BULTEN

SPIRO® INSERT & STUDS

DESIGNED FOR INSTALLATION INTO THERMOSET MATERIALS, ESPECIALLY THOSE APPLICATIONS INVOLVING THINNER WALL BOSSES.

A STRONGER SOLUTION

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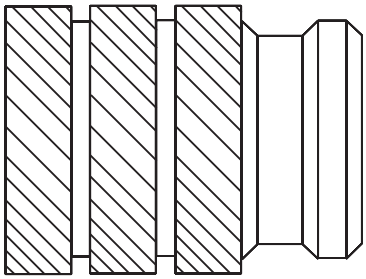
SPIRO® INSERT & STUDS

Designed to cope with the difficulties presented by hard brittle thermoset materials. The sharp precision knurl pattern cuts into these materials reducing radial stresses and allowing thinner boss walls than many other inserts.



ADVANTAGES

- Easy press-in insertion
- High torque resistance
- Low bursting stress allows the use of thinner wall bosses reducing the risk of sink marks
- Self-aligning – assists installation

DESIGN GUIDE

HOLE PREPARATION

Holes for Spiro inserts should be molded to remove the danger of drill induced stresses. The taper on a molded hole should be 1° inclusive and the hole diameter recommended should apply at the point reached by the bottom of the insert. The top of the hole should not be chamfered or counterbored and care must be taken to avoid bell mouthing. Hole diameter tolerance: -0.00 +0.10mm.

INSTALLATION

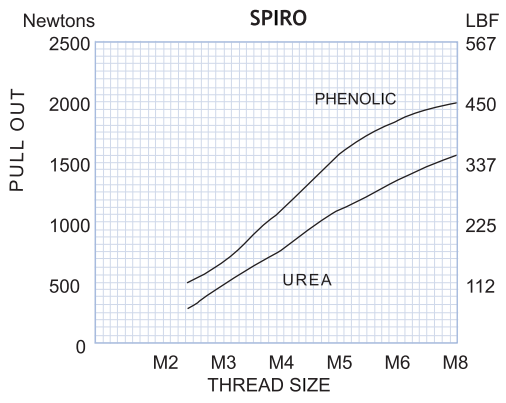
The insert must be installed using a squeeze action press, NEVER a hammer blow. The insert must be allowed to rotate in the direction of the knurl during installation. This is best achieved by the use of a punch having either a polished face or a thrust bearing. The insert must be kept axially square during installation, as any tilting will induce side loads on the boss wall. The recommended hole size must not be increase beyond the top tolerance limit since oversize holes reduce or remove the self aligning effects, producing side loads and consequent risk of boss cracking.

WALL THICKNESS

A general guide to minimum wall thickness is given in the technical data table but this will vary dependant upon the nature of the plastic. Where thinner walls are required these can often be accommodated, but consultation with Bulten and pre-production testing is strongly advised.

PERFORMANCE DATA

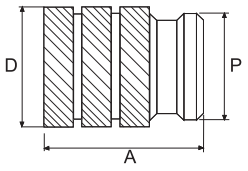
The complexity of materials and variations in service conditions make it impossible to detail fastener performance for specific applications. The chart gives a general guide and shows the relative performance of the insert in the range.



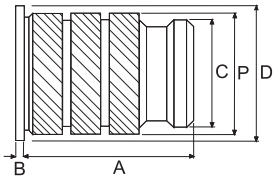
SPIRO® INSERT & STUDS

TECHNICAL DATA

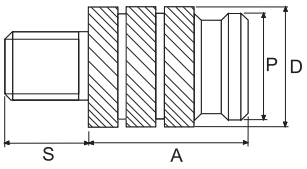
INSERTS
PRODUCT CODE [SP]



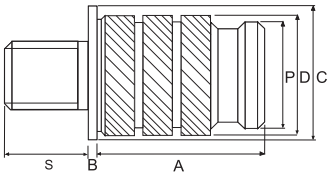
HEADED INSERTS
PRODUCT CODE [HSR]



STUD
PRODUCT CODE [SPTS]



HEADED STUD
PRODUCT CODE [SPHS]



STANDARD MATERIAL: BRASS (B)
Other materials possible on quotation

DIMENSIONS

ISO METRIC

Unit: Millimetres

Thread Size	Insert Length A	Stud Length (For FLTS & FLHS only) S										Head Height B	Head Ø C	Insert Ø D	Pilot End Ø P	Rec.Hole Size -0.00 +0.10	Min. Wall Thickness
M2	4.1	5	6	8	10	12	14	16	18	20	25	0.51	4.8	3.3	3.0	3.1	1.6
M2.5	5.3	5	6	8	10	12	14	16	18	20	25	0.58	5.5	4.2	3.7	3.8	2.0
M3	5.3	5	6	8	10	12	14	16	18	20	25	0.58	5.5	4.2	3.7	3.8	2.0
M3.5	6.3	5	6	8	10	12	14	16	18	20	25	0.74	6.4	5.0	4.5	4.6	2.5
M4	7.4	5	6	8	10	12	14	16	18	20	25	0.89	7.1	5.8	5.3	5.4	2.5
M5	8.3	5	6	8	10	12	14	16	18	20	25	1.07	7.9	6.6	6.1	6.2	2.5
M6	9.2	5	6	8	10	12	14	16	18	20	25	1.32	9.5	8.2	7.7	7.8	2.8
M8	9.2	5	6	8	10	12	14	16	18	20	25	1.32	11.1	9.7	9.3	9.3	3.8
M10	9.2	5	6	8	10	12	14	16	18	20	25	1.57	14.0	12.7	12.2	12.3	5.0

Other lengths possible on quotation.

UNIFIED

Unit: Inches

Thread Size	Insert Length A	Stud Length (For FLTS & FLHS only) S										Head Height B	Head Ø C	Insert Ø D	Pilot End Ø P	Rec.Hole Size +0.000 +0.004	Min. Wall Thickness
2-56	.162	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.020	.187	.131	.117	.122	.063
4-40	.208	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.023	.217	.165	.146	.150	.079
6-32	.247	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.029	.250	.196	.178	.181	.098
8-32	.292	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.035	.281	.228	.209	.213	.098
10-24	.326	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.042	.312	.259	.241	.244	.098
10-32	.326	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.042	.312	.259	.241	.244	.098
1/4-20	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.052	.375	.332	.304	.307	.110
1/4-28	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.052	.375	.332	.304	.307	.110
5/16-18	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.052	.437	.383	.365	.366	.150
5/16-24	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.052	.437	.383	.365	.366	.150
3/8-46	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.062	.551	.499	.481	.484	.197
3/8-24	.362	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	.062	.551	.499	.481	.484	.197

Other lengths possible on quotation.

SPIRO® INSERT & STUDS

HOW TO SPECIFY

	SP	HSR	SPTS	SPHS
Product Code	**SP**-B-M3	**HSR**-B-M3	**SPTS**-B-M3-5.0	**SPHS**-B-M3-5.0
Material Code	SP-**B**-M3	HSR-**B**-M3	SPTS-**B**-M3-5.0	SPHS-**B**-M3-5.0
Thread Size	SP-B-**M3**	HSR-B-**M3**	SPTS-B-**M3**-5.0	SPHS-B-**M3**-5.0
Stud Length			SPTS-B-M3-**5.0**	SPHS-B-M3-**5.0**