

PowerPoint®
 > WPP / WPPH <
 > WPPH-KA-28 < > VWBS-KA-28 <
 for welding



Safety instructions

This safety instruction must be kept for the entire time usage time and forwarded with the product.

Translation of the Original instructions



>WPP< able to rotate and >WPPH< fixed with the variantes ...-S / ...-B / ...-VIP



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RUD-Art.-Nr.: 8502207 EN- V04 / 12.022



>VWBS-KA-28< able to rotate with chain connection



>WPPH-KA-28< fixed with chain connection

RUD

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 harmonisierten und nationalen Normen sowie technischen Spezifikationen entspricht.
 Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Anschlagpunkt PowerPoint
PP / WPP / WPPH

Folgende harmonisierten Normen wurden angewandt:
 DIN EN 1677-1 : 2009-03 DIN EN 1677-4 : 2009-03
 DIN EN ISO 12100 : 2011-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:
 DGUV-R 109-017 : 2020-12

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 15.04.2021 Hermann Kolb, Bereichsleitung MA *Hermann Kolb*

RUD
 Name, Funktion und Unterschrift Verantwortlicher

RUD

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

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

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

Product name: Lifting point PowerPoint
PP / WPP / WPPH

The following harmonized norms were applied:
 DIN EN 1677-1 : 2009-03 DIN EN 1677-4 : 2009-03
 DIN EN ISO 12100 : 2011-03

The following national norms and technical specifications were applied:
 DGUV-R 109-017 : 2020-12

Authorized person for the configuration of the declaration documents:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 15.04.2021 Hermann Kolb, Bereichsleitung MA *Hermann Kolb*

RUD
 Name, function and signature of the responsible person

RUD

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

Hersteller: **RUD Ketten Rieger & Dietz GmbH u. Co. KG**
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 Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: Anschwellpunkt
VWBS-KA / WPPH-KA

Folgende harmonisierten Normen wurden angewandt:
 DIN EN 1677-1 : 2009-03 DIN EN ISO 12100 : 2011-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:
 DGUV-R 109-017 : 2020-12

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
 Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 16.04.2021 Hermann Kolb, Bereichsleitung MA *Hermann Kolb*

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Product name: Welding point
VWBS-KA / WPPH-KA

The following harmonized norms were applied:
 DIN EN 1677-1 : 2009-03 DIN EN ISO 12100 : 2011-03

The following national norms and technical specifications were applied:
 DGUV-R 109-017 : 2020-12

Authorized person for the configuration of the declaration documents:
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Aalen, den 16.04.2021 Hermann Kolb, Bereichsleitung MA *Hermann Kolb*

RUD
 Name, function and signature of the responsible person



Before initial usage of the RUD weld-on lifting point PowerPoint®, please read carefully the safety instructions. Make sure that you have understood all subjected matters. Non-observance can lead to serious personal injuries and material damage and eliminates warranty.

1 Safety instructions



ATTENTION

Wrong assembled or damaged weld-on lifting points PowerPoint® as well as improper use can lead to injuries of persons and damage of objects when load drops.

Please inspect all lifting points before each use.

- Remove all body parts (fingers, hands, arms, etc.) out of the hazard area (danger of crushing or squeezing) during the lifting process.
- RUD weld-on lifting points PowerPoint® must only be used by instructed and competent persons considering DGUV rules 109-017 and outside Germany noticing the country specific statutory regulations.
- The stated WLL on the lifting point must only be exceeded in the vertical usage of the WPP/WPPH 5 t and WPP/WPPH 8 t acc. to Table 5.
- The rotating types WPP-S, WPP-B, WPP-VIP and VWBS-KA-28 are not suitable for permanent turning under load. The lifting points WPP or VWBS-KA-28 can be rotated 90° to the welding surface under nominal load capacity.
- Weld-on lifting points PowerPoint® must be rotatable in the screwed tight status through 360°.
- Attention: Other combinations with non RUD components and chains are dangerous! These are not permitted and RUD will not accept any warranty.



HINT

Disassembling of ball-bearing by the user is not allowed.

- No technical alterations must be implemented on the weld-on lifting points PowerPoint®.
- No people may stay in the danger zone.
- Jerky lifting (strong impacts) should be prevented.
- Always ensure a stable position of the load when lifting. Swinging must be prevented.
- Damaged or worn weld-on lifting points PowerPoint® must never be utilised.

2 Intended use of PowerPoint®

Lifting points must only be used for lifting and manipulating of loads according to the stated inclination angles and the total weight of the load.

Turning and flipping of loads will be allowed due to the installed ball bearing (with the WPP and VWBS-KA). But these lifting points must not be used for a **permanent turning action** under load.

RUD weld-on lifting PowerPoint® must only be used in the hereby described operation purpose.

3 Variants



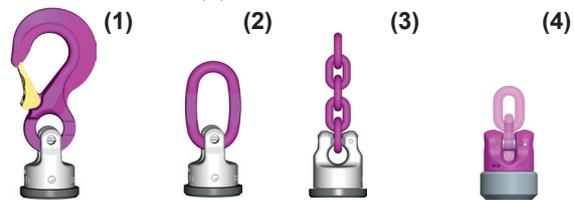
HINT

Combinations of eye connection parts and chains, which are not specified by RUD are prohibited. For changes or combinations of not specified parts, RUD Ketten will not take responsibility and liability. With the variants WPPH-KA-28 and VWBS-KA-28, only the direct chain connection is possible (see Table 7).

RUD weld-on PowerPoints® are compatible with the following components:

3.1 RUD-PowerPoint® able to rotate

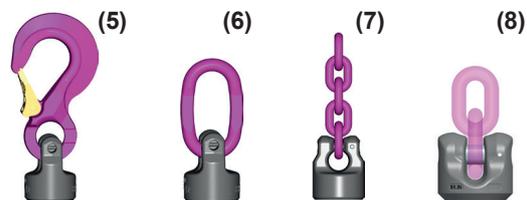
- WPP-S (1): standard version
- WPP-B (2): the lifting ring version for hook assemblies
- WPP-VIP (3): direct chain connection
- VWBS-KA-28 (4): direct chain connection 28 mm/VIP



Pic. 1: Rotatable variants

3.2 RUD-PowerPoint® fixed

- WPPH-S (5): standard version
- WPPH-B (6): the lifting ring version for hook assemblies
- WPPH-VIP (7): direct chain connection
- WPPH-KA-28 (8): direct chain connection 28 mm/VIP



Pic. 2: Rigid variants

4 Assembly- and instruction manual

4.1 General information

- Capability of temperature usage:
The use in high temperatures is not recommend due to the grease in the ball-bearing, if you need it yet, you must reduce the weight of load as follows:
-40° up to 200°C: no reduction
200° up to 300°C: minus 10 % (392°F up to 572°F)
300° up to 400°C: minus 25 % (572°F up to 752°F)
Temperatures exceeding 400°C (752°F) are prohibited!
- RUD weld-on lifting points must not be used with aggressive chemicals such as acids, alkaline solutions and their vapours.
- The special pink-powder coating of the components changed permanently the colouring, if the use was in high temperatures. The colour deep black signals a use over 400°C.



HINT

After use over 400°C (chain is coloured deep black) is a continuing use not allowed. The quality of the chain is not guaranteed.

4.2 Hints for the assembly

- The material construction to which the lifting point will be attached should be of adequate strength to withstand forces during lifting without deformation. The contact areas must be free from impurities, oil, colour, ect.
 - Material of the weld-on part for VWBS-KA-28 and WPPH-KA-28: base material 1.6541 (23MnNiCrMo52)
In the area of the weld seam, a 3 mm thick intermediate layer of G4Si1 is applied to improve the welding work (filler metal EN ISO 14341-A G42 3 M2.1 4Si1).
 - Material of the weld-on part for all other sizes of WPP (rotatable) und WPPH (rigid): 1.6541 (23MnNiCrMo52).
- 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.
- Please mark mounting position of lifting point with a coloured contrast paint for better visibility.
- Load symmetry:
The required WLL of the individual RUD lifting point are calculated using the following formula and are based on symmetrical loading:

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

W_{LL} = working load limit / capacity of each lifting point
 G = load weight (kg)
 n = number of load bearing legs
 β = angle of inclination of the chain to the vertical

The calculation of the load bearing legs is as follows:

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

Table 1: (also refer to Table 5 and Table 6)

- All fittings connected to the PowerPoint®-versions should be free moving. Also the assembled components on the PowerPoint® must be free moveable and should not used over sharp corners.



Pic. 3: Forbidden contact or support at/or with edge

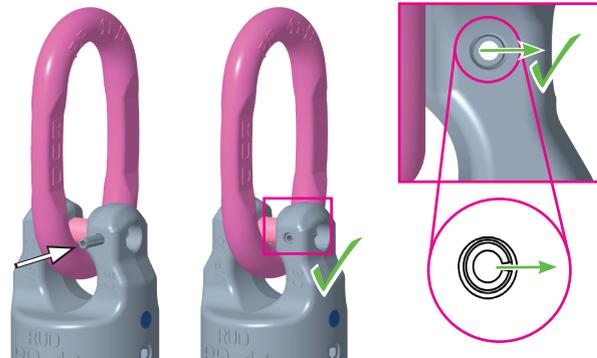
- If the lifting points are used exclusively for lashing the value of the working load limit can be doubled: LC = 2 x WLL



HINT

If the lifting point is/was used as a lashing point, with a force higher than the WLL, it must not be used as a lifting point afterwards. If the lifting point is/was used as a lashing point, up to the WLL only, it can still be used afterwards as a lifting point.

- The RUD PowerPoint must not be loaded with the Manufacturing Proof Force MPF (2.5 x WLL). Should at the production of lifting means or similar products, a singular proof loading be necessary, please ask RUD in advance.
- Assemble clamping pin for the securing of the VG-Pin in such a way at the clevis that the opening can be seen from outside.



Pic. 4: Assembly clamping pin



HINT

- VG-Pin must be assembled captive with a clamping pin in the step hole.
- Use clamping pin only once.
- Use only original RUD spare parts.

Size	VG-bolts	clamping pins	Ref.-No.
VIP 4	10 pieces	10 pieces	7985638
VIP 6	10 pieces	10 pieces	7985639
VIP 8	10 pieces	10 pieces	7985640
VIP 10	10 pieces	10 pieces	7985641
VIP 13	10 pieces	10 pieces	7985642
VIP 16	4 pieces	4 pieces	7985643
VIP 28	1 piece	1 piece	7900708

Table 2: Content per RUD-spare-parts-set VG-bolts / clamping pins

- Finally check after the installation the ongoing ability of the lifting point by a competent person (see chapter 5 Inspection / Repair / Disposal).

4.3 Hints for welding

Welding has to be carried out by a certified welder acc. to DIN EN ISO 9606-1 or AWS Standards

Tables and welding information see section 6 Tables!

- Tack Weld at the right position. The tack-welding of the types WPPH-KA-28 and VWBS-KA-28 must be carried out in the preheating temperature.



HINT

The type WPPH-VIP and WPPH-KA-28 (rigid, with VIP-chain connection) has to be aligned in regard of the vertical slot for the chain link, when used in multiple leg usage with inclination angle, straight into the direction of pull.



HINT

The preheat temperature when welding the WPPH-KA-28 and VWBS-KA-28 must be between 180°C und 200°C.



HINT

RUD recommends a preheat temperature between 240°C and 260°C when welding the WPP (rotate) and WPPH (fixed).

- 2 Before the closure weld is carried out, make sure that the bottom and all interlayers are cleaned carefully. Remove all visible flaw spots of the root and at the interlayers.
- 3 Weld fillet weld continuous at the welding part of the lifting point.



HINT

RUD recommends to carry the weld seam of the VWBS-KA-28 and WPPH-KA-28 out in tub position.



HINT

Weld all seams in the same temperature.



HINT

Do not weld on the connecting elements (eye-hook, oval link, ...)!

- 4 Please check by a competent person after welding the ongoing usage of the weld-on lifting point (see chapter 5 Inspection / Repair / Disposal).
- 5 Due to the welding the amount of lubrication inside the bearing of the WPP / VWBS can be reduced. If necessary, lubricate the WPP / VWBS bearing (see Section 5.4 Notes regarding repairing).

4.4 User instructions

- Check frequently and before each initial operation the whole weld-on lifting point PowerPoint® in regard of linger ability as a lifting mean, evidence of cracks on the welding seam, regarding corrosion, wear, deformation etc. (see chapter 5 Inspection / Repair / Disposal).



ATTENTION

Wrong positioned or damaged weld-on lifting points as well as improper use can lead to injuries of persons and damage at property, when load falls down. Please check all lifting points carefully before every usage.

- RUD components are designed according to DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles.
 - Keep in mind that several load cycles can occur with a lifting procedure
 - Keep in mind that, due to the high dynamic stress with high numbers of load cycles, that there is a danger that the product will be damaged.
 - The BG/DGUV recommends: For higher dynamic loading with a high number of load cycles (continuous operation), the working load stress must be reduced according to the driving mechanism group 1Bm (M3 in accordance with DIN EN 818-7). Use a lifting point with a higher working load limit.
- When connecting and disconnecting the lifting means (wire ropes, chain slings, round slings) pinches and impacts should be avoided. Damage of the lifting means caused by sharp corners should be avoided as well.
- Before lifting, the hooks must be installed without twists in the direction of pull.
- Please observe the following pivoting areas resp. the inclination angle.
 - Ring/hook/chain of the adjusted WPP/WPPH can be pivot by 230° (Pic. 5).

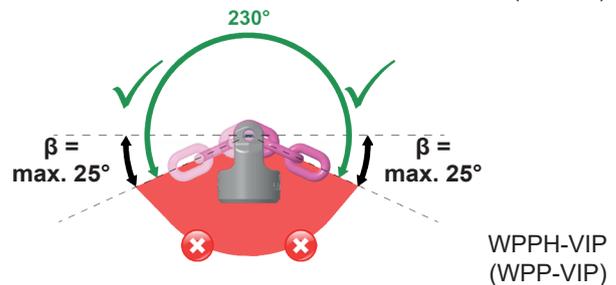
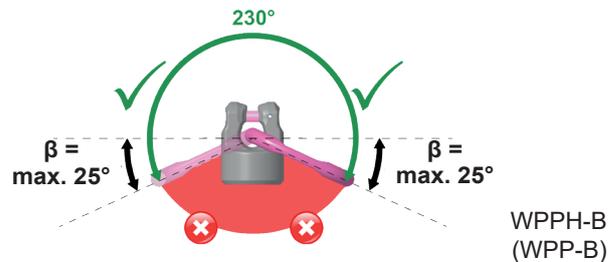
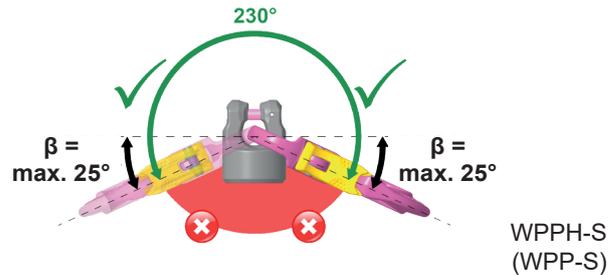
- The assembled chain of the adjusted VWBS-KA and the WPPH-KA can be turned by approx. 180° (Pic. 6).

To guarantee the WLL and the function (compare Table 5 and Table 6), the inclination angle of the ring/hook/chain must not exceed 25° when lifting point is attached from the side (compare Pic. 5 and Pic. 6).

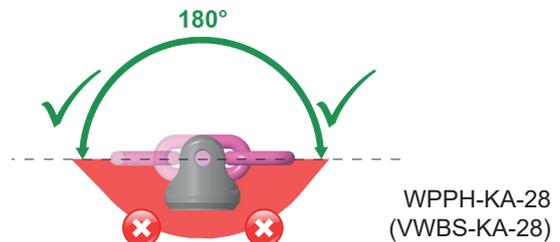


ATTENTION

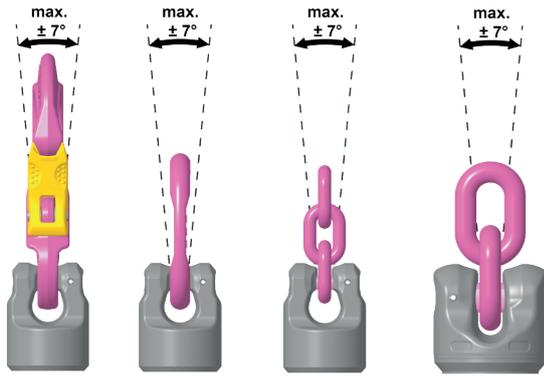
VIP Oval-link/hook/chain resp. the attached lifting mean must be free moveable in the PowerPoint and must neither have support at the load edge nor at the bottom part of the PowerPoint (Pic. 5 and Pic. 6).



Pic. 5: Pivoting area / Loading area
 $\beta = \text{max. } 25^\circ$ negative angle



Pic. 6: Pivoting area / Loading area
WPPH-KA-28 (VWBS-KA-28)



Pic. 7: Area up to max. $\pm 7^\circ$ can be considered vertical.

5 Inspection / Repair / Disposal

5.1 Hints for periodical inspections

The operator must determine and specify the nature and scope of the required tests as well as the periods of repeating tests by means of a risk assessment (see sections 5.2 and 5.3).

The continuing suitability of the anchor point must be checked at least 1x year by an expert.

Depending on the usage conditions, f.e. frequent usage, increased wear or corrosion, it might be necessary to check in shorter periods than one year. The inspection has also to be carried out after accidents and special incidents.

The operator must specify the test cycles.

5.2 Test criteria for the regular visual inspection by the user

- Completeness of the lifting point
- Completeness of manufacturer's and WLL markings plus their readability
- Deformation at load bearing components like base body, suspension hook and ring (p.ex. marker points at the Cobra-hook)
- Mechanical deformations like deep notches especially in areas where tensile stress occurs.
- mouth width opened (overload) > 10 %
- Evidence of cracks
- Evidence of cracks and other damages on the welding seam.
- Easy, jerk free turning between top and bottom part of the PowerPoint® WPP and VWBS-KA-28 must be ensured.

- The maximum gap between upper- and lower part of the PowerPoint® must not be exceeded (Pic. 8):

WPP--0.63 t up to WPP--2.5 t
→ max. 1.5 mm

WPP--4 t up to WPP--8 t
→ max. 2.5 mm

VWBS-KA-28 → max. 4 mm



Pic. 8: Gap

- Please check tightening of the lateral positioned locking bolt at all swivel types.

5.3 Additional test criteria for the competent person / repair worker

- Reduction of cross-section caused by wear by more than 10 %.
- Intense corrosion (pitting).
- further checks may be required, depending on the result of the risk assessment (e.g. testing for cracks in load-bearing parts).

5.4 Notes regarding repairing

Repairing must only be carried out at RUD headquarters or by RUD authorized partners who have recuperate the necessary knowledge and capabilities.

For maintenance and re-lubrication of the VWBS-KA-28, please use grease f.e. AVALITH 2EP or comparable lubricants. For this use a grease press with a nozzle for cup head lubrication nipples.

Lubricate of the WPP (rotable) during maintenance at the gap between housing and suspension ring with spray oil resp. grease (see Pic. 8).

5.5 Disposal

Dispose worn out components / attachments or packaging according to the local waste removal requirements.

6 Tables

6.1 Welding procedure + Welding filler metals

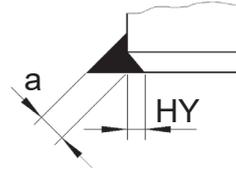
	Europe, USA, Asia, Australia, Africa
	Baustähle, niedrig legierte Stähle EN 10025-2 Mild steels, low alloyed steel EN 10025-2
MIG / MAG (135) Gas shielded wire welding	DIN EN ISO 14341: G4Si1 (G3Si1) z.B. PEGO G4Si1
E-Hand Gleichstrom (111, =) Stick Electrode direct current	DIN EN ISO 2560-A: E 42 6 B 3 2 H10 DIN EN ISO 2560-A: E 38 2 B 1 2 H10 z.B. PEGO B Spezial*/PEGO BR Spezial*
E-Hand (Wechselstrom 111, ~) Stick Electrode alternating current	DIN EN ISO 2560-A: E 38 2 RB 1 2 DIN EN ISO 2560-A: E 42 0 RC 1 1 z.B. PEGO RC 3 / PEGO RR B 7 Alternativ: DIN EN ISO 3581: E 23 12 2 L R 3 2 z.B. PEGO 309 MoL
WIG (141) (TIG (141)) Tungsten arc welding	DIN EN ISO 636-A: W 3 Si 1 (W2 Si 1) DIN EN ISO 636-A: W 2 Ni 2 z.B. PEGO WSG 2 / PEGO WSG2Ni2

Table 3: * Follow the drying instructions!

Type	weld seam		
	size	length	volume
WPP-...-0,63 t	▷ 4	125 mm	ca. 2,3 cm ³
WPP-...-1,5 t	▷ 5	140 mm	ca. 3,2 cm ³
WPP-...-2,5 t	(HY) 3 + (a) 5	190 mm	ca. 5,0 cm ³
WPP-...-4 t	(HY) 3 + (a) 6	250 mm	ca. 8,0 cm ³
WPP-...-5 t	(HY) 3 + (a) 8	300 mm	ca. 13,0 cm ³
WPP-...-8 t	(HY) 3 + (a) 10	315 mm	ca. 23,3 cm ³
WPPH-...-0,63 t	▷ 4	106 mm	ca. 2,0 cm ³
WPPH-...-1,5 t	▷ 5	125 mm	ca. 2,8 cm ³
WPPH-...-2,5 t	(HY) 3 + (a) 5	165 mm	ca. 4,5 cm ³
WPPH-...-4 t	(HY) 3 + (a) 6	215 mm	ca. 6,8 cm ³
WPPH-...-5 t	(HY) 3 + (a) 8	260 mm	ca. 11,4 cm ³
WPPH-...-8 t	(HY) 3 + (a) 10	275 mm	ca. 20,6 cm ³
WPPH-KA-28	(HY) 10 + (a) 15	534 mm	ca. 142 cm ³
VWBS-KA-28	(HY) 22 *	534 mm	ca. 142 cm ³

Table 4: * HY-weld seam with a concave discharge.

6.2 Position of welding seam



Pic. 9: Position of welding seam



HINT

Please carry the a-dimensions of the corresponding WPP-sizes out in multiple layers. Please note the corresponding user hint in regard of the welding filler materials

Method of lift										
Lifting from the side	Attention, when lifting point is attached to the side the max. inclination angle β can only be 25° / resp. until lifting means touches load (compare 4.4)!				β max. 25°			β max. 25°		
Number of legs	1	1	2	2	2	2	2	3 & 4	3 & 4	3 & 4
Angle of inclination $\angle \beta$	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
Factor	1	1	2	2	1,4	1	1	2,1	1,5	1
Type	Max. weight of load $>G<$ in metric tons for all PowerPoint types with different sling methods									
WPP / WPPH - ... - 0,63 t	0,63 t (1385 lbs)	0,63 t (1385 lbs)	1,26 t (2770 lbs)	1,26 t (2770 lbs)	0,88 t (1940 lbs)	0,63 t (1385 lbs)	0,63 t (1385 lbs)	1,32 t (2900 lbs)	0,95 t (2080 lbs)	0,63 t (1385 lbs)
WPP / WPPH - ... - 1,5 t	1,5 t (3300 lbs)	1,5 t (3300 lbs)	3,0 t (6600 lbs)	3,0 t (6600 lbs)	2,1 t (4620 lbs)	1,5 t (3300 lbs)	1,5 t (3300 lbs)	3,15 t (6930 lbs)	2,25 t (4950 lbs)	1,5 t (3300 lbs)
WPP / WPPH - ... - 2,5 t	2,5 t (5500 lbs)	2,5 t (5500 lbs)	5,0 t (11000 lbs)	5,0 t (11000 lbs)	3,5 t (7700 lbs)	2,5 t (5500 lbs)	2,5 t (5500 lbs)	5,25 t (11550)	3,75 t (8250 lbs)	2,5 t (5500 lbs)
WPP / WPPH - ... - 4 t	4,0 t (8800 lbs)	4,0 t (8800 lbs)	8,0 t (17600 lbs)	8,0 t (17600 lbs)	5,6 t (12320 lbs)	4,0 t (8800 lbs)	4,0 t (8800 lbs)	8,4 t (18480 lbs)	6,0 t (13200 lbs)	4,0 t (8800 lbs)
WPP / WPPH - ... - 5 t	6,7 t (15000 lbs)	5,0 t (11000 lbs)	13,4 t (30000 lbs)	10,0 t (22000 lbs)	7,0 t (15400 lbs)	5,0 t (11000 lbs)	5,0 t (11000 lbs)	10,5 t (23100 lbs)	7,5 t (16500 lbs)	5,0 t (11000 lbs)
WPP / WPPH - ... - 8 t	10,0 t (22000 lbs)	8,0 t (17600 lbs)	20,0 t (44000 lbs)	16,0 t (35200 lbs)	11,2 t (24640 lbs)	8,0 t (17600 lbs)	8,0 t (17600 lbs)	16,8 t (36960 lbs)	12,0 t (26400 lbs)	8,0 t (17600 lbs)

Table 5: WLL overview WPP and WPPH

Method of lift										
number of legs	1	1	2	2	2	2	2	3 & 4	3 & 4	3 & 4
Angle of inclination $\angle \beta$	0°	90°	0°	90°	0-45°	45-60°	unsymm.	0-45°	45-60°	unsymm.
factor	1	1	2	2	1,4	1	1	2,1	1,5	1
Type	Max. weight of load $>G<$ in metric tons for all PowerPoint types with different sling methods									
VWBS- KA- 28	31,5 t	31,5 t	63,0 t	63,0 t	44,1 t	31,5 t	31,5 t	66,15 t	47,25 t	31,5 t
WPPH- KA- 28	31,5 t	31,5 t	63,0 t	63,0 t	44,1 t	31,5 t	31,5 t	66,15 t	47,25 t	31,5 t

Table 6: WLL overview VWBS-KA-28 and WPPH-KA-28

Type	WLL [t]	A [mm]	B [mm]	C [mm]	D [mm]	G [mm]	T [mm]	weight [kg/pc.]	Welding beam HY + filled weld (see Pic. 7 + Table 2 + 3)	Ref.-No. WPP	Ref.-No. WPPH
WPP(WPPH)-S-0,63 t	0,63	13	75	18	40 (34)	40 (34)	115 (109)	0,4 (0,35)	Δ 3,5	7989944	7989966
WPP(WPPH)-S-1,5 t	1,5	20	97	25	46 (40)	50 (44)	147 (141)	1,0 (0,9)	Δ 4,5	7989945	7989967
WPP(WPPH)-S-2,5 t	2,5	28	126	30	61 (53)	61 (53)	187 (179)	1,7(1,5)	3 + 5	7989946	7989968
WPP(WPPH)-S-4 t	4,0	36	150	35	78 (68)	77 (67)	227 (217)	3,7 (3,2)	3 + 6	7989947	7989969
WPP(WPPH)-S-5 t	5,0	37	174	40	95 (83)	93 (79)	267 (253)	7,2 (6,3)	3 + 8	7989948	7989970
WPP(WPPH)-S-8 t	8,0	49	208	48	100 (88)	102 (88)	310 (296)	9,5 (8,8)	3 + 10	7989954	7989976
WPP(WPPH)-B-0,63 t	0,63	9	65	35	40 (34)	40 (34)	105 (99)	0,35 (0,3)	Δ 3,5	7989955	7989977
WPP(WPPH)-B-1,5 t	1,5	11	65	35	46 (40)	50 (44)	115 (106)	0,46 (0,36)	Δ 4,5	7989956	7989978
WPP(WPPH)-B-2,5 t	2,5	13	74	40	61 (53)	61 (53)	135 (127)	1,05 (0,85)	3 + 5	7989957	7989979
WPP(WPPH)-B-4 t	4,0	16	95	45	78 (68)	77 (67)	172 (162)	2,4 (1,9)	3 + 6	7989958	7989980
WPP(WPPH)-B-5 t	5,0	19	130	60	95 (83)	93 (79)	223 (209)	5,1 (4,3)	3 + 8	7989959	7989981
WPP(WPPH)-B-8 t	8,0	24	140	65	100 (88)	102 (88)	242 (228)	5,9 (5,2)	3 + 10	7989960	7989982
WPP(WPPH)-VIP-0,63 t	0,63	4	-	-	40 (34)	40 (34)	-	0,25 (0,2)	Δ 3,5	7989961	7989983
WPP(WPPH)-VIP-1,5 t	1,5	6	-	-	46 (40)	50 (44)	-	0,32 (0,22)	Δ 4,5	7989962	7989984
WPP(WPPH)-VIP-2,5 t	2,5	8	-	-	61 (53)	61 (53)	-	0,85 (0,65)	3 + 5	7989963	7989985
WPP(WPPH)-VIP-4 t	4,0	10	-	-	78 (68)	77 (67)	-	2,1 (1,6)	3 + 6	7989964	7989986
WPP(WPPH)-VIP-5 t	5,0	13	-	-	95 (83)	93 (79)	-	4,1 (3,3)	3 + 8	7989965	7989987
WPP(WPPH)-VIP-8 t	8,0	16	-	-	100 (88)	102 (88)	-	4,5 (3,8)	3 + 10	7903440	
VWBS-KA-28	31,5	28	-	-	170	-	146	26	22*	7903438	
WPPH-KA-28	31,5	28	-	-	148	-	81	12,1	10 + 15		

Table 7: () = dimensions for WPPH * HY-weld seam with a concave discharge / Subject to technical alterations

