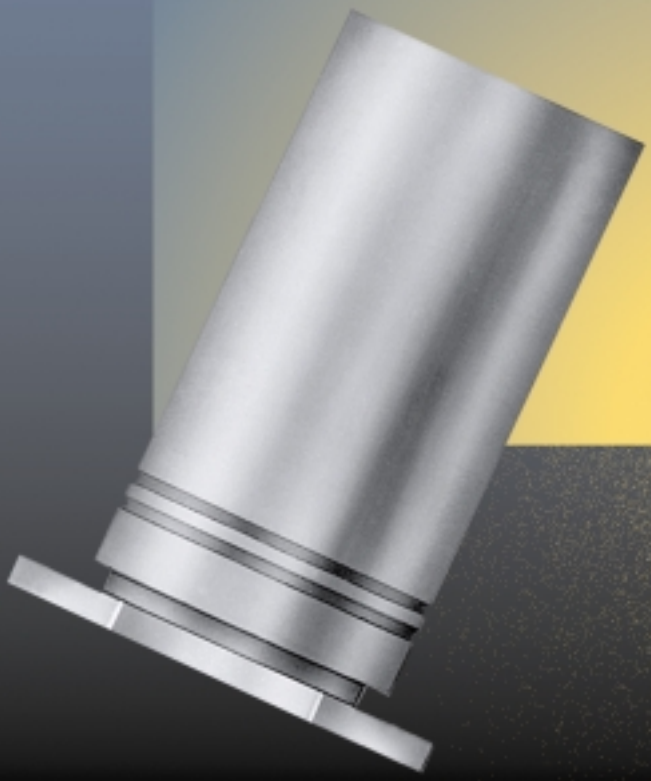
PEM®

SELF-CLINCHING

STANDOFFS

BULLETIN



SO

701

SELF-CLINCHING STANDOFFS

These standoffs, which use the proven self-clinching design, install with a squeeze in punched or drilled *round* holes – and become permanently mounted in the thin sheet.

PEM brand standoffs are installed with their heads flush with one surface of the mounting sheet. When blind-threaded types are used, outer sheet surfaces are not only flush, but closed as well. Unthreaded standoffs are also available for spacing multi-panel assemblies.

Dimensions:

Unified – Dimensions shown in inches. Where tolerances are not indicated, standard tolerances are ± .01 in. for two-place decimals and ± .005 in. for three-place decimals.

Metric – Dimensions shown in millimeters. Where tolerances are not indicated, standard tolerances are ± 0.25 mm for one-place decimals and ± 0.13 mm for two-place decimals.

PEM self-clinching standoffs are also available on special order in non-heat treated carbon steel as type SON (thru-hole threaded) or BSON (blind threaded).

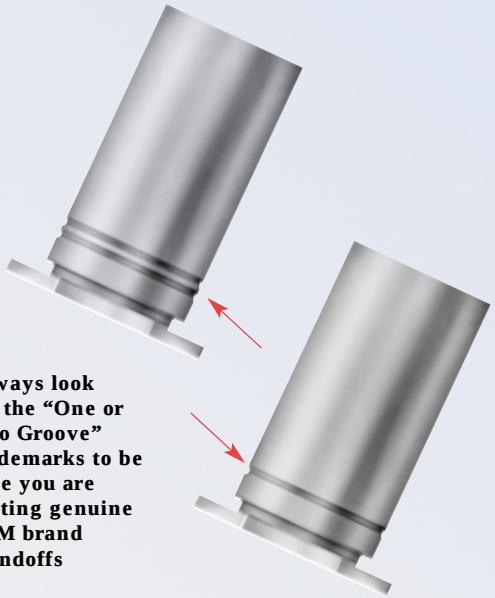
Types TSO, TSOS, and TSOA self-clinching threaded standoffs provide permanent threads in sheets as thin as .025" / 0.63 mm.

Types SO4 and BSO4 standoffs are for installation into stainless steel sheets as thin as .040" / 1.02 mm.

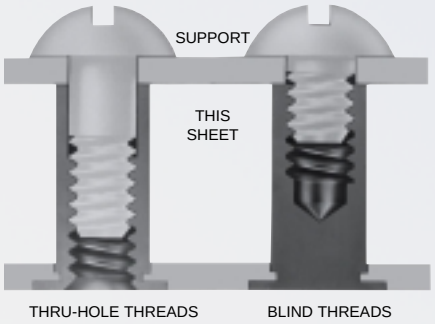
If you require a standoff which we do not offer in this bulletin, please contact us. We will be happy to work with you to satisfy your special need.

For other types of PEM brand standoffs and spacers see:

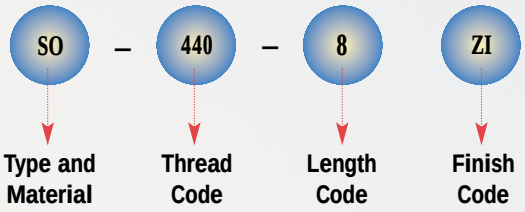
Bulletin CH	*PEM Concealed-head Standoffs.*
Bulletin K	*PEM Standoffs for printed circuit boards.*
Bulletin SK	*PEM KEYHOLE® Standoffs.*
Bulletin SSA	*PEM brand SNAP-TOP® Standoffs.*



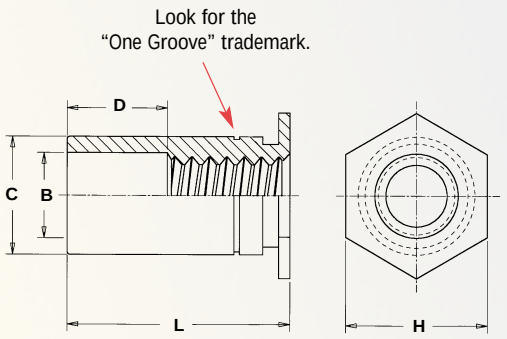
Always look for the "One or Two Groove" trademarks to be sure you are getting genuine PEM brand standoffs



Part Number Designation



TYPE SO4 THRU-HOLE THREADED STANDOFFS FOR INSTALLATION INTO STAINLESS STEEL



GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	B Counter-Bore Dia. ±.005	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	440	.040	.166	.125	.165	.187	.23
	6440	.040	.213	.125	.212	.250	.28
	632	.040	.213	.156	.212	.250	.28
	8632	.050	.281	.156	.280	.312	.33
	832	.050	.281	.188	.280	.312	.33
	032	.050	.281	.203	.280	.312	.33

All dimensions are in millimeters.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	B Counter-Bore Dia. ±0.13	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	M3	1.02	4.22	3.25	4.2	4.8	6
	3.5M3	1.02	5.41	3.25	5.39	6.4	7.1
	M3.5	1.02	5.41	3.9	5.39	6.4	7.1
	M4	1.27	7.14	4.8	7.12	7.9	8.4
	M5	1.27	7.14	5.35	7.12	7.9	8.4

THREAD SIZE AND LENGTH SELECTION DATA

All dimensions are in inches.

	Thread Size	Type	Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)															
				.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	SO4	440 / 6440(1)	4	6	8	10	12	14	16	18	20	22	24	N/A	N/A	N/A	N/A	N/A
	.138-32 (#6-32)	SO4	632 / 8632(1)	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
	.164-32 (#8-32) / .190-32 (#10-32)	SO4	832 / 032	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
	D Dimension ±.010			None				.187				.312				.437			

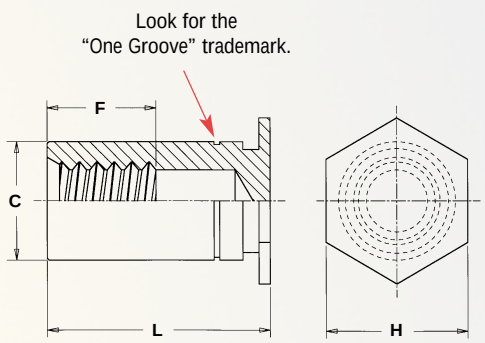
All dimensions are in millimeters.

	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)											
METRIC	M3 X 0.5	SO4	M3 / 3.5M3(1)	3	4	6	8	10	12	14	16	18	N/A	N/A	N/A
	M3.5 X 0.6 / M4 X 0.7 / M5 X 0.8	SO4	M3.5 / M4 / M5	3	4	6	8	10	12	14	16	18	20	22	25
	D Dimension ±0.25			None				4			8			11	

(1) *Standoffs with thread codes 6440, 8632, and 3.5M3 offer greater wall thickness for thread sizes 440 , 632, and M3 respectively.*

N/A *Not Available.*

TYPE BSO4 BLIND THREADED STANDOFFS FOR INSTALLATION INTO STAINLESS STEEL



GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	440	.040	.166	.165	.187	.23
	6440	.040	.213	.212	.250	.28
	632	.040	.213	.212	.250	.28
	8632	.050	.281	.280	.312	.33
	832	.050	.281	.280	.312	.33
	032	.050	.281	.280	.312	.33

All dimensions are in millimeters.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	M3	1.02	4.22	4.2	4.8	6
	3.5M3	1.02	5.41	5.39	6.4	7.1
	M3.5	1.02	5.41	5.39	6.4	7.1
	M4	1.27	7.14	7.12	7.9	8.4
	M5	1.27	7.14	7.12	7.9	8.4

THREAD SIZE AND LENGTH SELECTION DATA

All dimensions are in inches.

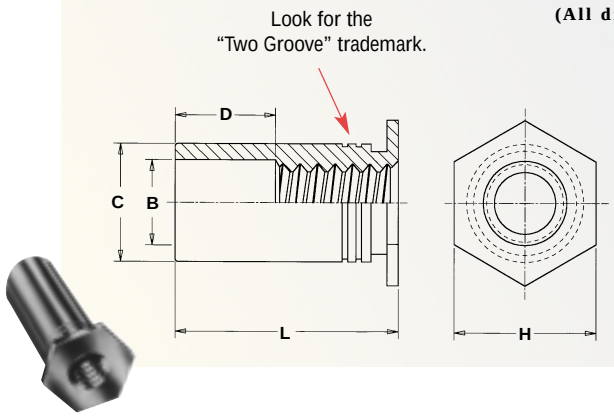
	Thread Size	Type	Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)												
				.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	BSO4	440 / 6440(1)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.138-32 (#6-32)	BSO4	632 / 8632(1)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.164-32 (#8-32)	BSO4	832	10	12	14	16	18	20	22	24	26	28	30	32	34
	.190-32 (#10-32)		032													
	F Dimension Min.			.156		.187	.250			.375						

All dimensions are in millimeters.

	Thread Size x Pitch	Type	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)									
METRIC	M3 X 0.5	BSO4	M3 / 3.5M3(1)	6	8	10	12	14	16	18	20	22	25
	M3.5 X 0.6	BSO4	M3.5	6	8	10	12	14	16	18	20	22	25
	M4 X 0.7		M4										
	M5 X 0.8		M5										
	F Dimension Min.			3.2	4		5	6.5		9.5			

(1) *Standoffs with thread codes 6440, 8632, and 3.5M3 offer greater wall thickness for thread sizes 440 , 632, and M3 respectively.*

TYPES SO, SON, SOA, SOS THRU-HOLE THREADED STANDOFFS – UNIFIED



(All dimensions are in inches)

GENERAL DIMENSIONAL DATA

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	B Counter-Bore Dia. ±.005	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	440	.040	.166	.125	.165	.187	.23
	6440	.040	.213	.125	.212	.250	.27
	632	.040	.213	.156	.212	.250	.27
	8632	.050	.281	.156	.280	.312	.31
	832	.050	.281	.188	.280	.312	.31
	032	.050	.281	.203	.280	.312	.31

THREAD SIZE AND LENGTH SELECTION DATA

	Thread Size	Type: Steel	Type: Steel Non Heat-treated	Type: Stainless Steel	Type: Alumi-num	Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch): .125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	SO	SON	SOS	SOA	440	4	6	8	10	12	14	16	18	20	22	24	N/A	N/A	N/A	N/A	N/A
						6440(1)																
	.138-32 (#6-32)	SO	SON	SOS	SOA	632	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
						8632(1)																
	.164-32 (#8-32)	SO	SON	SOS	SOA	832	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
	.190-32 (#10-32)					032																
	D Dimension ±.010						None				.187				.312				.437			

(1) *Standoffs with thread codes 6440 and 8632 offer greater wall thickness for thread sizes 440 and 632, respectively.*

N/A *Not Available.*

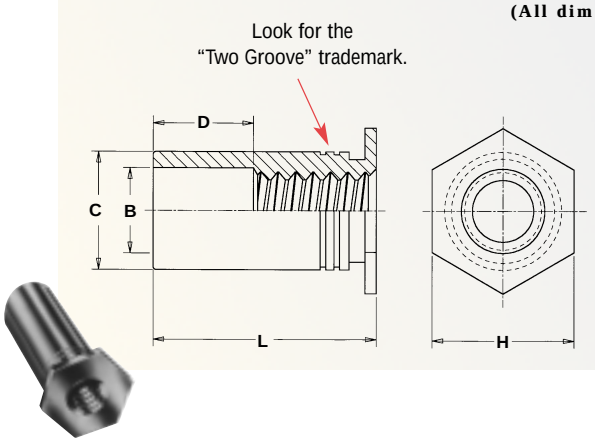
PRODUCT AVAILABILITY TABLE

Part numbers listed below are normally stocked. Those part numbers not shown may be in stock, but generally are only available on special order.

	440	6440	632	8632	832	032
UNIFIED	**SO**	**SO**	**SO**	**SO**	**SO**	**SO**
	SO-440-4 SO-440-6 SO-440-8 SO-440-10 SO-440-12 SO-440-14 SO-440-16 SO-440-18 SO-440-20 SO-440-24	SO-6440-6 SO-6440-8 SO-6440-10 SO-6440-12 SO-6440-14 SO-6440-16	SO-632-4 SO-632-18 SO-632-6 SO-632-20 SO-632-8 SO-632-22 SO-632-10 SO-632-24 SO-632-12 SO-632-26 SO-632-14 SO-632-28 SO-632-16 SO-632-32	SO-8632-6 SO-8632-8 SO-8632-10 SO-8632-12 SO-8632-14 SO-8632-16 SO-8632-18 SO-8632-20 SO-8632-22	SO-832-4 SO-832-6 SO-832-8 SO-832-10 SO-832-12 SO-832-14 SO-832-16	SO-032-6 SO-032-8 SO-032-10
	SOS	**SOS**	**SOS**	**SOS**	**SOS**	**SOS**
	SOS-440-4 SOS-440-6 SOS-440-8 SOS-440-10 SOS-440-12 SOS-440-14 SOS-440-16 SOS-440-18 SOS-440-20 SOS-440-22 SOS-440-24	SOS-6440-4 SOS-6440-6 SOS-6440-8 SOS-6440-10 SOS-6440-12 SOS-6440-14 SOS-6440-16 SOS-6440-18	SOS-632-4 SOS-632-20 SOS-632-6 SOS-632-22 SOS-632-8 SOS-632-24 SOS-632-10 SOS-632-26 SOS-632-12 SOS-632-28 SOS-632-14 SOS-632-30 SOS-632-16 SOS-632-32 SOS-632-18 SOS-632-34	SOS-8632-4 SOS-8632-6 SOS-8632-8 SOS-8632-10 SOS-8632-12 SOS-8632-14 SOS-8632-16 SOS-8632-18	SOS-832-4 SOS-832-6 SOS-832-8 SOS-832-10 SOS-832-12 SOS-832-14 SOS-832-16 SOS-832-18 SOS-832-20 SOS-832-22 SOS-832-24	SOS-032-6 SOS-032-8 SOS-032-10 SOS-032-12 SOS-032-14 SOS-032-16
		SOA	**SOA**			
		SOA-6440-6 SOA-6440-8 SOA-6440-12	SOA-632-4 SOA-632-12 SOA-632-6 SOA-632-14 SOA-632-8 SOA-632-16 SOA-632-10			

TYPES SO, SON, SOA, SOS THRU-HOLE THREADED STANDOFFS – METRIC

(All dimensions are in millimeters)



GENERAL DIMENSIONAL DATA

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	B Counter-Bore Dia. ±0.13	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	M3	1.02	4.22	3.2	4.2	4.8	6
	3.5M3	1.02	5.41	3.2	5.39	6.4	6.8
	M3.5	1.02	5.41	3.9	5.39	6.4	6.8
	M4	1.27	7.14	4.8	7.12	7.9	8
	M5	1.27	7.14	5.35	7.12	7.9	8

THREAD SIZE AND LENGTH SELECTION DATA

	Thread Size x Pitch	Type: Steel	Type: Steel Non Heat-treated	Type: Stainless Steel	Type: Alumi-num	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)											
METRIC	M3 X 0.5	SO	SON	SOS	SOA	M3	3	4	6	8	10	12	14	16	18	N/A	N/A	N/A
						3.5M3(1)												
	M3.5 X 0.6	SO	SON	SOS	SOA	M3.5	3	4	6	8	10	12	14	16	18	20	22	25
	M4 X 0.7					M4												
	M5 X 0.8					M5												
	D Dimension ±0.25						None				4			8			11	

(1) *Standoffs with thread codes 3.5M3 offer greater wall thickness for M3 thread size.*

N/A *Not Available.*

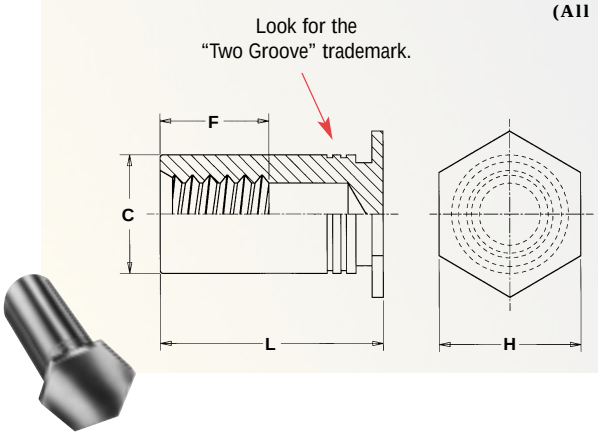
PRODUCT AVAILABILITY TABLE

Part numbers listed below are normally stocked. Those part numbers not shown may be in stock, but generally are only available on special order.

	M3	3.5M3	M4
METRIC	**SO**	**SO**	**SO**
	SO-M3-3	SO-3.5M3-4	SO-M4-3
	SO-M3-4	SO-3.5M3-6	SO-M4-4
	SO-M3-6	SO-3.5M3-8	SO-M4-6
	SO-M3-8	SO-3.5M3-10	SO-M4-8
	SO-M3-10	SO-3.5M3-12	SO-M4-10
	SO-M3-12	SO-3.5M3-14	SO-M4-12
	SOS	**SOS**	**SOS**
	SOS-M3-3	SOS-3.5M3-4	SOS-M4-3
	SOS-M3-4	SOS-3.5M3-6	SOS-M4-4
	SOS-M3-6	SOS-3.5M3-8	SOS-M4-6
	SOS-M3-8	SOS-3.5M3-10	SOS-M4-8
	SOS-M3-10	SOS-3.5M3-12	SOS-M4-10
	SOS-M3-12	SOS-3.5M3-14	SOS-M4-14
	SOS-M3-14	SOS-3.5M3-16	

TYPES BSO, BSON, BSOA, BSOS BLIND THREADED STANDOFFS – UNIFIED

(All dimensions are in inches)



GENERAL DIMENSIONAL DATA

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	440	.040	.166	.165	.187	.23
	6440	.040	.213	.212	.250	.27
	632	.040	.213	.212	.250	.27
	8632	.050	.281	.280	.312	.31
	832	.050	.281	.280	.312	.31
	032	.050	.281	.280	.312	.31

THREAD SIZE AND LENGTH SELECTION DATA

	Thread Size	Type				Thread Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)												
		Steel	Steel Non Heat-treated	Stainless Steel	Alumi-num		.312	.375	.437	.500	.562	.625	.687	.750	.812	.875	.937	1.00	1.062
UNIFIED	.112-40 (#4-40)	BSO	BSON	BSOS	BSOA	440 / 6440(1)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.138-32 (#6-32)	BSO	BSON	BSOS	BSOA	632 / 8632(1)	10	12	14	16	18	20	22	24	26	28	30	32	34
	.164-32 (#8-32)	BSO	BSON	BSOS	BSOA	832	10	12	14	16	18	20	22	24	26	28	30	32	34
	.190-32 (#10-32)					032													
	F Dimension Min.						.156		.187	.250			.375						

(1) *Standoffs with thread codes 6440 and 8632 offer greater wall thickness for thread sizes 440 and 632, respectively.*

PRODUCT AVAILABILITY TABLE

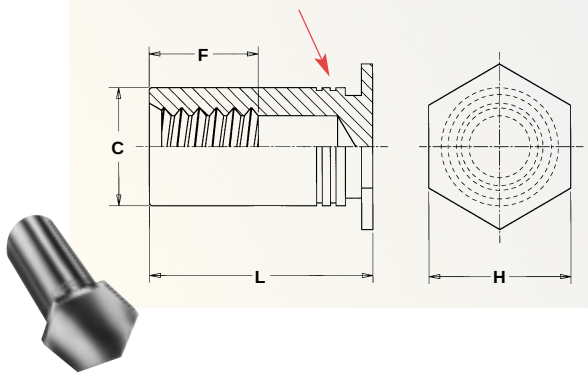
Part numbers listed below are normally stocked. Those part numbers not shown may be in stock, but generally are only available on special order.

	440	6440	632	8632
UNIFIED	**BSOS**	**BSOS**	**BSO**	**BSOS**
	BSOS-440-10 BSOS-440-12 BSOS-440-14 BSOS-440-16 BSOS-440-18 BSOS-440-20 BSOS-440-22 BSOS-440-24 BSOS-440-26 BSOS-440-28 BSOS-440-30 BSOS-440-32 BSOS-440-34	BSOS-6440-10 BSOS-6440-12 BSOS-6440-14 BSOS-6440-16 BSOS-6440-18 BSOS-6440-20 BSOS-6440-22 BSOS-6440-24 BSOS-6440-26 BSOS-6440-28 BSOS-6440-32 BSOS-6440-34	BSO-632-10 BSO-632-22 BSO-632-12 BSO-632-24 BSO-632-14 BSO-632-26 BSO-632-16 BSO-632-28 BSO-632-18 BSO-632-32 BSO-632-20 BSO-632-34	BSOS-8632-10 BSOS-8632-12 BSOS-8632-14 BSOS-8632-16 BSOS-8632-18 BSOS-8632-20 BSOS-8632-22 BSOS-8632-24 BSOS-8632-28 BSOS-8632-32
			BSOS	
			BSOS-632-10 BSOS-632-22 BSOS-632-12 BSOS-632-24 BSOS-632-14 BSOS-632-26 BSOS-632-16 BSOS-632-28 BSOS-632-18 BSOS-632-32 BSOS-632-20 BSOS-632-34	
	BSOA	**BSOA**	**BSOA**	
	BSOA-440-12	BSOA-6440-10 BSOA-6440-22	BSOA-632-10 BSOA-632-16 BSOA-632-12 BSOA-632-30 BSOA-632-14	

TYPES BSO, BSON, BSOA, BSOS BLIND THREADED STANDOFFS – METRIC

Look for the "Two Groove" trademark.

(All dimensions are in millimeters)



GENERAL DIMENSIONAL DATA

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	M3	1.02	4.22	4.2	4.8	6
	3.5M3	1.02	5.41	5.39	6.4	6.8
	M3.5	1.02	5.41	5.39	6.4	6.8
	M4	1.27	7.14	7.12	7.9	8
	M5	1.27	7.14	7.12	7.9	8

THREAD SIZE AND LENGTH SELECTION DATA

	Thread Size x Pitch	Type: Steel	Type: Steel Non Heat-treated	Type: Stainless Steel	Type: Alumi-num	Thread Code	Length "L" +0.05 -0.13 (Length Code in millimeters)									
METRIC	M3 X 0.5	BSO	BSON	BSOS	BSOA	M3 3.5M3(1)	6	8	10	12	14	16	18	20	22	25
	M3.5 X 0.6	BSO	BSON	BSOS	BSOA	M3.5	6	8	10	12	14	16	18	20	22	25
	M4 X 0.7					M4										
	M5 X 0.8					M5										
	F Dimension Min.						3.2	4		5	6.5		9.5			

(1) *Standoffs with thread codes 3.5M3 offer greater wall thickness for M3 thread size.*

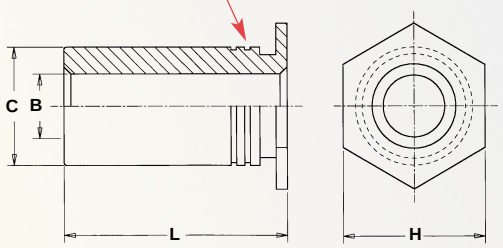
PRODUCT AVAILABILITY TABLE

Part numbers listed below are normally stocked. Those part numbers not shown may be in stock, but generally are only available on special order.

	M3	3.5M3	M4
METRIC	**BSOS**	**BSOS**	**BSO**
	BSOS-M3-8	BSOS-3.5M3-8	BSO-M4-10
	BSOS-M3-10	BSOS-3.5M3-10	BSO-M4-12
	BSOS-M3-12	BSOS-3.5M3-12	BSO-M4-14
	BSOS-M3-14	BSOS-3.5M3-14	
	BSOS-M3-16	BSOS-3.5M3-18	**BSOS**
	BSOS-M3-18	BSOS-3.5M3-20	
	BSOS-M3-20	BSOS-3.5M3-25	BSOS-M4-10
			BSOS-M4-12
			BSOS-M4-14

TYPES SO, SON, SOA, SOS THRU-HOLE UNTHREADED STANDOFFS – UNIFIED AND METRIC

Look for the "Two Groove" trademark.



PEM® thru-hole, unthreaded standoffs are available on special order only.

GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thru-hole Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	4116	.040	.166	.165	.187	.23
	6116	.040	.213	.212	.250	.27
	6143	.040	.213	.212	.250	.27
	8143	.050	.281	.280	.312	.31
	8169	.050	.281	.280	.312	.31
	8194	.050	.281	.280	.312	.31

All dimensions are in millimeters.

	Thru-hole Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	43.1	1.02	4.22	4.2	4.8	6
	63.1	1.02	5.41	5.39	6.4	6.8
	63.6	1.02	5.41	5.39	6.4	6.8
	83.6	1.27	7.14	7.12	7.9	8
	84.1	1.27	7.14	7.12	7.9	8
	85.1	1.27	7.14	7.12	7.9	8

THRU-HOLE DIAMETER AND LENGTH SELECTION DATA

All dimensions are in inches.

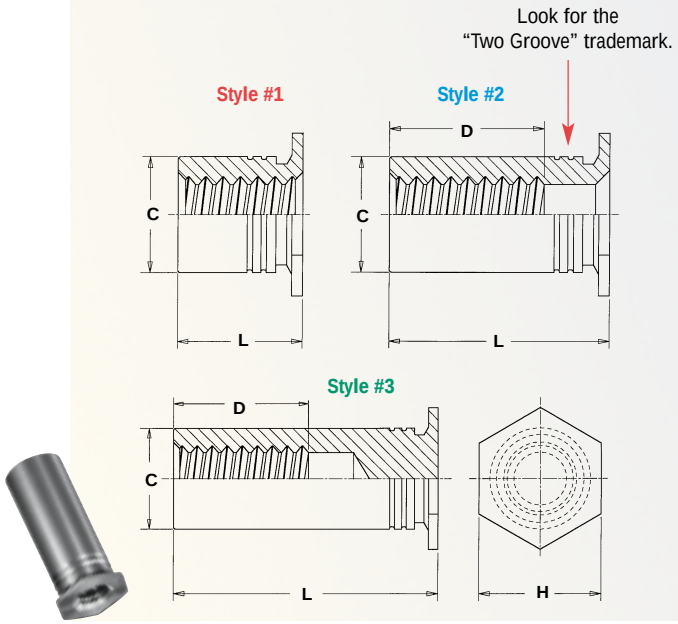
	B Thru-hole Diameter +.004 -.003	Type				Thru-hole Code	Length "L" +.002 -.005 (Length Code in 32nds of an inch)										
		Steel	Steel Non Heat-treated	Stainless Steel	Alumi-num		.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750
UNIFIED	.116	SO	SON	SOS	SOA	4116	4	6	8	10	12	14	16	18	20	22	24
						6116(1)											
	.143	SO	SON	SOS	SOA	6143	4	6	8	10	12	14	16	18	20	22	24
						8143(1)											
	.169	SO	SON	SOS	SOA	8169	4	6	8	10	12	14	16	18	20	22	24
	.194					8194											

All dimensions are in millimeters.

	B Thru-hole Diameter +0.1 -0.08	Type				Thru-hole Code	Length "L" +0.05 -0.13 (Length Code in millimeters)									
		Steel	Steel Non Heat-treated	Stainless Steel	Alumi-num		3	4	6	8	10	12	14	16	18	20
METRIC	3.1	SO	SON	SOS	SOA	43.1	3	4	6	8	10	12	14	16	18	20
						63.1(1)										
	3.6	SO	SON	SOS	SOA	63.6	3	4	6	8	10	12	14	16	18	20
						83.6(1)										
	4.1	SO	SON	SOS	SOA	84.1	3	4	6	8	10	12	14	16	18	20
	5.1					85.1										

(1) *Standoffs with thru-hole codes 6116, 8143, 63.1 and 83.6 offer greater wall thickness for that thru-hole diameter.*

TYPES TSO, TSOS, TSOA THREADED STANDOFFS FOR SHEETS AS THIN AS .025" / 0.63 mm



GENERAL DIMENSIONAL DATA

All dimensions are in inches.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +.003 -.000	C +.000 -.005	D Min. Thread Depth	H Nom.	Min. Dist. Hole C/L To Edge
UNIFIED	256	.025	.166	.165	.200	.187	.23
	6256	.025	.213	.212		.250	.27
	440	.025	.166	.165	.220	.187	.23
	6440	.025	.213	.212		.250	.27
	632	.025	.213	.212	.270	.250	.27

All dimensions are in millimeters.

	Thread Code	Min. Sheet Thickness	Hole Size In Sheet +0.08	C -0.13	D Min. Thread Depth	H Nom.	Min. Dist. Hole C/L To Edge
METRIC	M25	0.63	4.22	4.19	5.2	4.8	5.8
	6M25	0.63	5.41	5.39		6.4	7.1
	M3	0.63	4.22	4.19	6.2	4.8	5.8
	6M3	0.63	5.41	5.39		6.4	7.1
	M35	0.63	5.41	5.39	7	6.4	7.1

THREAD SIZE AND LENGTH SELECTION DATA

All dimensions are in inches.

	Thread Size	Type: Steel	Type: Stainless Steel	Type: Aluminum	Thread Code	Length "L" ±.003 For other lengths / thread depth data see chart below.											
						.090	.125	.187	.250	.312	.375	.437	.500	.562	.625	.687	.750
						Length Code (Length "L" without decimal point)											
UNIFIED	.086-56 (#2-56)	TSO	TSOS	TSOA	256 6256(4)	090(1)	125(1)	187(1)	250(1)	312(2)	375(2)	437(3)	500(3)	562(3)	625(3)	687(3)	750(3)
	.112-40 (#4-40)	TSO	TSOS	TSOA	440 6440(4)	090(1)	125(1)	187(1)	250(1)	312(2)	375(2)	437(2)	500(3)	562(3)	625(3)	687(3)	750(3)
	.138-32 (#6-32)	TSO	TSOS	TSOA	632	NA	125(1)	187(1)	250(1)	312(1)	375(2)	437(2)	500(2)	562(3)	625(3)	687(3)	750(3)

All dimensions are in millimeters.

	Thread Size x Pitch	Type: Steel	Type: Stainless Steel	Type: Aluminum	Thread Code	Length "L" ±0.08 For other lengths / thread depth data see chart below.										
						2.00	3.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	19.00
						Length Code (Length "L" without decimal point)										
METRIC	M2.5 X 0.45	TSO	TSOS	TSOA	M25 6M25(4)	200(1)	300(1)	400(1)	600(1)	800(2)	1000(3)	1200(3)	1400(3)	1600(3)	1800(3)	1900(3)
	M3 X 0.5	TSO	TSOS	TSOA	M3 6M3(4)	200(1)	300(1)	400(1)	600(1)	800(2)	1000(2)	1200(3)	1400(3)	1600(3)	1800(3)	1900(3)
	M3.5 X 0.6	TSO	TSOS	TSOA	M35	NA	300(1)	400(1)	600(1)	800(1)	1000(2)	1200(2)	1400(3)	1600(3)	1800(3)	1900(3)

(1) Style #1. (2) Style #2. (3) Style #3. N/A Not Available.

(4) Standoffs with thread codes 6256, 6440, 6M25, and 6M3 offer greater wall thickness for thread sizes 256, 440, M2.5, and M3, respectively.

LENGTH / STYLE DATA

All dimensions are in inches.
(Length can be specified in .001" increments.)

	Thread Code	Length "L" (Style #1)	Length "L" (Style #2)	Length "L" (Style #3)
UNIFIED	256 6256	.090-.250	.251-.375	.376-.750
	440 6440	.090-.280	.281-.450	.451-.750
	632	.120-.350	.351-.540	.541-.750

All dimensions are in millimeters.
(Length can be specified in .02 mm increments.)

	Thread Code	Length "L" (Style #1)	Length "L" (Style #2)	Length "L" (Style #3)
METRIC	M25 6M25	2.00-6.30	6.32-9.50	9.52-19.00
	M3 6M3	2.00-7.50	7.52-11.00	11.02-19.00
	M35	3.00-8.80	8.82-12.80	12.82-19.00

MATERIAL & FINISH SPECIFICATIONS

	Threads [1]	Fastener Materials					Standard Finishes			For Use In Sheet Hardness:				
Type	Internal, ANSI B1.1 2B ANSI/ASME B1.13M, 6H	Heat-treated Carbon Steel	Non-heat Treated Carbon Steel	7075-T6 Aluminum	303 Stainless Steel	400 Series Stainless Steel	Zinc Per ASTM B 633 SC1 (5µm) Type III, Colorless	Passivated and/or Tested Per ASTM A380	None	88 or less on the Rockwell "B" Scale	80 or less on the Rockwell "B" Scale	70 or less on the Rockwell "B" Scale	60 or less on the Rockwell "B" Scale	50 or less on the Rockwell "B" Scale
SO	•	•					•				•			
SOA	•			•					•					•
SOS	•				•			•				•		
SO4	•					•		•		•				
BSO	•	•					•				•			
BSOA	•			•					•					•
BSOS	•				•			•				•		
BSO4	•					•		•		•				
SON*	•		•				•						•	
BSON*	•		•				•						•	
TSO	•		•				•						•	
TSOS	•				•			•				•		
TSOA	•			•					•					•
Part Number Codes For Finishes							ZI	None	None					

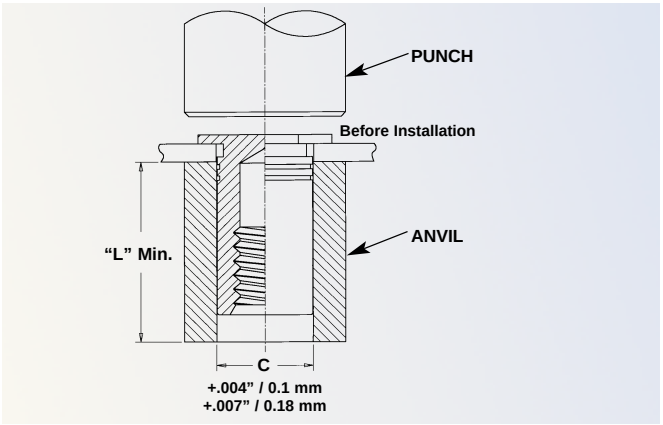
(1) *Where applicable.*

**Available on special order only.*

INSTALLATION

Types SO, SOS, SOA, SO4, SON, BSO, BSOS, BSOA, BSO4, and BSON

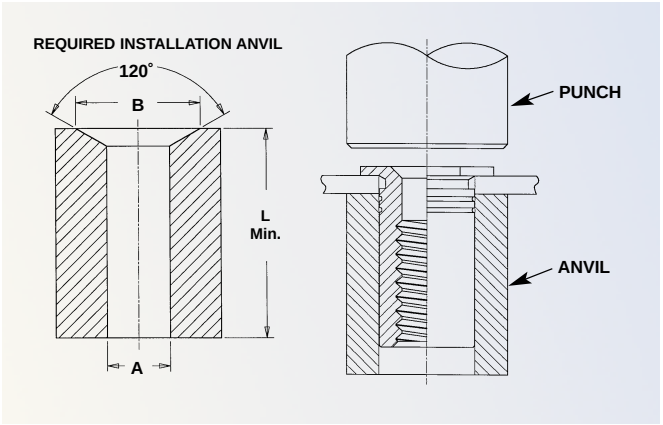
1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operation such as deburring.
2. Insert standoff through mounting hole of sheet and into anvil as shown in drawing.
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet. Drawing at right shows suggested tooling for applying these forces.



Types TSO, TSOS, and TSOA

1. Punch or drill properly sized mounting hole in sheet. Do not perform any secondary operation such as deburring.
2. Insert standoff through mounting hole of sheet and into anvil as shown in drawing.
3. With punch and anvil surfaces parallel, apply only enough squeezing force to embed the standoff's head flush in the sheet. Drawing at right shows required installation anvil for sheet thickness of .025" to .032" / 0.63 to 0.81 mm.
A chamfered anvil is not required for sheets over .032" / 0.81 mm.

Standoff "C" Dimensions	Anvil Dimensions			
	A		B	
	(inches)	(mm)	(inches)	(mm)
.165" / 4.19 mm	.167 - .170	4.24 - 4.32	.187 - .194	4.75 - 4.93
.212" / 5.39 mm	.213 - .216	5.41 - 5.49	.250 - .257	6.35 - 6.53



PEMSERTER® PRESSES

For best results we recommend using a PEMSERTER® press for either manual or automatic installation of PEM standoffs. For more information on our line of presses call 1-800-523-5321, or check our website.

PERFORMANCE DATA (1)

Types SO, SOS, SOA, SON, BSO, BSOS, BSOA, and BSON

	Thread Code	Standoff Material	Max. Rec. Tightening Torque For Mating Screw (in. lbs.)	Test Sheet Material: .060" 5052-H34 Aluminum Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Pull-thru(2) (lbs.)	.060" Cold-rolled Steel Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Pull-thru(2) (lbs.)
UNIFIED	440	Steel	4.75	1100	160	11	280	2200	225	19	330
		Stainless Steel	3.8	1100	160	11	224	2200	225	19	264
		Aluminum	2.85	1100	160	11	168	(3)	(3)	(3)	(3)
	6440	Steel	4.75	1700	300	11	280	3300	420	19	330
		Stainless Steel	3.8	1700	300	11	224	3300	420	19	264
		Aluminum	2.85	1700	300	11	168	(3)	(3)	(3)	(3)
	632	Steel	8.75	1700	300	25	310	3300	420	35	380
		Stainless Steel	7	1700	300	25	248	3300	420	35	304
		Aluminum	5.25	1700	300	25	186	(3)	(3)	(3)	(3)
	8632	Steel	8.75	2400	400	25	310	4000	560	35	380
		Stainless Steel	7	2400	400	25	248	4000	560	35	304
		Aluminum	5.25	2400	400	25	186	(3)	(3)	(3)	(3)
	832, 032	Steel	18, 32	2400	400	45	580	4000	560	75	700
		Stainless Steel	14.4, 25.6	2400	400	45	464	4000	560	75	560
		Aluminum	11, 19	2400	400	45	348	(3)	(3)	(3)	(3)

	Thread Code	Standoff Material	Max. Rec. Tightening Torque For Mating Screw (N•m)	Test Sheet Material: 1.5 mm 5052-H34 Aluminum Installation (kN)	Pushout (N)	Torque-out (N•m)	Pull-thru(2) (N)	1.5 mm Cold-rolled Steel Installation (kN)	Pushout (N)	Torque-out (N•m)	Pull-thru(2) (N)
METRIC	M3	Steel	0.55	4.9	710	1.24	1245	9.8	1000	2.15	1465
		Stainless Steel	0.44	4.9	710	1.24	996	9.8	1000	2.15	1172
		Aluminum	0.33	4.9	710	1.24	747	(3)	(3)	(3)	(3)
	3.5M3	Steel	0.55	7.6	1330	1.24	1245	14.7	1860	2.15	1465
		Stainless Steel	0.44	7.6	1330	1.24	996	14.7	1860	2.15	1172
		Aluminum	0.33	7.6	1330	1.24	747	(3)	(3)	(3)	(3)
	M3.5	Steel	0.91	7.6	1330	2.82	1375	14.7	1860	3.95	1690
		Stainless Steel	0.73	7.6	1330	2.82	1100	14.7	1860	3.95	1352
		Aluminum	0.55	7.6	1330	2.82	825	(3)	(3)	(3)	(3)
	M4, M5	Steel	2, 3.6	10.7	1780	5.08	2575	17.8	2490	8.47	3110
		Stainless Steel	1.6, 2.88	10.7	1780	5.08	2060	17.8	2490	8.47	2488
		Aluminum	1.2, 2.16	10.7	1780	5.08	1545	(3)	(3)	(3)	(3)

Types SO4 and BSO4

	Thread Code	Max. Rec. Tightening Torque For Mating Screw (in. lbs.)	Test Sheet Material: .050" 300 Series Stainless Steel Installation (lbs.)	Pushout (lbs.)	Torque-out (in. lbs.)	Pull-thru (lbs.)
UNIFIED	440	4.75	5500	336	17	600
	6440	4.75	9500	647	17	680
	632	8.75	9500	647	30	680
	8632	8.75	10500	900	30	1392
	832	18	10500	900	53	1517
	032	32	10500	900	71	1368

	Thread Code	Max. Rec. Tightening Torque For Mating Screw (N • m)	Test Sheet Material: 1.3 mm 300 Series Stainless Steel Installation (kN)	Pushout (N)	Torque-out (N • m)	Pull-thru (N)
METRIC	M3	0.55	24.5	1493	2.36	2650
	3.5M3	0.55	42.3	2877	2.36	3025
	M3.5	0.91	42.3	2877	3.06	3025
	M4	2	46.7	4003	6.34	6458
	M5	3.6	46.7	4003	8.89	6226

Types TSO, TSOS, and TSOA

Standoff "C" Dimension	Standoff Material	Test Sheet Material: .025" / 0.64 mm 5052-H34 Aluminum Installation (lbs.)	Installation (kN)	Pushout (lbs.)	Pushout (N)	Torque-out (in. lbs.)	Torque-out (N•m)	.025" / 0.64 mm Cold-rolled Steel Installation (lbs.)	Installation (kN)	Pushout (lbs.)	Pushout (N)	Torque-out (in. lbs.)	Torque-out (N•m)
.165" / 4.19 mm	Steel	1500	6.7	70	311	6	0.68	2000	8.9	100	445	9	1
	Stainless Steel	1500	6.7	70	311	6	0.68	2000	8.9	100	445	9	1
	Aluminum	1500	6.7	70	311	6	0.68	----	----	----	----	----	----
.212" / 5.38 mm	Steel	1800	8	90	400	11	1.24	2500	11.1	150	667	15	1.7
	Stainless Steel	1800	8	90	400	11	1.24	2500	11.1	150	667	15	1.7
	Aluminum	1800	8	90	400	11	1.24	----	----	----	----	----	----

(1) *The installation, pushout, torque-out and pull-thru values reported are averages when all installation specifications and procedures are followed. Variations in mounting hole size, sheet material and installation procedure will affect this data. Performance testing of this product in your application is recommended. We will be happy to provide samples for this purpose.*

(2) *Standoffs installed in sheets thinner than .060" / 1.5 mm will have pull-thru, pushout, and torque-out values at 80% of tabulated values.*

(3) *Not recommended.*

Specifications subject to change without notice.

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