

Wirbelbock-Gewinde WBG-V/WBG



Safety instructions

This safety instruction/declaration of the manufacturer has to be kept on file for the whole lifetime of the product.
Translation of the Original instructions



Lifting points bolted
WBG-V/WBG



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EG-Konformitätserklärung

entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen

Hersteller: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
Friedensinsel
73432 Aalen

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Maschinenrichtlinie 2006/42/EG sowie den unten aufgeführten weiteren EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Wirbelbock
WBG-V / WBG

Folgende harmonisierten Normen wurden angewandt:
EN 12100-1 EN 12100-2
EN 14121-1 EN 1677-1
EN 1677-4

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:
BGR 500, KAP2.8

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
Daniel Klose, RUD Ketten, 73432 Aalen

Aalen, den 14.12.2009 Dr. Ing. Rolf Sinz, (Prokurist/QMB)
Name, Funktion und Unterschrift Verantwortlicher



EG-Declaration of the manufacturer

According to the EG-Machinery Directive 2006/42/EG, annex II B and aand amendments

Manufacturer: **RUD Ketten**
Rieger & Dietz GmbH u. Co. KG
Friedensinsel
73432 Aalen

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

Product name: Load ring WBG-V/WBG
WBG-V / WBG

The following harmonized norms were applied:
EN 12100-1 EN 12100-2
EN 14121-1 EN 1677-1
EN 1677-4

The following national norms and technical specifications were applied:
BGR 500, KAP2.8

Authorized person for the configuration of the declaration documents:
Daniel Klose, RUD Ketten, 73432 Aalen

Aalen, 14.12.2009 Dr. Ing. Rolf Sinz, (Prokurist/QMB)
Name, function and signature of the responsible person

User Instruction

- Reference should be made to German Standards accord. BGR 500 or other country specific statutory regulations and inspections are to be carried out by competent persons only.
- Before installation and every use, inspect visually RUD lifting points, paying particular attention to any evidence of corrosion, wear, weld cracks and deformations. Please ensure compatibility of bolt thread and tapped hole.
- The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The German testing authority BG, recommends the following minimum for the bolt lengths:

- 1 x M in steel (min. quality S235JR [1.0037])
- 1,25 x M in cast iron (e.g. GG25)
- 2 x M in aluminium
- 2,5 x M in aluminium-magnesium alloys

(M = thread Ø, e.g. M20)

When lifting light metals, nonferrous metals and gray cast iron the thread has to be chosen in such a way that the WLL of the thread corresponds to the requirements of the corresponding base material.

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

5. Load symmetry:

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

$$W_{LL} = \frac{G}{n \times \cos \beta}$$

WLL = working load limit
 G = load weight (kg)
 N = number of the load bearing legs
 β = angle of inclination of the chain strand to the vertical

The calculation of load bearing legs is as follows:

	symmetrical	asymmetrical
two leg	2	1
three / four leg	3	2

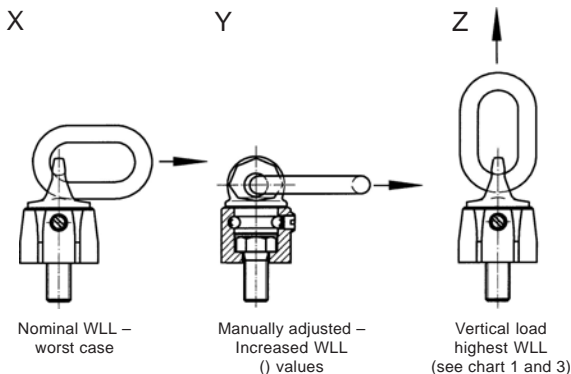
(see table 1 and 3)

- Drill and tap the workpiece so that the WBG is installed perpendicular to the surface of the work piece. The workpiece surface must be flat, providing complete contact for the WBG ball bearing house.

Countersink the tapped hole (Nom. dia of thread + 4 mm).

- Due to the ball bearing it is sufficient to tighten by hand with a spanner. Without using a bar. For a long term application the WBG-V/WBG should be tightened with torque according table 2 or 4 (+/- 10 %).

- The WBG-V/WBG is designed to rotate and turn the load, therefore the lifting point can engage any position. That's why the WLL is embossed for the worst case situation which can happen (Picture X). The ring can be manually adjusted to direction of pull (Picture Y). Then the values in the brackets can be used.



A non-adherence to this advice may result damages of persons and materials!

- All fittings connected to the WBG-V/WBG should be free moving. Also the lifting ring must be free moveable and should not be used over sharp corners.

When connecting and disconnecting the lifting means (sling chain) pinches and impacts should be avoided. Damage of the lifting means caused by sharp edges should be avoided as well.

- With shock loadings, twisting or vibrations, especially with through bore-hole and nuts, an unintentional dismounting may occur. Possibilities of securing: liquid means such as Loctite (respect manufacturer's recommendations) or form closed bolt securing such as crown nut, counter nut etc.

11. Effects of temperature:

Due to the greasing we recommend to use the WBG-V/WBG not in overheated areas. If this cannot be avoided please take the reduced WLL into consideration.

-40° to 100°C	no reduction	-40°F to 212°F
100° to 200°C	minus 15 %	212°F to 392°F
200° to 250°C	minus 20 %	392°F to 482°F
250° to 350°C	minus 25 %	482°F to 662°F

Temperatures above 350°C (662°F) are not permitted.

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

- The places where the lifting points are fixed should be marked with colour.

- The WBG-V can be supplied with variable thread sizes (see Fvario table 2) and metric variations with washers and crack-detected nuts. The assembly or modification of the bolt should only be done by RUD or authorized persons.

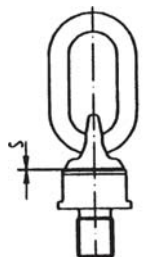
- If the lifting points are used exclusively for lashing, the value of the working load limit can be doubled. LC = 2 x WLL

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

Inspection criteria concerning paragraphs 2 and 16:

- Ensure correct bolt and nut size, quality and length.
- Ensure compatibility of bolt thread and tapped hole.
- The lifting point should be complete.
- The working load limit and manufacturers stamp should be clearly visible.
- Deformation of the component parts such as body, load ring, bolt or threaded bolt.
- Mechanical damage, such as notches, particularly in high stress areas.
- Wear should be no more than 10 % of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Damage to the bolt, nut and/or thread.
- On the WBG-V/WBG the ring must always rotate smoothly.
- The WBG-V/WBG should only be used within its WLL. See RUD chart.
- The max. gap between the upper and lower parts of the WBG-V/WBG should not be exceeded:

WBG-V 0,3 up to 0,45:	max. 1,2 mm
WBG-V 0,6 up to 2,0:	max. 1,5 mm
WBG-V 3,5 up to 5,0:	max. 3,0 mm
WBG 6 up to 35:	max. 4,0 mm



Attention: The WBG-V/WBG is not suitable for prolonged turning application!

Method of lift											
Number of legs	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4	
Angle of inclination α	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor		1		2	1,4	1	1	2,1	1,5	1	
		WLL in metric tonnes, bolted and adjusted to the direction of pull									
Type	Thread	0,6	0,3 (0,4)	1,2	0,6 (0,8)	0,42 (0,56)	0,3 (0,4)	0,3 (0,4)	0,63 (0,84)	0,45 (0,6)	0,3 (0,4)
WBG-V 0,3	M 8 / $\frac{5}{16}$ "-18UNC	0,9	0,45 (0,6)	1,8	0,9 (1,2)	0,63 (0,84)	0,45 (0,6)	0,45 (0,6)	0,95 (1,26)	0,68 (0,9)	0,45 (0,6)
WBG-V 0,45	M 10 / $\frac{3}{8}$ "-16UNC	1,2	0,6 (0,75)	2,4	1,2 (1,5)	0,84 (1,05)	0,6 (0,75)	0,6 (0,75)	1,26 (1,58)	0,9 (1,12)	0,6 (0,75)
WBG-V 0,6	M 12	2,0	1,0 (1,25)	4,0	2,0 (2,5)	1,4 (1,75)	1,0 (1,25)	1,0 (1,25)	2,1 (2,62)	1,5 (1,87)	1,0 (1,25)
WBG-V 1,0	M 14	2,6	1,3 (1,5)	5,2	2,6 (3)	1,82 (2,1)	1,3 (1,5)	1,3 (1,5)	2,73 (3,15)	1,95 (2,25)	1,3 (1,5)
WBG-V 1,3	M 16 / $\frac{5}{8}$ "-11UNC	3,6	1,8 (2)	7,2	3,6 (4)	2,5 (2,8)	1,8 (2)	1,8 (2)	3,78 (4,2)	2,7 (3)	1,8 (2)
WBG-V 1,8	M 18	4	2 (2,5)	8	4 (5)	2,8 (3,5)	2 (2,5)	2 (2,5)	4,2 (5,25)	3 (3,75)	2 (2,5)
WBG-V 2,0	M 20 / $\frac{3}{4}$ "-10UNC	7	3,5 (4)	14	7 (8)	4,9 (5,6)	3,5 (4)	3,5 (4)	7,35 (8,4)	5,25 (6)	3,5 (4)
WBG-V 3,5	M 24 / 1"-8UNC	10	5 (6)	20	10 (12)	7 (8,4)	5 (6)	5 (6)	10,5 (12,6)	7,5 (9)	5 (6)
WBG-V 5,0	M 30 / 1 $\frac{1}{4}$ "-7UNC	12,5	6 (7,5)	25	12 (15)	8,4 (10,5)	6 (7,5)	6 (7,5)	12,6 (15,75)	9 (11,25)	6 (7,5)
WBG 6	M 33 / 1 $\frac{3}{8}$ "	12,5	8 (10)	25	16 (20)	11,2 (14)	8 (10)	8 (10)	16,8 (21)	12 (15)	8 (10)
WBG 8	M 36 / M 39 / 1 $\frac{1}{2}$ "	16	10 (12,5)	32	20 (25)	14 (17,5)	10 (12,5)	10 (12,5)	21 (26,2)	15 (18,8)	10 (12,5)
WBG 10	M 42 - M 52 / 2"	25	15 (18)	50	30 (36)	21 (25,2)	15 (18)	15 (18)	31,5 (38)	22,5 (27)	15 (18)
WBG 15	M 56 - M 68 / 2 $\frac{1}{2}$ "	35	25 (30)	70	50 (60)	35 (42)	25 (30)	25 (30)	52,5 (63)	37,5 (45)	25 (30)
WBG 25	M 72 - M 76 / 2 $\frac{3}{4}$ "	35	30 (35)	70	60 (70)	42 (49)	30 (35)	30 (35)	63 (73,5)	45 (52,5)	30 (35)
WBG 30	M 80 - M 85 / 3"	35	35 (40)	70	70 (80)	49 (56)	35 (40)	35 (40)	73,5 (84)	52,5 (60)	35 (40)
WBG 35	M 90-M 150 / 3 $\frac{1}{2}$ "-5"										

Table 1

		WBG-V											WBG						
Type	WLL t	weight kg	A	B	C	Ø D	E	F	Fvario	G	M	N	SW	torque	reference	F	Fvario		
WBG-V 0,3 - M 8	0,3 (0,4)	0,25	8	33	29	36	76	13	8 - 102	36	8	18	28	10 Nm	7103720	8600330			
WBG-V 0,45 - M 10	0,45 (0,6)	0,3	8	33	29	36	78	17	10 - 122	38	10	19	30	10 Nm	7103715	8600331			
WBG-V 0,6 - M 12	0,6 (0,75)	0,5	10	51	35	42	105	21	12 - 140	45	12	19	36	10 Nm	7100180	8600332			
WBG-V 1,0 - M 14	1,0 (1,25)	0,6	13	47	38	48	112	21	14 - 65	54	14	28	41	25 Nm		8600337			
WBG-V 1,3 - M 16	1,3 (1,5)	0,6	13	47	38	48	112	25	16 - 180	54	16	28	41	30 Nm	7100430	8600333			
WBG-V 1,8 - M 18	1,8 (2,0)	1,1	13	56	35	64	135	33	18 - 83	65	18	30	55	50 Nm		8600338			
WBG-V 2,0 - M 20	2,0 (2,5)	1,1	13	56	35	64	135	33	20 - 223	65	20	30	55	70 Nm	7100800	8600334			
WBG-V 3,5 - M 24	3,5 (4,0)	2,7	18	68	40	81	172	40	24 - 255	87	24	25	70	150 Nm	7100640	8600335			
WBG-V 5,0 - M 30	5,0 (6,0)	5,5	22	93	50	99	220	50	30 - 330	105	30	32	85	225 Nm	7100650	8600336			
WBG 6 - special	6 (7,5)		22	87	50	90	210		50 - 300	99	33		80	350 Nm		8600150			
WBG 8 - M 36	8 (10)	5,6	22	87	50	90	210	54	-	99	36		80	410 Nm	51872				
WBG 8 - special	8 (10)		22	87	50	90	210		50 - 300	99	36-39		80	410 Nm		8600151			
WBG 10 - M 42	10 (12,5)	6,1	26	112	65	98	240	63	-	100	42		85	550 Nm	51874				
WBG 10 - M 48	10 (12,5)	6,2	26	112	65	98	240	68	-	100	48		85	550 Nm	51930				
WBG 10 - special	10 (12,5)		26	112	65	98	240		60 - 300	100	42-52		85	550 Nm		8600152			
WBG 15 - M 56	15 (18)	10,5	32	120	70	120	280	84	-	130	56		95	800 Nm	51941				
WBG 15 - M 64	15 (18)	11,5	32	120	70	120	280	95	-	130	64		95	800 Nm	7100406				
WBG 15 - special	15 (18)		32	120	70	120	280		80 - 300	130	56-68		95	800 Nm		8600153			
WBG 25 - M 72	25 (30)	27,0	40	125	80	160	332	108	-	163	72		130	1200 Nm	7990332				
WBG 25 - special	25 (30)		40	125	80	160	332		100-300	163	72-76		130	1200 Nm		8600155			
WBG 30 - M 80	30 (35)	28,7	40	125	80	170	332	120	-	163	80		130	1500 Nm	7990333				
WBG 30 - special	30 (35)		40	125	80	170	332		100-300	163	80-85		130	1500 Nm		8600156			
WBG 35 - M 90	35 (40)	29,2	40	125	80	170	332	135	-	163	90		130	2000 Nm	7985363				
WBG 35 - special	35 (40)		40	125	80	170	332		100 - 300	163	90-150		130	2000 Nm		8600154			

Table 2

Method of lift											
Number of legs	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4	
Angle of inclination α, β	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.	
Factor		1		2	1,4	1	1	2,1	1,5	1	
		WLL in lbs, bolted and adjusted to the direction of pull									
Type	Thread	1320	660 (880)	2640	1320 (1760)	925 (1230)	660 (880)	660 (880)	1385 (1850)	990 (1320)	660 (880)
WBG-V 0,3	M 8 / 5/16"-18UNC	1980	990 (1320)	3960	1980 (2640)	1385 (1850)	990 (1320)	990 (1320)	2090 (2770)	1495 (1980)	990 (1320)
WBG-V 0,45	M 10 / 3/8"-16UNC	2640	1320 (1650)	5280	2640 (3300)	1850 (2310)	1320 (1650)	1320 (1650)	2770 (3475)	1980 (2465)	1320 (1650)
WBG-V 0,6	M 12	4400	2200 (2750)	8800	4400 (5500)	3080 (3850)	2200 (2750)	2200 (2750)	4650 (5750)	3300 (4125)	2200 (2750)
WBG-V 1,0	M 14	5720	2860 (3300)	11440	5720 (6600)	4000 (4620)	2860 (3300)	2860 (3300)	6000 (6930)	4290 (4950)	2860 (3300)
WBG-V 1,3	M 16 / 5/8"-11UNC	7900	3960 (4400)	15840	7900 (8800)	5500 (6160)	3960 (4400)	3960 (4400)	8320 (9240)	5940 (6600)	3960 (4400)
WBG-V 1,8	M 18	8800	4400 (5500)	17600	8800 (11000)	6160 (7700)	4400 (5500)	4400 (5500)	9240 (11550)	6600 (8250)	4400 (5500)
WBG-V 2,0	M 20 / 3/4"-10UNC	15400	7700 (8800)	30800	15400 (17600)	10780 (12320)	7700 (8800)	7700 (8800)	16170 (18480)	11550 (13200)	7700 (8800)
WBG-V 3,5	M 24 / 1"-8UNC	22000	11000 (13200)	44000	22000 (26400)	15400 (18480)	11000 (13200)	11000 (13200)	23100 (27720)	16500 (19800)	11000 (13200)
WBG-V 5,0	M 30 / 1 1/4"-7UNC	27500	13200 (16500)	55000	29000 (33000)	18500 (23100)	13200 (16500)	13200 (16500)	27700 (34650)	19800 (24750)	13200 (16500)
WBG 6	M33 / 1 3/8"	27500	13200 (16500)	55000	29000 (33000)	18500 (23100)	13200 (16500)	13200 (16500)	27700 (34650)	19800 (24750)	13200 (16500)
WBG 8	M 36 / M 39 / 1 1/2"	27500	17600 (22000)	55000	35200 (44000)	24640 (30800)	17600 (22000)	17600 (22000)	36960 (46200)	26400 (33000)	17600 (22000)
WBG 10	M 42 - M 52 / 2"	35200	22000 (27500)	70400	44000 (55000)	30800 (38500)	22000 (27500)	22000 (27500)	46200 (57640)	33000 (41360)	22000 (27500)
WBG 15	M 56 - M 68 / 2 1/2"	55000	33000 (39600)	110000	66000 (79200)	46200 (55440)	33000 (39600)	33000 (39600)	69300 (83600)	49500 (59400)	33000 (39600)
WBG 25	M 72 - M 80 / 2 3/4"	77000	55000 (66000)	154000	110000 (132000)	77000 (92400)	55000 (66000)	55000 (66000)	115500 (138600)	82500 (99000)	55000 (66000)
WBG 30	M 80 - M 85 / 3"	77000	66000 (77000)	154000	132000 (154000)	92400 (108000)	66000 (77000)	66000 (77000)	138600 (160000)	99000 (115000)	66000 (77000)
WBG 35	M 90-M 150 / 3 1/2"-5"	77000	77000 (88000)	154000	154000 (176000)	108000 (123000)	77000 (88000)	77000 (88000)	160000 (185000)	115000 (132000)	77000 (88000)

Table 3

Type	WLL t	weight kg	A	B	C	Ø D	E	F	Fvario	G	M	SW	torque	reference	
														F	Fvario
WBG-V 0,3-5/16"-18UNC	0,3 (0,4)	0,25	8	33	29	36	76	13	-	36	5/16"	28	10 Nm	7991090	-
WBG-V 0,45-3/8"-16UNC	0,45 (0,6)	0,3	8	33	29	36	78	17	-	38	3/8"	30	10 Nm	7991091	-
WBG-V 1,3-5/8"-11UNC	1,3 (1,5)	0,6	13	44	38	48	112	30	-	54	5/8"	41	30 Nm	7991093	-
WBG-V 2,0-3/4"-10UNC	2,0 (2,5)	1,1	13	56	35	64	135	33	-	65	3/4"	55	70 Nm	7991094	-
WBG-V 3,5-1"-8UNC	3,5 (4,0)	2,7	18	68	40	81	172	40	-	87	1"	70	150 Nm	7991095	-
WBG-V 5,0-1 1/4"-7UNC	5,0 (6,0)	5,5	22	93	50	99	220	50	-	105	1 1/4"	85	225 Nm	7991096	-
WBG 6 - special	6 (7,5)	22	87	50	90	210			50 - 300	99	1 3/8"	80	350 Nm		8600150
WBG 8 - special	8 (10)	22	87	50	90	210			50 - 300	99	1 1/2"	80	410 Nm		8600151
WBG 10 - special	10 (12,5)	26	112	65	98	240			60 - 300	100	1 3/4" - 2"	85	550 Nm		8600152
WBG 15 - special	15 (18)	32	120	70	120	280			80 - 300	130	2 1/4" - 2 1/2"	95	800 Nm		8600153
WBG 25 - special	25 (30)	40	125	80	160	332			100-300	163	2 3/4"	130	1200 Nm		8600155
WBG 30 - special	30 (35)	40	125	80	170	332			100-300	163	3"	130	1500 Nm		8600156
WBG 35 - special	35 (40)	40	125	80	170	332			100 - 300	163	3 1/2" - 5"	130	2000 Nm		8600154

Table 4