

It is important to select the motor that will help assure optimum performance of the equipment to be driven. To do this, a motor must be selected that is capable of starting the equipment, bringing it up to operating speed, and driving it at the necessary loading speed as long as required without excessive heating. The following motor specifications should be considered.

Review the chart below to determine what category of motor is needed.

learn more about:

CATEGORY	COMMON APPLICATIONS	COMMON MOTOR TYPES
<b>General Purpose</b>	<ul style="list-style-type: none"> <li>Belt Drive Fans</li> <li>Belt Drive Blowers</li> <li>Pumps</li> <li>Conveyors</li> <li>Machine Tools</li> <li>Compressors</li> <li>Material Handling</li> </ul>	<ul style="list-style-type: none"> <li>Split Phase</li> <li>Capacitor Start</li> <li>Three Phase</li> </ul>
<b>Definite / Special Purpose</b>	<ul style="list-style-type: none"> <li>Washdown</li> <li>Hazardous Location</li> <li>Farm Duty</li> <li>Close Coupled Pump</li> <li>Fire Pump</li> <li>Pool &amp; Spa Pump</li> <li>Elevator Duty</li> <li>Gate &amp; Door</li> <li>Commercial Jet Pump</li> </ul>	<ul style="list-style-type: none"> <li>Permanent Split Capacitor (PSC)</li> <li>Split Phase</li> <li>Capacitor Start</li> <li>Three Phase</li> </ul>
<b>HVAC</b>	<ul style="list-style-type: none"> <li>Condenser Fan</li> <li>Direct Drive Blower &amp; Fan</li> <li>Belt Drive Blower &amp; Fan</li> <li>Unit Heater</li> <li>Room AC / Fan Coil</li> <li>Evaporative Cooler</li> <li>Hot Water Circulator</li> <li>Oil Burner</li> <li>Unit Bearing</li> <li>Cooling Tower</li> <li>Refrigeration</li> <li>Air-Circulating</li> </ul>	<ul style="list-style-type: none"> <li>PSC</li> <li>Shaded Pole</li> <li>Split Phase</li> <li>Capacitor Start</li> <li>Three Phase</li> </ul>

**Tip:** Some motors can be used for multiple applications



**NEMA (National Electrical Manufacturers Association)** along with electric motor member companies established a NEMA Premium® energy efficiency motors program to provide highly energy efficient products that meet the needs and applications of users based on a consensus definition of "premium efficiency"

and use of the NEMA Premium® logo for premium products.

Choosing a motor with the NEMA Premium® logo will identify higher efficient motors that will save money in total energy operating cost and improve system reliability.

For more information about the NEMA Premium® efficiency motor program, go to [www.nema.org](http://www.nema.org) or [premiummotors.com](http://premiummotors.com).

### Horsepower

Measurement of how much work is done in a specific amount of time. This value indicates the power output of the motor and usually is specified as a fraction or in a whole number. Small motors can be rated in watts. **Tip:** Select a motor with equal or greater horsepower to the existing motor.

**Tip:** If no HP or Watt rating is available, amp draw (typically available on the nameplate) provides the next best characteristic to sizing the motor.

### RPM

Revolutions per minute (RPM) indicate how fast the motor shaft will rotate under the specified load (HP). Multi-speed motors can be rated either with the RPM and the number of speeds (1075/3-speed) or with the RPM for each speed. Poles and RPM are used interchangeably. Reference the chart below.

Poles	Synchronous RPM	Typical Nameplate RPM
2	3600	3000-3450
4	1800	1625-1750
6	1200	1050-1140
8	900	825-850

**Tip:** Match RPM within 5% of nameplate RPM.

**Tip:** Remember that the horsepower (HP) rating of the motor only applies to the high speed of a multi-speed motor. As the speed is reduced, the horsepower is reduced.

Voltage is the power rating at which the motor is designed to operate. A motor should operate at plus or minus 10% of nameplate voltage. A 230 volt motor should operate over a range of 207 volts to 253 volts. A slash (/) between listed voltages indicates there is a different connection for these voltages. A hyphen (-) between voltages listed usually indicates the same connection is used for these voltages. (No plus or minus 10%.)

**Tip:** Match to supplied voltage.

**Tip:** If the supplied voltage is 115, and the replacement motor is 115/230, the motor will work, if connected for 115 volts.

## Frequency/Hertz (Hz)

The term hertz or frequency was formally called "cycles" and is nearly always 60 hertz in the USA and Canadian applications. Some foreign countries, especially Europe, use 50 hertz power supplies.

## Type/Phase

Select the motor type based on typical characteristics and uses.

Motor Type	HP Range	Typical Nameplate RPM	Typical Characteristics	Typical Uses
<b>Shaded Pole, Single Phase</b>	Up to 1/2 HP	Multi-Speed, 1050, 1550, 3000	<ul style="list-style-type: none"> <li>• Low efficiency</li> <li>• Not for belt drive as a rule</li> <li>• Air over design usually required</li> <li>• Always single voltage</li> <li>• Non-reversible</li> <li>• Low starting torque</li> </ul>	Small Fans and Blowers, Unit Heaters, Space Heaters, Humidifiers, Freezer Blowers, Window Fans, Floor Fans, Portable Evaporative Coolers
<b>Permanent Split Capacitor (PSC), 1 HP Single Phase</b>	Up to 1 HP	Multi-Speed, 825, 1075, 1625, 3250	<ul style="list-style-type: none"> <li>• Improved efficiency vs. shaded pole</li> <li>• Not for belt drive, as a rule</li> <li>• Air over design usually required</li> <li>• Typically single voltage</li> <li>• Low starting torque</li> </ul>	Small Mounted Fans, Air Circulators, Blowers, Room AC and Central AC, Condenser Fans, Evaporator Fans, Furnace Blowers, Unit Heaters, Window Fans, Oil Burners, Pool Pump, Door Operators, Animal Confinement Fans for: Poultry, Hogs, Cattle
<b>Split Phase, Single Phase</b>	Up to 1 HP	850, 1140, 1725, 3450	<ul style="list-style-type: none"> <li>• Moderate efficiency</li> <li>• Typically used in belt drive applications</li> <li>• No capacitor needed for start-up</li> <li>• Available in single voltage and dual voltage</li> <li>• Generally reversible rotation</li> <li>• Medium starting torque</li> </ul>	Belted Fans, Blowers, AC Fans, Blowers, Office Machines, Small Centrifugal Pumps, Home Appliances, Door Operators, Oil Burners, Poultry Feeders, Attic Fans, Furnace Blowers, Small Tools, Lathes
<b>Capacitor Start, Single Phase</b>	1/6 to 10 HP	850, 1140, 1725, 3450	<ul style="list-style-type: none"> <li>• Improved efficiency vs. split phase</li> <li>• Typically used in belt drive applications</li> <li>• Capacitor Required</li> <li>• Available in single voltage and dual voltage</li> <li>• Generally reversible rotation</li> <li>• High starting torque</li> </ul>	Compressors, Conveyors, Pumps, Augers, Machine Tools, Grain Stirrers, Ventilation Fans, Food Equipment, Barn Cleaners, Vacuum Pumps, Manure Pumps, Milk Coolers, Elevators, Cattle Feeders
<b>Three Phase</b>	1/4 HP and Up	850, 1140, 1725, 3450	<ul style="list-style-type: none"> <li>• High to Premium efficiency</li> <li>• Used in belt drive and direct drive applications</li> <li>• Three phase power required</li> <li>• Typically dual voltage</li> <li>• Generally reversible rotation</li> <li>• High starting torque</li> </ul>	Compressors, Conveyors, Pumps, Augers, Machine Tools, Grain Stirrers, Ventilation Fans, Food Equipment, Barn Cleaners, Vacuum Pumps, Manure Pumps, Milk Coolers, Elevators, Cattle Feeders, Drying Fans, Gear Motors

## Environment

Environment	Type	Typical Description
<b>Clean, Dry, Indoor, Non-Hazardous</b>	<b>OA0</b> - Open Air Over	Vent openings in shell and/or end shields must be located in air stream to provide motor cooling.
	<b>ODP</b> - Open Drip Proof	Vent openings that are placed so drops of liquid falling within an angle of 15 degrees from vertical will not affect performance.
	<b>TEFC</b> - Totally Enclosed Fan Cooled	No vent openings in shell or end shield. Includes an external fan that blows cooling air over the motor frame.
<b>Dirty, Damp, Outdoor, Non-Hazardous</b>	<b>TENV</b> - Totally Enclosed Non Vented	No vent openings in shell or end shield. Depends on convection air for cooling.
	<b>TEAO</b> - Totally Enclosed Air Over	No vent openings in shell or end shield. Depends on airflow from driven device for motor cooling. Must be loaded in air stream.
<b>Hazardous Explosion-Proof</b>	<b>TEFC/TENV</b>	No vent openings in shell or end shields. Designed to withstand an internal explosion of specified gases or vapors and not allow the internal flame or explosion to escape.

**Tip:** A totally enclosed motor can replace an open motor assuming other characteristics meet the application requirements.

## Select Mounting

Mounting is the way a motor mounts to the application. This is usually determined by the application itself, how the motor is to be used, and where it will be mounted. Below are some of the typical mounting configurations:



#### RESILIENT or CRADLE BASE

Motor is isolated from base by rubber rings on the end shield



#### RIGID or FOOTED BASE

Motor base is welded or bolted directly to motor shell



#### YOKE MOUNT

Tabs are welded to bottom of motor shell for bolting to a fan column or bracket



#### C-FACE WITHOUT BASE

End shield has holes for mounting, with base



#### C-FACE WITH BASE

End shield has holes for mounting



#### RING

Rubber rings on each end shield. No base



#### STUD

Extended thru-bolts (studs) for mounting

**Tip:** Many times the frame designation helps identify the way the motor is mounted (56C = C-Face)

## Thermal Overload/Protector

A temperature-sensing device built into the motor that shuts off the motor if the temperature becomes excessive due to failure-to-start or overloading.

**Automatic Reset Thermal Overload Protector (auto)** - after motor cools, thermal protector automatically restores power. Should not be used where unexpected restarting would be hazardous.

**Manual Reset Thermal Overload Protector (man)** - An external button must be pushed to restore power to motor. Preferred where unexpected restarting would be hazardous, as on saws, conveyors, compressors, etc. If the motor does not have thermal protection, then the nameplate will be blank or will show non protected "none".

**Tip:** It is important to match the thermal protection to the motor that is being replaced.

## Bearing Type

Bearings support the rotating parts of the motor. They are usually either ball or sleeve.

**Tip:** Sleeve: Used on fractional HP motors with low to moderate loads. Ball: Used where a higher load capacity is required.

## Service Factor

A measure of the reserve margin built into a motor. Motors rated over 1.0 SF have more than normal margin, and are used where unusual conditions such as occasional high or low voltage, momentary overloads, etc., are likely to occur.

**Tip:** Always match the service factor with the same or higher.

## Insulation Class

The insulation class refers to the class of insulation and related components used in the motor. These are rated by standard NEMA classifications according to the motor's maximum operating temperatures.

Class	Total Temperature Of System
A	105°C (221°F)
B	130°C (266°F)
F	155°C (311°F)
H	180°C (356°F)

Maximum Allowable Operating Temperature)

**Tip:** Keep in mind, each 10° C rise above the ratings can reduce the life of the motor by half.

**Tip:** Under normal conditions a replacement motor should have a class equal to or higher than the original. If the replacement is a lower rating it could cause premature failure.

## Frame

Frame size is defined by NEMA (National Electrical Manufacturers Association). See NEMA Chart below.

### NEMA Frame Suffix Code Chart

C = Face Mount

H = Has 2F dimension larger than same frame without H suffix

J = Face mount to fit jet pump

JM, JP = Face mount to fit close-coupled pumps

K = Has hub for sump pump mounting

M = Flange mount for oil burner (5 1/2" rabbit diameter)

N = Flange mount for oil burner (6 3/8" rabbit diameter)

T, TS = Integral HP motor dimension NEMA standards set in 1964

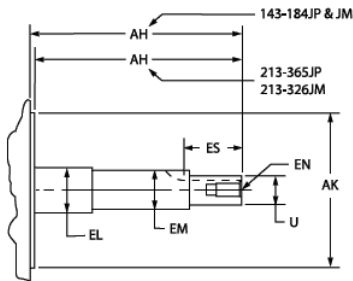
U = Integral HP motor dimension NEMA standards set in 1953

Y = Non-standard mounting, see manufacturers drawing

Z = Non-standard shaft extension

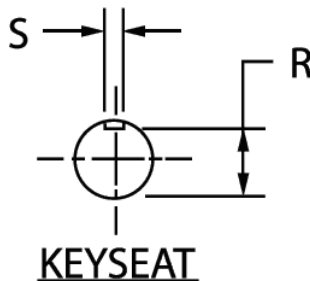
Example: 56C - 56(NEMA Frame Designation),

C(NEMA Frame Suffix Code)



### Tips

- If unsure of the frame size, measuring the shaft height is your best indicator to determine the frame size of the motor
- Letters in front of the frame size number typically are ignored (manufacturer specific code)
- Letters after the frame size number are important in selecting the correct replacement motor
- Motors with frame designation that include Y and Z after the frame size, in most cases can be replaced with a standard motor (Measure shaft and note mounting method to compare with replacement motor)
- A 56HZ motor can be replaced by a 143T or 145T frame motor

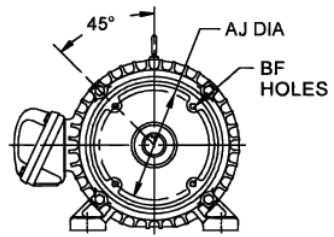
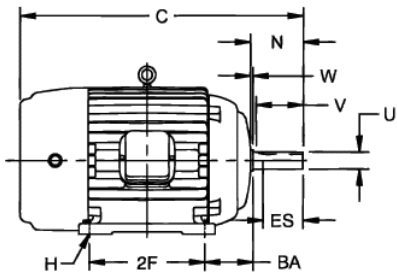


### JM Shaft

Frame	AH	U	EM	EL	EN	AK	Keyseat	
							R	S
143	4 1/4	7/8	1	15/32	3/8-16 x.75	4 1/2	49/64	3/16
145	4 1/4	7/8	1	15/32	3/8-16 x.75	4 1/2	49/64	3/16
182	4 1/4	7/8	1	1 1/4	3/8-16 x.75	4 1/2	49/64	3/16
184	4 1/4	7/8	1	1 1/4	3/8-16 x.75	4 1/2	49/64	3/16
213	4 1/4	7/8	1	1 1/4	3/8-16 x.75	8 1/2	49/64	3/16
215	4 1/4	7/8	1	1 1/4	3/8-16 x.75	8 1/2	49/64	3/16
254	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	8 1/2	1 7/64	1/4
256	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	8 1/2	1 7/64	1/4
284	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
286	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
324	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
326	5 1/4	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4

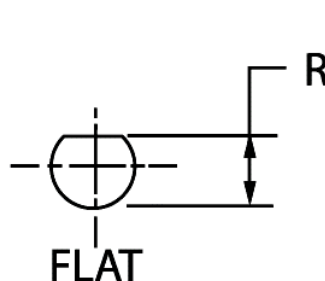
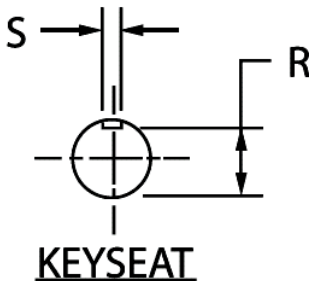
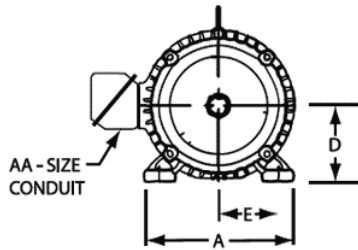
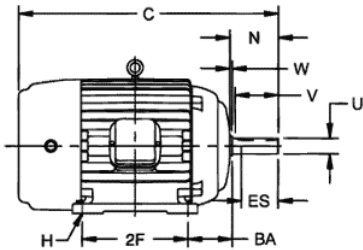
### JP Shaft

Frame	AH	U	EM	EL	EN	AK	Keyseat	
							R	S
143	7 5/16	7/8	1	15/32	3/8-16 x.75	4 1/2	49/64	3/16
145	7 5/16	7/8	1	15/32	3/8-16 x.75	4 1/2	49/64	3/16
182	7 5/16	7/8	1	1 1/4	3/8-16 x.75	4 1/2	49/64	3/16
184	7 5/16	1 1/4	1	1 1/4	3/8-16 x.75	4 1/2	49/64	3/16
213	8 1/8	1 1/4	1 3/8	1 3/4	3/8-16 x.75	8 1/2	1 7/64	1/4
215	8 1/8	1 1/4	1 3/8	1 3/4	3/8-16 x.75	8 1/2	1 7/64	1/4
254	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	8 1/2	1 7/64	1/4
256	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	8 1/2	1 7/64	1/4
284	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
286	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
324	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
326	8 1/8	1 1/4	1 3/8	1 3/4	1/2-13 x 1.00	12 1/2	1 7/64	1/4
364	8 1/8	1 5/8	1 3/4	2 1/8	1/2-13 x 1.00	12 1/2	1 13/32	3/8
365	8 1/8	1 5/8	1 3/4	2 1/8	1/2-13 x 1.00	12 1/2	1 13/32	3/8



Type C-Face AC Motors, Footed or Footless

Frame Designation	AJ	AK	BA	BB Min.	BC	BD Max.	BF Hole			Keyseat			
							Number	Tap Size	Bolt Penetration Allowance	U	AH	R	S
42C	3 3/4	3	2 1/16	1/8	-0.19	5	4	1/4-20	-	3/8	1 5/16	2 1/64	flat
48C	3 3/4	3	2 1/2	1/8	-0.19	5 5/8	4	1/4-20	-	1/2	1 11/16	2 9/64	flat
56C	5 7/8	4 1/2	2 3/4	1/8	-0.19	6 1/2	4	3/8-16	-	5/8	2 1/16	3 3/64	3/16
143TC & 145TC	5 7/8	4 1/2	2 3/4	1/8	+0.12	6 1/2	4	3/8-16	9/16	7/8	2 1/8	49/64	3/16
182TC & 184TC	7 1/4	8 1/2	3 1/2	1/4	+0.12	9	4	1/2-13	3/4	1 1/8	2 5/8	63/64	1/4
182TCH & 184TCH	5 7/8	8 1/2	3 1/2	1/8	+0.12	6 1/2	4	3/8-16	9/16	1 1/8	2 5/8	63/64	1/4
213TC & 215TC	7 1/4	4 1/2	4 1/4	1/4	+0.12	9	4	1/2-13	3/4	1 3/8	3 1/8	1 13/64	5/16
254TC & 256TC	7 1/4	8 1/2	4 3/4	1/4	+0.25	10	4	1/2-13	3/4	1 5/8	3 3/4	1 13/32	3/8
284TC & 286TC	9	8 1/2	4 3/4	1/4	+0.25	11 1/4	4	1/2-13	3/4	1 7/8	4 3/8	1 19/32	1/2
284TSC & 286TSC	9	10 1/2	4 3/4	1/4	+0.25	11 1/4	4	1/2-13	3/4	1 5/8	3	1 13/32	3/8
324TC & 326TC	11	10 1/2	5 1/4	1/4	+0.25	14	4	5/8-11	15/16	2 1/8	5	1 27/32	1/2
324TSC & 326TSC	11	12 1/2	5 1/4	1/4	+0.25	14	4	5/8-11	15/16	1 7/8	3 1/2	1 19/32	1/2
364TC & 365TC	11	12 1/2	5 7/8	1/4	+0.25	14	4	5/8-11	15/16	2 3/8	5 5/8	2 1/64	5/8
364TSC & 365TSC	11	12 1/2	5 7/8	1/4	+0.25	14	8	5/8-11	15/16	1 7/8	3 1/2	1 19/32	1/2
404TC & 405TC	11	12 1/2	6 5/8	1/4	+0.25	15 1/2	8	5/8-11	15/16	2 7/8	7	2 29/64	3/4
404TSC & 405TSC	11	12 1/2	6 5/8	1/4	+0.25	15 1/2	8	5/8-11	15/16	2 1/8	4	1 27/32	1/2
444TC & 445TC	14	16	7 1/2	1/4	+0.25	18	8	5/8-11	15/16	3 3/8	8 1/4	2 7/8	7/8
444TSC & 445TSC	14	16	7 1/2	1/4	+0.25	18	8	5/8-11	15/16	2 3/8	4 1/2	2 1/64	5/8
447TC & 449TC	14	16	7 1/2	1/4	+0.25	18	8	5/8-11	15/16	3 3/8	8 1/4	2 7/8	7/8
447TSC & 449TSC	14	16	7 1/2	1/4	+0.25	18	8	5/8-11	15/16	2 3/8	4 1/2	2 1/64	5/8
5000 Frame Series	14 1/2	16 1/2	-	1/4	+0.25	18	4	5/8-11	15/16	-	-	-	-



AC Foot-Mounted Motors with Single Straight Shaft Extension

Frame Designation											Keyseat		AA Min.
	A Max.	D	E	2F	BA	H	U	N-W	V Min.	R	S		
42	-	2 5/8	1 3/4	1 11/16	2 1/16	9/32 slot	3/8	1 1/8	-	2 1/64	flat	-	
48	-	3	2 1/8	2 3/4	2 1/2	11/32 slot	1/2	1 1/2	-	2 9/64	flat	-	
48H	-	3	2 1/8	4 3/4	2 1/2	11/32 slot	1/2	1 1/2	-	29/64	flat	-	
56	-	3 1/2	2 7/16	3	2 3/4	11/32 slot	5/8	1 7/8	-	33/64	3/16	-	
56H	-	3 1/2	2 7/16	5	2 3/4	11/32 slot	5/8	1 7/8	-	33/64	3/16	-	
143T	7	3 1/2	2 3/4	4	2 1/4	11/32 hole	7/8	2 1/4	2	49/64	3/16	3/4	
145T	7	3 1/2	2 3/4	5	2 1/4	11/32 hole	7/8	2 1/4	2	49/64	3/16	3/4	
182	9	4 1/2	3 3/4	4 1/2	2 3/4	13/32 hole	7/8	2 1/4	2	49/64	3/16	3/4	
184	9	4 1/2	3 3/4	5 1/2	2 3/4	13/32 hole	7/8	2 1/4	2	49/64	3/16	3/4	
182T	9	4 1/2	3 3/4	4 1/2	2 3/4	13/32 hole	1 1/8	2 3/4	2 1/2	63/64	2 1/2	3/4	
184T	9	4 1/2	3 3/4	5 1/2	2 3/4	13/32 hole	1 1/8	2 3/4	2 1/2	63/64	2 1/2	3/4	
213	10 1/2	5 1/4	4 1/4	5 1/2	3 1/2	13/32 hole	1 1/8	3	2 3/4	63/64	2 1/2	3/4	
215	10 1/2	5 1/4	4 1/4	7	3 1/2	13/32 hole	1 1/8	3	2 3/4	63/64	2 1/2	3/4	
213T	10 1/2	5 1/4	4 1/4	5 1/2	3 1/2	13/32 hole	1 3/8	3 3/8	3 1/8	113/64	5/16	1	
215T	10 1/2	5 1/4	4 1/4	7	3 1/2	13/32 hole	1 3/8	3 3/8	3 1/8	113/64	5/16	1	
254U	12 1/2	6 1/4	5	8 1/4	4 1/4	17/32 hole	1 3/8	3 3/4	3 1/2	113/64	5/16	1	
256U	12 1/2	6 1/4	5	10	4 1/4	17/32 hole	1 3/8	3 3/4	3 1/2	113/64	5/16	1	
254T	12 1/2	6 1/4	5	8 1/4	4 1/4	17/32 hole	1 5/8	4	3 3/4	113/32	3/8	1 1/4	
256T	12 1/2	6 1/4	5	10	4 1/4	17/32 hole	1 5/8	4	3 3/4	113/32	3/8	1 1/4	
284U	14	7	5 1/2	9 1/2	4 3/4	17/32 hole	1 5/8	4 7/8	4 5/8	113/32	3/8	1 1/4	
286U	14	7	5 1/2	11	4 3/4	17/32 hole	1 5/8	4 7/8	4 5/8	113/32	3/8	1 1/4	
284T	14	7	5 1/2	9 1/2	4 3/4	17/32 hole	1 7/8	4 5/8	4 3/8	119/32	1/2	1 1/2	
286T	14	7	5 1/2	11	4 3/4	17/32 hole	1 7/8	4 5/8	4 3/8	119/32	1/2	1 1/2	
284TS	14	7	5 1/2	9 1/2	4 3/4	17/32 hole	1 5/8	3 1/4	3	113/32	3/8	1 1/2	
286TS	14	7	5 1/2	11	4 3/4	17/32 hole	1 5/8	3 1/4	3	113/32	3/8	1 1/2	
324U	16	8	6 1/4	10 1/2	5 1/4	21/32 hole	1 7/8	5 5/8	5 3/8	119/32	1/2	1 1/2	
326U	16	8	6 1/4	12	5 1/4	21/32 hole	1 7/8	5 5/8	5 3/8	119/32	1/2	1 1/2	
324US	16	8	6 1/4	10 1/2	5 1/4	21/32 hole	1 5/8	3 1/4	3	113/32	3/8	1 1/2	
326US	16	8	6 1/4	12	5 1/4	21/32 hole	1 5/8	3 1/4	3	113/32	3/8	1 1/2	
324T	16	8	6 1/4	10 1/2	5 1/4	21/32 hole	2 1/8	5 1/4	5	127/32	1/2	2	
326T	16	8	6 1/4	12	5 1/4	21/32 hole	2 1/8	5 1/4	5	127/32	1/2	2	
324TS	16	8	6 1/4	10 1/2	5 1/4	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	2	
326TS	16	8	6 1/4	12	5 1/4	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	2	
364U	18	9	7	11 1/4	5 7/8	21/32 hole	2 1/8	6 3/8	6 1/8	127/32	1/2	2	
365U	18	9	7	12 1/4	5 7/8	21/32 hole	2 1/8	6 3/8	6 1/8	127/32	1/2	2	
364US	18	9	7	11 1/4	5 7/8	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	2	
365US	18	9	7	12 1/4	5 7/8	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	2	
364T	18	9	7	11 1/4	5 7/8	21/32 hole	2 3/8	5 7/8	5 5/8	2 1/64	5/8	3	
365T	18	9	7	12 1/4	5 7/8	21/32 hole	2 3/8	5 7/8	5 5/8	2 1/64	5/8	3	
364TS	18	9	7	11 1/4	5 7/8	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	3	
365TS	18	9	7	12 1/4	5 7/8	21/32 hole	1 7/8	3 3/4	3 1/2	119/32	1/2	3	
405U	20	10	8	13 3/4	6 5/8	13/16 hole	2 3/8	7 1/8	6 7/8	2 1/64	5/8	2	
404US	20	10	8	12 1/4	6 5/8	13/16 hole	2 1/8	4 1/4	4	1 7/8	1/2	2	
405US	20	10	8	13 3/4	6 5/8	13/16 hole	2 1/8	4 1/4	4	1 7/8	1/2	2	
404T	20	10	8	13 3/4	6 5/8	13/16 hole	2 7/8	7 1/4	7	2 29/64	3/4	3	
405T	20	10	8	12 1/4	6 5/8	13/16 hole	2 7/8	7 1/4	7	2 29/64	3/4	3	
404TS	20	10	8	13 3/4	6 5/8	13/16 hole	2 1/8	4 1/4	4	1 27/32	1/2	3	
405TS	20	10	8	12 1/4	6 5/8	13/16 hole	2 1/8	4 1/4	4	1 27/32	1/2	3	
444U	22	11	9	13 3/4	7 1/2	13/16 hole	2 7/8	8 5/8	8 3/8	2 29/64	3/4	2 1/2	
445U	22	11	9	14 1/2	7 1/2	13/16 hole	2 7/8	8 5/8	8 3/8	2 29/64	3/4	2 1/2	
444US	22	11	9	16 1/2	7 1/2	13/16 hole	2 1/8	4 1/4	4	1 27/32	1/2	2 1/2	
445US	22	11	9	14 1/2	7 1/2	13/16 hole	2 1/8	4 1/4	4	1 27/32	1/2	2 1/2	
444T	22	11	9	16 1/2	7 1/2	13/16 hole	3 3/8	8 1/2	8 1/4	2 7/8	7/8	3	
445T	22	11	9	14 1/2	7 1/2	13/16 hole	3 3/8	8 1/2	8 1/4	2 7/8	7/8	3	
447T	22	11	9	16 1/2	7 1/2	13/16 hole	3 3/8	8 1/2	8 1/4	2 7/8	7/8	3	
449T	22	11	9	20	7 1/2	13/16 hole	3 3/8	8 1/2	8 1/4	2 7/8	7/8	3	
444TS	22	11	9	25	7 1/2	13/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	3	
445TS	22	11	9	14 1/2	7 1/2	13/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	3	
447TS	22	11	9	16 1/2	7 1/2	13/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	3	
449TS	22	11	9	20	7 1/2	13/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	3	
5004	25	12 1/2	10	25	8 1/2	15/16 hole	3 7/8	11 5/8	11 1/4	3 5/16	1	-	
5004G	25	12 1/2	10	16	8 1/2	15/16 hole	3 1/2	10 1/2	10 1/4	3	7/8	-	
5004S	25	12 1/2	10	16	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-	
5004SS	25	12 1/2	10	16	8 1/2	15/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	-	
5006L	28 1/2	12 1/2	10	16	8 1/2	15/16 hole	4 7/8	14 5/8	14 3/8	4 11/64	1 1/4	-	
5006S	28 1/2	12 1/2	10	20	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-	
5006MS	28 1/2	12 1/2	10	20	8 1/2	15/16 hole	3 3/8	6 3/4	6 1/2	2 7/8	7/8	-	
5008	25	12 1/2	10	20	8 1/2	15/16 hole	3 7/8	11 5/8	11 1/4	3 5/16	1	-	
5008G	25	12 1/2	10	25	8 1/2	15/16 hole	3 1/2	10 1/2	10 1/4	3	7/8	-	
5008L	28 1/2	12 1/2	10	25	8 1/2	15/16 hole	4 7/8	14 5/8	14 3/8	4 11/64	1 1/4	-	
5008S	25	12 1/2	10	25	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-	
5008SS	28 1/2	12 1/2	10	25	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-	
5008MS	28 1/2	12 1/2	10	25	8 1/2	15/16 hole	3 3/8	6 3/4	6 1/2	2 7/8	7/8	-	
5008SS	25	12 1/2	10	25	8 1/2	15/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	-	
5008SS	28 1/2	12 1/2	10	25	8 1/2	15/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	-	

5010L	28 1/2	12 1/2	10	32	8 1/2	15/16 hole	4 7/8	14 5/8	14 3/8	4 11/64	1 1/4	-
5010S	28 1/2	12 1/2	10	32	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-
5010MS	28 1/2	12 1/2	10	32	8 1/2	15/16 hole	3 3/8	6 3/4	6 1/2	2 7/8	7/8	-
5010SS	28 1/2	12 1/2	10	32	8 1/2	15/16 hole	2 3/8	4 3/4	4 1/2	2 1/64	5/8	-
5012L	28 1/2	12 1/2	10	40	8 1/2	15/16 hole	4 7/8	14 5/8	14 3/8	4 11/64	1 1/4	-
5012S	28 1/2	12 1/2	10	40	8 1/2	15/16 hole	2 7/8	5 3/4	5 1/2	2 29/64	3/4	-
5012MS	28 1/2	12 1/2	10	40	8 1/2	15/16 hole	3 3/8	6 3/4	6 1/2	2 7/8	7/8	-