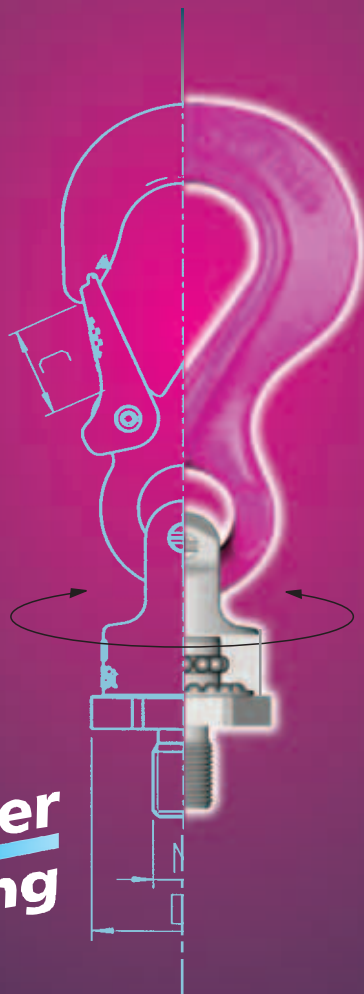


LIFTING AND LASHING POINT COLLECTION

– for bolting, for welding, simply strong –



4 better
lifting

RUD means Quality

....for more than 130 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".

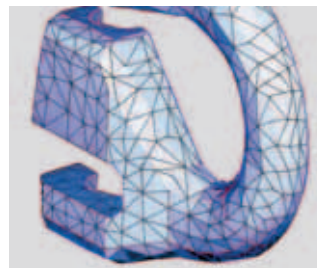
The first idea of a **mecano system from RUD** – fool-proof connection of the correct chains and components, as well as suspension links. This idea became the standard at Ruhrkohle RAG (coal board mining).

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**.

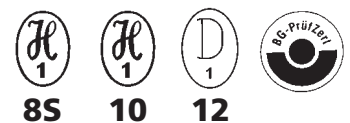
1994: First chain factory to obtain approval of the BG* for their **VIP-special quality** with up to 50 % higher WLL than Grade 8.

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 (Publicity 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.



BG and TÜV approved!

*BG = German Employers Liability Assurance Association.

Product Range

...the most comprehensive range of lifting/lashing points – with

- thread sizes from M6 to M150
- WLL ranging from 0.3 to 150 tonnes



Lifting Points – for bolting –

<p>WLL chart and lifting methods</p> <p>Page 6/7</p>	<p>PP-S PowerPoint-Star</p> <p>Page 8</p>	<p>PP-B (Vario) PowerPoint-B</p> <p>Page 9</p>	<p>PP-VIP (Vario) PowerPoint-B</p> <p>Page 9</p>	<p>WBG-V-Load-Ring for bolt on</p> <p>Page 10</p>	<p>WBG-Load-Ring for bolt on</p> <p>Page 11</p>
	<p>VLBG-Load-Ring for bolt on</p> <p>Page 12</p>	<p>VRS Starpoint-Vario eye bolt/eye nut</p> <p>INOX-STAR</p> <p>Page 14/16</p>	<p>RS/RM high-tensile eye bolt/eye nut</p> <p>ASP-A Thread adapter</p> <p>Page 17</p>	<p>VRBG/RBG Load-Ring for bolt on</p> <p>Page 18</p>	<p>VABH-B Excavator hook for bolt on</p> <p>Page 20</p>



Lifting Points – for welding –



<p>WLL chart and lifting methods</p> <p>Page 22/23</p>	<p>WPP- PowerPoint</p> <p>Page 24/25</p>	<p>WPPH- PowerPoint</p> <p>Page 24/25</p>	<p>VLBS-Load Ring for weld on</p> <p>Page 26</p>	<p>VRBS-Load Ring for weld on</p> <p>Page 28</p>	<p>VRBSS-Load ring for weld on with locking device</p> <p>VRBK Load Ring for 90° edges</p> <p>Page 29/30</p>	<p>VABH-W Excavator hook for weld on</p> <p>Page 31</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 sub-assembly 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!

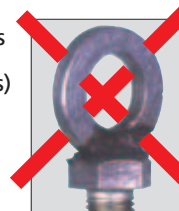
Incorrect loading on improvised lifting points!



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. They must have an identified "Working Load Limit", manufacturers identification markings and must meet all lifting requirement standards.

New – Interactive programme

...with useful hints for the user

www.rud.com



Always
"up to
date"!

More than 270 different tested and certified lifting/lashing points (210 of which are for bolting and 60 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.

NEW: With lashing chain protocol and capacity calculation.



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)													WBG-V Load Ring (Vario)										
	Number of legs	Load direction	Type	PP-S 0.63 t	PP-S 1.5 t	PP-S 2.5 t	PP-S 4 t	PP-S 6.7 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 (2) M16 RS 1 t	VLBG (2) M20 RS 2 t	WBG-V 0.3 t	WBG-V 0.45 t	WBG-V 0.6 t	WBG-V 1.0 t	WBG-V 1.3 t	WBG-V 1.8 t	WBG-V 2 t	WBG-V 3.5 t	WBG-V 5 t
BG-Prüfer	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	M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 24	M 30	
	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	0.6	0.9	1.2	2.0	2.6	3.6	4	7	10
	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	1.2	1.8	2.4	4.0	5.2	7.2	8	14	20
	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	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)	3.5 (4)	5 (6)
	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	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)	7 (8)	10 (12)
	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	0.4	0.6	0.8	1.4	1.8	2.5	2.8	4.9	7
	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	0.3	0.4	0.6	1.0	1.3	1.8	2	3.5	5
	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	0.3	0.4	0.6	1.0	1.3	1.8	2	3.5	5
	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	0.6	0.9	1.2	2.1	2.7	3.7	4.2	7.3	10.5
	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	0.4	0.6	0.9	1.5	1.9	2.7	3	5.2	7.5
	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	0.3	0.4	0.6	1.0	1.3	1.8	2	3.5	5
		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	M 8	M 10	M 12	M 14	M 16	M 18	M 20	M 24	M 30

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.

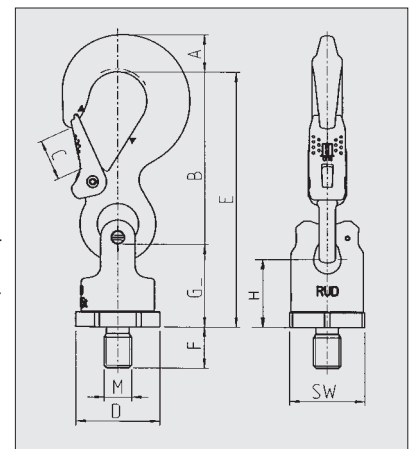
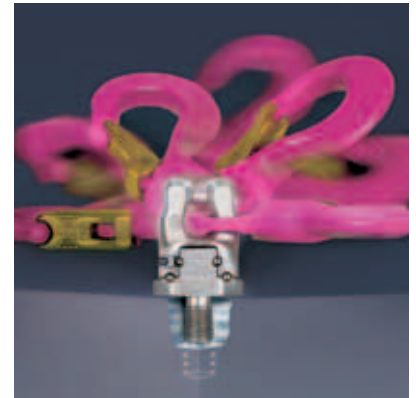
*BG - German Employers Liability Insurance

4 better lifting



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	A	B	C	D	E	F	F	G	H	M	SW	Weight (kg)	Torque	Ref.-No. (Standard)	Ref.-No. (Vario)
							Stand- ard	Vario								
PP-S-0.63t-M12	0.63	13	75	18	40	116	18	19-145	41	33	12	36	0.4	According to the user instructions	7990719	8600310
PP-S-1.5t-M16	1.5	20	97	25	46	147	24	26-180	50	40	16	41	1.0		7989719	8600311
PP-S-2.5t-M20	2.5	28	126	30	61	187	30	31-200	61	47	20	55	1.7		7989075	8600302
PP-S-4t-M24	4.0	36	150	35	78	227	36	37-255	77	60	24	70	3.2		7989076	8600313
PP-S-5t-M30	5.0(6.7)	37	174	40	95	267	45	46-330	93	71	30	85	7.2		7989720	8600314
PP-S-8t-M36	8.0(10)	49	208	48	100	310	54	55-300	102	76	36	90	9.2		7989077	8600305
PP-S-0.63t-1/2"-13UNC	0.63	13	75	18	40	116	18	19-145	41	33	1/2"	36	0.4	According to the user instructions	7990720	8600310
PP-S-1.5t-5/8"-11UNC	1.5	20	97	25	46	147	24	26-180	50	40	5/8"	41	1.0		7989908	8600311
PP-S-2.5t-3/4"-10UNC	2.5	28	126	30	61	187	30	31-200	61	47	3/4"	55	1.7		7989909	8600302
PP-S-2.5t-7/8"-9UNC	2.5	28	126	30	61	187	30	31-200	61	47	7/8"	55	1.7		7989910	8600302
PP-S-4t-1"-8UNC	4.0	36	150	35	78	227	36	37-255	77	60	1"	70	3.2		7989911	8600313
PP-S-5t-1 1/4"-7UNC	5.0(6.7)	37	174	40	95	267	45	46-330	93	71	1 1/4"	85	7.2		7989912	8600314
PP-S-8t-1 1/2"-6UNC	8.0(10)	49	208	48	100	310	54	55-300	102	76	1 1/2"	90	9.2	7989913	8600305	

() increased WLL at axial load direction



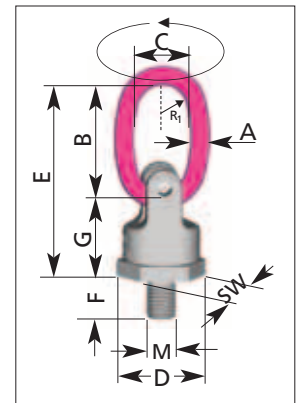
– 360° swivelling/180° pivoting double ball bearing –



Complies with the machinery directives 2006/42/EG

PP-B – the ring connection for hook assemblies

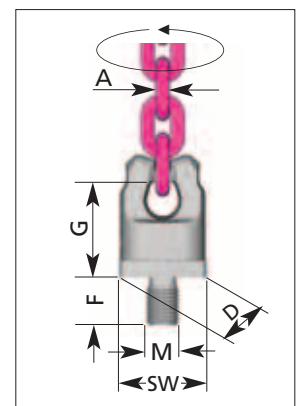
Type	WLL (t)	A	B	C	D	E	F	G	M	SW	Weight (kg)	Ref.-No.	Ref.-No.
												metric	imperial
PP-B-0.63t-M12	0.63	9	65	35	40	105	18	41	12	36	15	7989522	0.63t-1/2"-13UNC 7989901
PP-B-1.5t-M16	1.5	11	65	35	46	115	24	50	16	41	15	7989523	1.5t-5/8"-11UNC 7989902
PP-B-2.5t-M20	2.5	13	75	40	61	135	30	61	20	55	18	7989081	2.5t-3/4"-10UNC 7989903
	2.5	13	75	40	61	135	30	61		55	18	--	2.5t-7/8"-9UNC 7989904
PP-B-4t-M24	4.0	16	95	45	78	172	36	77	24	70	20	7989082	4t-1"-8UNC 7989905
PP-B-5t-M30	5.0(6.7)	21	130	60	95	223	45	93	30	85	25	7989524	5t-1 1/4"-7UNC 7989906
PP-B-8t-M36	8.0(10)	24	140	65	100	242	54	102	36	90	28	7989083	8t-1 1/2"-6UNC 7989907



() 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 (kg)	Ref.-No.	Ref.-No.
									metric	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	8t-1 1/2"-6UNC 7989926



() increased WLL at axial load direction

PP-S/PP-B/PP-VIP

– all types in special thread lengths available

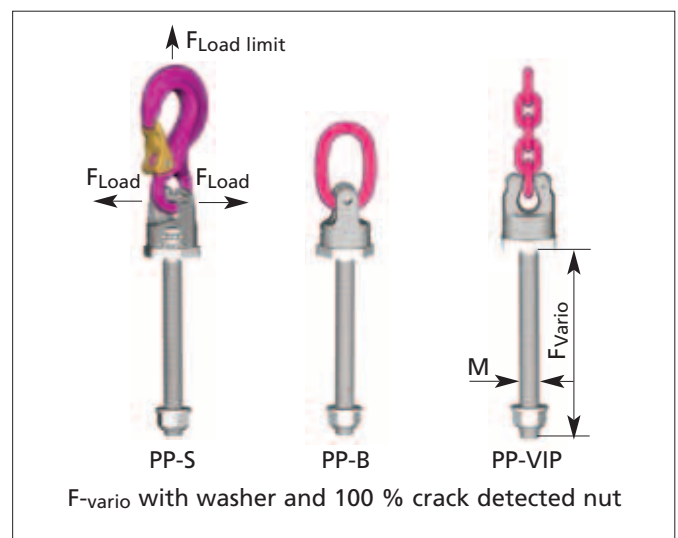
Please indicate type, thread size and F-vario!

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



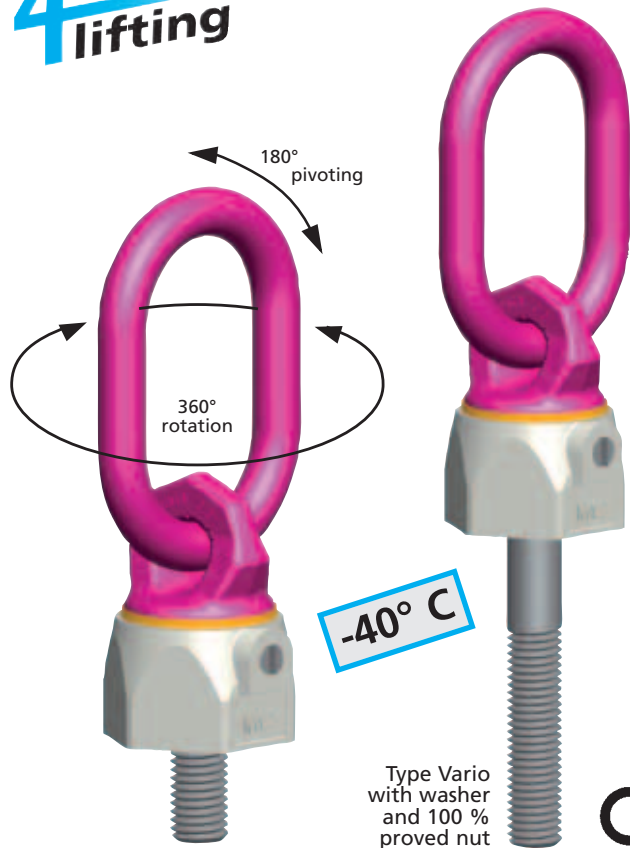
Load Ring bolted - WBG-V -

- 360° swivelling/180° pivoting -



Complies with the machinery directives 2006/42/EG

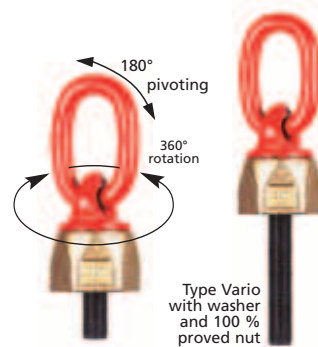
4 better lifting



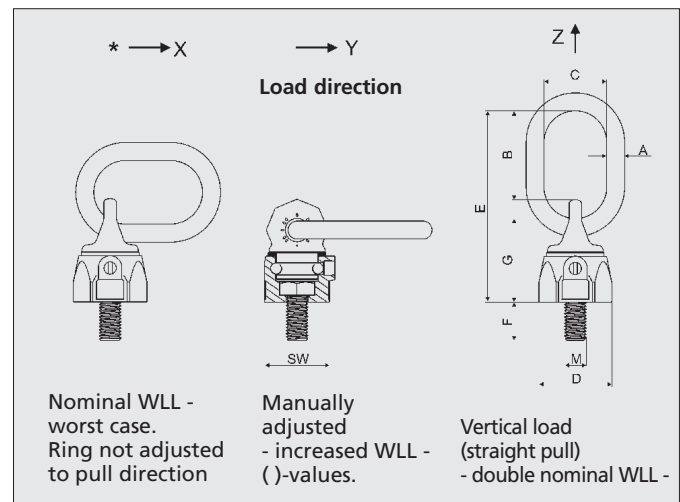
Type Vario with washer and 100 % proved nut



Old version:

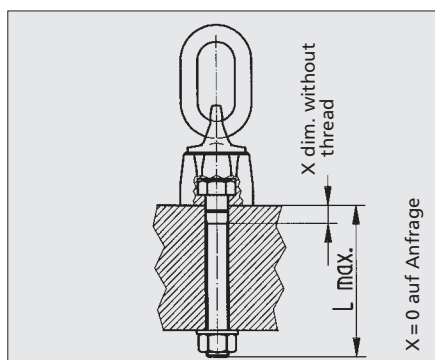


Type Vario with washer and 100 % proved nut



Type	WLL (t)	A	B	C	D	E	F Stand	F max.	G	M	SW	X	Weight Stand. (kg)	Torque	Ref.-No. Stand.	Ref.-No. Vario with washer and nut
WBG-V 0.3-M 8***	0.3 (0.4)	8	31	29	33	76	13	102	36	8	28	18	0.25		7103720	8600330
WBG-V 0.45-M 10***	0.45 (0.6)	8	31	29	36	78	17	122	38	10	30	19	0.3		7103715	8600331
WBG-V 0.6-M 12	0.6 (0.75)	10	49	35	42	107	21	140	47	12	36	19	0.4	According to the user instructions	7100180	8600332*
WBG-V 1.0-M 14**	1.0 (1.25)	13	46	38	48	112	25	65	56	14	41	-	0.6		-	8600337*
WBG-V 1.3-M 16	1.3 (1.5)	13	46	38	48	114	25	180	56	16	41	28	0.6		7100430	8600333*
WBG-V 1.8-M 18**	1.8 (2.0)	13	54	35	64	137	33	83	67	18	55	-	1.1		-	8600338*
WBG-V 2.0-M 20	2.0 (2.5)	13	54	35	64	137	33	223	67	20	55	30	1.1		7100800	8600334*
WBG-V 3.5-M 24	3.5 (4.0)	18	66	40	81	173	40	255	88	24	70	25	2.7		7100640	8600335*
WBG-V 5.0-M 30	5.0 (6.0)	22	90	50	99	221	50	330	106	30	85	32	5.5		7100650	8600336*

*Please refer to the RUD PowerPoint collection as an alternative (refer to page 9). **Delivery time on request. ***Without bearing ring. As long as stock lasts we deliver the old WBG-V-version.



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: WBG-V-2,0 M 20 x 80.

***Please note:**

It can happen, that during use, the lifting point can engage in any position. That's why the WLL is embossed for the worst case situation (picture X). The ring can be manually adjusted to the direction of pull (picture Y), then the WLL values in the brackets () can be used.

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 red powder coating, housing zinc plated.
- Type Vario with washer and 100 % crack detected nut.
- WBG-V and WBG 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°.

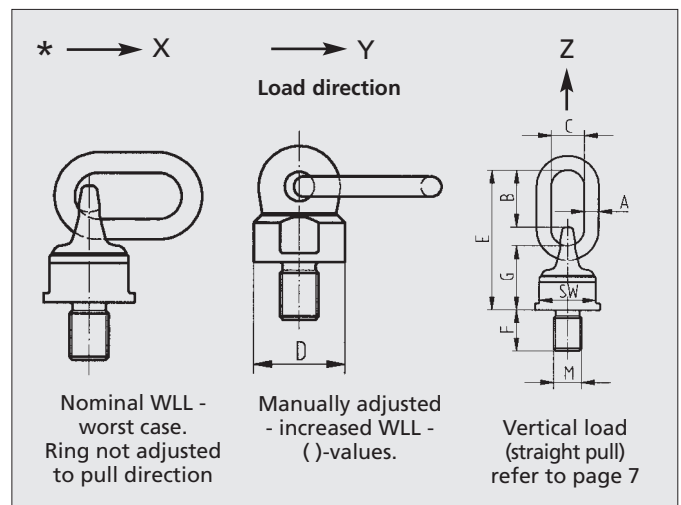
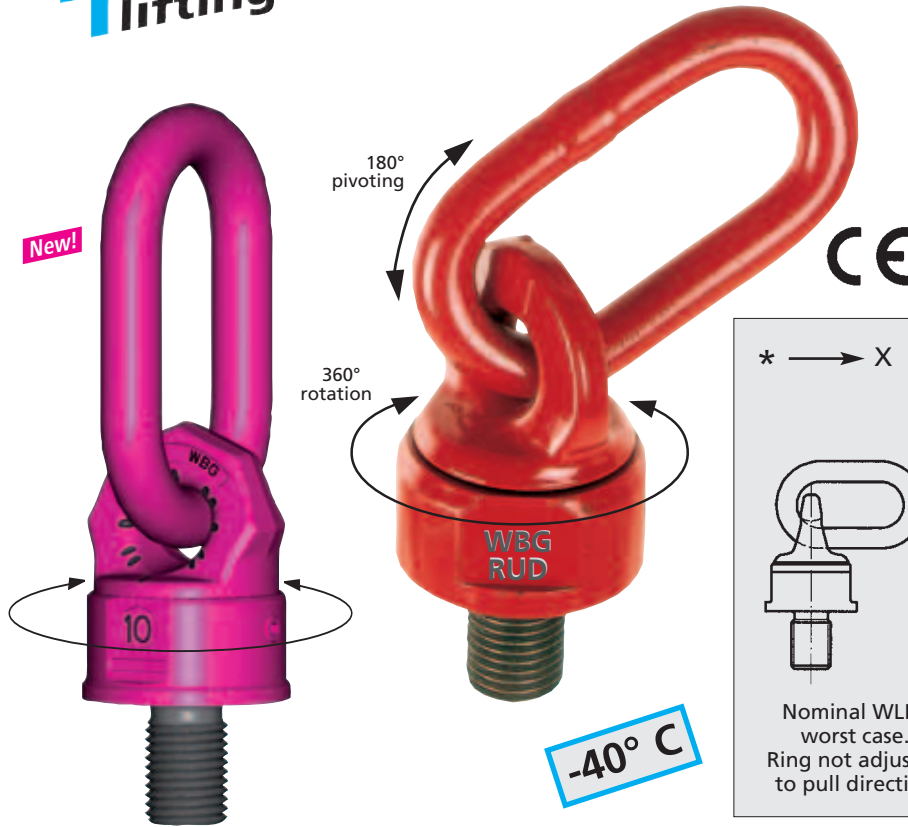
Load Ring bolted - WBG -

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



Complies with the machinery directives 2006/42/EG

4 better lifting



Type	WLL (t)	A	B	C	Ø D	E	F	F _{vario}	G	M	SW	Torque	Weight approx. (kg)	Ref.-No. F	Ref.-No. F _{vario}
WBG 6-spec. thread	6 (7.5)	22	87	50	90	210	-	50-300	95	33	80	-	-	8600150	
WBG 8(10)-M 36	8 (10)	22	86	50	90	208	54	-	94	36	80	4.6	51 872	86 00 151	
New! WBG 8(10)-spec. thread	8 (10)	22	87	50	90	210	-	50-300	95	36-39	80	-	-	86 00 151	
WBG 12(13)-M 42	12 (13)	26	111	65	98	234	63	-	95	42	85	6.1	51 874		
WBG 13(13)-M 48	13 (13)	26	111	65	98	234	68	-	95	48	85	6.3	51 930		
New! WBG 12(13)-spec. thread	12 (13)	26	112	65	98	240	-	60-300	100	42-52	85	-	-	86 00 152	
WBG 16(22)-M 56	16 (22)	32	119	70	120	271	84	-	120	56	95	10.7	51 941		
WBG 16(25)-M 64	16 (25)	32	119	70	120	271	94	-	120	64	95	11.4	71 00 406		
New! WBG 16(22)-spec. thread	16 (22)	32	120	70	120	280	-	80-300	130	56-85	95	-	-	86 00 153	
WBG 25-M 72	25 (30)	40	125	80	160	332	108	-	163	72	130	27	7990332		
WBG 25-spec. thread	25 (30)	40	125	80	160	332	-	100-300	163	72-85	130	-	-	8600155	
WBG 30-M 80	30 (35)	40	125	80	170	332	120	-	163	80	130	28.7	7990333		
WBG 30-spec. thread	30 (35)	40	125	80	170	332	-	100-300	163	80-85	130	-	-	8600156	
New! WBG 40(50)-M 90	40 (50)	46	130	90	170	338	135	-	159	90	145	33.2	7995545		
WBG 40(50)-spec. thread	40 (50)	46	130	90	170	338	-	100-300	159	90-150	145	-	-	86 00 154	

***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 % magnetic crack detected and proof loaded).
- S = max. allowed gap, see user instructions page 33.
- WBG New: 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 (15 inch). The base material of the workpiece must be capable to withstand the occurring lifting forces. Minimum required material = ST 37 (1.0037).

Load Ring bolted - VLBG -

- ...will turn 360° -



Complies with the machinery directives 2006/42/EG

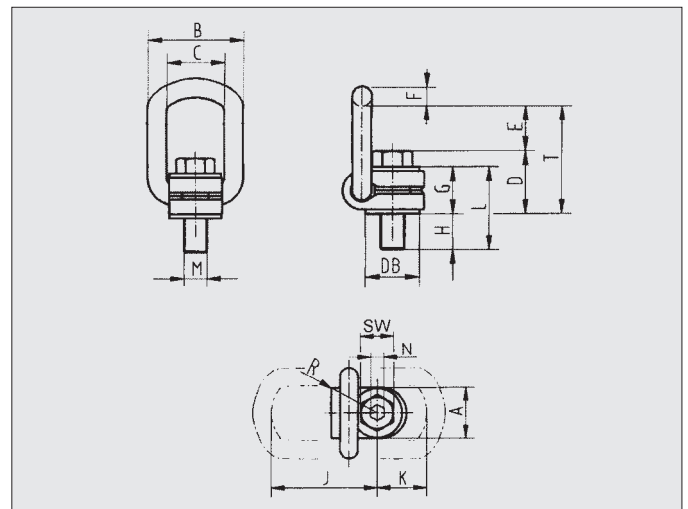
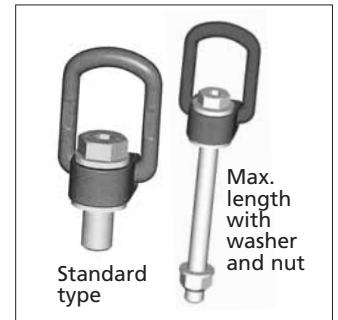
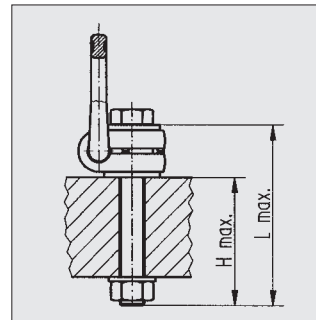
4 better lifting

-40° C

MO 075131



Will turn 360°



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 + 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	87	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	3.1	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	3.3	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	85	197	70	5.8	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	85	197	70	6.4	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	8600389
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	8600390

Attention: the stainless load ring is not suitable for use in chloride media (e.g. indoor swimming-pools)!

● Production running out. Mew type INOX-Star (page 16).

VLBG-Z 1t 1/2"-13UNC	1	32	54	34	38	37	10	29	22	-	75	45	51	-	1/2"	-	3/4"	32	75	26	0.33	100 Nm	8502349	
VLBG-Z 1.5t 5/8"-11UNC	1.5	33	56	36	47	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! ■ = Bolt not fool-proofed!

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:

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.

Subject to technical alternations!

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 user instructions and by trained persons (see page 33).
- 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.



Ring must not betouch the workpiece.



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 permantly from beige into brown and turns finally when exceeding a temperature of 400° Celsius into black. In addition to that bubbles on the surface may appear. See page 32 for necessary WLL reduction and max. allowed temperature!

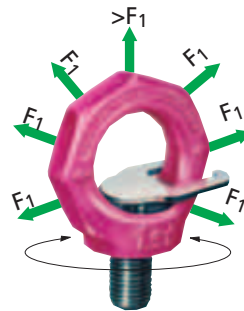
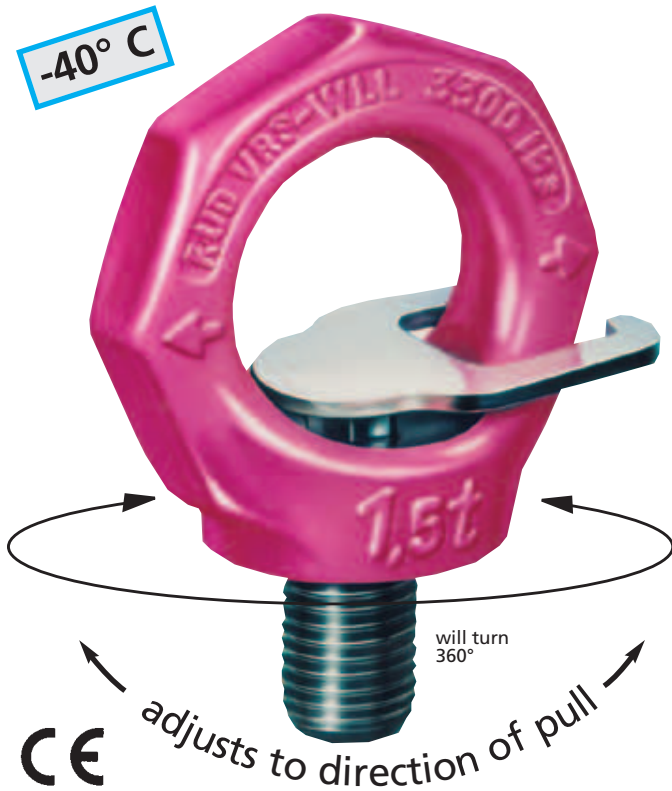


»STARPOINT« - VRS -

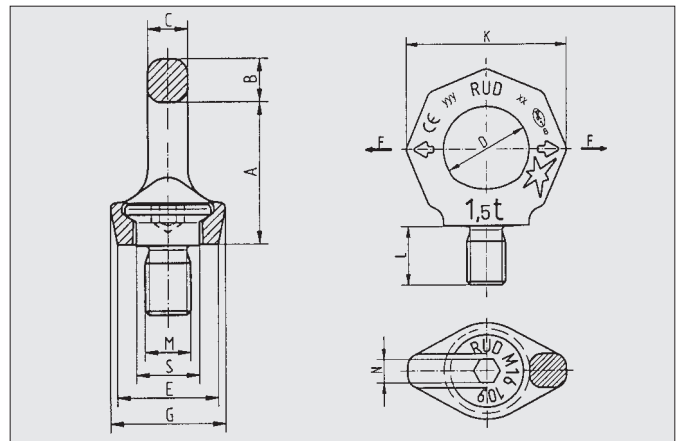
- ...the absolute **STAR** among eye bolts -



Complies with the machinery directives 2006/42/EG



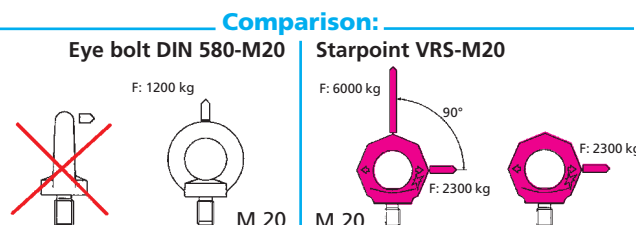
4 better lifting



Type	WLL (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	27	37	9	6	6	13	79 94 626*	79 99 416*
VRS-M 8	0.3	0.1	34	11	8,5	25	25	28	47	12	8	6	16	71 00 554	85 00 911
VRS-M10	0.4	0.1	34	11	8,5	25	25	28	47	15	10	6	16	79 82 219	71 04 029
VRS-M12	0.75	0.2	42	13	10	30	30	34	56	18	12	8	20	79 82 220	71 01 313
VRS-M16	1.5	0.3	49	15	14	35	35	40	65	24	16	10	23.5	79 82 221	71 01 314
VRS-M20	2.3	0.5	57	17	16	40	42	50	75	30	20	12	29	79 82 222	71 01 315
VRS-M24	3.2	0.9	69	21	19	48	50	60	90	36	24	14	35	79 82 223	71 01 316
VRS-M30	4.5	1.7	86	26	24	60	60	75	112	45	30	17	44	79 82 224	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 99 272***	-
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	79 84 221
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	79 84 223

*packing with 20 pieces · ***packing with 4 pieces

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.



This is **only** possible with RUD-STARPOINT 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!

»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).

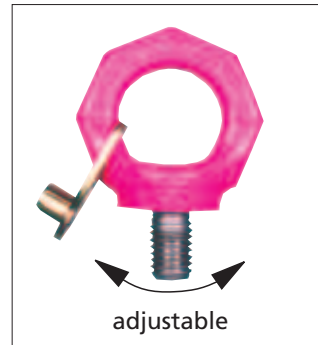
- Forged material 1.6541, alloy quenched and tempered, 100 % electro-magnetic crack detected according to EN 1677-4



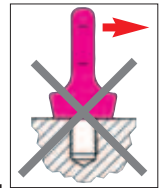
STARPOINT Type VRS-F

Type VRS-F including the installation tool/STAR KEY. For fitting the STARPOINT is delivered with an integrated installation tool. Just engage tool into the hexagon socket bolt - tighten by hand-disengage tool. STARPOINT then adjustable 360°.

Type VRS without locking device. For assembly just use a hexagon socket screw key.



- 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.

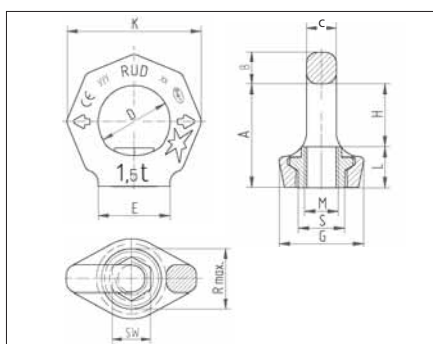


»STARPOINT« - VRM -

- eye nut -



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 14. 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!

4 better lifting

-40° C

Type	WLL (t)	Weight (kg)	A	B	C	D	E	G	H	K	L	M	R _{max}	S	SW	Ref.-No.
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(35.5)	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

INOX-STAR eyebolt



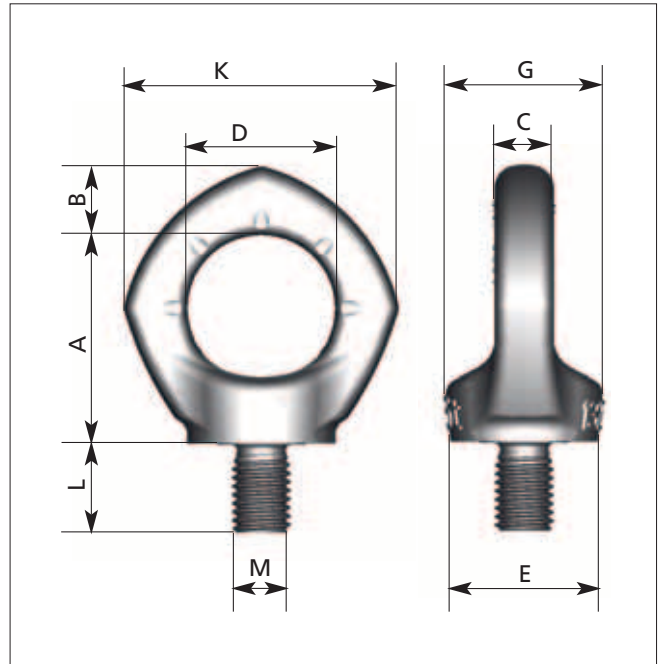
- stainless -

Complies with Machinery Directive 2006/42/EG



MO
075139

4 better
lifting



Name	Rated load F_1 (t)	A mm	B mm	C mm	D mm	E mm	G mm	K mm	L mm	M	SW	Weight (kg)	Ref.-No.:
INOX-STAR M12	0.5	42	14	10	30	30	32	56	18	M12	8	0.2	7993835
INOX-STAR M16	1.0	49	16	12	35	35	37	65	24	M16	10	0.3	7993836
INOX-STAR M20	2.0	57	19	16	40	40	43	74	30	M20	12	0.6	7993837
INOX-STAR M24	2.5	69	24	19	48	50	53	92	35	M24	14	1.0	7993838

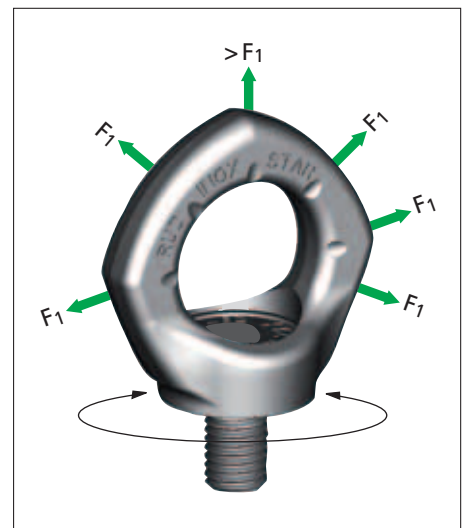
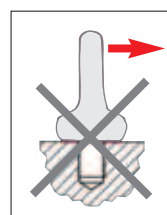
INOX-STAR eyebolt

- 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 654 611.

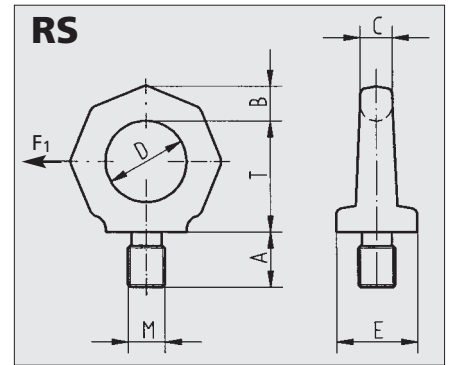
Subject to technical alternations!

Eye bolt/-nut - RS/RM -

...high tensile and distinctive



4 better lifting



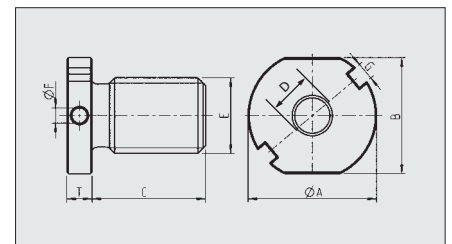
Type	WLL (t)	A	B	C	D	E	F	M	T	Weight (kg)	Ref.-No. RS	Ref.-No. RM
RS - M 6	0.1	12	11	10	25	25	11	6	35	0.1	61 401	55 254
RS - M 8	0.2	12	11	10	25	25	11	8	35	0.1	61 402	55 255
RS - M 10	0.25	15	11	10	25	25	11	10	35	0.1	56 397	55 258
RS - M 12	0.4	18	13	12	30	30	12	12	41	0.2	56 398	55 271
RS - M 14	0.75	21	15	14	35	35	13	14	48	0.25	56 403	55 281
RS - M 16	1	24	15	14	35	35	13	16	48	0.3	56 404	55 460 (800 kg)
RS - M 20	1.5	30	17	16	40	40	16	20	55	0.45	56 407	55 343
RS - M 24	2	36	21	20	50	50	20	24	70	0.7	56 408	55 394
RS - M 30	3	45	26	24	60	60	25	30	85	1.6	56 409	55 438
RS - M 36	4	54	43	38	90	100	37	36	130	6.0	56 954	53 093
RS - M 42	6	63	43	38	90	100	37	42	130	6.2	56 955	53 095
RS - M 48	8	68	43	38	90	100	37	48	130	6.4	56 956	53 098

- 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 old 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.

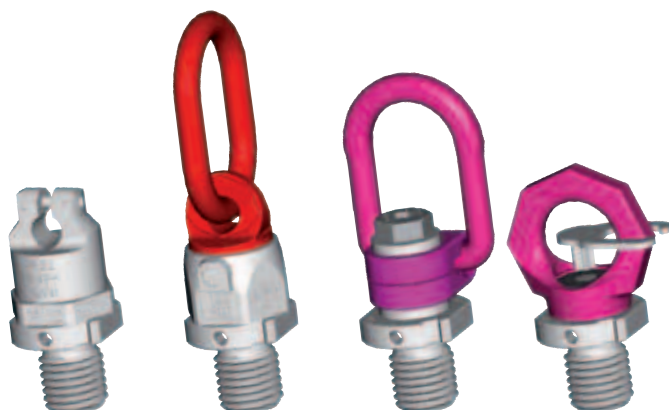
The RUD-thread-adapter offers the perfect solution. The outer thread is adjusted to the old thread and the inner thread is adjusted to the new thread of the boltable lifting point. This saves adjustments or expensive purchases.



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

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

Also available in fine or inch thread sizes.



Example: ASP-A

Load Ring - RBG/VRBG -

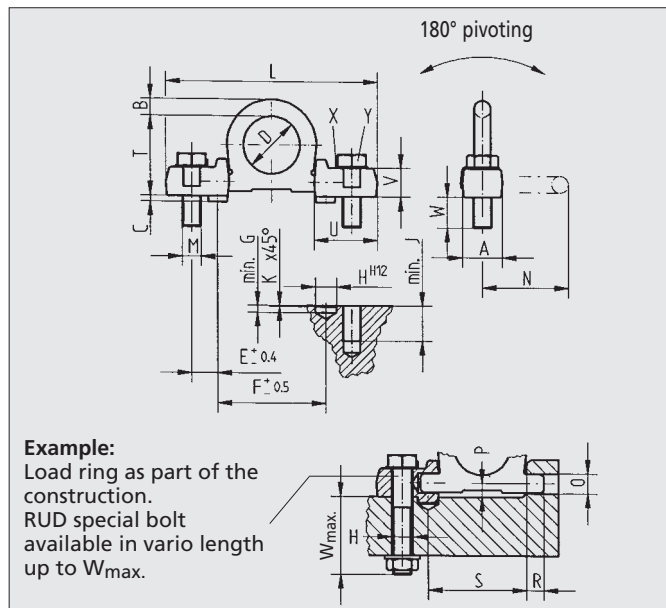
...for bolting with patented relief lugs



Complies with the machinery directives 2006/42/EG

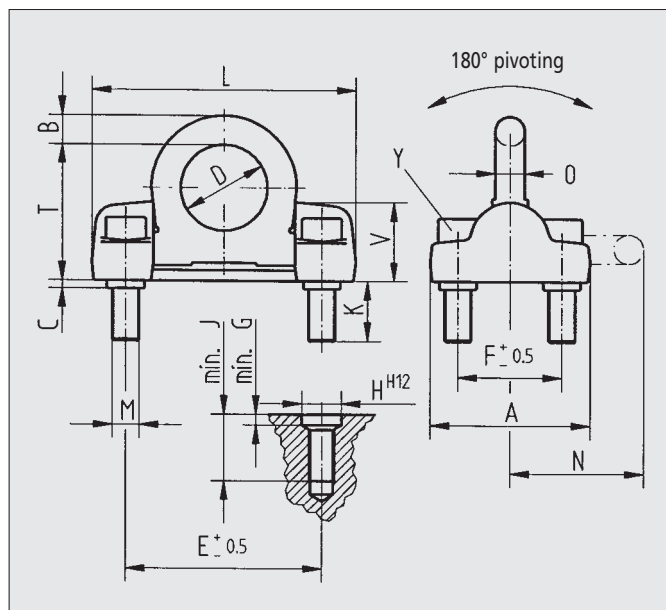
4 better lifting

RBG 3t



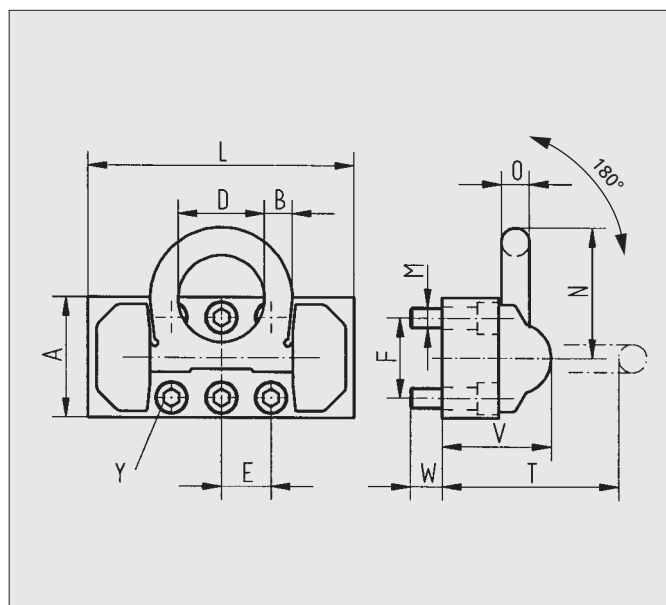
4 better lifting

RBG 8/VRBG 10/16t



4 better lifting

VRBG 30/50/150t



Subject to technical alternations!

Load Ring - RBG -

...for bolting with relief lugs



Complies with the machinery directives 2006/42/EG

Type	WLL (t)	A	B	C	D	E ±0,4	F ±0,5	G min	H H12	J min	K x45°	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 + 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 16t.**
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 28.
- 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 ±0,5	F ±0,5	G min	H H12	J min	L	M	N	O	V	K	T	Y ISO 4762	Weight (kg)	Torque	Ref.-No. (with bolts)
RBG 8	8	120	22	6	65	143	78	8	30	50	194	20	100	25	54	43	102	M20x70-8.8	3.8	200 Nm	59 971*
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

*product is expiring

- **Relief lugs.**
With RBG 8/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 RBG.

- Check tightness of bolts at regular intervals.
- Favourable load force introduction and distribution.
- For description of the ring, refer to VRBS, page 28.
- **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 ±0,5	F ±0,5	G min	H H12	J min	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	1000Nm	7985867
VRBG 80	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



- For description of the ring, refer to VRBS page 28.
- **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.

Excavator hook for bolting

- VABH-B - the light weight construction generation



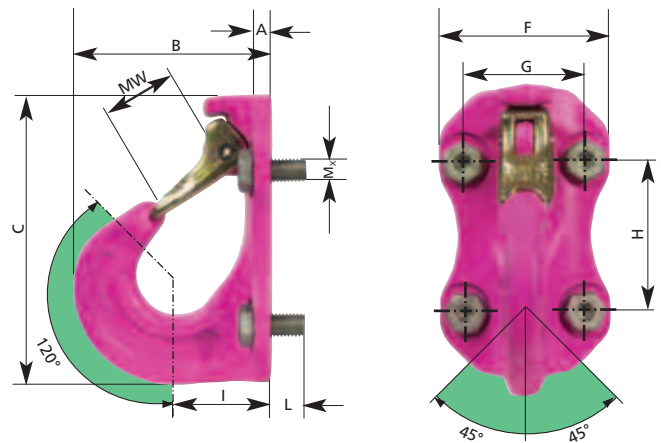
Complies with the machinery directives 2006/42/EG



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: 120°
- 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 M _x	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	0.78	7991205
VABH-B 2.5t	2.5	30	7.5	101	148	85	60	75	49	18	4 x M12	1.73	7991206
VABH-B 4t	4	35	10	122	171	104	70	90	59	25	4 x M16	3	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 in smaller openings.
- Patented wear marks on the hook.
- Measurable overload indicator.
- Can also be used as an excavator hook.

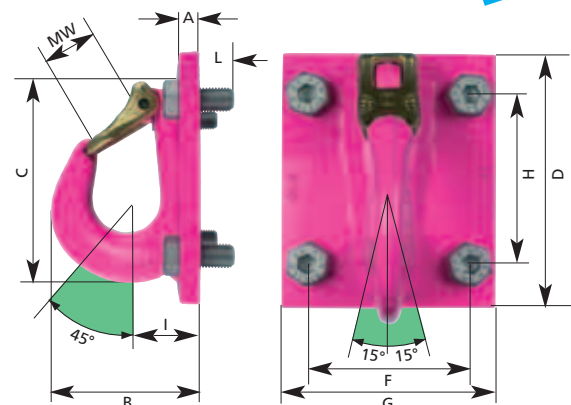
4 better lifting



VCGH-G

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 ±15° in lateral pull direction



Type	WLL (t)	MW to 45°	A	B	C	D	F	G	H	I	L	RUD Universal-	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.

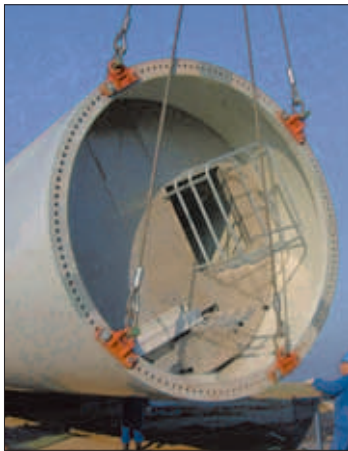
- Due to the limited operation range, assembly should be in the direction of pull.

Special lifting points - for bolting -

...just let us know your Application!



Complies with the machinery directives 2006/42/EG



Daily Use



Subject to technical alternations!

Lifting Points - for welding -



Maximum transport weight "G" in "tonnes"
different slinging methods

Complies with the machinery directives 2006/42/EG

LIFTING POINTS CE BG-PrüfZert	WPP-Serie PowerPoint rotation		WPPH-Serie PowerPoint fixed		LBS/VLBS Load ring for welding		RBS/VRBS Eye Plate for welding																						
	Page 24/25	Page 24/25	Page 26	Page 26	Page 28	Page 28	Page 28																						
Number of legs Load direction	all variations						all variations						LBS(1) RS 0.5 t LBS(3) RS 1 t LBS(5) RS 2 t			VRBS 4 t VRBS 6.7 t VRBS 10 t VRBS 16 t VRBS 30 t VRBS 50 t													
Typ	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	RS 0.5 t	RS 1 t	RS 2 t	VRBS 4 t	VRBS 6.7 t	VRBS 10 t	VRBS 16 t	VRBS 30 t	VRBS 50 t		
	1	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	4	6.7	10	16	30	50	
	2	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	8	13.4	20	32	60	100	
	1	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	4	6.7	10	16	30	50	
	2	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	8	13.4	20	32	60	100	
	2	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	5.6	9.38	14	22.4	42	70	
	2	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	4	6.7	10	16	30	50	
	2	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	4	6.7	10	16	30	50	
	3+4	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	8.4	14.1	21	33.6	63	105	
	3+4	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	6	10.1	15	24	45	75	
	3+4	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	4	6.7	10	16	30	50	
Weld		3.5	4.5	3+4.5	3+5	3+8	3+10	3.5	4.5	3+5	3+6	3+8	3+10	HV	HV	HV	HV	HV	HV	HV	HV	HV	HV	HY	HY	HY	HY	HY	HY
														5+3	7+3	8+3	12+4	16+4	25+6	5+3	8+3	12+4	4+3	5.5+3	8.5+4	8.5+4	15+4	25+8	

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



Always
"up to
date"!

Subject to technical alternations!

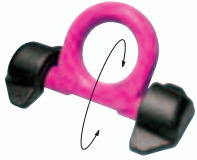
Lifting Points - for welding -



Maximum transport weight "G" in "tonnes" different slinging methods

Complies with the machinery directives 2006/42/EG

VRBSS
Eye Plate
with locking device



Page 29

VRBK
Eye Plate
for corners 90°



Page 30



VRBSS 6.7 t

VRBSS 10 t

VRBSS 16 t

6.7

10

16

13.4

20

32

6.7

10

16

13.4

20

32

9.38

14

22.4

6.7

10

16

6.7

10

16

14.1

21

33.6

10.1

15

24

6.7

10

16

HY

HY

HY

5.5+3

6+4

8.5+4

VRBK 4 t

VRBK 6.7 t

VRBK 10 t

4

6.7

10

8

13.4

20

4

6.7

10

8

13.4

20

5.6

9.38

14

4

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HY

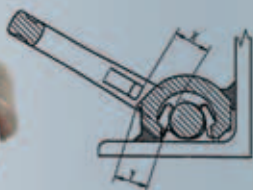
HY

HY

4+3

5+3

8+3



Subject to technical alternations!

RUD Lifting Points are in accordance with DIN EN 818 and 1677 with a dynamic loading of more than 20.000 load cycles.

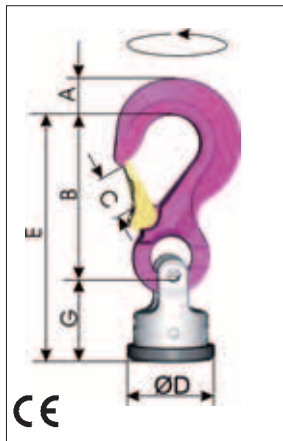
The BG recommends: At high dynamic applications with high load cycles (permanent operation), the WLL must be reduced.

Lifting Points - for welding -

Welding **PowerPoint**® – WPP-.. –
 ...with double ball bearing – 360° swivelling



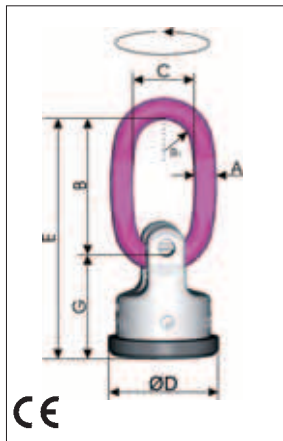
Complies with the machinery directives 2006/42/EG



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

Type	WLL (t)	A	B	C	D	E	G	Weld	Weight (kg) approx.	Ref.-No.:
WPP-S-0.63t	0.63	13	75	18	40	115	40	⊥3.5	0.4	7990721
WPP-S-1.5t	1.5	20	97	25	46	147	50	⊥4.5	1.0	7989944
WPP-S-2.5t	2.5	28	126	30	61	187	61	HY3+4.5	1.5	7989945
WPP-S-4t	4.0	36	150	35	78	227	77	HY3+5	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

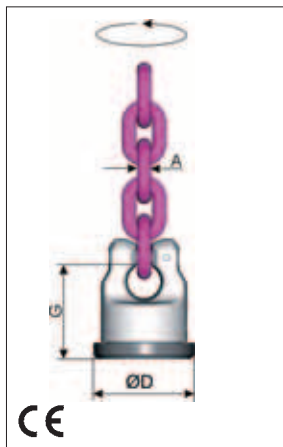
() increased WLL in axial load direction



WPP-B – the ring connection for hook assemblies

Type	WLL (t)	A	B	C	D	E	G	R1	Weld	Weight (kg) approx.	Ref.-No.:
WPP-B-0.63t	0.63	9	65	35	40	105	40	15	⊥3,5	0.35	7989954
WPP-B-1.5t	1.5	11	65	35	46	115	50	15	⊥4,5	0.6	7989955
WPP-B-2.5t	2.5	13	74	40	61	135	61	18	HY3+4.5	1.0	7989956
WPP-B-4t	4.0	16	95	45	78	172	77	20	HY3+5	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	Weight (kg) approx.	Ref.-No.: without VIP-chain
WPP-VIP4-0.63t	0.63	4	40	40	⊥3.5	0.25	7989960
WPP-VIP6-1.5t	1.5	6	46	50	⊥4.5	0.45	7989961
WPP-VIP8-2.5t	2.5	8	61	61	HY3+4.5	0.85	7989962
WPP-VIP10-4t	4.0	10	78	77	HY3+5	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.

-40° C

Notice: Follow the Instructions for use!

Lifting Points - for welding -

Welding **PowerPoint**® Housing – WPPH.. –

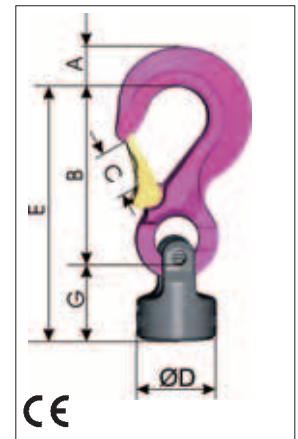


Complies with the machinery directives 2006/42/EG

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

Type	WLL (t)	A	B	C	D	E	G	Weld	Weight (kg) approx.	Ref.-No.:
WPPH-S-0.63t	0.63	13	75	18	34	109	34	⊥3.5	0.35	7990722
WPPH-S-1.5t	1.5	20	97	25	40	141	44	⊥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

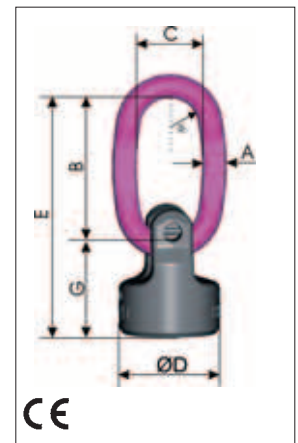
() increased WLL in axial load direction



WPPH-B – the ring connection for hook assemblies

Type	WLL (t)	A	B	C	D	E	G	R ₁	Weld	Weight (kg) approx.	Ref.-No.:
WPPH-B-0.63t	0.63	9	65	35	34	99	34	15	⊥3.5	0.3	7989976
WPPH-B-1.5t	1.5	11	65	35	40	109	44	15	⊥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

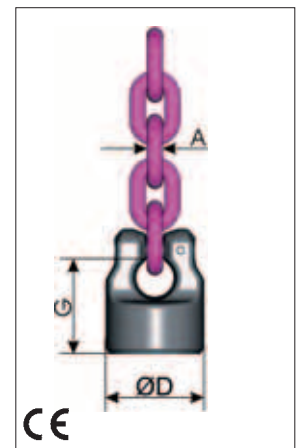
() increased WLL in axial load direction



WPPH-VIP – for direct connection with VIP chain

Type	WLL (t)	A VIP-chain connection	D	G	Weld	Weight (kg) approx.	Ref.-No. without VIP-chain
WPPH-VIP4-0.63t	0.63	4	34	34	⊥3.5	0.2	7989982
WPPH-VIP6-1.5t	1.5	6	40	44	⊥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 24)

Notice: Follow the Instructions for use!



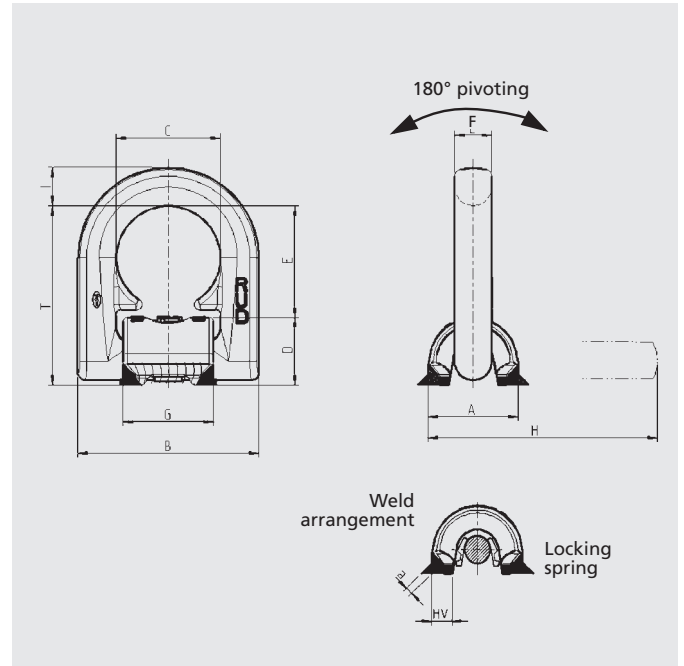
Load Ring - VLBS - - for welding -



Complies with the machinery directives 2006/42/EG

4 better lifting

-20° C



Type	WLL (t)	A	B	C	D	E	F	G	H	I	T	Weld L	Weight (kg)	Ref.-No.: captive complete	Ref.-No.: without spring
VLBS 1.5	1.5	32	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 48 830	79 95346
VLBS 4	4	42	87	51	32	52	16.5	46	112	18	84	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	26.5	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 to the protected 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 13).
- 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.



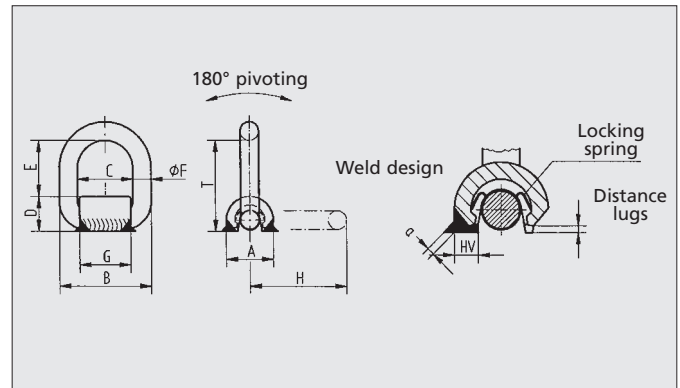
Load Ring - LBS-RS-stainless - - for welding -



Complies with the machinery directives 2006/42/EG



Material No. 1.4571



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

* Without locking spring

LBS () RS-version!

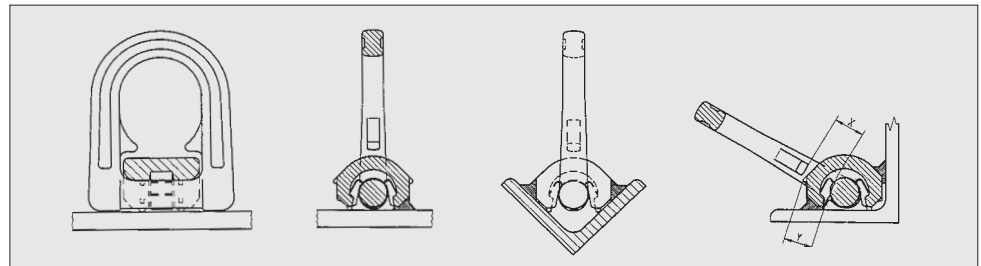
Welding block and suspension ring made of 1.4571, recommendable welding electrode e.g. Castolin ARC A Mo 90009N

Application examples:

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

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.

Lashing Points in vehicle construction



Lashing points acc. to ISO.

Example: RORO - lashing point on vehicle. Ref.-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.



Subject to technical alterations.



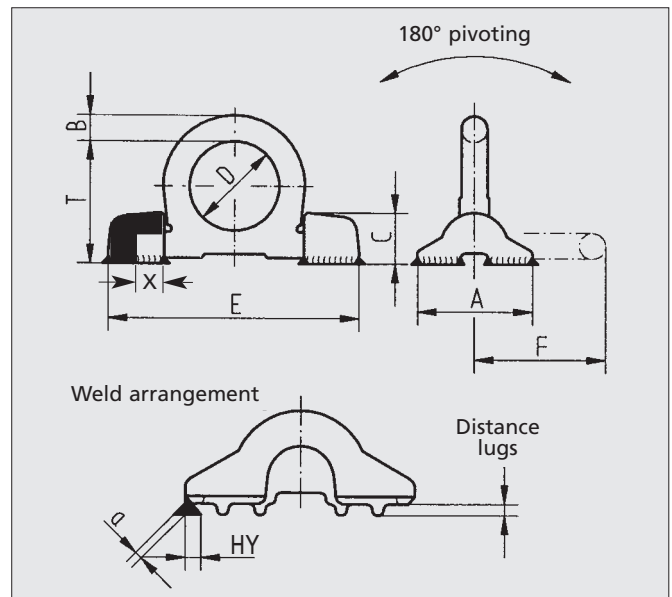
Load Ring - VRBS/RBSB - - for welding -



Complies with the machinery directives 2006/42/EG

4 better lifting

-20° C



Type	WLL (t)	A	B	C	D	E	F	O	Q	X	T	Weld HY + Δa	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	91	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 30	30	160	42	78	130	373	195	47	220	37	178	HY 15 + 4	19.0	60267
VRBS 50	50	240	70	120	230	620	340	65	375	-	313	HY 25 + 8	55.0	56 834

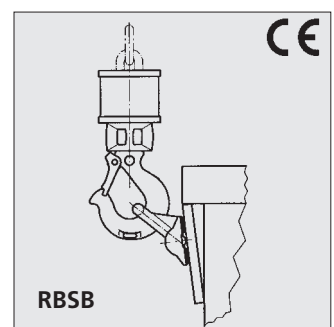
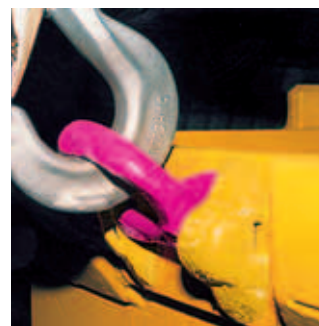
- Distribution of the load force due to the 2 point fixing, hence an optimised force introduction to the work piece.
- Forged, suspension ring acc. to EN 1677-1, electromagnetic crack detected, pink powder coated. Suspension ring can also be ordered single. For instance VRL 4. This lifting point fulfils 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.

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.

- 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!



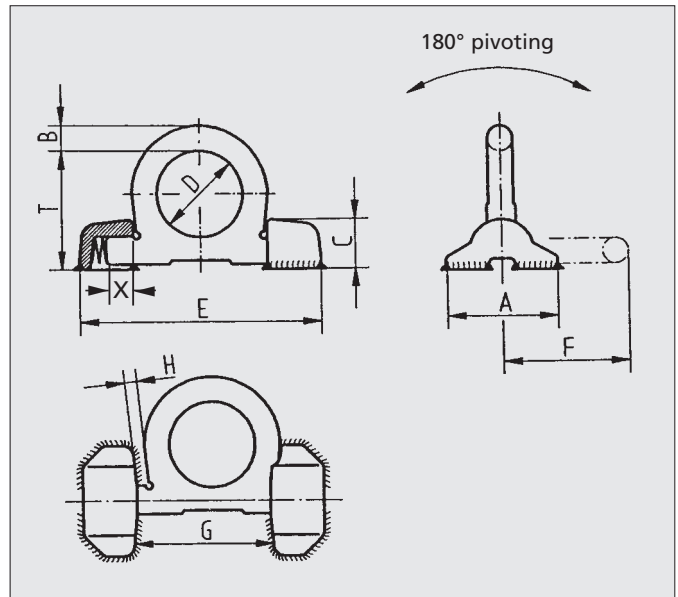
Type	WLL (t)	A	B	C	D	E	F	O	P	T	Weld HY + Δa	Weight (kg)	Ref.-No.:
RBSB 5	5	80	20	36	60	164	92	23	21	84	HY 5 + 3	1.8	61 757

Load Ring with locking device - VRBSS for welding -

Complies with the machinery directives 2006/42/EG

4 better lifting

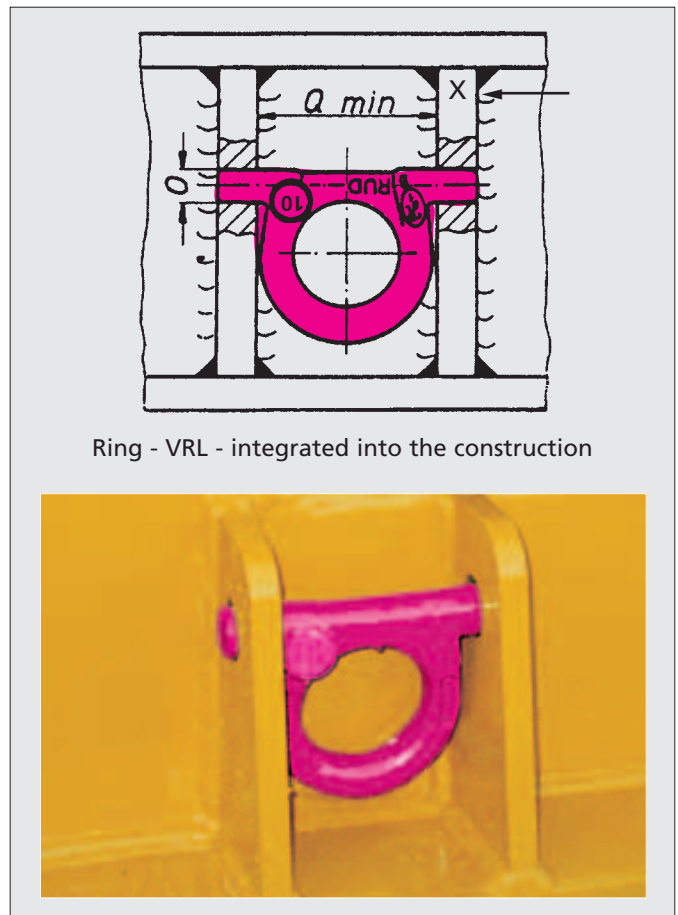
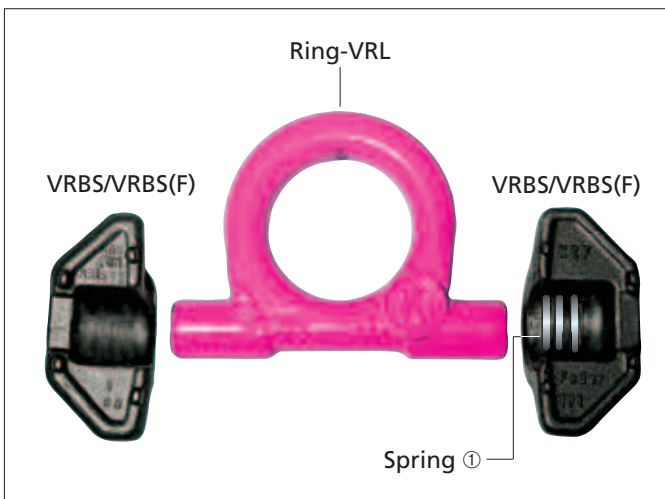
-20° C



Type	WLL (t)	A	B	C	D	E	F	G	H	X	T	Weld HY+L _a	Weight (kg)	Ref.-No.:
VRBSS 6.7	6.7	88	20	39	60	170	91	92	7	15	84	HY 5.5 + 3	2.1	79 92 875
VRBSS 10	10	100	22	46	65	195	100	104	7	22	95	HY 6 + 4	2.8	79 92 876
VRBSS 16	16	130	30	57	90	263	134	148	8	28	127	HY 8.5 + 4	6.6	79 92 877

- A protected spring ① retains the ring in every required position. In addition, the spring reduces vibration induced noise.
- In suspended condition, the ring can be folded thus considerably reducing the risks of accidents and excluding an unintentional hooking in.
- The ring can be adjusted to various positions without tipping over an important requirement of the RAG standard 815001. Lifting/lashing points must not impede safe movement in their surroundings.
- Technical description same as VRBS, page 28.

Attention: Refer to the RUD user welding instructions!



Load Ring for edge attachments - VRBK - - for welding -



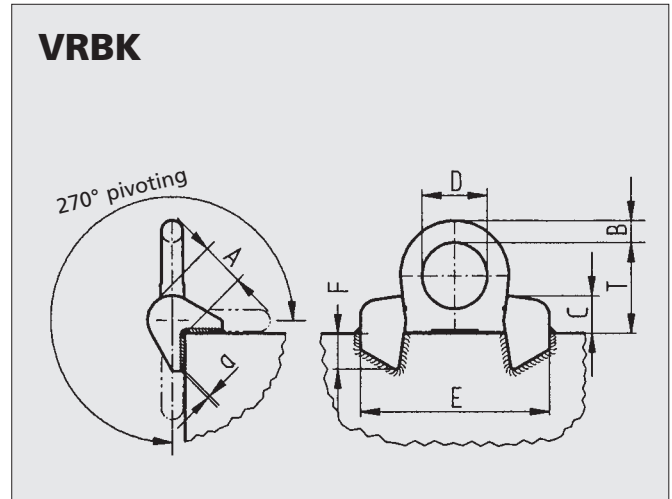
Complies with the machinery directives 2006/42/EG

**4 better
lifting**

-20° C



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Type	WLL (t)	A	B	C	D	E	F	T	Weld	Weight (kg)	Ref.-No.:
VRBK 4	4	32	16	30	48	138	30	67	HY 4 + 3	1.1	79 92 879
VRBK 6.7	6.7	37	20	35	60	176	34	86	HY 5 + 3	2.1	79 92 880
VRBK 10	10	50	22	48	65	208	46	100	HY 8 + 3	4.3	79 92 881

Load ring VRBK with quenched and tempered movable suspension ring.

- 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. Suspension ring can be ordered single. For instance VRL 3. This lifting point fulfils the requirements of the appropriate safety authorities (German Employers Insurance Association). Stamped.

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 block for corners made of material 1.0570 (St 52-3) and stamped with the WLL (t).



-Excavator hook in VIP - quality - for welding -



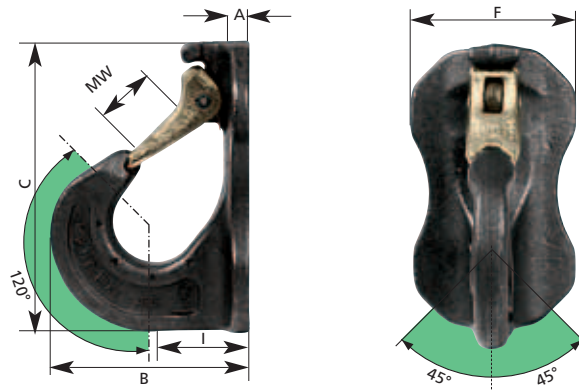
Complies with the machinery directives 2006/42/EG



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: 120°
- 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.

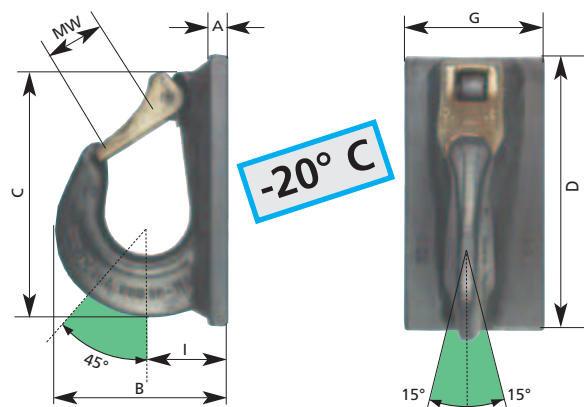
- Enlarged hook tip avoids improper use - thus no hook in smaller openings.
- Patented wear marks on the hook.
- Measurable overload indicator.
- Can also be used as an excavator hook.

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.

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

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

The number of bearing legs is:

	symmetrical	unsymmetrical
Two leg	2	1
Three or four leg	3	2

- Valuation of suitability respective to temperature.
The lifting/lashing points for weld on, types VLBS, VRBS and VRBK can be stress free, annealed together with the work piece without reduction of WLL.
Temperatures ≤ 600°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 %

- The welding positions for the lifting/lashing points should be marked in colour for easy identification.
- 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.
- For the assembly of the lifting points, please follow the user instructions enclosed.
- 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 ≤ 600°C without reduction of WLL.
- The welding area has to be suitable for the corresponding force introduction.
- The distance lugs assist in achieving the required root weld (approx. 3 mm).

Important:

By the arrangement of weld (continuous HV), 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 HV weld at the VLBS assures a connection via the whole cross section of the material. This corresponds to the closed weld showing no signs of corrosion.



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.

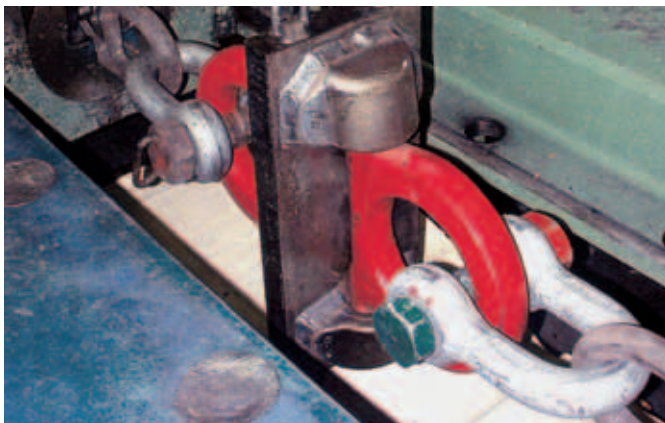
● With light metals, non ferrous heavy metals and grey cast, the thread arrangement has to be chosen in such a way that the WLL of the thread corresponds with that of the respective work piece material.

● 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



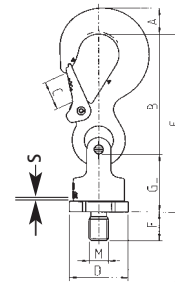
Production control at RUD. Breaking test of a RUD RBS 50t lifting point with a minimum breaking strength of 2,000 kN.



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, WBG-V and WBG 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
WBG-V 0,3 – 0,45	max. 1,2 mm
WBG-V 0,6 – 2,0	max. 1,5 mm
WBG-V 3,5 – 5,0	max. 3,0 mm
WBG 8 – 35	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.

ICE
120



The (r)evolution sling chain from RUD

- Patented steel with fantastic mechanical properties
- BG Approval with permit-stamp
- Up to 60 % higher WLL, even at temperature of -60°C!
- 30 % lighter sling chain – up to 45 % lighter lashing chain*
- 30 % harder* – longer lifetime – more economical
- Always one chain size smaller*
- Coupling system with just a few components
- Integrated chain shortener without reduction of WLL
- Robust ICE-STAR-Hook with many advantages
- ICE-Pink colour as patented heat indicator
- Patented wear marks with lenticular shape at all critical areas
- Identification tag with integrated gauge
- Made in Germany



* all values corresponding to Grade 80.

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