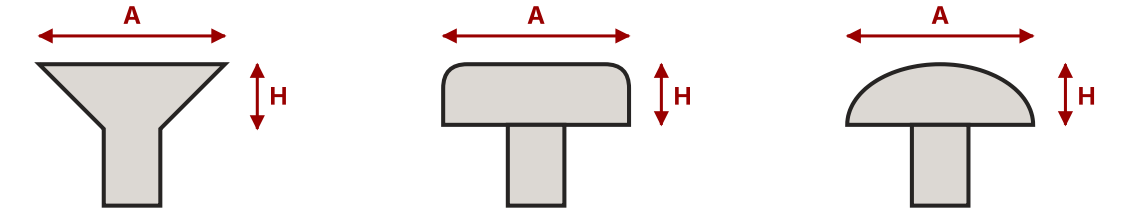
Machine Screw Head Dimensions

jandesupply.com/reference-machine-screw-dimensions.php

J & E Supply & FASTENER CO.

Head diameter, head height and Phillips driver size for inch machine screws — flat, oval, pan, round, truss, fillister, binding and hex heads, Phillips and slotted, #2 to 1/2". ASME B18.6.3.

A machine screw is sized by its thread: #10-24 is a #10 screw with 24 threads per inch. **Flat** heads sink flush into a countersink, so they're measured **overall**; **oval** heads are measured from the **rim**, where the dome meets the cone — the dome isn't counted; **pan**, **round**, **truss**, **fillister**, **binding** and **hex** heads sit on top and are measured **under the head**. Flat and round heads are the same size Phillips or slotted; a Phillips **pan** head is taller than a slotted one.



FLAT — length overall | PAN — length under the head | ROUND — length under the head

Letters match the table columns: **A** head diameter, **H** head height.

Flat head (82°) machine screws, Phillips and slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H MAX	PHILLIPS DRIVER
#2	.162 / .144	.051	#1
#3	.187 / .167	.059	#1
#4	.212 / .191	.067	#1
#5	.237 / .215	.075	#2
#6	.262 / .238	.083	#2
#8	.312 / .285	.100	#2
#10	.362 / .333	.116	#2
#12	.412 / .380	.132	#3
1/4"	.477 / —	.153	#3
5/16"	.597 / —	.191	#4
3/8"	.717 / .670	.230	#4
1/2"	.815 / .765	.223	—

Fits an 82° countersink. Same head for Phillips and slotted.

Flat head (100°) machine screws, Phillips and slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H (REF)
#4	.212 / .188	.049
#6	.262 / .235	.060
#8	.312 / .282	.072
#10	.362 / .329	.083
1/4"	.477 / .437	.110
5/16"	.597 / .550	.138
3/8"	.717 / .662	.165

Fits a 100° countersink (sheet metal, aircraft work) — a wider, shallower head than the 82° flat. Same head for Phillips and slotted; length is overall.

Pan head machine screws, Phillips — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX	HEAD HEIGHT H MAX	PHILLIPS DRIVER
#2	.167	.062	#1
#3	.193	.071	#1
#4	.219	.080	#1
#5	.245	.089	#2
#6	.270	.097	#2
#8	.322	.115	#2
#10	.373	.133	#2
#12	.425	.151	#3
1/4″	.492	.175	#3
5/16″	.615	.218	#4
3/8″	.740	.261	#4

Maximum sizes. The Phillips pan head is taller than the slotted one below.

Pan head machine screws, slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H MAX / MIN
#2	.167 / .155	.053 / .045
#3	.193 / .180	.060 / .051
#4	.219 / .205	.068 / .058
#5	.245 / .231	.075 / .065
#6	.270 / .256	.082 / .072
#8	.322 / .306	.096 / .085
#10	.373 / .357	.110 / .099
#12	.425 / .407	.125 / .112
1/4″	.492 / .473	.144 / .130
5/16″	.615 / —	.178 / —
3/8″	.740 / .716	.212 / .195
1/2″	.987 / .958	.281 / .260

Round head machine screws, Phillips and slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H MAX / MIN
#2	.162 / .146	.069 / .059
#3	.187 / .169	.078 / —
#4	.211 / .193	.086 / .075
#5	.236 / .217	.095 / .083
#6	.260 / .240	.103 / .091
#8	.309 / .287	.120 / .107
#10	.359 / .334	.137 / .123
#12	.408 / .382	.153 / .139
1/4″	.472 / .443	.175 / .160
5/16″	.590 / —	.216 / —
3/8″	.708 / .670	.256 / .237
1/2″	.813 / .766	.355 / .332

Same head for Phillips and slotted. A dash: our sources differ or only one has it — give us a call at 405-670-1234.

Truss head machine screws, Phillips and slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H MAX / MIN	PHILLIPS DRIVER
#2	.194 / .180	.053 / .044	—
#3	.226 / .211	.061 / .051	—

SIZE	HEAD DIA A MAX / MIN	HEAD HEIGHT H MAX / MIN	PHILLIPS DRIVER
#4	.257 / .241	.069 / .059	—
#5	.289 / .272	.078 / .066	—
#6	.321 / .303	.086 / .074	#2
#8	.384 / .364	.102 / .088	#2
#10	.448 / .425	.118 / .103	#2
#12	.511 / .487	.134 / .118	—
1/4″	.573 / .546	.150 / .133	#3
5/16″	.698 / —	.183 / —	#4
3/8″	.823 / .787	.215 / .191	#4

A wide, low dome. Same head for Phillips and slotted.

Fillister head machine screws, slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX	OVERALL HEAD HEIGHT H MAX
#2	.140	.083
#3	.161	.095
#4	.183	.107
#5	.205	.120
#6	—	.132
#8	.270	.156
#10	.313	.180
#12	.357	.205
1/4″	.414	.237
3/8″	.622	.355

A tall, narrow head. Maximum sizes; height is to the top of the rounded crown. #6 head diameter: our sources differ. A Phillips fillister has the same head; its Phillips driver size isn't on our chart.

Binding head machine screws, slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX / MIN	OVERALL HEAD HEIGHT MAX / MIN
#2	.181 / .171	.050 / .043
#3	.208 / .197	.059 / .052
#4	.235 / .223	.068 / .061
#5	.263 / .249	.078 / .069
#6	.290 / .275	.087 / .078
#8	.344 / .326	.105 / .095
#10	.399 / .378	.123 / .112
#12	.454 / .430	.141 / .130
1/4″	.525 / .498	.165 / .152

Hex and hex washer head machine screws — ASME B18.6.3 (inches)

SIZE	WRENCH / NUT DRIVER	ACROSS FLATS MAX / MIN	HEAD HEIGHT MAX / MIN
#2	1/8″	.125 / .120	.050 / .040
#4	3/16″	.188 / .181	.060 / .049
#5	3/16″	.188 / .181	.070 / .058
#6	1/4″	.250 / .244	.093 / .080
#8	1/4″	.250 / .244	.110 / .096
#10	5/16″	.312 / .305	.120 / .105
#12	5/16″	.312 / .305	.155 / .139
1/4″	3/8″	.375 / .367	.190 / .172

SIZE	WRENCH / NUT DRIVER	ACROSS FLATS MAX / MIN	HEAD HEIGHT MAX / MIN
3/8″	9/16″	.562 / .551	.295 / .270

Same hex for plain hex and hex washer heads, slotted or not. The washer diameter isn't on this chart yet.

Oval head (82°) machine screws, Phillips and slotted — ASME B18.6.3 (inches)

SIZE	HEAD DIA A MAX	OVERALL HEAD HEIGHT MAX
#2	.162	.080
#3	—	.092
#4	.212	.104
#5	.237	.116
#6	.262	.128
#8	.312	.152
#10	.362	.176
#12	—	.200
1/4″	.477	.232
3/8″	—	.347
1/2″	—	.354

A countersunk head with a raised dome. Length is measured from the rim, not the top of the dome; overall height includes the dome. Maximum sizes.

Measuring and threads
Thread pitch and tap drill for every size are on the thread pitch chart. How to measure a flush head is on How to Measure a Flat Head; heads that sit on top on How to Measure a Bolt.

Quick answers

What size Phillips bit fits a #10 machine screw?
A **#2** Phillips for a #10 pan or flat head machine screw.

What Phillips driver goes with each pan head machine screw?
#2 – #1, #3 – #1, #4 – #1, #5 – #2, #6 – #2, #8 – #2, #10 – #2, #12 – #3, 1/4″ – #3, 5/16″ – #4, 3/8″ – #4.

How big is the head on a 1/4-20 flat head machine screw?
.477″ across at most and .153″ tall; it fits an 82° countersink.

Is a Phillips pan head taller than a slotted pan head?
Yes — a #10 Phillips pan head is up to .133″ tall, a slotted one .110″.

How do you measure a flat head machine screw?
Overall — from the top of the head to the tip, because the head sinks flush. Pan and round heads are measured from under the head.

How do you measure an oval head machine screw?
From the rim — the widest edge of the head, where the dome meets the cone — to the tip. The dome isn't counted.

Reference values drawn from the governing standards. For critical applications, confirm against the standard and the manufacturer's published data. Technical information disclaimer →