS112, PLANETARY GEARING

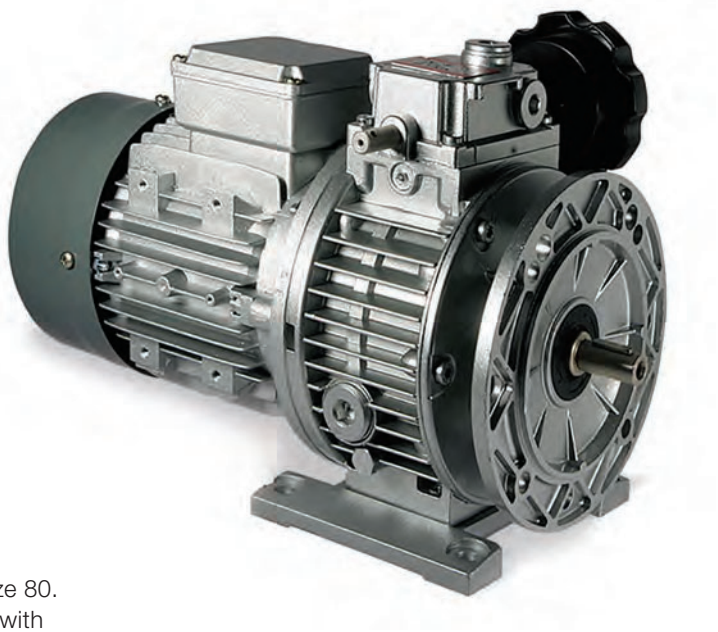
VARVEL MOTION CONTROL SINCE 1955 — EXCLUSIVE SUPPLIER

TECHTOP

VS GEARBOXES

BASIC SPECIFICATIONS

- Power Ratings from 0.33 to 5HP
- Output Torque to 590 in-lbs
- 5:1 variable speed range
- 6 Sizes available from stock



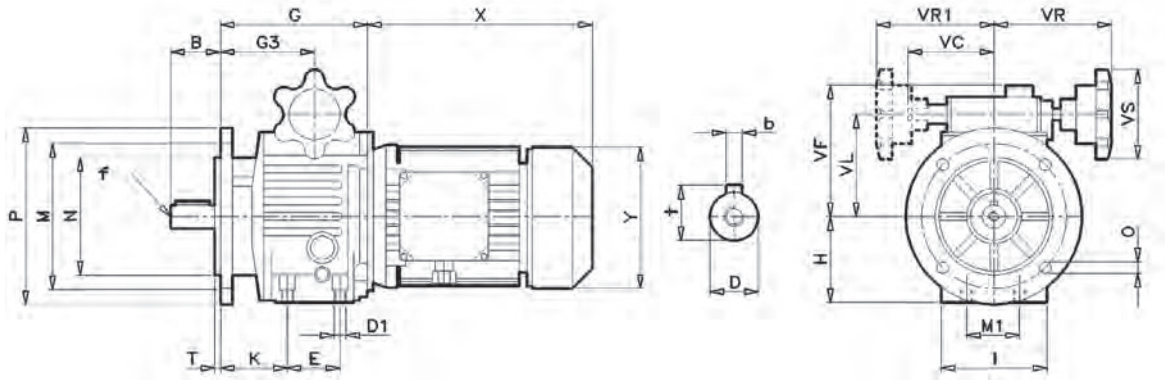
APPLICATIONS

- General purpose flange mounting B5
- Independent variator for fitting to FRT, FRD, FRS input for variable reduction
- Optional base kit available for sizes 63, 71, 80

STANDARD FEATURES

- VS variators are delivered pre-filled with lubricant up to size 80. Above size 80, lubricant will be provided in a separate kit with the correct oil quantity for the required mounting position.

Type VS	MODEL	VS Reducer		RPM	Available Input Flanges
		List	Shaft Size (mm)	Output	IEC (B5)
	FVS63	$691	11	220 ÷ 1090	63 B5
	FVS71	$813	14	260 ÷ 1300	71 B5
	FVS80	$1,011	19	260 ÷ 1300	80 B5
	FVS90	$1,786	24	260 ÷ 1300	90 B5
	FVS100	$2,405	28	260 ÷ 1300	100 B5
	FVS112	$2,860	28	260 ÷ 1300	112 B5



*Mounting provisions for base Kit installation (Kit sold separately)

Dimensions are in **inches / mm**

Dimensions	VS	Output Shaft					Output Flange					Base*				General								
		D	B	t	b	f	P	M	N	T	O	E	M1	I	D1	G	G3	H	K	VC	VF	VL	VR/1	VS
	63	11	0.91 23	0.49 12.5	0.16 4	M5	5.51 140	4.53 115	3.74 95	0.14 3.5	0.35 9	1.97 50	2.36 60	2.83 72	M6	4.43 112.5	2.54 64.5	2.76 70	1.81 46	2.80 71	4.37 111	3.07 78	4.33 110	3.35 85
	71	14	1.18 30	0.63 16	0.20 5	M6	6.30 160	5.12 130	4.33 110	0.14 3.5	0.35 9	1.57 40	3.03 77	3.54 90	M8	4.33 110	2.91 74	3.15 80	2.09 53	2.80 71	4.84 123	3.54 90	4.33 110	3.35 85
	80	19	1.57 40	0.85 21.5	0.24 6	M6	7.87 200	6.50 165	5.12 130	0.14 3.5	0.43 11	2.28 58	3.31 84	3.86 98	M8	5.47 139	3.37 85.5	3.94 100	2.36 60	3.11 79	5.51 140	4.21 107	4.72 120	4.33 110
	90	24	1.97 50	1.06 27	0.31 8	M8	7.87 200	6.50 165	5.12 130	0.14 3.5	0.43 11	--	--	9.49 241	--	7.40 188	4.53 115	4.96 126	--	--	5.67 144	4.80 122	5.91 150	4.33 110
	100	28	2.36 60	1.30 33	0.31 8	M10	9.84 250	8.46 215	7.09 180	0.16 4	0.59 15	--	--	10.63 270	--	8.19 208	5.16 131	5.91 150	--	--	7.40 188	5.91 150	6.30 160	4.33 110
	112	28	2.36 60	1.30 33	0.31 8	M10	9.84 250	8.46 215	7.09 180	0.16 4	0.59 15	--	--	10.63 270	--	8.19 208	5.16 131	5.91 150	--	--	7.40 188	5.91 150	6.30 160	4.33 110

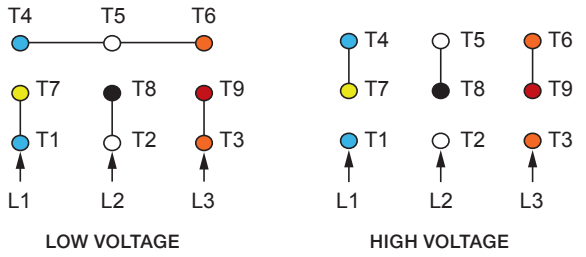
EXCEPTIONAL CONNECTIONS

WIRING DIAGRAMS

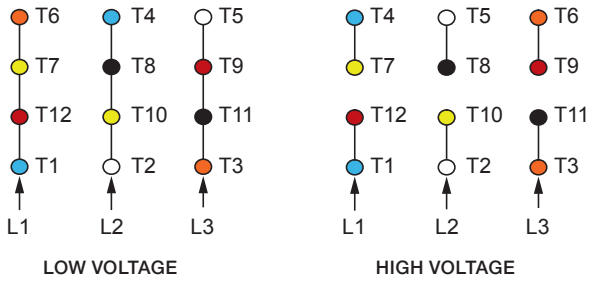
TECHTOP

NEMA THREE PHASE GENERAL PURPOSE AND PUMP MOTORS

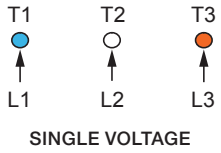
YY/Y 9 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



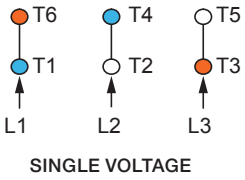
ΔΔ/Δ 12 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



Y 3 LEAD CONNECTION DIAGRAM
575V 60Hz

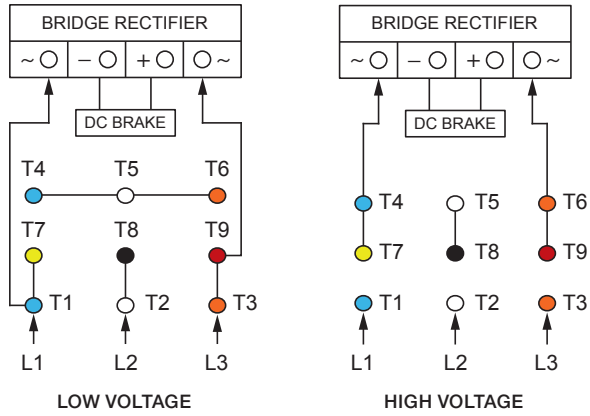


Δ 6 LEAD CONNECTION DIAGRAM
460V or 575V 60Hz

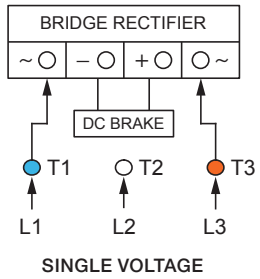


NEMA THREE PHASE BRAKE MOTORS

YY/Y 9 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



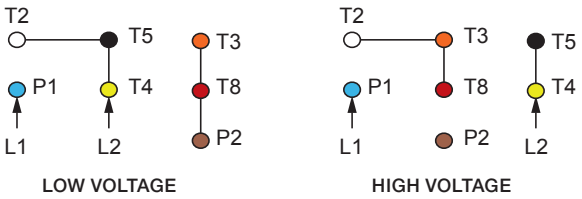
Y 3 LEAD CONNECTION DIAGRAM
575V 60Hz



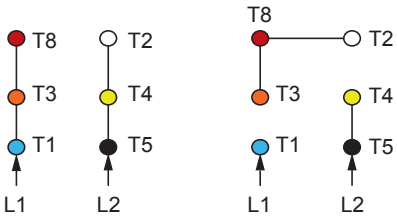
1. CCW rotation facing ODE for connections shown
2. Swap any two input lines to reverse rotation

NEMA SINGLE PHASE GENERAL PURPOSE MOTORS

2 POLE MOTOR CONNECTION DIAGRAM
115/208-230V 60Hz

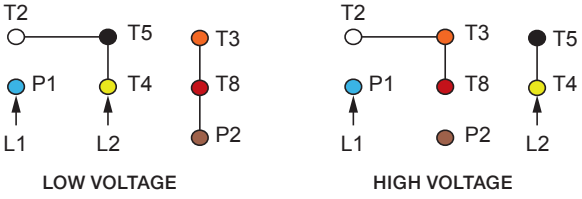


4 POLE MOTOR CONNECTION DIAGRAM
115/208-230V 60Hz

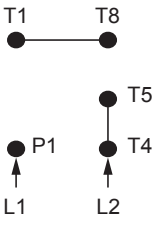


NEMA SINGLE PHASE FARM DUTY MOTORS

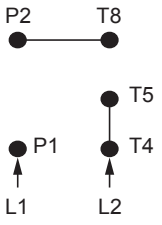
56 - 145T FRAME CONNECTION DIAGRAM
115/208-230V 60Hz



182T - 213T FRAME CONNECTION DIAGRAM
208-230V 60Hz



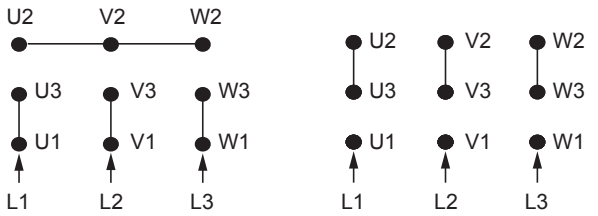
215T FRAME CONNECTION DIAGRAM
208-230V 60Hz



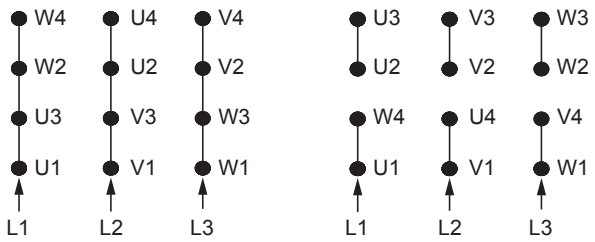
1. CCW rotation facing ODE for connections shown
2. Interchange T5 and T8 to reverse rotation

IEC THREE PHASE GENERAL PURPOSE MOTORS

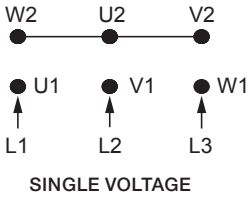
YY/Y 9 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



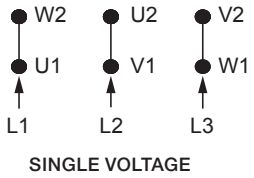
ΔΔ/Δ 12 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



Y 6 LEAD CONNECTION DIAGRAM
575V 60Hz

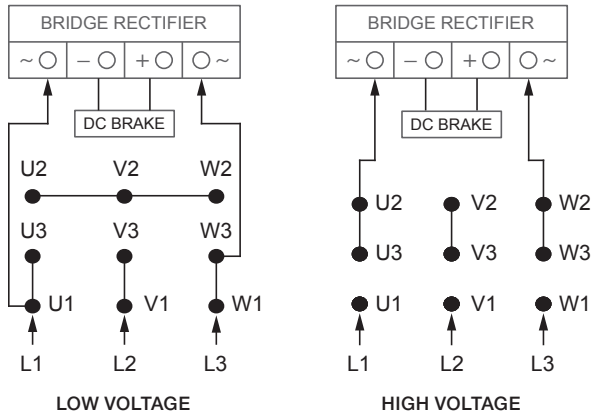


Δ 6 LEAD CONNECTION DIAGRAM
460V or 575V 60Hz

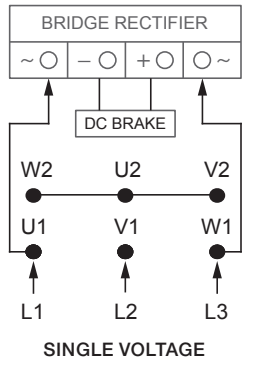


IEC THREE PHASE BRAKE MOTORS

YY/Y 9 LEAD CONNECTION DIAGRAM
208-230/460V 60Hz



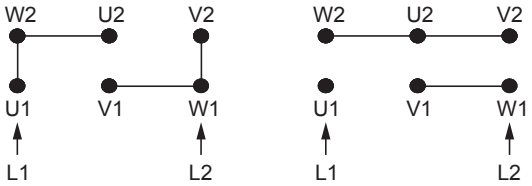
Y 6 LEAD CONNECTION DIAGRAM
575V 60Hz



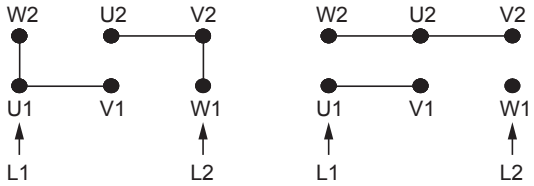
1. CCW rotation facing ODE for connections shown
2. Swap any two input lines to reverse rotation
3. Dual voltage motors pre-connected for 'High Voltage'

IEC SINGLE PHASE GENERAL PURPOSE MOTORS

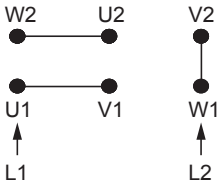
DUAL RATED CONNECTION DIAGRAM
ROTATION A (CW)
115/230V 60Hz



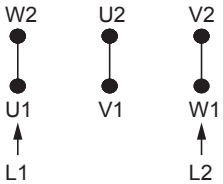
DUAL RATED CONNECTION DIAGRAM
ROTATION B (CCW)
115/230V 60Hz



SINGLE VOLTAGE CONNECTION DIAGRAM
ROTATION A (CW)
230V 60Hz



SINGLE VOLTAGE CONNECTION DIAGRAM
ROTATION B (CCW)
230V 60Hz



1. CCW rotation facing ODE for connections shown
2. Motors pre-connected for rotation B, CCW facing ODE
3. Dual voltage motors pre-connected for 'High Voltage'

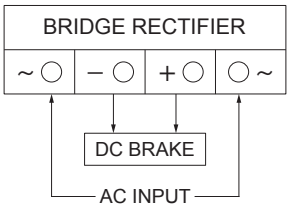
OVERVIEW

Techtop motors are fitted with an electromagnetic, spring-loaded DC brake. The brake is energized by a DC voltage through a bridge rectifier mounted directly in the terminal box for ease of connection to the AC supply. The brake is a Fail-Safe design, as the brake will engage when the power is interrupted or disconnected – the brake is applied automatically if the power fails. Braking torque is provided by the thrust of an adjustable spring set. The type and number of brake springs determines the braking torque.

Motor Frame		Brake Size	Brake Volts (VDC)	Electric Power (W)	Resistance (Ω)	Current (mA)
NEMA	IEC					
--	56/63/71	06A	205	20	2101.3	97.6
			250		3125.0	80.0
56	80	08A	205	25	1681.0	122.0
			250		2500.0	100.0
56H/140T	90	10A	205	30	1400.8	146.3
			250		2083.3	120.0
--	100	12A	205	40	1050.6	195.1
			250		1562.5	160.0
180T	112	14A	205	50	840.5	243.9
			250		1250.0	200.0
210T	132	16A	205	55	764.1	268.3
			250		1136.4	220.0

BRIDGE RECTIFIER

The bridge rectifier is used to convert alternating current (AC) to direct current (DC). The AC power supply for the bridge rectifier can be obtained from the motor terminals or an independent source. If the brake is to be supplied by DC, power must be supplied directly to the brake. Techtop BM products are supplied with a full or half wave bridge rectifier.



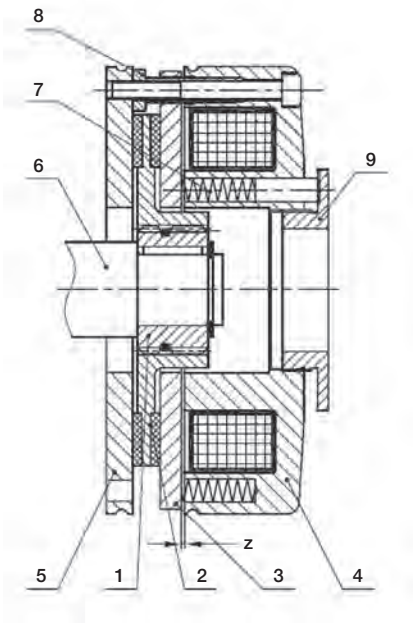
Bridge Rectifier		Input Voltage (VAC)	Brake Volts (VDC)
MODEL	TYPE		
None	None	None	24*
			45*
			96*
RZL141-170H **Standard on 230/460V Brake Motors**	Full Wave	110	103*
		220-240	**205**
G370-RZL241-170 **Standard on 575V Brake Motors**	Half Wave	380-415	180*
		440-480	205
		525-575	**250**

*Optional brake voltages available upon request

OPERATION

The direct current (DC) brake is powered through the bridge rectifier located inside the motor terminal box. When power is applied to the brake, the armature or pressure plate **(2)** is attracted towards the stator or electromagnet **(1)**, loading the brake springs **(7)** and releasing the friction pad **(3)** allowing the rotor **(6)** to turn.

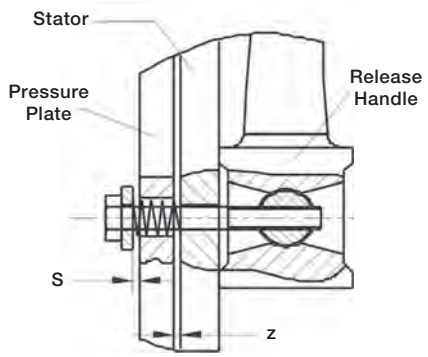
When the power is interrupted, the brake coil is de-energized and the spring loaded pressure plate **(2)** is released from the electromagnet **(1)** and forced upon the rotating double sided friction pad **(3)**. The friction pad is clamped between the pressure plate **(2)** and motor NDE end bell surface **(5)**, generating a braking torque.



MANUAL RELEASE HANDLE

As standard, all Techtop BM products are fitted with an emergency hand release. In case of current interruption to the brake, acting on the release handle will overcome the spring force of the pressure plate, releasing the friction pad and allowing the shaft to turn.

Note: Under normal operating conditions, the manual release handle cannot be activated.



AIR GAP ADJUSTMENT

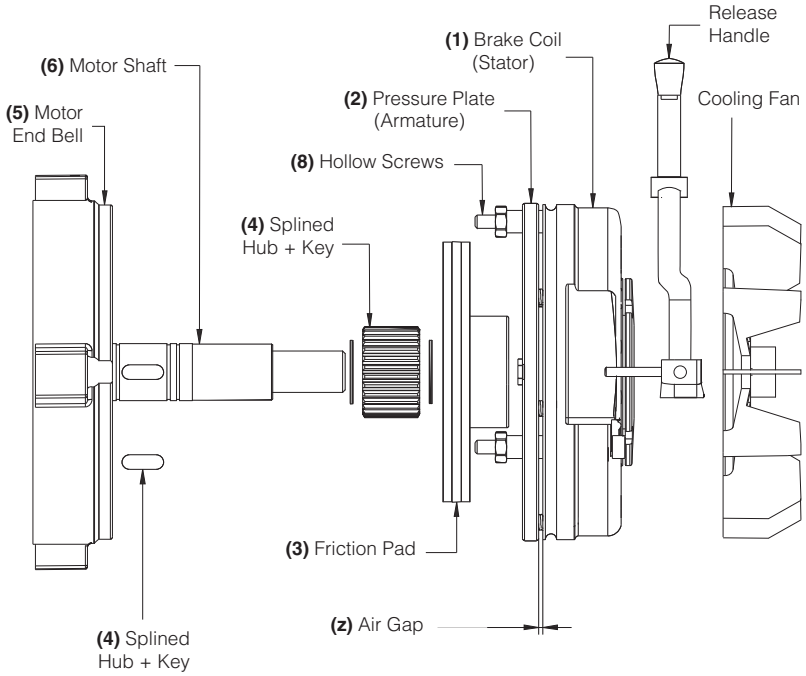
The air gap **(z)** is the distance between the electromagnet and pressure plate. The air gap has to be regularly checked due to wear of the friction pad over time. In order to check the air gap, power must be removed from the brake. For allowable air gap measurements and friction pad thickness, please contact Techtop's technical department.

Motor Frame		Brake Size	Set Air Gap "z" (mm)	Handle "S" (mm)
NEMA	IEC			
--	56/63/71	06A	0.2	0.8
56	80	08A	0.2	0.8
56H/140T	90	10A	0.2	0.8
--	100	12A	0.3	1.0
180T	112	14A	0.3	1.0
210T	132	16A	0.3	1.0

COMPONENTS

#	Brake Components
1	Brake Coil (Stator)
2	Pressure Plate (Armature)
3	Friction Pad
4	Splined Hub + Key
5	Motor End Bell
6	Motor Shaft
7*	Springs
8	Hollow Screws
9*	Adjusting Ring
z	Air Gap

*Refer to drawing on page 92



1. Scope of Application

All shipments, services, sales, estimates, quotations, and order confirmations between Techtop Canada Inc. and Customer are subject to these general terms and conditions of business (the "Terms and Conditions"). These Terms and Conditions shall govern all business transactions between Techtop Canada Inc. and Customer relating to the purchase and sale of all products manufactured by, or on behalf of, Techtop Canada Inc. in accordance with Customer's design specifications (the "Products"). Different or additional terms that may be proposed from time to time by Customer (including, but not limited to, those contained in any purchase orders submitted by Customer to Techtop Canada Inc.) are not binding upon Techtop Canada Inc., unless they are expressly confirmed by Techtop Canada Inc. in writing. Agreements, supplements, or understandings made by phone or orally that deviate from these Terms and Conditions are not binding upon either the Techtop Canada Inc. or the Customer unless they are expressly confirmed in writing by the party to be bound.

2. Acceptance of Orders

All of Techtop Canada Inc.'s estimates or quotations are non-binding. All of Customer's statements of acceptance or purchase orders referring to any of Techtop Canada Inc.'s estimates or quotations are not binding on Techtop Canada Inc.; and notwithstanding any contrary provisions thereof, are to be construed and deemed to be Customer's offer to purchase the Products therein described from Techtop Canada Inc.. Such purchase orders, statements of acceptance, and offers to purchase Products become valid only through Techtop Canada Inc.'s written order confirmation to which these Terms and Conditions are attached (the "Order Confirmation").

3. Prices

The only binding prices are those in the Sales Order Confirmation.

4. Terms of Payment

Customer shall pay Techtop Canada Inc. for the Products as per the prices specified in the Order Confirmation. Invoices for the Products are payable in the currency stated on the invoice. Whenever Techtop Canada Inc., in its sole discretion, determines that Customer's ability to pay for the Products is in doubt, Techtop Canada Inc. may require payment obligations hereunder to be made by an irrevocable letter of credit confirmed by a bank having offices in Canada reasonably acceptable to Techtop Canada Inc. (the "Letter of Credit"). If Customer fails or refuses such different terms of payment, in addition to its other rights and remedies, Techtop Canada Inc. may, at Techtop Canada Inc.'s option, treat such failure or refusal as Customer's repudiation of any portion of the Order Confirmation that has not been fully performed; and Techtop Canada Inc. may cancel such remaining balance of the Order Confirmation, without any liability to Customer, by giving written notice of cancellation to Customer. In all events, time shall be of the essence with regard to Customer's payment obligations to Techtop Canada Inc. hereunder. Any amount not paid by Customer within thirty (30) days after being due shall accrue interest at the lower of one percent (1%) per month or the highest legal rate allowed under applicable law. The right of Techtop Canada Inc. to receive such interest payments shall be in addition to any other rights or remedies of Techtop Canada Inc. hereunder with respect to such nonpayment.

5. Title and Risk of Loss

Unless otherwise agreed in writing by the parties, title to and risk of loss of the Products shall pass to Customer upon delivery of the Products by Techtop Canada Inc. (or Techtop Canada Inc.'s agent or representative) to the carrier at the shipping point. Customer shall, and Techtop Canada Inc. in its sole discretion may, inspect the Products, or cause them to be inspected, promptly after their arrival at Customer's port of destination. Unless otherwise agreed in writing by the parties, all damages to the Products during transit are at the risk of Customer and Customer's insurer, if any, and are not the basis for any warranty claim pursuant to Section 11 of these Terms and Conditions.

6. Regulatory Approvals

It shall be Techtop Canada Inc.'s sole responsibility to obtain and maintain all pertinent customs and regulatory approvals or other authorizations required to export the Products from their country of origin. It shall be Customer's sole responsibility to obtain and maintain all pertinent customs and regulatory approvals or authorizations to import the same into Customer's chosen county of destination for the Products. If requested in writing by Customer, Techtop Canada Inc. shall use its reasonable efforts to assist Customer in obtaining and maintaining such approvals, licenses, permits, and authorizations.

7. Design, Patents and Other Intellectual Property

As to the products manufactured by Techtop Canada Inc., Customer warrants that the product manufactured in accordance with the specifications supplied by Customer will not infringe of any patent of the United States or foreign jurisdiction. Customer will indemnify and hold harmless Techtop Canada Inc. against any losses including attorney fees and other costs of defense should Techtop Canada Inc. be required to defend a claim related to patent infringement or product failure due to design.

8. Taxes

Prices quoted by Techtop Canada Inc. for the Products [do not] include applicable sales, use, excise, and similar taxes which under applicable law are required to be paid as a result of the sale to Customer regardless of the party upon whom the obligation to pay is placed. Such taxes are [not] included on the quote and the Order Confirmation.

9. Returns

All returned goods are subject to prior approval and must be accompanied by a return goods authorization (RGA) number. These goods must be returned within 30 days, freight prepaid, in resalable condition and in original packaging. No restocking charge will apply if goods are returned in original condition complete with packaging. If any packaging or parts are missing or damaged, the parts and labour costs required to return the product to original condition will be charged to the customer. A 30% restocking charge will apply on all gearing products assembled at our facilities. Motors with custom modifications are non-returnable.

10. Shipping and Freight Policy

Unless the parties agree otherwise in writing, Techtop Canada Inc. shall have the right to select the carrier(s) and routing of shipment. Techtop reserves the right to ship from any of its warehouse locations. If customer's order requires several shipments they will be notified prior to shipment of the cost of freight. Alternatively, customer may at their discretion elect to have product shipped or third party billed. However, customer assumes all liability for damage or loss of freight in transit. Techtop will make every effort to ship the same day any orders received before 2PM local time of the warehouse from which the product is to be shipped. Any orders received after 2PM will be scheduled to ship the following day. Orders received after 2PM will ship the next business day.

A fee of $125 will be charged for after-hours shipments and pick up must be arranged by the customer. Additional charges may be applied for products requiring assembly or modifications. Exceptions to these terms are at the option of Techtop Canada Inc. and availability of expedited and after hours shipment services cannot be guaranteed.

Special service requested by the customer such as but not limited to lift gate, call ahead or guaranteed delivery will result in an additional charge to the customer. Techtop reserves the right to modify these terms at its discretion. Any such modifications will be communicated to the customer prior to shipment.

11. Defaults

If Customer should default in the fulfillment of any obligation or condition hereunder, and such default is not cured within 30 days after written notice from Techtop Canada Inc. specifying the nature of such default, then Techtop Canada Inc. shall have the right to terminate, without any liability to Customer, the remaining portion of the Order Confirmation that has not been fully performed by giving written notice of termination to Customer. Such right of termination shall be in addition to, but not in lieu of, any other remedies that may be available to Techtop Canada Inc. at law or in equity.

12. Warranty

Techtop Canada Inc. warrants to Customer that the Products shall be free from defects in materials and workmanship from the date of Techtop Canada Inc.'s invoice for a period described in the below table according to motor type unless otherwise specifically communicated.

Type	Gen. Purpose / Farm Duty 1Φ	EPAct Rated / IE1 3Φ	Premium Eff. / IE3 3Φ	All Gearing Products
Months	18	24	36	12

If within the applicable warranty period, Customer discovers any defects in the materials or workmanship of any of the Products and promptly notifies Techtop Canada Inc. in writing of such defects and returns the defective items or provides evidence of disposal of such items at the option of Techtop Canada, Techtop Canada Inc. shall repair or ship a replacement for the defective item or at Techtop Canada Inc.'s sole option refund to Customer the purchase price for each defective item. This warranty shall not apply to any of the following: (a) Products that have been repaired or altered by anyone other than Techtop Canada Inc.; (b) Products having components purchased from anyone other than Techtop Canada Inc.; (c) Products that have been damaged by negligence or accident or by other circumstances beyond the reasonable control of Techtop Canada Inc.; or (d) Products that have been improperly operated, maintained, serviced, or stored, or that have been subjected to abnormal conditions of operation, maintenance, service, and storage not in conformity with manufacturer's written instructions concerning operation, maintenance, service, and storage. In no case whatsoever, including justified warranty claims, is Customer entitled to retain payments due, except upon the written consent of Techtop Canada Inc. with respect to undisputed claims.

Techtop shall reserve the right to have, at its expense, any "defective" motor shipped to a qualified EASA shop for inspection. If upon inspection the motor is found to fit any of conditions a, c or d as noted above, the customer will be invoiced the full price of the replacement motor supplied to them including applicable shipping costs and customer will retain ownership of the defective motor. Customer may, at their expense, request further inspection of the motor by a second qualified EASA shop to confirm or contradict the findings of the first.

THE FOREGOING LIMITED WARRANTY DOES NOT INCLUDE REIMBURSEMENT TO CUSTOMER FOR ITS COSTS AND EXPENSES OF TRANSPORTATION, FREIGHT, LABOR, REMOVAL, OR OTHER EXPENSES THAT MIGHT BE INCURRED IN CONNECTION WITH CUSTOMER'S RETURNING THE DEFECTIVE ITEMS TO TECHTOP CANADA INC. OR IN CONNECTION WITH TECHTOP CANADA INC.'S SENDING TO CUSTOMER ANY REPAIRED OR REPLACED ITEMS. IN NO EVENT SHALL TECHTOP CANADA INC. OR TECHTOP CANADA INC.'S EMPLOYEES OR REPRESENTATIVES BE LIABLE TO CUSTOMER FOR ANY INDIRECT, CONSEQUENTIAL, SPECIAL, CONTINGENT, EXEMPLARY, OR INCIDENTAL DAMAGES OR EXPENSES (INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, LOSS OF PRODUCTION, DOWN TIME, OR BUSINESS INTERRUPTION), WHETHER CAUSED BY OR RELATED TO ANY DEFECTIVE PRODUCTS OR ARISING FROM THE FOREGOING WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, OR ANY OTHER LEGAL THEORY. IN ALL EVENTS, THE LIABILITY OF THE TECHTOP CANADA INC., WHETHER BASED IN TORT, BREACH OF CONTRACT, BREACH OF WARRANTY, OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE DEFECTIVE PRODUCTS IN QUESTION OR WITH RESPECT TO WHICH SUCH BREACH, DEFAULT, OR NEGLIGENCE IS CLAIMED. CUSTOMER ACKNOWLEDGES THAT THE REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED.

*Prices and specifications are subject to change without notice. Techtop Canada Inc. is not responsible for typographical errors.


Certificate of Compliance

cCSAus Compliance
N° 2437712


Certificate of Verification

Verification NEMA Premium Efficiency
N° 236227


Certificate of Verification

Verification NEMA EPAct Efficiency
N° 2236049


EUROPEAN COMMUNITY – CERTIFICATE OF ADEQUACY

CE Compliance


CERTIFICATE OF COMPLIANCE

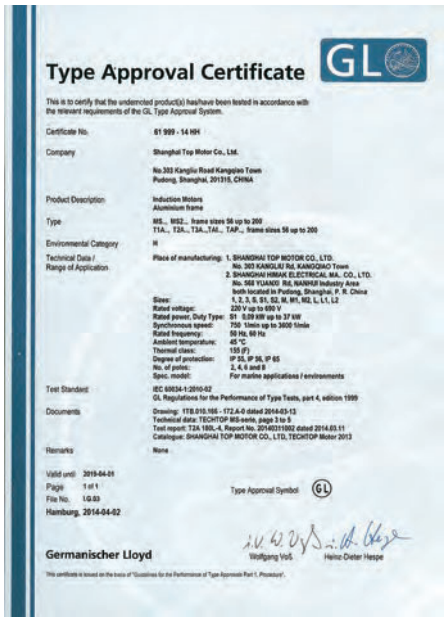
CE Compliance
N° T120611 /STM639-645


QUALITY MANAGEMENT SYSTEM CERTIFICATE

Factory ISO9001:2008
GB/T 19001-2008

ALSO AVAILABLE:

cCSAus IE2 & IE3
cULus, File N° E323353
DOE CC096A
CSA Hazardous Locations Certificate



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 61 999 - 14 HH

Company Shanghai Top Motor Co., Ltd.
No.303 Kangliu Road Kangqiao Town
Pudong, Shanghai, 201315, CHINA

Product Description Induction Motors
Aluminium frame

Type MS... MS2.. frame sizes 56 up to 200
T1A.., T2A..,T3A..,TAI.., TAP.., frame sizes 56 up to 200

Environmental Category H

Technical Data / Range of Application Place of manufacturing: 1. SHANGHAI TOP MOTOR CO., LTD. No. 303 KANGLIU Rd, KANGQIAO Town
2. SHANGHAI HIMAK ELECTRICAL MA., CO., LTD. No. 568 YUANDI Rd, NANHUI Industry Area
both located in Pudong, Shanghai, P. R. China
Sizes: 1, 2, 3, S, S1, S2, M, M1, M2, L, L1, L2
Rated voltage: 220 V up to 690 V
Rated power, Duty Type: S1 0,09 kW up to 37 kW
Synchronous speed: 750 1/min up to 3600 1/min
Rated frequency: 50 Hz, 60 Hz
Ambient temperature: 45 °C
Thermal class: 155 (F)
Degree of protection: IP 55, IP 56, IP 65
No. of poles: 2, 4, 6 and 8
Spec. model: For marine applications / environments

Test Standard IEC 60034-1:2010-02
GL Regulations for the Performance of Type Tests, part 4, edition 1999

Documents Drawing: ITB.010.166 - 172.A-0 dated 2014-03-13
Technical data: TECHTOP MS-serie, page 3 to 5
Test report: T3A 160L-4, Report No. 2014031002 dated 2014.03.11
Catalogue: SHANGHAI TOP MOTOR CO., LTD, TECHTOP Motor 2013

Remarks None

Valid until 2019-04-01
Page 1 of 1
File No. I.G.03
Type Approval Symbol
Hamburg, 2014-04-02

Germanischer Lloyd
Wolfgang Voß Heinz-Dieter Hespe

GL Type Approval for IEC Aluminum Frames
N° 61999-14 HH



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No. 62 000 - 14 HH

Company Shanghai Top Motor Co., Ltd.
No.303 Kangliu Road Kangqiao Town
Pudong, Shanghai, 201315, CHINA

Product Description Induction Motors
Cast iron frame

Type T1C.., T2C.., T3C.., frame sizes 80 up to 355
TC1.., TCP.., frame sizes 80 up to 355

Environmental Category H

Technical Data / Range of Application Place of manufacturing: SHANGHAI HIMAK ELECTRICAL MA., CO., LTD.
No. 568 YUANDI Rd, NANHUI Industry Area
Pudong, Shanghai, P. R. China

Sizes: 1, 2, 3, S, S1, S2, M, M1, M2, L, L1, L2
Rated voltage: 220 V up to 690 V
Rated power, Duty Type: S1 0,75 kW up to 315 kW
Synchronous speed: 750 1/min up to 3600 1/min
Rated frequency: 50 Hz, 60 Hz
Ambient temperature: 45 °C
Thermal class: 155 (F)
Degree of protection: IP 55, IP 56, IP 65
No. of poles: 2, 4, 6 and 8
Spec. model: For marine applications / environments

Test Standard Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012

Documents Drawing: 8MHY.010.7035; 8MHY.010.T036 dated 2014-03-12
Technical data: TECHTOP, T.C-serie page 44 - 46
Test report: T3C 315L2-4, Report No. 2014031201 dated 2014.03.11
Catalogue: SHANGHAI TOP MOTOR CO., LTD, TECHTOP Motor 2013

Remarks None.

Valid until 2019-04-01
Page 1 of 1
File No. I.G.03
Type Approval Symbol
Hamburg, 2014-04-02

Germanischer Lloyd
Wolfgang Voß Heinz-Dieter Hespe

GL Type Approval for IEC Cast Iron Frames
N° 62000-14 HH



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