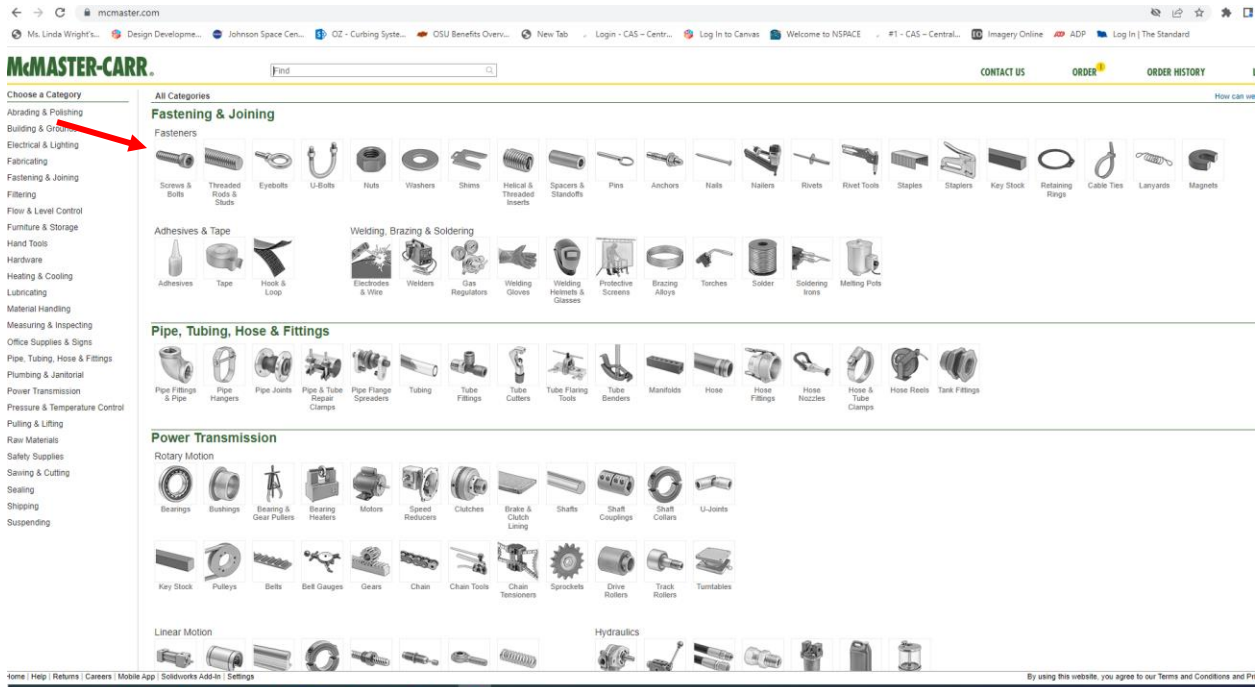


Glenn Johnson—CAD tips

I like showing teachers and students how to use the McMaster-Carr website because of the quantity of different parts the students can find. After the students have learned how to make nuts, bolts and screws I like showing them how they can download the step files (STP) of most Commercial Off The Shelf (COTS) parts from their website. These files can save the students from spending lots of time on drawing complicated generic parts so they can spend more time on their unique components. This is how professional engineers use industry resources to save time in designing. There are many other suppliers that may have equally good resources but I like how easy it is to search for parts and the variety available and they deliver pretty quick on an order. Below is a simple search for shoulder crew and the information available.



System of Measurement
Inch
Metric

Thread Size
0000-160
000-120
00-90
00-96
0-80
1-64
1-72
2-56

Length
0.030"
0.04"
0.051"
0.059"
0.06"
1/8"
5/64"
0.079"

Head Type
Socket
Rounded
Hex
Flat
Headless
Thumb

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76,123 Products
Fasteners

Socket Head Screws

Tapping, Wood, and Drywall Screws

Carnage Bolts

Square Head Screws

Hanger Bolts

Threaded Standoffs

Anchors

Rounded Head Screws

Shoulder Screws

Binding Barrels and Screws

Elevator Bolts

Pentagon Head Screws

Fastener Assortments

Captive Pins

Hex Head Screws

Set Screws

12-Point Screws

T-Bolts

Hold-Down Bolts

Thread Adapters

Nails

Flat Head Screws

Thumb Screws

Captive Panel Screws

Flaw Bolts

Threaded Rods and Studs

Spring Plungers

Hex-Drive Rivets

Enginers | Threaded Rods & Studs

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System of Measurement
Inch
Metric

Shoulder Diameter
0.062"
3/32"
1/8"
9/32"
3/16"
7/32"
1/4"
5/16"

Shoulder Length
1/32"
1/16"
3/32"
1/8"
9/32"
3/16"
7/32"
1/4"

Thread Size
0-80
1-64
2-56
3-48
4-40
5-40
6-32
8-32

Material
Steel
Aluminum

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6,596 Products
Shoulder Screws

About Shoulder Screws

General Purpose Shoulder Screws

Alloy Steel Shoulder Screws
Comparable in strength to Grade 8 steel. These screws have inch thread sizes.

Short-Thread Alloy Steel Shoulder Screws
Use these screws in thin materials; they have a shorter threaded portion than our standard shoulder screws. They're comparable in strength to Grade 8 steel.

Same-Size Thread 18-8 Stainless Steel Shoulder Screws
With inch-sized threads the same diameter as the shoulder, these screws can handle heavy loads. They're 18-8 stainless steel for good chemical resistance.

Nylon Shoulder Screws
These shoulder screws are chemical resistant, nonconductive, and lightweight.

Metric Slotted Low-Profile Steel Shoulder Screws
With a reduced head size and an unthreaded shoulder, use these screws as a shaft or dowel pin for small rotating parts in low-clearance applications.

Metric Steel Hex Head Shoulder Screws
Also known as wheel and axle bolts, these metric screws have an unthreaded shoulder that acts as a shaft, so material attached to the threaded end can rotate.

Metric Alloy Steel Thread-Locking Shoulder Screws
Available in metric sizes, these screws have a locking element on the threads that adds friction to resist loosening. Comparable to Grade 8 steel, they are the strongest screws we offer.

Internally Threaded Shoulder Screws
Screw these shoulders onto a stud.

Metric Alloy Steel Shoulder Screws
Comparable to Class 12.9 steel.

Alloy Steel Shoulder Screws with Material Certification
These shoulder screws come with a traceable lot number and material test report. Similar in strength to Grade 8 steel.

316 Stainless Steel Shoulder Screws
More corrosion resistant than 18-8 stainless steel shoulder screws, these have excellent resistance to chemicals and salt water. These screws have inch thread sizes.

Aluminum Shoulder Screws
One-third the weight of steel, aluminum shoulder screws are lightweight and have good corrosion resistance.

Low-Profile Shoulder Screws
The head height of these screws is about two-thirds the head height of a standard shoulder screw. Use them in low-clearance applications such as inside machines.

Steel Hex Head Shoulder Screws
A zinc plating provides mild corrosion resistance.

18-8 Stainless Steel Thread-Locking Shoulder Screws
These shoulder screws have good chemical resistance.

Left-Hand Threaded Shoulder Screws
Tighten these shoulder screws by turning them to the left. Once fastened, they resist loosening.

Same-Size Thread Alloy Steel Shoulder Screws
With threads the same diameter as the shoulder, these inch-sized screws can handle heavy loads. They're comparable to Grade 8 steel.

18-8 Stainless Steel Shoulder Screws
Made from 18-8 stainless steel, these inch-sized shoulder screws have good chemical resistance.

Metric 316 Stainless Steel Shoulder Screws
For metric thread sizes with excellent resistance to chemicals and salt water, choose these 316 stainless steel shoulder screws.

Titanium Shoulder Screws
Titanium shoulder screws have a high strength-to-weight ratio and are more resistant to acids and salt water than nickel shoulder screws.

Metric Low-Profile Shoulder Screws
These metric screws have a head height that's about two-thirds the head height of a standard shoulder screw. Use them in low-clearance applications such as inside machines.

Stainless Steel Hex Head Shoulder Screws
Stainless steel shoulder screws have excellent corrosion resistance in most environments.

Super-Corrosion-Resistant 316 Stainless Steel Thread-Locking Shoulder Screws
More corrosion resistant than 18-8 stainless steel shoulder screws, these have excellent resistance to chemicals and salt water.

Shoulder Screws with Hex-Drive Tip
With a hex socket at the tip as well as the head, you can tighten these shoulder screws from the

Metric Same-Size Thread Alloy Steel Shoulder Screws
The metric-sized threads on these screws are the same diameter as the shoulder. Comparable in strength to Class 12.9 steel.

Metric 18-8 Stainless Steel Shoulder Screws
These screws have metric thread sizes. They are 18-8 stainless steel for good chemical resistance.

High-Strength 17-4 PH Stainless Steel Shoulder Screws
Shoulder screws made of 17-4 PH stainless steel are nearly twice as strong as 18-8 stainless steel and have the same corrosion resistance. These screws have inch thread sizes.

Nickel Alloy Shoulder Screws
Nickel alloy shoulder screws are more resistant to acids and salt water than stainless steel shoulder screws.

Ultra-Low-Profile Shoulder Screws
These have a head height about one-third the head height of a standard shoulder screw.

Alloy Steel Thread-Locking Shoulder Screws
A locking element on the threads adds friction to resist loosening. Comparable to Grade 8 steel, these alloy steel shoulder screws are the strongest we offer.

Flat Head Shoulder Screws
These shoulder screws are angled under the head to sit flush in countersunk holes.

Tapping, Wood, and Drywall Screws | Set Screws

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McMASTER-CARR

System of Measurement
Inch

Shoulder Length

1 1/8" 3/2" 1 1/8" 5/32" 3/16" 7/32" 1/4" 9/32"

Shoulder Diameter

3/32" 1/4" 3/4" 1/8" 5/16" 7/8" 5/32" 3/8" 1" 3/16" 1/2" 1 1/4" 7/32" 5/8" 1 1/2"

Thread Size

1-64 2-56 3-48 4-40 5-40 6-32 8-32 10-24

Material
Stainless Steel

Thread Length

316 Stainless Steel Shoulder Screws

More corrosion resistant than 18-8 stainless steel shoulder screws, these have excellent resistance to chemicals and salt water. They may be mildly magnetic. A standard shoulder with an undersize tolerance allows them to fit most machinery and equipment. They're often used to guide or align components, and as an axle or pivot point.

Black-oxide stainless steel screws have a matte-black finish.

CAD For technical drawings and 3-D models, click on a part number.

Shoulder Lg.	Thread Size	Thread Dia.	Head Ht.	Head Dia.	Tensile Strength, psi	Drive Size	Specifications	Met	Each	1-4	5-Up
3/32"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A110	\$6.28	\$5.33	
3/32"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A130	9.04	7.68	
1/8"	1-64	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A133	9.92	8.41	
1/8"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A136	6.70	5.68	
5/32"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A150	9.85	7.49	
3/16"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A152	6.73	5.70	
7/32"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A156	8.90	7.54	
1/4"	1-64	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A158	10.73	9.10	
1/4"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A175	6.88	5.83	
9/32"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A179	8.90	7.54	
5/16"	1-64	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A180	11.65	9.87	
5/16"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A198	6.78	5.75	
3/8"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A199	6.81	5.77	
7/16"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A200	6.86	5.81	
1/2"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A210	6.88	5.83	
5/8"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A214	7.28	6.17	
3/4"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A218	7.72	6.55	
7/8"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A230	8.20	6.94	
1"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A235	8.35	7.08	
1 1/4"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A239	9.66	8.19	
1 1/2"	2-56	1/8"	5/32"	3/32"	70,000	5/64"	ASME B18.3	97345A255	13.09	11.09	
1/8"	3-48	5/32"	1/4"	1/8"	70,000	5/64"	ASME B18.3	97345A266	5.72	4.85	
1/8"	4-40	5/32"	1/4"	1/8"	70,000	5/64"	ASME B18.3	97345A410	3.30	2.80	
5/32"	3-48	5/32"	1/4"	1/8"	70,000	5/64"	ASME B18.3	97345A269	6.33	5.36	

McMASTER-CARR

316 Stainless Steel Shoulder Screw
3/32" Shoulder Diameter, 3/32" Shoulder Length, 2-56 Thread Size



1-4 Each \$9.04
5 or more \$7.96
In stock
97345A130

Added to your order June 10.

CAD 3-D Solidworks Download

New Add-In Version
Streamline your design process with our Solidworks Add-In. Available for Solidworks 2017 or newer. Download Add-In

Specifications:
Shoulder Fit: Standard
Shoulder Diameter: 3/32"
Shoulder Diameter Tolerance: -0.004" to -0.002"
Shoulder Length: 3/32"
Shoulder Length Tolerance: -0.005" to 0.005"
Thread Size: 2-56
Screw Size Decimal: 0.0865"
Equivalent:
Thread Type: UNC
Thread Spacing: Coarse
Thread Fit: Class 3A
Thread Direction: Right Hand
Thread Length: 1/8"
Head Diameter: 5/32"
Head Height: 3/32"
Material: 316 Stainless Steel
Hardness: Rockwell B79
Tensile Strength: 70,000 psi