



## Technical Explanations

### The insertion process

The base material is pressed through a knurl / hexagonal platform into a groove provided for this purpose on the fastener. The knurl and the groove are aligned in a manner that limits the deforming of the sheet metal to the immediate area of the fastener. **A flush finish is achieved on one side**, and a special heat treatment over a compact size range provides high thread stability. The insertion can be performed with maximum precision – there will be no damage to the surfaces of the two sides of the component.

The insertion should always be carried out using a press under continuous pressure – never via sudden impact / shock load!

# SELF-CLINCHING FASTENERS

Sheet metal fasteners with internal and external threads are especially suitable for **working with thin metal sheets** starting with 0.5 mm thickness. This reduces the thickness of the elements in general in favour of lower weight and less material. After processing they are **permanently connected to the base material**. The screwed connections can be removed afterwards without risking displacement of the fastener. Through this **the production processes are rationalized and secured**.

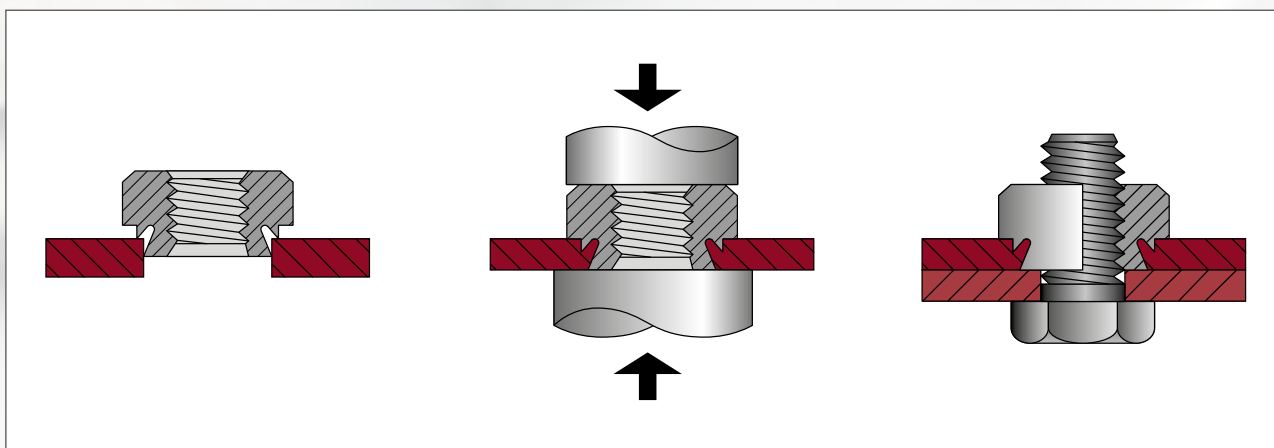
Mechanical insertion **prevent the surface from damage** and enables the usage also in prefabricated materials.

A typical application nowadays for example is the production of communication media (smart phones, computers, notebooks) or the automotive industry.

VVG Befestigungstechnik keeps a large assortment of high-quality sheet metal fasteners and rivets for steel sheets as a **perfect addition to the well-proven blind rivet products** of HONSEL Group on stock.

A diversity of thousands of versions and the habitual VVG delivery service guarantees optimal and reliable support - also for individual adjustments.

**The products shown here are only a small excerpt from all available products. For further information, please contact our sales team.**



# Processing

In addition to the wide variety of self-clinching fasteners that we offer, we can also help you ensure that they are **processed perfectly**.

The machines offered by VVG facilitate and optimise workflows and increase quality and productivity – thanks to the energy efficiency and reliability that hydraulic machines can offer.

**Sophisticated in design, easy to handle** and maintain, and **featuring 72 kN of power**, the machines are **simple to operate** and boast an **outstanding price-performance ratio**.

**Already extremely well-equipped in the standard version**, they can also be customised to your own unique requirements with a wide variety of enhancements, including:

- fixed stops
- automated feed system
- automated tools
- counters
- laser

## Further benefits:

- Strong frame structure, less vibrations
- Simple handling
- Short retooling times
- Ergonomic design
- Extensive tool package and simple control panel allows the majority of the complex clinching operations to be performed by a single operator
- Double safety system for conductive and non-conductive materials
- Noise reduced to 35 dB
- High-quality hydraulic components for long-term stability even under difficult working conditions
- CE certificate

S618 Plus - our standard machine	
Pressing force	54 kN
Neck height	380 mm
Overhang	450 mm
Stroke length	220 mm
Insertion capacity per hour	1500
Repeatability	± 1%
Footprint dimensions	800x810x2100
Weight	610 kg
Output	2,2 kw
Power supply	380V/3Ph/50Hz



## S416 Plus – the low-end model

Pressing force	44 kN
Neck height	340 mm
Overhang	406 mm
Stroke length	220 mm
Insertion capacity per hour	1500
Repeatability	± 1%
Footprint dimensions	740x840x1650
Weight	335 kg
Output	1,5 kw
Power supply	220V/1Ph/50Hz



## S824 Plus – the heavy-duty answer

Pressing force	72 kN
Neck height	420 mm
Overhang	610 mm
Stroke length	220 mm
Insertion capacity per hour	1500
Repeatability	± 1%
Footprint dimensions	1025x960x2500
Weight	950 kg
Output	3,75 kw
Power supply	380V/3Ph/50Hz



# Self-clinching nuts

**i** A self-clinching nut is a threaded fastener with a knurl and a groove. The knurl ensures that the displaced material is distributed evenly into the groove on the nut when it is embedded into the metal sheet, such that an especially secure hold is achieved.

Advantages:

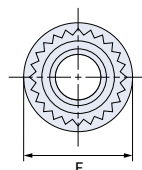
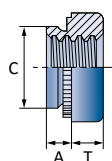
- high resistance to torque loads
- absolutely flush sheet metal backsides
- compact and clean – ideal for use in, for example, electronics and precision engineering

## Nut V-S / V-SS Series 10.430



Steel

> galvanised



Nuts made of hardened steel, suitable for use in metal sheets with hardness up to HRB 80.

M	min. E	± 0,25	T	± 0,25	A max.	C max.	+ 0,08	Min. dis- tance - hole centre / sheet edge	No.
M2	0,8				0,77				10.430.020.000
	1,0	6,3	1,5		0,97	4,2	4,22	4,8	10.430.020.001
	1,4				1,38				10.430.020.002
M2,5	0,8				0,77				10.430.025.000
	1,0	6,3	1,5		0,97	4,2	4,22	4,8	10.430.025.001
	1,4				1,38				10.430.025.002
M3	0,8				0,77				10.430.030.000
	1,0	6,3	1,5		0,97	4,2	4,22	4,8	10.430.030.001
	1,4				1,38				10.430.030.002
M4	0,8				0,77				10.430.040.000
	1,0	7,9	2,0		0,97	5,38	5,41	6,9	10.430.040.001
	1,4				1,38				10.430.040.002

M	min. E	± 0,25	T	± 0,25	A max.	C max.	+ 0,08	Min. dis- tance - hole centre / sheet edge	No.
V-SS M5	0,8				0,77				10.430.050.000
	1,0	8,7	2,0		0,97	6,33	6,4	7,1	10.430.050.001
	1,4				1,38				10.430.050.002
M6	1,2				1,15				10.430.060.000
	1,4	11,05	4,08		1,38	8,73	8,75	8,6	10.430.060.001
	2,3				2,21				10.430.060.002
M8	1,4	12,65	5,47		1,38	10,47	10,5	9,7	10.430.080.001
	2,3				2,21				10.430.080.002
M10	2,31	17,35	7,48		2,21	13,97	14,0	13,5	10.430.100.001
	3,18				3,05				10.430.100.002
M12	3,18	20,55	8,5		3,05	16,95	17,0	16,0	10.430.120.001

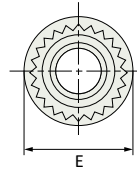
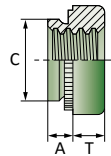
► Details regarding pushout and torque-out values on page 173.

# Nut V-CLS / V-CLSS

## Series 10.431



**Stainless steel**  
300 series

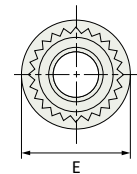
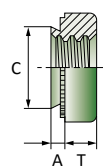


Nuts made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness **up to HRB 70**.

M	min. 	E ± 0,25	T ± 0,25	A max.	C max.		Min. distance - hole centre / sheet edge	No.
M2	0,8	6,3	1,5	0,77	4,2	4,22	4,8	10.431.020.000
	1,0			0,97				10.431.020.001
	1,4			1,38				10.431.020.002
M2,5	0,8	6,3	1,5	0,77	4,2	4,22	4,8	10.431.025.000
	1,0			0,97				10.431.025.001
	1,4			1,38				10.431.025.002
M3	0,8	6,3	1,5	0,77	4,2	4,22	4,8	10.431.030.000
	1,0			0,97				10.431.030.001
	1,4			1,38				10.431.030.002

M	min. 	E ± 0,25	T ± 0,25	A max.	C max.		Min. distance - hole centre / sheet edge	No.
M4	0,8	7,9	2,0	0,77	5,38	5,41	6,9	10.431.040.000
	1,0			0,97				10.431.040.001
	1,4			1,38				10.431.040.002
V-CLSS M5	0,8	8,7	2,0	0,77	6,33	6,4	7,1	10.431.050.000
	1,0			0,97				10.431.050.001
	1,4			1,38				10.431.050.002
M6	1,2	11,05	4,08	1,15	8,73	8,75	8,6	10.431.060.000
	1,4			1,38				10.431.060.001
	2,3			2,21				10.431.060.002
M8	1,4	12,65	5,47	1,38	10,47	10,5	9,7	10.431.080.001
	2,3			2,21				10.431.080.002

► Details regarding pushout and torque-out values on page 173.



# Nut V-SP

## Series 10.435



**Stainless steel**  
400 series

for hard sheets <

Nuts made of stainless steel (AISI 400 series), suitable for use in metal sheets with hardness **above HRB 80 (up to 90)**.

M	min. 	E ± 0,25	T ± 0,25	A max.	C max.		Min. distance - hole centre / sheet edge	No.
M2,5	0,8	6,3	1,5	0,77	4,2	4,22	4,8	10.435.025.000
	1,0			0,97				10.435.025.001
	1,4			1,38				10.435.025.002
M3	0,8	6,3	1,5	0,77	4,2	4,22	4,8	10.435.030.000
	1,0			0,97				10.435.030.001
	1,4			1,38				10.435.030.002
M4	0,8	7,9	2,0	0,77	5,38	5,41	6,9	10.435.040.000
	1,0			0,97				10.435.040.001
	1,4			1,38				10.435.040.002

M	min. 	E ± 0,25	T ± 0,25	A max.	C max.		Min. distance - hole centre / sheet edge	No.
M5	0,8	8,7	2,0	0,77	6,33	6,4	7,1	10.435.050.000
	1,0			0,97				10.435.050.001
	1,4			1,38				10.435.050.002
M6	1,4	11,05	4,08	1,38	8,73	8,75	8,6	10.435.060.001

► Details regarding pushout and torque-out values on page 173.

# Self-clinching nuts

The flush nuts from the 10.440 series provide a thread **within the thickness of the metal sheet** with a **flush finish on both sides**. The hexagonal head is simply pressed into the metal sheet in such a way that the metal places itself evenly around the item's conical shaft and secures it reliably in place.

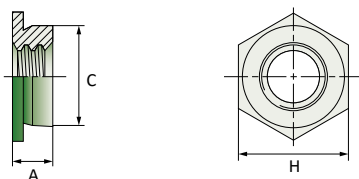
Advantages:

- enables the use of captive nuts even in metal sheets, for which conventional fasteners cannot be used due to spatial limitations
- easy installation in **round holes**
- **high resistance to extraction forces**
- **high torque load**

## Flush nut V-F Series 10.440

**Stainless steel**  
300 series

> flush on both sides



Nuts made of stainless steel (AISI 300 series), especially for use in thin aluminium sheets with hardness up to HRB 70.

M	min. 	H	A max.	C max.	+ 0,08	Min. distance - hole centre / sheet edge	No.
<b>M2</b>	1,53	4,8	1,53	4,35	4,37	6,0	10.440.020.001
	2,32		2,3				10.440.020.002
<b>M2,5</b>	1,53	4,8	1,53	4,35	4,37	6,0	10.440.025.001
	2,32		2,3				10.440.025.002
<b>M3</b>	1,53	4,8	1,53	4,35	4,37	6,0	10.440.030.001
	2,32		2,3				10.440.030.002

M	min. 	H	A max.	C max.	+ 0,08	Min. distance - hole centre / sheet edge	No.
<b>M4</b>	1,53	7,9	1,53	7,35	7,37	7,2	10.440.040.001
	2,32		2,3				10.440.040.002
<b>M5</b>	1,53	8,7	1,53	7,9	7,92	8,0	10.440.050.001
	2,32		2,3				10.440.050.002
<b>M6</b>	3,18	9,5	3,05	8,72	8,74	8,8	10.440.060.003
	3,96		3,84				10.440.060.004
	4,75		4,63				10.440.060.005

► Details regarding pushout and torque-out values on page 173.

Self-clinching nuts

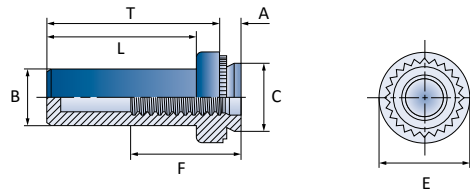


# Blind nut V-B Series 10.450



**Steel**

galvanised <  
closed <



Nuts made of hardened steel, suitable for use in metal sheets with hardness **up to HRB 80**.

M		E ± 0,25	F min.	A max.	C max.	B max.	 + 0,08	L max.	T ± 0,25	Min. distance - hole centre / sheet edge	No.
<b>M3</b>	1,0	6,35	5,3	1,0	4,22	3,84	4,25	8,5	9,6	4,8	10.450.030.001
	1,4			1,4							10.450.030.002
<b>M4</b>	1,0	7,95	7,1	1,0	5,38	5,2	5,4	9,8	11,2	6,9	10.450.040.001
	1,4			1,4							10.450.040.002
<b>M5</b>	1,0	8,75	7,1	1,0	6,38	6,02	6,4	9,8	11,2	7,1	10.450.050.001
	1,4			1,4							10.450.050.002
<b>M6</b>	1,4	11,1	7,8	1,4	8,72	7,8	8,75	12,7	14,3	8,6	10.450.060.001
	2,3			2,3							10.450.060.002

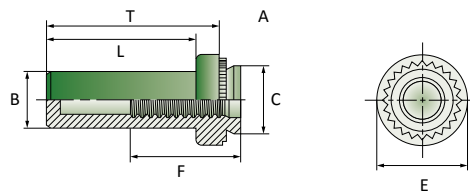
► Details regarding pushout and torque-out values on page 173.

# Blind nut V-B Series 10.451




**Stainless steel**  
300 series

closed <



Self-clinching nuts made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness **up to HRB 70**.

M		E ± 0,25	F min.	A max.	C max.	B max.	 + 0,08	L max.	T ± 0,25	Min. distance - hole centre / sheet edge	No.
<b>M3</b>	1,0	6,35	5,3	1,0	4,22	3,84	4,25	8,5	9,6	4,8	10.451.030.001
	1,4			1,4							10.451.030.002
<b>M4</b>	1,0	7,95	7,1	1,0	5,38	5,2	5,4	9,8	11,2	6,9	10.451.040.001
	1,4			1,4							10.451.040.002
<b>M5</b>	1,0	8,75	7,1	1,0	6,38	6,02	6,4	9,8	11,2	7,1	10.451.050.001
	1,4			1,4							10.451.050.002
<b>M6</b>	1,4	11,1	7,8	1,4	8,72	7,8	8,75	12,7	14,3	8,6	10.451.060.001
	2,3			2,3							10.451.060.002

► Details regarding pushout and torque-out values on page 173.



# Self-clinching rivet nuts

Self-clinching rivet nuts from series 10.455 and 10.456 are riveted into the component. A shaft is passed through a pre-punched hole in the component and riveted on the opposite side. The base material is not deformed in the process. These threaded fasteners feature serrated shafts that cut into the metal sheet surface, ensuring a **high torsion resistance and torque load capacity**.

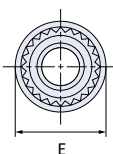
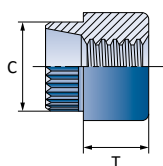
In addition to insertion with the aid of a press, these models can also be inserted using hand tools.

## Rivet bushes V-A Series 10.455



**Steel**

> galvanised



M	min. 	E	T	C	 +0,10	No.
<b>M3</b>	1,1-1,3	7,9	3,2	5,8	5,9	10.455.030.006
	1,4-1,6					10.455.030.008
	1,7-1,9					10.455.030.010
	2,0-2,2					10.455.030.012
	2,9-3,1					10.455.030.016
<b>M4</b>	0,9-1,0	9,5	3,8	6,9	6,95	10.455.040.004
	1,1-1,3					10.455.040.006
	1,4-1,6					10.455.040.008
	1,7-1,9					10.455.040.010
	2,0-2,2					10.455.040.012
2,9-3,1	10.455.040.016					

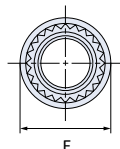
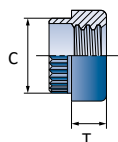
M	min. 	E	T	C	 +0,10	NO.
<b>M5</b>	1,4-1,6	11,1	4,4	8,3	8,35	10.455.050.008
	1,7-1,9					10.455.050.010
	2,0-2,2					10.455.050.012
	2,9-3,1					10.455.050.016
<b>M6</b>	1,1-1,3	12,7	5,7	9,5	9,65	10.455.060.006
	2,0-2,2					10.455.060.012

## Miniature rivet bushes V-MA Series 10.456



**Steel**

> galvanised



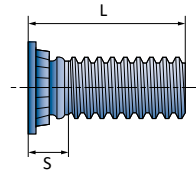
M	min. 	E	T	C	 +0,10	No.
<b>M3</b>	0,9-1,0	5,5	2,8	4,2	4,3	10.456.030.004
	1,1-1,3					10.456.030.006
	1,4-1,6					10.456.030.008
	1,7-1,9					10.456.030.010
	2,0-2,2					10.456.030.012

M	min. 	E	T	C	 +0,10	No.
<b>M4</b>	0,9-1,0	7,0	3,2	5,4	5,5	10.456.040.004
	1,1-1,3					10.456.040.006
	1,4-1,6					10.456.040.008
	1,7-1,9					10.456.040.010
<b>M5</b>	0,9-1,0	8,5	3,8	6,4	6,5	10.456.050.004
	2,3-2,5					10.456.050.013

**i** Self-clinching studs feature serration beneath their heads; this pushes displaced material into the rivet ring when the fastener is inserted into the metal sheet, thus securing the fastener in place.

Advantages:

- **high resistance to torque loads**
- **no damage to coated surfaces** – ideal for sheet metal panels
- always **perpendicular to the sheet**
- **head is flush with the metal sheet after insertion**



Flush head stud V-FH  
Series 10.460



**Steel**

galvanised <

Flush head studs made of hardened steel, suitable for use in metal sheets with hardness **up to HRB 80**.

M	min. 	L ± 0,4	E ± 0,4		S max.	Min. distance - hole centre /sheet edge	No.
<b>M2,5</b>		1,0	4,1	2,5	1,95	5,4	10.460.025.006
		6,0					10.460.025.008
		8,0					10.460.025.010
		10,0					10.460.025.012
		12,0					10.460.025.015
		15,0					10.460.025.018
<b>M3</b>		1,0	4,6	3,0	2,1	5,6	10.460.030.006
		6,0					10.460.030.008
		8,0					10.460.030.010
		10,0					10.460.030.012
		12,0					10.460.030.015
		15,0					10.460.030.018
		18,0					10.460.030.020
		20,0					10.460.030.022
		22,0					10.460.030.025
		25,0					10.460.030.028
28,0	10.460.030.030						
<b>M4</b>		1,0	5,9	4,0	2,4	7,2	10.460.040.006
		6,0					10.460.040.008
		8,0					10.460.040.010
		10,0					10.460.040.012
		12,0					10.460.040.015
		15,0					10.460.040.018
		18,0					10.460.040.020
		20,0					10.460.040.022
		22,0					10.460.040.025
		25,0					10.460.040.028
		28,0					10.460.040.030
		30,0					10.460.040.035
35,0	10.460.040.038						

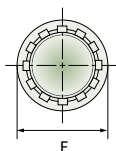
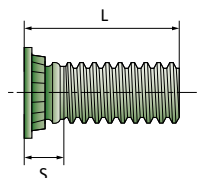
M	min. 	L ± 0,4	E ± 0,4		S max.	Min. distance - hole centre /sheet edge	No.
<b>M5</b>		1,0	6,5	5,0	2,7	7,2	10.460.050.008
		8,0					10.460.050.010
		10,0					10.460.050.012
		12,0					10.460.050.015
		15,0					10.460.050.018
		18,0					10.460.050.020
		20,0					10.460.050.022
		22,0					10.460.050.025
		25,0					10.460.050.028
		28,0					10.460.050.030
<b>M6</b>		1,6	8,2	6,0	3,0	7,9	10.460.060.010
		10,0					10.460.060.012
		12,0					10.460.060.015
		15,0					10.460.060.018
		18,0					10.460.060.020
		20,0					10.460.060.022
		22,0					10.460.060.025
		25,0					10.460.060.028
		28,0					10.460.060.030
		30,0					10.460.060.035
<b>M8</b>		2,4	9,6	8,0	3,7	9,6	10.460.080.012
		12,0					10.460.080.015
		15,0					10.460.080.018
		18,0					10.460.080.020
		20,0					10.460.080.022
		22,0					10.460.080.025
		25,0					10.460.080.028
		28,0					10.460.080.030
		30,0					10.460.080.035
		35,0					10.460.080.038

**i** Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

# Flush head stud V-FHS

Series 10.461

**Stainless steel**  
300 series



Flush head studs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M2,5</b>	1,0	6,0	4,1	2,5	1,95	5,4	10.461.025.006
		8,0					10.461.025.008
		10,0					10.461.025.010
		12,0					10.461.025.012
		15,0					10.461.025.015
		18,0					10.461.025.018
<b>M3</b>	1,0	6,0	4,6	3,0	2,1	5,6	10.461.030.006
		8,0					10.461.030.008
		10,0					10.461.030.010
		12,0					10.461.030.012
		15,0					10.461.030.015
		18,0					10.461.030.018
		20,0					10.461.030.020
		22,0					10.461.030.022
		25,0					10.461.030.025
		28,0					10.461.030.028
30,0	10.461.030.030						
<b>M4</b>	1,0	6,0	5,9	4,0	2,4	7,2	10.461.040.006
		8,0					10.461.040.008
		10,0					10.461.040.010
		12,0					10.461.040.012
		15,0					10.461.040.015
		18,0					10.461.040.018
		20,0					10.461.040.020
		22,0					10.461.040.022
		25,0					10.461.040.025
		28,0					10.461.040.028
		30,0					10.461.040.030
		35,0					10.461.040.035
		38,0					10.461.040.038

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M5</b>	1,0	8,0	6,5	5,0	2,7	7,2	10.461.050.008
		10,0					10.461.050.010
		12,0					10.461.050.012
		15,0					10.461.050.015
		18,0					10.461.050.018
		20,0					10.461.050.020
		22,0					10.461.050.022
		25,0					10.461.050.025
		28,0					10.461.050.028
		30,0					10.461.050.030
<b>M6</b>	1,6	10,0	8,2	6,0	3,0	7,9	10.461.060.010
		12,0					10.461.060.012
		15,0					10.461.060.015
		18,0					10.461.060.018
		20,0					10.461.060.020
		22,0					10.461.060.022
		25,0					10.461.060.025
		28,0					10.461.060.028
		30,0					10.461.060.030
		35,0					10.461.060.035
<b>M8</b>	2,4	12,0	9,6	8,0	3,7	9,6	10.461.080.012
		15,0					10.461.080.015
		18,0					10.461.080.018
		20,0					10.461.080.020
		22,0					10.461.080.022
		25,0					10.461.080.025
		28,0					10.461.080.028
		30,0					10.461.080.030
		35,0					10.461.080.035
		38,0					10.461.080.038

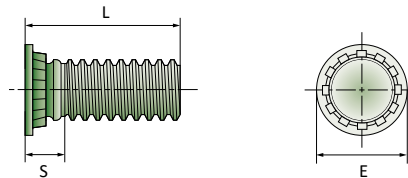
**i** Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

**▶** Details regarding pushout and torque-out values on page 174.

# Flush head stud V-FH4 Series 10.462



**Stainless steel**  
400 series



Flush head studs made of stainless steel (AISI 400 series), suitable for use in metal sheets with hardness up to HRB 92.

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M3</b>	1,0	6,0	4,6	3,0	2,1	5,6	10.462.030.006
		8,0					10.462.030.008
		10,0					10.462.030.010
		12,0					10.462.030.012
		15,0					10.462.030.015
		18,0					10.462.030.018
		20,0					10.462.030.020
		25,0					10.462.030.025
<b>M4</b>	1,0	6,0	5,9	4,0	2,4	7,2	10.462.040.006
		8,0					10.462.040.008
		10,0					10.462.040.010
		12,0					10.462.040.012
		15,0					10.462.040.015
		18,0					10.462.040.018
		20,0					10.462.040.020
		25,0					10.462.040.025
		30,0					10.462.040.030
		35,0					10.462.040.035

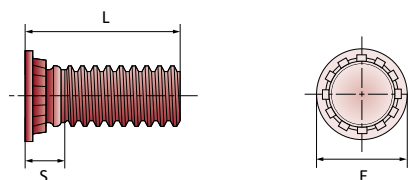
M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M5</b>	1,0	8,0	6,5	5,0	2,7	7,2	10.462.050.008
		10,0					10.462.050.010
		12,0					10.462.050.012
		15,0					10.462.050.015
		18,0					10.462.050.018
		20,0					10.462.050.020
		25,0					10.462.050.025
		30,0					10.462.050.030
<b>M6</b>	1,6	12,0	8,2	6,0	3,0	7,9	10.462.060.012
		15,0					10.462.060.015
		20,0					10.462.060.020
		25,0					10.462.060.025

- Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.
- Details regarding pushout and torque-out values on page 174.

# Flush head stud V-FHA Series 10.463



**Aluminium**



Item V-FHA is available with the same dimensions as series 10.461 / V-FHS on the opposite page.  
**Contact us!**

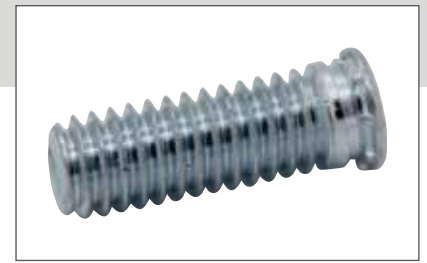
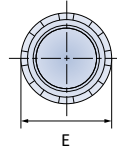
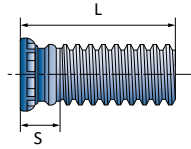


# Low displacement flush head stud V-FHL

## Series 10.465

### Steel

- > galvanised
- > for short edge distances



Flush head studs made of hardened steel, suitable for use in metal sheets with hardness **up to HRB 80**.

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M2,5</b>	1,0	6,0	3,15	2,5	2,1	2,8	10.465.025.006
		8,0					10.465.025.008
		10,0					10.465.025.010
		12,0					10.465.025.012
		15,0					10.465.025.015
		18,0					10.465.025.018
<b>M3</b>	1,0	6,0	3,65	3,0	2,1	3,3	10.465.030.006
		8,0					10.465.030.008
		10,0					10.465.030.010
		12,0					10.465.030.012
		15,0					10.465.030.015
		18,0					10.465.030.018
		20,0					10.465.030.020
25,0	10.465.030.025						

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M4</b>	1,0	6,0	4,65	4,0	2,4	4,3	10.465.040.006
		8,0					10.465.040.008
		10,0					10.465.040.010
		12,0					10.465.040.012
		15,0					10.465.040.015
		18,0					10.465.040.018
		20,0					10.465.040.020
		25,0					10.465.040.025
		30,0					10.465.040.030
		35,0					10.465.040.035
<b>M5</b>	1,0	8,0	5,9	5,0	2,7	5,6	10.465.050.008
		10,0					10.465.050.010
		12,0					10.465.050.012
		15,0					10.465.050.015
		18,0					10.465.050.018
		20,0					10.465.050.020
		25,0					10.465.050.025
		30,0					10.465.050.030
		35,0					10.465.050.035

- Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.
- Details regarding pushout and torque-out values on page 174.

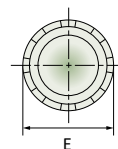
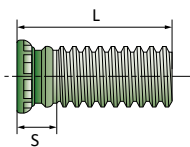
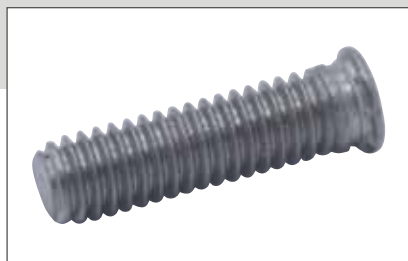


# Low displacement flush head stud V-FHLS Series 10.466



**Stainless steel**  
300 series

for short <  
edge distances



Flush head studs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M2,5</b>	1,0	6,0	3,15	2,5	2,1	2,8	10.466.025.006
		8,0					10.466.025.008
		10,0					10.466.025.010
		12,0					10.466.025.012
		15,0					10.466.025.015
		18,0					10.466.025.018
<b>M3</b>	1,0	6,0	3,65	3,0	2,1	3,3	10.466.030.006
		8,0					10.466.030.008
		10,0					10.466.030.010
		12,0					10.466.030.012
		15,0					10.466.030.015
		18,0					10.466.030.018
		20,0					10.466.030.020
		25,0					10.466.030.025

M	min. ± 0,4	L ± 0,4	E ± 0,4	+ 0,08	S max.	Min. distance - hole centre /sheet edge	No.
<b>M4</b>	1,0	6,0	4,65	4,0	2,4	4,3	10.466.040.006
		8,0					10.466.040.008
		10,0					10.466.040.010
		12,0					10.466.040.012
		15,0					10.466.040.015
		18,0					10.466.040.018
		20,0					10.466.040.020
		25,0					10.466.040.025
		30,0					10.466.040.030
		35,0					10.466.040.035
<b>M5</b>	1,0	8,0	5,9	5,0	2,7	5,6	10.466.050.008
		10,0					10.466.050.010
		12,0					10.466.050.012
		15,0					10.466.050.015
		18,0					10.466.050.018
		20,0					10.466.050.020
		25,0					10.466.050.025
		30,0					10.466.050.030
		35,0					10.466.050.035

**i** Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

**▶** Details regarding pushout and torque-out values on page 174.



**Automatic tool for studs and standoffs from above**

Tool available for studs and standoffs M2 to M6 (M8 on request)

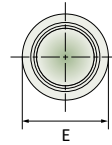
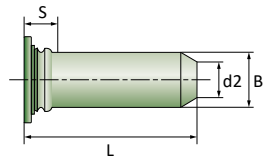
# Flush head pin V-TPS

## Series 10.470



**Stainless steel**  
300 series

> without thread



Flush head pins made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min.	L	E	S max.	B	d2	Min. distance - hole centre /sheet edge	No.
M3	1,0	8,0	5,2	2,29	3,0	2,05	3,5	10.470.030.008
		10,0						10.470.030.010
		12,0						10.470.030.012
		16,0						10.470.030.016
M4	1,0	8,0	6,12	2,29	4,0	2,82	4,5	10.470.040.008
		10,0						10.470.040.010
		12,0						10.470.040.012
		16,0						10.470.040.016

M	min.	L	E	S max.	B	d2	Min. distance - hole centre /sheet edge	No.
M5	1,0	10,0	7,19	2,29	5,0	3,53	5,5	10.470.050.010
		12,0						10.470.050.012
		16,0						10.470.050.016
		20,0						10.470.050.020
M6	1,0	12,0	8,13	2,29	6,0	4,24	6,5	10.470.060.012
		16,0						10.470.060.016
		20,0						10.470.060.020

► Details regarding pushout and torque-out values on page 174.

Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

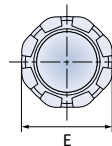
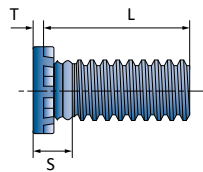
# High strength stud V-HFH

## Series 10.475



**Steel**

> galvanised  
> for higher load capacity



High strength studs made of hardened steel, suitable for use in metal sheets with hardness up to HRB 85.

M	min.	L	E	T max.	S max.	Min. distance - hole centre /sheet edge	No.
M5	1,3	15,0	7,8	1,14	2,7	5,0	10.475.050.015
		20,0					10.475.050.020
		25,0					10.475.050.025
		30,0					10.475.050.030
		35,0					10.475.050.035
		40,0					10.475.050.040
		50,0					10.475.050.050
M6	1,5	15,0	9,4	1,27	2,8	6,0	10.475.060.015
		20,0					10.475.060.020
		25,0					10.475.060.025
		30,0					10.475.060.030
		35,0					10.475.060.035
		40,0					10.475.060.040
		50,0					10.475.060.050

M	min.	L	E	T max.	S max.	Min. distance - hole centre /sheet edge	No.
M8	2,0	15,0	12,5	1,78	3,5	8,0	10.475.080.015
		20,0					10.475.080.020
		25,0					10.475.080.025
		30,0					10.475.080.030
		35,0					10.475.080.035
		50,0					10.475.080.050
M10	2,3	15,0	15,7	2,29	4,1	10,0	10.475.100.015
		20,0					10.475.100.020
		25,0					10.475.100.025
		30,0					10.475.100.030
		35,0					10.475.100.035
		50,0					10.475.100.050

► Details regarding pushout and torque-out values on page 174.

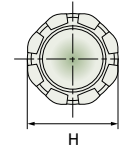
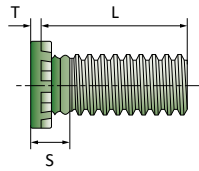
Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

Self-clinching studs



**Stainless steel**  
300 series

for higher <  
load capacity



High strength studs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min. 	L ± 0,4	E ± 0,25	T max.	S max.		Min. distance - hole centre /sheet edge	No.
<b>M5</b>	1,3	15,0	7,8	1,14	2,7		10,7	10.476.050.015
		20,0						10.476.050.020
		25,0						10.476.050.025
		30,0						10.476.050.030
		35,0						10.476.050.035
		40,0						10.476.050.040
50,0	10.476.050.050							
<b>M6</b>	1,5	15,0	9,4	1,27	2,8		11,5	10.476.060.015
		20,0						10.476.060.020
		25,0						10.476.060.025
		30,0						10.476.060.030
		35,0						10.476.060.035
		40,0						10.476.060.040
50,0	10.476.060.050							

M	min. 	L ± 0,4	E ± 0,25	T max.	S max.		Min. distance - hole centre /sheet edge	No.
<b>M8</b>	2,0	15,0	12,5	1,78	3,5		12,7	10.476.080.015
		20,0						10.476.080.020
		25,0						10.476.080.025
		30,0						10.476.080.030
		35,0						10.476.080.035
		40,0						10.476.080.040
50,0	10.476.080.050							
<b>M10</b>	2,3	15,0	15,7	2,29	4,1		13,7	10.476.100.015
		20,0						10.476.100.020
		25,0						10.476.100.025
		30,0						10.476.100.030
		35,0						10.476.100.035
		40,0						10.476.100.040
50,0	10.476.100.050							

► Details regarding pushout and torque-out values on page 174.

ⓘ Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.





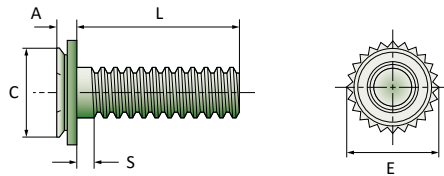
# Concealed head stud V-CHC

## Series 10.480





**Stainless steel**  
300 series

> for blind hole mounting  
> short shaft



Concealed head studs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness **up to HRB 70**.

M		L ± 0,4	E ± 0,25	C max.	A	S max.		Min. distance - hole centre / sheet edge	Drill depth	No.
<b>M3</b>	1,6	6,0	5,21	4,35	1,04	1,6	4,37	4,0	1,1	10.480.030.006
		8,0								10.480.030.008
		10,0								10.480.030.010
		12,0								10.480.030.012
		16,0								10.480.030.016
		20,0								10.480.030.020
<b>M4</b>	1,6	6,0	8,33	7,35	1,04	1,6	7,37	5,6	1,1	10.480.040.006
		8,0								10.480.040.008
		10,0								10.480.040.010
		12,0								10.480.040.012
		16,0								10.480.040.016
		20,0								10.480.040.020
25,0	10.480.040.025									
<b>M5</b>	1,6	10,0	8,89	7,9	1,04	1,6	7,93	6,4	1,1	10.480.050.010
		12,0								10.480.050.012
		16,0								10.480.050.016
		20,0								10.480.050.020
		25,0								10.480.050.025

**i** Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

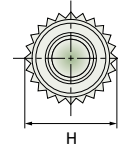
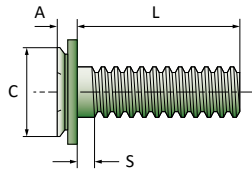
► Details regarding pushout and torque-out values on page 174.

# Concealed head stud V-CFHC Series 10.481






**Stainless steel**  
300 series


for blind hole mounting <  
long shaft <



Concealed head studs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M		L ± 0,4	E ± 0,25	C max.	A	S max.	 + 0,08	Min. distance - hole centre / sheet edge	Drill depth	No.
M3	2,4	6,0	5,21	4,35	1,8	1,6	4,37	4,0	1,91	10.481.030.006
		8,0								10.481.030.008
		10,0								10.481.030.010
		12,0								10.481.030.012
		16,0								10.481.030.016
		20,0								10.481.030.020
M4	2,4	6,0	8,33	7,35	1,8	1,6	7,37	5,6	1,91	10.481.040.006
		8,0								10.481.040.008
		10,0								10.481.040.010
		12,0								10.481.040.012
		16,0								10.481.040.016
		20,0								10.481.040.020
25,0	10.481.040.025									
M5	2,4	10,0	8,89	7,9	1,8	1,6	7,93	6,4	1,91	10.481.050.010
		12,0								10.481.050.012
		16,0								10.481.050.016
		20,0								10.481.050.020
		25,0								10.481.050.025

 Max. size of piece to be mounted in a hole in sheet metal is equal to the size of the hole + 0.6 mm.

 Details regarding pushout and torque-out values on page 174.

**Turret  
Insertion  
System**  
with four colour-coded  
containers, each  
associated with one of  
the four anvils.



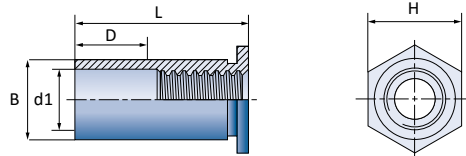
# Self-clinch Standoffs

- Self-clinch standoffs can serve as **spacers** or **distance pieces**.
- The hexagon head is simply pressed into the metal sheet, that the material will compress in the nut. The pressing in at the head finishes completely flush .
- A wide selection of **open** or **closed versions** is available. For applications with high strain versions with larger heads and higher compressive tensile strengths can be produced.

## Through standoff V-SO Series 10.485

Steel

- > open
- > galvanised



Through standoffs made of hardened steel, suitable for use in metal sheets with hardness up to HRB 80.

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.
M2	1,02	4,0	0,0	2,5	4,2	4,8	4,20	10.485.020.004
		6,0						10.485.020.006
		8,0						10.485.020.008
		10,0						10.485.020.010
		12,0						10.485.020.012
M2,5	1,02	4,0	0,0	3,2	4,2	4,8	4,20	10.485.025.004
		6,0						10.485.025.006
		8,0						10.485.025.008
		10,0						10.485.025.010
		12,0						10.485.025.012
M3	1,02	3,0	0,0	3,2	4,2	4,8	4,22	10.485.030.003
		4,0						10.485.030.004
		5,0						10.485.030.005
		6,0						10.485.030.006
		7,0						10.485.030.007
		8,0						10.485.030.008
		10,0						10.485.030.010
		12,0	4,0					10.485.030.012
		14,0	10.485.030.014					
		16,0	8,0					10.485.030.016
		18,0	10.485.030.018					
3,5 M3	1,02	3,0	0,0	3,2	5,39	6,4	5,41	10.485.035.003
		4,0						10.485.035.004
		5,0						10.485.035.005
		6,0						10.485.035.006
		7,0						10.485.035.007
		8,0						10.485.035.008

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.
3,5 M3	1,02	10,0	4,0	3,2	5,39	6,4	5,41	10.485.035.010
		12,0						10.485.035.012
		14,0						10.485.035.014
		16,0						10.485.035.016
		18,0						10.485.035.018
M4	1,27	3,0	0,0	4,8	7,12	7,9	7,14	10.485.040.003
		4,0						10.485.040.004
		6,0						10.485.040.006
		8,0						10.485.040.008
		10,0	10.485.040.010					
		12,0	4,0					10.485.040.012
		14,0	10.485.040.014					
		16,0	8,0					10.485.040.016
		18,0	10.485.040.018					
		20,0	10.485.040.020					
		22,0	11,0					10.485.040.022
25,0	10.485.040.025							
M5	1,27	4,0	0,0	5,35	7,12	7,9	7,14	10.485.050.004
		6,0						10.485.050.006
		8,0						10.485.050.008
		10,0	10.485.050.010					
		12,0	4,0					10.485.050.012
		14,0	5,35					10.485.050.014
		16,0	10.485.050.016					
		18,0	8,0					10.485.050.018
		20,0	10.485.050.020					
		22,0	11,0					10.485.050.022
		25,0	10.485.050.025					

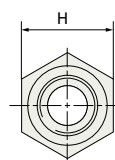
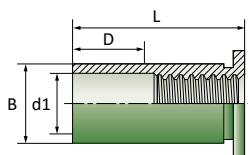
- Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.

► Details regarding pushout and torque-out values on page 175.



**Stainless steel**  
300 series

open <



Through standoffs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.			
<b>M2,5</b>	1,02	4,0	± 0,25	± 0,13	- 0,13	4,8	4,20	10.486.025.004			
		6,0						0,0	10.486.025.006		
		8,0						3,2	4,2	6,0	10.486.025.008
		10,0						4,0	10.486.025.010		
		12,0							10.486.025.012		
<b>M3</b>	1,02	3,0	± 0,25	± 0,13	- 0,13	4,8	4,22	10.486.030.003			
		4,0						0,0	10.486.030.004		
		5,0							10.486.030.005		
		6,0							10.486.030.006		
		7,0							10.486.030.007		
		8,0							3,2	4,2	6,0
		10,0						4,0	10.486.030.010		
		12,0							10.486.030.012		
		14,0							10.486.030.014		
		16,0						8,0	10.486.030.016		
18,0	10.486.030.018										
<b>3,5 M3</b>	1,02	3,0	± 0,25	± 0,13	- 0,13	6,4	5,41	10.486.035.003			
		4,0						0,0	10.486.035.004		
		5,0							10.486.035.005		
		6,0							10.486.035.006		
		7,0							10.486.035.007		
		8,0							3,2	5,39	6,8
		10,0						4,0	10.486.035.010		
		12,0							10.486.035.012		
		14,0							10.486.035.014		
		16,0						8,0	10.486.035.016		
		18,0							10.486.035.018		

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.			
<b>M4</b>	1,27	3,0	± 0,25	± 0,13	- 0,13	7,9	7,14	10.486.040.003			
		4,0						0,0	10.486.040.004		
		6,0							10.486.040.006		
		8,0							10.486.040.008		
		10,0							10.486.040.010		
		12,0						4,0	10.486.040.012		
		14,0							10.486.040.014		
		16,0						8,0	10.486.040.016		
		18,0							10.486.040.018		
		20,0							10.486.040.020		
22,0	10.486.040.022										
25,0	11,0	10.486.040.025									
<b>M5</b>	1,27	4,0	± 0,25	± 0,13	- 0,13	7,9	7,14	10.486.050.004			
		6,0						0,0	10.486.050.006		
		8,0							10.486.050.008		
		10,0							10.486.050.010		
		12,0						4,0	10.486.050.012		
		14,0							5,35	7,12	8,0
		16,0						8,0	10.486.050.016		
		18,0							10.486.050.018		
		20,0							10.486.050.020		
		22,0							10.486.050.022		
25,0	11,0	10.486.050.025									

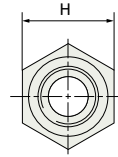
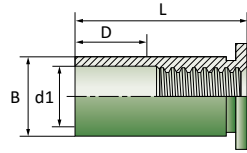
- ▶ Details regarding pushout and torque-out values on page 175.
- Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.

# Through standoff V-SO4 Series 10.487



**Stainless steel**  
400 series

> open



Through standoffs made of stainless steel (AISI 400 series), suitable for use in metal sheets with hardness **above HRB 80 (up to 88)**.

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.
M3	1,02	3,0	0,0	3,25	4,2	4,8	4,22	10.487.030.003
		4,0						10.487.030.004
		6,0						10.487.030.006
		8,0						10.487.030.008
		10,0	4,0					10.487.030.010
		12,0						10.487.030.012
		14,0	10.487.030.014					
		16,0	8,0					10.487.030.016
		18,0						10.487.030.018
3,5 M3	1,02	3,0	0,0	3,25	5,39	6,4	5,41	10.487.035.003
		4,0						10.487.035.004
		6,0						10.487.035.006
		8,0						10.487.035.008
		10,0	4,0					10.487.035.010
		12,0						10.487.035.012
		14,0	10.487.035.014					
		16,0	8,0					10.487.035.016
		18,0						10.487.035.018

M	min.	L	D	d1	B	H	Min. distance - hole centre / sheet edge	No.
M4	1,27	4,0	0,0	4,8	7,12	7,9	7,14	10.487.040.004
		6,0						10.487.040.006
		8,0						10.487.040.008
		10,0	4,0					10.487.040.010
		12,0						10.487.040.012
		14,0	8,0					10.487.040.014
		16,0						10.487.040.016
		18,0						10.487.040.018
		20,0						10.487.040.020
		22,0	11,0					10.487.040.022
25,0	10.487.040.025							
M5	1,27	4,0	0,0	5,35	7,12	7,9	7,14	10.487.050.004
		6,0						10.487.050.006
		8,0						10.487.050.008
		10,0	4,0					10.487.050.010
		12,0						10.487.050.012
		14,0	8,0					10.487.050.014
		16,0						10.487.050.016
		18,0						10.487.050.018
		20,0						10.487.050.020
		22,0	11,0					10.487.050.022
		25,0						10.487.050.025

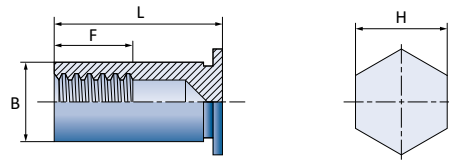
► Details regarding pushout and torque-out values on page 175.

ⓘ Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.



Steel

closed <  
galvanised <



Blind standoffs made of hardened steel, suitable for use in metal sheets with hardness up to HRB 80.

M	min.	L + 0,05 - 0,13	B	Mindestvollge- windelänge F	H	 + 0,08	Min. distance - hole centre /sheet edge	No.
<b>M3</b>		1,02	4,2	6,0	3,2		6,0	10.490.030.006
				8,0	4,0			10.490.030.008
				10,0				10.490.030.010
				12,0				5,0
				14,0	9,5			10.490.030.014
				16,0				10.490.030.016
				18,0				10.490.030.018
				20,0				10.490.030.020
				22,0				10.490.030.022
				25,0				10.490.030.025
<b>3,5 M3</b>		1,02	5,39	6,0		3,2		6,8
				8,0	4,0	10.490.035.008		
				10,0		10.490.035.010		
				12,0		5,0		
				14,0	9,5	10.490.035.014		
				16,0		10.490.035.016		
				18,0		10.490.035.018		
				20,0		10.490.035.020		
				22,0		10.490.035.022		
				25,0		10.490.035.025		

M	min.	L + 0,05 - 0,13	B	Mindestvollge- windelänge F	H	 + 0,08	Min. distance - hole centre /sheet edge	No.
<b>M4</b>		1,27	7,12	8,0	4,0		8,0	10.490.040.008
				10,0				10.490.040.010
				12,0				5,0
				14,0	6,5			10.490.040.014
				16,0				10.490.040.016
				18,0	9,5			10.490.040.018
				20,0				10.490.040.020
				22,0				10.490.040.022
				25,0				10.490.040.025
				<b>M5</b>				
10,0	10.490.050.010							
12,0	5,0	10.490.050.012						
14,0	6,5	10.490.050.014						
16,0		10.490.050.016						
18,0	9,5	10.490.050.018						
20,0		10.490.050.020						
22,0		10.490.050.022						
25,0		10.490.050.025						

► Details regarding pushout and torque-out values on page 175.

ⓘ Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.



33-piece manual tool set  
Punches and dies.

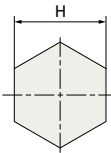
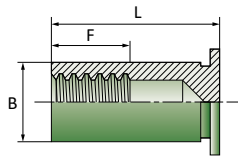
# Blind standoff V-BSOS

Series 10.491



**Stainless steel**  
300 series

> closed



Blind standoffs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness up to HRB 70.

M	min.	L + 0,05 - 0,13	B - 0,13	Mindestvollge- windelänge F	H	 + 0,08	Min. distance - hole centre /sheet edge	No.
<b>M3</b>	1,02	4,2	6,0	3,2	4,8	4,22	6,0	10.491.030.006
				4,0				10.491.030.008
				5,0				10.491.030.010
				6,5				10.491.030.012
				9,5				10.491.030.014
				10.491.030.016				
				10.491.030.018				
				10.491.030.020				
				10.491.030.022				
				10.491.030.025				
<b>3,5 M3</b>	1,02	5,39	6,0	3,2	6,4	5,41	6,8	10.491.035.006
				4,0				10.491.035.008
				5,0				10.491.035.010
				6,5				10.491.035.012
				9,5				10.491.035.014
				10.491.035.016				
				10.491.035.018				
				10.491.035.020				
				10.491.035.022				
				10.491.035.025				

M	min.	L + 0,05 - 0,13	B - 0,13	Mindestvollge- windelänge F	H	 + 0,08	Min. distance - hole centre /sheet edge	No.
<b>M4</b>	1,27	7,12	8,0	4,0	7,9	7,14	8,0	10.491.040.008
				5,0				10.491.040.010
				6,5				10.491.040.012
				9,5				10.491.040.014
				10.491.040.016				
				10.491.040.018				
				10.491.040.020				
				10.491.040.022				
				10.491.040.025				
				<b>M5</b>				1,27
5,0	10.491.050.010							
6,5	10.491.050.012							
9,5	10.491.050.014							
10.491.050.016								
10.491.050.018								
10.491.050.020								
10.491.050.022								
10.491.050.025								

► Details regarding pushout and torque-out values on page 175.

■ Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.



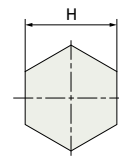
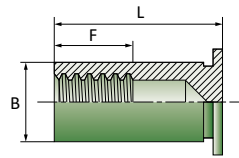
**Automated tool for  
mounting nuts from  
below**

Tools available for nuts  
M2 to M6  
(M8 on request)



Stainless steel  
400 series

closed <



Blind standoffs made of stainless steel (AISI 400 series), suitable for use in metal sheets with hardness **above HRB 80 (up to 88)**.

M	min.	L	B	Mindestvollge- windelänge F	H	+ 0,08	Min. distance - hole centre / sheet edge	No.
<b>M3</b>	1,02	6,0	4,2	3,2	4,8	4,22	6,0	10.492.030.006
		8,0		4,0				10.492.030.008
		10,0		10.492.030.010				
		12,0		5,0				10.492.030.012
		14,0		10.492.030.014				
		16,0		6,5				10.492.030.016
		18,0		10.492.030.018				
		20,0		9,5				10.492.030.020
		22,0						10.492.030.022
		25,0						10.492.030.025
<b>3,5 M3</b>	1,02	6,0	5,39	3,2	6,4	5,41	7,1	10.492.035.006
		8,0		4,0				10.492.035.008
		10,0		10.492.035.010				
		12,0		5,0				10.492.035.012
		14,0		10.492.035.014				
		16,0		6,5				10.492.035.016
		18,0		10.492.035.018				
		20,0		9,5				10.492.035.020
		22,0						10.492.035.022
		25,0						10.492.035.025

M	min.	L	B	Mindestvollge- windelänge F	H	+ 0,08	Min. distance - hole centre / sheet edge	No.
<b>M4</b>	1,27	6,0	7,12	3,2	7,9	7,14	8,4	10.492.040.006
		8,0		4,0				10.492.040.008
		10,0		10.492.040.010				
		12,0		5,0				10.492.040.012
		14,0		10.492.040.014				
		16,0		6,5				10.492.040.016
		18,0		10.492.040.018				
		20,0		9,5				10.492.040.020
		22,0						10.492.040.022
		25,0						10.492.040.025
<b>M5</b>	1,27	6,0	7,12	3,2	7,9	7,14	8,4	10.492.050.006
		8,0		4,0				10.492.050.008
		10,0		10.492.050.010				
		12,0		5,0				10.492.050.012
		14,0		10.492.050.014				
		16,0		6,5				10.492.050.016
		18,0		10.492.050.018				
		20,0		9,5				10.492.050.020
		22,0						10.492.050.022
		25,0						10.492.050.025

► Details regarding pushout and torque-out values on page 175.

❗ Standoffs with 3.5 M3 threads offer a greater wall thickness for thread size M3.



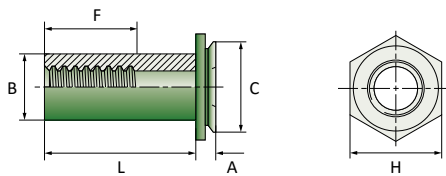
# Concealed head standoff V-CSOs

## Series 10.496



### Stainless steel 300 series

- > open
- > for blind hole mounting



Concealed head standoffs made of stainless steel (AISI 300 series), suitable for use in metal sheets with hardness **up to HRB 70**.

M	min. 	L + 0,05 - 0,13	 + 0,08	Bohrtiefe	A	B	C	F	H	Min. distance - hole centre / sheet edge	No.
<b>M3</b>	2,4	4,0	5,41	1,91	1,83	4,2	5,39	5,0	6,35	4,8	10.496.030.004
		6,0									10.496.030.006
		8,0									10.496.030.008
		10,0									10.496.030.010
		12,0									10.496.030.012
<b>M4</b>	2,4	4,0	7,92	1,91	1,83	6,23	7,9	6,5	8,74	6,4	10.496.040.004
		6,0									10.496.040.006
		8,0									10.496.040.008
		10,0									10.496.040.010
		12,0									10.496.040.012
		16,0									10.496.040.016
		20,0									10.496.040.020

► Details regarding pushout and torque-out values on page 175.

Further details regarding the determination of the reference values provided herein are available upon request. Please ensure that appropriate tests are carried out with original components prior to utilisation. We can provide you with samples for this purpose.

## Self-clinching nuts

Item description / Item number			tested in steel (cold-rolled)			tested in aluminium 5052-H34			
			Installation (kN)	Pushout (N)	Torque-out (Nm)	Installation (kN)	Pushout (N)	Torque-out (Nm)	
<b>M2</b> <b>M2,5</b> <b>M3</b>	V-S / V-SS	10.430.020.000 / 025.000 / 030.000	10.431.020.000 / 025.000 / 030.000	11,2-15,6	470	1,47	6,7-8,9	280	0,9
		10.430.020.001 / 025.001 / 030.001	10.431.020.001 / 025.001 / 030.001	11,2-15,6	550	1,7	6,7-8,9	400	1,1
		10.430.020.002 / 025.002 / 030.002	10.431.020.002 / 025.002 / 030.002	11,2-15,6	1010	2,03	6,7-8,9	750	1,5
<b>M4</b>	V-S / V-SS	10.430.040.000	10.431.040.000	18-27	490	2,95	11,2-13,4	300	2,4
		10.430.040.001	10.431.040.001	18-27	645	4	11,2-13,4	470	2,6
		10.430.040.002	10.431.040.002	18-27	1250	5,1	11,2-13,4	970	4,0
<b>M5</b>	V-S / V-SS	10.430.050.000	10.431.050.000	18-38	530	3,6	11,2-15,6	300	3,0
		10.430.050.001	10.431.050.001	18-38	800	4,5	11,2-15,6	480	3,6
		10.430.050.002	10.431.050.002	18-38	1112	6,8	11,2-15,6	845	5,7
<b>M6</b>	V-S / V-SS	10.430.060.000	10.431.060.000	27-36	1380	13	18-32	970	7,9
		10.430.060.001	10.431.060.001	27-36	1760	17	18-32	1580	10,2
		10.430.060.002	10.431.060.002	27-36	1760	17	18-32	1580	14,1
<b>M8</b>	V-S / V-SS	10.430.080.001	10.431.080.001	27-36	1870	18,7	18-32	1570	13,6
		10.430.080.002	10.431.080.002	27-36	1870	20,3	18-32	1570	18,1
<b>M10</b>	V-S / V-SS	10.430.100.001	10.431.100.001	32-50	2020	36,2	22-36	1760	32,7
		10.430.100.002	10.431.100.002	32-50	2020	36,2	22-36	1760	32,7
<b>M12</b>	V-S / V-SS	10.430.120.001	10.431.120.001	33-49	3065	73,9	23-30	1390	35,2
<b>M2</b>	V-F	10.440.020.001 / 020.002		13,3	890	0,16	8,9	890	0,16
<b>M2,5</b>		10.440.025.001 / 025.002		13,3	890	0,23	8,9	890	0,23
<b>M3</b>		10.440.030.001 / 030.002		13,3	890	0,36	8,9	890	0,36
<b>M4</b>		10.440.040.001 / 040.002		17,8	1068	0,58	8,9	1068	0,58
<b>M5</b>		10.440.050.001 / 050.002		17,8	1068	0,88	11,1	1068	0,88
<b>M6</b>		10.440.060.003 / 060.004 / 060.005		20,0	3736	3,7	15,6	2847	3,7
<b>M3</b>	V-B	10.450.030.001	10.451.030.001	11,1	550	1,5	7,1	400	1,15
		10.450.030.002	10.451.030.002	14	1010	2,05	9,0	750	1,47
10.450.040.001		10.451.040.001	15,6	600	3,4	8,9	470	2,6	
10.450.040.002		10.451.040.002	20	1250	5,1	12,5	970	4,0	
10.450.050.001		10.451.050.001	17,8	620	4,0	9,3	480	3,6	
10.450.050.002		10.451.050.002	25	1112	6,8	14,0	845	5,7	
<b>M6</b>	V-B	10.450.060.001	10.451.060.001	25,7	1760	11,9	17,8	1400	10,2
		10.450.060.002	10.451.060.002	25,7	1760	11,9	17,8	1400	10,2

Item description / Item number		tested in stainless steel			
		Installation (kN)	Pushout (N)	Torque-out (Nm)	
<b>M2,5</b>	V-SP	10.435.025.000	35,6	575	1,58
		10.435.025.001	40,0	725	1,92
		10.435.025.002	44,5	1290	2,03
<b>M3</b>	V-SP	10.435.030.000	40,0	645	3,38
		10.435.030.001	44,5	800	4,18
		10.435.030.002	49,0	1600	5,08
<b>M4</b>	V-SP	10.435.040.000	42,3	800	3,95
		10.435.040.001	46,7	1025	5,08
		10.435.040.002	51,2	1775	6,77
<b>M5</b>	V-SP	10.435.050.000	60,0	2000	17,0
		10.435.050.001	27-36	1760	17
<b>M6</b>	V-SP	10.435.050.002	27-36	1760	17
<b>M6</b>	V-SP	10.435.060.001	27-36	1870	18,7

## Self-clinching studs

Item description / Item number		tested in steel (cold-rolled)				tested in aluminium 5052-H34					
		Sheet hardness HRB	Installation (kN)	Pushout (N)	Max. tightening torque / Torque-out (Nm)	Sheet hardness HRB	Installation (kN)	Pushout (N)	Max. tightening torque / Torque-out (Nm)		
M2,5	10.460.025.006 / 008 / 010 / 012 / 015 / 018	59	11,1	740	0,41 / 1,0	29,0	8,9	465	0,41 / 1,0		
M3	10.460.030.006 / 008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030	59	14,7	820	0,74 / 1,7	29,0	12,9	600	0,74 / 1,7		
M4	10.460.040.006 / 008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	59	28,9	1780	1,7 / 4,2	29,0	20,0	975	1,7 / 2,9		
M5	10.460.050.008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	59	33,4	2000	3,5 / 6,5	29,0	24,5	1070	3,5 / 3,5		
M6	10.460.060.010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	46	44,5	2560	5,9 / 11,3	28,0	28,9	1660	5,9 / 7,3		
M8	10.460.080.012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	46	44,5	2890	14,2 / 19,2	28,0	29,8	1910	14,2 / 11,3		
M2,5	10.461.025.006 / 008 / 010 / 012 / 015 / 018	59	13,8	740	0,41 / 0,8	29,0	11,6	465	0,41 / 0,8		
M3	10.461.030.006 / 008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030	59	14,7	820	0,74 / 1,3	29,0	12,9	600	0,74 / 1,3		
M4	10.461.040.006 / 008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	59	26,7	1780	1,7 / 2,9	29,0	22,3	975	1,7 / 2,9		
M5	10.461.050.008 / 010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	59	32,5	2000	3,5 / 6,3	29,0	24,5	1070	3,5 / 3,5		
M6	10.461.060.010 / 012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	46	44,5	2560	5,9 / 10,1	28,0	28,9	1660	5,9 / 7,3		
M8	10.461.080.012 / 015 / 018 / 020 / 022 / 025 / 028 / 030 / 035 / 038	46	49,8	2890	14,2 / 17,5	28,0	29,8	1910	14,2 / 11,3		
M2,5	10.465.025.006 / 008 / 010 / 012 / 015 / 018	V-FHL	10.466.025.006 / 008 / 010 / 012 / 015 / 018	54	5,3	450	0,41 / 1,1	33	3,1	285	0,41 / 0,55
M3	10.465.030.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025		10.466.030.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025	54	5,3	475	0,74 / 1,25	33	4,4	285	0,46 / 0,65
M4	10.465.040.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035		10.466.040.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035	54	6,6	550	1,7 / 2,1	33	5,3	365	0,75 / 1,1
M5	10.465.050.008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035		10.466.050.008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035	54	20,0	1000	2,25 / 4,4	33	11,1	530	1,11 / 2,2
M3	10.470.030.008 / 010 / 012 / 016	V-TPS		65	22	980		22	12,0	560	
M4	10.470.040.008 / 010 / 012 / 016			66	26,4	1540		19	22,0	890	
M5	10.470.050.010 / 012 / 016 / 020			60	35,2	1760		18	28,6	1010	
M6	10.470.060.012 / 016 / 020			62	39,6	2100		18	30,8	1100	
M5	10.475.050.015 / 020 / 025 / 030 / 035 / 040 / 050	V-FH4	10.476.050.015 / 020 / 025 / 030 / 035 / 040 / 050	65	26,0	1500	4,4 / 7,6	15	13,0	800	4,4 / 5,4
M6	10.475.060.015 / 020 / 025 / 030 / 035 / 040 / 050		10.476.060.015 / 020 / 025 / 030 / 035 / 040 / 050	59	33,0	1750	10,0 / 14,0	43	29,0	1270	10,0 / 14,0
M8	10.475.080.015 / 020 / 025 / 030 / 035 / 040 / 050		10.476.080.015 / 020 / 025 / 030 / 035 / 040 / 050	58	44,5	2200	21,7 / 30,0	39	35,6	1700	21,7 / 30,0
M10	10.475.100.015 / 020 / 025 / 030 / 035 / 040 / 050		10.476.100.015 / 020 / 025 / 030 / 035 / 040 / 050	58	54,0	3470	36,6 / 49,0	39	40,0	2445	36,6 / 36,0
M3	10.480.030.006 / 008 / 010 / 012 / 016 / 020	V-CHC			8,0	1065	0,5		6,2	575	0,5
M4	10.480.040.006 / 008 / 010 / 012 / 016 / 020 / 025				17,8	1200	2,0		12,5	800	2,0
M5	10.480.050.010 / 012 / 016 / 020 / 025				22,2	1290	3,6		17,8	930	3,6
M3	10.481.030.006 / 008 / 010 / 012 / 016 / 020	V-CFHC			8,9	1065	0,5		6,7	890	0,5
M4	10.481.040.006 / 008 / 010 / 012 / 016 / 020 / 025				14,7	1955	2,0		13,3	1375	2,0
M5	10.481.050.010 / 012 / 016 / 020 / 025				17,8	3020	3,6		15,6	1600	3,6

Item description / Item number		tested in stainless steel			
		Sheet hardness HRB	Installation (kN)	Pushout (N)	Torque-out (Nm)
M3	10.462.030.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025	92,0	40,0	2220	1,8
M4	10.462.040.006 / 008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035	92,0	50,0	3210	6,5
M5	10.462.050.008 / 010 / 012 / 015 / 018 / 020 / 025 / 030 / 035	92,0	53,0	3575	10,7
M6	10.462.060.012 / 015 / 020 / 025	92,0	71,0	4200	15,9

## Self-clinching standoffs

Item description / Item number				tested in steel (cold-rolled)			tested in aluminium 5052-H34		
				Installation (kN)	Pushout (N)	Torque-out (Nm)	Installation (kN)	Pushout (N)	Torque-out (Nm)
M2	V-S0	10.485.020.004 / 006 / 008 / 010 / 012							
M2,5		10.485.025.004 / 006 / 008 / 010 / 012							
M3		10.485.030.003 / 004 / 005 / 006 / 007 / 008 / 010 / 012 / 014 / 016 / 018		9,8	1000	2,15	4,9	710	1,24
M3,5		10.485.035.003 / 004 / 005 / 006 / 007 / 008 / 010 / 012 / 014 / 016 / 018		14,7	1860	2,15	7,6	1330	1,24
M4		10.485.040.003 / 004 / 005 / 006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		17,8	2490	3,95	10,7	1780	5,08
M5	10.485.050.004 / 006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		17,8	2490	8,47	10,7	1780	5,08	
M3	V-BS0	10.490.030.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		9,8	1000	2,15	4,9	710	1,24
M3,5		10.490.035.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		14,7	1860	2,15	7,6	1330	1,24
M4		10.490.040.008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		14,7	1860	3,95	7,6	1330	2,82
M5		10.490.050.008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		17,8	2490	8,47	10,7	1780	5,08
M3	V-CS0S	10.496.030.004 / 006 / 008 / 010 / 012		19,2	1465		12,9	975	
M4		10.496.040.004 / 006 / 008 / 010 / 012 / 016 / 020		23,6	1955		17,8	1335	

Item description / Item number				tested in stainless steel		
				Installation (kN)	Pushout (N)	Torque-out (Nm)
M3	V-S04	10.487.030.003 / 004 / 006 / 008 / 010 / 012 / 014 / 016 / 018		24,5	1493	2,36
M3,5		10.487.035.003 / 004 / 006 / 008 / 010 / 012 / 014 / 016 / 018		42,3	2877	2,36
M4		10.487.040.004 / 006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		46,7	4003	6,34
M5		10.487.050.004 / 006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		46,7	4003	8,89
M3	V-BS04	10.492.030.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		24,5	1493	2,36
M3,5		10.492.035.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		42,3	2877	2,36
M4		10.492.040.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		46,7	4003	6,34
M5		10.492.050.006 / 008 / 010 / 012 / 014 / 016 / 018 / 020 / 022 / 025		46,7	4003	8,89

