

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.

Motor Shipping Schedule

Same or one day *	Up to 7 days	Up to 10 days
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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.

Prices & Specifications

Motor Specifications – MAX+ (with encoder)

Part Number *	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb) *	Footnotes	
Y280	\$730.00	1/2	1800	230/460	TENV	56C	56H17T15526A	1.6 / 0.8	25	6	
Y281	\$763.00	3/4					56H17T15528A	2.4 / 1.2	35	6	
Y282	\$809.00	1					56H17T15527A	3.0 / 1.5	42	6	
Y284	\$963.00	1-1/2				145TC	145THTR15540AA	4.8 / 2.4	45	6	
Y285	\$1,292.00	2					145HTN17034AA	6.0 / 3.0	68	13b	
Y286A	\$1,449.00	3					182TC	182THTY17041AA	8.2 / 4.1	110	13b
Y287A	\$1,579.00	5					184TC	184THTY17038AA	13.4 / 6.7	125	13b

* 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.

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.

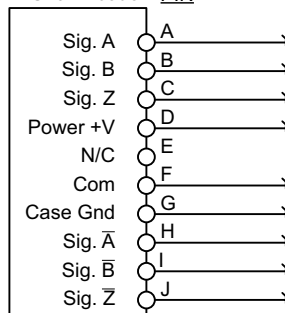
* The encoder cable gland accepts cable diameters from 0.187–0.30 in.

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

* If connecting the motor to a GS3 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 ²)
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
Y286A	3	B	1755		4.1	2.3	9.0	49.3	3510		87.5	78.5	0.42
Y287A	5	B	1760		6.7	3.2	14.9	61.5	3520		89.5	79.0	0.52

* Maximum Constant HP RPM is for direct coupled loads.

Dimensions (units = inches)

See our website: www.AutomationDirect.com for complete engineering drawings.

Figure 1 – Y280, Y281, Y282

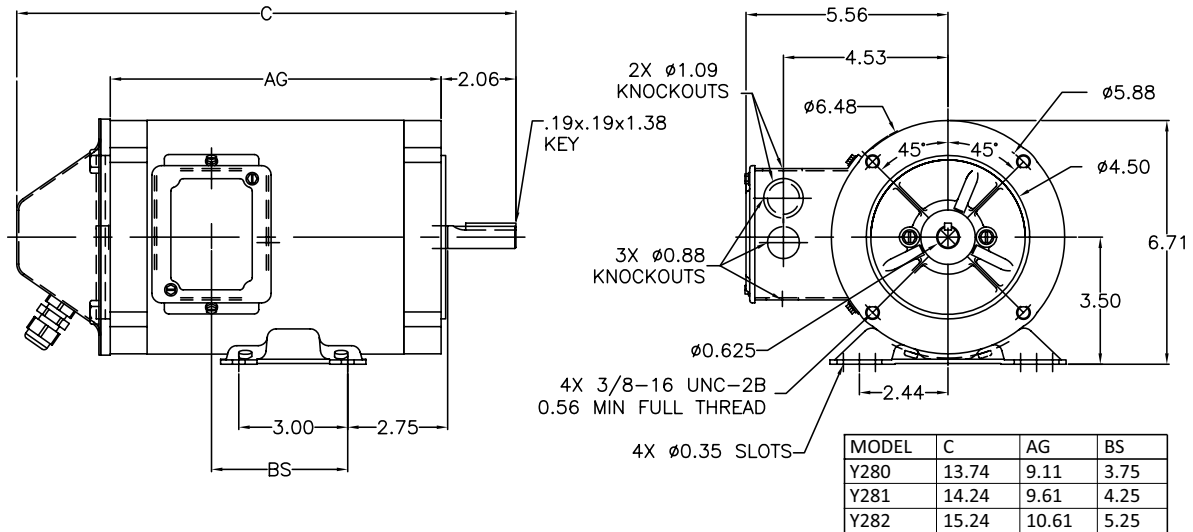
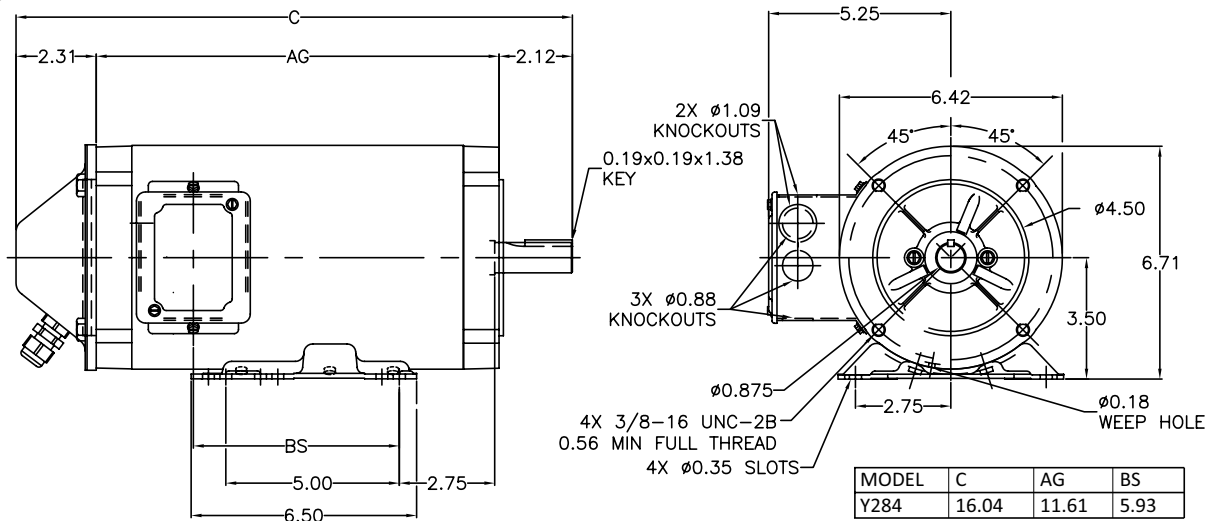


Figure 2 – Y284



MAX+ AC Inverter-Duty Motors with Encoder

Motors – Dimensions (units = inches)

See our website: www.AutomationDirect.com for complete engineering drawings.

Figure 3 – Y285

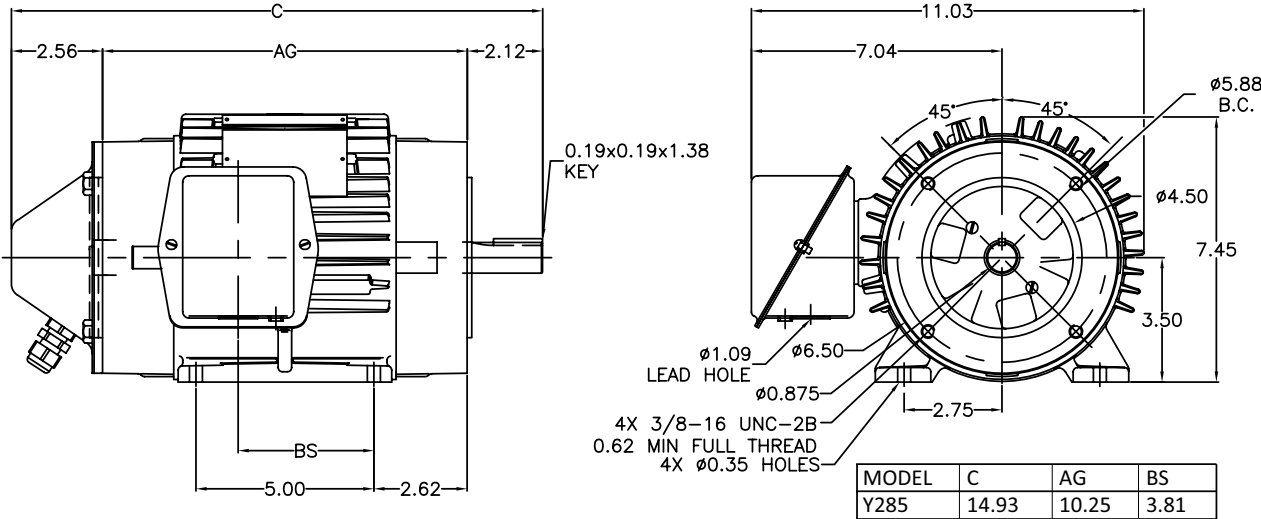
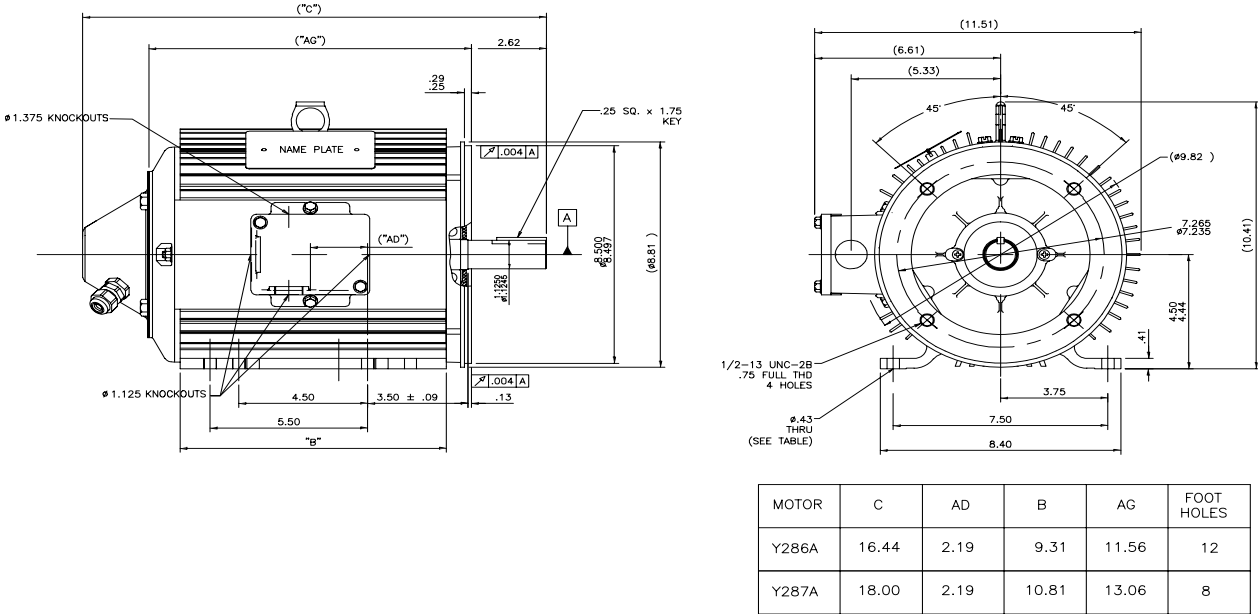


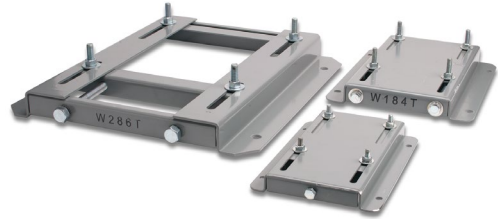
Figure 4 – Y286A, Y287A



STABLE™ Motor Slide Bases

Mounting Slide Bases for 56 to 449T NEMA Motors Features

- Allows adjustment of motor mounting position
- Slide direction is perpendicular to motor shaft
- 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
- Nuts and washers are provided for securing the motor to the slide base

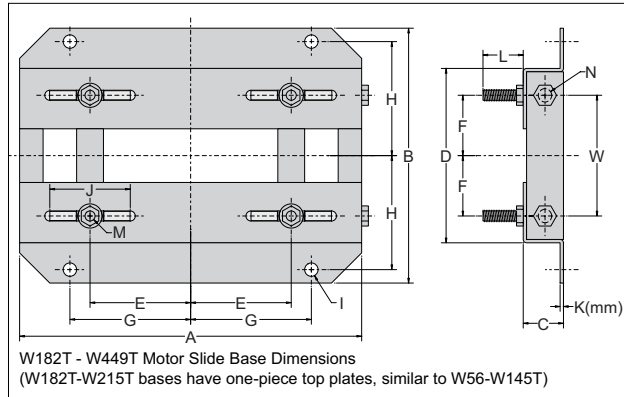
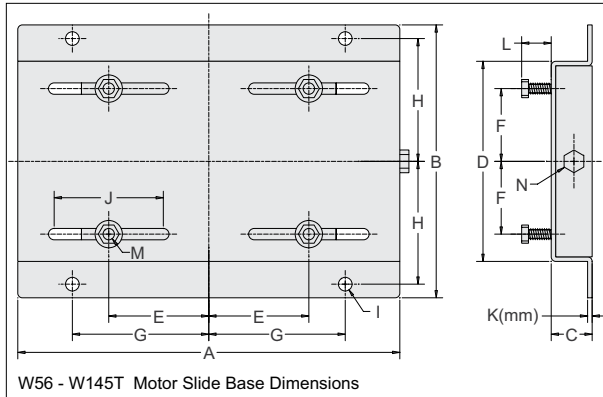


STABLE Motor Slide Bases												
Part Number	Price	Fits Frame Type	Product Weight (lb)	Fits Motor								
				IronHorse	Marathon					NEMA Premium XRI	Blue Chip XRI 230/460V	Blue Chip XRI 575V
					micro-MAX	MAX+	Black Max 230/460V	Black Max 575V	Blue Max			
MTA-BASE-W56*	\$9.75	56*	2.8	MTPM-P3x-1x18 MTPM-P5x-1x18 MTPM-P7x-1x18 MTPM-0xx-1x18 MTPM-1xx-1x18 MTR(2)(P)-xxx-xxxx*	Y500 Y502 Y360 Y362 Y364	Y280 Y281 Y282	Y592(-A772) Y534(-A772) Y535(-A772)	Y555(-A772) Y556(-A772)	-	E2000	-	-
MTA-BASE-W143T	\$18.00	143T/TC	4.6	MTC(P)-001-3BD18(C)(CK) MTC(P)-1P5-3BD36	-	-	Y536(-A772)	-	-	E2001A E2003	-	-
MTA-BASE-W145T	\$18.00	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	-	-
MTA-BASE-W182T	\$24.00	182T/TC	9.2	MTC(P)-1P5-3BD12 MTC(P)-003-3BD18(C)(CK) MTC(P)-003-3BD36 MTF-002-1C18-182	Y1999	Y286A	Y541A(-A772)	Y558A(-A772)	-	E2005 E2009 E2010	-	-
MTA-BASE-W184T	\$24.00	184T/TC	10	MTC(P)-002-3BD12 MTC(P)-005-3BD18(C)(CK) MTC(P)-005-3BD36 MTF-00x-1C18	Y1372	Y287A	Y540(-A772) Y543A(-A772)	Y559A(-A772)	-	E2008 E2012 E2013	-	-
MTA-BASE-W213T	\$35.00	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	-	-
MTA-BASE-W215T	\$35.00	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	-	-
MTA-BASE-W254T	\$49.00	254T/TC	18	MTC(P)-7P5-3BD12 MTC(P)-015-3BD18(C)(CK) MTCP-015-3BD36	-	-	Y546(-A772) Y549(-A772)	Y562(-A772)	-	-	E205	E307
MTA-BASE-W256T	\$49.00	256T/TC	19	MTC(P)-010-3BD12 MTC(P)-020-3BD18(C)(CK) MTCP-20-3BD36	-	-	Y548(-A772) Y552(-A772)	Y563(-A772)	-	-	E206	E308
MTA-BASE-W284T	\$54.00	284T/TC	20	MTCP-015-3BD12 MTC(P)-025-3BD18(C)(CK)	-	-	Y553(-A772)	-	-	-	E207	E309
MTA-BASE-W286T	\$54.00	286T/TC	21	MTCP-20-3BD12 MTC(P)-030-3BD18(C)(CK)	-	-	Y393(-A772)	-	-	-	E208	E310
MTA-BASE-W324T	\$81.00	324T/TC	30	MTC(P)-040-3BD18(C)(CK)	-	-	-	-	Y571(-A774) Y513(-A775)	-	E209	E311
MTA-BASE-W326T	\$81.00	326T/TC	31	MTC(P)-050-3BD18(C)(CK)	-	-	-	-	Y572(-A774) Y514(-A775)	-	E210	E312
MTA-BASE-W364T	\$110.00	364T/TC	43	MTC(P)-060-3BD18(C)(CK)	-	-	-	-	Y573(-A774) Y515(-A775)	-	E211	E313
MTA-BASE-W365T	\$110.00	365T/TC	43	MTC(P)-075-3BD18(C)(CK)	-	-	-	-	Y574(-A774) Y516(-A775)	-	E212	E315
MTA-BASE-W404T	\$136.00	404T/TC	58	-	-	-	-	-	-	-	-	-
MTA-BASE-W405T	\$136.00	405T/TC	60	MTC(P)-100-3BD18(C)(CK)	-	-	-	-	Y575(-A774) Y517(-A775)	-	E213	E314
MTA-BASE-W444T	\$157.00	444T	63	MTC(P)-125-3BD18	-	-	-	-	-	-	-	-
MTA-BASE-W445T	\$157.00	445T	65	MTC(P)-150-3BD18	-	-	-	-	-	-	-	-
MTA-BASE-W447T	\$207.00	447T	89	MTC(P)-200-3BD18	-	-	-	-	-	-	-	-
MTA-BASE-W449T	\$207.00	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



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
56	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
143T	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
145T	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
182T	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
184T	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
213T	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
215T	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
254T	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
256T	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
284T	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
286T	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
324T	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
326T	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
364T	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
365T	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
404T	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
405T	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
444T	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
445T	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
447T	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
449T	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