

## AN Washers, Retainer Washers and Metric Hardware Kits



### AN960 Flat Washers

These steel flat washers have smooth, parallel faces and are available in two thicknesses. Use them as shims to adjust nut position on AN bolts and to protect the surfaces being bolted. Sold in packages of 100. Also see assortment below, right.

Bolt Size	O.D. (inch)	Thk. (inch)	Part No.	Price per 100
#10	.438	.063	<b>AN960-10</b>	<b>\$2.79</b>
#10	.437	.032	<b>AN960-10L</b>	<b>\$1.99</b>
1/4	.500	.063	<b>AN960-416</b>	<b>\$3.29</b>
1/4	.500	.032	<b>AN960-416L</b>	<b>\$2.49</b>
5/16	.562	.063	<b>AN960-516</b>	<b>\$3.99</b>
5/16	.562	.032	<b>AN960-516L</b>	<b>\$2.49</b>
3/8	.625	.063	<b>AN960-616</b>	<b>\$5.79</b>
3/8	.625	.032	<b>AN960-616L</b>	<b>\$2.99</b>
7/16	.750	.063	<b>AN960-716</b>	<b>\$6.49</b>
7/16	.750	.032	<b>AN960-716L</b>	<b>\$5.99</b>
1/2	.875	.063	<b>AN960-816</b>	<b>\$7.29</b>
1/2	.875	.032	<b>AN960-816L</b>	<b>\$5.99</b>
9/16	1.063	.063	<b>AN960-916</b>	<b>\$12.99</b>



### AN970 Large Diameter Flat Washers

Similar to AN960 washers but with an oversized outside diameter for where a large bearing area is required. Sold individually.

Bolt Size	O.D. (inch)	Thk. (inch)	Part No.	Price each
#10	.875	.063	<b>AN970-3</b>	<b>10¢</b>
1/4	1.125	.063	<b>AN970-4</b>	<b>16¢</b>
5/16	1.375	.063	<b>AN970-5</b>	<b>18¢</b>
3/8	1.625	.063	<b>AN970-6</b>	<b>24¢</b>
7/16	1.812	.109	<b>AN970-7</b>	<b>59¢</b>
1/2	2.000	.109	<b>AN970-8</b>	<b>69¢</b>



### MS20002C Chamfered Washers

These washers have a chamfer on the I.D. which matches the radius under the head of certain "Super Bolts" such as MS 20004 and NAS 624. (We don't currently stock these bolts.) These washers are not needed with regular AN3 through AN7 airframe bolts. Sold individually.

Bolt Diameter	Part No.	Price Each
1/4	<b>MS20002C-4</b>	<b>18¢</b>
5/16	<b>MS20002C-5</b>	<b>22¢</b>
3/8	<b>MS20002C-6</b>	<b>34¢</b>
7/16	<b>MS20002C-7</b>	<b>39¢</b>

### Airframe Washer Assortment Kit

Contains 100 each AN960 steel flat washers in each size; -10 through -616L and 50 each of -716 through -816L. Includes unbreakable box.

**Airframe Washer Kit** ..... Part No. 4170 ..... \$49.99

See page 120 for safety wire drill jigs to make drilling hex head and Allen head bolts and hex nuts fast and easy.

### Metric Hardware Kits



Four styles are currently stocked. Part No. 4175 and 4178-001 both meet JIS standards and can be used for work on Japanese cars. Part No. 4176 and 4178-002 both meet DIN standards and can be used predominantly on American and European cars. All kits include 6, 8 and 10mm bolts with matching nuts, flat washers and locking washers. The nuts and bolts in Part No. 4175 and 4176 have a standard hex. The nuts and bolts in Part No. 4178-001 and 4178-002 are flange heads, with a larger bearing surface below the hex. Each kit comes packaged in a sturdy metal 24 compartment storage box. All hardware supplied is grade 8.8.

JIS Hardware Kit ..... Part No. 4175 ..... \$97.99  
 DIN Hardware Kit ..... Part No. 4176 ..... \$95.99  
 JIS Flange Head Hardware Kit ..... Part No. 4178-001 ..... \$99.99  
 DIN Flange Head Hardware Kit ..... Part No. 4178-002 ..... \$95.99

### Safety Retainer Washers for Rod End Bearings



**Safety Retainer Washers** When a rod end or spherical bearing is mounted in single shear and is not positively retained by the surrounding structure, most sanctioning bodies require that retainer washers be used in case the ball would separate from the housing. These washers must be beveled to allow full freedom of movement for the rod end or spherical bearing. We stock specially machined plated steel washers for this purpose in bore sizes of 1/4" to 5/8" and metric sizes M8 to M16.

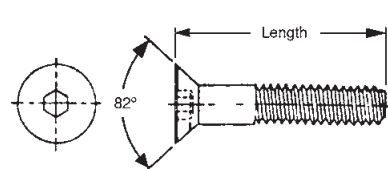
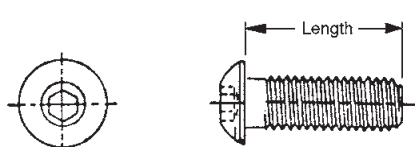
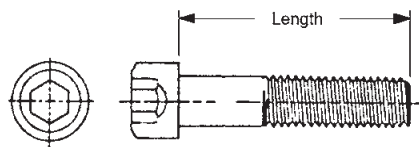
1/4 inch bore size (0.142" overall thickness, 0.68" O.D.) ..... Part No. 3068-04 ..... \$1.79  
 5/16 inch bore size (0.168" overall thickness, 0.81" O.D.) ..... Part No. 3068-05 ..... \$1.99  
 3/8 inch bore size (0.184" overall thickness, 0.93" O.D.) ..... Part No. 3068-06 ..... \$2.29  
 7/16 inch bore size (0.220" overall thickness, 1.12" O.D.) ..... Part No. 3068-07 ..... \$2.49  
 1/2 inch bore size (0.228" overall thickness, 1.18" O.D.) ..... Part No. 3068-08 ..... \$2.69  
 5/8 inch bore size (0.270" overall thickness, 1.43" O.D.) ..... Part No. 3068-10 ..... \$2.99

M8 bore size (4.3 mm overall thickness, 20.5 mm O.D.) ..... Part No. 3068-M08 ... \$2.49  
 M10 bore size (5 mm overall thickness, 25 mm O.D.) ..... Part No. 3068-M10 ... \$2.89  
 M12 bore size (5.7 mm overall thickness, 30 mm O.D.) ..... Part No. 3068-M12 ... \$2.99  
 M14 bore size (6 mm overall thickness, 33 mm O.D.) ..... Part No. 3068-M14 ... \$3.49  
 M16 bore size (7 mm overall thickness, 36.7 mm O.D.) ..... Part No. 3068-M16 ... \$3.89

HARDWARE

## Hex Socket Head Screws ("Allen Head" Screws)

Our Hex Socket Head Screws feature a durable, great-looking black oxide finish. All sizes are threaded their full length, except as noted below.



### Socket Head Cap Screws

These are the familiar "Allen Head" (hex socket head) screws. They are not AN or Military Specification parts, but they are high-quality, high-strength fasteners (180,000 psi) suitable for many non-critical applications.

Socket Head Cap Screw	Part No.	Price Each
10-32 x 3/8	<b>630-3-0.375</b>	<b>13¢</b>
10-32 x 1/2	<b>630-3-0.500</b>	<b>13¢</b>
10-32 x 5/8	<b>630-3-0.625</b>	<b>16¢</b>
10-32 x 3/4	<b>630-3-0.750</b>	<b>16¢</b>
10-32 x 1"	<b>630-3-1.000</b>	<b>18¢</b>
10-32 x 1 1/4 *	<b>630-3-1.250</b>	<b>19¢</b>
1/4-28 x 1 1/4	<b>630-4-1.250</b>	<b>24¢</b>
1/4-28 x 1 1/2 **	<b>630-4-1.500</b>	<b>28¢</b>

\* 0.250" unthreaded portion. \*\* 0.37" unthreaded portion.

### Button Head Screws

The **button head** version of the "Allen" screw provides a low profile, streamlined appearance with a standard hole. The reduced size hex socket makes proper tightening difficult. Use these screws in low-tension applications only.

Button Head Screw	Part No.	Price Each
10-32 x 3/8	<b>631-3-0.375</b>	<b>10¢</b>
10-32 x 1/2	<b>631-3-0.500</b>	<b>12¢</b>
10-32 x 5/8	<b>631-3-0.625</b>	<b>12¢</b>
10-32 x 3/4	<b>631-3-0.750</b>	<b>14¢</b>
10-32 x 1"	<b>631-3-1.000</b>	<b>14¢</b>
10-32 x 1 1/4 *	<b>631-3-1.250</b>	<b>18¢</b>
1/4-28 x 1 1/4 *	<b>631-4-1.250</b>	<b>24¢</b>
1/4-28 x 1 1/2 **	<b>631-4-1.500</b>	<b>29¢</b>

\* 0.250" unthreaded portion. \*\* 0.37" unthreaded portion.

### Flat Head Screws (10-32 size only)

The **flat head** version of the "Allen" screw is for flush mounting in a hole with an 82° countersink. The reduced size hex socket makes proper tightening difficult. Use these screws in low-tension applications only.

Flat Head Screw	Part No.	Price Each
10-32 x 3/8	<b>632-3-0.375</b>	<b>10¢</b>
10-32 x 1/2	<b>632-3-0.500</b>	<b>15¢</b>
10-32 x 5/8	<b>632-3-0.625</b>	<b>21¢</b>
10-32 x 3/4	<b>632-3-0.750</b>	<b>22¢</b>
10-32 x 1"	<b>632-3-1.000</b>	<b>22¢</b>
10-32 x 1 1/4 *	<b>632-3-1.250</b>	<b>29¢</b>
1/4-28 x 1 1/4 *	<b>632-4-1.250</b>	<b>24¢</b>
1/4-28 x 1 1/2 **	<b>632-4-1.500</b>	<b>29¢</b>

\* 0.250" unthreaded portion. \*\* 0.37" unthreaded portion.