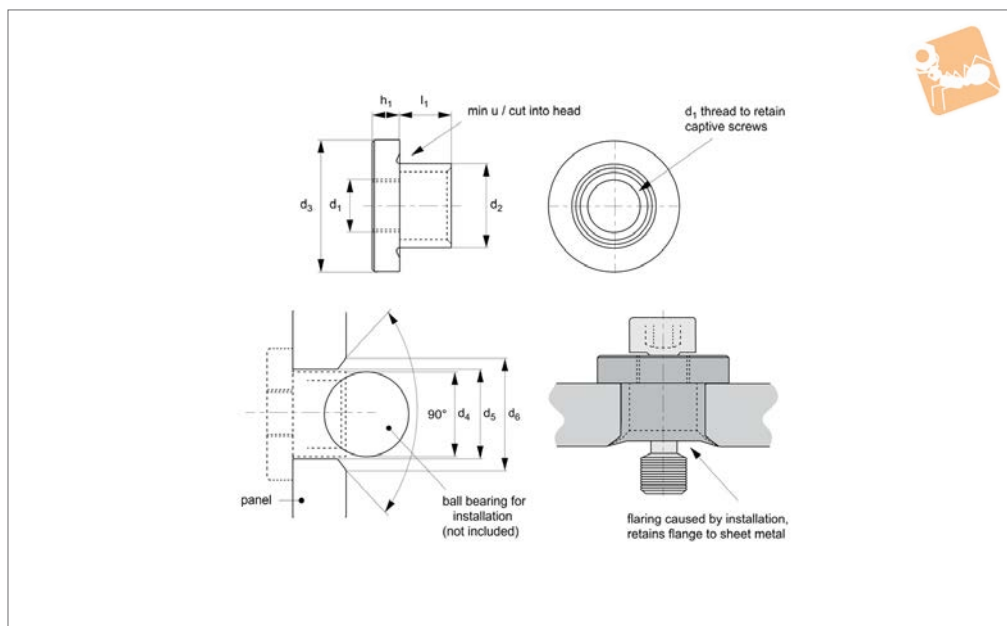




Captive Screws - Retainer Flange

303 stainless

Captive Screws



P0169.A2

CAPTIVE SCREWS

Material

Stainless steel (AISI 303, 1.4305).
Also available on request in steel
(anodised, black oxide or zinc plated)
stainless steel (AISI 316, 1.440), brass.

Technical Notes

Select the retainer flange to suit thread of

the captive screw and the thickness of the
panel to be retained.
Drill and countersink hole in the panel and
use the appropriate installation tool (see
P0169.TL) to spread the flange into the
countersunk hole.

The captive screw is then screwed into the

flange and the screw is retained to the
panel.

Tips

Mounting hole diameter to H9 clearance.
Countersunk d_6 to 90°.

Order No.	For thread d_1	Panel t_1 $\pm 8\%$	d_2	h_1	l_1	d_3	Installation ball dia. d_4	d_5 tol. H9	d_6	Sheet metal gauge
P0169.030-007-A2	M 3	0.70	5.0	1.5	0.70	7.5	5	5.0	6.0	22
P0169.030-009-A2	M 3	0.90	5.0	1.5	0.90	7.5	5	5.0	6.0	20
P0169.030-012-A2	M 3	1.25	5.0	1.5	1.25	7.5	5	5.0	6.0	18
P0169.030-015-A2	M 3	1.50	5.0	1.5	1.50	7.5	5	5.0	6.0	16
P0169.030-020-A2	M 3	2.00	5.0	1.5	2.00	7.5	5	5.0	6.0	14
P0169.030-025-A2	M 3	2.50	5.0	1.5	2.50	7.5	5	5.0	6.0	12
P0169.030-030-A2	M 3	3.00	5.0	1.5	3.00	7.5	5	5.0	6.0	10
P0169.030-040-A2	M 3	4.00	5.0	1.5	4.00	7.5	5	5.0	6.0	8
P0169.030-050-A2	M 3	5.00	5.0	1.5	5.00	7.5	5	5.0	6.0	6
P0169.030-060-A2	M 3	6.00	5.0	1.5	6.00	7.5	5	5.0	6.0	4
P0169.040-007-A2	M 4	0.70	6.8	2.0	0.70	10.0	7	6.8	8.2	22
P0169.040-009-A2	M 4	0.90	6.8	2.0	0.90	10.0	7	6.8	8.2	20
P0169.040-012-A2	M 4	1.25	6.8	2.0	1.25	10.0	7	6.8	8.2	18
P0169.040-015-A2	M 4	1.50	6.8	2.0	1.50	10.0	7	6.8	8.2	16
P0169.040-020-A2	M 4	2.00	6.8	2.0	2.00	10.0	7	6.8	8.2	14
P0169.040-025-A2	M 4	2.50	6.8	2.0	2.50	10.0	7	6.8	8.2	12
P0169.040-030-A2	M 4	3.00	6.8	2.0	3.00	10.0	7	6.8	8.2	10
P0169.040-040-A2	M 4	4.00	6.8	2.0	4.00	10.0	7	6.8	8.2	8
P0169.040-050-A2	M 4	5.00	6.8	2.0	5.00	10.0	7	6.8	8.2	6
P0169.040-060-A2	M 4	6.00	6.8	2.0	6.00	10.0	7	6.8	8.2	4
P0169.050-007-A2	M 5	0.70	8.0	2.5	0.70	12.5	8	8.0	9.6	22
P0169.050-009-A2	M 5	0.90	8.0	2.5	0.90	12.5	8	8.0	9.6	20
P0169.050-012-A2	M 5	1.25	8.0	2.5	1.25	12.5	8	8.0	9.6	18
P0169.050-015-A2	M 5	1.50	8.0	2.5	1.50	12.5	8	8.0	9.6	16
P0169.050-020-A2	M 5	2.00	8.0	2.5	2.00	12.5	8	8.0	9.6	14
P0169.050-025-A2	M 5	2.50	8.0	2.5	2.50	12.5	8	8.0	9.6	12
P0169.050-030-A2	M 5	3.00	8.0	2.5	3.00	12.5	8	8.0	9.6	10
P0169.050-040-A2	M 5	4.00	8.0	2.5	4.00	12.5	8	8.0	9.6	8
P0169.050-050-A2	M 5	5.00	8.0	2.5	5.00	12.5	8	8.0	9.6	6
P0169.050-060-A2	M 5	6.00	8.0	2.5	6.00	12.5	8	8.0	9.6	4



Order No.	For thread d ₁	Panel t ₁ ±8%	d ₂	h ₁	l ₁	d ₃	Installation ball dia. d ₄	d ₅ tol. H9	d ₆	Sheet metal gauge
P0169.060-007-A2	M 6	0.70	10.0	3.0	0.70	15.0	10	10.0	12.0	22
P0169.060-009-A2	M 6	0.90	10.0	3.0	0.90	15.0	10	10.0	12.0	20
P0169.060-012-A2	M 6	1.25	10.0	3.0	1.25	15.0	10	10.0	12.0	18
P0169.060-015-A2	M 6	1.50	10.0	3.0	1.50	15.0	10	10.0	12.0	16
P0169.060-020-A2	M 6	2.00	10.0	3.0	2.00	15.0	10	10.0	12.0	14
P0169.060-025-A2	M 6	2.50	10.0	3.0	2.50	15.0	10	10.0	12.0	12
P0169.060-030-A2	M 6	3.00	10.0	3.0	3.00	15.0	10	10.0	12.0	10
P0169.060-040-A2	M 6	4.00	10.0	3.0	4.00	15.0	10	10.0	12.0	8
P0169.060-050-A2	M 6	5.00	10.0	3.0	5.00	15.0	10	10.0	12.0	6
P0169.060-060-A2	M 6	6.00	10.0	3.0	6.00	15.0	10	10.0	12.0	4
P0169.080-007-A2	M 8	0.70	13.0	4.0	0.70	20.0	13	13.0	15.5	22
P0169.080-009-A2	M 8	0.90	13.0	4.0	0.90	20.0	13	13.0	15.5	20
P0169.080-012-A2	M 8	1.25	13.0	4.0	1.25	20.0	13	13.0	15.5	18
P0169.080-015-A2	M 8	1.50	13.0	4.0	1.50	20.0	13	13.0	15.5	16
P0169.080-020-A2	M 8	2.00	13.0	4.0	2.00	20.0	13	13.0	15.5	14
P0169.080-025-A2	M 8	2.50	13.0	4.0	2.50	20.0	13	13.0	15.5	12
P0169.080-030-A2	M 8	3.00	13.0	4.0	3.00	20.0	13	13.0	15.5	10
P0169.080-040-A2	M 8	4.00	13.0	4.0	4.00	20.0	13	13.0	15.5	8
P0169.080-050-A2	M 8	5.00	13.0	4.0	5.00	20.0	13	13.0	15.5	6
P0169.080-060-A2	M 8	6.00	13.0	4.0	6.00	20.0	13	13.0	15.5	4



Coatings and Drive Types

Wixroyd produce a wide range of fasteners designed for application where it is important that fasteners are not separated from equipment (e.g. cover panels etc). This is now important to ensure that equipment complies with Machinery Directive 200642/EC - requiring that fasteners remain attached to fixed guards or equipment when guards are removed.






Our captive panel screws are manufactured mainly from stainless steel (AISI 303, 1.4305 grade), but they can also be produced in stainless steel (A4, AISI 316), aluminium, brass or zinc plated steel.

Many finishes can be applied - black oxide finish, anodizing etc.

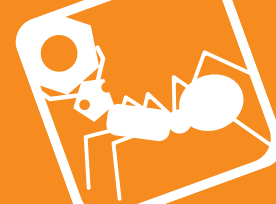
The main options are as follows:

Finish	Notes
Black Chrome (MIL-C-1458B)	Black chrome is a hard, non-reflective coating which is resistant to abrasion, heat and corrosion. The black chrome surface is a dull, dark grey and may be waxed or oiled to darken surface.
Black Oxide Coating (MIL-C-13924B)	Black oxide is a uniform black coating for ferrous metals. Generally it is considered a decorative coating and provides only very limited corrosion protection under mild corrosion conditions.
Cadmium	Cadmium is a bright, silvery white plating. Supplementary treatments for Type II can be golden, iridescent, amber, black or olive drab.
Passivate (QQ-P-35/MIL S-500SC)	Passivation is a process designed to remove foreign metals from the surface of stainless and corrosion resistant steels.
Phosphate Coating Light (TT-C-00490B)	Phosphate coating is a light coating for use as a base paint.
Gold (MIL-G-45204B)	Yellow to orange colour depending on proprietary process used. Will range from matt to bright finish depending on base metal. Good corrosion resistance and high tarnish resistance.
Nickel (QQ-N-290A)	Nickel is a corrosion protective plating for steel, zinc and zinc alloys as well as copper and copper alloys.
Zinc (QQ-Z-325C)	The primary use of chromate finishes on zinc is to retard or prevent formation of white corrosion products on zinc surfaces.

Coatings

Schematic	Drive Types	Uses
	Hexagonal	Ideal for precision assembly. Most recommended where less surface area is available.
	Crosshead (Phillips®)	Provides good control in driving. Always use a driver bit of the proper size which is in good condition.
	Hexalobular (Torx®)	Positive-engaging, fast-locating method which transmits drive torque with less required downward pressure. Good fastening appearance.
	Slotted	Accepts standard blade screwdriver. Requires less downward pressure to drive parts than those with recessed openings. Use a proper fitting blade to minimize slippage.
	Security	These screws are impossible to remove without the special matching screw driver.

Drive Types



36681 - Cap head - hex. socket



36682 - Cap head - hex. socket
Security and Torx® options



36683 - Pan Head - Phillips®
Security and Torx® options



36684 - Countersunk - hex. socket
Security and Torx® options



36686 - Thin head thumb screw



36687 - Thumb screw



36691 - Threaded captive washers



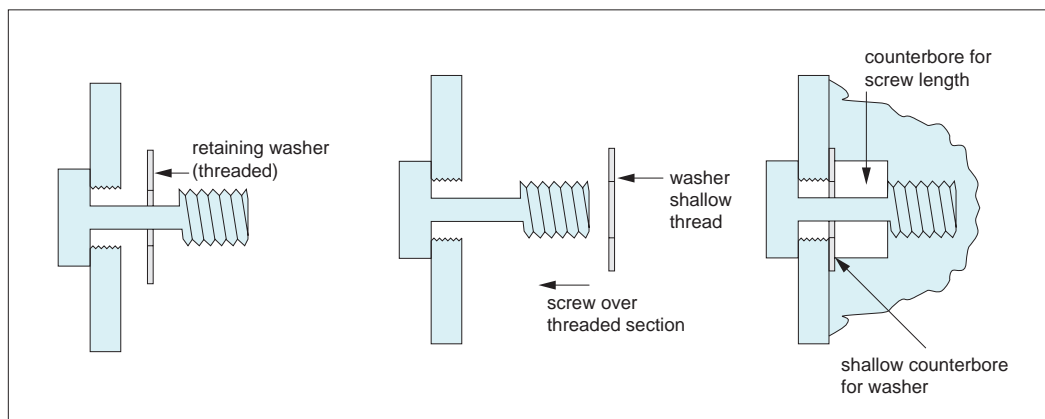
36692 - Retainer flanges



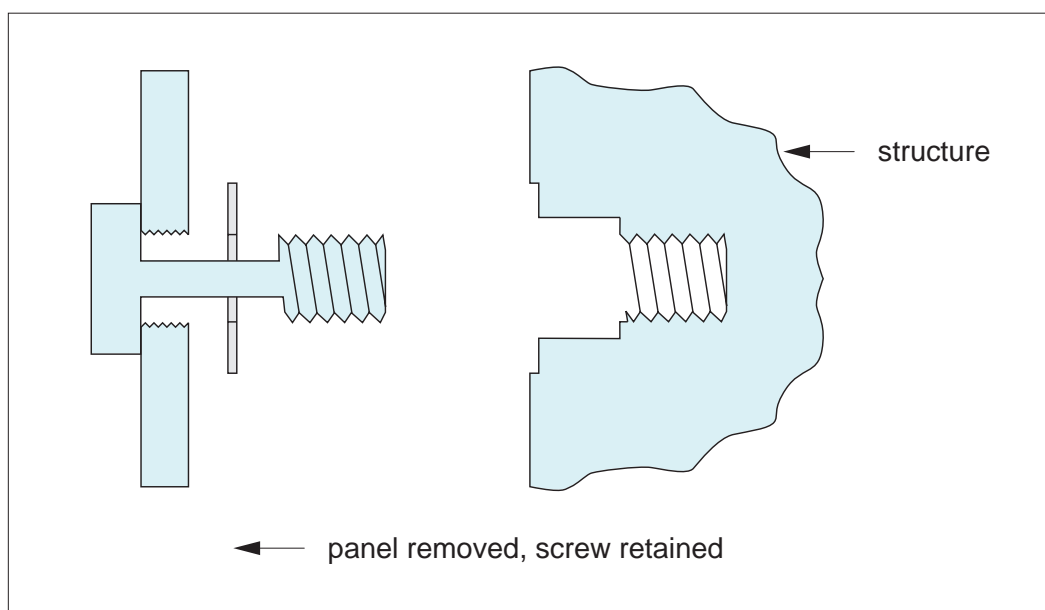
One option to retain screws to panels are our retaining washers. Used in place of retainer flanges, retaining washers are simple but effective when used with our captive screws. The captive screws have a normal thread then a reduced diameter for the rest of the screw length.

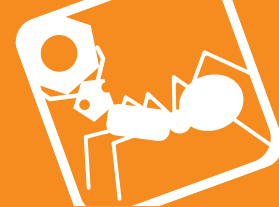
The retaining washer has a small length of thread on the internal diameter and once screwed on to the captive screw is effectively captive.

Example



Screw the thin retaining washer onto the captive screw and the screw is therefore retained to the panel.

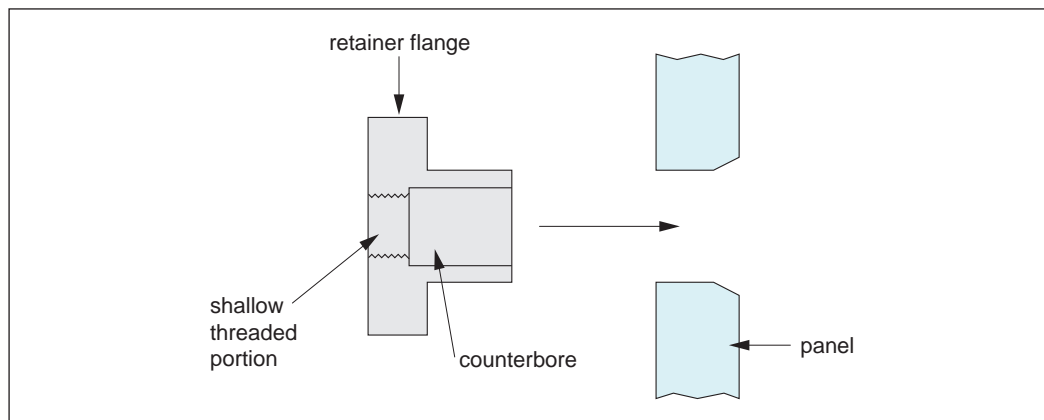




Preparation

- Select retainer based upon panel thickness
- Countersink panel

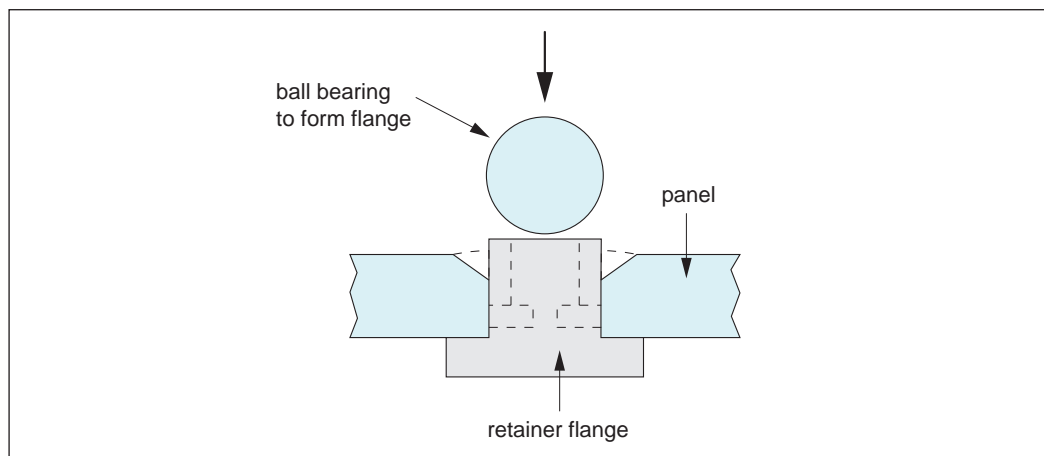
Wixroyd captive screw retainer flanges are available in both aluminium and stainless steel to suit the most common panel thicknesses. The retainer flange has a very shallow thread length on its internal diameter. A suitable hole is machined into the panel, and the underside of the hole is countersunk.



Mounting

- Insert flange
- Use ball bearing or punch to form flange into panel

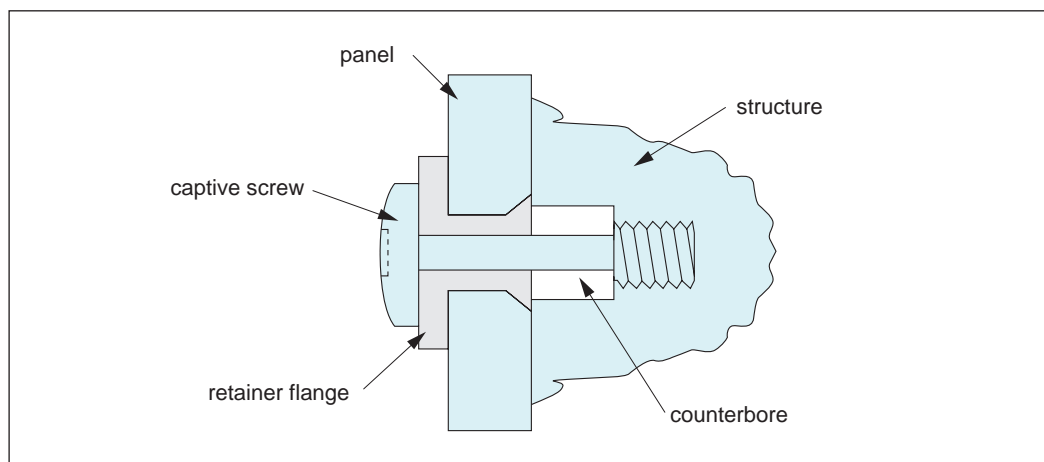
The flange is then joined to the panel using either a simple ball bearing (or for higher volume parts a hand punch) to form the bottom of the flange into the countersink. This retains the flange to the sheet.



Retaining flange secured onto panel using ball bearing or punch

Captive Screw Assembly

The captive screw or bolt is then threaded onto the retainer flange and once the thread length is through the initial shallow threaded portion of the retainer flange – is captive.



With any captive screw installation it is important to ensure that there is enough space for the threaded portion to become disengaged from the female thread of the structure.