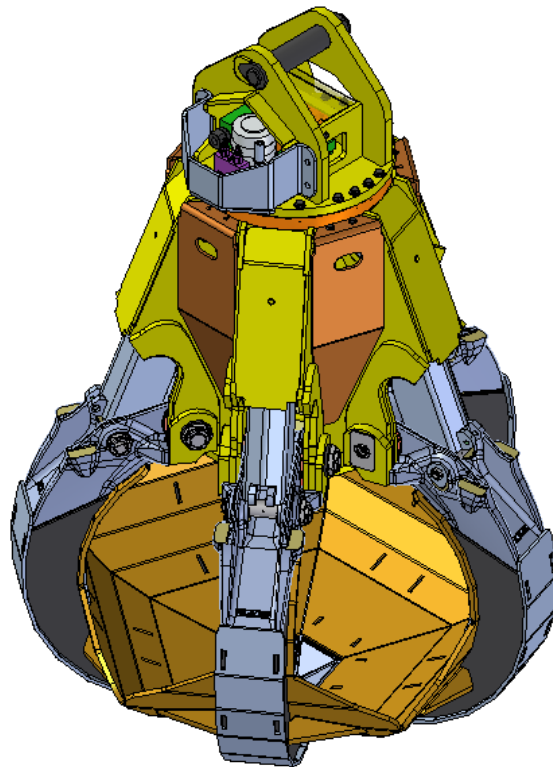


**Servicehandbuch für Mehrschalengreifer
Service manual for Orange peel grab
Manuel de service pour Grappin Multiprise**

P30VHD / P40VHD / P51VHD



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Herausgeber der Originalbetriebsanleitung und Hersteller des Anbaugerätes:

KINSHOFER GmbH
Hauptstrasse 76
83666 Waakirchen
Deutschland
Tel.: +49 (0)8021 - 88 99 0
Fax: +49 (0)8021 – 88 99 37
Email: info@kinshofer.com
www.kinshofer.com

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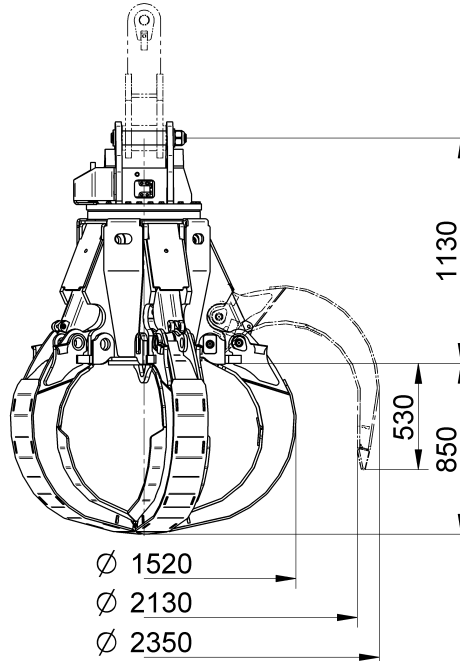
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Technische Daten / Technical Data / Données techniques

P30VHD

5 Greifarme / 5 Gripping arms / 5 Griffes

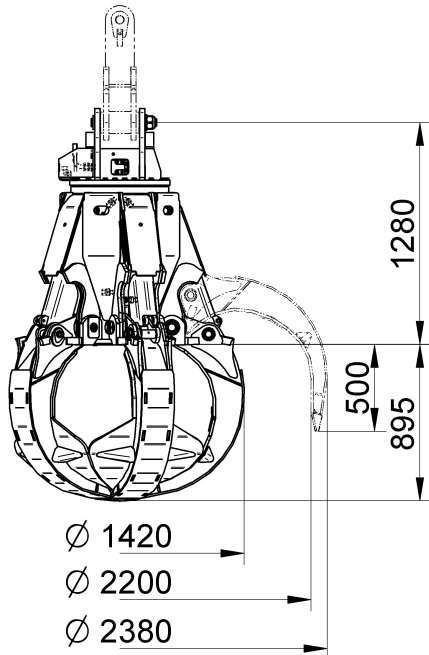


Typ Type	Artikel-Nr. Article No.	Anzahl der Greifarme The gripping arms Nombre de griffes	Ladevolumen Capacity Capacité l	Traglast Capacity Capacité kg	Gewicht Weight Poids kg / lb
P30VHD-600-4-F	P30VHD060BVF5	4	600	7000	1600 / 3520
P30VHD-600-4-H	P30VHD060BVH5	4			1490 / 3278
P30VHD-600-4-W	P30VHD060BVW5	4			1385 / 3047
P30VHD-600-4-T	P30VHD060BVT5	4			1360 / 2992
P30VHD-600-5-F	P30VHD060BFF5	5	600		1770 / 3894
P30VHD-600-5-H	P30VHD060BFH5SK	5			1670 / 3674
P30VHD-600-5-W	P30VHD060BFW5SK	5			1595 / 3509
P30VHD-600-5-T	P30VHD060BFT5	5			1570 / 3454
P30VHD-800-5-H	P30VHD080BFH5SK	5	800	1690 / 3718	

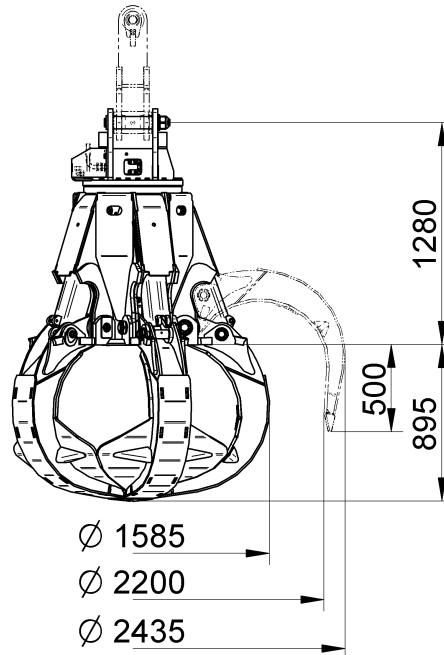
Typ Type	Betriebsdruck Operating pressure Pression de service		Schließkraft Closing force Force de fermeture p = 350 bar kN	Pumpenförderleistung Pump capacity Débit à la pompe	
	Öffnen / Schließen Open / Close Ouvrir / Fermer bar / MPa	Drehen Rotating Tourner bar / MPa		Öffnen / Schließen Open / Close Ouvrir / Fermer l/min	Drehen Rotating Tourner l/min
P30VHD-600	max. 350 / 35	170 / 17	27	120 bis/to 200	25 bis/to 40
P30VHD-800					

P40VHD

P40VHD-600
5 Greifarme
5 Gripping arms



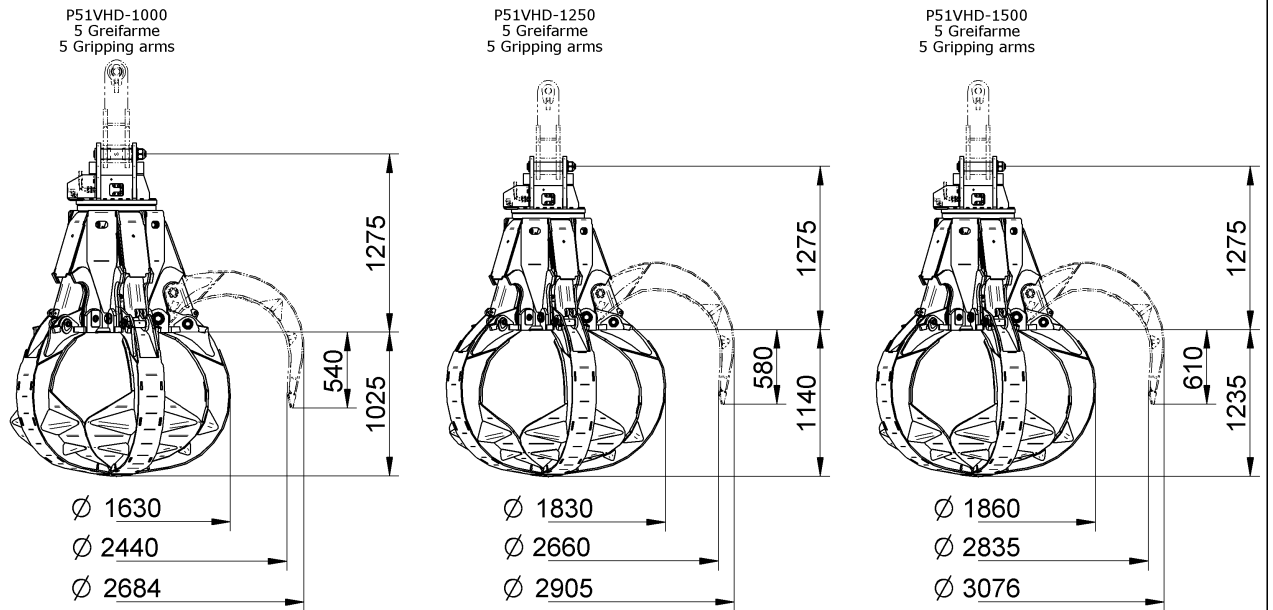
P40VHD-800
5 Greifarme
5 Gripping arms



Typ Type	Artikel-Nr. Article No.	Anzahl der Greifarme The gripping arms Nombre de griffes	Ladevolumen Capacity Capacité l	Traglast Capacity Capacité kg	Gewicht Weight Poids kg / lb
P40VHD-600-4-H	P40VHD060BVH5	4	600	10000	1610 / 3542
P40VHD-600-4-W	P40VHD060BVW5	4			1555 / 3420
P40VHD-600-5-H	P40VHD060BFH5SK	5			1820 / 4004
P40VHD-600-5-W	P40VHD060BFW5SK	5			1780 / 3916
P40VHD-600-5-T	P40VHD060BFT5	5			1700 / 3740
P40VHD-800-4-W	P40VHD080BVW5	4	800		1670 / 3674
P40VHD-800-4-T	P40VHD080BVT5SK	4			1550 / 3410
P40VHD-800-5-F	P40VHD080BFF5SK	5			2075 / 4565
P40VHD-800-5-H	P40VHD080BFH5SK	5			1860 / 4092
P40VHD-800-5-W	P40VHD080BFW5SK	5			1775 / 3905
P40VHD-800-5-T	P40VHD080BFT5	5	1740 / 3828		

Typ Type	Betriebsdruck Operating pressure Pression de service		Schließkraft Closing force Force de fermeture p = 350 bar kN	Pumpenförderleistung Pump capacity Débit à la pompe	
	Öffnen / Schließen Open / Close Ouvrir / Fermer bar / MPa	Drehen Rotating Tourner bar / MPa		Öffnen / Schließen Open / Close Ouvrir / Fermer l/min	Drehen Rotating Tourner l/min
P40VHD-600	max. 350 / 35	170 / 17	36	120 bis/to 200	25 bis/to 40
P40VHD-800			38		

P51VHD



Typ Type	Artikel-Nr. Article No.	Anzahl der Greifarme The gripping arms Nombre de griffes	Ladevolumen Capacity Capacité l	Traglast Capacity Capacité kg	Gewicht Weight Poids kg / lb
P51VHD-1000-4-W	P51VHD100BVW5SK	4	1000	10000	1750 / 3850
P51VHD-1000-5-F	P51VHD100BFF5	5			2165 / 4763
P51VHD-1000-5-H	P51VHD100BFH5SK	5			2110 / 4642
P51VHD-1000-5-W	P51VHD100BFW5SK	5			2050 / 4510
P51VHD-1000-5-T	P51VHD100BFT5SK	5			1890 / 4158
P51VHD-1250-4-W	P51VHD125BVW5	4	1250		1830 / 4026
P51VHD-1250-5-F	P51VHD125BFF5	5			2245 / 4939
P51VHD-1250-5-H	P51VHD125BFH5SK	5			2200 / 4840
P51VHD-1250-5-W	P51VHD125BFW5	5			2180 / 4796
P51VHD-1250-5-T	P51VHD125BFT5	5			1970 / 4334
P51VHD-1500-4-H	P51VHD150BVH5SK	4	1500	2000 / 4400	
P51VHD-1500-4-W	P51VHD150BVW5	4		1750 / 3850	
P51VHD-1500-5-F	P51VHD150BFF5	5		2320 / 5104	
P51VHD-1500-5-H	P51VHD150BFH5SK	5		2300 / 5060	
P51VHD-1500-5-W	P51VHD150BFW5SK	5		2250 / 4950	
P51VHD-1500-5-T	P51VHD150BFT5	5		2045 / 4499	

Typ Type	Betriebsdruck Operating pressure Pression de service		Schließkraft Closing force Force de fermeture p = 350 bar kN	Pumpenförderleistung Pump capacity Débit à la pompe	
	Öffnen / Schließen Open / Close Ouvrir / Fermer bar / MPa	Drehen Rotating Tourner bar / MPa		Öffnen / Schließen Open / Close Ouvrir / Fermer l/min	Drehen Rotating Tourner l/min
P51VHD-1000	max. 350 / 35	170 / 17	33	120 bis/to 200	25 bis/to 40
P51VHD-1250			32		
P51VHD-1500			32		

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1. Dismantling the Grab



Warning from unexpected operation!

Secure the lifting device in a way that it cannot be operated during any (maintenance) works.

- Lower the orange peel grab in almost complete open position onto an adequate ground (for example table).
- Switch off hydraulic system and actuate operating lever on the control device of the carrier machine into both directions several times (pressure relief).

Remove all covers (15) from the centre piece (10). To do so, loosen and remove the safety screws (16).

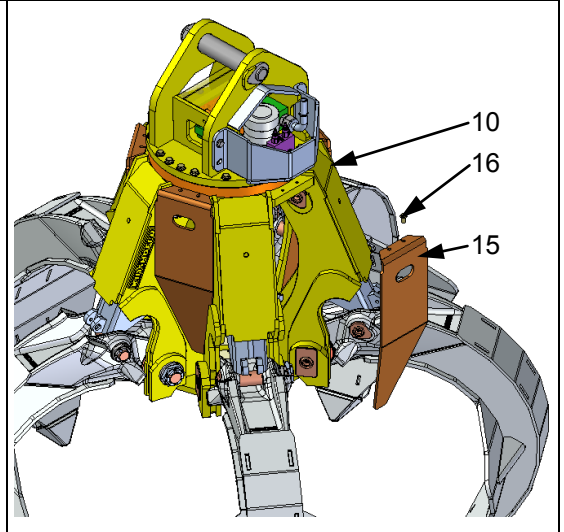


Fig. 1. 1

- Unscrew hydraulic connections to the grab and close them, collect leaking hydraulic oil.
- Secure the arms (20) from tumbling.
- Place a cloth or similar beneath that the piston rod (KS, in cylinder 201064825) cannot hit the centre piece (10) after dismantling of the arm (20).

Now loosen and remove the bolt (45) that connects the arm (20) and the piston rod (KS, in cylinder 201064825).

Then loosen and remove the bolt (35) between the centre piece (10) and the arm (20).

Remove the grab arm (20) with the support discs (41), shim washers (42) and thrust washers (32) from the centre piece (10) and the piston rod (piston rod, in cylinder 201064825).

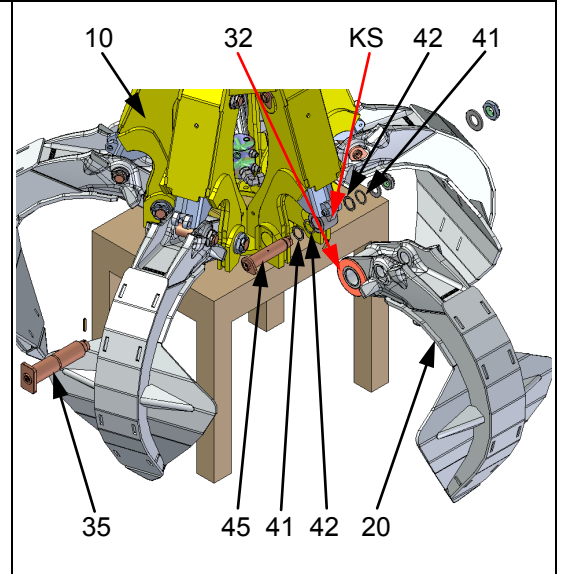


Fig. 1. 2

Then loosen and remove the cylinder screw (61, M16) between cylinder protection (60) and the lug of the piston rod eye.

Now remove the cylinder protection (60) for the hydraulic cylinder.

Then strike out the bolt (80) that connects the centre piece (10) and the hydraulic cylinder (40).

The hydraulic cylinder (40) can now be removed.

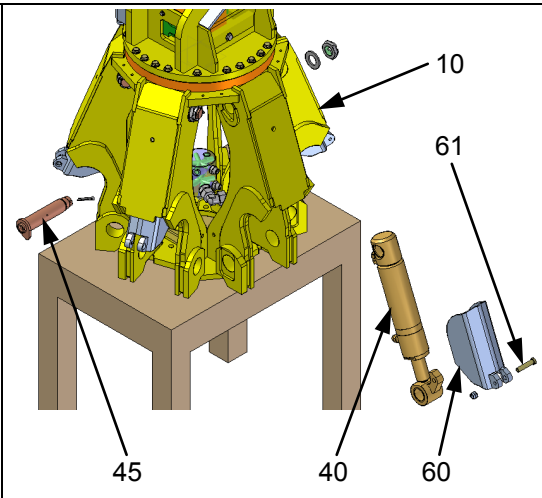


Fig. 1.3

Now loosen the hexagon head cap screws (12, M20) that join the load hook plate (11) with the lower plate of the centre piece (10), and withdraw the centre piece (10) upwards.

Remove the load hook plate (11).

Then loosen and remove the hydraulic hoses at the connections of the oil distributor, collect leaking hydraulic oil.

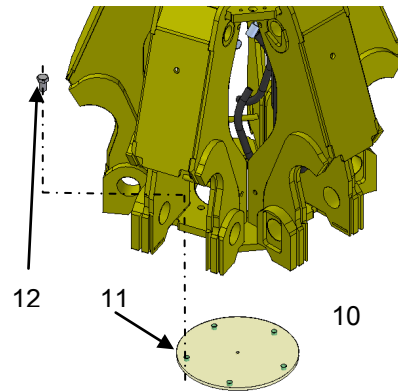


Fig. 1.4

Now unscrew the locking screws (81, M12) that connect the oil distributor (80) with the load hook plate (11).

The oil distributor (80) can now be removed downwards.

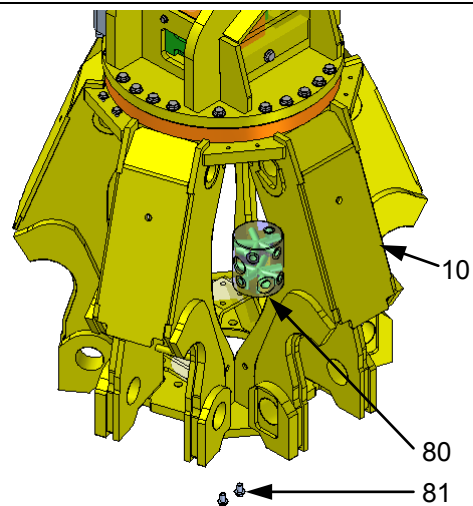


Fig 1.5

- Dismantle the rotary drive (70).

Clean and loosen the hydraulic connections at the flange rotary feedthrough (D70), collect leaking oil.

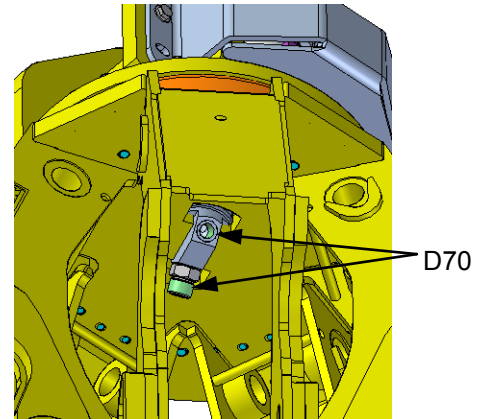


Fig. 1.6

Remove the bolts (D130) on the head unit (D10).
Now remove the cover (D120) and valve guard (D110).

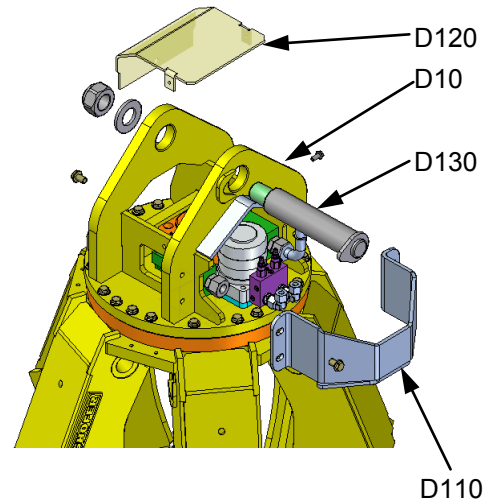


Fig. 1.7

Now remove the valve plate (D100) with the banjo bolt (D101) and screw fitting (D103) on the hydraulic motor (D30).

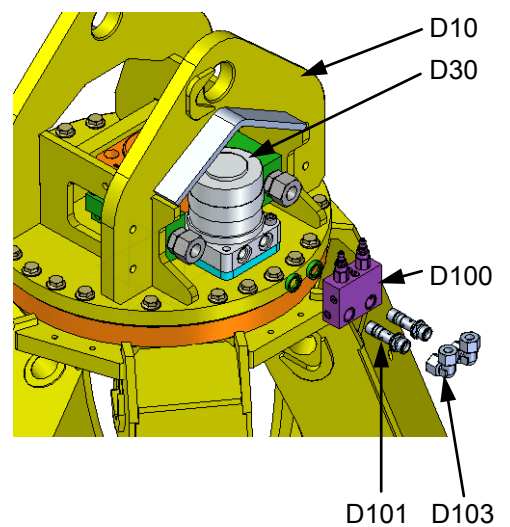


Fig. 1.8

Then loosen and remove the locking screws (D11, M16), that connect the head unit (D10) and the slewing ring (D20).
Remove the head unit (D10) with individual components.

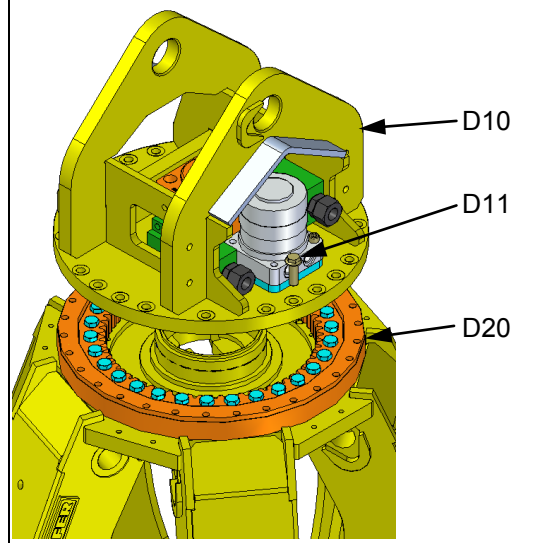


Fig. 1.9

Then unscrew the hexagon head cap screws (D21, M16), that connect the slewing ring (D20) and the centre piece (10) of the grab.
The slewing ring (D20) can now be removed.

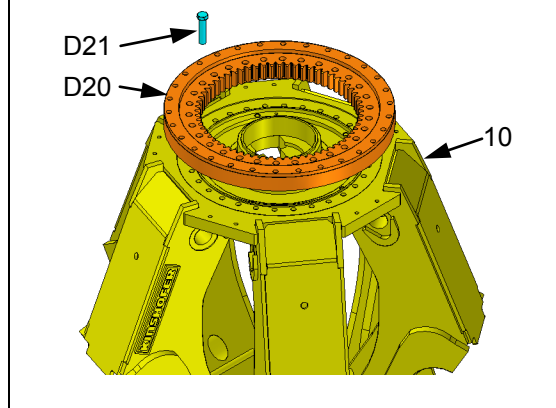


Fig. 1.10

Then loosen and remove the cylinder screws (D31, M12).
On the hydraulic motor shaft, remove the hexagon head cap screw (D51; R3/8"), the washer (D53) and the pinion (D50).

NOTICE!
To simplify disassembly, the pinion and the feather key (D32) must be heated to 120° before removal from the hydraulic motor (D30).

The hydraulic motor (D30) and motor flange (D40) can be withdrawn from the head unit (D10).

CAUTION!
During removal of the hydraulic motor, be careful with the key (D32)!

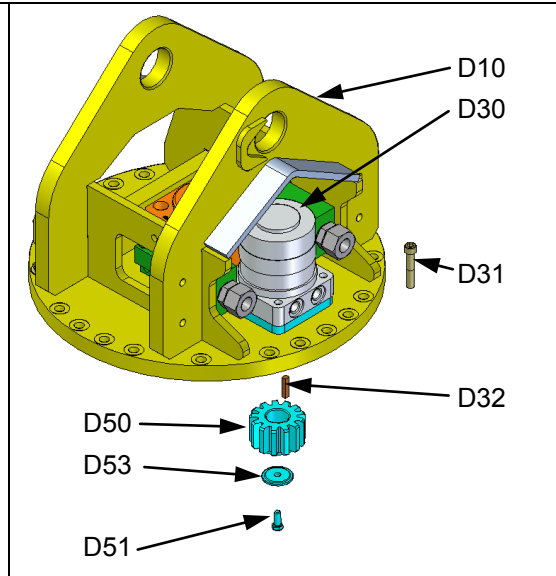


Fig. 1.11

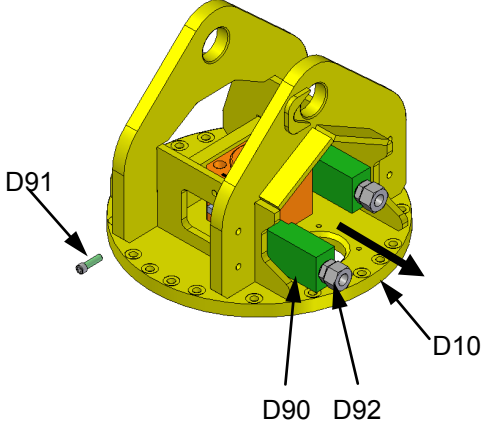
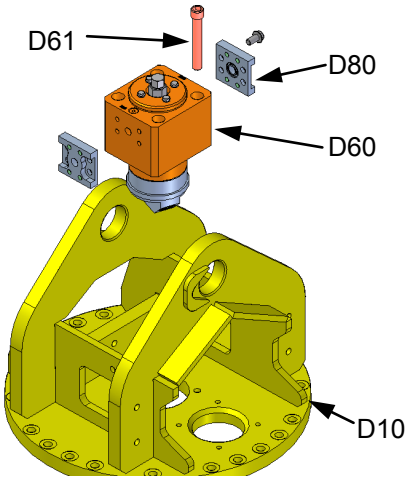
<p>Loosen the cylinder screws (D91, M12) on the left and right connection blocks (D90).</p> <p>Lift the connection blocks (D90) with screw fittings (D92) forwards out of the head unit (D10).</p>	 <p>Detailed description: This diagram shows a yellow head unit (D10) with two green connection blocks (D90) mounted on its front face. Two grey cylinder screws (D91) are shown being loosened from the blocks. Two grey screw fittings (D92) are shown being inserted into the blocks to lift them forward. Arrows point from labels D91, D90, D92, and D10 to their respective parts.</p>
<p>Now remove the rotary feedthrough (D60).</p> <p>Loosen and remove the cylinder screws (D61, M16; see chapter 4, Tab. 3).</p> <p>Then the rotary feedthrough (D60) with adapters right and left (D80) can be lifted from the head piece (D10).</p> <p>Now dismantle the adapters right and left (D80).</p>	 <p>Detailed description: This diagram shows the head unit (D10) with an orange rotary feedthrough (D60) mounted on top. A red pin (D61) is shown being removed from the top of the feedthrough. Two grey adapters (D80) are shown being removed from the sides of the feedthrough. Arrows point from labels D61, D80, D60, and D10 to their respective parts.</p>

Fig. 1.12

Fig. 1.12

- Remove all seals and replace them with new ones.

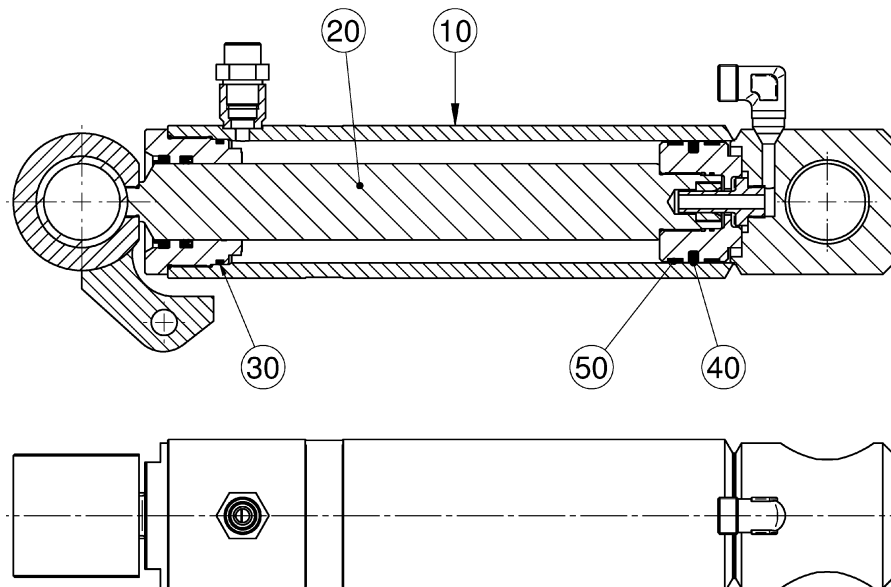
1.1 Replacing the Sealings in the Hydraulic Cylinder

Unscrew the piston rod cpl. (20) with rod guide and piston from the cylinder tube (10) and pull out of the cylinder.

Replace all sealings (30, 40, 50) without damaging the new sealings.

Push piston rod cpl. (20) with rod guide into the cylinder tube (10), be careful not to damage the sealings (30, 40, 50).

Screw (fix) the rod guide in the cylinder tube (fastening torque 800 Nm).



2. Mounting the Grab

- See chapter 5 table 1 (page 21) for the tightening torques.

Place the oil distributor (80) on the weld-on plate (90) in the centre piece (10), align it and fix it with four safety screws (81, M12).

Then connect the hydraulic hoses with the connections of the oil distributor (20).

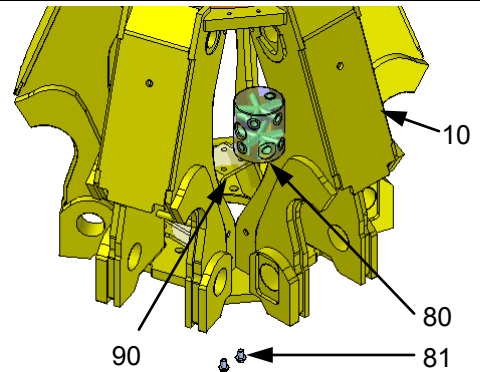


Fig. 2.1

Align the load hook plate (11) to the lower plate of the centre piece (10) and fix with five hexagonal screws (12; M20x50).

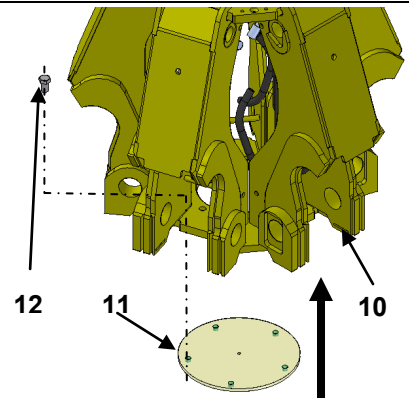


Fig. 2.2

Set the centre piece (10) down on a suitable surface (e.g. a table).

Put a cloth or similar beneath to avoid any damage of the piston rod on the centre piece (10).

Install the hydraulic hoses at the hydraulic cylinder (40) and tighten the screw connections.

Push the hydraulic cylinder (40) between the bearing lugs of the centre piece (10), align with the suspension holes and strike in bolt (45).

Secure the pin (45) with disc, crown nut (M42x1,5) and splint.

- Tighten the crown nut hand-tight (20 Nm)
- Turn back the nut as long as you can plug in the locking pin.
- Now, the pin has a few tenth of milli meter play in axial direction.

Now align the cylinder protection (60) at the piston rod eye and secure with cylinder screw (61; M16x80).

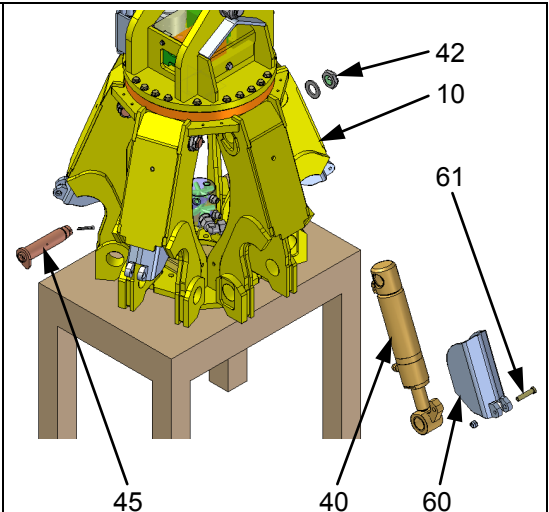


Fig. 2.3

- Then install the gripping arm (20).

Push the gripping arm (20) with arm head and washer discs (32) between the bearing lugs of the centre piece (10) and beneath the piston rod eye.

Align the upper bore of the gripping arm (20) to the lower bores of the centre piece (10), put in the bolt (35) and secure with disc, crown nut (M48x1,5) and clamping sleeve.

Align the piston rod (PR) of the hydraulic cylinder to the lower bore in the gripping arm and then connect with bolt (45); support discs (41) and shims (42), in necessary strike in with slight plastic hammer strikes.

Secure the bolt (45) with disc, crown nut (M42x1,5) and clamping sleeve.

Grease both bolts.

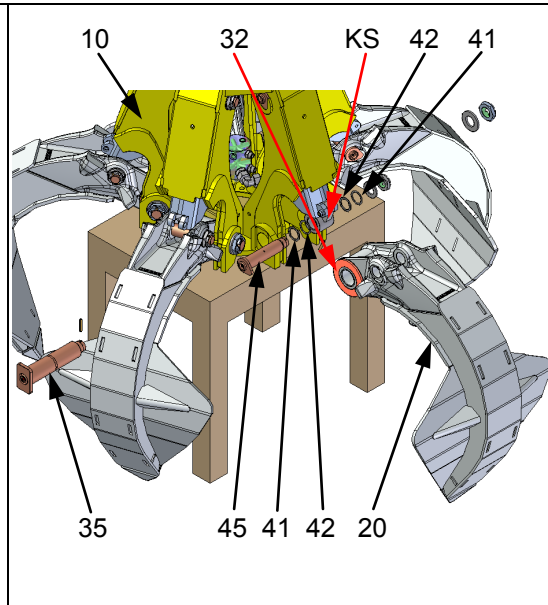


Fig. 2.4

Now fix the covers (15) at the centre piece (10) with two safety screws each (16).

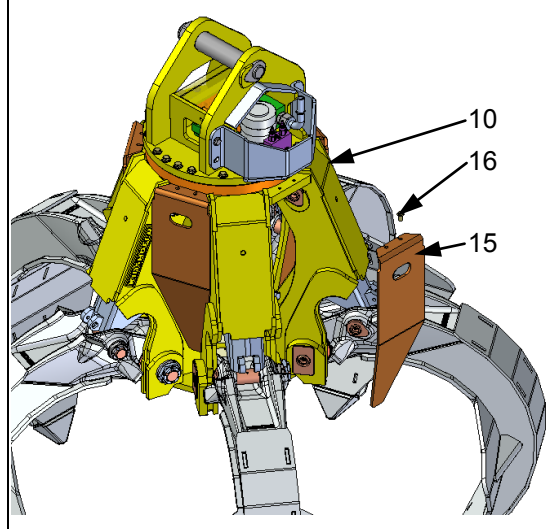


Fig. 2.5

- Mount the rotary drive (70).

Fix the adapters right and left (D80) with four safety screws each (M12) at the rotary feedthrough (D60).

Place the rotary feedthrough (D60) with adapters right and left (D80) in the head piece (D10) and secure with four cylinder screws (D61, M16).

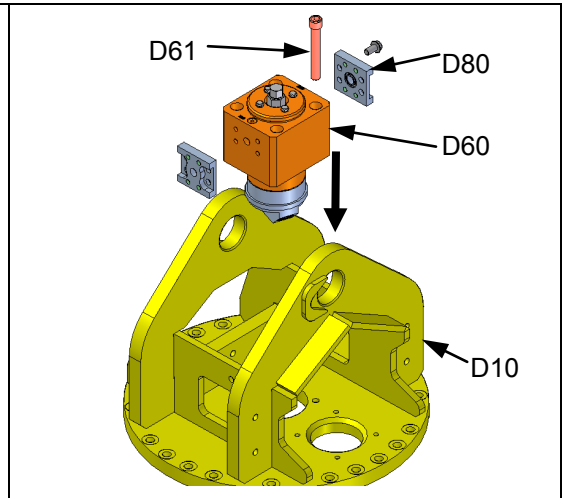


Fig. 2.6

Now put the connection blocks (D90) with screw connections (D92) from the front into the head piece and mount with four cylinder screws each (D91, M12) to the adapters right and left (D80).

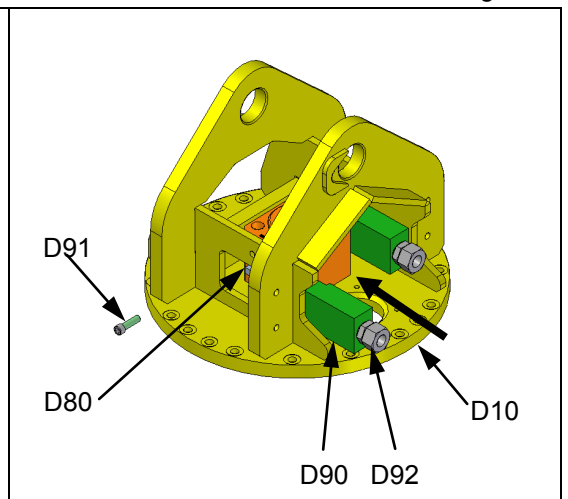


Fig. 2.7

Insert the hydraulic motor (D30) with feather key (D32) and motor flange (D40) into the head unit (D10) and fasten to the head unit with four cylinder screws (D31, M12x70).

Slide the pinion (D50) onto the hydraulic motor shaft and secure it with the washer (D53) and hexagon head cap screw (D51; R3/8").



CAUTION!

For the pinion (D50) to be easily placed on the hydraulic motor shaft, it must be heated to 120°.

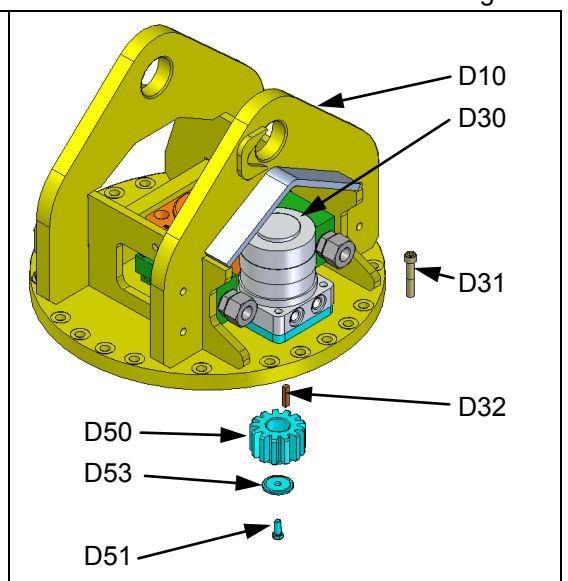


Fig. 2.8

Place the slewing ring (D20) onto the centre piece (10) of the grab and secure with thirty hexagon head cap screws (D21, M16x75).

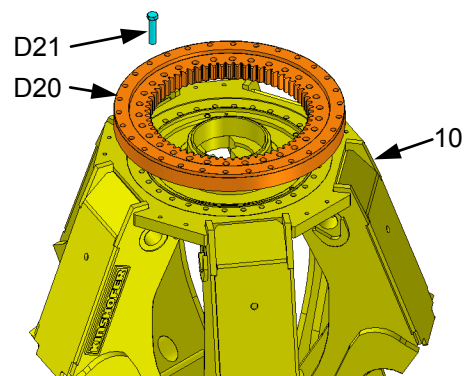


Fig. 2.9

Fit a V-ring (13) to the round tube on the centre piece (10).

Fit the head unit (D10), with the individual parts, to the slewing ring (D20) and mount with twenty-two locking screws (D11, M16x50).

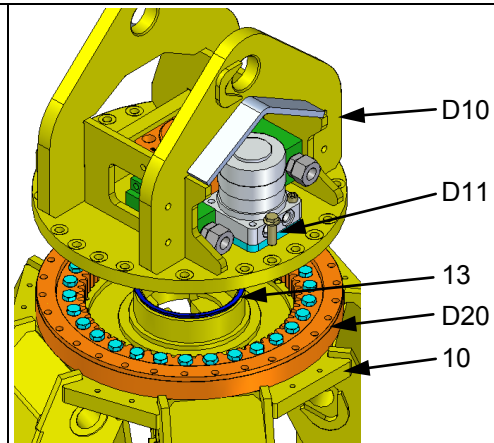


Fig. 2.10

Fit the valve plate (D100) with spacer rings, V-rings, banjo bolts (D101) and screw fittings (D103) to the hydraulic motor (D30).

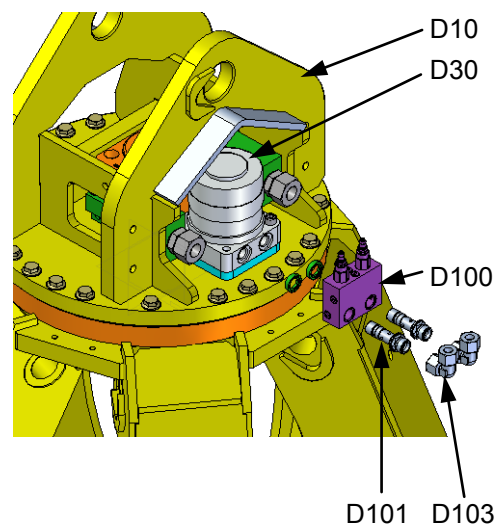


Fig. 2.11

Now secure the valve guard (D110) to the head unit (D10) with four locking screws (M16).

Then install the cover (D120) and fasten it to the head unit with a locking screw (M16) at the rear and with a locking screw at each side (M10).

Fit the bolts (D130) on the head unit (D10).

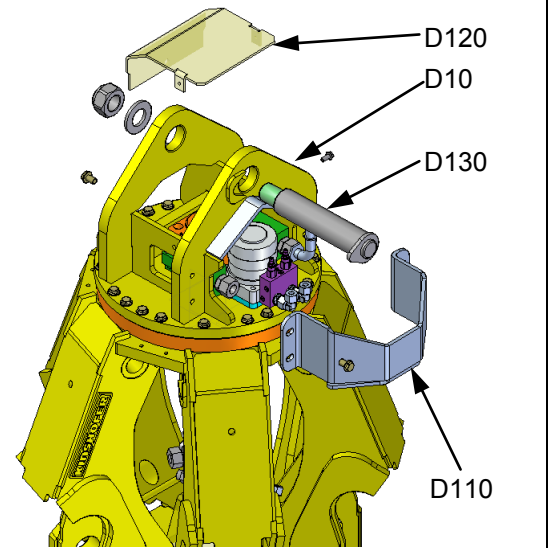


Fig. 2.12

Then connect the hydraulic hoses to the hydraulic connections at the flange rotary feedthrough (D70).

At the connection there must not leave any hydraulic oil, tighten connections if necessary.

Control all hydraulic connections on impermeability and also check the function of the grab.

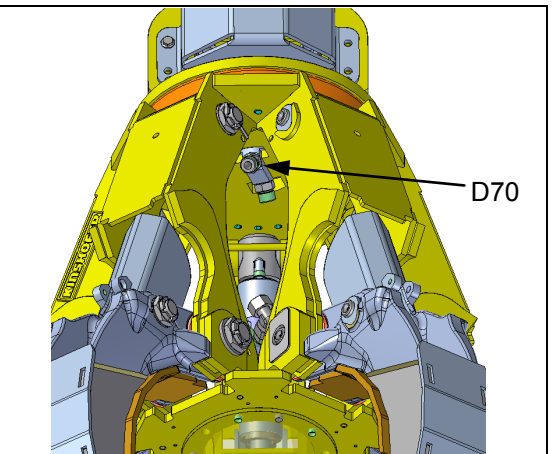


Fig. 2.13

3. Replacement of the Bearing Bushings

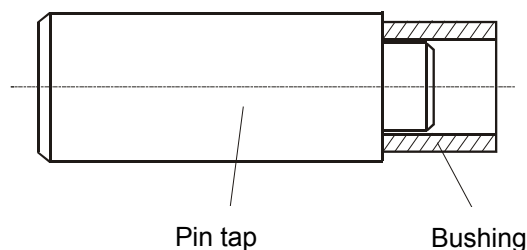
Dismantle the gripping arm or hydraulic cylinder respectively (see [Fig. 1.2](#) and [1.3](#)).

Remove worn out bearing bushings with adequate tool (extractor, punch).

If necessary clean the bearing bore and grease slightly.

Strike in the new bearing bushings with a positioning pin tap and slight plastic hammer strikes.

Mount gripping arm and hydraulic cylinder again (see [Fig. 2.4](#) and [2.3](#)).



4. Maintenance and Exchange of the Tine-Tip

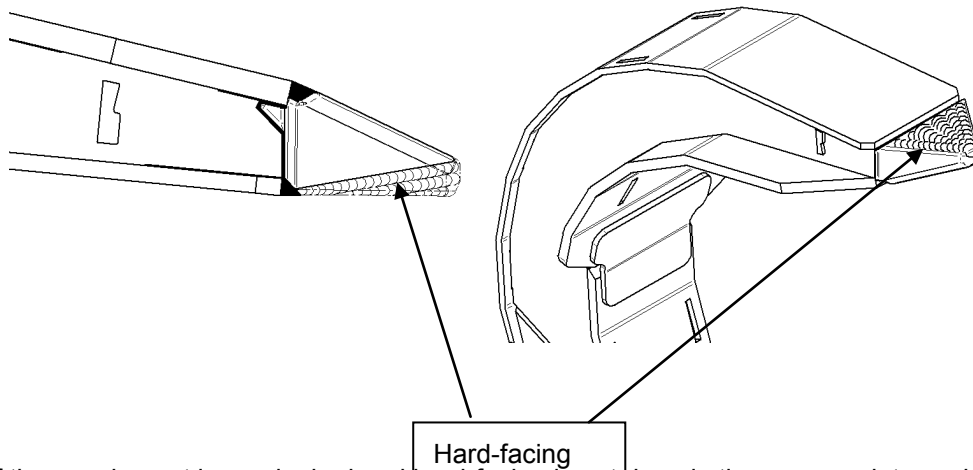
4.1 Maintenance

Renew worn tine tips by hard-facing at regularly spaced time intervals.

Weld metal: DIN EN 14700: S Z Fe6
 DIN 8555: MSG 6-GZ-60-CG
 We.-Nr. 1.4718

Particularly, use on asphalt and concrete ground is very abrasive for the tine tips.

Depending on the method of operation on such rough surfaces, the underside of the tips can wear out especially fast.

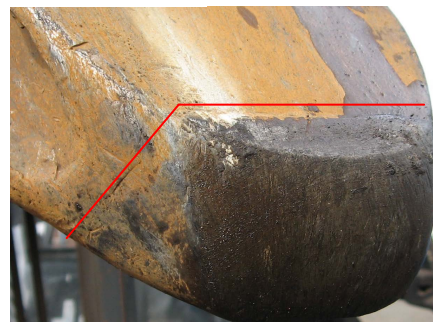
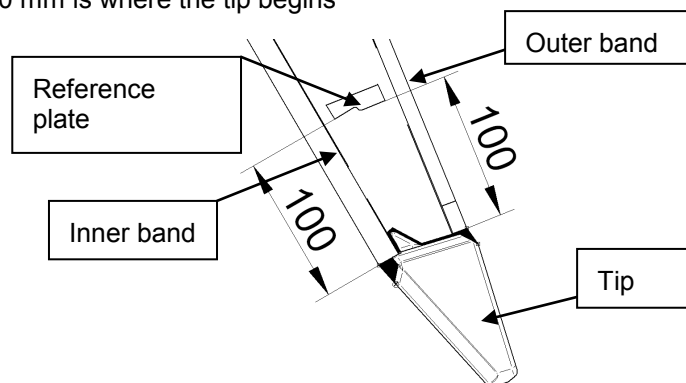


If the wearing out is overlooked and ~~hard-facing is not~~ hard-facing is not done in time, a complete exchange of the tips becomes necessary.

4.2 Exchange of the tine-tip

1. From the reference plate, measure 100 mm towards the tip and draw a straight line on the tine.

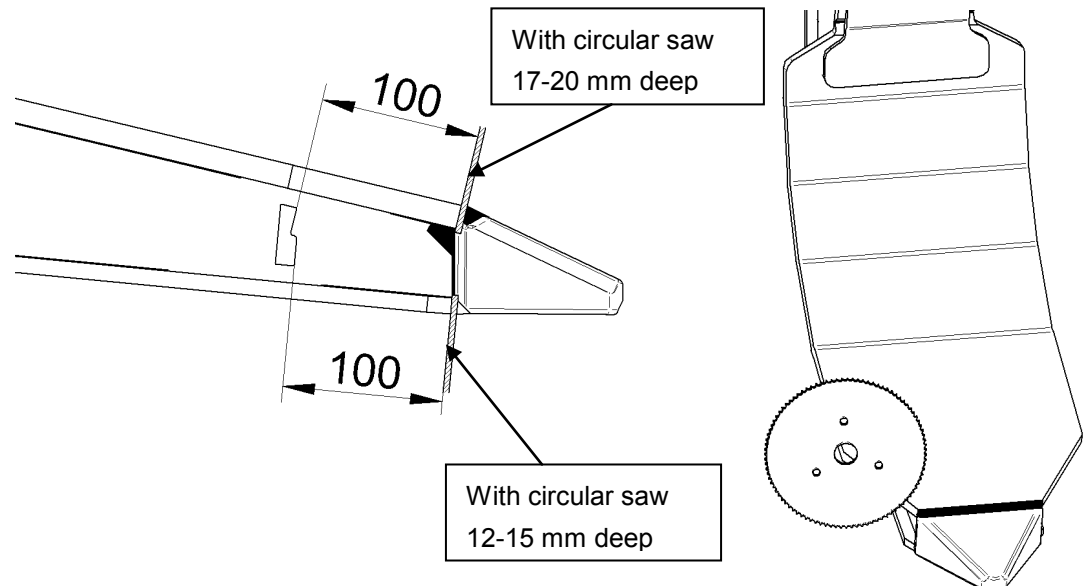
After the 100 mm is where the tip begins



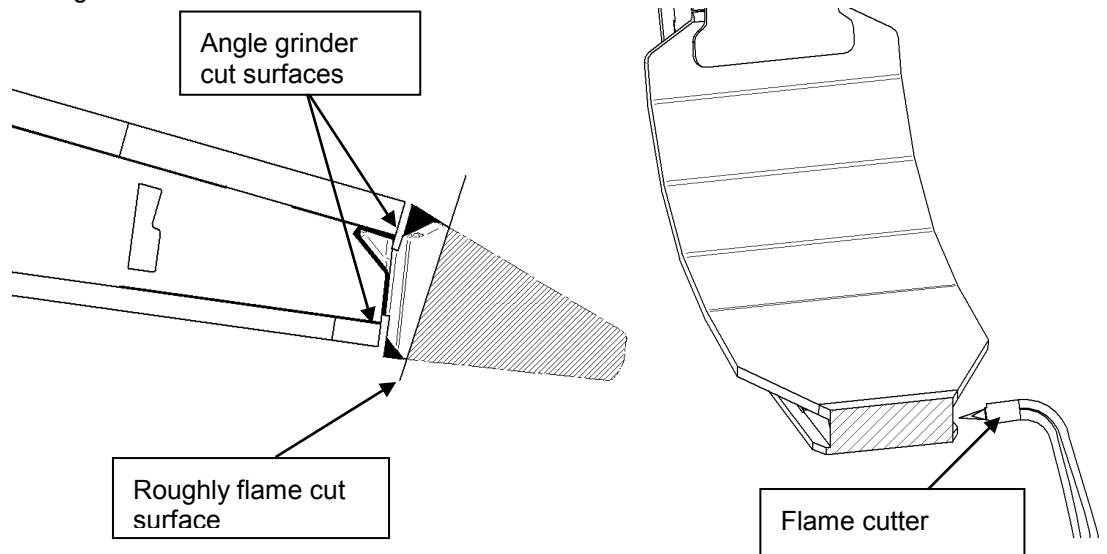
2. Cut the inner band just beyond the 100 mm line, with a circular saw mounted on an angle grinder, approx. 17-20mm deep at a right angle to the outer surface.

Cut the outer band approx. 12-15mm deep at a right angle to the outer surface.

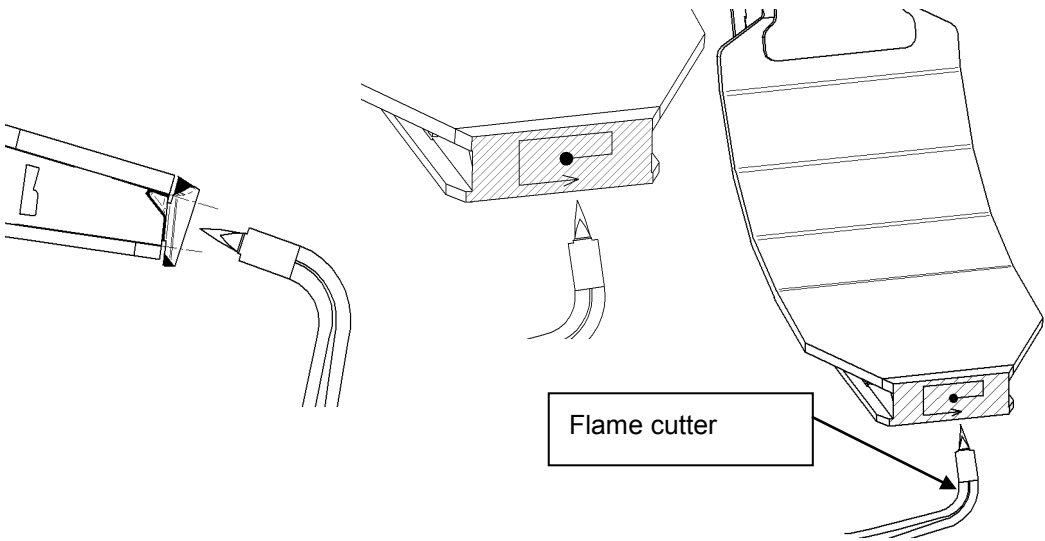
When cutting, pay attention in order to produce a very straight cut, because this cut surface will be the joint surface for the new tip.



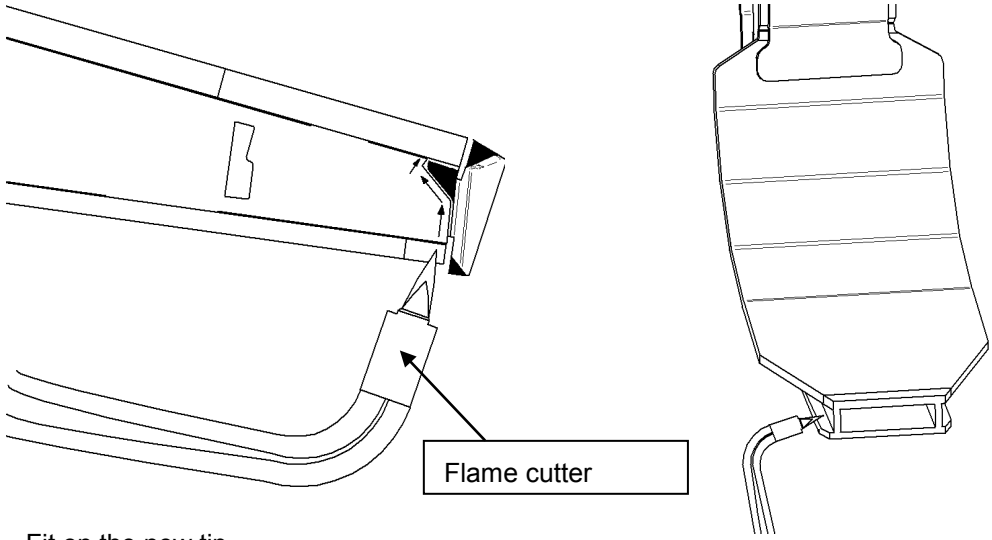
1. Remove roughly the tip with flame cutter beyond the cuts made with the angle grinder. While flame cutting, take care not to damage the cut surfaces made with the angle grinder in the outer band and inner band.



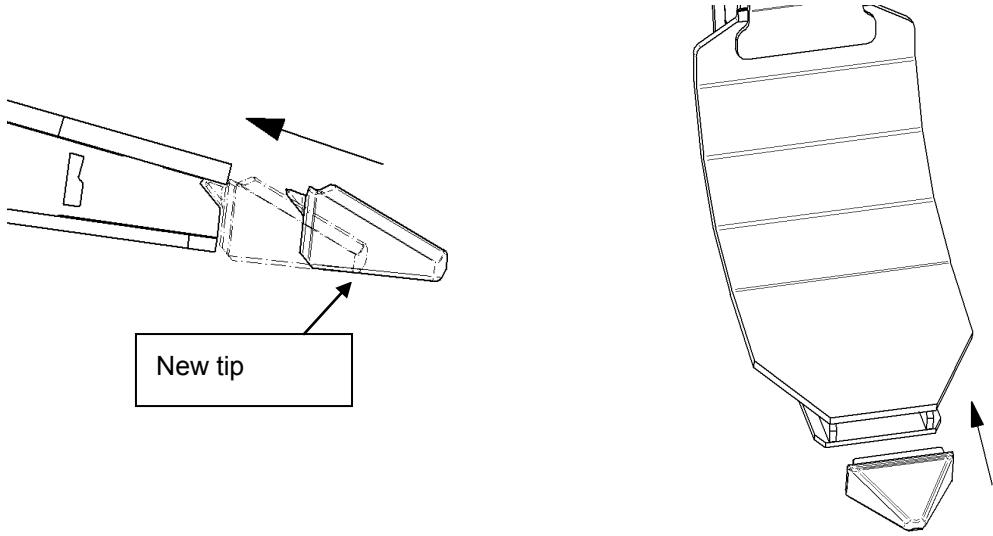
2. On the flame cut surface using the flame cutter, burn a hole from the middle and continue burning spirally outward. Using a rectangular-shaped path, continue until an approx. 138x34mm rectangular hole (for the new tip) has been created.



3. Carefully burn through the sides of the remains of the tip to remove it completely, and remove any remaining welded seams.

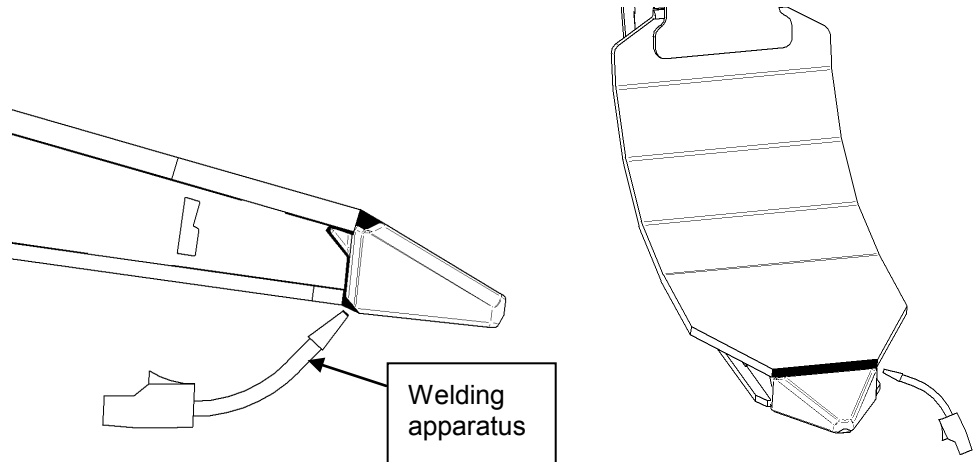


4. Fit on the new tip.



5. Weld on the new tip. Weld metal:: DIN EN 12070 Mn3Ni1CrMo

(AWS A5.18/5.28: ER100S-G)



5. Screw Survey and Fastening Torques

Table 1 (4 arms)

Screw and nut type	Screw and nut size and quality	Fastening torque Nm
Safety nut (Pos. 62 ; 4x)	M16; 8	215
Crown nut (Pos. 37 ; 4x)	M48x1,5; 8	20
Crown nut (Pos. 46 ; 8x)	M42x1,5; 8	20
Cylinder screw (Pos. 61 ; 4x)	M16x80; 8.8	200
Safety screw (Pos. 81 ; 4x)	M12x20; 10	130
Safety screw (Pos. 16 ; 8x)	M12x25; 100	120
Hexagonal screw (Pos. 11.1 ; 8x))	M20x50; 10.9	550
Hexagonal screw (Pos. 92 ; 4x)	M20x50; 10.9	550

Table 2 (5 arms)

Screw and nut type	Screw and nut size and quality	Fastening torque Nm
Safety nut (Pos. 62 ; 5x)	M16; 8	215
Crown nut (Pos. 37 ; 5x)	M48x1,5; 8	20
Crown nut (Pos. 46 ; 10x)	M42x1,5; 8	20
Cylinder screw (Pos. 61 ; 5x)	M16x80; 8.8	200
Safety screw (Pos. 81 ; 5x)	M12x20; 10	130
Safety screw (Pos. 16 ; 10x)	M12x25; 100	120
Hexagonal screw (Pos. 11.1 ; 10x))	M20x45; 8.8	390
Hexagonal screw (Pos. 92 ; 3x)	M20x50; 10.9	550

Table 3 (rotary drive 770067572SK)

Screw and nut type	Screw and nut size and quality	Fastening torque Nm
Safety nut (Pos. D132 ; 1x)	M48x3; 8	410-450
Cylinder screw (Pos. D71 ; 6x)	M10x50; 8.8	48
Cylinder screw (Pos. D91 ; 8x)	M12x45; 10.9	117
Cylinder screw (Pos. D31 ; 4x)	M12x70; 8.8	83
Cylinder screw (Pos. D61 ; 4x)	M16x120; 8.8	200
Safety screw (Pos. D122 ; 2x)	M10x25; 100	75
Safety screw (Pos. D81 ; 8x)	M12x25; 100	120
Safety screw (Pos. D111 , D121 ; 5x)	M16x25; 100	280
Safety screw (Pos. D11 ; 22x)	M16x50; 100	280
Hexagonal screw (Pos. D21 ; 30x)	M16x75; 8.8	200
Hexagonal screw (Pos. D51 ; 1x)	R 3/8"	-

6. Ersatzteil-Stücklisten und Zeichnungen / Spare parts list and drawing

Allgemeines

Die folgenden Seiten informieren über die verfügbaren Ersatzteile, die in den Explosionszeichnungen leicht zu finden sind.

Bestellung

Für eine Bestellung von Ersatzteilen müssen die Artikelnummer, die Stückzahl und die Seriennummer des Gerätes (auch als Gerätenummer bezeichnet) angegeben werden.

Die Seriennummer steht am Gerät

- auf dem Typenschild,
 - als Einschlagzahl,
- und auf
- dem Lieferschein,
 - der Rechnung und
 - der Konformitätserklärung.

Die Position des Typenschildes und der Einschlagzahlen kann den ersten Seiten der Bedienungsanleitung entnommen werden.

Ordering spare parts

The following pages contain information about the available spare parts. The spare parts can be easily identified in the exploded assembly drawings.






For placing an order, the article number and quantity must be stated as well as the serial number of the attachment.

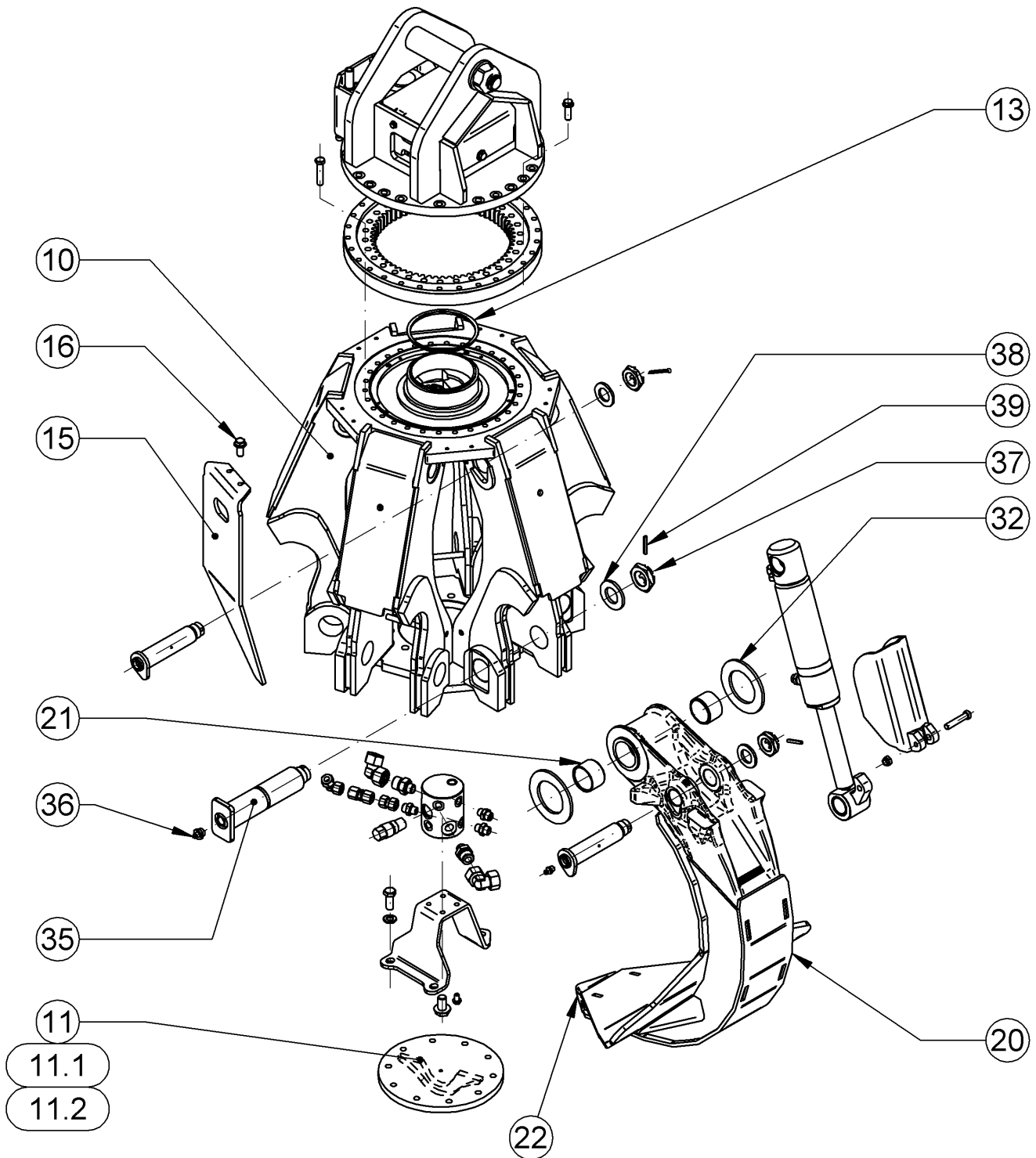
The serial number can be found on the

- type plate or stamped-on serial number on the attachment
- packing slip
- invoice
- declaration of conformity

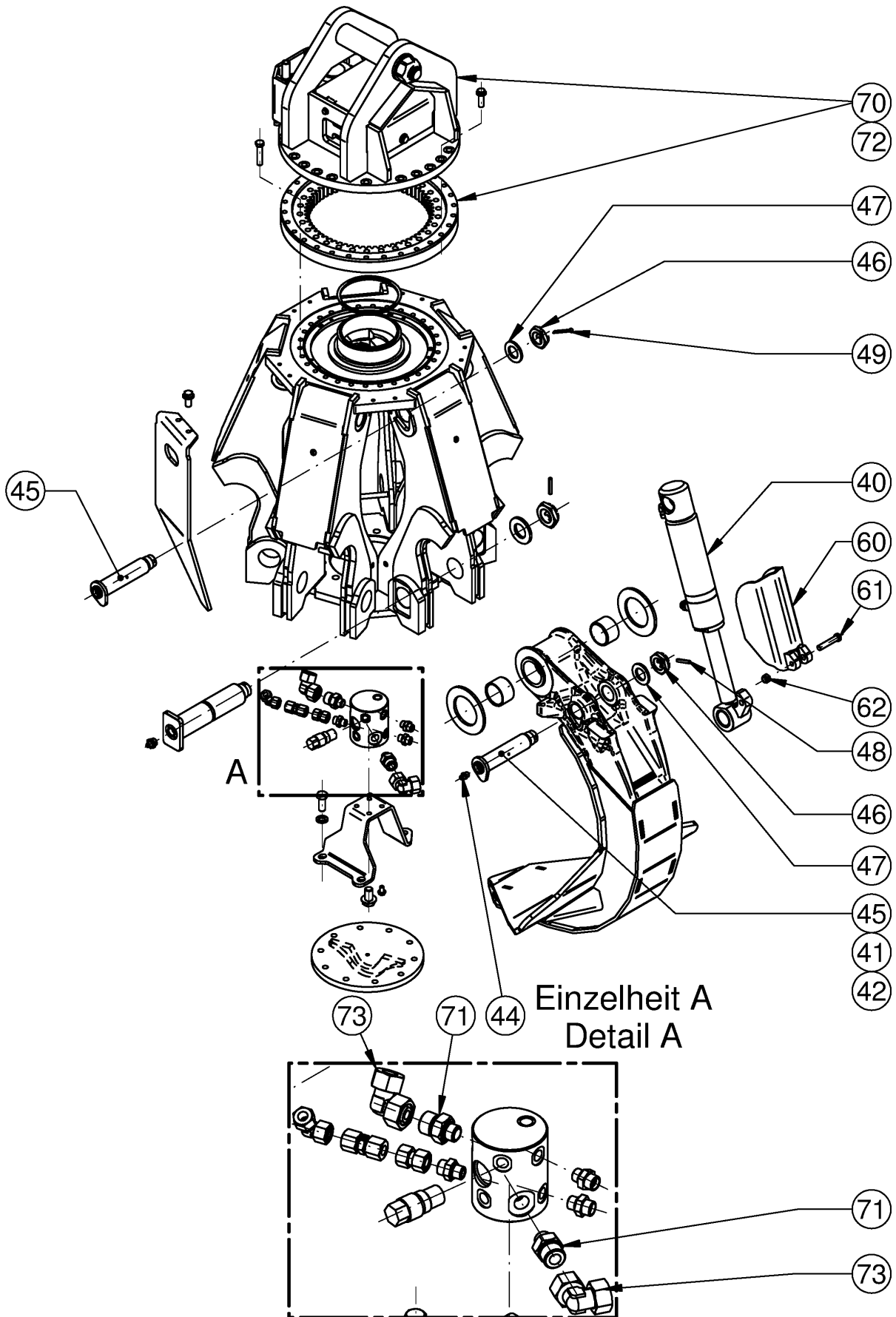
Information about the position of the type plate and the stamped-on serial number can be found on the beginning pages the Operating Instructions.

Typenschild / Type plate

   Website	Kinshofer GmbH Hauptstrasse 76 83666 Waakirchen		+49 (0)8021-88 99 0 info@kinshofer.com www.kinshofer.com	
	Type		S/N	
	Weight		Year	
	Volume		Capacity	
	Pressure min.  max.		Oil flow min.  max.	



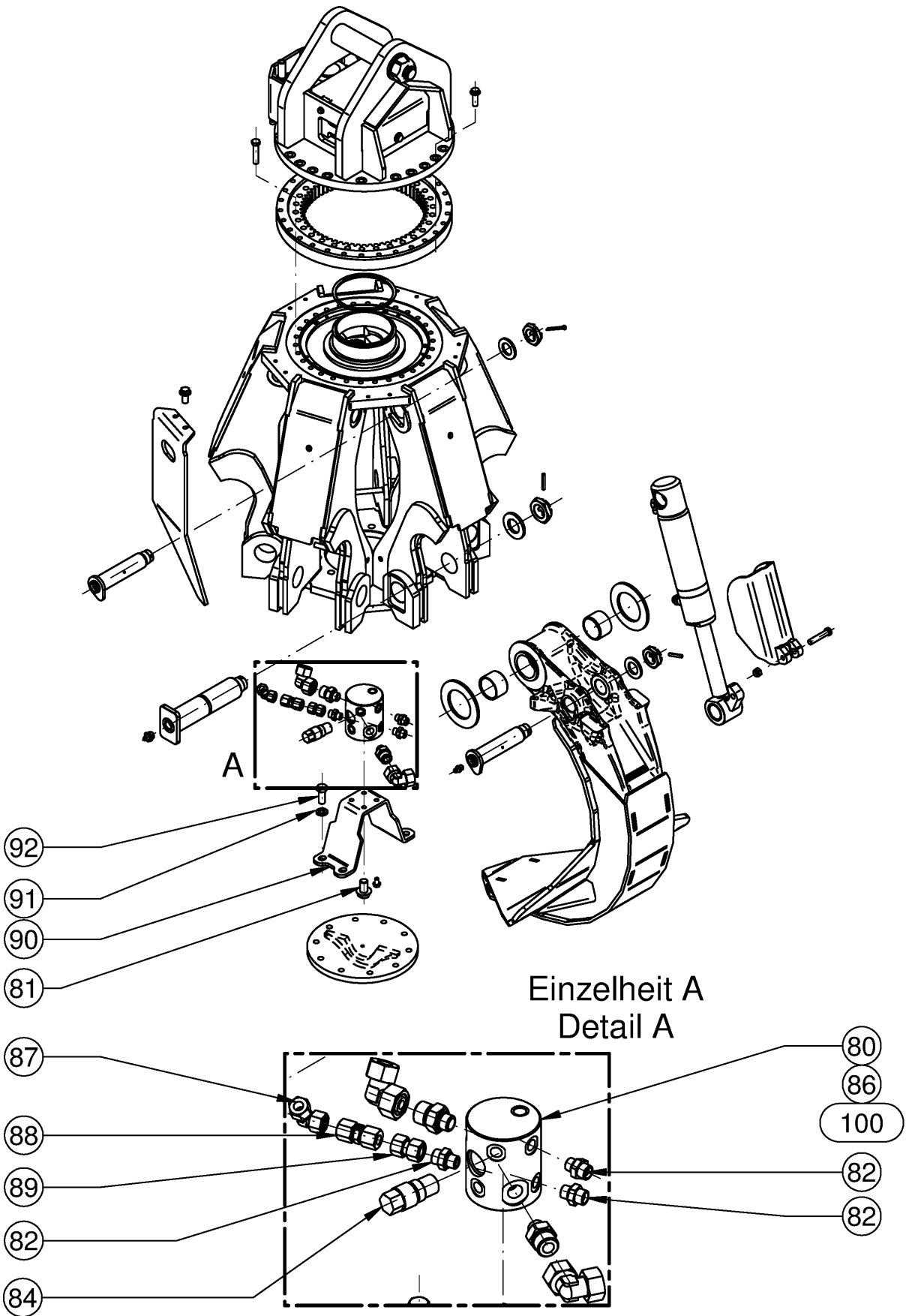
Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°.		Menge Qty. Nbre.			Abmessung Dimension und/and/et Bemerkung Remarks Remarque
				4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	5 Arme 5 arms 5 griffe	
10	Mittelstück	centre part	pièce centrale	645068985SK		1			
					645067556SK		1		
11	Lasthakenplatte	load hook plate	plaque de crochet de charge	646060034		1			
					646060027		1		
11.1	Sechskant- schraube	hexagon head cap screw	boulon à tête hexagonale	120062017		8	10	M20x50 verzinkt DIN 933-10.9	
11.2	Scheibe	washer	rondelle	122000169		8	10	21x37x3 verzinkt DIN 125 B	
13	V-Ring	V-ring	joint en Vé	256063545		1	1	175-185	
15	Deckel	casing	couvercle	646068987SK		4			
					646067548SK		5		
16	Sich. schraube	locking screw	vis de blocage	120014369		8	10	M12x25 Tensi 100	
20	Greifarm	gripping arm	griffe	626075586		4		P51VHD-1000-4W	
						4		P51VHD-1000-4T	
					626075609		5	P51VHD-1000-5H	
					626075607		5	P51VHD-1000-5W	
					626060831		5	P51VHD-1000-5T	
				n.a.		4		P51VHD-1250-4H	
				626081439		4		P51VHD-1250-4W	
				626077661		4		P51VHD-1250-4T	
					626075624		5	P51VHD-1250-5H	
					626075538		5	P51VHD-1250-5W	
				626075474		4		P51VHD-1500-4H	
				626073771		4		P51VHD-1500-4W	
				626077657		4		P51VHD-1500-4T	
					626075437		5	P51VHD-1500-5H	
					626075479		5	P51VHD-1500-5W	
21	PEL-HP Buchse	PEL-HP bushing	PEL-HP bague	135059038		8	10	70x80x50	
22	Spitze	point	pointe	627059012		4	5		
32	Anlaufscheibe	stop disc	rondelle	170059047		8	10	ø102,2x165x8	
35	Bolzen	pin	axe	509059016		4	5	ø 70x283,5	
36	Schmiernippel	grease nipple	graisseur	132000138		4	5	AM 12x1,75 DIN 71412	
37	Kronenmutter	castle nut	écrou crénelé	121050845		4	5	M48x1,5 verzinkt DIN 937-8	
38	Scheibe	washer	rondelle	122050084		4	5	50x92x8 verzinkt DIN 125 B	
39	Spannhülse	spring dowel	goupille de serrage	126056642		4	5	9x60 DIN 1481	



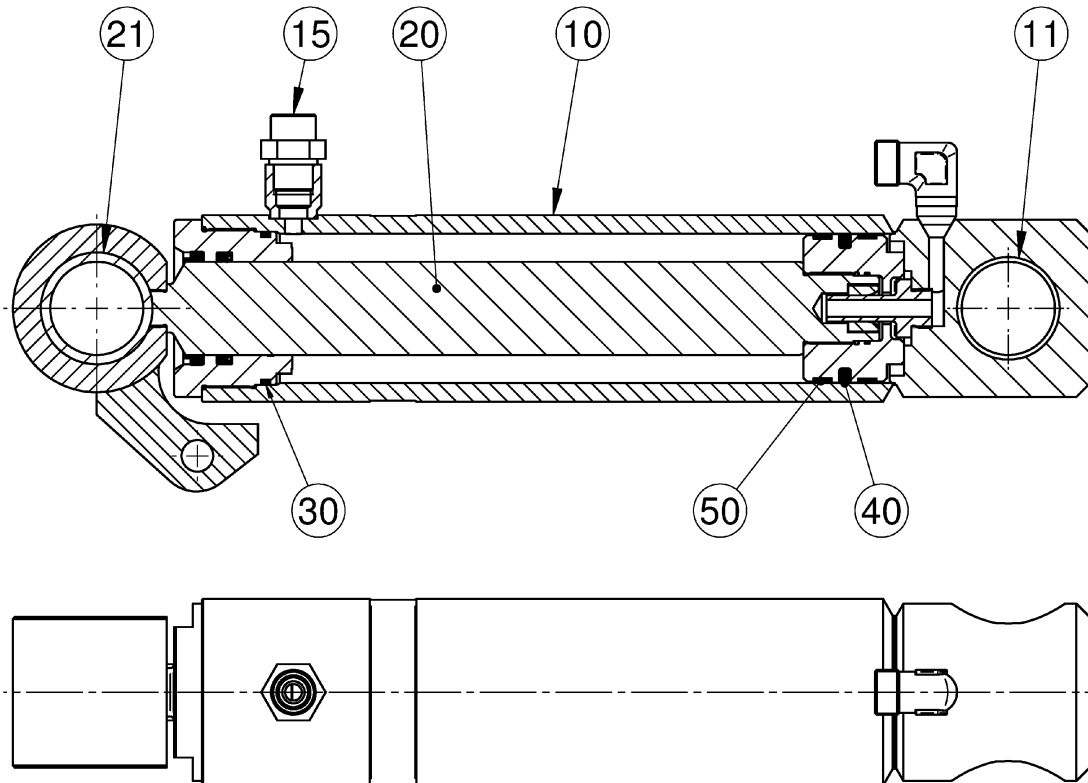
Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°.		Menge Qty. Nbre.			Abmessung Dimension und/and/et Bemerkung Remarks Remarque
				4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	5 Arme 5 arms 5 griffe	
40	Hydraulik-zylinder	hydraulic ram	vérin hydraulique	201064825		4	5	80/50x274	
41	Stützscheibe	supporting disk	rondelle pour bague de frein	122010271		8	10	52x65x3 DIN 988	
42	Passscheibe	adjusting washer	rondelle d'ajustage	122010270		8	10	52x65x1 DIN 988	
44	Schmiernippel	grease nipple	graisseur	132000137		8	10	AM 8x1 DIN71412	
45	Bolzen	pin	axe	509059019		8	10	ø 50x197	
46	Kronenmutter	castle nut	écrou crénelé	121050844		8	10	M42x1,5 verzinkt DIN 937-8	
47	Scheibe	washer	rondelle	122012576		8	10	42x72x6 verzinkt DIN 126	
48	Spannhülse	spring dowel	goupille de serrage	126056642		4	5	9x60 DIN 1481	
49	Splint	linch pin	goupille fendue	125050846		4	5	8x80 DIN 94	
60	Zylinderschutz	cylinder protection	protection de cylindre	646064833		4	5		
61	Zylinder-schraube	socket head cap screw	vis à tête cylindrique	120059809		4	5	M16x80 verzinkt DIN 7984-8.8	
62	Sicherungs-mutter	locking nut	écrou de blocage	121000156		4	5	M16 verzinkt DIN 985-8	
70	Drehantrieb	rotary drive	commande rotative	770067572SK		1	1		
71	Verschraubung	screw fitting	raccord	291055009		2	2	GE 25-SR G3/4" M36x2	
72	Hydraulik-schlauch	hydraulic hose	flexible hydraulique	296054452		2	2	4SP20-600-DKOS-DKOS45°	
73	Anschluss-stutzen	connecting sleeve	raccord union	290010214		2	2	EVW 25-S M36x2	

6.3 Mehrschalengreifer / Orange peel grab
Servicepaket / Service package

P51VHD (Blatt 3)

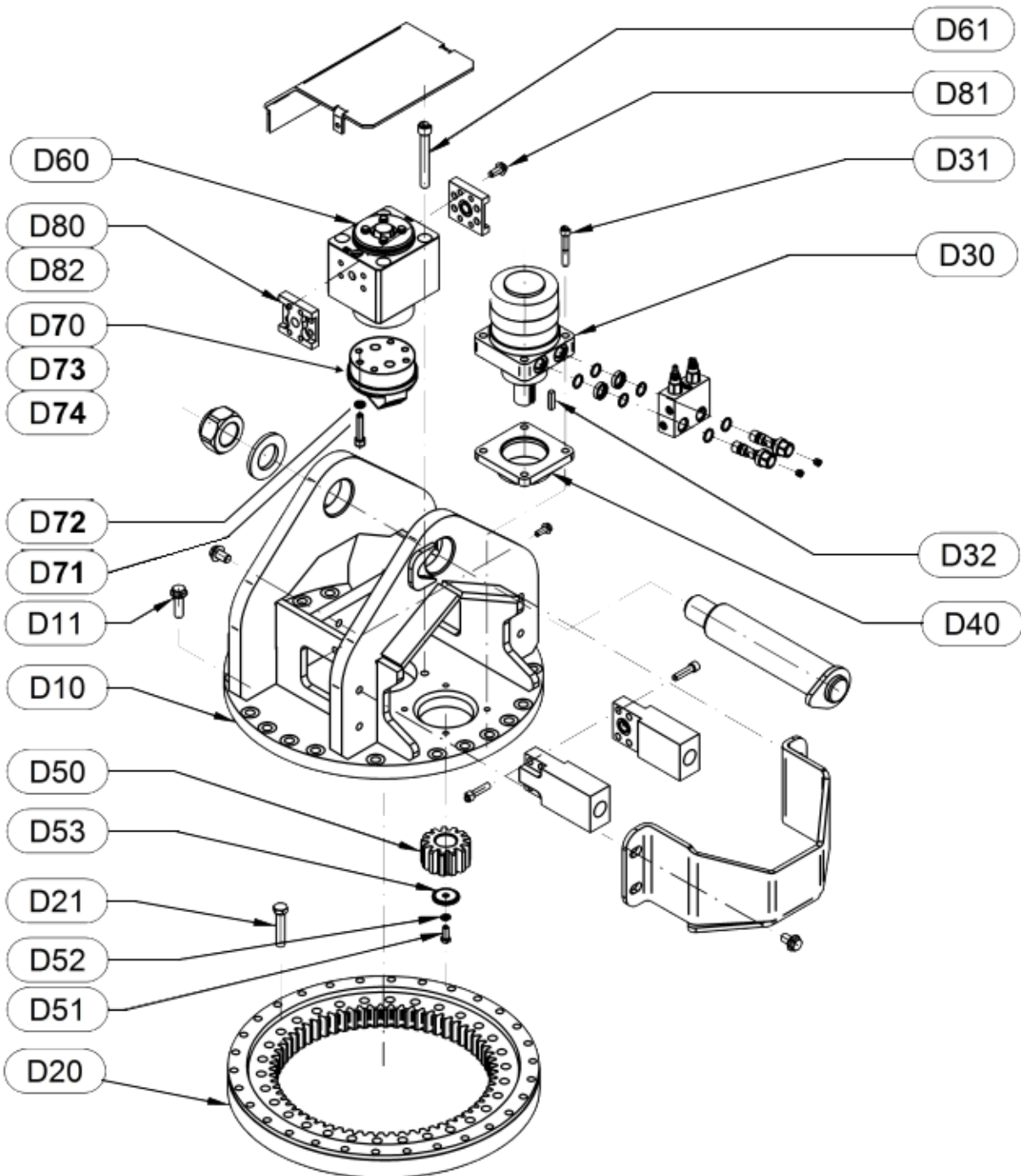


Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°.		Menge Qty. Nbre.		Abmessung Dimension und/and/et Bemerkung Remarks Remarque
				4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	4 Arme 4 arms 4 griffe	5 Arme 5 arms 5 griffe	
80	Ölverteiler	oil-distributor	distributeur	272056936		1	1	
81	Sicherungsschraube	locking screw	locking screw	120013834		4	4	M12x 20 verzinkt RIPP-10.9
82	Verschraubung	screw fitting	raccord	291010223		8	10	XGE 16-SR G1/2" M24x1.5
84	Rückschlagventil	non return valve	clapet anti-retour	271013057		1	1	
86	Hydraulikschlauch	hydraulic hose	flexible hydraul.	296069326		8	10	4SH12 B5 B8 820P
87	Anschlussstutzen	connecting sleeve	raccord union	290010654		4	5	EVW 16-S M24x1,5
88	Verschraubung	screw fitting	raccord	290057461		1	1	G 16-S M24x1,5
89	Verschraubung	screw fitting	raccord	290057462		1	1	GVO 16-S/16-S M24/M24
90	Anschraubplatte	connecting plate		683068918SK		1		
					683067570SK		1	
91	Scheibe	washer	rondelle	122000165		4	3	21x37x4 DIN 6916-HV
92	Sechskantschraube	hexagon head cap screw	boulon à tête hexagonale	120062017		4		M20x50 verzinkt DIN 933-10.9
					120000227		3	M20x60 DIN 933-10.9
100	Verschlusschraube	screw plug	bouchon fileté	291010934	-	2	-	VSTIR G1/2"-ED
	Servicepaket	service package	kit entretien	513072245	513072246	1	1	
	Lagersatz kpl. - Greifarm	bearing set cpl. - gripping arm	garniture de palier cpl. - de la griffe	513059714		4	5	bestehend aus includés consistant en la Pos. 21, 35, 36, 37, 38, 39
	Lagersatz kpl. - Zylinderrohr	bearing set cpl. cylinder tube	garniture de palier cpl. - tuyau cylindrique	513072244		4	5	bestehend aus includés consistant en la Pos. 44, 45, 46, 47, 49 und/and/et Zylinder /cylinder/ vérin 201064825Pos. 11
	Lagersatz kpl. - Zylinder Kolbenstangenseite	bearing set cpl. cylinder piston rod side	garniture de palier cpl. - tige de piston	513059715		4	5	bestehend aus includés consistant en la Pos. 44, 45, 46, 47, 48 und/and/et Zylinder /cylinder/ vérin 201064825Pos. 31

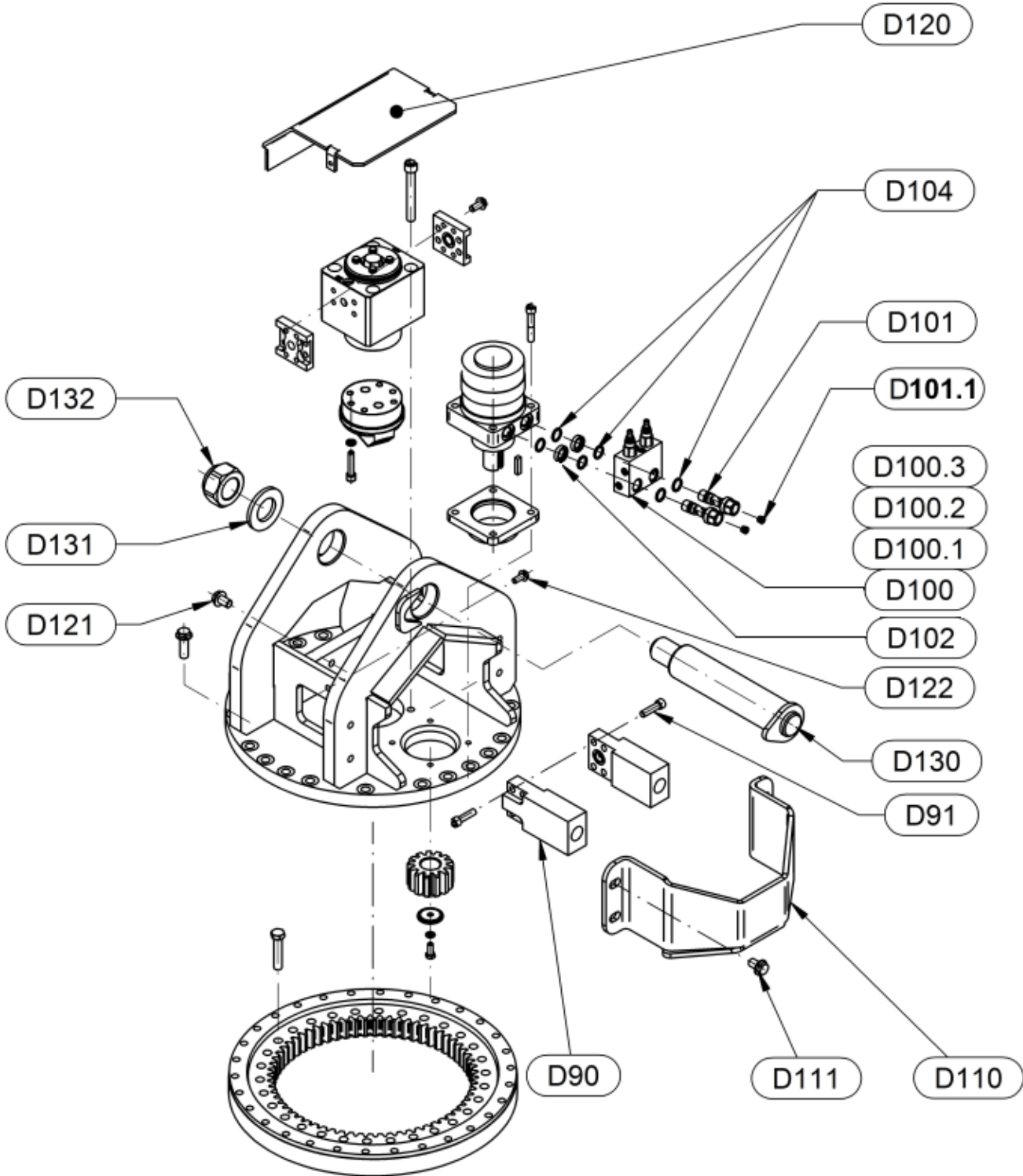


Montagehinweise / Mounting instructions / Instructions d'assemblage			
Verschraubung Threaded union Raccord à vis	Gewinde Screw thread Filetage	Anziehmoment Tightening moment Couple de démarrage	Sicherung Thread securing Frein d'écrou
Verschraubung screw fitting raccord	G 1/2"	170 Nm	verkleben / to glue
Stangenführung-Zylinder Piston rod guide-cylinder Guide de tige-vérin	M85 x 1,5	800 Nm	verkleben / to glue

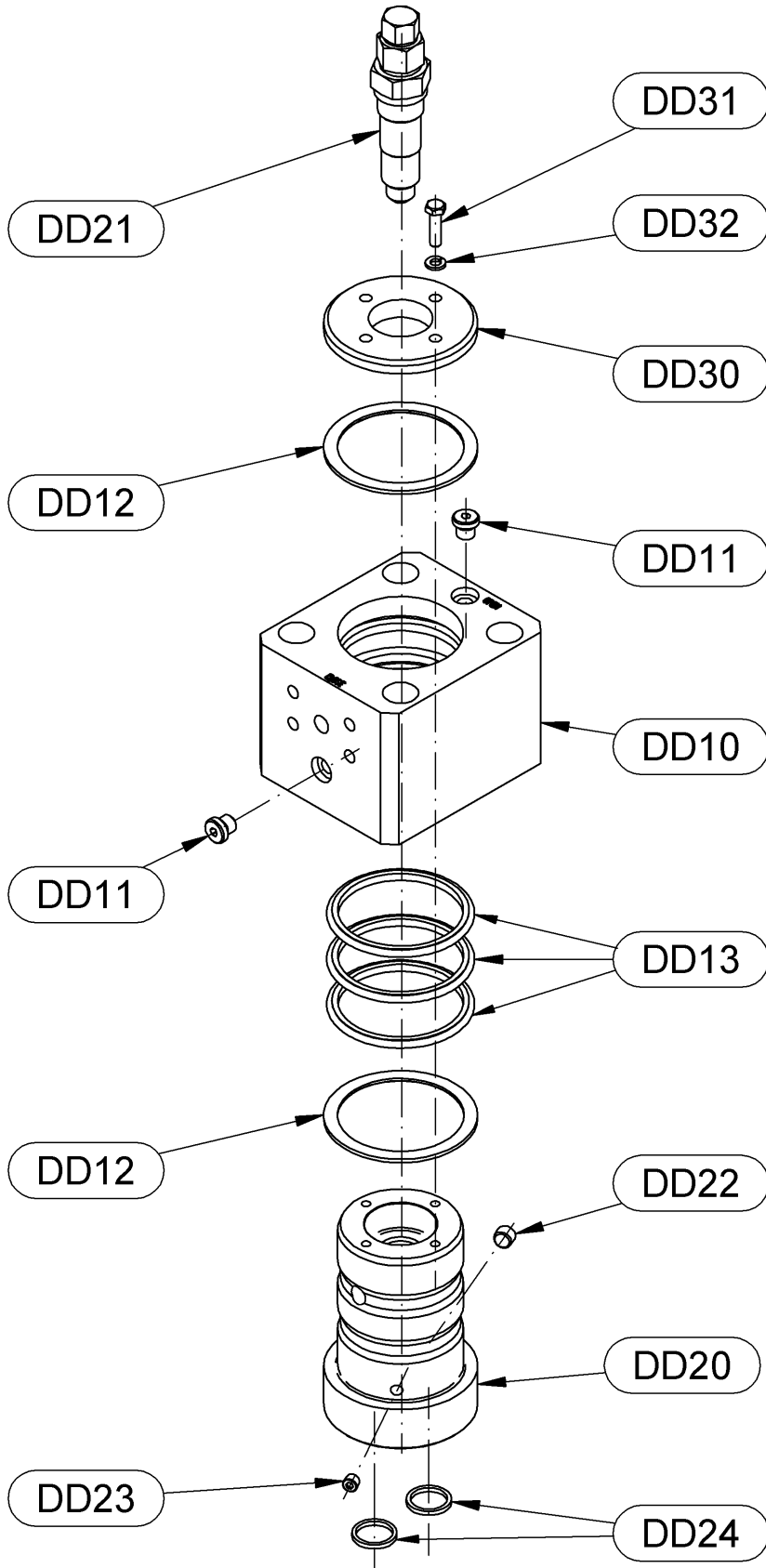
Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°	Menge Qty. Nbre.	Abmessung Dimension	Bemerkung Remarks Remarque
10	Zylinderrohr	cylinder tube	tuyau cylindrique	229064826	1		
11	PEL-HP Buchse	PEL- HP bushing	PEL-HP bague	135059026	2	50x60x30	
15	Verschraubung	screw fitting	raccord	291010223	1	XGE 16-SR G1/2" M24x1.5	
20	Kolbenstange kpl.	piston rod	tige de piston cpl.	220059781	1		
	Stangenführung	piston rod guide	piston rod guide				
	Kolben	piston	piston				
	Dämpfungsring	damping ring	anneau amortisseur				
	Gewindestift	set screw	vis sans tête				
	Schmutzabstreifer	wiping ring	joint râcleur				
	Stangendichtung	piston rod seal	joint				
	Dualsealring	dualsealring	joint dual				
21	PEL-HP Buchse	PEL- HP bushing	PEL-HP bague	135055571	1	50x60x80	
30	Kolbendichtung	piston seal	joint dual	258059311	1	HDP330 80x64,5x6,0 PA4112	
40	Führungsband	guide band	guide de bande	265059312	2	F KB 80x75x9,6 HG517	
50	Dualsealring	dualsealring	garniture de piston	256067132	1	R15-P 35x38x2,7 ECOPUR	

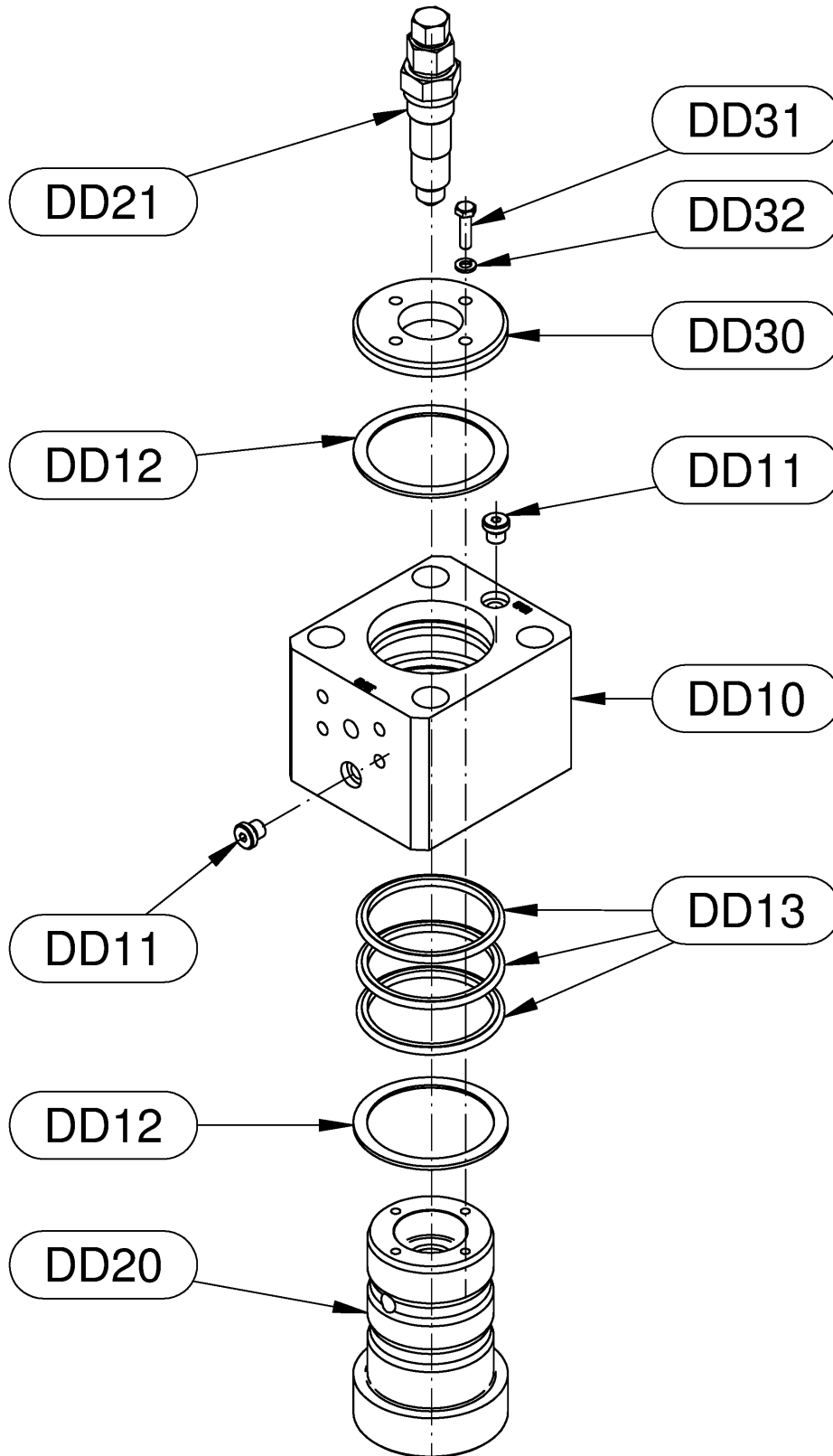


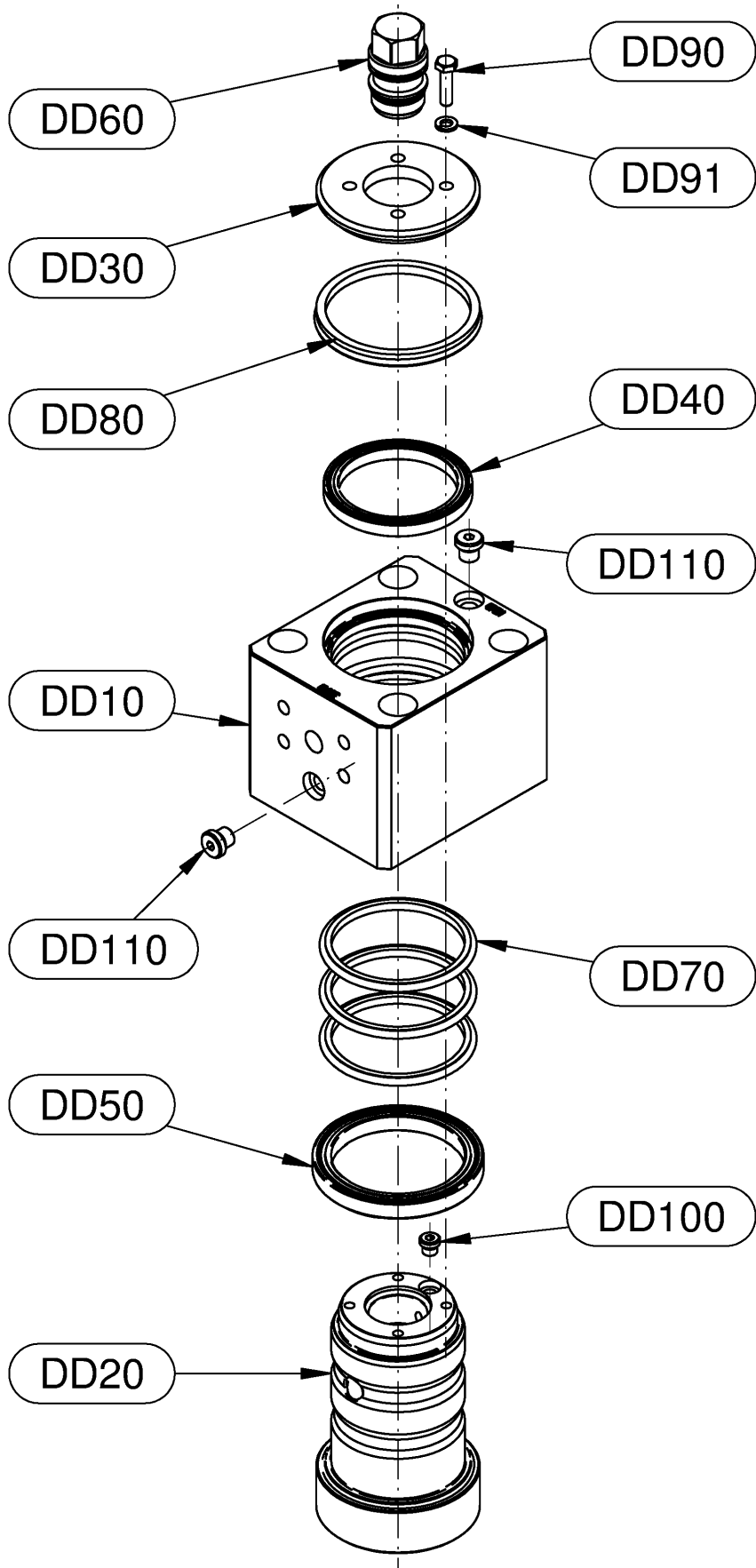
Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°	Menge Qty. Nbre.	Abmessung Dimension	Bemerkung Remarks Remarque
D10	Kopfteil	rotator head	pièce de tête	560067547SK	1		
D11	Sicherungsschraube	locking screw	vis de blocage	120013843	22	M16x50 verzinkt Tensilock 100	
D20	Drehverbindung	rotary union	raccord tournant	168055476	1	ø 489	
D21	Sechskantschraube	hexagon head cap screw	boulon à tête hexagonale	120010180	30	M16x70 verzinkt DIN 931-8.8	
D30	Hydraulikmotor Set Standard (mit Passfeder)	hydr. motor set standard (w/ feather)	moteur hydr set standard (avec clavette)	206076806	1	Passend für alle Seriennummern außer / Suitable for all serial numbers except CG07213, CG08918	
D30	Hydraulikmotor Austausch-Set Sonder (anstelle Parker)	hydr. motor set special (instead of Parker)	moteur hydr. set spécial (au lieu de Parker)	206076877	1	Passend für Seriennummer: Suitable for serial number: CG07213, CG08918	
D31	Zylinderschraube	socket head cap screw	vis à tête cylindrique	120010351	4	M12x70 DIN 912-8.8	
D32	Passfeder	feather	ressort d'ajustage	DR506044	1	9,525x8x38	
D40	Motorflansch	motor flange	motor flange	DR404728	1		
D50	Ritzel	pinion	pignon	DR508098	1	M=6, Z=13	
D51	Sechskantschraube	hexagon head cap screw	boulon à tête hexagonale	120050416	1	R 3/8"-16UNC x 1"	
D52	Federring gültig bis Sept. 2014	spring ring valid to Sept. 2014	rondelle élastique usqu'à Sept. 2014	123000061	1	10,2x2,2 verzinkt DIN 127	
D53	Scheibe	washer	washer	DR404729	1	50x11x3	
D60	Drehdurchführung ersetzt durch 207072053 gültig bis Nov. 2013	swivel replaced by 207072053 valid to Nov. 2013	passage tournant remplacés par 207072053 usqu'à Nov.	207058287	1	SW38; Durchfluss 120l/min	
	Drehdurchführung ersetzt durch 207077425 gültig bis Juni 2014	swivel replaced by 207077425 valid to June 2014	passage tournant remplacés par 207077425 usqu'à Juin 2014	207072053	1	SW32; Durchfluss 240l/min	
	Drehdurchführung gültig ab Juli 2014	swivel valid starting from Juli 2014	passage tournant à partir de Juli 2014	207077425	1	SW32; Durchfluss 240l/min	
D61	Zylinderschraube	socket head cap screw	vis à tête cylindrique	120010207	4	M16x120 verzinkt DIN 912-8.8	
D70	Flansch Drehdurchführung	flange swivel	passage tournant à bride	DR401227	1		
D71	Zylinderschraube	socket head cap screw	vis à tête cylindrique	120000234	6	M10x50 verzinkt DIN 912-8.8	
D72	Nord-Lock Sicherungsscheibe	Nord-Lock secure washer	Nord-Lock secure washer	122061378	6	10,7x16,6x2,5	
D73	Vierkantring	square ring	square ring	257055703	2	32,3x26,7x3,4 NBR 85SHA	
D74	Verschraubung	screw fitting	adaptateur	291064630	2	X GE 20-SR ED G3/4"-M30x2	
D80	Adapter	adapter	raccord	773067670SK	2		
D81	Sicherungsschraube	locking screw	vis de blocage	120014369	8	M12x25 verzinkt Tensilock 100	
D82	Vierkantring	square ring	joint carrée	257055703	4	32,3x26,7x3,4 NBR 85SHA	



Pos.	Bezeichnung	Description	Désignation	Artikel-Nr. Order No. Pièce N°	Menge Qty. Nbre.	Abmessung Dimension	Bemerkung Remarks Remarque
D90	Anschlussblock	terminal block	bloc de connexion	773067668SK	2		
D90.1	Verschraubung	fitting	raccord	291060150	2	GE 20-SR G1" M30x2	nicht gezeichnet not shown
D90.2	Verschraubung	fitting	raccord	290007051	2	EVW 20-S/M30x2	nicht gezeichnet not shown
D91	Zylinderschraube	socket head cap screw	vis	120014385	8	M12x45 verzinkt DIN 912-10.9	
D100	Ventilplatte kpl.	valve plate cpl.	plaque de soupape cpl.	DR502908	1		
D100.1	Ventilplatte	valve plate	plaque de soupape	DR502909	1		
D100.2	Druck- begrenzungsventil	pressure relief valve	limiteur de pression	271060533	2		
D100.3	Verschlussschraube	screw plug	bouchon fileté	290066544	6	VSTI M10x1,0 OR VIT	
D101	Hohlschraube	banjo bolt	boulon creux à filet femelle	291080695SK	2	G1/2"-1/2"	
D101.1	Blenden- Rückschlagventil	non return valve	clapet anti-retour	271055459	2	R1/4"	
D102	Distanzring	distance ring	douille d'écartement	DR502903	2	G1/2"	
D103	Verschraubung	fitting	raccord	DR500663	2	WH 16-SR 1/2" / M24x1,5	nicht gezeichnet not shown
D104	Vierkantring	square ring	joint carrée	257066194	6	21,89x2,51x2,51 PUR 90SHA	
D110	Ventilschutz	valve protection	valve de protection	773067616SK	1		
D111	Sicherungsschraube	locking screw	vis de blocage	120013827	4	M16x25 verzinkt Tensilock 100	
D120	Deckel	cover	couvercle	773067669SK	1		
D121	Sicherungsschraube	locking screw	vis de blocage	120013827	1	M16x25 verzinkt Tensilock 100	
D122	Sicherungsschraube	locking screw	vis de blocage	120014327	2	M10x25 verzinkt Tensilock 100	
D130	Bolzen	pin	axe	509076715	1	ø 70x307,5	
D131	Scheibe	washer	rondelle	122050084	1	50x92x8 DIN 125 B	
D132	Sicherungsmutter	locking nut	écrou de blocage	121050083	1	M48x3 verzinkt DIN 985-8	







Nederland

DEMAREC Demolition and Recycling Equipment B.V.
De Hork 32
NL-5431 NS Cuijk
Tel: +31 (0) 485 442300
Fax: +31 (0) 485 442120
Email: info@demarec.com
www.demarec.com

Sverige

RF System AB
Furutorpsgatan 6
SE-288 34 Vinslöv
Tel.: +46 (0) 44 817 07
Fax: +46 (0) 44 859 63
Email: info@rf-system.se
www.rf-system.se

United Kingdom

Auger Torque Europe Limited
Hazleton
Cheltenham, GL54 4DX
Tel: +44 (0) 1451 861 652
Fax: +44 (0) 1451 861 660
Email: sales@augertorque.com
www.augertorque.com

Australia

Auger Torque Australia Pty Ltd.
122 Boundary Road, Rocklea
Queensland 4106
Tel: +61 (0) 7 3274 2077
Fax: +61 (0) 7 3274 5077
Email: sales@augertorque.com.au
www.augertorque.com.au

China

Auger Torque China CO., Ltd.
Baozhan Rd, Tongyi Industry Zone
Dongwu, Yinzhou, Ningbo
China 315114
Tel: +86 (0) 574 8848 8181
Fax: +86 (0) 574 8848 8687
Email: john.hu@attachmenttorque.com
www.augertorque.com

United States of America

Solesbee's Equipment & Attachments, LLC
2640 Jason Industrial Parkway
Winston, GA 30187
Toll Free (North America):
1-800-419-8090
Email: sales@solesbees.com
www.solesbees.com

New Zealand

Doherty Couplers & Attachments
PO Box 9339, Greerton
Tauranga 3142
Tel.: +64 7 574 3000
Fax: +64 7 574 8030
Email: sales@dohertydirect.net
www.dohertydirect.net

Hauptsitz Deutschland

KINSHOFER GmbH
Hauptstrasse 76
83666 Waakirchen
Tel.: +49 (0) 8021 88 99 0
Fax: +49 (0) 8021 88 99 37
Email: info@kinshofer.com
www.kinshofer.com

United Kingdom

KINSHOFER UK Ltd.
4 Milton Industrial Court Horsfield Way, Bredbury
Stockport, Cheshire, SK6 2TA
Tel.: +44 (0) 161 406 7046
Fax: +44 (0) 161 406 7014
Email: sales-uk@kinshofer.com
www.kinshofer.com

France

KINSHOFER France S.A.R.L.
8 Bis, rue Gabriel Voisin
CS 40003
51688 Reims Cedex 2
Tel.: +33 (0) 3 88 39 55 00
Fax: +33 (0) 3 88 79 06 75
Email: sales-france@kinshofer.com
www.kinshofer.com

Canada

KINSHOFER North America
5040 Mainway Drive, Unit #11
Burlington, ON L7L 7G5
Tel.: +1 (905) 335-2856
Fax: +1 (905) 335-4529
Toll Free (North America):
1-800-268-9525
Email: sales-northamerica@kinshofer.com
www.kinshofer.com

United States of America

KINSHOFER USA
6420 Inducon Drive
Suite G
Sanborn, NY, 14132
Tel.: +1 (716) 731-4333
Toll Free (North America):
1-800-268-9525
Email: sales-usa@kinshofer.com
www.kinshofer.com