

AC Motor Selection – Three-phase Motors

(Single-phase motors are shown on page 15-13)

3-Phase Characteristic	IronHorse™ 56C Frame 3-Phase	IronHorse™ T & TC Frames	Marathon microMAX™	Marathon Black Max®	Marathon Blue Max®	Marathon NEMA Premium® XRI®	Marathon Blue Chip XRI®
Electrical Characteristics							
Horsepower range	1/3 - 2	1 - 300 (T); 1 - 100 (TC)	1/4 - 10	1/4 - 30	40 - 100	1 - 10	15 - 100
Base speed (# Poles)	1800 (4), 3600 (2)	1200(6), 1800 (4), 3600(2)	1800 (4)	1800 (4) and 1200 (6)	1800 (4)	1200(6),1800(4),3600(2)	1800 (4)
Standard Voltage	208-230/460	208-230/460 (250 & 300 hp 460V only)	230/460 (1/4 hp is 230V only)	230/460 and 575	230/460	208-230/460	230/460 and 575
Insulation Class	F	F	H	F	H	F	F
Insulation System	dip & bake	double dip & bake	CR200 magnet wire	MAX GUARD®		CR200 magnet wire	
Service Factor	1.15 (line) 1.0 (drive)	1.15 (line) 1.0 (drive)	1.0	1.0	1.0	1.15 (line) 1.0 (drive)	1.15
Phase/Base Frequency	3/60						
Design Code (NEMA)	B	A: 10-50 hp 4&6 pole B: all other sizes	A and B for 1/4 - 2 hp	A	A	B	B
Duty Cycle	Continuous						
Thermal protection	None			Class F thermostats		None	
Mechanical Characteristics							
Frame size (mounting)	56C	143T/TC - 405TC/449T	56C - 215TC	56C - 286TC	324T(C)-405T(C)	56C - 215TC	254T - 405T
Enclosure	TEFC	TEFC	TENV and TEFC	TENV	TEFC and TEBC	TEFC	TEFC
Frame material	Rolled Steel frame; Aluminum end bell	Cast Iron	Rolled Steel	Rolled Steel w Al face; Cast Iron	Cast Iron	Rolled Steel	Cast Iron
End bracket material	Aluminum	Cast Iron	Aluminum	Aluminum, Cast Iron	Cast Iron	Aluminum	Cast Iron
Conduit box material	Steel	Cast Iron	Steel	Steel	Cast Iron	Steel	Steel (<326T) Cast Iron (>324T)
Fan guard material	Steel	Steel	Polypropylene	None (all ratings TENV)	Cast Iron	Plastic	Polyprop. (<286T) Cast Iron (>324T)
Fan material	Plastic	Plastic (143T/TC - 445/7T) Aluminum (449T)	Polypropylene	None (all ratings TENV)	Polypropylene	Plastic	Polypropylene
Lead termination	Conduit box	Conduit box	Conduit box except Terminal block - 1/4 hp	Conduit box	Conduit box	Conduit box	Conduit box
Standard mounting	C-Face with Removable Rigid Base	Rigid Base (C-Flange kit available) C-Face with Rigid Base (1-100 hp)	C-Face with Rigid Base & C-Face Round Body	C-Face with Rigid Base	C-Face with Rigid Base	C-Face with Rigid Base	Rigid Base
Drive end shaft slinger	Yes	Yes	No	No	Yes	Yes	Yes
Paint	Black	Epoxy primer / Synthetic alkyd enamel	Black powder-coat	Black enamel	Blue enamel	Blue enamel	epoxy paint
Bearings	Ball	1-75 hp: Ball 100-300 hp: Roller	Ball (C3 fit)	Ball (C3 fit)	Ball (C3 fit)	Ball	Ball (C3 fit)
Grease	Exxon Polyrex EM						
Standard conduit box assembly position	F1	F1 some sizes reversible to F2	F3	F1, reversible to F2	F1, reversible to F2	F3	F1
Performance Characteristics							
Constant Torque speed range	2:1	2:1	20:1 (TEFC) 1000:1 (TENV)	1000:1 (TENV)	2000:1 (all enclosures)	10:1	20:1
Variable Torque speed range	5:1	5:1	-	-	-	10:1	-
Constant Horsepower speed range	1.5:1	1.5:1	2:1	2:1 (90-120Hz intermit- tent @50% duty cycle)	2:1	2:1	2:1
Temperature rise	B	B	B	F	F (TEFC) and B (TEBC)	F	B
Encoder provisions	No	No	No	Yes	Yes	No	No
Other Characteristics							
Agency listings	cCSA _{US}	CE, cCSA _{US} , EPACT	UL Recognized and CSA Certified				
Warranty*	2 years			3 years (through Marathon Electric)			

*See Terms and Conditions for motor warranty explanation.

1) For warranty on IronHorse motors below 50 hp, warranty service can be arranged through AutomationDirect.

2) For warranty on IronHorse motors 50 hp and above, motors must be inspected by a local EASA motor repair or service center; see AutomationDirect Terms & Conditions.

3) Marathon warranty service can be arranged through Marathon Electric service centers. See list of service centers on our web site at www.automationdirect.com.

microMAX™ AC Inverter Duty Motors

1000:1 Constant Torque (TENV), 20:1 Constant Torque (TEFC)



Features

- Constant torque operation from 0 to base speed (TENV ratings)
- Constant torque operation from 1/20 speed to base speed (TEFC ratings)
- Constant horsepower to twice base speed (RPM)
- Class H insulation with CR²⁰⁰ (corona-resistant) magnet wire
- Continuous duty at 40°C ambient
- Dual Mounting (C-Face with rigid base and C-Face with removable rigid base, as noted)
- Service Factor: 1.0
- Utilizes double shielded ball bearings
- Exxon Polyrex[®] EM bearing grease
- Eliminates brush and commutator maintenance
- Electrically reversible
- UL recognized and CSA certified
- Three year warranty

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
-------------------	--------------	---------------

Color indicates shipping lead time in business days. Check stock status online.

* For same-day shipping of stock motors requiring LTL shipment, order before 5 p.m. EST.

** For same-day shipping of microMAX motors under 100 lbs, order before 6 p.m. EST.

Motor Specifications

Part Number	Price	HP	Base RPM	Volts	Encl.	NEMA Frame	Model No.	F.L. Amps	Weight (lb)	Footnotes
Y500**	<-->	1/4	1800	230	TENV	56C	56H17T2011	1.0	17	N,Q
Y360**	<-->	1/2	1800	230/460	TENV	56C	56H17T2017	1.8/0.9	25	N
Y364**	<-->	1	1800	230/460	TEFC	56C	56H17F2021	3.2/1.6	28	-
Y368**	<-->	2	1800	230/460	TEFC	145TC	145THFR5329	5.8/2.9	51	6
Y999**	<-->	3	1800	230/460	TEFC	182TC	182THFR7729	8.4/4.2	77	6
Y372**	<-->	5	1800	230/460	TEFC	184TC	184THFR7726	13.0/6.5	91	6
Y994*	<-->	7 1/2	1800	230/460	TEFC	213TC	213THFW7726	21.4/10.7	133	6
Y996*	<-->	10	1800	230/460	TEFC	215TC	215THFW7726	27.6/13.8	154	6

Footnotes:

N Totally Enclosed Non Ventilated

Q "Quick Connect" terminal board

6 Bolt-on, removable base for footless mounting option

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.

Performance Data (460 Volt except as indicated)

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)
Y500	1/4 (230V)	B	1725	1.8	1.0 (230V)	0.7 (230V)	0.75	3.7	3520	5400	72.0	65.0	0.040
Y360	1/2	B	1730	1.8	0.9	0.5	1.5	6.8	3520	5400	80.0	72.0	0.075
Y364	1	B	1725	45	1.6	0.9	3.0	12.0	3520	5400	78.5	77.5	0.090
Y368	2	B	1740	60	2.9	1.6	6.0	29.0	3530	5400	82.5	77.0	0.140
Y999	3	A	1760	80	4.2	2.5	9.0	35.0	3540	5400	87.5	76.0	0.30
Y372	5	A	1750	90	6.7	3.5	15.0	61.0	3480	5400	88.5	79.0	0.45
Y994	7 1/2	A	1770	90	10.7	6.2	22.3	80.0	3565	4200	89.5	72.5	0.75
Y996	10	A	1770	90	13.8	7.8	30.0	110	3570	4200	91.0	74.0	1.00

* Maximum Constant HP RPM is for direct coupled loads.

microMAX™ Motor Dimensions

Figure 1

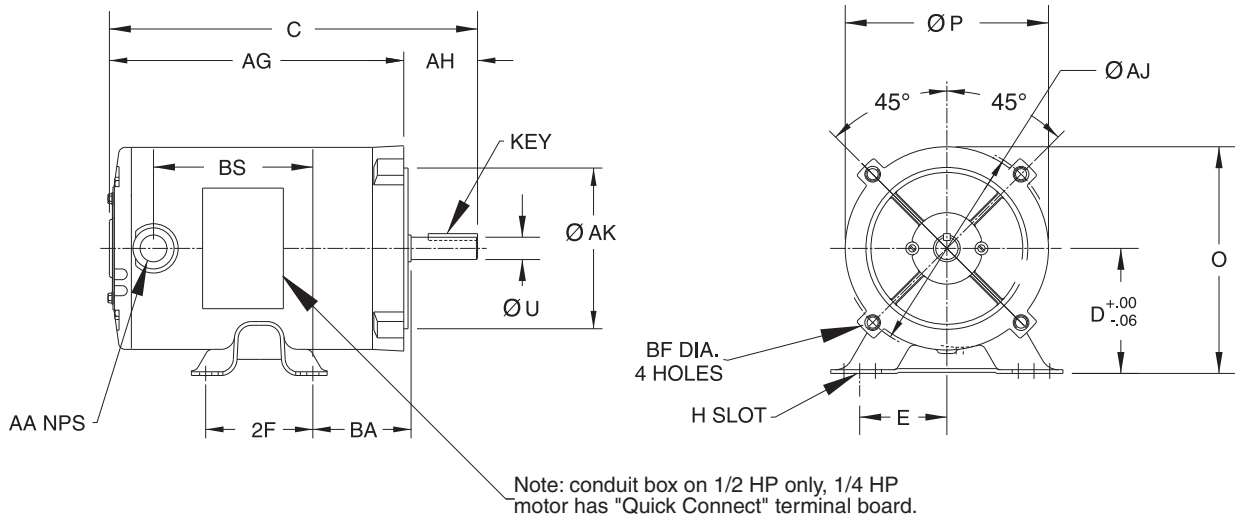
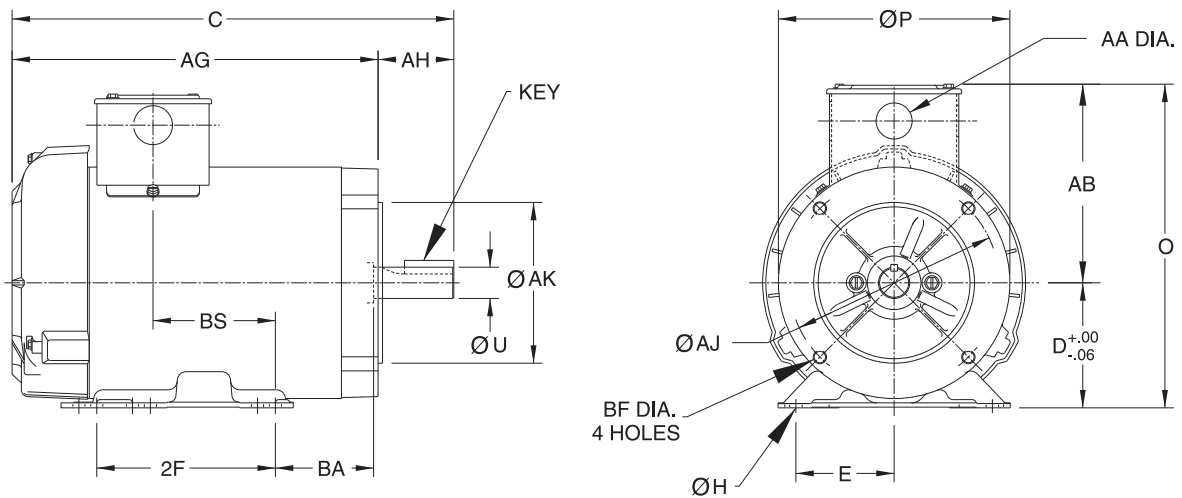


Figure 2



Motor Dimensions [Inches]																							
Part Number	HP	Fig.	NEMA Frame	C	D	E	2F	H	O Max.	P Max.	U	AA	AB Max.	AG Max.	AH	AJ	AK	BA	BF	BS	Key		
Y500	1/4	1		9.8	3.50	2.44	3.00	0.88	6.4	5.7	0.625	None	None	7.7	2.06	5.875	4.50	2.75	3/8-16	4.0	0.19 x 0.19 x 1.38		
Y360	1/2	2	56C	10.5					7.9					8.5						4.4		8.5	4.7
Y364	1	2		12.4					10.4					5.6						12.8		2.12	4.1
Y368	2	2	145TC	14.9					12.8					2.12						6.4			
Y999	3	2	182TC	16.2	4.50	3.75	5.50	0.45	11.7	8.6	1.125	1.09 hole	7.2	13.6	2.90	7.250	8.50	3.50	1/2-13	2.5	0.25 x 0.25 x 1.75		
Y372	5	2	184TC	16.7					16.1					2.8									
Y994	7 1/2	2	213TC	21.0					17.9					6.9									
Y996	10	2	215TC	22.2	5.25	4.25	7.00	13.0	9.5	1.375	1.09 hole 1.34 KO	7.8	19.1	3.40		4.25			8.2	0.31 x 0.31 x 2.38			

Note: Dimensions are for reference only. For complete dimensional information, refer to Marathon Electric at www.marathonelectric.com.

STABLE™ Motor Slide Bases

Mounting Slide Bases for 56 to 449T NEMA Motors

Features

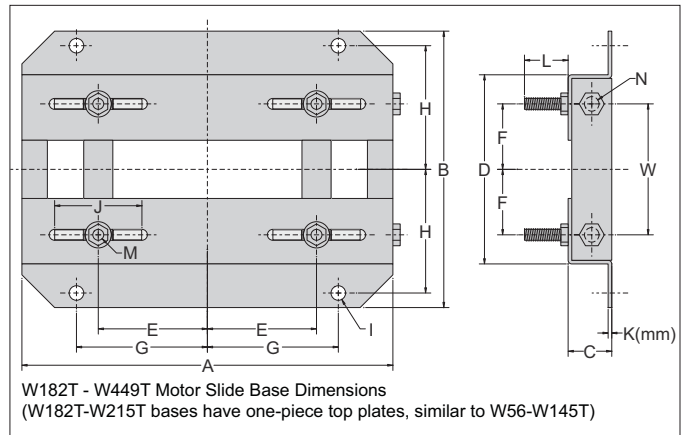
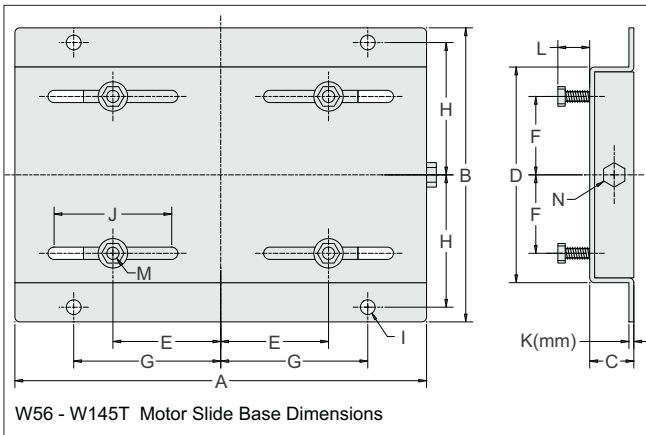
- Allows adjustment of motor mounting position
- Double adjusting screws for frames 182T - 449T
- Manufactured to precise dimensional standards
- Dimensionally interchangeable with existing major makes
- Heavy-duty steel construction
- Painted with oven-baked primer for better adhesion of customer's 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	Shipping Weight (lb)	Fits Motor							
				IronHorse	Marathon micro-MAX	Marathon Black Max 230/460V	Marathon Black Max 575V	Marathon Blue Max	Marathon NEMA Premium XRI	Marathon Blue Chip XRI 230/460V	Marathon Blue Chip XRI 575V
MTA-BASE-W56	<-->	56	3.5	MTR-xxx-xxxx MTPM-xxx-xxxx	Y500 Y360 Y364	Y592(-A772) Y534(-A772) Y535(-A772)	Y555(-A772) Y556(-A772)	-	E2000	-	-
MTA-BASE-W143T	<-->	143T/TC	5.0	MTC-001-3BD18(CK) MTC-1P5-3BD36	-	Y536(-A772)	-	-	E2001 E2003	-	-
MTA-BASE-W145T	<-->	145T/TC	5.6	MTC-001-3BD12 MTC-1P5-3BD18(CK) MTC-002-3BD18(CK) MTC-002-3BD36	Y368	Y537(-A772) Y538(-A772) Y551(-A772)	Y557(-A772)	-	E2002 E2004 E2006 E2007	-	-
MTA-BASE-W182T	<-->	182T/TC	10	MTC-1P5-3BD12 MTC-003-3BD18(CK) MTC-003-3BD36	Y999	Y541(-A772)	Y558(-A772)	-	E2005 E2009 E2010	-	-
MTA-BASE-W184T	<-->	184T/TC	10	MTC-002-3BD12 MTC-005-3BD18(CK) MTC-005-3BD36	Y372	Y540(-A772) Y543(-A772)	Y559(-A772)	-	E2008 E2012 E2013	-	-
MTA-BASE-W213T	<-->	213T/TC	15	MTC-003-3BD12 MTC-7P5-3BD18(CK) MTC-7P5-3BD36	Y994	Y542(-A772) Y545(-A772)	Y560(-A772)	-	E2011 E2015 E2016	-	-
MTA-BASE-W215T	<-->	215T/TC	16	MTC-005-3BD12 MTC-010-3BD18(CK) MTC-010-3BD36	Y996	Y544(-A772) Y547(-A772)	Y561(-A772)	-	E2014 E2018 E2019	-	-
MTA-BASE-W254T	<-->	254T/TC	20	MTC-7P5-3BD12 MTC-015-3BD18(CK)	-	Y546(-A772) Y549(-A772)	Y562(-A772)	-	-	E205	E307
MTA-BASE-W256T	<-->	256T/TC	21	MTC-010-3BD12 MTC-020-3BD18(CK)	-	Y548(-A772) Y552(-A772)	Y563(-A772)	-	-	E206	E308
MTA-BASE-W284T	<-->	284T/TC	23	MTC-025-3BD18(CK)	-	Y553(-A772)	Y567(-A772)	-	-	E207	E309
MTA-BASE-W286T	<-->	286T/TC	24	MTC-030-3BD18(CK)	-	Y393(-A772)	Y394(-A772)	-	-	E208	E310
MTA-BASE-W324T	<-->	324T/TC	33	MTC-040-3BD18(CK)	-	-	-	Y571(-A774) Y513(-A775)	-	E209	E311
MTA-BASE-W326T	<-->	326T/TC	35	MTC-050-3BD18(CK)	-	-	-	Y572(-A774) Y514(-A775)	-	E210	E312
MTA-BASE-W364T	<-->	364T/TC	46	MTC-060-3BD18(CK)	-	-	-	Y573(-A774) Y515(-A775)	-	E211	E313
MTA-BASE-W365T	<-->	365T/TC	47	MTC-075-3BD18(CK)	-	-	-	Y574(-A774) Y516(-A775)	-	E212	E315
MTA-BASE-W404T	<-->	404T/TC	64	-	-	-	-	-	-	-	-
MTA-BASE-W405T	<-->	405T/TC	65	MTC-100-3BD18(CK)	-	-	-	Y575(-A774) Y517(-A775)	-	E213	E314
MTA-BASE-W444T	<-->	444T	69	MTC-125-3BD18	-	-	-	-	-	-	-
MTA-BASE-W445T	<-->	445T	70	MTC-150-3BD18	-	-	-	-	-	-	-
MTA-BASE-W447T	<-->	445/7T 447T	92	MTC-200-3BD18	-	-	-	-	-	-	-
MTA-BASE-W449T	<-->	449T	98	MTC-250-3D18 MTC-300-3D18	-	-	-	-	-	-	-

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
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