

Panel Fastening System

Innovative fasteners for efficient panel assembly

General information

III Introduction

IV Overview

-KIT includes the recommended adhesive tab

H3-14-08-500(-XXX)(-KIT)

Insert type	Fastener size	Panel thickness	Special dimension
Series <u>6</u>	<u>04</u> : #4-40	Imperial (.001in)	used only on custom insert series as noted
Series <u>14</u> (see more below)	<u>06</u> : #6-32	<u>500</u> : .500in	
	<u>08</u> : #8-32	<u>1000</u> : 1.000in	
	<u>10</u> : #10-32	Metric (.1mm)	
	<u>M3</u> : M3x0.5	<u>100</u> : 10.0mm	
	<u>M4</u> : M4x0.7	<u>190</u> : 19.0mm	
	<u>M5</u> : M5x0.8		

Part Numbering

Specification

Sheets

- SERIES 6: ECCENTRIC CSK THRU INSERT
- SERIES 7: ECCENTRIC BLIND LOCKING THREADED INSERT
- SERIES 10: HIGH LOAD CSK THRU INSERT
- SERIES 11: HIGH LOAD BLIND LOCKING THREADED INSERT
- SERIES 14: EDGE BLIND LOCKING THREADED INSERT
- SERIES 16: EDGE ANGLED BLIND LOCKING THREADED INSERT
- SERIES 17: POCKET SCREW INSERT
- SERIES 18: ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT
- SERIES 26: ECCENTRIC THRU INSERT
- SERIES 32: DISCREET ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT
- SERIES 33: DISCREET ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT
- SERIES 34: DISCREET EDGE BLIND LOCKING THREADED INSERT
- SERIES 36: DISCREET EDGE ANGLED BLIND LOCKING THREADED INSERT
- SERIES 37: DISCREET POCKET SCREW INSERT
- SERIES 38: CUSTOM EDGE ANGLED BLIND LOCKING THREADED INSERT
- SERIES 39: ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT
- SERIES 40: CUSTOM ANGLED POCKET SCREW INSERT
- SERIES 41: CUSTOM DISCREET EDGE ANGLED BLIND LOCKING THREADED INSERT
- SERIES 42: CUSTOM DISCREET ANGLED POCKET SCREW INSERT
- SERIES 43: THRU DOUBLE-LOCKING THREADED INSERT (NAS1833 STYLE)
- SERIES 44: THRU CLEARANCE INSERT (NAS1834 STYLE)
- SERIES 45: ANTI-RATTLE FLOATING BLIND LOCKING THREADED INSERT (NAS1835 STYLE)
- SERIES 46: BLIND LOCKING THREADED INSERT (NAS1836 STYLE)
- SELF ADHESIVE INSTALLATION AID TABS

Rapid Assembly

The primary goal of Harper’s panel fastening system is to reduce the amount of labor and specialized fixturing required for honeycomb panel assembly while also addressing the negative attributes of existing panel adjoining methods. Mortise and tenon, while robust, is labor intensive and costly, requiring capital investment in specialized fixturing, and is unforgiving if rework is required. This panel fastening system leverages existing manufacturing processes, and completely eliminates the need for fixturing and adhesives at the assembly level. The efficiency and cost savings of the furniture-in-a-box industry is now available to the aerospace industry.

Flexible application

The Harper Panel Fastening System can be used to adjoin any honeycomb panel geometries, in any orientation, from 0 to 180 degrees, straight or curved. Assembly fasteners can be concealed either by mindful placement, or decorative finish. Designing with these panel fasteners affords ancillary benefits beyond the labor savings by permitting flat pack shipping of panel assemblies and the ability to assemble and disassemble panels with ease, drastically improving the serviceability of honeycomb panel assemblies both pre- and post-delivery.

Simple installation

Installation begins with CNC machining the fastener cutouts into the honeycomb panel along with traditional insert cutouts during this existing manufacturing operation. Harper panel fasteners are potted into the honeycomb panel in the same way as traditional inserts, again taking advantage of an existing manufacturing operation. The entire fastening system is designed to reduce manual labor as much as possible, down to the smallest detail such as the adhesive tabs that retain the inserts during potting. Harper’s high-performance adhesive tabs are made from a fiberglass tape with silicone adhesive to ensure the tabs hold securely and remove cleanly and easily in one piece, leaving no residue on the panel that would warrant cleanup labor expenditure even after high temperature exposure from curing ovens. The panel fasteners were designed with automation in mind, taking advantage of which would nearly eliminate all labor in the panel assembly process prior to finish and final assembly.

Lightweight And strong

Constructed of ULTEM® 2300 (30% Glass Filled Polyetherimide) with AISI 4140 steel self-locking threads, Harper panel fasteners provide the strongest flush-mount disassemble-able method of adjoining honeycomb panels. These fasteners offer the design freedom to optimize honeycomb panel assemblies for weight and strength by using more where loads are high, even exceeding mortise and tenon strength, or fewer where loads are low, saving weight.

	Strength	Flush Installation	Fixtureless Assembly	Allows Disassembly
Mortise and Tenon	✓	✓	✗	✗
Panel Pin	✗	✓	✗	✗
Angle and Insert	✓	✗	✓	✓
Harper Panel Fastening System	✓	✓	✓	✓

SERIES 6

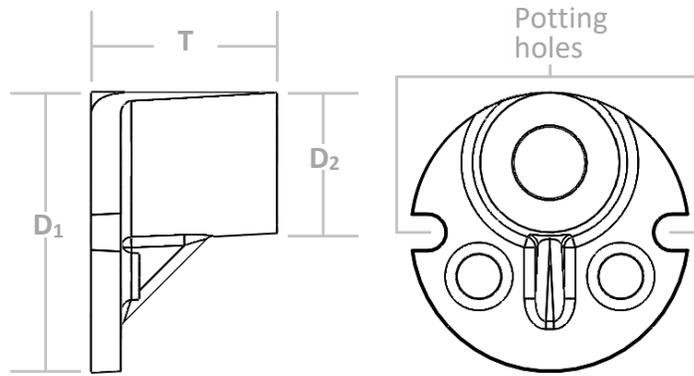
ECCENTRIC CSK THRU INSERT

USEFUL FOR



EXTERIOR CORNER JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

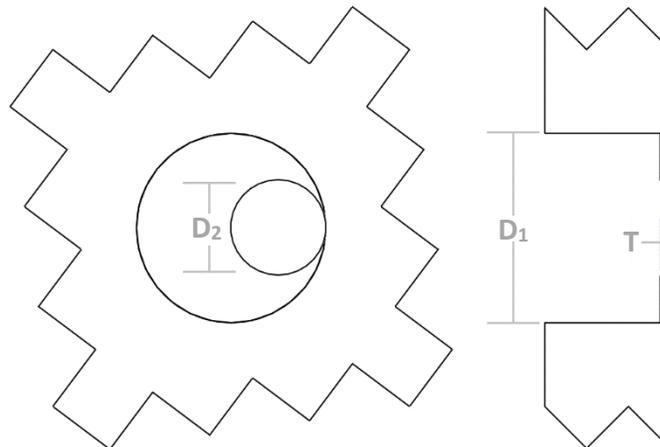


PART NUMBER	T _(in)	D _{1(in)}	D _{2(in)}	THRU HOLE	AVAILABILITY
H3-6-08-250-KIT	.250	.747	.372	#8, 100° CSK	24 WEEKS
H3-6-08-375-KIT	.375	.747	.372	#8, 100° CSK	24 WEEKS
H3-6-08-500-KIT	.500	.747	.372	#8, 100° CSK	6 WEEKS
H3-6-08-750-KIT	.750	.747	.372	#8, 100° CSK	6 WEEKS
H3-6-08-1000-KIT	1.000	.747	.372	#8, 100° CSK	6 WEEKS
PART NUMBER	T _(mm)	D _{1(mm)}	D _{2(mm)}	THRU HOLE	AVAILABILITY
H3-6-M4-100-KIT	10.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-6-M4-140-KIT	14.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-6-M4-180-KIT	18.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-6-M4-190-KIT	19.00	18.93	9.43	M4, 90° CSK	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: ULTEM® 2300 (30% Glass Filled Polyetherimide)
- Finish: none
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks



Recommended panel cutout for installation

INSERT TYPE	T	D ₁	D ₂
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}

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Harper Panel Fastening System is protected by U.S. and international patents (U.S. Patent No. 10,309,098)

SERIES 7

ECENTRIC BLIND LOCKING THREADED INSERT

USEFUL FOR



GENERAL PURPOSE

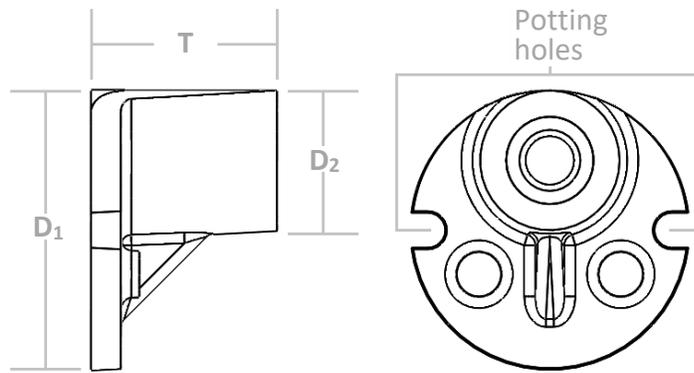


NEAR EDGE HINGES



NEAR EDGE TRIM

For other joint types and fastener styles, see Panel Fastening System overview

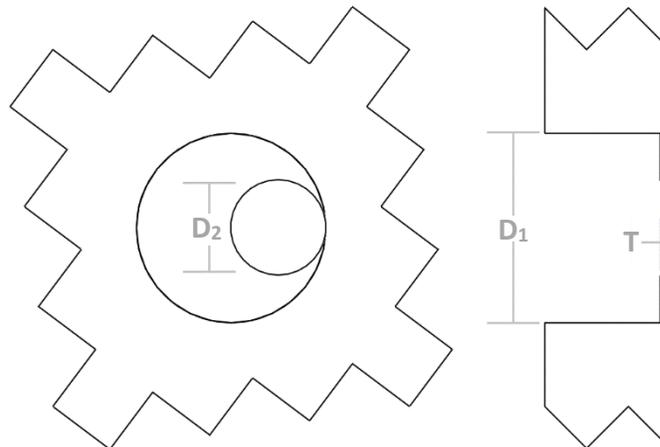


PART NUMBER	T _(in)	D _{1(in)}	D _{2(in)}	THREAD	AVAILABILITY
H3-7-08-250-KIT	.250	.747	.372	8-32 UNC-2B ↓.13	24 WEEKS
H3-7-08-375-KIT	.375	.747	.372	8-32 UNC-2B ↓.19	24 WEEKS
H3-7-08-500-KIT	.500	.747	.372	8-32 UNC-2B ↓.26	6 WEEKS
H3-7-08-750-KIT	.750	.747	.372	8-32 UNC-2B ↓.26	6 WEEKS
H3-7-08-1000-KIT	1.000	.747	.372	8-32 UNC-2B ↓.26	6 WEEKS
H3-7-10-250-KIT	.250	.747	.372	10-32 UNC-2B ↓.13	24 WEEKS
H3-7-10-375-KIT	.375	.747	.372	10-32 UNC-2B ↓.19	24 WEEKS
H3-7-10-500-KIT	.500	.747	.372	10-32 UNC-2B ↓.26	24 WEEKS
H3-7-10-750-KIT	.750	.747	.372	10-32 UNC-2B ↓.26	24 WEEKS
H3-7-10-1000-KIT	1.000	.747	.372	10-32 UNC-2B ↓.26	24 WEEKS
PART NUMBER	T _(mm)	D _{1(mm)}	D _{2(mm)}	THREAD	AVAILABILITY
H3-7-M4-100-KIT	10.00	18.93	9.43	M4x0.7 6H ↓6.5	24 WEEKS
H3-7-M4-140-KIT	14.00	18.93	9.43	M4x0.7 6H ↓6.5	24 WEEKS
H3-7-M4-180-KIT	18.00	18.93	9.43	M4x0.7 6H ↓6.5	24 WEEKS
H3-7-M4-190-KIT	19.00	18.93	9.43	M4x0.7 6H ↓6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- 24 week lead time indicates new injection mold tooling is required, after



Recommended panel cutout for installation

INSERT TYPE	T	D ₁	D ₂
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}

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SERIES 10

HIGH LOAD CSK THRU INSERT

USEFUL FOR

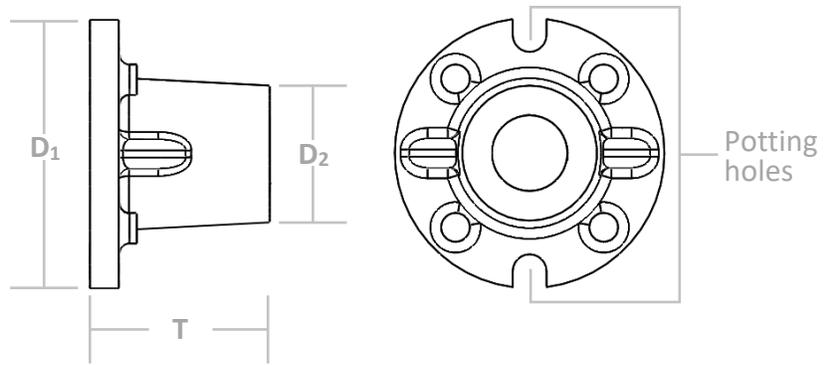


EXTERIOR CORNER JOINTS



EXTERIOR TEE JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

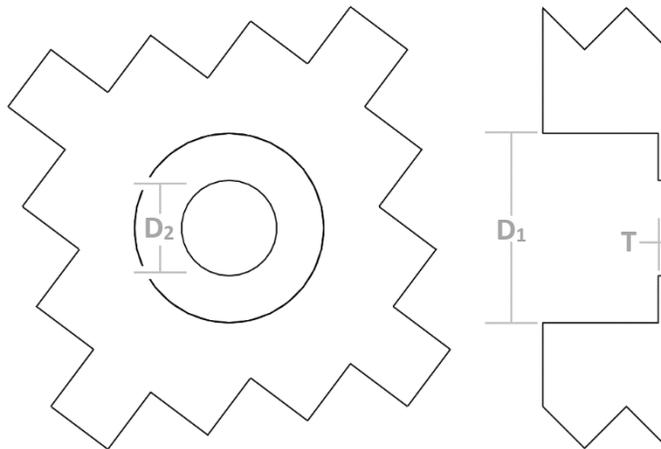


PART NUMBER	T _(in)	D _{1(in)}	D _{2(in)}	THRU HOLE	AVAILABILITY
H3-10-08-250-KIT	.250	.747	.372	#8, 100° CSK	24 WEEKS
H3-10-08-375-KIT	.375	.747	.372	#8, 100° CSK	24 WEEKS
H3-10-08-500-KIT	.500	.747	.372	#8, 100° CSK	6 WEEKS
H3-10-08-750-KIT	.750	.747	.372	#8, 100° CSK	6 WEEKS
H3-10-08-1000-KIT	1.000	.747	.372	#8, 100° CSK	6 WEEKS
PART NUMBER	T _(mm)	D _{1(mm)}	D _{2(mm)}	THRU HOLE	AVAILABILITY
H3-10-M4-100-KIT	10.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-10-M4-140-KIT	14.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-10-M4-180-KIT	18.00	18.93	9.43	M4, 90° CSK	24 WEEKS
H3-10-M4-190-KIT	19.00	18.93	9.43	M4, 90° CSK	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: ULTEM® 2300 (30% Glass Filled Polyetherimide)
- Finish: none
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks



Recommended panel cutout for installation

INSERT TYPE	T	D ₁	D ₂
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}

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SERIES 11

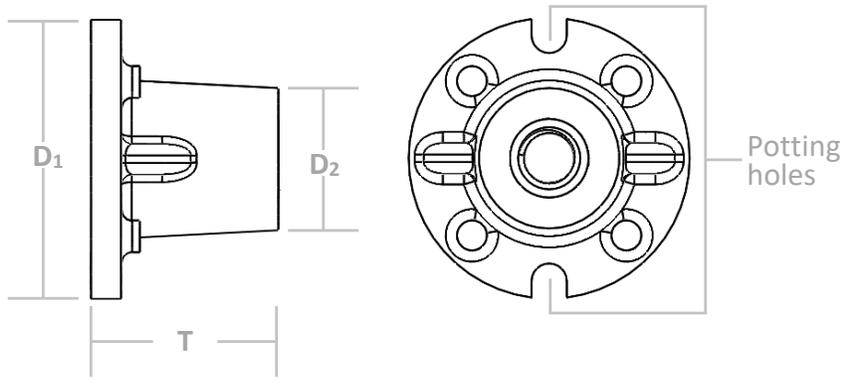
HIGH LOAD BLIND LOCKING THREADED INSERT

USEFUL FOR



GENERAL PURPOSE

For other joint types and fastener styles, see Panel Fastening System overview

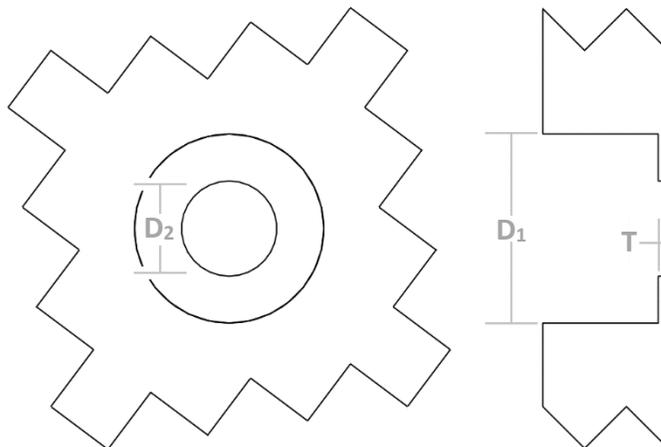


PART NUMBER	T _(in)	D _{1(in)}	D _{2(in)}	THREAD	AVAILABILITY
H3-11-08-250-KIT	.250	.747	.372	8-32 UNC-2B J.13	24 WEEKS
H3-11-08-375-KIT	.375	.747	.372	8-32 UNC-2B J.19	24 WEEKS
H3-11-08-500-KIT	.500	.747	.372	8-32 UNC-2B J.26	6 WEEKS
H3-11-08-750-KIT	.750	.747	.372	8-32 UNC-2B J.26	6 WEEKS
H3-11-08-1000-KIT	1.000	.747	.372	8-32 UNC-2B J.26	6 WEEKS
H3-11-10-250-KIT	.250	.747	.372	10-32 UNC-2B J.13	24 WEEKS
H3-11-10-375-KIT	.375	.747	.372	10-32 UNC-2B J.19	24 WEEKS
H3-11-10-500-KIT	.500	.747	.372	10-32 UNC-2B J.26	6 WEEKS
H3-11-10-750-KIT	.750	.747	.372	10-32 UNC-2B J.26	6 WEEKS
H3-11-10-1000-KIT	1.000	.747	.372	10-32 UNC-2B J.26	6 WEEKS
PART NUMBER	T _(mm)	D _{1(mm)}	D _{2(mm)}	THREAD	AVAILABILITY
H3-11-M4-100-KIT	10.00	18.93	9.43	M4x0.7 6H J6.5	24 WEEKS
H3-11-M4-140-KIT	14.00	18.93	9.43	M4x0.7 6H J6.5	24 WEEKS
H3-11-M4-180-KIT	18.00	18.93	9.43	M4x0.7 6H J6.5	24 WEEKS
H3-11-M4-190-KIT	19.00	18.93	9.43	M4x0.7 6H J6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after



Recommended panel cutout for installation

INSERT TYPE	T	D ₁	D ₂
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}

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SERIES 14

EDGE BLIND LOCKING THREADED INSERT

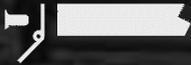
USEFUL FOR



EXTERIOR CORNER JOINTS



EXTERIOR TEE JOINTS

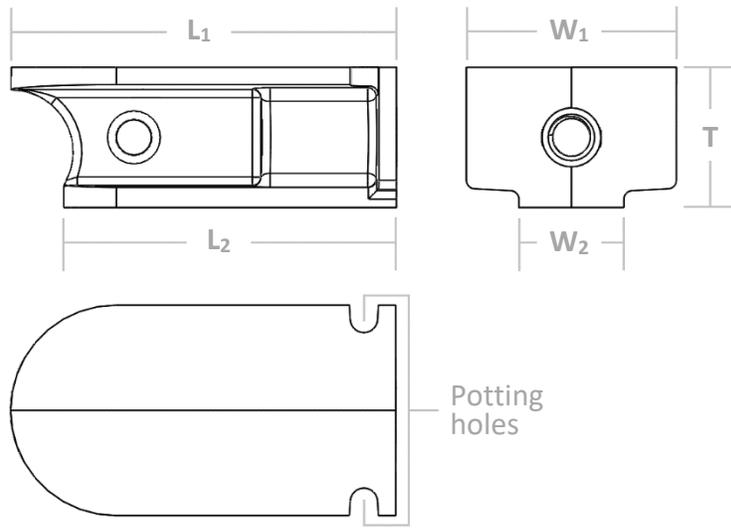


EDGE MOUNTED HINGES



EDGE MOUNTED TRIM

For other joint types and fastener styles, see Panel Fastening System overview

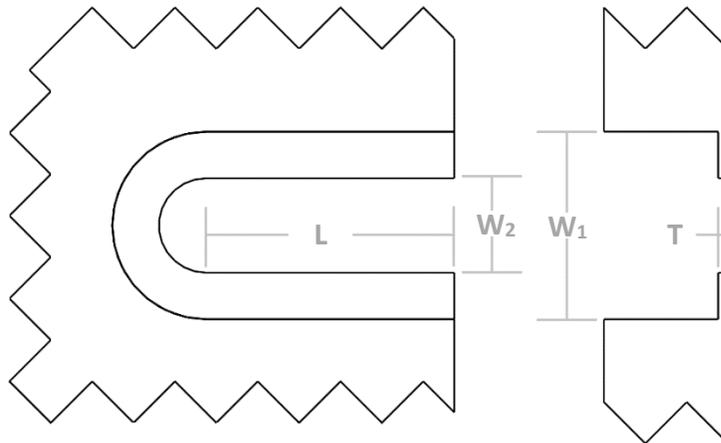


PART NUMBER	T _(in)	W _{1(in)}	W _{2(in)}	L _{1(in)}	L _{2(in)}	THREAD	AVAILABILITY
H3-14-08-375-KIT	.375	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	24 WEEKS
H3-14-08-500-KIT	.500	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-14-08-750-KIT	.750	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-14-08-1000-KIT	1.000	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
PART NUMBER	T _(mm)	W _{1(mm)}	W _{2(mm)}	L _{1(mm)}	L _{2(mm)}	THREAD	AVAILABILITY
H3-14-M4-100-KIT	10.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-14-M4-140-KIT	14.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-14-M4-180-KIT	18.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-14-M4-190-KIT	19.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks



Recommended panel cutout for installation

INSERT TYPE	T	W ₁	W ₂	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}	25.50 _{mm}

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SERIES 16

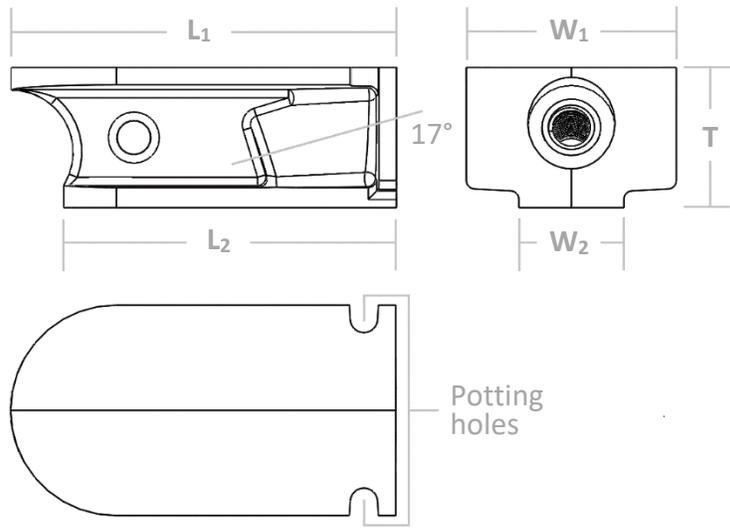
EDGE ANGLED BLIND LOCKING THREADED INSERT

USEFUL FOR



PLANAR JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

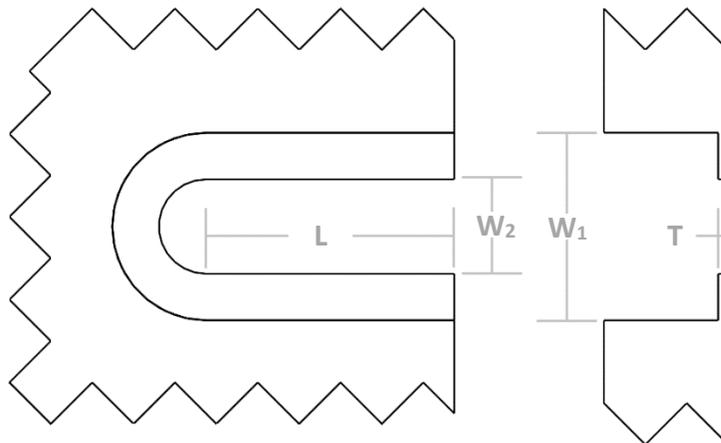


PART NUMBER	T _(in)	W _{1(in)}	W _{2(in)}	L _{1(in)}	L _{2(in)}	THREAD	AVAILABILITY
H3-16-08-500-KIT	.500	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-16-08-750-KIT	.750	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-16-08-1000-KIT	1.000	.747	.372	1.375	1.188	8-32 UNC-2B \downarrow .26	6 WEEKS
PART NUMBER	T _(mm)	W _{1(mm)}	W _{2(mm)}	L _{1(mm)}	L _{2(mm)}	THREAD	AVAILABILITY
H3-16-M4-140-KIT	14.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-16-M4-180-KIT	18.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-16-M4-190-KIT	19.00	18.93	9.43	35.00	30.25	M4x0.7 6H \downarrow 6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks



Recommended panel cutout for installation

INSERT TYPE	T	W ₁	W ₂	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}	25.50 _{mm}

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SERIES 17

POCKET SCREW INSERT

USEFUL FOR



INTERIOR CORNER JOINTS



EXTERIOR CORNER JOINTS

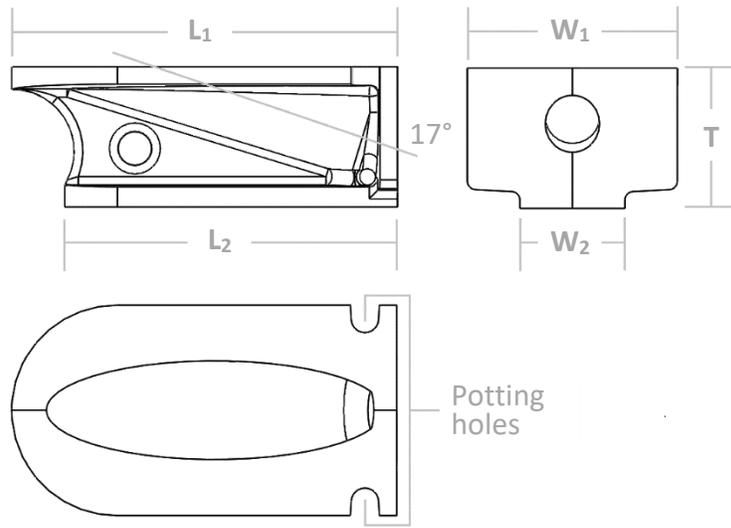


INTERIOR TEE JOINTS



PLANAR JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

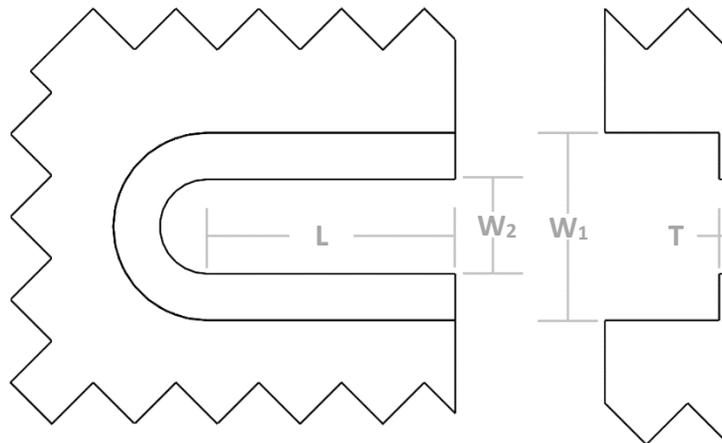


PART NUMBER	T _(in)	W _{1(in)}	W _{2(in)}	L _{1(in)}	L _{2(in)}	THRU HOLE	AVAILABILITY
H3-17-08-375-KIT	.375	.747	.372	1.375	1.188	#8, 100° CSK	24 WEEKS
H3-17-08-500-KIT	.500	.747	.372	1.375	1.188	#8, 100° CSK	6 WEEKS
H3-17-08-750-KIT	.750	.747	.372	1.375	1.188	#8, 100° CSK	6 WEEKS
H3-17-08-1000-KIT	1.000	.747	.372	1.375	1.188	#8, 100° CSK	6 WEEKS
PART NUMBER	T _(mm)	W _{1(mm)}	W _{2(mm)}	L _{1(mm)}	L _{2(mm)}	THRU HOLE	AVAILABILITY
H3-17-M4-100-KIT	10.00	18.93	9.43	35.00	30.25	M4, 90° CSK	24 WEEKS
H3-17-M4-140-KIT	14.00	18.93	9.43	35.00	30.25	M4, 90° CSK	24 WEEKS
H3-17-M4-180-KIT	18.00	18.93	9.43	35.00	30.25	M4, 90° CSK	24 WEEKS
H3-17-M4-190-KIT	19.00	18.93	9.43	35.00	30.25	M4, 90° CSK	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: ULTEM® 2300 (30% Glass Filled Polyetherimide)
- Finish: none
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks



Recommended panel cutout for installation

INSERT TYPE	T	W ₁	W ₂	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	9.57 _{mm}	25.50 _{mm}

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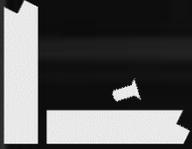
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SERIES 18

ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT

USEFUL FOR

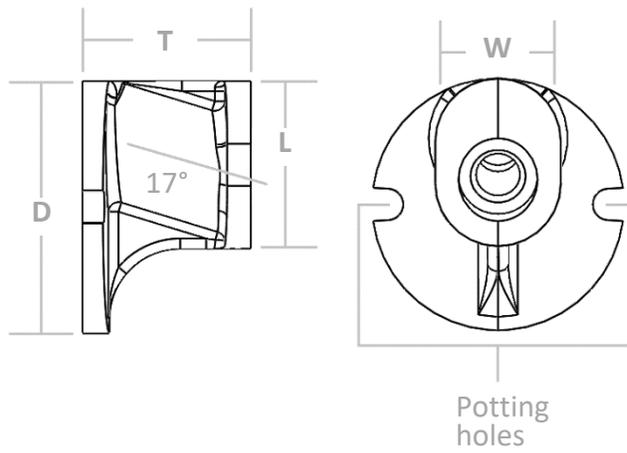


INTERIOR CORNER JOINTS



INTERIOR TEE JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

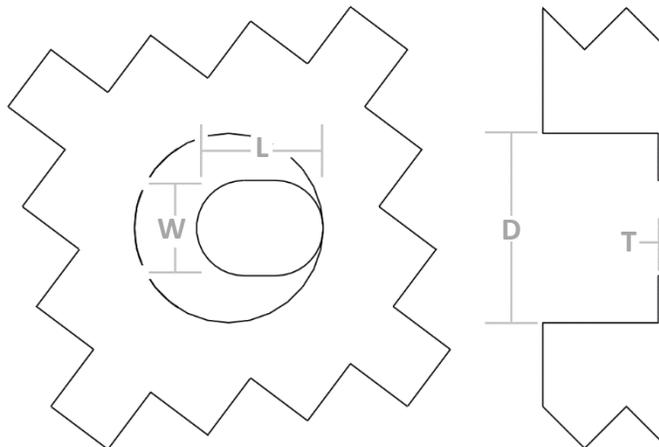


PART NUMBER	T _(in)	D _(in)	L _(in)	W _(in)	THREAD	AVAILABILITY
H3-18-08-500-KIT	.500	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-18-08-750-KIT	.750	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-18-08-1000-KIT	1.000	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
PART NUMBER	T _(mm)	D _(mm)	L _(mm)	W _(mm)	THREAD	AVAILABILITY
H3-18-M4-140-KIT	14.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-18-M4-180-KIT	18.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-18-M4-190-KIT	19.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after



Recommended panel cutout for installation

INSERT TYPE	T	D	L	W
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.505 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	12.84 _{mm}	9.57 _{mm}

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SERIES 26

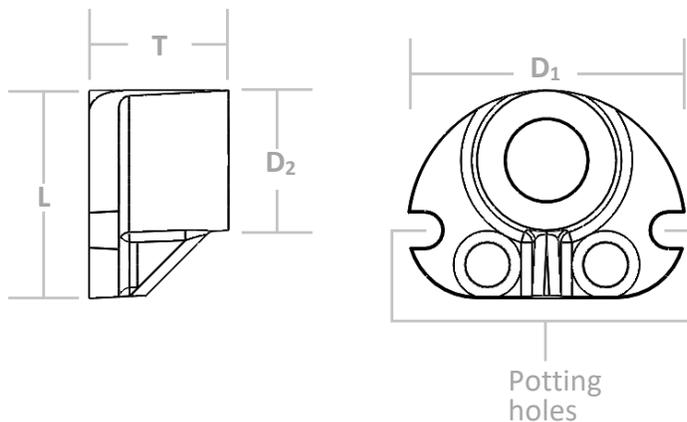
ECCENTRIC THRU INSERT

USEFUL FOR



BULLNOSE TRIM

For other joint types and fastener styles, see Panel Fastening System overview

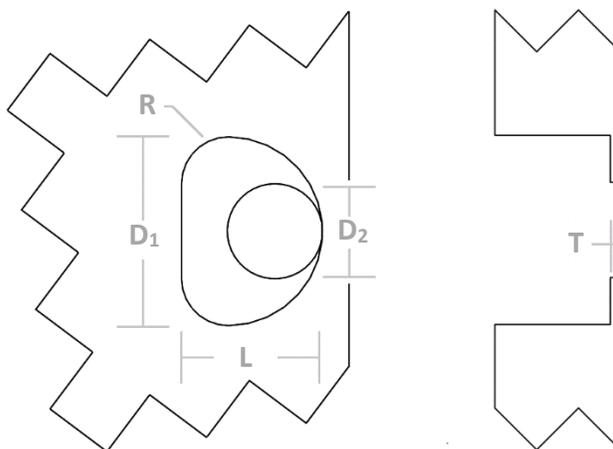


PART NUMBER	T _(in)	D _{1(in)}	D _{2(in)}	THRU HOLE	AVAILABILITY
H3-26-10-375-KIT	.375	.747	.372	#10	6 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: ULTEM® 2300 (30% Glass Filled Polyetherimide)
- (b) Finish: none
- (c) Installed load capability dependent on panel and adhesive type used
- (d) -KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- (e) Designed specifically for shelf style overhead bin bullnose attachment



Recommended panel cutout for installation

INSERT TYPE	T	D ₁	D ₂	L	R
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.380 _{in}	.563	.183

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SERIES 34

DISCREET EDGE BLIND LOCKING THREADED INSERT

USEFUL FOR



EXTERIOR CORNER JOINTS



EXTERIOR TEE JOINTS

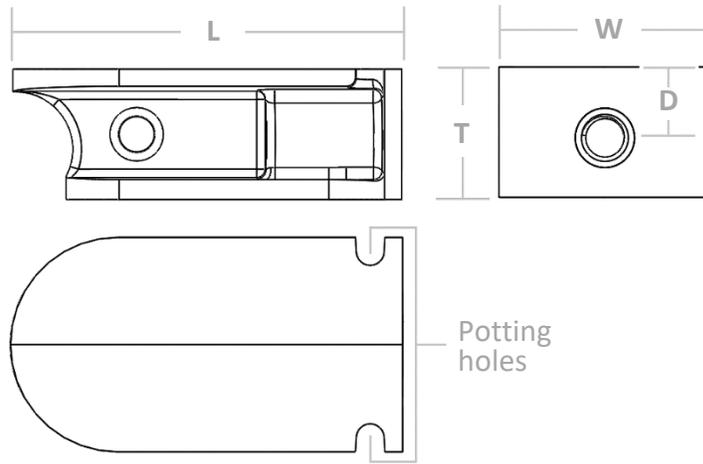


EDGE MOUNTED HINGES



EDGE MOUNTED TRIM

For other joint types and fastener styles, see Panel Fastening System overview

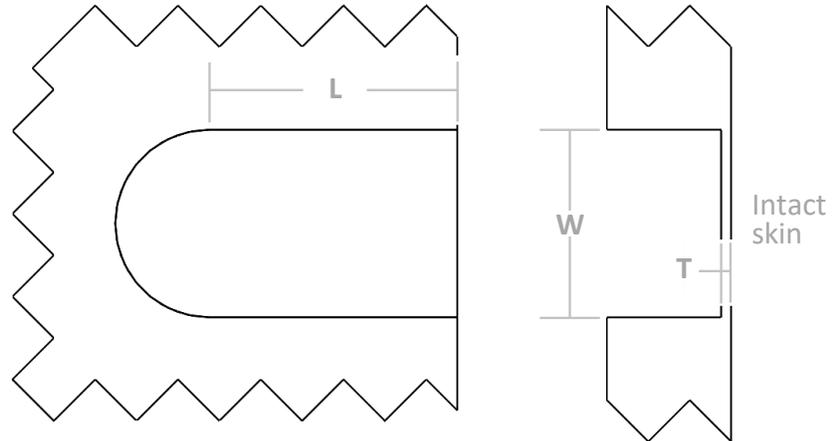


PART NUMBER	T _(in)	W _(in)	D _(in)	L _(in)	THREAD	AVAILABILITY
H3-34-08-335-KIT	.335	.747	.188	1.375	8-32 UNC-2B ↓.26	24 WEEKS
H3-34-08-460-KIT	.460	.747	.250	1.375	8-32 UNC-2B ↓.26	24 WEEKS
H3-34-08-710-KIT	.710	.747	.375	1.375	8-32 UNC-2B ↓.26	24 WEEKS
H3-34-08-960-KIT	.960	.747	.500	1.375	8-32 UNC-2B ↓.26	24 WEEKS
PART NUMBER	T _(mm)	W _(mm)	D _(mm)	L _(mm)	THREAD	AVAILABILITY
H3-34-M4-090-KIT	9.00	18.93	5.00	35.00	M4x0.7 6H ↓6.5	24 WEEKS
H3-34-M4-130-KIT	13.00	18.93	7.00	35.00	M4x0.7 6H ↓6.5	24 WEEKS
H3-34-M4-170-KIT	17.00	18.93	9.00	35.00	M4x0.7 6H ↓6.5	24 WEEKS
H3-34-M4-180-KIT	18.00	18.93	9.50	35.00	M4x0.7 6H ↓6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks
- (h) Designed specifically for automated or single sided installation, insert thickness is .040in (1mm) less than panel thickness to maintain continuity of one panel skin
- (i) Threaded insert is .020in (.5mm) off center of part to achieve a thread position centered on panel edge when installed



Recommended panel cutout for installation

INSERT TYPE	T	W	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	25.50 _{mm}

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SERIES 36

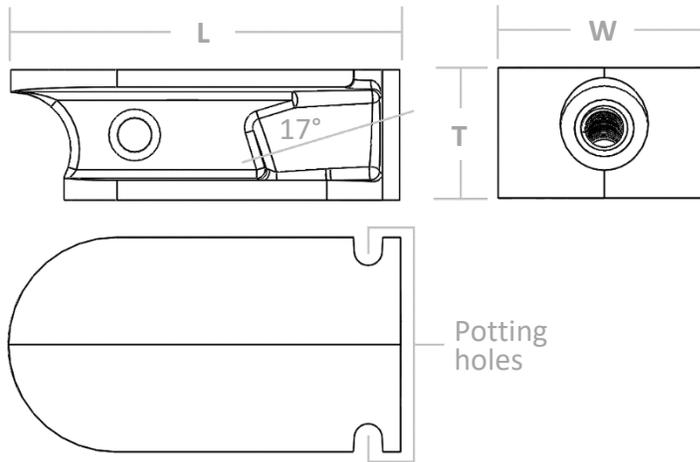
DISCREET EDGE ANGLED BLIND LOCKING THREADED INSERT

USEFUL FOR



PLANAR JOINTS

For other joint types and
fastener styles, see Panel
Fastening System overview

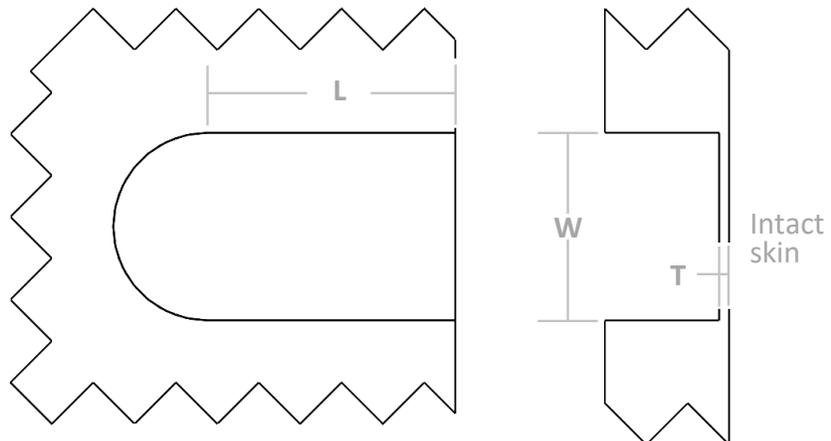


PART NUMBER	T _(in)	W _(in)	L _(in)	THREAD	AVAILABILITY
H3-36-08-460-KIT	.460	.747	1.375	8-32 UNC-2B ↓.26	24 WEEKS
H3-36-08-710-KIT	.710	.747	1.375	8-32 UNC-2B ↓.26	24 WEEKS
H3-36-08-960-KIT	.960	.747	1.375	8-32 UNC-2B ↓.26	24 WEEKS
PART NUMBER	T _(mm)	W _(mm)	L _(mm)	THREAD	AVAILABILITY
H3-36-M4-130-KIT	13.00	18.93	35.00	M4x0.7 6H ↓6.5	24 WEEKS
H3-36-M4-170-KIT	17.00	18.93	35.00	M4x0.7 6H ↓6.5	24 WEEKS
H3-36-M4-180-KIT	18.00	18.93	35.00	M4x0.7 6H ↓6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks
- (h) Designed specifically for automated or single sided installation, insert thickness is .040in (1mm) less than panel thickness to maintain continuity of



Recommended panel cutout for installation

INSERT TYPE	T	W	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	25.50 _{mm}

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SERIES 37

DISCREET POCKET SCREW INSERT

USEFUL FOR



INTERIOR CORNER JOINTS



EXTERIOR CORNER JOINTS

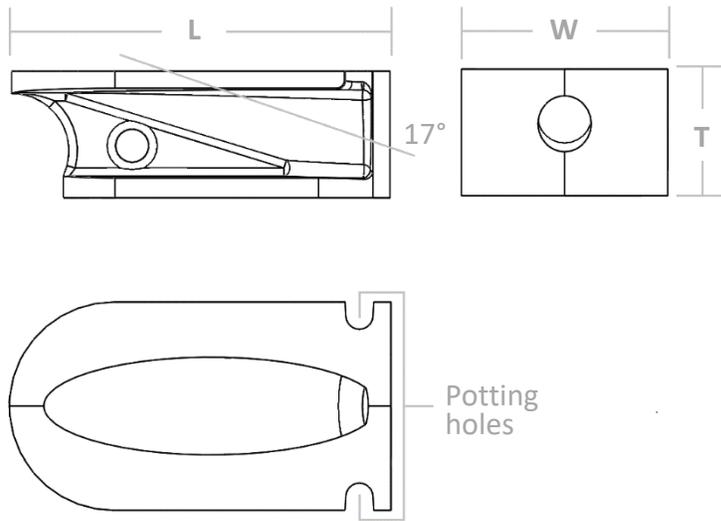


INTERIOR TEE JOINTS



PLANAR JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

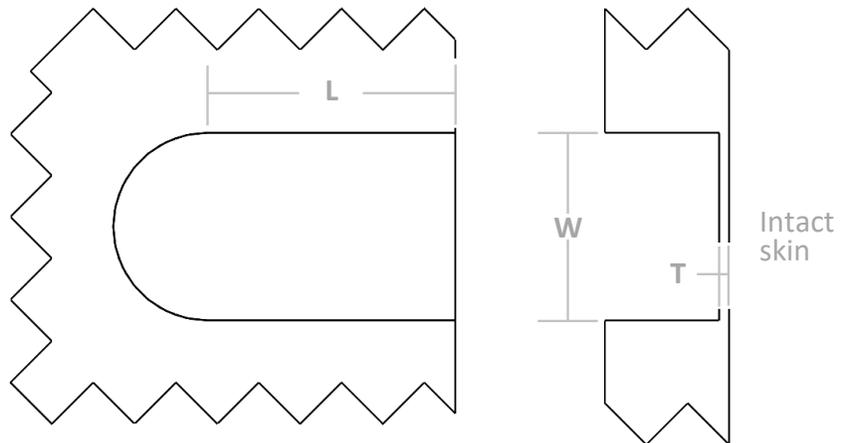


PART NUMBER	T _(in)	W _(in)	L _(in)	THRU HOLE	AVAILABILITY
H3-37-08-335-KIT	.335	.747	1.375	#8, 100° CSK	24 WEEKS
H3-37-08-460-KIT	.460	.747	1.375	#8, 100° CSK	24 WEEKS
H3-37-08-710-KIT	.710	.747	1.375	#8, 100° CSK	24 WEEKS
H3-37-08-960-KIT	.960	.747	1.375	#8, 100° CSK	24 WEEKS
PART NUMBER	T _(mm)	W _{1(mm)}	L _{1(mm)}	THRU HOLE	AVAILABILITY
H3-37-M4-090-KIT	9.00	18.93	35.00	M4, 90° CSK	24 WEEKS
H3-37-M4-130-KIT	13.00	18.93	35.00	M4, 90° CSK	24 WEEKS
H3-37-M4-170-KIT	17.00	18.93	35.00	M4, 90° CSK	24 WEEKS
H3-37-M4-180-KIT	18.00	18.93	35.00	M4, 90° CSK	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- Material: ULTEM® 2300 (30% Glass Filled Polyetherimide)
- Finish: none
- Installed load capability dependent on panel and adhesive type used
- KIT includes recommended manual installation aid: H3-2141-1000 LONG TAB
- 24 week lead time indicates new injection mold tooling is required, after which lead time would be reduced to 6 weeks
- Designed specifically for automated or single sided installation, insert thickness is .040in (1mm) less than panel thickness to maintain continuity of one panel skin



Recommended panel cutout for installation

INSERT TYPE	T	W	L
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	1.000 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	25.50 _{mm}

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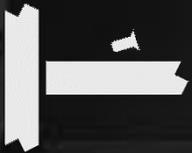
SERIES 39

ECCENTRIC ANGLED BLIND LOCKING THREADED INSERT

USEFUL FOR

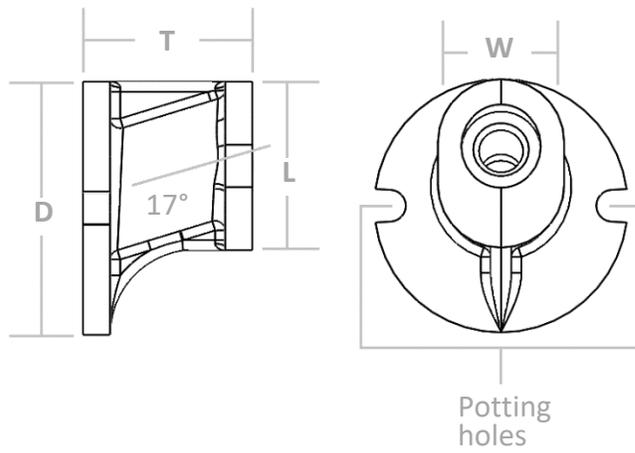


EXTERIOR CORNER JOINTS



INTERIOR TEE JOINTS

For other joint types and fastener styles, see Panel Fastening System overview

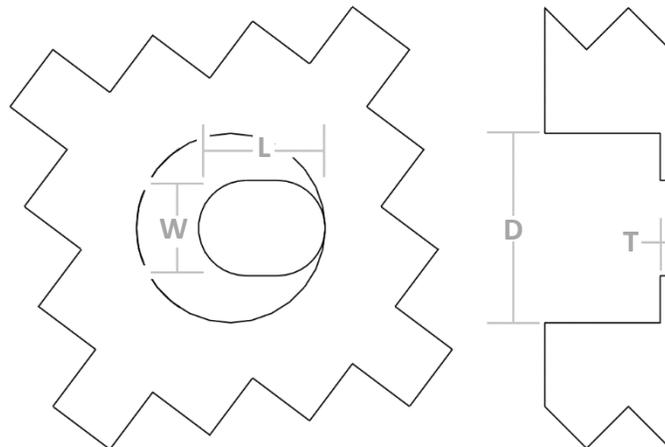


PART NUMBER	T _(in)	D _(in)	L _(in)	W _(in)	THREAD	AVAILABILITY
H3-39-08-500-KIT	.500	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-39-08-750-KIT	.750	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
H3-39-08-1000-KIT	1.000	.747	.497	.372	8-32 UNC-2B \downarrow .26	6 WEEKS
PART NUMBER	T _(mm)	D _(mm)	L _(mm)	W _(mm)	THREAD	AVAILABILITY
H3-39-M4-140-KIT	14.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-39-M4-180-KIT	18.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS
H3-39-M4-190-KIT	19.00	18.93	12.62	9.43	M4x0.7 6H \downarrow 6.5	24 WEEKS

For sizes not listed, please inquire with Sales@HarperEngineering.com

Notes:

- (a) Material: Body: ULTEM® 2300 (30% Glass Filled Polyetherimide)
Thread: AISI 4140 Steel
- (b) Finish: Body: none
Thread: Electroless nickel plate per ASTM B-733-15
- (c) First cycle prevailing torque minimum 1.5 INLBS, using NAS602-(X)P or equivalent fastener
- (d) Maximum thread loading: 66 INLBS torque, 308 LBS shear, 1445 LBS tension
- (e) Installed load capability dependent on panel and adhesive type used
- (f) -KIT includes recommended manual installation aid: H3-2141-1001 SHORT TAB
- (g) 24 week lead time indicates new injection mold tooling is required, after



Recommended panel cutout for installation

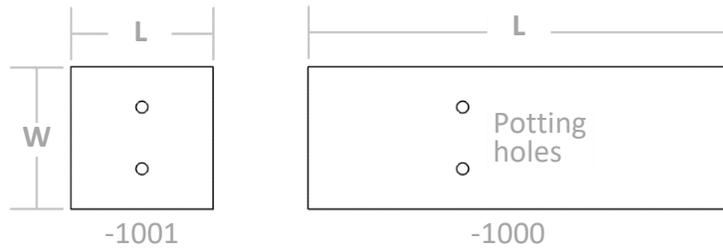
INSERT TYPE	T	D	L	W
IMPERIAL INSERTS	.040 _{in}	.755 _{in}	.505 _{in}	.380 _{in}
METRIC INSERTS	1.00 _{mm}	19.07 _{mm}	12.84 _{mm}	9.57 _{mm}

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SELF ADHESIVE INSTALLATION AID TABS



PART NUMBER	W _(in)	L _(in)	AVAILABILITY
H3-2141-1000	1.50	4.50	6 WEEKS
H3-2141-1001	1.50	1.50	6 WEEKS

Notes:

- (a) Material: Glass cloth tape with silicone adhesive
- (b) Designed for manual installation aid for all insert types and sizes
- (c) Adheres, seals and conforms easily to panel geometry, including edges and exposed core
- (d) Removes cleanly and easily regardless of potting compound type, even after high temperature curing up to 450F

SHORT TABS USEFUL FOR



MID PANEL INSERTS

LONG TABS USEFUL FOR



ON OR NEAR EDGE INSERTS

For other joint types and fastener styles, see Panel Fastening System overview

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