

Complies with the machinery directives 2006/42/EC

4 better lifting



NB: Please ensure that the safety instructions have been fully read and understood before initial use of the INOX bolt-on lifting point. Failure to do so may result in serious injuries and/or material damage and eliminates manufacturers warranty.

User Instructions - Part 1

Safety instructions

This safety instruction/declaration of the manufacturer must be kept on file for the lifetime of the product.

ATTENTION: Please inspect all lifting points prior to use. Damage, incorrect assembly or improper use may result in serious injuries and/or material damage.

EC-Declaration of the manufacturer

According to the Machinery Directive 2006/42/EC, annex II B and amendments.

We hereby declare that the design and construction of the equipment detailed within this document, adheres to the appropriate level of health and safety of the corresponding EC regulation.

Any un-authorized modification and/or any incorrect use of the equipment not adhered to within these user instructions waives this declaration invalid.

The equipment must be regularly tested and inspected as per BGR 500. Failure to carry out the recommended maintenance and testing waives this declaration invalid.

Designation of the equipment:

Type: **INOX bolt-on lifting point**

Manufacturer's mark:

Drawings (iges, dxf and step), product information and other support material can be downloaded from www.rud.com.au.

EC-Declaration of conformity

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten
Rieger & Dietz GmbH u. Co. KG
Friedeninsel
73432 Asien**

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications. In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: INOX-STAR

The following harmonized norms were applied:

<u>EN 12100-1</u>	<u>EN 12100-2</u>
<u>EN 14121-1</u>	
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>BGR 500, KAP2.8</u>	
_____	_____
_____	_____

Authorized person for the configuration of the declaration documents:
Reinhard Smetz, RUD Ketten, 73432 Asien

Asien, 28.12.2009 Dr. Ing. Rolf Sintz (Prokurist/QMB)

Name, function and signature of the responsible person

User Instructions - Part 2

1. Reference should be made to relevant standards and other statutory regulations. Inspections should be carried out by competent persons only.
2. Before installation and at every use, visually inspect RUD lifting points, with particular attention to any evidence of corrosion, wear, weld cracks and deformations. Please ensure compatibility of bolt thread and tapped hole.
3. The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. For steel S235JR (1.0037) or Cast iron GG 25 (0.6025 - without blowhole) the bolt length should be $1,5 \times M (=L)$.

When lifting light metals, nonferrous metals and gray cast iron or other materials the thread has to be chosen in such a way that the WLL of the thread corresponds to the requirements of the corresponding base material. The German testing authority BG, recommends the following minimum for the bolt lengths:

- 2 x M in aluminium
- 2,5 x M in aluminium-magnesium alloys
- (M = thread Ø, e.g. M 20)

4. The lifting points must be positioned to the load in such a way that movements are avoided during lifting.
 - a.) For single leg lifts, the lifting point should be vertically above the centre of gravity of the load.
 - b.) For two leg lifts, the lifting points must be equidistant to/or above the centre of gravity of the load.
 - c.) For three and four leg lifts, the lifting points should be arranged symmetrical around the centre of gravity, in the same plane if possible.

5. Load symmetry: The required WLL of the individual RUD lifting point are calculated using the following formula and are based on symmetrical loading:

$W_{LL} = \frac{G}{n \times \cos \beta}$	WLL = required of lifting point/individual leg (kg) G = load weight (kg) n = number of load bearing legs β = angle of inclination of the individual leg
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NOTE: For WLL Calculations

- β angle is taken from the vertical plane.
- Included angle is the angle between the sling legs.



6. Safety: When lifting points are used in a multileg assembly, care should be taken to calculate the WLL (Working Load Limit) due to the deration caused by forces acting in multiple directions. The reduction in WLL (Working Load Limit) for multileg assemblies should be checked with relevant Standards e.g. AS 3775-2004 - Chain Slings-Gr t (8)
The lifting points should be mounted in such a way that they may easily be accessed for inspection and assembly/disassembly of the sling.
7. A plane bolting surface must be guaranteed to ensure correct mating of the lift component.
8. The INOX-STAR must be adjustable through 360° when installed.

- For a temporary assembly, hand tightening with an allen key is sufficient.
- If the INOX-STAR is permanently installed, tighten to the torque specified in Table 1.

Type metric	Torque	Part-No. key
INOX-STAR M12	25 Nm	7997750
INOX-STAR M16	60 Nm	7997751
INOX-STAR M20	115 Nm	7997752
INOX-STAR M24	190 Nm	7997753

Table 1

9. To prevent unintended dismounting through shock loading, rotation or vibration, thread locking fluid such as Loctite (depending on the application, please refer to the manufacturer's instruction) should be used to secure the eyebolt.

10. The INOX-STAR has to be adjustable through 360° when fitted and with key disengaged. Adjust to direction of pull before attaching of the lifting means.

Attention: INOX-STAR are not suitable for rotation under load!

11. All fittings connected to the eyebolt should be free moving. When connecting and disconnecting the lifting means (wire ropes, chain slings, round slings) pinches and impacts should be avoided. Damage to lifting components caused by sharp corners should also be avoided.

Adjust to the direction of pull before attaching to the lifting means.

12. Capability of temperature usage: The stainless steel PSA-INOX-STAR eye bolts can be used in the temperature range between -40°C up to 280°C (according to VdTÜV 418).

13. Material properties: The utilised stainless Duplex-steel 1.4462 for the body and the bolt has a good resistance against wear and local corrosion like pitting, crevice corrosion and stress corrosion cracking in sea water and high chloride and H2S containing media. This steel is very common in the construction industry, chemical industry, oil industry, food industry (only limited resistance against lactic acid), in the machine engineering for example, as REA-components and transport boxes, in desalting plants at OFF-Shore areas like shipbuilding. The material can also be utilised in the nuclear industry (according to VdTÜV 418).

14. RUD lifting points must not be used under chemical influences such as acids, alkaline solutions and vapours e.g. in pickling baths or hot dip galvanising plants. If this cannot be avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use.

15. After fitting, an annual inspection or sooner if conditions dictate should be under taken by a competent person examining the continued suitability. Also inspect after damage and special occurrences.

User Instructions - Part 3

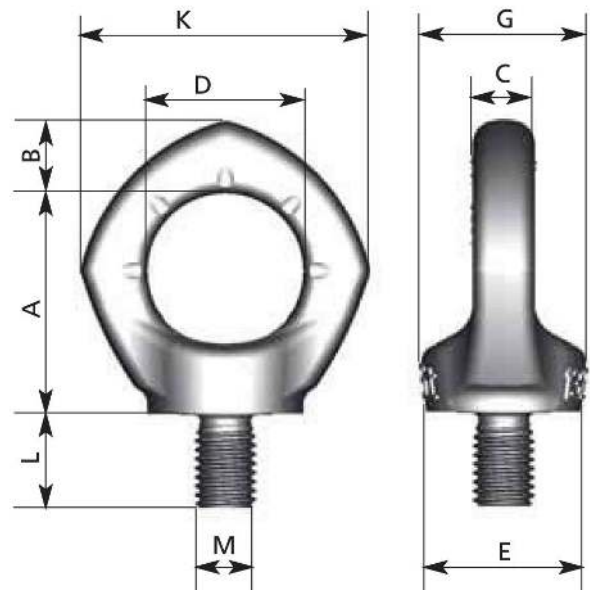
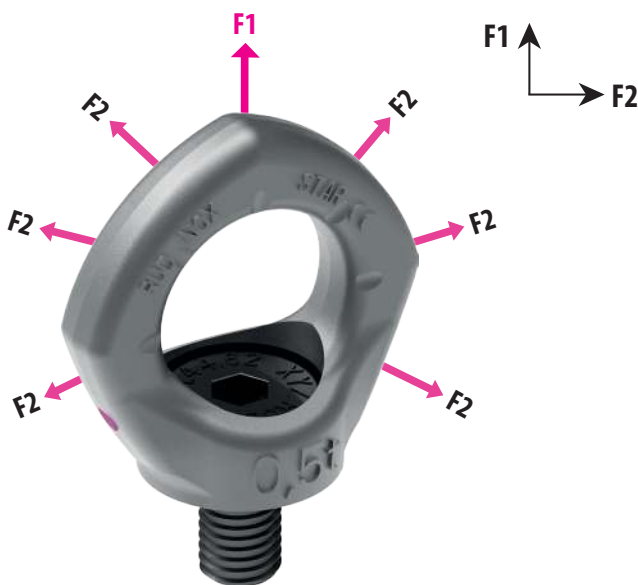
Inspection criteria concerning paragraphs 2 and 15:

- Ensure compatibility of bolt thread and tapped hole.
- The lifting point should be complete.
- The working load limit and manufacturers stamp should be clearly visible.
- Deformation of the component parts such as body and bolt.
- Mechanical damage, such as notches, particularly in high stress areas.
- Wear should be no more than 10% of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Damage to the bolt and/or thread.
- The body of the INOX-STAR must be free to rotate.

Any non-adherence to this advice may result damages of persons and / or materials!

PRODUCT DESCRIPTION	WORKING LOAD LIMITS (G - in tonnes)				
	Single Leg	Single Leg	2, 3 or 4 Legs		
			60°	90°	120°
			Maximum Included Angle (Degrees)		
INOX-STAR M12	1.2	0.50	0.87	0.71	0.50
INOX-STAR M16	2.4	1.0	1.7	1.4	1.0
INOX-STAR M20	3.6	2.0	3.5	2.8	2.0
INOX-STAR M24	5.2	2.5	4.3	3.5	2.5

Table 2



Name	WLL (t) F2*	WLL (t) F1	A mm	B mm	C mm	D mm	E mm	G mm	K mm	L mm	M	SW	Weight (kg)	Ref.-No.:
INOX-STAR M12	0.5	1.2	42	14	10	30	30	32	56	18	M12	8	0.2	7993835
INOX-STAR M16	1.0	2.4	49	16	12	35	35	37	65	24	M16	10	0.3	7993836
INOX-STAR M20	2.0	3.6	57	19	16	40	40	43	74	30	M20	12	0.6	7993837
INOX-STAR M24	2.5	5.2	69	24	19	48	50	53	92	35	M24	14	1.0	7993838

* Stamped with F2 WLL

Table 3