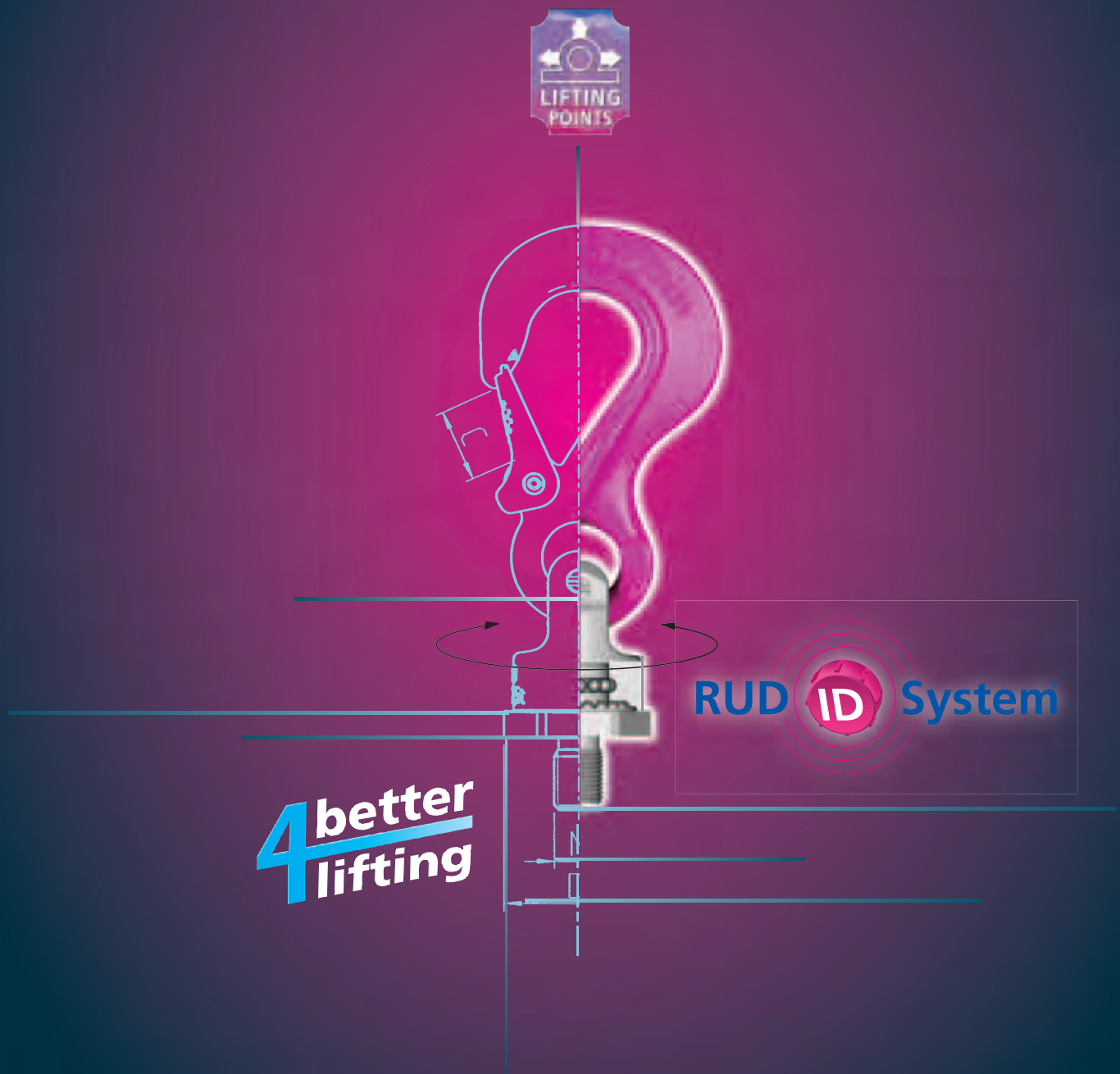


LIFTING AND LASHING POINT COLLECTION

— for bolting, for welding, simply strong —



RUD means Quality

... since almost 140 years!



The passion of chain manufacturing!

The round steel chain link production in Unterkochen has been running for about 130 years. Producing chains for lifting, lashing, conveying, tire protection as well as snow and off-road chains.

Our headquarters and manufacturing plant is one of the most modern chain producing companies world wide.

Developed from a small chain forging company by the river Kocher, the RUD group has stood to the test of time to become a global player with approximately 800 motivated employees, subsidiaries and sales representatives around the world.

Almost 500 national and international protective clauses are the evidence for our progress.

The well established brand name RUD stands for quality, technical innovation and know how. Continuous research and development has enabled us not only to produce products meeting the highest expectations but also with consistent quality standards. Experience, diligence, ambition and passion are the virtues we manifest in order to remain favourite for our customers. With the above virtues in mind, RUD has successfully entered a new century with the trust and satisfaction of our customers as our prime objective for the future. What are tomorrow's concepts? This is one of the questions which RUD is trying to address while facing the challenge of consistently providing the best solutions to our customers.



Innovation and quality take first priority at RUD. We are always leading in decisive developments.

Examples in the lifting and lashing chains field:

1967: 1. Approval of quality class 5, H1-5 by the Berufsgenossenschaft (*Employers Liability Insurance Association).

1972: First chain factory to gain approval for the quality class 8, H1-8 by the BG* Technical Committee "Steel and Metal".

The first idea of a **mecano system from RUD** – foolproof connection of the correct chains and components, as well as suspension links. This idea became the standard at Ruhrkohle RAG (coal board mining).

1981: The first series of lifting points type RBS and RBG with a safety factor 4:1 in any direction.

1992: First chain factory to obtain certification for their quality assurance system acc. to **DIN/ISO 9001**.

1994: First chain factory to obtain approval of the BG* for their **VIP-special quality** with up to 50 % higher WLL than Grade 8.

2002: The first universal lifting point – called PPS.



2006: First manufacturer who received the "Type Examination Certificate" from the Inspection and Certification authority PZNM of the Technical Committee MO (*Employers Liability Insurance Association = BG), for VIP-round steel chains according to PAS 1061 (Publicly Available Specification according to the Standard DIN EN 818 Grade 10).
As the First H1-10!

2007: RUD receives as the first chain manufacturer the approval for Grade 12 (D1-12) from the BG. World premiere of the strongest lifting chain ICE (Grade 12). Innovation leap in chain technology. Always one chain diameter thinner.

In December 1992, TÜV-Südwest has certified RUD's quality assurance system acc. to DIN/ISO 9001 which contributes a decisive factor to fulfil these requirements.

This fact enlarges once more the quality claim compared to the since more than 10 years practiced quality assurance system acc. to AQAP4.



8S 10 12

BG and TÜV approved!

***BG = German Employers Liability Assurance Association.**



Product Range

... the most comprehensive range of RUD-Lifting/Lashing points – with

- thread sizes from M6 to M150
- WLL ranging from 0.1 to 200 tonnes



Lifting Points – for bolting –



<p>WLL chart and lifting methods</p> <p>Page 6/8</p>	<p>PP-S PowerPoint-Star</p> <p>Page 10</p>	<p>PP-B (Vario) PowerPoint-B</p> <p>Page 11</p>	<p>PP-VIP (Vario) PowerPoint-B</p> <p>Page 11</p>	<p>VWBG-V-Load-Ring for bolt on</p> <p>Page 12</p>	<p>VWBG-Load-Ring for bolt on</p> <p>Page 13</p>
	<p>VLBG-Load-Ring for bolt on</p> <p>Page 14</p>	<p>VRS Starpoint- eye bolt/eye nut</p> <p>INOX-STAR</p> <p>Page 16–18</p>	<p>RS/RM high-tensile eye bolt/eye nut</p> <p>ASP-A Thread adapter</p> <p>Page 19</p>	<p>VRBG/RBG Load-Ring for bolt on</p> <p>Page 20</p>	<p>VABH-B Excavator hook for bolt on</p> <p>Page 22</p>



Lifting Points – for welding –



<p>WLL chart and lifting methods</p> <p>Page 24/25</p>	<p>Serie WPP PowerPoint (rotation)</p> <p>Page 26–27</p>	<p>Serie WPPH PowerPoint (fixed)</p> <p>Page 28</p>	<p>VLBS-Load Ring for weld on</p> <p>Page 28</p>	<p>VRBS-FIX-Load Ring for weld on</p> <p>VRBK-FIX-Load Ring for 90° edges</p> <p>Page 30</p>	<p>VABH-W Excavator hook for weld on</p> <p>Page 33</p>	<p>ABA loadable from any direction 1.6 t – 31.5 t</p> <p>Page 34</p>	<p>Lashing points</p> <p>Page 35–37</p>
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Important check list

...for the designer!



- ☐ Do I intend to design my construction in such a way that it complies with the European machine guidelines or other statutory regulations?
- ☐ Will it be of interest to me how safely and economically my construction will be lifted, turned, lashed and mounted during the complete manufacturing process?

If ☒ ☒ then go on...

- ☐ Have I provided suitable suspensions (lifting-/lashing points) for every individual part weighing > 15 kg/33 lbs, every individual subassembly and for the complete construction?
- ☐ Have I prepared the load from the initial production step with the proper thread hole to attach RUD lifting points?
- ☐ Have the suspensions been arranged and chosen in such a way that the sling system and the construction itself allows a safe and smooth lifting procedure?
- ☐ Have the suspensions been chosen in such a way that every sling system (hook assembly, ring assembly, wire rope slings and round slings) can be used without necessitating additional manipulations which are time-consuming and insecure, e.g., with bolting shackles?
- ☐ Is the position at which the lifting point is to be attached suitable for the force introduction?
- ☐ Are the chosen lifting points nicely designed and shapely?



Selection of insufficient suspensions!

Eye bolt
DIN 580

Insufficient!



Lifting only in clearly defined range of sling angle (up to 45° to the vertical).
When turning the load, the eye bolt will turn out
⇒ no support ⇒ **Risk of failure!**

Incorrect loading on improvised lifting points!

Additional manipulation



Frequently, heavy plates are used which have not been designed for a possible inclined load, or they have been over dimensioned such, that hooks with a small width or shackles cannot be attached.

DIY solutions
(Do it yourself solutions)

Safety hazard!



Non rated lifting points mean a high safety risk.
Lifting points are load accepting devices and must be acc. to BGR and the European Machinery Guideline tested resp. inspected parts. They must have an identified "Working Load Limit", manufacturers identification markings and must meet all lifting requirement standards.

Interactive programme

...with useful hints for the user

www.rud.com



More than 320 different tested and certified lifting/ lashing points (70 % of which are for bolting and 30 % for welding) can be ordered to specifically meet your requirements. All you need to consider is the weight of the load, the number of lifting/ lashing points used and the angle of inclination of the lifting sling.

With just a mouse click, the working load limits can be calculated for 14 different applications.

Using the simple layout or the much easier search function with features like the thread size of the lifting point, you can easily determine the appropriate product. Just put the required products into your shopping basket, update them upon request and print them out.

Over 600 drawings can be exported as DXF files. They are then accessible as 2D and 3D geometrical data in JGES format, which is available for CAD - systems. With lashing chain protocol and capacity calculation.

Always
"up to
date"!




















Lifting Points - for bolting -

Maximum transport weight „G“ in „tonnes“
with different lifting methods



Complies with the machinery directives 2006/42/EG

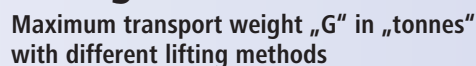
Thread sizes M 6- M 150 Imperial (UNC,...) and special lengths on request			PP-S (Vario) PowerPoint-Star			PP-B (Vario) PowerPoint-B			PP-VIP (Vario) PowerPoint-VIP			VLBG – Load Ring (Vario)																																		
																																														
	Number of legs	Load direction	Thread size	Type	PP-S 0.63 t		PP-S 1.5 t		PP-S 2.5 t		PP-S 4 t		PP-S 5 t		PP-S 8 t		VLBG 0.3 t		VLBG 0.63 t		VLBG 1 t		VLBG 1.5 t		VLBG 2.5 t		VLBG 4 t		VLBG 4 t		VLBG 5 t		VLBG 7 t Spec.		VLBG 8 t		VLBG 10 t		VLBG 15 t		VLBG 20 t		VLBG M16 RS 1t		VLBG M20 RS 2t	
					M 12	M 16	M 20	M 24	M 30	M 36	M 8	M 10	M 12	M 16	M 20	M 24	M 27	M 30	M 36	M 36	M 42	M 42	M 48	M 16	M 20																					
	1	0°			0.6	1.5	2.5	4	6.7	10							0.3	0.6	1	1.5	2.5	4	4	5	7	8	10	15	20	1	2															
	2	0°			1.2	3	5	8	13.4	20							0.6	1.2	2	3	5	8	8	10	14	16	20	30	40	2	4															
	1	90°			0.6	1.5	2.5	4	5	8							0.3	0.6	1	1.5	2.5	4	4	5	7	8	10	15	20	1	2															
	2	90°			1.2	3	5	8	10	16							0.6	1.2	2	3	5	8	8	10	14	16	20	30	40	2	4															
	2	0-45°			0.8	2.1	3.5	5.6	7.1	11.2							0.4	0.8	1.4	2.1	3.5	5.6	5.6	7	9.8	11.2	14	21	28	1.4	2.8															
	2	45-60°			0.6	1.5	2.5	4	5	8							0.3	0.6	1	1.5	2.5	4	4	5	7	8	10	15	20	1	2															
	2	unsymmetrical			0.6	1.5	2.5	4	5	8							0.3	0.6	1	1.5	2.5	4	4	5	7	8	10	15	20	1	2															
	3+4	0-45°			1.3	3.2	5.3	8.4	10.5	16.8							0.6	1.3	2.1	3.1	5.2	8.4	8.4	10.5	14.7	16.8	21	31.5	42	2.1	4.2															
	3+4	45-60°			0.9	2.2	3.8	6	7.5	12							0.4	0.9	1.5	2.2	3.7	6	6	7.5	10.4	12	15	22.5	30	1.5	3															
	3+4	unsymmetrical			0.6	1.5	2.5	4	5	8							0.3	0.6	1	1.5	2.5	4	4	5	7	8	10	15	20	1	2															
Thread size					M 12	M 16	M 20	M 24	M 30	M 36							M 8	M 10	M 12	M 16	M 20	M 24	M 27	M 30	M 36	M 36	M 42	M 42	M 48	M 16	M 20															

RUD Lifting Points

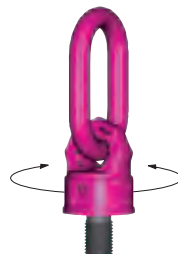
- All parts are either 100 % crack detected or proof loaded accord. to EN 1677.
- All original bolts from RUD are 100 % crack detected.
- Loadable in any direction. Safety factor 4 : 1.
- Types VRS, VRM and VLBG have to be adjusted to the load direction.
- RUD patented features such as clamping spring (VLBS) for noise reduction and distance lugs for a perfect root pass weld increase the ease of use.

- Low installation height, high dynamic and static strength.
- RUD Lifting Points are in accordance with DIN EN 818 and 1677 with a dynamic loading of more than 20,000 load cycles. The BG* recommends: At high dynamic applications with high load cycles (permanent operation), the WLL must be reduced or ask the manufacturer.

* BG-German Employers Liability Insurance.



VWBG-V
Load Ring (Vario)

VWBG
Load Ring

General Information											Performance Metrics (Q1-Q4)																		
Identification			Classification				Status				Detailed Metrics																		
WBVG-V 0.3 t	WBVG-V 0.45 t	WBVG-V 0.6 t	WBVG-V 1.0 t	WBVG-V 1.3 t	WBVG-V 1.8 t	WBVG-V 2 t	WBVG-V 2 t	WBVG-V 3.5 t	WBVG-V 3.5 t	WBVG-V 5 t	WBVG 6 (7.5)	WBVG 8 (10)	WBVG 8 (10)	WBVG 12 (13)	WBVG 12 (13)	WBVG 12 (15)	WBVG 13 (16)	WBVG 13 (16)	WBVG 14 (20)	WBVG 16 (22)	WBVG 16 (22)	WBVG 16 (25)	WBVG 16 (25)	WBVG 31.5 (40)	WBVG 31.5 (40)	WBVG 35 (48)	WBVG 35 (48)	WBVG 40 (50)	WBVG 40 (50)
M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 22	M 24	M 27	M 30	M 33	M 36	M 36-39	M 42	M 42-45	M 45	M 48	M 48-52	M 52	M 56	M 56-62	M 64	M 64-76	M 72	M 72-76	M 80	M 80-85	M 90	M 90-150
0.6	0.9	1.2	2.0	2.6	3.6	4	4	7	7	10	15	15	15	17	17	18	18	18	25	28	28	28	28	50	50	50	50	50	50
1.2	1.8	2.4	4.0	5.2	7.2	8	8	14	14	20	30	30	30	34	34	36	36	36	50	56	56	56	56	100	100	100	100	100	100
0.3 (0.4)	0.45 (0.6)	0.6 (0.7)	1.0 (1.25)	1.3 (1.5)	1.8 (2.0)	2 (2.5)	2 (2.5)	3.5 (4)	3.5 (4)	5 (6)	6 (7.5)	8 (10)	8 (10)	12 (13)	12 (13)	12 (15)	13 (16)	13 (16)	14 (20)	16 (22)	16 (22)	16 (25)	16 (25)	31.5 (40)	31.5 (40)	35 (48)	35 (48)	40 (50)	40 (50)
0.6 (0.8)	0.9 (1.2)	1.2 (1.5)	2.0 (2.5)	2.6 (3)	3.6 (4.0)	4 (5)	4 (5)	7 (8)	7 (8)	10 (12)	12 (15)	16 (20)	16 (20)	24 (26)	24 (26)	24 (30)	26 (32)	26 (32)	28 (40)	32 (44)	32 (44)	32 (50)	32 (50)	63 (80)	63 (80)	70 (96)	70 (96)	80 (100)	80 (100)
0.4	0.6	0.8	1.4	1.8	2.5	2.8	2.8 (3.5)	4.9	4.9 (5.6)	7	8.4 (10.5)	11.2 (14)	11.2 (14)	16.8 (18.2)	16.8 (18.2)	16.8 (21)	18.2 (22.4)	18.2 (22.4)	19.6 (28)	22.4 (30.8)	22.4 (30.8)	22.4 (35)	22.4 (35)	44.1 (56)	44.1 (56)	49 (67.2)	49 (67.2)	56 (70)	56 (70)
0.3	0.4	0.6	1.0	1.3	1.8	2	2 (2.5)	3.5	3.5 (4)	5	6 (7.5)	8 (10)	8 (10)	12 (13)	12 (13)	12 (15)	13 (16)	13 (16)	14 (20)	16 (22)	16 (22)	16 (25)	16 (25)	31.5 (40)	31.5 (40)	35 (48)	35 (48)	40 (50)	40 (50)
0.3	0.4	0.6	1.0	1.3	1.8	2	2 (2.5)	3.5	3.5 (4)	5	6 (7.5)	8 (10)	8 (10)	12 (13)	12 (13)	12 (15)	13 (16)	13 (16)	14 (20)	16 (22)	16 (22)	16 (25)	16 (25)	31.5 (40)	31.5 (40)	35 (48)	35 (48)	40 (50)	40 (50)
0.6	0.9	1.2	2.1	2.7	3.7	4.2	4.2 (5.25)	7.3	7.3 (8.4)	10.5	12.6 (15.7)	16.8 (21)	16.8 (21)	25.2 (27.3)	25.2 (27.3)	25.2 (31.5)	27.3 (33.6)	27.3 (33.6)	29.4 (42)	33.6 (46.2)	33.6 (46.2)	33.6 (52.5)	33.6 (52.5)	66.15 (84)	66.15 (84)	73.5 (100)	73.5 (100)	84 (105)	84 (105)
0.4	0.6	0.9	1.5	1.9	2.7	3	3 (3.75)	5.2	5.2 (6)	7.5	9 (11.2)	12 (15)	12 (15)	18 (19.5)	18 (19.5)	18 (22.5)	19.5 (24)	19.5 (24)	21 (30)	24 (33)	24 (33)	24 (37.5)	24 (37.5)	47.25 (60)	47.25 (60)	52.5 (72)	52.5 (72)	60 (75)	60 (75)
0.3	0.4	0.6	1.0	1.3	1.8	2	2 (2.5)	3.5	3.5 (4)	5	6 (7.5)	8 (10)	8 (10)	12 (13)	12 (13)	12 (15)	13 (16)	13 (16)	14 (20)	16 (22)	16 (22)	16 (25)	16 (25)	31.5 (40)	31.5 (40)	35 (48)	35 (48)	40 (50)	40 (50)
M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 22	M 24	M 27	M 30	M 33	M 36	M 36-39	M 42	M 42-45	M 45	M 48	M 48-52	M 52	M 56	M 56-60	M 64	M 64-76	M 72	M 72-76	M 80	M 80-85	M 90	M 90-150

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We provide you with geometry datas for your design.

For the calculation of the right lifting point. Especially useful for the designer is the **3D**-presentation of the lifting points.

...click www.rud.com

Click on **lifting means** **lifting points**



Subject to technical alternations!





Lifting Points - for bolting -

Maximum transport weight „G“ in „tonnes“
with different lifting methods



Complies with the machinery directives 2006/42/EG

Thread sizes M 6- M 150 Imperial (UNC,...) and special lengths on request		VRS Starpoint Vario eyebolt		VRM Starpoint Vario eyenut		INOX-STAR		RS/RM High-tensile eye bolt/eye nut		RBG/VRBG Load Ring	
	Number of legs Load direction	Type		Type		Type		Type		Type	
		Thread size	VRM M6 / VRM M8 / VRM M10 / VRM M12 / VRM M16 / VRM M20 / VRM M24 / VRM M30 / VRM M36 / VRM M42 / VRM M48	Thread size	VRM M6 / VRM M8 / VRM M10 / VRM M12 / VRM M16 / VRM M20 / VRM M24 / VRM M30 / VRM M36 / VRM M42 / VRM M48	Thread size	INOX M12 / INOX M16 / INOX M20 / INOX M24 / INOX M30	Thread size	RS M6 / RM M6 / RS M8 / RM M8 / RS M10 / RM M10 / RS M12 / RM M12 / RS M14 / RM M14 / RS M16 / RM M16 / RS M20 / RM M20 / RS M24 / RM M24 / RS M30 / RM M30 / RS M36 / RM M36 / RS M42 / RM M42 / RS M48 / RM M48	Thread size	RBG 3 t / VRBG 10 t / VRBG 16 t / VRBG 31.5 t / VRBG 50 t / WBPG 80 t / WBPG 100 t / WBPG 200 t
	1 0°		0.5 1 1 2 4 6 8 12 16 24 32		0.5 1 1 2 4 6 8 12 16 24 32		1.2 2.4 3.6 5.2 -		0.4 0.8 1 1.6 3 4 6 8 12 16 24 32		3 10 16 31.5 50 85 100 200
	2 0°		1 2 2 4 8 12 16 24 32 48 64		1 2 2 4 8 12 16 24 32 48 64		2.4 4.8 7.2 10.4 -		0.8 1.6 2 3.2 6 8 12 16 24 32 48 64		6 20 32 63 100 170 200 400
	1 90°		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.5 1.0 2.0 2.5 -				3 10 16 31.5 50 85 100 200
	2 90°		0.2 0.6 0.8 1.5 3 4.6 6.4 9 14 18 24		0.2 0.6 0.8 1.5 3 4.6 6.4 9 14 18 24		1.0 2.0 4.0 5.0 -				6 20 32 63 100 170 200 400
	2 0-45°		0.140.420.56 1 2.1 3.2 4.5 6.3 9.8 12.6 16.8		0.140.420.56 1 2.1 3.2 4.5 6.3 9.8 12.6 16.8		0.7 1.4 2.8 3.5 -				4.2 14 22.4 45 70 119 140 280
	2 45-60°		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.5 1.0 2.0 2.5 -				3 10 16 31.5 50 85 100 200
	2 unsymmetrical		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.5 1.0 2.0 2.5 -				3 10 16 31.5 50 85 100 200
	3+4 0-45°		0.210.63 0.8 1.5 3.1 4.8 6.7 9.4 14.7 18.9 25		0.210.63 0.8 1.5 3.1 4.8 6.7 9.4 14.7 18.9 25		1.0 2.1 4.2 5.3 -				6.3 21 33.6 67 105 178 210 420
	3+4 45-60°		0.150.45 0.6 1.1 2.2 3.4 4.8 6.7 10.5 13.5 18		0.150.45 0.6 1.1 2.2 3.4 4.8 6.7 10.5 13.5 18		0.7 1.5 3.0 3.7 -				4.5 15 24 47.5 75 127 150 300
	3+4 unsymmetrical		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.1 0.3 0.4 0.7 1.5 2.3 3.2 4.5 7 9 12		0.5 1.0 2.0 2.5 -				3 10 16 31.5 50 85 100 200
Thread size		M 6 / M 8 / M 10 / M 12 / M 16 / M 20 / M 24 / M 30 / M 36 / M 42 / M 48			M 6 / M 8 / M 10 / M 12 / M 16 / M 20 / M 24 / M 30			M 6 / M 8 / M 10 / M 12 / M 14 / M 16 / M 20 / M 24 / M 30 / M 36 / M 42 / M 48			2x M 16 / 4x M 20 / 6x M 30 / 8x M 36 / 6x M 48 / 10x M 48

We recommend
to use either
"VRS Starpoint"
or "PowerPoint"
which can be adjusted
to the direction
of pull!

We have the right tools for you. **Call us!** Phone no. or e-mail:

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The perfect service for the CAD department.

We provide you with geometry datas for your design.

For the calculation of the right lifting point. Especially
useful for the designer is the 3D-presentation of the lifting points.

...click **www.rud.com**

Click on **lifting means** → **lifting points**



RUD ID System®

Inspection and administration system Testing and inspection made easy



Required regular inspections of lifting means are currently still work-intensive and Error-prone.

But due to the **RFID-Technology** (Radio-Frequency-IDentification) these time-consuming Methods and the huge amount of paper work became history. Now chain slings/components can be inspected touch-free, faultless and fast, and also be register and managed

The modern and digital age of documentation and the management of work equipment reaches hereby a new height. The valid data protection requirements will of course be observed.

- Reduction of the inspection costs and the time exposure
- Maintenance and administration of relevant product data and documents (RUD webportal)

- Digital listing of all components which must be inspected
- Time saving, simple retrofit of components based on already collected data
- No installation on computer or server necessary
- Automatic generating of test reports
- Uncomplicated and extendable software for the administration
- RUD readers are compatible with common high-frequency transponders
- Cost effective modular solution

The usage of RFID transponders in a drillhole at safety components for lifting and conveying is **protected by a patent**



RUD-ID-POINT®

The exclusive and unbeatable **RUD-ID-Point®** convinces at complicated usages and circumstances, applicable from -80°C up to +270°C, very high resistancy against beats, water, dirt, no detracton of components by the in parts integrated transponder.

RUD-ID-Point® (13.56 MHz HF): Press-fit transponder in metal surrounding, without necessity of glue.

Size: Ø 4 mm x 3.5 mm
Ø 8 mm x 3.25 mm



Original 1:1-graph

RUD-ID-TAG® (13.56 MHz HF):

With stainless steel metal reinforced tag for chains, connecting links, wire ropes, alternatively to bolt-on.

Size: 50 x 32 x 6 mm



Beside both very robust and resistible transponders, additional transponder variants (glue-on, sticker transponders etc.) can be offered for different kind of usage applications.

RUD-ID-EASY-CHECK®

RUD-ID-EASY-CHECK®-readers are compatible with the common high-frequency readers (ISO15693). The transfer of the identification number is done via USB or Bluetooth and can be transferred into the RUD user-owned **RUD-ID-NET®**-application as well as almost into all Office applications like WordPad, MS Word, MS Excel, OpenOffice and SAP or other programs.

RUD-ID-EASY-CHECK® (13.56 MHz): USB readers for reading the RUD-ID-Point identification number

RUD-ID-DISPLAY-CHECK® (13.56 MHz): Bluetooth reader, reads the unique **RUD-ID-Point®**-identification number, shows it on the integrated LCD-display and transfers it to any Bluetooth compatible receiver (with a reach of 10 Meters).

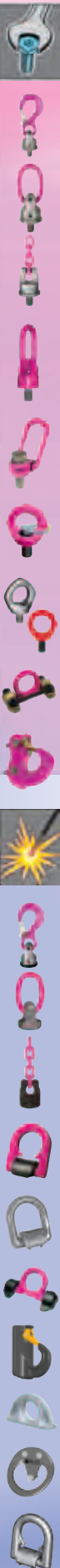


RUD-ID-NET®



RUD-ID-NET®-Application makes many things easier. This internet based application supports you during the inspection and minimizes the IT administration effort:

- Uncomplicated digital maintenance, analysis, administration of product data, test reports as well as documents (efficient testing, automatic test date reminder message for the by law required tests, automatic test reports)
- Digital connection to most current product information and documents (f.e. test certificates) by access to the RUD web portal.
- Applications for all common testing required work equipments (f.e. work platforms, roller shutters etc.)
- Large, already existing product data base which makes the administration of your work equipment much easier.





Lifting Points - for bolting -

PowerPoint *Star*
...360° swivelling - PP-S -

RUD®

4 better lifting

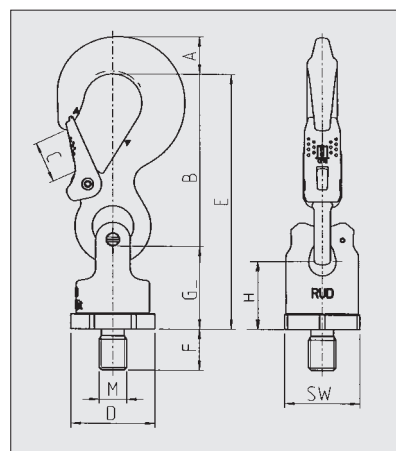
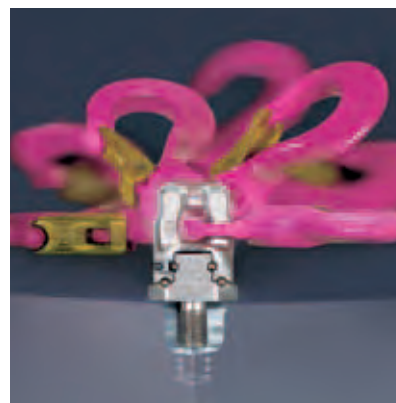


▲ Gauge marks to determine overload

Complies with the machinery directives 2006/42/EG

PowerPoint-Star - PP-S -

- Double ballbearing for free turning and soft winding
- Suitable for all lifting/lashing means for example hooks, rings and slings.
- **Non-protruding hook tip**
- Forged safety latch, engages in the tip of the hook therefore protected against lateral bending.
- Triple coiled corrosion protected double leg spring
- Thickened tip of the hook prevents handling malpractices and resists bending.
- Wearing edges on both sides and gauge marks for measuring the width of the hook opening.
- Not suitable for permanent swivelling under load
- Even under full load, can be turned in a 90° position from the bolt centre line.



Type	WLL (t)	A	B	C	D	E	F Standard	F Vario	G	H	M	SW	Weight (kg)	Torque	Ref.-No. (Standard)	Ref.-No. (Vario)
PP-S-0.63t-M12	0.63	13	75	18	40	116	18	12-140	41	33	12	36	0.4	According to the user instructions	7990719	8600320
PP-S-1.5t-M16	1.5	20	97	25	46	147	24	16-180	50	40	16	41	1.0		7989719	8600321
PP-S-2.5t-M20	2.5	28	126	30	61	187	30	20-223	61	47	20	55	1.7		7989075	8600322
PP-S-4t-M24	4.0	36	150	35	78	227	36	24-255	77	60	24	70	3.2		7989076	8600323
PP-S-5t-M30	5.0(6.7)	37	174	40	95	267	45	30-330	93	71	30	85	7.2		7989720	8600324
PP-S-8t-M36	8.0(10)	49	208	48	100	310	54	36-300	102	76	36	90	9.2		7989077	8600305
PP-S-0.63t-1/2"-13UNC	0.63	13	75	18	40	116	18	-	41	33	1/2"	36	0.4	According to the user instructions	7990720	8600320
PP-S-1.5t-5/8"-11UNC	1.5	20	97	25	46	147	24	16-55	50	40	5/8"	41	1.0		7989908	8600321
PP-S-2.5t-3/4"-10UNC	2.5	28	126	30	61	187	30	19-65	61	47	3/4"	55	1.7		7989909	8600322
PP-S-2.5t-7/8"-9UNC	2.5	28	126	30	61	187	30	-	61	47	7/8"	55	1.7		7989910	8600323
PP-S-4t-1"-8UNC	4.0	36	150	35	78	227	36	25-74	77	60	1"	70	3.2		7989911	8600323
PP-S-5t-1 1/4"-7UNC	5.0(6.7)	37	174	40	95	267	45	31-91	93	71	1 1/4"	85	7.2		7989912	8600324

() increased WLL at axial load direction





Lifting Points - for bolting - PowerPoint® PP-B/VIP-

– 360° swivelling/180° pivoting double ball bearing –

Complies with the machinery directives 2006/42/EG



PP-B – the ring connection for hook assemblies

Type	WLL (t)	A	B	C	D	E	F	G	M	SW	R ₁	Weight (kg)	Ref.-No. metric	Ref.-No. imperial
PP-B-0.63t-M12	0.63	9	65	35	40	105	18	41	12	36	15	0.35	7989522	0.63t-1/2"-13UNC 7989901
PP-B-1.5t-M16	1.5	11	65	35	46	115	24	50	16	41	15	0.6	7989523	1.5t-5/8"-11UNC 7989902
PP-B-2.5t-M20	2.5	13	75	40	61	135	30	61	20	55	18	1.1	7989081	2.5t-3/4"-10UNC 7989903
	2.5	13	75	40	61	135	30	61		55	18	1.1	--	2.5t-7/8"-9UNC 7989904
PP-B-4t-M24	4.0	16	95	45	78	172	36	77	24	70	20	2.1	7989082	4t-1"-8UNC 7989905
PP-B-5t-M30	5.0(6.7)	21	130	60	95	223	45	93	30	85	25	4.5	7989524	5t-1 1/4"-7UNC 7989906
PP-B-8t-M36	8.0(10)	24	140	65	100	242	54	102	36	90	28	6.1	7989083	– –

() increased WLL at axial load direction

PP-VIP – for direct chain connection of the VIP chain

Type	WLL (t)	A VIP-Chain- connection	D	F	G	M	SW	Weight	Ref.-No. (kg) metric	Ref.-No. imperial
PP-VIP4-0.63t-M12	0.63	4	40	18	41	12	36	0.25	7989525	0.63t-1/2"-13UNC 7989920
PP-VIP6-1.5t-M16	1.5	6	46	25	50	16	41	0.45	7989526	1.5t-5/8"-11UNC 7989921
PP-VIP8-2.5t-M20	2.5	8	61	30	61	20	55	0.95	7989527	2.5t-3/4"-10UNC 7989922
	2.5	8	61	30	61	20	55	0.95	--	2.5t-7/8"-9UNC 7989923
PP-VIP10-4t-M24	4.0	10	78	36	77	24	70	2.2	7989528	4t-1"-8UNC 7989924
PP-VIP13-5t-M30	5.0(6.7)	13	95	45	93	30	85	3.5	7989529	5t-1 1/4"-7UNC 7989925
PP-VIP16-8t-M36	8.0(10)	16	100	54	102	36	90	5.2	7989530	– –

() increased WLL at axial load direction

PP-S/PP-B/PP-VIP

– all types in special thread lengths available

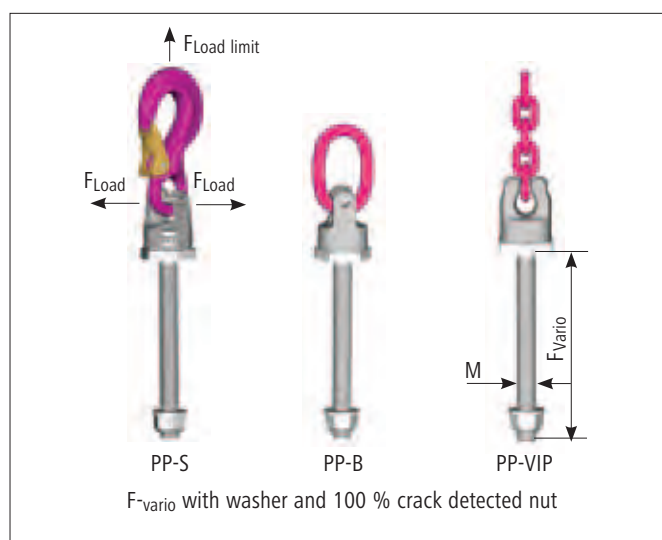
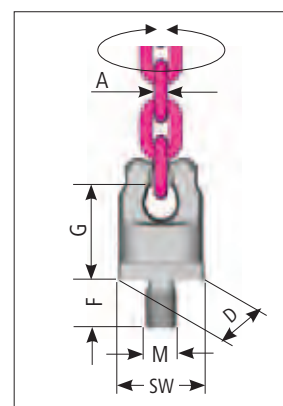
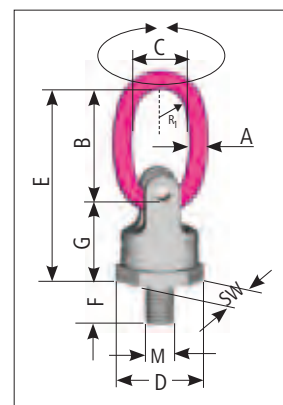
Please indicate type, thread size and F-vario!

Type	WLL (t)	thread size	F-vario max.	thread size	F-vario max.
So-PP-S/PP-B/PP-VIP	0.6 (0.63)	M 12	140	1/2"-13UNC	45
So-PP-S/PP-B/PP-VIP	1.0 (1.5)	M 14	65	–	–
So-PP-S/PP-B/PP-VIP	1.3 (1.5)	M 16	180	5/8"-11UNC	55
PP-S/PP-B/PP-VIP	2.5	M 20	200	–	–
So-PP-S/PP-B/PP-VIP	3.5 (4)	M 24	255	1"-8UNC	74
So-PP-S/PP-B/PP-VIP	5.0 (6.7)	M 30	330	1 1/4"-7UNC	91
So-PP-S/PP-B/PP-VIP	8.0 (10)	M 36	300	–	–

Warranty can only be guaranteed with originally assembled RUD components and chains!

- Easy identification of WLL
- Loadable in any direction. Safety factor 4 : 1
- Double ballbearing for free turning and soft winding
- Cr, Ni, Mo-steel special quenched and tempered
- All parts 100 % crack detected
- Max. load limit at smallest thread diameter
- Variable screw lengths available
- Can also be used for through holes
- Surface: pink powder coated
- Fast amortization because of easy handling

Notice: Follow the Instructions for use!



- Can be turned under full load even in a 90° position from the bolt centre line.
- Not suitable for permanent swivelling under full load





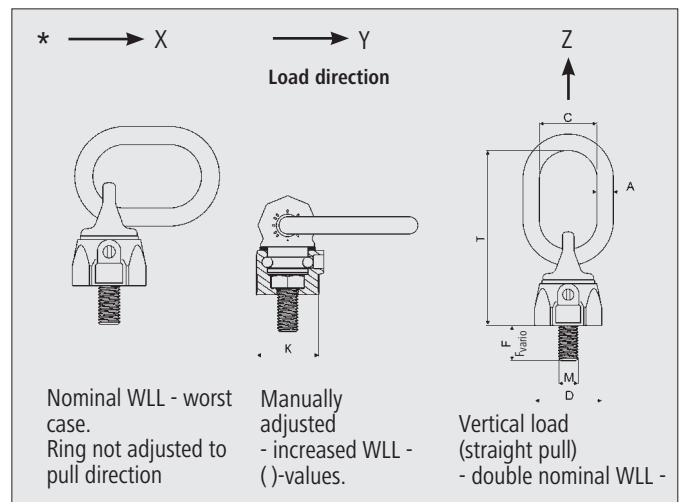
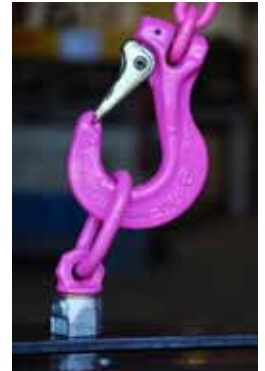
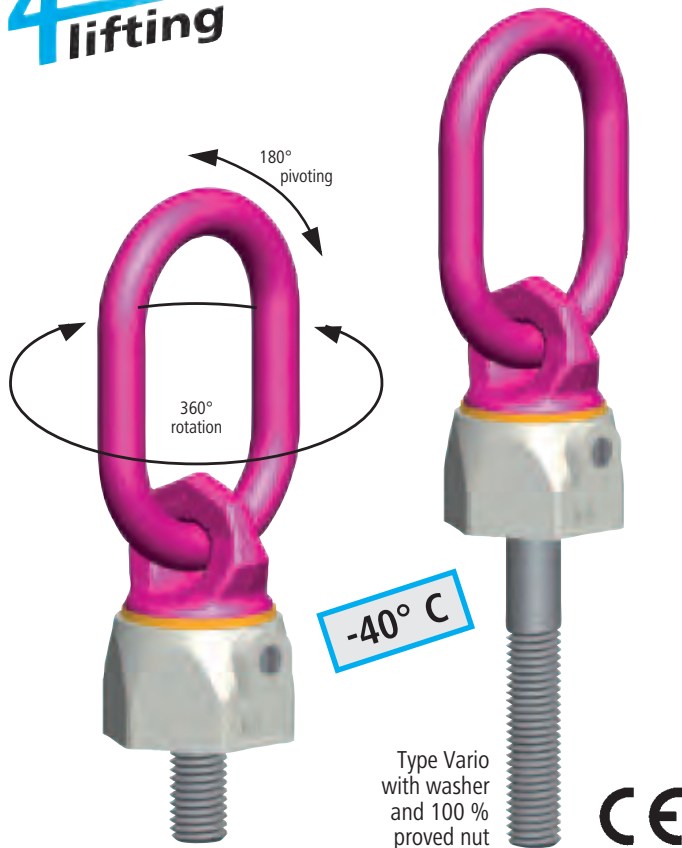
Lifting Points - for bolting - Load Ring bolted - VWBG-V -

– 360° swivelling/180° pivoting –

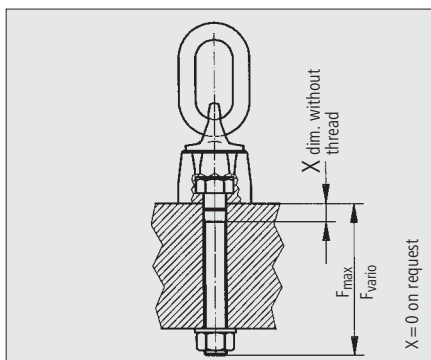


Complies with the machinery directives 2006/42/EG

4 better
lifting



Type	WLL (t)	A (mm)	C (mm)	D (mm)	F _{stand.} (mm)	F _{vario} (mm)	K (mm)	M (mm)	T (mm)	X	Ref.-No. Stand.	Ref.-No. Vario with washer and nut
VWBG-V 0.3 M8	0.3(0.4)	8	29	30	13	8-102	28	8	76	18	7103720	8600330
VWBG-V 0.45 M10	0.45(0.6)	8	29	36	17	10-122	30	10	78	19	7103715	8600331
VWBG-V 0.6 M12	0.6(0.7)	10	35	42	21	12-140	36	12	107	19	7100180	8600332
VWBG-V 1.0 M14	1.0(1.25)	13	38	48	21	14-65	41	14	113	—	—	8600337
VWBG-V 1.3 M16	1.3(1.5)	13	38	48	25	16-180	41	16	113	28	7100430	8600333
VWBG-V 1.8 M18	1.8(2.0)	13	35	64	27	18-83	55	18	137	—	—	8600338
VWBG-V 2.0 M20	2.0(2.5)	13	35	64	33	20-223	55	20	137	30	7100800	8600334
VWBG-V 2.0 M22	2.0(4.0)	13	35	62	33	22-94	55	22	137	—	—	8600334
VWBG-V 3.5 M24	3.5(4.0)	18	40	81	40	24-255	70	24	173	25	7100640	8600335
VWBG-V 3.5 M27	3.5(4.0)	18	40	81	40	27-92	70	27	173	—	—	8600339
VWBG-V 5.0 M30	5.0(6.0)	22	50	99	50	30-330	85	30	221	32	7100650	8600336



Example to investigate the required thread length Fvario:
Fvario: Plate thickness 50 mm, through hole for M 20 bolt, height of nut 22 mm, thickness of the washer 3 mm, plus bolt projection 5 mm = 80 mm.
Order length: VWBG-V-2.0 M 20 x 80.

***Caution:** During lifting, the ring of the lifting point can engage in any position. The embossed WLL is for the worst case scenario (see image X). If the ring is manually adjusted to the horizontal position, higher WLL values in brackets () can be chosen (see image Y). In case of straight pull (see image Z: vertical load direction) Maximum WLL can be chosen. The nominal WLL can be increased acc. the chart from page 7!

Swivelling lifting point:

- Loadable in any direction. Safety factor 4 : 1.
- Turnable under load in vertical direction.
- Not suitable for permanent swivelling under full load, especially in 90° direction.
- Simple installation, just a thread hole is required.
- Variable lengths (Vario) available.
- Can also be used for through holes.
- Bolts 100 % magnetic crack detected! Surface protection CORRUD-DT (20 times better than zinc plating).
- High tensile, approved suspension ring acc. EN 1677-4.
- Surface: Ring pink powder coating, housing zinc plated.
- Type Vario with washer and 100 % crack detected nut.
- VWBG-V and VWBG are also available with Imperial thread.
- Turning without jerk due to additional bush bearing washer.
- Wear marks in the main load directions 45°, 60° and 90°.



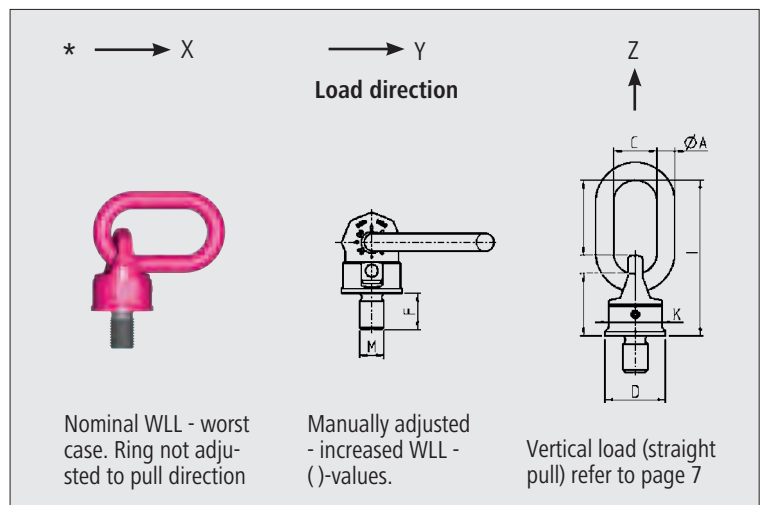
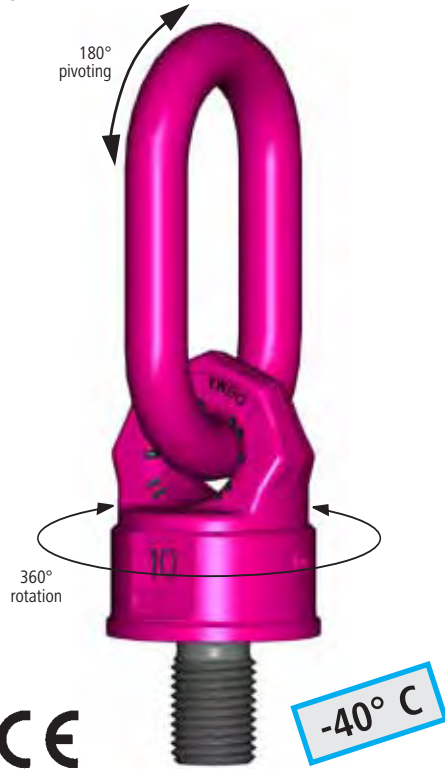
Lifting Points - for bolting - Load Ring bolted - VWBG -

– 360° swivelling/180° pivoting – with a ball bearing



Complies with the machinery directives 2006/42/EG

**4 better
lifting**



Type	WLL (t)	A (mm)	C (mm)	D (mm)	F _{stand.} (mm)	F _{vario} (mm)	K (mm)	M (mm)	T (mm)	Ref.-No. Stand.	Ref.-No. Vario with washer and nut
VWBG 6(7.5) M33	6(7.5)	22	50	90	—	33-300	80	33	208	—	8600150
VWBG 8(10) M36-39	8(10)	22	50	90	54	36-300	80	36-39	208	7999059	8600451
VWBG 12(13) M42-45	12(13)	26	65	98	63	42-300	85	42-45	235	7999044	8600452
VWBG 12(15) M45	12(15)	26	65	98	67	—	85	45	235	7900455	—
VWBG 13(16) M48-52	13(16)	26	65	98	68	48-300	85	48-52	235	7999045	8600453
VWBG 14(20) M52	14(20)	32	70	120	78	—	95	52	274	7901081	—
VWBG 16(22) M56-62	16(22)	32	70	120	84	56-300	95	56-62	274	7999004	8600454
VWBG 16(25) M64-76	16(25)	32	70	120	94	64-300	95	64-76	274	7999043	8600455
VWBG 31.5(40) M72-76	31.5(40)	46	90	170	108	72-300	145	72-76	338	7900097	8600456
VWBG 35(48) M80-85	35(48)	46	90	170	120	80-300	145	80-85	338	7900100	8600457
VWBG 40(50) M90-150	40(50)	46	90	170	135	90-300	145	90-150	338	7995545	8600157

Please specify your requested dimensions F and M

***Caution:** During lifting, the ring of the lifting point can engage in any position. The embossed WLL is for the worst case scenario (see image X). If the ring is manually adjusted to the horizontal position, higher WLL values in brackets () can be chosen (see image Y). In case of straight pull (see image Z: vertical load direction) Maximum WLL can be chosen. The nominal WLL can be increased acc. the chart from page 7!

For heavy loads which have to be turned and swivelled.

- **With ball bearings.** Swivels under full load.
- Not suitable for permanent swivelling under full load, especially in 90° direction.
- Loadable in any direction. Safety factor 4 : 1.
- Suspension ring manufactured acc. EN 1677-4 grade 80 (100 % proof loaded).
- S = max. allowed gap, see hints for Installation page 39.
- VWBG: Wear marks in the main load directions 45°, 60° and 90°.

Safety notice:

Please provide plain bolting surface. The countersunk for the thread should be: thread diameter plus 4 mm (0,15 inch). The base material of the workpiece must be capable to withstand the occurring lifting forces. Minimum required material = ST 37 (1.0037).



Lifting Points - for bolting - Load Ring bolted - VLBG -

– ...will turn 360° –



Complies with the machinery directives 2006/42/EG

**4 better
lifting**

-40° C

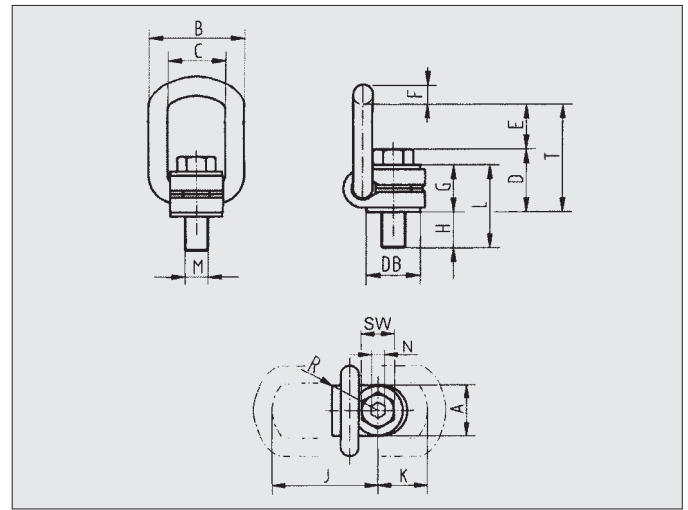
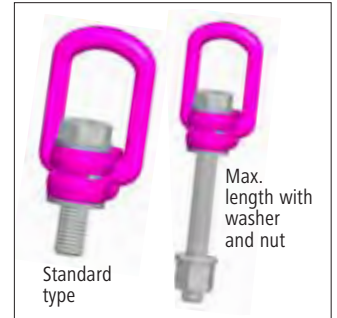
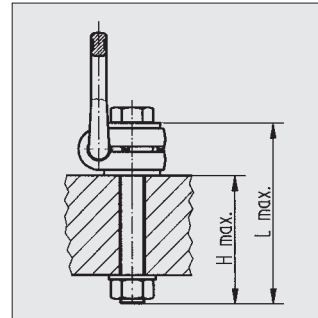



MO
075131



Will turn
360°

CE



Type	WLL (t)	A	B	C	D	E	F	G	H stand.	H max.	J	K	L stand.	L max.	M	N	SW	R	T	DB	Weight kg	Torque	Ref.-No. (Standard)	Ref.-No. Vario with Washer and nut
VLBG 0.3t M 8	0.3	30	54	34	35	40	10	29	11	76	75	45	40	105	8	5	13	32	75	24	0.3	30 Nm	8500821	8600280
VLBG 0.63t M 10	0.63	30	54	34	36	39	10	29	16	96	75	45	45	125	10	6	17	32	75	24	0.32	60 Nm	8500822	8600281
VLBG 1t M 12	1	32	54	34	37	38	10	29	21	116	75	45	50	145	12	8	19	32	75	26	0.33	100 Nm	8500823	8600382
VLBG 1.2t M 14	1.2	33	56	36	46	39	13.5	36	—	34	86	47	—	70	14	10	24	38	85	30	0.55	120 Nm	—	8600399
VLBG 1.5t M 16	1.5	33	56	36	46	39	13.5	36	24	149	86	47	60	185	16	10	24	38	85	30	0.55	150 Nm	8500824	8600383
VLBG 2.0t M 18	2.0	50	82	54	55	55	16.5	43	—	47	113	64	—	90	18	12	30	48	110	45	1.3	200 Nm	—	8600384
VLBG 2.5t M 20	2.5	50	82	54	55	55	16.5	43	32	187	113	64	75	230	20	12	30	48	110	45	1.3	250 Nm	8500826	8600385
VLBG 4t M 24	4	50	82	54	58	67	18	43	37	222	130	78	80	265	24	14	36	48	125	45	1.5	400 Nm	8500827	8600386
VLBG 4t M 27	4	60	103	65	78	69	22.5	61	39	—	151	80	100	—	27	—	41	67	147	60	3.1	400 Nm	7983658	—
VLBG 5t M 30	5	60	103	65	80	67	22.5	61	49	279	151	80	110	340	30	17	46	67	147	60	3.3	500 Nm	8500828	8600388
VLBG 7t M 36 ▲	7	60	103	65	72	74	22.5	55	52	—	151	80	107	—	36	—	55	67	146	60	3.4	700 Nm	8500829	—
VLBG 8t M 36	8	77	122	82	100	97	26.5	77	63	223	205	110	140	300	36	22	55	87	197	70	6.2	800 Nm	7983553	8600289
VLBG 10t M 42	10	77	122	82	103	94	26.5	77	73	273	205	110	150	350	42	24	65	87	197	70	6.7	1000 Nm	7983554	8600290
VLBG 15t M 42	15	95	156	100	113	109	36	87	63	263	230	130	150	350	42	24	65	100	222	85	11.2	1500 Nm	7982966	8600291
VLBG 20t M 48	20	95	156	100	117	105	36	87	73	303	230	130	160	390	48	27	75	100	222	95	11.6	2000 Nm	7982967	8600292
LBG(3) M 16 RS 1t	1	50	85	50	45	43	16.5	38	25	—	95	45	63	—	16	—	24	46	88	40	1	100 Nm	62086	
LBG(3) M 20 RS 2t	2	50	85	50	46	42	16.5	38	27	—	95	45	65	—	20	—	30	46	88	40	1.1	200 Nm	62813	
Attention: the stainless load ring is not suitable for use in chloride media (e.g. indoor swimming-pools)!																								
VLBG-Z 1t 1/2"-13UNC	1	32	54	34	38	37	10	29	22	—	75	45	50	—	1/2"	—	3/4"	32	75	26	0.33	100 Nm	8502349	
VLBG-Z 1.5t 5/8"-11UNC	1.5	33	56	36	46	38	13.5	36	24	—	87	47	60	—	5/8"	—	15/16"	38	85	30	0.55	150 Nm	8502350	
VLBG-Z 2.5t 3/4"-10UNC	2.5	50	82	54	56	54	16.5	43	28	—	113	64	71	—	3/4"	—	1 1/8"	48	110	45	1.3	250 Nm	8502351	
VLBG-Z 2.5t 7/8"-9UNC	2.5	50	82	54	58	52	16.5	43	27	—	113	64	70	—	7/8"	—	1 5/16"	48	110	45	1.3	300 Nm	8502352	
VLBG-Z 4t 1"-8UNC	4	50	82	54	61	64	16.5	43	41	—	130	78	84	—	1"	—	1 1/2"	48	125	45	1.5	400 Nm	8502353	
VLBG-Z 5t 1 1/4"-7UNC	5	60	103	65	80	64	22.5	61	41	—	151	80	102	—	1 1/4"	—	1 7/8"	67	147	60	3.3	500 Nm	8503187	

▲ = Special construction – bolt cannot be changed!

VLBG Load Ring will turn 360°, adjustable in pull direction. Load ring foldable, full WLL in any load direction, surface pink powder coated.

BG = German Employers Requires:
Use only the supplied bolts.

The max. lengths of the RUD - bolts are adjusted in such a way that if a hex-head-shaped nut (DIN EN ISO 7042) is used, assemblies of material thickness of approximately 8 *M (for M8 - M30) and 5 *M for (M36 - M48) can be realised respectively. In case of flipping fixtures dies and molds, under full load, we recommend to use our double ball bearing power point collection.



Lifting Points - for bolting - Load Ring bolted - VLBG -

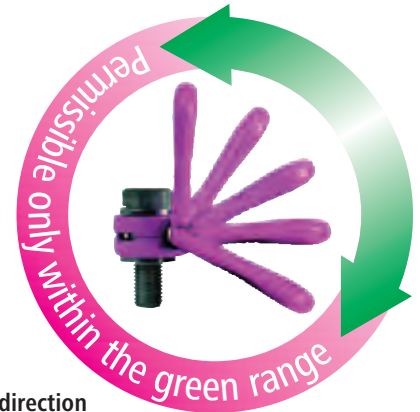
– ...will turn 360° –



Complies with the machinery directives 2006/42/EG



- RUD Universal bolts and nuts for VLBG - 100 % crack detected!
- The hex-head-bolt is suitable for internal and external wrench mounting for types with metric threads.
- **Surface protection:**
CORRUD - DT - at least 20 times better corrosion protection than zinc plating (except for the spot face) after length shortening.
- Thread over whole bolting length „H“.
- Bolt is held captive in the body. Replace only with the same quality class bolt.
- Clear identification at the bolt head: RUD, thread size, quality class.
- **The load ring must be installed perpendicular to the work piece. The work piece must be flat, providing complete contact for the load ring bushing.**
- **Load ring has to be adjusted in pull direction, free to move, and must not support on edges.**
- Use acc. to hints for installation and by trained persons (see page 39).
- The lifting attachment must be free to move when attached to the load ring!
- Regular inspections should be carried out by a competent person (BGR 500).
- Load should not be turned during lifting.



Load direction

Why are RUD-Lifting Points "Pink"?

Epoxy powder coating in colour "pink".

Special RUD products are coated with a fluorescent pink powder coating (Patent). This coating is used for example as a heat indicator: With temperature increase the pink colour changes permanently from beige into brown and turns finally when exceeding a temperature of 380° Celsius into black. In addition to that bubbles on the surface will appear. See page 38 for necessary WLL reduction and max. allowed temperature!





Lifting Points - for bolting - »STARPOINT« - VRS -

– ...the absolute **STAR** among eye bolts –

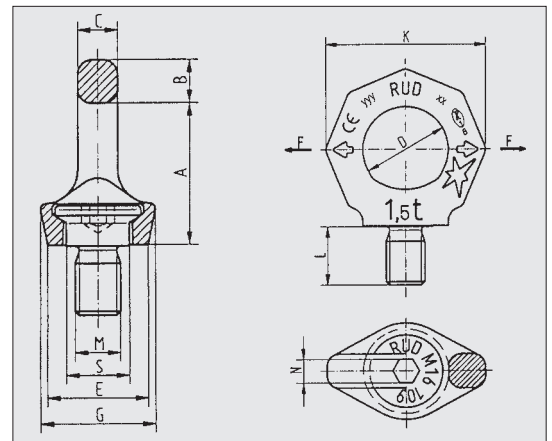


Complies with the machinery directives 2006/42/EG

**4 better
lifting**



TIP



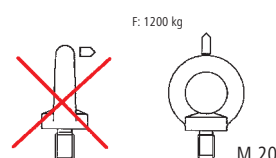
Type	WLL F (t)	Weight (kg)	A	B	C	D	E	G	K	L	M	N	S	Ref.-No. VRS	Ref.-No. VRS-F
VRS-M 6	0.1	0.06	27	9	7	20	23	28	37	9	6	6	13	79 00 909	79 00 906
VRS-M 8	0.3	0.1	34	11	8.5	25	25	32	47	12	8	6	16	71 00 554	85 00 911
VRS-M10	0.4	0.1	34	11	8.5	25	25	32	47	15	10	6	16	71 00 555	71 04 029
VRS-M12	0.75	0.2	42	13	10	30	30	34	56	18	12	8	20	71 00 556	71 01 313
VRS-M16	1.5	0.3	49	15	14	35	35	40	65	24	16	10	23.5	71 00 558	71 01 314
VRS-M20	2.3	0.5	57	17	16	40	42	50	75	30	20	12	29	71 00 559	71 01 315
VRS-M24	3.2	0.9	70	21	19	48	50	60	90	36	24	14	35	71 00 560	71 01 316
VRS-M30	4.5	1.7	86	26	24	60	60	75	112	45	30	17	44	71 00 561	71 01 317
VRS-M36	7	2.9	103	32	29	72	75	90	135	54	36	22	53	79 84 198	79 84 201
VRS-M42	9	4.6	120	38	34	82	85	105	158	63	42	24	61.5	79 84 199	79 84 202
VRS-M48	12	7.0	137	43	38	94	100	120	180	72	48	27	70.5	79 84 200	79 84 203
VRS-1/4"-20UNC	0.1	0.06	27.5	9	7	20	23	27	37	9	1/4"	7/32"	13	79 99 105	–
VRS-5/16"-18UNC	0.3	0.119	34	11	8.5	25	25	28	47	12	5/16"	1/4"	14	–	79 99 106
VRS-3/8"-16UNC	0.4	0.1	34	11	8.5	25	25	28	47	15	3/8"	1/4"	15	71 03 959	71 04 480
VRS-7/16"-14UNC	0.4	0.119	34	11	8.5	25	25	28	47	15	3/8"	1/4"	15	79 03 118	–
VRS-1/2"-13UNC	0.75	0.2	42	13	10	30	30	34	56	18	1/2"	5/16"	18	71 03 960	71 04 481
VRS-5/8"-11UNC	1.5	0.3	49	15	14	35	35	40	65	24	5/8"	3/8"	22	71 03 961	71 04 482
VRS-3/4"-10UNC	2.3	0.5	57	17	16	40	40	50	75	30	3/4"	1/2"	27.5	71 03 962	71 04 483
VRS-7/8"-9UNC	2.3	0.6	57	17	16	40	40	50	75	32	7/8"	1/2"	27.5	71 03 963	71 04 484
VRS-1"-8UNC	3.2	0.9	69	21	19	48	48	60	90	36	1"	9/16"	33	71 03 964	71 04 485
VRS-1 1/4"-7UNC	4.5	1.7	86	26	24	60	60	75	112	45	1 1/4"	5/8"	41.5	71 03 965	71 04 486
VRS-1 1/2"-6UNC	7	2.9	103	32	29	72	75	90	135	54	1 1/2"	7/8"	49.5	71 03 966	71 04 487
VRS-1 3/4"-5UNC	9	4.6	120	38	34	82	85	105	158	63	1 3/4"	1"	58	71 03 967	71 04 488
VRS-2"-4.5UNC	12	7.0	137	43	38	94	100	120	180	72	2"	1 1/8"	66	71 03 968	71 04 489

Further sizes available on request.

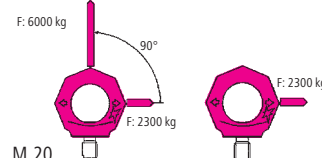
Attention: Lateral forces with standard eye bolts acc. to DIN 580 are forbidden! In case of multiple leg suspensions, 2-leg and 3/4-legs, the ring-eye plane of the ring bolt must be in the direction of pull. This is not likely to be the case if standard eye bolts are tightened.

Comparison:

Eye bolt DIN 580-M20



Starpoint VRS-M20



This is only possible with RUD- STAR-POINT eye bolt, because it can be adjusted in pull direction in tightened condition! In case of flipping fixtures dies and molds, under full load, we recommend that our double ball bearing power point collection be used.

Attention: Refer to RUD user instructions!

Subject to technical alternations!



Lifting Points - for bolting - »STARPOINT« - VRS -

– ...the absolute **STAR** among eye bolts –



Complies with the machinery directives 2006/42/EG

Shape: Star shaped - clear distinction from standard eye bolt DIN 580.

Colour: Striking fluorescent pink powder coating

Marking: Clear indication of WLL (in metric tonnes and lbs) for side load direction F (not allowed with standard eye bolt).

- Forged material 1.6541, alloy quenched and tempered, 100 % electromagnetic crack detected according to EN 1677-1

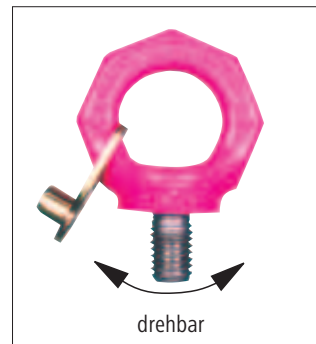
STARPOINT Type VRS-F

Type VRS-F includes the installation tool/STAR KEY. This STARPOINT comes with an integrated installation tool. Just engage the tool into the hexagon socket screw – tighten by hand – disengage tool. STARPOINT can be adjusted 360°. Type VRS without STAR KEY can be assembled by using a hexagon key or Allen wrench.

Alternative-Tip:
Special RUD hexagon socket wrench is available upon request.

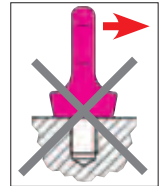


VRS-F fixiert



drehbar

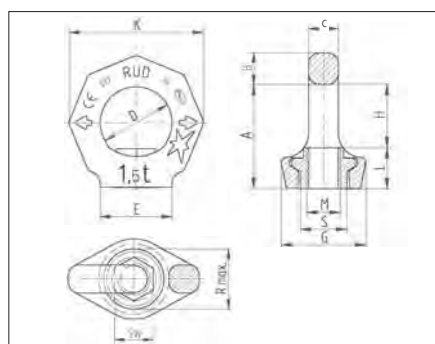
- **Safety factor 4 : 1.**
- Workpiece material must conform to minimum steel quality S235JR (1.0037).
- Countersink of tapped hole = nominal thread diameter.
- Provide plane seat of the special hexagon bolt.
- VRS must be able to rotate by 360° in bolted condition.
- Adjust to load direction before loading.
- Component protected by patents: Europe patent EP 654 611. US patent 5690457.
- Specifically engineered-Grade 10.9 captive hexagon socket screw.



Simply engage the hexagon socket bolt with the star profile key – use your fingers to respectively tighten or untighten the arrangement. Disengage the key before you hook in the lifting mean. Do not use an elongation piece.

»STARPOINT«-eye nut – VRM –

Complies with the machinery directives 2006/42/EG



- The body of the STARPOINT nut must be turnable 360° in bolted condition. Adjust in pull direction before attaching the sling means.
- A plane bolting surface has to be assured. The nut thread must be engaged to 100 % with the bolt thread. The thread pin mounted must allow a perfect seat of the surface of the eye nut to the bolting surface.
- Sizes of VRM - see drawing VRS-StarPoint, page 16. Size „L“ corresponds with the minimum length of the bolt thread.
- In case of flipping fixtures dies and molds, under full load, we recommend to use our double ball bearing power point collection.
- The given WLL is only valid in connection with threaded bolts of at least quality class 10.9.

Attention: Refer to RUD user instructions!

Type	WLL (t)	Weight (kg)	A	B	C	D	E	G	H	K	L	M	R _{max}	S	SW	Ref.-No.
VRM-M6	0.1	0.06	28	9	7	20	23	28	16	37	11	6	16	13	9	7900786
VRM-M8	0.3	0.1	34	11	8.5	25	25	28	20	47	14	8	20	16	12	7992989
VRM-M10	0.4	0.1	34	11	8.5	25	25	28	20	47	14	10	20	16	12	7990311
VRM-M12	0.75	0.2	42	13	10	30	30	34	25	56	17	12	24	20	14	7990312
VRM-M16	1.5	0.3	51	15	14	35	35.5	40	30	65	21	16	30	22	19	7990314
VRM-M20	2.3	0.5	57	17	16	40	40	50	34	75	23	20	37	29	24	7990315
VRM-M24	3.2	0.9	69	21	19	48	50	60	40	90	29	24	45	35	30	7990316
VRM-M30	4.5	1.5	86	26	24	60	60	75	52	112	34	30	56	44	36	7993008

4 better lifting

-40° C



Lifting Points - for bolting - INOX-STAR eyebolt



– stainless –

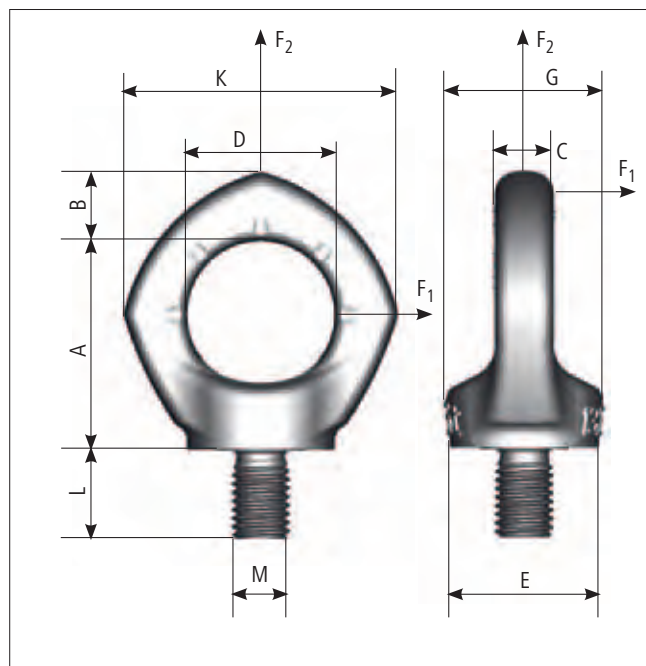
Complies with the machinery directives 2006/42/EG



4 better
lifting



MO
075139



Type	Rated load		A	B	C	D	E	G	K	L	M	SW	Weight	Ref.-No.
	F_1 (t)	F_2 (t)	mm	mm	mm	mm	mm	mm	mm	mm			kg	
INOX-STAR M12	0.5	1.2	43	14	10	30	30	32	56	18	M12	8	0.2	7993835
INOX-STAR M16	1.0	2.4	50	16	14	35	35.5	38	65	24	M16	10	0.3	7993836
INOX-STAR M20	2.0	3.6	57	19	16	40	41	46.5	74	30	M20	12	0.5	7993837
INOX-STAR M24	2.5	5.2	70	24	19	48	50	56	92	36	M24	14	0.9	7993838

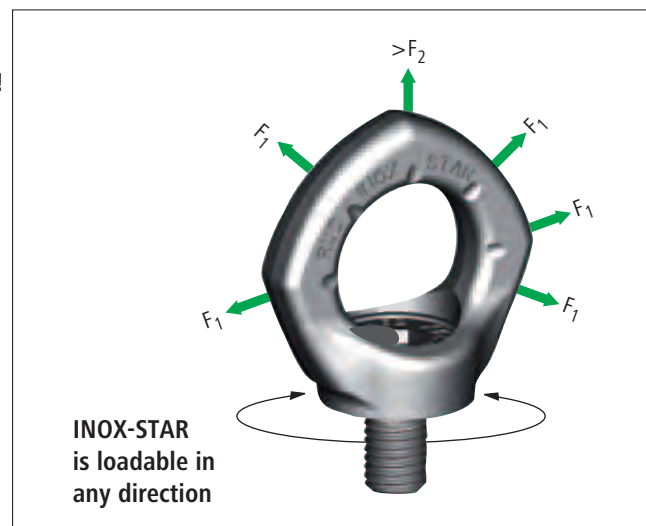
INOX-STAR eyebolt

– stainless – 50 % more than DIN with no directional restrictions!

- Pentagonal shape – significantly different to the DIN 580 eyebolt.
- Turns through 360°. Can be set in the direction of the load.
- Clear statement of rated load F_1 for the unfavourable load range. Safety factor 4 : 1.
- Forged eye body.
- Material of eye body and screw: 1.4462, duplex steel (high durability in sea water and in environments with high chlorine ion concentrations).
- 100 % crack-tested
- Captive mounted bolt.
- Patented wear marks on the eye body.
- Tighten hand-tight when mounting with hexagonal wrench or adapter piece. Do not use an extension.
- The INOX-STAR must be able to be turned through 360° when screwed in.

Notice: Follow the Instructions for use!

Right reserved to alter specifications without notice.

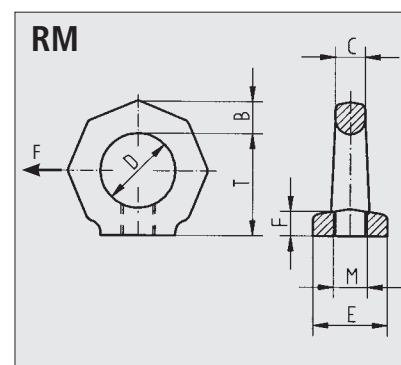
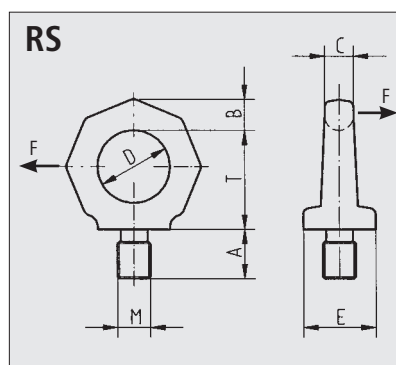


- Set in the direction of force before loading.
- Component protected under patent law: European patent EP 654611.



Lifting Points - for bolting - Eye bolt/-nut - RS/RM -

... high tensile and distinctive



Type	WLL F (t)	A	B	C	D	E	F	M	T	Weight kg	Ref.-No.	
											RS	RM
RS - M 6	0.1	12	11	10	25	25	11	6	35	0.1	61401	55254
RS - M 8	0.2	12	11	10	25	25	11	8	35	0.1	61402	55255
RS - M 10	0.25	15	11	10	25	25	11	10	35	0.1	56397	55258
RS - M 12	0.4	18	13	12	30	30	12	12	41	0.2	56398	55271
RS - M 14	0.75	21	15	14	35	35	13	14	48	0.25	56403	55281
RS - M 16	1	24	15	14	35	35	13	16	48	0.3	56404	55460
RS - M 20	1.5	30	17	16	40	40	16	20	55	0.45	56407	55343
RS - M 24	2	36	21	20	50	50	20	24	70	0.7	56408	55394
RS - M 30	3	45	26	24	60	60	25	30	85	1.6	56409	55438
RS - M 36	4	54	43	38	90	100	37	36	130	6.0	56954	53093
RS - M 42	6	63	43	38	90	100	37	42	130	6.2	56955	53095
RS - M 48	8	67	43	38	90	100	37	48	130	6.4	56956	53098

■ Also available in imperial and special threads.

■ Before lifting check the tightness of the eye bolt and nut!
Avoid rotating movement during transport.

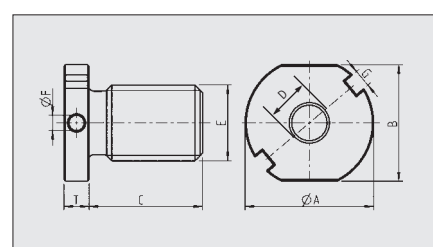
■ Assure a plane bolting surface.

■ Attention: Refer to RUD user instruction!

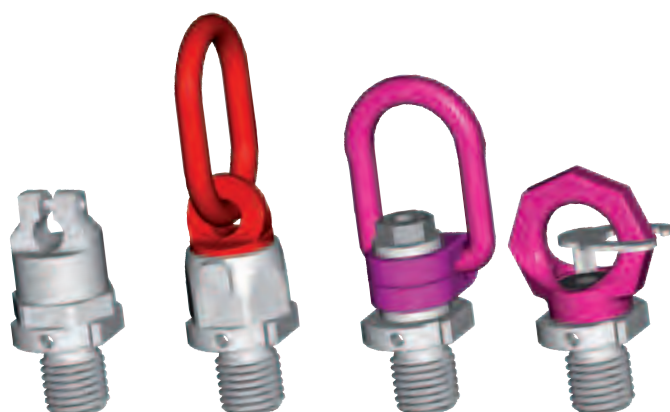
RUD-Thread-adapter for RUD lifting points

It often happens that the transport object has already thread holes for provided DIN-Eye bolts. When high tensile lifting points for bolting should be used, the holes are often too big and therefore, larger lifting points are used than necessary.

The RUD-thread-adapter offers the perfect solution. The outer thread is adjusted to the provided thread and the inner thread is adjusted to the new thread of the bolttable lifting point. This saves adjustments or expensive purchases.



Type	Weight kg	A Ø	B	C	D	E	F	G	T	Ref.-No.
ASPA-M 16 x M 8	0.07	35	30	20	M8	M16	5	6	8	7994782
ASPA-M 20 x M 10	0.11	38	32	24	M10	M20	5	6	9	7995682
ASPA-M 24 x M 12	0.15	42	36	28	M12	M24	5	6	9	7993856
ASPA-M 30 x M 16	0.27	51	46	36	M16	M30	6	7	10	7993857
ASPA-M 36 x M 20	0.48	65	55	43	M20	M36	6	8	12	7993858
ASPA-M 42 x M 24	0.8	82	70	50	M24	M42	8	10	16	7995674
ASPA-M 48 x M 24	1.1	82	70	58	M24	M48	8	10	16	7995675
ASPA-M 56 x M 30	1.75	100	90	67	M30	M56	8	10	16	7995676
ASPA-M 64 x M 36	2.3	110	95	77	M36	M64	8	10	16	7995677
ASPA-M 72 x M 45	2.6	110	95	86	M45	M72	8	10	16	7995976
ASPA-M 80 x M 48	3.4	110	95	96	M48	M80	8	10	16	7900469
ASPA-M 90 x M 48	on request									



Example: ASP-A

WLL must be chosen corresponding to the RUD-lifting points assembler in the inner thread.

Also available in fine or inch thread sizes.



Lifting Points - for bolting - Load Ring - RBG/VRBG - ... for bolting with patented relief lugs

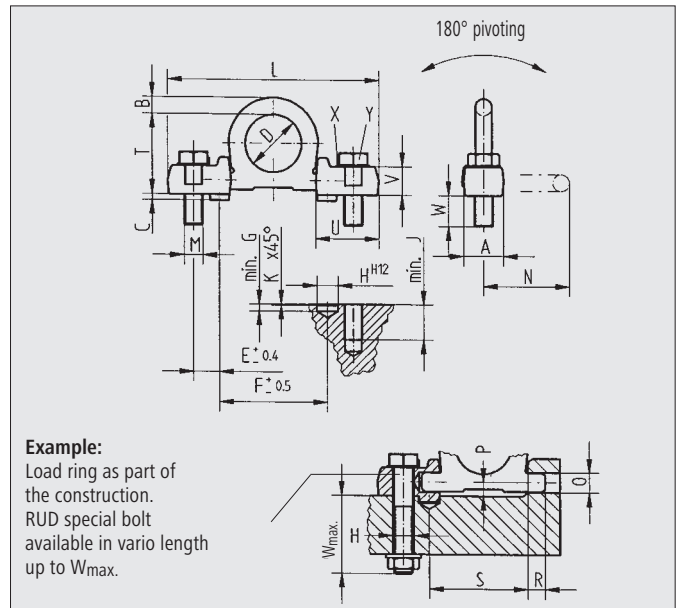


Complies with the machinery directives 2006/42/EG

**4 better
lifting**

RBG 3t

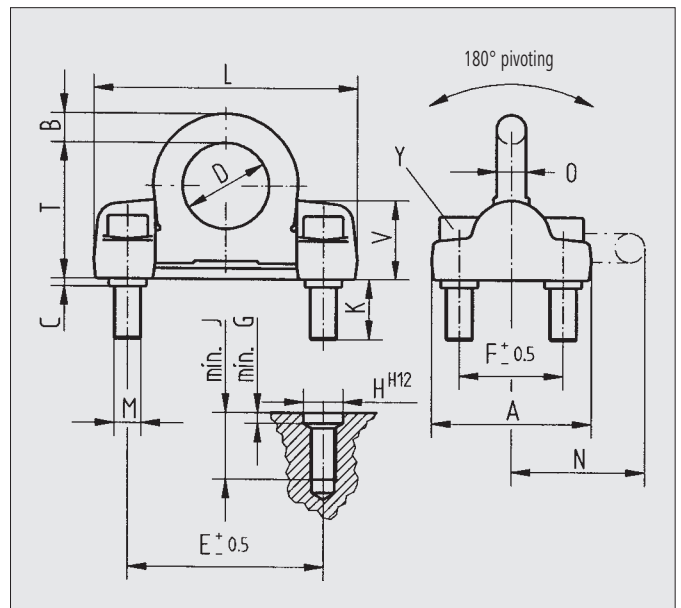
-40° C



**4 better
lifting**

VRBG 10/16t

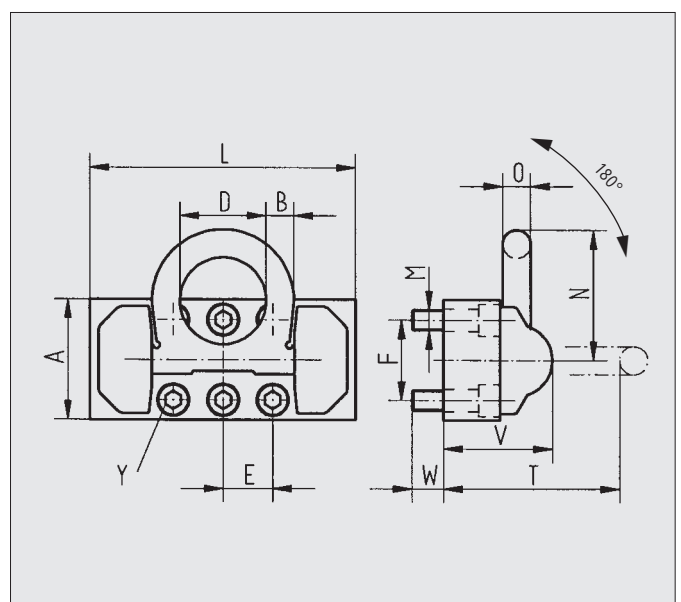
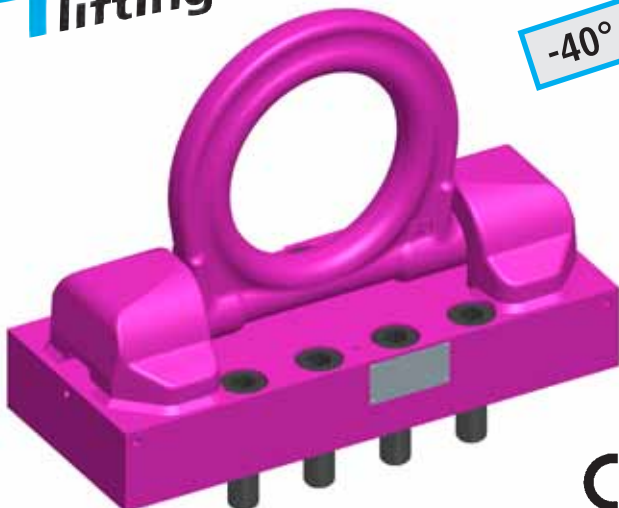
-40° C



**4 better
lifting**

VRBG 30/50/150t

-40° C





Lifting Points - for bolting - Load Ring - RBG -

... for bolting with relief lugs



Complies with the machinery directives 2006/42/EG

Type	WLL (t)	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V	W	W max.	X DIN 463	Y 10.9	Weight (kg)	Torque	Ref.-No. (with bolts and locking tabs)
RBG 3	3	34	16	5	48	22	92	6	18	30	1	178	16	71	17	12	20	84	67	53	24	25	30-160	17	M16x50	0.9	120 Nm	51 817

Relief lugs up to 16 t.

Protect the securing bolts against bending- and shearing loads. This ensures additional safety!

- Smaller bolt and a low profile due to the pivoting ring.
- For description of the ring refer to VRBS, page 31.
- RUD special bolts (inner- and outer hexagon), 100 % crack detected with special corrosion protection Deltaton.
- Tension bolts to recommended torque (120 Nm) and secure with locking tabs supplied.
- For sealing and securing of the bolts, Loctite 270 for example can be used.

- Check tightness of bolts at regular intervals.

- Workpiece material at least 1.0037 (St 37-2) S235JR.

- Refer to RUD user instruction!

Mounting instructions:

- Use RUD special bolts only.
- Mount on plane bolting surfaces!
- Scribing and drilling acc. to tolerance range of RBG:
 1. First scribe pocket hole - relief bores size „F“, drill and countersink acc. to sizes „H, G, K“.
 2. After fitting and straight adjustment of the bolting blocks, the bore for the tapped hole can be drilled.
 3. Drill core hole and cut tapped hole. For through bolts, drill size „H“ only.

Type	WLL (t)	A	B	C	D	E	F	G	H	J	L	M	N	O	V	K	T	Y ISO 4762	Weight (kg)	Torque	Ref.-No. (with bolts)
VRBG 10	10	120	22	6	65	143	78	8	30	50	213	20	100	25	54	43	102	M20x70-12.9	4.1	300 Nm	7994537
VRBG 16	16	170	30	8	90	198	104	10	46	70	270	30	134	32	67	63	131	M30x90-12.9	11.3	600 Nm	7993255

Relief lugs.

With VRBG 10 and 16, the connecting bolts protect against bending- and shearing loads. This ensures additional safety.

- Smaller bolt and a low profile due to the pivoting ring.
- Scribing and drilling acc. to tolerance range of VRBG.

- Check tightness of bolts at regular intervals.

- Favourable load force introduction and distribution.

- For details of the ring, refer to VRBS, page 31.

- Supplied inner hexagon bolts are 100 % crack detected!**

- Workpiece material at least 1.0037 (St 37-2) S235JR.

Type	WLL (t)	A	B	C	D	E	F	G	H	J	L	M	N	O	T	V	W	Y ISO 4762	Weight (kg)	Torque	Ref.-No. (with bolts)
VRBG 30	30	180	42	-	130	75	120	-	-	-	400	30	195	42	262	163	46	6xM30x100-12.9	67	900 Nm	7985866
VRBG 50	50	270	70	-	230	100	200	-	-	-	650	36	340	60	406	220	58	8xM36x120-12.9	198	1000 Nm	7985867

... to 150 t on request!



- For details of the ring, refer to VRBS page 31.

- Supplied inner hexagon bolts are 100 % crack detected!

- Bolting material at least 1.0037 (St 37-2) S235JR.

- Scribing and drilling acc. to the tolerance range of RBG.

- Check tightness of bolts at regular intervals.

- With light metals and grey cast iron the thread arrangements has to be chosen in such a way that the WLL of the thread fulfils the requirements of the corresponding base material.



Lifting Points - for bolting - Excavator hook for bolting

- VABH-B - the light weight construction generation



Complies with the machinery directives 2006/42/EG

-40° C

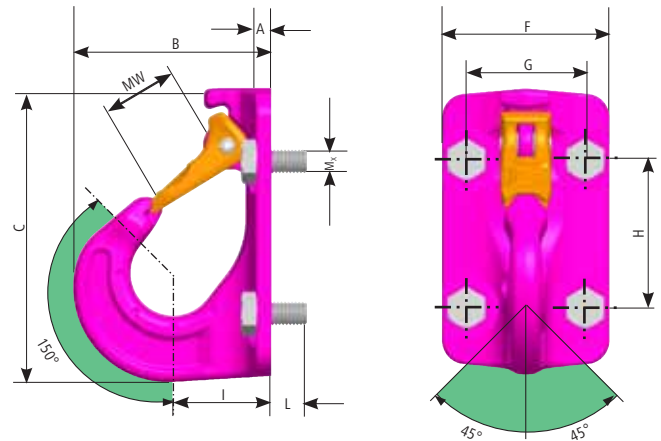


4 better lifting

VABH-B

Excavator hook used as a lifting point for spreader bars, wire rope slings, round slings, lifting means with an oval suspension ring or eye.

- Operating range: 150°
- Permissible loading: 45° in lateral pull direction



▲ Gauge marks to determine overload

▲ Wear marking

Type	WLL (t)	MW	A	B	C	F	G	H	I	L	RUD Universal-bolt Mx	Weight (kg)	Ref.-No. with RUD-bolts
VABH-B 1.5t	1.5	25	6.5	78	117	70	48	60	38	15	4 x M10	0.9	7991205
VABH-B 2.5t	2.5	30	7.5	101	148	85	60	75	49	18	4 x M12	1.75	7991206
VABH-B 4t	4	35	10	122	171	104	70	90	59	25	4 x M16	3.2	7991207
VABH-B 6.7t	6.7	40	12	156	208	120	85	110	70	30	4 x M20	5.6	8502238

- Extremely robust forged safety latch.
- Supplied with RUD special bolts 100 % crack detected and provided with special corrosion protection Deltaton.
- Non protruding tip of the hook – no unintentional hooking in.

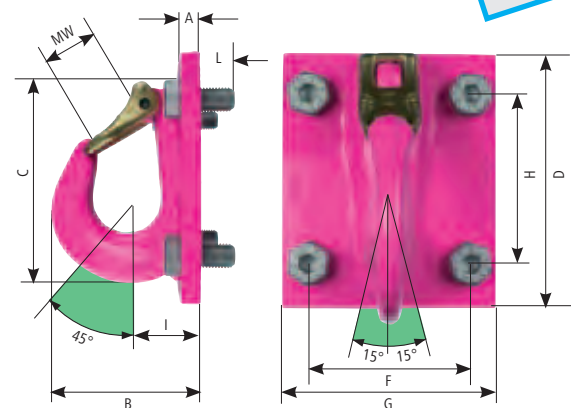
- Enlarged hook tip avoids improper use - thus no hooking - in smaller openings.
- Patented wear marks on the hook.
- Measurable overload indicator.
- Can also be used as an excavator hook.



VCGH-G **4 better lifting**

Hook can be used as a lifting point for spreader bars, for wire rope slings, round slings and lifting means with an oval suspension ring or eye.

- Permissible operating range up to max. 45°
- Permissible loading $\pm 15^\circ$ in lateral pull direction



-20° C

Type	WLL (t) to 45°	MW	A	B	C	D	F	G	H	I	L	RUD Universal-bolt	Weight (kg)	Ref.-No. with RUD-bolts
VCGH-G16	10	48	15	141	200	220	120	170	150	70	35	4xM24	6.4	7984048
VCGH-G20	16	63	20	187	272	288	150	210	220	87	30	6xM24	10.4	7984311
VCGH-G22	20	63	20	195	276	292	150	240	220	92	30	6xM24	17.5	7984313

- Extremely robust forged safety latch.
- Supplied with RUD special bolts, 100 % crack detected and provided with special corrosion protection Deltatone.

- Due to the limited operation range, assembly should be in the direction of pull.



Lifting Points - for bolting - Hoist ring boltable on plate WBPG



Complies with the machinery directives 2006/42/EG

WBPG 85–200 t



- Removable suspension ring in the shape of a shackle for the attachment of cable-laid grommets (with heavy load cable eyes).
- Loadable from any side in the direction of pivot, thereby suitable for lifting and turning of loads.

- With threaded hole for Starpoint-VRS for easy vertical assembly.
- On request with sling shackle for the direct attachment and a gentle use of cable-laid grommets.

FLARIBO – new Generation (Type F – H)

... the new Lifting point for the assembly of tower segments

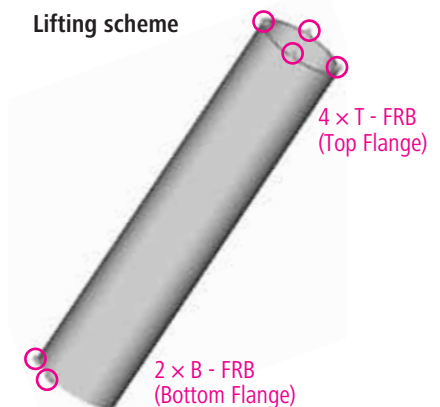


T-FRB (Top Flange)



B-FRB (Bottom Flange)

Lifting scheme



VIP Chain Block 22 / VCB-22

- Force balancing lifting of loads f.e. erecting of tower segments of wind towers
- WLL 40 t - parallel
- Suits 22 mm / VIP chain
- Pentagon shaped wheel to reverse chains
- Ballbearing suspension for shackles
- Weighs only 60 kg
- Small size
- Connection with high tensile shackle
- Replaces wire rope snatch blocks
- Pentagon wheel is slowed down to avoid that chains runs down when no load is applied.



VCB 22 with shackle, chain and hook





Lifting Points - for welding -

Maximum transport weight „G“ in „tonnes“
with different slinging methods



Complies with the machinery directives 2006/42/EG

			WPP-Serie PowerPoint rotation						WPPH-Serie PowerPoint fixed						VLBS Load ring for welding (LPW in daN for lashing)									
															 									
	Number of legs Load direction		all variations						all variations															
			WPP 0.63 t	WPP 1.5 t	WPP 2.5 t	WPP 4 t	WPP 5 t	WPP 8 t	WPPH 0.63 t	WPPH 1.5 t	WPPH 2.5 t	WPPH 4 t	WPPH 5 t	WPPH 8 t	VLBS 1.5 t	VLBS 2.5 t	VLBS 4 t	VLBS 6.7 t	VLBS 10 t	VLBS 16 t	LBS(1) RS 0.5 t	LBS(3) RS 1 t	LBS(6) RS 2 t	
															3000 daN	5000 daN	8000 daN	13400 daN	20000 daN					
	1	0°	0.6	1.5	2.5	4	6.7	10	0.6	1.5	2.5	4	6.7	10	1.5	2.5	4	6.7	10	16	0.5	1	2	
	2	0°	1.2	3	5	8	13.4	20	1.2	3	5	8	13.4	20	3	5.0	8	13.4	20	32	1	2	4	
	1	90°	0.6	1.5	2.5	4	5	8	0.6	1.5	2.5	4	5	8	1.5	2.5	4	6.7	10	16	0.5	1	2	
	2	90°	1.2	3	5	8	10	16	1.2	3	5	8	10	16	3	5.0	8	13.4	20	32	1	2	4	
	2	0-45°	0.8	2.1	3.5	5.6	7.1	11.2	0.8	2.1	3.5	5.6	7.1	11.2	2.1	3.5	5.6	9.38	14	22.4	0.7	1.4	2.8	
	2	45-60°	0.6	1.5	2.5	4	5	8	0.6	1.5	2.5	4	5	8	1.5	2.5	4	6.7	10	16	0.5	1	2	
	2	unsymmetrical	0.6	1.5	2.5	4	5	8	0.6	1.5	2.5	4	5	8	1.5	2.5	4	6.7	10	16	0.5	1	2	
	3+4	0-45°	1.3	3.2	5.3	8.4	10.5	16.8	1.3	3.2	5.3	8.4	10.5	16.8	3.15	5.25	8.4	14.1	21	33.6	1.05	2.1	4.2	
	3+4	45-60°	0.9	2.2	3.8	6	7.5	12	0.9	2.2	3.8	6	7.5	12	2.25	3.75	6	10.1	15	24	0.75	1.5	3	
	3+4	unsymmetrical	0.6	1.5	2.5	4	5	8	0.6	1.5	2.5	4	5	8	1.5	2.5	4	6.7	10	16	0.5	1	2	
Weld →			Δ 3.5	Δ 4.5	HY 3+5	HY 3+6	HY 3+8	HY 3+10	Δ 3.5	Δ 4.5	HY 3+5	HY 3+6	HY 3+8	HY 3+10	HV 5+3	HV 7+3	HV 8+3	HV 12+4	HV 16+4	HV 25+6	HV 5+3	HV 8+3	HV 12+4	

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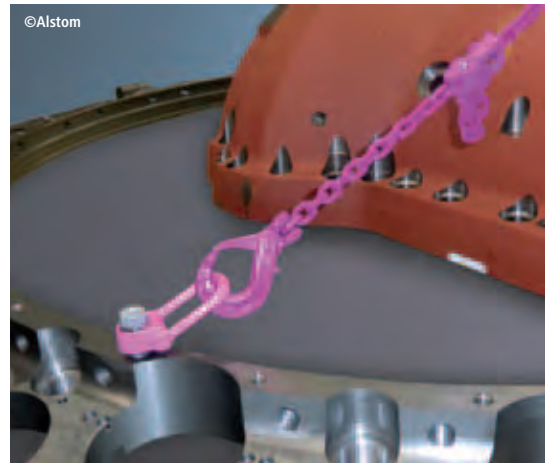
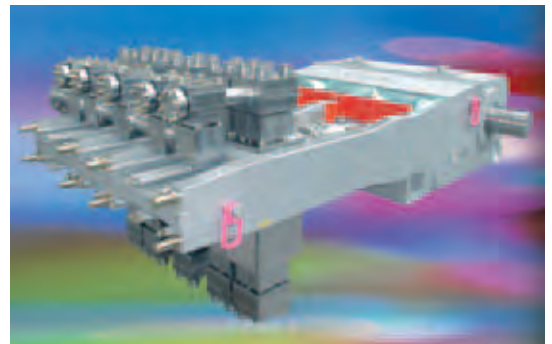
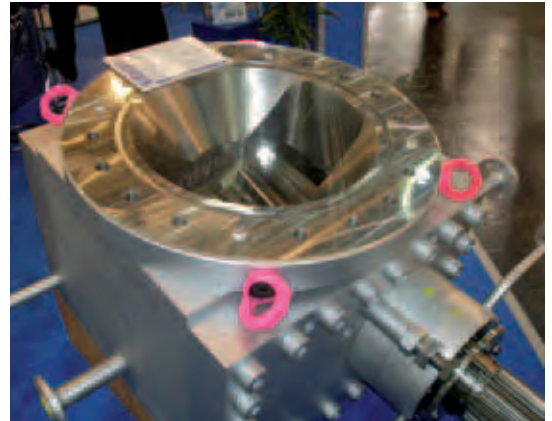
Lifting Points - for welding -

Maximum transport weight „G“ in „tonnes“
with different slinging methods



Complies with the machinery directives 2006/42/EG

		Number of legs	Load direction	VRBS-FIX Load ring for welding (LRBS-FIX in daN for lashing)						VRBK-FIX (LRBK-FIX in daN for lashing)			ABA Loadable from any direction (L-ABA in daN for lashing)					
				VRBS-FIX 4 t	VRBS-FIX 6.7 t	VRBS-FIX 10 t	VRBS-FIX 16 t	VRBS-FIX 31.5 t	VRBS 50 t	VRBK-FIX 4 t	VRBK-FIX 6.7 t	VRBK-FIX 10 t	ABA 1.6 t	ABA 3.2 t	ABA 5 t	ABA 10 t	ABA 20 t	ABA 31.5 t
	1	0°		8000 daN	13400 daN	20000 daN				8000 daN	13400 daN	20000 daN	3200 daN	6400 daN	10000 daN	20000 daN		
	2	0°		4	6.7	10	16	31.5	50	4	6.7	10	1.6	3.2	5	10	20	31.5
	1	90°		4	6.7	10	16	31.5	50	4	6.7	10	1.6	3.2	5	10	20	31.5
	2	90°		8	13.4	20	32	63	100	8	13.4	20	3.2	6.4	10	20	40	63
	2	0-45°		5.6	9.38	14	22.4	45	70	5.6	9.38	14	2.2	4.5	7.1	14.1	28	45
	2	45-60°		4	6.7	10	16	31.5	50	4	6.7	10	1.6	3.2	5	10	20	31.5
	2	unsymmetrical		4	6.7	10	16	31.5	50	4	6.7	10	1.6	3.2	5	10	20	31.5
	3+4	0-45°		8.4	14.1	21	33.6	67	105	8.4	14.1	21	3.4	6.8	10.6	21.2	42	67
	3+4	45-60°		6	10.1	15	24	47.5	75	6	10.1	15	2.4	4.8	7.5	15	30	47.5
	3+4	unsymmetrical		4	6.7	10	16	31.5	50	4	6.7	10	1.6	3.2	5	10	20	31.5
Weld				HY 3	HY 5	HY 6	HY 9	HY 12	HY 25+8	HY 3+4	HY 3+5	HY 8+3	Δ 4	Δ 6	Δ 7	Δ 8	Δ 10	Δ 12





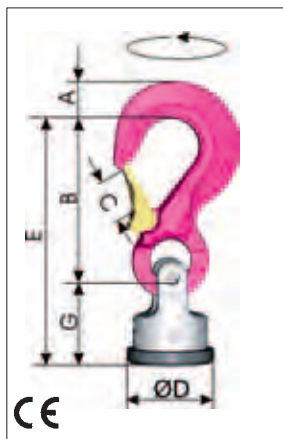
Lifting Points - for welding -

PowerPoint® – WPP-.. –

...with double ball bearing – 360° swivelling



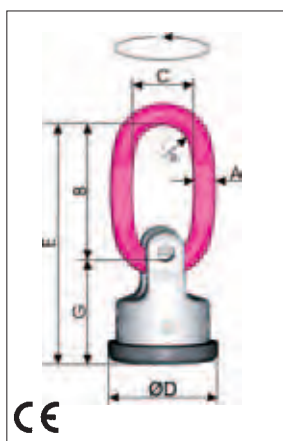
Complies with the machinery directives 2006/42/EG



WPP-S – the universal connection for round slings, wire ropes, hook and ring assemblies

Type	WLL (t)	A	B	C	D	E	G	Weld HY+ Δ	Weight (kg)	Ref.-No.
WPP-S-0.63t	0.63	13	75	18	40	115	40	Δ 3.5	0.4	7990721
WPP-S-1.5t	1.5	20	97	25	46	147	50	Δ 4.5	1.0	7989944
WPP-S-2.5t	2.5	28	126	30	61	187	61	HY3+5	1.5	7989945
WPP-S-4t	4.0	36	150	35	78	227	77	HY3+6	3.3	7989946
WPP-S-5t	5.0 (6.7)	37	174	40	95	267	93	HY3+8	7.1	7989947
WPP-S-8t	8.0 (10)	49	208	48	100	310	102	HY3+10	8.2	7989948

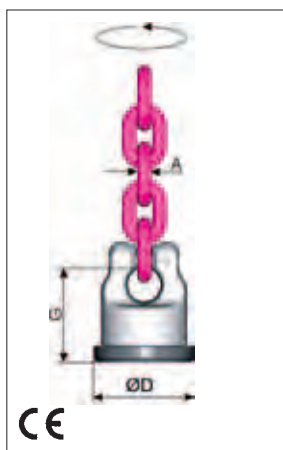
() increased WLL in axial load direction



WPP-B – the ring connection for hook assemblies

Type	WLL (t)	A	B	C	D	E	G	R1	Weld HY+ Δ	Weight (kg)	Ref.-No.
WPP-B-0.63t	0.63	9	65	35	40	105	40	15	Δ 3.5	0.35	7989954
WPP-B-1.5t	1.5	11	65	35	46	115	50	15	Δ 4.5	0.6	7989955
WPP-B-2.5t	2.5	13	74	40	61	135	61	18	HY3+5	1.0	7989956
WPP-B-4t	4.0	16	95	45	78	172	77	20	HY3+6	2.3	7989957
WPP-B-5t	5.0 (6.7)	19	130	60	95	223	93	25	HY3+8	4.7	7989958
WPP-B-8t	8.0 (10)	24	140	65	100	242	102	28	HY3+10	5.3	7989959

() increased WLL in axial load direction



WPP-VIP – for direct connection with VIP chain

Type	WLL (t)	A VIP-chain connection	D	G	Weld HY+ Δ	Weight (kg) approx.	Ref.-No. without VIP-chain
WPP-VIP4-0.63t	0.63	4	40	40	Δ 3.5	0.25	7989960
WPP-VIP6-1.5t	1.5	6	46	50	Δ 4.5	0.45	7989961
WPP-VIP8-2.5t	2.5	8	61	61	HY3+5	0.85	7989962
WPP-VIP10-4t	4.0	10	78	77	HY3+6	2.1	7989963
WPP-VIP13-5t	5.0 (6.7)	13	95	93	HY3+8	3.4	7989964
WPP-VIP16-8t	8.0 (10)	16	100	102	HY3+10	4.5	7989965

() increased WLL in axial load direction



- Can be turned even in a 90° position under full load from the bolt centre line.
- Warranty can only be given when assembled with original RUD components and chains!
- Clear identification of the WLL
- Safety factor 4 : 1
- Cr, Ni, Mo steel quenched and tempered in special steel
- All components 100 % crack detected
- Max. WLL with smallest welding surface
- Fluorescent pink powder coated
- No damage due to safe transport, fast amortization because of easy handling
- Not suitable for permanent swivelling under full load.

Notice: Follow the Instructions for use!



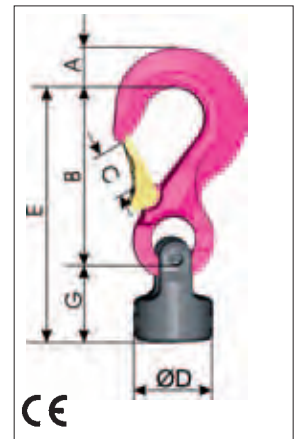


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WPPH-S – the universal connection for round slings, wire ropes, hook and ring assemblies

Type	WLL (t)	A	B	C	D	E	G	Weld HY+ Δ	Weight (kg) approx.	Ref.-No.
WPPH-S-0.63t	0.63	13	75	18	34	109	34	Δ 3.5	0.35	7990722
WPPH-S-1.5t	1.5	20	97	25	40	141	44	Δ 4.5	0.95	7989966
WPPH-S-2.5t	2.5	28	126	30	53	179	53	HY3+5	1.4	7989967
WPPH-S-4t	4.0	36	150	35	68	217	66	HY3+6	3.2	7989968
WPPH-S-5t	5.0 (6.7)	37	174	40	83	253	79	HY3+8	6.9	7989969
WPPH-S-8t	8.0 (10)	49	208	48	88	296	88	HY3+10	8.0	7989970

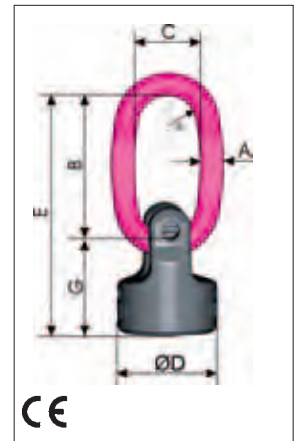
() increased WLL in axial load direction



WPPH-B – the ring connection for hook assemblies

Type	WLL (t)	A	B	C	D	E	G	R1	Weld HY+ Δ	Weight (kg) approx.	Ref.-No.
WPPH-B-0.63t	0.63	9	65	35	34	99	34	15	Δ 3.5	0.3	7989976
WPPH-B-1.5t	1.5	11	65	35	40	109	44	15	Δ 4.5	0.5	7989977
WPPH-B-2.5t	2.5	13	74	40	53	127	53	18	HY3+5	0.9	7989978
WPPH-B-4t	4.0	16	95	45	68	163	66	20	HY3+6	2.2	7989979
WPPH-B-5t	5.0 (6.7)	19	130	60	83	209	79	25	HY3+8	4.5	7989980
WPPH-B-8t	8.0 (10)	24	140	65	88	228	88	28	HY3+10	5.1	7989981

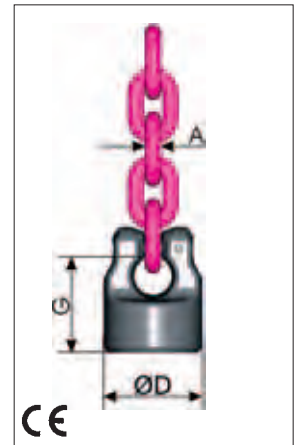
() increased WLL in axial load direction



WPPH-VIP – for direct connection with VIP chain

Type	WLL (t)	A VIP-chain connection	D	G	Weld HY+ Δ	Weight (kg)	Ref.-No. without VIP-chain
WPPH-VIP4-0.63t	0.63	4	34	34	Δ 3.5	0.2	7989982
WPPH-VIP6-1.5t	1.5	6	40	44	Δ 4.5	0.35	7989983
WPPH-VIP8-2.5t	2.5	8	53	53	HY3+5	0.75	7989984
WPPH-VIP10-4t	4.0	10	68	66	HY3+6	2.0	7989985
WPPH-VIP13-5t	5.0 (6.7)	13	83	79	HY3+8	3.2	7989986
WPPH-VIP16-8t	8.0 (10)	16	88	88	HY3+10	4.3	7989987

() increased WLL in axial load direction



Warranty can only be given when assembled with original RUD components and chains!

- Loaded from any angle, swivels and pivots
- Easy identification of WLL
- Safety factor 4:1
- Cr, Ni, Mo-steel special quenched and tempered
- All parts 100 % crack detected
- Max. WLL at smallest welding surface
- Pink powder coated components
- Fast amortization due to better handling, no damage owing to safe transport
- Unsuitable for turning loads, use the WPP instead (page 26)

Notice: Follow the Instructions for use!





Lifting Points - for welding - Load Ring - VLBS -



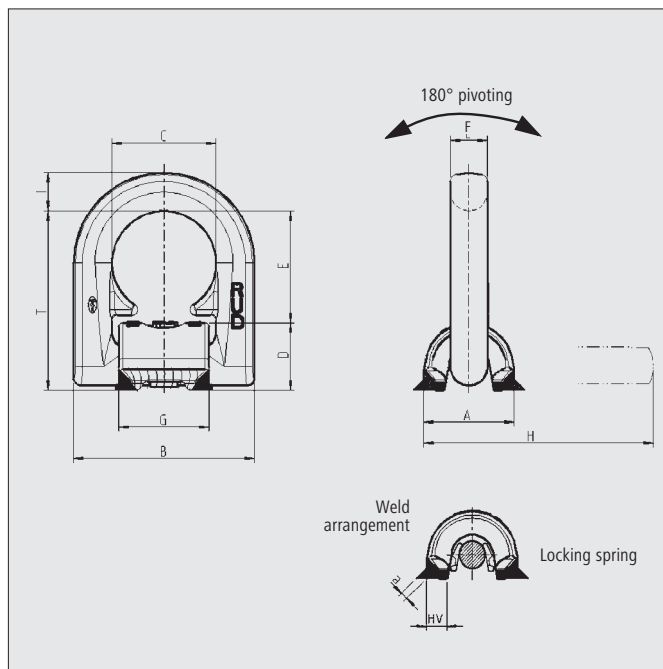
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-20° C



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Type	WLL (t)	A	B	C	D	E	F	G	H	I	T	Weld HV+ Δ	Weight (kg)	Ref.-No. captive complete	Ref.-No. without spring
VLBS 1.5	1.5	33	66	38	25	40	13.5	33	87	14	65	HV 5 + 3	0.35	79 93 035	79 93 115
VLBS 2.5	2.5	36	77	45	27	48	13.5	40	97	16	75	HV 7 + 3	0.5	79 94 830	79 95 346
VLBS 4	4	42	87	51	31	52	16.5	46	112	18	83	HV 8 + 3	0.8	79 93 036	79 93 116
VLBS 6.7	6.7	61	115	67	44	73	22.5	60	157	24	117	HV 12 + 4	1.9	79 93 037	79 93 117
VLBS 10	10	75	129	67	55	71	26.5	60	173	27	126	HV 16 + 4	2.9	79 93 040	79 93 118
VLBS 16	16	95	190	100	69	105	26	90	243	40	174	HV 25 + 6	6.8	--	79 93 041

- The VLBS forged out of high tensile CrNiMo - steel with an innovative design offers many advantages.
 - up to 50 % higher WLL.
 - the two protective supporting lugs (inside the load ring) are patented and they improve the connection with the attachment in addition they protect the clamping spring.
 - The support effect is exceptional, especially if the ring is side loaded or the lifting point is welded on an uneven work piece.
 - Pink powder coating, a VIP recognition attribute and a heat indicator (refer to page 15).
- Easy and quick to weld assembly.
- Compact and shapely design.
- High dynamic and static strength.
- Forged suspension ring acc. to EN 1677, grade 80, electromagnetic crack detected, pink powder coated; meets the requirements of the appropriate safety authorities.
- The welding block has been forged of material 1.0570 (St 52-3) and clearly stamped with the permissible WLL. The patented distance lugs assist in achieving the correct root weld.
- Important: By the special weld design (continuous HV), the requirements of DIN 18800 are fulfilled, i.e., a closed weld avoids corrosion and thus suitable for outdoor use.

- **Distinctive features for type LBS-U:** A protected spring maintains the load ring in every required position. The parts are assembled in such a way that they remain captive.
- The spring reduces vibration induced noise.





Lifting Points - for welding - Load Ring - LBS-RS-stainless -



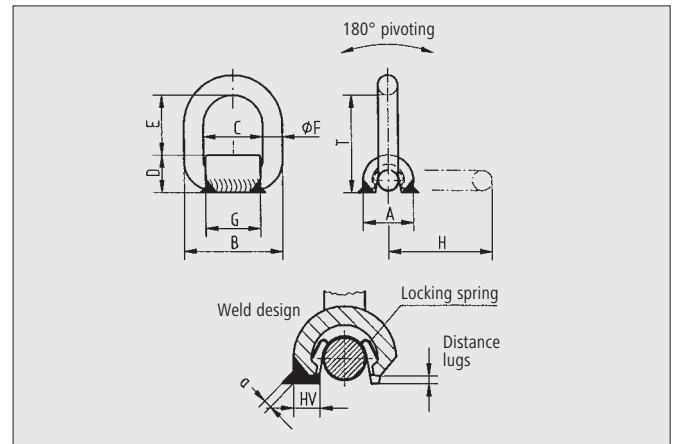
Complies with the machinery directives 2006/42/EG



-100° C



Material No. 1.4571



Type	WLL (t)	A	B	C	D	E	Ø F	G	H	T	Weld HV + Δ	Weight (kg)	Ref.-No.
LBS (1) RS 0.5	0.5	32	65	36	25	39	13.5	33	69	64	HV 5 + 3	0.3	51 630*
LBS (3) RS 1	1	42	85	50	31	50	16.5	46	87	81	HV 8 + 3	0.6	51 740*
LBS (5) RS 2	2	61	110	65	44	72	22.5	60	125	116	HV 12 + 4	1.6	53 377

* Without locking spring

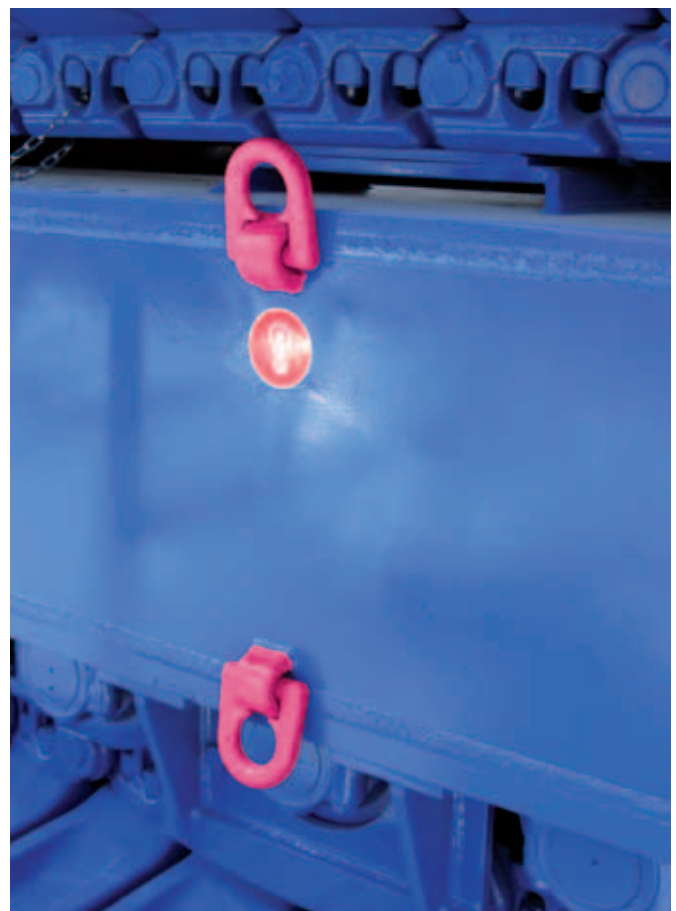
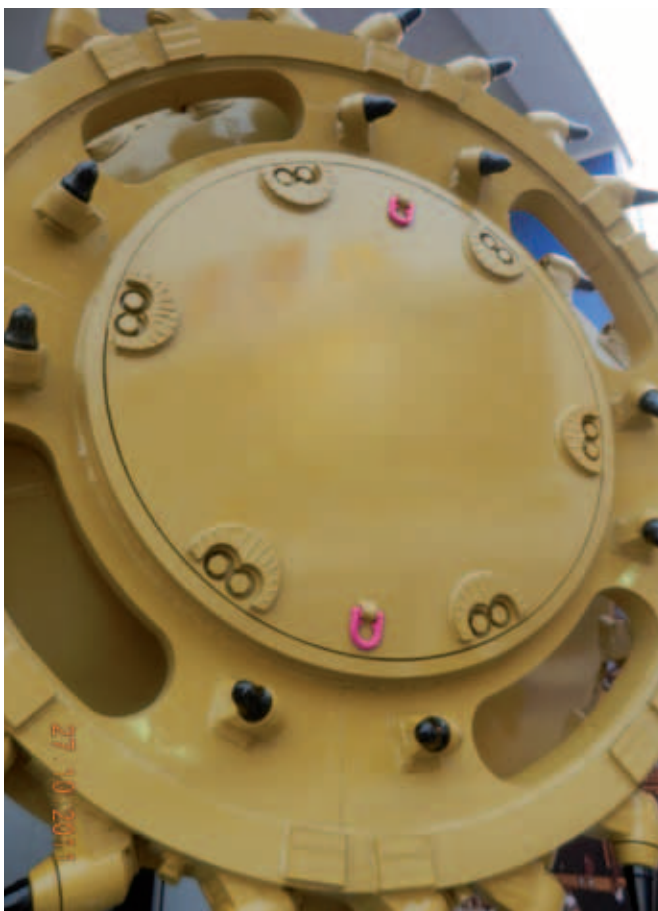
LBS () RS-version!

Welding block and suspension ring made of 1.4571, recommendable welding electrode e.g. Castolin ARC A Mo 90009N

The chemical resistance and resistance against pitting by chloride media has increased due to the Mo contents. The material 1.4571 is widely used in the chemical industry, petroleum, coal-tar, chemical and textile industries.

Application examples:

1.4571 = in welded condition resistant against inner crystalline corrosion - in permanent operation up to 400°C.



Subject to technical alternations!





Lifting Points - for welding - Load Ring VRBS-FIX

with considerable improvements



Complies with the machinery directives 2006/42/EG

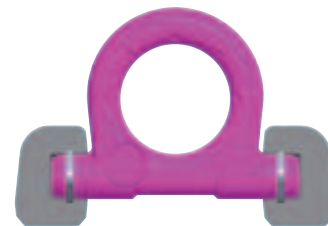
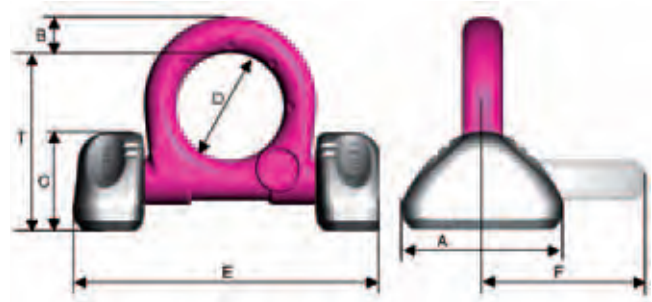
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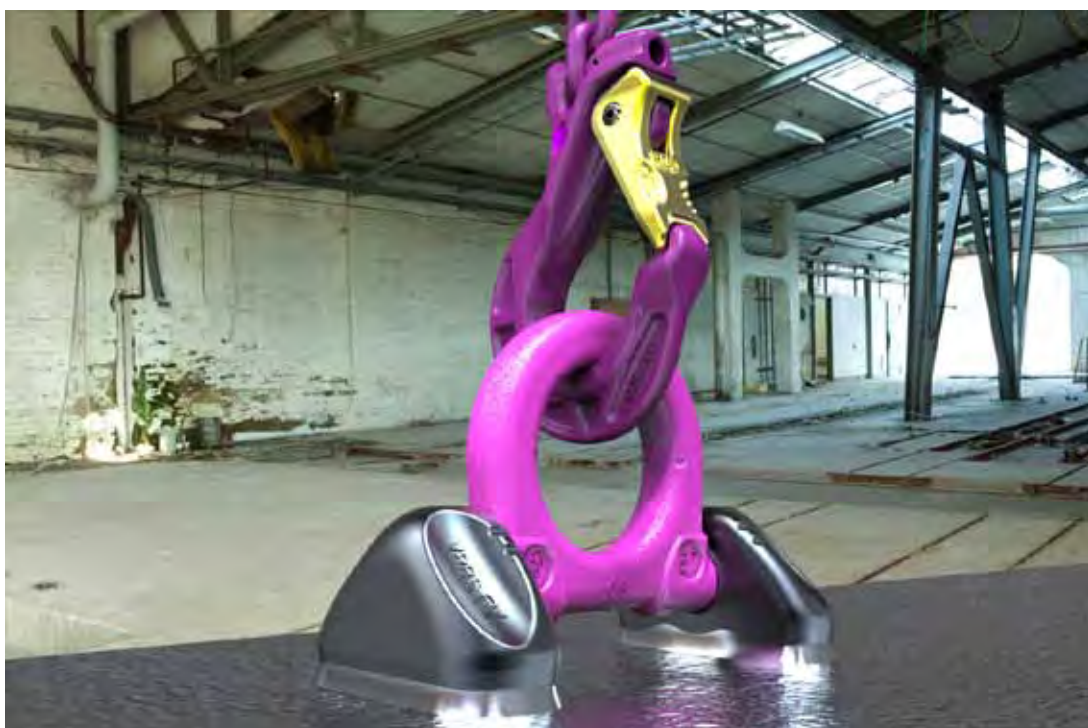
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Type	WLL (t)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	T (mm)	Weight (kg/pc.)	Ref.-No. Pink
VRBS-FIX 4 t	4	60	14	39	48	132	69	74	0.93	7999019
VRBS-FIX 6.7 t	6.7	88	20	50	60	167	91	97	2.2	7999020
VRBS-FIX 10 t	10	100	22	60	65	191	100	108	3.7	7999021
VRBS-FIX 16 t	16	130	30	72	90	267	134	140	8.0	7999301
VRBS-FIX 31.5 t	31.5	160	42	99	130	366	195	202	18.4	7999302

- Weld-on parts without bothersome subsurface corrosion due to circular HY-weld seam. Smaller weld seam than the previous VRBS.
- **No time-consuming alignment between weld-on blocks and ring.**
- Clamp spring is protected placed inside the weld-on block. The spring fixes the weld-on blocks to the ring and creates at the same time a radial clamping. No loose items.
- Clamping spring avoids rattling noise.
- Recognition of inclination angle through markings on the ring and on the blocks in all levels.
- Total length and total width are the same as with the previous VRBS.
- VRBS-FIX can also be supplied with a axial bearing disc if permanently used in an 90° load direction to the ring level (x).
- Nicely shaped design.





Lifting Points - for welding - Load Ring - VRBS -



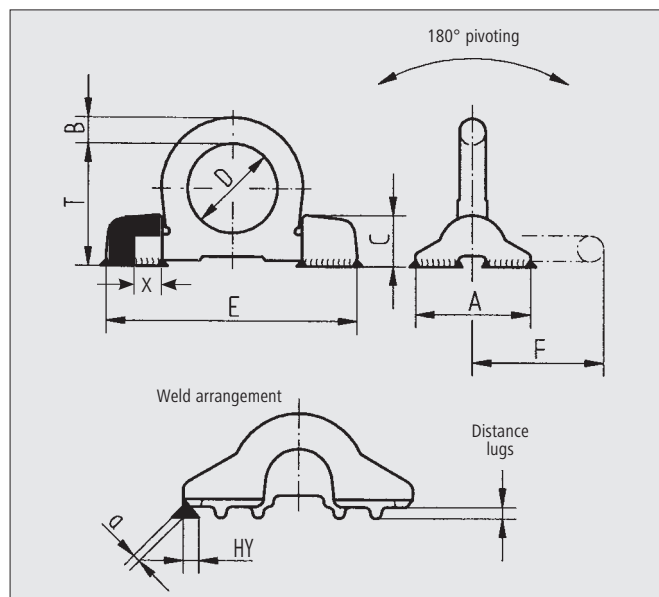
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lifting**

-20° C



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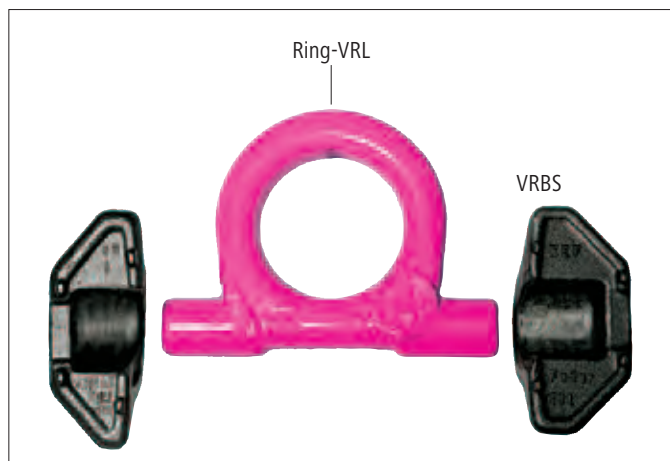


Type	WLL (t)	A	B	C	D	E	F	O	Q	X	T	Weld HY + Δ a	Weight (kg)	Ref.-No.
VRBS 4	4	62	14	28	48	135	71	17	77	14	65	HY 4 + 3	0.8	79 92 488
VRBS 6.7	6.7	88	20	39	60	170	92	23	101	15	84	HY 5.5 + 3	2.1	79 92 489
VRBS 10	10	100	22	46	65	195	100	28	106	22	95	HY 6 + 4	2.8	79 92 490
VRBS 16	16	130	30	57	90	263	134	36	147	28	127	HY 8.5 + 4	6.6	79 92 491
VRBS 31.5	31.5	160	42	78	130	375	195	47	220	37	178	HY 18 + 4	19.0	60267
VRBS 50	50	240	70	120	230	620	340	65	380	—	313	HY 25 + 8	85.0	56 834

- Distribution of the load force due to the 2 point fixing, hence an optimised force introduction to the work piece.
- Forged, suspension ring acc. to EN 1677-1, electromagnetic crack detected, pink powder coated. Suspension ring can also be ordered single. For instance VRL 4. This lifting point fulfils the requirements of the appropriate safety authorities (German Employers Insurance Association). Stamped.
- Lays flat when not in use.
- Low profile.
- Rounded well shaped design.
- High dynamic and static strength.
- The welding blocks are forged out of the ideal weldable steel ST52-3N (S355J2+N) and the nominal WLL is embossed.

- Patented distance lugs assist in achieving the correct root weld (approx. 3 mm).
- The weld arrangement (continuous HY weld) fulfils the requirements of DIN 18800 i.e. the closed weld avoids corrosion and is thus suitable for outdoor use.

Attention: Refer to the RUD user welding instructions!





Lifting Points - for welding - Load Ring for edge attachments - VRBK-FIX



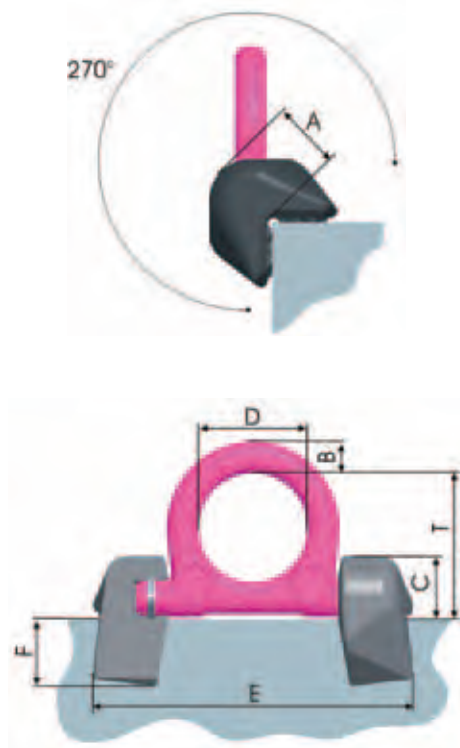
Complies with the machinery directives 2006/42/EG

**4 better
lifting**



-20° C

CE

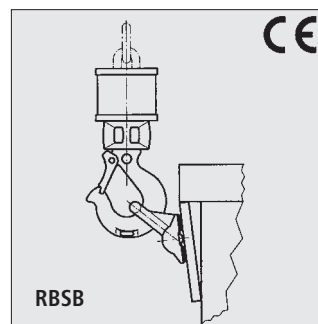


Type	WLL (t)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	a	T (mm)	Weight (kg/pc)	Ref.-No. Pink
VRBK-FIX 4 t	4	32	14	28	48	140	29	HY 4+3	65	1	7902149
VRBK-FIX 6.7 t	6.7	40	20	35	60	180	33	HY 5+3	84	2.1	7902150
VRBK-FIX 10 t	10	52	22	46	65	212	46	HY 8+3	94	4.4	7902151

- Welded on the corner, it reduces the number of lifting points, because instead of welding lifting points either on the top or on the side this type can be centrally located.
- Forged, suspension ring acc. to EN 1677-1, electromagnetic crack detected, pink powder coated. Order number of ring individually, e.g. VRL 10.
- Loadable in any direction.
- Safety factor 4 : 1.
- Favourable force introduction due to the two point attachment.
- Low profile and 270° pivoting.
- Welding blocks and ring body fix connected by special radial clamp spring
- Easy adjustment of the ring body
- Ring body stays in position
- Easy painting
- No loose parts
- No rattling
- Process reliability at welding: dimension E is assured

RBSB application

- The weldable load ring with limit stops is available for EHB containers and machines. The limit stops provide the necessary support for the ring and thus enabling a 45° hook - in inclined position from the work piece.
- Protects the load from severe damage.



Type	WLL (t)	A	B	C	D	E	F	O	P	T	Weld HY + a	Weight (kg)	Ref.-No.
RBSB 5	5	80	20	36	60	164	92	23	21	84	HY 5 + 3	1.8	61 757



Lifting Points - for welding - Excavator hook for welding - VABH-W -



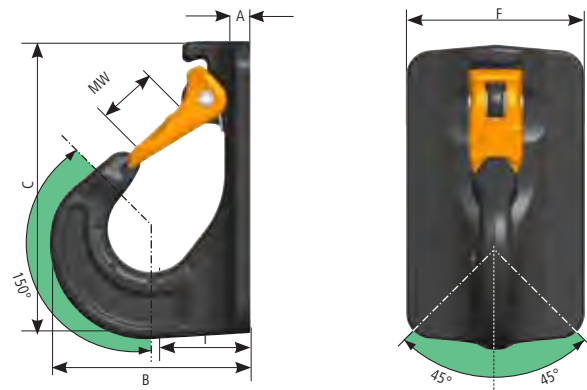
Complies with the machinery directives 2006/42/EG



VABH-W

Excavator hook used as a lifting point for spreader bars, wire rope slings, round slings, lifting means with an oval suspension ring or eye.

- Operating range: 150°
- Permissible loading: 45° in lateral pull direction.



Type	WLL (t)	MW	A	B	C	F	I	Weld	Weight (kg)	Ref.-No.
VABH-W 1.5t	1.5	25	7.5	78	117	70	38	3	0.8	7991208
VABH-W 2.5t	2.5	30	8.5	101	148	85	49	3	1.8	7991209
VABH-W 4t	4	35	11	122	171	104	59	4	3.1	7991210
VABH-W 6.7t	6.7	40	13	156	208	120	70	5	5.9	8502239

- Extremely robust safety latch protected by a ridge.
- Non protruding tip of the hook - no unintentional hooking in.
- Surface treatment: phosphated.
- Shapely design and light weight construction.
- To be preferably welded in the direction of pull.

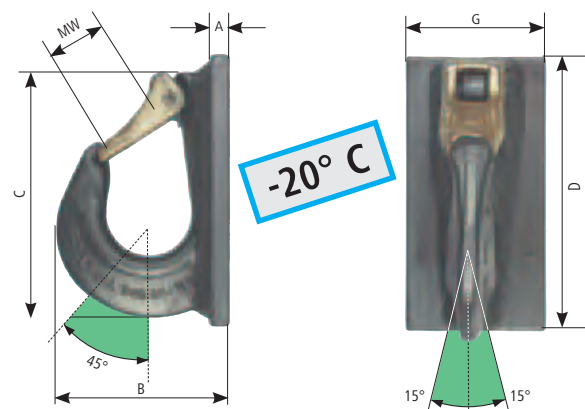
- Enlarged hook tip avoids improper use - thus no hook in smaller openings.
- Patented wear marks on the hook.
- Measurable overload indicator.
- Can also be used as an excavator hook.

Excavator hook used as a lifting point for spreader bars, wire rope slings, round slings, lifting means with an oval suspension ring or eye.

- Operating range: 45°
- Permissible loading: 15° in lateral pull direction.



VCGH-S-weld on



Type	WLL (t)	MW	A	B	C	D	G	I	Weld	Weight (kg)	Ref.-No.
VCGH-S 16	10	48	15	141	200	220	100	70	8	5	7984047
VCGH-S 20	16	63	20	187	272	288	120	87	8	8.4	7984310
VCGH-S 22	20	63	20	195	276	292	120	92	8	14.5	7984312

- Extremely robust forged safety latch.
- Non protruding tip of the hook - thus no unintentional hooking in.
- Shapely design and light weight construction.
- To be preferably welded in the direction of pull.

- Enlarged hook tip avoids improper use - Enlarged hook tip avoids improper use smaller openings.
- Measurable overload indicator
- Phosphate treated surface.



Lifting Points - for welding - ABA

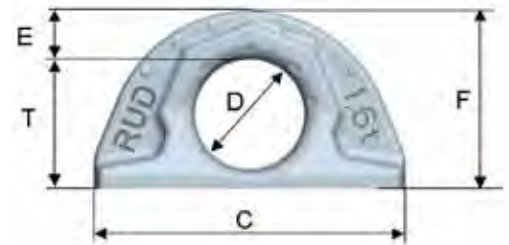
Weldable lifting point, loadable from any direction



-40° C



LIFTING



Type	Lifting WLL (t)	A	B	C	D	E	F	T	Thickness of fillet weld	Weight (kg/pc)	Ref.-No.
ABA 1.6 t	1.6	30	16	100	35	16	57	41.5	4	0.44	7900352
ABA 3.2 t	3.2	41	23	137	50	21	80	59	6	1.1	7900353
ABA 5 t	5	51	27	172	60	27.5	99	71.5	7	2.3	7900354
ABA 10 t	10	70	38	228	80	35	130	95	8	5.3	7900355
ABA 20 t	20	90	52	272	115	40	175	135	10	10,7	7902174*
ABA 31.5 t	31.5	108	64	320	130	50	204	154	12	18,3	7902175*

* In preparation

Subject to technical alterations

Loadable from any direction

- Safety factor 4:1
- Quenched and tempered part, thereby wear resistant
- Patented wear markings inside and outside
- Smaller circular fillet weld seam
- Surface phosphated
- No sharp edges, shape is careful to lifting means
- If component is used as lashing point, stated WLL at the component can be doubled.



L-ABA (Lashing-ABA)

From all sides loadable weld-on lashing point

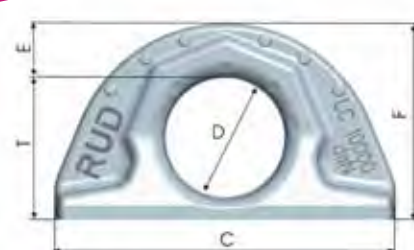
Loadable from any direction

- Safety factor 2:1
- Quenched and tempered part, thereby wear resistant
- Patented wear markings inside and outside
- Smaller circular fillet weld seam
- Surface phosphated
- No sharp edges, shape is careful to lashing means
- With statement for the permitted lashing force (LC = Lashing capacity) in daN

-40° C



LASHING

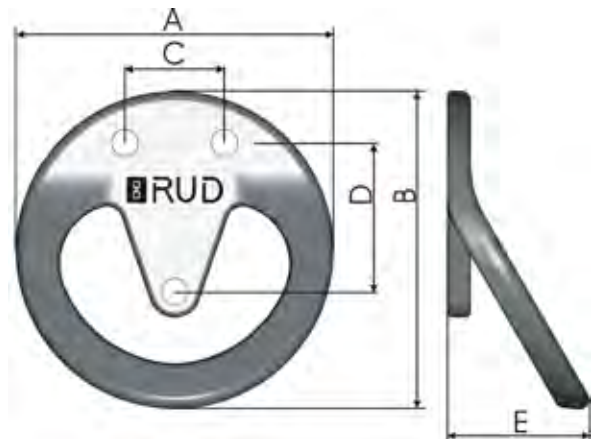


Type	Lashing LC (daN)	A	B	C	D	E	F	T	Thickness of fillet weld	Weight (kg/pc)	Ref.-No.
L-ABA 10.000 daN	10000	51	27	172	60	27.5	99	71.5	7	2.3	7901722
L-ABA 20.000 daN	20000	70	38	228	80	35	130	95	8	5.3	7901723

Subject to technical alterations!

Lashing Points

SMILEY – the Ro/Ro-Lashing point



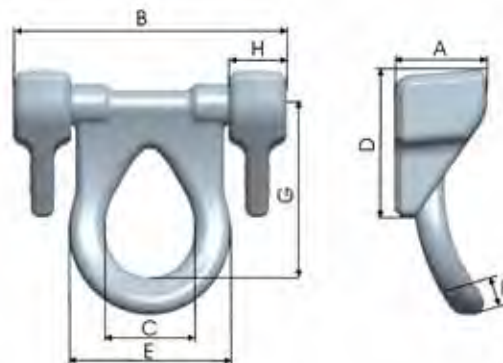
Type	LC (daN)	A	B	C	D	E	3 × bolt	Weight (kg)	Ref.-No. without bolt	Best.-Nr. with bolt
SMILEY	6000	160	160	50	75	72	M12×30 Fk. 10.9	1.6 / 1.8	7994086	7997726

- Lashing and fixing device on road vehicles for sea transport on Ro/Ro-ships.
- Lashing point forged in one piece, noiseless
- 100 % - crack detected
- according to DIN EN 29367-2 resistance characteristics with a test force = 120 kN and a breaking force = 200 kN
- Easy fixing with 3 bolts M12, Fk. 10.9
- Surface: galvanic zincd

- Well-shaped design, load-capable construction
- Light construction
- Suitable for all established lashing means
- The load-bearing point of the bracket has been chosen so that the load direction is in the center of gravity of the bolt group. Advantage: minimization of bolt loading, usage of a small bolt dimension

Star Lashing Point

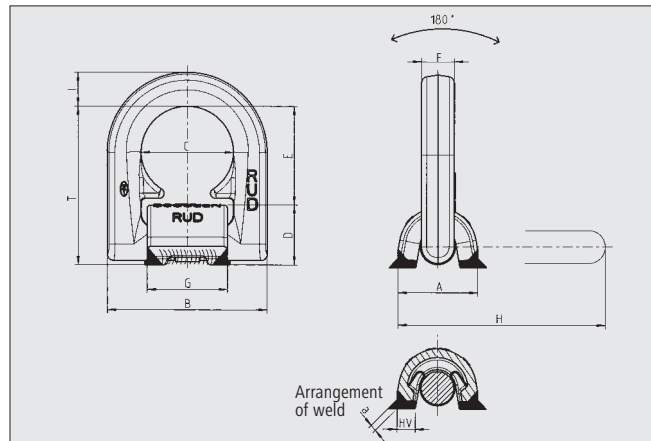
- Loadable from any side
- Pivots 225°
- Lashing possible even at overhanging load.
- No sub corrosion at weld-on blocks
- Clamping spring is protected because of position in weld-on block (Patented)
- Statement of permissible lashing force (LC = Lashing Capacity) in daN



Nomination	LC (daN)	A	B	C	D	E	F	G	H	Weight (kg)	Ref.-No. with spring
SLP 10000	10.000	63	185	60	100	110	25	115	14	3.75	7900082



Lashing Points - for welding - LPW with LC indication



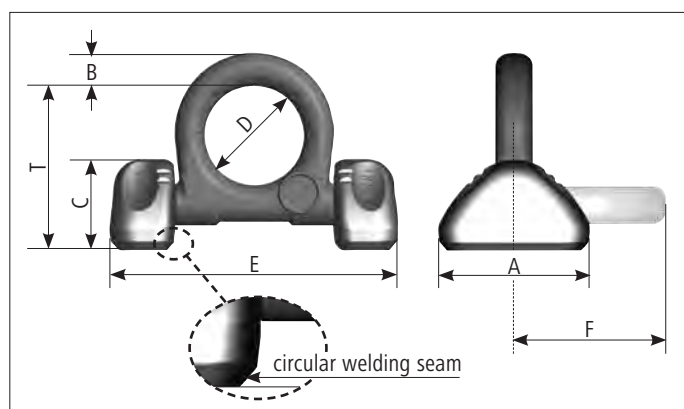
- Design in VIP quality, up to 50 % increased lashing capacity compared with standard design
- Shapely design, zinc- phosphated
- Welding block marked with LC in daN
- Inside spring for noise damping available
- The patented distance lugs assist in achieving the correct root weld.
- Optimized 90° load support - patented

Typ	LC (daN)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	T (mm)	Weld HV + Δa	Weight (kg/pc)	Ref.-No.
LPW-U 3000	3000	33	66	38	25	40	13.5	33	87	14	65	HV 5 + 3	0.35	7992225
LPW-U 5000	5000	36	77	45	27	48	13.5	40	97	16	75	HV 7 + 3	0.5	7994831
LPW-U 8000	8000	42	87	51	31	52	16.5	46	112	18	83	HV 8 + 3	0.8	7992226
LPW-U 13400	13400	61	115	67	44	73	22.5	60	157	24	117	HV 12 + 4	1.9	7992227
LPW-U 20000	20000	75	129	67	55	71	26.5	60	173	26.5	126	HV 16 + 4	2.9	7992228
LPW 32000	32000	95	190	100	69	105	26	90	243	40	174	HV 25 + 6	6.8	7992229





Lashing Points - for welding - LRBS-FIX and LRBK-FIX with LC indication

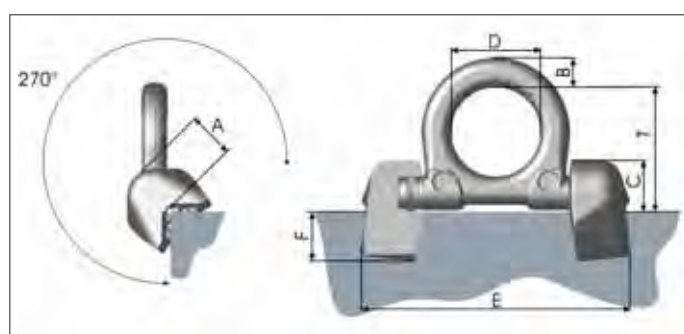


- Circular welding seam
 - No rusting under of the welding blocks
 - Smaller welding seam compared to LRBS
- Dimensions A, B, D, E, F identical to LRBS
- Welding blocks and ring body fix connected by special radial clamp spring
 - Easy adjustment of the ring body
 - Ring body stays in position
 - Easy painting
 - No loose parts
 - No rattling
 - Process reliability at welding: dimension E is assured
- Distance from ring body to weld contact area "T" bigger than at LRBS
 - Easy painting in the gap

Typ	LC (daN)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	T (mm)	Weight (kg/pc)	Ref.-No.
LRBS-FIX 8000	8000	60	14	39	48	132	69	74	0.9	7999 303
LRBS-FIX 13400	13400	88	20	50	60	167	91	97	2.2	7999 304
LRBS-FIX 20000	20000	100	22	60	65	191	100	108	3.7	7999 305
LRBS 32000*	32000	130	30	57	90	267	134	127	6.6	7993 151

* Will be supplied in the current version assembled with 3 components

Lashing Points - for welding – LRBK-FIX –



- Welded on the corner, it reduces the number of lashing points
- Loadable in any direction.
- Low profile and 270° pivoting.
- Welding blocks and ring body fix connected by special radial clamp spring
 - Easy adjustment of the ring body
 - Ring body stays in position
 - Easy painting
 - No loose parts
 - No rattling
 - Process reliability at welding: dimension E is assured

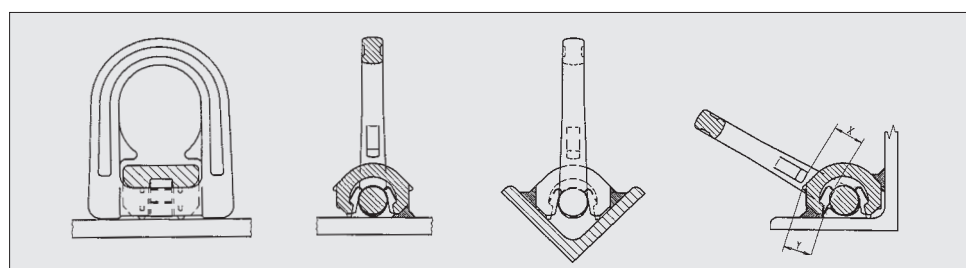
Type	LC (daN)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	T (mm)	Weld a	Weight (kg/pc)	Ref.-No.
LRBK-FIX 8.000	8.000	32	14	28	48	141	29	65	HY 4+3	1	7903056
LRBK-FIX 13.400	13.400	40	20	35	60	181	33	84	HY 5+3	2.1	7903057
LRBK-FIX 20.000	20.000	52	22	46	65	212	46	94	HY 8+3	4.4	7903058

Lashing Points in vehicle construction



RORO Lashing point acc. to DIN EN 29367-2
Reference no. 7983031

Max. lashing force = 10,000 daN, refer to drawing: possibilities of attaching to longitudinal and lateral profiles.



Other lashing points with embossed lashing capacity „daN“ are available on request.



Hints for the Installation

Lifting Points for bolt and weld on

Up to date information under www.rud.com and click safety instructions.

1. Reference should be used in compliance with statutory regulations (BGR 500) and installation to be carried out by competent and skilled persons only.
2. Before installing and use, visually inspect the lifting points in regular intervals, paying special attention to the points, corrosion, wear, weld cracks, deformations, etc.
3. The installation points should be chosen in such a way that the induced forces are accommodated by the work piece without being deformed.
4. The lifting points must be positioned on the work piece in such a way that improper strain due to twisting or turning is avoided.
 - a.) For single leg lift, the lifting point should be vertically above the centre of gravity of the work piece.
 - b.) For two leg lifts, the lifting points must be on both sides and above the centre of gravity of the work piece.
 - c.) For three and four leg lifts, the lifting points should be arranged symmetrically around the centre of gravity in the same plane.
5. Load symmetry
The required WLL of the individual lifting point has to be calculated based on the following physical formulas for symmetrical and unsymmetrical 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
6. Keep the RUD - lifting/lashing points away from aggressive chemicals, acids and their vapours.

The number of bearing legs is:

	symmetrical	asymmetrical
Two lwg	2	1
Three or four leg	3	1

7. Valuation of suitability respective to temperature.
The lifting/lashing points for weld on, types VLBS, VRBS, VRBK and ABA can be stress free, annealed together with the work piece without reduction of WLL.
Temperatures $\leq 600^{\circ}\text{C}$

With lifting points for bolt on, the WLLs have to be reduced acc. to the following table:

Reduction of WLL:

- 40° to 200° C	→ minus	0 %
200° to 300° C	→ minus	10 %
300° to 400° C	→ minus	25 %

8. The welding positions for the lifting/lashing points should be marked in colour for easy identification.
9. When handling the lifting means (sling chain), no squeezing, shearing, catching and impact spots must occur. Damaging of the lifting means and lifting points by sharp corners must be avoided.
10. For the assembly of the lifting points, please follow the user instructions enclosed.
11. RUD-Lifting points are designed for a max. high dynamic application of 20,000 load cycles.
If there are different loading spectrums, please ask the manufacturer.



For welding

Pay attention to the following points during welding:

- The welding should be carried out by a qualified welder acc. to DIN EN 287-1.
- Material of welding block is St 52-3 (1.0570).
- The connecting surfaces must be free from dirt, oil, colour, etc.
- Do not weld the powder coated tempered load ring.
- The complete construction can be annealed stress-free for several times at $\leq 600^{\circ}\text{C}$ without reduction of WLL. (VLBS, VRBS, VRBK and ABA)
- The welding area has to be suitable for the corresponding force introduction.
- The distance lugs (VLBS/VRBS) assist in achieving the required root weld (approx. 3 mm).

Important:

By the arrangement of weld (continuous HV/HY), the following requirements are fulfilled:

DIN 18800 for steel building prescribes:

At outdoor sites or in case of special danger of corrosion, the welds should only be designed as continuous, fillet welds. The circular weld at all RUD-Lifting Points.

Hints for the Installation

Lifting Points for bolt and weld on



For bolting:

- The bolting position is to be designed in such way that the introduced forces are accommodated by the work piece without being deformed.

1 x M	in steel (M = thread size, e.g. M 20)
1,25 x M	in cast iron
2 x M	in aluminium

- In case of shock loadings, twisting or vibrations, especially with through bolts and nuts, an unintentional dismounting may occur. Possibilities of securing: Liquid means e.g. loctite (refer to the user instructions) or use form - closed securing bolts e.g. crown nuts with a key, counter nut, etc.

- With light metals, non ferrous heavy metals and grey cast, the thread arrangement has to be chosen in such a way that the WLL of the thread corresponds with that of the respective work piece material.

- RUD will not accept any warranty for the use of any bolts not supplied by RUD! Minimum quality for the base material „steel“ must be 1.0037 (St 37).

Inspection criteria for items 2 and 10

- Ensure a tight bolt seat (possibly examine torque)
- Ensure that lifting point is complete
- Complete indications of WLL and manufacturer
- Deformations at bearing parts such as body, suspension bracket or latch
- Mechanical damages such as serious notches, especially in high stress areas
- Reductions of cross section by wear > 10 %
- Strong corrosion (pitting)
- Cracks at bearing parts
- Cracks or other damages at the weld (with lifting points for weld on)
- Correct bolt size, bolting quality and bolting length***
- Function and damage of bolts as well as bolt thread
- For lifting/lashing points which swivel, a smooth swivelling of the upper and lower part must be assured.

Tensile Test



Production control at RUD.
Breaking test of a RUD RBS 50t lifting point with a minimum breaking strength of 2,000 kN.

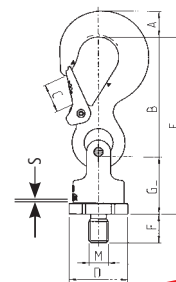


Warning!
Respect the user instructions
for the corresponding lifting
points!

Refer to the user instructions for the corresponding lifting points!

- Assembly or fitting of the different bolt lengths with types WBG-V only to be carried out by the manufacturer.
- With types PP, VWBG-V and VWBG check maximum Gap between upper part and part below, size „s“ – refer to table. In case the maximum Gap has been exceeded, WBG and WBG-V must not be used any more. These parts must not be loaded to proof load.

Type	Gap „s“
WPP/PP...-0.63t–2.5t	max. 1.5 mm
WPP/PP...-4t – 8t	max. 2.5 mm
VWBG-V 0.3 – 0.45	max. 1.2 mm
VWBG-V 0.6 – 2.0	max. 1.5 mm
VWBG-V 3.5 – 5.0	max. 3.0 mm
VWBG 6 – 50	max. 4.0 mm



Warning!
*Use original RUD
bolts only!

Correct storage of lifting points

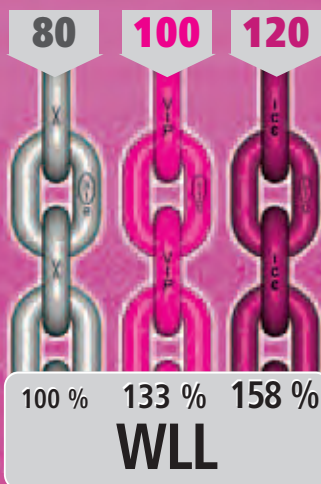


Correct storage of lifting points and sling chains BGR 500.

RUD-Quality in PIN

Grade 80, Grade 100 (VIP) and
WLL »in metric tons« of sling
According to inclination angle at symm

RUD quality grades



Methods of sling



inclination angle: β		0	0-45°	> 45-60°	0-45°	> 45-60°
load factor		1.0	1.4	1.0	2.1	1.5
Diam. of chains	Quality grade					
Ø 4	VIP	0.63	0.88	0.63	1.32	0.95
Ø 6	Gk 8	1.12	1,6	1.12	2.36	1.7
	VIP	1.5	2.1	1.5	3.15	2.25
	ICE	1.8	2.5	1.8	3.75	2.7
Ø 8	Gk 8	2.0	2.8	2.0	4.25	3.0
	VIP	2.5	3.5	2.5	5.25	3.75
	ICE	3.0	4.2	3.0	6.3	4.5
Ø 10	Gk 8	3.15	4.25	3.15	6.7	4.75
	VIP	4.0	5.6	4.0	8.4	6.0
	ICE	5.0	7.0	5.0	10.5	7.5
Ø 13	Gk 8	5.3	7.5	5.3	11.2	8.0
	VIP	6.7	9.5	6.7	14.0	10.0
	ICE	8.0	11.2	8.0	16.8	12.0
Ø 16	Gk 8	8.0	11.2	8.0	17.0	11.8
	VIP	10.0	14.0	10.0	21.0	15.0
	ICE	12.5	17.0	12.5	26.5	19.0
Ø 18	Gk 8	10.0	14.0	10.0	21.0	15.0
Ø 20	Gk 8	12.5	17.0	12.5	26.5	19.0
	VIP	16.0	22.4	16.0	33.6	24.0
Ø 22	Gk 8	15.0	21.2	15.0	31.5	22.4
	VIP	20.0	28.0	20.0	42.0	30.0
Ø 26	Gk 8	21.2	30.0	21.2	45.0	31.5
Ø 28	VIP	31.5	45.0	31.5	67.0*	47.5*
Ø 32	Gk 8	31.5	45.0	31.5	67.0	47.5



Attention:

WLL has to be reduced by 50 % when load is unsymmetrical!



Temperature
°C/°F

Subject to technical modifications. *Only 2 x 2-leg type available.

K!

and Grade 120 (ICE) g chains metric loading



„Made in Germany“

endless** Basket sling chain with choke hitch	Basket sling chain**				Choke hitch**		
	single		double		single	double	
–	0-45°	> 45-60°	0-45°	> 45-60°	0°	0-45°	> 45-60°
1.6	1.1	0.8	1.7	1.2	0.8	1.1	0.8
1.0	0.69	0.5	1.1	0.75	0.5	0.69	0.5
1.8	1.2	0.9	1.9	1.3	0.9	1.2	0.9
2.4	1.65	1.2	2.55	1.8	1.2	1.65	1.2
2.88	2.0	1.44	3.1	2.1	1.44	2.0	1.44
3.2	2.2	1.6	3.4	2.4	1.6	2.2	1.6
4.0	2.75	2.0	4.25	3.0	2.0	2.75	2.0
4.8	3.3	2.4	5.1	3.6	2.4	3.3	2.4
5.0	3.5	2.5	5.3	3.8	2.5	3.5	2.5
6.4	4.4	3.2	6.8	4.8	3.2	4.4	3.2
8.0	5.5	4.0	8.5	6.0	4.0	5.5	4.0
8.5	5.8	4.0	9.0	6.0	4.0	5.8	4.0
10.6	7.5	5.3	11.2	8.0	5.3	7.5	5.3
12.8	8.8	6.4	13.6	9.6	6.4	8.8	6.4
12.5	8.8	6.4	13.6	9.6	6.4	8.8	6.4
16.0	11.0	8.0	17.0	12.0	8.0	11.0	8.0
20.0	14.0	10.0	21.2	15.0	10.0	14.0	10.0
16.0	11.0	8.0	17.0	12.0	8.0	11.0	8.0
20.0	14.0	10.0	21.2	15.0	10.0	14.0	10.0
25.6	17.6	12.8	27.2	19.2	12.8	17.6	12.8
23.6	16.5	12.0	25.5	18.0	12.0	16.5	12.0
32.0	22.0	16.0	34.0	24.0	16.0	22.0	16.0
33.5	23.3	17.0	36.0	25.4	17.0	23.0	17.0
50.0	35.5	25.0	53.0*	37.5*	25.0	35.5	25.0
50.0	35.5	25.0	53.0	37.5	25.0	35.5	25.0
Grade 80	-40° up to +200° C (+40° up to +392° F)		higher 200° up to 300° C (higher 392° up to 572° F)		higher 300° up to 400° C (higher 572° up to 752° F)		
	100 %		90 %		75 %		
VIP 100	-40° up to +200° C (+40° up to +392° F)		higher 200° up to 300° C (higher 392° up to 572° F)		higher 300° up to 380° C (higher 572° up to 716° F)		
	100 %		90 %		60 %		
ICE 120	-60° up to +200° C (-76° up to +392° F)		higher 200° up to 250° C (higher 392° up to 482° F)		higher 250° up to 300° C (higher 482° up to 572° F)		
	100 %		90 %		60 %		

**20 % reduction
for basket chains,
due to sharp edges,
is considered.



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German engineering
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