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OPTIMUM FLAT WASHER CONFIGURATION FOR USE WITH DURASQUIRT® AND SQUIRTER® DTIs

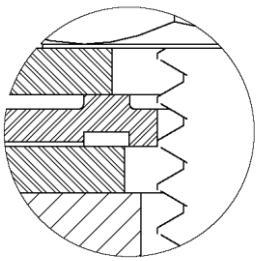
Non-standard holes in outer plies must be covered by an appropriate flat washer (see RCSC Table 6.1).

If an ASTM F436 washer is required under a Squirter® or DuraSquirt® DTI, a special flat washer should be procured for optimum squirt performance. While standard ASTM F436 washers are acceptable per specification, their use sacrifices some of the benefits of Squirter® and DuraSquirt® DTIs. See below for details.

See flat washer information on reverse side, call us, or see our website for details.

Use of a Standard ASTM F436 washer under Squirter® and DuraSquirt® DTIs results in squirt media falling behind DTI during tensioning.

Detail C of Figure 1 illustrates problematic use of standard ASTM F436 washers on top of DTI bumps, eccentricity due to washer inner diameters 1/8 inch over nominal diameters, may result in partial compression of DTI bumps.



DETAIL C

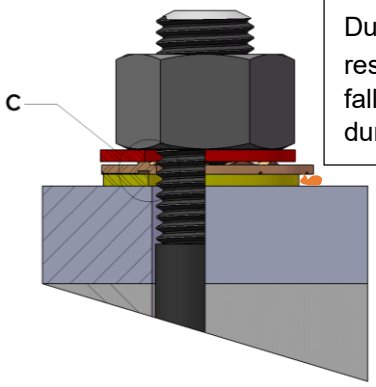
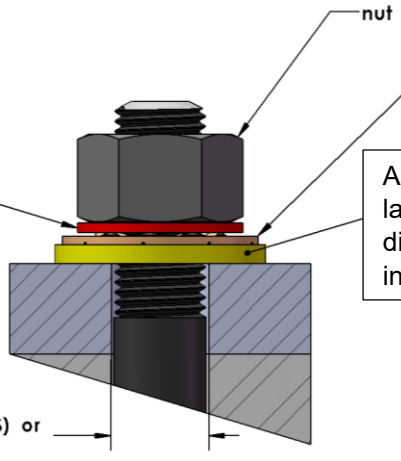


FIGURE 1

Alternate washers ensure full bump engagement.



Alternate washer with larger OD provides display surface for indication media.

FIGURE 2

*Recommended flat washers for use with DuraSquirt® & Squirter® DTIs

Optimum washer (see figure 2)	Bolt grade	Bolt/DTI diameter						
		3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2
A flat washer under nut	A325 or A490	3/4 F436	7/8 F436	1 F436	1-1/8 F436	SAE 1-1/8	1-1/4 F436	1-3/8 F436
B flat washer over OS/SS	A325	3/4 USS	7/8 USS	1 USS	118UH	114UH	138UH	112UH
	A490	3/4 USS	7/8 USS	1 USS	118USPTKH	114USPTKH	138USPTKH	112USPTKH

Washer A (red washer per table above and figure 2 right) is recommended for all standard, Squirter®, and DuraSquirt® DTIs applications.

Washer B (yellow washer per table above and figure 2 right) is only recommended for oversized (OS) and short-slotted (SS) hole configurations.

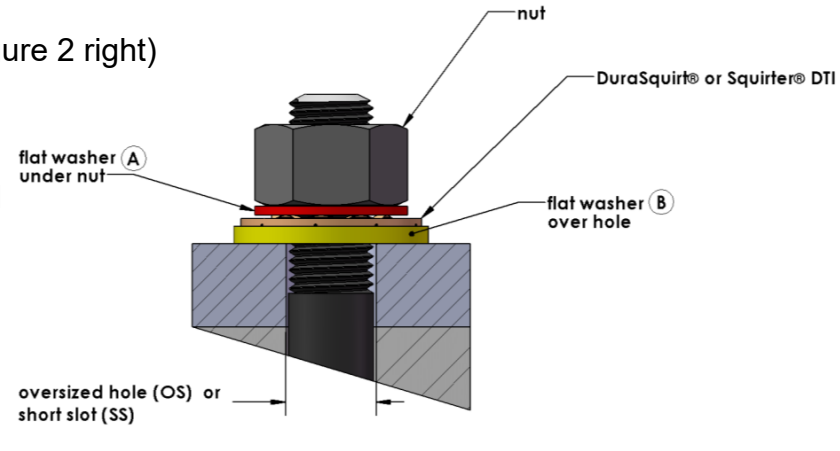


*FIGURE 2

Various flat washer dimensions[1]

Nominal Size	Type	ID	OD	Thickness
3/4	F436	0.813	1.468	.122 - .177
7/8	F436	0.938	1.750	.136 - .177
1	F436	1.063	2.000	.136 - .177
1-1/8	F436	1.188	2.250	.136 - .177
1-1/4	F436	1.375	2.500	.136 - .177
1-3/8	F436	1.500	2.750	.136 - .177
1-1/2	F436	1.625	3.000	.136 - .177
3/4	USS	0.812	2.000	.122 - .177
7/8	USS	0.938	2.250	.136 - .192
1	USS	1.062	2.500	.136 - .192
1-1/8	SAE	1.250	2.250	.108 - .160

Applied Bolting special USS washers

118UH	1.188	2.750	.136 min
114UH	1.313	3.000	.136 min
138UH	1.438	3.250	.136 min
112UH	1.563	3.500	.136 min
118USPTKH	1.188	2.750	0.313
114USPTKH	1.313	3.000	0.313
138USPTKH	1.438	3.250	0.313
112USPTKH	1.563	3.500	0.313

[1]F436 dimensions per ASTM Standard, USS and SAE dimensions per ANSI B18.22.1 Table 1A

F436 washers have an ID +1/16 over nominal, up to and including 1-1/8 bolt size, and IDs +1/8 over nominal, 1-1/4 up to 1-1/2.

USS washers have a +1/16 ID and an OD sufficiently bigger than the DTI, up to and including 1 inch. USS flat washers are available both hardened and unhardened. Use only hardened USS washers.

Suggested SAE washers have a tighter ID than ASTM F436 washers, and therefore fit better. SAE washers are available both hardened and unhardened. Use only hardened SAE washers over DTI bumps.

UH and USPTKH washers are special washers for use under Squirter® and DuraSquirt® DTIs wherever oversized and short-slotted holes are encountered, 1-1/8 up to 1-1/2 nominal bolt diameters. These washers have an ID +1/16 over nominal with the OD of a USS washer.

*Nut side installation illustrated, for other configurations please call Applied Bolting.

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