STANDARD PROGRAM AND REFERENCE GUIDE

SHEAR SCREW

One precision-engineered component at a time

CONTENTS

SLIGHT FLAT
PERMISSIBLE

OVAL POINT

T	Cup and int	Max.
Min.		
016		.040
916	.053	.049
19	.039	.057
22	.054 .045	.066
25	.061 .051	.075
6	.067 .057	.083

ABOUT US:

****Welcome to Shearscrew.com – Your Premier Source for Precision Shear Components****

At Shearscrew.com, we take pride in being at the forefront of manufacturing excellence, specializing in meticulously designed shear components. While our roots lie in serving the dynamic needs of the oil and gas industry, our innovative solutions find application across various sectors.

****Crafting Excellence:****

Our commitment to quality knows no bounds. Whether you seek standardized precision or bespoke solutions tailored to your unique requirements, Shearscrew.com is your go-to partner for shear fasteners. We possess the expertise to manufacture components that seamlessly align with shear force specifications, offering unparalleled reliability in every application.

****Cutting-Edge Capabilities:****

Imagine shear components tested to withstand forces up to 50,000 lbs. Our state-of-the-art manufacturing facility ensures that each product, be it for single or double shear compression, meets the highest standards of durability and performance.

****Stocked for Your Convenience:****

Explore our ever-expanding standard product line, meticulously stocked in our warehouse located in the heart of the Alberta Oilfield in Leduc, Alberta. Your satisfaction is our priority, and having readily available products reflects our commitment to prompt service.

info@shearscrew.com

Global Reach, Same-Day Dispatch:
Shearscrew.com transcends borders. Experience the convenience of same-day shipping for all stocked products, delivered worldwide through our trusted courier partners. Should you have a preferred forwarder, we are more than happy to accommodate.

Your Trusted Partner:
Beyond being a manufacturer, Shearscrew.com is your partner in success. We are dedicated to providing not just components, but solutions that elevate your projects and operations.

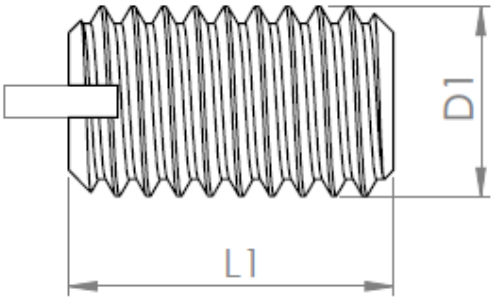
Inhouse Manufacturing:
Swift responsiveness is our strength. Our in-house CNC manufacturing, we adapt quickly, making modifications to standard programs to meet your evolving needs with efficiency and precision

SHEAR SCREW

info@shearscrew.com

II. SHEARSCREWS

2.1 Shearscrews without a dog - General Information



Threads are Unified Standard Class 2A and are available in UNF and UNC Series.

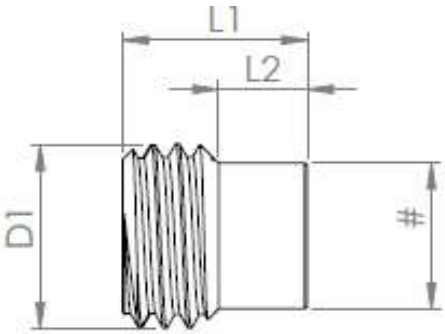
Thread Chart with Shear strength for Free Machining Brass C36600ified Standard Class 2A and are available in UNF and UNC Series.

Thread size	Pitch		Shear value
#10 (.190)	24	0.0175	700
	32	0.0200	750
1/4	20	0.0318	1,200
	28	0.0364	1,400
5/16	18	0.0175	2,000
	24	0.0200	2,200
3/8	16	0.0318	3,000
	24	0.0364	3,400
7/16	14	0.0175	4,100
	20	0.0200	4.300
1/2	13	0.0318	5,500
	20	0.0364	6,200

#	Thread size d1	Lengh l	Material	SKU
#700	#10-24 UNC	.375	Free Machining Brass C3600	1016
#700	#10-24 UNC	.500	Free Machining Brass C3600	1017
#750	#10-32 UNF	.375	Free Machining Brass C3600	1018
#750	#10-32 UNF	.500	Free Machining Brass C3600	1019
#1200	1/4-20 UNC	.3125	Free Machining Brass C3600	1014
#1200	1/4-20 UNC	.375	Free Machining Brass C3600	1015
#1200	1/4-20 UNC	.500	Free Machining Brass C3600	1020
#1400	1/4-28 UNF	.375	Free Machining Brass C3600	1021
#1400	1/4-28 UNF	.500	Free Machining Brass C3600	1022

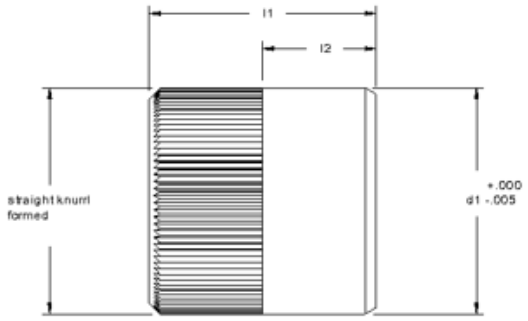
#	Thread size d1	Lengh l	Material	SKU
#2000	5/16-18 UNC	.375	Free Machining Brass C3600	1004
#2000	5/16-18 UNC	.500	Free Machining Brass C3600	1005
#2000	5/16-18 UNC	.625	Free Machining Brass C3600	1023
#2200	5/16-24 UNF	.500	Free Machining Brass C3600	1024
#2200	5/16-24 UNF	.625	Free Machining Brass C3600	1025
#3000	3/8 -16 UNC	.375	Free Machining Brass C3600	1026
#3000	3/8 -16 UNC	.500	Free Machining Brass C3600	1006
#3000	3/8 -16 UNC	.750	Free Machining Brass C3600	1007
#4100	7/16-14 UNC	.500	Free Machining Brass C3600	1008
#4100	7/16-14 UNC	.750	Free Machining Brass C3600	1009

#	Thread size d1	Lengh l	Material	SKU
#4300	7/16-20 UNF	.500	Free Machining Brass C3600	1027
#4300	7/16-20 UNF	.750	Free Machining Brass C3600	1028
#4300	7/16-20 UNF	1.000	Free Machining Brass C3600	1029
#5500	1/2-13 UNC	.500	Free Machining Brass C3600	1011
#5500	1/2-13 UNC	.750	Free Machining Brass C3600	1010
#6200	1/2-20 UNF	.500	Free Machining Brass C3600	1030
#6200	1/2-20 UNF	.750	Free Machining Brass C3600	1031
#7100	9/16-12 UNC	.625	Free Machining Brass C3600	1032
#7100	9/16-12 UNC	1.000	Free Machining Brass C3600	1033
#8800	5/8-11 UNC	.625	Free Machining Brass C3600	1034
#8800	5/8-11 UNC	1.000	Free Machining Brass C3600	1035



Shearstrengh in # in lbs	Dog Diameter with C36000	Dog Diameter with C46400	Shearstrengh in # in lbs	Dog Diameter with C36000	Dog Diameter with C46400
#1000	0.181	0.176	**#4500**	0.383	0.374
#1500	0.221	0.216	**#5000**	0.404	0.394
#2000	0.256	0.249	**#5500**	0.424	0.414
#2500	0.286	0.279	**#6000**	0.443	0.432
#3000	0.313	0.305	**#6500**	0.461	0.450
#3500	0.338	0.330	**#7000**	0.478	0.467
#4000	0.361	0.353	**#7500**	0.495	0.483

#	Threadsize d2	L1	L2	Material	SKU
#1000	5/16-24 UNF	0.3125	0.125	Free Machining Brass C3600	1036
#2000	5/16-24 UNF	0.3125	0.125	Free Machining Brass C3600	1001
#4000	1/2-13 UNC	.5	.245	Free Machining Brass C3600	1012



The knurled half locks pins in position, while the smooth half acts as a shear pin. The knurled half will be oversize on the Major Diameter and the opposite half will be machine to a negative tolerance only. The ends are chamfered for easy insertion. Pins are made of Free Machining brass to avoid any damage on the Shear Body. Breaking strength is measured as a single shear, which is the force required to break a pin into two pieces.

D1	L1	L2	Material	#	SKU
0.250	0.500	0.250	Free Machining Brass C3600	#1,900	1037
0.375	0.500	0.250	Free Machining Brass C3600	#4300	1038
0.500	0.625	0.313	Free Machining Brass C3600	#7,700	1039
0.625	0.750	0.375	Free Machining Brass C3600	#12,000	1040

III. MATERIALS

3.1 UNS C46400 / C464000 Naval Brass Half hard

This grade of brass was developed with lead additive and surface hardness to promote superior machinability compared to other red metal products.

Chemical Properties:
Cu 58-62%
Sn 0.50-1.00%
Pb 0.2%
Fe 0-0,010%
Zn remainder

Mechanical Properties: (for round bars up to 1,000 Diameter)
Tensile Strength (psi) Min 60,000
Yield Strength (psi) Min. 27,000
Elongation: Min. 25% (Diameter range 0.500 – 1.000) and Min. 22% for (Diameter range up to 0.500)

Machinability rating of 30% based on Alloy 360 being 100%

3.2 UNS C36000 / C36000 Half hard Brass

This alloy is intended for applications required extensive machining.

Chemical Properties:
Cu 60-63%
Pb 2,5-3,0%
Fe 0-0,35%
Zn remainder

Mechanical Properties:
Tensile Strength (psi) 45,000 – 50,000
Yield Strength (psi) 15,000 – 25,0000
Elongation: 10-25%
Brinell Hardness: 55-80

Machinability rating of this grade is 100% based on 1212

3.3 7075 Military Grade Aluminium T6, T651

This is one of the highest strength aluminium alloys available. Its strength to weight ratio is excellent and it is ideally use for highly stressed parts.

Chemical Properties:
Cu 1.2-2.0%
Si (max) 0.4%
Fe (max) 0.50%
Mn (max) 0.30%
Mg 2.10-2.90%
Zn 5.10-6.10%
Cr 0.18-0.28%
Ti (max) 0.20%

Mechanical Properties:
Tensile Strength (psi) Min. 83,000
Yield Strength (psi) Min. 73,000
Elongation: Min 11%
Brinell Hardness: Min. 150

6061 is rated between 70-80% of 2011 in the T6 condition.

3.4 6061: Aircraft Aluminium T6, T651

This is the most versatile of the heat treatable aluminium alloys. It has most of the good qualities of aluminium and offers a wide range of mechanical properties and corrosion resistance.

Chemical Properties:
Cu 0.15-0.40%
Si 0.40-0.80%
Fe (max) 0.70%
Mn (max) 0.15%
Mg 0.80-1.20%
Zn (max) 0.25%
Cr 0.04-0.35%
Ti (max) 0.15%

Mechanical Properties:
Tensile Strength (psi) Min. 45,000
Yield Strength (psi) Min. 40,000
Elongation: Min 17%
Rockwell B Hardness: Min. 95

6061 is rated between 70-80% of 2011 in the T6 condition

III. TECHNICAL INFORMATION

4.1 Dimensions of Slots for shearscrews

Nominal Screw Diameter	Slot Width		Slot depth	
	Max	Min	Max	Min
#10 (.190)	0.035	0.029	0.053	0.043
¼	0.049	0.042	0.068	0.058
5/16	0.055	0.047	0.083	0.073
3/8	0.068	0.060	0.099	0.089
7/16	0.076	0.068	0.114	0.104
1/2	0.086	0.076	0.130	0.120
9/16	0.096	0.086	0.146	0.136
5/8	0.107	0.097	0.161	0.151

4.2 Calculation of the shear strengh

The shear strength τ is based on the material used as a shear element.

$$\tau = \frac{F}{\pi r^2} \quad or \quad \tau = \frac{4F}{\pi d^2}$$

Estimated numbers to calculate shear strengh

$$\tau(for\ low\ tensile\ steel) \cong 0.6 * R_m$$

$$\tau(for\ high\ strengh\ steel) \cong 0.9 * R_m$$

$$\tau(for\ brass) \cong 0.55 - 0.65 * R_m$$

4.3 Calculation of Tensile Stress Area in Unifed Threads

The tensile stress area for Unified threads is based on a diameter equivalent to the mean of the pitch and minors diameter. The pitch and the minor diameter for Unified screw thread can be found from the major (nominal) diameter, d, and the screw pitch, P =1/n, where n is the number of threads per inch by use of the following formulas:

The pitch diameter: $d_p = d - 0.649519 * P$

The minor diameter $d_m = d - 1.299038 * P$

The Tensile Stress Area $A_s = \frac{\pi}{4}(\frac{d_m + d_p}{2})^2$

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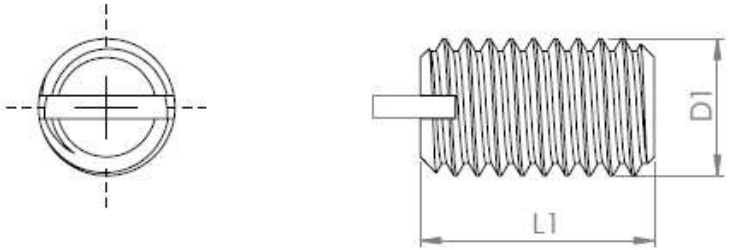


Quantiy _____ Delivery Date:_____

Dimenisons

L1 (OAL) _____

D1 (Thread) _____ Pitch _____ 0 LH / 0 RH

Class _____ (Standard 2A for imperial and 6h for metric)

Material

- 0 Naval Brass C46400
- 0 Free Machining Brass C36000
- 0 Stainless Steel AISI 304
- 0 Free Machining Steel 12L14

0 _____

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± 1 TWO PLACE DECIMAL ± 0.01 THREE PLACE DECIMAL ± 0.005	DRAWN	MS	01/17/2024
			CHECKED		
			ENG APPR.		
			MFG APPR.		
			Q.A.		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

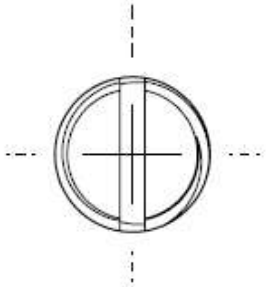
TITLE: *Custom Shearscrew Template*

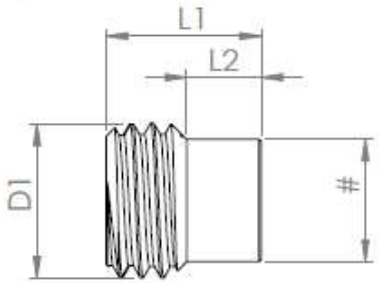
shearscrew without dog

SIZE	DWG. NO.	REV
A		0

SCALE: 2:1 | WEIGHT: | SHEET 1 OF 1

SHEAR SCREW





email to
info@shearscrew.com

Quantiy _____ Delivery Date:_____

Dimenisons

L1 (OAL) _____ L2 _____

D1 (Thread) _____ Pitch _____ 0 LH / 0 RH

_____ lbs.

Class _____ (Standard 2A for imperial and 6h for metric)

Material

- 0 Naval Brass C46400
- 0 Free Machining Brass C36000
- 0 Stainless Steel AISI 304
- 0 Free Machining Steel 12L14

0 _____

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± 1 TWO PLACE DECIMAL ± 0.01 THREE PLACE DECIMAL ± 0.005	DRAWN	MS	01/17/2024
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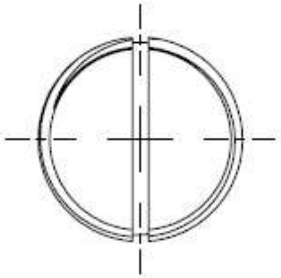
			MFG APPR.		
			Q.A.		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

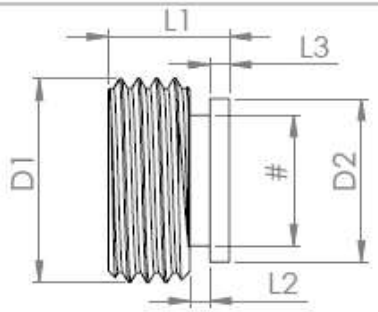
SHEAR SCREW

TITLE:
Custom Shearscrew Template
shearscrew with dog

SIZE	DWG. NO.	REV
A		0

SCALE: 5:1 | WEIGHT: | SHEET 1 OF 1





Quantiy _____ Delivery Date:_____

Dimenisons

L1 (OAL) _____ L2 _____ L3 _____

D1 (Thread) _____ Pitch _____ 0 LH / 0 RH

_____ lbs. D2 _____

Class _____ (Standard 2A for imperial and 6h for metric)

Material

0 Naval Brass C46400
0 Free Machining Brass C36000
0 Stainless Steel AISI 304
0 Free Machining Steel 12L14

0 _____

UNLESS OTHERWISE SPECIFIED:		NAME	DATE		
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± 1 TWO PLACE DECIMAL ± 0.01 THREE PLACE DECIMAL ± 0.005	DRAWN	MS	01/17/2024	TITLE: *Custom Shearscrew Template shearscrew recessed diameter*	
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	ENG APPR.				
	MFG APPR.				
	Q.A.				
INTERPRET GEOMETRIC TOLERANCING PER:					
MATERIAL					
FINISH				SIZE: A	DWG. NO.	REV: 0
NEXT ASSY / USED ON					
APPLICATION	DO NOT SCALE DRAWING			SCALE: 2:1	WEIGHT:	SHEET 1 OF 1

SHEAR SCREW

FREQUENTLY ASKED QUESTIONS

I do not see the size I am looking for?
We can manufacturer any special size. Please send us your drawing and we will return with price and delivery in 1 to 3 days.

Do you ship international?
Yes, Shearscrew.com can ship your pre-paid order through the provider of your choice, including DHL, FedEx and UPS. We also alloy you to use your account to pay for shipping charges. Managing various tariff and other charges for duty for each country is not possible and are the responsibility of the buyer.

What Documentation comes with the shipment?
All shipments will be accompanied with a Material Test Report and rated products will come a shear test report.

Can you provide us with a drawing and a 3D CAD file?
Yes, we can provide on request a step file and a drawing as pdf for your engineering department.

Where are the components in this catalogue produced?
The components are produced in various location as approved and audited supplier. Country of origin are Taiwan (R.o.C), China, Canada and the European Union.

Disclaimer of liability

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