Automatic-Center-Point
> ACP-TURNADO OCEANSTAR <

EN

Safety instructions

This safety instruction has to be kept on file for the whole lifetime of the product and forwarded with the product.
TRANSLATION OF THE ORIGINAL SAFETY INSTRUCTION



ACP-TURNADO OCEANSTAR
M8-M30

TYPE APPROVED PRODUCT DNV DNV.COM/AF

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Automatic-Center-Point - for bolting
ACP-TURNADO OCEANSTAR

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:

DIN EN 1677-1 : 2009-03	DIN EN ISO 12100 : 2011-03

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

ASME B30.26 : 2015	DGUV-R 109-017 : 2020-12

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
Fabian Bihlmaier, RUD Ketten, 73432 Aalen

Aalen, den 02.01.2026 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
Germany

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:

DIN EN 1677-1 : 2009-03	DIN EN ISO 12100 : 2011-03

The following national norms and technical specifications were applied:

ASME B30.26 : 2015	DGUV-R 109-017 : 2020-12

Authorized person for the configuration of the declaration documents:
Fabian Bihlmaier, RUD Ketten, 73432 Aalen

Aalen, 02.01.2026 Hermann Kolb, Head of division MA

Name, function and signature of the responsible person

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CONTENT

1 Safety instructions 2

2 Intended use 2

3 Instructions for assembly and use 2

3.1 General information 2
3.2 Hints for mounting 3
3.3 Hints for the usage 4
3.3.1 General information regarding use 4
3.3.2 General information regarding the spring ...5
3.3.3 Permitted lifting and turning actions....5
3.3.4 Prohibited lifting and turning actions....6
3.4 Disassembly / assembly of the RUD bolt 6
3.4.1 Disassembly of the bolt 6
3.4.2 Assembly of the bolts M8-M10....6
3.4.3 Assembly of the bolts M12-M30....6

4 Inspection / Repair / Disposal 7

4.1 Hints for the regularly inspection 7
4.2 Inspection criteria for the regularly examination carried out by the operator: 7
4.3 Additional inspection criteria for the competent person resp. auditor....7
4.4 Disposal....7

5 Tables/Overview 8

5.1 Overview of dimensions ACP-TURNADO OCEANSTAR....8
5.2 Overview of dimensions ACP-TURNADO OCEANSTAR-Vario 8
5.3 Overview Working load limit (WLL) ACP-TURNADO OCEANSTAR....9

ENGLISH

Carefully read the instructions prior to using Automatic Center Point TURNADO OCEANSTAR boltable lifting points (hereinafter referred to as ACP-TURNADO OCEANSTAR). Make sure you have understood everything.
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
Wrong assembled or damaged ACP-TURNADO OCEANSTAR as well as improper use can lead to injuries of persons and damage of objects when load drops. Please inspect all ACP-TURNADO OCEANSTAR before each use.

- Keep all body parts like fingers, hands, arms, etc. out of the hazardous area during the lifting operation.
- Attention: When suspension ring pivots there is a risk of pinching.
- All ACP-TURNADO OCEANSTAR must only be used by authorized and trained persons in adherence with DGUV Regulations 109-017 and according to the country-specific provisions and regulations outside Germany.
- The stated WLL at the ACP-TURNADO OCEANSTAR must not be exceeded.
- The ACP-TURNADO OCEANSTAR must be able to rotate by 360° once it is tightened.
- The ACP-TURNADO OCEANSTAR is not permissible to be rotated permanently under load.
- Any technical modifications at the ACP-TURNADO OCEANSTAR 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.
- The bolt must always be inserted into the bushing from the tapered side, resp. from the side where the spring and labelling is marked.
- Damaged or worn ACP-TURNADO OCEANSTAR must no longer be used.

2 Intended use

ACP-TURNADO OCEANSTAR is approved for use in lifting operations in industry and in ports, for controlled lifting operations in sheltered waters and at sea, and for short periods of underwater use.

ACP-TURNADO OCEANSTAR is certified by DNV, Type Approval No. TAS00004Z0, and is therefore suitable for marine and offshore applications (subject to the areas of application and conditions described therein).

ACP-TURNADO OCEANSTAR must only be used for the assembly at loads or in combination with lifting means.

They are intended to hinge lifting means.

ACP-TURNADO OCEANSTAR may also be used as lashing points to hinge lashing means.

ACP-TURNADO OCEANSTAR may only be used for the purposes described here.

3 Instructions for assembly and use

3.1 General information

- Suitability for use at certain temperatures:
  Reduce the bolts' load bearing capacities as follows according to the bolts' class of strength in conjunction with ACP-TURNADO OCEANSTAR as a result of the applied bolts:
  -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!

  If the ACP-TURNADO OCEANSTAR is used within the scope of the DNV type approval, the following temperatures apply:
  -20 to 55 °C
  Temperatures below -20 °C and over 55 °C are not permitted!

  Note the maximum application temperature of the enclosed nuts (optional).

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- Clamping nuts as per DIN EN ISO 7042 (DIN 980) can be used up to at max. 150°C.
- Collar nuts as per DIN 6331 can be used up to at max. +300°C. Note additional reduction factors.

- ACP-TURNADO OCEANSTAR must not be brought into contact with aggressive chemicals, acids or their vapours.
- Mark the attachment positions of the ACP-TURNADO OCEANSTAR with a contrasting colour for easy identification.
- RUD supplies ACP-TURNADO OCEANSTAR including a crack-tested hex bolt (see *Table 2 / Table 3*).
  M8-M30: 10.9 bolt
- Genuine 10.9 bolts are available from RUD as spare parts.
- If 10.9 bolts from the aftermarket are used instead of an original RUD bolt make sure that they have been 100 % crack detected. A written confirmation from the supplier must be added to the ACP-TURNADO OCEANSTAR documents.

  The average notch bar impact test at the lowest permitted usage temperature must be at minimum 36 J. This specification is required as per the test criteria for lifting points GS OA 15-04.

NOTE
Disassembly/assembly to check or replace the bolt must only be carried out by an authorized person (see section 3.4 Disassembly / assembly of the RUD bolt).

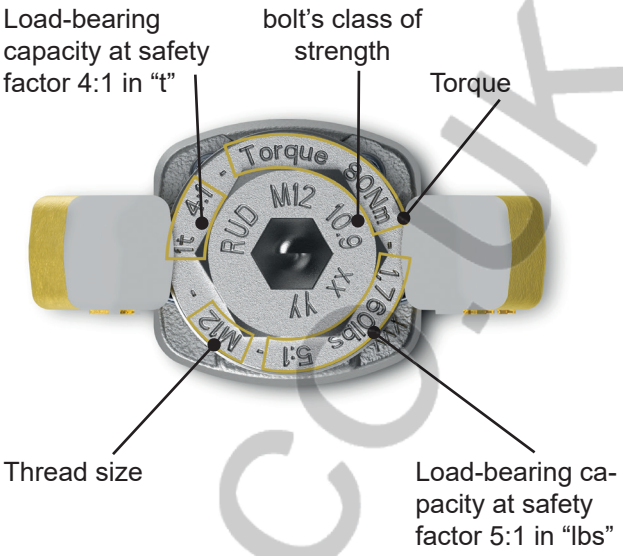
Variants

- 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-TURNADO OCEANSTAR is exclusively used for lashing, the load-bearing capacity value can be doubled:
  LC = Permitted lashing force = 2 x load-bearing capacity (WLL)

NOTE
If the ACP-TURNADO OCEANSTAR 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-TURNADO OCEANSTAR is/ was used as a lashing point, up to the WLL only, it can still be used afterwards as a lifting point.

- The marking of the technical details are shown as follows:
  - **M8-M30:** The markings are shown on top of the bushing and on the head of the bolt (see *Pic. 1*).



Pic. 1: ACP-TURNADO OCEANSTAR M8-M30 - Identification of bush/bolt

3.2 Hints for mounting

The following applies in general:

- The installation area must be selected carefully to ensure that the transferred forces can be absorbed by the base material without any deformation. The professional organisation recommends the following minimum thread engagement length:
  1 x M in steel (minimum quality S235JR [1.0037])
  1.25 x 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 = thread size, e.g. M 20)
- In the case of light metals, non-ferrous metals and grey cast iron, the allocation of the threads must be selected such that the load-bearing capacity of the thread corresponds to the requirements of the base material in question.
- Define installation location of the ACP-TURNADO OCEANSTAR in such a way that inadmissible stresses caused by twisting or flipping of the load will be avoided:
  - **Single strand lifting:**
    Position suspension ring vertically above load’s centre of gravity
  - **Double strand lifting:**
    Position lifting means on each side and above load’s centre of gravity
  - **Three and four strand lifting:**
    Position lifting means evenly in one level around load’s centre of gravity.
- Symmetry of the load:
  Determine the required load-bearing capacity of the individual lifting point for symmetrical loading according to the physical relationship described by the following formula:

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

W_{LL} = Required load-bearing capacity of the lifting point/single strand (kg)
G = Load weight (kg)
n = Number of load-bearing strands
ß = Angle of inclination of the individual strand

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The number of load-bearing strands is:

	Symmetry
Two-strand	2
Three/four-strand	3

Table 1: Load-bearing strands (see Table 4 / Table 5)

NOTE
At unsymmetrical loads, even if several lifting points are used, the WLL of a single lifting point must be at least equal to the load weight or ask the manufacturer.

- A plane bolt on surface (ØE, *Table 2 / Table 3*) with rectangular machined thread holes must be assured. The execution of the threaded hole must be machined acc. to DIN 76 (counterbore diameter at the max. 1.05 x d). The tapped holes must be at least deep enough that the bearing surface of the lifting point sits properly at the surface of the load. Through holes must be machined acc. to DIN EN 20273-middle.
- The ACP-TURNADO OCEANSTAR must be able to rotate by 360° when installed and tightened. Observe the following hints:
  - For a single lift it is sufficient to manually tighten the bolts until they are in contact with the ACP-TURNADO OCEANSTAR contact surface on the bolt surface using a spanner.

    Attention: Do not exceed the specified tightening torque
  - If the ACP-TURNADO OCEANSTAR will be **permanently installed**, the stated torque (± 10 %) must be applied with the values acc. to *Table 2* / *Table 3.*
  - When turning loads using the ACP-TURNADO OCEANSTAR (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* / *Table 3*.
- When shocks or vibrating loads occur, especially at through hole bolt contructions in combination with a nut, unintentional opening of the bolt connection may occur.
  Securing options: Observing the required torque. Use of a liquid bolt securing glue, f.e. Loctite (Adapted to the usage, observe user instruction of manufacturer).
- Finally check correct installation (see section *4 Inspection / Repair / Disposal*).

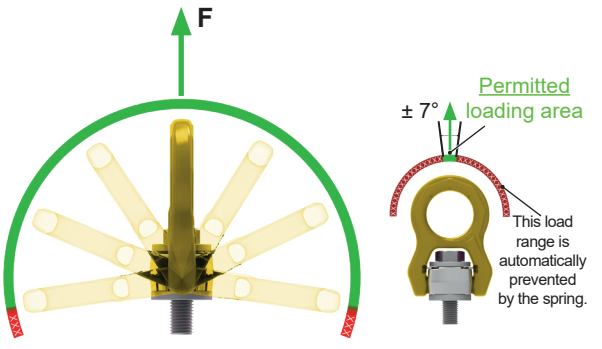
3.3 Hints for the usage

3.3.1 General information regarding use

- The whole lifting point must be inspected regularly by a competent person in regard of correct mounting direction of the bolt, proper installation, tightening of bolt, strong corrosion, cracks at load bearing parts and deformations (e.g. by the person responsible for attachment). See section *4 Inspection / Repair / Disposal*.

WARNING
Wrong assembled or damaged ACP-TURNADO OCEANSTAR as well as inappropriate usage may lead to injury of persons and property damage when load drops.
Please inspect all ACP-TURNADO OCEANSTAR before each use.

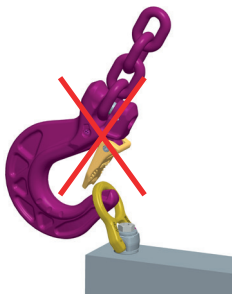
- *RUD components have been design*ed as per DIN EN 818 and DIN EN 1677 for a dynamic load of 20,000 load cycles.
  - Observe and be aware that multiple load cycles can occur during a lifting operation.
  - Observe the risk of product damage caused by high dynamical influences at high load cycle numbers.
  - 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 point with a higher WLL.
- During attaching and unhinging of lifting means (chain sling) no crushing, tripping or shearing actions may occur.
- Eliminate damaging of lifting means caused by sharp edges
- Prior to loading adjust the ACP-TURNADO OCEANSTAR towards the direction of the load force.



*Pic. 2: **
***A:** In the pivoting direction, the load is permissible up to the contact of the lift bail with the load.*
***B:** Not permissible lateral load range in the plane of the lift bail (automatically prevented by the spring).*

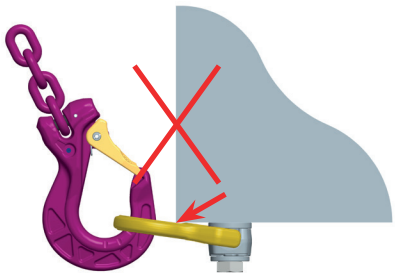
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- Observe that the lifting mean is freely movable within the suspension ring of the ACP-TURNADO OCEANSTAR.



Pic. 3: Only use suitable lifting means for the hinging at the ACP-TURNADO OCEANSTAR.

- Any bending force at the suspension ring is prohibited.



Pic. 4: The suspension ring must be freely movable and not touch the edge of the load.

- Make sure that the lifting point is fully engaged into the tapped hole



Pic. 5: The lifting point must have been fully bolted in.

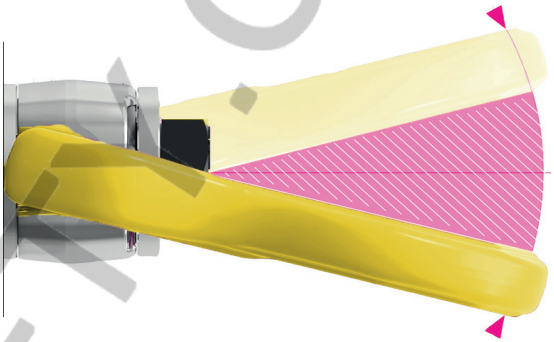
- Clean the ACP-TURNADO OCEANSTAR thoroughly with fresh water after every underwater use. This reduces the risk of corrosion.

3.3.2 General information regarding the spring

The spring keeps the suspension ring away from the shaded area shown in *Pic. 7*. As a matter of fact this avoids prohibited side loading of the ring in the 90 ° direction (see section *3.3.1, Pic. 2*). Under load the force of the spring will be overbeared and the ACP-TURNADO OCEANSTAR can be loaded in the vertical direction. The pivoting of the suspension ring is possible with an increased hand force.

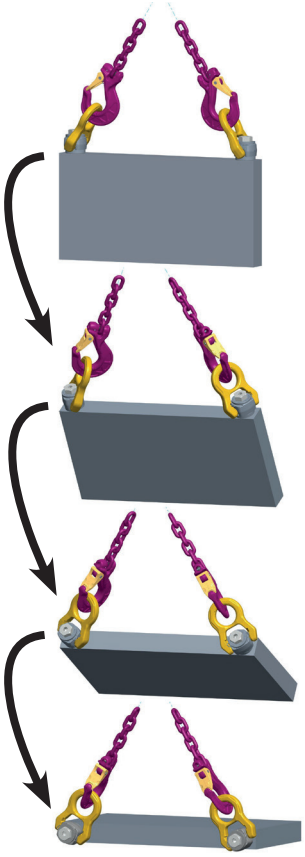


Pic. 6: Detailed view of spring ACP-TURNADO OCEANSTAR M8-M30 or 1/2“-1 1/4“



Pic. 7: The spring keeps the suspension ring out of the shaded area.

3.3.3 Permitted lifting and turning actions



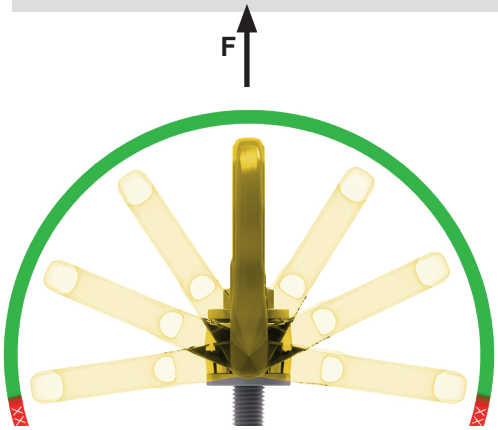
Pic. 8: Possible turning operation with the ACP-TURNADO OCEANSTAR

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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 get in touch with the edge of the load or other attachments



Pic. 9: 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

- Do not rotate the ACP-TURNADO OCEANSTAR under load in the direction of the bolt axle (± 15°).
- Not suitable for permanent turning actions under load.

3.4 Disassembly / assembly of the RUD bolt

WARNING
Always pay attention to the correct mounting direction of the bolt:
The bolt must always be inserted into the bushing from the tapered side, resp. form the side where the spring and labelling for ACP-TURNADO OCEANSTAR M8-M30 is marked

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-TURNADO OCEANSTAR 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. Slightly hammer on the end of the bolt to punch the bolt out from the bushing (*Pic. 10*).
   Attention: In doing so, the thread must not be damaged!



Pic. 10: Supporting position of the ACP-TURNADO OCEANSTAR of the vice jaws

3.4.2 Assembly of the bolts M8-M10

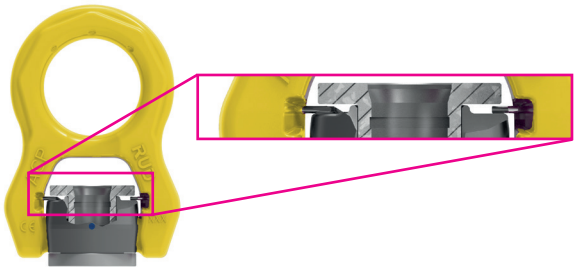
HINT
Only the appropriate strength class of bolt for each specific size must be used!
M8-M10: 10.9 bolt

1. Insert the bolt into the drill hole in the socket until the retaining ring is positioned on the socket
2. Squeeze the retaining ring together with flat pliers so that it sits deeply in the groove of the nut.
3. Now insert the bolt with light hits with a hammer fully into the socket.
4. Finally, control the tightness of the bolt. The bolt must be easily rotatable by 360°.

3.4.3 Assembly of the bolts M12-M30

NOTE
Only the correct bolt type (strength class) acc. to the corresponding size must be used!
M12-M30: 10.9 bolt

1. Insert the bolt into the bushing from the tapered side (see *Pic. 11*).



Pic. 11: ACP-TURNADO OCEANSTAR cross section. You can see the tapered side at the top of the bushing.

2. Insert the bolt into the bush so that the snap ring has been fully positioned in a recess of the bush (see *Pic. 12*).

HINT
Finally turn the bolt until the snap ring sits properly in the groove!

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Pic. 12: Snap ring fully positioned in the recess of the countersink

3. Apply light beats 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

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 point 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:

- Correct bolt and nut size, bolt quality grade and thread engagement length
- correct mounting direction of the bolt: the bolt must always be inserted into the bushing from the tapered side, resp. from the side where the spring and labelling for ACP-TURNADO OCEANSTAR is marked.
- Observe proper tightening of bolt.
  Check torque value.
- Completeness of the lifting point.
- Check readability of WLL statement and manufacturer sign
- Deformations at load bearing areas like body, suspension ring and bolt.
- Mechanical damage like notches especially at areas with tensile stress.
- Easy turning of the ACP-TURNADO OCEANSTAR around the bolt axle must be guaranteed.
- Function of the spring (suspension ring must be kept away from vertical position, see section *3.3.2, Pic. 7).*

4.3 Additional inspection criteria for the competent person resp. auditor

- Reduction of cross section cause by wear of more than 10 %
- Strong corrosion
- Function and damage at bolts, nuts and as well at the tapped hole (*3.4 Disassembly / assembly of the RUD bolt*).
- Additional inspections may be necessary depending on the result of the risk assessment (e.g. incipient cracks at load bearing parts).

4.4 Disposal

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

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5 Tables/Overview

5.1 Overview of dimensions ACP-TURNADO OCEANSTAR

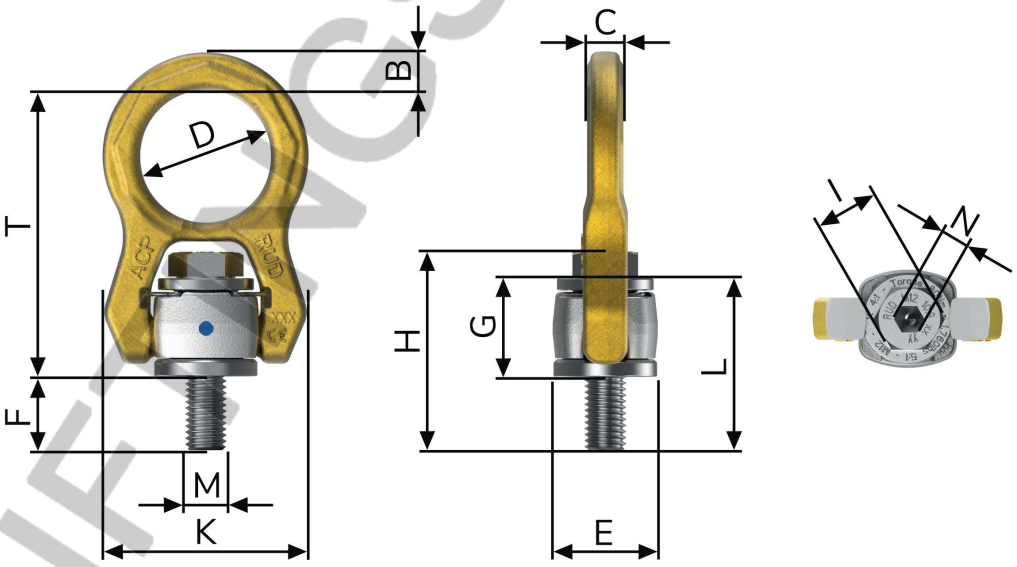
Type	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	K [mm]	L [mm]	M	N [SW]	I [SW]	T [mm]	weight [kg/pc.]	torque [Nm]	Ref.-No.
ACP-TURNADO OCEANSTAR 0.5t-M8	11	10.5	38	30	12	28	45	58	40	M8	5	13	83	0.36	30	7914754
ACP-TURNADO OCEANSTAR 0.8t-M10	11	10.5	38	30	17	28	50.4	58	45	M10	6	17	83	0.37	60	7914755
ACP-TURNADO OCEANSTAR 1t-M12	11	10.5	38	30	22	28	54.5	58	50	M12	8	19	83	0.38	80	7914756
ACP-TURNADO OCEANSTAR 2t-M16	14	14	50	40	24	36	68	76	60	M16	10	24	107	0.88	150	7914757
ACP-TURNADO OCEANSTAR 3.5t-M20	17	17	50	45	31.5	43.5	82.5	89	75	M20	12	30	118	1.4	300	7914758
ACP-TURNADO OCEANSTAR 5t-M24	23	23	66	60	25	55	104	121	80	M24	14	36	154	3.2	500	7914759
ACP-TURNADO OCEANSTAR 8t-M30	29	27	76	75	41.5	68.5	129	148	110	M30	17	46	183	5.7	800	7914760

Table 2: Overview of dimensions ACP-TURNADO OCEANSTAR metric
We reserve the right to make technical changes

5.2 Overview of dimensions ACP-TURNADO OCEANSTAR-Vario

Type	WLL [kg]	F vario [mm]	H vario [mm]	L vario [mm]	M	Ref.-No.
ACP-TURNADO OCEANSTAR 0.5t-M8	500	8-77	45-110	40-105	M8	8600680
ACP-TURNADO OCEANSTAR 0.8t-M10	800	10-97	50-131	45-125	M10	8600681
ACP-TURNADO OCEANSTAR 1t-M12	1000	12-117	55-150	50-145	M12	8600682
ACP-TURNADO OCEANSTAR 2t-M16	2000	16-194	68-240	60-230	M16	8600684
ACP-TURNADO OCEANSTAR 3.5t-M20	3500	20-186.5	82-242	75-230	M20	8600686
ACP-TURNADO OCEANSTAR 5t-M24	5000	24-210	104-280	80-265	M24	8600688
ACP-TURNADO OCEANSTAR 8t-M30	8000	30-271.5	129-353	110-340	M30	8600689

Table 3: Overview of dimensions ACP-TURNADO OCEANSTAR-Vario
We reserve the right to make technical changes



Pic. 13: ACP-TURNADO OCEANSTAR M8-M30

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5.3 Overview Working load limit (WLL) ACP-TURNADO OCEANSTAR

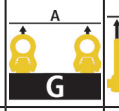
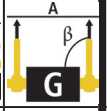
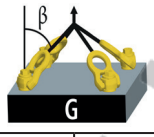
Lifting method										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Inclination angle <ß	0°-7°	90°	0°-7°	90°	0-45°	>45-60°	Un-symm.	0-45°	>45-60°	Unsymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
Safety factor 4:1	**For max. total load in metric tons,** bolted and adjusted to the direction of pull									
ACP-TURNADO OCEANSTAR M8	0.7	0.5	1.4	1	0.71	0.5	0.5	1.06	0.75	0.5
ACP-TURNADO OCEANSTAR M10	1	0.8	2	1.6	1.12	0.8	0.8	1.7	1.18	0.8
ACP-TURNADO OCEANSTAR M12	1.35	1	2.7	2	1.4	1	1	2.1	1.5	1
ACP-TURNADO OCEANSTAR M16	2.5	2	5	4	2.8	2	2	4.25	3	2
ACP-TURNADO OCEANSTAR M20	4	3.5	8	7	4.9	3.5	3.5	7.35	5.25	3.5
ACP-TURNADO OCEANSTAR M24	6.3	5	12.6	10	7.1	5	5	10.6	7.5	5
ACP-TURNADO OCEANSTAR M30	8	8	16	16	11.2	8	8	17	11.8	8
Safety factor 4:1	**For max. total load in lbs,** bolted and adjusted to the direction of pull									
ACP-TURNADO OCEANSTAR M8	1540	1100	3080	2200	1550	1100	1100	2330	1650	1100
ACP-TURNADO OCEANSTAR M10	2200	1760	4400	3520	2480	1760	1760	3730	2640	1760
ACP-TURNADO OCEANSTAR M12	2970	2200	5940	4400	3110	2200	2200	4660	3300	2200
ACP-TURNADO OCEANSTAR M16	5500	4400	11000	8800	6220	4400	4400	9330	6600	4400
ACP-TURNADO OCEANSTAR M20	8820	7700	17640	15400	10880	7700	7700	16330	11550	7700
ACP-TURNADO OCEANSTAR M24	13890	11000	27780	22000	15550	11000	11000	23330	16500	11000
ACP-TURNADO OCEANSTAR M30	17630	17630	35260	35260	24930	17630	17630	37400	26440	17630
	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.				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: Overview Working load limit (WLL) [t] ACP-TURNADO OCEANSTAR - Safety factor 4:1

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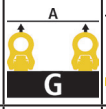
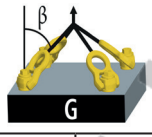
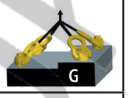
Lifting method										
Number of legs	1	1	2	2	2	2	2	3 / 4	3 / 4	3 / 4
Inclination angle <ß	0°-7°	90°	0°-7°	90°	0-45°	>45-60°	Un-symm.	0-45°	>45-60°	Unsymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
Safety factor 5:1	**For max. total load in metric tons,** bolted and adjusted to the direction of pul									
ACP-TURNADO OCEANSTAR M8	0.56	0.4	1.12	0.8	0.56	0.4	0.4	0.84	0.6	0.4
ACP-TURNADO OCEANSTAR M10	0.8	0.64	1.6	1.28	0.9	0.64	0.64	1.35	0.96	0.64
ACP-TURNADO OCEANSTAR M12	1.1	0.8	2.2	1.6	1.12	0.8	0.8	1.7	1.18	0.8
ACP-TURNADO OCEANSTAR M16	2	1.6	4	3.2	2.2	1.6	1.6	3.4	2.4	1.6
ACP-TURNADO OCEANSTAR M20	3.2	2.8	6.4	5.6	3.96	2.8	2.8	5.94	4.2	2.8
ACP-TURNADO OCEANSTAR M24	5	4	10	8	5.6	4	4	8.4	6	4
ACP-TURNADO OCEANSTAR M30	6.4	6.4	12.8	12.8	9	6.4	6.4	13.5	9.6	6.4
Safety factor 5:1	**For max. total load in lbs,** bolted and adjusted to the direction of pull									
ACP-TURNADO OCEANSTAR M8	1230	880	2460	1760	1240	880	880	1860	1320	880
ACP-TURNADO OCEANSTAR M10	1760	1410	3520	2820	1990	1410	1410	2990	2110	1410
ACP-TURNADO OCEANSTAR M12	2380	1760	4760	3520	2480	1760	1760	3730	2640	1760
ACP-TURNADO OCEANSTAR M16	4400	3520	8800	7040	4970	3520	3520	7460	5280	3520
ACP-TURNADO OCEANSTAR M20	7040	6170	14080	12340	8720	6170	6170	13080	9250	6170
ACP-TURNADO OCEANSTAR M24	11080	8810	22160	17620	12450	8810	8810	18680	13210	8810
ACP-TURNADO OCEANSTAR M30	14080	14080	28160	28160	19910	14080	14080	29860	21120	14080
	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.				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 5: Overview Working load limit (WLL) [lbs] ACP-TURNADO OCEANSTAR - Safety factor 5:1

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