Shoulder Screw Information

Also called stripper bolts or shoulder bolts, shoulder screws are used frequently in pulleys and linkages. They also function as precision spacers or guide screws.

SHOULDER SCREW TYPES

Both types of shoulder screws are reusable and come in ISO metric and USS measurements.

Precision (Smooth Head)

Manufactured with more-exacting tolerances. Hex socket drive allows high-torque wrenching. Slotted drive permits deeper access in hard-toreach places where a hex key can't reach. Phillips drive provides excellent torque control.

Standard (Knurled Head)

Dimensions meet ASME standards for inch sizes and ISO standards for metric sizes. Shoulder dia. tolerances: -0.002" to -0.004". Suitable for use in machinery and other critical mechanical applications. Screws feature a hex socket drive.

SPECIAL VARIATIONS

Hex Head

Allows easy tightening with an adjustable wrench.

Self-Locking

A nylon patch on screw threads bonds with the material being fastened to hold the screw firmly in place and prevent loosening from vibration. Not

	SHOULDER SCREW DIMENSIONS												
Standard													
Shoulder Dia.	⅓ in	5∕32 in	3∕16 in	7∕32 in	1/4 in	5∕16 in	3⁄8 in	1/2 in	5∕8 in	3∕4 in	1 in	1 ¼ in	1 ½ in
Thread Size	#4	#6	#8	#8	#10	1/4-20	5/16 -18	3/8-16	1/2-13	5/8-11	3/4-10	7/8-9	1 1/8-7
Drive Size	5∕64 in	3∕32 in	3∕32 in	³∕32 in	1/8 in	5∕32 in	3∕16 in	1/4 in	5∕16 in	3/8 in	½ in	5⁄8 in	7∕8 in
Thread Length Head Dia.	5∕32 in	3∕16 in	3∕16 in	3∕16 in	1/4 in	7∕16 in	½ in	5⁄8 in	3/4 in	7⁄8 in	1 in	1 1/8 in	1 ½ in
	1/4 in	9∕32 in	5∕16 in	5∕16 in	3⁄8 in	7∕16 in	9⁄16 in	3∕4 in	7∕8 in	1 in	1 5/16 in	1 3/4 in	2 1/8 in
Head Height	1/8 in	1/8 in	5∕32 in	5∕32 in	3∕16 in	7∕32 in	1/4 in	5∕16 in	3/8 in	½ in	5⁄8 in	3/4 in	1 in
Metric													
Shoulder Dia.	3mm	4mm	5mm	6mm	8mm	10mm	12mm	16mm	20mm	24mm			
Thread Size	M2 x .40	M3 x .50	M4 x .70	M5 x .80	M6 x 1	M8 x 1.25	M10 x 1.5	M12 x 1.75	M16 x 2	M20 x 2.5			
Drive Size	2mm	2mm	2.5mm	3mm	4mm	5mm	6mm	8mm	10mm	12mm			
Thread Length	3.8mm	5mm	7mm	9.5mm	11mm	13mm	16mm	18mm	22mm	27mm			
Head Dia.	5mm	6mm	9mm	10mm	13mm	16mm	18mm	24mm	30mm	36mm			
Head Height	2mm	3mm	4mm	4.5mm	5.5mm	7mm	9mm	11mm	14mm	16mm			

Shoulder	Item	Pkg.	Shoulder	Item	Pkg.	Shoulder	Item	Pkg.	Shoulder	Item	Pkg.	Shoulder	Item	Pkg.	Shoulder	Item	Pkg.
Length	No.	Qty.	Length	No.	Qty.	Length	No.	Qty.	Length	No.	Qty.	Length	No.	Qty.	Length	No.	Qty.
1/4 in Sho			3/4 in	31KG30			31KG88	5	5½ in	1CB96	_1_		31KG99		12 mm S		,
#10-24			7⁄8 in	1CB16	10	2¾ in	1CB44	5	6 in	1CB98	_1_		31KH01		M10-1.5		
	1CA69	25	1 in	31KG31			31KG89	5	3/4 in Sho				31KH02		16 mm	6EU57	5
3/8 in	4XY17	25	11/4 in	31KG32		31/4 in	1CB46	5	5/8"-11 Th				31KH03		20 mm	6EU58	5
½ in	4XY18	25	1½ in	31KG33		3½ in	1CB48	5	1/2 in	1CE10	_1_		31KH04	_1_	25 mm	6EU59	5
5⁄8 in	1CA71	25	13/4 in	31KG34		3¾ in	1CB50	5	3/4 in	1CE12	_1_	6 mm Sh			30 mm	6EU60	5
3/4 in	4XY19	25	2 in	31KG35		4 in	1CB52	5	1 in	1CE14	1	M5-0.81			40 mm	6EU62	5
7⁄8 in	1CA73	10	21/4 in	1CB18	5	41/4 in	1CB54	5	11/4 in	1CE16	_1_	10 mm		5	50 mm	6EU64	5
1½ in	31KG26	10	2½ in	31KG36		4½ in	1CB56	5	1½ in	1CE18	_1_	12 mm	6EU13	5	60 mm	6EU66	5
13/4 in	1CA75	10	23/4 in	1CB20	5	43/4 in	1CB58	5	13/4 in	1CE20	1	16 mm	6EU15	5	70 mm	6EU67	5
2 in	1CA77	10	3 in	1CB22	5	5 in	1CB60	5	2 in	1CE22	_1_	20 mm	6EU17	5	16 mm S		
21/4 in	1CA79	10	31/4 in	1CB24	5	5½ in	1CB62	1	21/4 in	1CE24	_1_		6EU28	5	M12-1.7		
2½ in	1CA81	10	3½ in	1CB26	5	6 in	1CB64	1	2½ in	1CE26	1	8 mm Sh			30 mm	6EU72	5
3 in	1CA83	10	3¾ in	1CB28	5	5% in Sho			23/4 in	1CE28	1	M6-1 Th			35 mm	6EU73	5
5/16 in Sh			4 in	1CB30	5	½"-13 T		_	3 in	1CE30	_1_	12 mm	6EU30	5	50 mm	6EU75	5
1/4"-20 T			4½ in	1CB32	5		31KG90	5	31/4 in	1CE32	1	16 mm	6EU31	5	70 mm		
1/4 in	1CA85	10	5 in	1CB34	5	1½ in	1CB66	_1_	3½ in	1CE34	1	20 mm	6EU32	5	80 mm		
½ in	4XY24	10	6 in	1CB36	5	13/4 in	1CB68	_1_	3¾ in	1CE36		25 mm	6EU33	5	20 mm S		,
7/8 in	1CA89	10	½ in Sh			2 in	1CB70	1	4 in	1CE38	1	30 mm	6EU34	5	M16-2 T		
1½ in	1CA90	5	3/8"-16 T			21/4 in	1CB72	1_		5MXV9	1	40 mm	6EU36	5	80 mm		
13/4 in	1CA92	5	3/8 in	1CB38	5	2½ in	1CB74	1		5MXW0	1		6EU39	5	100 mm		
2 in	1CA94	5	1/2 in	4XY37	5	2¾ in	1CB76	-		5MXW1	-	10 mm S		,	24 mm S		,
21/4 in	1CA96	5	5⁄8 in	1CB40	5	3 in	1CB78	1_		5MXW2	1	M8-1.25			M20-2.5		
2½ in	1CA98	5	3/4 in	31KG38		31/4 in	1CB80	1		5MXW3	1	16 mm		5	50 mm		
3 in	1CB10	5	7⁄8 in	1CB42	5	3½ in	1CB82	-		5MXW4		20 mm	6EU44	5	90 mm	31KG24	- 2
3/8 in Sh			1 in	31KG41	5	3¾ in	1CB84	_	1 in Shou			25 mm	6EU45	5			
5/16" -18]			11/4 in	31KG42		4 in	1CB86	1	3/4"-10 TI			30 mm	6EU46	5			
1/4 in	1CB12	10	1½ in	31KG43		41/4 in	1CB88	1		31KG94		40 mm	6EU48	5			
3/8 in	31KG27	10	13/4 in	31KG44		4½ in	1CB90	1		31KG95	1	50 mm	6EU50	5			
½ in	31KG28	10	2 in	31KG86		43/4 in	1CB92	1		31KG97	1	60 mm	6EU52	5			
5⁄8 in	31KG29	10	21/4 in	31KG87	5	5 in	1CB94		2½ in	31KG98		80 mm	6EU54	5			

Alloy Steel **Shoulder Screws**

- Hex socket drive
- Knurled head
- Thread class: 3A standard, 5g6g metric
- Tensile strength: 140,000 psi standard, 159,500 psi metric
- Shear strength (metric): 95,700 psi
- Shoulder length tolerance: ±0.005" standard, +0.25mm metric

Metric sizes meet ISO 7379.

Notes: Additional dimensional information, self-locking screws with nylon patch,

Metric are 12.9 alloy steel; due to undercut between shoulder and thread, be sure to lower the tightening torque normally used for Class 12.9 screws.

and additional sizes are available on Grainger.com.

Shoulder		Pkg.
Length	No.	Qty.
1/8 in Sho		
#4-40 Th		
	25L345	
	2DMY3	
	25L349	
15/32 in	25L351	1
½ in	2DMY8	4
	25L353	
1 in	25L354	
	25L356	
5/32 in Sho		
#6-32 Th		
	25L357	
	2DMZ2	4
	2DMZ3	4
	25L361	_1_
	25L362	
	25L365	
3/16 in Sho		Dia.,
#8-32 Th		
	25L366	
	2DMZ8	
	2DMZ9	
%2 in	25L368	
3/8 in	2DNA2	4
13/32 in	25L370	1
5/8 in	2DNA4	2
3/4 in	2DNA5	2
1 in	2DNA6	2
11/4 in	2DNA7	2 2 2 2
1% in	25L375	1

21/4 in	31KG87	5	5
/32 in Sh	No. Dulder D	Qty.	Sho Le
#8-32 Th	read Siz	ze	1/4"
7∕32 in	25L382	1	5/1 3/8 1/2 5/8 3/2 1 1 1 1
1/4 in	25L383	1	5/1
11/32 in	25L386	1	3/8
3/8 in	25L387	1	1/2
13/32 in	25L388	_1_	- 5/8
15/32 IN	25L390	1	3/2
½ in	25L391	1	1
2 in	25L403		_13
1/32 IN 1/4 in 11/32 in 3/8 in 13/32 in 15/32 in 15/32 in 1/2 in 2 in	ulaer Vi	ıa.,	11
#1U-Z4 I	mreau 5	IZE	
1/8 in	25L404 2DNA9	1	- 21
½ in	2DNA9	4	27
9/32 IN	25L408	1	27
1/4 in 9/32 in 5/16 in 3/8 in	25L409 2DNC1 25L412	1	2½ 2½ 3 3½ 4
% IN	2DNC1	4	- 35
1/16 III	20L412	1	3/8 i
19/32 III	201413	1	
78 III 76 in 15/32 in 1/2 in 5/8 in	25L413 2DNC2 2DNC3 2DNC4	4	716
3/4 in	2DNC3	4	3/
94 III	2DNC5	-4	1/2
11/6 in	25L414	2	- 5/
1 in 11/8 in 11/4 in 13/8 in 15/8 in	2DNC6	2	5/16' 1/2 3/8 1/2 5/8 3/2 1 1 11/1
13% in	25L415	1	1
15/s in	25L416	1 1	11
2 in	2DNC9	2	11
01/:	2DI403		12

Item No.	Pkg. Qty.	Shoulder Length	Item No.	Pkg. Qty.	Shoulder Lenath	Item No.	Pkg. Qty.
ulder [Dia.,	5/16 in Sh	oulder [Dia.,	4 in	25L445	1
read Siz		1/4"-20 TI	hread Si	ze	6½ in	25L450	1
25L382	1	1/4 in	2DND1	4	1/2 in Sho	ulder D	ia.,
25L383	1	5/16 in	25L425	1	3/8"-16 TI	read Si	ze
25L386	1	3/8 in	2DND2	4	3/8 in	2DNF2	2
25L387	1	1/2 in	2DND3		½ in	2DNF3	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
25L388		5/8 in	2DND4		5% in	2DNF4	2
25L390		3/4 in	2DND5		3/4 in	2DNF5	2
25L391		1 in	2DND6		1 in	2DNF6	2
25L403	1	11/4 in	2DND7	2	11/4 in	2DNF7	2
ulder D	ia.,	1½ in	2DND8	2	1½ in	2DNF8	2
hread S	ize		25L427		13/4 in	2DNF9	2
25L404	- 1	2 in	2DND9	2	2 in	2DNG1	2
2DNA9	4	21/4 in	25L428		21/4 in	2DNG2	2
25L408		21/2 in	25L429		2½ in	2DNG3	2
25L409	1	3 in	25L431	1	3 in	2DNG4	
2DNC1	4	3½ in	25L432		31/4 in	25L455	
25L412		4 in	25L433		3½ in	25L456	
25L413		% in Sho			5/8 in Sho		
2DNC2	4	5/16"-18 T			½"-13 Ti		
2DNC3	4	1/4 in	2DNE1	2	½ in	2DNG5	2
2DNC4	4	3/8 in	2DNE2	2 2 2 2 2 2 2 2 2 2 2 2 2	5% in	25L469	
2DNC5	2	½ in	2DNE3	2	3/4 in	2DNG6	2
25L414		5/8 in	2DNE4	2	1 in	2DNG7	2
2DNC6	2	3/4 in	2DNE5	2	11/4 in	2DNG8	2
25L415		1 in	2DNE6	2	13/4 in	25L470	
25L416	1	11/4 in	2DNE7	2	2 in	25L471	1
2DNC9		1½ in	2DNE8	2	21/4 in	25L472	
25L417		1¾ in	2DNE9	2	2½ in	25L473	
25L420		2 in	2DNF1		2¾ in	25L474	
25L423	1	21/2 in	25L439		3 in	25L475	
		2¾ in	25L440		4 in	25L479	
		3 in	25L441		41/4 in	25L480	-1
		3¾ in	25L444	- 1			

	Shoulder	Item	Pkg.	Shoulder	Item	Pkg.
	Length	No.	Qty.	Length		Qty.
	3/4 in Sho			20 mm	25L641	1
	5/8"-11 TI	hread S	ize	25 mm	25L642	
ı	1½ in	25L495	5 1	30 mm	25L643	
	2½ in	25L499		50 mm		
	1 in Sho	ulder Di	a.,	10 mm S		
	3/4"-10 TI	hread S	ize	M8-1.25		Size
	11/4 in	25L518	3 1	16 mm	25L646	1
	3 mm Sh	oulder	Dia	20 mm	25L647	-1
	M2-0.4			25 mm		1
	6 mm	25L617	7 1	50 mm		1
	10 mm	25L619	1	60 mm		-1
	4 mm Sh			70 mm	25L653	1
	M3-0.5			12 mm S		
	5 mm	25L621		M10-1.5		Size
		25L622		16 mm	25L654	1
		25L623		20 mm	25L655	1
	10 mm			30 mm	25L657	1
	5 mm Sh			40 mm	25L658	- 1
	M4-0.7			50 mm	25L659	1
	10 mm			70 mm		1
	12 mm		i 1	16 mm S		
	30 mm			Dia., M1	2-1.75	
	6 mm Sh			Thread S	Size	
	M5-0.8			30 mm	25L662	1
	10 mm	25L631		40 mm	25L663	1
		25L632		50 mm	25L664	1
	16 mm	25L633		60 mm	25L665	1
_	20 mm	25L634		20 mm S	houlder	Dia.,
	30 mm	25L636		M16-2 T	hread Si	ze
	8 mm Sh			50 mm	25L670	1
	M6-1 Th			60 mm	25L671	1
	12 mm	25L639				
	16 mm	25L640				

٠,	20 mm 25L641 1	
	25 mm 25L642 1 30 mm 25L643 1	
1	30 mm 25L643 1	
1	50 mm 25L645 1	
,	10 mm Shoulder Dia.,	
•	M8-1.25 Thread Size	
1	16 mm 25L646 1	
ı.,	20 mm 25L647 1	
e	25 mm 25L648 1	
1	50 mm 25L651 1	
1	60 mm 25L652 1	
ı.,	70 mm 25L653 1	
e	12 mm Shoulder Dia.,	١
1	M10-1.5 Thread Size	
1	16 mm 25L654 1	
1	20 mm 25L655 1	
1	30 mm 25L657 1	
ı.,	40 mm 25L658 1	
e	50 mm 25L659 1	
1	70 mm 25L661 1	
1	16 mm Shoulder	
1	Dia., M12-1.75	
ı.,	Thread Size	
е	30 mm 25L662 1	
1	40 mm 25L663 1	
1	50 mm 25L664 1	
1	60 mm 25L665 1	
1	20 mm Shoulder Dia.,	
1	M16-2 Thread Size	
ı.,	50 mm 25L670 1	
	60 mm 25L671 1	
1		

316 Stainless Steel **Shoulder Screws**

Hex socket drive Standard—Tensile strength: 70,000 psi Metric-

Tensile strength: 90,000 psi

Note: Additional dimensional information and additional sizes are available on Grainger.com.

