

# MAX+ AC Inverter-Duty Motors with Encoder

## 1000:1 Constant Torque (TENV)

### Features

- Integrated Dynapar HS20 1024 ppr encoder
- Optimized for operation with IGBT inverter
- Constant Torque operation from 0 to base speed on Vector Drive
- Constant Horsepower operation up to twice base RPM
- Class F insulation with CR200 corona resistant magnet wire
- Continuous duty at 40°C ambient
- C-Face with rigid base, except C-Face with removable rigid base as noted
- Service Factor: 1.0
- Ball bearings
- F1 mounting (except as noted)
- UL Recognized, CSA Certified, and CE Mark
- Three year warranty (through Marathon Electric)



### Applications

- Replaces 90 volt and 180 volt PMDC motors (when used with AC variable frequency drives)
- Typical uses include: machine tools, conveyors, packaging machines, batching machines, printing equipment, pumps and fans.

### Prices & Specifications

Motor Shipping Schedule		
Same or one day *	Up to 7 days	Up to 10 days

Color indicates shipping lead time in business days. Check stock status online.  
 \* Certain heavy and oversized items can be shipped only via LTL.  
 Check our web site for current shipping method constraints by part number.

Motor Specifications – MAX+ (with encoder)											
Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	
Y280		1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	
Y281		3/4					56H17T15528A	2.4 / 1.2	35	6	
Y282		1					56H17T15527A	3.0 / 1.5	42	6	
Y284		1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	
Y285		2					145HTN17034AA	6.0 / 3.0	68	13b	
Y286		3					182TC	182HTL17041AA	8.4 / 4.2	95	–
Y287		5					184TC	184HTL17038AA	14 / 7.0	112	–

\* Refer to the Motor Shipping Schedule table for shipping information.  
 Certain heavy and oversized items can be shipped only via LTL. Check our web site for current shipping method constraints by part number.

Footnotes: 6 = Bolt-on, removable base for footless mounting option    13b = Field reversible from F1 to F2 mounting

Note: Please review the AutomationDirect Terms & Conditions for warranty and service on this product. Warranty service can be arranged through numerous Marathon Electric service centers. See list of service centers on our Web site at [www.automationdirect.com](http://www.automationdirect.com).

## MAX+ Motors Shaft-Mounted Encoder\*

A Dynapar Model HS20 shaft-mounted encoder is supplied with the MAX+ motor. The 5/8-in hollow-shaft encoder requires a 5–26 VDC power source, provides a count of 1024 pulses per revolution (PPR), differential line driver output, and includes 10 screw-terminal wiring connections.

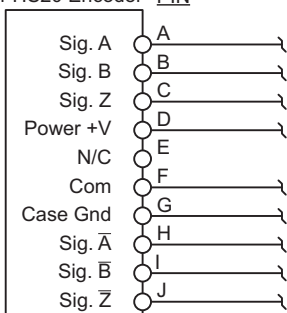
\* The encoder cable gland accepts cable diameters from 0.187–0.30 in.

\* There is no manufacturer's published tightening torque for the encoder screw terminals.

\* If connecting the motor to a DURApulse AC drive, a GS3-FB Feedback Card is required for the drive.

### Encoder Wiring Connections

Dynapar HS20 Encoder PIN



Connections to equipment determined by customer.

Wire size: minimum 24 AWG shielded cable

# MAX+ AC Inverter-Duty Motors with Encoder

## Performance Data

Performance Data (460 Volt) – MAX+													
Part Number	HP	NEMA Design	F.L. RPM	Min. RPM	F.L. AMPS @460V	N.L. AMPS @460V	F.L. Torque (lb.-ft)	B.D. Torque (lb.-ft)	Max. CHP RPM*	Max. Safe RPM	F.L. Effic.	F.L. Power Factor	Rotor Inertia (lb.-ft <sup>2</sup> )
Y280	1/2	A	1725	0	0.8	0.5	1.5	5.8	3510	5400	80.0	72.0	0.06
Y281	3/4	A	1725		1.2	0.8	2.3	10.2	3450		82.5	73.5	0.09
Y282	1	A	1725		1.5	1.0	3.0	15.0	3505		84.0	75.0	0.11
Y284	1-1/2	B	1755		2.4	1.6	4.5	29.0	3500		85.5	69.0	0.14
Y285	2	B	1750		3.0	1.7	6.0	28.5	3525		85.5	78.0	0.13
Y286	3	B	1755		4.2	2.2	9.0	48.0	3515		85.5	80.0	0.42
Y287	5	B	1765		7.0	4.2	14.9	70.0	3555		89.5	74.5	0.52

\* Maximum Constant HP RPM is for direct coupled loads.

## Dimensions (units = inches)

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

Figure 1 – Y280, Y281, Y282

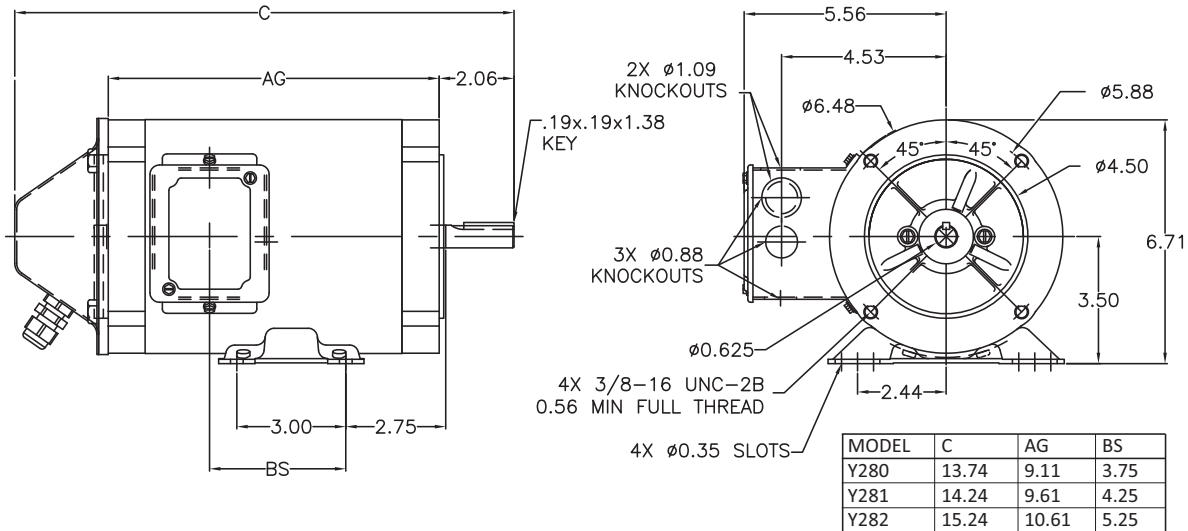
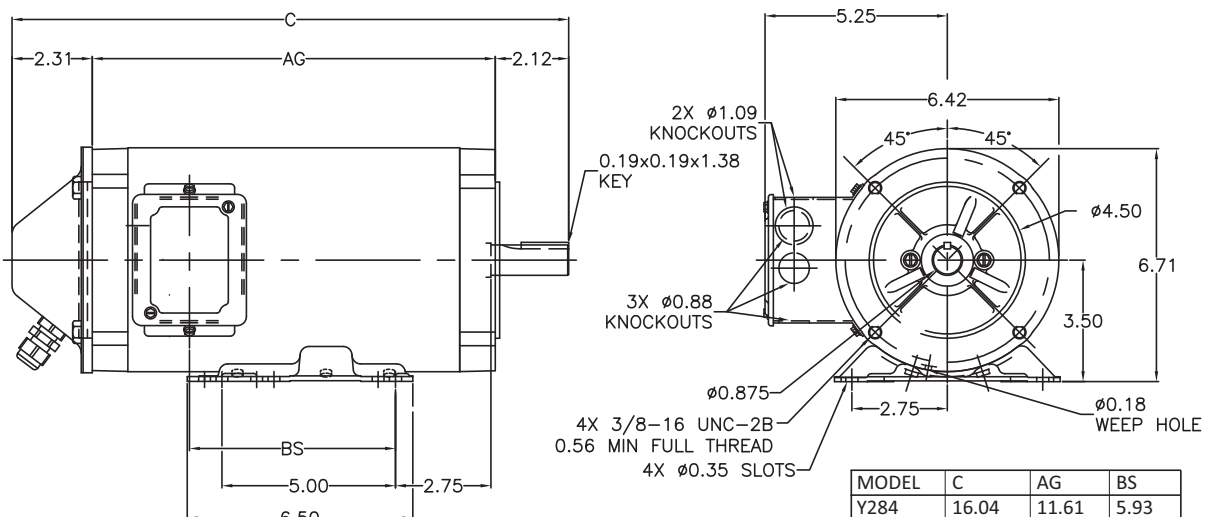


Figure 2 – Y284



# MAX+ AC Inverter-Duty Motors with Encoder

## Motors – Dimensions (units = inches)

See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete engineering drawings.

Figure 3 – Y285

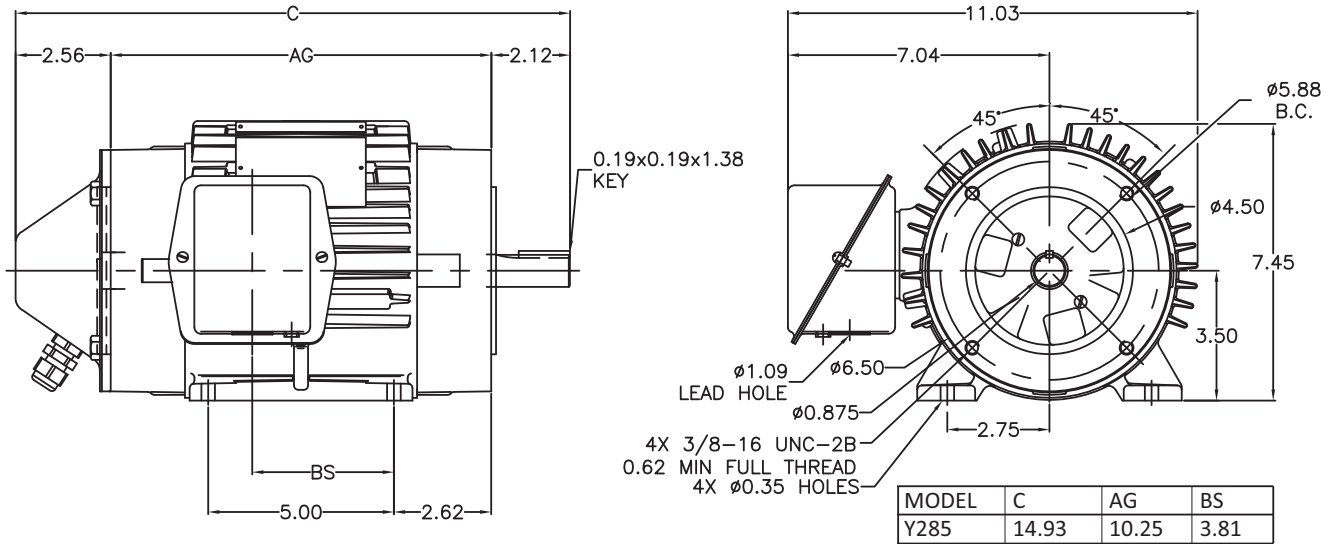
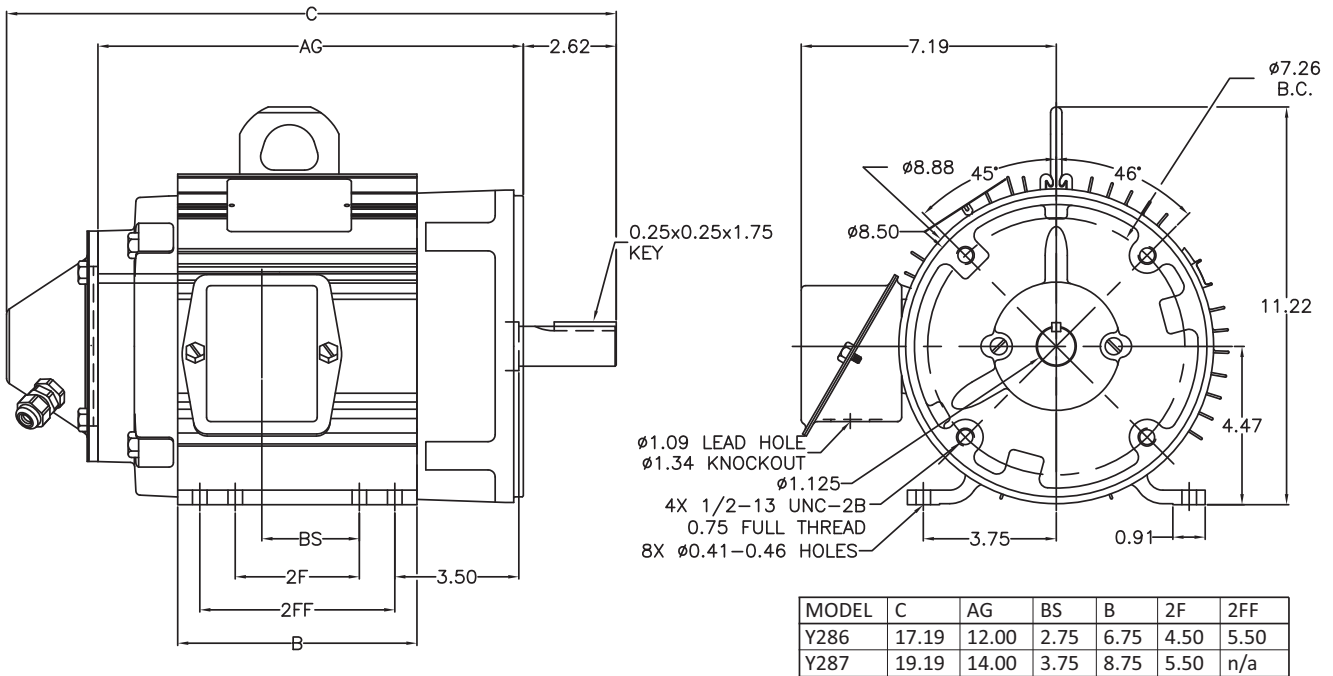


Figure 4 – Y286, Y287

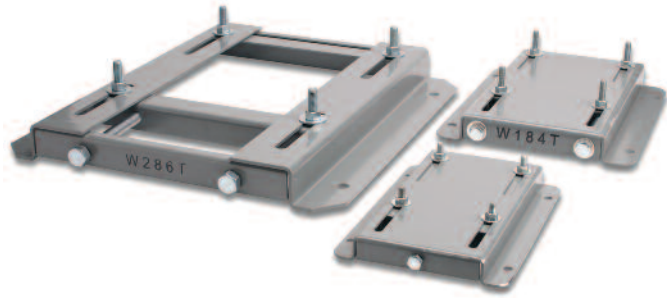


# STABLE™ Motor Slide Bases

## Mounting Slide Bases for 56 to 449T NEMA Motors

### Features

- Allows adjustment of motor mounting position
- Double adjusting screws for frames 182T-449T
- Manufactured to precise dimensional standards
- Dimensionally interchangeable with existing major makes
- Heavy-duty steel construction
- Painted with oven-baked primer for better adhesion of customer's paint
- All "D" bolts (motor mounting bolts) are fixed to the exact motor foot pattern
- All "D" bolts are welded into position to prevent spinning and dropping from slots
- Bases are provided with washers

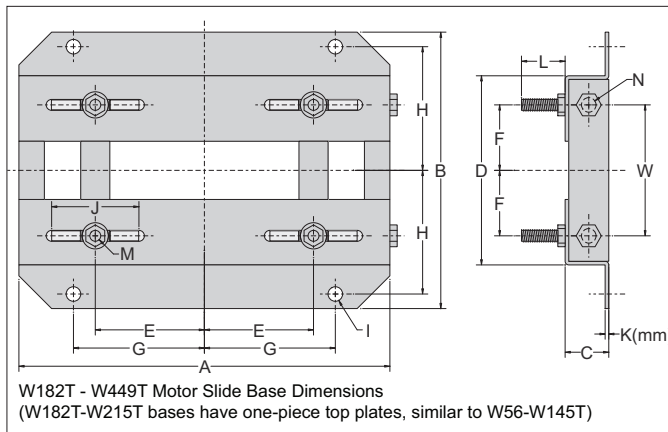
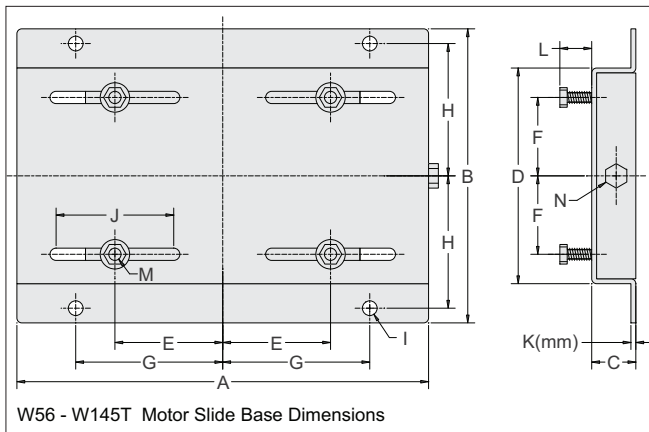


Motor Slide Bases												
Part Number	Price	Fits Frame Type	Product Weight (lb)	Fits Motor								
				IronHorse	Marathon							
					micro-MAX	MAX+	Black Max 230/460V	Black Max 575V	Blue Max	NEMA Premium XRI	Blue Chip XRI 230/460V	Blue Chip XRI 575V
<b>MTA-BASE-W56*</b>		56*	2.8	MTPM-P3x-1x18 MTPM-P5x-1x18 MTPM-P7x-1x18 MTPM-0xx-1x18 MTPM-1xx-1x18 MTR(2)-xxx-xxxxx*	Y500 Y502 Y360 Y362 Y364	Y280 Y281 Y282	Y592(-A772) Y534(-A772) Y535(-A772)	Y555(-A772) Y556(-A772)	-	E2000	-	-
<b>MTA-BASE-W143T</b>		143T/TC	4.6	MTC(P)-001-3BD18(C)(CK) MTC(P)-1P5-3BD36	-	-	Y536(-A772)	-	-	E2001A E2003	-	-
<b>MTA-BASE-W145T</b>		145T/TC	5.1	MTC(P)-001-3BD12 MTC(P)-1P5-3BD18(C)(CK) MTC(P)-002-3BD18(C)(CK) MTC(P)-002-3BD36	Y366 Y368	Y284 Y285	Y537(-A772) Y538(-A772) Y551(-A772)	Y557(-A772)	-	E2002 E2004A E2006 E2007A	-	-
<b>MTA-BASE-W182T</b>		182T/TC	9.2	MTC(P)-1P5-3BD12 MTC(P)-003-3BD18(C)(CK) MTC(P)-003-3BD36 MTF-002-1C18-182	Y1999	Y286	Y541(-A772)	Y558(-A772)	-	E2005 E2009 E2010	-	-
<b>MTA-BASE-W184T</b>		184T/TC	10	MTC(P)-002-3BD12 MTC(P)-005-3BD18(C)(CK) MTC(P)-005-3BD36 MTF-00x-1C18	Y1372	Y287	Y540(-A772) Y543(-A772)	Y559(-A772)	-	E2008 E2012 E2013	-	-
<b>MTA-BASE-W213T</b>		213T/TC	13	MTC(P)-003-3BD12 MTC(P)-7P5-3BD18(C)(CK) MTC(P)-7P5-3BD36	Y994	-	Y542(-A772) Y545(-A772)	Y560(-A772)	-	E2011 E2015 E2016A	-	-
<b>MTA-BASE-W215T</b>		215T/TC	15	MTC(P)-005-3BD12 MTC(P)-010-3BD18(C)(CK) MTC(P)-010-3BD36	Y996	-	Y544(-A772) Y547(-A772)	Y561(-A772)	-	E2014 E2018 E2019A	-	-
<b>MTA-BASE-W254T</b>		254T/TC	18	MTC(P)-7P5-3BD12 MTC(P)-015-3BD18(C)(CK) MTCP-015-3BD36	-	-	Y546(-A772) Y549(-A772)	Y562(-A772)	-	-	E205	E307
<b>MTA-BASE-W256T</b>		256T/TC	19	MTC(P)-010-3BD12 MTC(P)-020-3BD18(C)(CK) MTCP-20-3BD36	-	-	Y548(-A772) Y552(-A772)	Y563(-A772)	-	-	E206	E308
<b>MTA-BASE-W284T</b>		284T/TC	20	MTCP-015-3BD12 MTC(P)-025-3BD18(C)(CK)	-	-	Y553(-A772)	-	-	-	E207	E309
<b>MTA-BASE-W286T</b>		286T/TC	21	MTCP-20-3BD12 MTC(P)-030-3BD18(C)(CK)	-	-	Y393(-A772)	-	-	-	E208	E310
<b>MTA-BASE-W324T</b>		324T/TC	30	MTC(P)-040-3BD18(C)(CK)	-	-	-	-	Y571(-A774) Y513(-A775)	-	E209	E311
<b>MTA-BASE-W326T</b>		326T/TC	31	MTC(P)-050-3BD18(C)(CK)	-	-	-	-	Y572(-A774) Y514(-A775)	-	E210	E312
<b>MTA-BASE-W364T</b>		364T/TC	43	MTC(P)-060-3BD18(C)(CK)	-	-	-	-	Y573(-A774) Y515(-A775)	-	E211	E313
<b>MTA-BASE-W365T</b>		365T/TC	43	MTC(P)-075-3BD18(C)(CK)	-	-	-	-	Y574(-A774) Y516(-A775)	-	E212	E315
<b>MTA-BASE-W404T</b>		404T/TC	58	-	-	-	-	-	-	-	-	-
<b>MTA-BASE-W405T</b>		405T/TC	60	MTC(P)-100-3BD18(C)(CK)	-	-	-	-	Y575(-A774) Y517(-A775)	-	E213	E314
<b>MTA-BASE-W444T</b>		444T	63	MTC(P)-125-3BD18	-	-	-	-	-	-	-	-
<b>MTA-BASE-W445T</b>		445T	65	MTC(P)-150-3BD18	-	-	-	-	-	-	-	-
<b>MTA-BASE-W447T</b>		447T	89	MTC(P)-200-3BD18	-	-	-	-	-	-	-	-
<b>MTA-BASE-W449T</b>		449T	94	MTC-250-3D18 MTC-300-3D18	-	-	-	-	-	-	-	-

\* IronHorse MTR2 56HC motors have double-punched bases to fit on slide base MTA-BASE-W56.

# STABLE Motor Slide Bases

## Dimensions – Mounting Slide Bases for NEMA Motors



W182T - W449T Motor Slide Base Dimensions  
(W182T-W215T bases have one-piece top plates, similar to W56-W145T)

Dimensions [inches, except as noted] - STABLE Motor Slide Bases															
MTA-BASE-Wxxxx	A	B	C	D	E	F	G	H	I	J	K(mm)	L	M	N	W
<b>56</b>	10-5/8	6-1/2	1-1/8	4-1/2	2-7/16	1-1/2	3-13/16	2-7/8	3/8	3	2 mm	7/8	5/16 x 1	3/8 x 4	n/a
<b>143T</b>	10-1/2	7-1/2	1-1/8	5-1/2	2-3/4	2	3-3/4	3-3/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
<b>145T</b>	10-1/2	8-1/2	1-1/8	6-1/2	2-3/4	2-1/2	3-3/4	3-7/8	3/8	3	3 mm	13/16	5/16 x 1	3/8 x 4	n/a
<b>182T</b>	12-3/4	9-1/2	1-1/2	6-1/2	3-3/4	2-1/4	4-1/2	4-1/4	1/2	3	3.5 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	4-1/2
<b>184T</b>	12-3/4	10-1/2	1-1/2	7-1/2	3-3/4	2-3/4	4-1/2	4-3/4	1/2	3	3.5 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	5-1/2
<b>213T</b>	15	11	1-3/4	7-1/2	4-1/4	2-3/4	5-1/4	4-3/4	1/2	3-1/2	3.8 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	5-1/2
<b>215T</b>	15	12-1/2	1-3/4	9	4-1/4	3-1/2	5-1/4	5-1/2	1/2	3-1/2	3.8 mm	1-1/2	3/8 x 1-3/4	1/2 x 6	7
<b>254T</b>	17-3/4	15-1/8	2	10-3/4	5	4-1/8	6-1/4	6-5/8	5/8	4	4.6 mm	1-7/16	1/2 x 1-3/4	5/8 x 6	5-5/16
<b>256T</b>	17-3/4	16-7/8	2	12-1/2	5	5	6-1/4	7-1/2	5/8	4	4.6 mm	1-7/16	1/2 x 1-3/4	5/8 x 6	7
<b>284T</b>	19-3/4	16-7/8	2	12-1/2	5-1/2	4-3/4	7	7-1/2	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	7
<b>286T</b>	19-3/4	18-3/8	2	14	5-1/2	5-1/2	7	8-1/4	5/8	4-1/2	4.6 mm	1-11/16	1/2 x 2	5/8 x 6	8
<b>324T</b>	22-3/4	19-1/4	2-1/2	14	6-1/4	5-1/4	8	8-1/2	3/4	5-1/4	4.6 mm	2-3/16	5/8 x 2-1/2	3/4 x 9	7
<b>326T</b>	22-3/4	20-3/4	2-1/2	15-1/2	6-1/4	6	8	9-1/4	3/4	5-1/4	4.6 mm	2-3/16	5/8 x 2-1/2	3/4 x 9	8-1/2
<b>364T</b>	25-1/2	20-1/2	2-1/2	15-1/2	7	5-5/8	9	9-1/8	3/4	6	5.8 mm	2-1/16	5/8 x 2-1/2	3/4 x 9	7-3/4
<b>365T</b>	25-1/2	21-1/2	2-1/2	16-1/2	7	6-1/8	9	9-5/8	3/4	6	5.8 mm	2-1/16	5/8 x 2-1/2	3/4 x 9	8-3/4
<b>404T</b>	28-3/4	22-3/8	3	16-1/2	8	6-1/8	10	9-7/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	8-3/4
<b>405T</b>	28-3/4	23-7/8	3	18	8	6-7/8	10	10-5/8	7/8	7	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	10-1/4
<b>444T</b>	31-1/4	24-5/8	3	19-1/4	9	7-1/4	11	11	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	11
<b>445T</b>	31-1/4	26-5/8	3	21-1/4	9	8-1/4	11	12	7/8	7-1/2	5.8 mm	2-1/2	3/4 x 3	3/4 x 11	13
<b>447T</b>	31-1/4	30-1/8	3	24-3/4	9	10	11	13-3/4	7/8	7-1/2	8 mm	3	3/4 x 3-1/2	3/4 x 11	16-1/2
<b>449T</b>	31-1/4	35-1/8	3	29-3/4	9	12-1/2	11	16-1/4	7/8	7-1/2	8 mm	3	3/4 x 3-1/2	3/4 x 11	21-1/2

Company Information

Drives

Soft Starters

Motors

Power Transmission

Motion: Servos and Steppers

Motor Controls

Sensors: Proximity

Sensors: Photoelectric

Sensors: Encoders

Sensors: Limit Switches

Sensors: Current

Sensors: Pressure

Sensors: Temperature

Sensors: Level

Sensors: Flow Switches

Pushbuttons and Lights

Stacklights

Signal Devices

Process

Relays and Timers

Pneumatics: Air Prep

Pneumatics: Directional Control Valves

Pneumatics: Cylinders

Pneumatics: Tubing

Pneumatics: Air Fittings

Appendix Book 2

Terms and Conditions