

Operating instructions

Lifting Shackle

- Shackles similar to DIN 82101
- High-strength shackles (according to U.S. Federal Specification RR-C-271)



Imprint

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1 Foreword

1.1 About these instructions

These operating instructions are part of the scope of delivery.

Always keep the operating instructions ready to hand.

Read the operating instructions carefully before first use and observe the information when using the product.

Observe the safety instructions in these operating instructions to avoid personal injury and damage to property.

1.2 Symbols in the instructions

Warnings of personal injury



This safety warning symbol and the associated signal word indicate important information for avoiding hazards that may result in injuries or death. The meaning of the signal word is explained in more detail below.

DANGER!	Extremely hazardous situation. Non-observance of the safety instruction will result in death or serious injury.
WARNING!	Hazardous situation. Non-observance of the safety instruction may result in death or serious injury.
CAUTION!	Hazardous situation. Non-observance of the safety instruction may result in minor injury.

Warnings of property damage



This symbol indicates important information to prevent damage to the product or other objects as well as the surroundings (environment).

Other information



This symbol indicates other helpful information. This information is additionally highlighted with a frame.

1.3 Limitation of liability

Dolezych GmbH assumes no liability for damage caused by:

- Failure to observe these operating instructions
- Non-intended use
- Use of the product by untrained personnel
- Use of non-approved accessories
- Unauthorized modifications

Modifications that affect the material or the load capacity are not permitted. Such interventions are considered unauthorised modifications, resulting in the invalidation of the declaration of conformity and the manufacturer's liability.

Additional markings (e.g. by laser marking) may only be carried out by the manufacturer.

1.4 Specific regulations and guidelines

For safe handling of the product, reference is made in particular to the following applicable regulations and technical rules:

- Machinery Directive 2006/42/EC
- DIN EN 13414-1 to 3 – Steel wire rope slings – Safety
- DIN 82101 – Components for lifting, towing, lashing – Shackles, dee – Non-alloy quality steel
- U.S. Federal Specification RR-C-271
- DGUV Regulation 100-500 – Operation of work equipment
- DGUV Regulation 109-017 – Operation of load handling attachments and slinging equipment in hoisting operations

If applicable, additional special regulations must be observed, e.g. for the transport of hazardous goods.

2 Safety instructions

2.1 Intended use

The product is an accessory for attaching loads, used in lifting equipment or static systems, and may only be used:

- by authorized and instructed persons.
- in compliance with the applicable regulations.

It is expressly forbidden to:

- modify the product,
- repair the product by non-qualified personnel,
- use it for transporting persons.

This is a professional product intended for commercial users.



The lifting shackles can also be used for load securing. In this case, all applicable rules and regulations for load securing as well as the notes on p. 11 must be observed.

2.2 General safety instructions

When lifting loads with lifting equipment, people under or near the load are particularly at risk. Residual risks remain when handling lifting equipment. These include in particular:

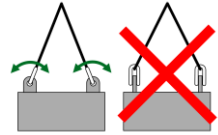
- insufficiently secure connection between the slinging equipment and the load,
- swinging load when lifting, and
- falling loads.

For safe handling of the product, the following instructions must be observed.

- Observe the working load limit (WLL)! The product must never be loaded beyond the specified working load limit.
- Observe temperature ranges.
- Avoid contact with acids and alkalis.
- Shackles must be checked for obvious damage (corrosion, deformation) before use.
- Shackles with deformations must not be used any further.

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- The product must not be restricted in its degrees of freedom in such a way that lateral bending stresses are caused. Otherwise, this may lead to deformation of the product.
- The shackle must always be able to move freely. Supporting it against other components is not permitted.
- Shackles with nut and pin must never be used without the pin.
- The shackle bolt must always be fully screwed in.
- Shackles may be used only with original bolts and pins of the appropriate size.
- The shackle opening width must not be altered by applying force.
- The shackle opening width must not be reduced by welding on spacers of any kind. However, spacers may be installed loosely or secured with liquid threadlocker (e.g., Loctite).
- Applications where the bolt can unscrew must be avoided, e.g., due to a rope, a strap, or the load (see p. 18). Exempt from this rule are shackles that are structurally designed for this use (see p. 10).
- Shackles may be assembled or disassembled only when unloaded.
- Shackles must not be forced into position.
- Avoid tearing or shock loads.
- Do not set loads down on the product if this could damage the product.
- Never drag the load over the product.
- Wear the necessary protective equipment for all work.
- The level of risk from offshore use, the lifting of hazardous loads (e.g., liquid metals) or similar hazard potentials must be assessed by a competent person in the form of a risk assessment.



3 Product description

3.1 Design types

Dolezych lifting shackles are available in the following design types.



Straight, with eye bolt



Straight, with nut and safety pin



Bow, with eye bolt



Bow, with nut and safety pin

3.2 Markings on the product

All shackles are marked in accordance with the applicable standards. The information stamped on the shackle depends on the shackle design. This information includes:

Table 1: Markings depending on shackle type

Shackles similar to DIN 82101

- Nominal size
- Manufacturer's mark
- Traceability code

High-strength shackles

U.S. Specification RR-C-271

- Working load limit
- Manufacturer's mark
- Nominal size
- CE mark
- "HS" on Grade B shackles

3.3 Application-specific product selection

For application-specific selection of suitable lifting equipment, the following points must be observed:

- Mass of the load,
- Position of the load's center of gravity,
- Position of the attachment points,
- Intended type of hitch,
- Diameter of the attachment points.

The product must be selected so that it can hold the load in such a way that the load does not perform any unintended movements.

Criteria for correct product selection are:

- the type of product,
- the length of the product, and
- the attachment method to the load.

The product must be selected so that it is suitable for the environmental conditions at the place of use. Special environmental conditions can have a negative impact on the performance and stability of the product, so that product failure is possible.

Special environmental conditions include:

- influence of chemical substances, especially acids, alkalis and solvents,
- extreme temperatures,
- radiation.

Chemical resistance

Shackles must not be used in environments with acids, aggressive or corrosive chemicals, or their vapors.

Shackles must not be immersed in acidic solutions or exposed to acidic vapors, as these can potentially damage the shackle.

If these types of chemicals are used in production processes, the manufacturer should be consulted before using the shackle.

Operating temperatures

Dolezych shackles can be used within a temperature range from -20 °C to +200 °C.

The ambient temperature affects the working load limit of the product.

The following table shows the effect on the maximum working load limit depending on the ambient temperature.

Use of the shackles outside the specified temperatures is not permitted!

Table 2: Effect of temperature on working load limit

Ambient temperature	Percentage of the marked WLL
-20 °C to -10 °C	50 %
-10 °C to 0 °C	75 %
0 °C to +100 °C	100 %
+100 °C to +150 °C	75 %
+150 °C to +200 °C	50 %



NOTE! Subsequent hot-dip galvanizing and electroplating treatments of the shackles are prohibited!

Duration of use

Depending on the intended duration of use, different shackle designs are better suited:

Shackles **with eye bolt** are particularly suitable for short-term applications due to their design.

Shackles **with a continuous bolt with nut and cotter pin locking** are suitable for use in load handling attachments and for permanent applications. In addition, this type of shackle is used in applications where the loaded pin can rotate (see also p. 18).

Single-leg/multi-leg configuration

Straight shackles are generally used in single-leg configurations.

Bow shackles are generally used in multi-leg configurations (see also p. 18).

Working load limit depending on the type of slinging

The working load limit embossed on the shackles applies to vertical loading. The working load limit of a shackle depends on the type of hitch. The following table shows the type of hitch and the corresponding factor by which the shackle's working load limit must be multiplied.

Table 3: Factors for determining working load limit depending on the type of hitch

	1-leg 0°	2-leg 0°	1-leg 90°	2-leg 90°	0°-45°	2-leg 45°-60°	Asym.	0°-45°	3/4-leg 45°-60°	Asym.
										
Factor	1	2	1	2	1,4	1	1	2,1	1,5	1



NOTE! If shackles are used as connecting elements in chain slings or wire rope slings, the working load limit of the weakest component in the system must always be assumed.

3.4 Use for cargo securing

If the product is used for load securing, a distinction must be made between **temporary** and **permanent** use.

Temporary use

If the product is used **temporarily** for load securing, i.e., the product is to be used again for lifting after transport, at most the value of the marked working load limit (WLL) may be assumed as the value for the permissible lashing capacity (LC).

LC = lashing capacity = WLL



NOTE! If the shackle is subjected to a force greater than $1 \times \text{WLL}$ during use for load securing, it must not be used for lifting afterwards. Such shackles should be marked in colour.

If the shackle is loaded only up to $1 \times \text{WLL}$ during use for load securing, it may continue to be used for lifting.

Permanent use as a lashing point

If the product is used **permanently** and **exclusively** for load securing, at most twice the value of the marked working load limit (WLL) may be assumed as the value for the permissible lashing capacity (LC).

LC = lashing capacity = 2 x WLL

For simplification, the unit kg may be treated as equivalent to the unit daN.



For permanent use in load securing, it is recommended to use shackles that are specifically developed for load securing and are marked with an LC value.

4 Inspection and maintenance

4.1 Initial commissioning

Before the product is put into service for the first time, it must be ensured that:

- The delivery matches the order.
- The inspection certificate or works certificate is available (only for versions that are delivered with a corresponding certificate).
- The marking with the working load limit information is present and matches the order.
- The shackles are used only in combination with lifting equipment of the respective quality grades.

4.2 Before each use

Before each use of the product, it must be ensured that:

- The marking is legible.
- The shackle bolt and shackle body are suitable for each other (same nominal size and design type).
- The threads are free of:
 - wear,
 - corrosion,
 - damage.
- The shackle bolt must be able to be screwed in easily and without force up to the stop.
- There is no dirt in the thread or under the collar.
- There are no deformations on the product.
Deformations may include, among others:
 - bent shackle bolt
 - deformed bow
 - nicks/cracks
 - indentations

4.3 Periodic inspection

According to DGUV Regulation 109-017, load handling attachments must be inspected by a competent person at intervals of no more than one year.

If the product is frequently used under full load, this inspection should be carried out at shorter intervals. The necessary inspection interval should be determined by the operator as part of a job risk assessment.

For inspection, the product must be free of oil, dirt and rust. Observe the notes on cleaning!

All parts that could affect the safety and operation of the product must be checked for:

- Cracks, nicks, deformations
- Visible damage (e.g., due to excessive heat)
- Excessive corrosion
- Wear/abrasion greater than 10 % of the original dimension

If there is any doubt as to whether the shackle is undamaged, operation must be stopped immediately, and the equipment must be inspected by a competent person.

4.4 Discard criteria

The product must not continue to be used once it has reached the discard criteria.

Discard criteria are:

- Marking is no longer legible
- Deformations and damage, e.g., elongation, fractures, nicks, cuts, cracks/incipient cracks, crushing.
- Damaged thread
- Severe corrosion
- Being heated beyond the permissible range
- Safety devices not functioning properly or missing
- Wear greater than 10 % of the original dimension, e.g., on the bolt diameter

5 Application instructions

5.1 Correct assembly



NOTE! Improper handling, in particular incorrect tightening/fixing of the bolt, may lead to deformation and damage of the shackle.

Shackle with nut and safety cotter pin



CAUTION!

Risk of injury due to protruding safety cotter pin.

Puncture and cut injuries from the sharp ends of the safety cotter pin

- Bend the ends of the safety cotter pin so that there is no risk of injury.



NOTE! A shackle with nut and cotter pin locking device must never be used without the safety cotter pin! Cotter pins are intended for single use only!

To secure the bolt correctly in the shackle, proceed as follows:

1. Insert the bolt (1) completely through both holes of the shackle up to the stop.
2. Secure the bolt with the corresponding nut (2). Tighten the nut hand-tight using a suitable tool. Bolt and nut must sit evenly against the shackle.
3. Insert the cotter pin (3) through the hole in the bolt.

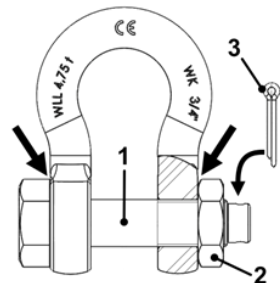


Figure 1: Assembly - shackle with nut and cotter pin

Shackle with eye bolt

To secure the bolt correctly in the shackle, proceed as follows:

1. Screw in the bolt hand tight.
2. Tighten the bolt using a round bar or a suitable tool until the collar of the bolt rests firmly against the shackle eye.

Ensure that the shackle bolt has the correct length so that the bolt can be fully screwed into the shackle eye.

5.2 Slings factors and working load limit (WLL)

Angle-dependent loads on shackles

The force acting on shackles should always be in the longitudinal direction.

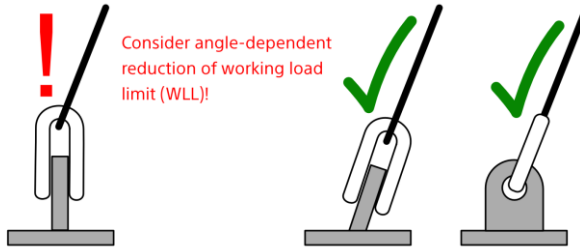


Fig. 2: Correct alignment of the shackle on the load

Lateral loads should be avoided, as the product is not designed for this purpose. If lateral loads cannot be avoided, the maximum working load limit of the shackle must be reduced. The maximum working load limit (WLL) depends on the angle β at which the force acts on the shackle.

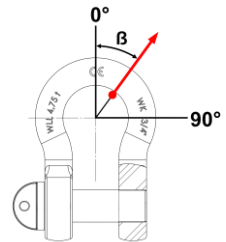


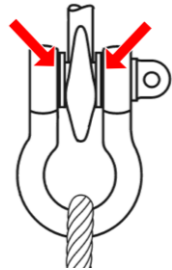
Table 4: Change in working load limit (WLL) depending on the load angle

Load angle	Change in working load limit (WLL) in %
0° to 5°	100 % of the specified working load limit (WLL)
up to 45°	70 % of the specified working load limit (WLL)
up to 60°	50 % of the specified working load limit (WLL)
over 60°	Loading above 60° is not permitted!

5.3 Correct alignment

Avoid uneven loading

To avoid uneven loading of the shackles, the load must be distributed over the entire length of the pin. To avoid one-sided loading of the shackle, loose spacers (shim washers) can be placed **symmetrically on both sides** of the pin. If necessary, these spacers can be secured with a suitable adhesive.



The inner width of the shackle must **not** be reduced by:

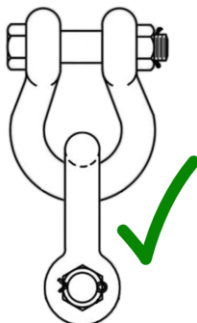
- **welding on** spacers of any kind,
- bending the legs or similar.

This has a negative effect on the mechanical properties of the shackle.

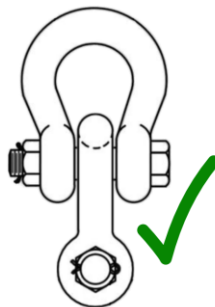
Point loads

Point loading of shackles during lifting operations is permitted; however, the minimum diameter of the rounded component to be lifted must be equal to or greater than the diameter of the shackle bow.

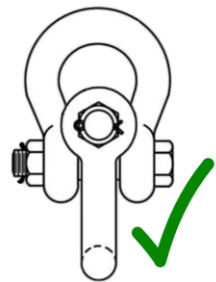
If shackles are to be hung into shackles, the shackles must have the same nominal size.



bow - bow



bow - bolt



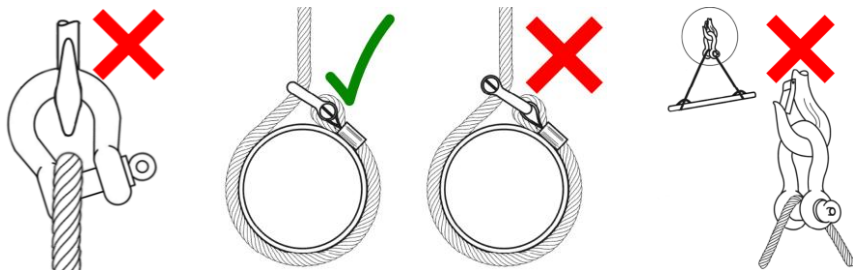
bolt - bolt

For the “bow-to-bolt” and “bolt-to-bolt” configurations, the use of spacers may be necessary to avoid asymmetrical loading.

Prevent the shackle bolt from unscrewing

Applications in which the bolt can be unscrewed from the thread (e.g., by a rope, a strap, or the load) must be avoided!

For such applications, the use of **shackles with a continuous bolt with nut and cotter pin** is recommended. With these shackles, the bolt can rotate freely without being unscrewed from the shackle bow.



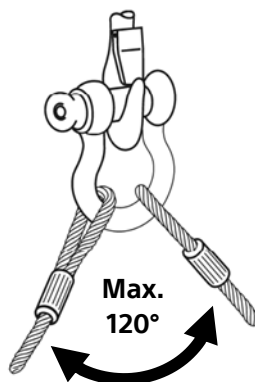
Use in multi-leg slings

If a shackle is used to connect two slings to the hook, a bow shackle must be used. In this case, the slings must be positioned in the shackle body, and the hook must rest on the bolt.

The angle between the legs must not exceed 120°.

Sling only load-symmetrical parts; otherwise, there is a risk of impermissible load movements. Use only attachment points and lifting equipment that are adequately dimensioned for the load weight and direction of pull.

Shackles should be loaded only vertically. If a shackle is used in a multi-leg sling configuration, the corresponding factors must be considered when calculating the working load limit.



6 Storage and care

6.1 Storage

The product should be cleaned of contamination before storage and then stored as follows:

- In containers with a “soft” surface (e.g., wooden boxes) to avoid damage to threads
- Bolts should be screwed in. This prevents thread damage and loss of individual parts.
- Storage temperature should be between 0 °C and +40 °C.

6.2 Cleaning

Clean the product using clear water only.

Do not use any chemical additives, in particular no acids or alkalis.

Allow the product to dry sufficiently before re-use. Do not accelerate drying, e.g., by heating.

No cleaning methods may be used that:

- could lead to overheating,
- could conceal surface defects,
- could lead to hydrogen embrittlement, or
- could lead to stress corrosion cracking.

7 Disposal instructions

After reaching the discard criteria, these shackles must be disposed of properly and in accordance with the applicable local legal requirements.

8 Appendix

8.1 Galvanized shackles similar to DIN 82101

Type A (with eye bolt)

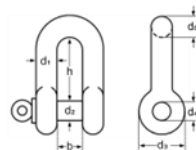
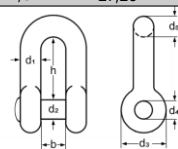


Table 5: Technical data, shackles similar to DIN 82101, Type A

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	d ₅ [mm]	b [mm]	h [mm]	Weight/pc [kg]
69-0320 2001	0,10	4	5	10	M5	5	7	15,5	0,013
69-0320 2002	0,16	5	6	12	M6	6	8	18,0	0,024
69-0320 2003	0,25	7	8	15	M8	8	11	24,0	0,045
69-0320 2004	0,40	8	10	20	M10	10	14	30,0	0,090
69-0320 2006	0,63	10	12	24	M12	12	17	36,0	0,170
69-0320 2010	1,00	13	16	32	M16	15	21	49,0	0,360
69-0320 2016	1,60	17	20	40	M20	19	27	61,0	0,750
69-0320 2020	2,00	19	22	44	M22	21	30	67,0	1,000
69-0320 2025	2,50	21	24	48	M24	23	33	73,0	1,280
69-0320 2030	3,15	24	27	54	M27	26	38	83,5	1,800
69-0320 2040	4,00	27	30	60	M30	29	42	91,0	2,400
69-0320 2050	5,00	30	36	72	M36	33	47	111,0	3,900
69-0320 2060	6,30	34	39	78	M39	37	53	119,5	5,300
69-0320 2080	8,00	38	45	90	M45	41	60	139,5	7,900
69-0320 2100	10,00	42	48	96	M48	45	66	147,0	10,00
69-0320 2120	12,50	47	52	104	M52	50	73	158,0	13,00
69-0320 2160	16,00	52	60	120	M60	55	81	185,0	18,50
69-0320 2200	20,00	58	68	136	M68	61	90	211,0	27,20



Type B (with slotted bolt)

Table 6: Technical data, shackles similar to DIN 82101, Type B

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	d ₅ [mm]	b [mm]	h [mm]	Weight/pc [kg]
69-0320 4004	0,40	8	10	20	M10	10	14	30,0	0,085
69-0320 4006	0,63	10	12	24	M12	12	17	36,0	0,160
69-0320 4010	1,00	13	16	32	M16	15	21	49,0	0,350
69-0320 4016	1,60	17	20	40	M20	19	27	61,0	0,730
69-0320 4020	2,00	19	22	44	M22	21	30	67,0	0,970
69-0320 4025	2,50	21	24	48	M24	23	33	73,0	1,280
69-0320 4030	3,15	24	27	54	M27	26	38	83,5	1,700
69-0320 4040	4,00	27	30	60	M30	29	42	91,0	2,300
69-0320 4050	5,00	30	36	72	M36	33	47	111,0	3,700
69-0320 4060	6,30	34	39	78	M39	37	53	119,5	5,100
69-0320 4080	8,00	38	45	90	M45	41	60	139,5	7,600
69-0320 4100	10,00	42	48	96	M48	45	66	147,0	9,700
69-0320 4120	12,50	47	52	104	M52	50	73	158,0	12,70
69-0320 4160	16,00	52	60	120	M60	55	81	185,0	18,10
69-0320 4200	20,00	58	68	136	M68	61	90	211,0	26,80

Type C (with continuous bolt, nut and cotter pin)

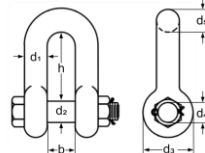


Table 7: Technical data, shackles similar to DIN 82101, Type C

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	d ₄ [mm]	d ₅ [mm]	b [mm]	h [mm]	Weight/pc [kg]
69-0320 6004	0,40	8	10	20	M10	10	14	30,0	0,100
69-0320 6006	0,63	10	12	24	M12	12	17	36,0	0,180
69-0320 6010	1,00	13	16	32	M16	15	21	49,0	0,400
69-0320 6016	1,60	17	20	40	M20	19	27	61,0	0,810
69-0320 6020	2,00	19	22	44	M22	21	30	67,0	1,080
69-0320 6025	2,50	21	24	48	M24	23	33	73,0	1,420
69-0320 6030	3,15	24	27	54	M27	26	38	83,5	2,030
69-0320 6040	4,00	27	30	60	M30	29	42	91,0	2,700
69-0320 6050	5,00	30	36	72	M36	33	47	111,0	4,400
69-0320 6060	6,30	34	39	78	M39	37	53	119,5	5,900
69-0320 6080	8,00	38	45	90	M45	41	60	139,5	8,500
69-0320 6100	10,00	42	48	96	M48	45	66	147,0	10,80
69-0320 6120	12,50	47	52	104	M52	50	73	158,0	14,00
69-0320 6160	16,00	52	60	120	M60	55	81	185,0	19,30
69-0320 6200	20,00	58	68	136	M68	61	90	211,0	28,20

8.2 High-strength shackles, galvanized

Type A (bow, with eye bolt)

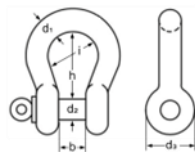


Table 8: Technical data, high-strength shackles, galvanized, Type A

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	b [mm]	h [mm]	i [mm]	Weight/pc [kg]
69-0320 7003	0,33	5	6	14	9,5	22	15	0,02
69-0320 7005	0,50	6	8	16	12,0	29	20	0,05
69-0320 7007	0,75	8	10	19	13,5	31	21	0,10
69-0320 7010	1,00	10	11	23	17,0	37	26	0,14
69-0320 7015	1,50	11	13	27	19,0	43	29	0,19
69-0320 7020	2,00	13	16	30	20,0	48	33	0,36
69-0320 7032	3,25	16	19	38	27,0	60	43	0,63
69-0320 7047	4,75	19	22	46	32,0	71	50	1,01
69-0320 7065	6,50	22	25	53	36,0	84	58	1,50
69-0320 7085	8,50	25	28	61	43,0	95	68	2,21
69-0320 7095	9,50	28	32	68	46,0	108	74	3,16
69-0320 7120	12,00	32	35	76	51,0	119	82	4,31
69-0320 7135	13,50	35	38	84	57,0	133	92	5,55
69-0320 7170	17,00	38	42	92	60,0	146	98	7,43
69-0320 7250	25,00	45	50	106	73,0	177	127	12,84
69-0320 7350	35,00	50	57	111	83,0	197	138	18,15
69-0320 7425	42,50	57	65	134	95,0	222	160	26,30
69-0320 7500	55,00	65	70	145	105,0	260	180	37,60

Type B (straight, with eye bolt)

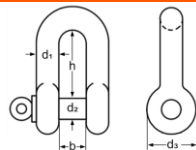


Table 9: Technical data, high-strength shackles, galvanized, Type B

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	b [mm]	h [mm]	Weight/pc [kg]
69-0320 8003	0,33	5	6	14	9,5	22	0,02
69-0320 8006	0,50	6	8	16	12,0	29	0,05
69-0320 8007	0,75	8	10	19	13,5	31	0,09
69-0320 8010	1,00	10	11	23	17,0	37	0,14
69-0320 8015	1,50	11	13	27	19,0	43	0,19
69-0320 8020	2,00	13	16	30	20,0	48	0,32
69-0320 8032	3,25	16	19	38	27,0	60	0,54
69-0320 8047	4,75	19	22	46	32,0	71	0,87
69-0320 8065	6,50	22	25	53	36,0	84	1,34
69-0320 8085	8,50	25	28	61	43,0	95	1,43
69-0320 8095	9,50	28	32	68	46,0	108	2,77
69-0320 8120	12,00	32	35	76	51,0	119	3,72
69-0320 8135	13,50	35	38	84	57,0	133	5,14
69-0320 8170	17,00	38	42	92	60,0	146	6,85
69-0320 8250	25,00	45	50	106	73,0	177	11,45
69-0320 8350	35,00	50	57	111	83,0	197	16,86
69-0320 8425	42,50	57	65	134	95,0	222	24,61
69-0320 8500	55,00	65	70	145	105,0	260	32,65

Type C (bow, with nut and cotter pin)

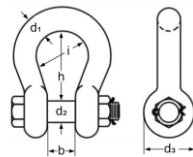


Table 10: Technical data, high-strength shackles, galvanized, Type C

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	b [mm]	h [mm]	i [mm]	Weight/pc [kg]
69-0320 9005	0,50	7	8	17	12,0	29,0	20	0,06
69-0320 9007	0,75	9	10	21	13,5	32,0	21	0,11
69-0320 9010	1,00	10	11	23	17,0	36,5	26	0,16
69-0320 9015	1,50	11	13	26	19,0	43,0	29	0,22
69-0320 9020	2,00	13	16	30	20,0	48,0	33	0,42
69-0320 9032	3,25	16	19	38	27,0	60,0	43	0,74
69-0320 9047	4,75	19	22	46	32,0	71,0	50	1,18
69-0320 9065	6,50	22	25	53	36,0	84,0	58	1,77
69-0320 9085	8,50	25	28	61	43,0	95,0	68	2,58
69-0320 9095	9,50	28	32	68	46,0	108,0	74	3,66
69-0320 9120	12,00	32	35	76	51,0	115,0	82	4,91
69-0320 9135	13,50	35	38	84	57,0	133,0	92	6,54
69-0320 9170	17,00	38	42	92	60,0	146,0	98	8,19
69-0320 9250	25,00	45	50	106	73,0	177,0	127	14,22
69-0320 9350	35,00	50	57	111	83,0	197,0	138	19,85
69-0320 9425	42,50	57	65	134	95,0	222,0	160	28,33
69-0320 9500	55,00	65	70	145	105,0	260,0	180	39,59
69-0320 9850	85,00	75	83	163	127,0	329,0	190	62,00

Type D (straight, with nut and cotter pin)

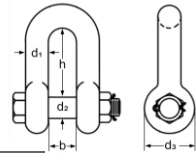


Table 11: Technical data, high-strength shackles, galvanized, Type D

Article-no.	WLL [t]	d ₁ [mm]	d ₂ [mm]	d ₃ [mm]	b [mm]	h [mm]	Weight/pc [kg]
69-0321 0020	2,00	13	16	30	20	41	0,34
69-0321 0032	3,25	16	19	38	27	51	0,67
69-0321 0047	4,75	19	22	46	32	60	1,14
69-0321 0065	6,50	22	25	53	36	71	1,75
69-0321 0085	8,50	25	28	61	43	81	2,52
69-0321 0095	9,50	28	32	68	46	90	3,45
69-0321 0120	12,00	32	35	76	51	100	4,91
69-0321 0135	13,50	35	38	84	57	111	6,24
69-0321 0170	17,00	38	42	92	60	122	8,40
69-0321 0250	25,00	45	50	106	73	146	14,26
69-0321 0350	35,00	50	57	111	83	171	18,53
69-0321 0425	42,50	57	65	134	95	190	25,94
69-0321 0500	55,00	65	70	145	105	203	35,33
69-0321 0850	85,00	75	83	163	127	229	52,87

9 EC Declaration of Conformity



Within the meaning of the EC Machinery Directive 2006/42/EC

We,

Dolezych GmbH & Co. KG

Hartmannstraße 8

D-44147 Dortmund

hereby declare, that the shackles in the series-produced version comply with the following relevant regulations:

EC machinery directive 2006/42/EG

DIN EN ISO 12100 Safety of machinery – General design principles

DIN 82101 – Components for lifting, towing, lashing – Shackles, straight – Non-alloy quality steel

U.S. Federal Specification RR-C-271

Dortmund; 05/11/2025

Th. Schade

Dipl.-Ing. Thomas Schade

(Authorized representative for documentation)

Dolezych
EINFACH SICHER

