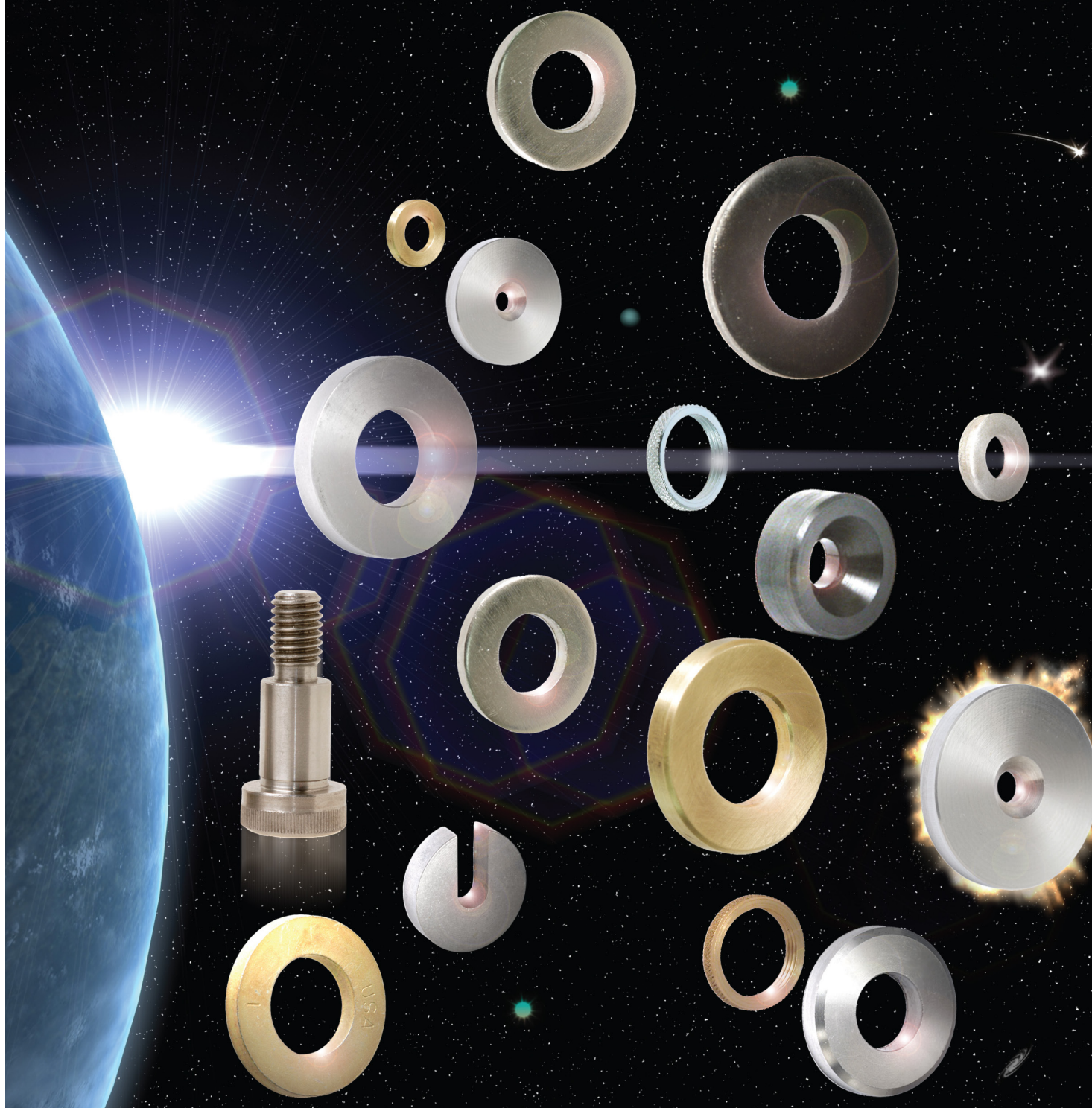


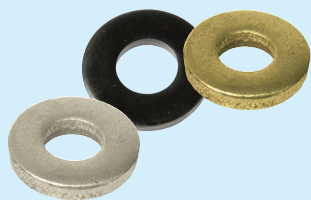
**A COMPLETE LISTING OF OUR
WASHERS BY INNER DIAMETER
STARTS ON PAGE 214**

HARD-TO-FIND FLAT WASHER & FASTENER ITEMS





Component Flat Washers

USA **MADE**


Steel: Low Carbon Steel, Commercial Case-Hard, Black Oxide Plated

Stainless Steel: 18-8 Stainless Steel or 17-4 Stainless Steel thru hardened to C36-C42

Brass: Commercial Free Cutting Brass

Tolerances:

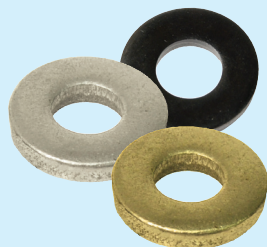
ID and OD are +/- .010.

Thickness Tolerance varies by size:

Up to 1/8" thick +.005/- .014.

From 1/8 to 9/32" thick +.005/- .020

Flat and Parallel to within 0.005"



Steel: Low Carbon Steel, Commercial Case-Hard, Black Oxide Plated

Stainless Steel: 18-8 Stainless Steel or 17-4 Stainless Steel thru hardened to C36-C42

Brass: Commercial Free Cutting Brass

**SPECIAL ORDERS
AVAILABLE—**

**Small Quantities
to Large Volume**



Component Flat Washers—The Largest Selection in the World!

Steel, Stainless Steel and Brass

The standard Flatwasher used in the Tool & Die industry. These Flatwashers are thicker than standard washers. All of these washers are produced in the USA. Depending on the size, they are stamped or machined.

Component Flat Washers							
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers			
				Steel	18-8 Stainless Steel	Brass	17-4 Stainless Steel
#4	1/8"	5/16"	5/64"	Z9085	Z9085SS	Z9085BR	—
#6	5/32	3/8	5/64	Z9086	Z9086SS	Z9086BR	—
#8	3/16	7/16	5/64	Z9087	Z9087SS	Z9087BR	—
#10	13/64	1/2	3/32	Z9094	Z9094SS	Z9094BR	—
1/4"	9/32	5/8	1/8	Z9095	Z9095SS	Z9095BR	Z9095-174
5/16	11/32	3/4	1/8	Z9096	Z9096SS	Z9096BR	Z9096-174
3/8	13/32	7/8	1/8	Z9097	Z9097SS	Z9097BR	Z9097-174
7/16	15/32	1	1/8	Z9098	Z9098SS	Z9098BR	—
1/2	17/32	1-1/8	1/8	Z9099	Z9099SS	Z9099BR	Z9099-174
5/8	21/32	1-3/8	1/8	Z9100	Z9100SS	Z9100BR	Z9100-174
3/4	25/32	1-5/8	5/32	Z9101	Z9101SS	Z9101BR	Z9101-174
7/8	29/32	1-3/4	5/32	Z9102	Z9102SS	Z9102BR	—
1	1-1/32	2	3/16	Z9103	Z9103SS	Z9103BR	Z9103-174
1-1/8	1-5/32	2-1/4	7/32	Z9104	Z9104SS	—	—
1-1/4	1-9/32	2-1/2	9/32	Z9105	Z9105SS	—	—

USA **MADE**

EXTRA THICK Component Flat Washers—Steel, Stainless Steel and Brass

Component Flat Washers—EXTRA THICK						
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers		
				Steel	Stainless Steel	Brass
1/4"	9/32"	5/8"	3/16"	Z9200	Z9200SS	Z9200BR
5/16	11/32	3/4	3/16	Z9201	Z9201SS	Z9201BR
3/8	13/32	1	3/16	Z9202	Z9202SS	Z9202BR
7/16	15/32	1	3/16	Z9203	Z9203SS	—
1/2	17/32	1-1/8	3/16	Z9204	Z9204SS	Z9204BR
1/2	17/32	1-1/2	7/32	Z9235	—	—
5/8	21/32	1-3/8	3/16	Z9205	Z9205SS	Z9205BR
5/8	21/32	1-1/2	7/32	Z9236	—	—
3/4	25/32	1-5/8	1/4	Z9206	Z9206SS	Z9206BR
3/4	25/32	1-7/8	1/4	Z9237	—	—
7/8	29/32	1-3/4	1/4	Z9207	Z9207SS	Z9207BR
7/8	29/32	2-1/8	9/32	Z9238	—	—
1	1-1/32	2	9/32	Z9208	Z9208SS	Z9208BR
1	1-1/32	2	1/4	Z9209STL	Z9209SS	—
1	1-1/16	2-1/2	5/16	Z9239	—	—
1-1/4	1-5/16	2-1/2	11/32	Z9240	—	—
1-1/2	1-9/16	2-3/4	3/8	Z9241	—	—

Tolerances:

ID and OD are +/- .010.

Thickness Tolerance varies by size:

Up to 1/8" thick +.005/- .014.

From 1/8 to 9/32" thick +.005/- .020

Flat and Parallel to within 0.005"

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Component Flat Washers

USA  **MADE**


Industry Semi Standard Flat Washers—Thick and Extra Thick

Steel, Stainless Steel, & Brass

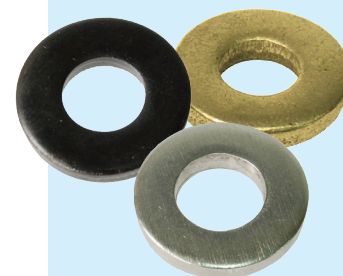
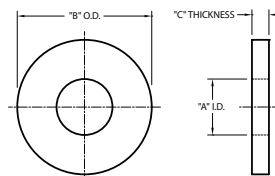
All of these washers are produced in the USA.

Depending on the size, they are stamped or machined.

Steel: Low Carbon Steel, Commercial Case-Hard, Black Oxide Plated

Stainless Steel: 18-8 Stainless Steel or 17-4 Stainless Steel thru hardened to C36-C42

Brass: Commercial Free Cutting Brass



Industry Semi Standard Flat Washers Steel, Stainless Steel & Brass—Thick & Extra Thick							
Bolt Size	"A" ID	"B" OD	"C" Thickness	Steel Order Number	18-8 St/St Order Number	Type 316 St/St Order Number	Brass Order Number
#0	1/16"	1/8"	.019"	Z9150STL	Z9150	—	Z9150BR
#1	5/64	5/32	.019	Z9151STL	Z9151	—	Z9151BR
#2	3/32	3/16	.028	Z9152STL	Z9152	—	Z9152BR
#4	1/8	1/4	.063	Z9154STL	Z9154	—	Z9154BR
#4	1/8	5/16	.032	—	Z0538-188	Z0538-316	—
#6	5/32	5/16	.063	Z9156STL	Z9156	—	Z9156BR
#8	11/64	3/8	.032	—	Z0540-188	Z0540-316	—
#8	11/64	3/8	.063	Z9158STL	Z9158	—	Z9158BR
#8	3/16	7/16	.078	Z9160STL	Z9160	—	Z9160BR
#10	13/64	7/16	.032	—	Z0541-188	Z0541-316	—
1/4"	17/64	1/2	.078	—	Z9164	—	—
1/4	9/32	1/2	.078	Z9161STL	Z9161	—	Z9161BR
1/4	9/32	5/8	.050	—	Z0543-188	Z0543-316	—
1/4	9/32	5/8	.125	—	Z9215	—	—
5/16	11/32	5/8	.093	Z9162STL	Z9162	—	Z9162BR
5/16	11/32	11/16	.100	—	Z9130	—	—
5/16	11/32	11/16	.125	Z9216STL	Z9216	—	Z9216BR
5/16	11/32	3/4	.050	—	Z0544-188	Z0544-316	—
3/8	25/64	7/8	.050	—	Z0545-188	Z0545-316	—
3/8	13/32	3/4	.093	Z9163STL	Z9163	—	Z9163BR
3/8	13/32	13/16	.125	—	Z9131	—	—
3/8	13/32	1"	.125	Z9217STL	Z9217	—	Z9217BR
7/16	15/32	59/64	.125	Z9218STL	Z9218	—	Z9218BR
7/16	1/2	1-1/8	.062	—	Z0546-188	Z0546-316	—
1/2	17/32	1-1/16	.187	Z9219STL	Z9219	—	Z9219BR
1/2	9/16	1-1/4	.062	—	Z0547-188	Z0547-316	—
9/16	19/32	1-3/16	.187	—	Z9220	—	—
5/8	21/32	1-5/16	.218	Z9221STL	Z9221	—	Z9221BR
3/4	25/32	1-5/8	.125	—	Z9101SSL	—	—
3/4	13/16	1-1/2	.218	Z9222STL	Z9222	—	Z9222BR

Tolerances:

ID and OD are +/- .010. Thickness Tolerance varies by size:

Up to 1/8" thick +.005/- .014.

From 1/8 to 9/32" thick +.005/- .020

Flat and Parallel to within 0.005"

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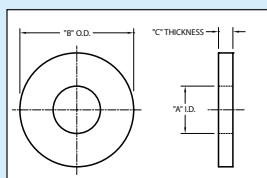




Standard Fender Flat Washers

USA **MADE**

Steel: Low Carbon Steel, Zinc Plated

Stainless Steel: available in 18-8 or type 316 series Stainless Steel


Fender Flat Washers

Steel Zinc, 18-8 or Type 316 Stainless Steel

Standard Fender Washers—Steel Zinc & Stainless Steel						
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers		
				Steel Zinc	Type 316 Stainless Steel	18-8 Stainless Steel
#4	1/8"	5/16"	0.032"	—	Z0538-316	Z0538-188
#6	9/64"	5/8"	0.024-0.038"	Z0448	Z0448-316	Z0448-188
	5/32"	3/8"	.032"	—	—	Z0539-188
	5/32"	9/16"	0.040-0.054"	Z0449	Z0449-316	Z0449-188
	5/32"	3/4"	0.036-0.065"	Z0480	—	—
	3/16"	7/8"	0.036-0.065"	Z0629	—	—
#8	11/64"	3/8"	.032"	—	Z0540-316	Z0540-188
	11/64"	3/4"	0.033-0.047"	Z0450	Z0450-316	Z0450-188
	3/16"	3/4"	0.043-0.057"	Z0451	Z0451-316	Z0451-188
	3/16"	1"	0.036-0.065"	Z0481	—	—
	13/64"	3/4"	0.051-0.080"	Z0630	—	—
	13/64"	1"	0.051-0.080"	Z0631	—	—
	13/64"	1-1/4"	0.051-0.080"	Z0632	—	—
#10	13/64"	7/16"	.032"	—	Z0541-316	Z0541-188
	13/64"	1/2"	0.033-0.047"	Z0452	Z0452-316	Z0452-188
	13/64"	11/16"	0.033-0.047"	Z0453	Z0453-316	Z0453-188
	13/64"	1"	0.033-0.047"	Z0454	Z0454-316	Z0454-188
	13/64"	3/4"	0.051-0.080"	Z0627	—	—
	13/64"	3/4"	0.033-0.047"	Z0455	Z0455-316	Z0455-188
	7/32"	3/4"	0.063-0.083"	Z0628	—	—
	7/32"	1 1/4"	0.043-0.057"	Z0456	Z0456-316	Z0456-188
	7/32"	1 1/2"	0.036-0.065"	Z0482	—	—
#12	1/4"	1/2"	0.045"	—	Z0542-316	Z0542-188
1/4"	17/64"	1/2"	0.043-0.057"	Z0457	Z0457-316	Z0457-188
	17/64"	9/16"	0.056-0.070"	Z0458	Z0458-316	Z0458-188
	17/64"	7/8"	0.056-0.070"	Z0459	Z0459-316	Z0459-188
	9/32"	5/8"	.045"	—	Z0543-316	Z0543-316
	9/32"	1"	0.040-0.060"	Z0460	Z0460-316	Z0460-188
	9/32"	1 1/4"	0.040-0.060"	Z0461	Z0461-316	Z0461-188
	9/32"	1 1/2"	0.052-0.072"	Z0462	Z0462-316	Z0462-188
	9/32"	1 1/2"	0.051-0.080"	Z0633	—	—
	9/32"	2"	0.052-0.072"	Z0463	Z0463-316	Z0463-188
	9/32"	2 1/2"	0.051-0.080"	Z0483	—	—
	9/32"	3"	0.051-0.080"	Z0484	—	—
5/16"	21/64"	5/8"	0.056-0.070"	Z0464	Z0464-316	Z0464-188
	11/32"	3/4"	.050"	—	Z0544-316	Z0544-188
	11/32"	1 1/4"	0.040-0.060"	Z0465	Z0465-316	Z0465-188
	11/32"	1 1/2"	0.052-0.072"	Z0466	Z0466-316	Z0466-188
	11/32"	1 1/2"	0.051-0.080"	Z0635	—	—
	11/32"	1 5/8"	0.051-0.080"	Z0634	—	—
	11/32"	2"	0.052-0.072"	Z0467	Z0467-316	Z0467-188
	11/32"	2"	0.051-0.080"	Z0636	—	—
	11/32"	2 1/2"	0.051-0.080"	Z0485	—	—
	11/32"	3"	0.051-0.080"	Z0486	—	—
3/8"	25/64"	7/8"	.050"	—	Z0545-316	Z0545-188
	13/32"	1 1/4"	0.040-0.060"	Z0468	Z0468-316	Z0468-188
	13/32"	1 1/2"	0.052-0.072"	Z0469	Z0469-316	Z0469-188
	13/32"	1 1/2"	0.051-0.080"	Z0637	—	—
	13/32"	1 5/8"	0.056-0.070"	Z0470	Z0470-316	Z0470-188
	13/32"	2"	0.052-0.072"	Z0471	Z0471-316	Z0471-188
	13/32"	2"	0.051-0.080"	Z0638	—	—
	13/32"	3"	0.051-0.080"	Z0487	—	—

**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**


USA **MADE**




Standard & Extra Thick Fender Flat Washers

Standard Fender Flat Washers (cont'd)

Standard Fender Washers—Steel Zinc & Stainless Steel						
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers		
				Steel Zinc	Type 316 Stainless Steel	18-8 Stainless Steel
1/2"	17/32"	1 1/2"	0.052-0.072"	Z0472	Z0472-316	Z0472-188
	17/32"	1 1/2"	0.051-0.080"	Z0639	—	—
	17/32"	2"	0.052-0.072"	Z0473	Z0473-316	Z0473-188
	17/32"	2"	0.051-0.080"	Z0650	—	—
	17/32"	3"	0.051-0.080"	Z0488	—	—
9/16"	37/64"	1-1/16"	.062"	—	Z0548-316	Z0548-188
5/8"	11/16"	1-1/2"	.078"	—	Z0549-316	Z0549-188
3/4"	13/16"	1-3/4"	.110"	—	Z0621-316	Z0621-188
7/8"	15/16"	2"	.110"	—	Z0622-316	Z0622-188
1"	1-1/16"	2"	.110"	—	Z0623-316	Z0623-188
1-1/8"	1-3/16"	2-1/2"	.125"	—	Z0624-316	Z0624-188
1-1/4"	1-5/16"	2-3/4"	.125"	—	Z0625-316	Z0625-188
1-1/2"	1-9/16"	3-1/4"	.125"	—	Z0626-316	Z0626-188

USA MADE


Extra Thick Fender Flat Washers— Steel Zinc or 18-8 Stainless Steel

A series of extra thick and extra wide Fender washers, available in 1/8", 1/4", 3/8" and 1/2" thicknesses.

Extra Thick Fender Flat Washers							
Bolt Size	"A" ID	"B" OD	"C" Thickness	Low Carbon Steel		Stainless Steel	
				Weight per 100 pcs.	Order Number	Weight per 100 pcs.	Order Number
#10	7/32"	1"	1/8"	2 Lbs	Z9678	2.7 Lbs	Z9678SS
#10	7/32"	1"	1/4"	4	Z9679	-	-
1/4"	9/32"	1-1/2"	1/8"	6	Z9680	6.5	Z9680SS
1/4"	9/32"	1-1/2"	1/4"	12	Z9681	-	-
5/16"	11/32"	2"	1/8"	10	Z9682	11.5	Z9682SS
5/16"	11/32"	2"	1/4"	21	Z9683	22.5	Z9683SS
3/8"	13/32"	2"	1/8"	10	Z9684	11	Z9684SS
3/8"	13/32"	2"	1/4"	21	Z9685	22.5	Z9685SS
1/2"	17/32"	2"	1/8"	10	Z9688	11	Z9688SS
1/2"	17/32"	2"	1/4"	20	Z9689	21.5	Z9689SS
1/2"	9/16"	3"	1/4"	48	Z9670	-	-
5/8"	11/16"	2-1/2"	1/8"	16	Z9690	17	Z9690SS
5/8"	11/16"	2-1/2"	1/4"	30	Z9691	33	Z9691SS
5/8"	11/16"	3"	1/4"	47	Z9671	-	-
3/4"	13/16"	3"	1/8"	22	Z9692	-	-
3/4"	13/16"	3"	1/4"	45	Z9693	48	Z9693SS
3/4"	13/16"	3"	3/8"	65	Z9698	-	-
7/8"	15/16"	3"	1/4"	45	Z9673	-	-
7/8"	15/16"	3-1/4"	1/8"	25	Z9694	-	-
7/8"	15/16"	3-1/4"	1/4"	53	Z9695	56	Z9695SS
7/8"	15/16"	3-1/4"	3/8"	77	Z9699	-	-
1"	1-1/16"	3-1/4"	1/4"	52	Z9674	-	Z9674SS
1"	1-1/16"	3-1/2"	1/8"	30	Z9696	64	Z9696SS
1"	1-1/16"	3-1/2"	1/4"	60	Z9697	-	-
1"	1-1/16"	3-1/2"	3/8"	88	Z9677	-	-
1-1/4"	1-3/8"	4"	1/2"	157	Z9675	163	Z9675SS

Parts manufactured domestically and overseas



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IFI Standard Type "B" Flat Washers

USA **MADE**

Steel—ANSI B18.22.1—1965 Rev. 1981

Type B Plain Washers were designed to distribute load pressures over larger areas of primarily lower strength materials. All washers are made in the USA, and conform to all ANSI specifications. NOW AVAILABLE IN 18-8 ST/ST ALSO!



IFI Standard Type "B" Flatwashers					Steel Zinc	18-8 ST/ST
Bolt Size	IFI Name	"A" Inside Diameter	"B" Outside Diameter	"C" Thickness	Order Number	Order Number
#0	Narrow	.068 +0/- .005	.125 +0/- .005	.022/.028	WASB#0NZ	WASB#0N8
#0	Regular	.068 +0/- .005	.188 +0/- .005	.022/.028	WASB#0RZ	WASB#0R8
#0	Wide	.068 +0/- .005	.250 +0/- .005	.022/.028	WASB#0WZ	WASB#0W8
#1	Narrow	.084 +0/- .005	.156 +0/- .005	.022/.028	WASB#1NZ	WASB#1N8
#1	Regular	.084 +0/- .005	.219 +0/- .005	.022/.028	WASB#1RZ	WASB#1R8
#1	Wide	.084 +0/- .005	.281 +0/- .005	.028/.036	WASB#1WZ	WASB#1W8
#2	Narrow	.094 +0/- .005	.188 +0/- .005	.022/.028	WASB#2NZ	WASB#2N8
#2	Regular	.094 +0/- .005	.250 +0/- .005	.028/.036	WASB#2RZ	WASB#2R8
#2	Wide	.094 +0/- .005	.344 +0/- .005	.028/.036	WASB#2WZ	WASB#2W8
#4	Narrow	.125 +0/- .005	.250 +0/- .005	.028/.036	WASB#4NZ	WASB#4N8
#4	Regular	.125 +008/- .005	.375 +.008/- .005	.036/.045	WASB#4RZ	WASB#4R8
#4	Wide	.125 +008/- .005	.438 +.008/- .005	.036/.045	WASB#4WZ	WASB#4W8
#6	Narrow	.156 +0/- .005	.312 +0/- .005	.028/.036	WASB#6NZ	WASB#6N8
#6	Regular	.156 +008/- .005	.438 +.008/- .005	.036/.045	WASB#6RZ	WASB#6R8
#6	Wide	.156 +008/- .005	.561 +.008/- .005	.036/.045	WASB#6WZ	WASB#6W8
#8	Narrow	.188 +.008/- .005	.375 +.008/- .005	.036/.045	WASB#8NZ	WASB#8N8
#8	Regular	.188 +.008/- .005	.500 +.008/- .005	.036/.045	WASB#8RZ	WASB#8R8
#8	Wide	.188 +.008/- .005	.625 +.015/- .005	.056/.071	WASB#8WZ	WASB#8W8
#10	Narrow	.203 +.008/- .005	.406 +.008/- .005	.036/.045	WASB#10NZ	WASB#10N8
#10	Regular	.203 +.008/- .005	.562 +.008/- .005	.036/.045	WASB#10RZ	WASB#10R8
#10	Wide	.203 +.008/- .005	.734 +.015/- .007	.056/.071	WASB#10WZ	WASB#10W8
1/4"	Narrow	.281 +.015/- .005	.500 +.015/- .005	.056/.071	WASB14NZ	WASB14N8
1/4"	Regular	.281 +.015/- .005	.734 +.015/- .007	.056/.071	WASB14RZ	WASB14R8
1/4"	Wide	.281 +.015/- .005	1.00 +.015/- .007	.056/.071	WASB14WZ	WASB14W8
5/16"	Narrow	.344 +.015/- .005	.625 +.015/- .005	.056/.071	WASB51NZ	WASB51N8
5/16"	Regular	.344 +.015/- .005	.875 +.015/- .007	.056/.071	WASB51RZ	WASB51R8
5/16"	Wide	.344 +.015/- .005	1.125 +.015/- .007	.056/.071	WASB51WZ	WASB51W8
3/8"	Narrow	.406 +.015/- .005	.734 +.015/- .007	.056/.071	WASB38NZ	WASB38N8
3/8"	Regular	.406 +.015/- .005	1.00 +.015/- .007	.056/.071	WASB38RZ	WASB38R8
3/8"	Wide	.406 +.015/- .005	1.250 +.030/- .007	.090/.112	WASB38WZ	WASB38W8
7/16"	Narrow	.469 +.015/- .005	.875 +.015/- .007	.056/.071	WASB71NZ	WASB71N8
7/16"	Regular	.469 +.015/- .005	1.125 +.015/- .007	.056/.071	WASB71RZ	WASB71R8
7/16"	Wide	.469 +.015/- .005	1.469 +.030/- .007	.090/.112	WASB71WZ	WASB71W8
1/2"	Narrow	.531 +.015/- .005	1.000 +.015/- .007	.056/.071	WASB12NZ	WASB12N8
1/2"	Regular	.531 +.015/- .005	1.250 +.030/- .007	.090/.112	WASB12RZ	WASB12R8
1/2"	Wide	.531 +.015/- .005	1.750 +.030/- .007	.090/.112	WASB12WZ	WASB12W8
9/16"	Narrow	.594 +.015/- .005	1.250 +.015/- .007	.056/.071	WASB91NZ	WASB91N8
9/16"	Regular	.594 +.015/- .005	1.469 +.015/- .007	.090/.112	WASB91RZ	WASB91R8
9/16"	Wide	.594 +.015/- .005	2.000 +.015/- .007	.090/.112	WASB91WZ	WASB91W8
5/8"	Narrow	.656 +.030/- .007	1.250 +.030/- .007	.090/.112	WASB58NZ	WASB58N8
5/8"	Regular	.656 +.030/- .007	1.750 +.030/- .007	.090/.112	WASB58RZ	WASB58R8
5/8"	Wide	.656 +.030/- .007	2.250 +.030/- .007	.146/.174	WASB58WZ	WASB58W8
3/4"	Narrow	.812 +.030/- .007	1.375 +.030/- .007	.090/.112	WASB34NZ	WASB34N8
3/4"	Regular	.812 +.030/- .007	2.000 +.030/- .007	.090/.112	WASB34RZ	WASB34R8
3/4"	Wide	.812 +.030/- .007	2.500 +.030/- .007	.146/.174	WASB34WZ	WASB34W8
7/8"	Narrow	.938 +.030/- .007	1.469 +.030/- .007	.090/.112	WASB78NZ	WASB78N8
7/8"	Regular	.938 +.030/- .007	2.250 +.030/- .007	.146/.174	WASB78RZ	WASB78R8
7/8"	Wide	.938 +.030/- .007	2.750 +.030/- .007	.146/.174	WASB78WZ	WASB78W8
1"	Narrow	1.062 +.030/- .007	1.750 +.030/- .007	.090/.112	WASB80NZ	WASB80N8
1"	Regular	1.062 +.030/- .007	2.500 +.030/- .007	.146/.174	WASB80RZ	WASB80R8
1"	Wide	1.062 +.030/- .007	3.000 +.030/- .007	.146/.174	WASB80WZ	WASB80W8
1-1/8"	Narrow	1.188 +.030/- .007	2.000 +.030/- .007	.090/.112	WASB81NZ	WASB81N8
1-1/8"	Regular	1.188 +.030/- .007	2.750 +.030/- .007	.146/.174	WASB81RZ	WASB81R8
1-1/8"	Wide	1.188 +.030/- .007	3.250 +.030/- .007	.146/.174	WASB81WZ	WASB81W8
1-1/4"	Narrow	1.312 +.030/- .007	2.250 +.030/- .007	.146/.174	WASB82NZ	WASB82N8
1-1/4"	Regular	1.312 +.030/- .007	3.000 +.030/- .007	.146/.174	WASB82RZ	WASB82R8
1-1/4"	Wide	1.312 +.045/- .010	3.500 +.045/- .010	.234/.266	WASB82WZ	WASB82W8

**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**

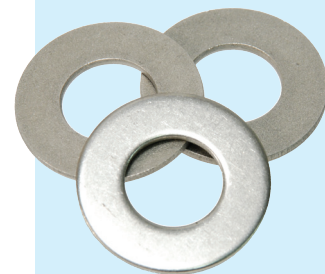
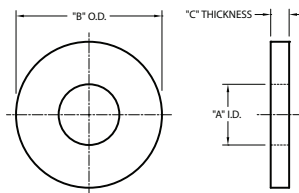

USA **MADE**


USA Domestic Standard Flat Washers



SAE Standard Flat Washers

18-8 Stainless Steel or Type 316 Stainless Steel



SAE Standard Flat Washers—Stainless Steel					
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers	
				18-8 Stainless Steel	Type 316 Stainless Steel
#4	1/8"	5/16"	.025-.040	WAS404#4	WAS405#4
#6	5/32	3/8	.036-.065	WAS404#6	WAS405#6
#8	3/16	7/16	.036-.065	WAS404#8	WAS405#8
#10	7/32	1/2	.036-.065	WAS404#10	WAS405#10
#12	1/4	9/16	.051-.080	WAS404#12	WAS405#12
1/4	9/32	5/8	.051-.080	WAS40414	WAS40514
5/16	11/32	11/16	.051-.080	WAS40451	WAS40551
3/8	13/32	13/16	.051-.080	WAS40438	WAS40538
7/16	15/32	59/64	.051-.080	WAS40471	WAS40571
1/2	17/32	1-1/16	.074-.121	WAS40412	WAS40512
5/8	21/32	1-5/16	.074-.121	WAS40458	WAS40558
3/4	13/16	1-1/2	.108-.160	WAS40434	WAS40534
1"	1-1/16	2"	.108-.160	WAS40401	WAS40501



USS Standard Flat Washers

18-8 Stainless Steel or Type 316 Stainless Steel

USS Standard Flat Washers—Stainless Steel					
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers	
				18-8 Stainless Steel	Type 316 Stainless Steel
#10	1/4	9/16	.036-.065	WAS504#10	WAS505#10
1/4	5/16	3/4	.051-.080	WAS50414	WAS50514
5/16	3/8	7/8	.064-.104	WAS50451	WAS50551
3/8	7/16	1	.064-.104	WAS50438	WAS50538
7/16	1/2	1-1/4	.064-.104	WAS50471	WAS50571
1/2	9/16	1-3/8	.074-.121	WAS50412	WAS50512
9/16	5/8	1-1/2	.086-.132	WAS50491	WAS50591
5/8	11/16	1-3/4	.108-.160	WAS50458	WAS50558
3/4	13/16	2	.122-.177	WAS50434	WAS50534
7/8	15/16	2-1/4	.136-.192	WAS50478	WAS50578
1"	1-1/16	2-1/2	.136-.192	WAS50401	WAS50501





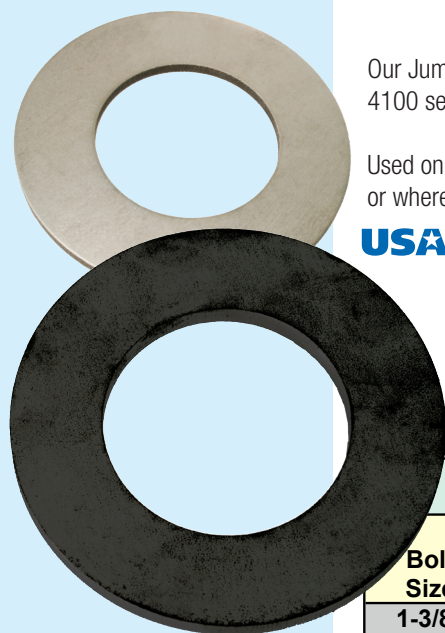
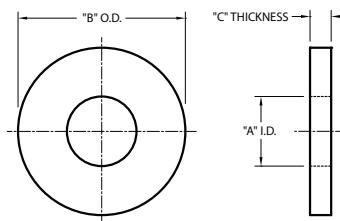

Jumbo Flat Washers

USA **MADE**

Jumbo Flat Washers with bolt sizes up to 4" —shipped from our stock!

Our Jumbo line is manufactured of either 4100 series Alloy Steel or 300 Series Stainless Steel. 4100 series washers are thru hardened to Rockwell C40-50 and have a protective black oxide finish.

Used on machinery, presses, large diameter bolts, shafts, studs and rollers or wherever a large flat washer is needed.

USA **MADE**


Jumbo Flat Washers

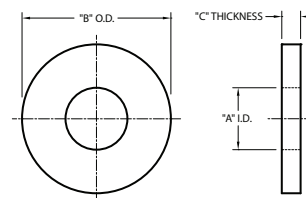
Bolt Size	"A" ID	"B" OD	"C" Thickness	Lbs. each	Order Numbers	
					Alloy Steel	Stainless Steel
1-3/8"	1-1/2"	2-3/4"	1/4"	.56	Z9250	Z9250SS
1-1/2	1-5/8	3	1/8	.40	—	Z9251SS
1-1/2	1-5/8	3	1/4	.60	Z9252	Z9252SS
1-3/4	1-7/8	3-3/8*	1/4	.84	Z9254	Z9254SS
2	2-1/8	3-3/4*	1/4	1.0	Z9256	Z9256SS
2-1/2	2-5/8	4-1/2*	5/16	1.8	Z9258	Z9258SS
3	3-1/8	5-1/2*	5/16	2.7	Z9260	Z9260SS
3-1/2	3-5/8	6-1/2*	5/16	3.7	Z9262	Z9262SS
4	4-1/8	7-1/2*	5/16	5.0	Z9264	Z9264SS

*O.D. Tolerance on washers with O.D. over 3" is $\pm .156"$

Roughneck Washers—Steel, Case Hardened, with a Plain Finish

A stamped washer used for welding and other mechanical and construction applications.

Low Carbon Steel, Case Hardened and Plain.



**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**



Roughneck Washers					
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers	
				Steel	Stainless Steel
3/8"	7/16"	7/8"	3/16"	Z9090	Z9090-SS
1/2	9/16	1	3/16	Z9091	Z9091-SS
5/8	23/32	1-1/4	1/4	Z9092	Z9092-SS
3/4	27/32	1-1/2	1/4	Z9093	Z9093-SS

USA **MADE**


Structural Flat Washers

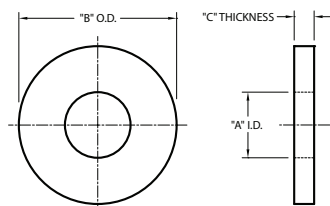
USA  **MADE**


Hi Strength Alloy Steel Extra Thick SAE Pattern Flat Washers

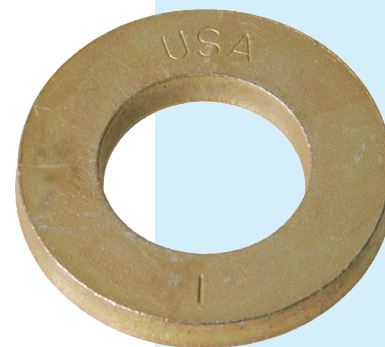
The Thickest SAE Pattern Available From Stock!

Use anywhere high strength and thick Flatwashers are needed.
Perfect for use with Grade 8 Cap Screws and Socket Cap Screws.

Each washer is marked with the Bolt Size, and USA, for easy identification.
These washers are thicker than even the F436 Series.



Medium Carbon Steel
Thru Hardened to Rockwell C43 - 49
Mechanical Zinc Yellow Plating
Certification available.

USA  **MADE**


Structural Flat Washers							Hi Strength Alloy Steel—Zinc Yellow			
Bolt Size	"A"		"B"		"C"		Pounds per 100 pcs.	Order Numbers		
	ID		OD		Thickness			Bulk		
1/4"	9/32"	.276/.296"	5/8"	.620/.640"	3/32"	.090/.108"	0.64	Z9270	Z9270-100 (100 pack)	—
5/16	11/32	.339/.359	11/16	.681/.703	3/32	.090/.108	0.72	Z9271	Z9271-100 (100 pack)	Z9271-50 (50 pack)
3/8	13/32	.401/.421	13/16	.805/.827	1/8	.110/.126	1.3	Z9272	Z9272-100 (100 pack)	Z9272-50 (50 pack)
7/16	15/32	.464/.484	59/64	.915/.937	1/8	.110/.126	1.5	Z9273	—	—
1/2	17/32	.526/.546	1-1/16	1.055/1.092	13/64	.190/.208	3.6	Z9274	Z9274-50 (50 pack)	Z9274-25 (25 pack)
9/16	19/32	.589/.609	1-11/64	1.161/1.181	11/64	.168/.191	4	Z9275	—	—
5/8	21/32	.649/.686	1-5/16	1.305/1.342	7/32	.206/.229	5.6	Z9276	—	—
3/4	13/16	.808/.818	1-15/32	1.454/1.484	7/32	.206/.229	6.5	Z9277	—	—
7/8	15/16	.931/.968	1-3/4	1.743/1.780	1/4	.235/.264	11	Z9278	—	—
1	1-1/16	1.055/1.092	2	1.993/2.030	1/4	.235/.264	14.5	Z9279	—	—
1-1/8	1-3/16	1.173/1.203	2-1/4	2.218/2.282	1/4	.235/.264	20.5	Z9280	—	—
1-1/4	1-3/8	1.360/1.390	2-1/2	2.468/2.532	1/4	.235/.264	22.3	Z9281	—	—
1-3/8	1-7/16	1.423/1.453	2-3/4	2.718/2.782	1/4	.235/.264	30.6	Z9282	—	—
1-1/2	1-9/16	1.547/1.577	3	2.968/3.032	1/4	.235/.264	36.5	Z9283	—	—

Structural Flat Washers

Stainless Steel—The Thickest Available From Stock!

Structural Flat Washers						18–8 Stainless Steel		
Bolt Size	"A" ID		"B" OD		"C" Thickness	Pounds per 100 pcs.	Order # Bulk Pack	
1/4"	9/32"	.276/.296"	5/8"	.620/.640"	3/32"	.090/.108"	0.64	Z9270SS
5/16	11/32	.339/.359	11/16	.681/.703	3/32	.090/.108	0.72	Z9271SS
3/8	13/32	.401/.421	13/16	.805/.827	1/8	.110/.126	1.3	Z9272SS
1/2	17/32	.526/.546	1-1/16	1.055/1.092	13/64	.190/.208	3.6	Z9274SS
5/8	21/32	.649/.686	1-5/16	1.305/1.342	7/32	.206/.264	5.6	Z9276SS
3/4	13/16	.808/.818	1-15/32	1.454/1.484	7/32	.206/.264	6.5	Z9277SS
7/8	15/16	.931/.968	1-3/4	1.743/1.780	1/4	.235/.264	11	Z9278SS
1	1-1/16	1.055/1.092	2	1.993/2.030	1/4	.235/.264	14.5	Z9279SS


USA  **MADE**



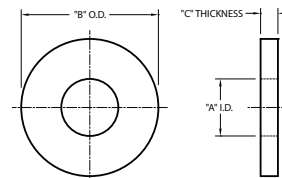

Machined Flat Washers

USA **MADE**


Fully machined flat washer

Williams Washers—Machined with Outside Bevel—The Most Complete Line

A thick Flat Washer used for spacing applications. These washers are manufactured on our screw machines—NOT stamped—with a large bevel on the outside edge. Chamfered outside edge speeds assembly and fitting operations.



AVAILABLE IN:

- **Steel Soft & Plain, Oiled** (12L14 Ledloy Low Carbon Steel)
- **Case Hard & Plain, Oiled** (12L14 Ledloy Low Carbon Steel, Plain Finish)
(Note: Case Hardening presents a mottled appearance.)
- **Case Hard & Zinc Plated** (12L14 Ledloy Low Carbon Steel, Zinc Plated)
- **18-8 Stainless Steel**

“Williams” Washers —Machined with Outside Bevel				Order Numbers			
Bolt Size	"A" ID	"B" OD	"C" Thickness	Soft, Plain Steel, and Oiled	Case Hard and Oiled	Case Hard and Zinc Plated	Stainless Steel
#10	13/64"	1/2"	3/32"	Z9180-BEV	Z9180-BEV-H	Z9180-BEV-HZN	Z9180-BEV-SS
1/4"	9/32	5/8	1/8	Z9181-BEV	Z9181-BEV-H	Z9181-BEV-HZN	Z9181-BEV-SS
5/16	11/32	3/4	1/8	Z9182-BEV	Z9182-BEV-H	Z9182-BEV-HZN	Z9182-BEV-SS
3/8	13/32	7/8	1/8	Z9183-BEV	Z9183-BEV-H	Z9183-BEV-HZN	Z9183-BEV-SS
7/16	15/32	1	5/32	Z9184-BEV	Z9184-BEV-H	Z9184-BEV-HZN	Z9184-BEV-SS
1/2	17/32	1	3/16	Z9185-BEV	Z9185-BEV-H	Z9185-BEV-HZN	Z9185-BEV-SS
5/8	21/32	1-1/4	1/4	Z9186-BEV	Z9186-BEV-H	Z9186-BEV-HZN	Z9186-BEV-SS
3/4	25/32	1-1/2	1/4	Z9187-BEV	Z9187-BEV-H	Z9187-BEV-HZN	Z9187-BEV-SS
7/8	29/32	1-3/4	1/4	Z9188-BEV	Z9188-BEV-H	Z9188-BEV-HZN	Z9188-BEV-SS
1	1-1/32	2	5/16	Z9189-BEV	Z9189-BEV-H	Z9189-BEV-HZN	Z9189-BEV-SS
1-1/8	1-5/32	2-1/4	5/16	Z9190-BEV	Z9190-BEV-H	Z9190-BEV-HZN	Z9190-BEV-SS
1-1/4	1-9/32	2-1/4	5/16	Z9191-BEV	Z9191-BEV-H	Z9191-BEV-HZN	Z9191-BEV-SS

Williams Washers—Machined

A thick Flat Washer used for spacing applications. These washers are manufactured on our screw machines—NOT stamped.

- **Steel Soft & Plain, Oiled** (12L14 Ledloy Low Carbon Steel)

“Williams” Washers —Machined				Order Number
Bolt Size	"A" ID	"B" OD	"C" Thickness	Soft, Plain Steel, and Oiled
#10	13/64"	1/2"	3/32"	Z9180
1/4"	9/32	5/8	1/8	Z9181
5/16	11/32	3/4	1/8	Z9182
3/8	13/32	7/8	1/8	Z9183
1/2	17/32	1	3/16	Z9185
5/8	21/32	1-1/4	1/4	Z9186
3/4	25/32	1-1/2	1/4	Z9187
7/8	29/32	1-3/4	1/4	Z9188
1	1-1/32	2	5/16	Z9189
1-1/8	1-5/32	2-1/4	5/16	Z9190
1-1/4	1-9/32	2-1/4	5/16	Z9191

**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**


USA **MADE**


Accurate
Manufactured
Products
Group

Machined Flat Washers

USA  **MADE**


Machined Flat Washers—4140 Alloy

Hardened to RC C40-50 Black Oxide

Fully machined—not stamped

Machined Flat Washers			4140 Alloy Hardened to RC C40-50 Black Ox
"A" ID	"B" OD	"C" Thickness	Order Number
.128-.132	.248-.252	.060-.064	Z0351
.190-.194	.373-.377	.060-.064	Z0352
.253-.257	.498-.502	.060-.064	Z0353
.316-.320	.623-.627	.091-.095	Z0354
.378-.382	.748-.752	.123-.127	Z0355
.503-.507	.998-1.002	.185-.189	Z0356

USA  **MADE**

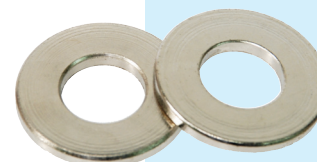

Dress (Straight Side) Flat Washers

Turned—Not Stamped

A superior finished straight side washer, perfect for a finished appearance. Usually Flat Washers have a sloped side, where the die break from regular stamping presses occurs. These washers have straight sides, and present a finely finished appearance.

Manufactured by Accurate from either low carbon steel, case hardened to .005/.010 depth, and Nickel plated for corrosion resistance, or 300 series Stainless Steel.

Dress (Straight Side) Flat Washers					
Screw Size	"A" ID	"B" OD	"C" Thickness	Order Number	
				Steel Nickel	Stainless Steel
#10	.203"	.500"	.093"	Z9094M	Z9094M-SS
1/4	.281	.625	.125	Z9095M	Z9095M-SS
5/16	.343	.750	.125	Z9096M	Z9096M-SS
3/8	.406	.875	.125	Z9097M	Z9097M-SS
7/16	.468	1.00	.125	Z9098M	Z9098M-SS
1/2	.531	1.125	.125	Z9099M	Z9099M-SS
5/8	.656	1.375	.125	Z9100M	Z9100M-SS
3/4	.781	1.625	.156	Z9101M	Z9101M-SS
7/8	.906	1.750	.156	Z9102M	Z9102M-SS
1	1.032	2.00	.187	Z9103M	Z9103M-SS

USA  **MADE**


Machined Flat Washers—18-8 Stainless Steel

Fully machined—not stamped

Machined Flat Washers			Stainless Steel
"A" ID	"B" OD	"C" Thickness	Order Number
.116-.126	.244-.256	.056-.068	Z0701SS
.144-.154	.306-.318	.056-.068	Z0702SS
.169-.179	.369-.381	.056-.068	Z0703SS
.196-.206	.431-.443	.072-.084	Z0704SS
.257-.267	.494-.506	.072-.084	Z0705SS
.323-.333	.619-.631	.087-.099	Z0706SS
.386-.396	.744-.756	.087-.099	Z0707SS

USA  **MADE**

 Accurate
Manufactured
Products
Group

 Phone: 317-472-9000 • FAX: 317-472-9010 • email: sales@ampg.com • www.ampg.com



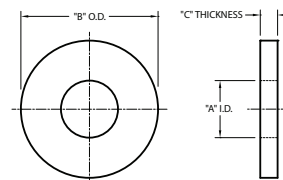
Component Flat Washers—Metric

USA **MADE**


Thick & Extra Thick Finished Flat Washers—Metric

Steel & Stainless Steel

The standard Flatwasher used in the Tool & Die industry. These Flatwashers are thicker than standard washers. All of these washers are produced in the USA. Depending on the size, they are stamped or machined.



Steel: Low Carbon Steel, Commercial
Case-Hard, Black Oxide Plated

Stainless Steel: 18-8 Stainless Steel

Thick & Extra Thick Finished Flatwashers—Metric

Bolt Size	"A" Inside Diameter	"B" Outside Diameter	"C" Thickness	Order Numbers	
				Steel	Stainless Steel
M3	M3.2	M8	M2	Z8803	Z8803-SS
M3	M3.2	M12	M3	Z8840	Z8840SS
M4	M4.3	M10	M2	Z8804	Z8804-SS
M4	M4.3	M14	M3	Z8842	Z8842SS
M5	M5.3	M11	M2	Z8805	Z8805-SS
M5	M5.3	M15	M3.5	Z8844	Z8844SS
M6	M6.4	M13	M2.5	Z8806	Z8806-SS
M6	M6.4	M18	M4.5	Z8846	Z8846SS
M8	M8.4	M16	M3	Z8808	Z8808-SS
M8	M8.4	M22	M5	Z8848	Z8848SS
M10	M10.5	M19	M3	Z8810	Z8810-SS
M10	M10.5	M23	M5	Z8850	Z8850SS
M12	M13	M22	M3	Z8812	Z8812-SS
M12	M13	M26	M5	Z8852	Z8852SS
M14	M15	M25	M3	Z8814	Z8814-SS
M14	M15	M27	M5	Z8854	Z8854SS
M16	M17	M28	M3.5	Z8816	Z8816-SS
M16	M17	M32	M5	Z8856	Z8856SS
M20	M21	M35	M3.5	Z8820	Z8820-SS
M20	M21	M35	M5	Z8860	Z8860SS
M24	M25	M40	M4	Z8824	Z8824-SS
M24	M25	M43	M6.5	Z8864	Z8864SS
M30	M31	M44	M4	Z8830	Z8830-SS
M30	M31	M48	M6.5	Z8870	Z8870SS
M36	M37	M50	M5	Z8836	Z8836-SS
M36	M37	M50	M7.5	Z8876	Z8876SS

**SPECIAL ORDERS
AVAILABLE—**

**Small Quantities
to Large Volume**


USA **MADE**


Countersunk Flat Washers

USA  **MADE**

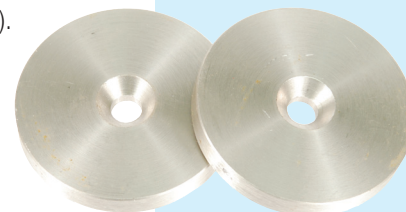

Dress (Countersunk) Flat Washers

Designed to accept the head of standard 82 degree flat head screws (Metric have angle of 90°). This allows the screw to seat flush, and presents a finished or dressed appearance. Used to hold handles, hand wheels, covering shafts, and many more applications.

Manufactured in the USA of 12L14 cold rolled steel, case hardened to .005/.010 depth, and black oxide plated.

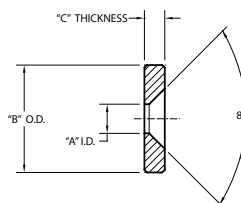
AND NOW IN 300 SERIES STAINLESS STEEL!

Tolerances: Inch: +/- .010 Metric: +/- .3mm

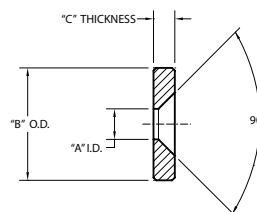


NEW—Stainless Steel Line

Dress (Countersunk) Flat Washers—Inch Sizes					
Screw Size	"A" ID	"B" OD	"C" Thickness	Order Number	
				Steel	Stainless Steel
#8	3/16"	3/4"	1/8"	Z9930	Z9930SS
#8	3/16	1	1/8	Z9931	Z9931SS
#10	13/64	13/16	9/64	Z9932	Z9932SS
#10	13/64	1-1/8	9/64	Z9933	Z9933SS
#10	13/64	1-1/4	9/64	Z9934	Z9934SS
1/4"	9/32	1-1/4	9/32	Z9935	Z9935SS
1/4"	9/32	1-3/8	9/32	Z9936	Z9936SS
1/4"	9/32	1-1/2	9/32	Z9937	Z9937SS
1/4"	9/32	1-3/4	9/32	Z9938	Z9938SS
1/4"	9/32	2	9/32	Z9939	Z9939SS
—	5/16	1-1/4	1/8	—	Z9973SS
—	.425	1-1/4	1/8	—	Z9974SS


USA  **MADE**

Dress (Countersunk) Flat Washers—Metric					
Screw Size	"A" ID	"B" OD	"C" Thickness	Order Number	
				Steel	Stainless Steel
M4	M4.3	M16	M3	Z9920	Z9920SS
M4	M4.3	M20	M3	Z9921	—
M5	M5.3	M22	M3.5	Z9922	Z9922SS
M5	M5.3	M25	M3.5	Z9923	Z9923SS
M5	M5.3	M28	M3.5	Z9924	—
M6	M6.4	M32	M4	Z9925	Z9925SS
M6	M6.4	M36	M4	Z9926	—
M6	M6.4	M40	M5	Z9927	Z9927SS
M6	M6.4	M45	M6	Z9928	—
M6	M6.4	M52	M6	Z9929	—


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Fit-Tite, Dock, & Spacing Washers



Fit-Tite Flat Washers

Low Carbon Steel, Case Hard and Black Oxide Plated

Fit-Tites are designed to have the extra large bearing surface of the USS Standard Flat Washers, but with a tighter tolerance Inner Diameter for a precision fit. Manufactured with Extra Thick Steel, which is twice as thick as a standard USS Washer. Precision stamped in the USA for extra strength and uniformity. Each washer marked with the Bolt Size and USA on the face.

Fit-Tite Flat Washer			Low Carbon Steel Case Hard and Black Oxide Plated				
Bolt Size	"A" ID		"B" OD	"C" Thickness	Lbs. per 100	Order Number	
1/4"	9/32"	.276/.286	3/4"	.745/.755	.130/.150	1.66 Lbs	Z9285
5/16	11/32	.338/.349	7/8	.870/.880	.130/.150	2.17	Z9286
3/8	13/32	.401/.411	1	.995/1.005	.130/.150	2.70	Z9287
1/2	17/32	.526/.536	1-3/8	1.370/1.380	.146/.166	5.26	Z9289
5/8	21/32	.651/.661	1-3/4	1.745/1.755	.146/.166	8.00	Z9290
3/4	13/16	.807/.818	2	1.995/2.205	.240/.260	14.70	Z9293
1	1-1/16	1.057/1.067	2-1/2	2.495/2.505	.240/.260	26.31	Z9294

USA **MADE**



Dock Washers

An extra thick and extra wide washer, low carbon steel with a galvanized coating. These washers are used for joining or spacing wood to wood and wood to metal parts.

Dock Washers					Order Numbers	
Bolt Size	"A" ID	"B" OD	"C" Thickness	Lbs. per 100	Steel Galvanized	Plain Steel
1/2"	9/16"	3"	1/4"	48 lbs	Z9670G	Z9670-A
5/8	11/16	3	1/4	47	Z9671G	Z9671-A
3/4	13/16	3	1/4	46	Z9693G	Z9693-A
7/8	15/16	3	1/4	45	Z9673G	Z9673-A
1"	1-1/16	3-1/4	1/4	52	Z9674G	Z9674-A
1-1/4	1-3/8	4	1/2	157	Z9675G	Z9675-A

Parts manufactured domestically and overseas

Case Hard Steel Stamped Spacing Flatwashers

A thick Flatwasher used for spacing applications where appearance and tight tolerances are not needed.

Material: Low Carbon Steel, Case Hardened, .005/.010 depth, Black Oxide Plated

Stamped Spacing Flatwashers—Case Hard				
Bolt Size	"A" ID	"B" OD	"C" Thickness	Case Hard Steel
1/4"	9/32"	25/32"	3/16"	Z9200U
5/16	11/32	53/64	3/16	Z9201U
3/8	13/32	1-1/16	3/16	Z9202U
7/16	15/32	1-1/4	3/16	Z9203U
1/2	17/32	1-3/16	3/16	Z9204U
5/8	21/32	1-7/16	3/16	Z9205U
3/4	25/32	1-11/16	1/4	Z9206U
7/8	29/32	1-53/64	1/4	Z9207U
1	1-1/32	2-1/16	9/32	Z9208U

USA **MADE**



**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**



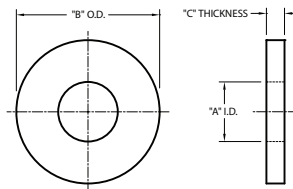
Shim Washers

USA  **MADE**


Wide Rim Shim Washers—Stainless Steel

Sometimes called Machinery Bushings. Originally used as a wear shim between 2 moving parts.

Wide Rim Shim Washers—St/St			
"A" ID	"B" OD	"C" Thickness	18-8 Stainless Steel
1/2"	7/8"	.048"	Z9940SS
5/8	1-1/4	.048	Z9944SS
3/4	1-1/4	.048	Z9946SS
3/4	1-1/2	.048	Z9948SS
1	2	.048	Z9950SS
1/2"	7/8"	.075	Z9954SS
5/8	1-1/4	.075	Z9956SS
3/4	1-1/4	.075	Z9958SS
3/4	1-1/2	.075	Z9960SS
1	2	.075	Z9962SS
1-1/4	1-7/8	.075	Z9964SS
1-1/2	2-1/4	.075	Z9968SS



Tolerances:

ID: +/- .010, OD: +/- .010, Thk: +/- .007

USA  **MADE**


Wide Rim Shim Washers—Steel

Wide Rim Shim Washers—Steel			
"A" ID	"B" OD	"C" Thickness	Steel Order Number
2-3/4" (+/- .010)	3-3/4" (+/- .010)	.187 (+.003/- .017)	Z9969

USA  **MADE**


Laminated Brass Shim Washers

Laminated Shim Washers						Brass
Shaft Size	"A" ID	"B" OD	"C" Thickness	Number of Layers	Layer Thickness	Order Number
1/8"	.135"	.234"	.032"	16	0.002	Z9975
3/16"	.193	.375	.032	16	0.002	Z9976
1/4"	.255	.500	.032	16	0.002	Z9977



D-Profile Shim Washers

18-8 Stainless Steel

USA  **MADE**

D-Profile Shim Washers—St/St			
D Shaft Size	"B" OD	"C" Thickness	18-8 Stainless Steel
1/4"	3/4"	.031"	Z0595
	3/4	.063	Z0596
	3/4	.125	Z0597
3/8"	1	.031	Z0560
	1	.063	Z0561
	1	.125	Z0562
1/2"	1-1/8	.031	Z0565
	1-1/8	.063	Z0566
	1-1/8	.125	Z0567
5/8"	1-1/4	.031	Z0570
	1-1/4	.063	Z0571
	1-1/4	.125	Z0572
3/4"	1-5/8	.031	Z0575
	1-5/8	.063	Z0576
	1-5/8	.125	Z0577
1"	1-3/4	.031	Z0580
	1-3/4	.063	Z0581
	1-3/4	.125	Z0582



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Precision Shaft Spacing/Shim Washers

USA **MADE**


Thickness tolerances:
 .001—.008 ± .0005
 .010—.016 ± .001

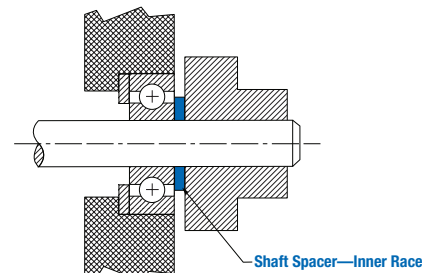
Bearing Inner Race Spacers

Used for Inner Race Spacers on shafts, or for a precision special dimensioned Flatwasher. Manufactured from Type 300 series Stainless Steel, and burr free. Precision manufactured to extra tight tolerances.

25 pcs. per Pkg. **USA** **MADE**

Precision Shaft Spacing/Shim Flat Washers —Bearing Inner Race

"A" ID	"B" OD	"C" Thickness	18-8 St/St Order Number
.032 - .037"	.104 - .114"	.001"	Z9986-001
.032 - .037	.104 - .114	.002	Z9986-002
.032 - .037	.104 - .114	.003	Z9986-003
.032 - .037	.104 - .114	.004	Z9986-004
.032 - .037	.104 - .114	.005	Z9986-005
.032 - .037	.104 - .114	.006	Z9986-006
.032 - .037	.104 - .114	.008	Z9986-008
.032 - .037	.104 - .114	.010	Z9986-010
.032 - .037	.104 - .114	.012	Z9986-012
.032 - .037	.104 - .114	.014	Z9986-014
.032 - .037	.104 - .114	.016	Z9986-016
.047 - .052	.120 - .130	.001	Z9987-001
.047 - .052	.120 - .130	.002	Z9987-002
.047 - .052	.120 - .130	.003	Z9987-003
.047 - .052	.120 - .130	.004	Z9987-004
.047 - .052	.120 - .130	.005	Z9987-005
.047 - .052	.120 - .130	.006	Z9987-006
.047 - .052	.120 - .130	.008	Z9987-008
.047 - .052	.120 - .130	.010	Z9987-010
.047 - .052	.120 - .130	.012	Z9987-012
.047 - .052	.120 - .130	.014	Z9987-014
.047 - .052	.120 - .130	.016	Z9987-016
.063 - .068	.151 - .161	0.001	Z9988-001
.063 - .068	.151 - .161	0.002	Z9988-002
.063 - .068	.151 - .161	0.003	Z9988-003
.063 - .068	.151 - .161	0.004	Z9988-004
.063 - .068	.151 - .161	0.005	Z9988-005
.063 - .068	.151 - .161	0.006	Z9988-006
.063 - .068	.151 - .161	0.008	Z9988-008
.063 - .068	.151 - .161	0.010	Z9988-010
.063 - .068	.151 - .161	0.012	Z9988-012
.063 - .068	.151 - .161	0.014	Z9988-014
.063 - .068	.151 - .161	0.016	Z9988-016
.079 - .084"	.159 - .169"	.001"	Z9701
.079 - .084	.159 - .169	.002	Z9702
.079 - .084	.159 - .169	.003	Z9703
.079 - .084	.159 - .169	.004	Z9704
.079 - .084	.159 - .169	.005	Z9705
.079 - .084	.159 - .169	.006	Z9706
.079 - .084	.159 - .169	.008	Z9708
.079 - .084	.159 - .169	.010	Z9710
.079 - .084	.159 - .169	.012	Z9712
.079 - .084	.159 - .169	.014	Z9714
.079 - .084	.159 - .169	.016	Z9716



Packed in
protective
packaging
to prevent
bending.

Type 316 St/St Order Number	Brass Order Number
—	Z9701-BR
—	Z9702-BR
—	Z9703-BR
—	Z9704-BR
Z9705-316	Z9705-BR
Z9706-316	Z9706-BR
Z9708-316	Z9708-BR
Z9710-316	Z9710-BR
Z9712-316	Z9712-BR
Z9714-316	Z9714-BR
Z9716-316	Z9716-BR

**SPECIAL ORDERS
AVAILABLE—
Small Quantities
to Large Volume**



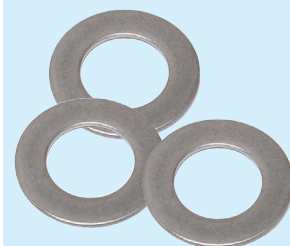
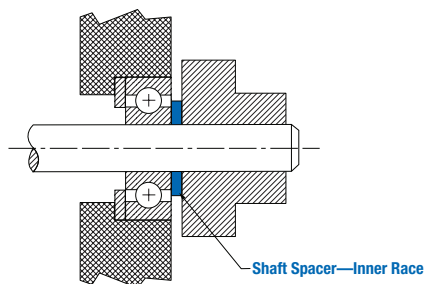
Precision Shaft Spacing/Shim Washers **USA MADE**

Bearing Inner Race Spacers

Used for Inner Race Spacers on shafts, or for a precision special dimensioned Flatwasher. Manufactured from Type 300 series Stainless Steel, and burr free. Precision manufactured to extra tight tolerances.

25 pcs. per Pkg.

Thickness tolerances:
 .001—.008 ± .0005
 .010—.016 ± .001



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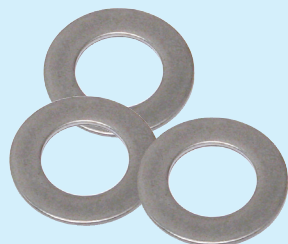
Precision Shaft Spacing/Shim Flat Washers —Bearing Inner Race					
"A" ID	"B" OD	"C" Thickness	18-8 St/St Order Number	Type 316 St/St Order Number	Brass Order Number
.093 - .098	.198 - .208	.001	Z9719	—	Z9719-BR
.093 - .098	.198 - .208	.002	Z9720	—	Z9720-BR
.093 - .098	.198 - .208	.003	Z9721	—	Z9721-BR
.093 - .098	.198 - .208	.004	Z9722	—	Z9722-BR
.093 - .098	.198 - .208	.005	Z9723	Z9723-316	Z9723-BR
.093 - .098	.198 - .208	.006	Z9724	Z9724-316	Z9724-BR
.093 - .098	.198 - .208	.008	Z9728	Z9728-316	Z9728-BR
.093 - .098	.198 - .208	.010	Z9730	Z9730-316	Z9730-BR
.093 - .098	.198 - .208	.012	Z9732	Z9732-316	Z9732-BR
.093 - .098	.198 - .208	.014	Z9734	Z9734-316	Z9734-BR
.093 - .098	.198 - .208	.016	Z9736	Z9736-316	Z9736-BR
.125 - .130	.182 - .192	0.001	Z9741	—	Z9741-BR
.125 - .130	.182 - .192	0.002	Z9742	—	Z9742-BR
.125 - .130	.182 - .192	0.003	Z9743	—	Z9743-BR
.125 - .130	.182 - .192	0.004	Z9744	—	Z9744-BR
.125 - .130	.182 - .192	0.005	Z9745	Z9745-316	Z9745-BR
.125 - .130	.182 - .192	0.006	Z9746	Z9746-316	Z9746-BR
.125 - .130	.182 - .192	0.008	Z9748	Z9748-316	Z9748-BR
.125 - .130	.182 - .192	0.01	Z9750	Z9750-316	Z9750-BR
.125 - .130	.182 - .192	0.012	Z9752	Z9752-316	Z9752-BR
.125 - .130	.182 - .192	0.014	Z9754	Z9754-316	Z9754-BR
.125 - .130	.182 - .192	0.016	Z9756	Z9756-316	Z9756-BR
.188 - .193	.245 - .255	0.001	Z9761	—	Z9761-BR
.188 - .193	.245 - .255	0.002	Z9762	—	Z9762-BR
.188 - .193	.245 - .255	0.003	Z9763	—	Z9763-BR
.188 - .193	.245 - .255	0.004	Z9764	—	Z9764-BR
.188 - .193	.245 - .255	0.005	Z9765	Z9765-316	Z9765-BR
.188 - .193	.245 - .255	0.006	Z9766	Z9766-316	Z9766-BR
.188 - .193	.245 - .255	0.008	Z9768	Z9768-316	Z9768-BR
.188 - .193	.245 - .255	0.01	Z9770	Z9770-316	Z9770-BR
.188 - .193	.245 - .255	0.012	Z9772	Z9772-316	Z9772-BR
.188 - .193	.245 - .255	0.014	Z9774	Z9774-316	Z9774-BR
.188 - .193	.245 - .255	0.016	Z9776	Z9776-316	Z9776-BR

USA MADE

Chart continued on next page



Precision Shaft Spacing/Shim Washers

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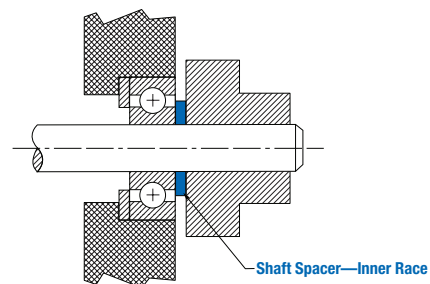
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25 pcs. per Pkg.

Thickness tolerances:
.001—.008 ± .0005
.010—.016 ± .001



Precision Shaft Spacing/Shim Flat Washers —Bearing Inner Race (cont'd)

"A" ID	"B" OD	"C" Thickness	18-8 St/St Order Number	Type 316 St/St Order Number	Brass Order Number
.250 - .255"	.370 - .380"	.001"	Z9781	—	Z9781-BR
.250 - .255	.370 - .380	.002	Z9782	—	Z9782-BR
.250 - .255	.370 - .380	.003	Z9783	—	Z9783-BR
.250 - .255	.370 - .380	.004	Z9784	—	Z9784-BR
.250 - .255	.370 - .380	.005	Z9785	Z9785-316	Z9785-BR
.250 - .255	.370 - .380	.006	Z9786	Z9786-316	Z9786-BR
.250 - .255	.370 - .380	.008	Z9788	Z9788-316	Z9788-BR
.250 - .255	.370 - .380	.010	Z9790	Z9790-316	Z9790-BR
.250 - .255	.370 - .380	.012	Z9792	Z9792-316	Z9792-BR
.250 - .255	.370 - .380	.014	Z9794	Z9794-316	Z9794-BR
.250 - .255	.370 - .380	.016	Z9796	Z9796-316	Z9796-BR
.313 - .318	.495 - .505	.001	Z9801	—	Z9801-BR
.313 - .318	.495 - .505	.002	Z9802	—	Z9802-BR
.313 - .318	.495 - .505	.003	Z9803	—	Z9803-BR
.313 - .318	.495 - .505	.004	Z9804	—	Z9804-BR
.313 - .318	.495 - .505	.005	Z9805	Z9805-316	Z9805-BR
.313 - .318	.495 - .505	.006	Z9806	Z9806-316	Z9806-BR
.313 - .318	.495 - .505	.008	Z9808	Z9808-316	Z9808-BR
.313 - .318	.495 - .505	.009	Z9809	—	—
.313 - .318	.495 - .505	.010	Z9810	Z9810-316	Z9810-BR
.313 - .318	.495 - .505	.012	Z9812	Z9812-316	Z9812-BR
.313 - .318	.495 - .505	.014	Z9814	Z9814-316	Z9814-BR
.313 - .318	.495 - .505	.016	Z9816	Z9816-316	Z9816-BR
.375 - .380	.557 - .567	.001	Z9821	—	Z9821-BR
.375 - .380	.557 - .567	.002	Z9822	—	Z9822-BR
.375 - .380	.557 - .567	.003	Z9823	—	Z9823-BR
.375 - .380	.557 - .567	.004	Z9824	—	Z9824-BR
.375 - .380	.557 - .567	.005	Z9825	Z9825-316	Z9825-BR
.375 - .380	.557 - .567	.006	Z9826	Z9826-316	Z9826-BR
.375 - .380	.557 - .567	.008	Z9828	Z9828-316	Z9828-BR
.375 - .380	.557 - .567	.010	Z9830	Z9830-316	Z9830-BR
.375 - .380	.557 - .567	.012	Z9832	Z9832-316	Z9832-BR
.375 - .380	.557 - .567	.014	Z9834	Z9834-316	Z9834-BR
.375 - .380	.557 - .567	.016	Z9836	Z9836-316	Z9836-BR
.500 - .505	.745 - .755	.001	Z9841	—	Z9841-BR
.500 - .505	.745 - .755	.002	Z9842	—	Z9842-BR
.500 - .505	.745 - .755	.003	Z9843	—	Z9843-BR
.500 - .505	.745 - .755	.004	Z9844	—	Z9844-BR
.500 - .505	.745 - .755	.005	Z9845	Z9845-316	Z9845-BR
.500 - .505	.745 - .755	.006	Z9846	Z9846-316	Z9846-BR
.500 - .505	.745 - .755	.008	Z9848	Z9848-316	Z9848-BR
.500 - .505	.745 - .755	.010	Z9850	Z9850-316	Z9850-BR
.500 - .505	.745 - .755	.012	Z9852	Z9852-316	Z9852-BR
.500 - .505	.745 - .755	.014	Z9854	Z9854-316	Z9854-BR
.500 - .505	.745 - .755	.016	Z9856	Z9856-316	Z9856-BR

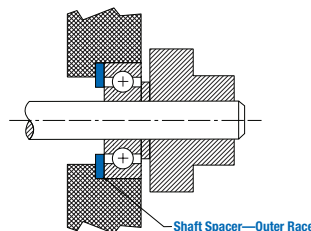
**SPECIAL ORDERS
AVAILABLE—**
**Small Quantities
to Large Volume**


USA **MADE**


Precision Shaft Spacing/Shim Washers **USA** **MADE**

Bearing Outer Race Spacers

Used for Outer Race Spacers on shafts, or for a precision special dimensioned Flatwasher. Manufactured from Type 300 series Stainless Steel, and burr free. Precision manufactured to extra tight tolerances.



Packed in protective packaging to prevent bending.

Precision Shaft Spacing/Shim Flat Washers —Bearing Outer Race					
"A" ID	"B" OD	"C" Thickness	18-8 St/St Order Number	Type 316 St/St Order Number	Brass Order Number
Fits Bearing Size 3/64 X 5/32					
.088 - .093"	.148 - .153"	.003"	Z9880-3	—	Z9880-3-BR
.088 - .093	.148 - .153	.005"	Z9880-5	Z9880-5-316	Z9880-5-BR
.088 - .093	.148 - .153	.007"	Z9880-7	Z9880-7-316	Z9880-7-BR
.088 - .093	.148 - .153	.010"	Z9880-10	Z9880-10-316	Z9880-10-BR
.088 - .093	.148 - .153	.020"	Z9880-20	Z9880-20-316	Z9880-20-BR
Fits Bearing Size .055 X 3/16					
.123 - .128	.173 - .178	.003"	Z9881-3	—	Z9881-3-BR
.123 - .128	.173 - .178	.005"	Z9881-5	Z9881-5-316	Z9881-5-BR
.123 - .128	.173 - .178	.007"	Z9881-7	Z9881-7-316	Z9881-7-BR
.123 - .128	.173 - .178	.010"	Z9881-10	Z9881-10-316	Z9881-10-BR
.123 - .128	.173 - .178	.020"	Z9881-20	Z9881-20-316	Z9881-20-BR
Fits Bearing Size 5/64 X 1/4 & 1/8 X 1/4					
.167 - .172	.243 - .248	.003"	Z9882-3	—	Z9882-3-BR
.167 - .172	.243 - .248	.005"	Z9882-5	Z9882-5-316	Z9882-5-BR
.167 - .172	.243 - .248	.007"	Z9882-7	Z9882-7-316	Z9882-7-BR
.167 - .172	.243 - .248	.010"	Z9882-10	Z9882-10-316	Z9882-10-BR
.167 - .172	.243 - .248	.020"	Z9882-20	Z9882-20-316	Z9882-20-BR
Fits Bearing Size 3/32 X 5/16 & 1/8 X 5/16					
.206 - .211	.305 - .310	.003"	Z9883-3	—	Z9883-3-BR
.206 - .211	.305 - .310	.005"	Z9883-5	Z9883-5-316	Z9883-5-BR
.206 - .211	.305 - .310	.007"	Z9883-7	Z9883-7-316	Z9883-7-BR
.206 - .211	.305 - .310	.010"	Z9883-10	Z9883-10-316	Z9883-10-BR
.206 - .211	.305 - .310	.020"	Z9883-20	Z9883-20-316	Z9883-20-BR
Fits Bearing Size 1/8 X 3/8 & 3/16 X 3/8					
.253 - .258	.368 - .373	.003"	Z9884-3	—	Z9884-3-BR
.253 - .258	.368 - .373	.005"	Z9884-5	Z9884-5-316	Z9884-5-BR
.253 - .258	.368 - .373	.007"	Z9884-7	Z9884-7-316	Z9884-7-BR
.253 - .258	.368 - .373	.010"	Z9884-10	Z9884-10-316	Z9884-10-BR
.253 - .258	.368 - .373	.020"	Z9884-20	Z9884-20-316	Z9884-20-BR
Fits Bearing Size 3/16 X 1/2 & 1/4 X 1/2					
.378 - .383	.493 - .498	.003"	Z9885-3	—	Z9885-3-BR
.378 - .383	.493 - .498	.005"	Z9885-5	Z9885-5-316	Z9885-5-BR
.378 - .383	.493 - .498	.007"	Z9885-7	Z9885-7-316	Z9885-7-BR
.378 - .383	.493 - .498	.010"	Z9885-10	Z9885-10-316	Z9885-10-BR
.378 - .383	.493 - .498	.020"	Z9885-20	Z9885-20-316	Z9885-20-BR
Fits Bearing Size 1/4 X 5/8					
.503 - .508	.618 - .623	.003"	Z9886-3	—	Z9886-3-BR
.503 - .508	.618 - .623	.005"	Z9886-5	Z9886-5-316	Z9886-5-BR
.503 - .508	.618 - .623	.007"	Z9886-7	Z9886-7-316	Z9886-7-BR
.503 - .508	.618 - .623	.010"	Z9886-10	Z9886-10-316	Z9886-10-BR
.503 - .508	.618 - .623	.020"	Z9886-20	Z9886-20-316	Z9886-20-BR
Fits 5/8 Shaft Size					
.632	.750	.008	Z9878	—	—
Fits Bearing Size 3/8 X 7/8					
.687 - .692	.868 - .873	.003"	Z9887-3	—	Z9887-3-BR
.687 - .692	.868 - .873	.005"	Z9887-5	Z9887-5-316	Z9887-5-BR
.687 - .692	.868 - .873	.007"	Z9887-7	Z9887-7-316	Z9887-7-BR
.687 - .692	.868 - .873	.010"	Z9887-10	Z9887-10-316	Z9887-10-BR
.687 - .692	.868 - .873	.020"	Z9887-20	Z9887-20-316	Z9887-20-BR



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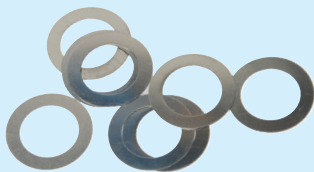
Stripper Bolt Shim Washers

USA **MADE**

Lengthening Shim Washers

18-8 Stainless Steel

Add these washers over the threads of our Stainless Steel Stripper Bolts, and you extend the shoulder, making the shoulder longer for more bearing surface. OD matches shoulder diameter.



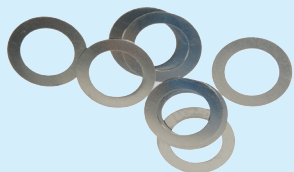
Stripper Bolt Lengthening Shim Washer					18-8 St/St
Fits Shoulder Size	Fits Thread Size	"A" ID	"B" OD	"C" Thickness	Order Number
1/4"	#10	.171-.182"	.239-.243"	.0045-.0055"	Z9888-005
1/4	#10	.171-.182	.239-.243"	.014-.018	Z9888-016
1/4	#10	.171-.182	.239-.243"	.027-.033	Z9888-032
5/16	1/4	.234-.245	.301-.305	.0045-.0055"	Z9889-005
5/16	1/4	.234-.245	.301-.305	.014-.018	Z9889-016
5/16	1/4	.234-.245	.301-.305	.027-.033	Z9889-030
3/8	5/16	.289-.300	.363-.367	.0045-.0055"	Z9890-005
3/8	5/16	.289-.300	.363-.367	.014-.018	Z9890-016
3/8	5/16	.289-.300	.363-.367	.027-.033	Z9890-030
1/2	3/8	.352-.363	.489-.493	.0045-.0055"	Z9891-005
1/2	3/8	.352-.363	.489-.493	.014-.018	Z9891-016
1/2	3/8	.352-.363	.489-.493	.027-.033	Z9891-030
5/8	1/2	.473-.484	.614-.618	.014-.018	Z9892-016
5/8	1/2	.473-.484	.614-.618	.027-.033	Z9892-030

USA **MADE**

Shortening Shim Washers

18-8 Stainless Steel

Slip these washers over the shoulder of our Stainless Steel Stripper Bolts, and you reduce the shoulder length, making the shoulder shorter for more clearance under the head. OD matches head diameter of the Stripper Bolt.



Stripper Bolt Shortening Shim Washer				18-8 St/St
Fits Shoulder Size	"A" ID	"B" OD	"C" Thickness	Order Number
1/4"	.251-.262"	.373-.377"	.0045-.0055"	Z9895-005
1/4	.251-.262	.373-.377	.014-.018	Z9895-016
1/4	.251-.262	.373-.377	.027-.033	Z9895-030
5/16	.314-.325	.436-.440	.0045-.0055	Z9896-005
5/16	.314-.325	.436-.440	.014-.018	Z9896-016
5/16	.314-.325	.436-.440	.027-.033	Z9896-030
3/8	.376-.387	.561-.565	.0045-.0055	Z9897-005
3/8	.376-.387	.561-.565	.014-.018	Z9897-016
3/8	.376-.387	.561-.565	.027-.033	Z9897-030
1/2	.501-.512	.748-.752	.0045-.0055	Z9898-005
1/2	.501-.512	.748-.752	.014-.018	Z9898-016
1/2	.501-.512	.748-.752	.027-.033	Z9898-030
5/8	.626-.637	.873-.877	.014-.018	Z9899-016
5/8	.626-.637	.873-.877	.027-.033	Z9899-030
3/4	.751-.762	.998-1.002	.014-.018	Z9899-116
3/4	.751-.762	.998-1.002	.027-.033	Z9899-130

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**SPECIAL ORDERS
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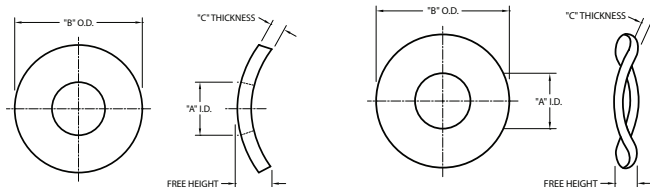


Wave Washers & C Washers

USA  **MADE**

Wave Washers—One and Three Wave

These wave washers act as springs because of their flexible shape. Used on shafts, and in assemblies where tolerances are too large, these washers expand/compress to take up the space.



One Wave



Three Wave

Wave Washers — One and Three Wave						18-8 St/St	
Screw Size	"A" ID	"B" OD	"C" Thickness	Free Height	Material	Type	Order Number
#0	.067-.077	.165-.175	.010	.035-.050	18-8 ST/ST	1 WAVE	WAV100SS
#2	.091-.101	.125-.135	.004	.020-.040	18-8 ST/ST	1 WAVE	WAV102SS
#4	.118-.124	.235-.245	.008	.031-.056	18-8 ST/ST	1 WAVE	WAV104SS
#5	.130-.140	.240-.250	.004	.045-.055	18-8 ST/ST	1 WAVE	WAV105SS
#5	.130-.140	.240-.250	.006	.034	18-8 ST/ST	1 WAVE	WAV111SS
#6	.143-.153	.265-.275	.005	.046-.062	18-8 ST/ST	1 WAVE	WAV106SS
#6	.143-.153	.265-.275	.007	.035	18-8 ST/ST	1 WAVE	WAV112SS
#8	.160-.170	.280-.290	.006	.028-.053	18-8 ST/ST	1 WAVE	WAV108SS
#8	.169-.179	.317-.327	.0075	.042	18-8 ST/ST	1 WAVE	WAV113SS
#10	.195-.205	.297-.307	.010	.041-.061	18-8 ST/ST	1 WAVE	WAV110SS
#10	.195-.205	.365-.375	.009	.047	18-8 ST/ST	1 WAVE	WAV114SS
1/4	.260-.270	.485-.495	.011	.063	18-8 ST/ST	1 WAVE	WAV115SS
5/16	.322-.332	.607-.617	.013	.077	18-8 ST/ST	1 WAVE	WAV116SS
#2	.095-.100	.166-.171	.010	.030-.040	18-8 ST/ST	3 WAVE	WAV302SS
#4	.125-.130	.245-.255	.005	.015-.025	18-8 ST/ST	3 WAVE	WAV304SS
#5	.128-.133	.187-.192	.005	.025-.035	18-8 ST/ST	3 WAVE	WAV305SS
#6	.145-.150	.240-.245	.006	.035-.050	18-8 ST/ST	3 WAVE	WAV306SS
#8	.190-.200	.240-.250	.006	.035-.055	18-8 ST/ST	3 WAVE	WAV308SS
#10	.203-.208	.365-.385	.005	.021-.041	18-8 ST/ST	3 WAVE	WAV310SS

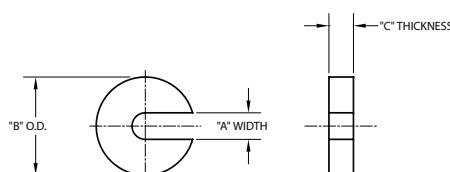
USA  **MADE**

C Washers

12L14 Low Carbon Steel or 300 Series Stainless Steel

The slot allows addition or removal of the washer without taking the assembly completely apart.

C Washers					
Bolt Size	"A" Width	"B" Outside Diameter	"C" Thickness	Steel Order Number	Stainless Order Number
#10-1/4"	9/32"	3/4"	1/4"	Z9420	Z9420SS
#10-1/4"	9/32	1	1/4	Z9421	Z9421SS
1/4	9/32	1-3/4	1/4	Z9438	—
5/16	11/32	1-1/4	5/16	Z9422	Z9422SS
5/16 & 3/8	13/32	1-1/4	3/8	Z9424	Z9424SS
5/16 & 3/8	13/32	1-1/2	3/8	Z9425	Z9425SS
5/16 & 3/8	13/32	1-3/4	3/8	Z9426	Z9426SS
3/8	13/32	2	3/8	Z9439	—
3/8	13/32	2-1/2	3/8	Z9440	—
7/16 & 1/2	17/32	1-7/8	3/8	Z9428	Z9428SS
7/16 & 1/2	17/32	2-1/4	3/8	Z9429	Z9429SS
1/2	17/32	2	3/8	Z9441	—
5/8	21/32	2-1/8	3/8	Z9431	Z9431SS
3/4	25/32	2-1/2	7/16	Z9433	Z9433SS
7/8 & 1	1-1/32	2-1/2	7/16	Z9434	Z9434SS
1	1-1/32	3	9/16	Z9442	—
1-1/4	1-5/16	3	7/16	Z9437	Z9437SS
1-1/4	1-9/32	3	5/8	Z9443	—



12L14 Low Carbon Steel is Commercial Case Hard, Black Oxide Plated

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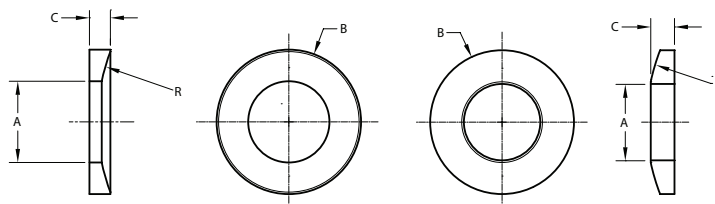
Spherical Washers

USA **MADE**

Spherical Washers—12L14 Low Carbon Steel

Case Hard, Black Oxide Plated

Available as individual male or female washers or as a matched set of one male and one female washer.

Made in USA


Spherical Washers					Low Carbon Steel, Case Hard & Black Oxide	
	Stud Size	"A" ID	"B" OD	"C" Thickness	"R" Radius	Order Number
Male	3/16 or 1/4	9/32	5/8	.120	3/4	Z9450M
Female		5/16		.120	3/4	Z9450F
Set				3/16		Z9450SET
Male	5/16 or 3/8	13/32	7/8	.130	1-1/4	Z9454M
Female		7/16		.156	1-1/4	Z9454F
Set				1/4		Z9454SET
Male	7/16 or 1/2	17/32	1-1/8	.188	1-1/2	Z9458M
Female		9/16		.188	1-1/2	Z9458F
Set				5/16		Z9458SET
Male	5/8	21/32	1-3/8	.188	1-3/4	Z9462M
Female		11/16		.219	1-3/4	Z9462F
Set				5/16		Z9462SET
Male	3/4	25/32	1-5/8	.219	2-1/4	Z9466M
Female		13/16		.265	2-1/4	Z9466F
Set				3/8		Z9466SET
Male	7/8	15/16	1-3/4	.240	2-1/2	Z9470M
Female		1		.240	2-1/2	Z9470F
Set				3/8		Z9470SET
Male	1	1-1/16	2	.330	2-3/4	Z9474M
Female		1-1/8		.290	2-3/4	Z9474F
Set				1/2		Z9474SET
Male	1-1/8	1-3/16	2-1/4	.281	3	Z9478M
Female		1-1/4		.350	3	Z9478F
Set				1/2		Z9478SET
Male	1-1/4	1-5/16	2-1/2	.312	3	Z9484M
Female		1-3/8		.350	3	Z9484F
Set				1/2		Z9484SET
Male	1-1/2	1-9/16	2-7/8	.350	3	Z9488M
Female		1-5/8		.390	3	Z9488F
Set				1/2		Z9488SET

**SPECIAL ORDERS
AVAILABLE—**
**Small Quantities
to Large Volume**

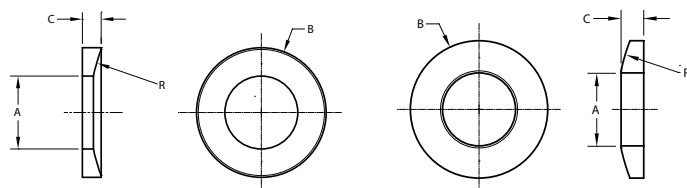
USA **MADE**


Spherical Washers—Metric

USA  **MADE**

Spherical Washers—to DIN 6319 C and D— Steel & Stainless Steel

Available as individual male or female washers or as a matched set of one male and one female washer.



Spherical Washers—Metric							
						Order Number	
						Low Carbon Steel Case Hard Black Oxide Plated	Stainless Steel
	Stud Size	"A" ID	"B" OD	"C" Thickness	"R" Radius		
Male	M6	M6.4	M12	M2.3	M9	Z9520M	Z9521M
Female		M7.1	M12	M2.8		Z9520F	Z9521F
Set			M12	M4.2		Z9520SET	Z9521SET
Male	M8	M8.4	M17	M3.2	M12	Z9522M	Z9523M
Female		M9.6	M17	M3.5		Z9522F	Z9523F
Set			M17	M5.6		Z9522SET	Z9523SET
Male	M10	M10.5	M21	M4	M15	Z9524M	Z9525M
Female		M12	M21	M4.2		Z9524F	Z9525F
Set			M21	M6.5		Z9524SET	Z9525SET
Male	M12	M13	M24	M4.6	M17	Z9526M	Z9527M
Female		M14.2	M24	M5		Z9526F	Z9527F
Set			M24	M8.0		Z9526SET	Z9527SET
Male	M14	M15	M28	M5	M22	Z9528M	N/A
Female		M16.5	M28	M5.6		Z9528F	
Set			M28	M9.0		Z9528SET	
Male	M16	M17	M30	M5.3	M22	Z9530M	Z9531M
Female		M19	M30	M6.2		Z9530F	Z9531F
Set			M30	M9.6		Z9530SET	Z9531SET
Male	M20	M21	M36	M6.3	M27	Z9532M	Z9533M
Female		M23.2	M36	M7.5		Z9532F	Z9533F
Set			M36	M11.7		Z9532SET	Z9533SET
Male	M24	M25	M44	M8.2	M32	Z9534M	Z9535M
Female		M28	M44	M9.5		Z9534F	Z9535F
Set			M44	M15.2		Z9534SET	Z9535SET
Male	M30	M31	M56	M11.2	M41	Z9536M	Z9537M
Female		M35	M56	M12		Z9536F	Z9537F
Set			M56	M19.2		Z9536SET	Z9537SET

USA  **MADE**



Military Spec Flat Washers

USA **MADE**

AN960 Washers

18-8 Stainless Steel

Made in the USA to Military Specification. Available in bulk or in Paks.

Certification is available at no charge if requested at time of order.



AN960 MIL SPEC Flat Washers				18-8 Stainless Steel			
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers			
				25/bag	50/bag	100/bag	Bulk Packed
#2	.099	.250	.006-.026	—	—	AN960-C2L	AN960-C2LBULK
#2	.099	.250	.022-.042	—	—	AN960-C2	AN960-C2BULK
#3	.105	.250	.006-.026	—	—	AN960-C3L	AN960-C3LBULK
#3	.105	.250	.022-.042	—	—	AN960-C3	AN960-C3BULK
#4	.125	.312	.006-.026	—	—	AN960-C4L	AN960-C4LBULK
#4	.125	.312	.022-.042	—	—	AN960-C4	AN960-C4BULK
#6	.149	.375	.006-.026	—	—	AN960-C6L	AN960-C6LBULK
#6	.149	.375	.022-.042	—	—	AN960-C6	AN960-C6BULK
#8	.174	.375	.006-.026	—	—	AN960-C8L	AN960-C8LBULK
#8	.174	.375	.022-.042	—	—	AN960-C8	AN960-C8BULK
#10	.203	.438	.022-.042	—	—	AN960-C10L	AN960-C10LBULK
#10	.203	.438	.053-.073	—	—	AN960-C10	AN960-C10BULK
1/4"	.265	.500	.022-.042	—	AN960-C416L	—	AN960-C416LBULK
1/4	.265	.500	.053-.073	—	AN960-C416	—	AN960-C416BULK
5/16	.328	.562	.022-.042	—	AN960-C516L	—	AN960-C516LBULK
5/16	.328	.562	.053-.073	—	AN960-C516	—	AN960-C516BULK
3/8	.390	.625	.022-.042	—	AN960-C616L	—	AN960-C616LBULK
3/8	.390	.625	.053-.073	—	AN960-C616	—	AN960-C616BULK
7/16	.453	.750	.022-.042	AN960-C716L	—	—	AN960-C716LBULK
7/16	.453	.750	.053-.073	AN960-C716	—	—	AN960-C716BULK
1/2	.515	.875	.022-.042	AN960-C816L	—	—	AN960-C816LBULK
1/2	.515	.875	.053-.073	AN960-C816	—	—	AN960-C816BULK
9/16	.578	1.062	.053-.073	AN960-C916	—	—	AN960-C916BULK
5/8	.640	1.188	.053-.073	AN960-C1016	—	—	AN960-C1016BULK
3/4	.765	1.312	.080-.100	AN960-C1216	—	—	AN960-C1216BULK
7/8	.890	1.500	.080-.100	AN960-C1416	—	—	AN960-C1416BULK
1"	1.015	1.750	.080-.100	AN960-C1616	—	—	AN960-C1616BULK

NAS620 Washers

18-8 Stainless Steel

Made in the USA to Military Specification. Available in bulk or in Paks.

Certification is available at no charge if requested at time of order.



**SPECIAL ORDERS
AVAILABLE—**
**Small Quantities
to Large Volume**



NAS620 MIL SPEC Washers				18-8 Stainless Steel		
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Numbers		
				50/bag	100/bag	Bulk Packed
#0	.063	.099	.014-.018	—	NAS620-C0	NAS620-C0BULK
#2	.089	.149	.014-.018	—	NAS620-C2	NAS620-C2BULK
#3	.102	.180	.014-.018	—	NAS620-C3L	NAS620-C3LBULK
#3	.102	.180	.029-.035	—	NAS620-C3	NAS620-C3BULK
#4	.115	.209	.014-.018	—	NAS620-C4L	NAS620-C4LBULK
#4	.115	.209	.029-.035	—	NAS620-C4	NAS620-C4BULK
#5	.128	.238	.014-.018	—	NAS620-C5L	NAS620-C5LBULK
#5	.128	.238	.029-.035	—	NAS620-C5	NAS620-C5BULK
#6	.143	.267	.014-.018	—	NAS620-C6L	NAS620-C6LBULK
#6	.143	.267	.029-.035	—	NAS620-C6	NAS620-C6BULK
#8	.169	.304	.014-.018	—	NAS620-C8L	NAS620-C8LBULK
#8	.169	.304	.029-.035	—	NAS620-C8	NAS620-C8BULK
#10	.195	.354	.029-.035	NAS620-C10L	—	NAS620-C10LBULK
#10	.195	.354	.059-.067	NAS620-C10	—	NAS620-C10BULK
1/4"	.255	.468	.029-.035	NAS620-C416L	—	NAS620-C416LBULK
1/4	.255	.468	.059-.067	NAS620-C416	—	NAS620-C416BULK

USA **MADE**


Accurate
Manufactured
Products
Group

Military Spec Flat Washers

USA  **MADE**


NAS1149 Washers

18-8 Stainless Steel. Made in the USA to Military Specification. Available in bulk or in Paks.

Certification is available at no charge if requested at time of order.

NAS1149 MIL SPEC Washers				18-8 Stainless Steel							
Bolt	"A"	"B"	"C"	Order Numbers							
Size	ID	OD	Thickness	1/bag	5/bag	10/bag	25/bag	50/bag	100/bag	Bulk Packed	
#2	.099	.250	.028-.036	—	—	—	—	—	NAS1149-CN232R	NAS1149-CN232RBULK	
#3	.105	.250	.028-.036	—	—	—	—	—	NAS1149-CN332R	NAS1149-CN332RBULK	
#4	.125	.312	.028-.036	—	—	—	—	—	NAS1149-CN432R	NAS1149-CN432RBULK	
#5	.140	.438	.037-.047	—	—	—	—	—	NAS1149-CN542R	NAS1149-CN542RBULK	
#6	.149	.375	.028-.036	—	—	—	—	—	NAS1149-CN632R	NAS1149-CN632RBULK	
#8	.174	.375	.028-.036	—	—	—	—	—	NAS1149-CN832R	NAS1149-CN832RBULK	
#10	.203	.438	.028-.036	—	—	—	—	—	NAS1149-C0332R	NAS1149-C0332RBULK	
#10	.203	.438	.057-.069	—	—	—	—	—	NAS1149-C0363R	NAS1149-C0363RBULK	
1/4"	.265	.500	.028-.036	—	—	—	—	NAS1149-C0432R	—	NAS1149-C0432RBULK	
1/4"	.265	.500	.057-.069	—	—	—	—	NAS1149-C0463R	—	NAS1149-C0463RBULK	
5/16	.328	.562	.028-.036	—	—	—	—	NAS1149-C0532R	—	NAS1149-C0532RBULK	
5/16	.328	.562	.057-.069	—	—	—	—	NAS1149-C0563R	—	NAS1149-C0563RBULK	
3/8	.390	.625	.028-.036	—	—	—	—	NAS1149-C0632R	—	NAS1149-C0632RBULK	
3/8	.390	.625	.057-.069	—	—	—	—	NAS1149-C0663R	—	NAS1149-C0663RBULK	
7/16	.453	.750	.028-.036	—	—	—	NAS1149-C0732R	—	—	NAS1149-C0732RBULK	
7/16	.453	.750	.057-.069	—	—	—	NAS1149-C0763R	—	—	NAS1149-C0763RBULK	
1/2	.515	.875	.028-.036	—	—	—	NAS1149-C0832R	—	—	NAS1149-C0832RBULK	
1/2	.515	.875	.057-.069	—	—	—	NAS1149-C0863R	—	—	NAS1149-C0863RBULK	
9/16	.578	1.062	.028-.036	—	—	NAS1149-C0963R	—	—	—	NAS1149-C0963RBULK	
5/8	.640	1.188	.057-.069	—	NAS1149-C1063R	—	—	—	—	NAS1149-C1063RBULK	
3/4	.765	1.312	.082-.098	—	NAS1149-C1290R	—	—	—	—	NAS1149-C1290RBULK	
7/8	.890	1.500	.082-.098	—	NAS1149-C1490R	—	—	—	—	NAS1149-C1490RBULK	
1"	1.015	1.750	.082-.098	NAS1149-C1690R	—	—	—	—	—	NAS1149-C1690RBULK	

USA  **MADE**

MS15795 Washers

18-8 Stainless Steel. Made in the USA to Military Specification. Available in bulk or in Paks.

Certification is available at no charge if requested at time of order.

MS15795 MIL SPEC Washers				18-8 Stainless Steel							
Bolt	"A"	"B"	"C"	Order Numbers							
Size	ID	OD	Thickness	1/bag	5/bag	25/bag	50/bag	100/bag	Bulk Packed		
#0,1	.078	.188	.016-.025	—	—	—	—	MS15795-801	MS15795-801BULK		
#2	.094	.250	.016-.025	—	—	—	—	MS15795-802	MS15795-802BULK		
#4	.125	.250	.017-.028	—	—	—	—	MS15795-803	MS15795-803BULK		
#4	.125	.312	.032-.040	—	—	—	—	MS15795-804	MS15795-804BULK		
#6	.156	.312	.027-.048	—	—	—	—	MS15795-805	MS15795-805BULK		
#6	.156	.375	.036-.065	—	—	—	—	MS15795-806	MS15795-806BULK		
#8	.188	.375	.036-.065	—	—	—	—	MS15795-807	MS15795-807BULK		
#8	.188	.438	.036-.065	—	—	—	—	MS15795-841	MS15795-841BULK		
#10	.219	.438	.036-.065	—	—	—	—	MS15795-808	MS15795-808BULK		
#10	.219	.500	.036-.065	—	—	—	—	MS15795-842	MS15795-842BULK		
#12	.250	.562	.051-.080	—	—	—	MS15795-809	—	MS15795-809BULK		
1/4"	.281	.625	.051-.080	—	—	—	MS15795-810	—	MS15795-810BULK		
1/4"	.312	.734	.051-.080	—	—	—	MS15795-811	—	MS15795-811BULK		
5/16	.344	.688	.051-.080	—	—	—	MS15795-812	—	MS15795-812BULK		
5/16	.375	.875	.064-.104	—	—	MS15795-813	—	—	MS15795-813BULK		
3/8	.406	.812	.051-.080	—	—	MS15795-814	—	—	MS15795-814BULK		
3/8	.438	1"	.064-.104	—	—	MS15795-815	—	—	MS15795-815BULK		
7/16	.469	.922	.051-.080	—	—	MS15795-816	—	—	MS15795-816BULK		
7/16	.500	1.250	.064-.104	—	MS15795-817	—	—	—	MS15795-817BULK		
1/2	.531	1.062	.074-.121	—	MS15795-818	—	—	—	MS15795-818BULK		
1/2	.562	1.375	.086-.132	—	MS15795-819	—	—	—	MS15795-819BULK		
5/8	.656	1.312	.074-.121	—	MS15795-820	—	—	—	MS15795-820BULK		
5/8	.688	1.750	.108-.160	—	MS15795-821	—	—	—	MS15795-821BULK		
3/4	.812	1.469	.108-.160	—	MS15795-822	—	—	—	MS15795-822BULK		
3/4	.812	2"	.122-.177	MS15795-823	—	—	—	—	MS15795-823BULK		
7/8	.938	1.750	.108-.160	MS15795-824	—	—	—	—	MS15795-824BULK		
7/8	.938	2.250	.136-.192	MS15795-825	—	—	—	—	MS15795-825BULK		
1"	1.062	2"	.108-.160	MS15795-826	—	—	—	—	MS15795-826BULK		
1"	1.062	2.500	.136-.192	MS15795-827	—	—	—	—	MS15795-827BULK		


USA  **MADE**




Square Flat Washers

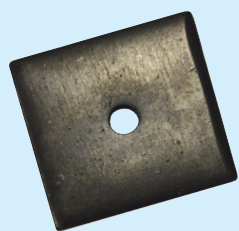
USA **MADE**

Square Flat Washers

Used for shimming machinery, construction applications, utility and pole line hardware applications, for wood hardware applications, and anywhere an extra thick and extra large shim is needed.

AVAILABLE IN:

- Steel Galvanized
- Steel, Case Hard & Black Oxide
- 300 Series Stainless Steel
- DiamondBack Steel Plate Galvanized



**NEW
3" & 4"
SIZES
AVAILABLE**

Square Flat Washers							
Bolt Size	"A" ID	"B" Square	"C" Thickness	Steel Galvanized	Steel, Case Hard & Black Oxide	300 Series Stainless Steel	DiamondBack Steel Plate Galvanized
1/4"	5/16"	2"	1/4"	—	Z8950H	Z8950SS	Z8950D
3/8"	7/16"	2"	1/4"	Z8952G	Z8952H	Z8952SS	Z8952D
7/16	1/2	2	1/4	—	Z8953H	—	—
1/2	9/16	2	1/4	Z8954G	Z8954H	Z8954SS	Z8954D
1/2	9/16	2	1/8	Z8940G	—	—	—
1/2	9/16	3	1/4	Z8880-HDG	—	—	—
5/8	11/16	2	1/4	Z8956G	Z8956H	Z8956SS	Z8956D
5/8	11/16	2	1/8	Z8942G	—	—	—
5/8	11/16	2-1/4	3/16	Z8944G	—	—	—
5/8	11/16	3	1/4	Z8881-HDG	—	—	—
5/8	11/16	4	1/4	Z8892-HDG	—	—	—
3/4	13/16	2	1/8	Z8945G	—	—	—
3/4	13/16	2	1/4	Z8958G	Z8958H	Z8958SS	Z8958D
3/4	13/16	2-1/4	3/16	Z8946G	—	—	—
3/4	13/16	3	3/16	Z8947G	—	—	—
3/4	13/16	3	1/4	Z8948G	—	—	—
3/4	13/16	3	1/4	Z8882-HDG	—	—	—
3/4	13/16	4	1/4	Z8893-HDG	—	—	—
7/8	15/16	2	1/4	Z8960G	Z8960H	Z8960SS	—
7/8	15/16	3	1/4	Z8883-HDG	—	—	—
7/8	15/16	4	1/4	Z8894-HDG	—	—	—
1	1-1/16	2	1/4	—	Z8962H	Z8962SS	Z8962D
1	1-1/16	3	1/4	Z8884-HDG	—	—	—
1	1-1/16	4	1/4	Z8895-HDG	—	—	—

**SPECIAL ORDERS
AVAILABLE—**

**Small Quantities
to Large Volume**

*Order numbers ending with
-HDG indicate washers that
are Hot-Dip Galvanized

USA **MADE**


Square Washers & Flange Washers **USA MADE**

Square Flat Washers—Metric

Used for shimming machinery, construction applications, utility and pole line hardware applications, for wood hardware applications, and anywhere an extra thick and extra large shim is needed.

Square Flatwashers—Metric				Steel— Case Hard & Black Oxide
Bolt Size	"A" Inside Diameter	"B" Outside Square	"C" Thickness	Order Number
M6	M9	M50	M6	Z8906
M8	M11	M50	M6	Z8908
M10	M13	M50	M6	Z8910
M12	M16	M50	M6	Z8912
M14	M18	M50	M6	Z8914
M16	M22	M50	M6	Z8916
M20	M26	M50	M6	Z8920
M22	M28	M50	M6	Z8922
M24	M32	M50	M6	Z8924
M30	M38	M50	M6	Z8930

Low Carbon Steel, Case Hard and Black Oxide Plated.

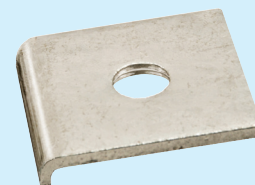

USA MADE

Tapped Flange Washers—Square Corners

Made in the USA of Low Carbon Steel, Hot-Dipped Galvanized

The treaded hole and the raised flange make these washers very easy to tighten down. These washers can be used under insulator pins where crossarm braces are attached or wherever a static proof connection is required. The tapped through hole used with a nut provides a secure double nut connection.

Tapped Flange Washer—Square Corner				Steel, Hot-Dipped Galvanized
Screw Size	"A" Overall Length	"B" Washer Width	"C" Thickness	Order Number
1/2"-13	3-11/16"	3"	3/16"	Z8887-STL-SQ
5/8"-11	3-11/16"	3"	3/16"	Z8888-STL-SQ
3/4"-10	3-11/16"	3"	3/16"	Z8889-STL-SQ
7/8"-9	3-11/16"	3"	3/16"	Z8890-STL-SQ

USA MADE

**All-New
Flange
Washers**

Tapped Flange Washers—Round Corners

Made in the USA of Low Carbon Steel, Hot-Dipped Galvanized

The treaded hole and the raised flange make these washers very easy to tighten down. These washers are used for crossarm anti-split bolts and where crossarm braces attach to the crossarm. The flange allows the washer to be tightened with a crescent wrench. The tapped through hole used with a nut provides a secure double nut connection.

Tapped Flange Washer—Round Corner				Steel, Hot-Dipped Galvanized
Screw Size	"A" Overall Length	"B" Washer Width	"C" Thickness	Order Number
1/2"-13	2-7/16"	1-3/4"	3/16"	Z8887-STL-RC
5/8"-11	2-7/16"	1-3/4"	3/16"	Z8888-STL-RC
3/4"-10	2-7/16"	1-3/4"	3/16"	Z8889-STL-RC
7/8"-9	2-7/16"	1-3/4"	3/16"	Z8890-STL-RC

USA MADE

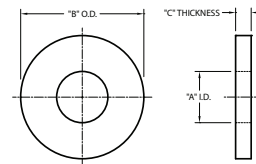



Fiberglass Flat Washers

USA **MADE**


Fiberglass Flat Washers

Fiberglass are insulators of electrical and thermal energy. Also chemically resistant and having a high strength to weight ratio. Color may be either light tan and/or green.

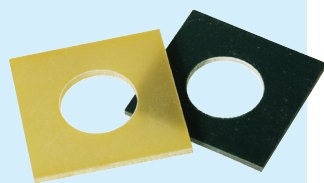


Fiberglass Flat Washers				
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Number
#2	.094"	.250"	.016"	Z8300
#3	.105	.255	.031	Z8302
#3	.105	.255	.062	Z8304
#3	.105	.255	.125	Z8306
#4	.122	.218	.016	Z8308
#4	.122	.310	.031	Z8310
#4	.125	.317	.062	Z8312
#6	.142	.500	.062	Z8314
#8	.175	.380	.031	Z8316
#8	.178	.562	.062	Z8318
#10	.203	.443	.062	Z8320
1/4"	.265	.500	.031	Z8322
5/16	.317	.562	.062	Z8324
3/8	.380	.750	.062	Z8326
1/2	.515	.880	.062	Z8328
5/8	.640	1.193	.093	Z8330
3/4	.765	1.317	.093	Z8332
1	1.015	1.755	.093	Z8334

USA **MADE**

Square Fiberglass Flat Washers

Fiberglass are insulators of electrical and thermal energy. Also chemically resistant and having a high strength to weight ratio. Color may be either light tan and/or green.



**SPECIAL ORDERS
AVAILABLE—**
**Small Quantities
to Large Volume**

Fiberglass Flat Washers—Square				
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Number
1/4"	.266"	2" Square	.125"	Z8340
3/8	.390	2" Square	.125	Z8342
1/2	.515	2" Square	.125	Z8344
5/8	.640	2" Square	.125	Z8346
3/4	.765	2" Square	.125	Z8348
1"	1.015	2" Square	.125	Z8350

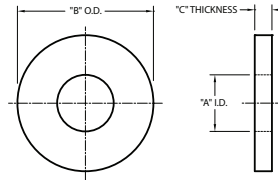
USA **MADE**


Non-Metallic Flat Washers

USA  **MADE**

Nylatron Flat Washers

These are non abrasive and have low surface friction.
MDS cast nylon material has superior bearing and wear properties.



Nylatron Flat Washers				
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Number
#3	.108"	.247"	.031"	Z8380
#4	.120	.220	.031	Z8382
#6	.142	.312	.031	Z8384
#8	.173	.375	.031	Z8386
#10	.201	.460	.031	Z8388
1/4"	.262	.500	.031	Z8390
5/16	.322	.562	.031	Z8392
3/8	.383	.506	.031	Z8394
1/2	.530	.880	.031	Z8396

USA  **MADE**

Phenolic Flat Washers

Phenolic is a tough and lightweight material that resists distortion caused by pressure.
Used in electronics, and where moisture resistance is required.

Phenolic Flat Washers				
Bolt Size	"A" ID	"B" OD	"C" Thickness	Order Number
#4	.125"	.312"	.045"	Z8400
#4	.125	.312	.063	Z8402
#6	.153	.375	.045	Z8404
#6	.153	.500	.063	Z8406
#8	.177	.500	.062	Z8408
#10	.202	.632	.063	Z8410
1/4	.282	.625	.063	Z8412
5/16	.328	.569	.063	Z8414
3/8	.385	.625	.063	Z8416

USA  **MADE**

Flat Washer Assortment Kits

USA  **MADE**

Component Flat Washer Assortment Kit—Steel

Order # Z9107

USA  **MADE**

Z9094	Z9095	Z9096	Z9097	Z9099	Z9100
#10 STEEL	1/4" STEEL	5/16" STEEL	3/8" STEEL	1/2" STEEL	5/8" STEEL
13/64" ID	9/32" ID	11/32" ID	13/32" ID	17/32" ID	21/32" ID
1/2" OD	5/8" OD	3/4" OD	7/8" OD	1-1/8" OD	1-3/8" OD
3/32" Thick	1/8" Thick	1/8" Thick	1/8" Thick	1/8" Thick	1/8" Thick
Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs

Component Flat Washer Assortment Kit—Steel—Small Sizes

Order # Z9108

USA  **MADE**

Z9085	Z9086	Z9087	Z9094	Z9095	Z9096
#4 STEEL	#6 STEEL	#8 STEEL	#10 STEEL	1/4" STEEL	5/16" STEEL
1/8" ID	5/32" ID	3/16" ID	13/64" ID	9/32" ID	11/32" ID
5/16" OD	3/8" OD	7/16" OD	1/2" OD	5/8" OD	3/4" OD
5/64" Thick	5/64" Thick	5/64" Thick	3/32" Thick	1/8" Thick	1/8" Thick
Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs

Metric Component Flat Washer Assortment Kit—Steel

Order # Z9109

USA  **MADE**

Z8805	Z8806	Z8808	Z8810	Z8812	Z8814
M5 STEEL	M6 STEEL	M8 STEEL	M10 STEEL	M12 STEEL	M14 STEEL
M5.3 ID	M6.4 ID	M8.4 ID	M10.5 ID	M13 ID	M15 ID
M11 OD	M13 OD	M16 OD	M19 OD	M22 OD	M25 OD
M2 Thick	M2.5 Thick	M3 Thick	M3 Thick	M3 Thick	M3 Thick
Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs	Qty: 20 Pcs

Component Flat Washer Assortment Kit—Steel—Extra Thick

Order # Z9212

USA  **MADE**

Z9200	Z9201	Z9202	Z9204	Z9205	Z9206
1/4" STEEL	5/16" STEEL	3/8" STEEL	1/2" STEEL	5/8" STEEL	3/4" STEEL
9/32" ID	11/32" ID	13/32" ID	17/32" ID	21/32" ID	25/32" ID
5/8" OD	3/4" OD	1" OD	1-1/8" OD	1-3/8" OD	1-5/8" OD
3/16" Thick	3/16" Thick	3/16" Thick	3/16" Thick	3/16" Thick	1/4" Thick
Qty: 50 Pcs	Qty: 50 Pcs	Qty: 25 Pcs	Qty: 25 Pcs	Qty: 10 Pcs	Qty: 10 Pcs

Grade 8 Flat Washer Assortment Kit—Steel—Extra Thick

- 170 pcs of our most popular Thru Hardened Thick Washer line
- Strong and durable 12 compartment heavy duty plastic box

USA  **MADE**

Order # Z9291

Z9270	Z9271	Z9272	Z9274	Z9276	Z9277
1/4" STEEL	5/16" STEEL	3/8" STEEL	1/2" STEEL	5/8" STEEL	3/4" STEEL
9/32" ID	11/32" ID	13/32" ID	17/32" ID	21/32" ID	13/16" ID
5/8" OD	11/16" OD	13/16" OD	1-1/16" OD	1-5/16" OD	1-15/32" OD
3/32" Thick	3/32" Thick	1/8" Thick	13/64" Thick	7/32" Thick	7/32" Thick
Qty: 50 Pcs	Qty: 50 Pcs	Qty: 25 Pcs	Qty: 25 Pcs	Qty: 10 Pcs	Qty: 10 Pcs



Size List of Flat Washers by Inner Diameter

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.063	#0	.099	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C0BULK	76
.063	#0	.125	.019	Brass	n/a	Component	Round	Z9150BR	55
.063	#0	.125	.019	Steel	n/a	Component	Round	Z9150STL	55
.063	#0	.125	.019	18-8 S/S	n/a	Component	Round	Z9150	55
.067	#0	.165-.175	0.01	18-8 S/S	n/a	Wave	Round	WAV100SS	73
.068	#0	.125	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#0NZ	58
.068	#0	.188	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#0RZ	64
.068	#0	.250	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#0WZ	64
.078	#1	.156	.019	18-8 S/S	n/a	Component	Round	Z9151	55
.078	#1	.156	.019	Brass	n/a	Component	Round	Z9151BR	55
.078	#1	.156	.019	Steel	n/a	Component	Round	Z9151STL	55
.078	#0,1	.188	.016-.025	18-8 S/S	n/a	Mil Spec	Round	MS15795-801BULK	77
.079-.084	n/a	.159-.169	.001	18-8 S/S	n/a	Shim	Round	Z9701	68
.079-.084	n/a	.159-.169	0.002	18-8 S/S	n/a	Shim	Round	Z9702	68
.079-.084	n/a	.159-.169	0.003	18-8 S/S	n/a	Shim	Round	Z9703	68
.079-.084	n/a	.159-.169	0.004	18-8 S/S	n/a	Shim	Round	Z9704	68
.079-.084	n/a	.159-.169	0.005	18-8 S/S	n/a	Shim	Round	Z9705	68
.079-.084	n/a	.159-.169	0.006	18-8 S/S	n/a	Shim	Round	Z9706	68
.079-.084	n/a	.159-.169	0.008	18-8 S/S	n/a	Shim	Round	Z9708	68
.079-.084	n/a	.159-.169	0.01	18-8 S/S	n/a	Shim	Round	Z9710	68
.079-.084	n/a	.159-.169	0.012	18-8 S/S	n/a	Shim	Round	Z9712	68
.079-.084	n/a	.159-.169	0.014	18-8 S/S	n/a	Shim	Round	Z9714	68
.079-.084	n/a	.159-.169	0.016	18-8 S/S	n/a	Shim	Round	Z9716	68
.084	#1	.156	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#1NZ	64
.084	#1	.219	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#1RZ	64
.084	#1	.281	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#1WZ	64
.088-.093	3/64 X 5/32	.148-.153	.005	18-8 S/S	n/a	Shim	Round	Z9880-5	71
.088-.093	3/64 X 5/32	.148-.153	.007	18-8 S/S	n/a	Shim	Round	Z9880-7	71
.088-.093	3/64 X 5/32	.148-.153	0.01	18-8 S/S	n/a	Shim	Round	Z9880-10	71
.088-.093	3/64 X 5/32	.148-.153	0.02	18-8 S/S	n/a	Shim	Round	Z9880-20	71
.088-.093	3/64 X 5/32	.148-.153	0.003	18-8 S/S	n/a	Shim	Round	Z9880-3	71
.089	#2	.149	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C2BULK	76
.091	#2	.125-.135	.004	18-8 S/S	n/a	Wave	Round	WAV102SS	73
.093-.098	n/a	.198-.208	0.001	18-8 S/S	n/a	Shim	Round	Z9719	69
.093-.098	n/a	.198-.208	0.002	18-8 S/S	n/a	Shim	Round	Z9720	69
.093-.098	n/a	.198-.208	0.003	18-8 S/S	n/a	Shim	Round	Z9721	69
.093-.098	n/a	.198-.208	0.004	18-8 S/S	n/a	Shim	Round	Z9722	69
.093-.098	n/a	.198-.208	0.005	18-8 S/S	n/a	Shim	Round	Z9723	69
.093-.098	n/a	.198-.208	0.006	18-8 S/S	n/a	Shim	Round	Z9724	69
.093-.098	n/a	.198-.208	0.008	18-8 S/S	n/a	Shim	Round	Z9728	69
.093-.098	n/a	.198-.208	0.01	18-8 S/S	n/a	Shim	Round	Z9730	69
.093-.098	n/a	.198-.208	0.012	18-8 S/S	n/a	Shim	Round	Z9732	69
.093-.098	n/a	.198-.208	0.014	18-8 S/S	n/a	Shim	Round	Z9734	69
.093-.098	n/a	.198-.208	0.016	18-8 S/S	n/a	Shim	Round	Z9736	69
.094	#2	.188	.022-.028	Steel	Zinc	IFI Type B	Round	WASB#2NZ	64
.094	#2	.188	.028	18-8 S/S	n/a	Component	Round	Z9152	55
.094	#2	.188	.028	Brass	n/a	Component	Round	Z9152BR	55
.094	#2	.188	.028	Steel	n/a	Component	Round	Z9152STL	55
.094	#2	.250	.016	Fiberglass	n/a	Non-Metallic	Round	Z8300	80
.094	#2	.250	.016-.025	18-8 S/S	n/a	Mil Spec	Round	MS15795-802BULK	77
.094	#2	.250	.028-.036	Steel	Zinc	IFI Type B	Round	WASB#2RZ	64
.094	#2	.344	.028-.036	Steel	Zinc	IFI Type B	Round	WASB#2WZ	64
.095	#2	.166	.010	18-8 S/S	n/a	Wave	Round	WAV302SS	73
.099	#2	.250	.006-.026	18-8 S/S	n/a	Mil Spec	Round	AN960-C2LBULK	76
.099	#2	.250	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C2BULK	76
.099	#2	.250	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN232RBULK	77
.102	#3	.180	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C3BULK	76
.102	#3	.180	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C3LBULK	76
.105	#3	.250	.006-.026	18-8 S/S	n/a	Mil Spec	Round	AN960-C3LBULK	76

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.105	#3	.250	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C3BULK	76
.105	#3	.250	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN332RBULK	77
.105	#3	.255	.031	Fiberglass	n/a	Non-Metallic	Round	Z8302	80
.105	#3	.255	.062	Fiberglass	n/a	Non-Metallic	Round	Z8304	80
.105	#3	.255	.125	Fiberglass	n/a	Non-Metallic	Round	Z8306	80
.108	#3	.247	.031	Nylatron	n/a	Non-Metallic	Round	Z8380	81
.115	#4	.209	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C4BULK	76
.115	#4	.209	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C4LBULK	76
.116	#3	.250	.062	18-8 S/S	n/a	Machined	Round	Z0701SS	63
.118	#4	.235-.245	.008	18-8 S/S	n/a	Wave	Round	WAV104SS	73
.120	#4	.220	.031	Nylatron	n/a	Non-Metallic	Round	Z8382	81
.122	#4	.218	.016	Fiberglass	n/a	Non-Metallic	Round	Z8308	80
.122	#4	.310	.031	Fiberglass	n/a	Non-Metallic	Round	Z8310	80
.123-.128	.055 X 3/16	.173-.178	.003	18-8 S/S	n/a	Shim	Round	Z9881-3	71
.123-.128	.055 X 3/16	.173-.178	.005	18-8 S/S	n/a	Shim	Round	Z9881-5	71
.123-.128	.055 X 3/16	.173-.178	.007	18-8 S/S	n/a	Shim	Round	Z9881-7	71
.123-.128	.055 X 3/16	.173-.178	.020	18-8 S/S	n/a	Shim	Round	Z9881-20	71
.123-.128	.055 X 3/16	.173-.178	0.01	18-8 S/S	n/a	Shim	Round	Z9881-10	71
.125	#4	.245	.005	18-8 S/S	n/a	Wave	Round	WAV304SS	73
.125	#4	.250	.063	18-8 S/S	n/a	Component	Round	Z9154	55
.125	#4	.250	.063	Brass	n/a	Component	Round	Z9154BR	55
.125	#4	.250	.063	Steel	n/a	Component	Round	Z9154STL	55
.125	#4	.250	.017-.028	18-8 S/S	n/a	Mil Spec	Round	MS15795-803BULK	77
.125	#4	.250	.028-.036	Steel	Zinc	IFI Type B	Round	WASB#4NZ	64
.125	#4	.312	.006-.026	18-8 S/S	n/a	Mil Spec	Round	AN960-C4LBULK	76
.125	#4	.312	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C4BULK	76
.125	#4	.312	.025-.040	18-8 S/S	n/a	SAE Standard	Round	WAS404#4	59
.125	#4	.312	.025-.040	316 S/S	n/a	SAE Standard	Round	WAS405#4	59
.125	#4	.312	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN432RBULK	77
.125	#4	.312	.032-.040	18-8 S/S	n/a	Mil Spec	Round	MS15795-804BULK	77
.125	#4	.312	.045	Phenolic	n/a	Non-Metallic	Round	Z8400	81
.125	#4	.312	.063	Phenolic	n/a	Non-Metallic	Round	Z8402	81
.125	#4	.313	.078	Steel	n/a	Component	Round	Z9085	54
.125	#4	.313	.078	Brass	n/a	Component	Round	Z9085BR	54
.125	#4	.313	.078	18-8 S/S	n/a	Component	Round	Z9085SS	54
.125	#4	.317	.062	Fiberglass	n/a	Non-Metallic	Round	Z8312	80
.125	#4	.375	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#4RZ	64
.125	#4	.438	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#4WZ	64
.125-.130	n/a	.182-.192	.001	18-8 S/S	n/a	Shim	Round	Z9741	69
.125-.130	n/a	.182-.192	.002	18-8 S/S	n/a	Shim	Round	Z9742	69
.125-.130	n/a	.182-.192	.003	18-8 S/S	n/a	Shim	Round	Z9743	69
.125-.130	n/a	.182-.192	.004	18-8 S/S	n/a	Shim	Round	Z9744	69
.125-.130	n/a	.182-.192	.005	18-8 S/S	n/a	Shim	Round	Z9745	69
.125-.130	n/a	.182-.192	.006	18-8 S/S	n/a	Shim	Round	Z9746	69
.125-.130	n/a	.182-.192	.008	18-8 S/S	n/a	Shim	Round	Z9748	69
.125-.130	n/a	.182-.192	.010	18-8 S/S	n/a	Shim	Round	Z9750	69
.125-.130	n/a	.182-.192	.012	18-8 S/S	n/a	Shim	Round	Z9752	69
.125-.130	n/a	.182-.192	.014	18-8 S/S	n/a	Shim	Round	Z9754	69
.125-.130	n/a	.182-.192	.016	18-8 S/S	n/a	Shim	Round	Z9756	69
.128	#5	.188	.005	18-8 S/S	n/a	Wave	Round	WAV305SS	73
.128	#5	.238	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C5BULK	76
.128	#5	.238	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C5LBULK	76
.130	#5	.240	.006	18-8 S/S	n/a	Wave	Round	WAV111SS	73
.130	#5	.250	.062	4140 Stl	Black Ox	Machined	Round	Z0351	63
.130	#5	.240-.250	.004	18-8 S/S	n/a	Wave	Round	WAV105SS	73
.140	#5	.438	.042	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN542RBULK	77
.140	#6	.625	.024-.038	Steel	Zinc	Fender	Round	Z0448	56
.140	#6	.625	.024-.038	18-8 S/S	n/a	Fender	Round	Z0448-188	56
.140	#6	.625	.024-.038	316 S/S	n/a	Fender	Round	Z0448-316	56
.142	#6	.312	.031	Nylatron	n/a	Non-Metallic	Round	Z8384	81
.142	#6	.500	.062	Fiberglass	n/a	Non-Metallic	Round	Z8314	80
.143	#6	.265	.005	18-8 S/S	n/a	Wave	Round	WAV106SS	73
.143	#6	.265	.007	18-8 S/S	n/a	Wave	Round	WAV112SS	73

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.143	#6	.267	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C6BULK	76
.143	#6	.267	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C6LBULK	76
.144	#6	.312	.062	18-8 S/S	n/a	Machined	Round	Z0702SS	63
.145	#6	.240	.006	18-8 S/S	n/a	Wave	Round	WAV306SS	73
.149	#6	.375	.006-.026	18-8 S/S	n/a	Mil Spec	Round	AN960-C6LBULK	76
.149	#6	.375	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C6BULK	76
.149	#6	.375	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN632RBULK	77
.153	#6	.375	.045	Phenolic	n/a	Non-Metallic	Round	Z8404	81
.153	#6	.500	.063	Phenolic	n/a	Non-Metallic	Round	Z8406	81
.156	#6	.312	.027-.048	18-8 S/S	n/a	Mil Spec	Round	MS15795-805BULK	77
.156	#6	.312	.028-.036	Steel	Zinc	IFI Type B	Round	WASB#6NZ	64
.156	#6	.375	.036-.065	18-8 S/S	n/a	SAE Standard	Round	WAS404#6	59
.156	#6	.375	.036-.065	316 S/S	n/a	SAE Standard	Round	WAS405#6	59
.156	#6	.375	.036-.065	18-8 S/S	n/a	Mil Spec	Round	MS15795-806BULK	77
.156	#6	.438	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#6RZ	64
.156	#6	.561	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#6WZ	64
.156	#6	.563	.040-.054	Steel	Zinc	Fender	Round	Z0449	56
.156	#6	.563	.040-.054	18-8 S/S	n/a	Fender	Round	Z0449-188	56
.156	#6	.563	.040-.054	316 S/S	n/a	Fender	Round	Z0449-316	56
.156	#6	.750	.036-.065	Steel	Zinc	Fender	Round	Z0480	56
.156	#6	.313	.063	18-8 S/S	n/a	Component	Round	Z9156	55
.156	#6	.313	.063	Brass	n/a	Component	Round	Z9156BR	55
.156	#6	.313	.063	Steel	n/a	Component	Round	Z9156STL	55
.156	#6	.375	.078	Steel	n/a	Component	Round	Z9086	54
.156	#6	.375	.078	Brass	n/a	Component	Round	Z9086BR	54
.156	#6	.375	.078	18-8 S/S	n/a	Component	Round	Z9086SS	54
.160	#8	.280	.006	18-8 S/S	n/a	Wave	Round	WAV108SS	73
.167-.172	5/64 X 1/4	.243-.248	.003	18-8 S/S	n/a	Shim	Round	Z9882-3	71
.167-.172	5/64 X 1/4	.243-.248	.005	18-8 S/S	n/a	Shim	Round	Z9882-5	71
.167-.172	5/64 X 1/4	.243-.248	.007	18-8 S/S	n/a	Shim	Round	Z9882-7	71
.167-.172	5/64 X 1/4	.243-.248	.010	18-8 S/S	n/a	Shim	Round	Z9882-10	71
.167-.172	5/64 X 1/4	.243-.248	.020	18-8 S/S	n/a	Shim	Round	Z9882-20	71
.169	#8	.304	.014-.018	18-8 S/S	n/a	Mil Spec	Round	NAS620-C8BULK	76
.169	#8	.304	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C8LBULK	76
.169	#8	.317	.008	18-8 S/S	n/a	Wave	Round	WAV113SS	73
.169	#8	.375	.062	18-8 S/S	n/a	Machined	Round	Z0703SS	63
.171	1/4	.241	.005	18-8 S/S	n/a	Shim-Length	Round	Z9888-005	72
.171	1/4	.241	.016	18-8 S/S	n/a	Shim-Length	Round	Z9888-016	72
.171	1/4	.241	.030	18-8 S/S	n/a	Shim-Length	Round	Z9888-032	72
.172	#8	.375	.063	18-8 S/S	n/a	Component	Round	Z9158	55
.172	#8	.375	.063	Brass	n/a	Component	Round	Z9158BR	55
.172	#8	.375	.063	Steel	n/a	Component	Round	Z9158STL	55
.172	#8	.750	.033-.047	Steel	Zinc	Fender	Round	Z0450	56
.172	#8	.750	.033-.047	18-8 S/S	n/a	Fender	Round	Z0450-188	56
.172	#8	.750	.033-.047	316 S/S	n/a	Fender	Round	Z0450-316	56
.173	#8	.375	.031	Nylatron	n/a	Non-Metallic	Round	Z8386	81
.174	#8	.375	.006-.026	18-8 S/S	n/a	Mil Spec	Round	AN960-C8LBULK	76
.174	#8	.375	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C8BULK	76
.174	#8	.375	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-CN832RBULK	77
.175	#8	.380	.031	Fiberglass	n/a	Non-Metallic	Round	Z8316	80
.177	#8	.500	.062	Phenolic	n/a	Non-Metallic	Round	Z8408	81
.178	#8	.562	.062	Fiberglass	n/a	Non-Metallic	Round	Z8318	80
.188	#8	.375	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#8NZ	64
.188	#8	.375	.036-.065	18-8 S/S	n/a	Mil Spec	Round	MS15795-807BULK	77
.188	#8	.438	.078	Steel	n/a	Component	Round	Z9087	54
.188	#8	.438	.078	Brass	n/a	Component	Round	Z9087BR	54
.188	#10	.438	.078	18-8 S/S	n/a	Component	Round	Z9160	55
.188	#10	.438	.078	Brass	n/a	Component	Round	Z9160BR	55
.188	#10	.438	.078	Steel	n/a	Component	Round	Z9160STL	55
.188	#8	.438	.078	18-8 S/S	n/a	Component	Round	Z9087SS	60
.188	#8	.438	.036-.065	18-8 S/S	n/a	SAE Standard	Round	WAS404#8	59
.188	#8	.438	.036-.065	316 S/S	n/a	SAE Standard	Round	WAS405#8	59
.188	#8	.438	.036-.065	18-8 S/S	n/a	Mil Spec	Round	MS15795-841BULK	77

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.188	#8	.500	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#8RZ	64
.188	#8	.625	.056-.071	Steel	Zinc	IFI Type B	Round	WASB#8WZ	64
.188	#8	.750	.125	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9930	65
.188	#8	.750	.125	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9930SS	65
.188	#8	1.000	.125	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9931	65
.188	#8	1.000	.125	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9931SS	65
.188	#8	1.000	.036-.065	Steel	Zinc	Fender	Round	Z0481	56
.188	#8	.750	.043-.057	Steel	Zinc	Fender	Round	Z0451	56
.188	#8	.750	.043-.057	18-8 S/S	n/a	Fender	Round	Z0451-188	56
.188	#8	.750	.043-.057	316 S/S	n/a	Fender	Round	Z0451-316	56
.188-.193	n/a	.245-.255	0.001	18-8 S/S	n/a	Shim	Round	Z9761	69
.188-.193	n/a	.245-.255	0.002	18-8 S/S	n/a	Shim	Round	Z9762	69
.188-.193	n/a	.245-.255	0.003	18-8 S/S	n/a	Shim	Round	Z9763	69
.188-.193	n/a	.245-.255	0.004	18-8 S/S	n/a	Shim	Round	Z9764	69
.188-.193	n/a	.245-.255	0.005	18-8 S/S	n/a	Shim	Round	Z9765	69
.188-.193	n/a	.245-.255	0.006	18-8 S/S	n/a	Shim	Round	Z9766	69
.188-.193	n/a	.245-.255	0.008	18-8 S/S	n/a	Shim	Round	Z9768	69
.188-.193	n/a	.245-.255	0.01	18-8 S/S	n/a	Shim	Round	Z9770	69
.188-.193	n/a	.245-.255	0.012	18-8 S/S	n/a	Shim	Round	Z9772	69
.188-.193	n/a	.245-.255	0.014	18-8 S/S	n/a	Shim	Round	Z9774	69
.188-.193	n/a	.245-.255	0.016	18-8 S/S	n/a	Shim	Round	Z9776	69
.190	#8	.240	.006	18-8 S/S	n/a	Wave	Round	WAV308SS	73
.192	#8	.375	.062	4140 Stl	Black Ox	Machined	Round	Z0352	63
.195	#10	.297	.010	18-8 S/S	n/a	Wave	Round	WAV110SS	73
.195	#10	.354	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C10BULK	76
.195	#10	.354	.059-.067	18-8 S/S	n/a	Mil Spec	Round	NAS620-C10LBULK	76
.195	#10	.365	.009	18-8 S/S	n/a	Wave	Round	WAV114SS	73
.196	#10	.437	.078	18-8 S/S	n/a	Machined	Round	Z0704SS	63
.201	#10	.460	.031	Nylatron	n/a	Non-Metallic	Round	Z8388	81
.202	#10	.632	.063	Phenolic	n/a	Non-Metallic	Round	Z8410	81
.203	#10	.365	.005	18-8 S/S	n/a	Wave	Round	WAV310SS	73
.203	#10	.406	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#10NZ	64
.203	#10	.438	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C10LBULK	76
.203	#10	.438	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0332RBULK	77
.203	#10	.438	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C10BULK	76
.203	#10	.438	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0363RBULK	77
.203	#10	.443	.062	Fiberglass	n/a	Non-Metallic	Round	Z8320	80
.203	#10	.500	.093	Stl Cased	Nickel	Dress	Round	Z9094M	63
.203	#10	.500	.093	18-8 S/S	n/a	Dress	Round	Z9094M-SS	63
.203	#10	.500	.033-.047	Steel	Zinc	Fender	Round	Z0452	56
.203	#10	.500	.033-.047	18-8 S/S	n/a	Fender	Round	Z0452-188	56
.203	#10	.500	.033-.047	316 S/S	n/a	Fender	Round	Z0452-316	56
.203	#10	.562	.036-.045	Steel	Zinc	IFI Type B	Round	WASB#10RZ	64
.203	#10	.688	.033-.047	Steel	Zinc	Fender	Round	Z0453	56
.203	#10	.688	.033-.047	18-8 S/S	n/a	Fender	Round	Z0453-188	56
.203	#10	.688	.033-.047	316 S/S	n/a	Fender	Round	Z0453-316	56
.203	#10	.734	.056-.071	Steel	Zinc	IFI Type B	Round	WASB#10WZ	64
.203	#10	.750	.033-.047	Steel	Zinc	Fender	Round	Z0455	56
.203	#10	.750	.033-.047	18-8 S/S	n/a	Fender	Round	Z0455-188	56
.203	#10	.750	.033-.047	316 S/S	n/a	Fender	Round	Z0455-316	56
.203	#10	1"	.033-.047	Steel	Zinc	Fender	Round	Z0454	56
.203	#10	1"	.033-.047	18-8 S/S	n/a	Fender	Round	Z0454-188	56
.203	#10	1"	.033-.047	316 S/S	n/a	Fender	Round	Z0454-316	56
.203	#10	.500	.094	Steel	n/a	Component	Round	Z9094	54
.203	#10	.500	.094	Brass	n/a	Component	Round	Z9094BR	54
.203	#10	.500	.094	18-8 S/S	n/a	Component	Round	Z9094SS	54
.203	#10	.500	.094	Soft Steel	Plain	Spacing	Round	Z9180	62
.203	#10	.500	.094	Soft Stl	Plain	Beveled FW	Round	Z9180-BEV	62
.203	#10	.500	.094	Stl Cased	n/a	Beveled FW	Round	Z9180-BEV-H	62
.203	#10	.500	.094	Stl Cased	Zinc	Beveled FW	Round	Z9180-BEV-HZN	62
.203	#10	.500	.094	18-8 S/S	n/a	Beveled FW	Round	Z9180-BEV-SS	62
.203	#10	.813	.141	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9932	65
.203	#10	.813	.141	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9932SS	65

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.203	#10	1.125	.141	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9933	65
.203	#10	1.125	.141	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9933SS	65
.203	#10	1.250	.141	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9934	65
.203	#10	1.250	.141	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9934SS	65
.206-.211	3/32 X 5/16	.305-.310	.003	18-8 S/S	n/a	Shim	Round	Z9883-3	71
.206-.211	3/32 X 5/16	.305-.310	.005	18-8 S/S	n/a	Shim	Round	Z9883-5	71
.206-.211	3/32 X 5/16	.305-.310	.007	18-8 S/S	n/a	Shim	Round	Z9883-7	71
.206-.211	3/32 X 5/16	.305-.310	.010	18-8 S/S	n/a	Shim	Round	Z9883-10	71
.206-.211	3/32 X 5/16	.305-.310	.020	18-8 S/S	n/a	Shim	Round	Z9883-20	71
.219	#10	1"	.125	18-8 S/S	n/a	Fender-XT	Round	Z9678SS	57
.219	#10	.438	.036-.065	18-8 S/S	n/a	Mil Spec	Round	MS15795-808BULK	77
.219	#10	.500	.036-.065	18-8 S/S	n/a	SAE Standard	Round	WAS404#10	59
.219	#10	.500	.036-.065	316 S/S	n/a	SAE Standard	Round	WAS405#10	59
.219	#10	.500	.036-.065	18-8 S/S	n/a	Mil Spec	Round	MS15795-842BULK	77
.219	#10	1.250	.043-.057	Steel	Zinc	Fender	Round	Z0456	56
.219	#10	1.250	.043-.057	18-8 S/S	n/a	Fender	Round	Z0456-188	56
.219	#10	1.250	.043-.057	316 S/S	n/a	Fender	Round	Z0456-316	56
.219	#10	1.500	.036-.065	Steel	Zinc	Fender	Round	Z0482	56
.219	#10	1"	.250	Steel	Zinc	Fender-XT	Round	Z9679	57
.219	#10	1"	.125	Steel	Zinc	Fender-XT	Round	Z9678	57
.234	5/16	.303	.005	18-8 S/S	n/a	Shim-Length	Round	Z9889-005	72
.234	5/16	.303	.016	18-8 S/S	n/a	Shim-Length	Round	Z9889-016	72
.234	5/16	.303	.030	18-8 S/S	n/a	Shim-Length	Round	Z9889-030	72
.250	#12	.562	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-809BULK	77
.250	#10	.563	.036-.065	18-8 S/S	n/a	USS Standard	Round	WAS504#10	59
.250	#10	.563	.036-.065	316 S/S	n/a	USS Standard	Round	WAS505#10	59
.250	#12	.563	.051-.080	18-8 S/S	n/a	SAE Standard	Round	WAS404#12	59
.250	#12	.563	.051-.080	316 S/S	n/a	SAE Standard	Round	WAS405#12	59
.250-.255	n/a	.375-.380	0.002	18-8 S/S	n/a	Shim	Round	Z9782	70
.250-.255	n/a	.375-.380	0.003	18-8 S/S	n/a	Shim	Round	Z9783	70
.250-.255	n/a	.375-.380	0.004	18-8 S/S	n/a	Shim	Round	Z9784	70
.250-.255	n/a	.375-.380	0.005	18-8 S/S	n/a	Shim	Round	Z9785	70
.250-.255	n/a	.375-.380	0.006	18-8 S/S	n/a	Shim	Round	Z9786	70
.250-.255	n/a	.375-.380	0.008	18-8 S/S	n/a	Shim	Round	Z9788	70
.250-.255	n/a	.375-.380	0.01	18-8 S/S	n/a	Shim	Round	Z9790	70
.250-.255	n/a	.375-.380	0.012	18-8 S/S	n/a	Shim	Round	Z9792	70
.250-.255	n/a	.375-.380	0.014	18-8 S/S	n/a	Shim	Round	Z9794	70
.250-.255	n/a	.375-.380	0.016	18-8 S/S	n/a	Shim	Round	Z9796	70
.250-.255	n/a	.375-.380"	.001	18-8 S/S	n/a	Shim	Round	Z9781	70
.251	1/4	.375	.005	18-8 S/S	n/a	Shim-Short	Round	Z9895-005	72
.251	1/4	.375	.016	18-8 S/S	n/a	Shim-Short	Round	Z9895-016	72
.251	1/4	.375	.030	18-8 S/S	n/a	Shim-Short	Round	Z9895-030	72
.253-.258	1/8 X 3/8	.368-.373	.003	18-8 S/S	n/a	Shim	Round	Z9884-3	71
.253-.258	1/8 X 3/8	.368-.373	.005	18-8 S/S	n/a	Shim	Round	Z9884-5	71
.253-.258	1/8 X 3/8	.368-.373	.007	18-8 S/S	n/a	Shim	Round	Z9884-7	71
.253-.258	1/8 X 3/8	.368-.373	.010	18-8 S/S	n/a	Shim	Round	Z9884-10	71
.253-.258	1/8 X 3/8	.368-.373	.020	18-8 S/S	n/a	Shim	Round	Z9884-20	71
.255	1/4	.468	.029-.035	18-8 S/S	n/a	Mil Spec	Round	NAS620-C416LBULK	76
.255	1/4	.468	.059-.067	18-8 S/S	n/a	Mil Spec	Round	NAS620-C416BULK	76
.255	1/4	.500	.062	4140 Stl	Black Ox	Machined	Round	Z0353	63
.257	3/8	.500	.078	18-8 S/S	n/a	Machined	Round	Z0705SS	63
.260	1/4	.485	.011	18-8 S/S	n/a	Wave	Round	WAV115SS	73
.262	1/4	.500	.031	Nylatron	n/a	Non-Metallic	Round	Z8390	81
.265	1/4	.500	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C416LBULK	76
.265	1/4	.500	.031	Fiberglass	n/a	Non-Metallic	Round	Z8322	80
.265	1/4	.500	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0432RBULK	77
.265	1/4	.500	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C416BULK	76
.265	1/4	.500	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0463RBULK	77
.266	1/4	.500	.078	18-8 S/S	n/a	Component	Round	Z9164	55
.266	1/4	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8340	80
.266	1/4	.500	.043-.057	Steel	Zinc	Fender	Round	Z0457	56
.266	1/4	.500	.043-.057	18-8 S/S	n/a	Fender	Round	Z0457-188	56
.266	1/4	.500	.043-.057	316 S/S	n/a	Fender	Round	Z0457-316	56

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.266	1/4	.563	.056-.070	Steel	Zinc	Fender	Round	Z0458	56
.266	1/4	.563	.056-.070	18-8 S/S	n/a	Fender	Round	Z0458-188	56
.266	1/4	.563	.056-.070	316 S/S	n/a	Fender	Round	Z0458-316	56
.266	1/4	.875	.056-.070	Steel	Zinc	Fender	Round	Z0459	56
.266	1/4	.875	.056-.070	18-8 S/S	n/a	Fender	Round	Z0459-188	56
.266	1/4	.875	.056-.070	316 S/S	n/a	Fender	Round	Z0459-316	56
.281	1/4	.500	.056-.071	Steel	Zinc	IFI Type B	Round	WASB14NZ	64
.281	1/4	.625	.188	Steel	n/a	Component	Round	Z9200	54
.281	1/4	.625	.188	Brass	n/a	Component	Round	Z9200BR	54
.281	1/4	.625	.188	18-8 S/S	n/a	Component	Round	Z9200SS	54
.281	1/4	.625	.051-.080	18-8 S/S	n/a	SAE Standard	Round	WAS40414	59
.281	1/4	.625	.051-.080	316 S/S	n/a	SAE Standard	Round	WAS40514	59
.281	1/4	.625	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-810BULK	77
.281	1/4	.625	.125	Stl Cased	Nickel	Dress	Round	Z9095M	63
.281	1/4	.625	.125	18-8 S/S	n/a	Dress	Round	Z9095M-SS	63
.281	1/4	.734	.056-.071	Steel	Zinc	IFI Type B	Round	WASB14RZ	64
.281	1/4	1.750	.250	Steel Cased	Black Ox	C Washer	Round	Z9438	73
.281	1/4	1"	.056-.071	Steel	Zinc	IFI Type B	Round	WASB14WZ	64
.281	1/4	.500	.078	18-8 S/S	n/a	Component	Round	Z9161	55
.281	1/4	.500	.078	Brass	n/a	Component	Round	Z9161BR	55
.281	1/4	.500	.078	Steel	n/a	Component	Round	Z9161STL	55
.281	1/4	.625	.094	Steel	Zinc Yel	Structural	Round	Z9270	61
.281	1/4	.625	.094	18-8 S/S	n/a	Structural	Round	Z9270SS	61
.281	1/4	.625	.125	Steel	n/a	Component	Round	Z9095	54
.281	1/4	.625	.125	Brass	n/a	Component	Round	Z9095BR	54
.281	1/4	.625	.125	18-8 S/S	n/a	Component	Round	Z9095SS	54
.281	1/4	.625	.125	Soft Steel	Plain	Spacing	Round	Z9181	62
.281	1/4	.625	.125	Soft Stl	Plain	Beveled FW	Round	Z9181-BEV	62
.281	1/4	.625	.125	Stl Cased	Plain	Beveled FW	Round	Z9181-BEV-H	62
.281	1/4	.625	.125	Stl Cased	Zinc	Beveled FW	Round	Z9181-BEV-HZN	62
.281	1/4	.625	.125	18-8 S/S	n/a	Beveled FW	Round	Z9181-BEV-SS	62
.281	1/4	.625	.063	Phenolic	n/a	Non-Metallic	Round	Z8412	81
n/a	3/16 or 1/4	n/a	.188	Stl Cased	Black Ox	Spherical	Round	Z9450SET	74
.281	3/16 or 1/4	.625	.120	Stl Cased	Black Ox	Spherical	Round	Z9450M	74
.281	#10-1/4	.750	.250	Stl Cased	Black Ox	C Washers	Round	Z9420	73
.281	#10-1/4	.750	.250	18-8 S/S	n/a	C Washers	Round	Z9420SS	73
.281	1/4	.750	.130-.150	Stl Cased	Black Ox	Fit-Tite	Round	Z9285	66
.281	1/4	.781	.188	Stl Cased	n/a	Spacing	Round	Z9200U	66
.281	#10-1/4	1.000	.250	Stl Cased	Black Ox	C Washers	Round	Z9421	73
.281	#10-1/4	1.000	.250	18-8 S/S	n/a	C Washers	Round	Z9421SS	73
.281	1/4	1.250	.281	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9935	65
.281	1/4	1.250	.281	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9935SS	65
.281	1/4	1.250	.040-.060	Steel	Zinc	Fender	Round	Z0461	56
.281	1/4	1.250	.040-.060	18-8 S/S	n/a	Fender	Round	Z0461-188	56
.281	1/4	1.250	.040-.060	316 S/S	n/a	Fender	Round	Z0461-316	56
.281	1/4	1.375	.281	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9936	65
.281	1/4	1.375	.281	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9936SS	65
.281	1/4	1.500	.125	Steel	n/a	Fender-XT	Round	Z9680	57
.281	1/4	1.500	.125	18-8 S/S	n/a	Fender-XT	Round	Z9680SS	57
.281	1/4	1.500	.250	Steel	n/a	Fender-XT	Round	Z9681	57
.281	1/4	1.500	.281	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9937	65
.281	1/4	1.500	.281	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9937SS	65
.281	1/4	1.500	.052-.072	Steel	Zinc	Fender	Round	Z0462	56
.281	1/4	1.500	.052-.072	18-8 S/S	n/a	Fender	Round	Z0462-188	56
.281	1/4	1.500	.052-.072	316 S/S	n/a	Fender	Round	Z0462-316	56
.281	1/4	1.750	.281	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9938	65
.281	1/4	1.750	.281	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9938SS	65
.281	1/4	2.500	.051-.080	Steel	Zinc	Fender	Round	Z0483	56
.281	1/4	1"	.040-.060	Steel	Zinc	Fender	Round	Z0460	56
.281	1/4	1"	.040-.060	18-8 S/S	n/a	Fender	Round	Z0460-188	56
.281	1/4	1"	.040-.060	316 S/S	n/a	Fender	Round	Z0460-316	56
.281	1/4	2"	.281	Stl Cased	Black Ox	Dress (Ctsk)	Round	Z9939	65
.281	1/4	2"	.281	18-8 S/S	n/a	Dress (Ctsk)	Round	Z9939SS	65

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.281	1/4	2"	.052-.072	Steel	Zinc	Fender	Round	Z0463	56
.281	1/4	2"	.052-.072	18-8 S/S	n/a	Fender	Round	Z0463-188	56
.281	1/4	2"	.052-.072	316 S/S	n/a	Fender	Round	Z0463-316	56
.281	1/4	3"	.051-.080	Steel	Zinc	Fender	Round	Z0484	56
.289	3/8	.365	.005	18-8 S/S	n/a	Shim-Length	Round	Z9890-005	72
.289	3/8	.365	.016	18-8 S/S	n/a	Shim-Length	Round	Z9890-016	72
.289	3/8	.365	.030	18-8 S/S	n/a	Shim-Length	Round	Z9890-030	72
.313	3/16 or 1/4	.625	.120	Stl Cased	Black Ox	Spherical	Round	Z9450F	74
.313	1/4	.734	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-811BULK	77
.313	1/4	.750	.051-.080	18-8 S/S	n/a	USS Standard	Round	WAS50414	59
.313	1/4	.750	.051-.080	316 S/S	n/a	USS Standard	Round	WAS50514	59
.313	1/4	2"	.250	Stl Cased	Black Ox	Square	Square	Z8950H	78
.313	1/4	2"	.250	18-8 S/S	n/a	Square	Square	Z8950SS	78
.313	1/4	2"	.250	Diamond Stl	Galv.	Square	Square	Z8950D	78
.313-.318	n/a	.495-.505	0.001	18-8 S/S	n/a	Shim	Round	Z9801	70
.313-.318	n/a	.495-.505	0.002	18-8 S/S	n/a	Shim	Round	Z9802	70
.313-.318	n/a	.495-.505	0.003	18-8 S/S	n/a	Shim	Round	Z9803	70
.313-.318	n/a	.495-.505	0.004	18-8 S/S	n/a	Shim	Round	Z9804	70
.313-.318	n/a	.495-.505	0.005	18-8 S/S	n/a	Shim	Round	Z9805	70
.313-.318	n/a	.495-.505	0.006	18-8 S/S	n/a	Shim	Round	Z9806	70
.313-.318	n/a	.495-.505	0.008	18-8 S/S	n/a	Shim	Round	Z9808	70
.313-.318	n/a	.495-.505	0.01	18-8 S/S	n/a	Shim	Round	Z9810	70
.313-.318	n/a	.495-.505	0.012	18-8 S/S	n/a	Shim	Round	Z9812	70
.313-.318	n/a	.495-.505	0.014	18-8 S/S	n/a	Shim	Round	Z9814	70
.313-.318	n/a	.495-.505	0.016	18-8 S/S	n/a	Shim	Round	Z9816	70
.314	5/16	.438	.005	18-8 S/S	n/a	Shim-Short	Round	Z9896-005	72
.314	5/16	.438	.016	18-8 S/S	n/a	Shim-Short	Round	Z9896-016	72
.314	5/16	.438	.030	18-8 S/S	n/a	Shim-Short	Round	Z9896-030	72
.314	n/a	.500	.009	18-8 S/S	n/a	Shim	Round	Z9809	70
.314	5/16	.562	.062	Fiberglass	n/a	Non-Metallic	Round	Z8324	80
.318	5/16	.625	.093	4140 Stl	Black Ox	Machined	Round	Z0354	63
.322	5/16	.562	.031	Nylatron	n/a	Non-Metallic	Round	Z8392	81
.322	5/16	.607	.013	18-8 S/S	n/a	Wave	Round	WAV116SS	73
.322	5/16	.625	.093	18-8 S/S	n/a	Machined	Round	Z0706SS	63
.328	5/16	.562	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C516LBULK	76
.328	5/16	.562	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0532RBULK	77
.328	5/16	.562	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C516LBULK	76
.328	5/16	.562	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0563RBULK	77
.328	5/16	.569	.063	Phenolic	n/a	Non-Metallic	Round	Z8414	81
.328	5/16	.625	.056-.070	Steel	Zinc	Fender	Round	Z0464	56
.328	5/16	.625	.056-.070	18-8 S/S	n/a	Fender	Round	Z0464-188	56
.328	5/16	.625	.056-.070	316 S/S	n/a	Fender	Round	Z0464-316	56
.333	5/16	.750	.188	Steel	n/a	Component	Round	Z9201	54
.333	5/16	.750	.188	Brass	n/a	Component	Round	Z9201BR	54
.333	5/16	.750	.188	18-8 S/S	n/a	Component	Round	Z9201SS	54
.344	5/16	.625	.094	18-8 S/S	n/a	Component	Round	Z9162	55
.344	5/16	.625	.094	Brass	n/a	Component	Round	Z9162BR	55
.344	5/16	.625	.094	Steel	n/a	Component	Round	Z9162STL	55
.344	5/16	.625	.056-.071	Steel	Zinc	IFI Type B	Round	WASB51NZ	64
.344	5/16	.688	.100	18-8 S/S	n/a	Component	Round	Z9130	55
.344	5/16	.688	.125	18-8 S/S	n/a	Component	Round	Z9216	55
.344	5/16	.688	.125	Brass	n/a	Component	Round	Z9216BR	55
.344	5/16	.688	.125	Steel	n/a	Component	Round	Z9216STL	55
.344	5/16	.688	.125	Steel	Zinc Yel	Structural	Round	Z9271	61
.344	5/16	.688	.125	18-8 S/S	n/a	Structural	Round	Z9271SS	61
.344	5/16	.688	.051-.080	18-8 S/S	n/a	SAE Standard	Round	WAS40451	59
.344	5/16	.688	.051-.080	316 S/S	n/a	SAE Standard	Round	WAS40551	59
.344	5/16	.688	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-812BULK	77
.344	5/16	.750	.125	Steel	n/a	Component	Round	Z9096	54
.344	5/16	.750	.125	Brass	n/a	Component	Round	Z9096BR	54
.344	5/16	.750	.125	18-8 S/S	n/a	Component	Round	Z9096SS	54
.344	5/16	.750	.125	Soft Stl	Plain	Spacing	Round	Z9182	62
.344	5/16	.750	.125	Soft Stl	Plain	Beveled FW	Round	Z9182-BEV	62

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.344	5/16	.750	.125	Stl Cased	Plain	Beveled FW	Round	Z9182-BEV-H	62
.344	5/16	.750	.125	Stl Cased	Zinc	Beveled FW	Round	Z9182-BEV-HZN	62
.344	5/16	.750	.125	18-8 S/S	n/a	Beveled FW	Round	Z9182-BEV-SS	62
.344	5/16	.750	.125	Stl Cased	Nickel	Dress	Round	Z9096M	63
.344	5/16	.750	.125	18-8 S/S	n/a	Dress	Round	Z9096M-SS	63
.344	5/16	.828	.188	Stl Cased	n/a	Spacing	Round	Z9201U	66
.344	5/16	.875	.056-.071	Steel	Zinc	IFI Type B	Round	WASB51RZ	64
.344	5/16	.875	.130-.150	Stl Cased	Black Ox	Fit-Tite	Round	Z9286	66
.344	5/16	1.125	.056-.071	Steel	Zinc	IFI Type B	Round	WASB51WZ	64
.344	5/16	1.250	.313	Stl Cased	Black Ox	C Washers	Round	Z9422	73
.344	5/16	1.250	.313	18-8 S/S	n/a	C Washers	Round	Z9422SS	73
.344	5/16	1.250	.040-.060	Steel	Zinc	Fender	Round	Z0465	56
.344	5/16	1.250	.040-.060	18-8 S/S	n/a	Fender	Round	Z0465-188	56
.344	5/16	1.250	.040-.060	316 S/S	n/a	Fender	Round	Z0465-316	56
.344	5/16	1.500	.052-.072	Steel	Zinc	Fender	Round	Z0466	56
.344	5/16	1.500	.052-.072	18-8 S/S	n/a	Fender	Round	Z0466-188	56
.344	5/16	1.500	.052-.072	316 S/S	n/a	Fender	Round	Z0466-316	56
.344	5/16	2.500	.051-.080	Steel	Zinc	Fender	Round	Z0485	56
.344	5/16	2"	.125	Steel	n/a	Fender-XT	Round	Z9682	57
.344	5/16	2"	.125	18-8 S/S	n/a	Fender-XT	Round	Z9682SS	57
.344	5/16	2"	.250	Steel	n/a	Fender-XT	Round	Z9683	57
.344	5/16	2"	.250	18-8 S/S	n/a	Fender-XT	Round	Z9683SS	57
.344	5/16	2"	.052-.072	Steel	Zinc	Fender	Round	Z0467	56
.344	5/16	2"	.052-.072	18-8 S/S	n/a	Fender	Round	Z0467-188	56
.344	5/16	2"	.052-.072	316 S/S	n/a	Fender	Round	Z0467-316	56
.344	5/16	3"	.051-.080	Steel	Zinc	Fender	Round	Z0486	56
.352	1/2	.491	.005	18-8 S/S	n/a	Shim-Length	Round	Z9891-005	72
.352	1/2	.491	.016	18-8 S/S	n/a	Shim-Length	Round	Z9891-016	72
.352	1/2	.491	.030	18-8 S/S	n/a	Shim-Length	Round	Z9891-030	72
.375	5/16	.875	.064-.104	18-8 S/S	n/a	USS Standard	Round	WAS50451	59
.375	5/16	.875	.064-.104	316 S/S	n/a	USS Standard	Round	WAS50551	59
.375	5/16	.875	.064-.104	18-8 S/S	n/a	Mil Spec	Round	MS15795-813BULK	77
.375-.380	n/a	.557-.567	.001	18-8 S/S	n/a	Shim	Round	Z9821	70
.375-.380	n/a	.557-.567	.002	18-8 S/S	n/a	Shim	Round	Z9822	70
.375-.380	n/a	.557-.567	.003	18-8 S/S	n/a	Shim	Round	Z9823	70
.375-.380	n/a	.557-.567	.004	18-8 S/S	n/a	Shim	Round	Z9824	70
.375-.380	n/a	.557-.567	.005	18-8 S/S	n/a	Shim	Round	Z9825	70
.375-.380	n/a	.557-.567	.006	18-8 S/S	n/a	Shim	Round	Z9826	70
.375-.380	n/a	.557-.567	.008	18-8 S/S	n/a	Shim	Round	Z9828	70
.375-.380	n/a	.557-.567	.010	18-8 S/S	n/a	Shim	Round	Z9830	70
.375-.380	n/a	.557-.567	.012	18-8 S/S	n/a	Shim	Round	Z9832	70
.375-.380	n/a	.557-.567	.014	18-8 S/S	n/a	Shim	Round	Z9834	70
.375-.380	n/a	.557-.567	.016	18-8 S/S	n/a	Shim	Round	Z9836	70
.376	3/8	.563	.005	18-8 S/S	n/a	Shim-Short	Round	Z9897-005	72
.376	3/8	.563	.016	18-8 S/S	n/a	Shim-Short	Round	Z9897-016	72
.376	3/8	.563	.030	18-8 S/S	n/a	Shim-Short	Round	Z9897-030	72
.378-.383	3/16 X 1/2	.493-.498	.003	18-8 S/S	n/a	Shim	Round	Z9885-3	71
.378-.383	3/16 X 1/2	.493-.498	.005	18-8 S/S	n/a	Shim	Round	Z9885-5	71
.378-.383	3/16 X 1/2	.493-.498	.007	18-8 S/S	n/a	Shim	Round	Z9885-7	71
.378-.383	3/16 X 1/2	.493-.498	.010	18-8 S/S	n/a	Shim	Round	Z9885-10	71
.378-.383	3/16 X 1/2	.493-.498	.020	18-8 S/S	n/a	Shim	Round	Z9885-20	71
.380	3/8	.750	.062	Fiberglass	n/a	Non-Metallic	Round	Z8326	80
.380	3/8	.750	.125	4140 Stl	Black Ox	Machined	Round	Z0355	63
.383	3/8	.506	.031	Nylatron	n/a	Non-Metallic	Round	Z8394	81
.385	3/8	.625	.063	Phenolic	n/a	Non-Metallic	Round	Z8416	81
.386	3/8	.750	.093	18-8 S/S	n/a	Machined	Round	Z0707SS	63
.390	3/8	.625	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C616LBULK	76
.390	3/8	.625	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0632RBULK	77
.390	3/8	.625	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C616BULK	76
.390	3/8	.625	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0663RBULK	77
.390	3/8	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8342	80
.406	3/8	.734	.056-.071	Steel	Zinc	IFI Type B	Round	WASB38NZ	64
.406	3/8	.812	.051-.080	18-8 S/S	n/a	SAE Standard	Round	WAS40438	59

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.406	3/8	.812	.051-.080	316 S/S	n/a	SAE Standard	Round	WAS40538	59
.406	3/8	.812	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-814BULK	77
.406	3/8	.875	.125	Stl Cased	Nickel	Dress	Round	Z9097M	63
.406	3/8	.875	.125	18-8 S/S	n/a	Dress	Round	Z9097M-SS	63
.406	3/8	1.250	.040-.060	Steel	Zinc	Fender	Round	Z0468	56
.406	3/8	1.250	.040-.060	18-8 S/S	n/a	Fender	Round	Z0468-188	56
.406	3/8	1.250	.040-.060	316 S/S	n/a	Fender	Round	Z0468-316	56
.406	3/8	1.250	.090-.112	Steel	Zinc	IFI Type B	Round	WASB38WZ	64
.406	3/8	1.500	.052-.072	Steel	Zinc	Fender	Round	Z0469	56
.406	3/8	1.500	.052-.072	18-8 S/S	n/a	Fender	Round	Z0469-188	56
.406	3/8	1.500	.052-.072	316 S/S	n/a	Fender	Round	Z0469-316	56
.406	3/8	1.625	.056-.070	Steel	Zinc	Fender	Round	Z0470	56
.406	3/8	1.625	.056-.070	18-8 S/S	n/a	Fender	Round	Z0470-188	56
.406	3/8	1.625	.056-.070	316 S/S	n/a	Fender	Round	Z0470-316	56
.406	3/8	2.375	.375	Steel Cased	Black Ox	C Washer	Round	Z9439	73
.406	3/8	2.500	.375	Steel Cased	Black Ox	C Washer	Round	Z9440	73
.406	3/8	1"	.188	Steel	n/a	Component	Round	Z9202	54
.406	3/8	1"	.188	Brass	n/a	Component	Round	Z9202BR	54
.406	3/8	1"	.188	18-8 S/S	n/a	Component	Round	Z9202SS	54
.406	3/8	1"	.056-.071	Steel	Zinc	IFI Type B	Round	WASB38RZ	64
.406	3/8	2"	.052-.072	Steel	Zinc	Fender	Round	Z0471	56
.406	3/8	2"	.052-.072	18-8 S/S	n/a	Fender	Round	Z0471-188	56
.406	3/8	2"	.052-.072	316 S/S	n/a	Fender	Round	Z0471-316	56
.406	3/8	3"	.051-.080	Steel	Zinc	Fender	Round	Z0487	56
.406	3/8	.750	.094	Brass	n/a	Component	Round	Z9163BR	55
.406	3/8	.750	.094	18-8 S/S	n/a	Component	Round	Z9163	55
.406	3/8	.750	.094	Steel	n/a	Component	Round	Z9163STL	55
.406	3/8	.813	.125	18-8 S/S	n/a	Component	Round	Z9131	55
.406	3/8	.813	.125	Steel	Zinc Yel	Structural	Round	Z9272	61
.406	3/8	.813	.125	18-8 S/S	n/a	Structural	Round	Z9272SS	61
.406	3/8	.875	.125	Steel	n/a	Component	Round	Z9097	54
.406	3/8	.875	.125	Brass	n/a	Component	Round	Z9097BR	54
.406	3/8	.875	.125	18-8 S/S	n/a	Component	Round	Z9097SS	54
.406	3/8	.875	.125	Soft Stl	Plain	Spacing	Round	Z9183	63
.406	3/8	.875	.125	Soft Stl	Plain	Beveled FW	Round	Z9183-BEV	63
.406	3/8	.875	.125	Stl Cased	Plain	Beveled FW	Round	Z9183-BEV-H	63
.406	3/8	.875	.125	Stl Cased	Zinc	Beveled FW	Round	Z9183-BEV-HZN	62
.406	3/8	.875	.125	18-8 S/S	n/a	Beveled FW	Round	Z9183-BEV-SS	62
n/a	5/16 & 3/8	n/a	.250	Stl Cased	Black Ox	Spherical	Round	Z9454SET	74
.406	5/16 & 3/8	.875	.130	Stl Cased	Black Ox	Spherical	Round	Z9454M	74
.406	3/8	1.063	.188	Stl Cased	n/a	Spacing	Round	Z9202U	66
.406	5/16 & 3/8	1.250	.375	Stl Cased	Black Ox	C Washers	Round	Z9424	73
.406	5/16 & 3/8	1.250	.375	18-8 S/S	n/a	C Washers	Round	Z9424SS	73
.406	5/16 & 3/8	1.500	.375	Stl Cased	Black Ox	C Washers	Round	Z9425	73
.406	5/16 & 3/8	1.500	.375	18-8 S/S	n/a	C Washers	Round	Z9425SS	73
.406	5/16 & 3/8	1.750	.375	Stl Cased	Black Ox	C Washers	Round	Z9426	73
.406	5/16 & 3/8	1.750	.375	18-8 S/S	n/a	C Washers	Round	Z9426SS	73
.406	3/8	1"	.125	18-8 S/S	n/a	Component	Round	Z9217	55
.406	3/8	1"	.125	Brass	n/a	Component	Round	Z9217BR	55
.406	3/8	1"	.125	Steel	n/a	Component	Round	Z9217STL	55
.406	3/8	1"	.130-.150	Stl Cased	Black Ox	Fit-Tite	Round	Z9287	66
.406	3/8	2"	.125	Steel	n/a	Fender-XT	Round	Z9684	57
.406	3/8	2"	.125	18-8 S/S	n/a	Fender-XT	Round	Z9684SS	57
.406	3/8	2"	.250	Steel	n/a	Fender-XT	Round	Z9685	57
.406	3/8	2"	.250	18-8 S/S	n/a	Fender-XT	Round	Z9685SS	57
.438	3/8	.875	.188	Stl Cased	Zinc	Roughneck	Round	Z9090	60
.438	5/16 or 3/8	.875	.156	Stl Cased	Black Ox	Spherical	Round	Z9454F	74
.438	3/8	.875	.188	18-8 S/S	n/a	Roughneck	Round	Z9090-SS	60
.438	3/8	1"	.064-.104	18-8 S/S	n/a	USS Standard	Round	WAS50438	59
.438	3/8	1"	.064-.104	316 S/S	n/a	USS Standard	Round	WAS50538	59
.438	3/8	1"	.064-.104	18-8 S/S	n/a	Mil Spec	Round	MS15795-815BULK	77
.438	3/8	2"	.250	Stl Cased	Black Ox	Square	Square	Z8952H	78
.438	3/8	2"	.250	Soft Stl	Galv.	Square	Square	Z8952G	78

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.438	3/8	2"	.250	18-8 S/S	n/a	Square	Square	Z8952SS	78
.438	3/8	2"	.250	Diamond Stl	Galv.	Square	Square	Z8952D	78
.453	7/16	.750	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C716LBULK	76
.453	7/16	.750	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0732RBULK	77
.453	7/16	.750	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C716BULK	76
.453	7/16	.750	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0763RBULK	77
.469	7/16	.922	.125	18-8 S/S	n/a	Component	Round	Z9218	55
.469	7/16	.922	.125	Brass	n/a	Component	Round	Z9218BR	55
.469	7/16	.922	.125	Steel	n/a	Component	Round	Z9218STL	55
.469	7/16	.922	.125	Steel	Zinc Yel	Structural	Round	Z9273	61
.469	7/16	1.250	.188	Stl Cased	n/a	Spacing	Round	Z9203U	66
.469	7/16	1"	.125	Steel	n/a	Component	Round	Z9098	54
.469	7/16	1"	.125	Brass	n/a	Component	Round	Z9098BR	54
.469	7/16	1"	.125	18-8 S/S	n/a	Component	Round	Z9098SS	54
.469	7/16	1"	.156	Soft Stl	Plain	Beveled FW	Round	Z9184-BEV	62
.469	7/16	1"	.156	Stl Cased	Plain	Beveled FW	Round	Z9184-BEV-H	62
.469	7/16	1"	.156	Stl Cased	Zinc	Beveled FW	Round	Z9184-BEV-HZN	62
.469	7/16	1"	.156	18-8 S/S	n/a	Beveled FW	Round	Z9184-BEV-SS	62
.469	7/16	1"	.125	Stl Cased	Nickel	Dress	Round	Z9098M	63
.469	7/16	1"	.125	18-8 S/S	n/a	Dress	Round	Z9098M-SS	63
.469	7/16	.875	.056-.071	Steel	Zinc	IFI Type B	Round	WASB71NZ	64
.469	7/16	.922	.051-.080	18-8 S/S	n/a	SAE Standard	Round	WAS40471	59
.469	7/16	.922	.051-.080	316 S/S	n/a	SAE Standard	Round	WAS40571	59
.469	7/16	.922	.051-.080	18-8 S/S	n/a	Mil Spec	Round	MS15795-816BULK	77
.469	7/16	1.125	.056-.071	Steel	Zinc	IFI Type B	Round	WASB71RZ	64
.469	7/16	1.469	.090-.112	Steel	Zinc	IFI Type B	Round	WASB71WZ	64
.469	7/16	1"	.188	Steel	n/a	Component	Round	Z9203	54
.469	7/16	1"	.188	18-8 S/S	n/a	Component	Round	Z9203SS	54
.473	5/8	.616	.016	18-8 S/S	n/a	Shim-Length	Round	Z9892-016	72
.473	5/8	.616	.030	18-8 S/S	n/a	Shim-Length	Round	Z9892-030	72
.500	n/a	.875	.048	18-8 S/S	n/a	Wide Shim	Round	Z9940SS	67
.500	n/a	.875	.075	18-8 S/S	n/a	Wide Shim	Round	Z9954SS	67
.500	7/16	1.250	.064-.104	18-8 S/S	n/a	USS Standard	Round	WAS50471	59
.500	7/16	1.250	.064-.104	316 S/S	n/a	USS Standard	Round	WAS50571	59
.500	7/16	1.250	.064-.104	18-8 S/S	n/a	Mil Spec	Round	MS15795-817BULK	77
.500	7/16	2"	.250	Stl Cased	Black Ox	Square	Square	Z8953H	78
.500-.505	n/a	.745-.755	0.001	18-8 S/S	n/a	Shim	Round	Z9841	70
.500-.505	n/a	.745-.755	0.002	18-8 S/S	n/a	Shim	Round	Z9842	70
.500-.505	n/a	.745-.755	0.003	18-8 S/S	n/a	Shim	Round	Z9843	70
.500-.505	n/a	.745-.755	0.004	18-8 S/S	n/a	Shim	Round	Z9844	70
.500-.505	n/a	.745-.755	0.005	18-8 S/S	n/a	Shim	Round	Z9845	70
.500-.505	n/a	.745-.755	0.006	18-8 S/S	n/a	Shim	Round	Z9846	70
.500-.505	n/a	.745-.755	0.008	18-8 S/S	n/a	Shim	Round	Z9848	70
.500-.505	n/a	.745-.755	0.01	18-8 S/S	n/a	Shim	Round	Z9850	70
.500-.505	n/a	.745-.755	0.012	18-8 S/S	n/a	Shim	Round	Z9852	70
.500-.505	n/a	.745-.755	0.014	18-8 S/S	n/a	Shim	Round	Z9854	70
.500-.505	n/a	.745-.755	0.016	18-8 S/S	n/a	Shim	Round	Z9856	70
.501	1/2	.750	.005	18-8 S/S	n/a	Shim-Short	Round	Z9898-005	72
.501	1/2	.750	.016	18-8 S/S	n/a	Shim-Short	Round	Z9898-016	72
.501	1/2	.750	.030	18-8 S/S	n/a	Shim-Short	Round	Z9898-030	72
.503-.508	1/4 X 5/8	.618-.623	.003	18-8 S/S	n/a	Shim	Round	Z9886-3	71
.503-.508	1/4 X 5/8	.618-.623	.005	18-8 S/S	n/a	Shim	Round	Z9886-5	71
.503-.508	1/4 X 5/8	.618-.623	.007	18-8 S/S	n/a	Shim	Round	Z9886-7	71
.503-.508	1/4 X 5/8	.618-.623	.010	18-8 S/S	n/a	Shim	Round	Z9886-10	71
.503-.508	1/4 X 5/8	.618-.623	.020	18-8 S/S	n/a	Shim	Round	Z9886-20	71
.505	1/2	1"	.187	4140 Stl	Black Ox	Machined	Round	Z0356	63
.515	1/2	.875	.022-.042	18-8 S/S	n/a	Mil Spec	Round	AN960-C816LBULK	76
.515	1/2	.875	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0832RBULK	77
.515	1/2	.875	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C816BULK	76
.515	1/2	.875	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0863RBULK	77
.515	1/2	.880	.062	Fiberglass	n/a	Non-Metallic	Round	Z8328	80
.515	1/2	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8344	80
.530	1/2	.880	.031	Nylatron	n/a	Non-Metallic	Round	Z8396	81

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.531	1/2	1.062	.074-.121	18-8 S/S	n/a	SAE Standard	Round	WAS40412	59
.531	1/2	1.062	.074-.121	316 S/S	n/a	SAE Standard	Round	WAS40512	59
.531	1/2	1.062	.074-.121	18-8 S/S	n/a	Mil Spec	Round	MS15795-818BULK	77
.531	1/2	1.125	.188	Steel	n/a	Component	Round	Z9204	54
.531	1/2	1.125	.188	Brass	n/a	Component	Round	Z9204BR	54
.531	1/2	1.125	.188	18-8 S/S	n/a	Component	Round	Z9204SS	54
.531	1/2	1.125	.125	Stl Cased	Nickel	Dress	Round	Z9099M	63
.531	1/2	1.125	.125	18-8 S/S	n/a	Dress	Round	Z9099M-SS	63
.531	1/2	1.250	.090-.112	Steel	Zinc	IFI Type B	Round	WASB12RZ	64
.531	1/2	1.500	.219	Steel	n/a	Component	Round	Z9235	54
.531	1/2	1.500	.052-.072	Steel	Zinc	Fender	Round	Z0472	57
.531	1/2	1.500	.052-.072	18-8 S/S	n/a	Fender	Round	Z0472-188	57
.531	1/2	1.500	.052-.072	316 S/S	n/a	Fender	Round	Z0472-316	57
.531	1/2	1.750	.090-.112	Steel	Zinc	IFI Type B	Round	WASB12WZ	64
.531	1/2	2.375	.375	Steel Cased	Black Ox	C Washer	Round	Z9441	73
.531	1/2	1"	.056-.071	Steel	Zinc	IFI Type B	Round	WASB12NZ	64
.531	1/2	2"	.052-.072	Steel	Zinc	Fender	Round	Z0473	57
.531	1/2	2"	.052-.072	18-8 S/S	n/a	Fender	Round	Z0473-188	57
.531	1/2	2"	.052-.072	316 S/S	n/a	Fender	Round	Z0473-316	57
.531	1/2	3"	.051-.080	Steel	Zinc	Fender	Round	Z0488	57
.531	1/2	1.063	.203	Steel	Zinc Yel	Structural	Round	Z9274	61
.531	1/2	1.063	.203	18-8 S/S	n/a	Structural	Round	Z9274SS	61
.531	1/2	1.063	.188	18-8 S/S	n/a	Component	Round	Z9219	55
.531	1/2	1.063	.188	Brass	n/a	Component	Round	Z9219BR	55
.531	1/2	1.063	.188	Steel	n/a	Component	Round	Z9219STL	55
.531	1/2	1.125	.125	Steel	n/a	Component	Round	Z9099	54
.531	1/2	1.125	.125	Brass	n/a	Component	Round	Z9099BR	54
.531	1/2	1.125	.125	18-8 S/S	n/a	Component	Round	Z9099SS	54
n/a	7/16 or 1/2	n/a	.313	Stl Cased	Black Ox	Spherical	Round	Z9458SET	74
.531	7/16 or 1/2	1.125	.188	Stl Cased	Black Ox	Spherical	Round	Z9458M	74
.531	1/2	1.188	.188	Stl Cased	n/a	Spacing	Round	Z9204U	66
.531	1/2	1.375	.146-.166	Stl Cased	Black Ox	Fit-Tite	Round	Z9289	66
.531	7/16 & 1/2	1.875	.375	Stl Cased	Black Ox	C Washers	Round	Z9428	73
.531	7/16 & 1/2	1.875	.375	18-8 S/S	n/a	C Washers	Round	Z9428SS	73
.531	7/16 & 1/2	2.25	.375	Stl Cased	Black Ox	C Washers	Round	Z9429	73
.531	7/16 & 1/2	2.25	.375	18-8 S/S	n/a	C Washers	Round	Z9429SS	73
.531	1/2	1"	.188	Soft Stl	Plain	Spacing	Round	Z9185	62
.531	1/2	1"	.188	Soft Stl	Plain	Beveled FW	Round	Z9185-BEV	62
.531	1/2	1"	.188	Stl Cased	Plain	Beveled FW	Round	Z9185-BEV-H	62
.531	1/2	1"	.188	Stl Cased	Zinc	Beveled FW	Round	Z9185-BEV-HZN	62
.531	1/2	1"	.188	18-8 S/S	n/a	Beveled FW	Round	Z9185-BEV-SS	62
.531	1/2	2"	.125	18-8 S/S	n/a	Fender-XT	Round	Z9688SS	57
.531	1/2	2"	.125	Steel	n/a	Fender-XT	Round	Z9688	57
.531	1/2	2"	.250	Steel	n/a	Fender-XT	Round	Z9689	57
.531	1/2	2"	.250	18-8 S/S	n/a	Fender-XT	Round	Z9689SS	57
.562	1/2	1.375	.074-.121	18-8 S/S	n/a	USS Standard	Round	WAS50412	59
.562	1/2	1.375	.074-.121	316 S/S	n/a	USS Standard	Round	WAS50512	59
.562	1/2	1.375	.086-.132	18-8 S/S	n/a	Mil Spec	Round	MS15795-819BULK	77
.562	1/2	1"	.188	18-8 S/S	n/a	Roughneck	Round	Z9091-SS	60
.563	7/16 or 1/2	1.125	.188	Stl Cased	Black Ox	Spherical	Round	Z9458F	74
.563	1/2	1"	.188	Stl Cased	Zinc	Roughneck	Round	Z9091	60
.563	1/2	2"	.125	Soft Stl	Galv.	Square	Square	Z8940G	78
.563	1/2	2"	.250	Stl Cased	Black Ox	Square	Square	Z8954H	78
.563	1/2	2"	.250	Soft Stl	Galv.	Square	Square	Z8954G	78
.563	1/2	2"	.250	18-8 S/S	n/a	Square	Square	Z8954SS	78
.563	1/2	2"	.250	Diamond Stl	Galv.	Square	Square	Z8954D	78
.563	1/2	3"	.250	Steel	n/a	Fender-XT	Round	Z9670	57
.563	1/2	3"	.250	Steel	Galv.	Dock	Round	Z9670G	66
.563	1/2	3"	.250	Steel	HD Galv.	Square	Square	Z8880-HDG	78
.578	9/16	1.062	.032	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C0963RBULK	77
.578	9/16	1.062	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C916BULK	76
.594	9/16	1.172	.172	Steel	Zinc Yel	Structural	Round	Z9275	61
.594	9/16	1.188	.188	18-8 S/S	n/a	Component	Round	Z9220	55

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.623	5/8	.750	.008	18-8 S/S	n/a	Shim	Round	Z9878	71
.625	n/a	1.250	.048	18-8 S/S	n/a	Wide Shim	Round	Z9944SS	67
.625	n/a	1.250	.075	18-8 S/S	n/a	Wide Shim	Round	Z9956SS	67
.625	9/16	1.500	.086-.132	18-8 S/S	n/a	USS Standard	Round	WAS50491	59
.625	9/16	1.500	.086-.132	316 S/S	n/a	USS Standard	Round	WAS50591	59
.626	5/8	.875	.016	18-8 S/S	n/a	Shim-Short	Round	Z9899-016	72
.626	5/8	.875	.030	18-8 S/S	n/a	Shim-Short	Round	Z9899-030	72
.640	5/8	1.188	.053-.073	18-8 S/S	n/a	Mil Spec	Round	AN960-C1016BULK	76
.640	5/8	1.188	.063	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C1063RBULK	77
.640	5/8	1.193	.093	Fiberglass	n/a	Non-Metallic	Round	Z8330	80
.640	5/8	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8346	80
.656	5/8	1.312	.071-.121	18-8 S/S	n/a	SAE Standard	Round	WAS40458	59
.656	5/8	1.312	.071-.121	316 S/S	n/a	SAE Standard	Round	WAS40558	59
.656	5/8	1.312	.074-.121	18-8 S/S	n/a	Mil Spec	Round	MS15795-820BULK	77
.656	5/8	1.312	.219	Steel Cased	Black Ox	Component	Round	Z9221STL	55
.656	5/8	1.375	.188	Steel	n/a	Component	Round	Z9205	54
.656	5/8	1.375	.188	Brass	n/a	Component	Round	Z9205BR	54
.656	5/8	1.375	.188	18-8 S/S	n/a	Component	Round	Z9205SS	54
.656	5/8	1.375	.125	Stl Cased	Nickel	Dress	Round	Z9100M	63
.656	5/8	1.375	.125	18-8 S/S	n/a	Dress	Round	Z9100M-SS	63
.656	5/8	1.500	.219	Steel	n/a	Component	Round	Z9236	54
.656	5/8	1.250	.250	Soft Stl	Plain	Spacing	Round	Z9186	62
.656	5/8	1.250	.250	Soft Stl	Plain	Beveled FW	Round	Z9186-BEV	62
.656	5/8	1.250	.250	Stl Cased	Plain	Beveled FW	Round	Z9186-BEV-H	62
.656	5/8	1.250	.250	Stl Cased	Zinc	Beveled FW	Round	Z9186-BEV-HZN	62
.656	5/8	1.250	.250	18-8 S/S	n/a	Beveled FW	Round	Z9186-BEV-SS	62
.656	5/8	1.313	.219	18-8 S/S	n/a	Component	Round	Z9221	55
.656	5/8	1.313	.219	Brass	n/a	Component	Round	Z9221BR	55
.656	5/8	1.313	.219	Steel	Zinc Yel	Structural	Round	Z9276	61
.656	5/8	1.313	.219	18-8 S/S	n/a	Structural	Round	Z9276SS	61
.656	5/8	1.375	.125	Steel	n/a	Component	Round	Z9100	54
.656	5/8	1.375	.125	Brass	n/a	Component	Round	Z9100BR	54
.656	5/8	1.375	.125	18-8 S/S	n/a	Component	Round	Z9100SS	54
n/a	5/8	n/a	.313	Stl Cased	Black Ox	Spherical	Round	Z9462SET	74
.656	5/8	1.375	.188	Stl Cased	Black Ox	Spherical	Round	Z9462M	74
.656	5/8	1.438	.188	Stl Cased	n/a	Spacing	Round	Z9205U	66
.656	5/8	1.750	.146-.166	Stl Cased	Black Ox	Fit-Tite	Round	Z9290	66
.656	5/8	2.125	.375	Stl Cased	Black Ox	C Washers	Round	Z9431	73
.656	5/8	2.125	.375	18-8 S/S	n/a	C Washers	Round	Z9431SS	73
.687-.692	3/8 X 7/8	.868-.873	.003	18-8 S/S	n/a	Shim	Round	Z9887-3	71
.687-.692	3/8 X 7/8	.868-.873	.005	18-8 S/S	n/a	Shim	Round	Z9887-5	71
.687-.692	3/8 X 7/8	.868-.873	.007	18-8 S/S	n/a	Shim	Round	Z9887-7	71
.687-.692	3/8 X 7/8	.868-.873	.010	18-8 S/S	n/a	Shim	Round	Z9887-10	71
.687-.692	3/8 X 7/8	.868-.873	.020	18-8 S/S	n/a	Shim	Round	Z9887-20	71
.688	5/8	1.375	.219	Stl Cased	Black Ox	Spherical	Round	Z9462F	74
.688	5/8	1.750	.108-.160	18-8 S/S	n/a	USS Standard	Round	WAS50458	59
.688	5/8	1.750	.108-.160	316 S/S	n/a	USS Standard	Round	WAS50558	59
.688	5/8	1.750	.108-.160	18-8 S/S	n/a	Mil Spec	Round	MS15795-821BULK	77
.688	5/8	2.250	.188	Soft Stl	Galv.	Square	Square	Z8944G	78
.688	5/8	2.500	.125	Steel	n/a	Fender-XT	Round	Z9690	57
.688	5/8	2.500	.125	18-8 S/S	n/a	Fender-XT	Round	Z9690SS	57
.688	5/8	2.500	.250	Steel	n/a	Fender-XT	Round	Z9691	57
.688	5/8	2.500	.250	18-8 S/S	n/a	Fender-XT	Round	Z9691SS	57
.688	5/8	2"	.125	Soft Stl	Galv.	Square	Square	Z8942G	78
.688	5/8	2"	.250	Stl Cased	Black Ox	Square	Square	Z8956H	78
.688	5/8	2"	.250	Soft Stl	Galv.	Square	Square	Z8956G	78
.688	5/8	2"	.250	18-8 S/S	n/a	Square	Square	Z8956SS	78
.688	5/8	2"	.250	Diamond Stl	Galv.	Square	Square	Z8956D	78
.688	5/8	3"	.250	Steel	n/a	Fender-XT	Round	Z9671	57
.688	5/8	3"	.250	Steel	Galv.	Dock	Round	Z9671G	66
.688	5/8	3"	.250	Steel	HD Galv.	Square	Square	Z8881-HDG	78
.688	5/8	4"	.250	Steel	HD Galv.	Square	Square	Z8892-HDG	78
.719	5/8	1.250	.250	Stl Cased	Zinc	Roughneck	Round	Z9092	60

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.719	5/8	1.250	.250	18-8 S/S	n/a	Roughneck	Round	Z9092-SS	60
.750	n/a	1.250	.048	18-8 S/S	n/a	Wide Shim	Round	Z9946SS	67
.750	n/a	1.250	.075	18-8 S/S	n/a	Wide Shim	Round	Z9958SS	67
.750	n/a	1.500	.048	18-8 S/S	n/a	Wide Shim	Round	Z9948SS	67
.750	n/a	1.500	.075	18-8 S/S	n/a	Wide Shim	Round	Z9960SS	67
.751	3/4	1"	.016	18-8 S/S	n/a	Shim-Short	Round	Z9899-116	72
.751	3/4	1"	.030	18-8 S/S	n/a	Shim-Short	Round	Z9899-130	72
.765	3/4	1.312	.080-.100	18-8 S/S	n/a	Mil Spec	Round	AN960-C1216BULK	76
.765	3/4	1.312	.090	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C1290RBULK	77
.765	3/4	1.317	.093	Fiberglass	n/a	Non-Metallic	Round	Z8332	80
.765	3/4	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8348	80
.781	3/4	1.625	.250	Steel	n/a	Component	Round	Z9206	54
.781	3/4	1.625	.250	Brass	n/a	Component	Round	Z9206BR	54
.781	3/4	1.625	.250	18-8 S/S	n/a	Component	Round	Z9206SS	54
.781	3/4	1.625	.156	Stl Cased	Nickel	Dress	Round	Z9101M	63
.781	3/4	1.625	.156	18-8 S/S	n/a	Dress	Round	Z9101M-SS	63
.781	3/4	1.875	.260	Steel	n/a	Component	Round	Z9237	54
.781	3/4	1.500	.250	Soft Stl	Plain	Spacing	Round	Z9187	62
.781	3/4	1.500	.250	Soft Stl	Plain	Beveled FW	Round	Z9187-BEV	62
.781	3/4	1.500	.250	Stl Cased	Plain	Beveled FW	Round	Z9187-BEV-H	62
.781	3/4	1.500	.250	Stl Cased	Zinc	Beveled FW	Round	Z9187-BEV-HZN	62
.781	3/4	1.500	.250	18-8 S/S	n/a	Beveled FW	Round	Z9187-BEV-SS	62
.781	3/4	1.625	.125	18-8 S/S	n/a	Component	Round	Z9101SSL	55
.781	3/4	1.625	.156	Steel	n/a	Component	Round	Z9101	54
.781	3/4	1.625	.156	Brass	n/a	Component	Round	Z9101BR	54
.781	3/4	1.625	.156	18-8 S/S	n/a	Component	Round	Z9101SS	54
n/a	3/4	n/a	.375	Stl Cased	Black Ox	Spherical	Round	Z9466SET	74
.781	3/4	1.625	.219	Stl Cased	Black Ox	Spherical	Round	Z9466M	74
.781	3/4	1.688	.250	Stl Cased	n/a	Spacing	Round	Z9206U	66
.781	3/4	2.500	.438	Stl Cased	Black Ox	C Washers	Round	Z9433	73
.781	3/4	2.500	.438	18-8 S/S	n/a	C Washers	Round	Z9433SS	73
.781	3/4	3"	.250	Steel	HD Galv.	Square	Square	Z8882-HDG	78
.781	3/4	4"	.250	Steel	HD Galv.	Square	Square	Z8893-HDG	78
.812	3/4	1.469	.108-.160	18-8 S/S	n/a	Mil Spec	Round	MS15795-822BULK	77
.812	3/4	1.500	.108-.160	18-8 S/S	n/a	SAE Standard	Round	WAS40434	59
.812	3/4	1.500	.108-.160	316 S/S	n/a	SAE Standard	Round	WAS40534	59
.812	3/4	1.500	.219	Steel Cased	Black Ox	Component	Round	Z9222STL	55
.812	3/4	2"	.122-.177	18-8 S/S	n/a	USS Standard	Round	WAS50434	59
.812	3/4	2"	.122-.177	316 S/S	n/a	USS Standard	Round	WAS50534	59
.812	3/4	2"	.122-.177	18-8 S/S	n/a	Mil Spec	Round	MS15795-823BULK	77
.812	3/4	2"	.125	Steel	Galv.	Square	Square	Z8945G	78
.813	3/4	1.469	.219	Steel	Zinc Yel	Structural	Round	Z9277	61
.813	3/4	1.469	.219	18-8 S/S	n/a	Structural	Round	Z9277SS	61
.813	3/4	1.500	.219	18-8 S/S	n/a	Component	Round	Z9222	55
.813	3/4	1.500	.219	Brass	n/a	Component	Round	Z9222BR	55
.813	3/4	1.625	.265	Stl Cased	Black Ox	Spherical	Round	Z9466F	74
.813	3/4	2.250	.188	Soft Stl	Galv.	Square	Square	Z8946G	78
.813	3/4	2"	.250	Stl Cased	Black Ox	Square	Square	Z8958H	78
.813	3/4	2"	.250	Soft Stl	Galv.	Square	Square	Z8958G	78
.813	3/4	2"	.250	18-8 S/S	n/a	Square	Square	Z8958SS	78
.813	3/4	2"	.250	Diamond Stl	Galv.	Square	Square	Z8958D	78
.813	3/4	2"	.240-.260	Stl Cased	Black Ox	Fit-Tite	Round	Z9293	66
.813	3/4	3"	.125	Steel	n/a	Fender-XT	Round	Z9692	57
.813	3/4	3"	.188	Soft Stl	Galv.	Square	Square	Z8947G	78
.813	3/4	3"	.250	Steel	n/a	Fender-XT	Round	Z9693	57
.813	3/4	3"	.250	18-8 S/S	n/a	Fender-XT	Round	Z9693SS	57
.813	3/4	3"	.250	Steel	Galv.	Dock	Round	Z9693G	66
.813	3/4	3"	.250	Soft Stl	Galv.	Square	Square	Z8948G	78
.813	3/4	3"	.375	Steel	n/a	Fender-XT	Round	Z9698	57
.844	3/4	1.500	.250	Stl Cased	Zinc	Roughneck	Round	Z9093	60
.844	3/4	1.500	.250	18-8 S/S	n/a	Roughneck	Round	Z9093-SS	60
.890	7/8	1.500	.080-.100	18-8 S/S	n/a	Mil Spec	Round	AN960-C1416BULK	76
.890	7/8	1.500	.090	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C1490RBULK	77

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.906	7/8	1.750	.250	Steel	n/a	Component	Round	Z9207	54
.906	7/8	1.750	.250	Brass	n/a	Component	Round	Z9207BR	54
.906	7/8	1.750	.250	18-8 S/S	n/a	Component	Round	Z9207SS	54
.906	7/8	1.750	.156	Stl Cased	Nickel	Dress	Round	Z9102M	63
.906	7/8	1.750	.156	18-8 S/S	n/a	Dress	Round	Z9102M-SS	63
.906	7/8	2.125	.219	Steel	n/a	Component	Round	Z9238	54
.906	7/8	1.750	.156	Steel	n/a	Component	Round	Z9102	54
.906	7/8	1.750	.156	Brass	n/a	Component	Round	Z9102BR	54
.906	7/8	1.750	.156	18-8 S/S	n/a	Component	Round	Z9102SS	54
.906	7/8	1.750	.250	Soft Stl	Plain	Spacing	Round	Z9188	62
.906	7/8	1.750	.250	Soft Stl	Plain	Beveled FW	Round	Z9188-BEV	62
.906	7/8	1.750	.250	Stl Cased	Plain	Beveled FW	Round	Z9188-BEV-H	62
.906	7/8	1.750	.250	Stl Cased	Zinc	Beveled FW	Round	Z9188-BEV-HZN	62
.906	7/8	1.750	.250	18-8 S/S	n/a	Beveled FW	Round	Z9188-BEV-SS	62
.906	7/8	1.828	.250	Stl Cased	n/a	Spacing	Round	Z9207U	66
.938	7/8	1.750	.250	Steel	Zinc Yel	Structural	Round	Z9278	61
.938	7/8	1.750	.250	18-8 S/S	n/a	Structural	Round	Z9278SS	61
.938	7/8	1.750	.108-.160	18-8 S/S	n/a	Mil Spec	Round	MS15795-824BULK	77
n/a	7/8	n/a	.375	Stl Cased	Black Ox	Spherical	Round	Z9470SET	74
.938	7/8	1.750	.240	Stl Cased	Black Ox	Spherical	Round	Z9470M	74
.938	7/8	2.250	.136-.192	18-8 S/S	n/a	USS Standard	Round	WAS50478	59
.938	7/8	2.250	.136-.192	316 S/S	n/a	USS Standard	Round	WAS50578	59
.938	7/8	2.250	.136-.192	18-8 S/S	n/a	Mil Spec	Round	MS15795-825BULK	77
.938	7/8	3.25	.125	Steel	n/a	Fender-XT	Round	Z9694	57
.938	7/8	3.25	.250	Steel	n/a	Fender-XT	Round	Z9695	57
.938	7/8	3.25	.250	18-8 S/S	n/a	Fender-XT	Round	Z9695SS	57
.938	7/8	3.25	.375	Steel	n/a	Fender-XT	Round	Z9699	57
.938	7/8	2"	.250	Stl Cased	Black Ox	Square	Square	Z8960H	78
.938	7/8	2"	.250	Soft Stl	Galv.	Square	Square	Z8960G	78
.938	7/8	2"	.250	18-8 S/S	n/a	Square	Square	Z8960SS	78
.938	7/8	3"	.250	Steel	n/a	Fender-XT	Round	Z9673	57
.938	7/8	3"	.250	Steel	Galv.	Dock	Round	Z9673G	66
.938	7/8	3"	.250	Steel	HD Galv.	Square	Square	Z8883-HDG	78
.938	7/8	4"	.250	Steel	HD Galv.	Square	Square	Z8894-HDG	78
1.000	7/8	1.750	.240	Stl Cased	Black Ox	Spherical	Round	Z9470F	74
1.000	n/a	2"	.048	18-8 S/S	n/a	Wide Shim	Round	Z9950SS	67
1.000	n/a	2"	.075	18-8 S/S	n/a	Wide Shim	Round	Z9962SS	67
1.015	1"	1.750	.080-.100	18-8 S/S	n/a	Mil Spec	Round	AN960-C1616BULK	76
1.015	1"	1.750	.090	18-8 S/S	n/a	Mil Spec	Round	NAS1149-C1690RBULK	77
1.015	1"	1.755	.093	Fiberglass	n/a	Non-Metallic	Round	Z8334	80
1.015	1"	2"	.125	Fiberglass	n/a	Non-Metallic	Square	Z8350	80
1.031	1"	2"	.219	Steel	n/a	Component	Round	Z9208	54
1.031	1"	2"	.219	Brass	n/a	Component	Round	Z9208BR	54
1.031	1"	2"	.219	18-8 S/S	n/a	Component	Round	Z9208SS	54
1.031	1"	2.063	.281	Stl Cased	n/a	Spacing	Round	Z9208U	66
1.031	7/8 & 1	2.500	.438	Stl Cased	Black Ox	C Washers	Round	Z9434	73
1.031	7/8 & 1	2.500	.438	18-8 S/S	n/a	C Washers	Round	Z9434SS	73
1.031	1"	2"	.188	Steel	n/a	Component	Round	Z9103	54
1.031	1"	2"	.188	Brass	n/a	Component	Round	Z9103BR	54
1.031	1"	2"	.188	18-8 S/S	n/a	Component	Round	Z9103SS	54
1.031	1"	2"	.250	18-8 S/S	n/a	Component	Round	Z9209SS	54
1.031	1"	2"	.250	Steel	n/a	Component	Round	Z9209STL	54
1.031	1"	2"	.313	Soft Stl	Plain	Spacing	Round	Z9189	62
1.031	1"	2"	.313	Soft Stl	Plain	Beveled FW	Round	Z9189-BEV	62
1.031	1"	2"	.313	Stl Cased	Plain	Beveled FW	Round	Z9189-BEV-H	62
1.031	1"	2"	.313	Stl Cased	Zinc	Beveled FW	Round	Z9189-BEV-HZN	62
1.031	1"	2"	.313	18-8 S/S	n/a	Beveled FW	Round	Z9189-BEV-SS	62
1.031	1"	2"	0.187	Stl Cased	Nickel	Dress	Round	Z9103M	63
1.031	1"	2"	0.187	18-8 S/S	n/a	Dress	Round	Z9103M-SS	63
1.031	1"	3"	.250	Steel	HD Galv.	Square	Square	Z8884-HDG	78
1.031	1"	3"	.562	Steel Cased	Black Ox	C Washer	Round	Z9442	73
1.031	1"	4"	.250	Steel	HD Galv.	Square	Square	Z8895-HDG	78
1.062	1"	2"	.108-.160	18-8 S/S	n/a	SAE Standard	Round	WAS40401	59

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
1.062	1"	2"	.108-.160	316 S/S	n/a	SAE Standard	Round	WAS40501	59
1.062	1"	2"	.108-.160	18-8 S/S	n/a	Mil Spec	Round	MS15795-826BULK	77
1.062	1"	2.500	.136-.192	18-8 S/S	n/a	USS Standard	Round	WAS50401	59
1.062	1"	2.500	.136-.192	316 S/S	n/a	USS Standard	Round	WAS50501	59
1.062	1"	2.500	.136-.192	18-8 S/S	n/a	Mil Spec	Round	MS15795-827BULK	77
1.063	1"	2.500	.313	Steel	n/a	Component	Round	Z9239	54
1.063	1"	2.500	.240-.260	Stl Cased	Black Ox	Fit-Tite	Round	Z9294	66
1.063	1"	3.250	.250	Steel	n/a	Fender-XT	Round	Z9674	57
1.063	1"	3.250	.250	Steel	Galv.	Dock	Round	Z9674G	66
1.063	1"	3.500	.125	Steel	n/a	Fender-XT	Round	Z9696	57
1.063	1"	3.500	.125	18-8 S/S	n/a	Fender-XT	Round	Z9696SS	57
1.063	1"	3.500	.250	Steel	n/a	Fender-XT	Round	Z9697	57
1.063	1"	3.500	.375	Steel	n/a	Fender-XT	Round	Z9677	57
1.063	1"	2"	.250	Steel	Zinc Yel	Structural	Round	Z9279	61
1.063	1"	2"	.250	18-8 S/S	n/a	Structural	Round	Z9279SS	61
1.063	1"	2"	.250	Stl Cased	Black Ox	Square	Square	Z8962H	78
1.063	1"	2"	.250	18-8 S/S	n/a	Square	Square	Z8962SS	78
1.063	1"	2"	.250	Diamond Stl	Galv.	Square	Square	Z8962D	78
n/a	1"	n/a	.500	Stl Cased	Black Ox	Spherical	Round	Z9474SET	74
1.063	1"	2"	.330	Stl Cased	Black Ox	Spherical	Round	Z9474M	74
1.125	1"	2"	.290	Stl Cased	Black Ox	Spherical	Round	Z9474F	74
1.156	1 1/8	2.250	.219	Steel	n/a	Component	Round	Z9104	54
1.156	1 1/8	2.250	.219	18-8 S/S	n/a	Component	Round	Z9104SS	54
1.156	1-1/8	2.250	.313	Soft Stl	Plain	Spacing	Round	Z9190	62
1.156	1-1/8	2.250	.313	Soft Stl	Plain	Beveled FW	Round	Z9190-BEV	62
1.156	1-1/8	2.250	.313	Stl Cased	Plain	Beveled FW	Round	Z9190-BEV-H	62
1.156	1-1/8	2.250	.313	Stl Cased	Zinc	Beveled FW	Round	Z9190-BEV-HZN	62
1.156	1-1/8	2.250	.313	18-8 S/S	n/a	Beveled FW	Round	Z9190-BEV-SS	62
1.188	1-1/8	2.250	.250	Steel	Zinc Yel	Structural	Round	Z9280	61
n/a	1-1/8	n/a	n/a	Stl Cased	Black Ox	Spherical	Round	Z9478SET	74
1.188	1-1/8	2.250	.281	Stl Cased	Black Ox	Spherical	Round	Z9478M	74
1.250	n/a	1.875	.075	18-8 S/S	n/a	Wide Shim	Round	Z9964SS	67
1.250	1-1/8	2.250	.350	Stl Cased	Black Ox	Spherical	Round	Z9478F	74
1.281	1-1/4	2.250	.313	Soft Stl	Plain	Spacing	Round	Z9191	62
1.281	1-1/4	2.250	.313	Soft Stl	Plain	Beveled FW	Round	Z9191-BEV	62
1.281	1-1/4	2.250	.313	Stl Cased	Plain	Beveled FW	Round	Z9191-BEV-H	62
1.281	1-1/4	2.250	.313	Stl Cased	Zinc	Beveled FW	Round	Z9191-BEV-HZN	62
1.281	1-1/4	2.250	.313	18-8 S/S	n/a	Beveled FW	Round	Z9191-BEV-SS	62
1.281	1 1/4	2.500	.281	Steel	n/a	Component	Round	Z9105	54
1.281	1 1/4	2.500	.281	18-8 S/S	n/a	Component	Round	Z9105SS	54
1.281	1-1/4	3"	.625	Steel Cased	Black Ox	C Washer	Round	Z9443	73
1.313	1 1/4	2.500	.344	Steel	n/a	Component	Round	Z9240	54
n/a	1-1/4	n/a	n/a	Stl Cased	Black Ox	Spherical	Round	Z9484SET	74
1.313	1-1/4	2.500	.312	Stl Cased	Black Ox	Spherical	Round	Z9484M	74
1.313	1-1/4	3"	.438	Stl Cased	Black Ox	C Washers	Round	Z9437	73
1.313	1-1/4	3"	.438	18-8 S/S	n/a	C Washers	Round	Z9437SS	73
1.375	1-1/4	2.500	.250	Steel	Zinc Yel	Structural	Round	Z9281	61
1.375	1-1/4	2.500	.350	Stl Cased	Black Ox	Spherical	Round	Z9484F	74
1.375	1-1/4	4"	.500	Steel	n/a	Fender-XT	Round	Z9675	57
1.375	1-1/4	4"	.500	18-8 S/S	n/a	Fender-XT	Round	Z9675SS	57
1.375	1-1/4	4"	.500	Steel	Galv.	Dock	Round	Z9675G	66
1.438	1-3/8	2.750	.250	Steel	Zinc Yel	Structural	Round	Z9282	61
1.500	n/a	2.250	.075	18-8 S/S	n/a	Wide Shim	Round	Z9968SS	67
1.500	1-3/8	2.750	.250	Alloy Stl	n/a	Jumbo	Round	Z9250	60
1.500	1-3/8	2.750	.250	18-8 S/S	n/a	Jumbo	Round	Z9250SS	60
1.563	1-1/2	2.750	.375	Steel	n/a	Component	Round	Z9241	54
n/a	37257	n/a	.500	Stl Cased	Black Ox	Spherical	Round	Z9488SET	74
1.563	1-1/2	2.875	.350	Stl Cased	Black Ox	Spherical	Round	Z9488M	74
1.563	1-1/2	3"	.250	Steel	Zinc Yel	Structural	Round	Z9283	61
1.625	1-1/2	2.875	.390	Stl Cased	Black Ox	Spherical	Round	Z9488F	74
1.625	1-1/2	3"	.125	18-8 S/S	n/a	Jumbo	Round	Z9251SS	60
1.625	1-1/2	3"	.250	Alloy Stl	n/a	Jumbo	Round	Z9252	60
1.625	1-1/2	3"	.250	18-8 S/S	n/a	Jumbo	Round	Z9252SS	60

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
1.875	1-3/4	3.375	.250	Alloy Stl	n/a	Jumbo	Round	Z9254	60
1.875	1-3/4	3.375	.250	18-8 S/S	n/a	Jumbo	Round	Z9254SS	60
2.125	2"	3.750	.250	Alloy Stl	n/a	Jumbo	Round	Z9256	60
2.125	2"	3.750	.250	18-8 S/S	n/a	Jumbo	Round	Z9256SS	60
2.625	2-1/2	4.500	.313	Alloy Stl	n/a	Jumbo	Round	Z9258	60
2.625	2-1/2	4.500	.313	18-8 S/S	n/a	Jumbo	Round	Z9258SS	60
2.750	n/a	3.750	.187	Steel	n/a	Wide Shim	Round	Z9969	67
3.125	3"	5.500	.313	Alloy Stl	n/a	Jumbo	Round	Z9260	60
3.125	3"	5.500	.313	18-8 S/S	n/a	Jumbo	Round	Z9260SS	60
3.625	3-1/2	6.500	.313	Alloy Stl	n/a	Jumbo	Round	Z9262	60
3.625	3-1/2	6.500	.313	18-8 S/S	n/a	Jumbo	Round	Z9262SS	60
4.125	4"	7.500	.313	Alloy Stl	n/a	Jumbo	Round	Z9264	60
4.125	4"	7.500	.313	18-8 S/S	n/a	Jumbo	Round	Z9264SS	60

TAPPED WASHERS

THREAD	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
.5"-13	1/2	2.438	.188	Steel	Galv.	Tapped Flange	Square	Z8887-STL-RC	79
.5"-13	1/2	3.688	.188	Steel	Galv.	Tapped Flange	Square	Z8887-STL-SQ	79
.625"-11	5/8	2.438	.188	Steel	Galv.	Tapped Flange	Square	Z8888-STL-RC	79
.625"-11	5/8	3.688	.188	Steel	Galv.	Tapped Flange	Square	Z8888-STL-SQ	79
.75"-10	3/4	2.438	.188	Steel	Galv.	Tapped Flange	Square	Z8889-STL-RC	79
.75"-10	3/4	3.688	.188	Steel	Galv.	Tapped Flange	Square	Z8889-STL-SQ	79
.875"-9	7/8	2.438	.188	Steel	Galv.	Tapped Flange	Square	Z8887-STL-RC	79
.875"-9	7/8	3.688	.188	Steel	Galv.	Tapped Flange	Square	Z8887-STL-SQ	79

See the Next Page for a listing of Our **METRIC** Washers by Inner Diameter

Size List of Flat Washers by Inner Diameter—METRIC

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
M3.2	M3	M12	M3	Stl Cased	n/a	Component	Round	Z8840	B15
M3.2	M3	M12	M3	18-8 S/S	n/a	Component	Round	Z8840-SS	B15
M3.2	M3	M8	M2	Stl	n/a	Component	Round	Z8803	B15
M3.2	M3	M8	M2	18-8 S/S	n/a	Component	Round	Z8803-SS	B15
M4.3	M4	M10	M2	Stl	n/a	Component	Round	Z8804	B15
M4.3	M4	M10	M2	18-8 S/S	n/a	Component	Round	Z8804-SS	B15
M4.3	M4	M14	M3	Stl Cased	n/a	Component	Round	Z8842	B15
M4.3	M4	M14	M3	18-8 S/S	n/a	Component	Round	Z8842-SS	B15
M4.3	M4	M16	M3	Stl	n/a	Dress (Ctsk)	Round	Z9920	B17
M4.3	M4	M20	M3	Stl	n/a	Dress (Ctsk)	Round	Z9921	B17
M5.3	M5	M11	M2	Stl	n/a	Component	Round	Z8805	B15
M5.3	M5	M11	M2	18-8 S/S	n/a	Component	Round	Z8805-SS	B15
M5.3	M5	M15	M3.5	Stl Cased	n/a	Component	Round	Z8844	B15
M5.3	M5	M15	M3.5	18-8 S/S	n/a	Component	Round	Z8844-SS	B15
M5.3	M5	M22	M3.5	Stl	n/a	Dress (Ctsk)	Round	Z9922	B17
M5.3	M5	M25	M3.5	Stl	n/a	Dress (Ctsk)	Round	Z9923	B17
M5.3	M5	M28	M3.5	Stl	n/a	Dress (Ctsk)	Round	Z9924	B17
M6.4	M6	M12	M2.3	Stl Cased	Black Ox	Spherical	Round	Z9520M	B19
M6.4	M6	M12	M2.3	18-8 S/S	n/a	Spherical	Round	Z9521M	B19
n/a	M6	M12	M4.2	Stl Cased	Black Ox	Spherical	Round	Z9520SET	B19
n/a	M6	M12	M4.2	18-8 S/S	n/a	Spherical	Round	Z9521SET	B19
M6.4	M6	M13	M2.5	Stl	n/a	Component	Round	Z8806	B15
M6.4	M6	M13	M2.5	18-8 S/S	n/a	Component	Round	Z8806-SS	B15
M6.4	M6	M18	M4.5	Stl Cased	n/a	Component	Round	Z8846	B15
M6.4	M6	M18	M4.5	18-8 S/S	n/a	Component	Round	Z8846-SS	B15
M6.4	M6	M32	M4	Stl	n/a	Dress (Ctsk)	Round	Z9925	B17
M6.4	M6	M36	M4	Stl	n/a	Dress (Ctsk)	Round	Z9926	B17
M6.4	M6	M40	M5	Stl	n/a	Dress (Ctsk)	Round	Z9927	B17
M6.4	M6	M45	M6	Stl	n/a	Dress (Ctsk)	Round	Z9928	B17
M6.4	M6	M52	M6	Stl	n/a	Dress (Ctsk)	Round	Z9929	B17
M8.4	M8	M16	M3	Stl	n/a	Component	Round	Z8808	B15
M8.4	M8	M16	M3	18-8 S/S	n/a	Component	Round	Z8808-SS	B15
M8.4	M8	M17	M3.2	Stl Cased	Black Ox	Spherical	Round	Z9522M	B19
M8.4	M8	M17	M3.2	18-8 S/S	n/a	Spherical	Round	Z9523M	B19
n/a	M8	M17	M5.6	Stl Cased	Black Ox	Spherical	Round	Z9522SET	B19
n/a	M8	M17	M5.6	18-8 S/S	n/a	Spherical	Round	Z9523SET	B19
M8.4	M8	M22	M5	18-8 S/S	n/a	Component	Round	Z8848-SS	B15
M8.4	M8	M22	M5	Stl Cased	n/a	Component	Round	Z8848	B15
M9	M6	M50	M6	Stl Cased	Black Ox	Square	Square	Z8906	B11
M9.6	M8	M17	M3.5	Stl Cased	Black Ox	Spherical	Round	Z9522F	B19
M9.6	M8	M17	M3.5	18-8 S/S	n/a	Spherical	Round	Z9523F	B19
M10.5	M10	M19	M3	Stl	n/a	Component	Round	Z8810	B15
M10.5	M10	M19	M3	18-8 S/S	n/a	Component	Round	Z8810-SS	B15
M10.5	M10	M21	M4	Stl Cased	Black Ox	Spherical	Round	Z9524M	B19
M10.5	M10	M21	M4	18-8 S/S	n/a	Spherical	Round	Z9525M	B19
n/a	M10	M21	M6.5	Stl Cased	Black Ox	Spherical	Round	Z9524SET	B19
n/a	M10	M21	M6.5	18-8 S/S	n/a	Spherical	Round	Z9525SET	B19
M10.5	M10	M23	M5	Stl Cased	n/a	Component	Round	Z8850	B15
M10.5	M10	M23	M5	18-8 S/S	n/a	Component	Round	Z8850-SS	B15
M11	M8	M50	M6	Stl Cased	Black Ox	Square	Square	Z8908	B11
M12	M10	M21	M4.2	Stl Cased	Black Ox	Spherical	Round	Z9524F	B19
M12	M10	M21	M4.2	18-8 S/S	n/a	Spherical	Round	Z9525F	B19
M13	M10	M50	M6	Stl Cased	Black Ox	Square	Square	Z8910	B11
M13	M12	M22	M3	Stl	n/a	Component	Round	Z8812	B15
M13	M12	M22	M3	18-8 S/S	n/a	Component	Round	Z8812-SS	B15
M13	M12	M24	M4.6	Stl Cased	Black Ox	Spherical	Round	Z9526M	B19
M13	M12	M24	M4.6	18-8 S/S	n/a	Spherical	Round	Z9527M	B19
n/a	M12	M24	M8.0	Stl Cased	Black Ox	Spherical	Round	Z9526SET	B19

"A" ID	Bolt Size	"B" OD	"C" Thickness	Material	Finish	Type	Shape	Order Number	Page #
n/a	M12	M24	M8.0	18-8 S/S	n/a	Spherical	Round	Z9527SET	B19
M13	M12	M26	M5	Stl Cased	n/a	Component	Round	Z8852	B15
M13	M12	M26	M5	18-8 S/S	n/a	Component	Round	Z8852-SS	B15
M14.2	M12	M24	M5	Stl Cased	Black Ox	Spherical	Round	Z9526F	B19
M14.2	M12	M24	M5	18-8 S/S	n/a	Spherical	Round	Z9527F	B19
M15	M14	M25	M3	Stl	n/a	Component	Round	Z8814	B15
M15	M14	M25	M3	18-8 S/S	n/a	Component	Round	Z8814-SS	B15
M15	M14	M27	M5	Stl Cased	n/a	Component	Round	Z8854	B15
M15	M14	M27	M5	18-8 S/S	n/a	Component	Round	Z8854-SS	B15
M15	M14	M28	M5	Stl Cased	Black Ox	Spherical	Round	Z9528M	B19
M15	M14	M28	M5	18-8 S/S	n/a	Spherical	Round	Z9531M	B19
n/a	M14	M28	M9.0	Stl Cased	Black Ox	Spherical	Round	Z9528SET	B19
n/a	M14	M28	M9.0	18-8 S/S	n/a	Spherical	Round	Z9531SET	B19
M16	M12	M50	M6	Stl Cased	Black Ox	Square	Square	Z8912	B11
M16.5	M14	M28	M5.6	Stl Cased	Black Ox	Spherical	Round	Z9528F	B19
M16.5	M14	M28	M5.6	18-8 S/S	n/a	Spherical	Round	Z9531F	B19
M17	M16	M28	M3.5	Stl	n/a	Component	Round	Z8816	B15
M17	M16	M28	M3.5	18-8 S/S	n/a	Component	Round	Z8816-SS	B15
M17	M16	M30	M5.3	Stl Cased	Black Ox	Spherical	Round	Z9530M	B19
n/a	M16	M30	M9.6	Stl Cased	Black Ox	Spherical	Round	Z9530SET	B19
M17	M16	M32	M5	Stl Cased	n/a	Component	Round	Z8856	B15
M17	M16	M32	M5	18-8 S/S	n/a	Component	Round	Z8856-SS	B15
M18	M14	M50	M6	Stl Cased	Black Ox	Square	Square	Z8914	B11
M19	M16	M30	M6.2	Stl Cased	Black Ox	Spherical	Round	Z9530F	B19
M21	M20	M35	M3.5	Stl	n/a	Component	Round	Z8820	B15
M21	M20	M35	M3.5	18-8 S/S	n/a	Component	Round	Z8820-SS	B15
M21	M20	M35	M5	Stl Cased	n/a	Component	Round	Z8860	B15
M21	M20	M35	M5	18-8 S/S	n/a	Component	Round	Z8860-SS	B15
M21	M20	M36	M6.3	Stl Cased	Black Ox	Spherical	Round	Z9532M	B19
M21	M20	M36	M6.3	18-8 S/S	n/a	Spherical	Round	Z9533M	B19
n/a	M20	M36	M11.7	Stl Cased	Black Ox	Spherical	Round	Z9532SET	B19
n/a	M20	M36	M11.7	18-8 S/S	n/a	Spherical	Round	Z9533SET	B19
M22	M16	M50	M6	Stl Cased	Black Ox	Square	Square	Z8916	B11
M23.2	M20	M36	M7.5	Stl Cased	Black Ox	Spherical	Round	Z9532F	B19
M23.2	M20	M36	M7.5	18-8 S/S	n/a	Spherical	Round	Z9533F	B19
M25	M24	M40	M4	Stl	n/a	Component	Round	Z8824	B15
M25	M24	M40	M4	18-8 S/S	n/a	Component	Round	Z8824-SS	B15
M25	M24	M43	M6.5	Stl Cased	n/a	Component	Round	Z8864	B15
M25	M24	M43	M6.5	18-8 S/S	n/a	Component	Round	Z8864-SS	B15
M25	M24	M44	M8.2	Stl Cased	Black Ox	Spherical	Round	Z9534M	B19
M25	M24	M44	M8.2	18-8 S/S	n/a	Spherical	Round	Z9535M	B19
n/a	M24	M44	M15.2	Stl Cased	Black Ox	Spherical	Round	Z9534SET	B19
n/a	M24	M44	M15.2	18-8 S/S	n/a	Spherical	Round	Z9535SET	B19
M26	M20	M50	M6	Stl Cased	Black Ox	Square	Square	Z8920	B11
M28	M22	M50	M6	Stl Cased	Black Ox	Square	Square	Z8922	B11
M28	M24	M44	M9.5	Stl Cased	Black Ox	Spherical	Round	Z9534F	B19
M28	M24	M44	M9.5	18-8 S/S	n/a	Spherical	Round	Z9535F	B19
M31	M30	M44	M4	Stl	n/a	Component	Round	Z8830	B15
M31	M30	M44	M4	18-8 S/S	n/a	Component	Round	Z8830-SS	B15
M31	M30	M48	M6.5	Stl Cased	n/a	Component	Round	Z8870	B15
M31	M30	M48	M6.5	18-8 S/S	n/a	Component	Round	Z8870-SS	B15
M31	M30	M56	M11.2	Stl Cased	Black Ox	Spherical	Round	Z9536M	B19
M31	M30	M56	M11.2	18-8 S/S	n/a	Spherical	Round	Z9537M	B19
n/a	M30	M56	M19.2	18-8 S/S	n/a	Spherical	Round	Z9537SET	B19
M32	M24	M50	M6	Stl Cased	Black Ox	Square	Square	Z8924	B11
M35	M30	M56	M12	Stl Cased	Black Ox	Spherical	Round	Z9536F	B19
M35	M30	M56	M12	18-8 S/S	n/a	Spherical	Round	Z9537F	B19
n/a	M30	M56	M19.2	Stl Cased	Black Ox	Spherical	Round	Z9536SET	B19
M37	M36	M50	M5	Stl	n/a	Component	Round	Z8836	B15
M37	M36	M50	M5	18-8 S/S	n/a	Component	Round	Z8836-SS	B15
M37	M36	M50	M7.5	Stl Cased	n/a	Component	Round	Z8876	B15
M37	M36	M50	M7.5	18-8 S/S	n/a	Component	Round	Z8876-SS	B15
M38	M30	M50	M6	Stl Cased	Black Ox	Square	Square	Z8930	B11