



Your partner for all refractory anchoring solutions



Refractory Anchor Catalogue

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All Anchors are clickable

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Introduction to SILICON

SILICON specializes in the production of **Refractory Anchors** for various industries, mainly **petrochemical, cement, chemical, furnace building and shipbuilding**. SILICON also produces computerized semi-automatic **rapid arc welding (RAW)** machines primarily for the installation of the above mentioned anchors in addition to general stud welding products used in various civil engineering applications.

All refractory anchors are produced in our own factory using modern machinery and production techniques. This, coupled with our large inventory of prime stainless steel, allows us to confidently offer short delivery times and high quality products.

You will find certain popular designs of **Refractory Anchors** documented in this brochure. Due to the large variety of fixings possible, we ask that you send us a sketch or a sample in case you need special or custom purpose models, so that we can make you a competitive offer according to your tailormade needs.

For the standard documented models please state the dimensions as they appear on the drawings. This will assist us during enquiries and prices can then be quoted promptly.

SILICON also manufactures **rapid arc welding machines** with the latest 'state of the art' computerized stepper motor technology. It introduces to the user a new dimension in repetitive high quality and problem free stud welding. High Carbon, Aluminium and Stainless steels are welded with similar ease as plain mild steel studs.

SILICON offers **Metallurgical Consultancy** and full **Product Design** to support the end user in cost effective decision making.

SILICON offers **Competitive Pricing** and, thanks to the important stock, **Fast (24hrs) Delivery all around the world**.

Wouter Garot B.Sc.
(Founder & President)



Key Benefits

Pioneer

Since the 1st of January 1982, SILICON created the nomenclature of the anchor coding, which is since then accepted as the standard common language in the anchor refractory business.

Total Quality Control

SILICON has mastered the whole chain of production: from raw material purchase to packing and subsequent delivery to your location.

Metallurgical consultancy

With our 42 years experience in this field, we are the expert to advise you on the choice of the proper alloy for your application (taking into account temperature, atmosphere, cyclic conditions, etc).

All Types of Refractory Anchors

We produce all the standards you can find on the market and design on customer request. Besides standard anchors, we are the most experienced anchor manufacturer out there, thanks to our complete understanding of the welding process. We manufacture fully computerized welding machines (rapid arc welding technology) and we are welders too. So, we master the entire process of production.

Material Traceability

We do our own PMI (Positive Material Identification) testing to determine the chemical composition of a metal or alloy. We are able to check all the stainless steel materials used in our manufacturing when arriving at the warehouse as raw material, and when being dispatched as end products. Indeed, you chose a specific alloy specification for its specific properties (regarding heat resistance, corrosion resistance, durability, etc). Be assured that you will get what you ordered.

We supply conformance certificates 3.1 which contain the chemical and mechanical composition of the material used to manufacture the anchors.

Engineering

With our in-house engineering department we have the ability to engineer new types of anchors, design our own special tooling and upgrade our machines.

Fast Delivery

We can deliver within 24 hours because of our:

- Geographical location: close to Rotterdam, Schiphol and Antwerp.
- Large stock of raw materials.
- Regular investments in new production techniques.
- Continuously growing productivity thanks to new automatic machines running overnight, and robots.

8 Languages

As a leader in refractory anchoring systems we can communicate to you in **Dutch, English, French, German, Turkish, Italian, Portuguese and Spanish.**

Rapid arc welding technology

Inventors of the safest, fastest and highest quality alternative stud welding technology.

Contracting Specialists

Services for onsite supervision or anchor installation with our RAW equipment. Our years of experience in the field can help you reduce costs.

Catalogue Introduction

Discover our new anchor catalogue!

Here you will find the most common refractory anchors and our new specially designed products. The anchors are categorized per refractory lining type: Brick Linings, Concrete Linings, Dual Linings and Fiber Linings. To complete your refractory needs SILICON can also supply Reinforcing Fibers.

Interested in how to increase productivity and cut down turnaround cost? Learn about our rapid arc welding technology and services in our RAW section.

For quick navigation through the sections use the tabs on the side of the catalogue.

Working in the **petrochemical, cement, incineration, steel or another applicable industry?** Have a look at our industry pages following the table of contents (pages 7-15).

For each anchor you will find a drawing, the product code, an application example, and other relevant information. Get new ideas from the bottom of every page with the links to similar anchors, items it can be combined with and items it is supplied with.

For any question or more information, please contact our sales department per email: **info@silicon.nu** or per phone: **+31 174 22 55 22**. Visit us online at **www.silicon.nu**.

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Note:

SILICON is continually updating its elaborate documentation and product range. SILICON reserves the right to alter the documented information without prior notice. As this development proceeds and the market needs change it is possible that after this issue certain product information and ordering code systems may have become obsolete or that new styles have been added to the large selection already available. Check your issue or apply for updated information.

What's new in the 2020 edition?

Find below the overview of the anchors we added up to our current collection:

- **V5** (Basic 'V' Anchors, Series C-02)
- **CV2M for CV2 Mini** (Corrugated 'V' Anchors, Series C-08)
- **CVxR** - With round bottom (Corrugated 'V' Anchors, Series C-08)
- **The Series C-15 YSM flat anchor** which we recommend as an alternative, instead of the SYM.
- **TWxOH** - TW welded on a stud (TW anchors for dual lining, series D-03), suitable for hand welding. It is of course also possible to make a stud, suitable for stud welding (TWxOS).
- **TWxON** - TW welded on a nut, to be used with a threaded stud (TW anchors for dual lining, series D-03)
- **TWxUN** - TW welded under a nut, to be used with a threaded stud (TW anchors for dual lining, series D-03)
- **Insultwist System** - flat anchor alternative (6x3mm) to the round **Fiberfix System** (diameter 5,25mm), also to be used with end-clips, montage clips, cuplocks and bearing ring (Series F-03)
- **FTH** (Threaded Studs, Series F-07)



What's new in the 2020 edition?

Did you know that SILICON can now deliver...

- **Bright Solution ANNEALED anchors:** goal is to relieve the stresses created in the metallic structure of the metal during the cold forming and welding processes.
- **Anchors with plastic caps of course, but also with WAX.** Indeed, the application is the same (helping against the cracking of the concrete when the steel is expanding), but the wax fits on ANY shape of anchor. If you wish both, no problem just specify it on your inquiry.
- **Anchors with LASERMARKING:** On request Silicon can also apply a marking on any anchor (to indicate the stainless steel quality for traceability and Quality Assurance).

For any question or more information, please contact our sales department by email: info@silicon.nu or by phone: +31 174 22 55 22. Visit us online at www.silicon.nu.



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SILICON Refractory Anchor Catalogue

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B-04 Tie Back Anchor System
B-05 Brick Support Consoles

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D-05 Slit Stud Anchors

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F-04 Press On Clip System	
F-05 Mechanical Anchoring System	

Reinforcing Fibers for Refractory Concrete

X-01 Reinforcing Fibers

Rapid arc welding (RAW)

RAW Technology
RAW Services & Contracting
RAW Equipment

Anchors for the Petrochemical Industry

SILICON is indeed well-known in the industry for its innovative spirit, not only in product development, but also in a much broader way. For instance, we are constantly looking for improvements in our production methods to reduce delivery times.



Fast installation!



CV1 & CBS
with the
rapid arc welding
technology



Hex Metal Alternatives



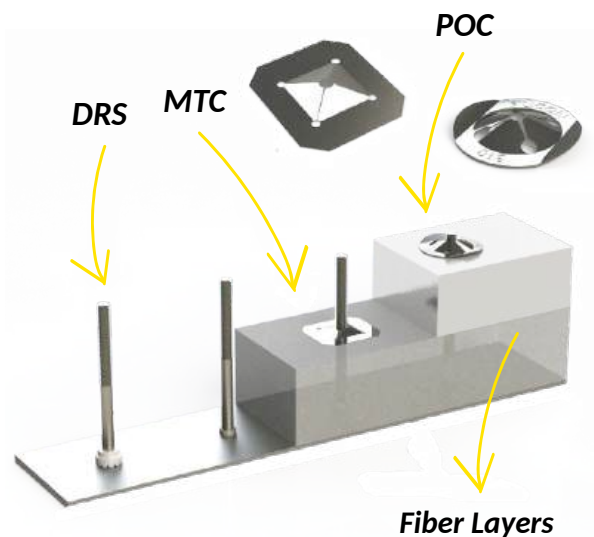
SpeedCell®

Try our SpeedCell® System! A single Cell with a welded nut screwed onto a rapid arc weldable shoulder stud.

Series C-11



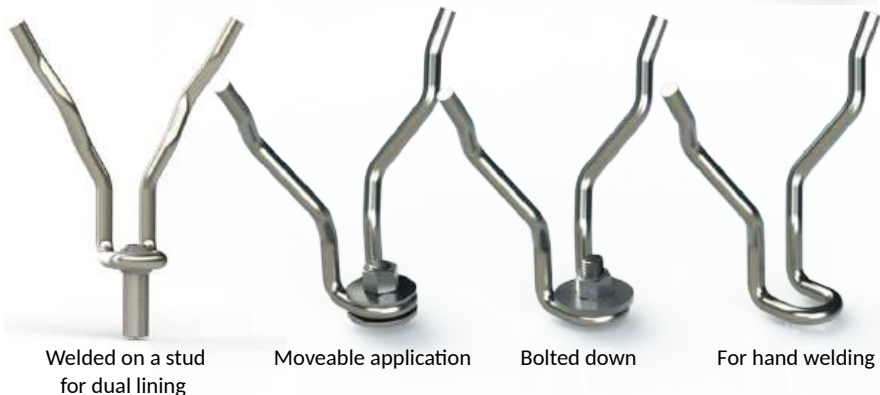
DRS, MTC, POC Press On Clip Series F-03



For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation. Secure your fiber insulation with a POC end clip, or with a Cuplock depending on the temperature.

Washers Series F-08

Mesh Support (G-anchor) Miscellaneous Series C-16



Multipurpose TW's 'TW' Anchors Series C-09

Anchors for the Cement Industry

Continual demands made on the cement industry for greater productivity and lower maintenance costs have pushed the industry to the limits of the conventional technologies existing on the market today. SILICON has recognized many of these issues and:

- offers solutions beyond 'what was thought possible'.
- has pushed the limits of Refractory Anchoring Technology with its design and alloy choices to overcome the most aggressive corrosion and strength conditions.
- offers advanced technological support to ensure our customers a cost effective future.
- offers solutions that drastically reduce turnaround time thanks to our rapid arc welding technology. This allows for production to be re-started with minimum disturbance.
- offers a solution for welding difficult to reach places. SILICON rapid arc welding technology can handle sidehand welding, overhead welding and ergonomically difficult to reach places with minimum effort.

Our latest innovation in the cement industry concerns a floating anchor. Of course, several of those systems are well-known. SILICON, in its search for reducing turn-around time, found the ultimate solution. Its name: SpeedBolt® (series C-10). It is a combination of incredibly fast installation of both the anchor itself and the floating system. SILICON developed an Eye-Bolt which can be rapid arc welded (therefore the very fast and reliable installation) together with a clip to hold the anchor to the SpeedBolt.

BW-Set

The BW-Set can be combined with anchors from the TW series or Twin Pin series. After installation the plastic spacer will melt during operation above 250°C, giving the anchor room to 'move'.

Moveable Anchors Series C-10





Heavy Bullhorns

Series C-04

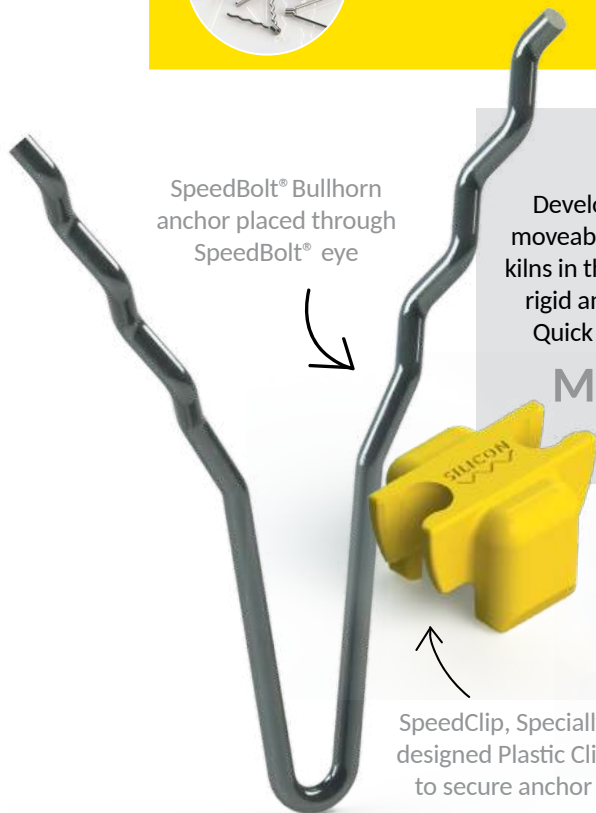


Anchors for Concrete Linings

From the Basic 'V' Anchors to the specially designed SpeedBolt® and from the Twin Pins to the 'V' On Nuts, you can find the anchors you need in these two tabs.



Anchors for Dual Linings



SpeedBolt® Bullhorn anchor placed through SpeedBolt® eye

SpeedBolt®

Developed to facilitate the installation of moveable and floating anchors for the rotary kilns in the cement industry and others where rigid anchoring systems are to be avoided. Quick installation with rapid arc welding.

Moveable Anchors Series C-10

SpeedClip, Specially designed Plastic Clip to secure anchor



SILICON SpeedBolt® welded onto casing using SILICON rapid arc welding

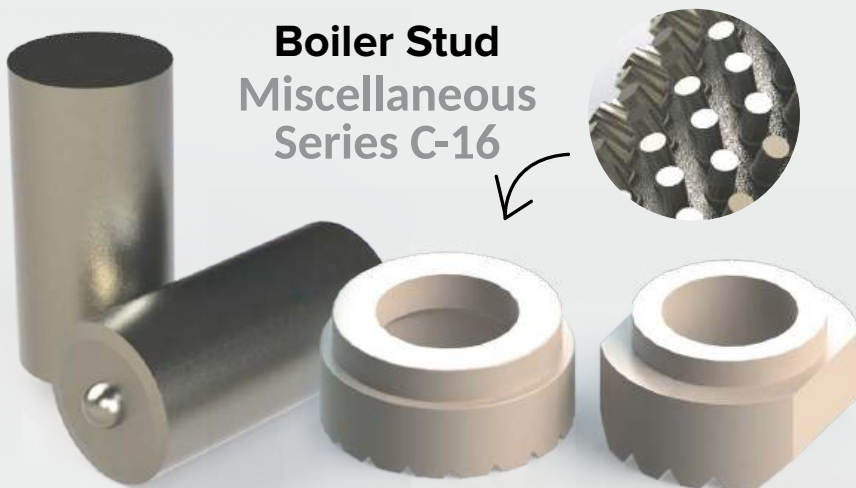
Anchors for the Incineration Industry

Any type of welding stud (threaded, specialized and custom weld studs) and our unique rapid arc welding Technology are 2 assets SILICON rapid arc welding can offer you.

The SILICON Rapid Stud Fastening System commonly known as rapid arc welding technology (RAW), has the capability to weld stud systems up to Ø 36 mm.

In an environment where reliability is so highly demanded, our customers need a partner who can provide a service they will be satisfied with. SILICON rapid arc welding equipment has a 0,1% rejection-rate.

- Operator friendliness;
- No need to apply pressure to the gun during welding;
- Digital input;
- Program selection at the welding gun;
- LED Indicators on the welding gun;
- Real time current controlling;
- Automatic cable length compensation;
- No maintenance on welding gun;
- and **many more** operator friendly features;
- Remote Data Collection Analysis.





VC

For handwelding.
Its corrugated legs extend over the pipe, thereby increasing the holding power.

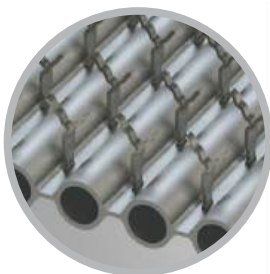
Basic 'V' Anchors Series C-02



CVC

Its corrugated legs extend over the pipe, thereby increasing the holding power. The CVC can be supplied with different types of ferrules for various (pipe) applications.

Corrugated 'V' Anchors Series C-08



YSMR

The YSMR is specially designed to rapid arc weld onto boiler pipe walls

Slotted 'Y' Anchors Series C-15



Rapid arc welding technology (RAW)

Do you want to learn more about rapid arc welding? SILICON can provide machines, equipment, guns, knowledge, supervisors, a welding team and everything else you might need.

Anchors for the Steel Industry

SILICON's expertise:

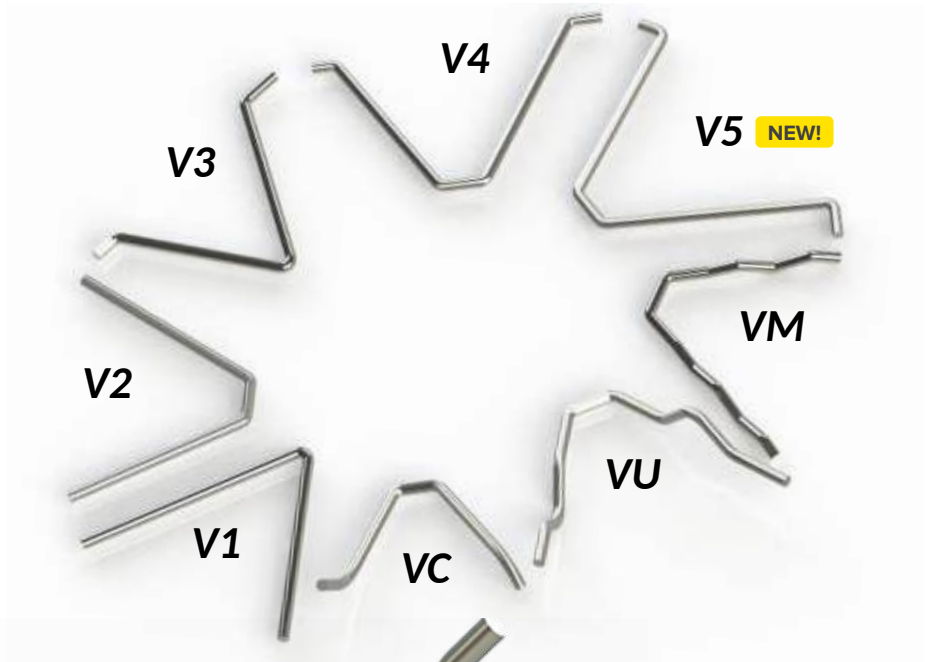
- 42 years of experience in the stainless steel industry.
- 37 years of experience in the development and manufacturing of refractory anchoring systems.
- 29 years of experience in the research, development and production of stud welding equipment.

SILICON is well recognized in the construction industry for providing very high quality products. We offer a full range of stud welding fasteners. Our engineering department is constantly researching new product applications to solve our clients' issues. Please contact us by email via info@silicon.nu or by phone +31 174225522, we will help you further.



Basic 'V' Anchors

Series C-02



CBH

Corrugated hand weldable Bullhorn for light and medium density refractories.

Corrugated Bullhorns Series C-03



Which Composition?

Environment

Heat resisting alloys are almost always exposed to environments that tend to change their original characteristics. If the environment is oxidising, the alloy's cross-section may be reduced by scaling, progressively reducing its load carrying capacity. Inter granular oxidation, not visually apparent, may occur and may weaken or embrittle the alloy.

If the environment is **carburising or nitriding** (or both) carbon and nitrogen are absorbed, and in effect a duplex alloy is created, having different chemical composition and physical properties on the exterior then on the interior. Thermal fatigue and embrittlement may be promoted.

Carburisation may occur alternately with **oxidation**, and carbon absorption reduces the original oxidation resistance of the alloy. If the environment is a liquid bath, such as molten salt or metal, the alloy may be subjected to corrosion by the vapours.

If the environment contains **sulphur**, it may be necessary to restrict the nickel content of the alloy, even at the sacrifice of some properties that might be desired. Generally speaking, the nickel content of an alloy subjected to such circumstances should be lower than 14% in combination with a chromium content of at least 20%.

If the environment involves alternately **oxidising and reducing atmospheres** "Green Rot" may occur in high nickel alloys. Generally, alloys having a nickel content higher than 45% may be susceptible to this phenomenon which is caused by the reduction of superficial NiO leaving free Ni in the space created during the formation of the oxide. As the Chromium oxides are almost irreducible, a porous lattice of chromium oxides will ultimately result giving the green powder-like appearance.

In addition, some heat resistant alloys are susceptible to a change in physical properties, due to the formation of sigma or precipitated carbides, when subjected to lengthy exposure at certain temperatures. Depending upon the operating conditions, such changes may or may not be harmful, but it might be necessary to select a more stable alloy. Mechanical deformation and the stresses imposed during service all have the tendency to accelerate the development of different phases and other embrittling phenomena.

Finally, the rates of oxidation, carburisation, or other types of corrosion are materially affected by the temperatures encountered and by the stress imposed.

Cast or Wrought?

The selection of an alloy for a specific heat resisting application mainly involves two basic considerations:

1. Should it be wrought or in cast form?
2. What composition should be used?

Advantages of Cast:

- **Unit cost** - Since the casting is essentially a finished product as-cast, its cost per kilo may be less than a fabricated item.
- **Strength** - Similar compositions are inherently stronger at elevated temperature in cast form than in wrought. This is attributable to the very coarse grained as-cast structure and the fact that most equivalent cast composition are modified with higher carbon and silicon contents to improve castability and strength.
- **Shapes** - Certain shapes can be produced as a casting that are not made as a mill form, or that cannot be fabricated economically from the wrought forms available.
- **Compositions** - Some compositions are available in castings that lack sufficient ductility to be worked into wrought forms.

Advantages of Wrought:

- **Section size** - There is practically no limit to the section sizes which are available in wrought form. Thinner sections often permit a weight reduction of 50% or more, making the cost of fabrication no more than, and perhaps less than, casting. Decreased weight often results in a substantial reduction in operating costs in many cases.
- **Thermal Fatigue** - Thinner sections that reduce thermal stresses, and the inherently greater ductility of wrought materials, usually promote better resistance to thermal fatigue, especially under severe cyclic conditions.
- **Soundness** - Wrought materials are normally free of internal and external defects, such as shrinks and porosity, although modern casting techniques have been able to minimise these problems drastically.
- **Surface finish** - The smooth surface of wrought materials is often very beneficial in avoiding focal points of concentrated or accelerated corrosion or carbon attack.
- **Availability** - Wrought alloys are generally available from stock in numerous forms, permitting immediate procurement and minimising the need for excessive inventory of maintenance supplies.
- **Tooling** - In general no pattern costs are required.

Guidelines for Choosing Alloys

1. Environment

Select a group of alloys that offer adequate stability and resistance to the environment, at the maximum temperature anticipated.

Never select an alloy using temperature as the only guide!

Rule of Thumb for alloys with **resistance to oxidation**:

- Minimum Chromium content 20%
- Addition of Silicon and rare earth elements

Rule of Thumb for alloys with **resistance to sulphidation**:

- Minimum Chromium content 20%
- Maximum Nickel content 14%

2. Cyclic conditions

For cyclic conditions select a group of alloys having low coefficients of expansion and good oxide adherence. Many heat resistant alloys have relatively high coefficients of expansion. Repeated expansion and contraction increases oxidation due to flaking of the normally protective oxide coating, and shortens the fatigue life because of thermal stresses created.

Rule of Thumb for alloys with **resistance to spalling and severe thermal cycling**:

- Fine Grained Structure
- Minimum Chromium content 18%
- Minimum Nickel content 30%

3. Strength

Select those alloys offering the required strength and ductility at the maximum temperature to be encountered.

Various heat resistant alloys offer different characteristics of strength and ductility at high temperatures. The strength and ductility required will depend upon the amount of creep or deformation under load that may be tolerated, the life expectancy desired, and the loss in physical properties that may be anticipated due to changes created by the environment. Also alloys that creep freely will flake off the protective oxide and become susceptible to further oxidation.

Rule of Thumb for **high strength** alloys:

- Minimum Nickel content 30%
- Course Grained Structure or alloy with C, Nb, W, Co, Mo
- Small additions of rare earth elements.



2. Melting Point

Select a group of alloys that will not melt at the maximum expected temperature and make allowances for possible changes in chemical composition resulting from the environment.

Heat resistant alloys have a difference in melting temperatures of 150°C or more. Published melting points are the liquid temperatures, and incipient grain boundary melting may occur at 40-80°C less. Absorbed contaminants may decrease the solidus temperature by 75-125°C.

Rule of Thumb for **high melting points alloys**:

- Maximum Nickel content 40%
- Minimum Chromium content 25%
- Maximum Carbon content 0,06%
- Minimise alloying with strengthening elements

5. Test

Given data should not be considered as guaranteed maximums or minimums. Material must be tested under actual service conditions to determine the suitability for a particular application.

Decision

From the group of alloys that has been selected so far, the final choice of one or two can be made on the basis of cost, availability, the ease of fabrication, and the anticipated service life.

It may be desirable to use a more costly alloy, if its increased strength permits a reduction in cross section to minimise thermal stresses, or if its resistance to the environment is greater so that less metal needs to be provided for loss due to corrosion.

In comparing final costs, labour of fabrication should be included and not only the metal cost. The more costly, alloys seldom require more labour than the lower priced materials. An increase of 100% in raw material may result in an increase of only 60% in the fabricated item.

Technical data illustrating the properties of heat resisting alloys are very helpful guides in selecting a suitable alloy for a given application. However, the behaviour of alloys during long exposure to the many environments and temperatures that may be encountered cannot be completely documented nor charted. Experience obtained from actual installations is most helpful.

Commonly Used Heat Resisting Alloys



AISI 304 (DIN 1.4301)

This is the most common of the stainless steel types. A general purpose alloy suited for a variety of corrosion resistant applications. It has good temperature resistance up to 750°C after which its oxidation and scaling resistance is drastically reduced. It suffers from several different hardening/embrittlement phenomena including sigma phase and heavy carbide precipitation in the grain boundaries, when exposed for a long period of time at temperatures around 650°C.

It is suggested that this alloy be used for continuous or low thermal cycling applications up to 800°C.

DIN 1.4828 and AISI 309S (DIN 1.4833)

Alloys DIN 1.4828 (close to AISI 308) and AISI 309S (DIN 1.4833) are often used interchangeably, but these are in fact 2 different alloys with similar characteristics. AISI 309S has a slightly higher chromium and nickel content than DIN 1.4828, while DIN 1.4828 contains more silicon, making it more susceptible to sigma formation.

Both DIN 1.4828 and AISI 309S are very good general purpose high temperature alloys that may well be suited to withstand temperatures up to 1000° C in dry air. The alloys have very reasonable strength and are often underestimated in their true potential. The disadvantage of these alloys is that the oxide scale grows weak with increasing temperature and becomes critical at 1050°C. It will not be suited in areas of high gas velocity (e.g. erosion) or where thermal cycling from 1000°C is regular occurrence.

The low nickel content makes these alloy well suited for applications where SO₂ and SO₃ are present. Unlike 253MA® 1.4828 and 309S have better resistance to H₂S and reducing gases to a minimal limit only.

After long periods of time, these sigma prone alloys may break when exposed to regular thermal cycling. It is suggested that these alloys be used for continuous high temperature applications.

Alloy 310S (DIN 1.4845)

A very popular alloy type in this industry having good strength and oxidation resistance. Very much like alloy 309 having generally a slightly better performance. Although prone to SIGMA formation it is reasonably resistant to thermal cycling breakages and oxide palling compared to 209. In high gas velocities the oxide may tend to spall off. The oxide scale grows weaker with increasing temperature becoming critical at 1000 degrees C.

Alloy 253 MA® (DIN 1.4835)

Alloy 253 MA was developed as an alternative to AISI 310S and is based on AISI 308 with small additions of rare earth elements which have given this alloy excellent oxidation resistance for temperatures up to 1100°C. Due to the low nickel content it has good resistance to sulphidation in oxidising atmospheres. Reducing (e.g. H₂S) or oxygen depleted atmospheres will corrode this alloy severely by rapid removal of the oxide scale. It has very good strength at high temperatures due to the solid solution particles formed by the rare earth element additions. It is more susceptible to sigma formation than AISI 310S and it would not be suggested for use in severe thermal cycling applications as anchors may break after having been in service for long periods of time. It is ideally suited for continuous high temperature applications above 850°C demanding slightly better performance than alloys 310S or 309S.

Alloy 330 (DIN 1.4886)

This is a good high temperature alloy able to withstand temperatures up to 1150°C in oxidising atmospheres. It has good oxide adhesion, resistance to spalling and is totally immune to sigma formation. It is very suitable for metal annealing furnaces where thermal cycling may be encountered. It has good strength and thermal shock resistance. This alloy is not suitable for applications where sulphur is present due to the alloy's high nickel content. It is well suited in oxygen depleted atmospheres. This alloy has good carbon and nitrogen absorption resistance and offers a good alternative to alloy 601, especially for heavy refractory anchors.

Alloy 601 (DIN 2.4851)

An excellent high temperature alloy suited for applications above 1100°C. It may be used up to 1200°C. This alloy has proved to have superior strength right up to its melting point (close to 1350°C). It is immune to sigma formation and good for thermal cycling and thermal shock applications. It has excellent oxide scale adhesion to the base metal due to the addition of aluminium.

It is not suited in gasses containing traces of sulphur or vanadium oxides due to the high nickel content of the alloy.

It has superior strength compared to other alloys and should be used when applying heavier refractory above 1150 °C.

**Chemical Composition of the
Most Common Heat Resisting Alloys
for Refractory and Furnace, Internal,
Applications.**



Alloy	C	Cr	Ni	Si	Mn	Other
AISI 304 (DIN 1.4301)	0.08	18	8	1	2	
AISI 316 (DIN 1.4401)	0.03	16	10	0.5	1.5	Mo 2
AISI 321 (DIN 1.4541)	0.04	17	9	0.5	1	Ti 0.3
DIN 1.4828	0.04	20	12	2	1	
AISI 309S (DIN 1.4833)	0.06	23	13	1	2	
AISI 310S (DIN 1.4845)	0.05	25	20	0.5	1	
Alloy 253 MA® (DIN 1.4835)	0.09	21	11	1.6	0.5	Ce 0.04
Alloy 330 (DIN 1.4886)	0.06	19	35	1.5	1.5	
Alloy 601 (DIN 2.4851)	0.06	23	60	0.3	0.7	Al 1.4
Alloy 800 (DIN 1.4876)	0.07	20	30	0.4	0.6	Al 0.4, Ti 0.4
HR-160	0.05	28	37	2.75	0.5	Ti 0.5
602 CA (DIN 2.4633)	0.15	24	balance	0.5	0.5	Al 1.8
625 (DIN 2.4856)	0.1	20	58	0.5	0.5	Ti 0.4

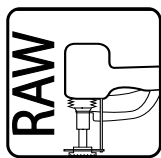
Trace elements such as sulphur and phosphorus are unwanted elements that are difficult to completely remove from an alloy and are usually still present with 0.01-0.045%. These are not mentioned in the chemical composition table. Many of the alloys are also available as castings, whereby it is usually customary to have higher contents of carbon, silicon and niobium for increased strength and creep rupture properties.

The Quality of Stainless Steel Alloys in Your Refractory Anchors

Manufacturing refractory anchors is not just being able to hammer out a product made with a certain composition. It should be taken into consideration what the intended use of that product is. SILICON is one of the few companies able to support and inform customers regarding the metallurgical preparations for each application.

It is crucial to know what type of material needs to be used and how this raw material needs to be fabricated. 310 is NOT always 310. It is not that simple; a lot of other parameters inherent to the core properties of the metal have to be taken into account in order to have a refractory anchor of the highest quality! Chemical composition alone is not enough for alloy selection . Mechanical properties are another important feature.

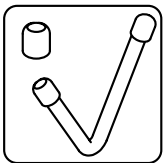
To ensure your refractory anchors are of good quality request a material certificate. SILICON material certificates conform to the ISO standard EN10204-3.1 and lists the type of anchor, chemical properties of the base alloy plus main mechanical properties of the base alloy resulting from stress-strain tests (pull strength, elasticity, etc.).



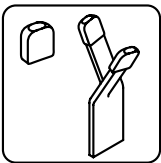
Anchors Suitable for rapid arc welding



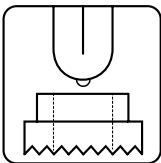
Anchor Can Be Placed on a Nut



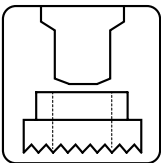
Caps for Round Anchors



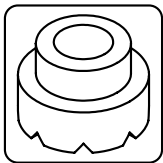
Caps for Flat Anchors



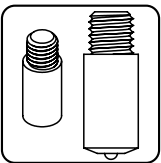
Ceramic Ferrule for Double Pin Anchors



Ceramic Ferrule for Flat Anchors



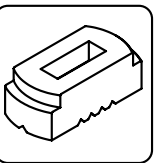
Ceramic Ferrule for Stud Anchors



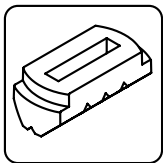
Shoulder Stud



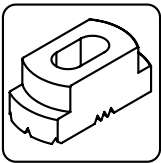
Ceramic Ferrule Chamfered for Round Anchors



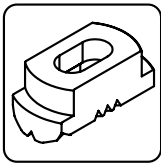
Ceramic Ferrule Rectangular for Flat Anchors



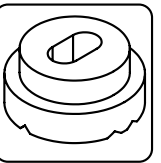
Ceramic Ferrule Chamfered for Flat Anchors



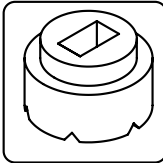
Ceramic Ferrule Rectangular for Double Pin Anchors



Ceramic Ferrule Chamfered for Double Pin Anchors



Ceramic Ferrule Round for Double Pin Anchors



Ceramic Ferrule Rectangular for Insultwist System

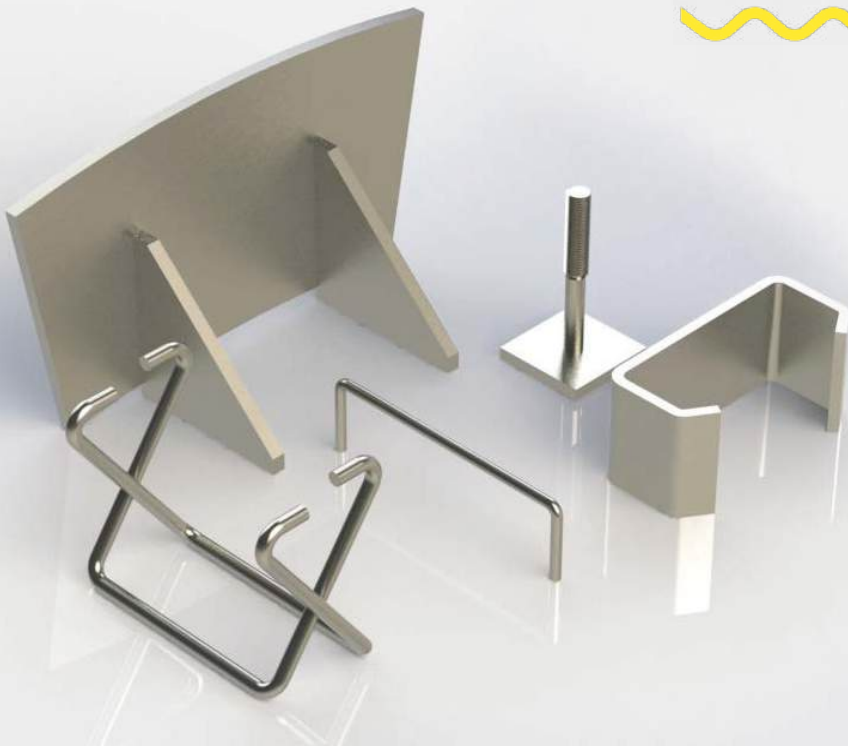
Notes

SILICON

[illegible]

Notes

SILICON



Anchors for **Refractory Brick Linings**

From claws to consoles, we design and produce numerous types of anchors for brick linings. Our vast range of own tooling, machines and equipment makes us a multipurpose manufacturer for all your metal needs.

Brick linings come in many shapes and forms and we are fully capable of manufacturing custom made anchors and brick supports for any application in many different alloys.

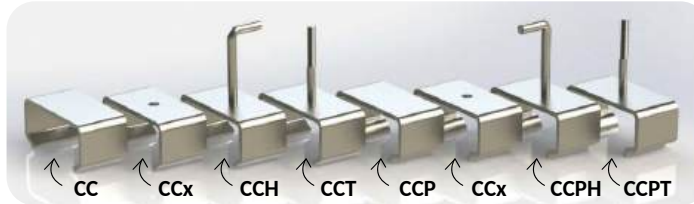
B-01
Brick Staple System



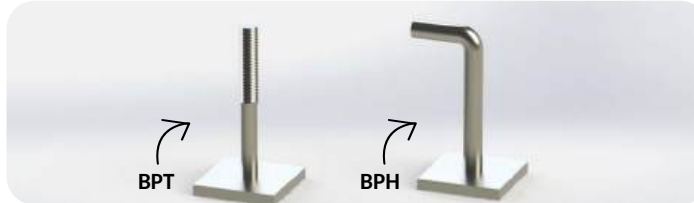
B-02
Scissor Clips



B-03
Brick Claws



B-04
Tie Back Anchor System



B-05
Brick Support Consoles



Brick Staple System

Series B-01



Our staple anchors offer great retention of insulating bricks. For denser bricks heavier staples are also well suited.

BSTP1 and BSTP3 have sharp ends to install into a brick using a hammer to secure the anchor.

BSTP2 is for use with a brick that already contains holes to secure the anchor.



Brick Staple System

Series B-01

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S,
314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

Length

L/W/S: 2,5 mm

Diameter

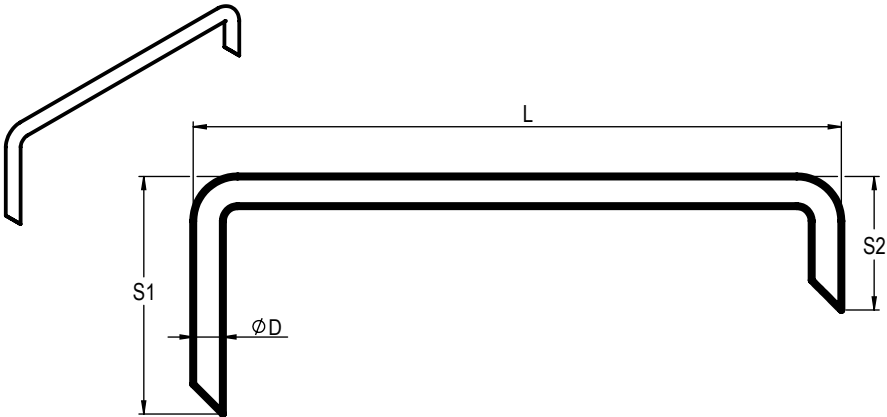
D: H9



**Large stock means
fast delivery!**

Wires, bars, strips, plates,
etc. in **all diameters and
thicknesses**, in lots of
different heat resistant alloys
of premium quality.

BSTP1 BSTP2 BSTP3



Order Code Brick Staple 1
BSTP1.D-S1/L/S2-alloy

Example Code:
BSTP1.6-30/130/50-330

Standard Measurements (mm)

BSTP1		
	min	max
D:	3	8
Please contact us for other dimensions		

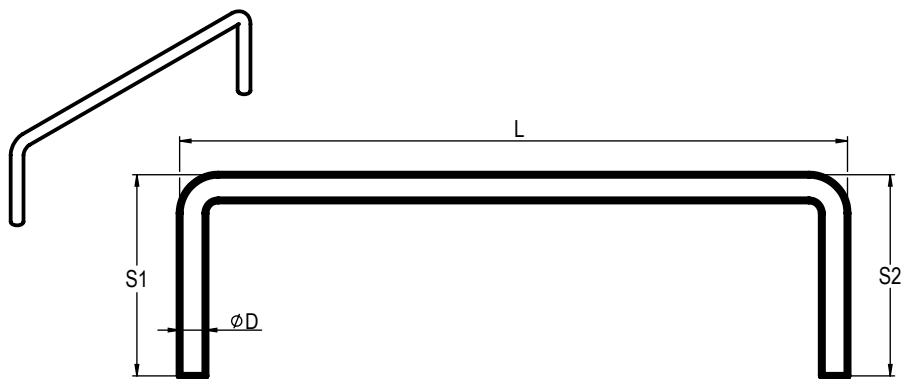
Application Example



BSTP1

BSTP2

BSTP3



Order Code Brick Staple 2
BSTP2.D-S1/L/S2-alloy

Example Code:
BSTP2.6-50/160/50-330

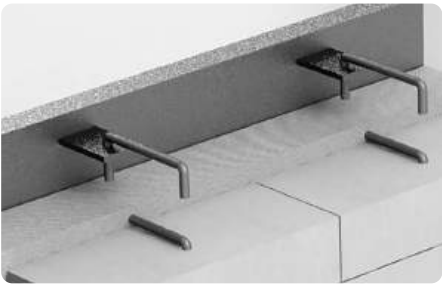
Standard Measurements (mm)

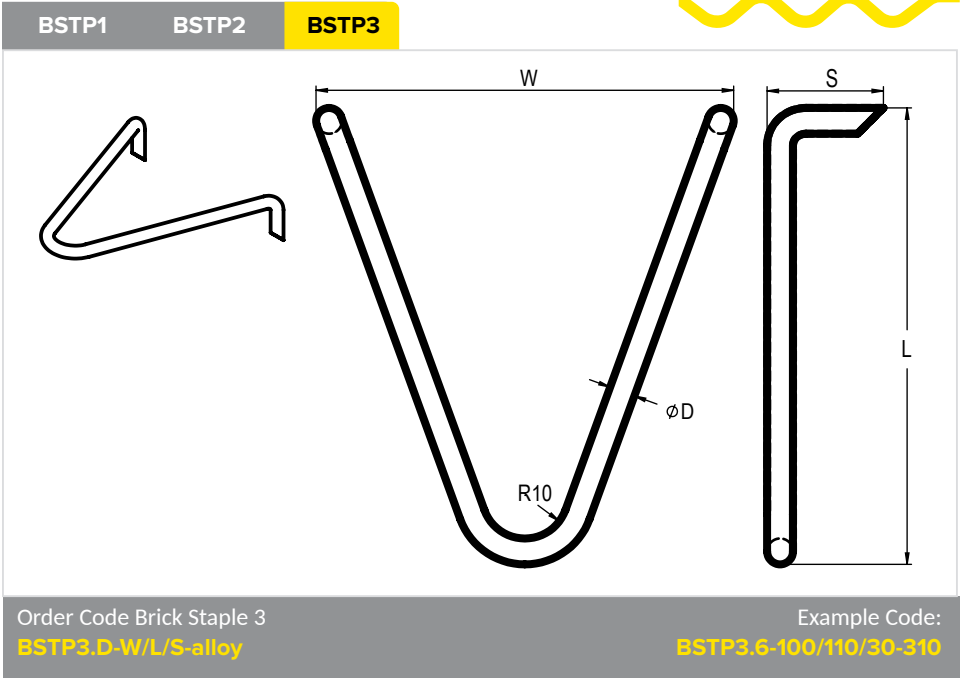
BSPT2

	min	max
D:	3	12

Please contact us for other dimensions

Application Example

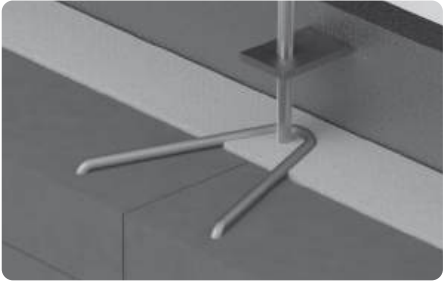




Standard Measurements (mm)

BSTP3		
	min	max
D:	3	8
Please contact us for other dimensions		

Application Example



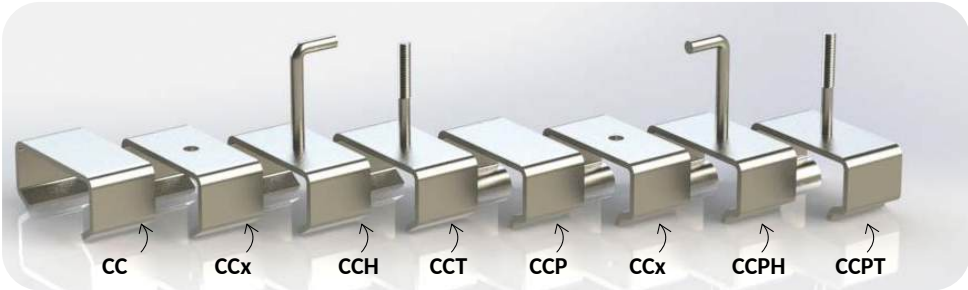
Scissor Clips

Series B-02

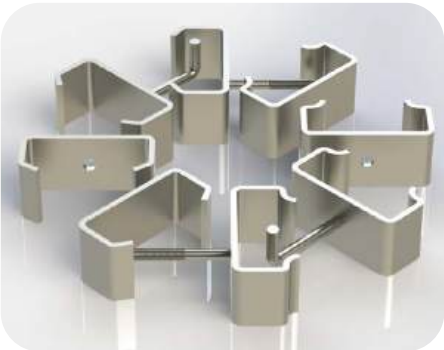


Brick Claws

Series B-03



The Scissor Clips and Brick Claws are anchors to hold refractory bricks. The different kinds can be used for different holding positions; on the wall or hanging from the ceiling.



Scissor Clips

Series B-02

Available Alloys	Tolerances ±	
Wire:	Length	L/W/S: 3,0 mm
CS, 304, 304H, 309, 253MA, 310S,	Diameter	D: H9
314, 316, 321, 330, 800, 601	Angle	α: 5°
Please contact us for other alloys		

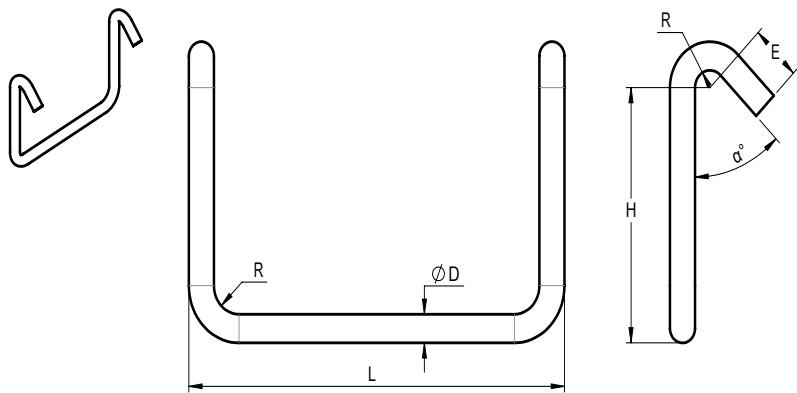
Brick Claws

Series B-03

Available Alloys	Tolerances ±	
Plate:	Length	L: 2,0 mm
CS, 304, 309, 253MA, 310S, 314,	Width	B: 1,0 mm
321, 330, 800, 601	Gap	W: 1,0 mm
Please contact us for other alloys	Thickness	T: 0,5 mm
	Angle	α: 5°



Scissor Clip



Order Code Scissor Clip
SC.D-E.R(α)-H/L-alloy

Example Code:
SC.8-15.6(55)-130/140-330

Standard Measurements (mm)

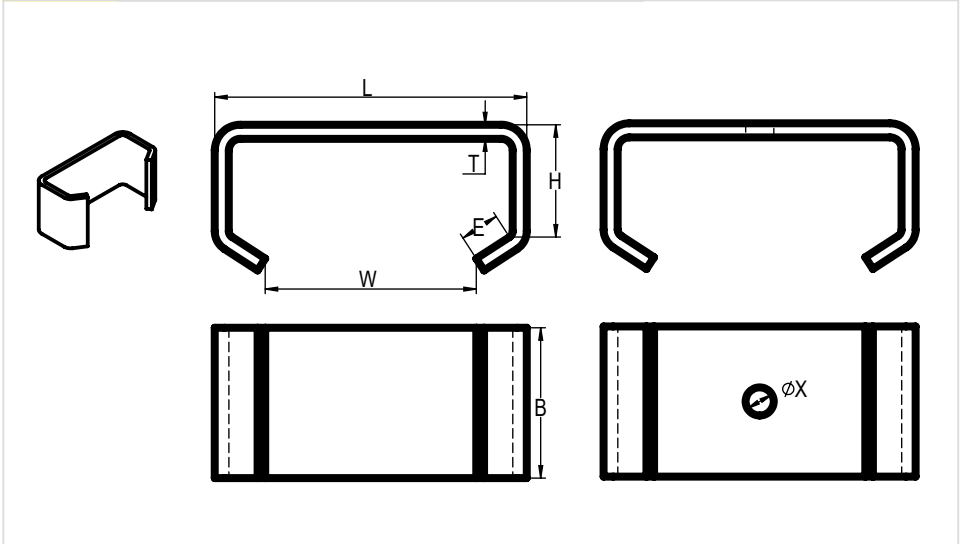
SC		
	min	max
D:	5	12
Please contact us for other dimensions		

Application Example



Also Available:

C-clips, B-03



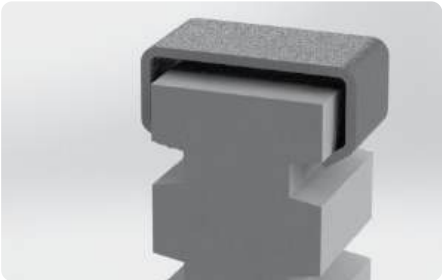
Order Code C-Clip
CC.B/T-L/H(E)-W-alloy
For C-clip with hole use x in this code:
CC.B/T-L/H(E)-W-alloy x

Example Code:
CC.64/6-135/50(17)-90-330
CC.64/6-135/50(17)-90-330 9

Standard Measurements (mm)

CC		
	min	max
T:	3	10
Please contact us for other dimensions		

Application Example



Also Available:

Scissor Clip, B-02

CC

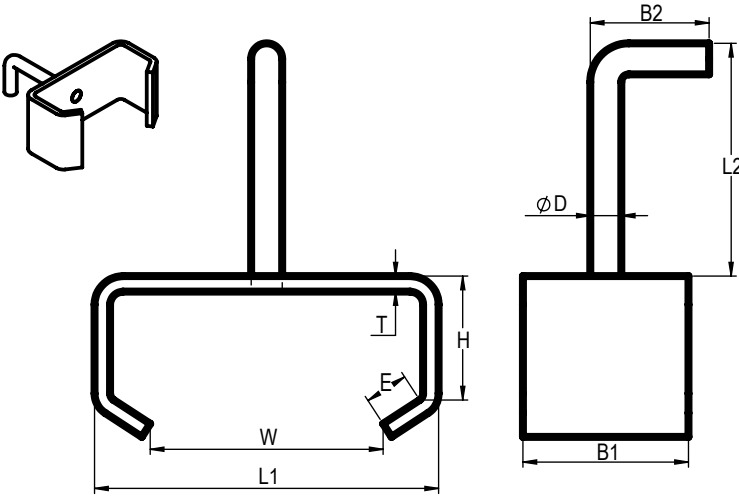
CCH

CCT

CCP

CCPH

>



Order code C-Clip Hand Weldable
CCH.B/T-L/H(E)-W-alloy-D-L(B)-alloy

Example Code:
CCH.64/6-135/50(17)-090-330-03-145(010)-310

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

Application Example



Also Available:

Scissor Clip, B-02



CC

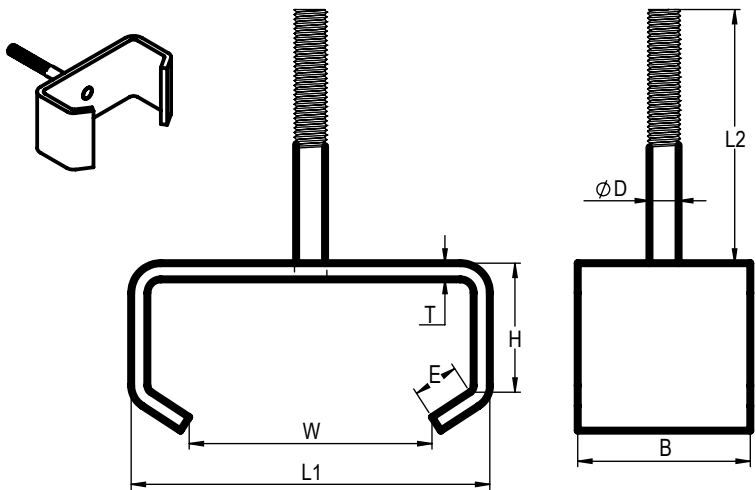
CCH

CCT

CCP

CCPH

>



Order code C-Clip with Threaded Pin
CCT.B/T-L/H(E)-W-alloy-M-L-alloy

Example Code:
CCT.64/6-135/50(17)-090-330-06-225-310

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

Application Example



Also Available:

Scissor Clip, B-02

<

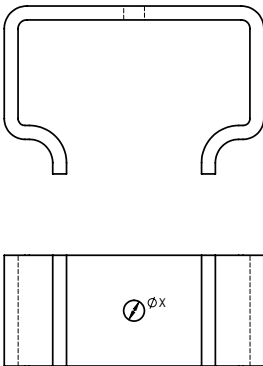
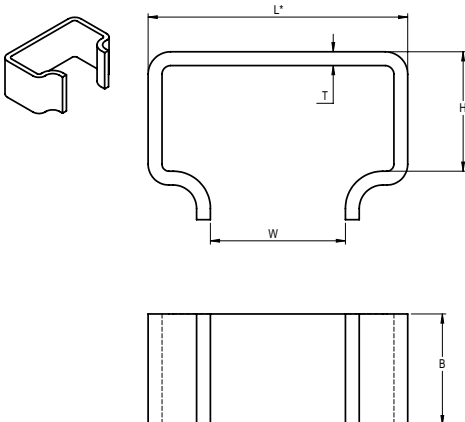
CCH

CCT

CCP

CCPH

CCPT



Order Code C-Clip

CCP.B/T-L/H(E)-W-alloy

For C-clip with hole use x in this code

CCP.B/T-L/H(E)-W-alloy x

Example

CCP.64/6-135/50(17)-90-330

CCP.64/6-135/50(17)-90-330 9

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

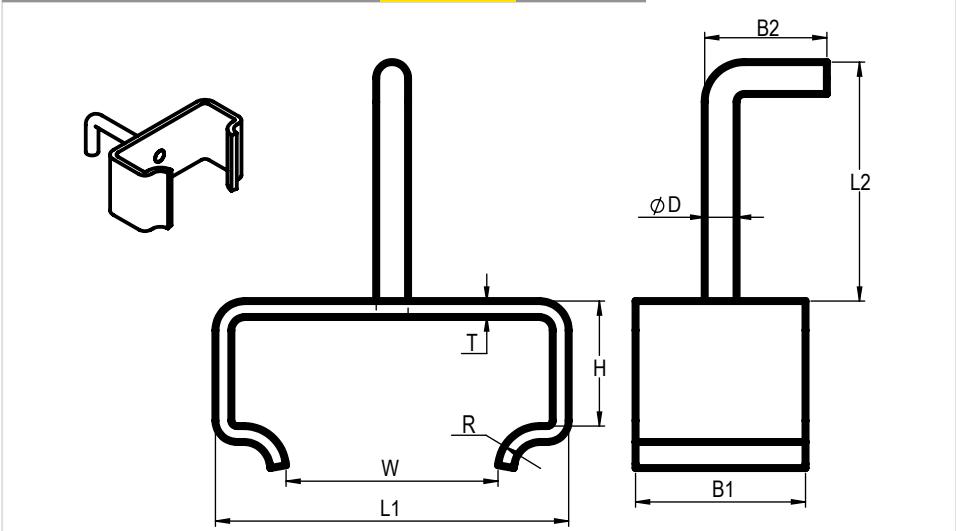
Please contact us for other dimensions

Application Example



Also Available:

Scissor Clip, B-02



Order code CP-Clip Hand Weldable
CCPH.B/T-L/H(E)-W-alloy-D-L(B)-alloy

Example Code:
CCPH.64/6-135/50(17)-90-330-3-45(10)-310

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

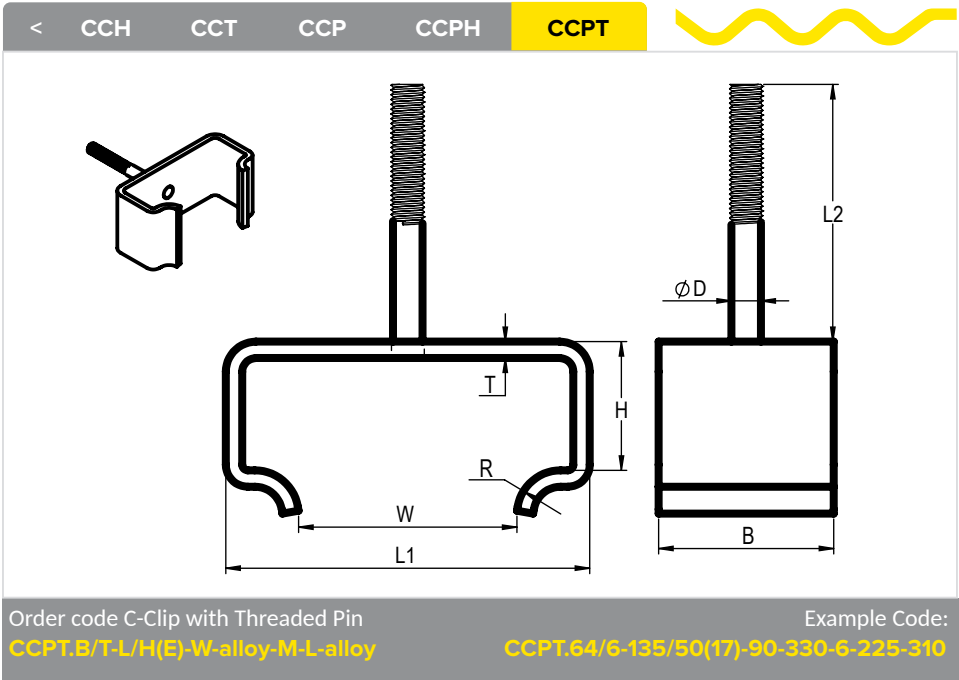
Please contact us for other dimensions

Application Example



Also Available:

Scissor Clip, B-02



Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

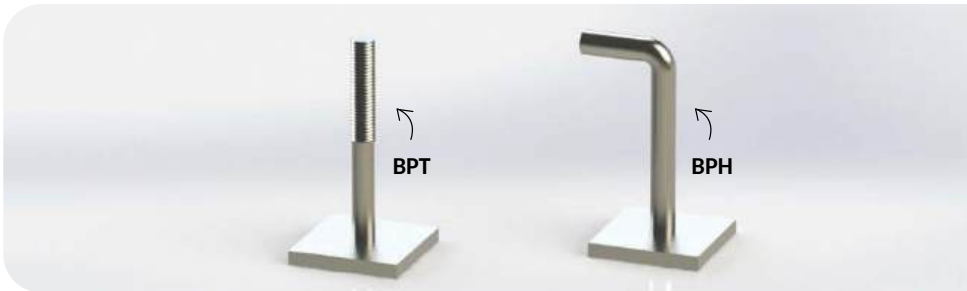
Application Example



Also Available:

Scissor Clip, B-02

Tie Back Anchor System Series B-04



Brick Support Consoles Series B-05



SILICON has been making custom designed consoles for many different applications. Don't hesitate to send us your design and we will make it happen. ***We can cut ANY shape up to 12 mm thick with our lasercutter.***



Tie Back Anchor System Series B-04

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Wire:

CS, 304, 304H, 309, 253MA, 310, 314,
316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length	L:	3,0 mm
Diameter	D:	H9

Brick Support Consoles Series B-05

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

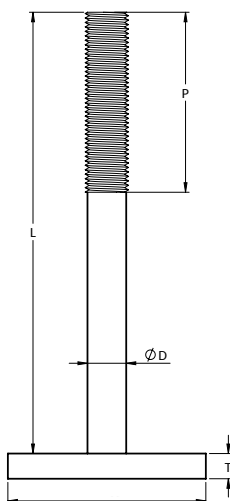
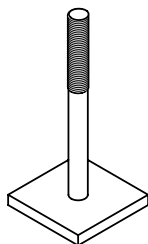
Please contact us for other alloys

Tolerances \pm

Length	L:	2,5 mm
Angle	α :	5°

Thanks to our CNC automatic bending machines, we are able to manufacture with an *extremely high productivity rate*.



BPT**BPH**

Order code Brick on Plate with Threaded Pin

BPT.B/L(T)-alloy-M.L(P)-alloy

Example Code:

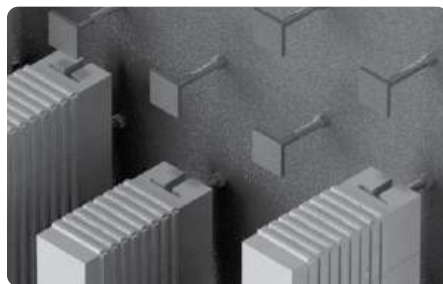
BPT.050/040(080)-alloy-08.100(025)-alloy

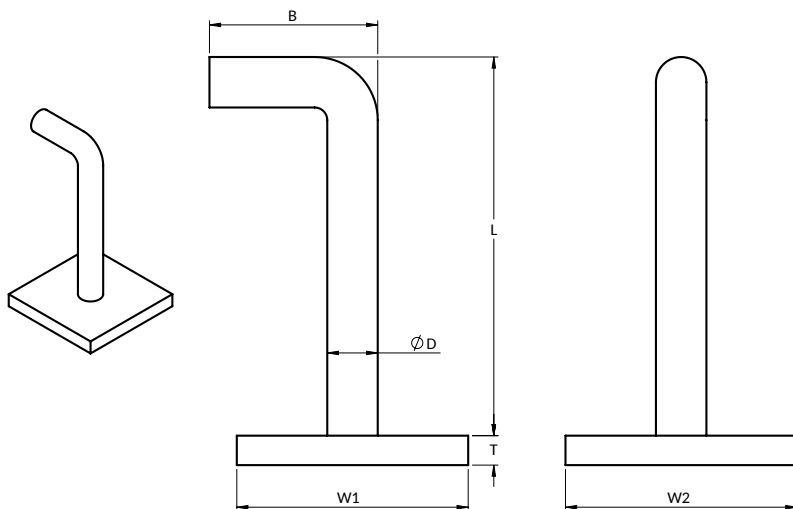
Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

Application Example



BPT**BPH**

Order code Brick on Plate Hand Weldable

BPH.B/L(T)-alloy-D.L(B)-alloy

Example Code:

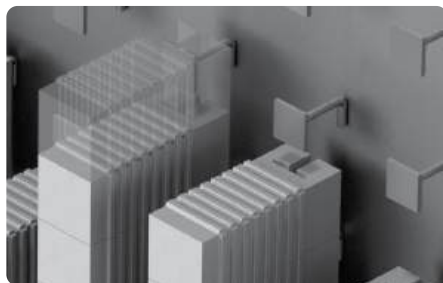
BPH.050/040(080)-alloy-08.100(030)-alloy

Standard Measurements (mm)

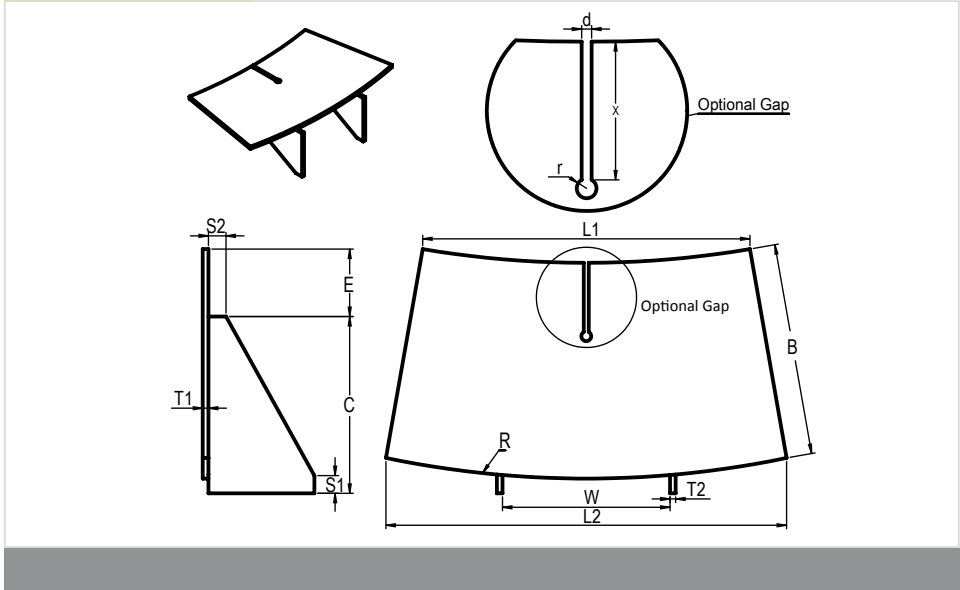
This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

Application Example



Brick Support

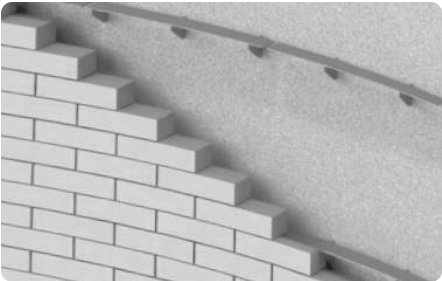


Standard Measurements (mm)

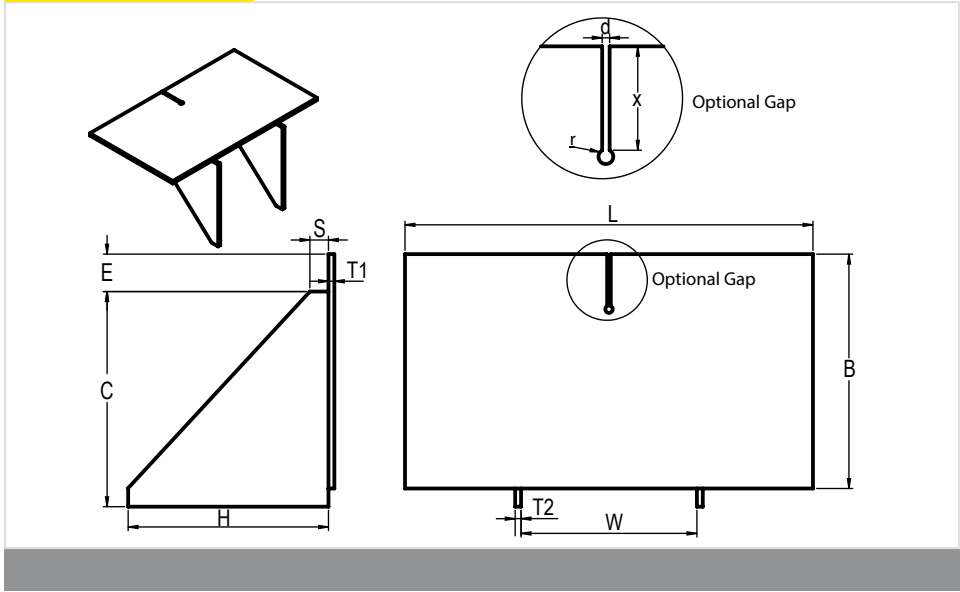
This anchor is available on request in many sizes, shapes and alloys.

Please contact us for other dimensions

Application Example



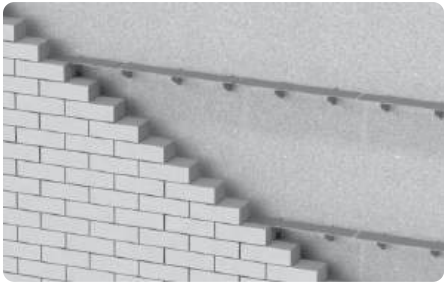
Brick Support



Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Application Example



SILICON

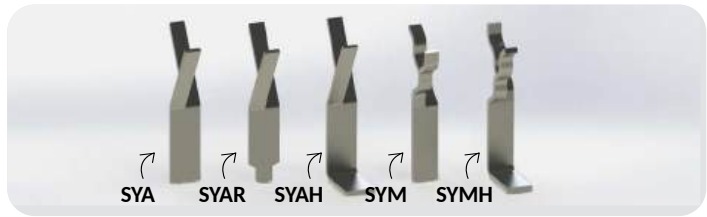


Anchors for **Concrete Linings**

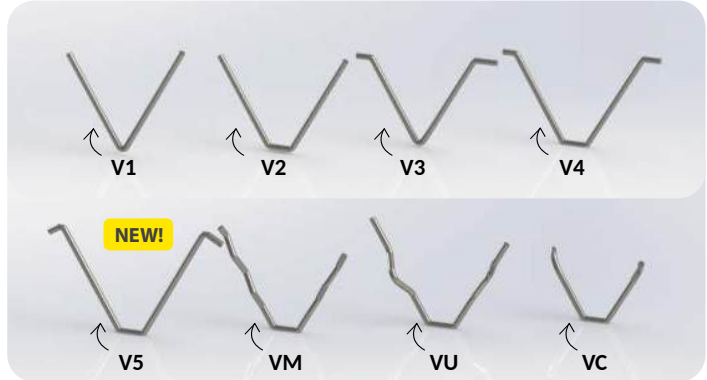
SILICON supplies different anchoring systems for single component linings, for low density and high density linings.

All models can be corrugated or specially formed for superior holding power. SILICON can produce the anchors to suit stud welding techniques, hand welding techniques, or the mechanical bolt-on technique of fastening to the vessel.

C-01 Split 'Y' Anchors



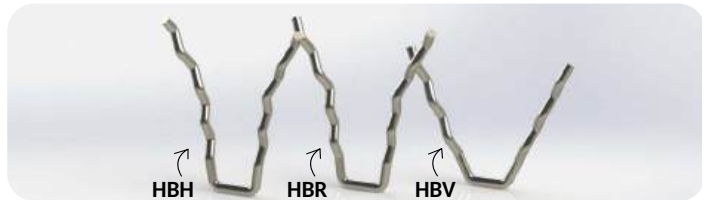
C-02 Basic 'V' Anchors



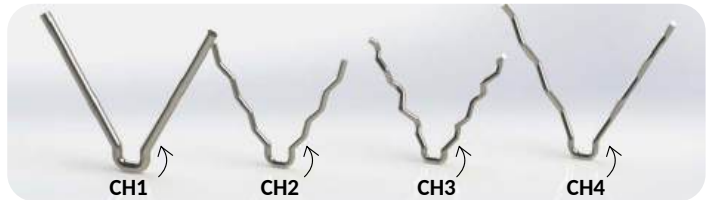
C-03 Corrugated Bullhorns



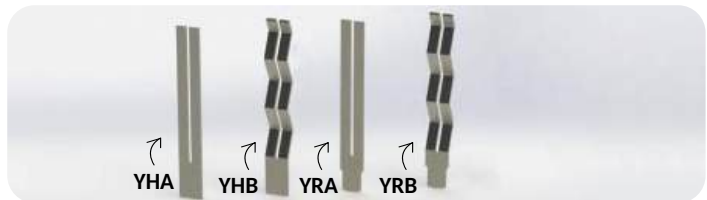
C-04 Heavy Bullhorns



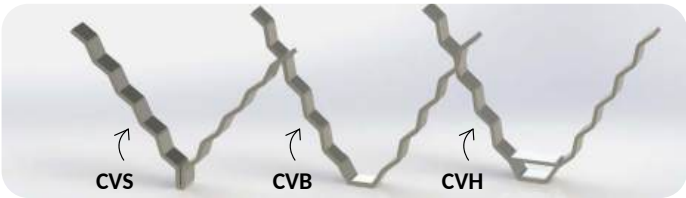
C-05 Corrugated 'H' Anchors



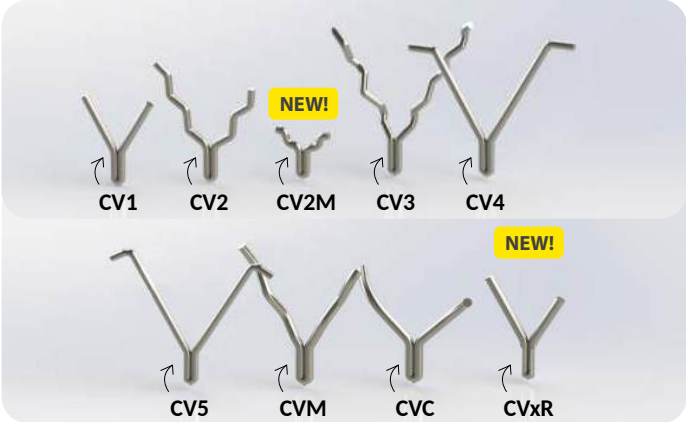
C-06 Double Tined 'Y' Anchors



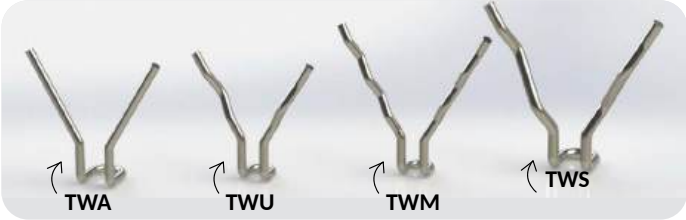
C-07
Corrugated
'CV' Strips



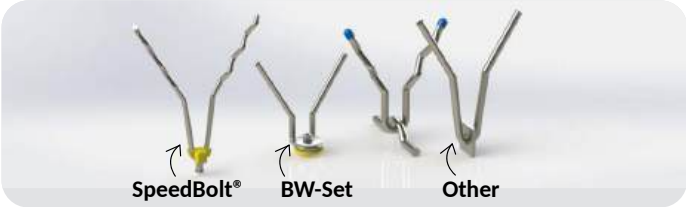
C-08
Corrugated 'V'
Anchors



C-09
'TW' Anchors



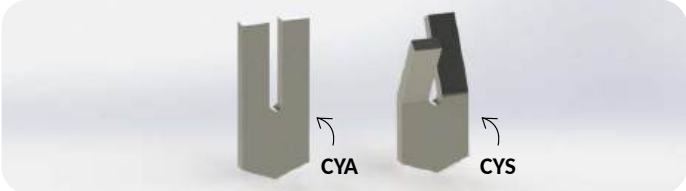
C-10
Moveable
Anchors



C-11
SpeedCell



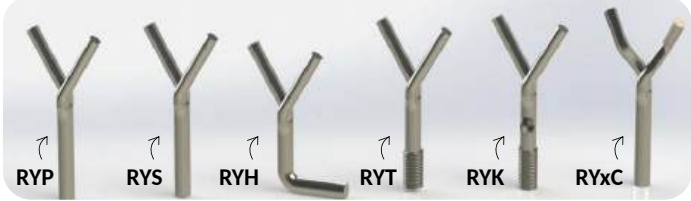
C-12
Eco-Vins



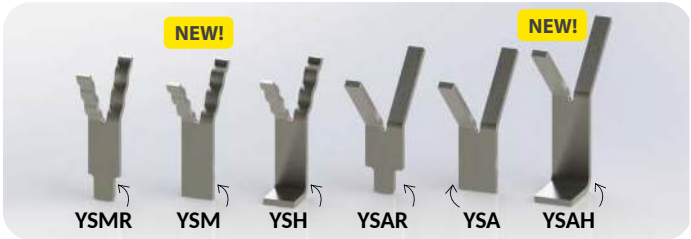
C-13 Shear Connectors



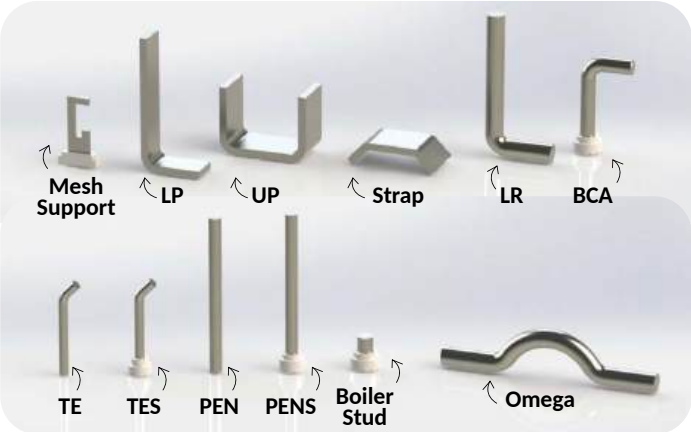
C-14 Round 'Y' Anchors



C-15 Slotted 'Y' Anchors

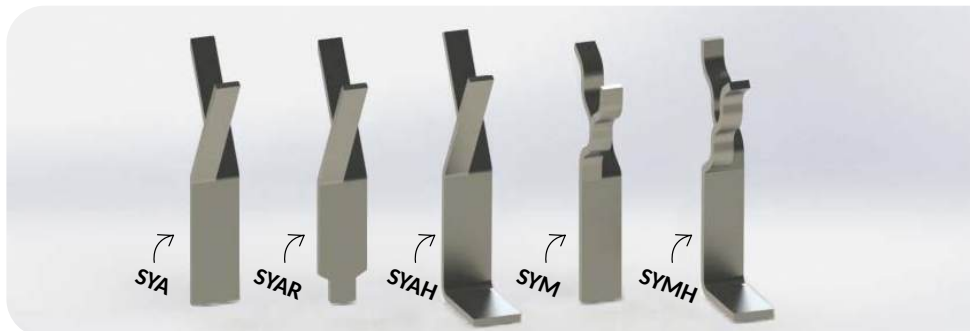


C-16 Miscellaneous



Split 'Y' Anchors

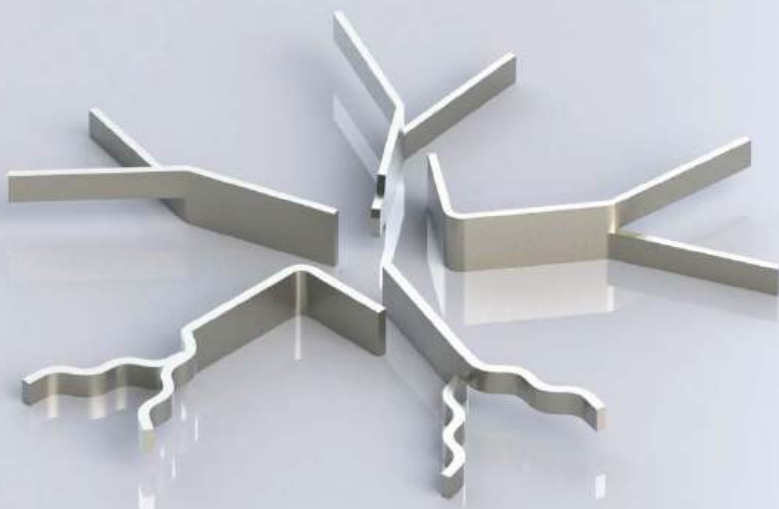
Series C-01



The Split 'Y' anchoring system is one of the most common anchoring systems which is still widely used because of its cost-effectiveness and availability. SILICON has modified certain anchors to help improve its holding power. Different types of corrugations can be pressed into the tines of the anchors to achieve this effect. The Split 'Y' system is used for light to very dense refractories.

SYAR is suitable for rapid arc welding. Widths greater than 16 mm have a reduced base. SYM and SYMH are normally corrugated on opened section only. Corrugation of the step section must be requested during inquiry.

If you wish to use alternatives, go to Series C-16. Thanks to our new tooling, you will get cheaper prices for the same quality.



Split 'Y' Anchor

Series C-01

Available Alloys		Tolerances ±	
Plate: CS, 304, 309, 253MA, 310S, 314, 321, 330, 800, 601	Length	L:	2,5 mm
	Width	B:	1,0 mm
	Thickness	T:	0,5 mm
	Step	S:	3,0 mm
	Angle	α:	5°
Please contact us for other alloys			

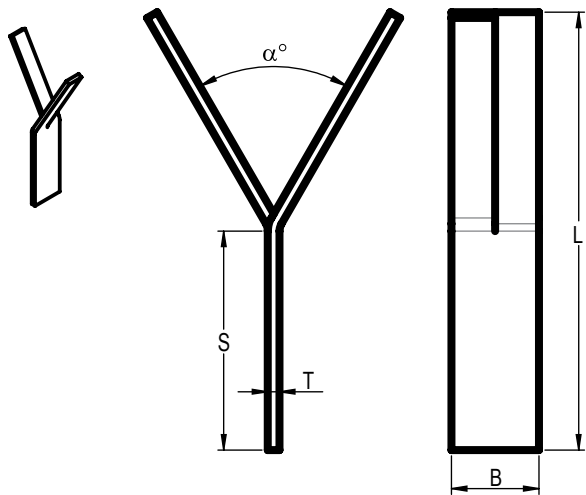
253MA vs 310?

Choosing the right **anchor alloy** is critical,
you will prevent costly disasters!

Let SILICON's metallurgical experts advise you.



SYA SYAR SYAH SYM SYMH



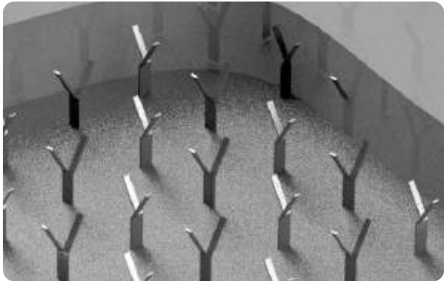
Order Code Split 'Y'
SYA.B/T(α)-L(S)-alloy

Example Code:
SYA.30/4(60)-150(75)-310

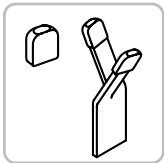
Standard Measurements (mm)

SYA					
	min	max		min	max
B:	16	80	S:	15	-
T:	3	8	L-S:	-	150
α° :		standard 60°/90°			
Please contact us for other dimensions					

Application Example



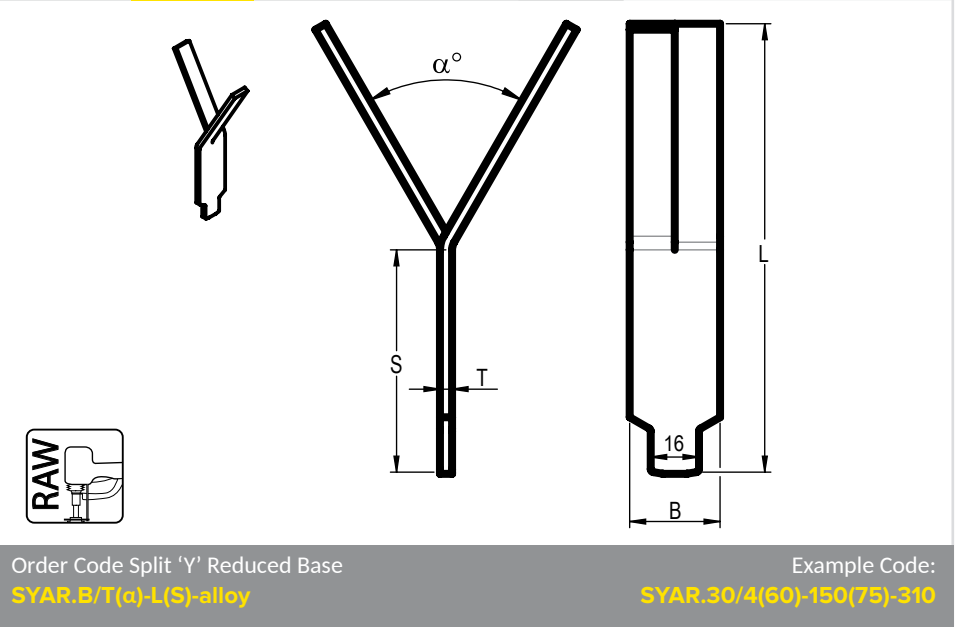
Also Available:



Slotted 'Y', C-15

With Caps

- SYA
- SYAR
- SYAH
- SYM
- SYMH

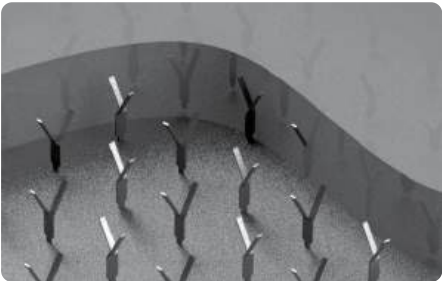


Standard Measurements (mm)

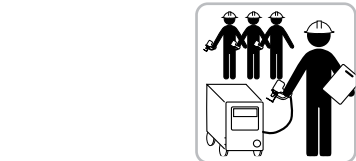
SYAR					
	min	max		min	max
B:	16	80	S:	15	-
T:	3	8	L-S:	-	150

Please contact us for other dimensions

Application Example

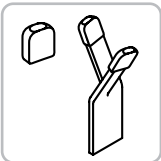


Also Available:



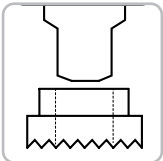
Slotted 'Y', C-15

RAW Services



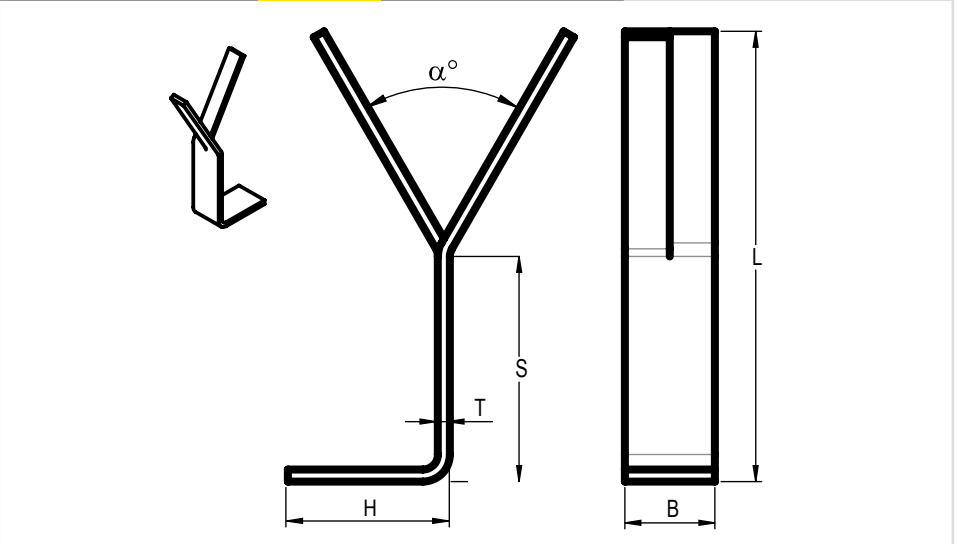
With Caps

Supplied With:



Ceramic
Ferrules

- SYA
- SYAR
- SYAH
- SYM
- SYMH



Order Code Split 'Y' Hand Weldable
SYAH.B/T(α)-L/H(S)-alloy

Example Code:
SYAH.30/40(60)-150/50(75)-310

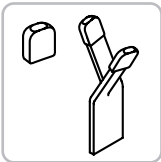
Standard Measurements (mm)

SYAH				
	min	max		min
B:	16	80	S:	25
T:	3	8	H:	16
L-S:	<150			
Please contact us for other dimensions				

Application Example



Also Available:



Slotted 'Y', C-15

With Caps

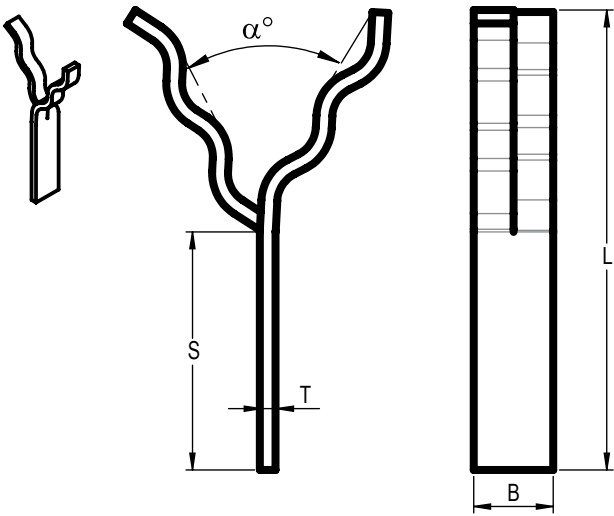
SYA

SYAR

SYAH

SYM

SYMH



Order Code Split 'Y' with 'M' Corrugation
SYM.B/T(α)-L(S)-alloy

Example Code:
SYM.25/5(60)-145(75)-310

Standard Measurements (mm)

SYM

	min	max		min
B:	16	80	S:	15 -
T:	3	8	L-S:	- 150

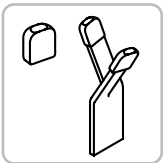
α° : standard 60°/90°

Please contact us for other dimensions

Application Example



Also Available:



Slotted 'Y', C-15

With Caps

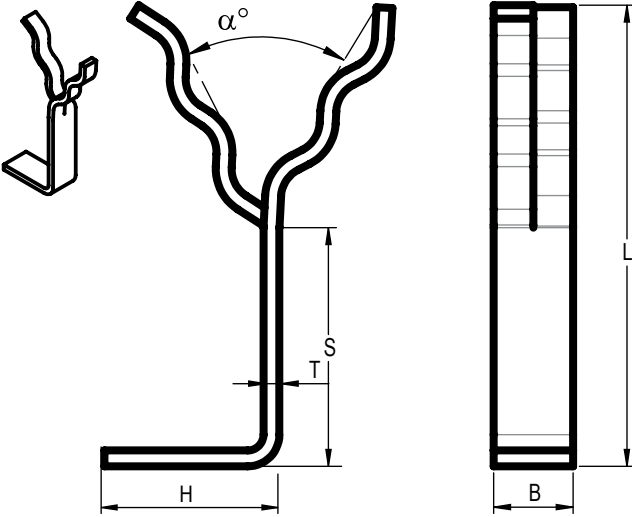
SYA

SYAR

SYAH

SYM

SYMH



Order Code Split 'Y' with 'M' Corrugation Hand Weldable
SYMH.B/T(α)-L/H(S)-alloy

Example Code:
SYMH.25/5(60)-145/50(75)-310

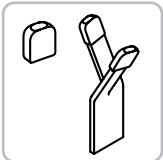
Standard Measurements (mm)

SYM					
	min	max		min	
B:	16	80	S:	15	-
T:	3	8	L-S:	-	150
α° :	standard 60°/90°				
Corrugation of the step is possible on request.					
<i>Please contact us for other dimensions</i>					

Application Example



Also Available:

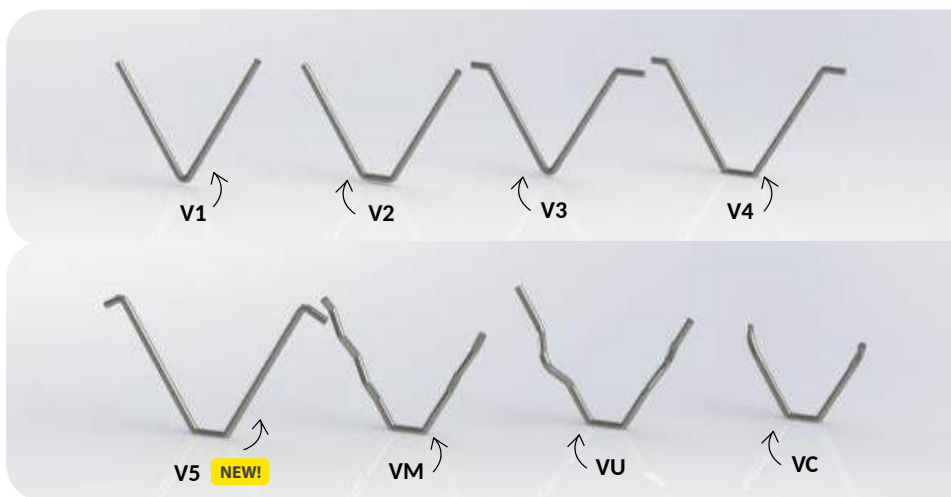


Slotted 'Y', C-15

With Caps

Basic 'V' Anchors

Series C-02



The standard 'V' refractory anchor system is a simple anchoring system used for light to very dense refractories. For thermal shock applications it is highly recommended that stainless steel fibers such as C-MIX are added to reinforce the refractory material (see section X-01 Reinforcing fibers).

The basic 'V' Anchors are designed to be installed by hand welding. For the rapid arc welding alternatives, see section C-08)



Basic 'V' Anchor

Series C-02

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length	L:	3,0 mm
Diameter	D:	H9 mm
Angle	α :	5°
Wings:	e1/e2	2,0 mm

We deliver within
24 hours

V1

V2

V3

V4

V5

>

NEW

Order Code 'V' Shape with 1 Bend
V1.D(α)-L(c)-alloy

Example Code:
V1.6(60)-065(15)-310

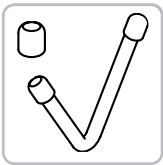
Standard Measurements (mm)

V1		
	min	max
D:	3	12
L:	20	350
Please contact us for other dimensions		

Application Example



Also Available:



CV1, C-08

TCH1, D-04

VNP, D-02

With Caps

V1

V2

V3

V4

V5

>

NEW

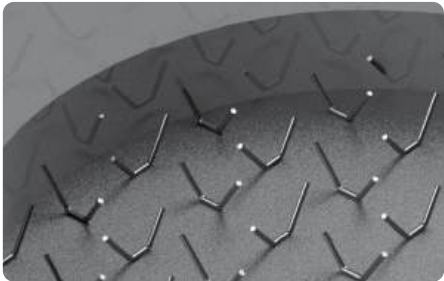
Order Code 'V' Shape with 2 Bends
V2.D(α)-L(c)-alloy

Example Code:
V2.6(70)-125(10)-310

Standard Measurements (mm)

V2		
	min	max
D:	3	12
L:	20	350
16-25: Base length dependent on D		
Please contact us for other dimensions		

Application Example



Also Available:



V1

V2

V3

V4

V5

>

NEW

Order Code 'V' Shape with 3 Bends

V3.D(alpha)-L(c)/e1.e2-alloy

Example Code:

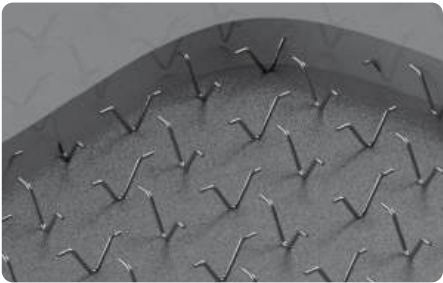
V3.8(60)-250(10)/20.30-310

Standard Measurements (mm)

V3				
	min	max		min
D:	3	12	e:	10
L:	20	350		

Please contact us for other dimensions

Application Example



Also Available:



CV4, C-08

VNV4, D-02

With Caps

V2V3**V4**V5VM>

NEW

Technical drawing of a V-shaped anchor. The drawing shows a side view of the anchor with dimensions: $e1$ (width of the top horizontal wing), $e2$ (width of the bottom horizontal wing), c (height of the top horizontal wing), α° (angle of the side wings), L (total height), ϕD (diameter of the side wings), and $16-25$ (width of the bottom horizontal wing). A smaller version of the anchor is shown to the left.

Order Code 'V' Shape with 4 Bends (straight wings)
V4.D(α)-L(c)/e1.e2-alloy

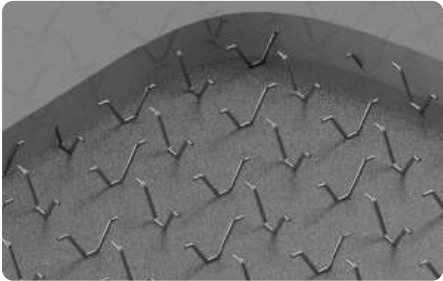
Example Code:
V4.8(60)-125(10)/15.25-310

Standard Measurements (mm)

V4				
	min	max		min
D:	3	12	e:	10
L:	20	350		

Please contact us for other dimensions

Application Example



Also Available:



CV5, C-08

VNV4, D-02

With Caps

<

V4

V5

VM

VU

VC

NEW

Order Code ‘V’ Shape with 4 Bends (bended wings)
V5.D(α)-L(c)/e1.e2-alloy

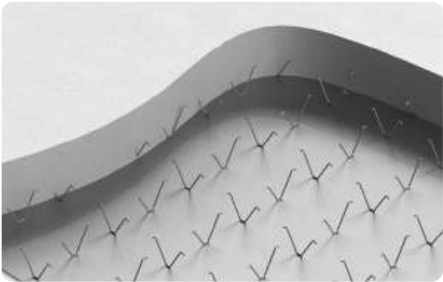
Example Code:
V5.8(60)-125(10)/15.25-310

Standard Measurements

V5				
	min	max		min
D:	3	12	e:	10
L:	20	350		

Please contact us for other dimensions

Application Example



Also Available:

CV4, C-08

VNV4, D-02

With Caps

<

V4

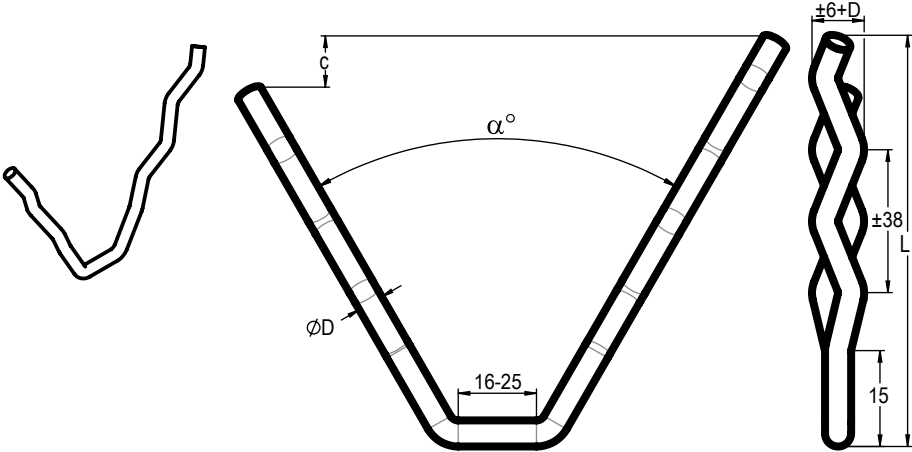
V5

VM

VU

VC

NEW



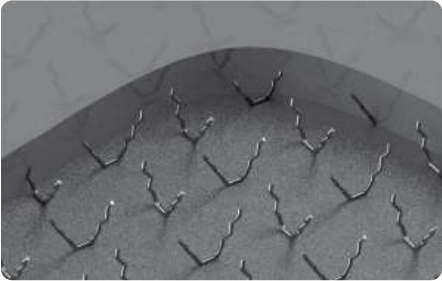
Order Code 'V' Shape with 'M' Corrugation
VM.D(alpha)-L(c)-alloy

Example Code:
VM.8(60)-175(25)-310

Standard Measurements (mm)

VM		
	min	max
D:	3	12
L:	40	350
16-25: Base length dependent on D		
Please contact us for other dimensions		

Application Example

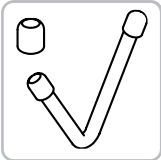


Also Available:

CVM, C-08

VNM, D-02

TWM, C-09



With Caps

< V4 V5 VM VU VC

NEW

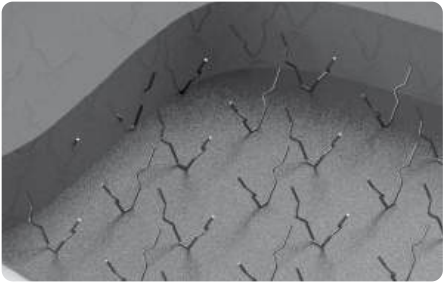
Order Code 'V' Shape with 'U' Corrugation
VU.D(α)-L(c)-alloy

Example Code:
VU.6(60)-125(08)-alloy

Standard Measurements (mm)

VU		
	min	max
D:	3	12
L:	20	350
16-25: Base length dependent on D		
Please contact us for other dimensions		

Application Example



Also Available:



With Caps

On request:



On Nut

<

V4

V5

VM

VU

VC

NEW

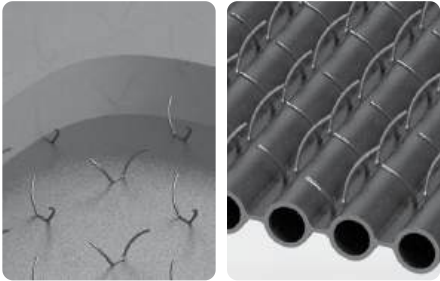
Order Code ‘V’ Shape with Curve
VC.D(α)-L(c)/B-alloy

Example Code:
VC.6(60)-070(10)/75-330

Standard Measurements (mm)

VC		
	min	max
D:	3	12
L:	40	350
16-25: Base length dependent on D		
Please contact us for other dimensions		

Application Example



Also Available:

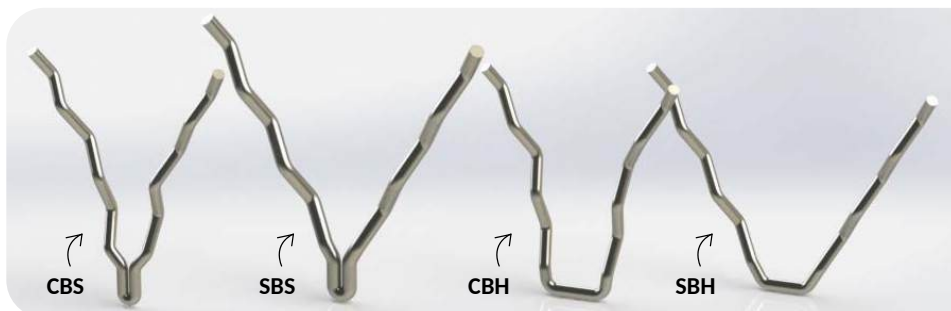


CVC, C-08

With Caps

Corrugated Bullhorns

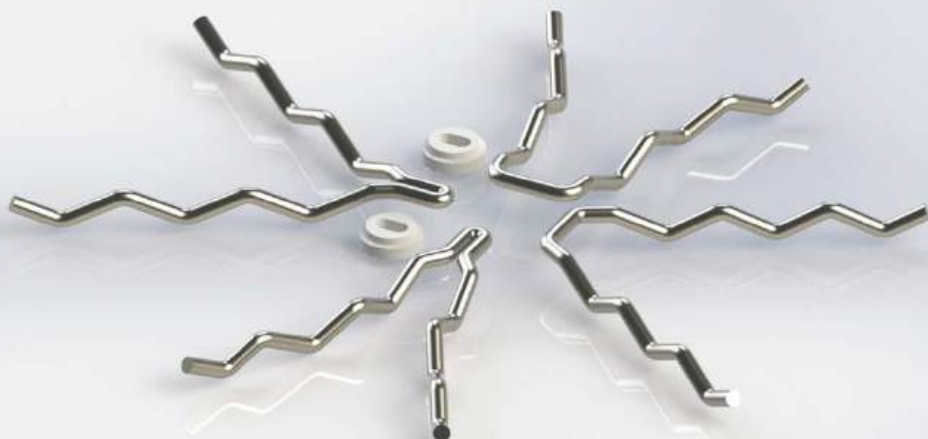
Series C-03



The Corrugated Bullhorn is a corrugated anchor for light and medium density refractories. Typical applications for these anchors can be found in cement industries, ferrous and non-ferrous metal industries.

Corrugated bullhorns are for hand welding (CBH and SBH) and for rapid arc welding (CBS and SBS).

To learn more about rapid arc welding equipment and our RAW installation services, please refer to the RAW section of this catalogue.



Corrugated Bullhorns

Series C-03

Available Alloys

Plate:

CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Tolerances \pm

Length

Diameter

Angle

L: 3,0 mm

D: H9 mm

α : 5°

Please contact us for other alloys


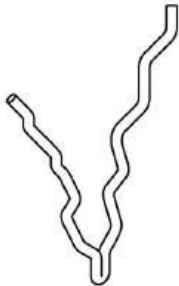
We are

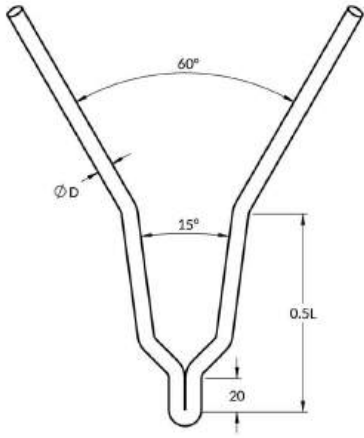


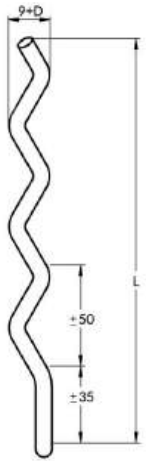
multilingual

We can help you in **Dutch, English, German, French, Italian, Turkish, Portuguese, and Spanish!**

- CBS
- SBS
- CBH
- SBH







Order Code Corrugated Bullhorn Stud Weldable

CBS.D-L-alloy

Example Code:

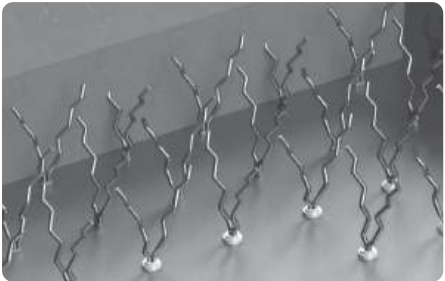
CBS.6-150-310

Standard Measurements (mm)

CBS		
	min	max
D:	6	8
L:	85	325

Please contact us for other dimensions

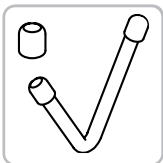
Application Example



Also Available:



RAW Services

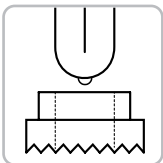


With Caps

CBH, C-03

TWS, C-09

Supplied With:



Ceramic
Ferrules

CBS

SBS

CBH

SBH

Ferrule options:

Round

Rectangular

Chamfered

Order Code Straight Bullhorn Stud Weldable
SBS.D-L-alloy

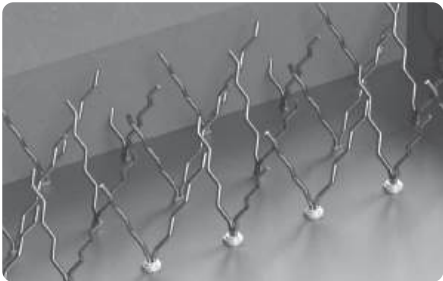
Example Code:
SBS.6-260-310

Standard Measurements (mm)

SBS		
	min	max
D:	6	8
L:	85	325

Please contact us for other dimensions

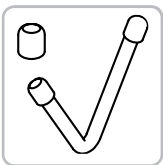
Application Example



Also Available:



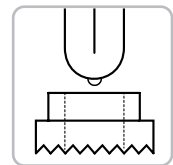
RAW Services



With Caps

SBH, C-03

TWS, C-09



Ceramic Ferrules

Supplied With:

CBS

SBS

CBH

SBH

The diagram illustrates the Corrugated Bullhorn (CBH) component. The top view shows a V-shaped structure with a base width of 20-35 mm and a height of 15 mm. The side view shows a V-shape with a 60° angle between the arms and a 15° angle between the base and the arms. The base diameter is labeled as $\varnothing D$. The side view also shows a corrugated section with a height of ± 50 mm and a total length of ± 15 mm. The top view shows a base width of 20-35 mm and a height of 15 mm.

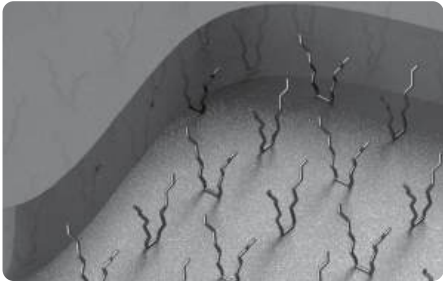
Order Code Corrugated Bullhorn Hand Weldable
CBH.D-L-alloy

Example Code:
CBH.6-150-310

Standard Measurements (mm)

CBH		
	min	max
D:	5	8
L:	115	325
20-35	Base length dependent on D	
Please contact us for other dimensions		

Application Example



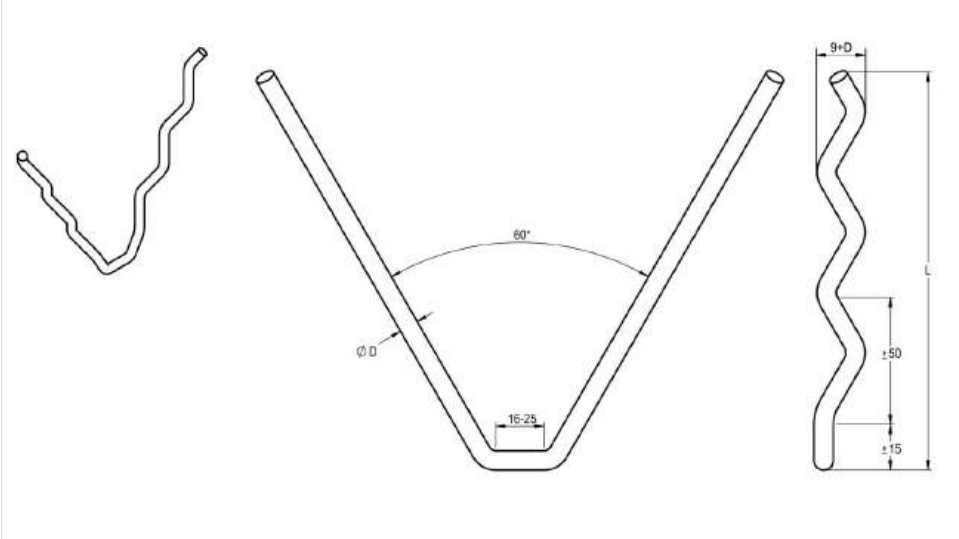
Also Available:



CBS, C-03

VNCBH, D-02

With Caps



Order Code Straight Bullhorn Hand Weldable
SBH.D-L(c)-alloy

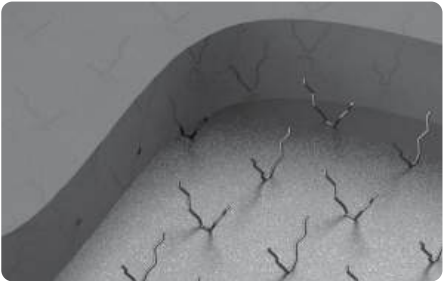
Example Code:
SBH.6-260(15)-310

Standard Measurements (mm)

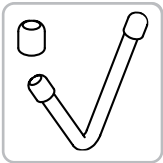
SBH		
	min	max
D:	5	8
L:	65	325
20-35	Base length dependent on D	

Please contact us for other dimensions

Application Example



Also Available:



SBS, C-03

With Caps

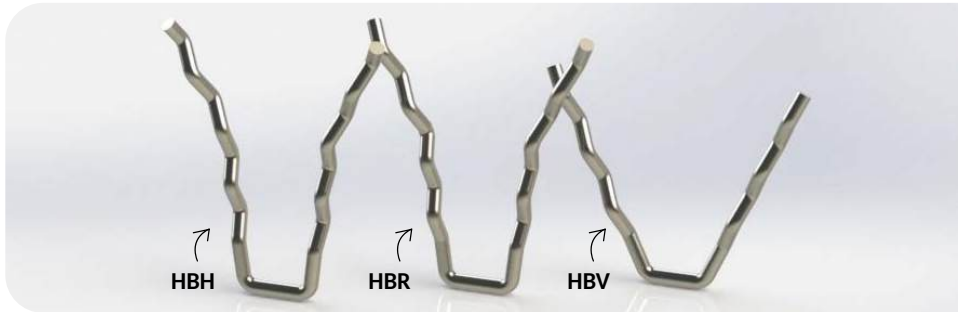
On request:



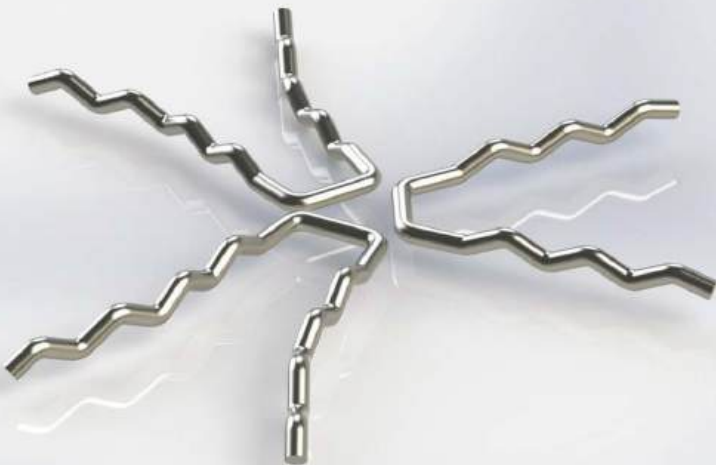
On Nut

Heavy Bullhorns

Series C-04



The heavy corrugated bullhorn is used for very high density refractories. This highly effective refractory anchor is only suited for hand welding. Typical applications for these anchors can be found in cement industries and within ferrous and non-ferrous metal industries.



Heavy Bullhorns

Series C-04

Available Alloys

Plate:

CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Tolerances ±

Length

L:

5,0 mm

Please contact us for other alloys

Exclusively consistent quality.

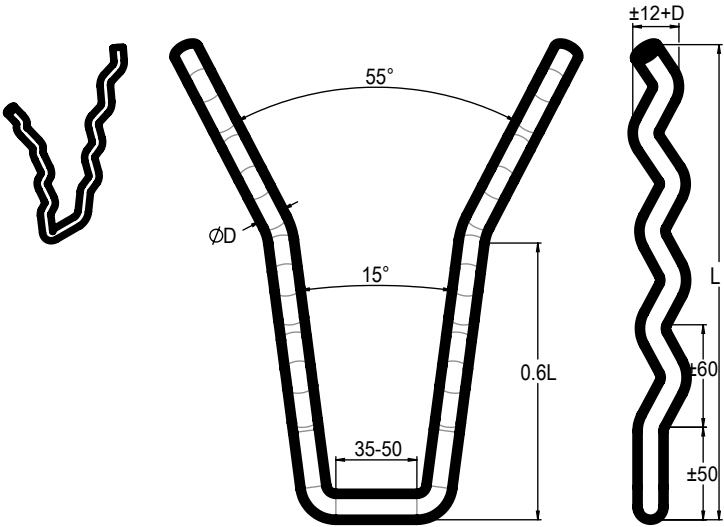


SILICON's Heavy Bullhorn Anchors

HBH

HBR

HBV



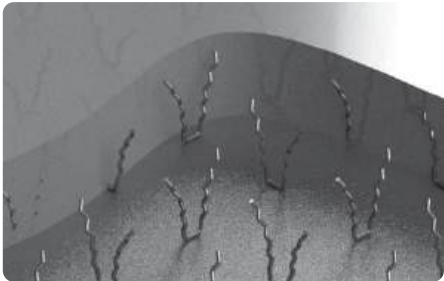
Order Code Heavy Bullhorn 'H' Shape
HBH.D-L-alloy

Example Code:
HBH.16-325-330

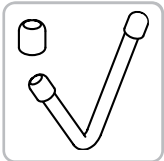
Standard Measurements (mm)

HBH		
	min	max
D:	10	18
L:	170	800
35-50	Base length dependent on D	
Please contact us for other dimensions		

Application Example

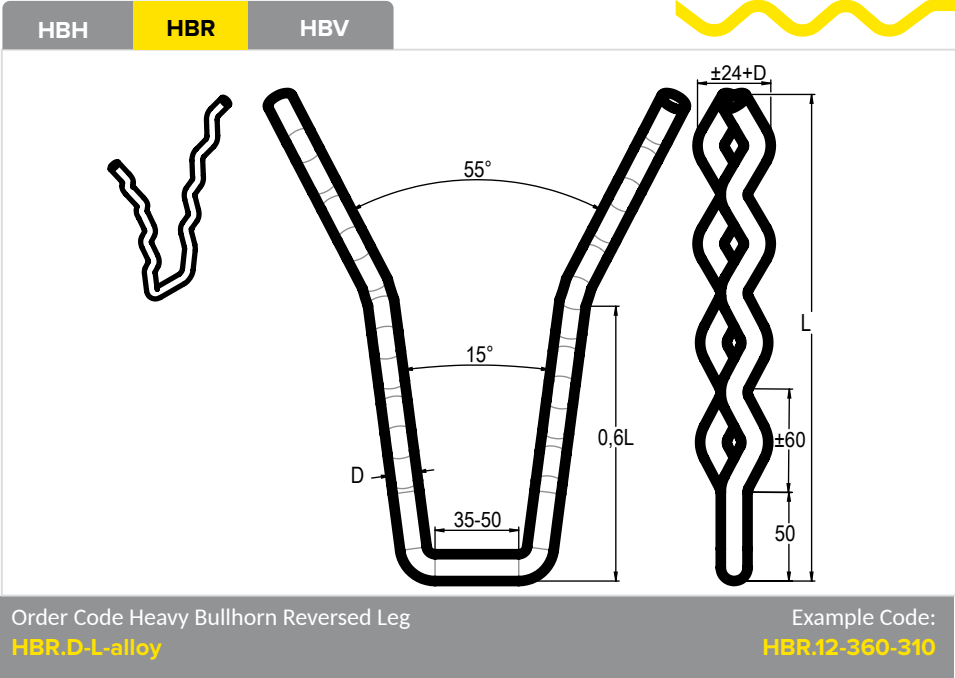


Also Available:



TWM, C-09

With Caps

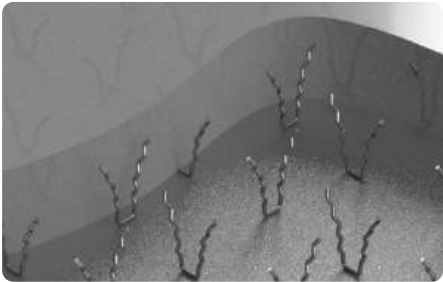


Standard Measurements (mm)

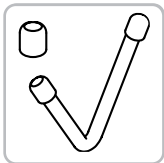
HBR		
	min	max
D:	10	18
L:	170	800
35-50	Base length dependent on D	

Please contact us for other dimensions

Application Example



Also Available:



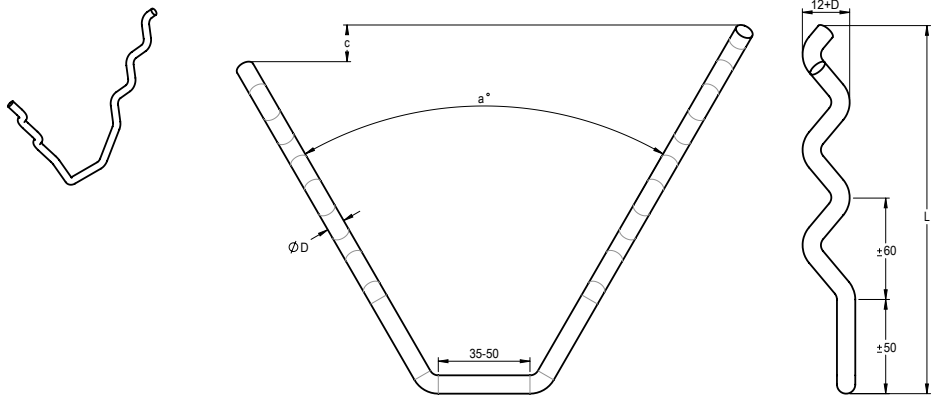
TWM, C-09

With Caps

HBH

HBR

HBV



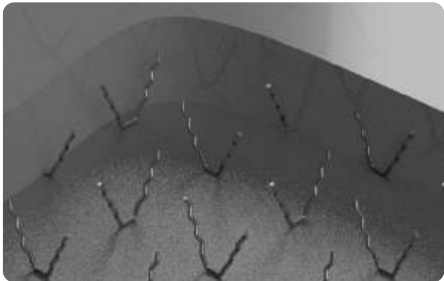
Order Code Heavy Bullhorn 'V' Shape
HBV.D(a)-L(c)-alloy

Example Code:
HBV.12(50)-360(10)-310

Standard Measurements (mm)

HBV		
	min	max
D:	10	18
L:	110	800
35-50	Base length dependent on D	
Please contact us for other dimensions		

Application Example



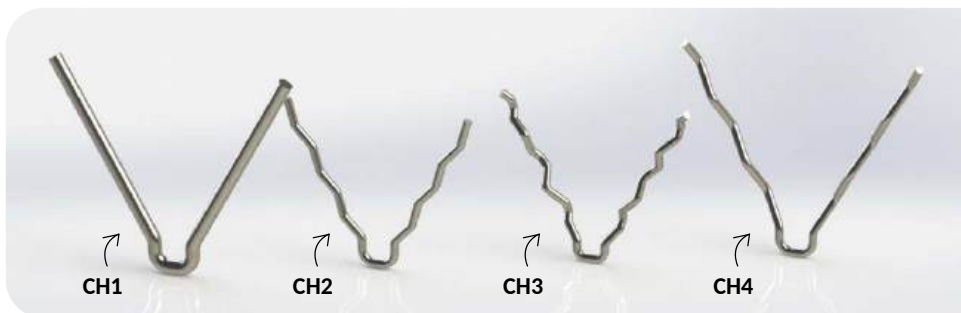
Also Available:



TWM, C-09

With Caps

Corrugated 'H' Anchors Series C-05



The Corrugated 'H' anchors are specifically designed for hand welding and can be used in light, medium and dense refractories.

Our CH3 is considered a 3D anchor due to the 3 directional corrugation.



Corrugated 'H' Anchors Series C-05

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

Tolerances \pm

Length
Diameter
Angle

L: 4,0 mm
D: H9
 α : 5°

Please contact us for other alloys



We offer
worldwide
logistics

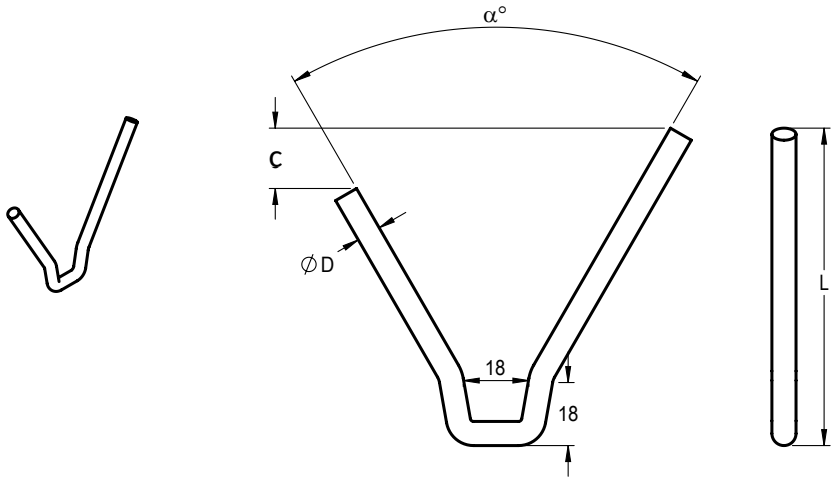
from The Netherlands
to your country.

CH1

CH2

CH3

CH4



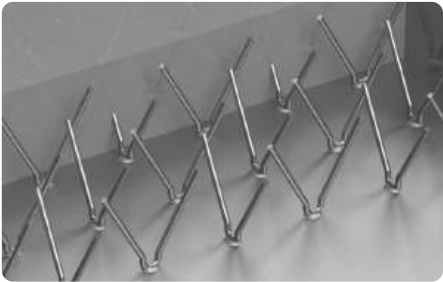
Order Code Corrugated 'H' 1-dimensional
CH1.D(α)-L(c)-alloy

Example Code:
CH1.6(60)-325(15)-330

Standard Measurements (mm)

CH1				
	min	max	min	max
D:	5	8	α°:	50° 90°
L:	30	325		
Please contact us for other dimensions				

Application Example



Also Available:



CV1, C-08

VNP, D-02

TCH1, D-04

V1, C-02

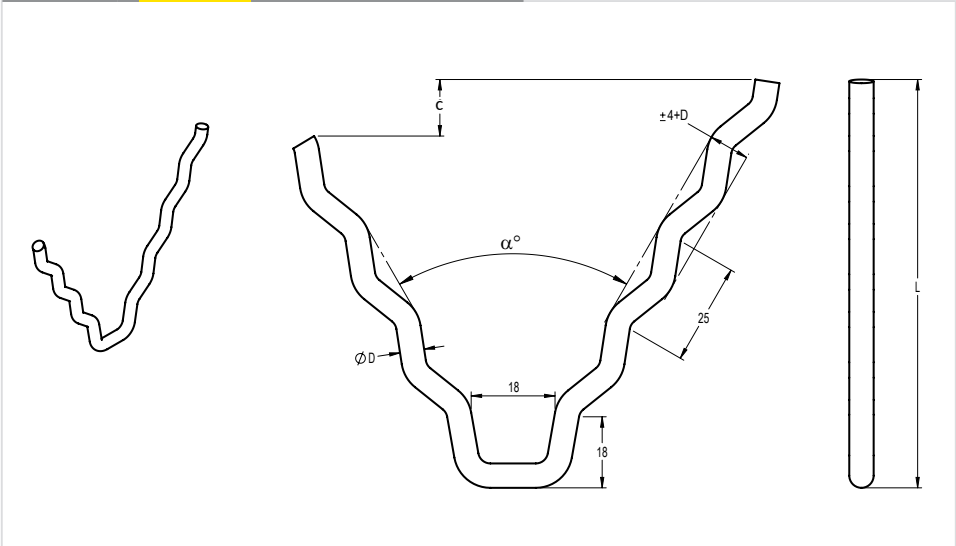
With Caps

CH1

CH2

CH3

CH4



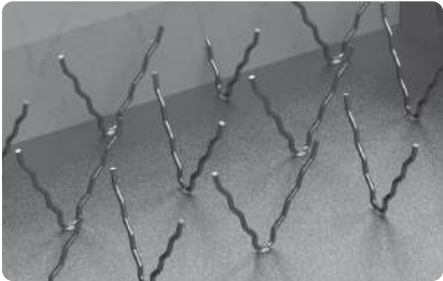
Order Code Corrugated 'H' 2-dimensional
CH2.D(α)-L(c)-alloy

Example Code:
CH2.6(60)-325(15)-330

Standard Measurements (mm)

CH2				
	min	max	min	max
D:	5	8	α°:	50° 90°
L:	50	325		
Please contact us for other dimensions				

Application Example



Also Available:



VNCH2, D-02

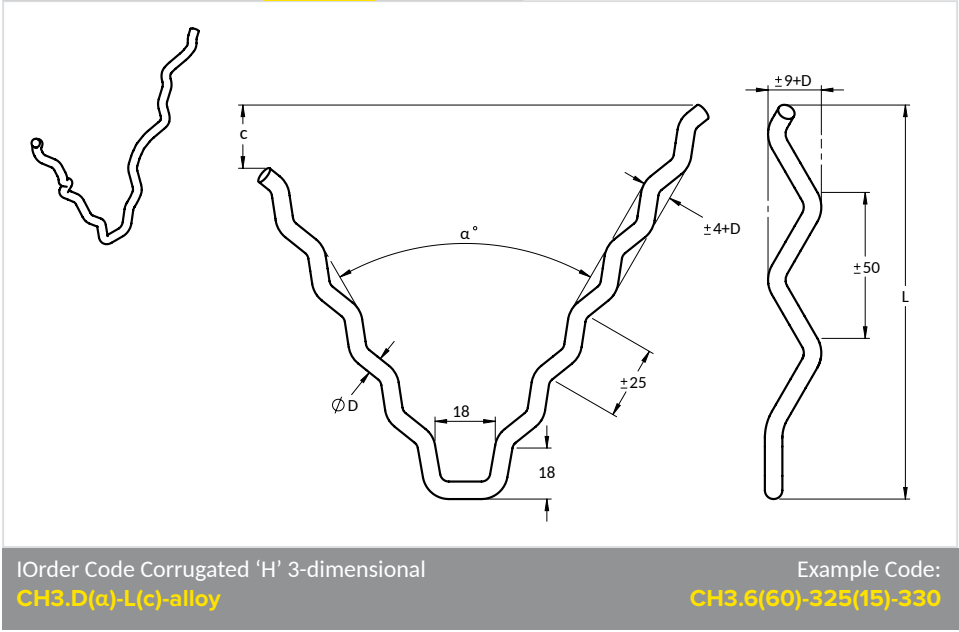
With Caps

CH1

CH2

CH3

CH4

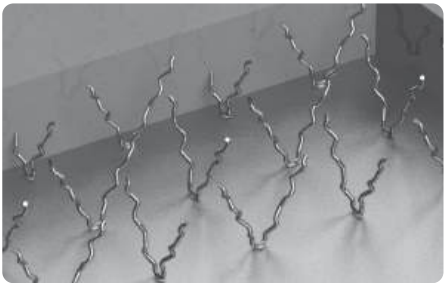


Standard Measurements (mm)

CH3				
	min	max	min	max
D:	5	8	α°:	45° 60°
L:	80	325		

Please contact us for other dimensions

Application Example



Also Available:



VNCH2, D-02

CV3, C-08

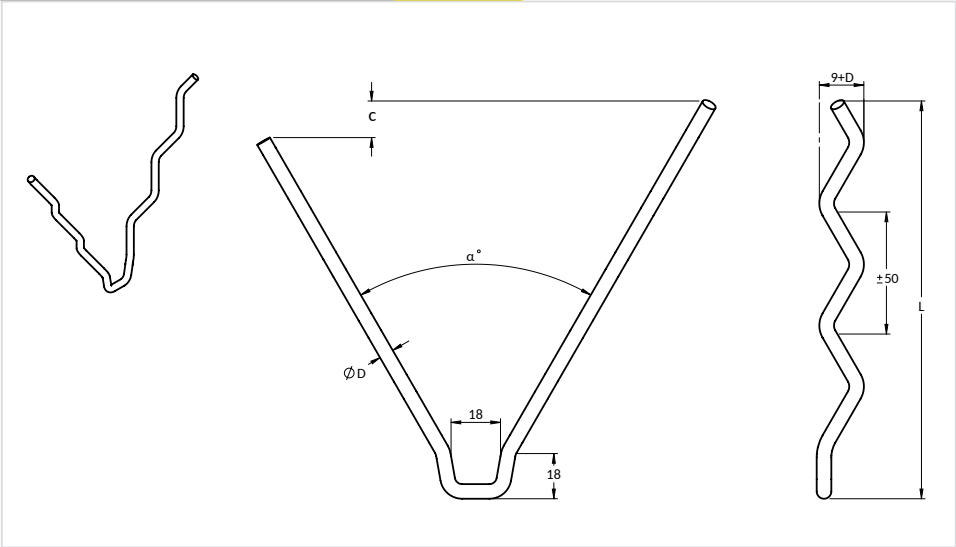
With Caps

CH1

CH2

CH3

CH4



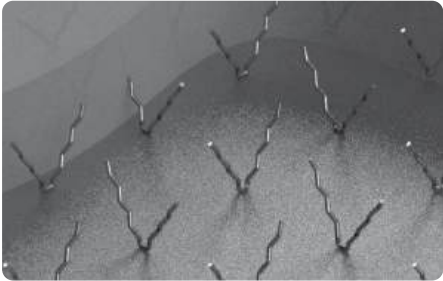
Order Code Corrugated ‘H’ 4th Type
CH4.D(α)-L(c)-alloy

Example Code:
CH4.6(60)-325(15)-330

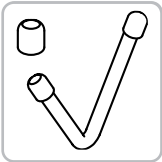
Standard Measurements (mm)

CH4				
	min	max	min	max
D:	5	8	α° :	45° 60°
L:	80	325		
Please contact us for other dimensions				

Application Example



Also Available:



SBH, C-03

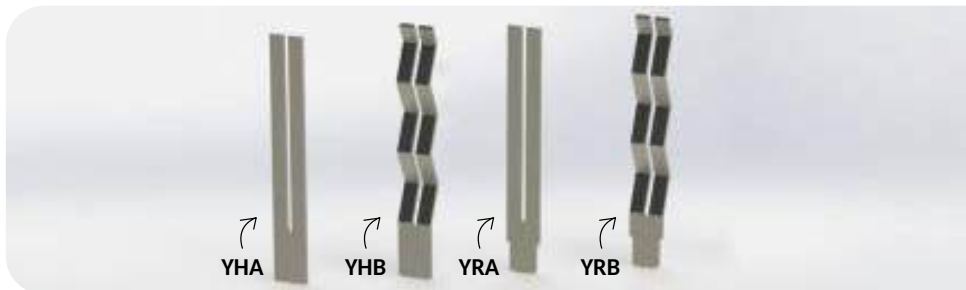
VM, C-02

CVM, C-08

With Caps

Double Tined 'Y' Anchors

Series C-06



The tined 'Y' anchors are flat sectioned refractory anchors for many different applications, mostly light to medium refractories. The tines are bent outwards after welding and commonly after the installation of a backup layer.

Type A anchors are suitable for light density refractory concrete. Type B and C have corrugations that offer excellent refractory retention. We recommend to use reinforcing fibers in your refractory material. The anchors can be hand welded or rapid arc welded onto the steel casing (see last section X-01).

After welding a backup layer can be pushed over the tines and against the steel casing. **The tines can be bent out, which will increase the transition of the forces in the refractory concrete onto the anchors and casing.**

In-house engineering & production

We update our
own toolings and
machines



Double Tined 'Y' Anchors Series C-06

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

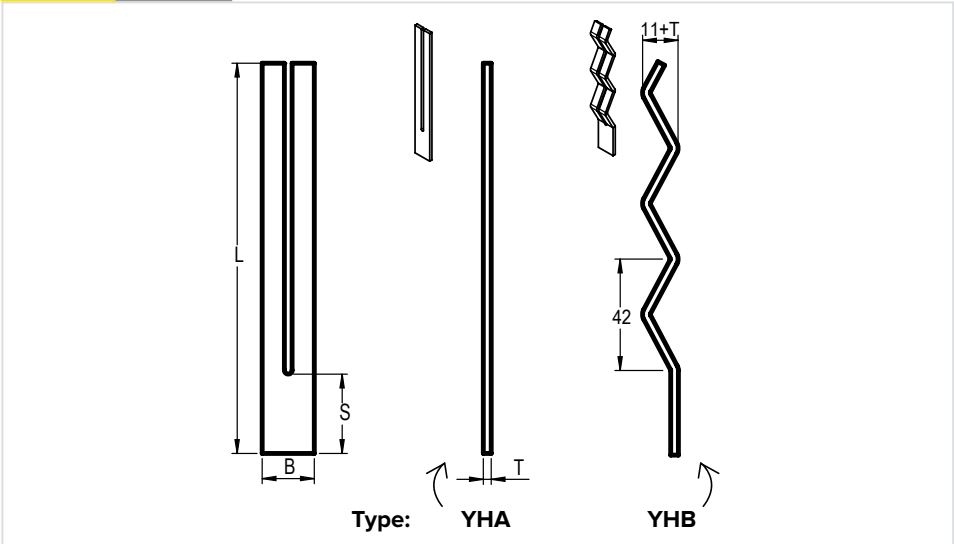
Length	L:	2,5 mm
Width	B:	1,0 mm
Thickness	T:	0,3 mm
Step	S:	2,0 mm

We are doing our own Positive Material Identification (PMI) testing...

...to determine the chemical composition of the raw material alloy we buy. No surprise: we deliver the stainless steel quality you ordered.



YHx YRx



Order Code ‘Y’ Shape Hand Weldable
YHx.B/T-L(S)-alloy

Example Code:
YHA.15/3-150(75)-310

Standard Measurements (mm)

YHx				
	min	max		L min
B:	16	80	A:	35
T:	3	5	B:	60
L-S:	<250		C:	65

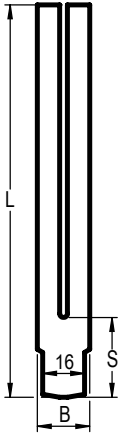

Please contact us for other dimensions

Application Example

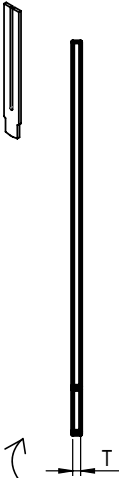


YHx

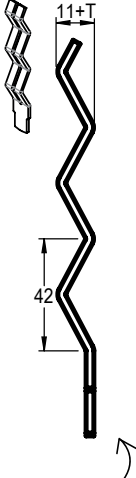
YRx



Type:



YRA



YRB

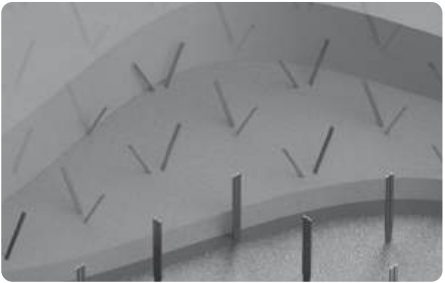
Order Code ‘Y’ Shape Reduced Base
YRx.B/T-L(S)-alloy

Example Code:
YRA.30/4-175(125)-330

Standard Measurements (mm)

YRx				
	min	max		L min
B:	16	80	A:	50
T:	3	5	B:	75
L-S:	<250		C:	80
Please contact us for other dimensions				

Application Example

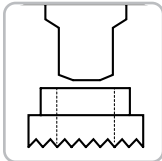


Also Available:



RAW Services

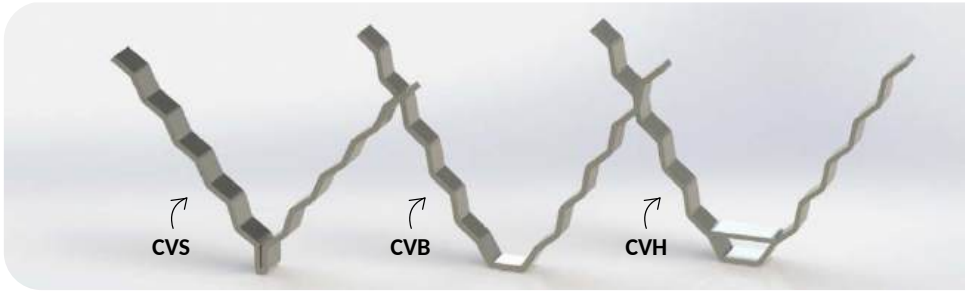
Supplied With:



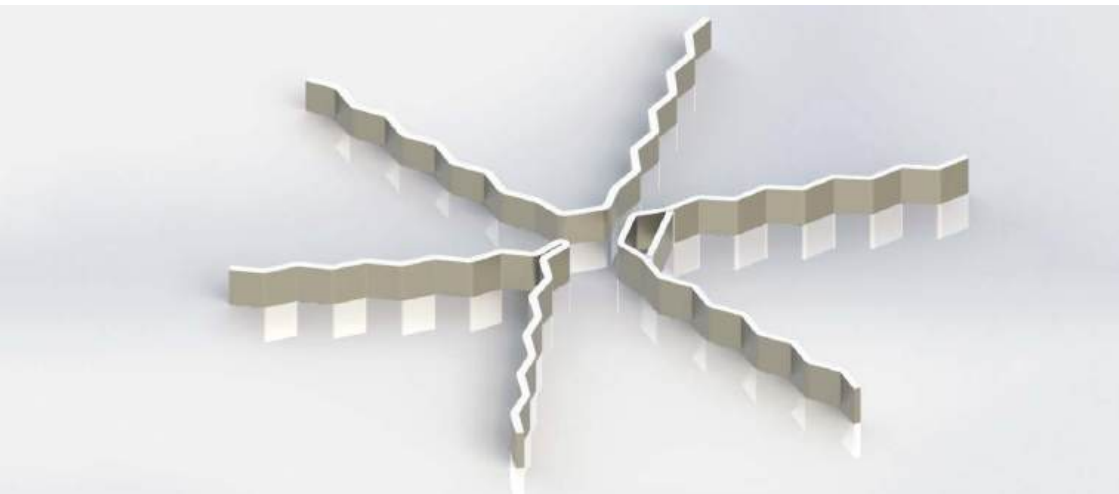
Ceramic Ferrules

Corrugated 'V' Strips

Series C-07



The corrugated 'V' Strip is a flat sectioned heavy type of refractory anchor suitable for heavy density refractory concrete. The use of reinforcement fibers is recommended. This anchor can only be hand welded (see section X-01).



Corrugated 'V' Strips

Series C-07

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length

L: 5,0 mm

Width

B: 1,0 mm

Thickness

T: 0,5 mm

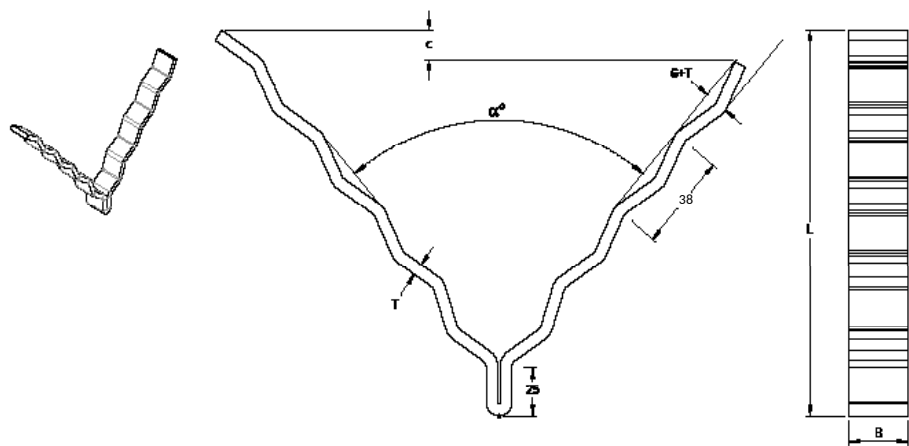
Angle

α : 5°

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Reliable staff,
Competitive pricing &
Highest quality material**

Take your first steps to
having a better supplier.





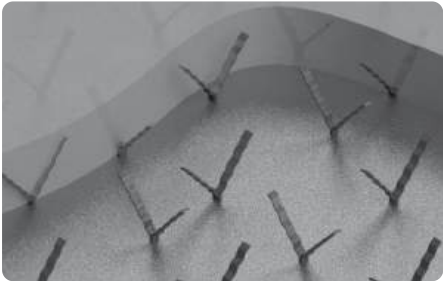
Order Code Corrugated 'V' Strip
CVS.B/T(α)-L(c)-alloy

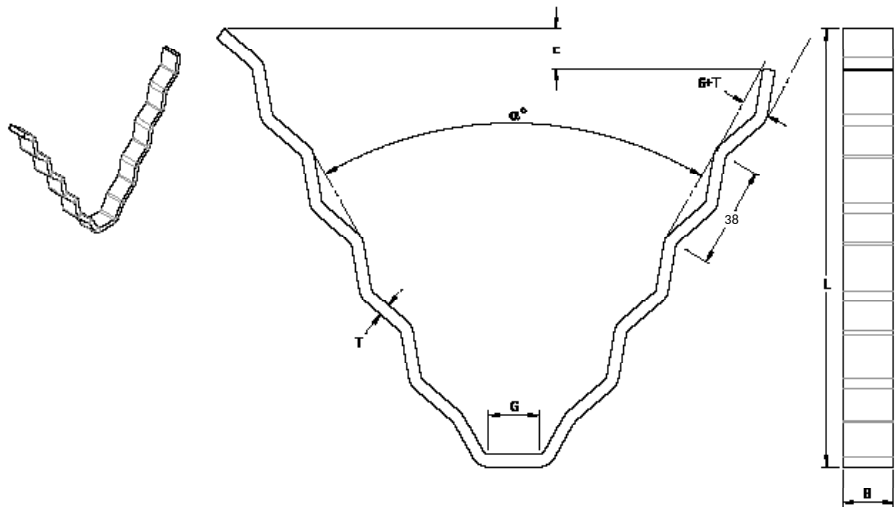
Example Code:
CVS.30/6(60)-250(10)-310

Standard Measurements (mm)

CVS				
	max		min	max
B:	30	α°:	45°	80°
T:	6	L:	75	350
Please contact us for other dimensions				

Application Example





Order code Corrugated 'V' Base

CVB.B/T(α /G)-L(c)-alloy

For a CVB with hole add a D to the Code
and add the Diameter at the end of the code

CVB D.B/T(α /G)-L(c)-alloy/D

Example code:

CVB.25/5(80/25)-150(10)-330

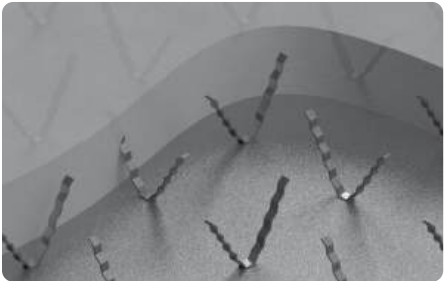
Example Code:

CVB D.30/6(60/25)-225(10)-310/15

Standard Measurements (mm)

CVB					
	min	max		min	max
B:	-	30	α° :	45°	80°
T:	-	6	L:	75	350
G:	18				
Please contact us for other dimensions					

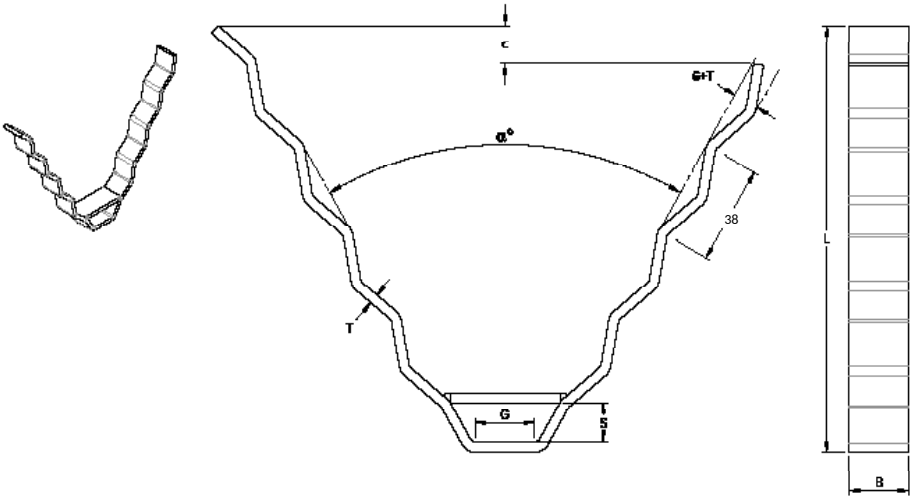
Application Example



CVS

CVB

CVH



Order Code Corrugated 'V' Hook
CVH.B/T(α /G/S)-L-alloy

Example Code:
CVH.30/5(60/30/25)-225(10)-310

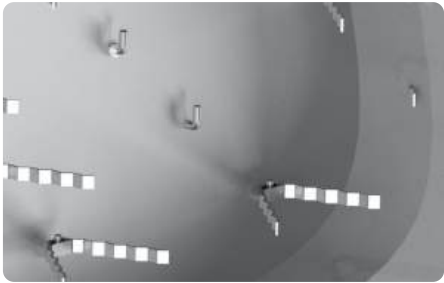
Standard Measurements (mm)

CVH

	min	max		min	max
B:	-	30	α° :	45°	80°
T:	-	6	L:	75	350
G:	18				

Please contact us for other dimensions

Application Example

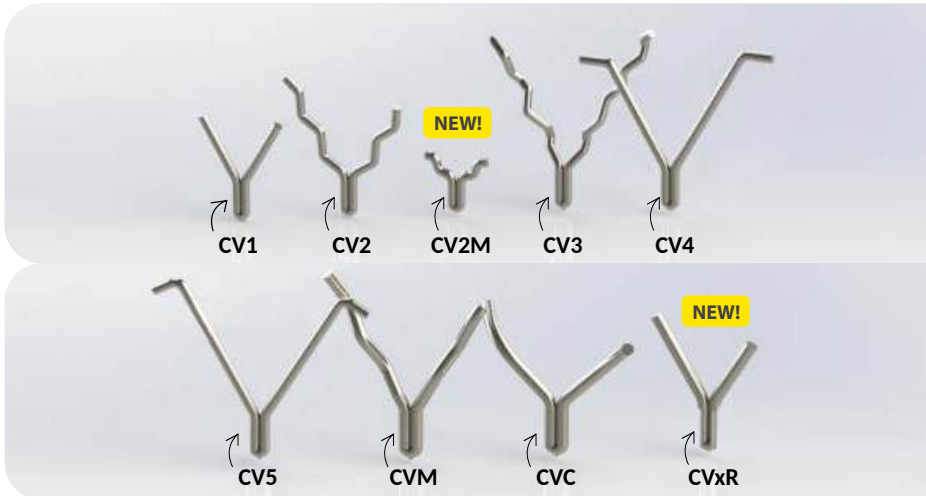


Combine with

BCA, C-16

Corrugated 'V' Anchors

Series C-08



The corrugated 'V' anchor is a round sectioned and rapid arc weldable refractory anchor offering excellent properties due to its 2-Dimensional and 3-Dimensional characteristics.

CV1, CV2, CV4, CV5 and CVM anchors are suited for light and medium density refractory concretes. The CV3 anchor is suitable for heavy density concrete and offers superior holding power of the refractory due to the 2-Directional corrugation of the anchor. Reinforcing fibers are recommended for maximum refractory toughness and thermal shock resistance. The CVC anchor is a specially designed anchor for welding in between pipes. Its corrugated legs extend over the pipe, thereby increasing the holding power.

The corrugated 'V' anchors are supplied with ceramic ferrules for rapid arc welding

Discover our CV2M (CV2 Mini) . This really small corrugated CV anchor has a minimum length of 30mm. It is perfect for low refractory insulating lining (stacks, ducting work)

Take a look at the CvxR: our brand new CV-anchor with a Round Bottom.



Corrugated 'V' Anchors

Series C-08

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Tolerances ±

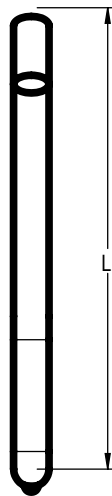
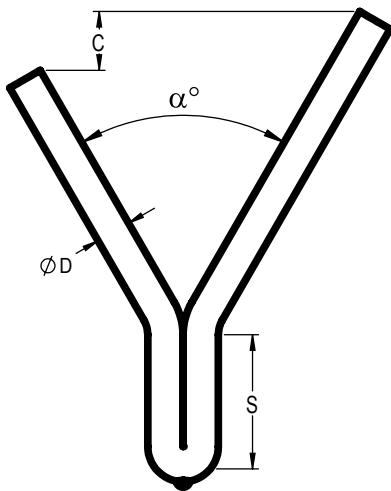
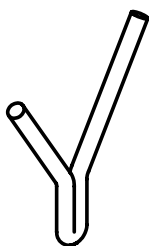
Length	L:	4,0 mm
Diameter	D:	H9
Angle	α:	5°

Please contact us for other alloys

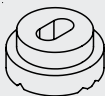


- CV1
- CV2
- CV2M
- CV3
- CV4 >

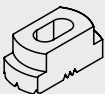
NEW



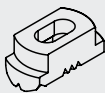
Ferrule options:



Round



Rectangular



Chamfered

Order Code Corrugated 'V1'

CV1.D(α)-L(c)-alloy

Use the following code in case of a longer step

CV1S.D(α)-L(c)/S-alloy

Example Code:

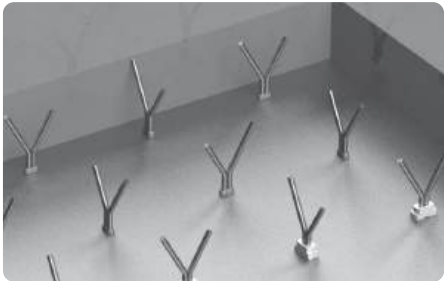
CV1.6(60)-250(15)-310

CV1S.6(60)-250(15)/50-310

Standard Measurements (mm)

CV1					
	min	max		min	max
D:	6	8	α°:	50°	90°
L:	35	250			
	S=20		*if L = 35 mm, α=90°		
Please contact us for other dimensions					

Application Example



Also Available:

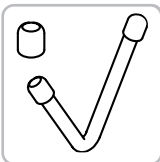


RAW Services

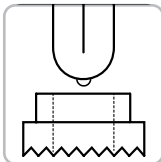
V1, C-02

VNP, D-02

Supplied With:



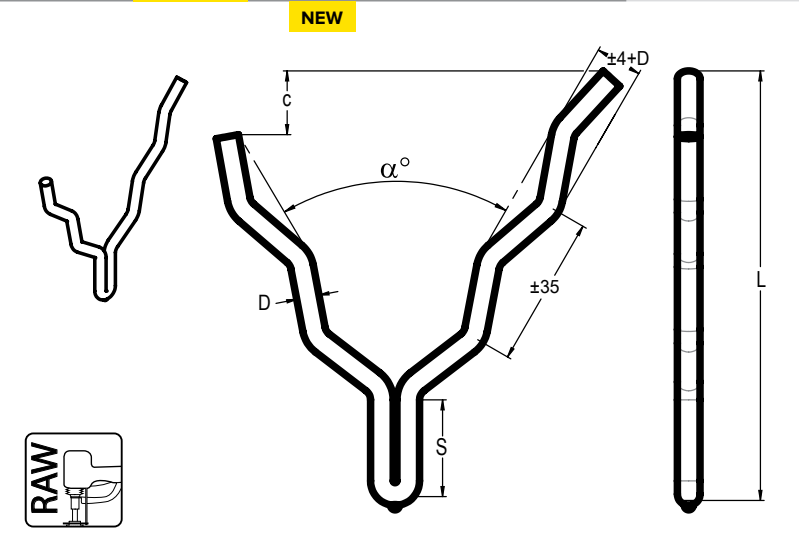
With Caps



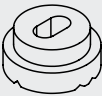
Ceramic Ferrules

CV1 CV2 CV2M CV3 CV4 >

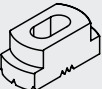
NEW



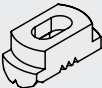
Ferrule options:



Round



Rectangular



Chamfered

Order Code Corrugated 'V' 2-dimensional
CV2.D(α)-L(c)-alloy

Example Code:
CV2.6(80)-150(10)-330

Use the following code in case of a longer step
CV2S.D(α)-L(c)/S-alloy

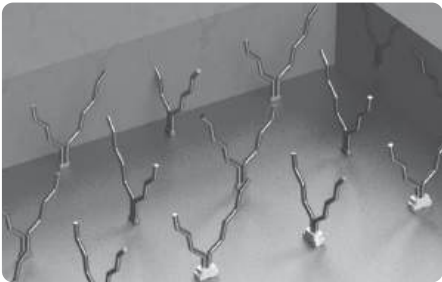
CV2S.6(60)-250(15)/60-310

Standard Measurements (mm)

CV2					
	min	max		min	max
D:	6	8	α°:	50°	90°
L:	45	350			
	S=20		*if L = 35 mm, α=90°		

Please contact us for other dimensions

Application Example



Also Available:

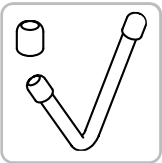


RAW Services

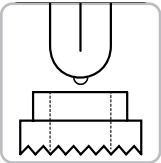
CH2, C-05

VNCH2, D-02

Supplied With:



With Caps



Ceramic Ferrules


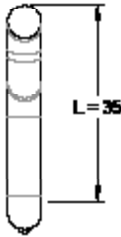
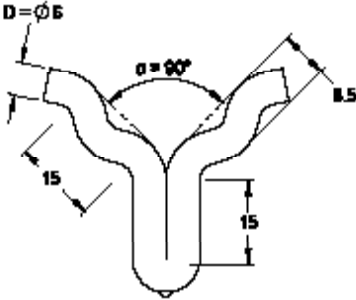

CV1

CV2

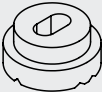
CV2M
NEW

CV3

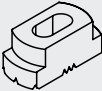
CV4 >



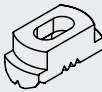
Ferrule options:



Round



Rectangular



Chamfered

Order Code Corrugated CV2 Mini
CV2M.6(90)-35(00)-alloy

Example Code
CV2M.6(90)-35(00)-310

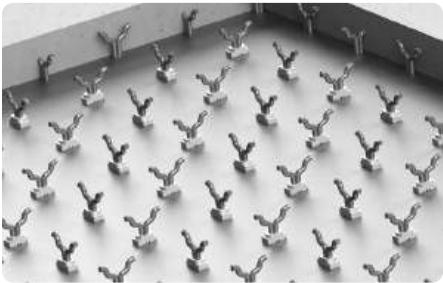
Standard Measurements (mm)

CV2M			
D:	6	α°:	90°
L:	35	S:	15

There is no leg difference for this anchor.

Please contact us for other dimensions

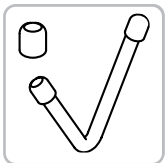
Application Example



Also Available:

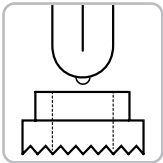


RAW Services



With Caps

Supplied With:



Ceramic Ferrules

< CV2M

CV3

CV4

CV5

CVM >

NEW

Technical drawing of a Corrugated 'V' Anchor showing dimensions: C, α° , ϕD , S, and various offsets like $\pm 9+D$, $\pm 4+D$, ± 35 , ± 50 .

Ferrule options:

- Round
- Rectangular
- Chamfered

Order Code Corrugated 'V' 3-dimensional
CV3.D(α)-L(c)-alloy

Use the following code in case of a longer step
CV3S.D(α)-L(c)/S-alloy

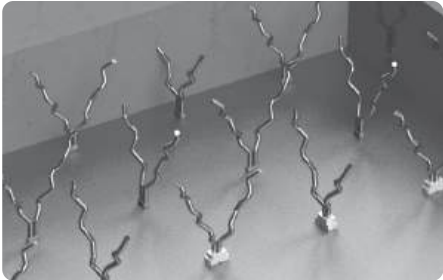
Example Code:
CV3.8(60)-225(10)-310

CV3S.6(60)-250(15)/50-310

Standard Measurements (mm)

CV3					
	min	max		min	max
D:	6	8	α°:	50°	60°
L:	80	350			
	S=20				
Please contact us for other dimensions					

Application Example



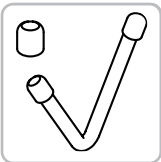
Also Available:



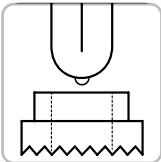
RAW Services

CH3, C-05

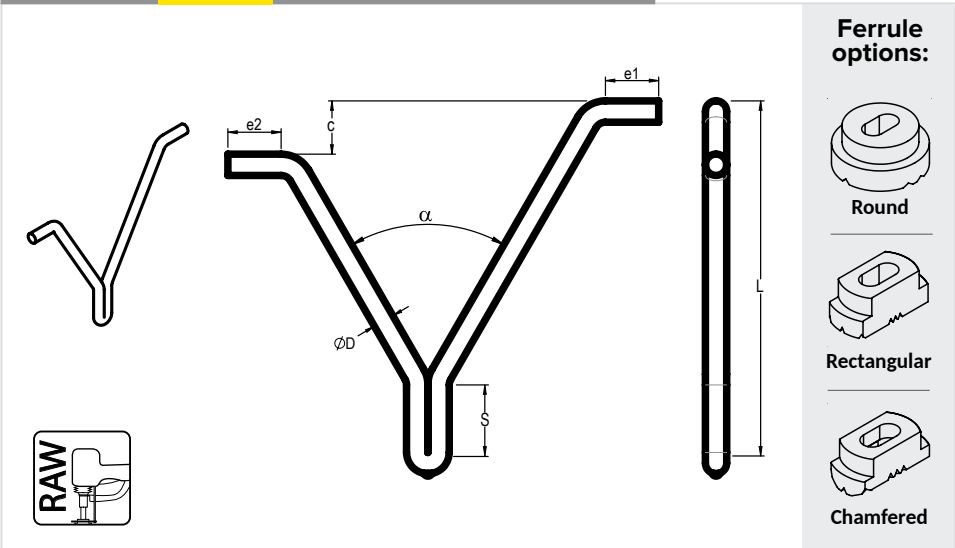
VNCH2, D-02



With Caps



Ceramic Ferrules



Order Code Corrugated 'V4'

CV4.D(α)-L(c)/e1.e2 -alloy

Example Code: **CV4.6(60)-225(10)/20.20-310**

Use the following code in case of a longer step

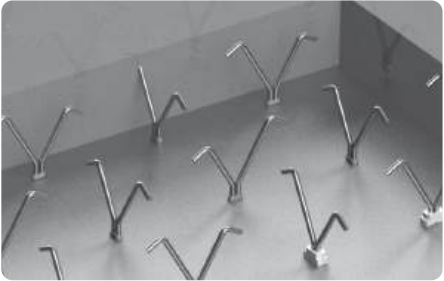
CV4S.D(α)-L(c)/e1.e2/S-alloy

CV4S.6(60)-250(15)/20.20/50-310

Standard Measurements (mm)

CV4					
	min	max		min	max
D:	6	8	α°:	50°	60°
L:	45	350	e:	10	
	S=20				
Please contact us for other dimensions					

Application Example



Also Available:



RAW Services

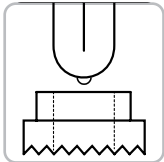
V4, C-02

VNV4, D-02

Supplied With:



With Caps



Ceramic Ferrules

< CV4 CV5 CVM CVC CVxR

NEW

Technical drawing of a Corrugated 'V' Anchor (CV5) showing dimensions: e1, e2, c, α , ϕD , S. Includes a side view and a 'RAW' logo.

Ferrule options:

- Round
- Rectangular
- Chamfered

Order Code Corrugated 'V5'

CV5.D(α)-L(c)/e1.e2 -alloy

Use the following code in case of a longer step

CV5S.D(α)-L(c)/e1.e2/S-alloy

Example Code:

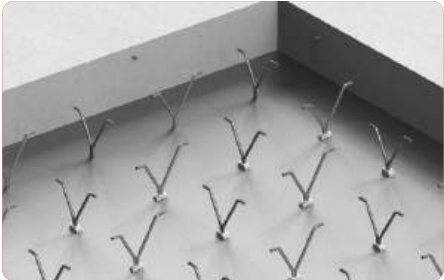
CV5.6(60)-225(10)/20.20-310

CV5S.6(60)-250(15)/20.20/50-310

Standard Measurements (mm)

CV5					
	min	max		min	max
D:	6	8	α°:	50°	90°
L:	45	225	e:	10	
	S=20				
Please contact us for other dimensions					

Application Example



Also Available:



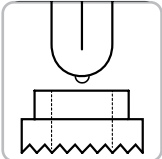
RAW Services

V4, C-02

VNV4, D-02



With Caps



Ceramic Ferrules

Supplied With:

< CV5

CVM

CVC

CVxR

NEW

Order Code Corrugated 'V' with 'M' Corrugation
CVM.D(α)-L(c)-alloy

Example Code:
CVM.8(50)-220(10)-310

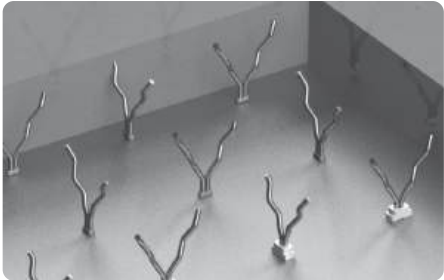
Use the following code in case of a longer step
CVMS.D(α)-L(c)/S-alloy

CVMS.6(60)-250(15)/60-310

Standard Measurements (mm)

CVM					
	min	max		min	max
D:	6	8	α°:	50°	90°
L:	60	250			
	S=20				
Please contact us for other dimensions					

Application Example



Also Available:



RAW Services

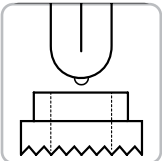
VM, C-02

VNM, D-02

Supplied With:

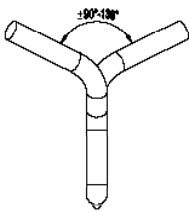
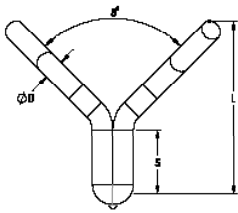
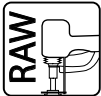
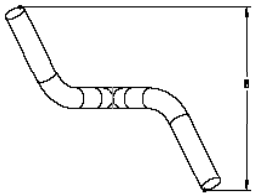


With Caps

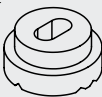


Ceramic Ferrules

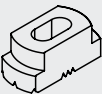
NEW



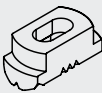
Ferrule options:



Round



Rectangular



Chamfered

Order Code Corrugated 'V' Curved

CVC.D(α)-L(s)-alloy

Example Code:

CVC.6(60)-70(10)-310

Standard Measurements (mm)

CVM

	min	max		min	max
D:	6	8	α°:	70°	90°
L:	45	200	S:	10	90

This is one of our special anchors, specially designed for welding in between refractory pipes. The CVC can be supplied with different types of ferrules for various (pipe) applications.

Please contact us for other dimensions

Application Example



Also Available:



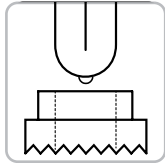
RAW Services



With Caps

CV, C-02

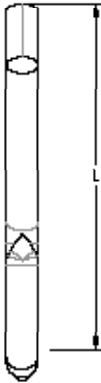
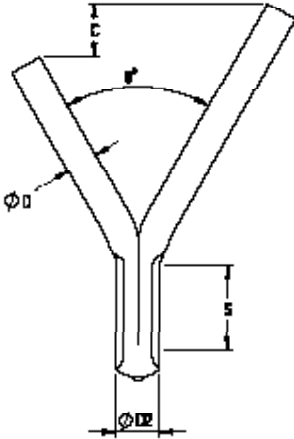

Supplied With:




Ceramic Ferrules




< CV5 CVM CVC **CVxR**

NEW





Ferrule options:

- 
Round
- 
Rectangular
- 
Chamfered

Order Code CVxR Anchor with Round Bottom
CVxR.D(a)-L(c)-alloy

Example Code
CVxR.6(60)-150(10)-310

Standard Measurements (mm)

CVxR

If $\varnothing D = 6$, then $\varnothing D2 = 8$ mm

If $\varnothing D = 8$ then $\varnothing D2 = 11,4$ mm

For other dimensions see respective CV-Anchor pages (C-08)

Application Example



Also Available:



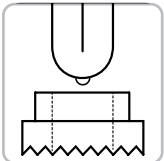
RAW Services

V4, C-02

VNV4, D-02



With Caps

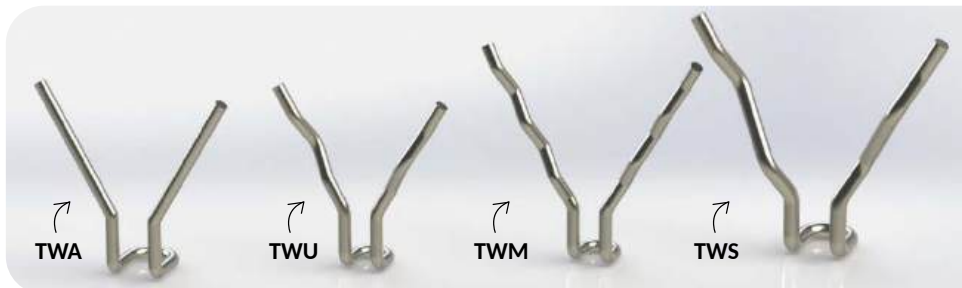


Ceramic Ferrules

Supplied With:

TW Anchors

Series C-09



The TW anchor is a multipurpose refractory anchor for all types of refractory. It's suitable for hand welding or bolting to the steel casing and is also ideal for use as a 'movable' anchor in rotary kilns and for general medium to heavy weight refractories.

The TWA and TWU anchors are suited for light and medium density refractory concretes. The TWM and TWS anchors are suited for medium and heavy density refractory concretes. Reinforcement fibers are recommended for thermal shock resistance.



TW Anchors

Series C-09

Available Alloys

Wire:

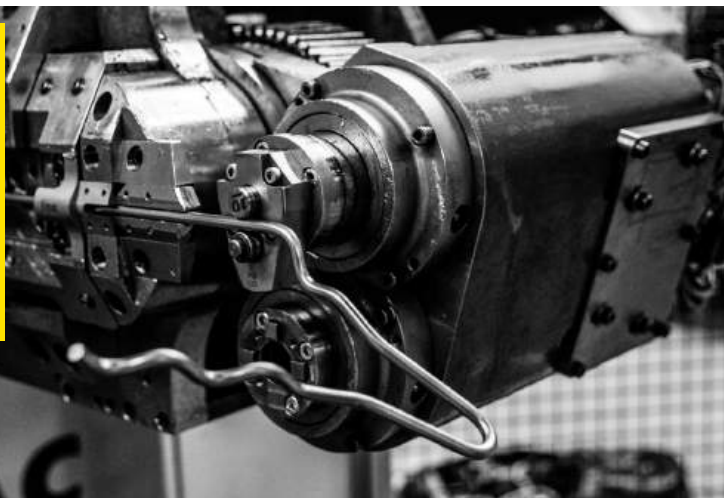
CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Please contact us for other alloys

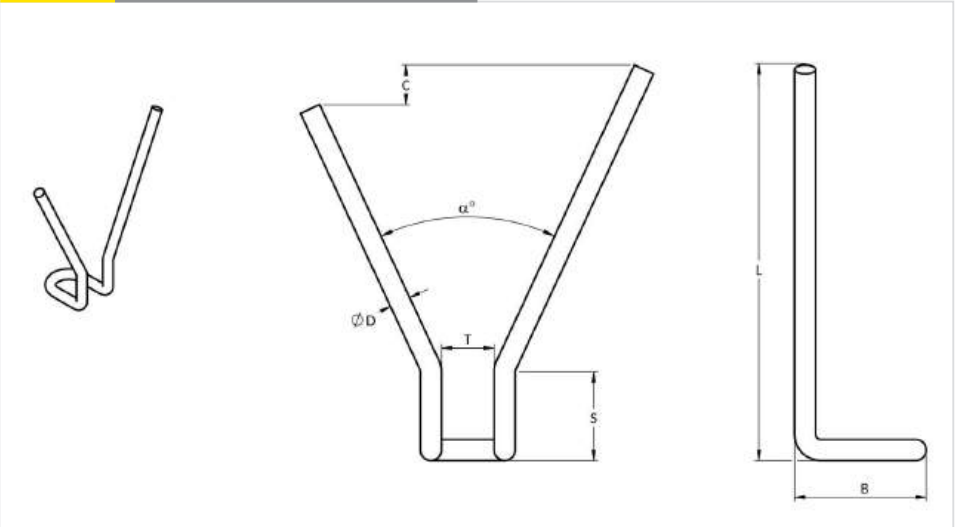
Tolerances ±

Length	L:	4,0 mm
Diameter	D:	H9
Step	S:	3,0 mm
Angle	α:	5°
Foot Depth:		2,0 mm
Leg Spacing:		1,5 mm

Thanks to our CNC automatic bending machines, we are able to manufacture with an *extremely high productivity rate*.



TWA TWU TWM TWS



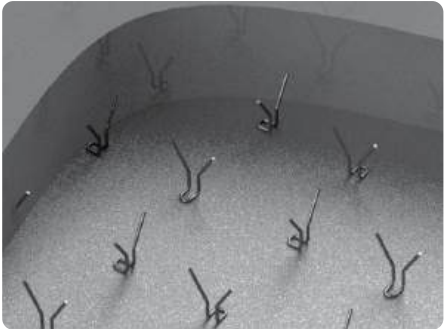
Order Code TWA
TWA.D(α)-B.T-L/c(S)-alloy

Example Code:
TWA.6(60)-30.15-125/15(040)-330

Standard Measurements (mm)

TWA					
	min	max	L:	min	max
D:	5	16	S = 0:	20	750
			S > 35:	45	750
Please contact us for other dimensions					

Application Example



Also Available:



With Caps

CV1, C-08

VNP, D-02

SpeedBolt® , C-10

BW-Set, C-10

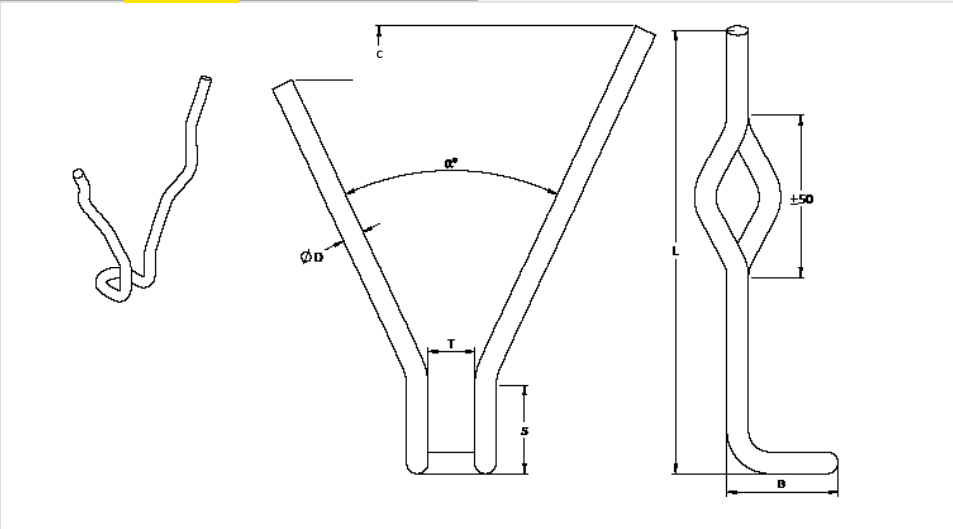
Combine with

TWA

TWU

TWM

TWS



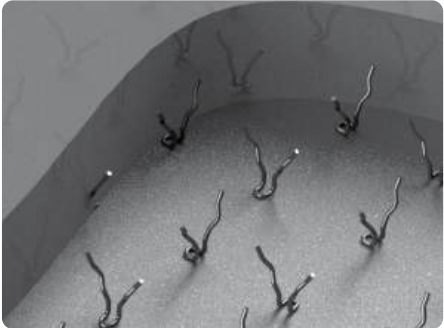
Order Code TW 'U' Corrugation
TWU.D(α)-B.T-L/c(S)-alloy

Example Code:
TWS.6(60)-30.15-125/15(040)-330

Standard Measurements (mm)

TWU					
	min	max	L:	min	max
D:	5	16	S = 0:	50	750
			S > 35:	80	750
Please contact us for other dimensions					

Application Example



Also Available:



With Caps

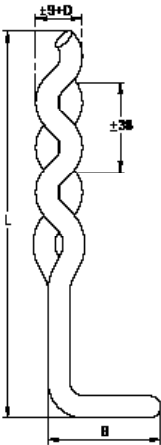
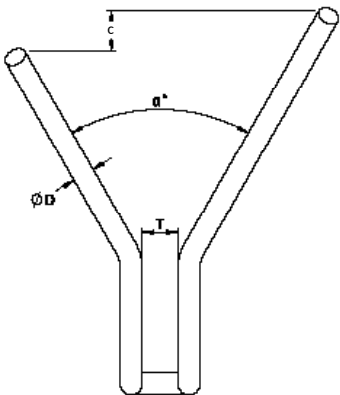
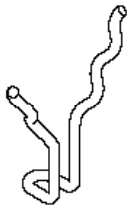
CBH, C-03

CBS, C-03

SpeedBolt®, C-10

BW-Set, C-10

Combine with



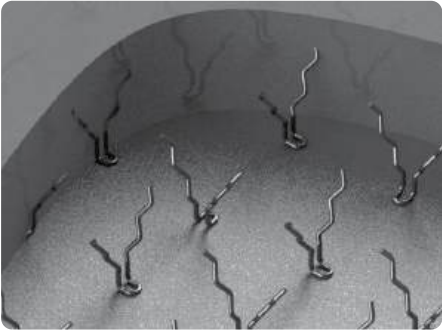
Order Code TW 'M' Corrugation
TWM.D(α)-B.T-L/c(S)-alloy

Example Code:
TWM.6(60)-30.15-125/15(040)-330

Standard Measurements (mm)

TWM					
	min	max	L:	min	max
D:	5	16	S = 0:	45	750
			S > 35:	65	750
Please contact us for other dimensions					

Application Example



Also Available:



SpeedBolt®, C-10

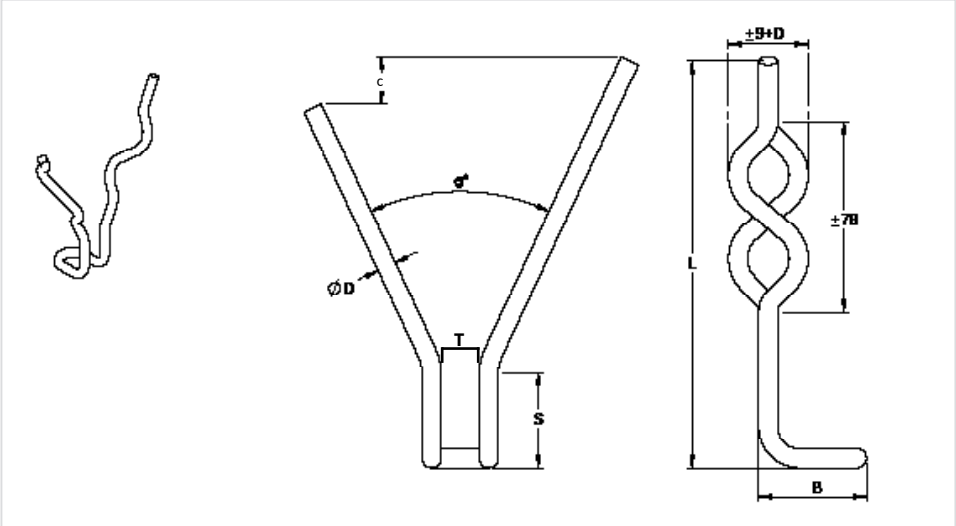
CBH, C-03

VNM, D-02

CVM, C-08

BW-Set, C-10

Combine with



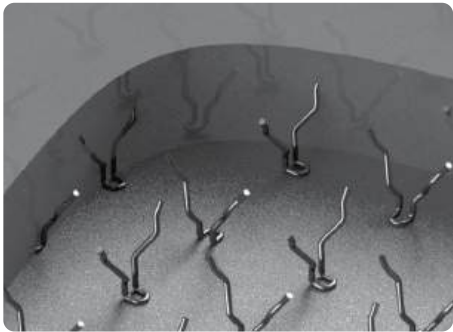
Order Code TWS
TWS.D(α)-B.T-L/c(S)-alloy

Example Code:
TWS.6(60)-30.15-125/15(040)-330

Standard Measurements (mm)

TWA					
	min	max	L:	min	max
D:	5	16	S = 0:	80	750
			S > 35:	100	750
Please contact us for other dimensions					

Application Example



Also Available:



With Caps

VNM, D-02

CVM, C-08

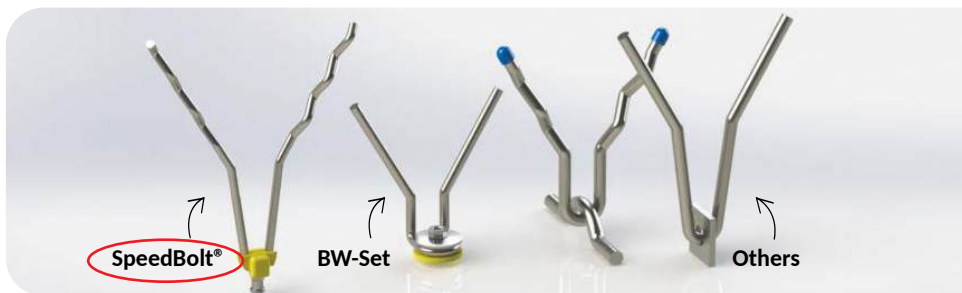
SpeedBolt®, C-10

BW-Set, C-10

Combine with

Moveable Anchors

Series C-10



Moveable anchors are mainly used in rotary kilns where more stress occurs due to refractory movement. These anchors are fixed (e.g. by tack welding) during installation, but become 'free' during operation. This allows the anchor to move with the refractory material as it undergoes variable loads, thereby reducing stresses on both materials.

SpeedBolt®

The SpeedBolt® system consists of a rapid arc weldable SpeedBolt®, a specially designed Bullhorn anchor and a plastic clip. It was developed to facilitate the installation of moveable and floating anchors for dynamic refractory linings for cement industry and others where rigid anchoring systems are to be avoided.

As soon as the operating temperature is reached, the fastened clip will melt and give the SpeedBolt® Bullhorn anchor freedom to move. This will provide a floating characteristic to the application. **The SpeedBolt® is designed to be welded with the SILICON rapid arc welding technology. This improves safety, cuts down installation time and labor costs.**

NEW!

The Speed-Bolt is also the perfect solution for the Petrochem industry when men has to fight against metal expansion.

SILICON SpeedBolt® welded onto casing using SILICON rapid arc welding

Specially designed Bullhorn anchor placed through the SpeedBolt® eye

Plastic SpeedClip to secure anchor



SpeedBolt®

Series C-10

Available Alloys

SpeedBolt® :
316

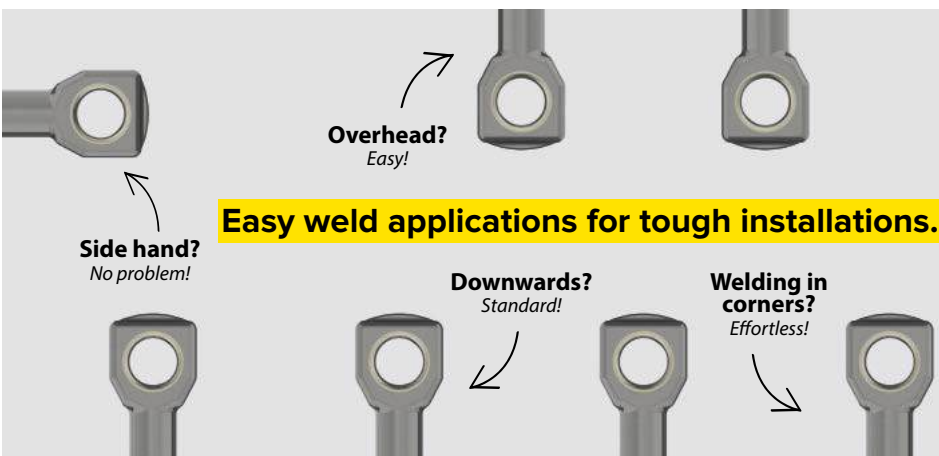
SpeedBolt® Bullhorn:
CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

SpeedBolt® Bullhorn:

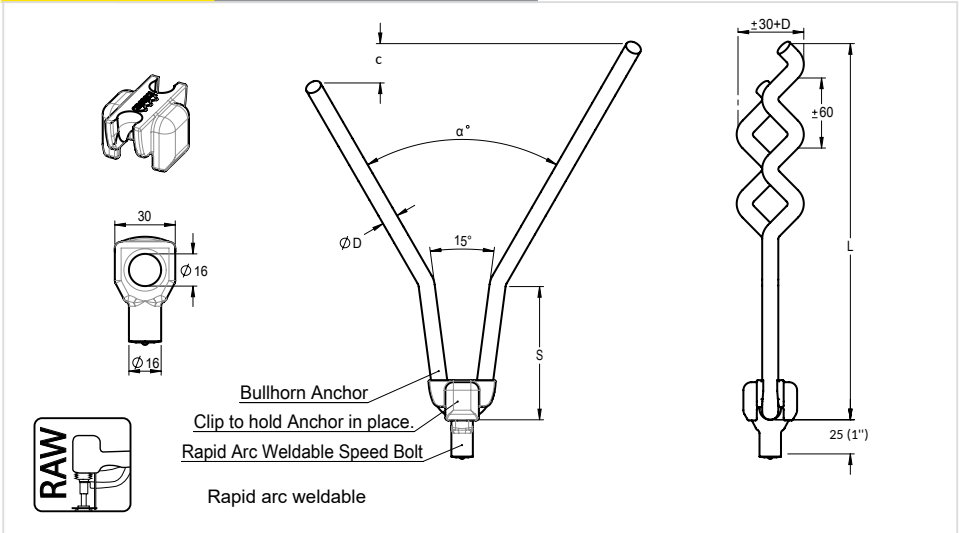
Length	L:	3,0 mm
Diameter	D:	H9
Angle	α:	5°



SpeedBolt®

BW-Set

Other



Order Code SpeedBolt® Bullhorn anchor

SBOLT-B.D(α)-L(S)-alloy

Order Code SpeedBolt®

SBOLT-alloy

Example Code:

SBOLT-B.12(60)-600(20),(200)-330

SBOLT-316

Standard Measurements (mm)

SpeedBolt®			
	min		
S:	80		
L:	175	D:	8, 10, 12
PATENT INFORMATION: NL2006790 EP12168118.3 US8,844,239 Patent pending in other countries		The SpeedBolt®, Bullhorn and Clip are sold as set. Please contact us for other dimensions	

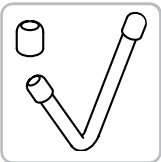
Application Example



Also Available:

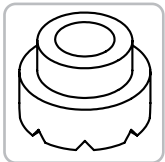


RAW Services



With Caps

Supplied With:



Ceramic Ferrules

Moveable Anchors

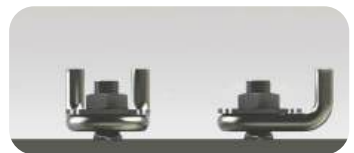
Series C-10



BW-Set



Installation of the BW-Set



After first heating
above 250°C

The BW-Set consists of a threaded stud or P-Pin, plastic spacer, a nut and one or two rings. It can be combined with anchors from the TW series or Twin Pin series. After installation the plastic spacer will melt during operation above 250°C, giving the anchor room to 'move'.

SILICON threaded stud is welded onto casing using SILICON rapid arc welding.

Plastic spacer is placed over stud.

Anchor is placed on plastic spacer and tightened by a nut and a stainless steel ring.



Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314, 321, 330, 800, 601

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

Please contact us for other alloys

We are



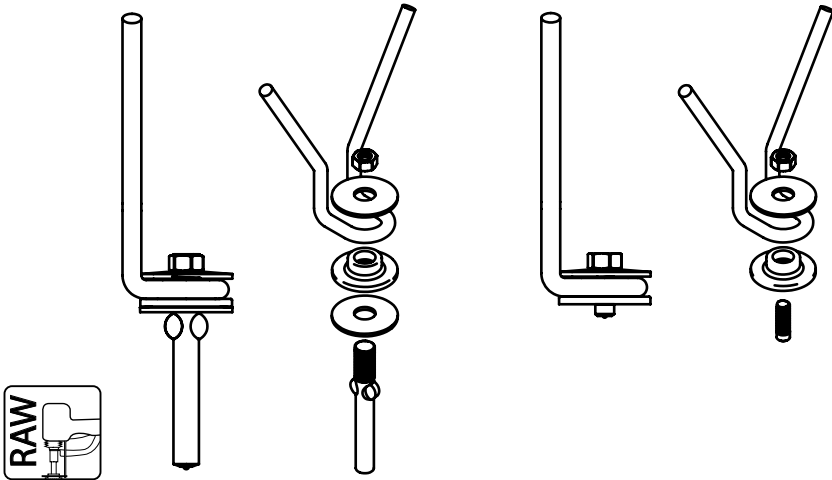
multilingual

we can help you in **Dutch, English, German, French, Italian, Turkish, Portuguese** and **Spanish!**

SpeedBolt®

BW-Set

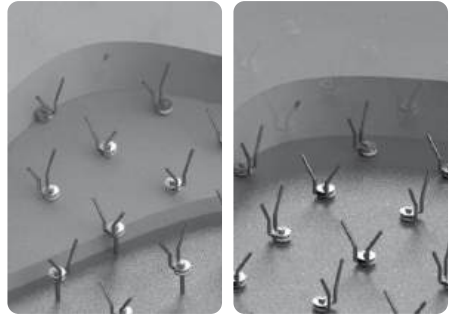
Other



Installation set of the 'moveable' anchor available on request

The BW-Set in combination with a TW or Twin Pin anchor is ideal for using as a 'moveable' anchor in rotary kilns. Installation can be done with a stud, placing the anchor directly on the casing or using a P-Pin with a backup lining. During installation a plastic spacer supports the anchor. The plastic spacer will melt during the first heating above 250°C giving the anchor room to 'move'.

Application Example



Combine with:

POC Studs, F-04

P-Pins, F-01

TW's, C-09

T-Studs, F-07

Washers, F-08

Moveable Anchors

Series C-10



Others

Below are examples of other moveable anchor systems. SILICON can manufacture moveable anchor systems in various shapes and sizes with SILICON standard and non-standard anchors. Please do not hesitate to send us a drawing with your own design.



Others

Series C-10

Available Alloys

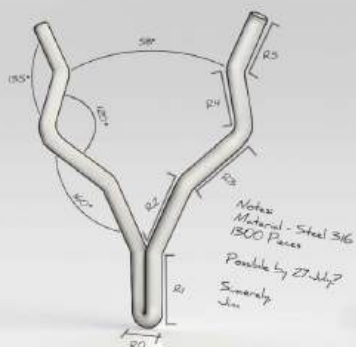
Plate:

CS, 304, 309, 253MA, 310, 314, 321, 330, 800, 601

Wire:

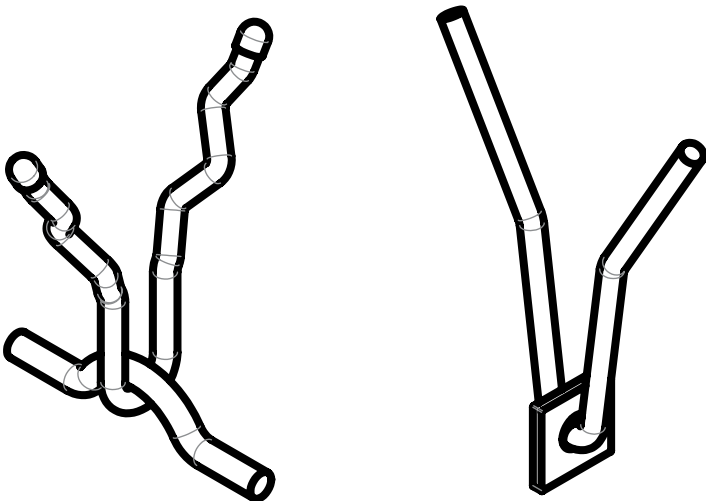
CS, 304, 304H, 309, 253MA, 310, 314, 316, 321, 330, 800, 601

If you can draw it...



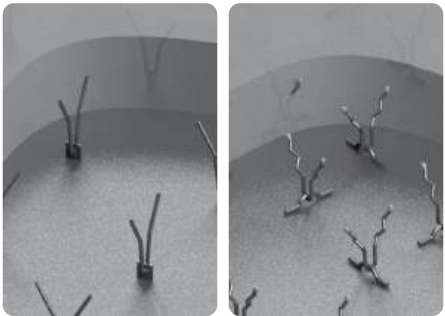
...we can make it!



SpeedBolt®	BW-Set	Other
		
<p>Examples of other moveable anchor systems</p>		

Above are examples of other moveable anchor systems. These anchors are fixated (e.g. by tack welding) during installation, but become loose during operation. This allows the anchor to move with the refractory material as it undergoes varying loads, thereby reducing stresses on both materials. SILICON can manufacture the moveable anchor system in various shapes and sizes with SILICON standard and non-standard anchors. Or send us a drawing with your design.

Application Example



Combine with:

RRN, F-08 Washers, F-08 Omega, C-16



Our SpeedCell® is an easily applicable single-cell system with extremely high resistance to thermal shock. The SpeedCell® was developed in 1989 for use in refineries, where engineers and installers were facing increasing headaches in applying hex metal in petrochemical installations. SILICON's solution was this single cell system that, together with the ramming mixes, creates its own independent island of resistance and strength.

The SpeedCell® comes in two sizes: 50 mm and 30 mm. The 30 mm model is used to fill small gaps near edges. The 50 mm model is offered as second generation and third generation type. The most recent third generation 50 mm SpeedCell® includes all the benefits of the older generations, but has additional strength and holding power, making it exceptionally suitable for concrete ramming.

The anchors in this series are designed for use in Fluid Catalytic Cracking (FCC) installations.



Available Alloys

Plate:
SpeedCell 304, 310S

Wire:
CS, 304, 304H, 309, 253MA, 310,
314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

Length	L:	1,5 mm
Width	W:	0,5 mm
Thickness	T:	0,5 mm



Installation of Shoulder Studs



SpeedCells® screwed onto Shoulder Studs.



Easy repair of broken Hex Metal
with SpeedCells®



Installation of refractory onto SpeedCells®

We have

evolved!



Hex Metal Problems

The design of the SpeedCell® was the result of development in the late 1980's when FCC users were in need of a faster system of replacing and repairing the conservative design of the refractory lining using hex metal with a system that would offer a greater speed of installation and improved lining lifetime. Downtime was always an issue with equipment costing millions per day. The criteria for the design were that it would not give the problems that were encountered with hex metal at that time. These problems were:

- **Biscuiting** (the loss of refractory material from the hex metal cells themselves).
- **Complete break-off** from the wall due to either expansion or cokes build-up. Break-off results in complete flow disruption and loss of cyclone efficiency to separate the catalyst from the gasses.
- **Difficult and slow installation**
Installation speed is essential in keeping the down time to a minimum and within the schedule of the turnaround.





Problem Solving Design

The idea of having a similar style as the hex metal was preferred in order to keep the same reality that had already been used in the industry for many years. Since the biggest problem of hex metal is the metal structure causing great tension in the lining itself, the idea of taking out the 'links' between the cells was adopted. This gave a pattern of individual cells.



The other consideration to solve the biscuiting would be to contain the refractory material against the steel plate by having an area under the cell for better holding of refractory. The gaps and open sections on and between the "arms" of the SpeedCell® allow for better refractory homogeneity, providing a strong bond between the refractory that is on top of and under the SpeedCell®.



The single point fastening method, using a stud, allows for a safe and damage-free repetitive expansion and contraction of the refractory material. Through examination of samples exposed to repeated thermal cycling it was observed between the SpeedCell® that small cracks formed around them as to form small "islands" wherefrom expansion and contraction can take place quite freely.



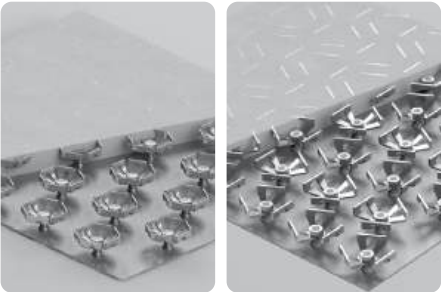


Order information SpeedCell® 50 mm
Indicate **SCS.50** generation and lining height upon inquiry/order

Standard Measurements (mm)

SCS50		
Alloys	304	310
<div><div>PATENT INFORMATION: Europe: 2425192 United States of America: 9,127,890 Brazil: PI1016125-2 Patent pending in other countries</div><div>The SpeedCell® and Shoulder Stud are sold as set <i>Please contact us for other dimensions or alloys</i></div></div>		

Application Example



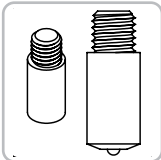
Also Available:



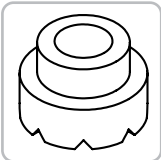
RAW Services

SCS30, C-11

Supplied With:



Shoulder Studs

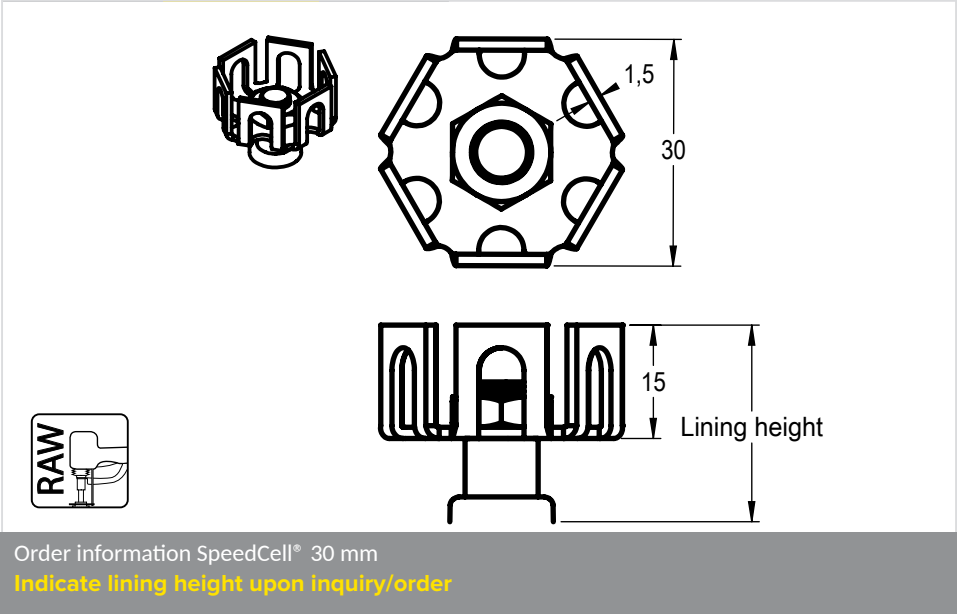


Ceramic Ferrules

SCS50

SCS30

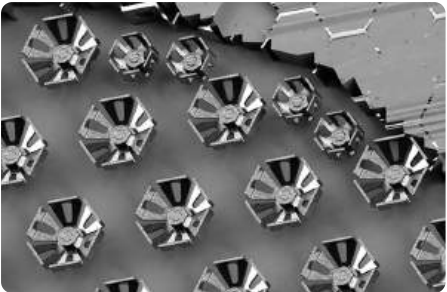
SHS



Standard Measurements (mm)

SCS30		
Alloys	304	310
The 30 mm SpeedCell® is used to fill small gaps near edges. The SpeedCell® and Shoulder Stud are sold as a set		
Please contact us for other dimensions or alloys		

Application Example



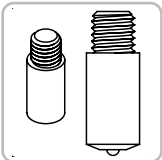
Also Available:



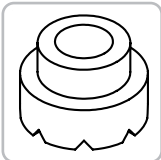
RAW Services

SCS50, C-11

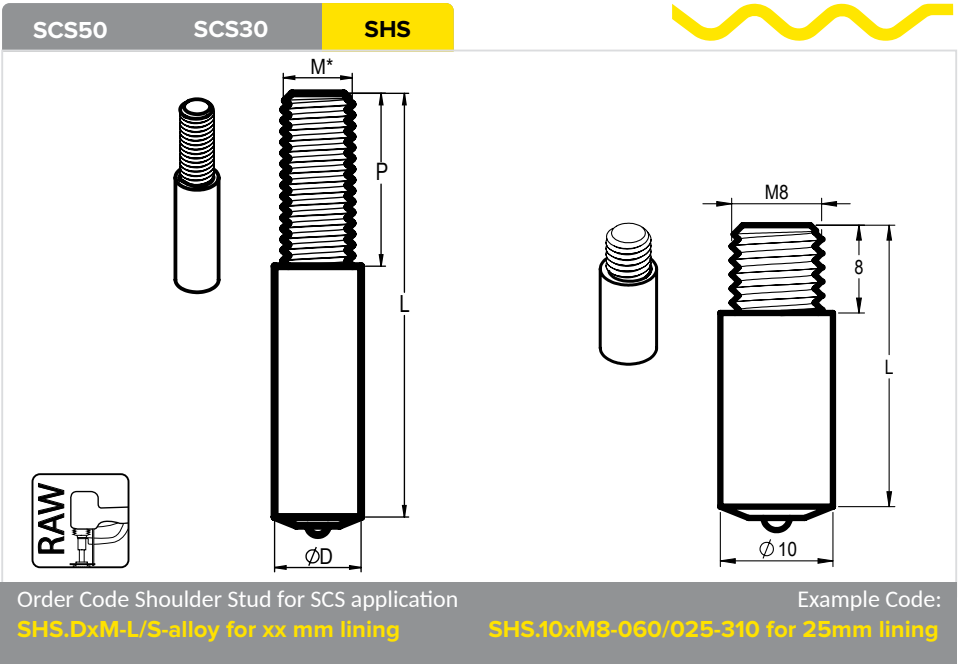
Supplied With:



Shoulder Studs



Ceramic Ferrules

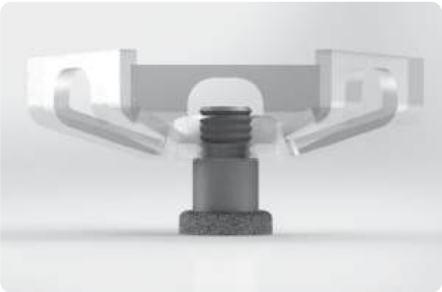


Standard Measurements (mm)

Dependent on your lining height SILICON will select the right Shoulder stud. Shoulder studs are supplied as part of the SpeedCell® set. For more information about general Shoulder Studs, check section F-07, Threaded Studs.

CS+304 version for 25 (1") lining always available from stock.

Application Example



Also Available:

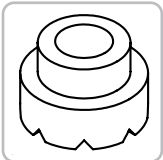


RAW Services

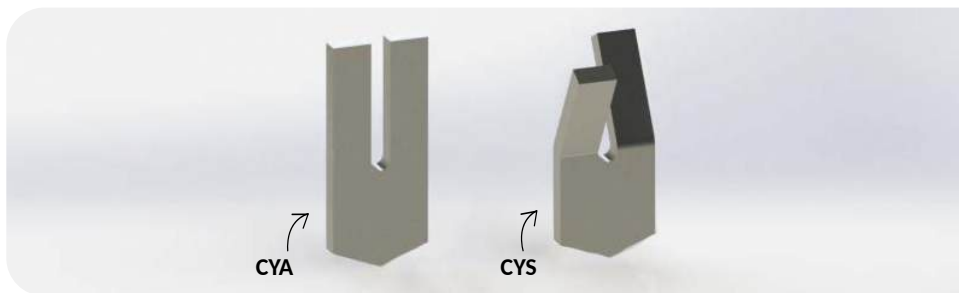
T-Studs, F-07

POC Studs, F-04

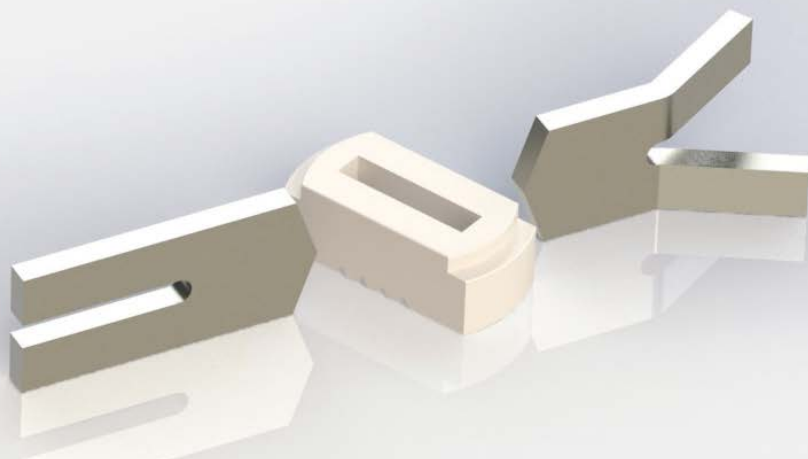
Supplied With:



Ceramic Ferrules



The CYA and CYS anchors are designed for thin refractory linings and can both be installed with rapid arc welding. The CYS anchor is supplied in the open position, whereas the CYA anchor is supplied in the closed position and is bent open after welding.



Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314, 321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

Length	L:	1,5 mm
Width	W:	0,5 mm
Thickness	T:	0,3 mm
Step	S:	1,0 mm
Angle	α:	2°

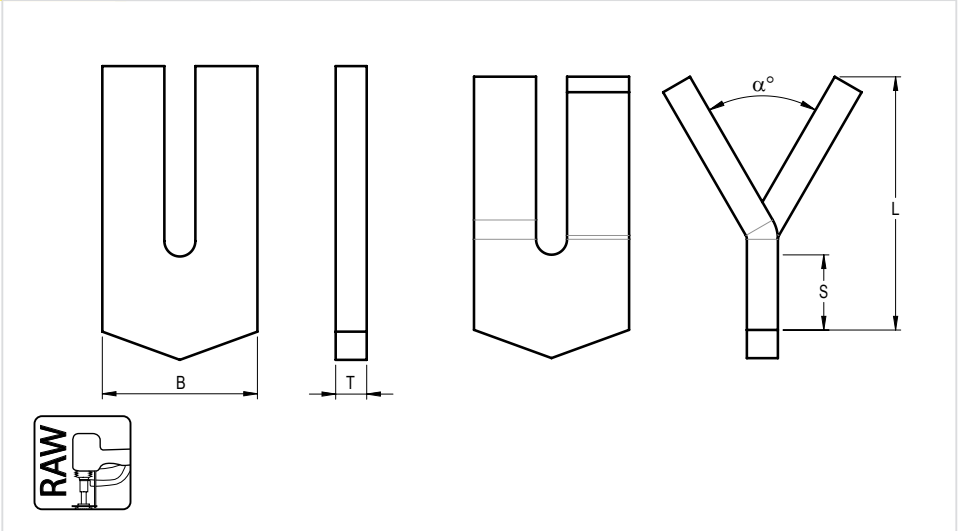
Unique packaging

Our packing department makes sure that your orders are safely packed and perfectly labelled (custom labelling on request) in order to facilitate the job of the welders on jobsites.



CYA

CYS



Order Code Eco-Vin CYA
CYA.B/T(α)-L(S)-alloy

Example Code
CYA.15/3(60)-040(022)-330

Standard Measurements (mm)

CYA		
	min	max
L:	19	40
B:	10	15
T:	3	
Please contact us for other dimensions		

Application Example



Also Available:

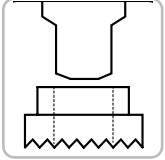


RAW Services

YSAR, C-15

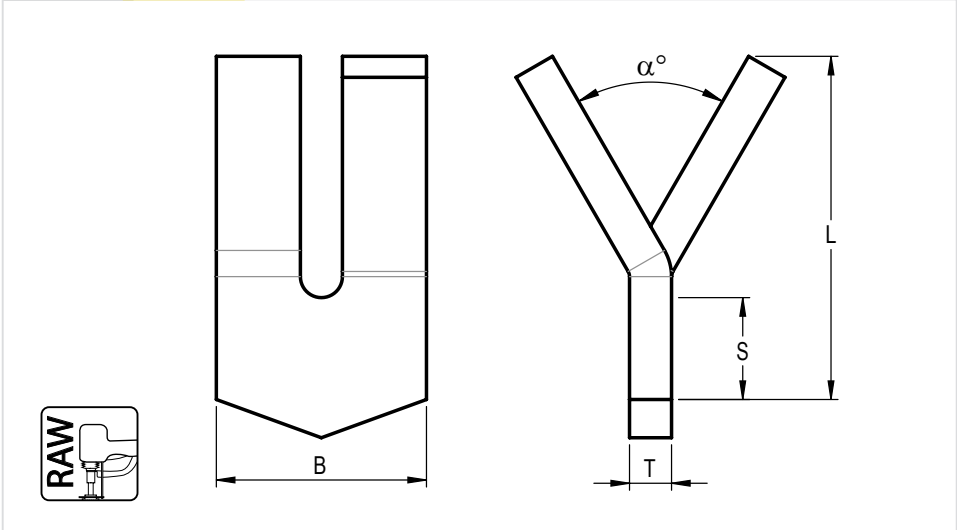
YSMR, C-15

Supplied With:



Ceramic Ferrules

CYA CYS



Order Code Eco-Vin CYS
CYS.B/T(α)-L(S)-alloy

Example Code
CYS.15/3(60)-040(022)-330

Standard Measurements (mm)

CYS					
	min	max		min	max
α°:	60°	90°	L:	19	40
L-S:	14	17			
Slit:	20				

CYS is delivered in the open position.

Please contact us for other dimensions

Application Example



Also Available:

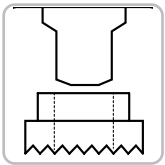


RAW Services

YSAR, C-15

YSMR, C-15

Supplied With:



Ceramic Ferrules

Shear Connectors

Series C-13



Shear Connectors or Shear Load Connectors are used to shear the load of the refractory over a number of joints. With differently shaped and sized Shear Connectors the refractory movement is controlled and cracks and other refractory stress effects can be prevented.

SILICON can offer a variety of shapes and sizes. Please contact us for your inquiries.



Shear Connectors


Series C-13

Available Alloys

Wire:


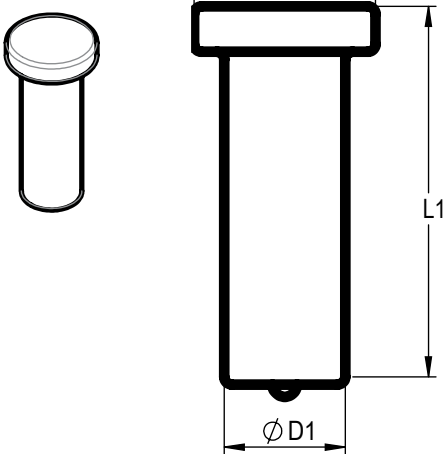
CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

Please contact us for other alloys




**We are a mass
manufacturer
of refractory
anchoring
systems**

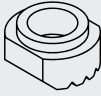
SHC



Ferrule options:



Round



Chamfered

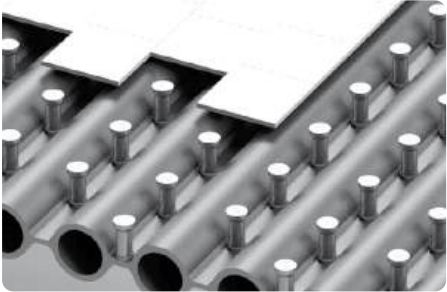
Order Code Shear Connector
SHC.D-L-alloy

Example Code
SHC.10-150-310

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Application Example



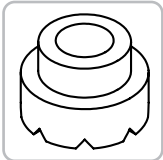
Also Available:



RAW Services

B-Stud, C-16

Supplied With:



Ceramic Ferrules

Round 'Y' Anchors

Series C-14



Round 'Y' anchors were designed to allow prefabricated panels to be transported overseas with a minimum volume with only the nuts welded to the shell casing. These round shaped refractory anchors also help when stud welding techniques are applied or when a minimum of stress is essential in the refractory concrete.

All Round 'Y' Anchors can be supplied in corrugated form (**RYxC**) for increased holding power of the refractory materials.

- **RYP/RYH:** suitable for hand welding on a steel casing.
- **RYS:** suitable for rapid arc welding on a steel casing.
- **RYT:** suitable for screwing into an inside threaded stud or nut. This allows it to be used for double refractory linings.
- **RYK:** suitable for screwing into an inside threaded stud or nut. This allows it to be used for double refractory linings. This anchor has notches to keep the backup layer in place when combined with a washer.



Round 'Y' Anchors

Series C-14

Available Alloys

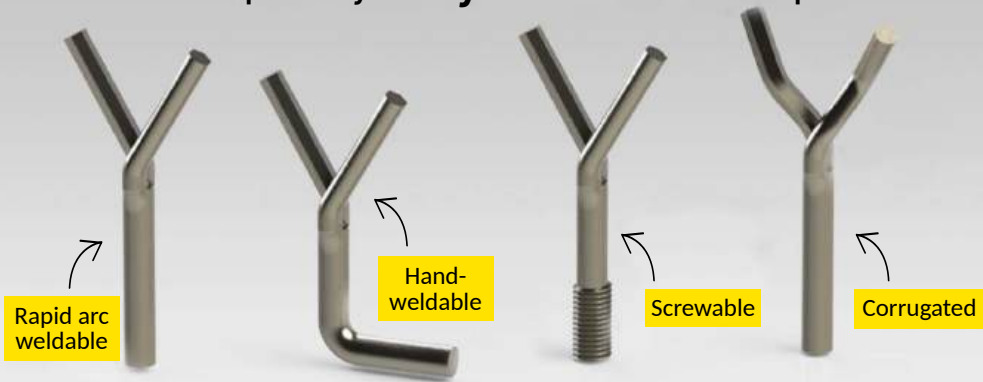
Wire:
CS, 304, 304H, 309, 253MA, 310S,
314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

Length	L:	3,5 mm
Diameter	D:	H9
Step	S:	3,0 mm
Angle	α:	2°

SILICON can provide you **any anchor** with these options:



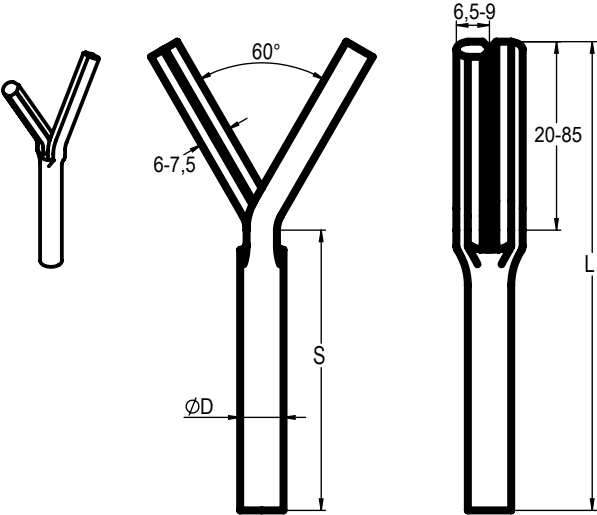
RYP

RYS

RYH

RYT

RYK



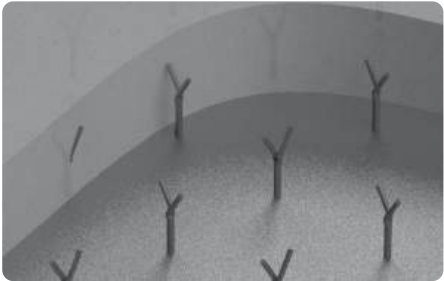
Order Code ‘Y’ Shaped Pin
RYP.D(60)-L(S)-310
Use the following code if corrugated
RYPC.D(60)-L(S)-310

Example Code:
RYP.10(60)-110(060)-310
RYPC.10(60)-110(60)-310

Standard Measurements (mm)

RYP				
	min	max		
L:	50	350	D:	8,9/10/10,8/12
S:	30		L-S:	20-85
Please contact us for other dimensions				

Application Example



Also Available:



With Corrugation

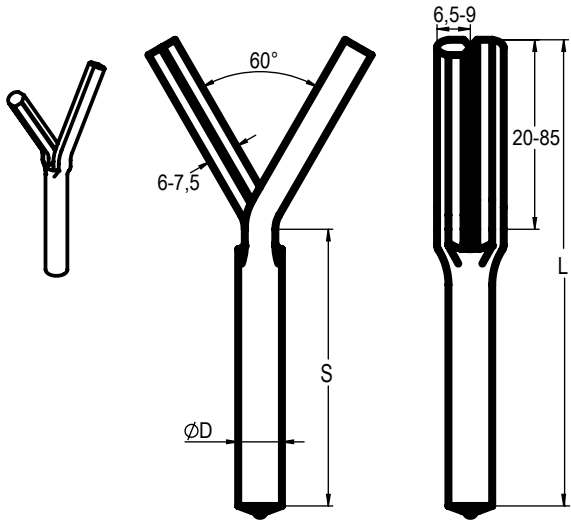
RYP

RYS

RYH

RYT

RYK



Order Code Round ‘Y’ shaped anchor Stud Weldable

RYS.D(60)-L(S)-310

Use the following code if corrugated

RYSC.D(60)-L(S)-310

Example Code:

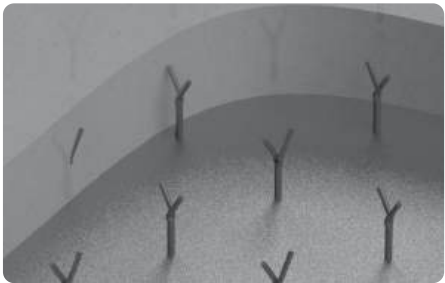
RYS.10(60)-110(060)-310

RYSC.10(60)-110(60)-310

Standard Measurements (mm)

RYS				
	min	max		
L:	50	350	D:	8,9/10/10,8/12
S:	30		L-S:	20-85
Please contact us for other dimensions				

Application Example



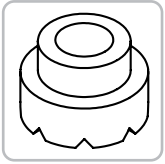
Also Available:



RAW Services

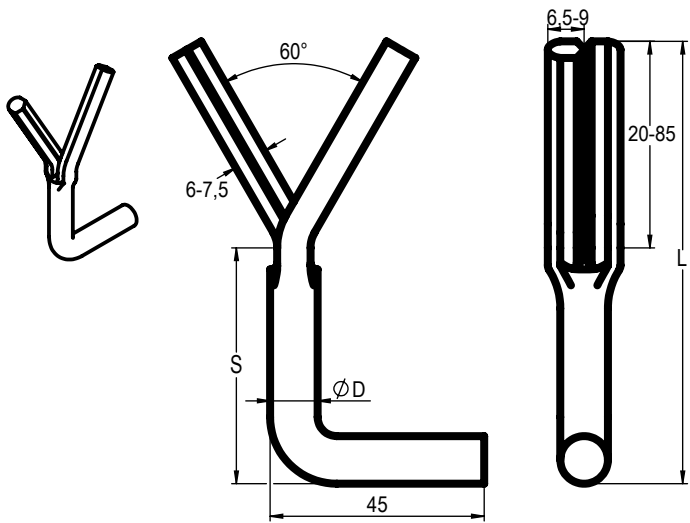
With Corrugation

Supplied with:



Ceramic Ferrules

- RYP
- RYS
- RYH
- RYT
- RYK



Order Code Round ‘Y’ shaped anchor with Hook

RYH.D(60)-L(S)-310

Use the following code if corrugated

RYHC.D(60)-L(S)-310

Example Code:

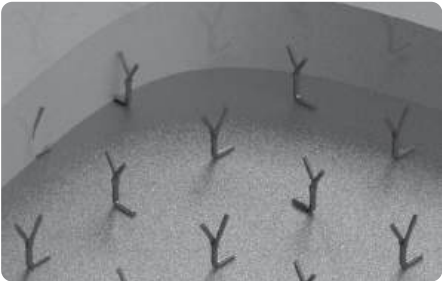
RYH.10(60)-110(060)-310

RYHC.10(60)-110(60)-310

Standard Measurements (mm)

RYH				
	min	max	D:	8,9/10/10,8/12*
L:	70	350	L-S:	20-85
S:	30		*D12:	S > 40
Please contact us for other dimensions				

Application Example



Also Available:



With Corrugation

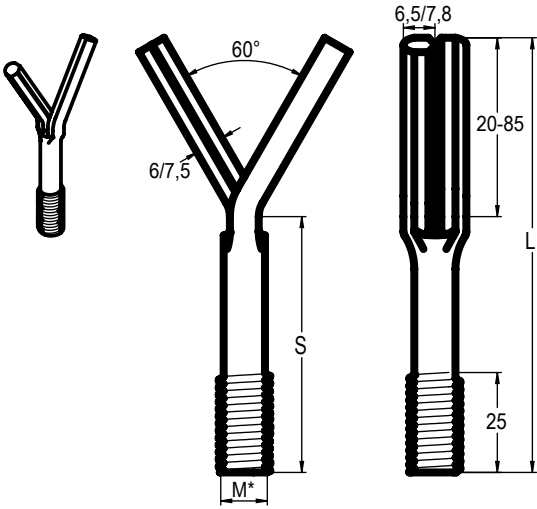
RYP

RYS

RYH

RYT

RYK



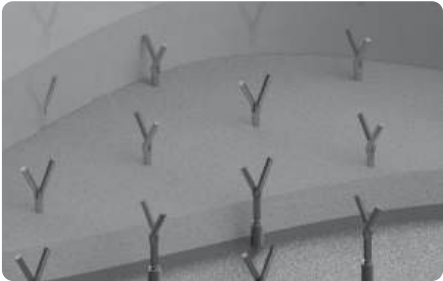
Order Code Round ‘Y’ shaped anchor Threaded
RYT.M*-L(S)-alloy
Use the following code if corrugated
RYTC.D-L(S)-alloy

Example Code:
RYT.M10-100(60)-310
RYTC.M10-100(60)-310

Standard Measurements (mm)

RYT				
	min	max		
L:	70	350	L-S:	20-85
S:	30			
Please contact us for other dimensions				

Application Example



Also Available:



With Corrugation

Combine with:

ITS, F-07

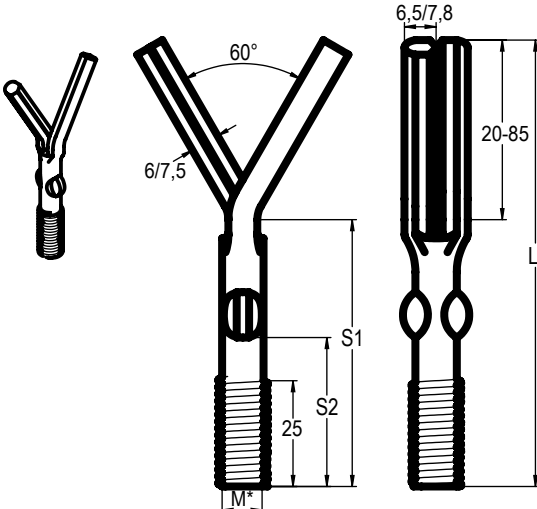
RYP

RYS

RYH

RYT

RYK



Order Code ‘Y’ shaped anchor with notch
RYK.M*-L(S1/S2)-alloy

Use the following code if corrugated
RYKC.D-L(S1/S2)-alloy

Example Code:
RYK.M10-107(60/35)-310

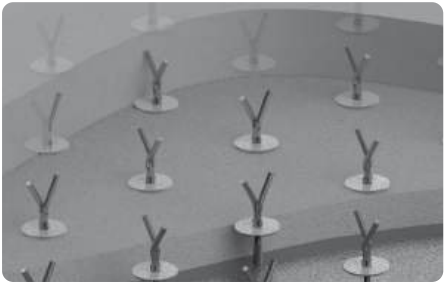
RYKC.M10-107(60/35)-310

Standard Measurements (mm)

RYK				
	min	max		
L:	70	350	L-S:	8,9/10/10,8/12
S2:	30		S1-S2:	20-85

Please contact us for other dimensions

Application Example



Also Available:



With Corrugation

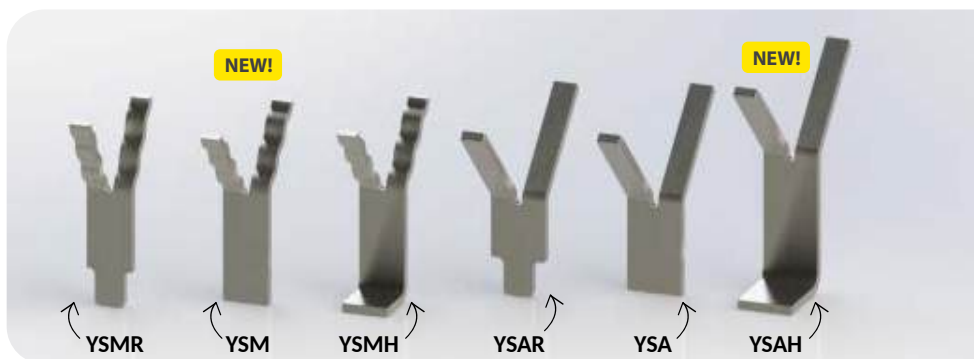
Combine with:

Washers, F-08

ITS, C-06

Slotted 'Y' Anchors

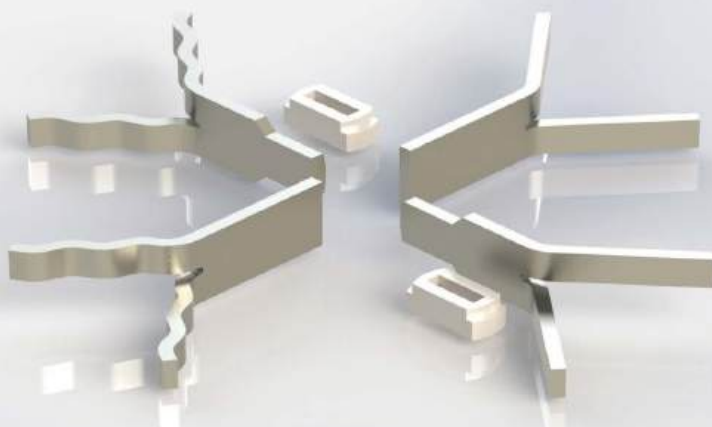
Series C-15



The YSMR was specially designed to rapid arc weld onto boiler pipe walls but has since found its application in many other areas. Therefore, the YSA(R) without a corrugation has been added to this series. The flat profile of the Slotted 'Y' Anchors will give stronger support to the concrete in areas where heavy or dense concrete is used.

YSMR and YSAR are suitable for rapid arc welding. Anchors with 16 mm width or greater have a reduced base.

YSM, YSA and YSMH are suitable for hand welding.



Slotted 'Y' Anchors

Series C-15

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 601, 800.

Please contact us for other alloys

Tolerances \pm

Length	L:	1,5 mm
Width	W:	3,5 mm
Thickness	T:	0,3 mm
Step	S:	3,0 mm
Angle	α :	2°

Unique packaging

Our packing department makes sure that your orders are safely packed and perfectly labelled (custom labelling on request) in order to facilitate the job of the welders on jobsites.



YSMR

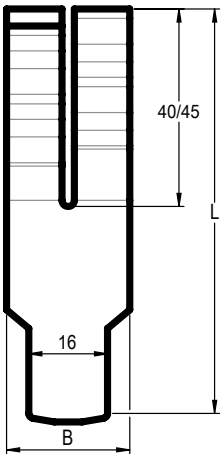
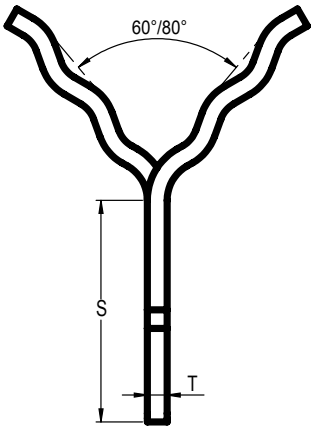
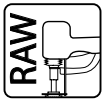
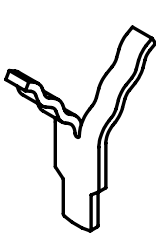
YSM

YSMH

YSAR

YSA >

NEW



Ferrule options:



Rectangular



Chamfered

Order Code Slotted 'Y' Anchor with 'M' Corrugation and Reduced Base
YSMR.B/T(α)-L(S)-alloy

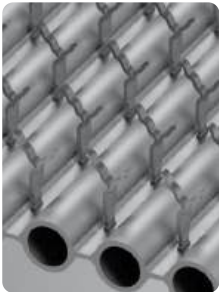
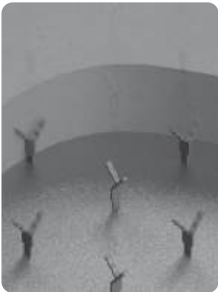
Example Code:
YSMR.25/5(60)-150(75)-310

Standard Measurements (mm)

YSMR				
	min	max	α°	
B:	25	40	60°	L - S = 45
T:	3	5	80°	L - S = 40
S:	>35			

Please contact us for other dimensions

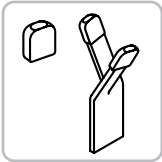
Application Example



Also Available:



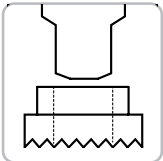
RAW Services



With Caps

Split 'Y', C-01

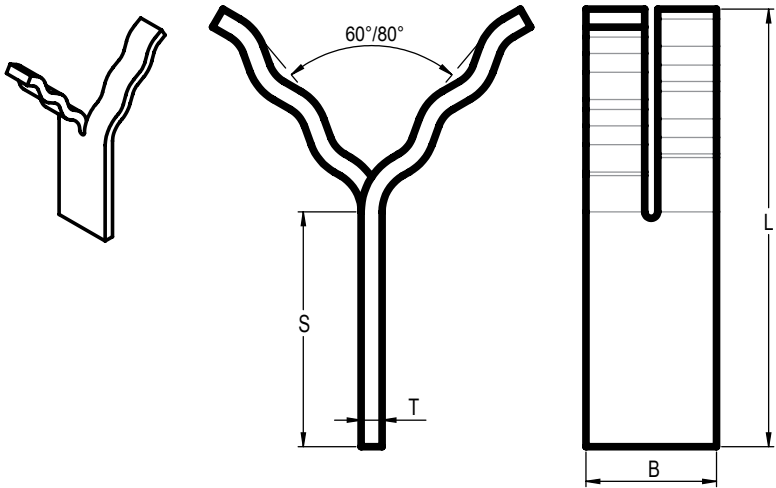
Supplied With:



Ceramic Ferrules

- YSMR
- YSM
- YSMH
- YSAR
- YSA >

NEW



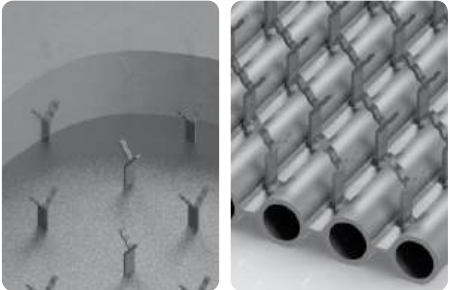
Order Code Slotted ‘Y’ Anchor with ‘M’ Corrugation
YSM.B/T(α)-L(S)-alloy

Example Code:
YSM.25/5(60)-150(75)-310

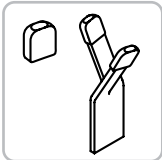
Standard Measurements (mm)

YSM				
	min	max		
B:	15	80	L:	35
T:	3	5	S:	15
α°:	60°/80°		L - S:	< 150
Please contact us for other dimensions				

Application Example



Also Available:



With Caps

Split ‘Y’, C-01

< YSM

YSMH
NEW

YSAR

YSA

YSAH
NEW

Order Code Slotted 'Y' Anchor with 'M' Corrugation Hand Weldable
YSMH.B/T(α)-L/H(S)-alloy

Example Code:
YSMH.25/5(60)-145/50(75)-310

Standard Measurements (mm)

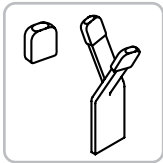
YSMH				
	min	max		min
B:	15	80	L:	35
T:	3	5	S:	15
α°	60°	80°	L-S:	< 150
H:	20	50		

Please contact us for other dimensions

Application Example



Also Available:



With Caps

Split 'Y', C-01

< YSM

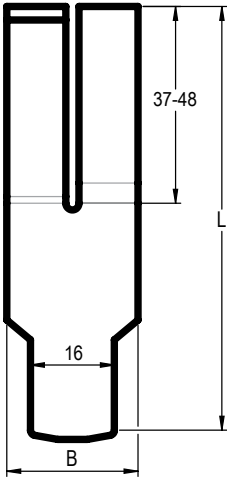
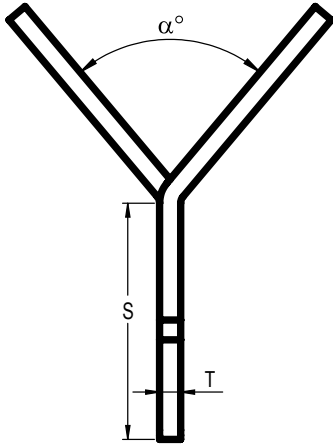
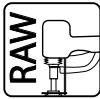
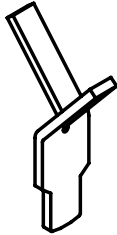
YSMH

YSAR

YSA

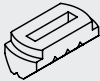
YSAH

NEW




NEW

Ferrule options:



Rectangular



Chamfered

Order Code Slotted 'Y' Anchor with reduced base

Example Code:

YSAR.B/T(α)-L(S)-alloy

YSAR.25/5(60)-150(75)-310

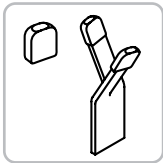
Standard Measurements (mm)

YSAR					
	min	max		min	max
B:	15	40	L:	55	
T:	3	5	α°	45°	90°
S:	> 35		L - S:	37-48	
Please contact us for other dimensions					

Application Example



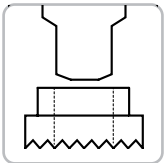
Also Available:



With Caps

Split 'Y', C-01

Supplied With:



Ceramic Ferrules

< YSM

YSMH

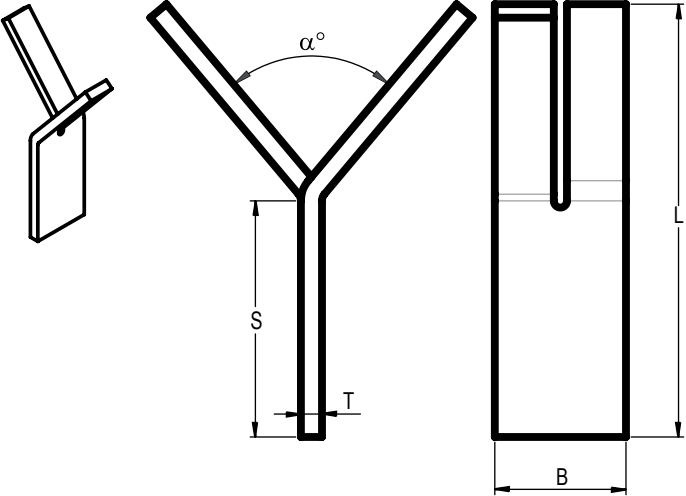
YSAR

YSA

YSAH

NEW

NEW



Order Code Slotted 'Y' Anchor with reduced base

Example Code:

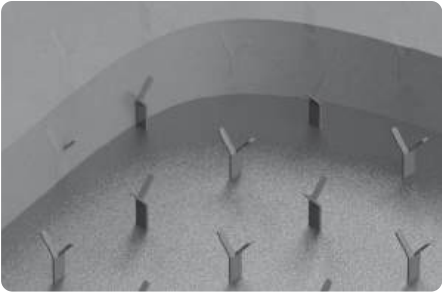
YSA.B/T(α)-L(S)-alloy

YSA.25/5(60)-150(75)-310

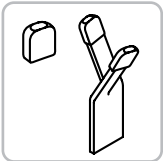
Standard Measurements (mm)

YSA				
	min	max		min
B:	15	80	L:	35
T:	3	5	S:	15
L - S:	< 250			
Please contact us for other dimensions				

Application Example



Also Available:



With Caps

Split 'Y', C-01

< YSM

YSMH

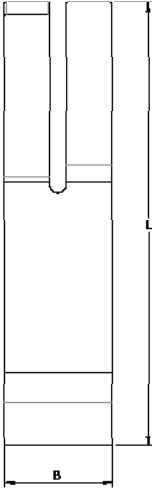
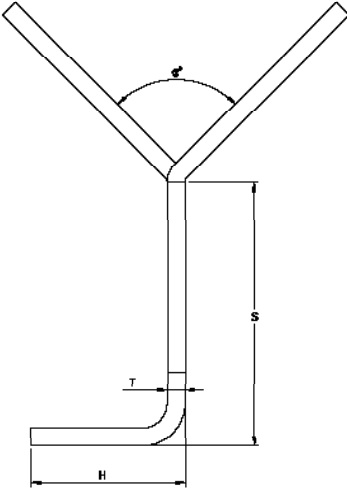
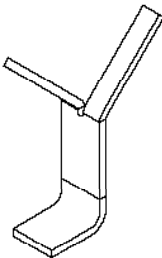
YSAR

YSA

YSAH

NEW

NEW



Order Code Slotted 'Y' Anchor

Example Code:

YSAH.B/T(α)-L/H(S)-alloy

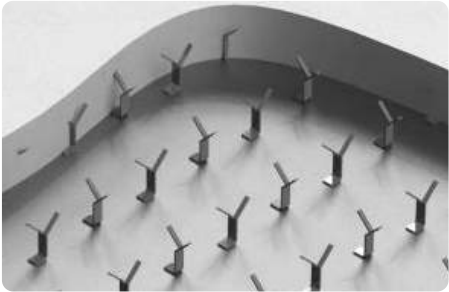
YSAH.30/4(60)-150/50(75)-310

Standard Measurements (mm)

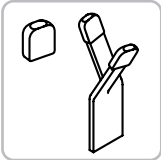
YSAH				
	min	max		min
B:	15	80	L:	35
T:	3	5	S:	15
α°	45°	90°	L-S:	< 150
H:	20	50		

Please contact us for other dimensions

Application Example



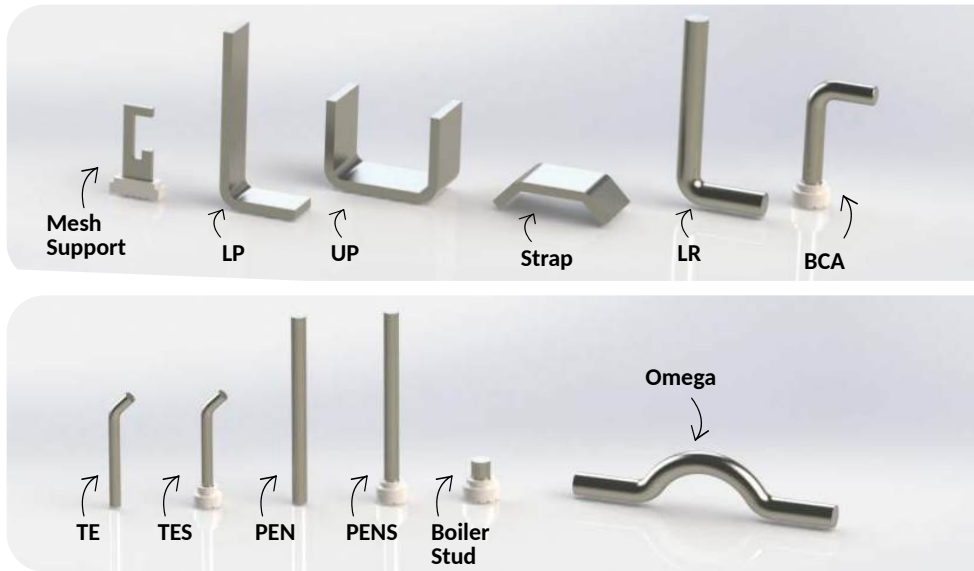
Also Available:



With Caps

Miscellaneous

Series C-16



This section contains a selection of common anchors that are used for various applications. Amongst others:

- **G-Anchor or "Mesh" Anchor:** designed to hold a mesh in place. Suitable for rapid arc welding.
- **Boiler Stud:** Commonly used to protect boiler tubes and conduct heat through to the pipes. Suitable for rapid arc welding.



Available Alloys

Plate:

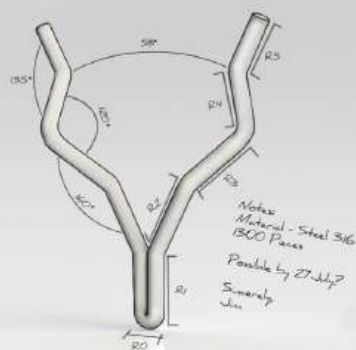
CS, 304, 309, 253MA, 310S, 314, 321, 330, 601, 800.

Wire:

CS, 304, 304H, 309, 253MA, 310, 314, 316, 321, 330, 601, 800.

Please contact us for other alloys

If you can draw it...



...we can make it!



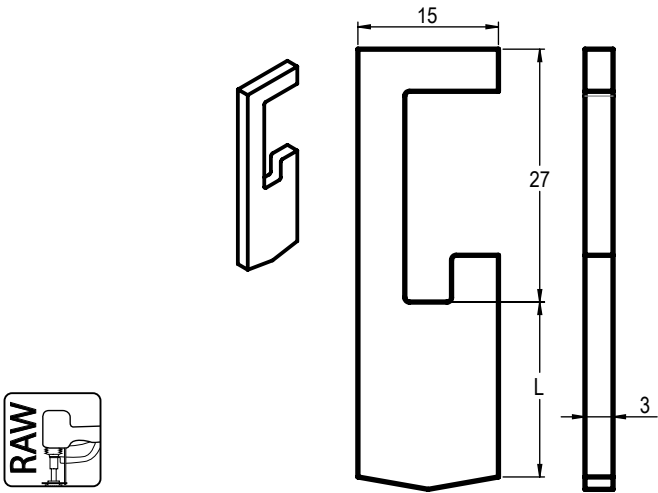
MESH Support

LP

UP

Strap >

Also known as 'G' Anchor



Order Code MESH Support or 'G' Anchor
MESHS.B/T-L-alloy

Example Code:
MESHS.15/3-25-310

Standard Measurements (mm)

MESH Support

	min	max	B:	15
L:	16	200	T:	3

G-Anchor or "MESH" Anchor: Designed to hold a mesh in place. Suitable for rapid arc welding.

Please contact us for other dimensions

Application Example



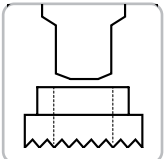
Also Available:



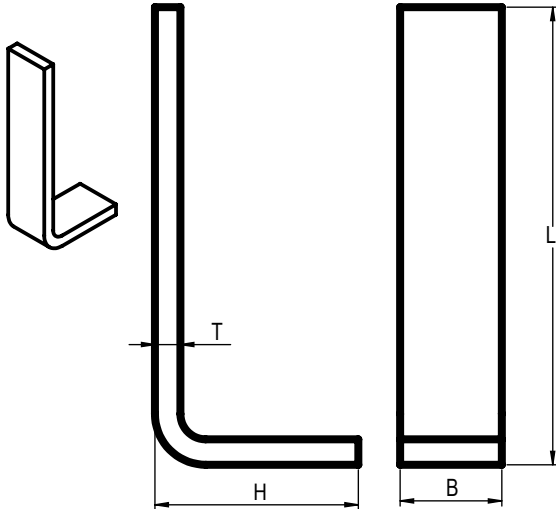
RAW Services

RRNS, F-08

Supplied With:



Ceramic Ferrules

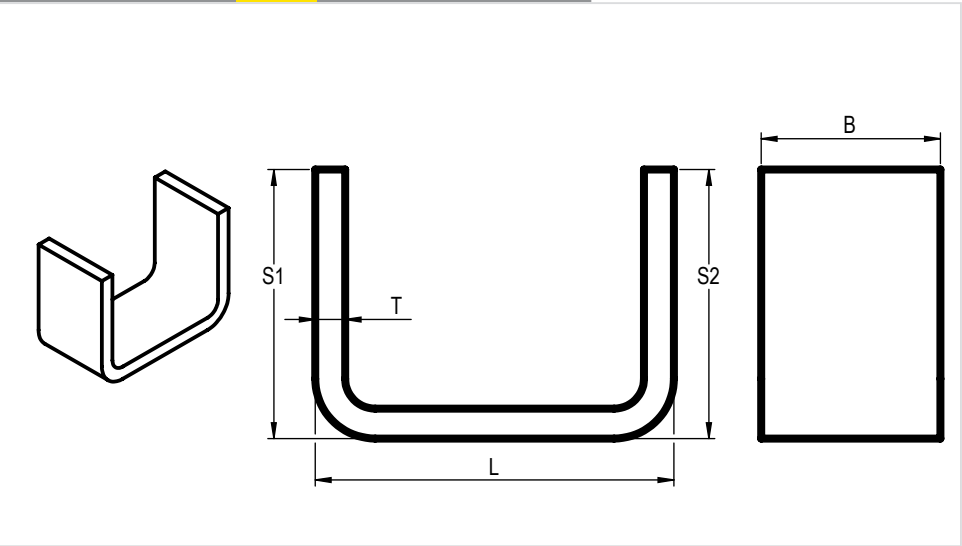


Order Code 'L' Shape from Plate
LP.B/T-L(H)-alloy

Example Code:
LP.20/5-90(75)-310

Standard Measurements (mm)

L-Shaped Plate for multiple applications. This anchor is available on request in many sizes, shapes and alloys.



Order Code 'L' Shape from Plate
UP.B/T-S1/L/S-alloy

Example Code:
UP.50/5-45/75/45-304

Standard Measurements (mm)

UP			
	max		min
B:	140	L:	70 + 2T
S:	140		
U-Shaped plate for multiple applications.			
Please contact us for other dimensions			

< LP

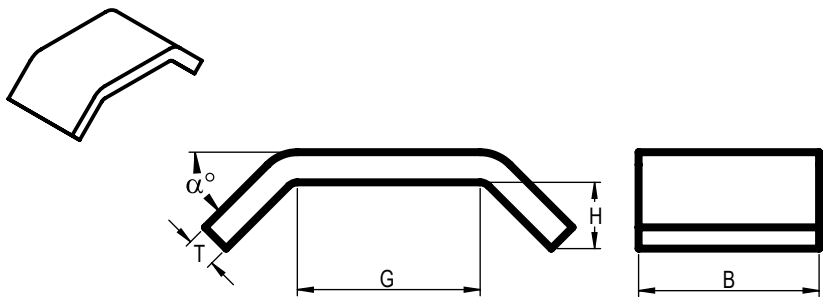
UP

Strap

LR

BCA

TE >

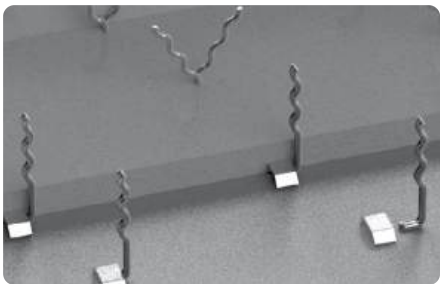


Order information Strap

Standard Measurements (mm)

Bended plate to hook anchors into. This anchor is available on request in many sizes, shapes and alloys.

Application Example



Combine With

Twin Pins, D-01

TWA, C-09

< LP

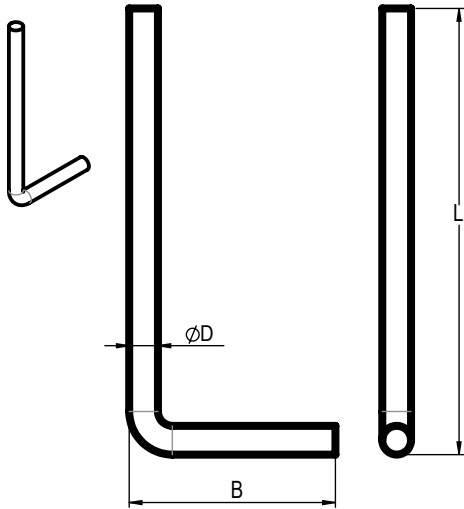
UP

Strap

LR

BCA

TE >




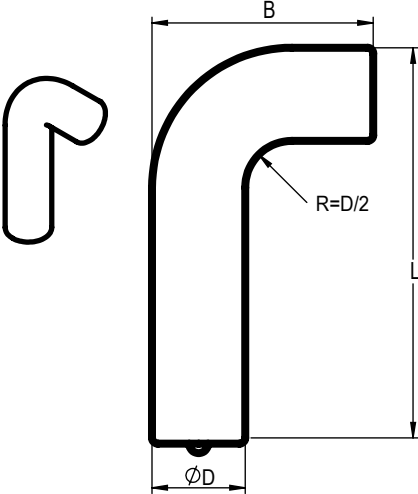
Order Code 'L' Shape Round
LR.D-L(B)-alloy

Example Code:
LR.3-45(10)-310

Standard Measurements (mm)

L-Shaped pin for multiple applications. This anchor is available on request in many sizes, shapes and alloys.





Order information Bent Concrete Anchor

BCA.D-L(B)-alloy

Example Code:

BCA.8-140(40)-310

Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.

Application Example



Also Available:

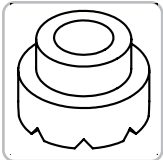


RAW Services

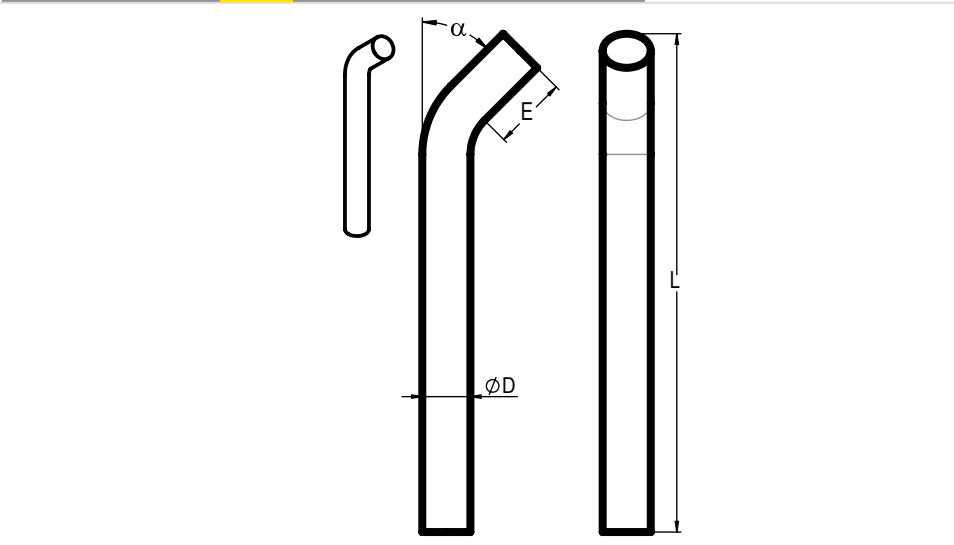
B-Stud, C-16

CVH, C-07

Supplied With:



Ceramic Ferrules


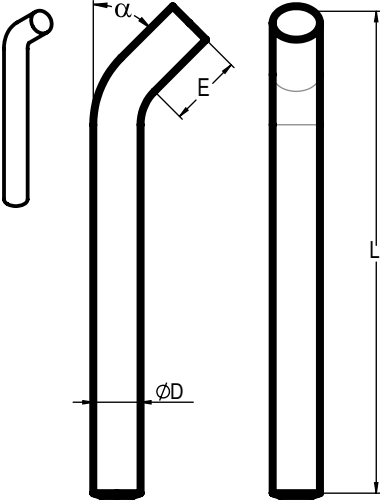


Order Code TE Pin
TE.D(α)-L(E)-alloy

Example Code:
TE.6(30)-45(20)-310

Standard Measurements (mm)

Bent pin for multiple applications. This anchor is available on request in many sizes, shapes and alloys.



Order information TE Stud Weldable
TES.D(α)-L(E)-alloy

Example Code:
TES.10(45)-90(40)-304

Standard Measurements (mm)

Bent pin for multiple applications. This anchor is available on request in many sizes, shapes and alloys.

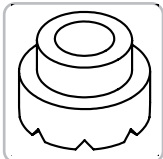
(α) default angle 45°

Also Available:

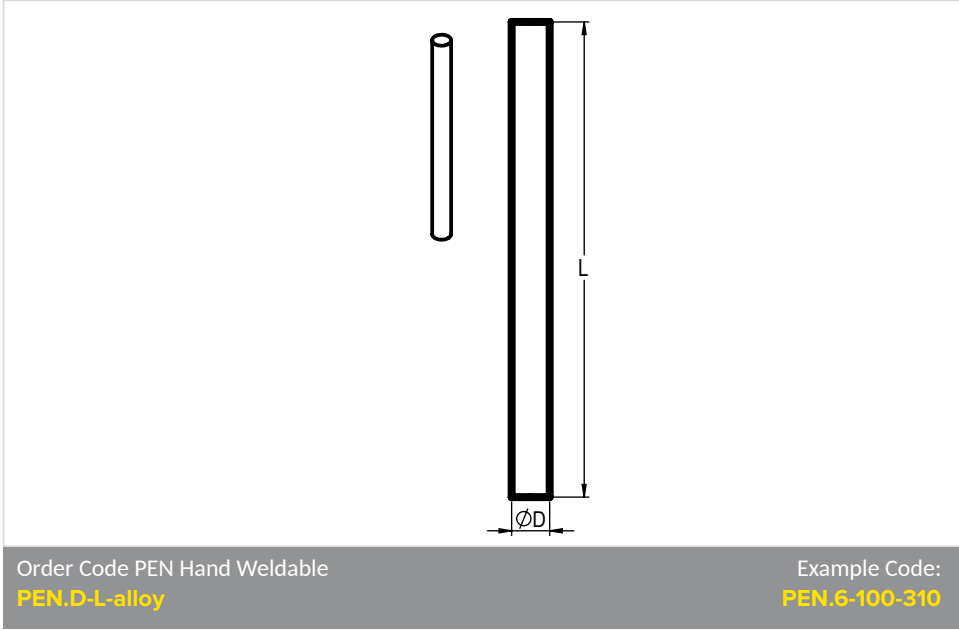


RAW Services

Supplied With:

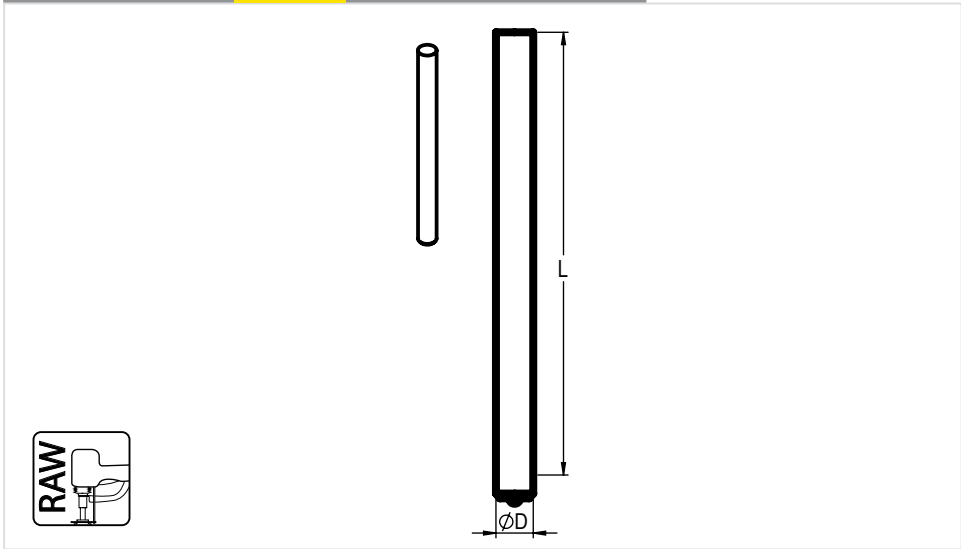


Ceramic Ferrules



Standard Measurements (mm)

This anchor is available on request in many sizes, shapes and alloys.



Order Code PEN Stud Weldable
PENS.D-L-alloy

Example Code:
PENS.6-100-310

Standard Measurements (mm)

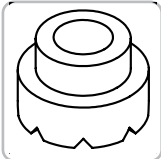
This anchor is available on request in many sizes, shapes and alloys.

Also Available:



RAW Services

Supplied With:



Ceramic Ferrules

< TES

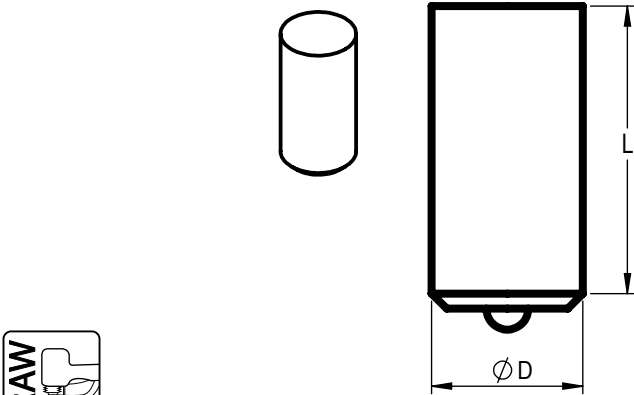
PEN

PENS

BoilerS

Omega

Boiler Stud



Order Code Boiler Stud
KS.D-L-alloy

Example Code:
KS.10-20-304

Standard Measurements (mm)

Commonly used to protect boiler tubes and conduct heat through to the pipes. Suitable for rapid arc welding. This anchor is available on request in many sizes, shapes and alloys.



Also Available:

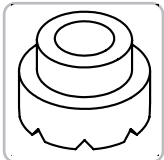


RAW Services



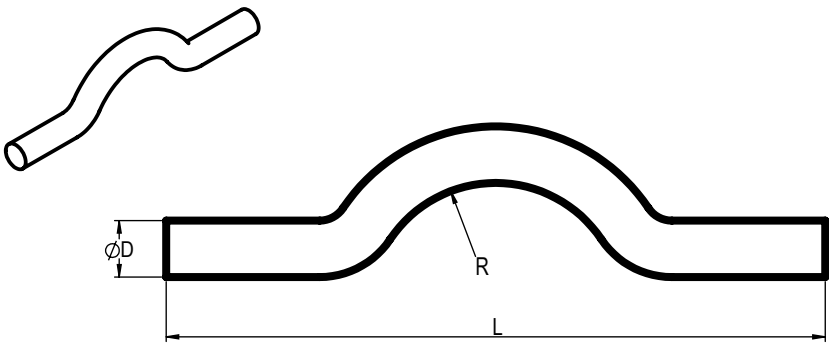
SHC, C-13

Supplied With:



Ceramic Ferrules

[< TES](#)[PEN](#)[PENS](#)[BoilerS](#)[Omega](#)



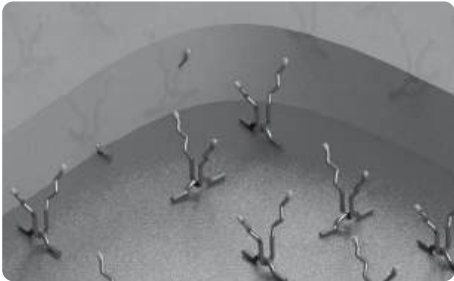
Order information Omega Clip
Omega.D-LRR-alloy

Example Code:
Omega.06-100R20-310

Standard Measurements (mm)

Bended pin to hook anchors into. Often used in combination with moveable anchoring systems. This anchor is available on request in many sizes, shapes and alloys.

Application Example



Also Available:



CBH, C-03



Other, C-10

SILICON



Anchors for **Dual Linings**

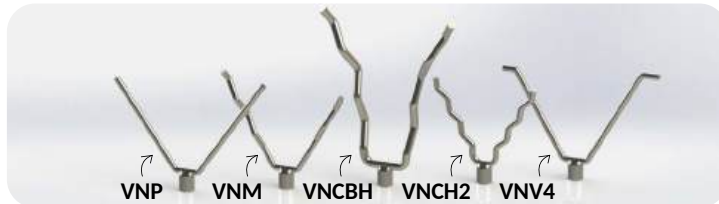
The increasing emphasis on energy conservation and higher operating temperatures has meant that refractory concrete linings are frequently employing multi component configurations like high-density hot face linings backed by lower density heat conserving materials.

Anchors for dual lining systems can be either mechanically bolted onto another anchor, or welded directly onto the casing. In the latter case the anchor legs are bent outward after the backup layer is installed to provide suitable holding power for the next lining.

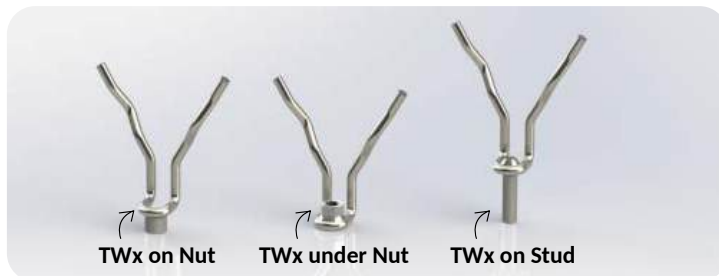
D-01 Twin Pins



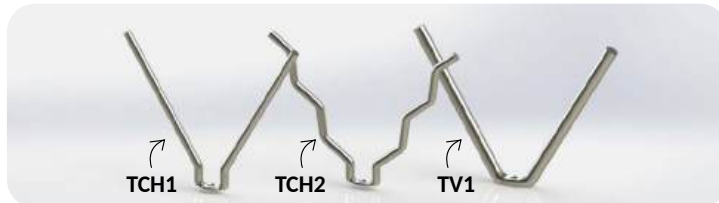
D-02 'V' On Nut



D-03 **NEW!** 'TWx' On Nut / Under Nut / On Stud



D-04 Threaded 'V'/'CH' Anchors



D-05 Slit Stud Anchors



Twin Pins

Series D-01



The Twin Pin anchor is a round-sectioned anchor developed for cost-effectiveness and versatility and is suited for applications using a backup layer. Twin Pin anchors can be supplied straight or corrugated for light to medium weight refractories. In addition, SILICON offers two different types of corrugations for heavy weight refractories.

The Twin Pin anchor can be hand welded, rapid arc welded, bolted or hooked into a support plate. The STB, CTB and HTB models can be combined with a BW-Set to be used as a movable anchor (see also section C-10).



Twin Pins

Series D-01

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Diameter	D:	H9
Foot depth:	B:	2,5 mm

STx/CTx:		
Length	L:	2,5 mm

HTx/HRTx:		
Length	L:	5,0 mm

Pioneer

We have created the anchor coding nomenclature, which became an industry standard.

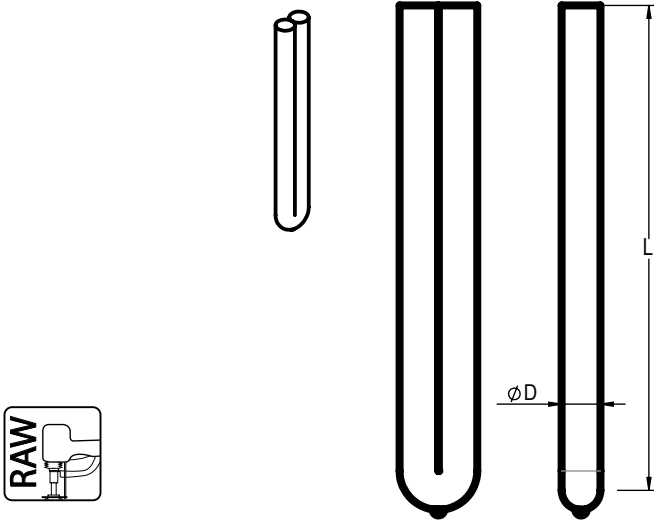
STP

STH

STB

CTP

CTH >



Order Code Straight Twin Pin

STP.D-L-alloy

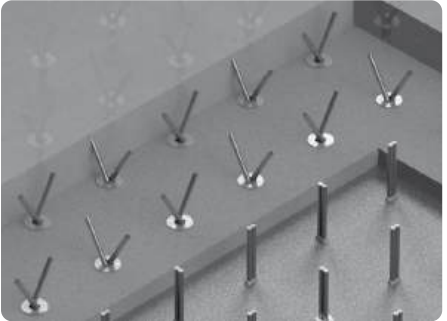
Example Code:

STP.8-100-310

Standard Measurements (mm)

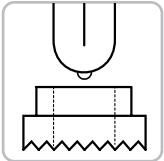
STP					
L:	min	max	L:	min	max
D5	45	250	D8:	45	450
D6	45	350			
D:	5-8		RAW:	D6/8	
Can be supplied with washers for opening the legs after installation.					
Please contact us for other dimensions					

Application Example



Also Available:

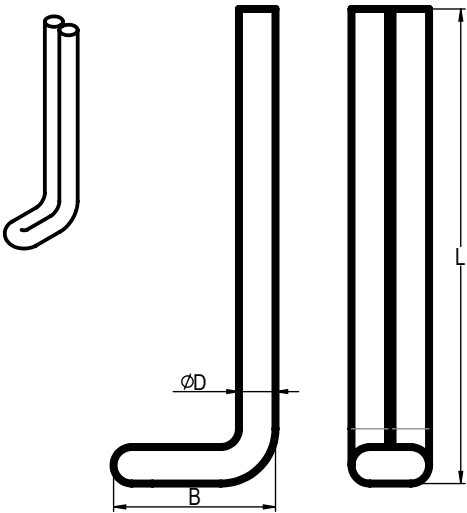
Supplied With:



Ceramic Ferrules

RAW Services Washers, F-08

- STP
- STH
- STB
- CTP
- CTH >



Order Code Straight Twin Pin with Hook
STH.D-L/B-alloy

Example Code:
STH.8-104/35-304

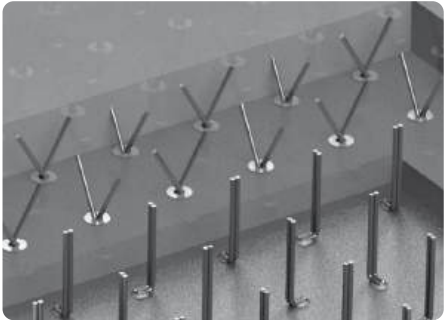
Standard Measurements (mm)

STH					
L:	min	max	L:	min	max
D5	45	250	D8:	45	450
D6	45	350			
D:	5-8		B:	min 25 + 2D	

Can be supplied with washers for opening the legs after installation.

Please contact us for other dimensions

Application Example



Also Available:

Washers, F-08

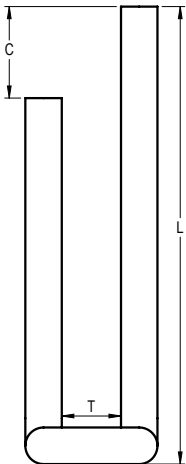
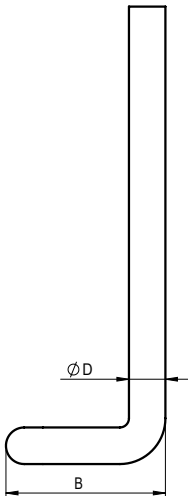
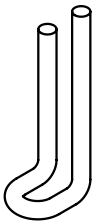
STP

STH

STB

CTP

CTH >



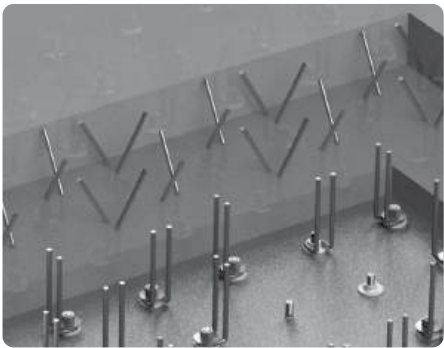
Order Code Straight Twin Pin with Wide Base
STB.D-B.T-L/S-alloy

Example Code:
STB.06-30.13-050/00-310

Standard Measurements (mm)

STB					
L:	min	max	L:	min	max
D5	45	250	D8:	45	450
D6	45	350			
D:	5-8		B:	min 25 + 2D	
If to be used with the BW-Set, please let us know during inquiry. In this case, the foot becomes 45 mm with 20 mm inside width.					
Please contact us for other dimensions					

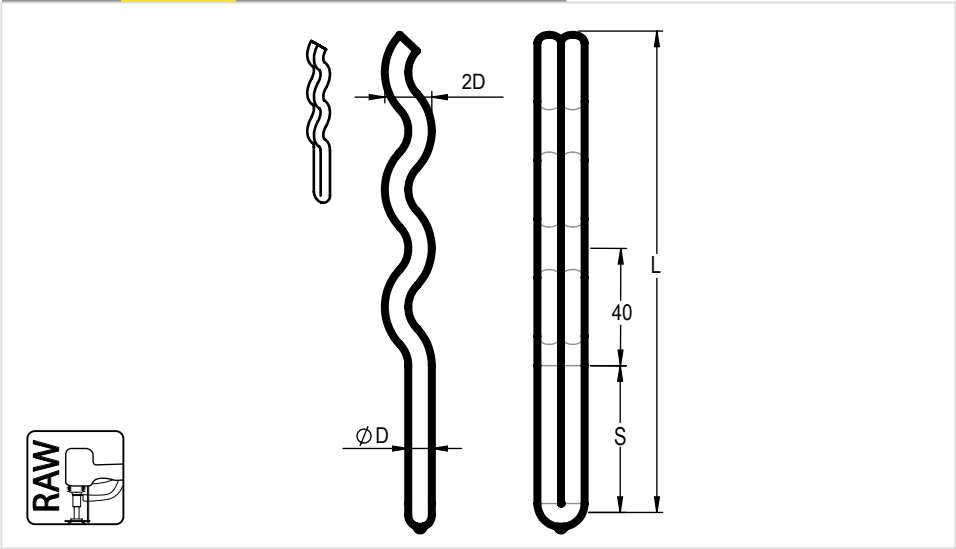
Application Example



Combine With:

Washers, F-08

BW-Set, C-10



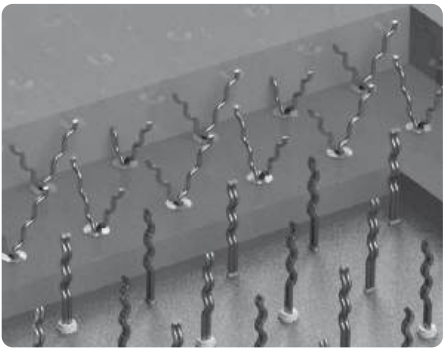
Order Code Corrugated Twin Pin
CTP.D-L(S)-alloy

Example Code:
CTP.8-170(50)-310

Standard Measurements (mm)

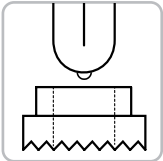
CTP				
	min	max		min
D:	5	8	L:	60
L-S:		225		
RAW:	D6/8			
Can be supplied with washers for opening the legs after installation.				
Please contact us for other dimensions				

Application Example



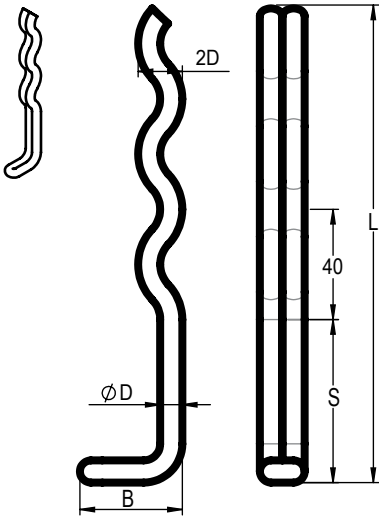
Also Available:

Supplied With:



RAW Services Washers, F-08

Ceramic Ferrules



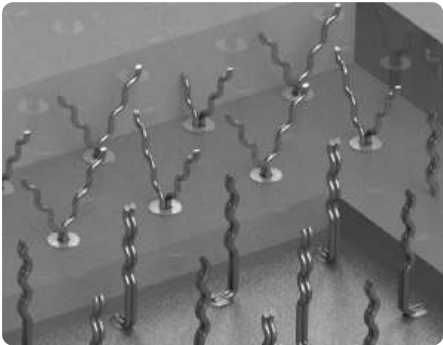
Order Code Corrugated Twin Pin with Hook
CTH.D-L/B(S)-alloy

Example Code:
CTH.6-170/40(60)-330

Standard Measurements (mm)

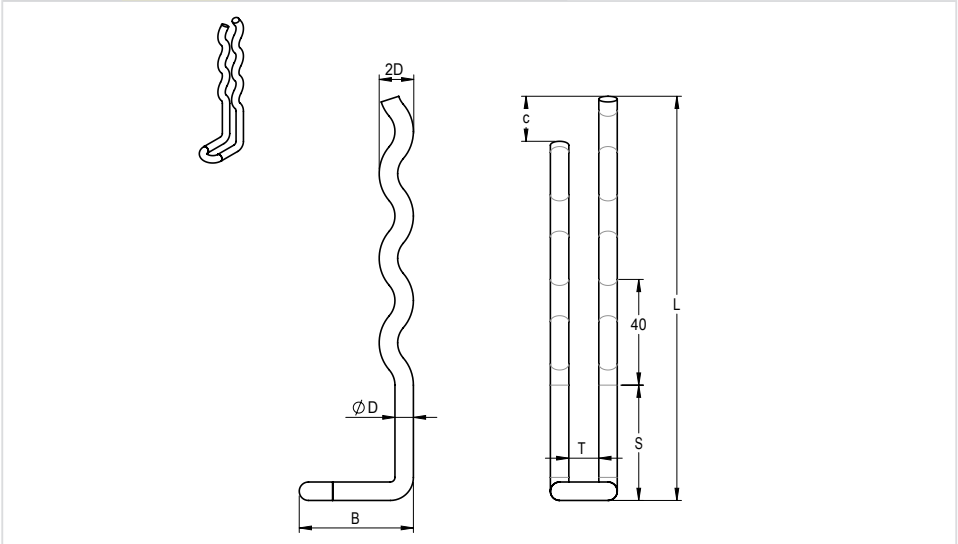
CTH				
	min	max		min
D:	5	10	L:	60
L-S:		225	D:	10 + 2D
Can be supplied with washers for opening the legs after installation.				
Please contact us for other dimensions				

Application Example



Also Available:

Washers, F-08



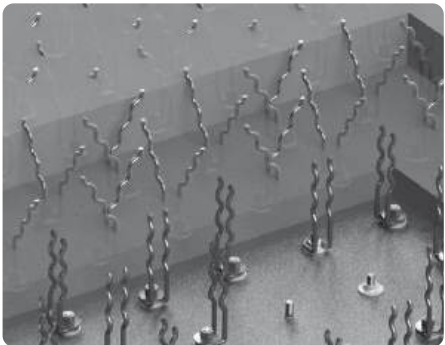
Order Code Corrugated Twin Pin with Wide Base
CTB.D-B.T-L/c(S)-alloy

Example Code:
CTB.06-30.13-070/05(25)-310

Standard Measurements (mm)

CTB				
	min	max		min
D:	5	8	L:	60
L-S:		225	B:	25 + 2D
If to be used with the BW-Set, please let us know during inquiry. In this case the foot length becomes 45 mm with 20 mm inside width.				
Please contact us for other dimensions				

Application Example

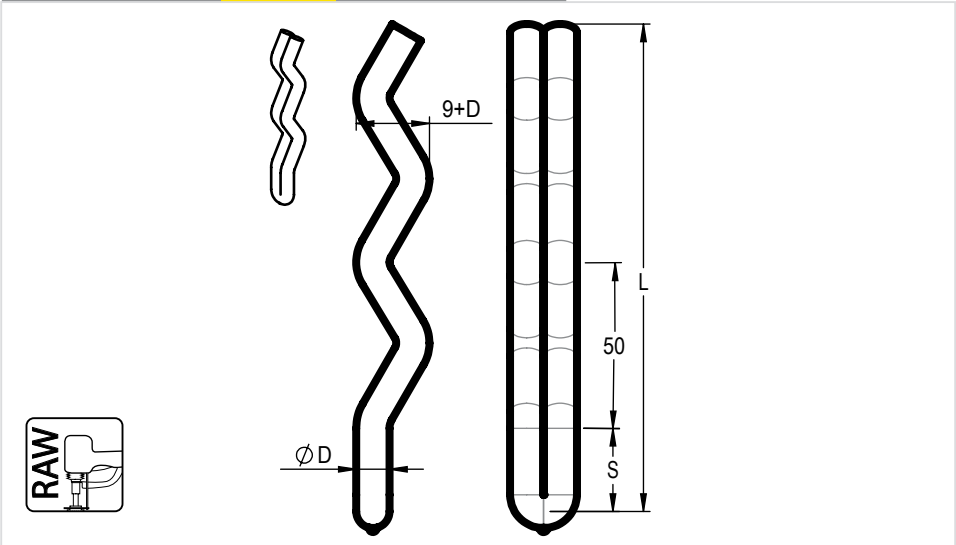


Combine With:

Washers, F-08

BW-Set, C-10

< CTH CTB **HTP** HTH HTB >



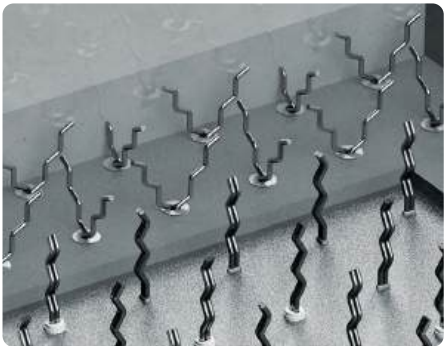
Order Code Heavy Twin Pin
HTP.D-L(S)-alloy

Example Code:
HTP.10-150(30)-310

Standard Measurements (mm)

HTP					
D8-10	min	max	D12-16	min	max
L:	60		L:	60	800
L-S:		325			
D:	8-16		RAW:	D8	
Can be supplied with washers for opening the legs after installation. Please contact us for other dimensions					

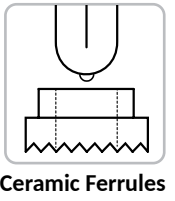
Application Example

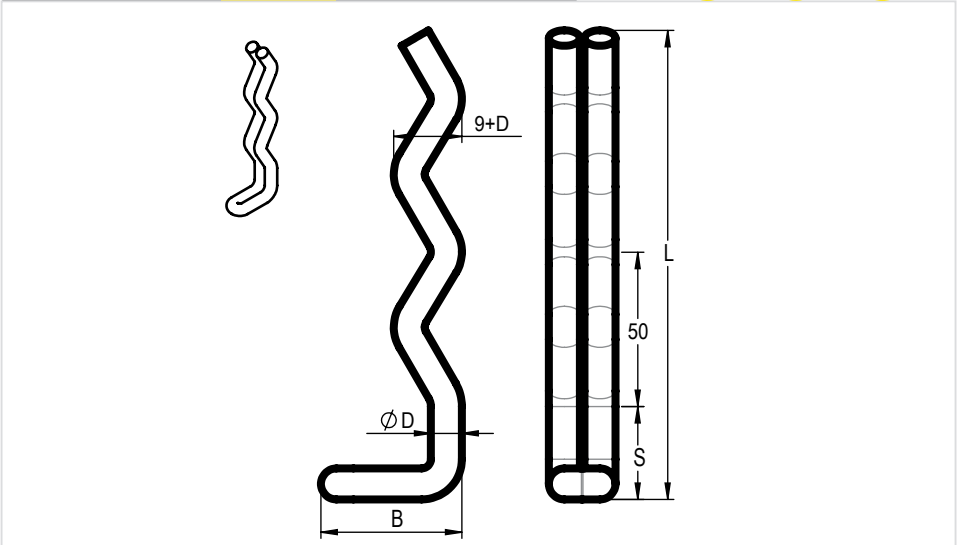


Also Available:

RAW Services Washers, F-08

Supplied With





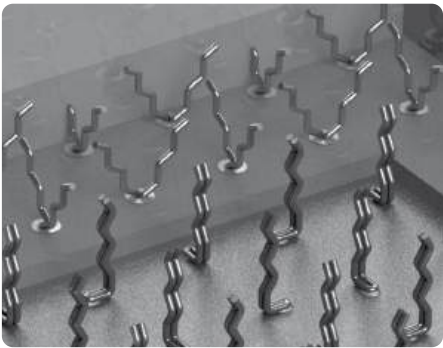
Order Code Heavy Twin Pin with Hook
HTH.D-L/B(S)-alloy

Example Code:
HTH.10-150/45(30)-310

Standard Measurements (mm)

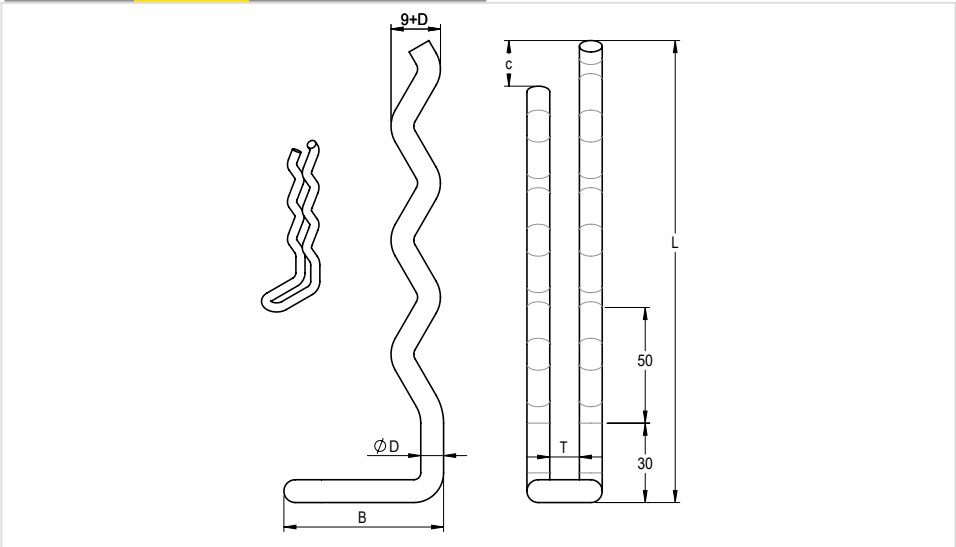
HTH					
D8-10	min	max	D12-16	min	max
L:	60		L:	60	800
L-S:		325	B:	min 10 + 2D	
D:	8-16				
Can be supplied with washers for opening the legs after installation.					
Please contact us for other dimensions					

Application Example



Also Available:

Washers, F-08



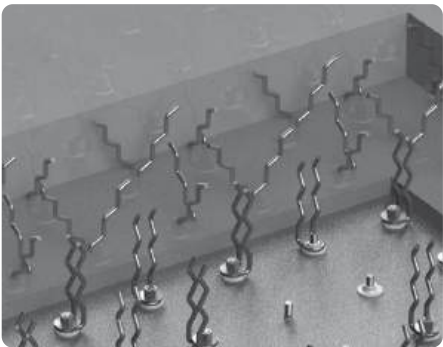
Order Code Heavy Twin Pin with Wide Base
HTB.D-B.T-L/c(S)-alloy

Example Code:
HTB.10-30.13-175/00(50)-310

Standard Measurements (mm)

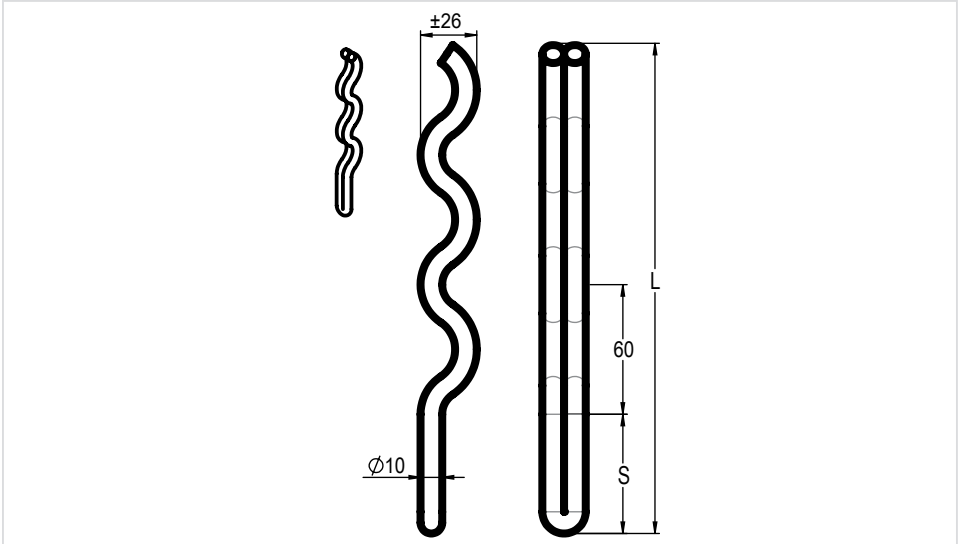
HTB					
D8-10	min	max	D12-16	min	max
L:	60		L:	60	800
L-S:		325	B:	min 25 + 2D	
D:	8-16				
If to be used with the BW-Set, please let us know during inquiry. In this case the foot length becomes 45 mm with 20 mm inside width.					
Please contact us for other dimensions					

Application Example



Combine With:

Washers, F-08 BW-Set, C-10



Order Code Heavy Round Corrugation Twin Pin
H RTP-D-L(S)-alloy

Example Code:
H RTP:10-150(30)-310

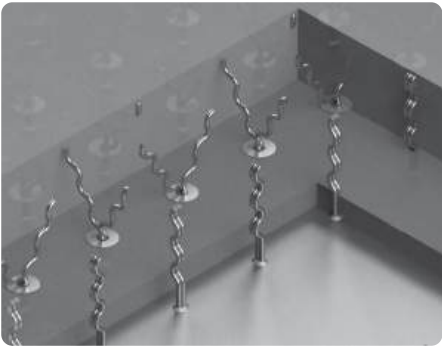
Standard Measurements (mm)

H RTP		
	min	max
L:	70	550

Can be supplied with washers for opening the legs after installation.

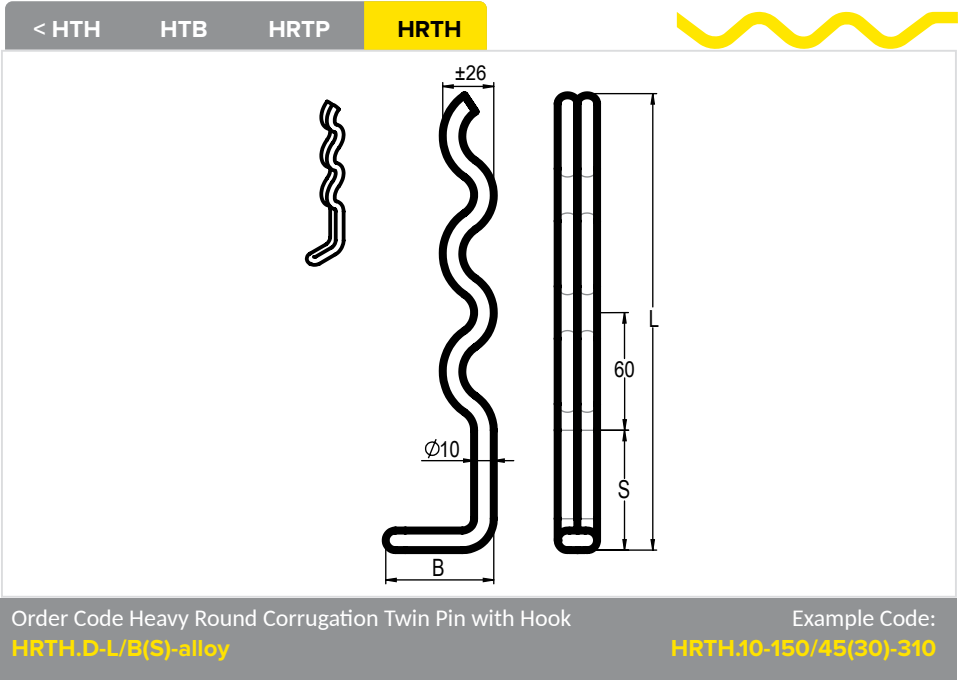
Please contact us for other dimensions

Application Example



Also Available

Washers, F-08



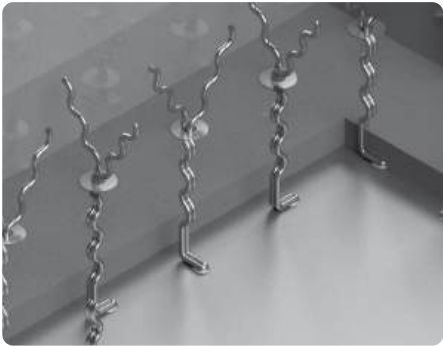
Standard Measurements (mm)

H RTH		
	min	max
L:	70	550
B:	min 10 + 2D	

Can be supplied with washers for opening the legs after installation.

Please contact us for other dimensions

Application Example

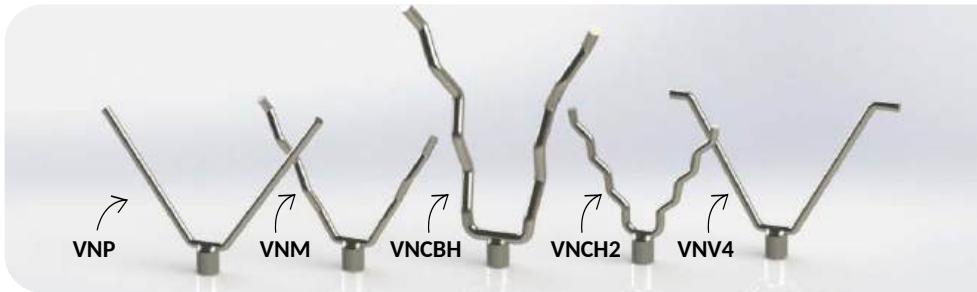


Also Available

Washers, F-08

'V' on Nut Anchors

Series D-02



The 'V' on Nut System is a 'V' shaped refractory anchor welded onto a nut, thereby making it suitable for screw-on dual linings. Almost all of our anchors can be welded onto different nut sizes. The VNP, VNM and VNCH2 anchors are popular examples.

Discover some new alternatives on our TWx ON Stud, ON Nut or UNDER Nut our section D-03



'V' on Nut Anchors

Series D-02

Available Alloys

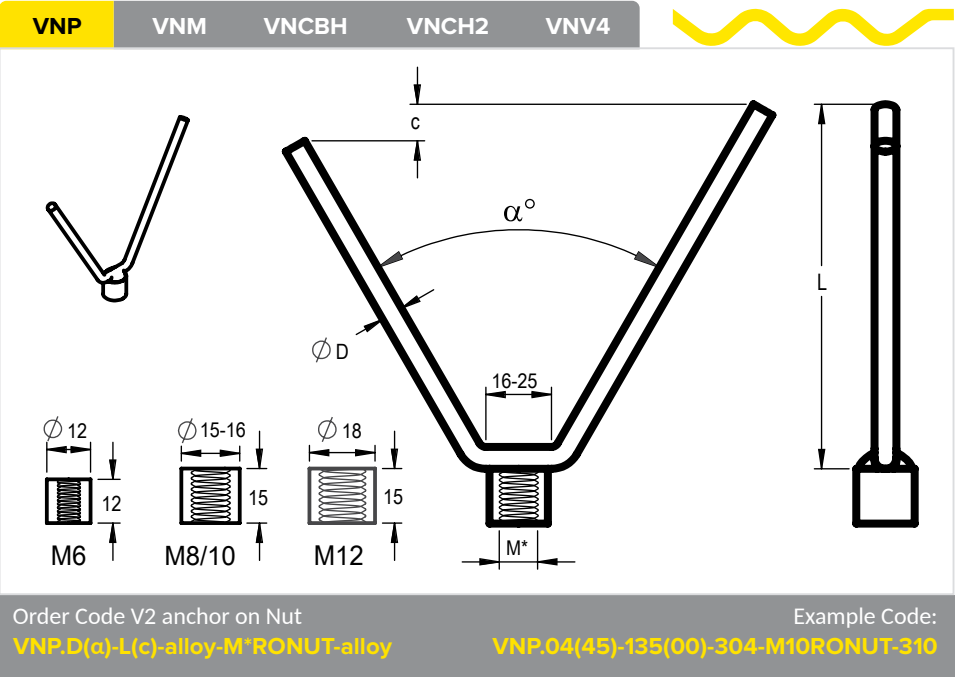
Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

Please contact us for other alloys

In-house engineering & production

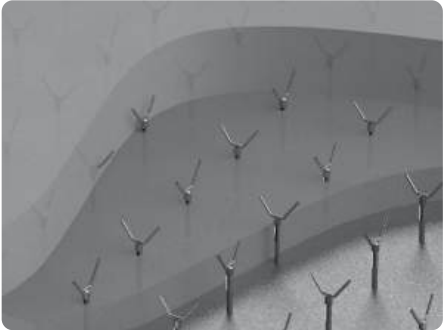
We update our
own toolings and
machines



Standard Measurements (mm)

VNP				
	min	max	M*:	6/8/10/12
D:	3	12		
L:	20	350		
16-25:	Base length dependent on D			
A Round nut has more thread, so holds better. The weld is also stronger than with a DIN Nut. See alternative: TWON/TWUN, Series D-03 <i>Please contact us for other dimensions</i>				

Application Example



Also Available:

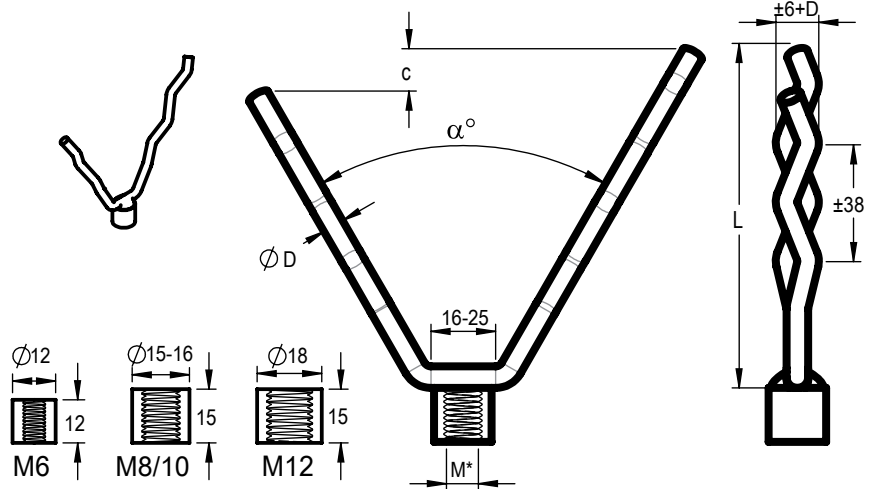
Combine With

V2, C-02

CV1, C-08

T-Studs, F-07

POC-Studs, F-04



Order Code VM on Nut

VNM.D(α)-L(c)-alloy-M*RONUT-alloy

Example Code:

VNM.04(45)-135(00)-304-M10RONUT-310

Standard Measurements (mm)

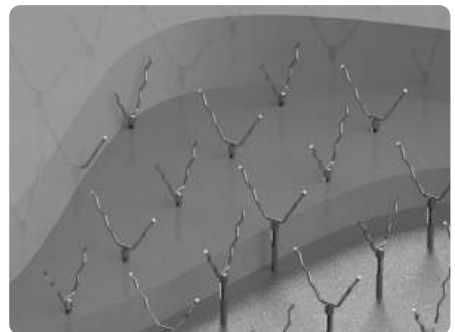
Application Example

VNM

	min	max	M*:	6/8/10/12
D:	3	12		
L:	40	350		
16-25:	Base length dependent on D			

A Round nut has more thread, so holds better.
The weld is also stronger than with a DIN Nut.

Please contact us for other dimensions



Also Available:

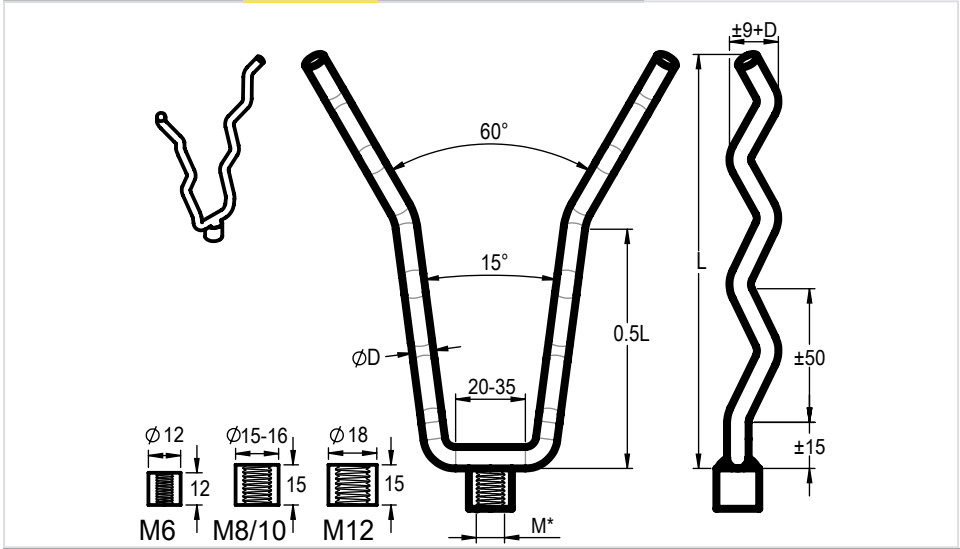
Combine With

VM, C-02

CVM, C-08

T-Studs, F-07

POC-Studs, F-04



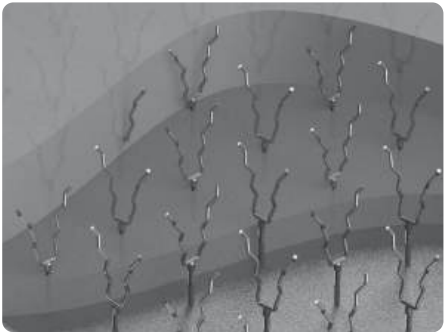
Order Code CBH on Nut
VNCBH.D(α)-L(c)-alloy-M*RONUT-alloy

Example Code:
VNCBH.04(45)-135(00)-304-M10RONUT-310

Standard Measurements (mm)

VNCBH				
	min	max	M*:	6/8/10/12
D:	5	8		
L:	115	350		
20-35	Base length dependent on D			
A Round nut has more thread, so holds better. The weld is also stronger than with a DIN Nut.				
Please contact us for other dimensions				

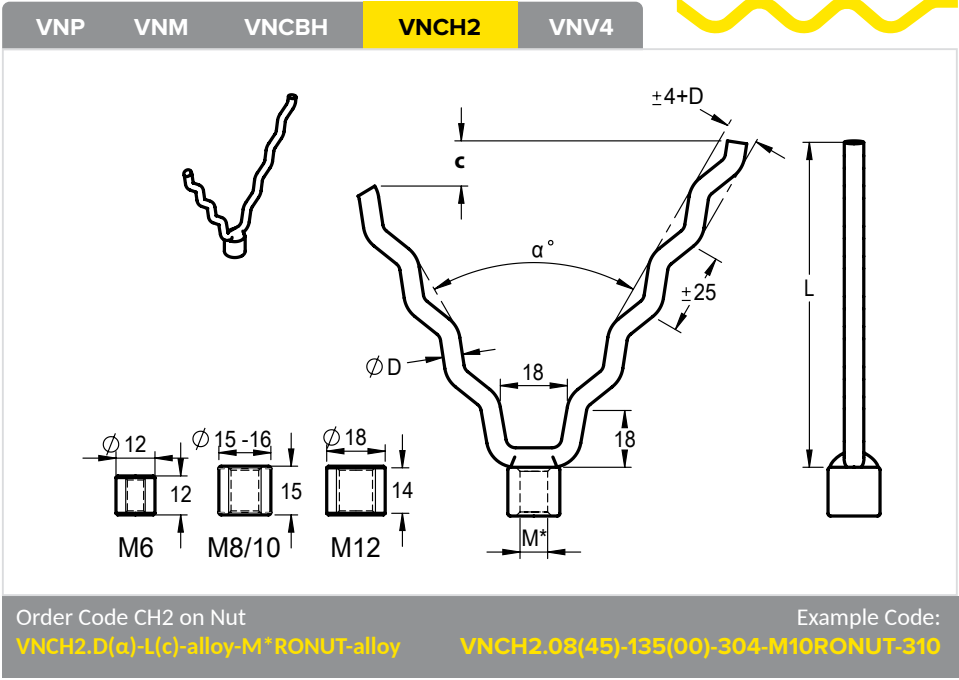
Application Example



Also Available:

Combine With

- CBS, C-03
- CBH, C-03
- T-Studs, F-07
- POC-Studs, F-04

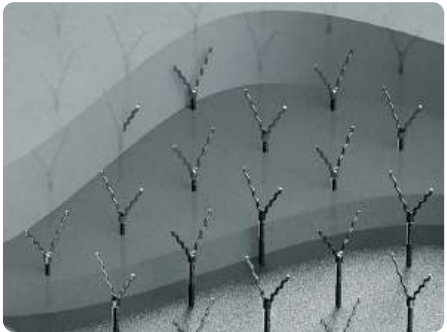


Standard Measurements (mm)

VNCH2					
	min	max		min	max
D:	3	12	α°:	50°	90°
L:	40	350			
M*:	6/8/10/12				

A Round nut has more thread, so holds better.
The weld is also stronger than with a DIN Nut.
Please contact us for other dimensions

Application Example

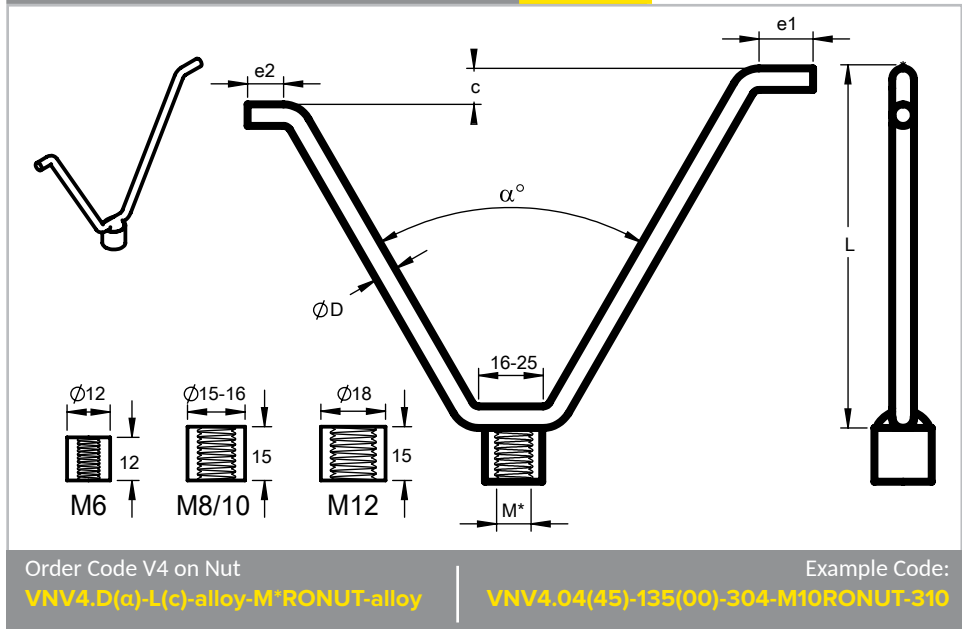


Also Available:

Combine With

- VNM, D-02
- CH2, C-05
- CV2, C-08
- T-Studs, F-07
- POC-Studs, F-04

VNP VNM VNCBH VNCH2 **VNV4**

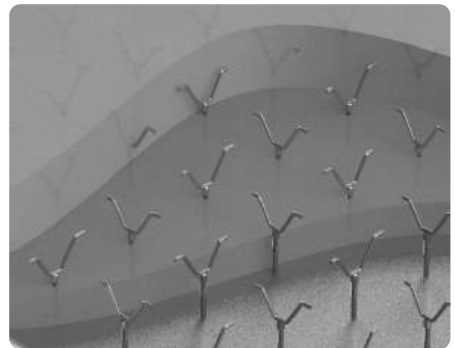


Standard Measurements (mm)

VNV4				
	min	max		min
D:	3	12	e:	10
L:	20	350		
M*:	6/8/10/12			
16-25:	Base length dependent on D			
<p>A Round nut has more thread, so holds better. The weld is also stronger than with a DIN Nut. <i>Please contact us for other dimensions</i></p>				

Also Available:

Application Example



Combine With

V4, C-02

CV4, C-09

T-Studs, F-07

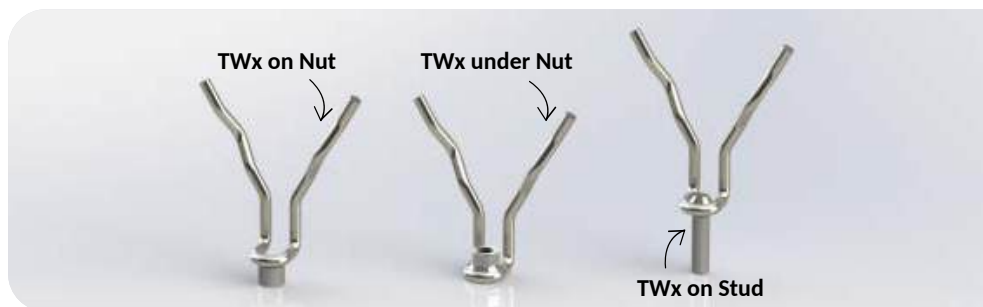
POC-Studs, F-04

TWx

on Nut / under Nut / on Stud

NEW!

Series D-03



The 'TW' anchors are a very well-known anchor system. We are proposing this shape to transform it into a dual lining solution.

The TW can be welded :

- **On** a Nut
- **Under** a Nut
- **On a Stud** (for either hand -or stud welding).

Almost all of our anchors can be welded onto different nut sizes.



TWx on Nut / under Nut / On Stud

Series D-03

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316, 321, 330, 800, 601

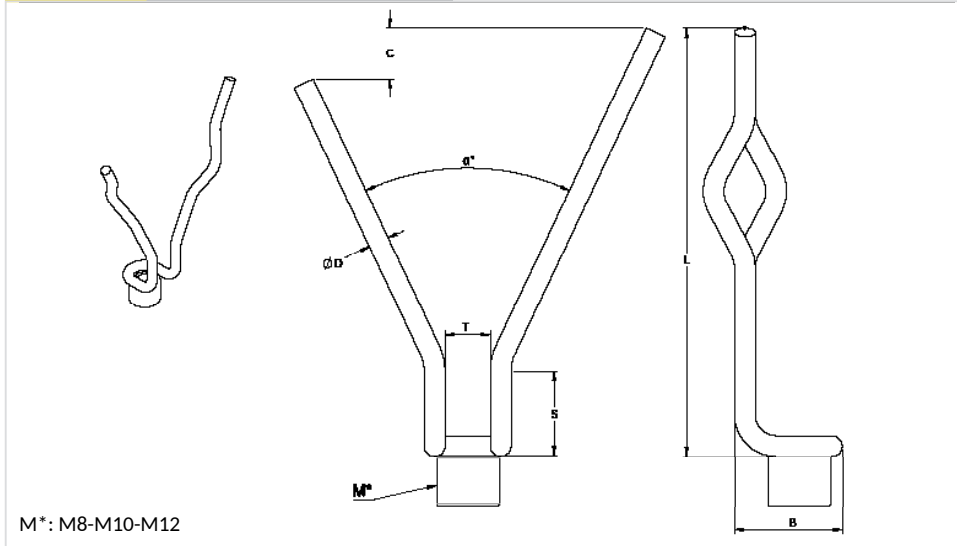
Please contact us for other alloys

We are doing our own Positive Material Identification (PMI) testing...

...to determine the chemical composition of the raw material alloy we buy. No surprise: we deliver the stainless steel quality you ordered.



TWxON TWxUN TWxOH



M*: M8-M10-M12

Order Code TWx On Nut

TWSON.D(α)-B.T-L/c(S)-alloy-M*RONUT-alloy

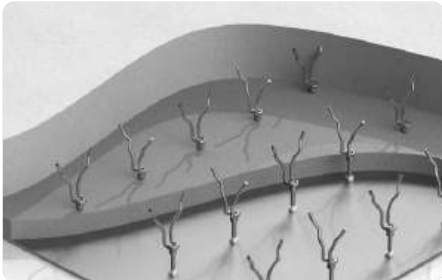
Example Code:

TWSON.06(60)-30.13-053/00(000)-310S-M10.RONUT-310S

Standard Measurements (mm)

TWxON					
	min	max	L:	min	max
D:	3	12	S = 0:	See Series C-09	
			S > 35:	See Series C-09	
Please contact us for other dimensions					

Application Example



Also Available:

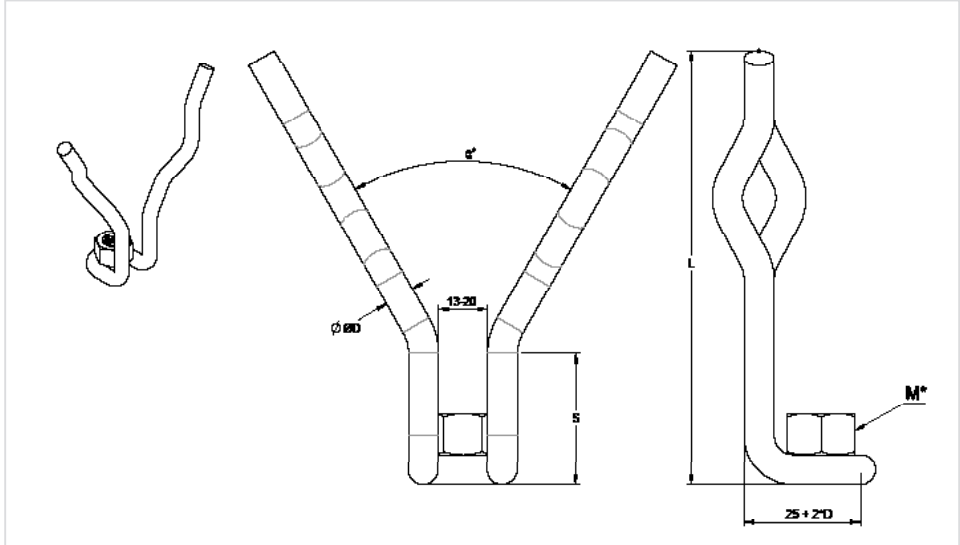


With Caps

Combine With:

T-Studs, F-07

POC-Studs, F-04



Order Code TWx Under Nut
TWxUN.D(α)-L(S)/c-alloy-M*RONUT-alloy
Example Code:
TWxUN.08(60)-120(030)/00-304-M8.RONUT-310S

Standard Measurements (mm)

TWxUN					
	min	max	L:	min	max
D:	3	12	S = 0:	See Series C-09	
			S > 35:	See Series C-09	
Please contact us for other dimensions					

Application Example



Also Available:

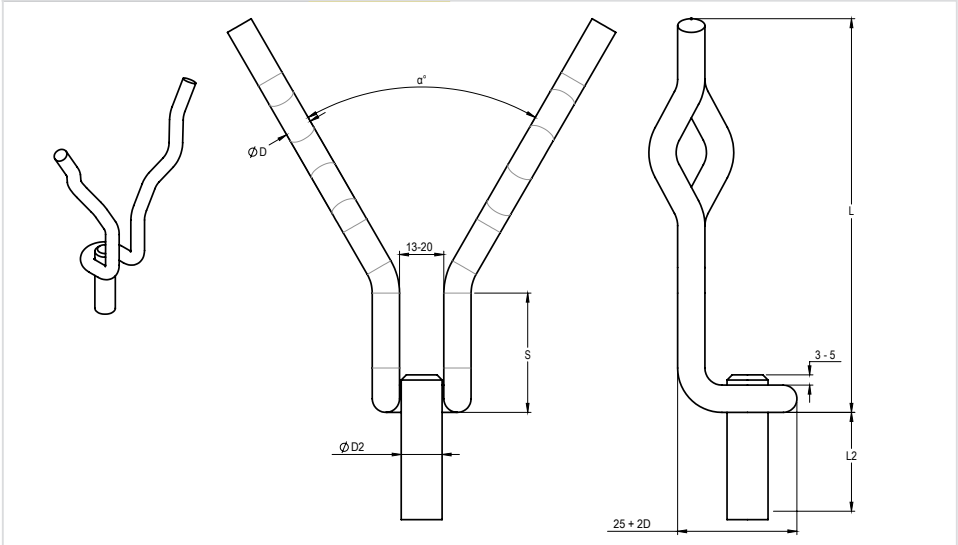


With Caps

Combine With:

T-Studs, F-07 POC-Studs, F-04

TWxON TWxUN TWxOH

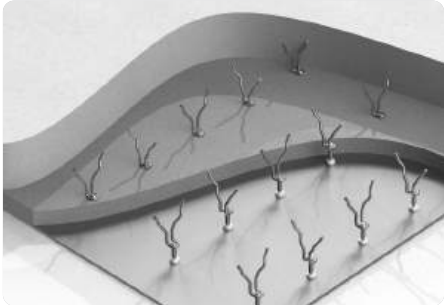


Order Code TWx Hand Weldable
TWxOH.D(α)-L(S)/c-alloy-D2.L2.RONUT-alloy
Example Code:
TWxOH.10(60)-150(030)/15-330-12.190.RONUT-310S

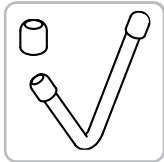
Standard Measurements (mm)

TWxOH					
	min	max	L:	min	max
D:	3	12	S = 0:	See Series C-09	
			S > 35:	See Series C-09	
L2:	15	TwxOH (stud suitable for hand welding), on request TwxOS (stud suitable for stud welding)			
Please contact us for other dimensions					

Application Example

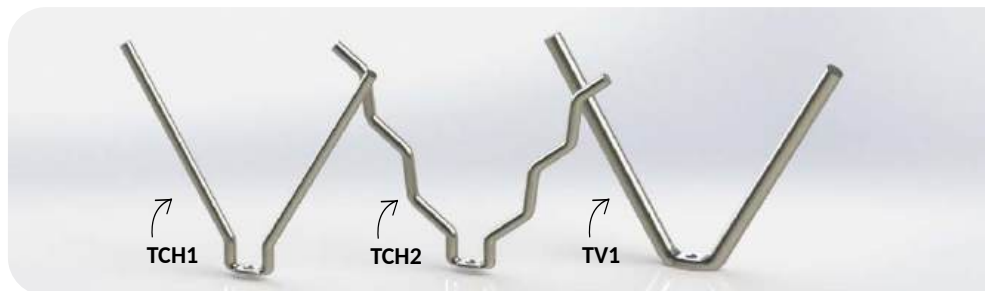


Also Available:



With Caps

Threaded 'V'/'CH' Anchors Series D-04



The Screw on 'V' and 'CH' are screw-on anchors suited for light to medium weight dual lining systems. The advantages of the TV and TCH system are the low cost, fast installation and quick availability.



Threaded 'V'/'CH' Anchors

Series D-04

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316,
321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length

L: 3,0 mm

Diameter

D: H9

Angle

α : 5°



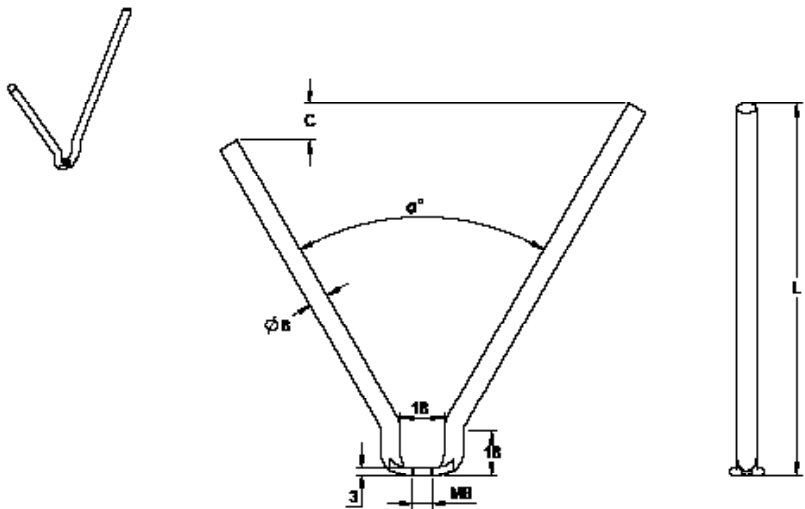
Let's do business!

Your fasteners,
our specialty.

TCH1

TCH2

TV1



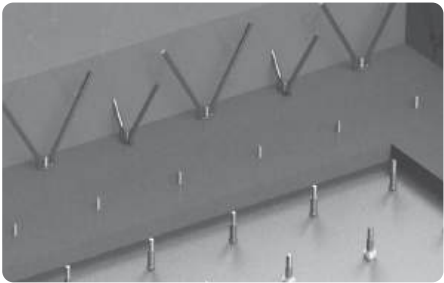
Order Code Threaded on Base CH1
TCH1.D(α)-L(c)-alloy M*

Example Code:
TCH1.08(50)-360(10)-310 M8

Standard Measurements (mm)

TCH1		
	min	max
L:	35	200
Standard available in ø8 with M6 or M8 hole.		
Please contact us for other dimensions		

Application Example



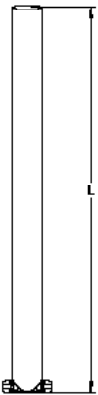
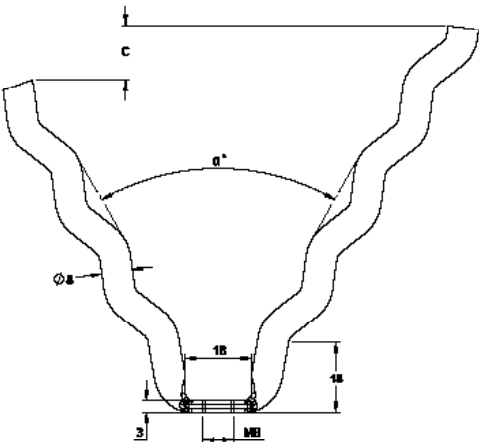
Combine With

T-Studs, F-07

TCH1

TCH2

TV1



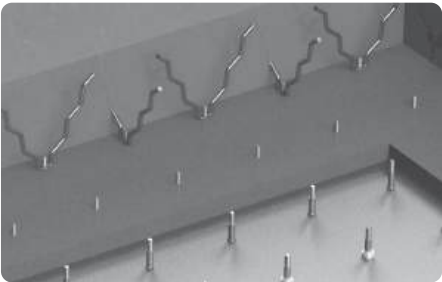
Order Code Threaded on Base CH2
TCH2.D(α)-L(c)-alloy M*

Example Code:
TCH2.08(50)-360(10)-310 M8

Standard Measurements (mm)

TCH2		
	min	max
L:	45	200
Standard available in ø8 with M6 or M8 hole.		
Please contact us for other dimensions		

Application Example



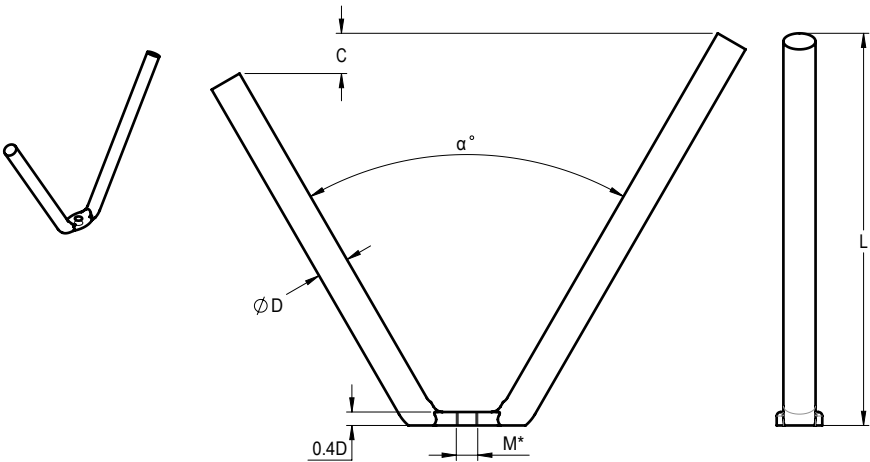
Combine With

T-Studs, F-07

TCH1

TCH2

TV1



Order Code Threaded on Base V1

TV1.D(α)-L(c)-alloy M*

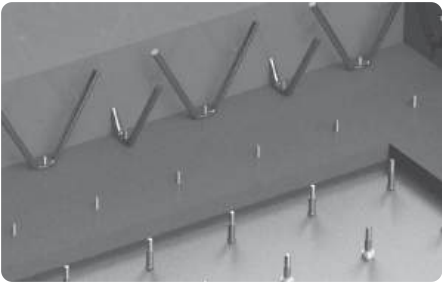
Example Code:

TV1.08(50)-360(10)-310 M8

Standard Measurements (mm)

TV1	
D:	8/10/12
L:	45 - 250
α°	60°/90°
D8 with M6 or M8 hole, D10 with M8 hole, D12 with M10 hole	
Please contact us for other dimensions	

Application Example



Combine With

T-Studs, F-07

Slit Stud Anchors

Series D-05



The Slit Studs are very convenient and cost effective anchors for light weight concretes and are suitable for rapid arc welding.



Slid Stud Anchors

Series D-04

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316,
321, 330, 800, 601

Please contact us for other alloys

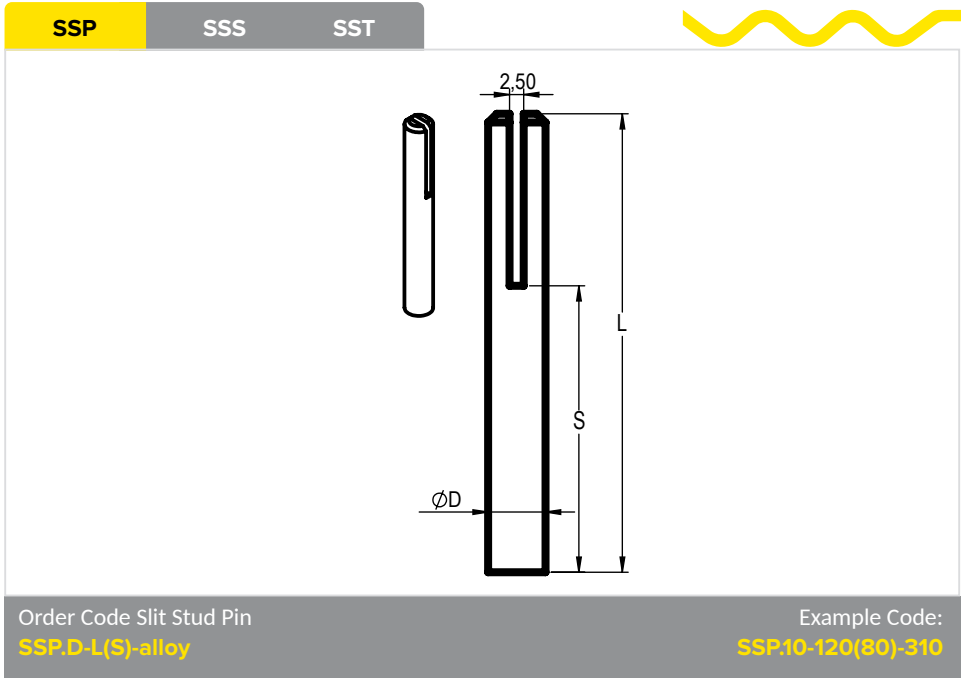
Tolerances \pm

Length	L:	3,0 mm
Diameter	D:	H9
Step	S:	2,0 mm



We offer
worldwide
logistics

from The Netherlands
to your country.

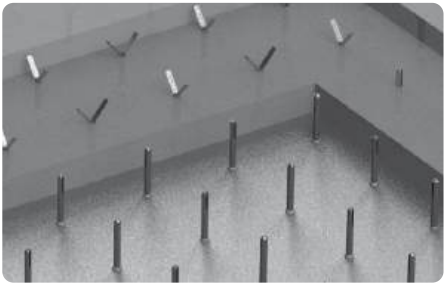


Standard Measurements (mm)

SSP				
	min	max	L-S:	< 50
D:	8	12		
L:	30	135		

Please contact us for other dimensions

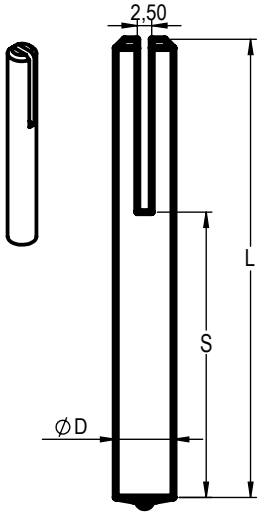
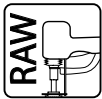
Application Example



SSP

SSS

SST



Order Code Slit Stud, Stud Weldable
SSS.D-L(S)-alloy

Example Code:
SSS.10-125(90)-310

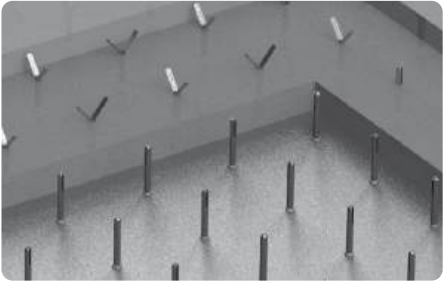
Standard Measurements (mm)

SSS

	min	max	L-S:	< 50
D:	8	12		
L:	30	135		

Please contact us for other dimensions

Application Example

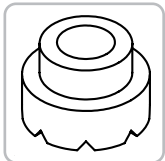


Also Available:



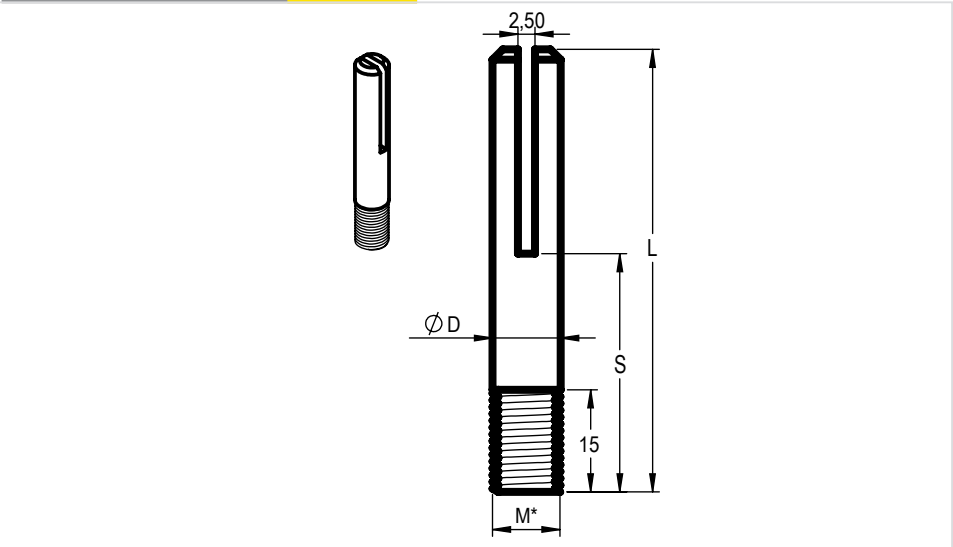
RAW Service

Supplied with:



Ceramic Ferrules

SSP SSS SST



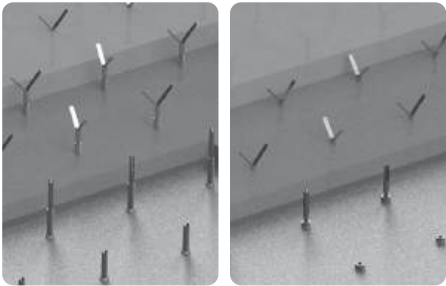
Order Code Slit Stud Threaded
SST.D-L(S)-alloy

Example Code:
SST.12-125(80)-310

Standard Measurements (mm)

SST				
	min	max	L - S:	< 50
D:	8	12	D=M*	
L:	30	135		
Please contact us for other dimensions				

Application Example



Combine With:

ITS, F-07



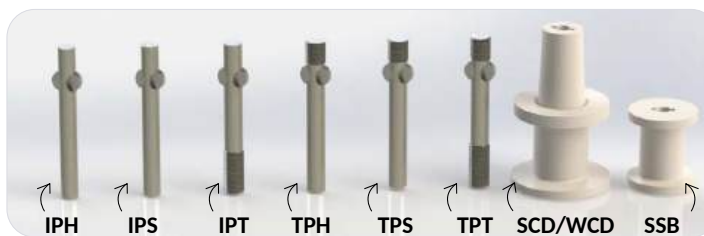
Anchors for **Ceramic Fiber Linings**

One of the materials that is rapidly gaining popularity is ceramic fiber for heat conservation in blanket, modules and board form.

These high temperature fibers provide fuel savings, operating flexibility and thermal shock resistance in periodic and tunnel kilns, heating and annealing furnaces and petrochemical process furnaces.

SILICON offers several systems suitable for anchoring ceramic fiber over a range of temperatures.

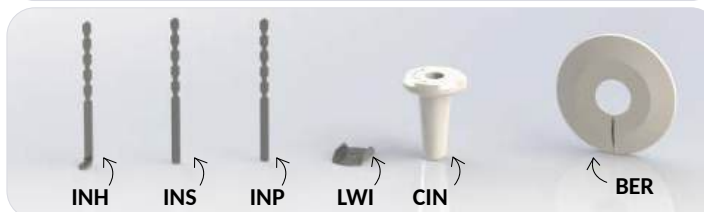
F-01 P-Pin System



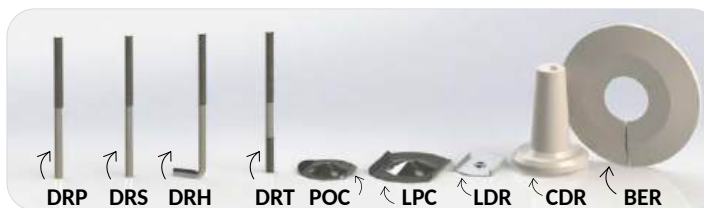
F-02 Fiberfix System



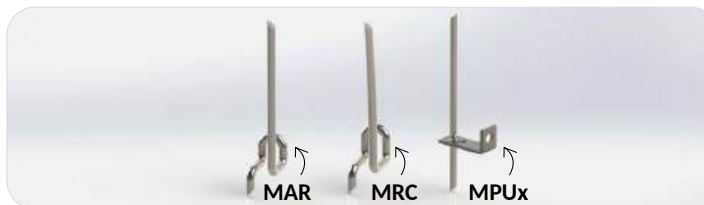
F-03 **NEW!** Insultwist System



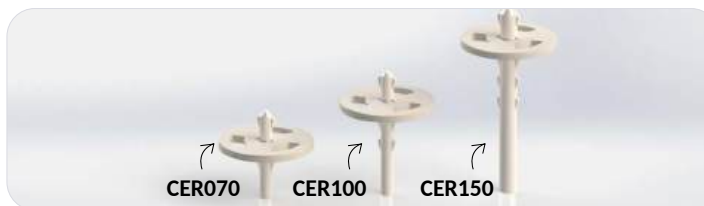
F-04 Press On Clip System



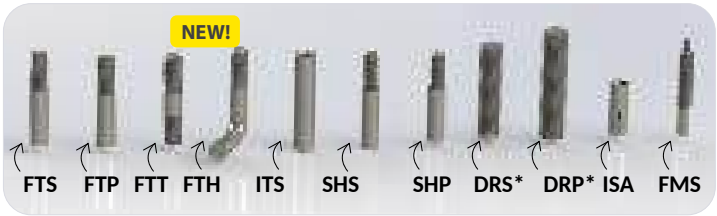
F-05 Mechanical Anchoring System



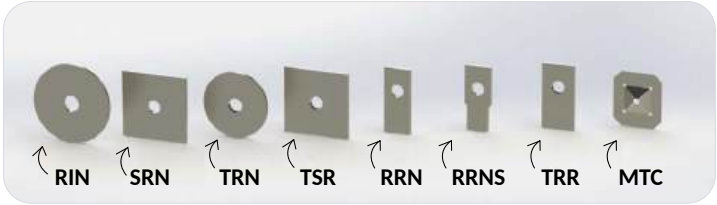
F-06 Cerafix System



F-07
Threaded
Studs



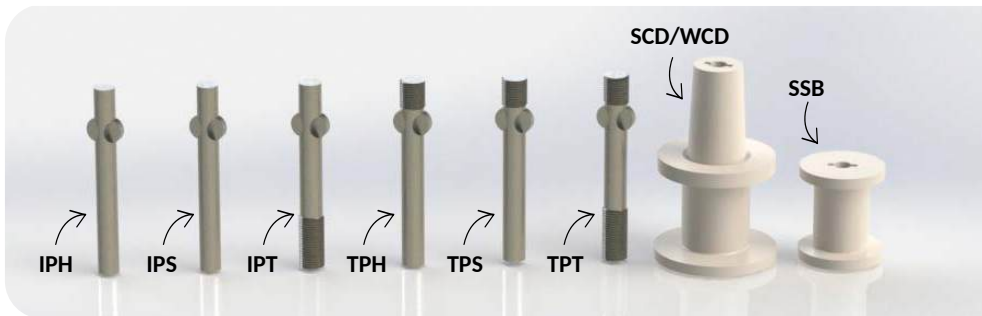
F-08
Washers





P-Pin System

Series F-01



P-Pin refractory anchors offer support to steel plates when mounted on the hot face. They allow for a blanket as well as a hard backup insulating system. With the possibility of a hand welding, rapid Arc Welding and threaded version these anchors suit any refractory lining.

Heating elements can be supported with the SCD and SSB cuplocks, specially designed for SILICON P-Pin anchors IPS.8 and IPH.8.



P-Pin System

Series F-01

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316,
321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length

L:

2,0 mm

Diameter

D:

H9



Side by side

That's working
with SILICON!

IPH

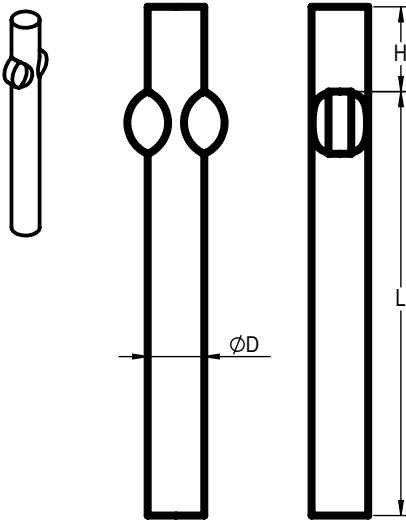
IPS

IPT

TPH

TPS

TPT >



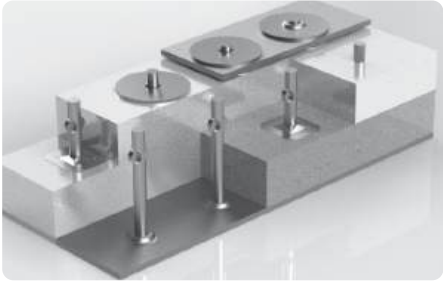
Order Code P-Pin for Hand Welding
IPT.M*-L(H)-P-alloy

Example Code:
IPT.10-125(20)-25-310

Standard Measurements (mm)

IPH		
	min	max
D:	5	13
L:	30	350
Please contact us for other dimensions		

Application Example



Also Available:

Washers, F-08 SCD, F-01

IPH


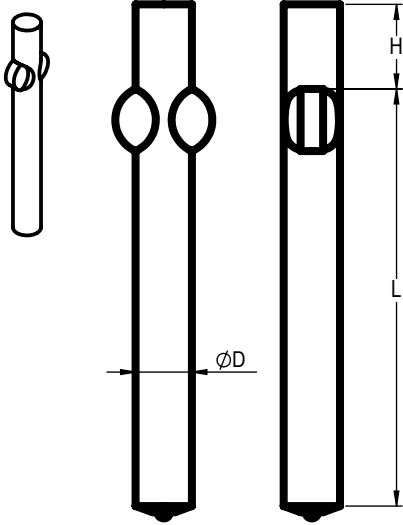
IPS

IPT

TPH

TPS

TPT >



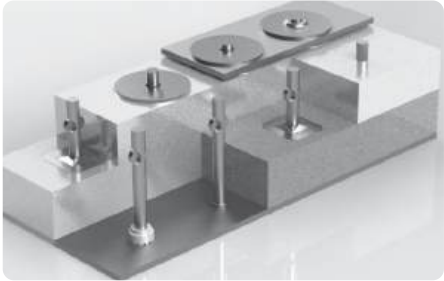
Order Code P-Pin for Stud Welding
IPS.D-L(H)-alloy

Example Code:
IPS.12-250(20)-310

Standard Measurements (mm)

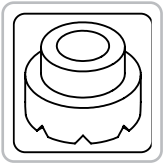
IPS		
	min	max
D:	5,25	12
L:	35	350
Please contact us for other dimensions		

Application Example



Also Available:

Supplied With:



Ceramic Ferrules

RAW Service Washers, F-08 SCD, F-01

IPH

IPS

IPT

TPH

TPS

TPT >

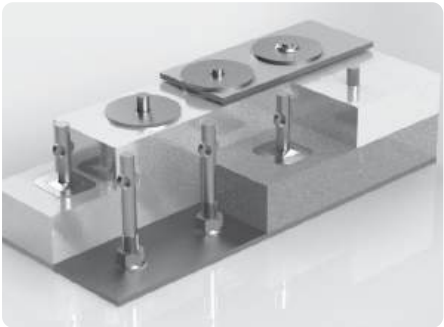
Order Code P-Pin with Threaded Bottom
IPT.M*-L(H)-P-alloy

Example Code:
IPT.10-125(20)-25-310

Standard Measurements (mm)

IPT		
	min	max
M:	6	14
L:	50	350
M*:	D5.25 = M6 D8.9 = M10 D12.7 = M14	D7.12 = M8 D10.76 = M12
Please contact us for other dimensions		

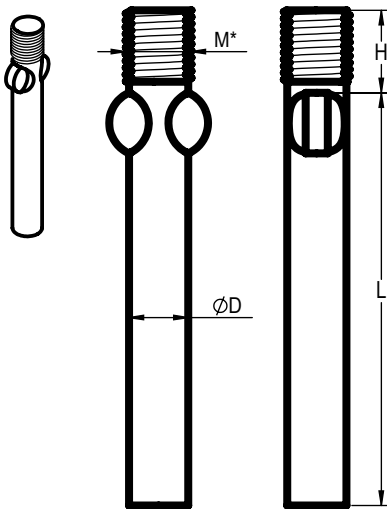
Application Example



Also Available:

Washers, F-08

SCD, F-01



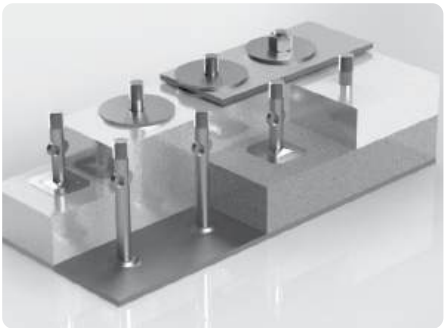
Order Code Threaded P-Pin for Hand Welding
TPH.M*-L(H)-alloy

Example Code:
TPH.10-125(30)-310

Standard Measurements (mm)

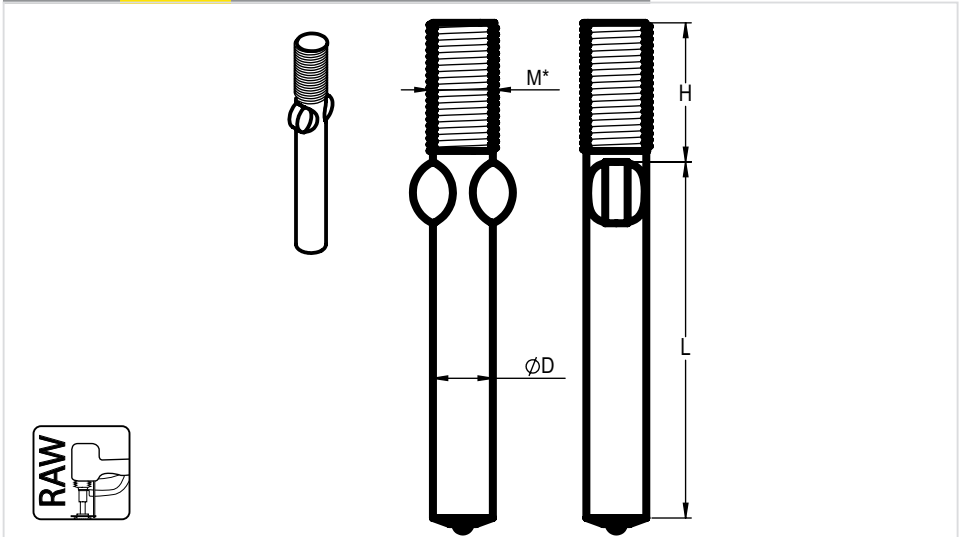
TPH		
	min	max
M:	6	14
L:	50	350
M*:	D5.25 = M6 D8.9 = M10 D12.7 = M14	D7.12 = M8 D10.76 = M12
Please contact us for other dimensions		

Application Example



Also Available:

Washers, F-08 BW-Set, C-10



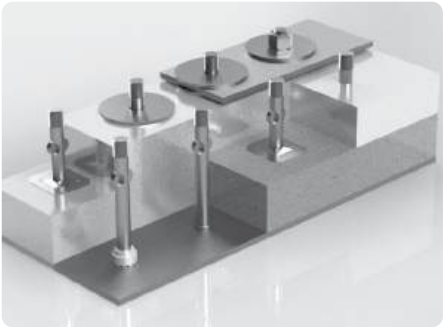
Order Code Threaded P-Pin for Stud Welding
TPS.M*-L(H)-alloy

Example Code:
TPS.12-145(25)-310

Standard Measurements (mm)

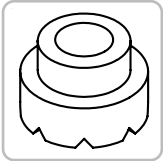
TPS		
	min	max
M:	6	14
L:	50	350
M*:	D5.25 = M6 D8.9 = M10 D12.7 = M14	D7.12 = M8 D10.76 = M12
Please contact us for other dimensions		

Application Example



Also Available:

Supplied With



RAW Services Washers, F-08 BW-Set, C-10

Ceramic Ferrules

< TPH

TPS

TPT

SCD

WCD

SSB

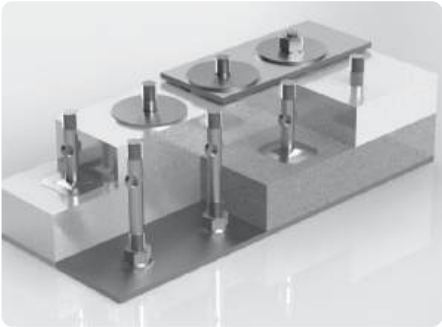
Order Code Threaded P-Pin with Threaded Bottom
TPT.M*-L(H)-P-alloy

Example Code:
TPT.10-125(20)-25-310

Standard Measurements (mm)

TPT		
	min	max
M:	6	14
L:	50	350
M*:	D5.25 = M6 D8.9 = M10 D12.7 = M14	D7.12 = M8 D10.76 = M12
Please contact us for other dimensions		

Application Example



Also Available:

Washers, F-08 BW-Set, C-10

< TPH

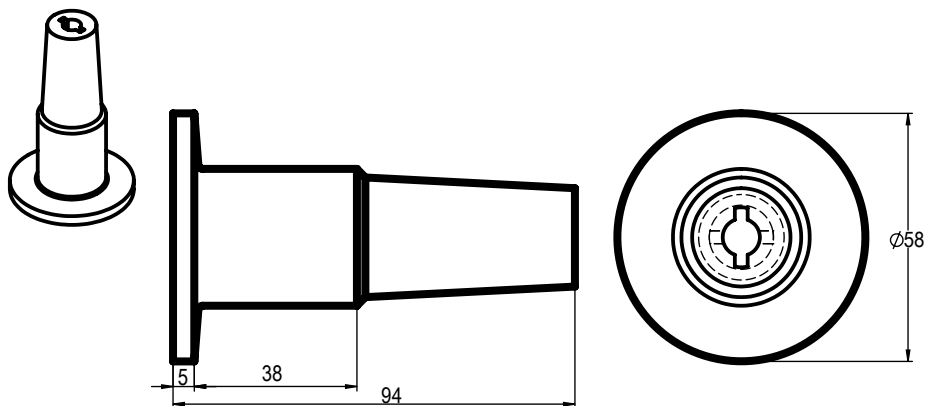
TPS

TPT

SCD

WCD

SSB



Order information SCD-040

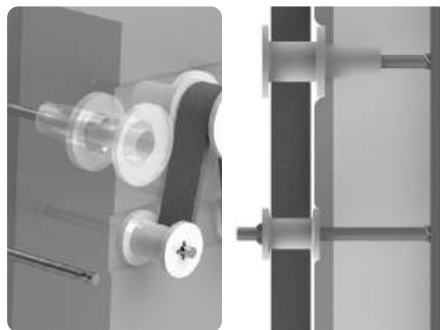
SCD-040

Standard Measurements (mm)

Cuplock SCD-040 is designed to support a 35mm heating element in combination with a WCD ceramic washer. The cuplock is specially designed to be held in place by a SILICON IPS.8 or IPH.8 anchor.

Material: Ceramic for applications up to 1300 °C.

Application Example



Also Available:

WCD, F-01

SSB, F-01

P-Pins, F-01

< TPH

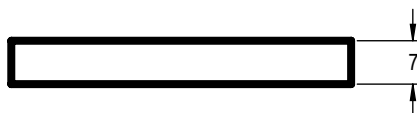
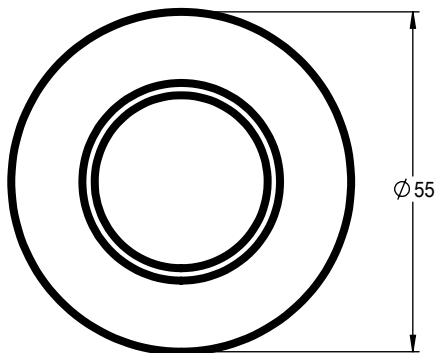
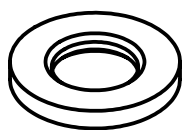
TPS

TPT

SCD

WCD

SSB



Order information WCD-055

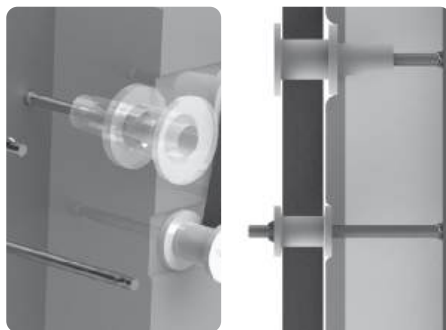
WCD-055

Standard Measurements (mm)

Ceramic washer WCD is used in combination with the Cuplock SCD-040 to support a 35mm heating element. The WCD is used for better support of the fiber layers.

Material: Ceramic for applications up to 1300 °C.

Application Example



Also Available:

SCD, F-01

< TPH

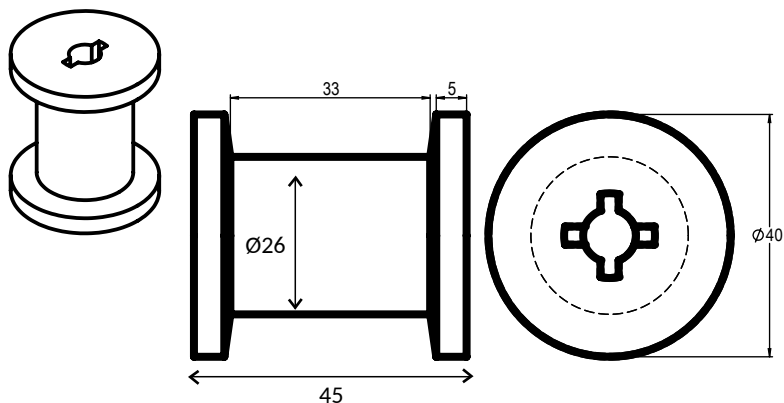
TPS

TPT

SCD

WCD

SSB



Order information SSB-030

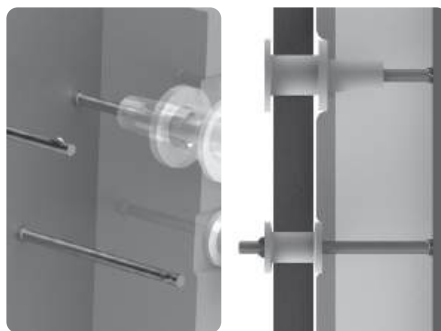
SSB-030

Standard Measurements (mm)

Cuplock SSB-030 is designed to support a 30mm heating element in combination with a cuplock SCD-040 and ceramic washer WCD. The cuplocks are specially designed to be held in place by a SILICON IPS.8 or IPH.8 anchor.

Material: Ceramic for applications up to 1300 °C.

Application Example



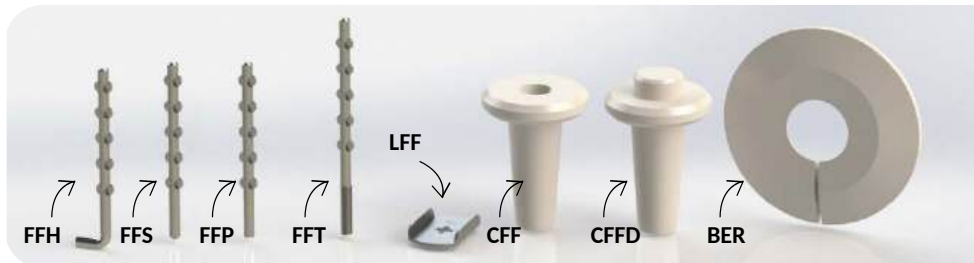
Also Available:

SCD, F-01

P-Pins, F-01

Fiberfix System

Series F-02



Our Fiberfix refractory anchors are round in shape and offer dimensional stability. With the possibility of a hand welding, rapid arc welding and threaded version these anchors suit any refractory fiber lining.

Use the Fiberfix anchors in combination with an LFF end clip or CFF ceramic cuplock with BER Bearing Ring to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

Cuplocks for Fiberfix anchors (CFF) secure the fiber insulation and can optionally be filled with ceramic fiber mastic. It is locked in place by turning the cuplock in between the anchor notches. A bearing ring (BER) is used for better support of the fiber layers. The CFFD cuplock for Fiberfix anchors can be closed off with a ceramic cap to protect the metal anchor from external influences.

Are you looking for alternatives? Take a look at :

- **Series F-03 Insultwist** for a similar system, but with FLAT anchors.
- **Series F-04 for the famous Press On Clip system** with threaded studs (instead of notches) which allows a more precise positioning.

Not sure which system to choose? Contact our sales team for further assistance.



Fiberfix System

Series F-02

Available Alloys


Wire:

CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Tolerances \pm

Length	L:	2,0 mm
Diameter	D:	H9
Head	H:	2,0 mm

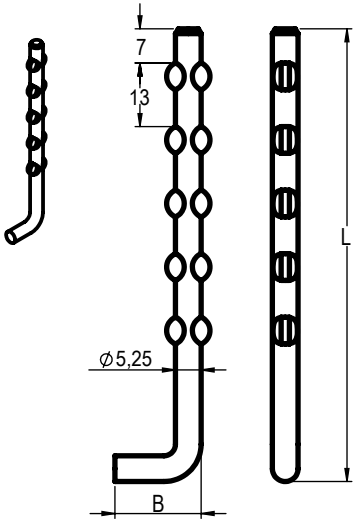
Please contact us for other alloys



**We are a mass
manufacturer
of refractory
anchoring
systems**

FFH FFS FFP FFT LFF CFF >

L	#Notches
30 - 41	1
42 - 53	2
54 - 66	3
67 - 79	4
80 +	5



Order Code FiberFix Hook
FFH.L(B)-alloy

Example Code:
FFH-225(20)-310

Standard Measurements (mm)

FFH

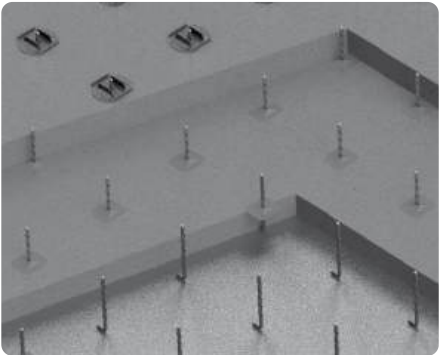
	min	max		min
L:	30	550	B:	25

Use the FFH in combination with an LFF end clip or CFF ceramic cuplock/BER Bearing Ring to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

See F-04 POC/F-03 Insultwist for other alternatives

Please contact us for other dimensions

Application Example



Also Available:

Combine With:

- INH, F-03
- DRH, F-04
- MTC, F-08
- LFF, F-02
- CFF, F-02

FFH

FFS


FFP

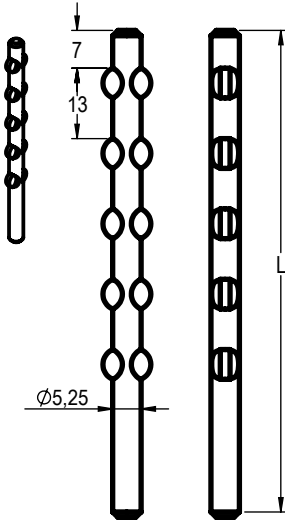
FFT

LFF

CFF >

L	#Notches
35 - 46	1
47 - 58	2
59 - 71	3
72 - 84	4
85 +	5





Order Code FiberFix Stud Weldable

FFS.L-alloy

Example Code:

FFS-250-310

Standard Measurements (mm)

FFS

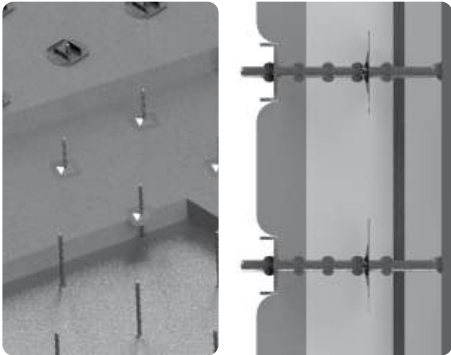
	min	max
L:	35	550

Use the FFS in combination with an LFF end clip or CFF ceramic cuplock/BER Bearing Ring to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

See F-04 POC/F-03 Insultwist for other alternatives

Please contact us for other dimensions

Application Example



Combine With:

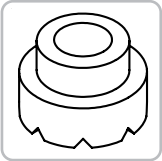
RAW Services

MTC, F-08

LFF, F-02

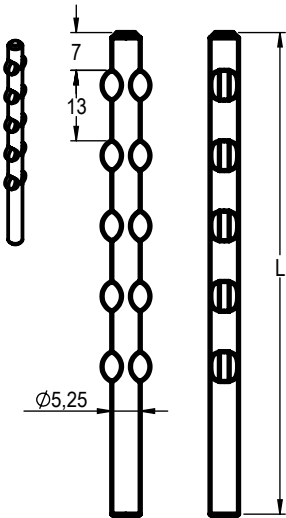
CFF, F-02

Supplied With:



Ceramic Ferrules

L	#Notches
35 - 46	1
47 - 58	2
59 - 71	3
72 - 84	4
85 +	5



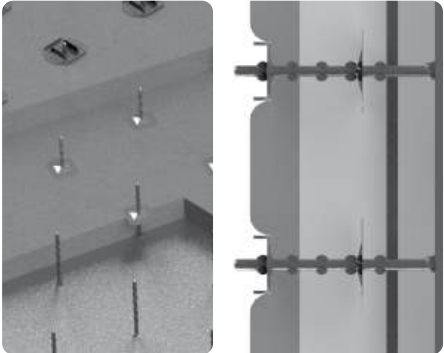
Order Code FiberFix Hand Weldable
FFP.L-alloy

Example Code:
FFP-250-310

Standard Measurements (mm)

FFP		
	min	max
L:	30	550
Use the FFP in combination with an LFF end clip or CFF ceramic cuplock/BER Bearing Ring to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.		
See F-04 POC/F-03 Insultwist for other alternatives		
Please contact us for other dimensions		

Application Example



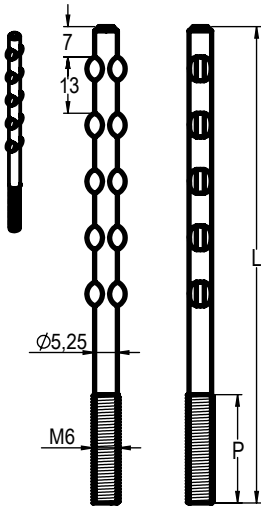
Combine With:

MTC, F-08

LFF, F-02

CFF, F-02

[L-P]	#Notches
25 - 36	1
37 - 48	2
49 - 61	3
62 - 74	4
75 +	5



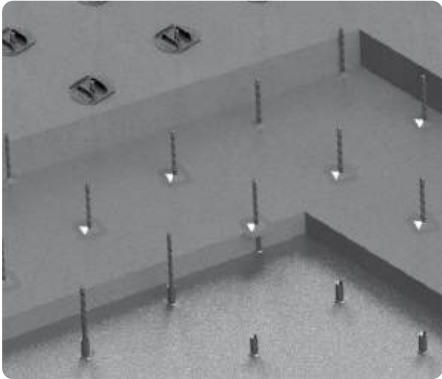
Order Code FiberFix Threaded Bottom
FFT.L(P)-alloy

Example Code:
FFT.125(25)-310

Standard Measurements (mm)

FFT		
	min	max
L:	35	550
P:	10	25
Use the FFT in combination with an LFF end clip or CFF ceramic cuplock/BER Bearing Ring to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation		
See F-04 POC/F-03 Insultwist for other alternatives		
Please contact us for other dimensions		

Application Example



Combine With:

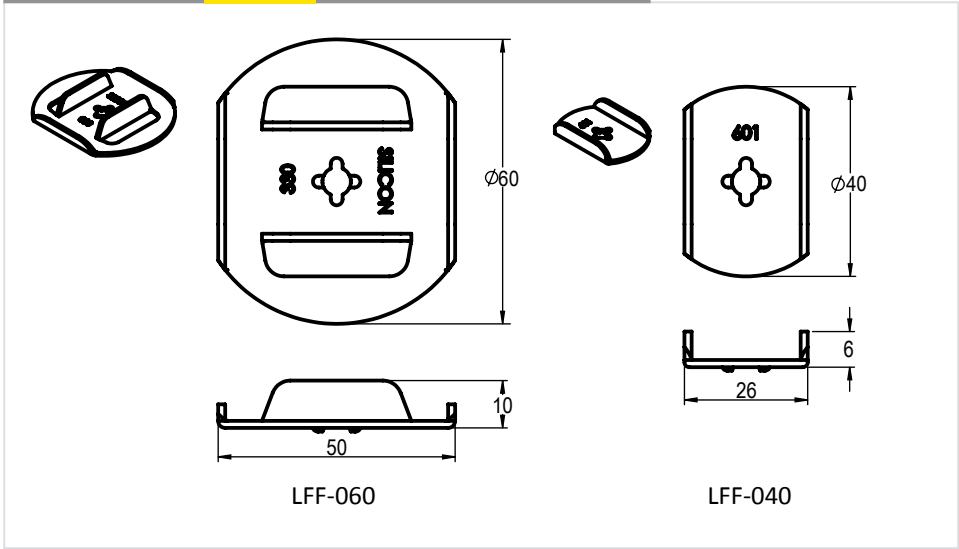
ISA, F-07

ITS, F-07

MTC, F-08

LFF, F-02

CFF, F-02



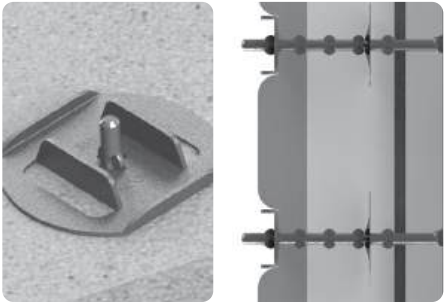
Order Code Lockwasher for FiberFix
LFF-D-alloy

Example Code:
LFF-40-330

Standard Measurements (mm)

LFF		
D:	60	40
The LFF end clip, also known as lock washer or turn clip, secures the fiber insulation. It is locked in place by turning the clip in between the anchor notches.		
Please contact us for other dimensions		

Application Example



Also Available:

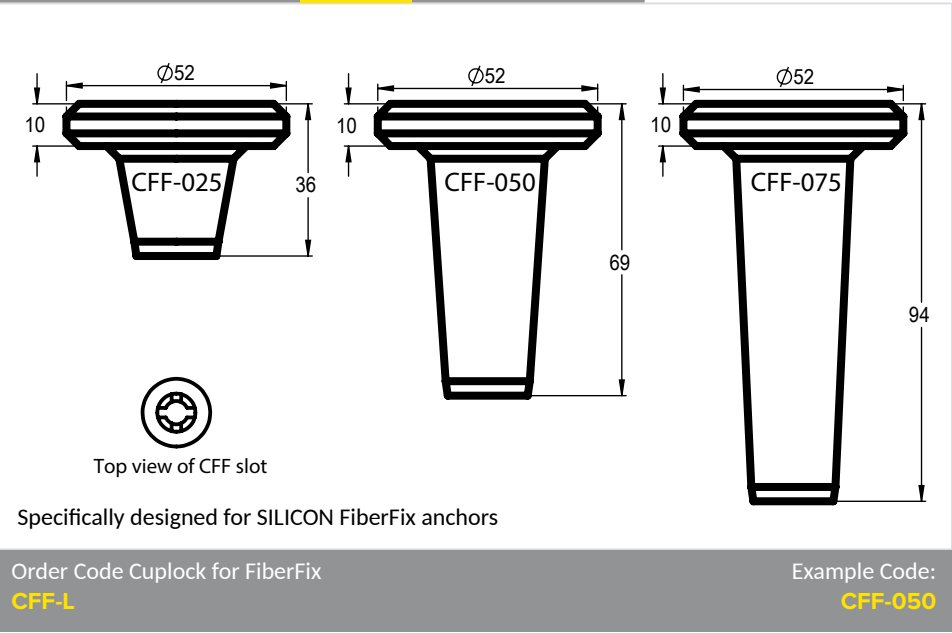
Combine With:

Washers, F-08

FFH, F-02

FFS, F-02

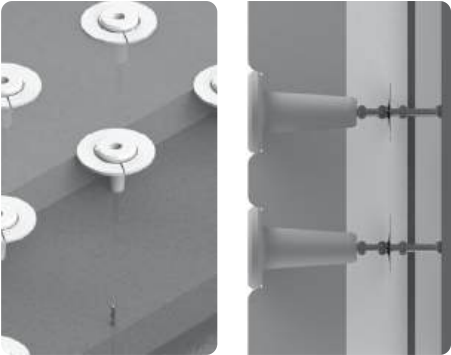
FFT, F-02



Standard Measurements (mm)

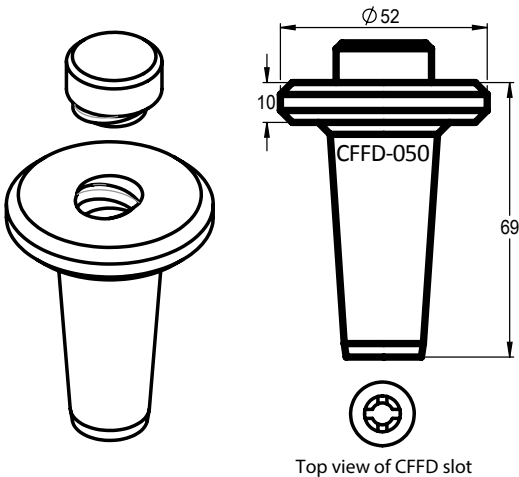
CFF				
L:	025	050	075	
<p>Cuplocks for Fiberfix anchors (CFF) secure the fiber insulation and can optionally be filled with ceramic fiber mastic. It is locked in place by turning the cuplock in between the anchor notches. It can be used with a ceramic bearing ring (BER) for better support of the fiber layers.</p> <p>Material: Ceramic for applications up to 1300 °C.</p> <p><i>Please contact us for other dimensions</i></p>				

Application Example



Combine With:

- BER, F-02
- FFH, F-02
- FFS, F-02
- FFT, F-02



Specifically designed for SILICON FiberFix anchors

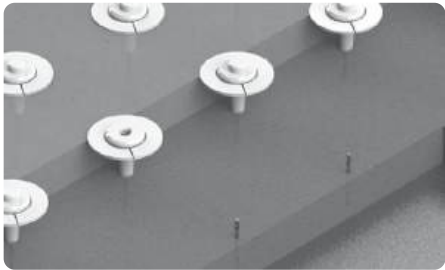
Order Code Cuplock for FiberFix with Cap
CFFD-050

Standard Measurements (mm)

The CFFD cuplock for Fiberfix anchors can be closed off with a cap to protect the metal anchor from external influences. It is locked in place by turning the cuplock in between the anchor notches. It can be used with a ceramic bearing ring (BER) for better support of the fiber layers.

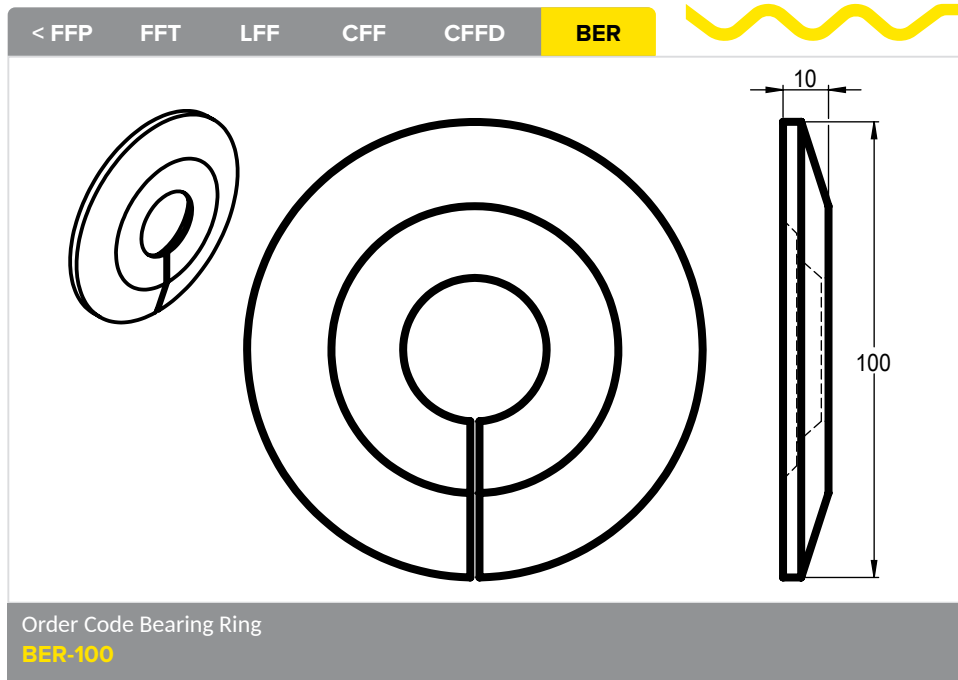
Material: Ceramic for applications up to 1300° C.

Application Example



Combine With:

BER, F-02 FFH, F-02 FFS, F-02 FFT, F-02

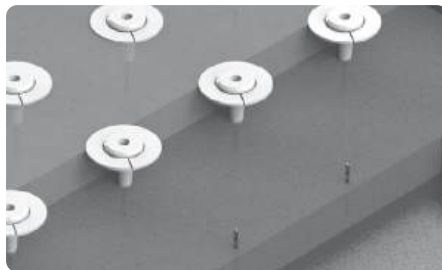


Standard Measurements (mm)

Bearing Rings (BER) are used in combination with cuplocks CDR and CFF to increase the holding surface of the cuplock on the Fiber lining. SILICON standard Bearing Rings are slotted. Unslotted Bearing Rings are available on request.

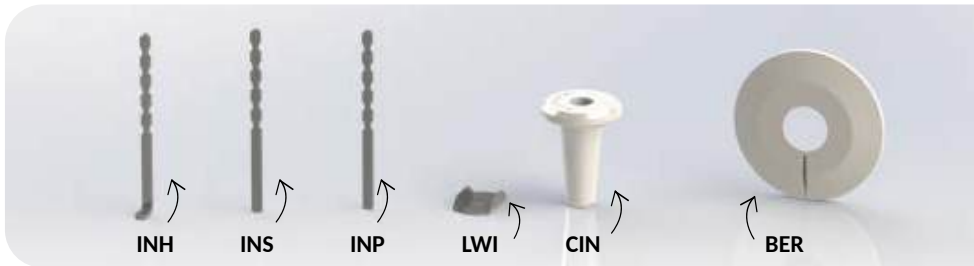
Material: Ceramic for applications up to 1300 °C.

Application Example



Combine With:

CFF, F-02



Our Insultwist refractory anchors are flat (6x3 mm) in shape and offer dimensional stability. With the possibility of a hand welding, rapid arc welding and threaded version these anchors suit any refractory fiber lining.

Use this system in combination with an LWI end clip or CIN ceramic cuplock to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

The cuplocks (CIN) secure the fiber insulation and can optionally be filled with ceramic fiber mastic.

Are you looking for alternatives? Take a look at :

- **Series F-02 FIBERFIX** for a similar system, but with ROUND anchors (diameter 5,25mm).
- **Series F-04 for the famous Press On Clip system** with threaded studs (instead of notches) which allows a more precise positioning.

Not sure which system to choose? Contact our sales team for further assistance.



Insultwist System

Series F-03

Available Alloys

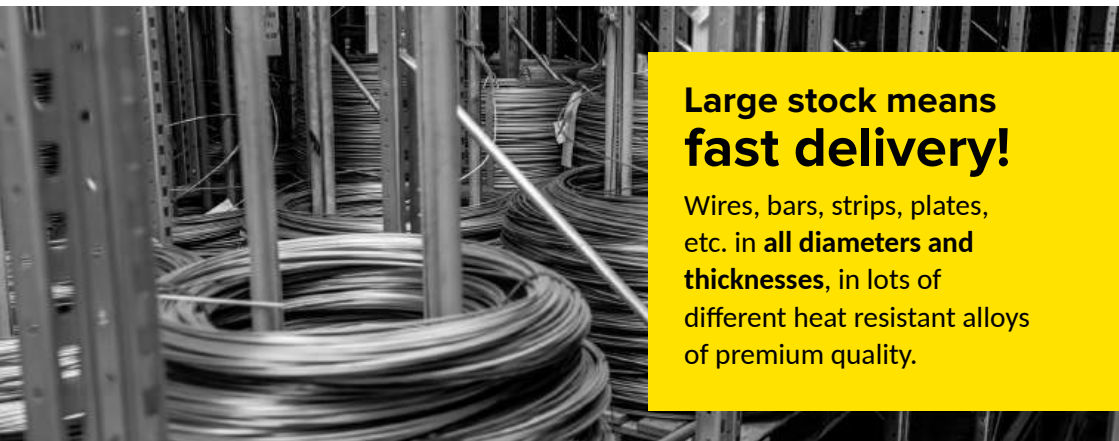
Wire:

CS, 304, 304H, 309, 253MA, 310S, 314,
316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

Length	L:	2,0 mm
Width	B:	0,2 mm
Thickness	T:	0,1 mm



Large stock means fast delivery!

Wires, bars, strips, plates,
etc. in **all diameters and
thicknesses**, in lots of
different heat resistant alloys
of premium quality.

INH

INS

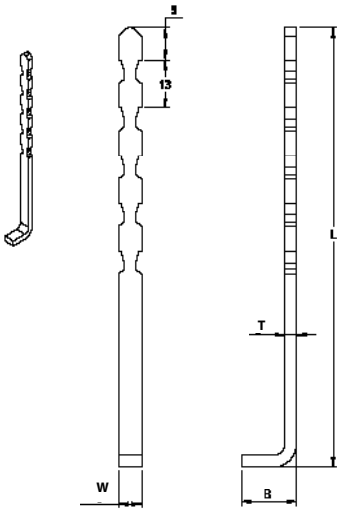
INP

LWI

CIN

BER

L	#Notches
30 - 41	1
42 - 53	2
54 - 66	3
67 - 79	4
80+	5



Order Code Insultwist with Hook
INH.W/T-L(B)-alloy

Example Code:
INH.06.03-150(20)-310

Standard Measurements (mm)

INH		
	min	max
W:	6	15
T:	3	6
L:	30	500
B:	20	50

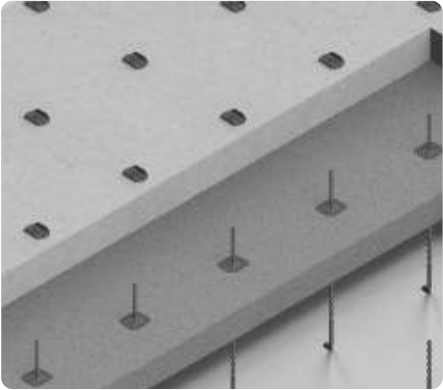
Use the INH in combination with an LWI end clip or CIN ceramic cuplock/BER Bearing Ring to secure your fiber insulation. Cuplocks only available for 6 x 3 (W x T) anchors

For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

See F-04 POC/F-02 FiberFix for other alternatives

Please contact us for other dimensions

Application Example



Also Available:

Combine With:



INH

INS

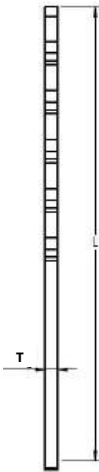
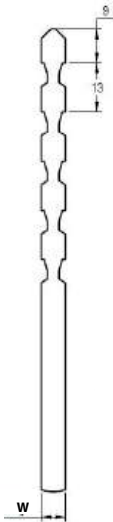
INP

LWI

CIN

BER

L	#Notches
30 - 41	1
42 - 53	2
54 - 66	3
67 - 79	4
80+	5



Order Code Insultwist Stud Weldable
INS.W/T-L-alloy

Example Code:
INS.06.03-150-310

Standard Measurements (mm)

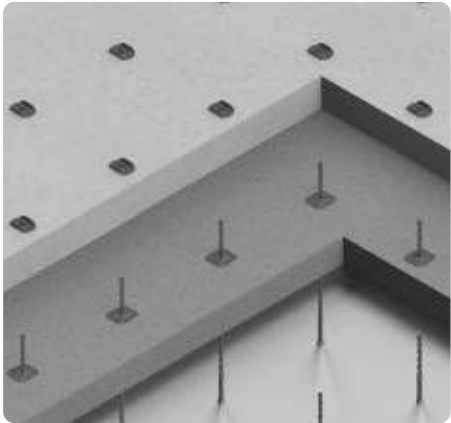
INS		
	min	max
W:	6	15
T:	3	6
L:	30	500
B:	20	50

Use the INS in combination with an LWI end clip or CIN ceramic cuplock/BER Bearing Ring to secure your fiber insulation. **Cuplocks only available for 6 x 3 (W x T) anchors**

For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.
See F-04 POC/F-02 FiberFix for other alternatives

Please contact us for other dimensions

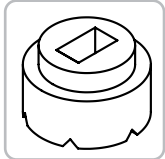
Application Example



Also Available:

Combine With:

Supplied With



RAW Services

MTC, F-08

LWI, F-03

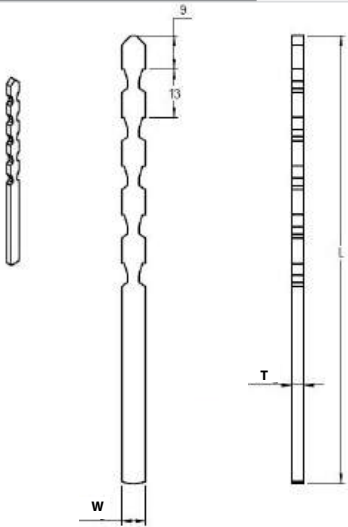
CIN, F-03

Ceramic Ferrules



- INH
- INS
- INP
- LWI
- CIN
- BER

L	#Notches
30 - 41	1
42 - 53	2
54 - 66	3
67 - 79	4
80+	5



Order Code Insultwist Hand Weldable
INP.W/T-L-alloy

Example Code:
INP.06.03-150-310

Standard Measurements (mm)

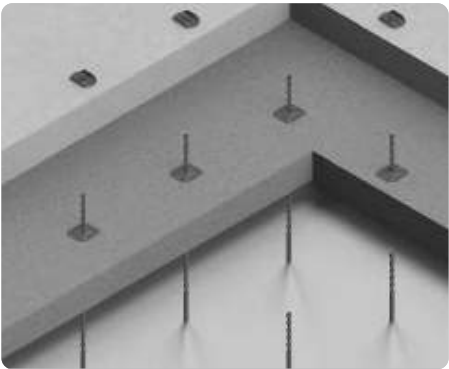
INP		
	min	max
W:	6	15
T:	3	6
L:	30	500
B:	20	50

Use the INP in combination with an LWI end clip or CIN ceramic cuplock/BER Bearing Ring to secure your fiber insulation. **Cuplocks only available for 6 x 3 (W x T) anchors**

For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.
See F-04 POC/F-02 FiberFix for other alternatives

Please contact us for other dimensions

Application Example



Also Available:

Combine With:

FFH, F-03

DRP, F-04

MTC, F-08

LWI, F-03

CIN, F-03

INH

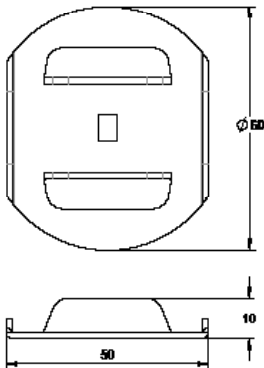
INS

INP

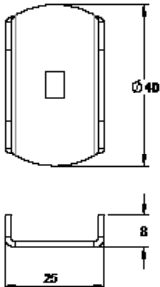
LWI

CIN

BER



LWI-060



LWI-040

Order Code Lockwasher for Insultwist
LWI.06.03-L-alloy

Example Code:
LWI.06.03-150-310

Standard Measurements (mm)

LWI

D:	60	40
----	----	----

The LWI end clip, also known as lock washer or turn clip, secures the fiber insulation. It is locked in place by turning the clip in between the anchor notches.

Please contact us for other dimensions

Application Example



Also Available:

Combine With:

Washers, F-08

INH, F-03

INS, F-03

INP, F-03



INH

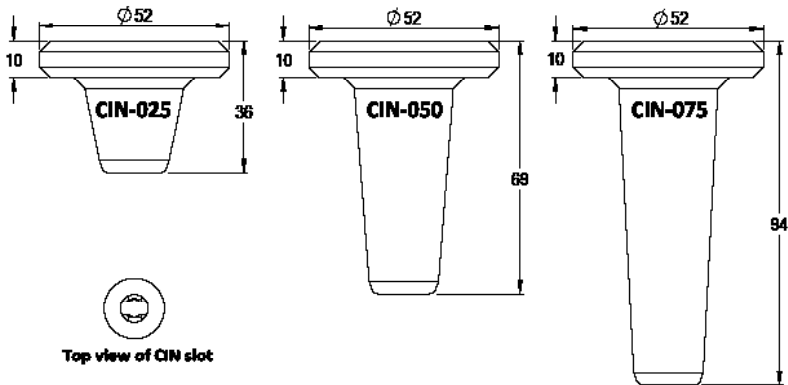
INS

INP

LWI

CIN

BER



Top view of CIN slot

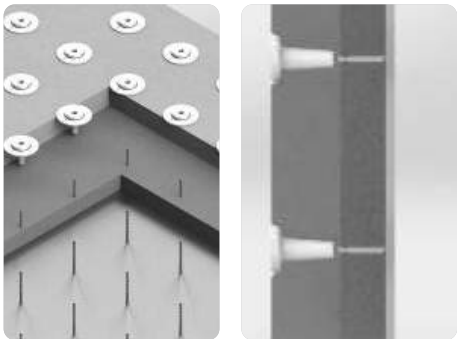
Order Code Cuplock for Insultwist
CIN-L

Example Code:
CIN-025

Standard Measurements (mm)

CIN			
L:	025	050	075
<p>Cuplocks for Insultwist anchors (CIN) secure the fiber insulation and can optionally be filled with ceramic fiber mastic. It is locked in place by turning the cuplock in between the anchor notches. It can be used with a ceramic bearing ring (BER) for better support of the fiber layers.</p> <p>Material: Ceramic for applications up to 1300 °C.</p> <p><i>Please contact us for other dimensions</i></p>			

Application Example



Combine With:

BER, F-02

INH, F-03

INS, F-03

INP, F-03

INH

INS

INP

LWI

CIN

BER

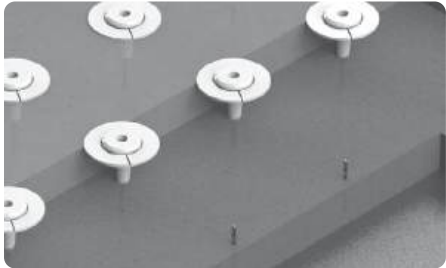
Order Code Bearing Ring
BER-100

Standard Measurements (mm)

Bearing Rings (BER) are used in combination with cuplocks CDR, CIN and CFF to increase the holding surface of the cuplock on the Fiber lining. SILICON standard Bearing Rings are slotted. Unslotted Bearing Rings are available on request.

Material: Ceramic for applications up to 1300 °C.

Application Example



Combine With:

NEW

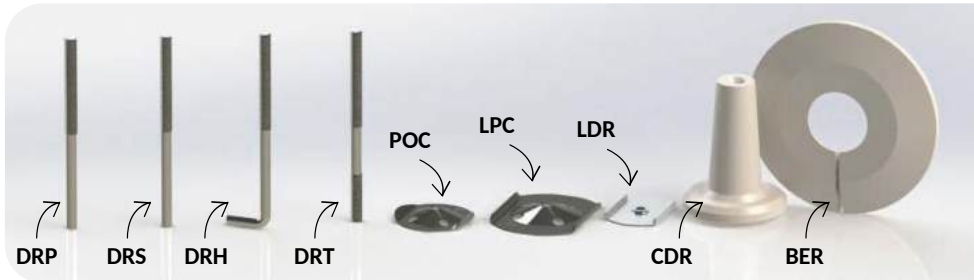
CIN, F-03

CFF, F-02

CDR, F-04

Press On Clip System

Series F-04



The Press On Clip system is our most popular refractory anchoring system. The threaded studs also allow for combinations with anchors from other series. With the possibility of a hand welding, rapid arc welding and threaded version these anchors suit any refractory fiber lining.

Use the threaded studs in combination with an LPC, POC or LDR end clip or CDR ceramic cuplock to secure your fiber insulation. For multiple fiber layers use a SILICON MTC intermediate clip to keep the underlying layers in place during installation.

Cuplocks for Press On anchors (CDR) secure the fiber insulation and can optionally be filled with ceramic fiber mastic. The glued in M6 nut (sold separately on request) is screwed onto a threaded M6 stud. It can be used with a ceramic bearing ring (BER) for better support of the fiber layers.

Are you looking for alternatives? Take a look at:

- **Series F-02 FIBERFIX** for a similar system, but with notches and **round** anchors (diameter 5,25mm).
- **Series F-03 INSULTWIST** with notches and **flat** anchors (6x3 mm).

If you want to apply double lining, you can use a special cap to protect the thread of the stud during the concrete installation phase.



Press On Clip System

Series F-04

Available Alloys

Wire:

CS, 304, 304H, 309, 253MA, 310S, 314, 316,
321, 330, 800, 601

Please contact us for other alloys

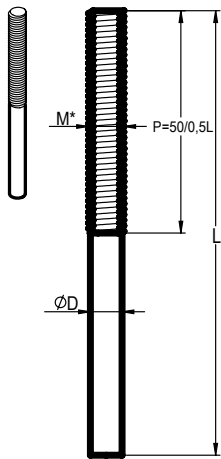
Tolerances \pm

Length	L:	2,0 mm
Diameter	D:	H9
Thickness	T:	0,2 mm

In-house engineering & production

We update our
own toolings and
machines

This anchor can be supplied fully threaded on request.



Order Code DRP
DRP.M*-L-alloy

Example Code:
DRP.6-225-310

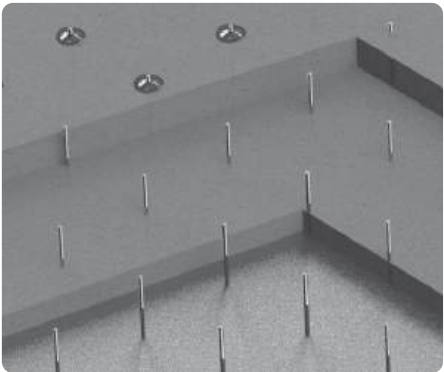
Standard Measurements (mm)

DRP				
	min	max		
L:	25	550	L < 100	P = 0,5L
M*:	5	20	L ≥ 100	P = 50

Different thread length or full thread is also possible.
Please indicate this in your enquiry.
Metric rolled threads have specific pitch diameters:
D5.25 = M6 D7.12 = M8
D8.9 = M10 D10.76 = M12

Please contact us for other dimensions

Application Example



Also Available:

DRP*, F-07 LPC, POC, F-04 LDR, F-04 CDR, F-04 MTC, F-08

DRP

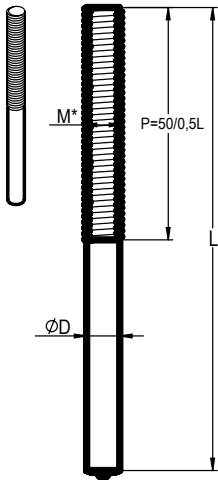
DRS

DRH

DRT

LPC, POC >

This anchor can be supplied
fully threaded on request.



Order Code DRS

DRS.M*-L-alloy

Example Code:

DRS.6-250-310

Standard Measurements (mm)

DRS

	min	max		
L:	25	550	$L < 100$	$P = 0,5L$
M*:	5	20	$L \geq 100$	$P = 50$

Metric rolled threads have specific pitch diameters:

D5.25 = M6

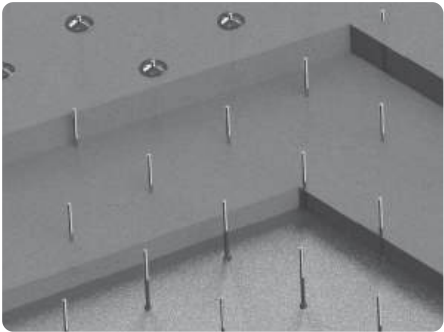
D7.12 = M8

D8.9 = M10

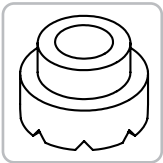
D10.76 = M12

Please contact us for other dimensions

Application Example



Also Available:



RAW Services

DRS*, F-07

LPC, POC, F-04

CDR, F-04

Ceramic Ferrules

DRP

DRS

DRH

DRT

LPC, POC >

This anchor can be supplied fully threaded on request.

Order Code DRH
DRH.M*-L(B)-alloy

Example Code:
DRH.8-315(30)-330

Standard Measurements (mm)

DRH

	min	max		
L:	25	550	$L < 100$	$P = 0,5L$
M*:	5	20	$L \geq 100$	$P = 50$
B:	min 15 + D			

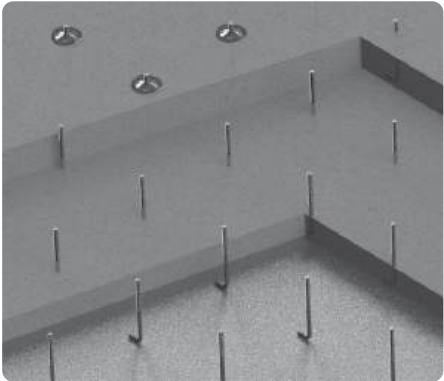
Metric rolled threads have specific pitch diameters:

D5.25 = M6	D7.12 = M8
D8.9 = M10	D10.76 = M12

See F-02 Fiberfix or F-03 Insultwist for alternatives

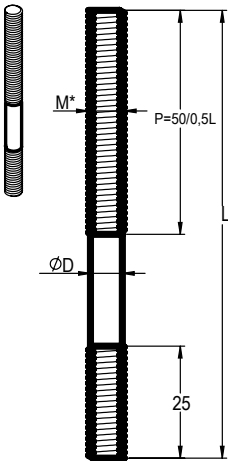
Please contact us for other dimensions

Application Example



Also Available:

- Washers, F-08
- MTC, F-08
- LPC, POC, F-04
- CDR, F-04
- LDR, F-04



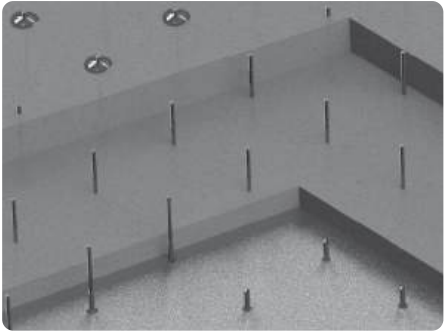
Order Code DRT
DRT.M*-L/P-alloy

Example Code:
DRT.8-200/25-330

Standard Measurements (mm)

DRT				
	min	max		
L:	25	550	L < 100	P = 0,5L
M*:	5	20	L ≥ 100	P = 50
Metric rolled threads have specific pitch diameters: D5.25 = M6 D7.12 = M8 D8.9 = M10 D10.76 = M12 Please contact us for other dimensions				

Application Example



Also Available:

- Washers, F-08
- MTC, F-08
- LPC, POC, F-04
- CDR, F-04
- LDR, F-04

< DRT

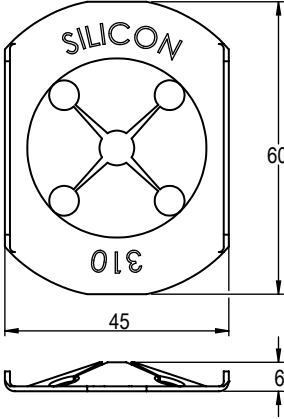

LPC, POC

POT

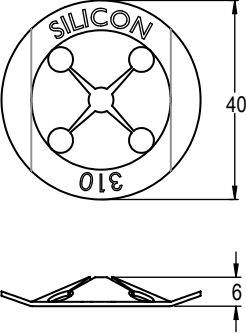

LDR

CDR

BER



LPC



POC

Order Code Press-On Clip
POC.M*-alloy

Order Code Long Press-On Clip
LPC.M*-alloy

Example Code:
POC.6-330

LPC.8-330

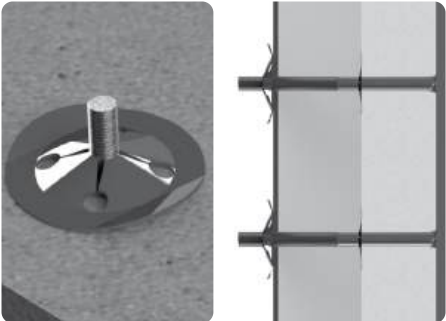
Standard Measurements (mm)

LPC, POC		
	min	max
M*:	5	8

The POC/LPC end clip, also known as lock washer, secures the fiber insulation. The clip is adjustable in 1mm increments and can be mounted by hand, or by using the Press-On Tool (POT) for more accurate positioning of the clip.

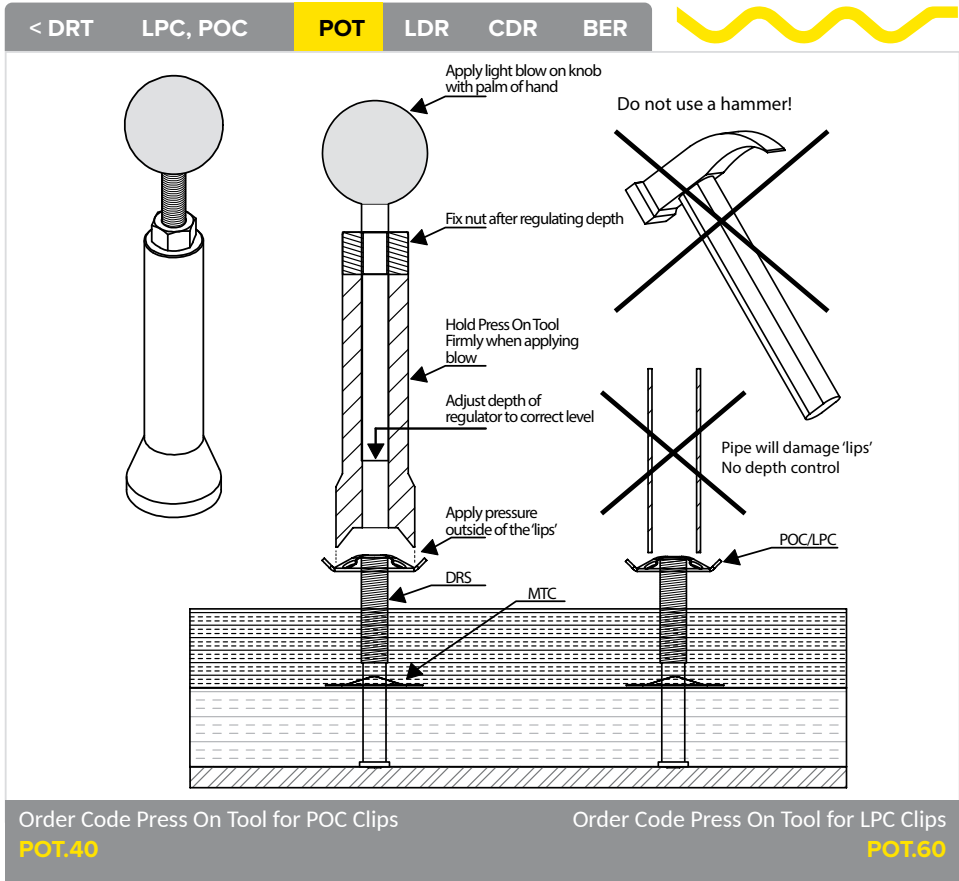
Please contact us for other dimensions

Application Example



Combine With:

Washers, F-08 POC Studs, F-04 POT, F-04

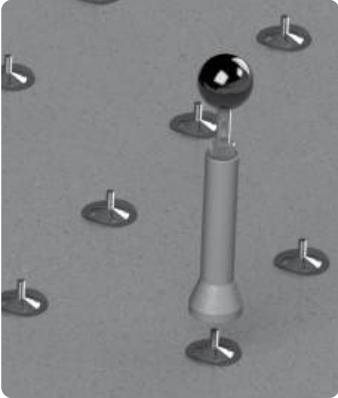


Standard Measurements (mm)

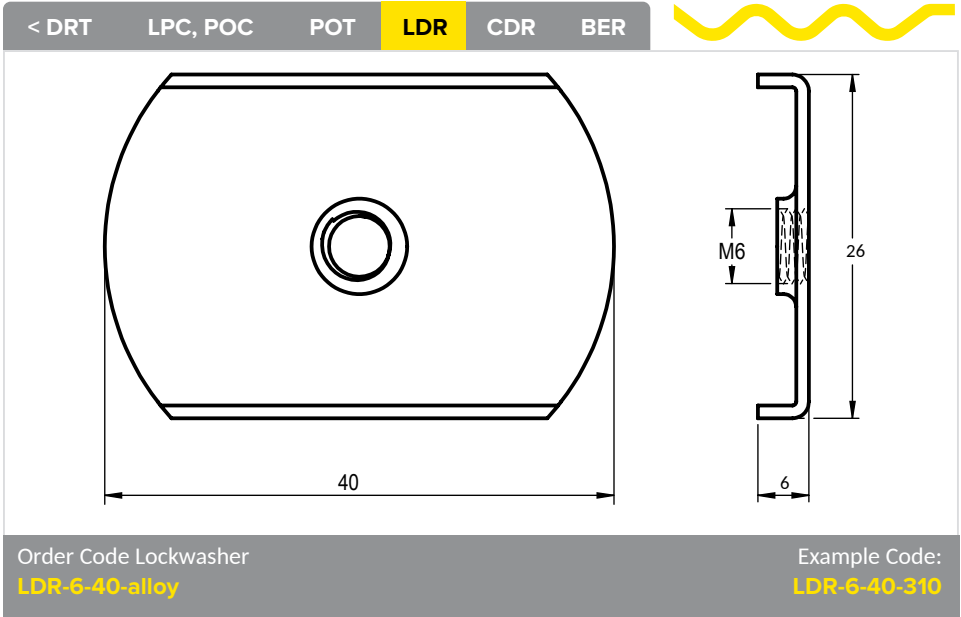
The advantage of the press on tool (POT) is an accurate installation whereby you can adjust the depth according to the thickness of your lining. In addition it removes the risk of damaging the end clip.

Combine with:

Application Example



LPC, POC, F-04

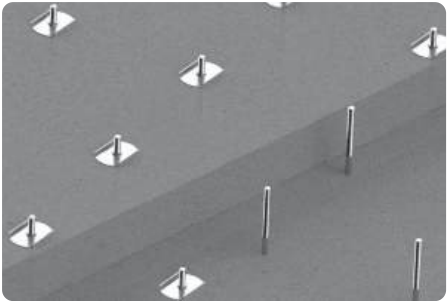


Standard Measurements (mm)

The LDR end clip, also known as turn clip, secures the fiber insulation. It is screwed onto a threaded M6 stud.

Available in M6 and M5

Application Example



Combine With:

Washers, F-08 POC Studs, F-04

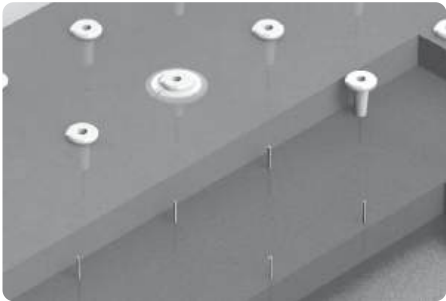


Standard Measurements (mm)

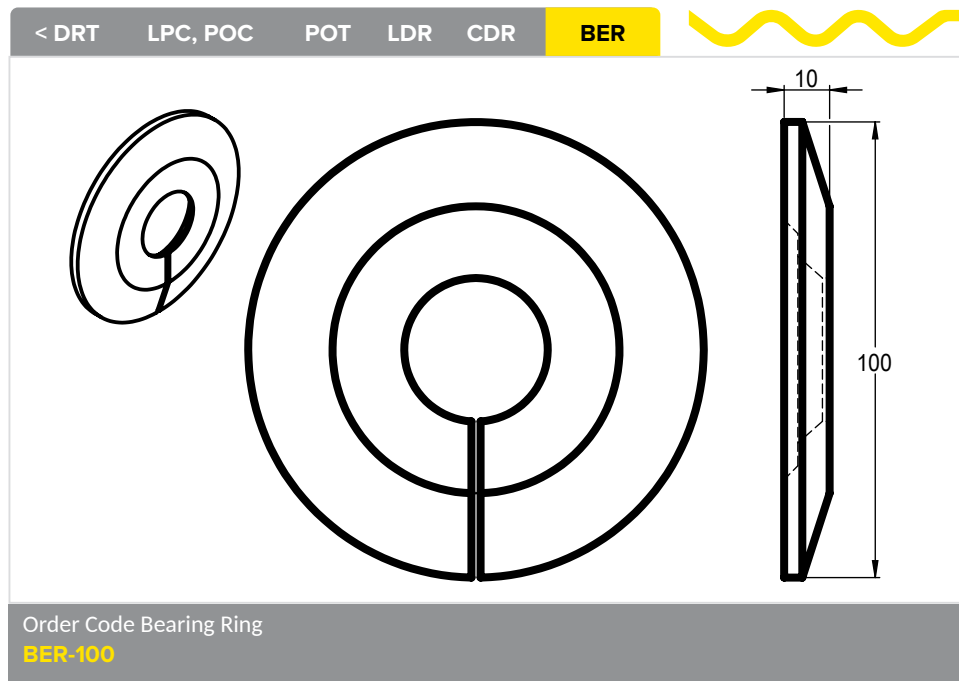
Cuplocks for Press-On anchors (CDR) secure the fiber insulation and can optionally be filled with ceramic fiber mastic. The glued in M6 nut (sold separately on request) is screwed onto a threaded M6 stud. It can be used with a ceramic bearing ring (BER) for better support of the fiber layers.

Material: Ceramic for applications up to 1300 °C.

Application Example



Combine With:

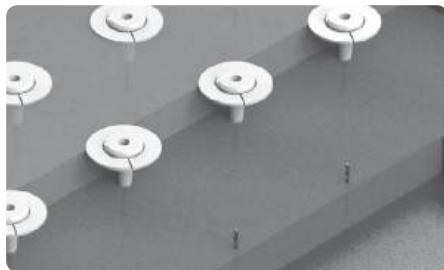


Standard Measurements (mm)

Bearing Rings (BER) are used in combination with cuplocks CDR and CFF to increase the holding surface of the cuplock on the Fiber lining. SILICON standard Bearing Rings are slotted. Unslotted Bearing Rings are available on request.

Material: Ceramic for applications up to 1300 °C.

Application Example

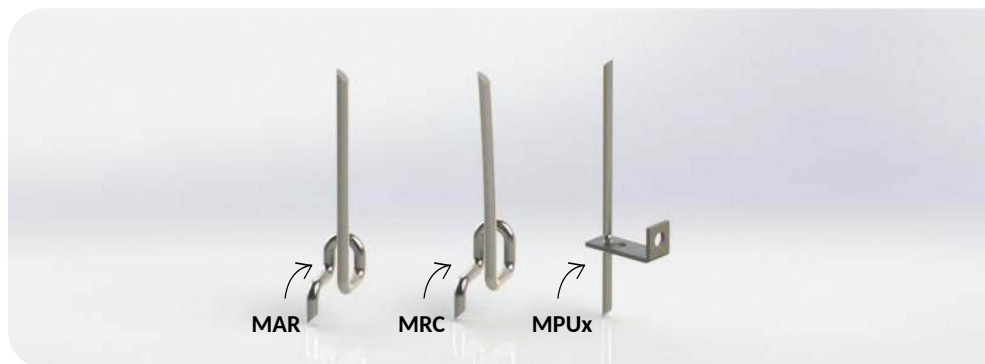


Combine With:

CDR, F-04

Mechanical Anchoring System

Series F-05



The Mechanical Anchoring System is specifically designed to provide strong and reliable supports to stack bonded fiber modules. The anchors can be hand welded or bolted to the casing, or combined with a P-Pin anchor for use in dual lining constructions.



Mechanical Anchoring System

Series F-05

Available Alloys

Plate:

CS, 304, 309, 253MA, 310S, 314,
321, 330, 800, 601

Wire:

CS, 304, 304H, 309, 253MA, 310S,
314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances \pm

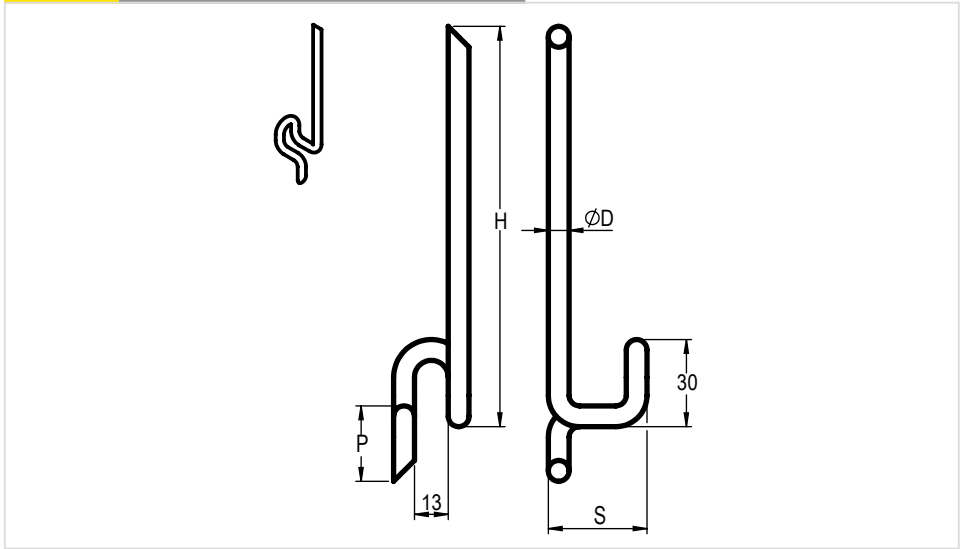
Height	L/P:	3,0 mm
Diameter	D:	H9
Thickness	T:	0,2 mm
Up Right	H:	2,5 mm
Width	W:	2,5 mm
Step	S:	2,5 mm

Can't find the
right MPU strip
style?



We can make **any**
MPU strip style on
request!

MAR MRC MPUx MPUx



Order Code Mechanical Anchor Round
MAR.D(S)-H/P-alloy

Example Code:
MAR.6(50)-225/50-310

Standard Measurements (mm)

MAR				
	min	max		min
D:	5	8	S:	25
P/L:	25	500		
Please contact us for other dimensions				

Application Example



Combine With:

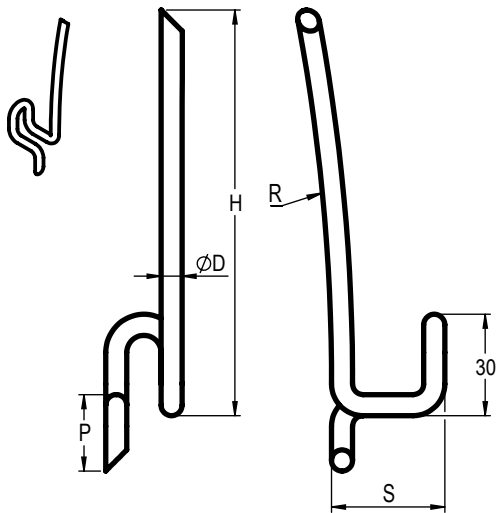
T-Studs, F-07

MAR

MRC

MPUx

MPUx



Order Code Mechanical Round Curved Anchor
MRC.D(S)-H/P-alloy(R)

Example Code:
MRC.6(75)-200/50-330(750)

Standard Measurements (mm)

MRC				
	min	max		min
D:	5	8	S:	25
P/L:	25	500		
Please contact us for other dimensions				

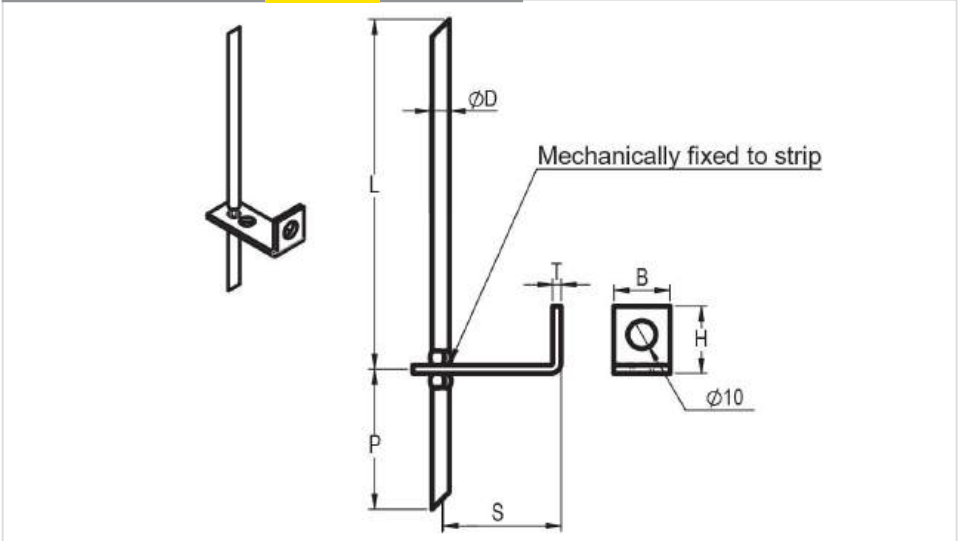
Application Example



Combine With:

T-Studs, F-07

MAR MRC MPUx MPUx



Order Code Mechanical Plate 'U' Shaped Anchor Example Code:
MPUx.D.S.H(B/T)-L/P-alloy **MPUx.2.6.75.25(25/4)-250/50-330**

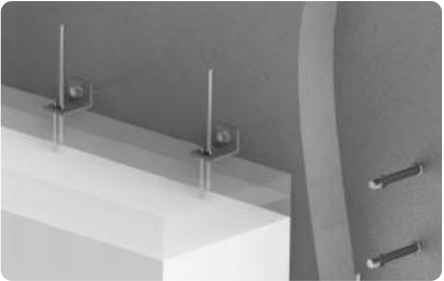
Standard Measurements (mm)

MPUx				
	min	max		
D:	5	8		

Choose one of the various strip styles available (see next page).

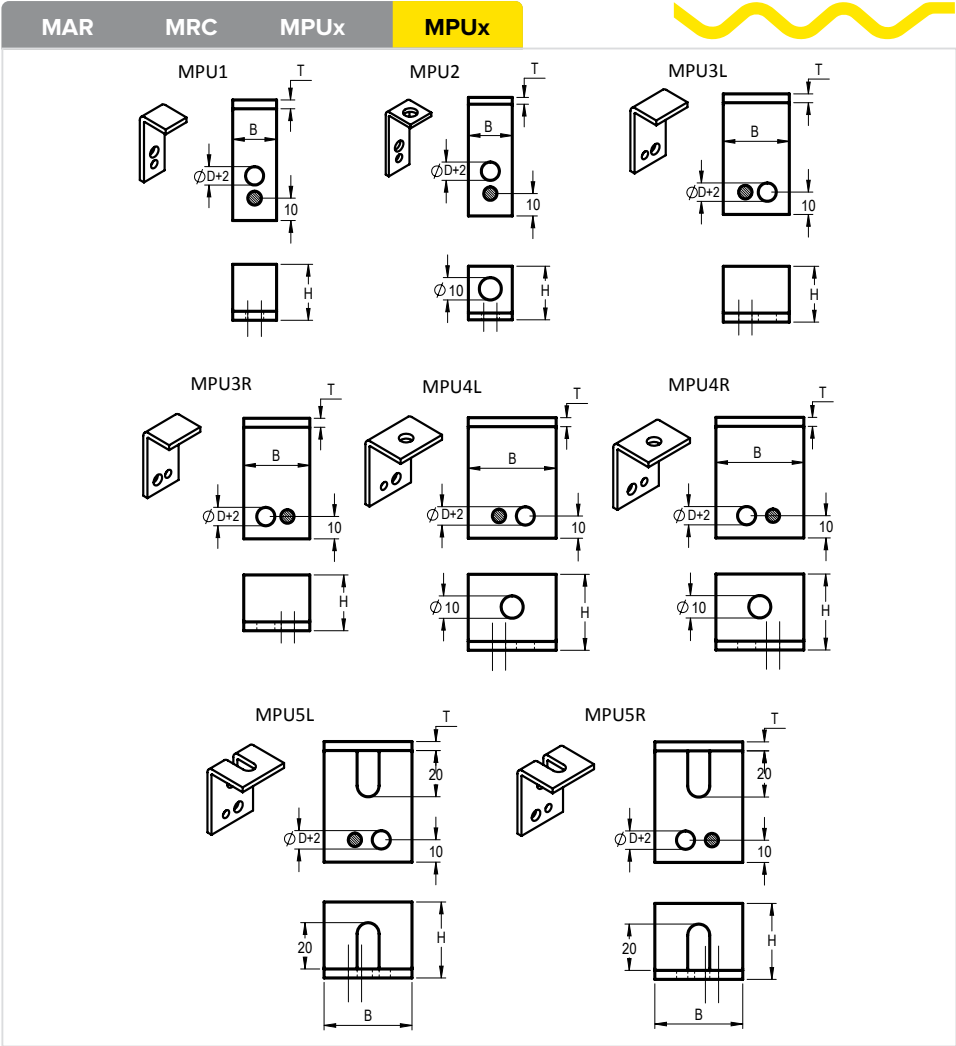
Please contact us for other dimensions

Application Example



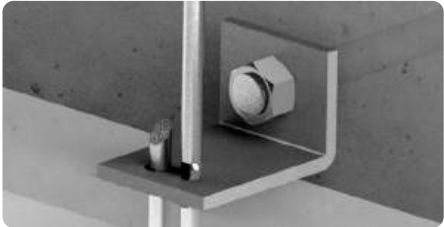
Combine With:

P-Pins, F-01 T-Studs, F-07



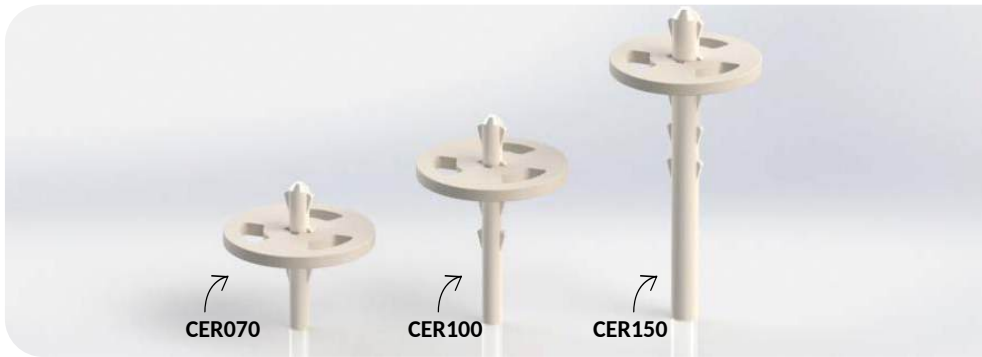
Choose one of the various strip styles for MPU.

Application Example



Cerafix System

Series F-06



The Cerafix ceramic stud and washer set offers excellent corrosion and temperature resistance up to 1500°C. These are to be used in combination with threaded M6 or M8 studs.



Material

Ceramic for applications up to 1500°C.

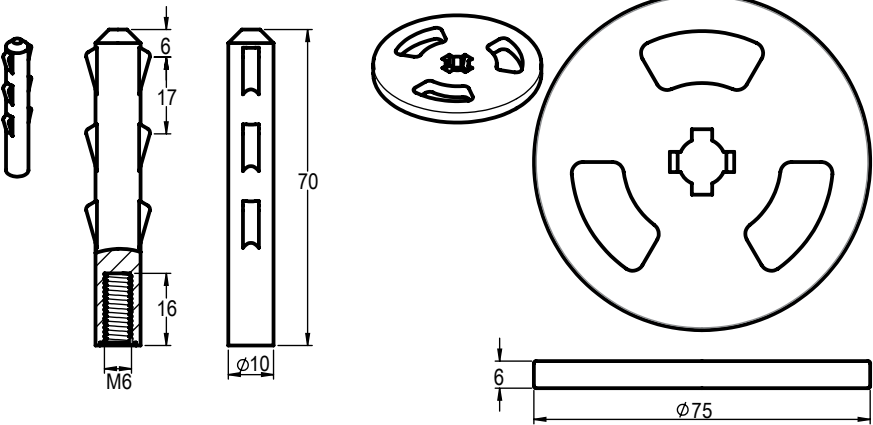
Take your first steps to
having a **better supplier.**



CER070

CER100

CER150



Order Code
CER-L-095

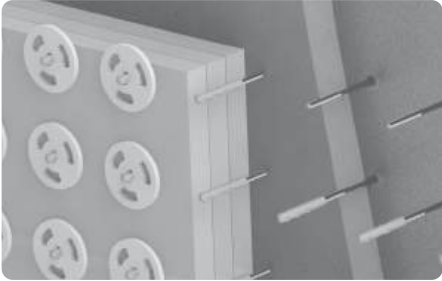
Example Code:
CER-070-095

Standard Measurements (mm)

CER-070 ceramic studs are sold together with the corresponding washer and are to be used with an M6 threaded stud.

Material: for applications up to 1500 °C.

Application Example



Combine With:

POC Studs, F-04

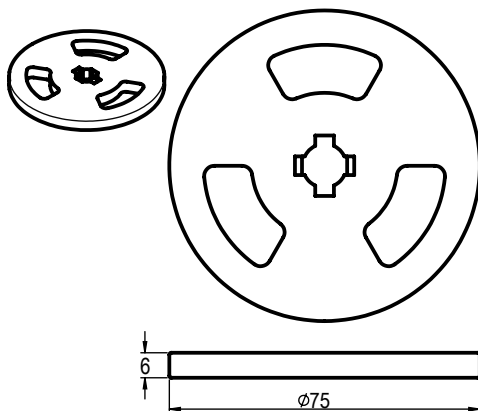
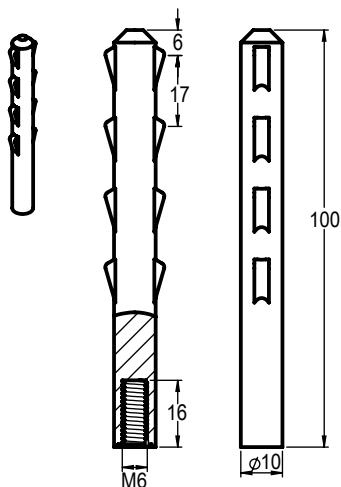
ISA, F-07

T-Studs, F-07

CER070

CER100

CER150



Order Code

CER-L-095

Example Code:

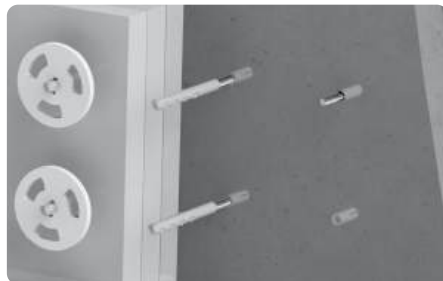
CER-100-095

Standard Measurements (mm)

CER-100 ceramic studs are sold together with the corresponding washer and are to be used with an M6 threaded stud.

Material: for applications up to 1500 °C.

Application Example



Combine With:

POC Studs, F-04

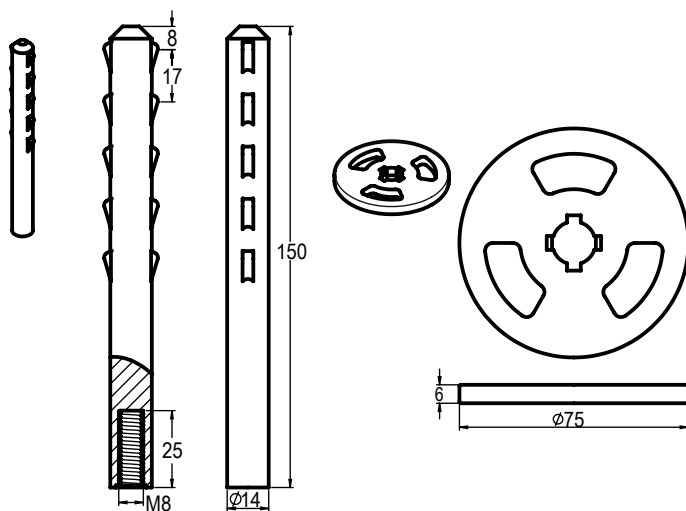
ISA, F-07

T-Studs, F-07

CER070

CER100

CER150



Order Code
CER-L-095

Example Code:
CER-150-095

Standard Measurements (mm)

CER-150 ceramic studs are sold together with the corresponding washer and are to be used with an M8 threaded stud.

Material: for applications up to 1500 °C.

Application Example



Combine With:

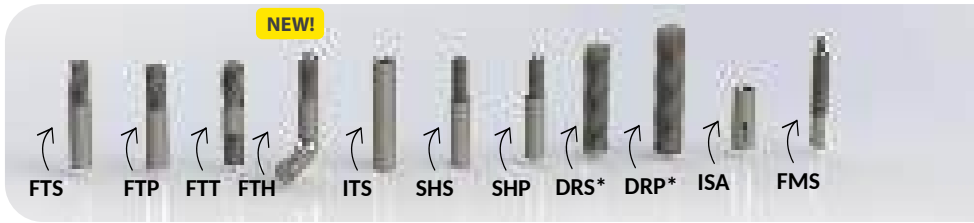
POC Studs, F-04

ISA, F-07

T-Studs, F-07

Threaded Studs

Series F-07



SILICON can provide a variety of threaded studs:

- **FTS/FTP/FTH:** Full Base Threaded Studs for rapid arc welding (FTS) and hand welding (FTP/FTH) are produced from the base diameter.
- **ITS:** Inside Threaded Studs are internally threaded.
- **SHS/SHP:** Shoulder Studs for rapid arc welding (SHS) or hand welding (SHP). The shoulder has many applications, e.g. a support for washers.
- **Fully Threaded DRS*/DRP*:** Fully Threaded pins for rapid arc welding (DRS*) or hand welding (DRP*). * If a fully threaded pin is required, this must be specifically indicated upon inquiry/order.
- **ISA:** Inside Threaded expansion anchor used to secure threaded anchors in concrete.
- **FMS:** Fiber Module Studs for RAW are used to fasten fiber module blocks.



Threaded Studs

Series F-07

Available Alloys

Wire:
CS, 304, 304H, 309, 253MA, 310S,
314, 316, 321, 330, 800, 601

Please contact us for other alloys

Tolerances ±

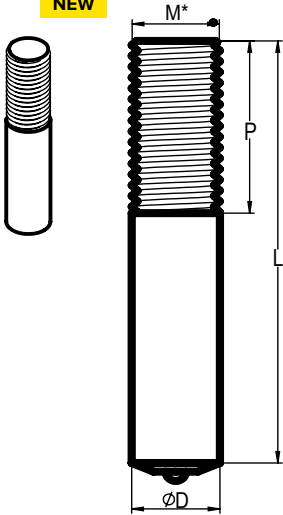
Length	L:	2,0 mm
Diameter	D:	H9

We make all our products from prime raw material, to ensure the highest quality.



- FTS
- FTP
- FTT
- FTH
- ITS
- SHS >

NEW



Order Code Full Base Threaded Stud for RAW
FTS.M*-L(P)-alloy

Example Code:
FTS.12-150(60)-304L

Standard Measurements (mm)

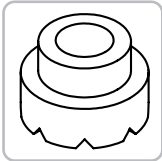
FTS				
	min	max	M*:	6/8/10/12/16
P:	10	50		D = M*
Please contact us for other dimensions				

Application Example



Also Available:

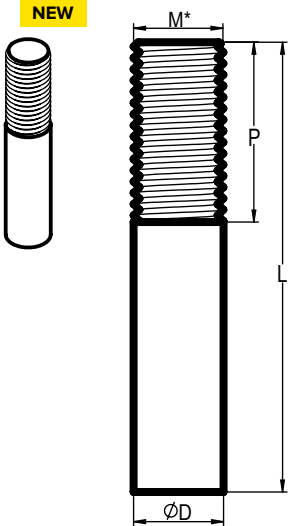
Supplied With:



Ceramic Ferrules

RAW Services

- FTS
- FTP
- FTT
- FTH
- ITS
- SHS >



Order Code Full Base Threaded Stud for Hand Welding
FTP.M*-L(P)-alloy

Example Code:
FTP.10-50(20)-304

Standard Measurements (mm)

FTP				
	min	max	M*:	6/8/10/12/16
P:	10	50		D = M*
Please contact us for other dimensions				

Application Example



< FTP

FTT

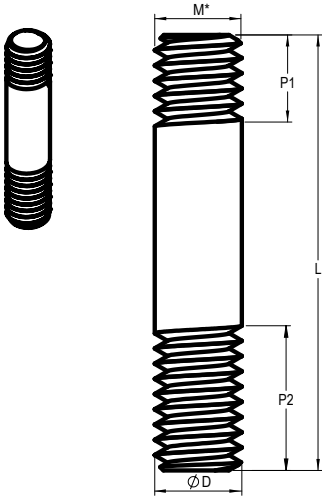
FTH

ITS

SHS

SHP >

NEW



Order Code Full Base Threaded Stud with Threaded Bottom

Example Code:

FTT.M*-L-P1.P2-alloy

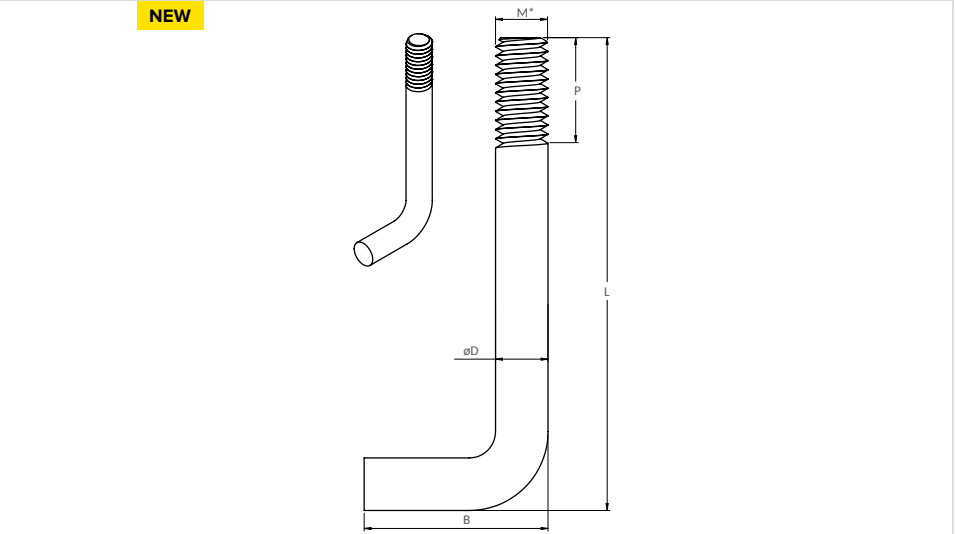
FFT10-125-50.20-310

Standard Measurements (mm)

FTT				
	min	max	M*:	6/8/10/12/16
P1,2:	10	50		D = M*
Please contact us for other dimensions				

Application Example





Order Code Full Base Threaded Stud Hand Weldable
FTH.M*-L/P(B)-alloy

Example Code:
FTH.10-100/25(20)-310

Standard Measurements (mm)

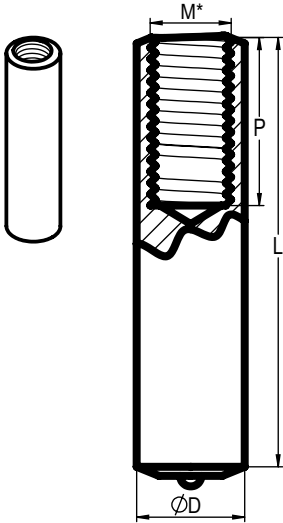
FTH				
	min	max		
L:	25	550	L < 100	
M*:	5	20	L ≥ 100	
B:	min 15 + D			
Please contact us for other dimensions				

Application Example



< FTH ITS SHS SHP DRS* >

NEW



Order Code Inside Threaded Stud for RAW
ITS.DxM*-L/P-alloy

Example Code:
ITS.16x10-25/15-304

Standard Measurements (mm)

ITS		
	min	max
M*	4	16
D:	1,2M*	
P:	2M*	
Please contact us for other dimensions		

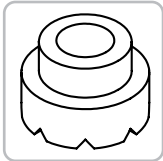
Application Example



Also Available:

RAW Services

Supplied With:



Ceramic Ferrules

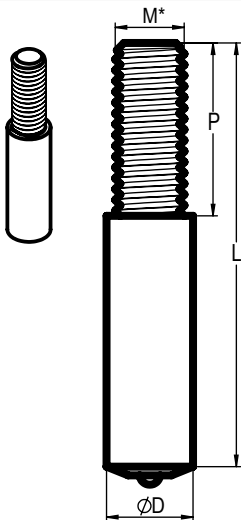
< ITS

SHS

SHP

DRS*

DRP* >



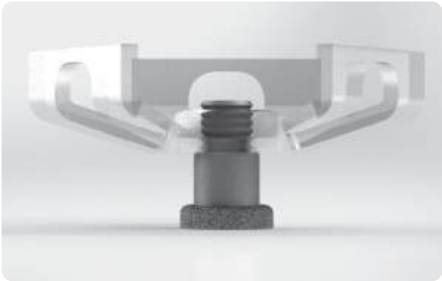
Order Code Shoulder Stud for RAW
SHS.DxM*-L/P-alloy

Example Code:
SHS.10x8-18/8-304

Standard Measurements (mm)

SHS		
	min	max
M*	4	24
D:	1,2M*	
Please contact us for other dimensions		

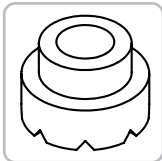
Application Example



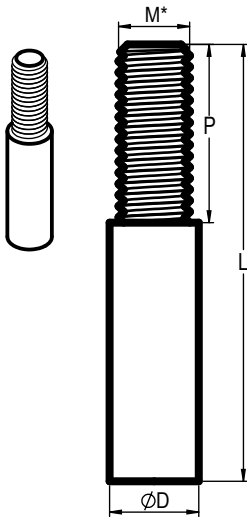
Also Available:



Supplied With:



Ceramic Ferrules



Order Code Shoulder Stud for Hand Welding
SHP.D(M*)-L/P-alloy

Example Code:
SHP.12(M8)-20/15-304

Standard Measurements (mm)

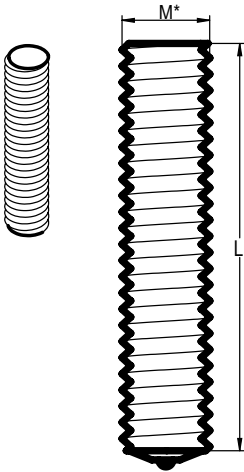
SHP		
	min	max
M*	4	24
D:	1,2M*	

Please contact us for other dimensions

Application Example



This anchor can be supplied fully threaded up until 2m



Order Code Fully Thread Rolled Stud for RAW
***Fully Threaded DRS.M*-L-alloy**

Standard Measurements (mm)

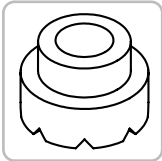
DRS*		
	min	max
M*	4	24

The standard DRS anchor is not fully threaded. If a fully threaded pin is required, this must be specifically indicated upon inquiry/order.

Please contact us for other dimensions

Also Available:

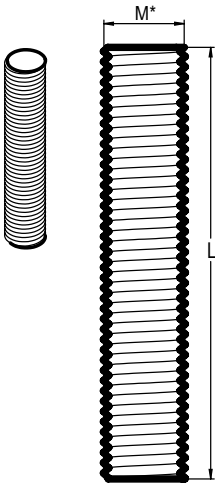
Supplied With:



Ceramic Ferrules

RAW Services DRS, F-04

This anchor can be supplied fully threaded up until 2m



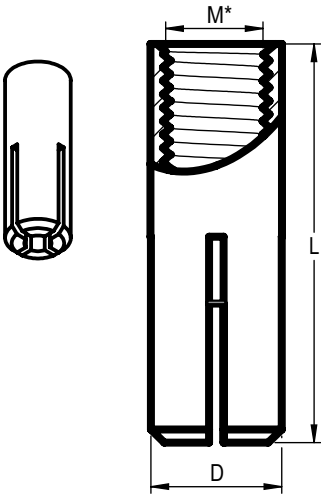
Order Code Fully Thread Rolled Stud for Hand Welding
***Fully Threaded DRP.M*-L-alloy**

Standard Measurements (mm)

DRP*		
	min	max
M*	4	24
<p>The standard DRP anchor is not fully threaded. If a fully threaded pin is required, this must be specifically indicated upon inquiry/order.</p> <p><i>Please contact us for other dimensions</i></p>		

Also Available:

DRP, F-04



Order Code Expansion Anchor
ISA.M*-L-Alloy

Example Code:
ISA.06-025-ST37

Standard Measurements (mm)

Please contact us for availability.

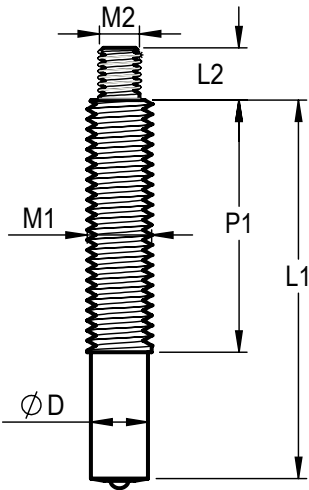
Application Example



Also Available:

FFT, F-02

POC Studs, F-04



Order Code Fiber Module Stud for RAW
FMS.M1-L1/P1.M2-L2-alloy

Standard Measurements (mm)

FMS	
M1	M8 - M10 - UNC 5/16", UNC 3/8"
M2	M4 - M5, UNC #12
Please contact us for other dimensions	

Application Example



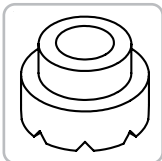
Also Available:



RAW Service

Flange Nut

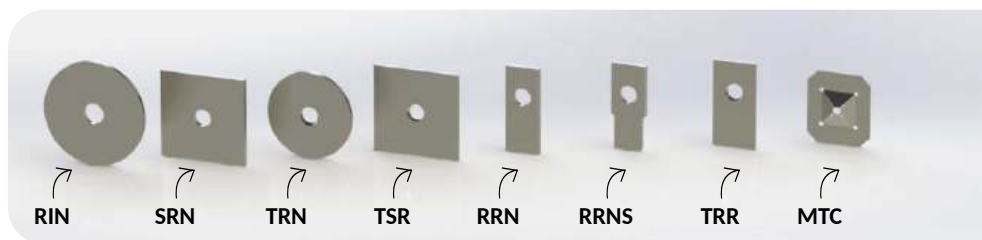
Supplied With:



Ceramic Ferrules

Washers

Series F-08



SILICON can provide a variety of washers, plates and clips for general applications:

- **RIN/SRN:** Round (RIN) and Square (SRN) Ring.
- **TRN/TSR:** Round (TRN) and Square (TSR) Ring with a threaded hole.
- **RRN/RRNS:** Rectangular Ring suitable for hand welding (RRN) and rapid arc welding (RRNS).
- **TRR:** Threaded Rectangular Ring suitable for hand welding.
- **MTC:** Mounting Clip that can be pushed over studs to hold the lining in place during installation.



Washers

Series F-08

Available Alloys

Plate:

CS, 304, 309, 253MA, 310SS, 314, 321, 330, 800, 601

Tolerances ±

Base

B:

1,5 mm

Thickness

T:

0,3 mm

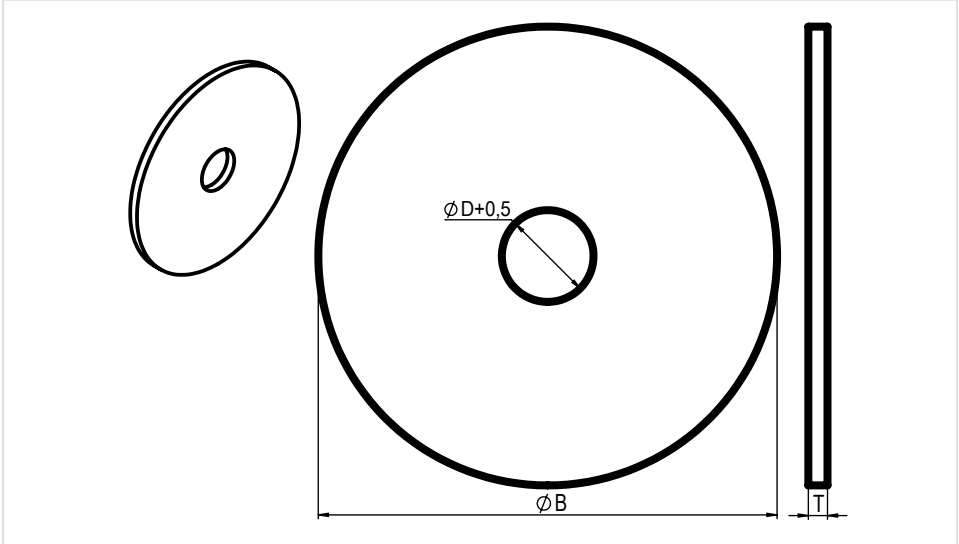
Please contact us for other alloys

Unique packaging

Our packing department makes sure that your orders are safely packed and perfectly labelled (custom labelling on request) in order to facilitate the job of the welders on jobsites.



- RIN
- SRN
- TRN
- TSR
- RRN
- RRNS >



Order Code Round Ring
RIN.B-D(T)-alloy

Example Code:
RIN.50-14(3)-310

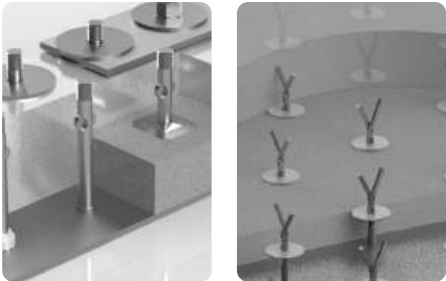
Standard Measurements (mm)

RIN		
	min	max
T:	1	12

Always specify pin ($\varnothing D$) or thread (M*) diameter for which the washer is intended.

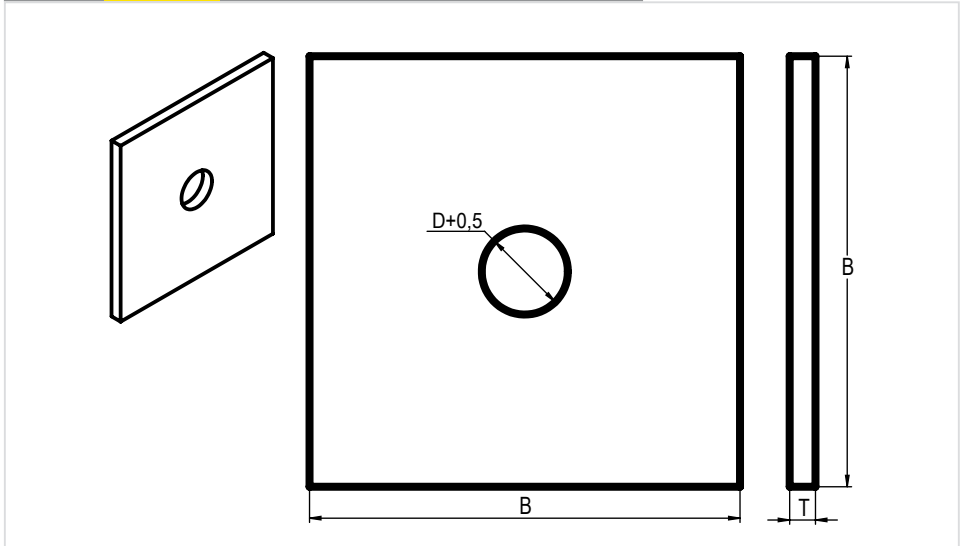
Please contact us for other dimensions

Application Example



Combine With

- P-Pins, F-01
- Twin Pins, D-01
- RYK, C-15



Order Code Square Ring
SRN.B-D(T)-alloy

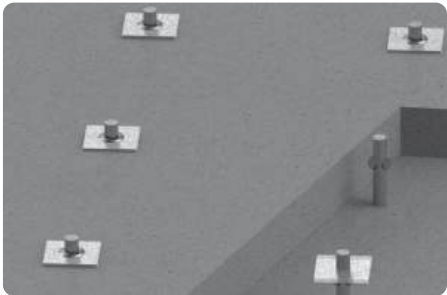
Example Code:
SRN.60-12(2.5)-310

Standard Measurements (mm)

SRN		
	min	max
T:	1	8

Always specify pin (øD) or thread (M*) diameter for which the washer is intended.
Please contact us for other dimensions

Application Example



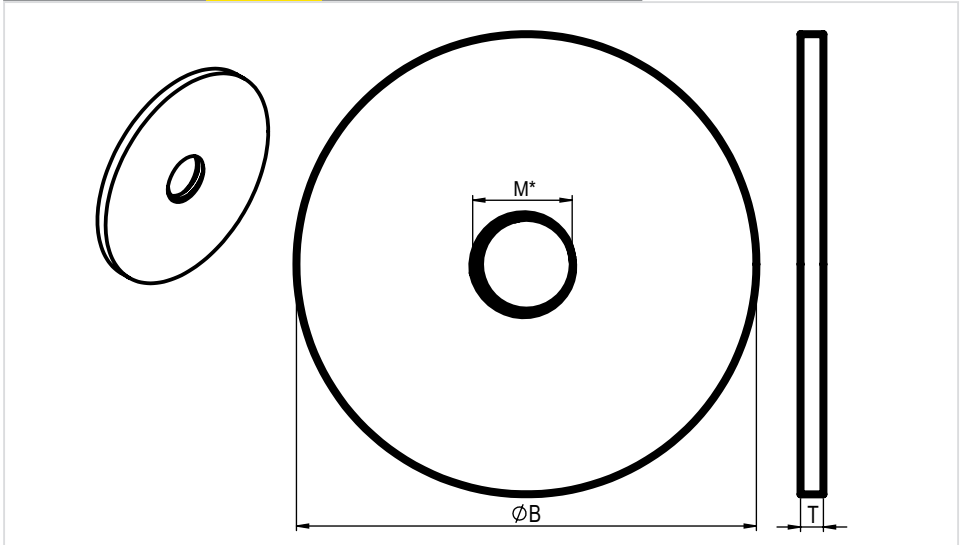
Combine With

P-Pins, F-01

Twin Pins, D-01

RYK, C-15

- RIN
- SRN
- TRN
- TSR
- RRN
- RRNS >



Order Code Threaded Ring
TRN.B-M*(T)-alloy

Example Code:
TRN.70-8(2)-310

Standard Measurements (mm)

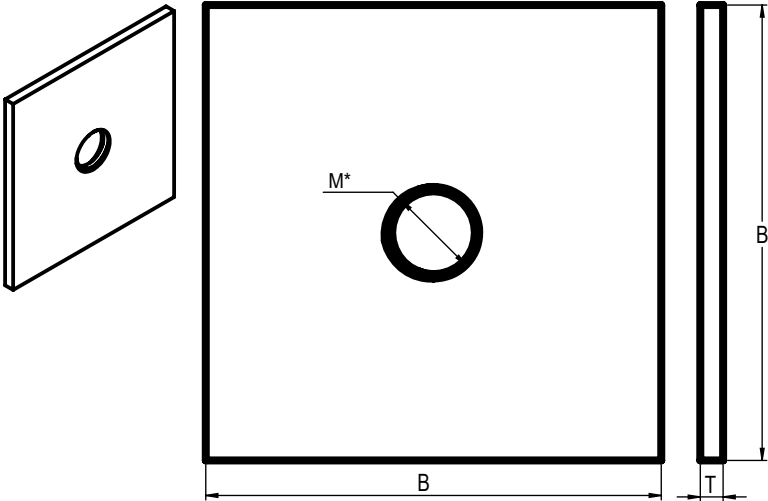
TRN		
	min	max
T:	1	12
Please contact us for other dimensions		

Application Example



Combine With

- P-Pins, F-01
- POC Studs, F-04
- T-Studs, F-07



Order Code Threaded Square Ring
TSR.B-M*(T)-alloy

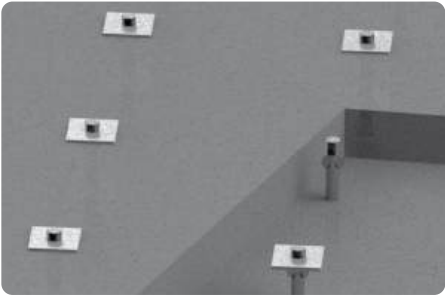
Example Code:
TSR.50-10(3)-310

Standard Measurements (mm)

TSR		
	min	max
T:	1	12

Please contact us for other dimensions

Application Example

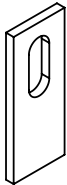
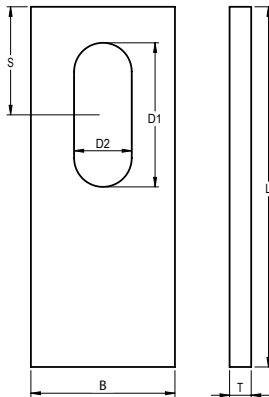
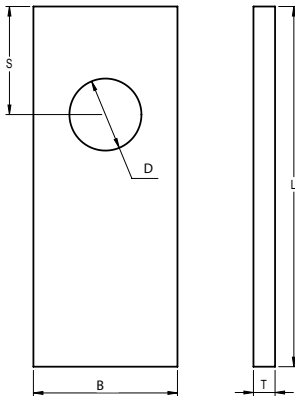
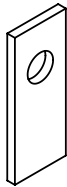


Combine With

P-Pins, F-01

POC Studs, F-04

T-Studs, F-07



Order Code Round Hole

RRN.B/L-00/D(T)-alloy [S]

Order Code Slotted Hole

RRN.B/L-D1/D2(T)-alloy [S]

Example Code:

RRN.050.074.00/12.050B-[12]

RRN.050/074-00.12(05.0)-310S [12]

Standard Measurements (mm)

RRN		
	min	max
T:	1	12
Always specify pin (øD) or thread (M*) diameter for which the washer is intended. Please contact us for other dimensions		

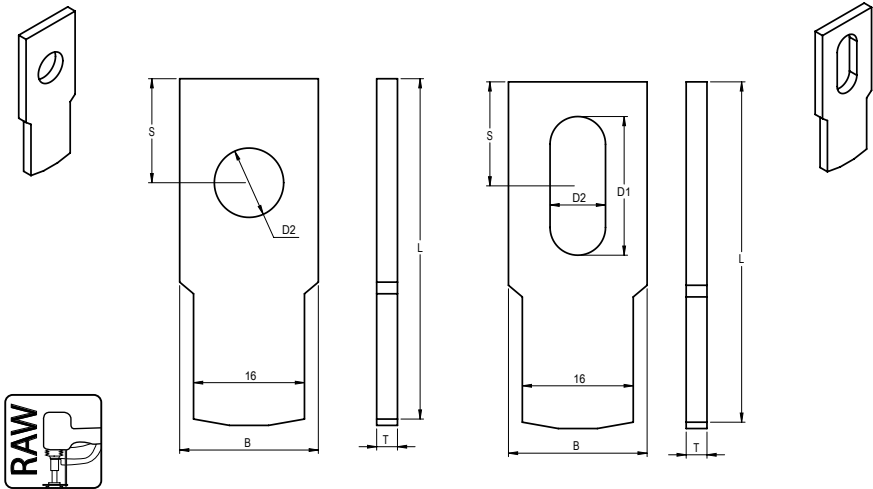
If the hole is centered, the code will end with CH (centered hole)

Round Hole: RRN.050.100.14/07.050S-CH

Slotted Hole: RRN.050.100.14/07.050S-S235JR centered hole

Combine With

P-Pins, F-01 Twin Pins, D-01



Order Code Round Hole
RRNS.B/L-00/D(T)-alloy [S]

Order Code Slotted Hole
RRNS.B/L-D1/D2(T)-alloy [S]

Example Code:
RRNS.050.074.00/12.050B-12]

RRNS.050/074-00.12(05.0)-310S [12]

Standard Measurements (mm)

RRNS					
	min	max		min	max
B:	15	40	T:	3	5
L:	20	200			

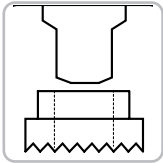
Please contact us for other dimensions

If the hole is centered, the code will end with CH (centered hole)

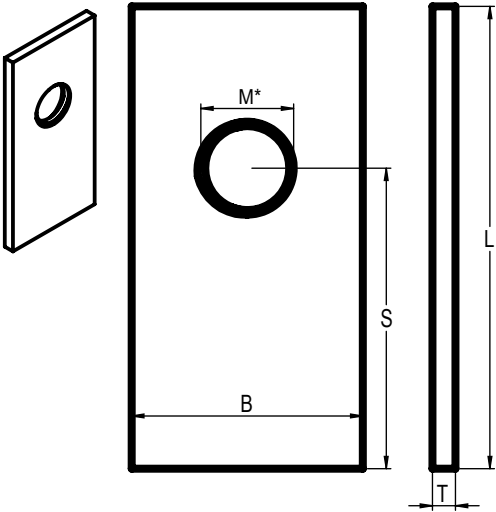
Round Hole: RRN.050.100.14/07.050S-CH

Slotted Hole: RRN.050.100.14/07.050S-S235JR centered hole

Combine With



RAW Services MESHS, C-16 Ceramic Ferrules



Order Code Threaded Rectangular Ring
TRR.B/L-S.M*(T)-alloy

Example Code:
TRR.025/050-40.M10(08.0)-310

Standard Measurements (mm)

TRR		
	min	max
T:	1	12
Please contact us for other dimensions		

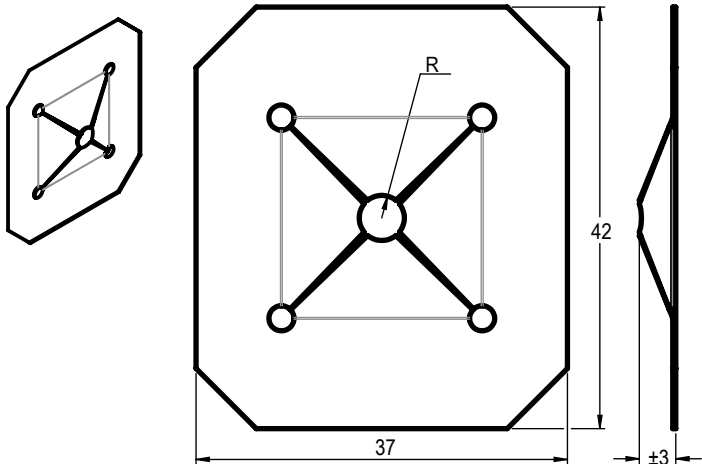
If the hole is centered, the code will end with CH (centered hole)

Round Hole: RRN.050.100.14/07.050S-CH

Slotted Hole: RRN.050.100.14/07.050S-S235JR centered hole

Combine With

P-Pins, F-01 Twin Pins, D-01



Order Code Mounting Clip
MTC-R-alloy

Example Code:
MTC-045-302

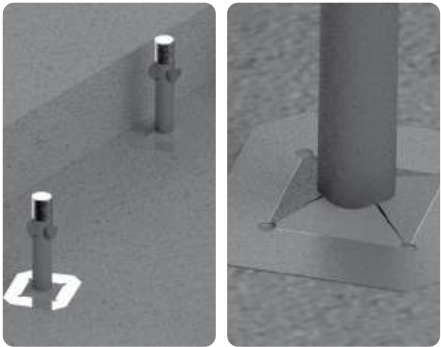
Standard Measurements (mm)

MTC

D:	3 mm	MTC-025
D:	4 - 5 mm	MTC-035
D:	5,25 - 6 mm	MTC-045
D:	7,12 - 8 mm	MTC-065
D:	8,9 - 10 mm	MTC-082
D:	10,8 mm	MTC-104
D:	12 mm	MTC-115

Always specify pin (ØD) or thread (M*) diameter for which the washer is intended.
Please contact us for other dimensions

Application Example



Combine With

P-Pins, F-01 FiberFix, F-02 POC Studs, F-04 T-Studs, F-07



Reinforcing Fibers for **Refractory Concrete**

Reinforcing fibers can be used to reinforce the refractory material and enhance the thermal shock resistance.

The area of influence of the reinforcing fiber is determined by the shape. The total effectiveness of the reinforcing fibers is determined by the length, volume, dispersion, operating temperatures and alloy type.

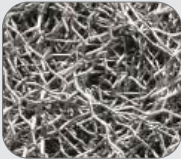
SILICON supplies ME-MIX, a Melt Extracted steel fiber and C-MIX, a corrugated steel fiber. Other steel fibers or synthetic fibers can be supplied on request.

ME-MIX



ME-MIX is a Melt-extracted refractory concrete reinforcing fiber primarily used in FCC refractory linings to enhance thermal shock resistance. It can also be used to mix with gunnable refractories and for precast burner blocks.

C-MIX



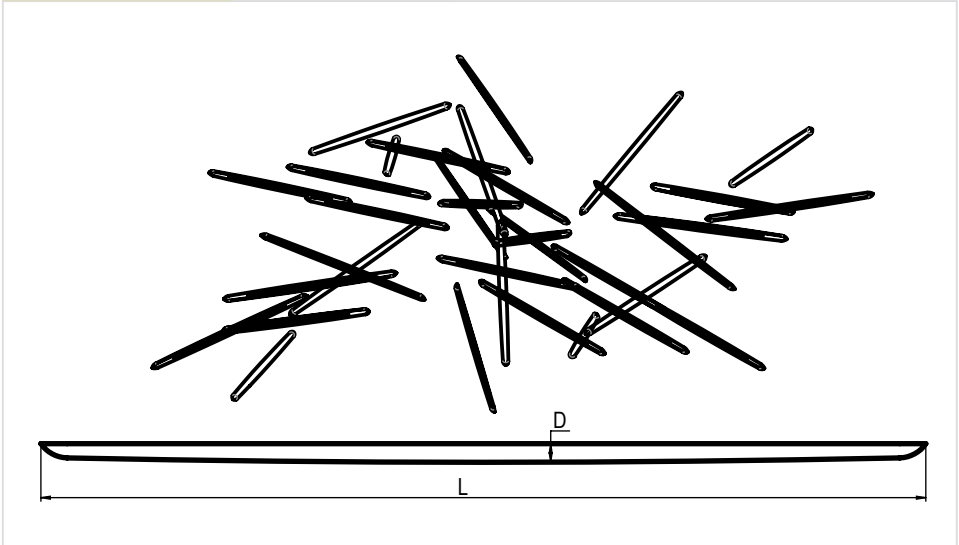
C-MIX is a corrugated steel fiber used in FCC refractory linings to enhance thermal shock resistance. It forms an ideal mix for precast burner blocks and can also be used as mix in gunnable refractories.

This is why you should choose C-MIX!

- **Cost effective:** The corrugation of C-MIX improves the reinforcement area of influence of the fibers and reduces the percentage of fibers required to offer the same holding strength as ME-MIX. C-MIX is therefore a cost effective solution.
- **Increased thermal shock resistance:** Unlike other steel fibers, C-MIX is fully corrugated over the entire product length. This reduces the crack propagation in the refractory materials and thus increases the thermal shock resistance.
- **Improved usability:** C-MIX won't form a 'ball' either when packed, mixed in with refractory castable or when gunned. It will not block tubes when gunned, nor will it spring back from the wall when gunned. It can be grabbed by hand without injury to the skin.

ME-MIX

C-MIX



Order Code
ME-MIX L-D-alloy

Example Code:
ME-MIX 25-0,40-304

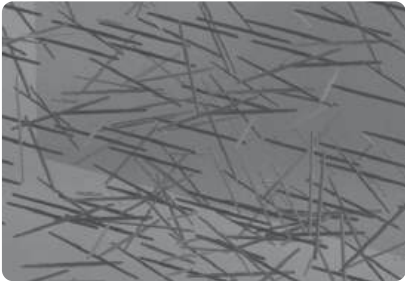
Standard Measurements (mm)

ME-MIX

D0,4/0,58	alloy	L	D0,4/0,58	alloy	L
	304	12/35		430	12/35
	310	12/35		446	12/35
	330	12/35			

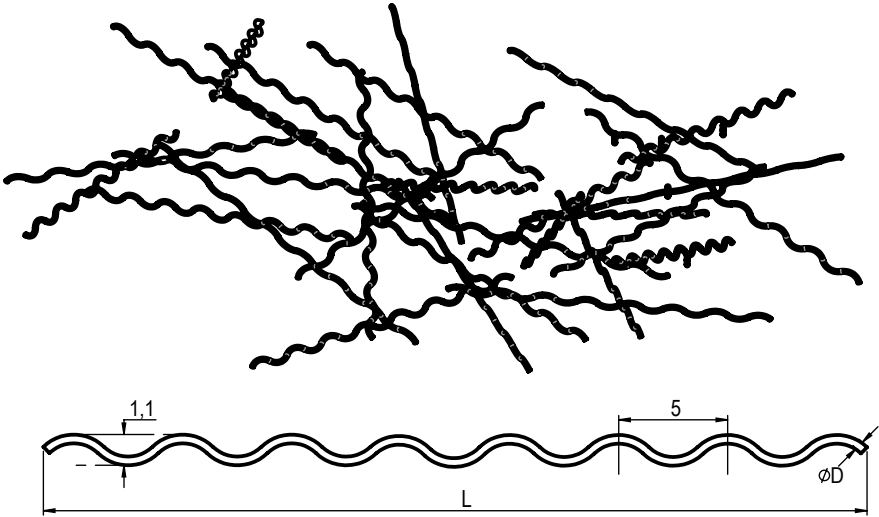
Please contact us for other dimensions

Application Example



ME-MIX

C-MIX



Order Code
C-MIX L-D-alloy

Example Code:
C-MIX 25-0.40-310

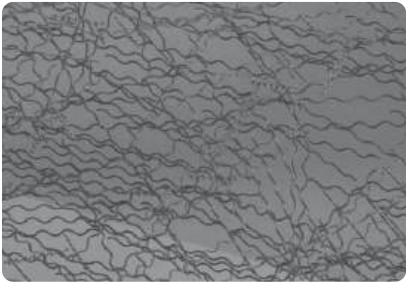
Standard Measurements (mm)

ME-MIX

D0,4	alloy	L	D0,5	alloy	L
	310	25		304	25
	304	25		330	35

Please contact us for other dimensions

Application Example





SILICON

Rapid arc welding

When you frequently weld a lot of studs or our specially designed refractory anchors, it might be worth considering renting a rapid arc welding machine. Our machines are time and money savers!

Rapid arc welding (RAW) is a very new and innovative welding technology. It has been engineered to solve many of the problems that conventional hand welding and stud welding technology have had for many years. With RAW equipment it's finally possible to bridge the gap between efficiency and cost-effectiveness. Due to the nature of our technology we can weld studs up to $\varnothing 46$ mm+. Rapid arc welding is a proven success. We have become an industry standard due to our focus on quality, speed and safety and because we deliver on our promises.

RAW

Rapid arc welding

Technology

For many, rapid arc welding (RAW) is a very **new** and **innovative** welding technology. It has been engineered to solve many of the problems that conventional stud welding technology has had for many years.

What makes our technology so special and different than others? It's because we have computerized and quality-controlled the whole welding process, leaving little room for error.

Our welding parameters consist of more than just current/amperage and welding time as seen in conventional stud welding technologies. We use a set of 8 parameters that all have a fundamental purpose in ensuring a high quality weld. Due to the nature of our technology, we can weld studs up to Ø36 mm.

Since we value quality, safety and efficiency very highly, we have a built-in feature from which you can control the machine and inspect each single weld that was performed. You can hook it up through a standard internet cable and through our software you can gain control over your welding production like never before.

A technology like this is hard to grasp by just reading. We recommend going to our website and visiting our rapid arc welding section under the Product Range tab. You will then learn more about the process and get an understanding why it is so different.

Watch our videos on our website (www.silicon.nu) and on our YouTube channel. For more information or for a demonstration, please contact our sales team who will help you further (info@silicon.nu / + 31 174 22 55 22).



Rapid arc welding Services & Contracting



SILICON has an experienced team of supervisors and welders, who are fully trained, VCA certified and who work on sites worldwide. Once you have experienced our services you will know that we are a no-nonsense company with highly disciplined workers that only have the intention to do the job as fast as possible and with the highest possible level of quality.

SILICON can adjust to your needs:

- Full team of welders and supervisors.
- Supply machines, guns, chucks and other accessories.
- Marking and grinding if needed.
- Rapid arc welding quality inspection.
- Metallurgic consultancy service.
- Decrease turnaround downtime by welding at least 10 times faster than hand welding.
- Utilizable in every industry.
- Engineer your anchors into rapid arc weldable versions to weld them faster and better.



Rapid arc welding

Equipment

You will find that SILICON's rapid arc welding machines can do tasks that were considered impossible before. Our rapid arc welding machines use computer technology to guarantee a minimum of irritations, extremely low rejection rates of studs and a maximum of quality, safety and pleasure to work with. The stepper-motor gives a repetitive, accurate control of the studs' movement, position, and velocities during the weld. We have four machines available to suit various types of applications.

Our RAW machines are able to weld almost any ferrous, nickel, stainless steel or cobalt base alloy stud onto any ferrous surface or vice versa. They are often used to weld onto new or aged castings, high carbon steels and hardened materials.

Even welding to high carbon steel is made possible by the 'hot plunge' feature of the machine. This feature minimizes the creation of pores by maintaining the weld pool at the highest possible temperature level before the stud and the base metal make contact.

Studs with a diameter of 3 and up to 25 mm have been welded successfully onto 0,85% Carbon materials such as railway lines. Welding from 3 up to 36 mm in diameter with high-performance in climates of up to 50°C. SILICON rapid arc welding makes it happen.

SILICON engineers its own chucks, ferrule plates, and rapid arc welding accessories to facilitate welding for any position and for many applications - in between pipes, on pipes or even in extremely tight spaces.

In short, our rapid arc welding machines use computer technology to guarantee a minimum hassle and rejection rate of studs and a maximum of quality, safety and pleasure to work with.



Rapid arc welding

Equipment

RAW Machines



PS12 - Single Gun
Portable and durable.
Many of your welding needs in a compact package.
Capacity up to ø12 mm stud.



D20NG - Dual Gun
The machine that has proven it can shoot 90% of mainstream industry anchors.
Capacity up to ø20 mm stud.



D24 - Dual Gun
A compact package with a higher capacity for perfect welding.
Capacity up to ø24 mm stud.



D36 - Dual Gun
Has the power to weld thicker anchors and is considered a SILICON powerhouse.
Capacity up to ø36 mm stud.

RAW Guns



PUM25
A small and versatile gun to get into even the tiniest corners.
For all anchors up to 20 mm.



PNG50
Our most popular gun is also the most comfortable and durable.
For all anchors up to 20 mm.



PNH70/PNH120
For anchors that need more power and a better balance.
For all anchors up to 50 mm.



Chucks - Stud Holders
Custom-made to your needs: we come up with creative solutions to get your stud welded.



Ferrule Plates
Made with the welder in mind: designed to be easily removable from your studs.



Extension Cables
Through thick and thin: we know how to get the energy through.

RAW Accessories

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