



ACP M12-M30 /
ACP 1/2" - 1 1/4"



ACP M36-M42 /
ACP 1 1/2" - 1 3/4"

Automatic Centre Point - for bolting ACP

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: Automatic Center Point
ACP - TURNADO

Folgende harmonisierten Normen wurden angewandt:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

<u>ASME B30.26 : 2015</u>	<u>BGR 500, KAP2.8 : 2008-04</u>
_____	_____
_____	_____

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

Aalen, den 12.02.2019 Hermann Kolb, Bereichsleitung MA

Name, Funktion und Unterschrift Verantwortlicher

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: Automatic Center Point
ACP - TURNADO

The following harmonized norms were applied:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>ASME B30.26 : 2015</u>	<u>BGR 500, KAP2.8 : 2008-04</u>
_____	_____
_____	_____

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

Aalen, den 12.02.2019 Hermann Kolb, Bereichsleitung MA

Name, function and signature of the responsible person



Carefully read the instructions prior to using Automatic Center Point boltable lifting points (hereafter referred to as ACP). Make sure you have understood the content of this user manual. Failure to observe the instructions can result in physical injury or material damage and means that the warranty no longer applies.

1 Safety instructions



WARNING

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

- Remove all body parts (fingers, hands, arms, etc.) out of the hazard area (danger of crushing or squeezing) during the lifting operation.
- **Attention:** When the suspension ring pivots there is a risk of pinching.
- All ACP lifting points must only be used by authorised and trained persons in adherence with DGUV Regulations 100-500 (BGR Regulation 500), Chapter 2.8 and, outside Germany, when observing the relevant specific national statutory regulations (e.g. AS 3775.2, AS 3776). Inspections should be carried out by competent persons only
- Do not exceed the working load limit (WLL) indicated on the lifting point
- The ACP must be able to rotate through 360° when installed.
- The ACP is not permitted to be rotated permanently under load
- No technical alterations are permitted on the ACP
- Do not stand under a suspended load or be in the danger zone/fallzone when conducting a lift
- Shock loading and strong impact should be prevented
- Always ensure a stable position of load when lifting. Swinging must be prevented
- Damaged or worn ACPs must be removed from service immediately (Refer to Chapter 4)

2 Intended use

- ACP lifting points must only be attached to a load or used as load accepting means
- Their usage is intended to be used as lifting means
- The ACP can also be used as lashing points for fixing lashing means
- The ACP must only be used in the here described operation/user instruction

3 Instructions for assembly and use

3.1 General information

- Effects of temperature:
Due to the DIN/EN bolts that are used in the ACP, the working load limit must be reduced accordingly:
-40°C to 100°C → no reduction
100°C to 200°C minus 15 % (212 to 392°F)
200°C to 250°C minus 20 % (392 to 482°F)
250°C to 350°C minus 25 % (482 to 662°F)
Temperatures over 350°C (662°F) are not permitted.

Please observe the maximum usage temperature of the supplied nuts:

- Lock nuts as per DIN EN ISO 7042 (DIN 980) must only be used to max. 150°C (302°F).
- Collar nuts as per DIN 6331 can be used up to max. +300°C (572°F). In addition to that observe the reduction factor
- 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 galvanising plants. If this cannot be avoided, please contact the manufacturer indicating the concentration, period of penetration and temperature of use
- The places where the ACP lifting points are fixed should be clearly marked
- ACP lifting points from RUD are supplied with a crack test inspected hexagon bolt (length up to L_{max}, see Table 2).

M12-M24 or 1/2"-1": ICE-Bolt

M30-M42 or 1 1/4"-1 3/4": 10.9 bolt

ATTENTION

Use only the appropriate strength class of bolt for each specific size. For sizes M12-M24 or 1/2"-1", only original RUD-ICE-Bolt must be used.

- Original bolts (ICE-Bolt and 10.9 bolts) are available as a spare part from RUD.
- When using 10.9 bolts sized between M30-M42 or 1 1/4"-1 3/4" from other suppliers, they must be 100% crack tested. A written confirmation of the absence of cracks must be added to the documentation.
The middle notch toughness at the lowest approved use temperature must be at least 36 J. This is a requirement for the test principles according to GS OA 15-04 lifting points.



NOTE

Disassembly/assembly to check or replace the bolt must only be carried out by a competent person (see Section 3.4 Disassembly / assembly of the RUD bolt).

Variants

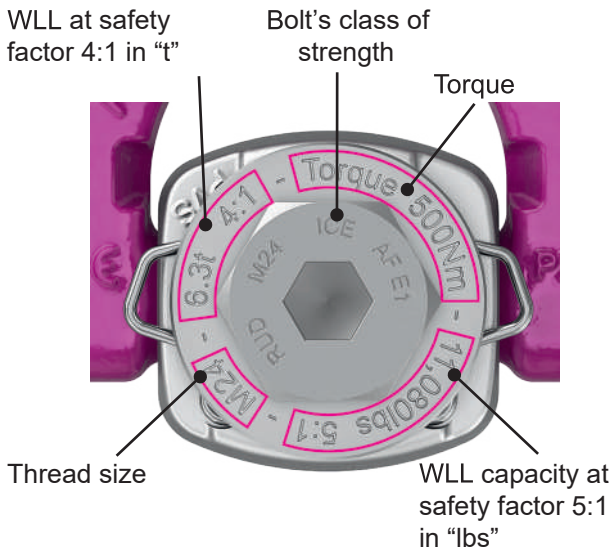
- Metric Vario lengths are supplied by RUD with a washer and a crack-tested nut as per DIN EN ISO 7042 or with a crack-tested collar nut as per DIN 6331.
- If the ACP is used exclusively for lashing, the value of the working load limit can be doubled. LC = permissible lashing capacity = 2 x WLL



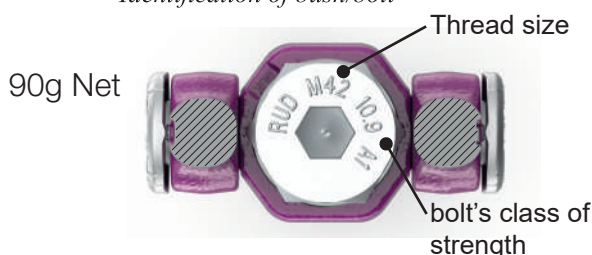
NOTE

If the ACP 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 ACP is/was used as a lashing point, up to the WLL only, it can still be used afterwards as a lifting point. It is best practice for lifting points and lashing points to be separate designated points

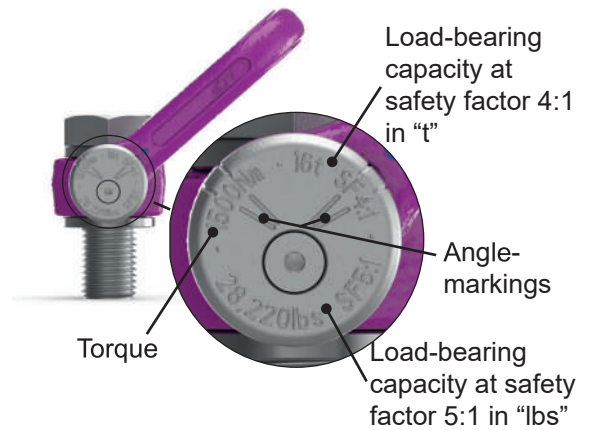
- The marking of technical details are shown as follows:
 - **M12-M30 or 1/2"-1 1/4"**: The markings are shown on top of the bushing and on the head of the bolt (see Pic. 1).
 - **M36-M42 or 1 1/2"-1 3/4"**: The markings are shown on the deflector disc and the head of the bolt (see Pic. 2).



Pic. 1: ACP M12-M30 or 1/2"-1 1/4" - Identification of bush/bolt



Pic. 2: ACP M36-M42 or 1 1/2"-1 3/4" - Identification of bolt



Pic. 3: ACP M36-M42 or 1 1/2"-1 3/4" - Identification of deflector disc



NOTE

Angle marking helps to estimate 45°- or 60°-position of suspension ring.

3.2 Hints for mounting

The following applies in general:

- 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 bolt lengths:
 - 1 x M in steel (minimum quality S235JR [1.0037]) ≈ AS 3678 GR250
 - 1.25x M in cast part (e.g. GG 25)
 - 2 x M in aluminium alloys
 - 2.5 x M in light alloys with low strength (M = diameter of RUD lifting point bolt, e.g. M20)
 When lifting light metals, nonferrous heavy metals and gray cast iron the thread has to be chosen in such a way that the working load limit of the thread corresponds to the requirements of the respective base material
- The lifting points must be positioned at the load in such a way that improper loading like turning or twisting of the load will be avoided:
- **For single leg lifts:** Suspension ring should be vertically above the centre of gravity of the load
- **For two leg lifts:** Lifting points must be equidistant to/or above the centre of gravity of the load
- **For three and four leg lifts:** Lifting points should be arranged symmetrically around the centre of gravity in the same plane if possible
- Symmetry of loading: Determine the WLL of each individual RUD lifting point for symmetrical and asymmetrical loading according to the following formula:

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

W_{LL} = Minimum required working load limit of lift point (kg)
 G = Load weight (kg)
 n = Number of load-bearing legs
 β = Angle of inclination of the individual leg

Number of load bearing legs

	Symmetrical	Asymmetrical
Double leg	2	1
3 / 4 leg	2	1

Table 1: Load-bearing legs (see Table 3)



NOTE

With asymmetrical loads, the WLL of each lifting point must be the same as the weight of the load. For special applications, please consult the RUD engineering team

- A plane bolt on surface ($\varnothing E$, Table 2) with a perpendicular thread hole must be guaranteed. The thread must be carried out acc. to DIN 76 (countersink max. $1.05 \times d$). Tapped holes must be machined deep enough so that the bearing surface of the lifting point is supported. Machine through holes up to DIN EN 20273-medium (See Table 4).
- The ACP must be free to rotate 360° when installed and tightened. Please observe the following:
 - **For a single use:** Hand tightening with a spanner is sufficient. Lifting point must be fully engaged into thread hole and the bearing surface must sit properly at the bolt-on area of the load
 - **Attention: Do not exceed the specified tightening torque**
 - **For long term application:** The ACP must be tightened with torque according to Table 2 (+/- 10 %).
 - When turning loads using the ACP (see Section 3.3.3 *Permitted lifting and turning actions*) it is necessary to tighten the bolt with a torque (+/- 10 %) acc. to Table 2.
- With shock loading or vibrations, especially at through hole fixtures with a nut at the end of the bolt, accidental release can occur.

Securing possibilities: Observe torque moment, use liquid securing glue, i.e. Loctite (can be adapted to the usage, observe manufacturer requirements).
- Finally check correct installation (see Section 4 *Inspection / Repair / Disposal*).

3.3 Hints for the usage

3.3.1 General information regarding use

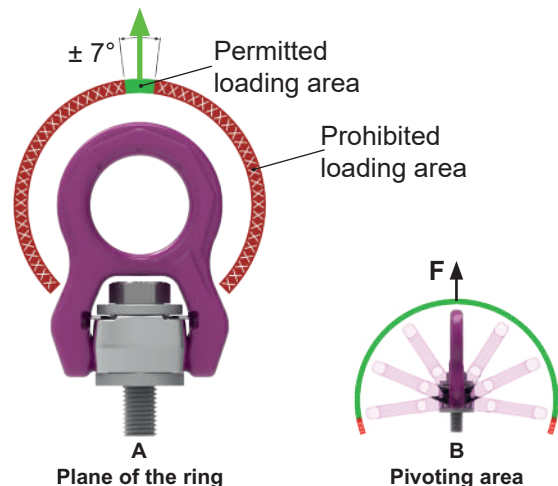
- Regularly observe the appearance of the entire lifting assembly (e.g. fixed lifting point/slings) before using it (secure bolt seat, tightening of the bolt, presence of corrosion, cracks on load-bearing parts, deformations). See Section 4 *Inspection / Repair / Disposal*.



WARNING

Incorrectly assembled or damaged lifting points as well as improper use can lead to injuries of persons and damage to objects when loads drop. Please inspect all ACP 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.
 - Several load cycles can occur within a lifting procedure.
 - Due to the high dynamic stress associated with a high number of load cycles, 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.
- When attaching and removing the lifting means (e.g. lifting chains), crushing, shearing, trapping and impact spots must be prevented.
- Avoid at all times loading the load ring via a sharp edge.
- Set the suspension ring of the ACP in the direction of force before attaching the lifting means.



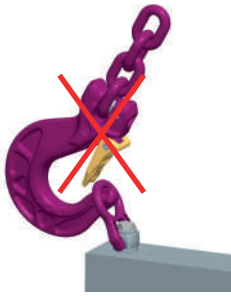
Pic. 4: *

A: Prohibited lateral force in plane of the ring

B: Permitted load direction in pivoting area

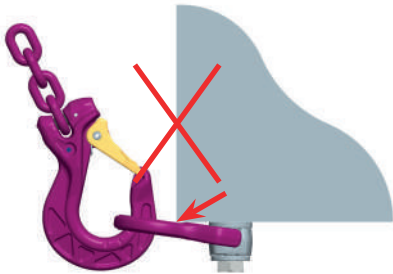
* Fig. 4 shows the design of the ACP M12-M30 resp. $1/2''$ - $1 1/4''$. The load areas also apply for the ACP M36-M42 and $1 1/2''$ - $1 3/4''$ respectively.

- Observe that the lifting means is freely movable within the suspension ring of the ACP.



Pic. 5: Only use suitable lifting means for attaching to the ACP.

- A bending load on the suspension ring is not permitted!



Pic. 6: The suspension ring must be freely movable and not touch the edge of the load.

- Always completely engage the lifting point



Pic. 7: The lifting point must be fully screwed in.

3.3.2 General information regarding the spring

The spring keeps the suspension ring away from the shaded area shown in Fig. 9. This avoids prohibited side loading of the ring in the 90° direction (see Section 3.3.1, Pic. 4). Under load the force of the spring will be overcome and the ACP can be loaded in the vertical direction. The pivoting of the suspension ring is possible through manual hand force.



Pic. 8: Detailed view of spring ACP M12-M30 or 1/2"-1 1/4"



Pic. 9: The spring keeps the suspension ring out of the shaded area.

3.3.3 Permitted lifting and turning actions

The following turning actions are permitted:

- Turning of load while suspension ring is pivoted in the direction of the load force.



WARNING

The suspension ring must not support itself at edges or other attachments.



Pic. 10: Pivoting area (green = permitted loading direction)



WARNING

Prior to each lifting or turning action check torque of the bolt.

- After a max. turn of 180°, the torque of the bolt must be checked.
- Turning around the bolt axle under load, with the exception of Section 3.3.4, is permissible.

3.3.4 Prohibited lifting and turning actions

The following actions are prohibited:



WARNING

Do not rotate the ACP under load in the direction of the bolt axle ($\pm 15^\circ$).



Pic. 11: Prohibited rotation under load in the direction of the bolt axle.

- Not suitable for permanent turning actions under load.

3.4 Disassembly / assembly of the RUD bolt

| The following figures show the design of the ACP M12-M30 or $1/2''-1 1/4''$. The disassembly / assembly of the RUD bolt works in the same way for the ACP M36-M42 or $1 1/2''-1 3/4''$. |



NOTE

Disassembly/assembly to either replace or check the bolt must be carried out by a competent person!

3.4.1 Disassembly of the bolt

1. Position the ACP upside down to the left and right of the bolt head at the bush on a support (e.g. vice).
Attention: Do not clamp head of bolt!
2. Lightly hammer on the end of the bolt to punch the bolt out from the bushing (Pic. 12).
Attention: In doing so, the thread must not be damaged!



Pic. 12: Supporting position of the ACP on of the vice jaws

3.4.2 Assembly of the bolt



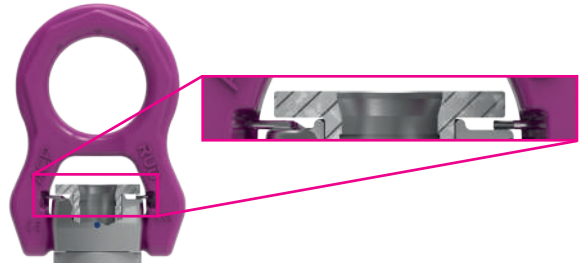
NOTE

Only the correct bolt type (strength class) acc. to the corresponding size must be used!

M12-M24 or $1/2''-1''$: ICE-Boly only

M30-M42 or $1 1/4''-1 3/4''$: 10.9 bolt

1. Insert the bolt into the bushing with insertion bevel (see Pic. 13).



Pic. 13: ACP cross section. You can see the insertion bevel at the top of the bush

2. Insert the bolt into the bush so that the circlip has been fully positioned in the recess of the bush (see Pic. 14).



NOTE

Turn the bolt until the circlip sits properly in the groove



Pic. 14: Circlip fully positioned in the recess of the countersink

3. Lightly tap on the bolt head to insert the bolt and to make sure that the bearing surface of the bolt sits on top of the bushing.
4. Subsequently check if the bolt is captive and can be turned easily. Bolt must rotate easily by 360°.

4 Inspection / Repair / Disposal

4.1 Hints for the regularly inspection

Lifting points should be checked by a competent person in periods which are determined by the usage, at least annually, in regard to the ongoing appropriateness of the lifting point (see Sections 4.2 and 4.3). Refer AS 3775.2 for guidance.

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

4.2 Inspection criteria for the regular examination carried out by the operator:

- Ensure correct bolt and nut size, thread compatibility, quality grade of bolt and depth of thread engagement
- Observe proper tightening of bolt. Check torque value.
- Completeness of the lifting point.
- Legible WLL information as well as the manufacturer's identification mark
- Deformations on load-bearing components such as body, suspension ring and bolt.
- Mechanical damage, such as notches, particularly in high stress areas.
- Smooth and free rotation of the ACP-TURNADO must be guaranteed.
- Function of the spring (suspension ring must be kept away from vertical position, see Section 3.3.2, *Pic. 9*).

4.3 Additional inspection criteria for the competent person / inspector

- Reduction of cross section caused by wear of more than 10%
- Evidence of corrosion
- Evidence of cracks at load-bearing parts
- Damage to the bolts, nut as well as the screw thread (*3.4 Disassembly / assembly of the RUD bolt*).
- Further checks may be required, depending on the result of the risk assessment (e.g. testing for cracks in load-bearing parts)

4.4 Disposal

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

5 Tables/Overview




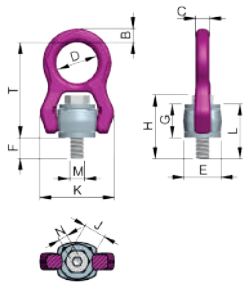
Type	Single Leg		2, 3 or 4 Legs		
					
			60°	90°	120°
ACP M12/ 1/2"	1.35	1.35	2.3	1.9	1.35
ACP M16 / 5/8"	2.5	2.5	4.3	3.5	2.5
ACP M20 / 3/4"	4.0	4.0	6.9	5.6	4.0
ACP M24 / 1"	6.3	6.3	10.9	8.9	6.3
ACP M30 / 1 1/4"	8.0	8.0	13.8	11.3	8.0
ACP M36	15.0	12.5	21.6	17.6	12.5
ACP M42	18.0	16.0	27.7	22.6	16.0
ACP 1 1/2"	16.0	14.0	24.2	19.7	14.0
ACP 1 3/4"	18.0	16.0	27.7	22.6	16.0

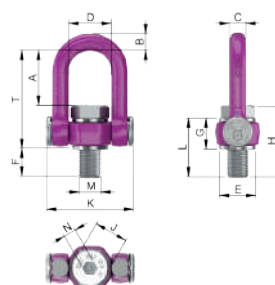
Table 2: WLL Table- Australian Standards in tonnes

Type	weight [kg]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	F _{max} [mm]	G [mm]	H [mm]	K [mm]	L [mm]	L _{max} [mm]	M	N [mm]	J [mm]	T [mm]	torque [Nm]	Ref.-No.	
																			with bolt	without bolt
ACP M12	0.37	--	11	10.5	38	30	19	117	28	54.5	58	47	145	M12	8	19	83	80	7909314	8600632
ACP M16	0.82	--	14	14	50	40	22	149	36	68	76	58	185	M16	10	24	107	150	7909316	8600634
ACP M20	1.34	--	17	17.25	50	45	26.5	186.5	43.5	82.5	89	70	230	M20	12	30	118	300	7909317	8600636
ACP M24	3.03	--	23	23	66	60	34	210	55	104	121	89	265	M24	14	36	154	500	7909318	8600638
ACP M30	5.66	--	29	27	75	75	41.5	271.5	68.5	129	148	110	340	M30	17	46	183	800	7909319	8600640
ACP M36	7.1	106	32	32	82	70	45	240	60	128	168	105	300	M36	22	55	189	800	7911052	8600642
ACP M42	7.5	106	32	32	82	70	53	290	60	136	168	113	350	M42	24	65	189	1500	7911053	8600644
Type	weight [kg]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	F _{max} [mm]	G [mm]	H [mm]	K [mm]	L [mm]	L _{max} [mm]	M	N [mm]	J [mm]	T [mm]	torque [Nm]	Ref.-No.	
ACP 1/2"	0.37	--	11	10.5	38	30	18	124.4	28	54	58	46	152.4	1/2"	5/16"	3/4"	83	80	7909417	8600632
ACP 5/8"	0.82	--	14	14	50	40	22	148.5	36	68	76	58	184	5/8"	3/8"	15/16"	107	150	7909418	8600634
ACP 3/4"	1.34	--	17	17.25	50	45	25.5	185	43.5	81	89	69	228.6	3/4"	1/2"	1 1/8"	118	300	7909419	8600636
ACP 1"	3.15	--	23	23	66	60	36	199	55	105.5	121	91	254	1"	9/16"	1 1/2"	154	500	7909420	8600638
ACP 1 1/4"	5.77	--	29	27	75	75	46.5	271	68.5	134.5	148	115	339.5	1 1/4"	5/8"	1 7/8"	183	800	7909421	8600640
ACP 1 1/2"	7.3	106	32	32	82	70	48	287	60	131	168	108	347	1 1/2"	7/8"	2 1/4"	189	800	7911054	8600643
ACP 1 3/4"	7.7	104	32	32	82	70	56	290	60	141	168	117	350	1 3/4"	1"	2 5/8"	189	1500	7911055	-

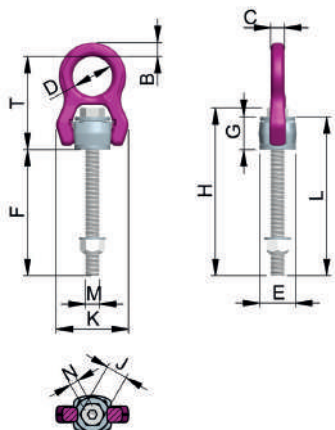
Table 3: Overview of dimensions. Values subject to technical modifications. .



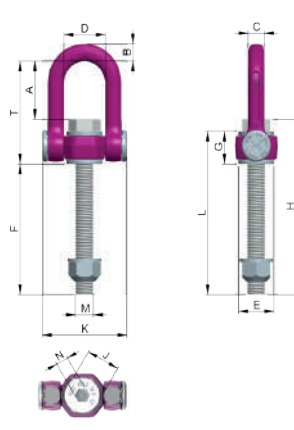
Pic. 15: ACP M12-M30 or 1/2"-1 1/4"



Pic. 17: ACP M36-M42 or 1 1/2"-1 3/4"



Pic. 16: ACP VARIO M12-M30 or 1/2"-1 1/4"



Pic. 18: ACP VARIO M36-M42 or 1 1/2"-1 3/4"

Lifting method											
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4	
Inclination angle β	0°-7°	90°	0°-7°	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	
Sicherheitsfaktor 4:1 / Safety factor 4:1	Safety factor 4:1	For max. total load in metric tons, bolted and adjusted to the direction of pull									
	ACP M12 / 1/2"	1.35	1.35	2.7	2.7	1.9	1.35	1.35	2.84	2	1.35
	ACP M16 / 5/8"	2.5	2.5	5	5	3.5	2.5	2.5	5.25	3.75	2.5
	ACP M20 / 3/4"	4	4	8	8	5.6	4	4	8.4	6	4
	ACP M24 / 1"	6.3	6.3	12.6	12.6	8.8	6.3	6.3	13.2	9.5	6.3
	ACP M30 / 1 1/4"	8	8	16	16	11.2	8	8	17	11.8	8
	ACP M36	15	12.5	30	25	17	12.5	12.5	26.5	19	12.5
	ACP M42	18	16	36	32	22.4	16	16	33.6	24	16
	ACP 1 1/2"	16	14	32	28	19.6	14	14	29.4	21	14
	ACP 1 3/4"	18	16	36	32	22.4	16	16	33.6	24	16
Sicherheitsfaktor 4:1	Safety factor 4:1	For max. total load in lbs, bolted and adjusted to the direction of pull									
	ACP M12 / 1/2"	2970	2970	5940	5940	4200	2970	2970	6300	4450	2970
	ACP M16 / 5/8"	5500	5500	11000	11000	7770	5500	5500	11660	8250	5500
	ACP M20 / 3/4"	8820	8820	17640	17640	12470	8820	8820	18710	13230	8820
	ACP M24 / 1"	13890	13890	27780	27780	19440	13890	13890	29460	20830	13890
	ACP M30 / 1 1/4"	17630	17630	35260	35260	24930	17630	17630	37400	26440	17630
	ACP M36	33070	27550	66140	55100	38960	27550	27550	58440	41320	27550
	ACP M42	39680	35270	79360	70540	49870	35270	35270	74810	52900	35270
	ACP 1 1/2"	35270	30860	70540	61720	43640	30860	30860	65460	46290	30860
	ACP 1 3/4"	39680	35270	79360	70540	49870	35270	35270	74810	52900	35270
Sicherheitsfaktor 5:1 / Safety factor 5:1	Safety factor 5:1	For max. total load in metric tons, bolted and adjusted to the direction of pull									
	ACP M12 / 1/2"	1.1	1.1	2.2	2.2	1.5	1.1	1.1	2.3	1.6	1.1
	ACP M16 / 5/8"	2	2	4	4	2.8	2	2	4.25	3	2
	ACP M20 / 3/4"	3.2	3.2	6.4	6.4	4.5	3.2	3.2	6.7	4.8	3.2
	ACP M24 / 1"	5	5	10	10	7.1	5	5	10.6	7.5	5
	ACP M30 / 1 1/4"	6.4	6.4	12.8	12.8	9	6.4	6.4	13.5	9.6	6.4
	ACP M36	12	10	24	20	14	10	10	21	15	10
	ACP M42	14.4	12.8	28.8	25.6	18	12.8	12.8	26.9	19.2	12.8
	ACP 1 1/2"	12.8	11.2	25.6	22.4	15.7	11.2	11.2	23.5	16.8	11.2
	ACP 1 3/4"	14.4	12.8	28.8	25.6	18	12.8	12.8	26.9	19.2	12.8
Sicherheitsfaktor 5:1	Safety factor 5:1	For max. total load in lbs, bolted and adjusted to the direction of pull									
	ACP M 12 / 1/2"	2380	2380	4760	4760	3360	2380	2380	5040	3570	2380
	ACP M 16 / 5/8"	4400	4400	8800	8800	6220	4400	4400	9330	6600	4400
	ACP M 20 / 3/4"	7040	7040	14080	14080	9950	7040	7040	14930	10560	7040
	ACP M 24 / 1"	11080	11080	22160	22160	15670	11080	11080	23500	16620	11080
	ACP M 30 / 1 1/4"	14080	14080	28160	28160	19910	14080	14080	29860	21120	14080
	ACP M36	26450	22040	52900	44080	31160	22040	22040	46750	33060	22040
	ACP M42	31740	28220	63480	56440	39900	28220	28220	59860	42330	28220
	ACP 1 1/2"	28220	24690	56440	49380	34910	24690	24690	52370	37030	24690
	ACP 1 3/4"	31740	28220	63480	56440	39900	28220	28220	59860	42330	28220
EN: At a lift with one strand and two parallel strands where the inclination angles are at the max.± 7°. the lifting methode can be assumed as a vertical lift.					EN: When lifting with two, three or four leg lifting means, inclination angles of less than 15° shall be avoided, if possible (Risk of instability).						

Table 4: Working load limits in metric tons (top) and in lbs (bottom)



Full Member



Quality ISO 9001



Environment ISO 9001



ISO 45001 Occupational Health and Safety

SAI GLOBAL