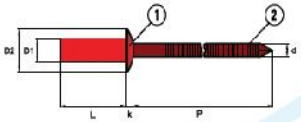
100 % water proof – new technology

In fact the CUP (closed end) rivets body made from AISI 316 and the mandrel from AISI 318L (Duplex) are from themselves “water proof” – but with the gasket 100 % waterproof – also by 1 meter water.

That comes from the geometry of the close end (cross-section polish).

CUP closed type blind rivets AISI 316 / Duplex

Dicht-Becherblindniete Flachrundkopf mit gerilltem Nietdorn
Sealed blind rivets *Domed head with grooved mandrel*
Rivets étanches Tête plate avec clou cannelé



① Edelstahl A4 [1.4401]
Stainless steel A4 [AISI 316]
Acier inox A4 [1.4401]
② AFSS Duplex [1.4462]
AFSS Duplex [AISI 318L]
AFSS Duplex [1.4462]

ø 3,2 mm
D1 = 3,2 + 0,08 / - 0,10 mm
D2 = 6,0 + / - 0,24 mm
k = 0,9 + / - 0,3 mm
d = 1,9 mm
P = ≥ 27,0 mm
L = + 1,0 / 0,2 mm
= 3,3 mm

D1 L	S	CODE			100	€	100	€
3,2 x 6,0 mm	0,5 - 1,5 mm	21501 32500	2000 N	2500 N	1000		10000	
3,2 x 8,0 mm	1,5 - 3,0 mm	21501 32800			1000		10000	
3,2 x 9,5 mm	3,0 - 5,0 mm	21501 32950			1000		10000	
3,2 x 10,0 mm	3,5 - 5,5 mm	21501 32100			1000		10000	
3,2 x 12,0 mm	5,0 - 7,0 mm	21501 32120			1000		10000	
3,2 x 14,0 mm	7,0 - 9,0 mm	21501 32140			1000		10000	

ø 4,0 mm
D1 = 4,0 + 0,08 / - 0,10 mm
D2 = 6,0 + / - 0,29 mm
k = 1,3 + / - 0,3 mm
d = 2,3 mm
P = ≥ 27,0 mm
L = + 1,0 / - 0,2 mm
= 4,1 mm

D1 L	S	CODE			100	€	100	€
4,0 x 6,0 mm	0,5 1,5 mm	21501 40600	3000 N	4000 N	500		50000	
4,0 x 8,0 mm	1,5 3,0 mm	21501 40800			500		50000	
4,0 x 9,5 mm	3,0 5,0 mm	21501 40950			500		50000	
4,0 x 10,0 mm	3,5 5,5 mm	21501 40100			500		50000	
4,0 x 12,0 mm	5,0 6,5 mm	21501 40120			500		50000	
4,0 x 16,0 mm	6,5 10,5 mm	21501 40160			500		50000	

ø 4,8 mm
D1 = 4,8 + 0,08 / - 0,10 mm
D2 = 9,5 + / - 0,29 mm
k = 1,6 + / 0,3 mm
d = 2,9 mm
P = > 27,0 mm
L = + 1,0 / - 0,2 mm
= 4,9 mm

D1 L	S	CODE			100	€	100	€
4,8 x 8,0 mm	1,0 - 3,0 mm	21501 48800	4500 N	5500 N	250		2500	
4,8 x 9,5 mm	3,0 - 5,0 mm	21501 48950			250		2500	
4,8 x 10,0 mm	3,5 - 5,5 mm	21501 48100			250		2500	
4,8 x 12,0 mm	5,0 - 6,5 mm	21501 48120			250		2500	
4,8 x 12,5 mm	5,5 - 7,0 mm	21501 48125			250		2500	
4,8 x 16,0 mm	6,5 - 10,5 mm	21501 48160			250		2500	
4,8 x 20,0 mm	10,5 - 14,0 mm	21501 48200			250		2500	

The test was positive and the CUP rivets from us were 100 % waterproof.

Marcel has brought new improved samples with neoprene gasket in black. The customers asked for grey coloured gasket and it is possible to produce in grey also.

Full test equipment to **ensure the high quality** standard for our customers to the ISO 9001:2008

NORSOK R-004 -> the requirements

4.5.5

Locking mechanism The locking mechanism of the tailor made jackets shall be of the flap fastener type, minimum width 50 mm.

The flap fastener type locking mechanism shall be located minimum 10 mm from the outer edge of any overlaps.

Minimum width of overlap shall be 100 mm for jackets applied on valves/flanges larger than DN 80, and 50 mm for jackets applied on valves/flanges DN 80 and smaller.

Jackets for thermal-/acoustic insulation may be fastened to the pipe with nylon straps or equal, except in escape route areas where stainless steel bands shall be used.

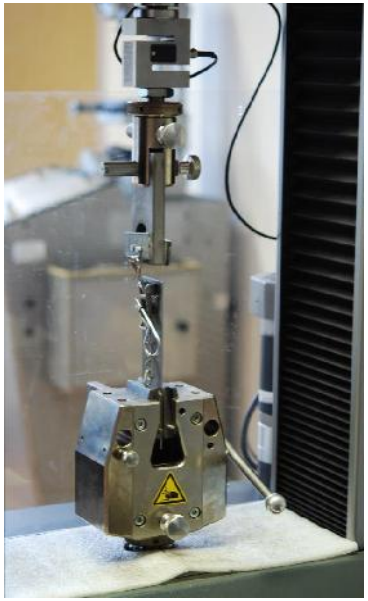
For preformed boxes, adjustable ex-center locks shall be used as locking mechanism, minimum size safe working load 900 N.

4.5.6

Accessories All metal accessories shall be of stainless steel (AISI 316), except grommets for reinforced drain holes in tailor made jackets, which may be of brass.

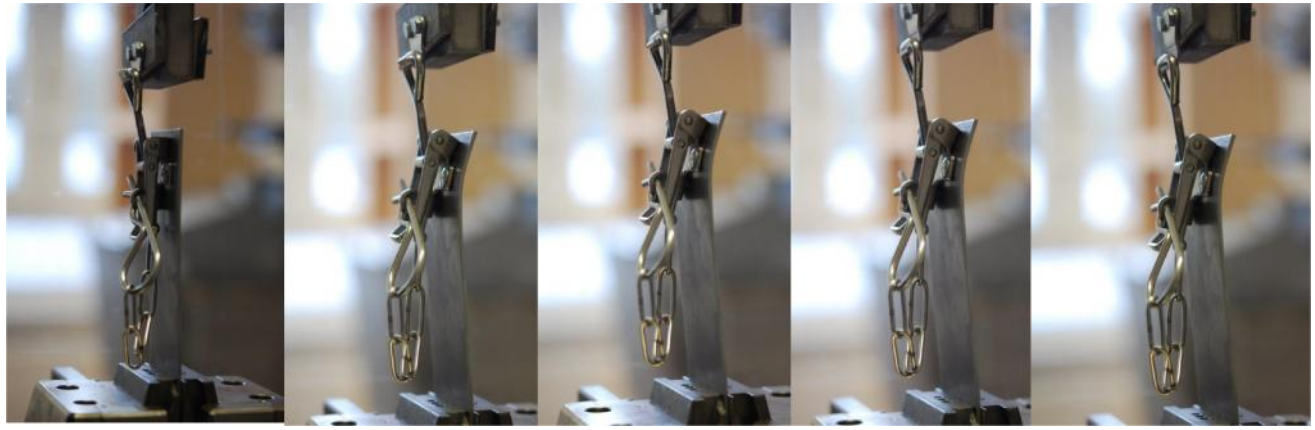
Test to the NORSOK R-004 – the toggle must have min. 900 N working load.
We have done the test in our lab and achieved with our toggles to NORSOK specifications > 3.000 N working load – movie can provided on request.

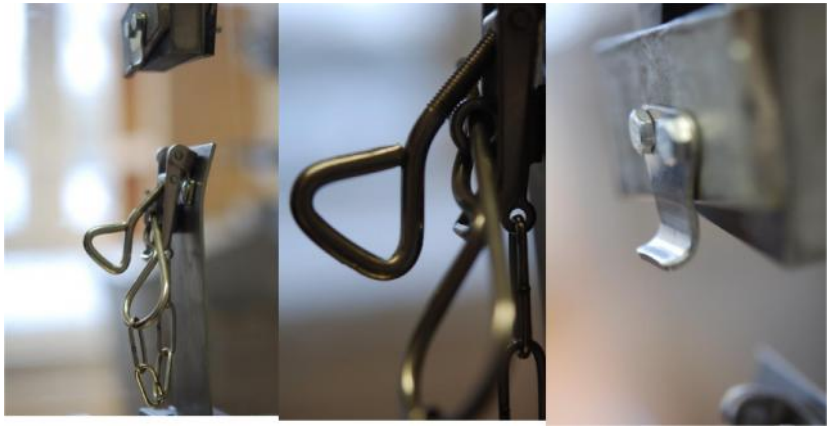
NORSOK toggles test process



- At the photos is shown a load test (working test) for the NORSOK toggles
- Requested is a load of N 900
- The test result show that ours an average of N 3044

Test process.
How we ensure the high quality for every batch





- The weakest part was the hook (breakdown)
- The hook deformed and the bail dropped out
- The test result was excellent N 3044

The test result show that we have an average from 3.044 N working load for our NORSOK toggles made of AISI 316 with cotter pin. Ours are fully in line to the NORSOK R-004 requirements.

Protokoll 04.02.2014

Parameter:

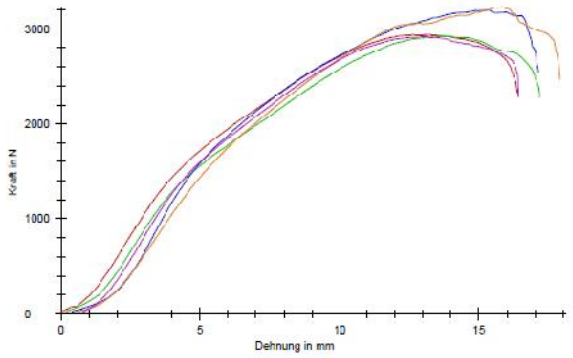
Auftragsnummer	: Zugversuch / Tensile Strength	Bezeichnung	: K.Schloß A4 701 NL. 4,30 mm
Lot Nr.	: 77916-84	Abmessung	:
Prüfnorm	: DIN 14580	Code	: 5544516701
Prüfer	: L. Lindtner	Bemerkung	: mit Kette und Verschlußpin
Kunde	:		

Vorkraft : 20 N
Geschwindigkeit Vorkraft: 10 mm/min
Prüfgeschwindigkeit : 10 mm/min

Ergebnisse:

Legende	Nr	Fmax N	ε-F max mm
	1	2940,14	13,15
	2	2922,45	13,59
	3	3203,88	14,95
	4	3233,77	15,25
	5	2922,54	12,27

Seriengrafik:



Seite 2/1

Protokoll 04.02.2014

Statistik:

Serie n = 5	Fmax N	ε - max mm
R	311,32	2,68
x	3044,55	13,64
s	159,60	1,25
v	5,24	9,02

Seite 2/2

CUP blind rivets body made of AISI 316 and the mandrel of AISI 318 L (Duplex) with grey colored gasket (washer)

The gasket (washer) in grey can be produced in

HNBR (grey)

HNBR has recently been developed to meet higher temperatures than standard NBR while retaining resistance to petroleum based oils. Obtained by hydrogenating the nitrile copolymer, HNBR fills the gap left between NBR, EPDM and FKM elastomers where high temperature conditions require high tensile strength while maintaining excellent resistance to motor oils, sour gas, amine/oil mixtures, oxidized fuels, and lubricating oils. HNBR is resistant to mineral oil-based hydraulic fluids, animal and vegetable fats, diesel fuel, ozone, sour gas, dilute acids and bases. HNBR also resists new bio-oils (biological oils). HNBR is suitable for high dynamic loads and has a good abrasion resistance. HNBR is suitable for temperatures from -30°C to +150°C (-20°F to +302°F).The carboxyl group is added to significantly improve the abrasion resistance of NBR while retaining excellent oil and solvent resistance. XNBR compounds provide high tensile strength and good physical properties at high temperatures. XNBR is suitable for temperatures from -30°C to +150°C (-20°F to +302°F).

New inventions – new products – for the Oil and Gas industry -

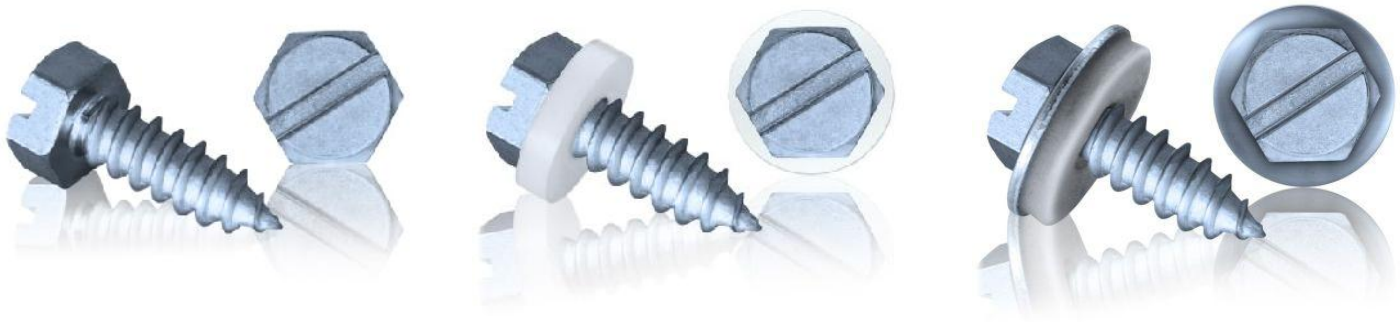
Toggles made of AISI 316 with chain and single or double eye cotter pin (in various types)
Tensile load > 3.000 N

SUPER tapping screws made of AISI 316 (3 times harder as ordinary stainless steel)

Next generation made of AISI 318 L (Duplex) also special hard.

CUP sealed type rivets made of AISI 316 / AISI 318 L (Duplex) with additional gasket (HNBR).
100 % water proof

SUPER AISI 316 screws - 3 times harder as ordinary stainless steel

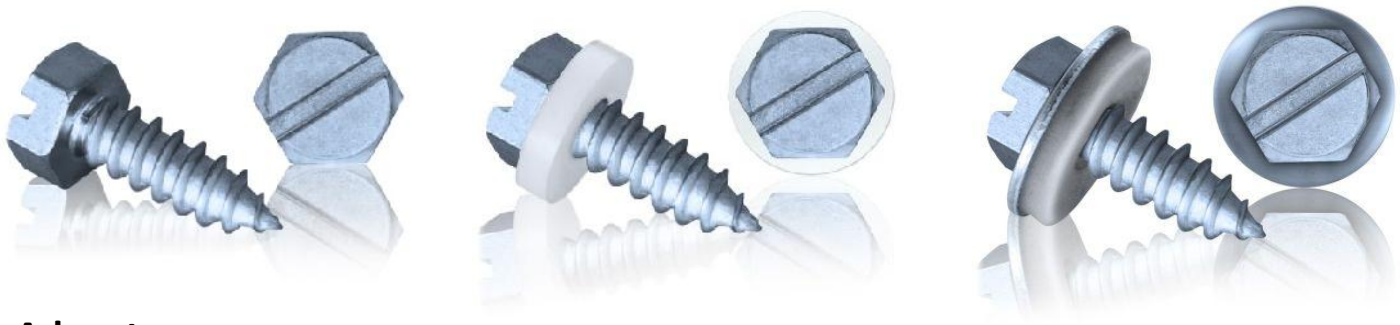


Advantages

- **AISI 316 – SUPER - 3 times harder** – as ordinary stainless steel AISI 316. The thread gets not damaged. Only pre-drilled or punched hole is necessary – no more pre screwing with a steel screws (dangerous because of steel – rust).
- **time saving –** in screwing in 1 step.
- **silver slide GL coating** – has a slide effect and protect the stainless also against corrosion
- **available with washers –** PA 6.6 (Polyamide) which is Oil resistant – service temperature 40° till + 85 °. Stainless steel AISI 316 / EPDM washers which are sealing also perfect and the EPDM is covered from the stainless steel sheet – service temperature – 30° till + 130°.

Available in different head styles – the thread is not damaged – the test was made with AISI 316 sheet – 2 x 0.8 mm

DUPLEX AISI 318 L screws - 3 times harder as ordinary stainless steel

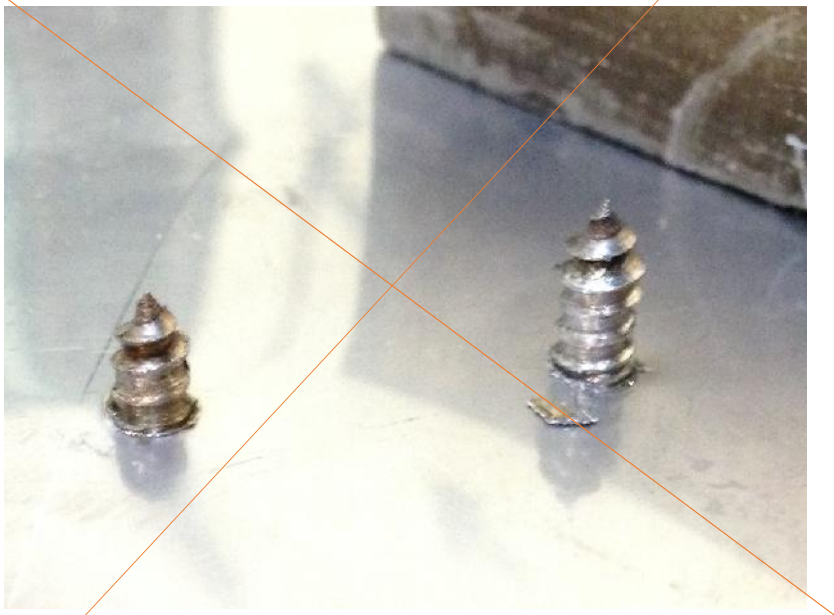


Advantages

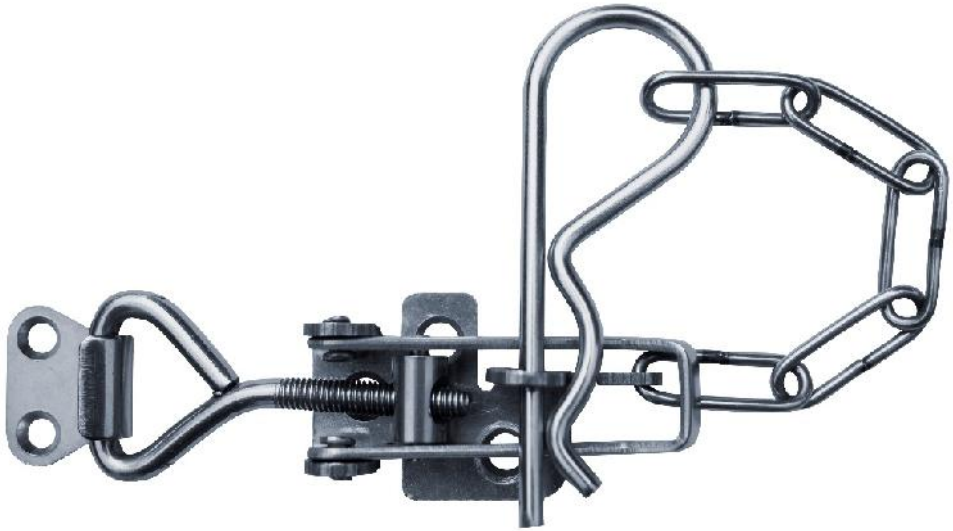
- **AISI 318 L - 3 times harder** – as ordinary stainless steel AISI 316. The thread gets not damaged. Only pre-drilled or punched hole is necessary – no more pre screwing with a steel screws (dangerous because of steel – rust).
- **time saving –** in screwing in 1 step.
- **silver slide GL coating** – has a slide effect and protect the stainless also against corrosion
- **available with washers –** PA 6.6 (Polyamide) which is Oil resistant – service temperature 40° till + 85 °. Stainless steel AISI 316 / EPDM washers which are sealing also perfect and the EPDM is covered from the stainless steel sheet – service temperature – 30° till + 130°.

- **AND -> sea water resistant -> beyond PRE 33 -> DUPLEX has PRE 38 !**
- **AND -> in the future also with Duplex / HNBR washer which is sea water resistant and oil and – 30° till + 150° service temperature**

The problem with ordinary stainless steel AISI 316 - > which is too soft and the thread get easily damaged and the connection is not save! The screw head snaps off easily during process of in screwing.



NORSOK toggles



SUPER AISI 316 and Duplex AISI 318 L screws