EN

# > VIP-Balancer <

## User instruction

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

**Translation of the original user instruction**


**RUD Ketten**
**Rieger & Dietz GmbH u. Co. KG**
73428 Aalen
Tel. +49 7361 504-1370
Fax +49 7361 504-1171
sling@rud.com
www.rud.com

RUD-Art.-Nr.: 7903591-EN / 04.019

VIP-Balancer

**EG-Einbauerklärung**

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

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

Hiermit erklären wir, dass die nachfolgend bezeichnete unvollständige Maschine den grundlegenden Anforderungen der Maschinenrichtlinie 2006/42/EG (Anhang 1) entspricht. Die nachfolgend bezeichnete unvollständige Maschine darf, in der gelieferten Ausführung erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die diese unvollständige Maschine eingebaut werden soll, den Anforderungen der EG-Maschinenrichtlinie 2006/42/EG entspricht.

**Produktbezeichnung:** VIP-Wippe
**VW**

**Folgende harmonisierten Normen wurden angewandt:**
**DIN EN ISO 12100 : 2011-03**

**Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:**
**BGR 500, KAP2.8 : 2008-04**

Die speziellen Unterlagen zur unvollständigen Maschine nach Anhang VII Teil B wurden erstellt und werden auf begründetes Verlangen in geeigneter Form übermittelt.

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

**Aalen, den 26.09.2016** Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
**Name, Funktion und Unterschrift Verantwortlicher**

**EC-Mounting declaration**

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

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

We hereby declare that the following incomplete machines correspond to the basic requirements of the Machinery Directive 2006/42/EC (annex 1). The following incomplete machine, in the delivered machine, may only be put into operation when the machine in which the incomplete machine shall be assembled, has been tested according to the requirements of the EC-Machinery Directive 2006/42/EC.

**Product name:** VIP-Balancer
**VW**

**The following harmonized norms were applied:**
**DIN EN ISO 12100 : 2011-03**

**The following national norms and technical specifications were applied:**
**BGR 500, KAP2.8 : 2008-04**

The special documents about the incomplete machine according to annex VII part B have been created and can be handed over in a suitable form on request.

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

**Aalen, den 26.09.2016** Dr.-Ing. Arne Kriegsmann,(Prokurist/QMB)
**Name, function and signature of the responsible person**

*Before use or assembly of VIP-Balancer please read user instruction carefully. Make sure that you have understood all subject matters. Non-observance can lead to personal and material damage and eliminates warranty.*

## 1 Safety instructions

**WARNUNG**
*Wrong assembled or damaged components as well as improper use can lead to injuries of persons and damage of objects when load drops.*
*Please inspect all components before each use.*

- Keep all body parts like fingers, hands, arms, etc. out of the hazardous area during the lifting operation.
- Any technical modifications at the VIP-Balancer are prohibited.
- Keep persons out of the hazardous area.
- Detention under a floating load is forbidden.
- Jerkily lifts with shock loads must be avoided.
- When the lift starts, pay attention to a stable position of the load. Avoid swinging of the load.
- Damaged or worn VIP-Balancer must no longer be used.
- Bear in mind extreme circumstances or shock loads when choosing the used components.
- The VIP-Balancer must not be used under load with a limit inclination angle of 10° (see picture 17).
- The inclination angle ß must not exceed 45° (see pictures 19 and 20).
- VIP-Balancers must only be used by designated and trained persons by observing the DGUV 100-500 requirements (BGR 500), chapter 2.8, and outside Germany acc. to the country specific regulations.

## 2 Intended use

VIP-Balancers will be installed into 4-leg sling assemblies (2x 2-leg), to achieve an equal load distribution to all 4 legs (Pic. 24). The length tolerances of the single legs will be compensated by the disposition of the VIP-Balancer.

Please observe that the VIP-Balancer does not exceed the limit inclination angle of 10° (Pic. 16). By the special bottom shape of the VIP-Balancer you can realize very easy the limit inclination angle of 10°.

During use make sure that the 2-leg sling with the balancer will not be used separately. Observe the safety instructions: „Lifting means used for lifting of loads must especially avoid that loads shift unattended or drop in free fall.“

VIP-Balancers must only be used in the here explained usage.

You can calculate with 4 load bearing strands if the following criteria are fulfilled (DGUV 100-500 / BGR 500):

- Two 2-leg slings, thereof one sling with a balancer.
- Both 2-leg slings will be attached to one hook (single or double crane hook)
- Symmetrical load spreading
- Max. inclination angle ß 45°

**WARNING**
*The 2-leg sling with the balancer must not be used separately as 2-leg sling. Lifting means for lifting of loads must avoid that loads can shift unintentional. (Compare with work safety requirement, attachment 1, chapter 3.2.3).*

## 3 Assembly- and instruction manual

### 3.1 General information

- Capability of temperature usage
  When used at temperatures higher than 200°C the working load limits (WLL) of the VIP-Balancer must be reduced as follows:
  -20°C up to 200°C no reduction
  200°C up to 300°C minus 10 %
  300°C up to 380°C minus 40 %
  Temperatures exceeding 380°C are prohibited!!
- VIP-Balancer must not be used with aggressive chemicals such as acids, alkaline solutions and their vapors.
- The balancer head consists of the following components

| Size 6-22 mm | Size 28 mm |
|---|---|
| VAK-/VSAK-Master Link | VAK-/VBK-Master Link |
| VV-SCH/VC-SCH/Th. Shackle | adaptor |
| Balancer | Balancer |
| VVS / VV-GSCH | VVS |

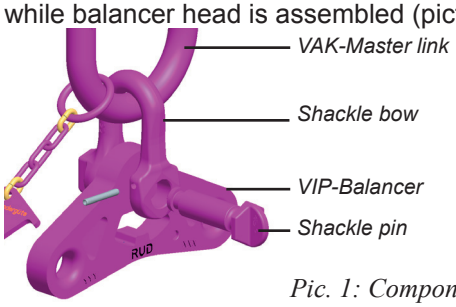
### 3.2 Hints for the assembly

#### 3.2.1 Assembly of masterlinks and shackles (size 6-22 mm)

Please observe obsolutely the correct sizing of masterlinks, shackles and balancers during assembly and repairing (see table 2).

During the assembly of the balancer head please proceed as follows:

1. Please meet the following component adjustment while balancer head is assembled (picture 1):




*Pic. 1: Component adjustment*

2. Attach shackle bow into VAK-Master link.
3. Move shackle bow plus VAK Master link over the top hole of the balancer.
4. Close shackle by moving the shackle pin through the balancer connecting hole.
5. Turn shackle pin completely in and secure it always with a cotter or a sleeve pin. The shackle must now be firm connected to the balancer (Pic. 2).

**HINT**
*The bow of the shackle must always be secured:*
*Cotter pin for VC-SCH 4.0, VC-SCH 5.0, VC-SCH 6.0 and Th. shackle 40 t.*
*Sleeve pin for VV-SCH 10, 13 and 16.*

*Pic. 2: Assembled balancer with shackle*

### 3.2.2 Assembly of chain strands (by using clevis shackle size 6-22 mm)

Chain strands are connected to the balancer by using clevis shackles. The chain strands will be connected with the clevis shackles by bolt assembly.

During assembly of the bolt please observe the following:

- Assemble only bolts with a H1-10 embossment
- Assemble sleeve pin for the securing of the connecting bolt in such a way that the slot shows to the outside.
- Use sleeve pin only once
- Use only original RUD spare parts
- Check finally the correct assembly (see chapter 4, Inspecting and repairing).

**Sequence of assembly:**

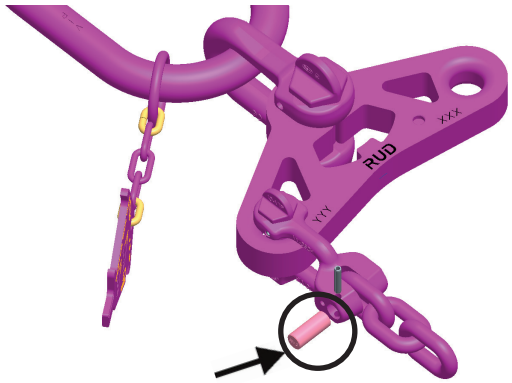
1. Assemble the shackles at the bottom of the balancer by attaching the shackle bolt of the clevis shackle (2 pieces) into the connection of the balancer at the bottom (Pic. 3).

*Pic. 3: Attachment of the clevis shackle into the bottom of the balancer*

2. Screw shackle bolt completely in and secure it always with a sleeve pin. Shackle must now be connected properly to the balancer (Pic. 4).

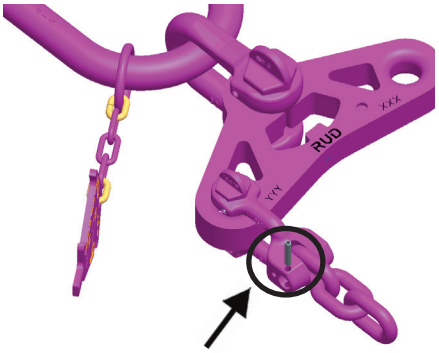
*Pic. 4: Assembled balancer with clevis shackle*

3. Insert VIP-G-pin (Pic. 5).




*Pic. 5: Insert VIP-G-pin*

4. Secure the VIP-G-pin by hammering the split pin in (Pic. 6 and 7).




*Pic. 6: Hammer sleeve pin in*

**IMPORTANT HINT**
*The slot of the sleeve pin must always look to the outside*

*Pic. 7: VIP-G-pin and sleeve pin is now fixed.*

5. Finally check the correct assembly (see chapter 4 Inspecting and repairing).

### 3.2.3 Assembly of masterlinks and adapter (size 28mm)

**HINT**
*For a safe usage of the VIP-MAXI-Balancer make sure that always all 3 VIP-G pins are installed and each one is secured by a split pin!*

1. Insert all 3 VIP-G-Pins. (Pic. 8 (1)).
2. Hammer all 3 split pins in (Pic. 8 (2)).
3. Check finally, that all 3 VIP-G-Pins and the 3 split pins are installed correctly (The groove of the split pin must be visible from outside).

(1) (2) (3)

*Pic. 8: Assembly of adapter*

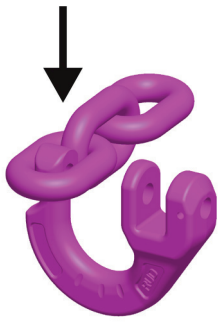
### 3.2.4 Assembly of chain strands (by using connecting links)

VIP-connecting links VVS can also be used at the bottom of the balancer instead of the clevis shackles. The chain strands will be connected to the balancer by using VVS VIP-Connecting Links.

**Sequence of assembly:**

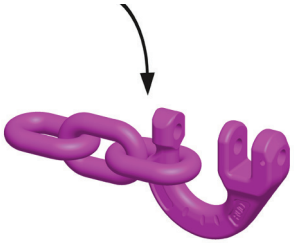
In the following description the assembly of the connecting link will be described exemplarily with the example of a VIP-Balancer and a VIP-chain.

1. Install last chain link into the nose (Pic. 9). In this case there is no additional connector necessary.



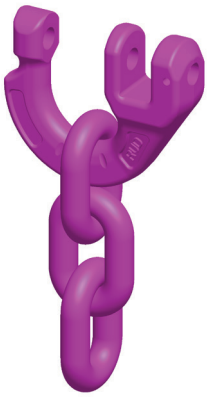
*Pic. 9: Install chain into nose*

**HINT**
*At the beginning of the bow rounding, chain link can be turned by 90° within the bow (Pic. 10).*



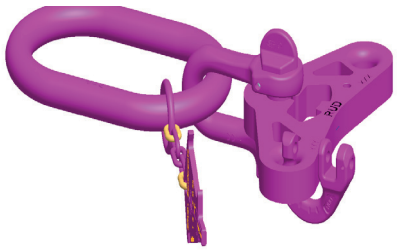
*Pic. 10: Turn chain link*

2. Position chain strand to the bottom of the bow part (Pic. 11).



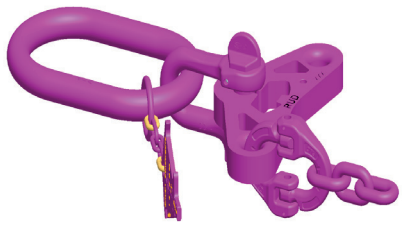
*Pic. 11: n connect half attached chain*

3. Put into the second bow part a desired connecting part, f.e. a masterlink (Pic. 12).



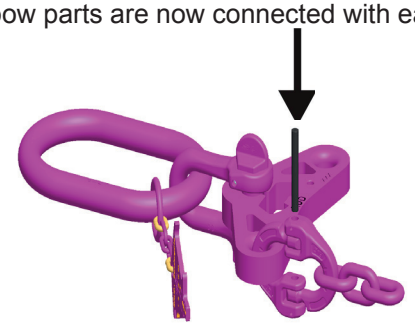
*Pic. 12: Assembly of the second bow part*

4. Assemble both bow parts together in such a way that components are aligned (Pic. 13).



*Pic. 13: Alignment of second bow part with first bow part*

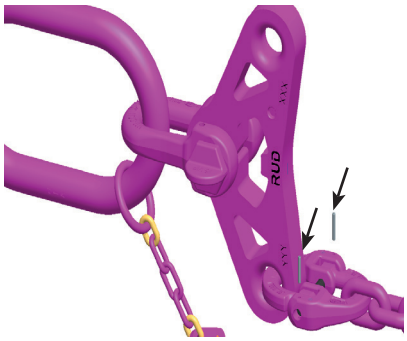
5. Install pin into the bore of the eye (Pic. 14). Both bow parts are now connected with each other.



*Pic. 14: Assembly of connecting pin*

6. Secure the assembled connecting link as follows (Pic. 15):

   - Position the securing pin resp. the sleeve pin in such a way, that the slot faces the outside.
   - Knock sleeve pin in with a hammer.




*Pic. 15: Securing of connecting pin*

7. Finally check the correct assembly (see chapter 4 Inspecting and repairing).

### 3.3 General information regarding use

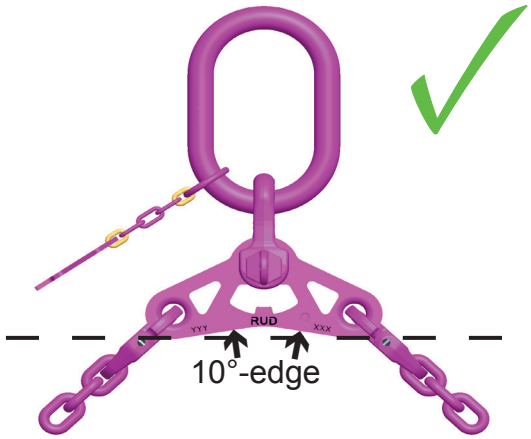
The whole lifting mean must be inspected regularly by a competent person in regard of proper installation, strong corrosion, cracks at load bearing parts and deformations (e.g. by the person responsible for attachment). See section *4 Inspecting and repairing*.

**WARNUNG**
*Wrong assembled or damaged components as well as improper use can lead to injuries of persons and damage of objects when load drops.*
*Please inspect all components before each use.*

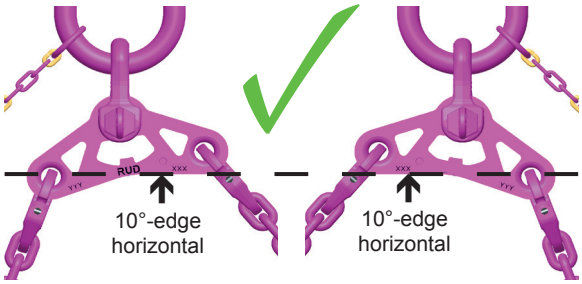
- RUD components have been designed as per DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles.
  - Observe and be aware that multiple load cycles can occur during a lifting operation.
  - Observe the risk of product damage caused by high dynamical influences at high load cycle numbers.
  - BG/DGUV Germany's employer insurance association recommends: At high dynamical loading with a high number of load cycles (permanent use), the stress at WLL acc. to FEM class 1Bm (M3 acc. to DIN EN 818-7) must be reduced.
    Use a lifting chain with a higher WLL.
- Make sure that the load force happens in the straight leg without being twisted, fold-over or kinked.
- Leave hazardous area when possible.
- Monitor always attached or lashed loads.
- Read for all lifting means the RUD sling chain safety instructions for RUD lifting means.

### 3.4 Hints for the usage (limit of inclination angle)

- Before each usage please control the correct assembly of the VIP-Balancer.
- Observe that the inclination angle of the VIP-Balancer does not exceed 10° (see pictures 16-18).




*Pic. 16: In the ideal case no skewing of the balancer should occur 10° edge*

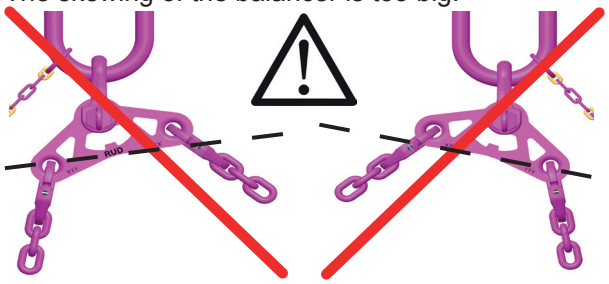



*Pic. 17: Limit skewing inclination of 10° reached (can be recognised by horizontal alignment of edge)*

**HINT**

*The maximum allowed balancer skewing of 10° can be recognised by the specific shape of the VIP-Balancer. The limit skewing angle of 10° can be easily recognized.*

- A skewing of the balancer under load by more than 10° is prohibited (see Pic. 18)!
  The 10° edge is no longer aligned horizontal!
  The skewing of the balancer is too big.



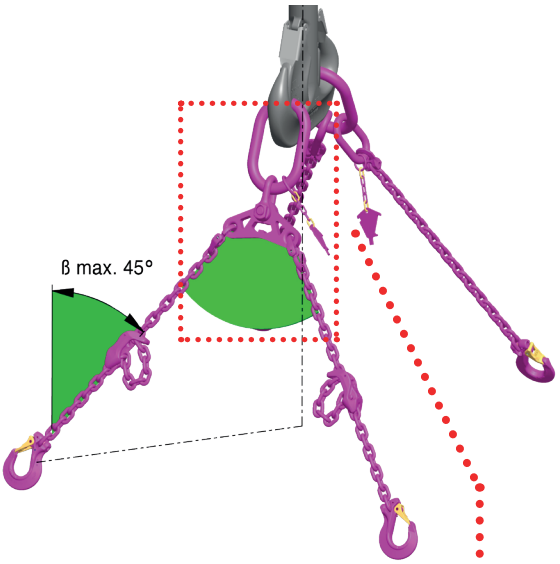
*Pic. 18: Skewing of the balancer by more than 10° is prohibited.*

**WARNING**

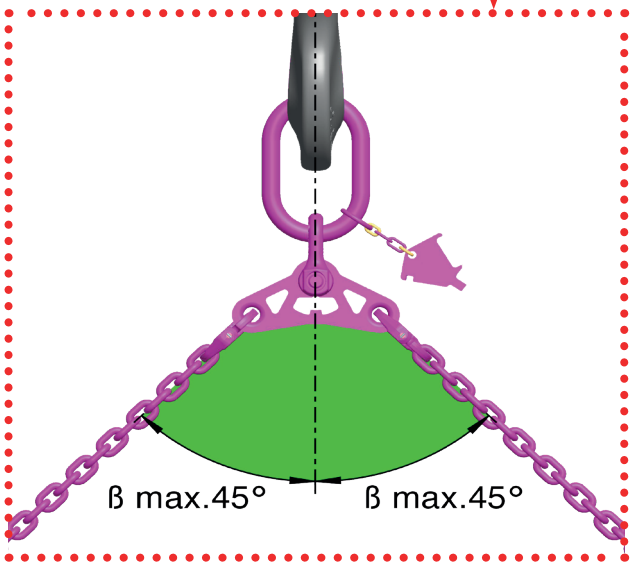
*Skewing of the balancer by more than 10° is prohibited. Should the limit skewing angle exceed 10°, an ICE-CURT-GAKO length adjustment has to be installed into the 2-leg balancer sling or a shortening element must be used. Make chain strand either longer or shorter until the balancer is within the 10° range.*

### 3.5 Hints for the usage (Inclination angle β)

- Pay attention that the inclination angle ß will not exceed 45° (see pictures 19 and 20).




*Pic. 19: Max. inclination angle β = 45°*




*Pic. 20: Detailed view Pic. 19*

# 4 Inspecting and repairing

## 4.1 Hints for the regularly inspection

The operator has to determine and dictate the necessary inspection periods and the deadlines by a risk assessment (see sections *4.2 and 4.3*).
The persisting appropriateness of the lifting mean must be checked by a competent person (auditor) at least once per year.
Depending on the conditions of use e.g. frequent use, increased wear or corrosion, it may be necessary to carry out inspections at shorter intervals than once per year. A verification is also required following damage and after special events.
The operator must specify the test cycles.

## 4.2 Inspection criteria for the regularly examination carried out by the operator:

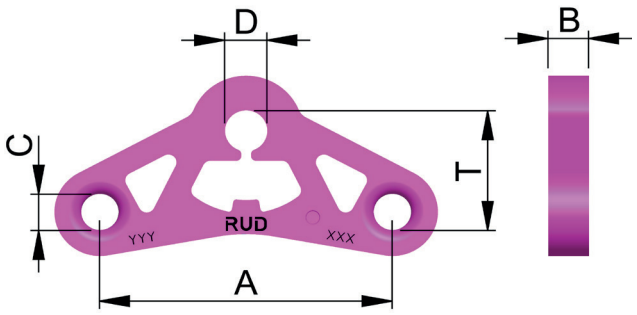
- Completeness of the VIP-Balancer.
- Deformations at the component.
- Check readability of nominal size and manufacturer sign
- Mechanical damage like notches especially at areas with tensile stress.

## 4.3 Additional inspection criteria for the competent person resp. auditor

- Reduction of cross section cause by wear of more than 10 %
- Strong corrosion
- Additional inspections may be necessary depending on the result of the risk assessment (e.g. incipient cracks at load bearing parts).

# 5 Hints for the Repairing

- Repair works can only be carried out by the manufacturer or by experts disposing necessary knowledge and required skills.
- Only RUD original spare parts must be used and all repairing and overhauling operations must be documented in the chain card file (of the complete lifting mean) or use the RUD BLUE-ID-System.



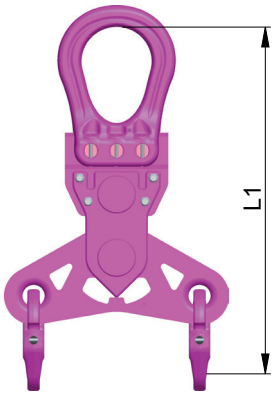

*Pic. 21: Dimensioning of the VIP-Balancer*

| Nomination | Chain [mm] | WLL of balancer [t] inclination angle of legs 0-45° | WLL of balancer [t] inclination angle of legs 0° (±7°) parallel | A [mm] | B [mm] | C [mm] | D [mm] | T [mm] | weight [kg/pc.] | Ref. no. |
|---|---|---|---|---|---|---|---|---|---|---|
| VW-6 | 6 | 2.1 | 3 | 110 | 15 | 14 | 21 | 46 | 0.49 | 7904366 |
| VW-8 | 8 | 3.5 | 5 | 150 | 20 | 18 | 26 | 59 | 1.15 | 7904369 |
| VW-10 | 10 | 5.6 | 8 | 180 | 25 | 23 | 32 | 76 | 2.4 | 7904371 |
| VW-13 | 13 | 9.5 | 13.4 | 240 | 30 | 28 | 38 | 91 | 4.37 | 7904374 |
| VW-16 | 16 | 14 | 20 | 300 | 35 | 32 | 41 | 120 | 8.8 | 7904254 |
| VW-20 | 20 | 22.4 | 32 | 300 | 40 | 40 | 54 | 129 | 10.7 | 7904725 |
| VW-22 | 22 | 28 | 40 | 350 | 45 | 46 | 54 | 150 | 15.4 | 7904726 |
| VW-28 | 28 | 45 | 63 | 450 | 50 | 60 | 90 | 180 | 35.3 | 7907113 |

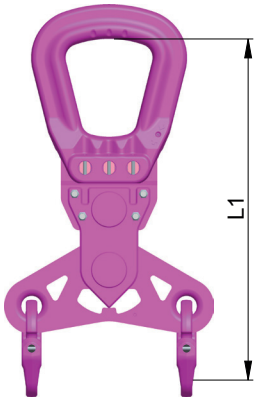
*Table 1: Dimension chart of balancer*

*Subject to technical modifications*


*Pic. 22: VWK*
*Assembled chains (size 6-22 mm)*




*Pic. 23: VWBK - MAXI*
*Assembled chains (size 28 mm)*




*Pic. 24: VWAK - MAXI*
*Assembled chains (size 28 mm)*

| Chain [mm] | Nomination VIP-Balancer head | Dimensions VA-Link [mm] | Top connection | Bottom connection | Pitch of balancer head L1 [mm] | Weight of balancer head [kg/pc.] | Ref. no. balancer head |
|---|---|---|---|---|---|---|---|
| 6 | VWK-2S-6 | 18x75x135 | VV-SCH10 (4 t) | VVS-6 | 275 | 1.95 | 7904502 |
| 8 | VWK-2S-8 | 22x90x160 | VV-SCH13 (6.7 t) | VVS-8 | 343 | 3.99 | 7904503 |
| 10 | VWK-2S-10 | 26x100x180 | VV-SCH16 (10 t) | VVS-10 | 403 | 7.35 | 7904504 |
| 13 | VWK-2S-13 | 32x110x200 | VC-SCH 4.0 (16 t) | VVS-13 | 475 | 13.42 | 7904505 |
| 16 | VWK-2S-16 | 36x140x260 | VC-SCH 5.0 (25 t) | VVS-16 | 598 | 23.53 | 7904506 |
| 20 | VWK-2S-20 | 51x190x350 | VC-SCH 6.0 (31.5 t) | VVS-20 | 723 | 35.32 | 7904507 |
| 22 | VWK-2S-22 | 51x190x350 | Th. Shackle (40 t) | VVS-22 | 796 | 49.98 | 7904508 |
| 6 | VWSAK-2S-6 | 22x190x350 | VV-SCH 13 (6.7 t) | VVS-6 | 504 | 4.62 | 7906331 |
| 8 | VWSAK-2S-8 | 26x190x350 | VV-SCH 13 (6.7 t) | VVS-8 | 533 | 6.82 | 7906332 |
| 10 | VWSAK-2S-10 | 36x250x460 | VC-SCH 4.0 (16 t) | VVS-10 | 701 | 17.4 | 7906333 |
| 13 | VWSAK-2S-13 | 40x250x460 | VC-SCH 4.0 (16 t) | VVS-13 | 735 | 23.22 | 7906334 |
| 16 | VWSAK-2S-16 | 51x250x460 | VC-SCH 6.0 (31.5 t) | VVS-16 | 808 | 41.43 | 7906335 |
| 20 | VWSAK-2S-20 | 54x250x460 | Th. Shackle (40 t) | VVS-20 | 871 | 50.67 | 7906336 |
| 22 | VWSAK-2S-22 | 56x250x460 | Th. Shackle (40 t) | VVS-22 | 986 | 59.28 | 7906337 |
| 28 | VWBK-2S-28 | 60x190x265 | adaptor | VVS-28 | 967 | 147 | (8600217) |
| 28 | VWAK-2S-28 | 100x250x280 | adaptor | VVS-28 | 1005 | 177 | (8600217) |

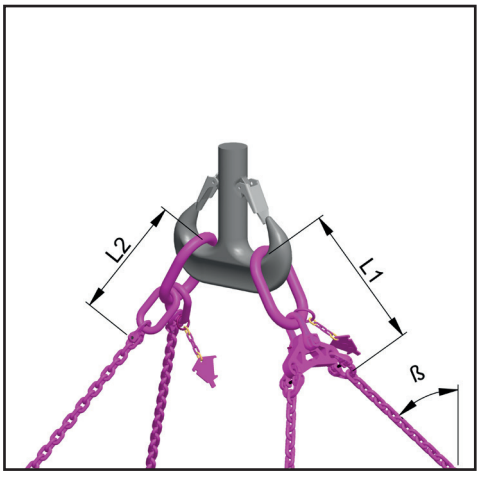
*Table 2: Datas of VIP-Balancer head* *Subject to technical modifications*

| Chain [mm] | Nomination VIP-2-Leg Masterlink for balancer assembly | Dimensions VAK-Link [mm] | Pitch 2-leg VAK-2S L2 [mm] | additional number of chain links for length adjustment VVS / adaptor | Weight 2-leg VAK-2S [kg/pc.] | Ref. no. 2-leg VAK-2S |
|---|---|---|---|---|---|---|
| 6 | VAK-2S-6 | 18x75x135 | 217 | 3 | 1.36 | 7904509 |
| 8 | VAK-2S-8 | 22x90x160 | 267 | 3 | 2.4 | 7904510 |
| 10 | VAK-2S-10 | 26x100x180 | 311 | 3 | 4 | 7904511 |
| 13 | VAK-2S-13 | 32x110x200 | 373 | 3 | 6.9 | 7904512 |
| 16 | VAK-2S-16 | 36x140x260 | 476 | 3 | 11.5 | 7904513 |
| 20 | VAK-2S-20 | 51x190x350 | 614 | 2 | 32.8 | 7904514 |
| 22 | VAK-2S-22 | 51x190x350 | 646 | 2 | 35 | 7904515 |
| 6 | VSAK-2S-6 | 22x190x350 | 432 | 4 | 3.53 | 7906338 |
| 8 | VSAK-2S-8 | 26x190x350 | 457 | 3 | 5.1 | 7906339 |
| 10 | VSAK-2S-10 | 36x250x460 | 591 | 4 | 14.2 | 7906340 |
| 13 | VSAK-2S-13 | 40x250x460 | 633 | 3 | 19.0 | 7906341 |
| 16 | VSAK-2S-16 | 51x250x350 | 676 | 3 | 32.3 | 7906342 |
| 20* | VSAK-2S-20 | 54x250x350 | 754 | 2 | 38.1 | 7906343 |
| 22* | VSAK-2S-22 | 56x250x350 | 768 | 2 | 44.0 | 7906344 |
| 28 | VBK-2S-28 | 60x190x265 | 322 | 8 | 31.9 | 8504022 |
| 28 | VAK-2S-28 | 100x250x280 | 360 | 8 | 64.3 | 7900642 |

*Table 4: Datas of VIP-2-leg Masterlink (for balancer assembly) with VVS-connection* *Subject to technical modifications**

| Total weight to be lifted **[t]** at 4-leg slings (2-leg + 2-leg with balancer) | | | |
|---|---|---|---|
| **Chain [mm]** | **maximum allowed inclination angle β = 15°** | **maximum allowed inclination angle β = 30°** | **maximum allowed inclination angle β = 45°** |
| 6 | 5.8 | 5.2 | 4.2 |
| 8 | 9.6 | 8.6 | 7.0 |
| 10 | 15.4 | 13.8 | 11.2 |
| 13 | 25.8 | 23.2 | 19.0 |
| 16 | 38.0 | 34.0 | 28.0 |
| 20 | 61.8 | 55.4 | 45.0 |
| 22 | 77.2 | 69.2 | 56.0 |
| 28 | 121.0 | 109.0 | 89.0 |

*Table 3: Area of inclination angles* *Subject to technical modifications*




*Pic. 25: Pitch*

**Example VIP-10 mm:**
When using a standard 4-leg sling in the worst case scenario, the user can calculate with only 2 load bearing legs (WLL at 0-45°: 5.6 t).

DGUV 100-500 / BGR 500, chapter. 2.8 clause 3.5.3:
When lifting with multiple strands only two strands can be assumed to be load bearing.

This is not valid if it is guaranteed that the load will be distributed equally to 2 additional legs [...].

By using the VIP-Balancer, the load distribution of a 2 x 2-leg sling will be forwarded to all 4 chain legs.

--> The here of resulting WLL will then be at an inclination angle ß 0-45° 11.2 t.

**ATTENTION**
*When using two 2-leg slings at a symmetrical load distribution, one with a balancer, and both slings are attached into the same hook, 4 load bearing legs can be assumed. The inclination angle ß must not exceed 45°.*