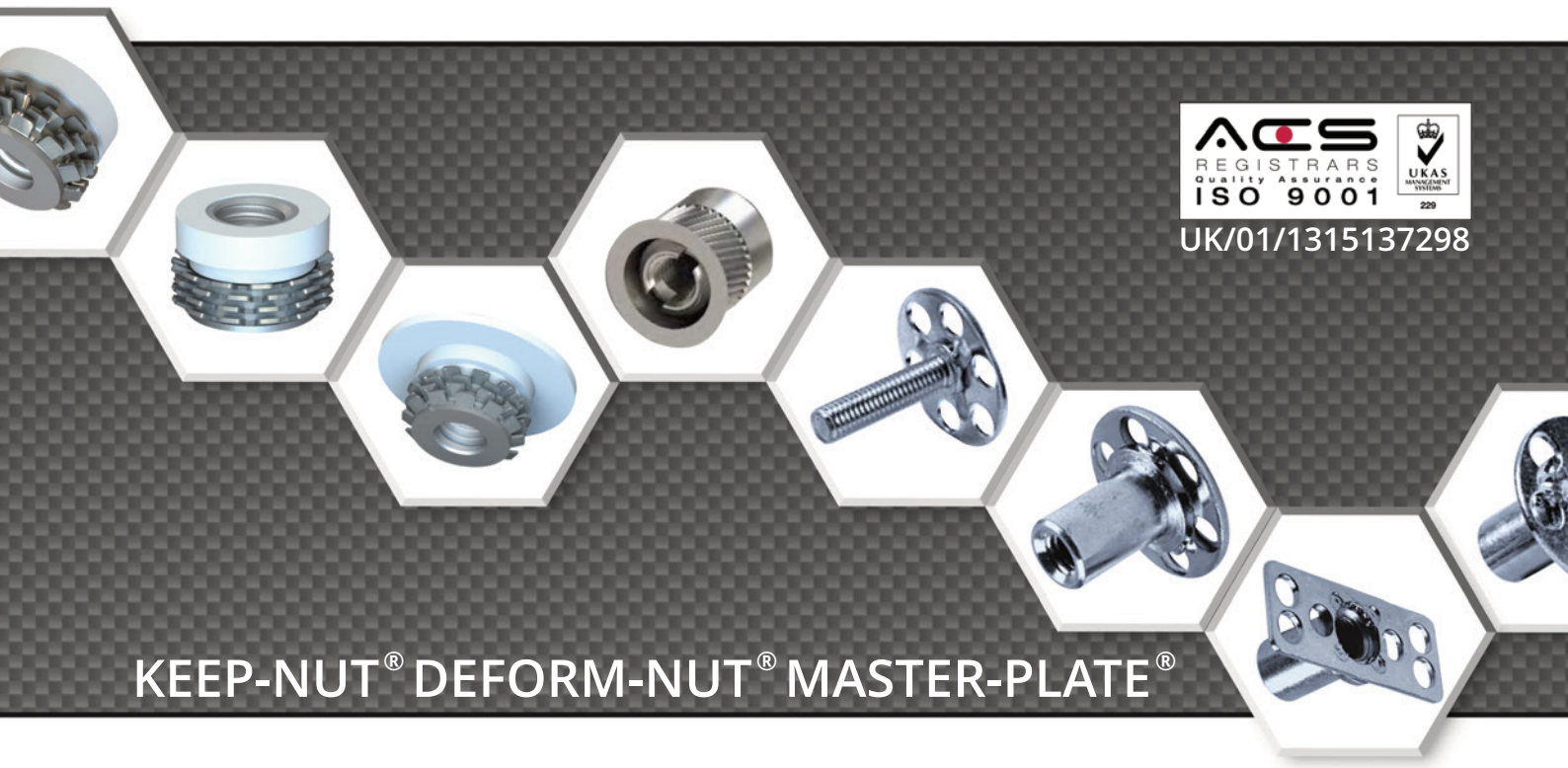
NORTHERN PRECISION LIMITED

Specialist Fasteners

✓Quality ✓Service ✓Reliability



UK/01/1315137298

KEEP-NUT® DEFORM-NUT® MASTER-PLATE®

A range of fasteners for Stone, Solid Surface Materials, Composites and Sandwich Panels

Tel: +44 (0)1302 836010 Fax: +44 (0)1302 836012
sales@npfasteners.com

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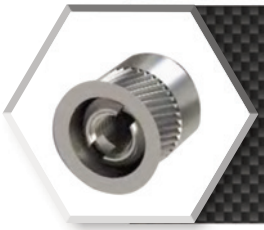

Also suitable for use in composite materials - OPTINUT®

Optinut is a new type of high performance rivet nut designed to provide much improved performance over conventional rivet nuts.

Optinut provides a strong captivated thread in panels and is ideally suited to applications where only one side of the panel is accessible such as box or tube section.

Unlike conventional rivet nuts, Optinut features a controlled upset point and larger bulge formation which allows for perfect installation even in oversize or irregular holes. The bulge is formed without placing load on the panel or hole wall, so they are especially suitable for use in softer or brittle materials such as composites or sandwich sections for example.

Available in thread sizes M4 to M10, in RoHS compliant heavy duty electro zinc plated steel (giving 96 hour salt spray protection), heavy duty electro zinc plated high strength steel suitable for use with up to 12.9 bolts, 304 stainless steel, high strength stainless steel suitable for use with up to 12.9 bolts, aluminium, high strength aluminium suitable for use with up to 8.8 bolts and brass. They can be installed into panels as thin as 0.5mm and as thick as 8.5mm. In addition to standard grips they can also be manufactured in grip ranges to suit your exact application requirement.

Requiring the same installation tooling as conventional rivet nuts, tools range from very low cost hand tools for low volume, to air powered automatic installation guns for high volume applications.

Optinuts have an advantage over other captivated fasteners because they can be installed on site or used for repair work to replace a previously installed fastener that has failed. The advantage of installation from one side of the application means that access to the back of the panel is never required.

Optinut is a registered trademark of Northern Precision Ltd.

For more information visit: www.npfasteners.com/rivetnuts

OPTINUT®
Controlled bulge formation for optimum performance.

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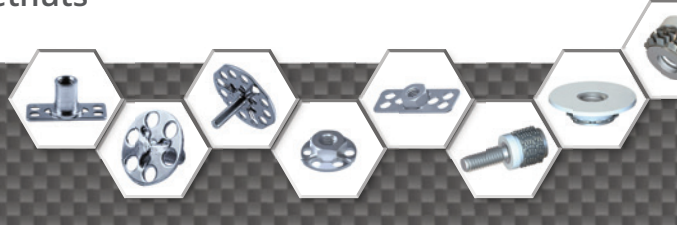


MASTER-PLATE® BONDING

IATF Approved.

Master-Plate Spike

Master-Plate Cable Tie

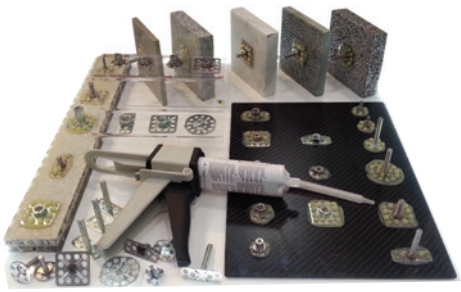
Master-Plate® bonding fasteners are available in a combination of base plate styles, in stud, standoff and nut configurations.

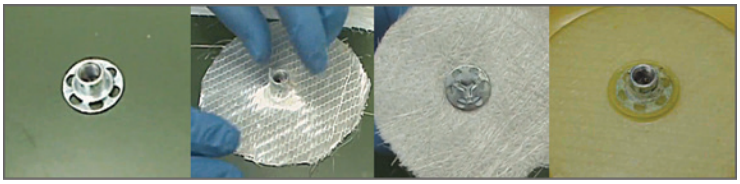
Master-Plate is a cost effective, secure and reliable method of integrating male or female threads into composite, fibreglass, laminate and carbon fibre applications.

Suitable for surface bonding using adhesive or embedding during the forming process, Master-Plate is ideal for composites, fibreglass, carbon fibre, moulding compounds, plastics, laminated timber, stone etc.

Available in standard sizes, in thread sizes M4 - M8 for studs and M4 - M10 for standoffs and nuts, in zinc plated steel and 316 stainless steel.

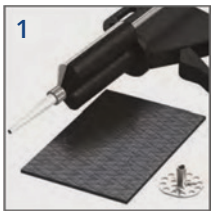
Custom base plate, fastener type, thread / body lengths can be produced to order.



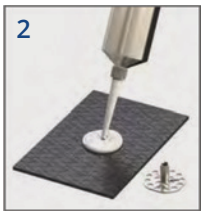


Alternatively Master-Plate fasteners can be embedded directly during the composite moulding process.

A flexible manufacturing process means that specials can be produced to suit your exact requirements



1 Prepare the panel surface by cleaning thoroughly with IPA.



2 Ensuring the adhesive is fully mixed, dispense sufficient adhesive for the application.

3 Locate the Master-Plate fastener over the adhesive.

4 Firmly press the Master-Plate fastener into the adhesive until adhesive flows through the holes in the base plate.

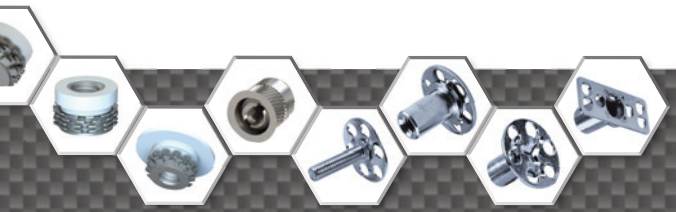
5 Following the adhesive manufacturers instructions, allow sufficient curing time.

6 Once the adhesive is fully cured, the Master-Plate fastener is ready for use.

Commonly used bonding adhesives and materials compatibility **www.npfasteners.com/composites**

Adhesive type	Composites	Plastic	Wood	Metal	Natural Stone	Conglomerates	Glass
PLEXUS MA300	●	●	○	●	○	●	●
LOCTITE 9466	●	○	●	●	●	●	●
LOCTITE 3425	●	⊗	●	●	●	●	⊗

● Recommended ○ Reasonable ⊗ Not suitable Please refer to adhesive manufacturer specifications for guidance.



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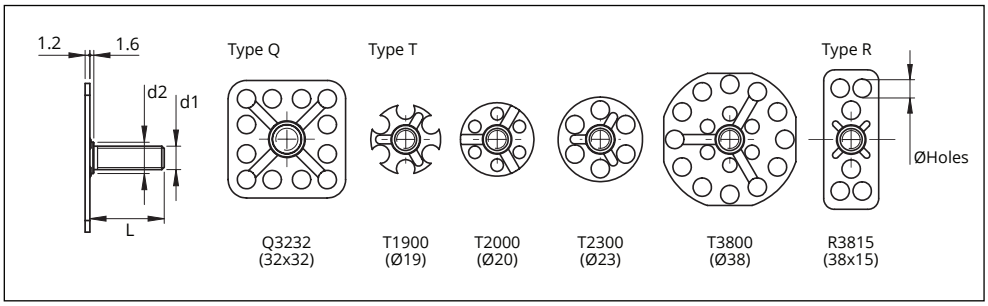
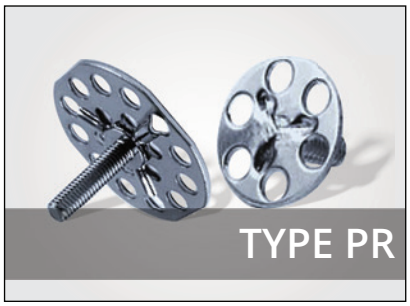
MASTER-PLATE® STUDS

IATF Approved.

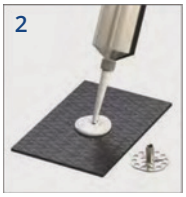




Part Code Type / Base / Thread / Length / Material	d1 Thread	d2 Steel	d2 316	Ø Holes OD	L Stud Length										
					6	8	10	12	15	16	20	25	30	35	40
PR Q3232 M4 -- --	M4	5.5	8.5	5											
PR T1900 M4 -- --				5											
PR T2000 M4 -- --				4											
PR T2300 M4 -- --				5											
PR T3800 M4 -- --				5											
PR R3815 M4 -- --				5											
PR Q3232 M5 -- --	M5	6.5	9.8	5											
PR T1900 M5 -- --				5											
PR T2000 M5 -- --				4											
PR T2300 M5 -- --				5											
PR T3800 M5 -- --				5											
PR R3815 M5 -- --				5											
PR Q3232 M6 -- --	M6	7.5	9.8	5											
PR T1900 M6 -- --				5											
PR T2000 M6 -- --				4											
PR T2300 M6 -- --				5											
PR T3800 M6 -- --				5											
PR R3815 M6 -- --				5											
PR Q3232 M8 -- --	M8	10	11.5	5											
PR T1900 M8 -- --				5											
PR T2000 M8 -- --				4											
PR T2300 M8 -- --				5											
PR T3800 M8 -- --				5											
PR R3815 M8 -- --				5											

Standard Special order

Prepare the panel surface by cleaning thoroughly with IPA.



Ensuring the adhesive is fully mixed, dispense sufficient adhesive for the application.

Locate the Master-Plate fastener over the adhesive.

Firmly press the Master-Plate fastener into the adhesive until adhesive flows through the holes in the base plate.

Following the adhesive manufacturers instructions, allow sufficient curing time.

Once the adhesive is fully cured, the Master-Plate fastener is ready for use.

Material: Steel Electro Zinc (ZI) or 316 Stainless Steel (316)

Part number is made up as follows:
(Type code) (Base code) (Thread code) (L Length) (Material code)

For example:
PR Q3232 M5 20 316 (Master-Plate Stud) (32x32mm square base plate) (M5 thread) (20mm stud length) (316 stainless steel)

www.npfasteners.com/composites

Commonly used bonding adhesives and materials compatibility

Adhesive type	Composites	Plastic	Wood	Metal	Natural Stone	Conglomerates	Glass
PLEXUS MA300	●	●	○	●	○	●	●
LOCTITE 9466	●	○	●	●	●	●	●
LOCTITE 3425	●	⊗	●	●	●	●	⊗

● Recommended ○ Reasonable ⊗ Not suitable Please refer to adhesive manufacturer specifications for guidance.

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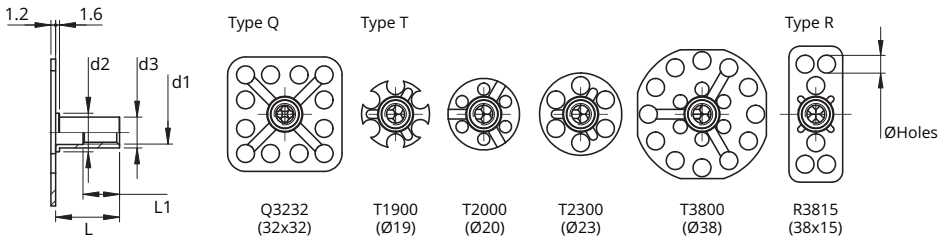
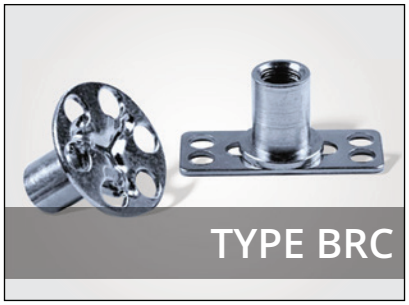
MASTER-PLATE® BLIND STANDOFFS

IATF Approved.





Part Code Type / Base / Thread / Length / Material	d1 Thread	d2	d3	L1	Ø Holes OD	L Standoff Length									
						5	6	10	12	14	15	16	20	22	25	30
BRC Q3232 M4 -- --	M4	12.1	8.5	Min. 3 Threads	5											
BRC T1900 M4 -- --					5											
BRC T2000 M4 -- --					4											
BRC T2300 M4 -- --					5											
BRC T3800 M4 -- --					5											
BRC R3815 M4 -- --					5											
BRC Q3232 M5 -- --	M5	13.1	9.7	Min. 3 Threads	5											
BRC T1900 M5 -- --					5											
BRC T2000 M5 -- --					4											
BRC T2300 M5 -- --					5											
BRC T3800 M5 -- --					5											
BRC R3815 M5 -- --					5											
BRC Q3232 M6 -- --	M6	13.1	9.7	Min. 3 Threads	5											
BRC T1900 M6 -- --					5											
BRC T2000 M6 -- --					4											
BRC T2300 M6 -- --					5											
BRC T3800 M6 -- --					5											
BRC R3815 M6 -- --					5											
BRC Q3232 M8 -- --	M8	15.1	11.2	Min. 3 Threads	5											
BRC T1900 M8 -- --					5											
BRC T2000 M8 -- --					4											
BRC T2300 M8 -- --					5											
BRC T3800 M8 -- --					5											
BRC R3815 M8 -- --					5											
BRC Q3232 M10 -- --	M10	16.1	12.8	Min. 3 Threads	5											
BRC T1900 M10 -- --					5											
BRC T2000 M10 -- --					4											
BRC T2300 M10 -- --					5											
BRC T3800 M10 -- --					5											
BRC R3815 M10 -- --					5											

Standard Special order

Prepare the panel surface by cleaning thoroughly with IPA.

Ensuring the adhesive is fully mixed, dispense sufficient adhesive for the application.

Locate the Master-Plate fastener over the adhesive.

Firmly press the Master-Plate fastener into the adhesive until adhesive flows through the holes in the base plate.

Following the adhesive manufacturers instructions, allow sufficient curing time.

Once the adhesive is fully cured, the Master-Plate fastener is ready for use.

Material: Steel Electro Zinc (ZI) or 316 Stainless Steel (316)

Part number is made up as follows:
(Type code) (Base code) (Thread code) (L Length) (Material code)

For example:
BRC T2000 M5 10 ZI (Master-Plate Blind Standoff) (20mm Ø round base plate) (M5 thread) (10mm standoff length) (zinc plated steel)

www.npfasteners.com/composites

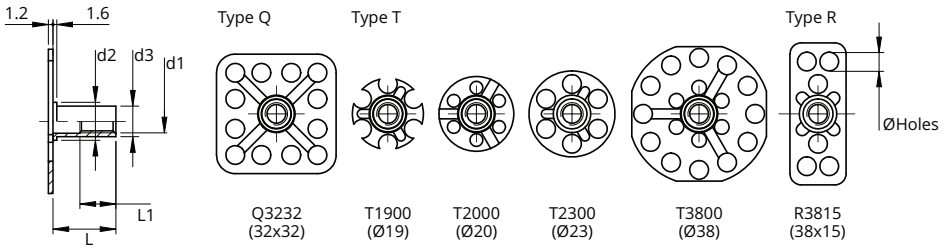
Commonly used bonding adhesives and materials compatibility

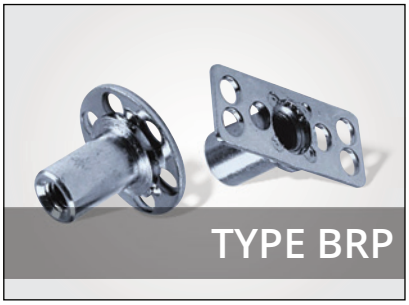
Adhesive type	Composites	Plastic	Wood	Metal	Natural Stone	Conglomerates	Glass
PLEXUS MA300	●	●	○	●	○	●	●
LOCTITE 9466	●	○	●	●	●	●	●
LOCTITE 3425	●	⊗	●	●	●	●	⊗

● Recommended ○ Reasonable ⊗ Not suitable Please refer to adhesive manufacturer specifications for guidance.

MASTER-PLATE® THROUGH STANDOFFS

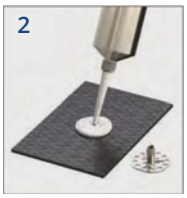
IATF Approved.





Part Code Type / Base / Thread / Length / Material	d1 Thread	d2	d3	L1	Ø Holes OD	L Standoff Length									
						5	6	10	12	14	15	16	20	22	25	30
BRP Q3232 M4 -- --	M4	12.1	8.4	Min. 3 Threads	5											
BRP T1900 M4 -- --					5											
BRP T2000 M4 -- --					4											
BRP T2300 M4 -- --					5											
BRP T3800 M4 -- --					5											
BRP R3815 M4 -- --					5											
BRP Q3232 M5 -- --	M5	13.1	9.6	Min. 3 Threads	5											
BRP T1900 M5 -- --					5											
BRP T2000 M5 -- --					4											
BRP T2300 M5 -- --					5											
BRP T3800 M5 -- --					5											
BRP R3815 M5 -- --					5											
BRP Q3232 M6 -- --	M6	13.1	9.6	Min. 3 Threads	5											
BRP T1900 M6 -- --					5											
BRP T2000 M6 -- --					4											
BRP T2300 M6 -- --					5											
BRP T3800 M6 -- --					5											
BRP R3815 M6 -- --					5											
BRP Q3232 M8 -- --	M8	15.1	11.1	Min. 3 Threads	5											
BRP T1900 M8 -- --					5											
BRP T2000 M8 -- --					4											
BRP T2300 M8 -- --					5											
BRP T3800 M8 -- --					5											
BRP R3815 M8 -- --					5											
BRP Q3232 M10 -- --	M10	16.1	12.7	Min. 3 Threads	5											
BRP T1900 M10 -- --					5											
BRP T2000 M10 -- --					4											
BRP T2300 M10 -- --					5											
BRP T3800 M10 -- --					5											
BRP R3815 M10 -- --					5											

Prepare the panel surface by cleaning thoroughly with IPA.



Ensuring the adhesive is fully mixed, dispense sufficient adhesive for the application.

Locate the Master-Plate fastener over the adhesive.

Firmly press the Master-Plate fastener into the adhesive until adhesive flows through the holes in the base plate.

Following the adhesive manufacturers instructions, allow sufficient curing time.

Once the adhesive is fully cured, the Master-Plate fastener is ready for use.

Material: Steel Electro Zinc (ZI) or 316 Stainless Steel (316)

Part number is made up as follows:
(Type code) (Base code) (Thread code) (L Length) (Material code)

For example:
BRP R3815 M6 25 316 (Master-Plate Through Standoff) (38x15mm rectangular base plate) (M6 thread) (25mm standoff length) (stainless steel)

Standard Special order

www.npfasteners.com/composites

Commonly used bonding adhesives and materials compatibility

Adhesive type	Composites	Plastic	Wood	Metal	Natural Stone	Conglomerates	Glass
PLEXUS MA300	●	●	○	●	○	●	●
LOCTITE 9466	●	○	●	●	●	●	●
LOCTITE 3425	●	⊗	●	●	●	●	⊗

● Recommended ○ Reasonable ⊗ Not suitable Please refer to adhesive manufacturer specifications for guidance.

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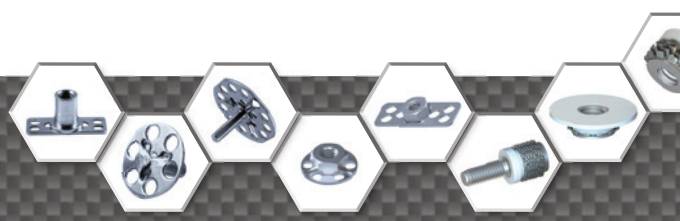
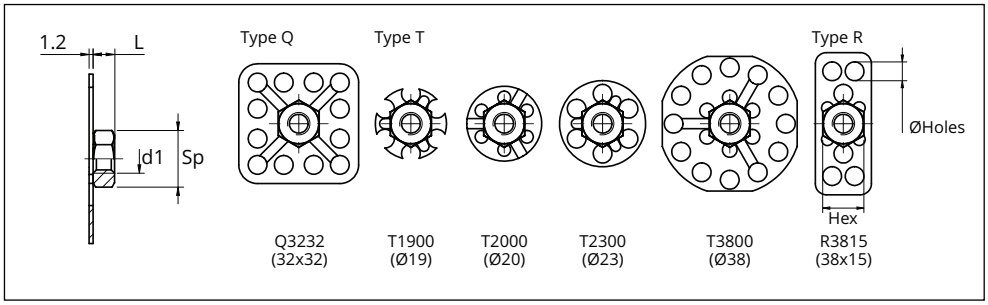
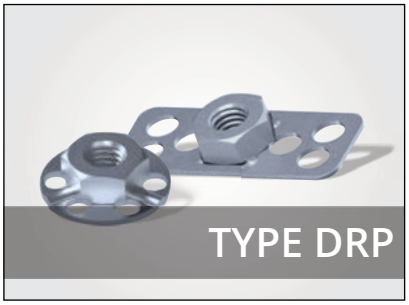


MASTER-PLATE® NUTS
IATF Approved.





Part Code Type / Base / Thread / Material	d1 Thread	Hex A/F	Sp	L +1.0 -0.0	Ø Holes OD
DRP Q3232 M4 --	M4	7	7.8	3.2	5
DRP T1900 M4 --					5
DRP T2000 M4 --					4
DRP T2300 M4 --					5
DRP T3800 M4 --					5
DRP R3815 M4 --					5
DRP Q3232 M5 --	M5	8	8.9	4	5
DRP T1900 M5 --					5
DRP T2000 M5 --					4
DRP T2300 M5 --					5
DRP T3800 M5 --					5
DRP R3815 M5 --					5
DRP Q3232 M6 --	M6	10	11.1	5	5
DRP T1900 M6 --					5
DRP T2000 M6 --					4
DRP T2300 M6 --					5
DRP T3800 M6 --					5
DRP R3815 M6 --					5
DRP Q3232 M8 --	M8	13	14.4	6.5	5
DRP T1900 M8 --					5
DRP T2000 M8 --					4
DRP T2300 M8 --					5
DRP T3800 M8 --					5
DRP R3815 M8 --					5
DRP Q3232 M10 --	M10	17	19.0	8	5
DRP T1900 M10 --					5
DRP T2000 M10 --					4
DRP T2300 M10 --					5
DRP T3800 M10 --					5
DRP R3815 M10 --					5

Also available to special order as blind version. Specify type: **DRC**

Standard

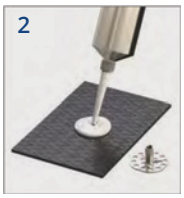
Special order

Material: Steel Electro Zinc (ZI) or 316 Stainless Steel (316)

Part number is made up as follows:
(Type code) (Base code) (Thread code) (Material code)

For example:
DRP T2300 M8 ZI (Master-Plate Through Nut) (23mm Ø round base plate) (M8 thread) (zinc plated steel)

Prepare the panel surface by cleaning thoroughly with IPA.



Ensuring the adhesive is fully mixed, dispense sufficient adhesive for the application.

Locate the Master-Plate fastener over the adhesive.

Firmly press the Master-Plate fastener into the adhesive until adhesive flows through the holes in the base plate.

Following the adhesive manufacturers instructions, allow sufficient curing time.

Once the adhesive is fully cured, the Master-Plate fastener is ready for use.

www.npfasteners.com/composites

Commonly used bonding adhesives and materials compatibility

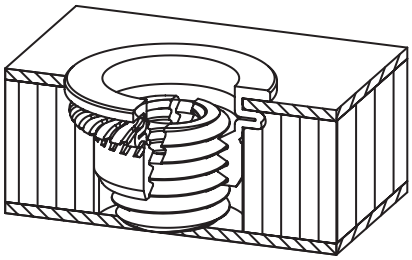
Adhesive type	Composites	Plastic	Wood	Metal	Natural Stone	Conglomerates	Glass
PLEXUS MA300	●	●	○	●	○	●	●
LOCTITE 9466	●	○	●	●	●	●	●
LOCTITE 3425	●	⊗	●	●	●	●	⊗

● Recommended ○ Reasonable ⊗ Not suitable Please refer to adhesive manufacturer specifications for guidance.

DEFORM-NUT®

IATF Approved.

THE INSERT SYSTEM FOR SANDWICH PANELS



Deform-Nut® is a patented threaded insert system that combines mechanical anchoring and structural adhesive to provide strong load-bearing threads in sandwich panel materials (with a honeycomb or composite internal structure).

Expensive or complex solutions such as resin potting or bonding of bushes and tie rods can be avoided.

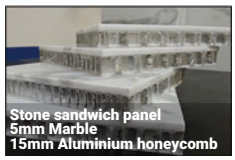
Furthermore, Deform-Nut allows you to use the same type of product in a wide range of sandwich panel materials and thicknesses, is easy and quick to install and doesn't require any further processes or finishing after installation.

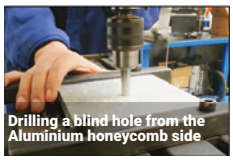
Deform-Nut can be used in any composite material panel, resins, carbon fibre, light alloy, and more.

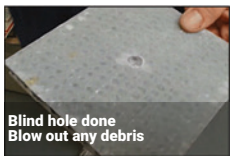
The 3 stage system comprises:

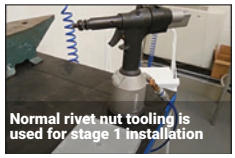
- A special rivet nut style fastener which is riveted in to the top skin of the panel using conventional rivet nut hand or air tooling
- Structural adhesive is then injected into base of the rivet nut
- A separate adjusting nut is then screwed into the rivet nut until it bottoms out on the bottom skin, displacing the adhesive into the surrounding structure to increase load strength

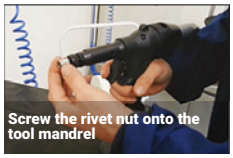
1. Drill the correct hole from one side of the panel (blind hole)
2. Insert the rivet nut in the hole
3. Using rivet nut setting tool, pull up the rivet nut to to attach it to the top skin of the sandwich panel
4. Inject structural adhesive
5. Insert and screw down the threaded adjusting insert until it reaches the bottom skin of the sandwich panel
6. Fastener is ready for use (time to full strength is dependant on structural adhesive properties)

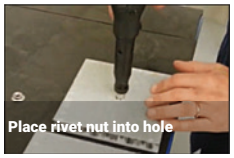

Stone sandwich panel
5mm Marble
15mm Aluminium honeycomb

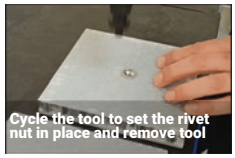

Drilling a blind hole from the Aluminium honeycomb side


Blind hole done
Blow out any debris


Normal rivet nut tooling is used for stage 1 installation

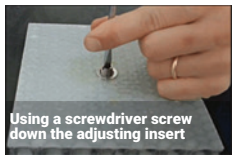

Screw the rivet nut onto the tool mandrel

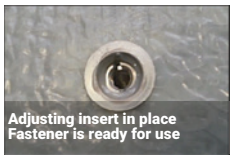

Place rivet nut into hole


Cycle the tool to set the rivet nut in place and remove tool

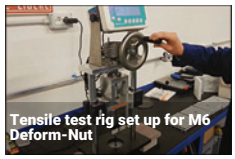

Inject structural adhesive two-part Plexus MA300 methacrylate for example


Wipe off any overspill


Using a screwdriver screw down the adjusting insert

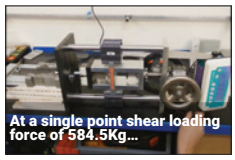

Adjusting insert in place
Fastener is ready for use


After adhesive has reached full strength we test the pull-out

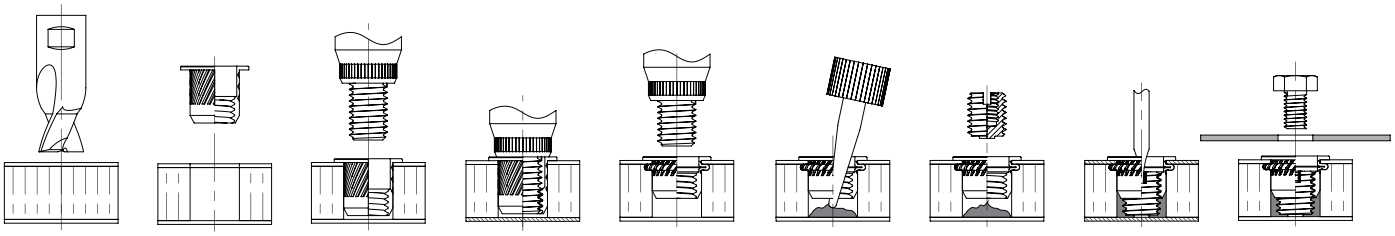

Tensile test rig set up for M6 Deform-Nut


Failure of the honeycomb occurred at 210Kg


Testing side load performance


At a single point shear loading force of 584.5Kg...


...the M6 Cap Screw failed



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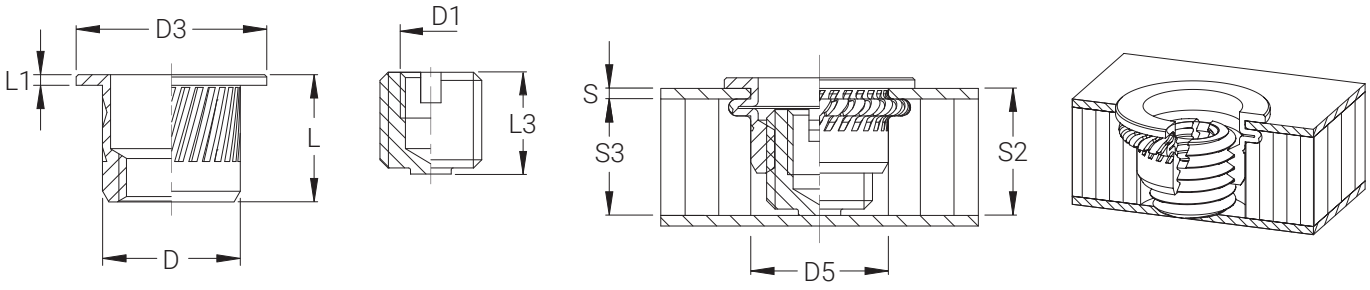


Dimensional

Part Code	D1 Thread	S Skin Thickness	S2*		L3	L	D	D3	L1	D5 +0.15 -0.00
			Min	Max						
TC/DM10XZI-M6/10X	M6	0.5 - 2.0	9.5	13.0	10.0	10.5	13.0	18.0	1.0	13.0
TC/DM10XZI-M6/12.5X			12.0	15.5	12.5					
TC/DM10XZI-M6/15X			14.5	18.0	15.0					
TC/DM10XZI-M6/17.5X			17.0	20.5	17.5					
TC/DM10XZI-M6/20X			19.5	23.0	20.0					
TC/DM10XZI-M6/22.5X			22.0	25.5	20.0					
TC/AM10XZI-M6/20X	M6	0.5 - 3.5	20.0	28.0	20.0	21.0	13.0	16.0	1.5	13.0
TC/AM10XZI-M6/22.5X			22.2	30.0	22.5					
TC/BM10XZI-M6/20X	M6	3.0 - 6.0	22.5	34.0	20.0	23.5	13.0	16.0	1.5	13.0
TC/BM10XZI-M6/22.5X			25.0	36.0	22.5					
TC/DM12XZI-M8/15X	M8	0.5 - 2.0	17.5	20.0	15.0	18.5	15.0	18.0	1.5	15.0
TC/DM12XZI-M8/20X			20.0	25.0	20.0					
TC/AM12XZI-M8/25X	M8	0.5 - 3.5	25.0	35.0	25.0	25.0	15.0	18.0	2.0	15.0
TC/BM12XZI-M8/25X	M8	3.0 - 6.5	28.0	40.0	25.0	28.0	15.0	18.0	2.0	15.0

Standard Special order

* S2 dimension variable depending on S dimension and adjusting insert set-up.

* Also available in a thin sheet and countersink version.

Material

Rivet Nut: 303 Stainless Steel
Adjusting Insert: 303 Stainless Steel

www.npfasteners.com/composites

KEEP-NUT® INSERTS

IATF Approved.

Keep-Nut® is a press-in threaded insert that utilises a mechanical anchoring feature, to provide permanent threads in panels made of marble, granite or other stones, as well as composites, carbon, Corian®, HPL, glass and others solid surface materials.

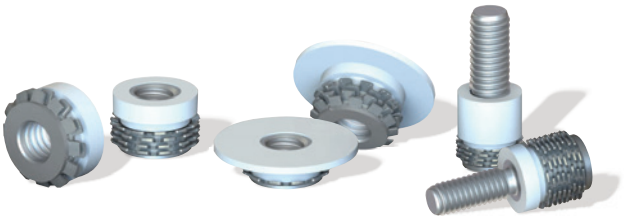
Keep-Nut is manufactured in stainless steel and consists of a threaded bush, a set of toothed spring washers (crowns), and a plastic ring holding the parts together. Available in different lengths, with or without flange, to fit several different panel thicknesses, Keep-Nut can be installed quickly since the user simply needs to drill the material with the correct hole diameter and press-in the insert. Keep-Nut can also be customised with different versions and sizes, to meet specific customer requirements.

The Keep-Nut insert is specifically developed to fasten ventilated façades, wall-coverings, décor and interiors, furniture, kitchen and sanitary elements, as well as a variety of other applications.

Keep-Nut inserts have several advantages compared to other fasteners for stone and solid materials. The preparation needed is just a cylindrical hole – an undercut hole is not required – which means that standard tools can be used. In addition, assembly by pressure is quick and easy and does not require use of any additional resins or adhesives. Keep-Nut inserts can be used for hidden assemblies without any protruding parts, facilitating the handling and installation of a variety of materials.

In use, the crowns are engaged by axial force, acting radially against the hole wall, effectively permanently locking the insert in place. In addition, the internal thread does not run completely through the bush, which prevents extraction as a result of the use of an excessively long screw.

Keep-Nut is a trademark of SPECIALINSERT S.r.l., Corian is a trademark of E. I. du Pont de Nemours and Company.

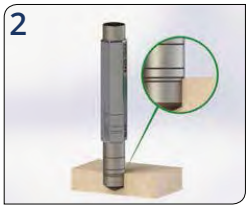


Comparison of results from tests carried out on a range of materials.

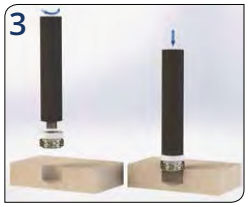
Material	Keep-Nut Type	Average pull-out load on a single insert (Kg)*
Granite 20mm	KN4 M6 H8.5	490
Marble 20mm	KN4 M6 H8.5	385
Travertine 20mm	KN4 M6 H8.5	225
Fibre cement (high density) 12mm	KN4 M6 H8.5	275
Fibre cement (high density) 10mm	KN4 M6 H8.5	239
Fibre cement (high density) 8mm	KN2 M6 H6	125
HPL 12mm	KN4 M6 H8.5	541
HPL 10mm	KN4 M6 H8.5	611
HPL 8mm	KN2 M6 H6	270
Corian 12mm	KN4 M6 H8.5	484
Corian 10mm	KN2 M6 H6	295
Agglomerate stone 15mm	KN4 M6 H8.5	305
Tempered glass 5mm	KN1 M4 H5	75

* Tests were carried out under laboratory conditions. Pull-out figures are indicative only and are offered for guidance purposes. It is recommended that you undertake your own tests in the actual application panel material.

Prepare hole in base material to correct specification.



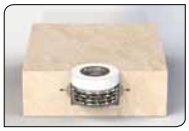
Verify hole diameter using Go/No-Go gauge. Check hole depth against reference line on Go side of gauge.

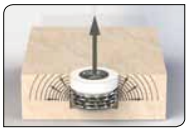


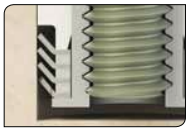
To ensure correct installation it is recommended that a threaded mandrel is used. Fully screw on the insert and drive into the hole.

Unscrew the mandrel and the insert is installed and ready for use.

Example assembly

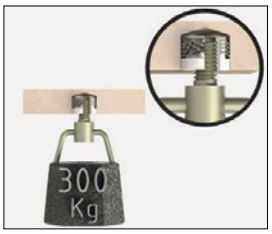






Advantages

- Simple hole preparation
- Quick installation
- No need for resins or adhesives
- Radial force is produced only while the insert is under tensile load. The crowns spread the load into the parent material, allowing large loads to be carried
- Thread stops before end of insert, avoiding extraction as a result of the use of an excessively long bolt



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KEEP-NUT
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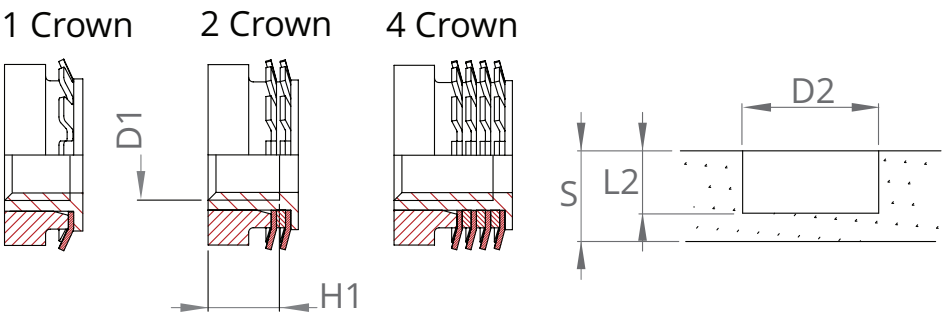
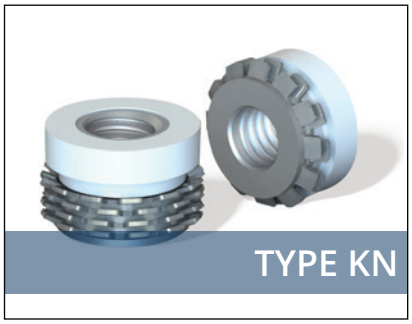




Dimensional

(Type) (Thread) (Height Code)	D1 Thread	S Min. Thickness**	H1 Thread Depth	D2 Hole Ø ±0.2	L2 Hole Depth +1.0	No. of Crowns	Installation Force (kN)*	Pull-Out Force (kN)*
KN1 M* H5	M4	8.0	4.5	12	5.5	1	0.2	0.9
	M5							
	M6							
KN2 M* H6	M4	8.5	5.5	12	6.5	2	0.4	2.5
	M5							
	M6							
KN4 M* H8.5	M4	11.0	7.5	12	9.0	4	1.0	3.5
	M5							
	M6							
KN4 M* H15	M6	17.5	14.0	12	15.5	4	1.0	4.2

*Figures are indicative only and are offered for guidance purposes. ** Minimum material thickness is related to parent material characteristics. It is recommended that you undertake your own tests in the actual application panel material.

Material & Finish

Bush: Stainless Steel
Crown: Stainless Steel
Body: Plastic

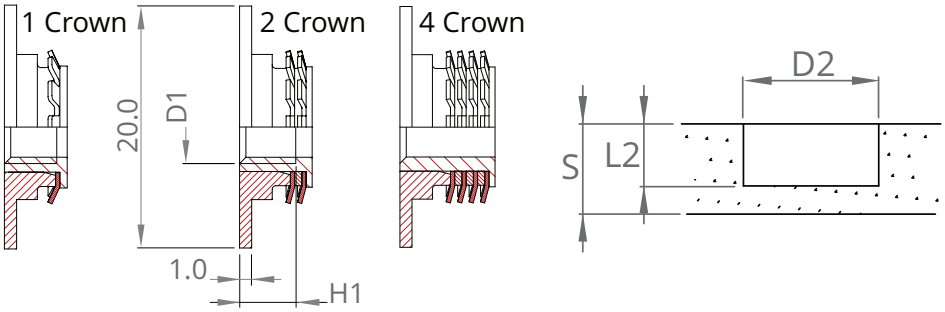
Part Number Examples

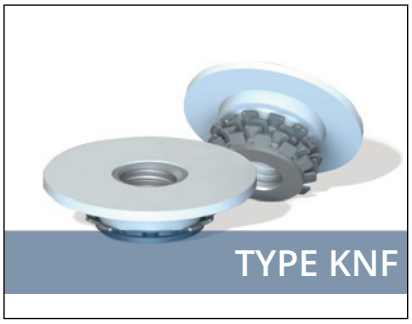
Part number is made up as follows:
(Type code)-(Thread code)-(Height code)

For example:

KN1 M5 H5 (Keep-Nut 1 crown M5 5mm overall height)

KN4 M6 H15 (Keep-Nut 4 crowns M6 15mm overall height)





Dimensional

(Type) (Thread) (Height Code)	D1 Thread	S Min. Thickness**	H1 Thread Depth	D2 Hole Ø ±0.2	L2 Hole Depth +1.0	No. of Crowns	Installation Force (kN)*	Pull-Out Force (kN)*
KNF1 M* H5	M4	7.0	4.5	12	4.5	1	0.2	0.5
	M5							
	M6							
KNF2 M* H6	M4	7.5	5.5	12	5.5	2	0.4	1.7
	M5							
	M6							
KNF4 M* H8.5	M4	10.0	7.5	12	8.0	4	1.0	2.9
	M5							
	M6							

*Figures are indicative only and are offered for guidance purposes. ** Minimum material thickness is related to parent material characteristics. It is recommended that you undertake your own tests in the actual application panel material.

Material & Finish

Bush: Stainless Steel
Crown: Stainless Steel
Body: Plastic

Part Number Examples

Part number is made up as follows:
(Type code)-(Thread code)-(Height code)

For example:

KNF1 M4 H5 (Keep-Nut Flanged 1 crown M4 5mm overall height)

KNF4 M6 H8.5 (Keep-Nut Flanged M6 4 crowns 8.5mm overall height)

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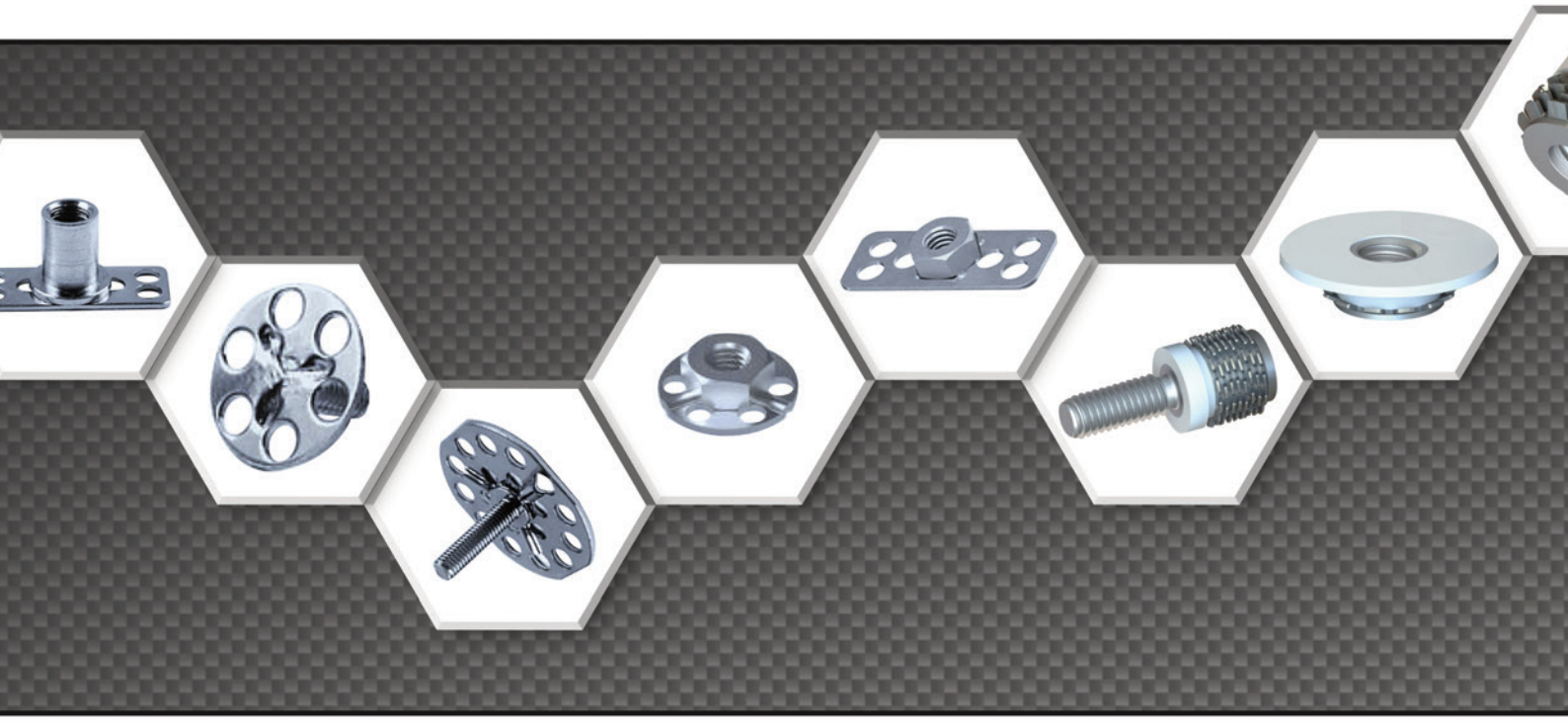

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