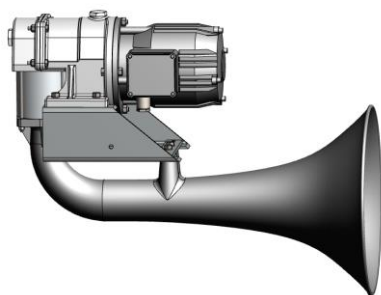
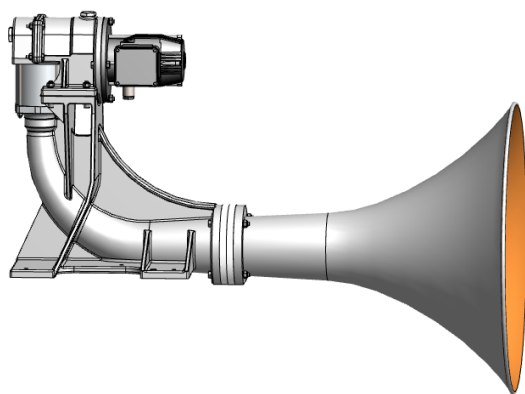


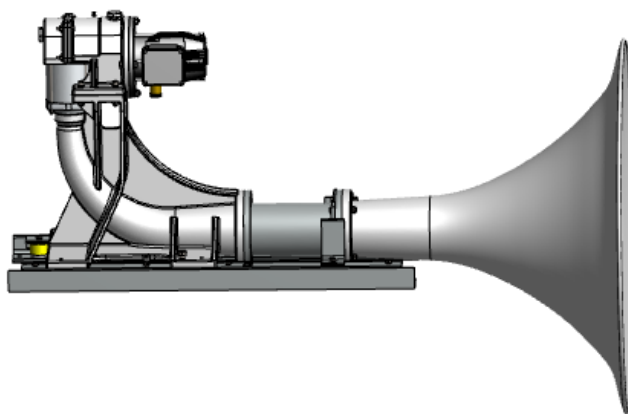
Operating Instructions//



ZET-Horn 131 AC
ZET-Horn 141 AC



ZET-Horn 90 AC
ZET-Horn 110 AC



ZET-Horn 70 AC

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1 General remarks

ZÖLLNER ZET-Horns are available for voltages from 230-690 Volts/ 50 or 60 Hz AC 3phase. Special voltages can be delivered on request.

The essential component of the ZET-Horn is the piston which, driven by an AC 3phase motor over a direct tooth-wheel gear, crankshaft and connecting rod, oscillates at a fixed frequency.

The sympathetic vibrations caused by the oscillating piston produce a pure tone with a wide audibility range. The motor which is flange-mounted to the casing has a powerful starting torque and will start immediately when signals are released.

The gear system is of plain, solid design: The tooth wheels are made of highly alloyed, wear resistant tool steel; the cylinder is made of corrosion-resistant material with its bearing surface accurately hardened and ground. The one-piece crankshaft allows easy assembly with standard on-board tools. Grease will guarantee reliable lubrication. To provide faultless operation also at extremely low temperatures and to avoid condensation water an electric motor heating can be applied.

The ZET-Horn is adjusted to a duty factor of 15%!

2 Motor protection

The minimum protection of the ZET-Horn motors should be a thermic over-current relay (bi-metal). Other methods of motor protection are also possible.

Fuses and cables have to be provided by the shipyard according to classification societies and other standards. Only apply 35 ampère time-lag fuses.

3 Installation and Connection

1. The sound horns have to be installed as high as practicable to obtain an optimal sound emission and make sure that sound intensity does not exceed 110 dB (A) at the listening posts. The console should be designed large enough to provide a safe possibility for inspection.
2. The ZET-Horns are fixed by 4 well secured M12 screws.
3. For the ZET-Horns of the series 110AC, 90AC and 70AC the horns must be fixed with screws of M 12 and a torque of 56 Nm to the arched piece of horn.
4. Electrical connections have to be laid according to the producers' wiring diagram. It is important to use only flexible cables.
5. The door hinge on the control unit can be modified. However, the modification and the resulting changes to the door's grounding are the customer's responsibility. Modification instructions are included with the control unit.

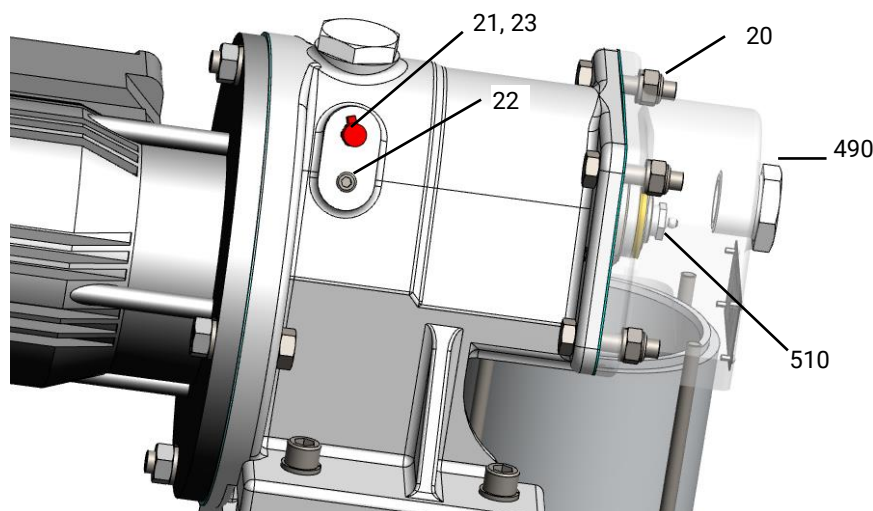
4 Maintenance

Generally, there is no maintenance required for the ZET-Horn. Only the lubrication grease has to be checked at intervals of about 3 to 6 months. Normally, the grease has to be exchanged in 5-year intervals; but when found dirty it must be replaced immediately.

Before handing over vessel:

After long periods of rest a short signal should be given several times. This means that the thickening present in the gear grease mixes up again with the gear grease. Afterwards the horn sounds immediately after triggering the release.

4.1 Grease control and lubrication

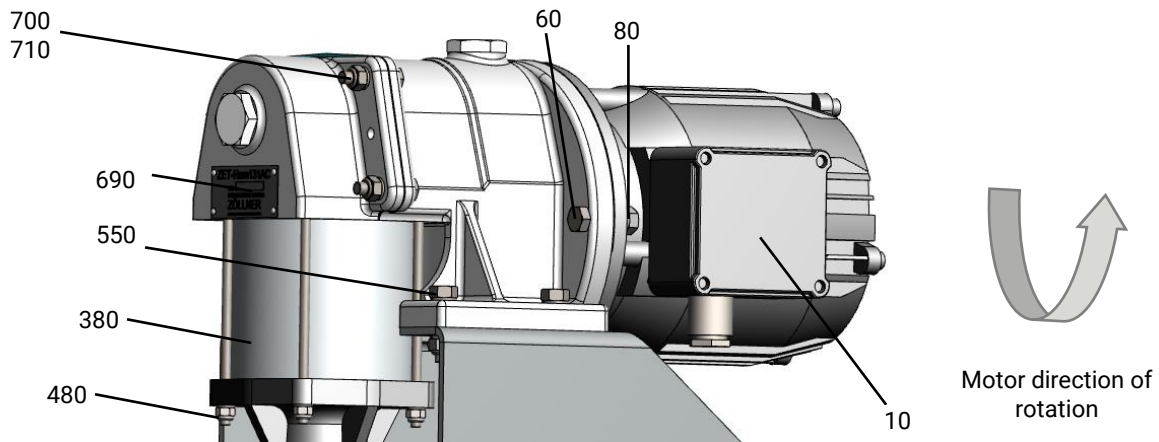


To check the grease, unscrew the M10x1 screw (22) on the side of the ZET horn housing. The gear grease should be visible at the bottom edge of the M10 threaded hole.

The connection rod bearing is lubricated automatically through the crankshaft bore. Additionally, there is a grease nipple (510) at the crankshaft extensions. Lubrication of the big-end bearing can also be effected through an aperture of casing B. This aperture is plugged by screw plug (490). On one side of the ZET-Horn casing, close to the tooth wheels, there is another grease nipple (21). **At intervals of about 3 to 6 months, the screw plug (22) has to be opened and grease (AVIANAT 0 EP) has to be filled in underneath the grease nipple.**

4.2 Grease exchange

To exchange the grease proceed as follows:



ZET-Horn 141AC/131AC

1. Loose cables from motor (10).
2. Remove 4 screws (550) between the both casingparts and carriers.
3. Remove 4 nuts (480) between cylinder and sound horn.

ZET-Horn 110AC/90AC/70AC

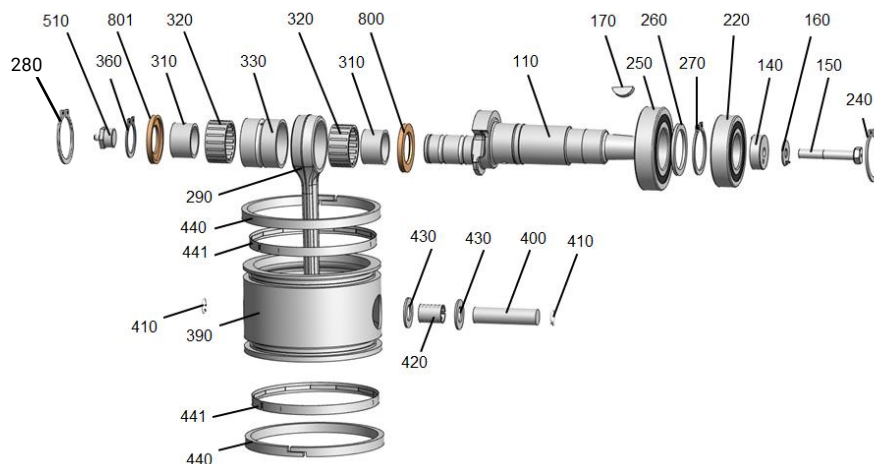
1. Loose cables from motor (10).
2. Remove 4 screws (550) between the both casingparts and arched piece of horn.
3. Remove 4 nuts (480) between cylinder and flange of horn.

In the vessel's workshop, the motor has to be detached from the casing by unscrewing 4 screws (60) and nuts (80). Make sure that the motor remains in overhead position. Now, exchange the grease (approx. 0.8 kg). At this opportunity, also check tooth-wheels and crankshaft bearings. In addition, check state of piston ring and wrist pin and exchange them if they are worn out.

5 Disassembly

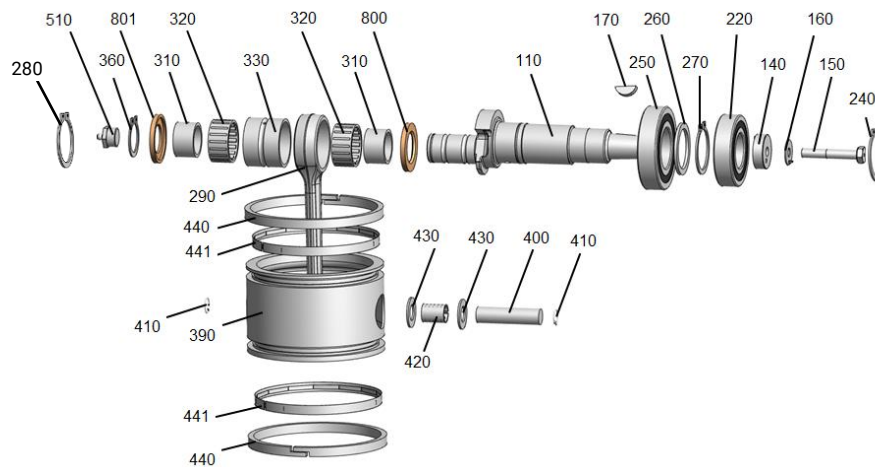
If good tools are provided on board disassembly and reassembly of the ZET-Horn will not cause any trouble. After the ZET-Horn has been taken down from the mast proceed as follows to disassemble:

1. Loosen screws (550) – between casing and arched piece of horn (carriers) – and nuts (480) and carefully lift the whole gear system.
2. Remove 4 nuts (480) and pull off cylinder (380).
3. Loosen hexagon screws (700) from nuts (710) and carefully remove front of casing.



4. In order to pull off the whole connection rod bearing, first, detach the safety ring (360) with appropriate pliers and then remove the thrust washer (801). Now use a take-off tool to remove the complete needle bearing with inside and outside rings (310, 320, 330), thrust washer (800) and the still fixed connection rod (290).
5. Use a work bench to carefully press outside bearing ring (330) out of the connection rod (290). Before reassembling the ZET-horn again, make sure that the needle bearing with inside and outside rings (310, 320, 330) and thrust washer (800, 801) are replaced by new parts.
6. To disassemble the crankshaft, remove safety ring (280), unscrew hexagon screws (150) and take off washer (140) and locking plate (160). Now pull off tooth-wheel (130). Use a mallet to expel the crankshaft. Pull off the bearings.
7. Each time the ZET-Horn is disassembled, the bushes and guard plates (**420 and 430**) between connecting rod, piston and wrist pin have to be checked. Basically, it is the best to always exchange these parts.
8. The piston rings (441, 440) also have to be checked and exchanged when necessary.

6 Reassembly



To reassemble, reverse procedures as described above:

First, press ball bearing **(250)** on crankshaft **(110)** and fix it with support disc **(260)** and safety ring **(270)**. Then, press on ball bearing **(220)**.

To assemble connecting rod **(290)**, also use work bench. At first, the rear washer **(800)** and the inside bearing rings **(310)** are pushed on to the crankshaft journals. When mounting the inside bearing rings, make sure that the bores are exactly above the crankshaft journal groove.

The outside bearing ring **(330)** has to be pushed into the connecting rod and has to be fixed in its exact centre. Now, assemble the needle bearing cages **(320)**.

The spaces between needles and cage have to be filled manually with the AVIANAT 0 EP. After the connecting rod with the outside bearing ring **(330)** has been pushed on the bearing cages put on washer **(801)** and fix it with the safety ring **(360)**. It must still be possible to turn the washer by hand.

Before the complete crankshaft is pushed into the casing **(20)**, which possibly can be done by a mallet, check if the smaller safety ring **(240)** is exactly positioned in its groove. After the crankshaft has been inserted, fit in the bigger safety ring **(280)** carefully.

Finally, screw grease nipple **(510)** in the crankshaft and fill the crankshaft bore with grease. Lubrication of the connecting rod bearing will then be self-acting.

7 Maximum Sound Volume

Maximum volume will only be achieved with the power frequency the ZET-Horn has been laid out for. A change by -1 Hz, +1,5 Hz won't have any influence on the volume. Voltage variations of +/- 20 % will not affect the ZET-horn's sound intensity either. All ZET-Horns have been adjusted by the company. Should there be deviations concerning volume it will be necessary to state board main frequency with operating and non-operating ZET-Horn. Both values as well as the ZET-Horn's serial no. which you will find on the type plate (690) have to be reported to the producer.

8 Heating

An electric motor heating ensures the ZET-Horn's faultless operation also at low temperatures and avoids condensation water. The heating is controlled by the motor contactor, which is installed in the ZET-Horn's switch-box, together with the heating relay and the required transformer. Vessels of the "Arctic Class" can additionally be equipped with an extra heating for the horn to avoid deposits of snow and ice.

9 Trouble shooting

examples for voltage (other voltages on request):

main voltage with 3phase AC 50/60 Hz available: 230V / 380V / 400V ... 690V AC

control voltage: 1phase: 24 V DC, 115 V AC, 230 V AC

<u>Fault</u>	<u>Fault Diagnoses</u>	<u>Elimination</u>
1. No sound	No power supply	Switch on power supply
2. No sound	Fuses 35 A of the main control panel defective	Renew fuses
3. No sound	No tension of 440 V AC 60 Hz (380 V AC 50 Hz) at the terminals L1, L2, L3 and of the control unit 4476	Check cabling and fuses
4. No sound	Contacts of the contactor panel (01707555) do not close when pressing the button for sound signals	1) Examine cabling and signal automaton if there is no tension of 230 V AC/ 110 V AC at the terminal board contactors e1+2 in the control unit 4476 2) If there are 230 V AC/ 110 V AC before but not behind the contactors renew fuses 3) Contacts still do not close, switch in the bimetal relay T20 manually 4) Contacts still do not close, exchange contactor panel T30
5. No sound	Contacts of the contactor panel (01707555) do not close when pressing the button for sound signals	If there is no tension of 440 V AC 60 Hz (380 V AC 50 Hz) at the terminals U, V, W exchange bi-metal relay. Examine key connections.
6. No sound	Control unit is not defective but no tension at the terminals U, V, W.	Examine cables and cable connections.
7. No sound	Control unit and cables are not defective but the motor is	Exchange motor
8. No clear sound	Check ZET-Horn power plant and piston	Disassemble ZET-Horn and renew defective parts.
. Sound pressure level too low	Check present sound frequency	Adjust sound frequency of the ship's network at 60 Hz -1 Hz, +1,5 Hz (50 Hz-1 Hz, +1,5 Hz)

10 Transport, Storage and disposal

10.1 Transport

To avoid damage to the devices and components, follow these points during transport:

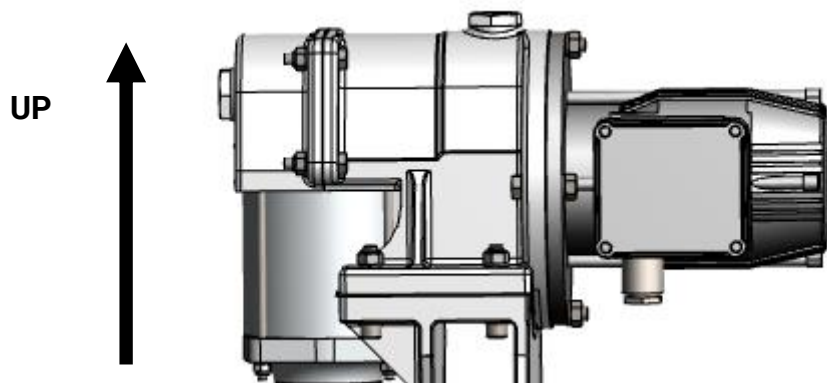
- » Load the device and components carefully.
- » Secure the devices and components to prevent damage during transport.

10.2 Storage

Follow these points for storage:

- » Store the devices and components in a safe and dry place.
- » The storage temperature must be between -30°C and 70 °C.

To avoid a leak of grease caused by storage the gear box must be stored upright:



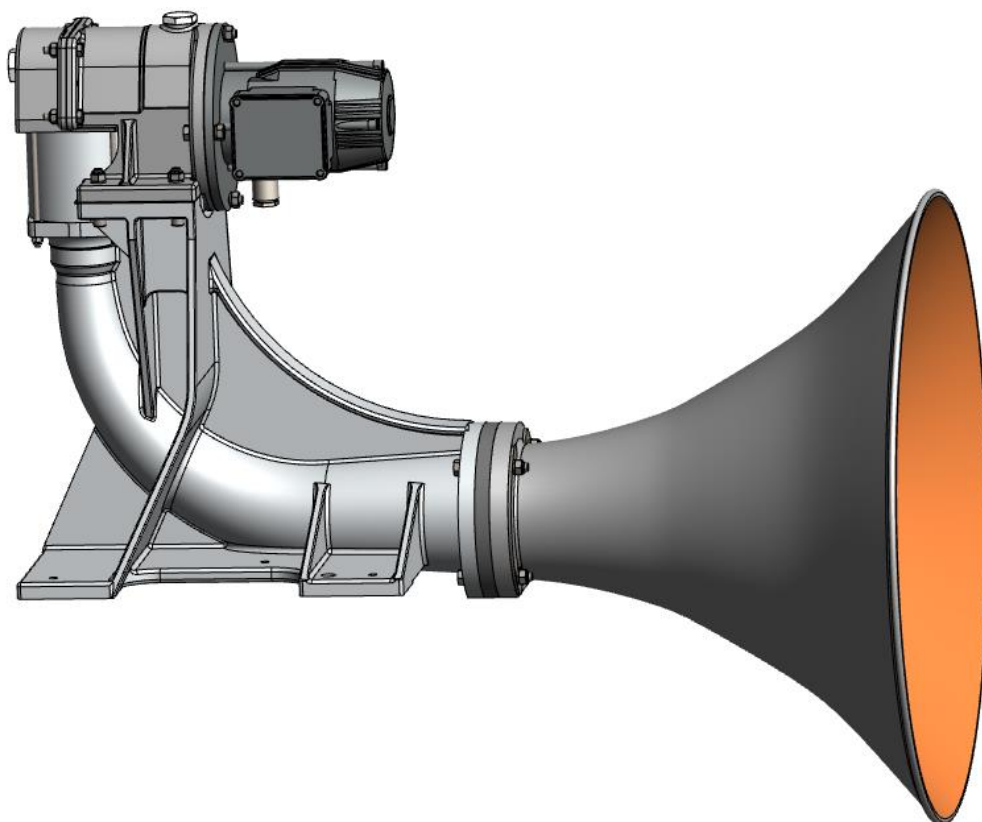
10.3 Disposal

When disposing of it, it is necessary to comply with country-specific legal regulations. In Germany, ZÖLLNER has the WEEE registration number DE 30136569 and regularly pays contributions to the national disposal system. The devices can also be sent back to the manufacturer for disposal.

produkt:	ZET-Horn 141AC-70AC
main voltage (3 Phasen AC)	230V / 380V / 400V ... 690V AC
control voltage (1 Phase)	24 V DC, 115 V AC, 230 V AC
volume:	138 dB - 143 dB in 1/3RD-OCT. BAND LEVEL AT 1 M
protection class:	IP56
weight:	62 - 130 kg



Radewisch 40, 24145 Kiel, Germany
Register of Companies Kiel No. HR B 9618 KI
President: Dr. Philipp Murmann
WEEE register: DE 30136569

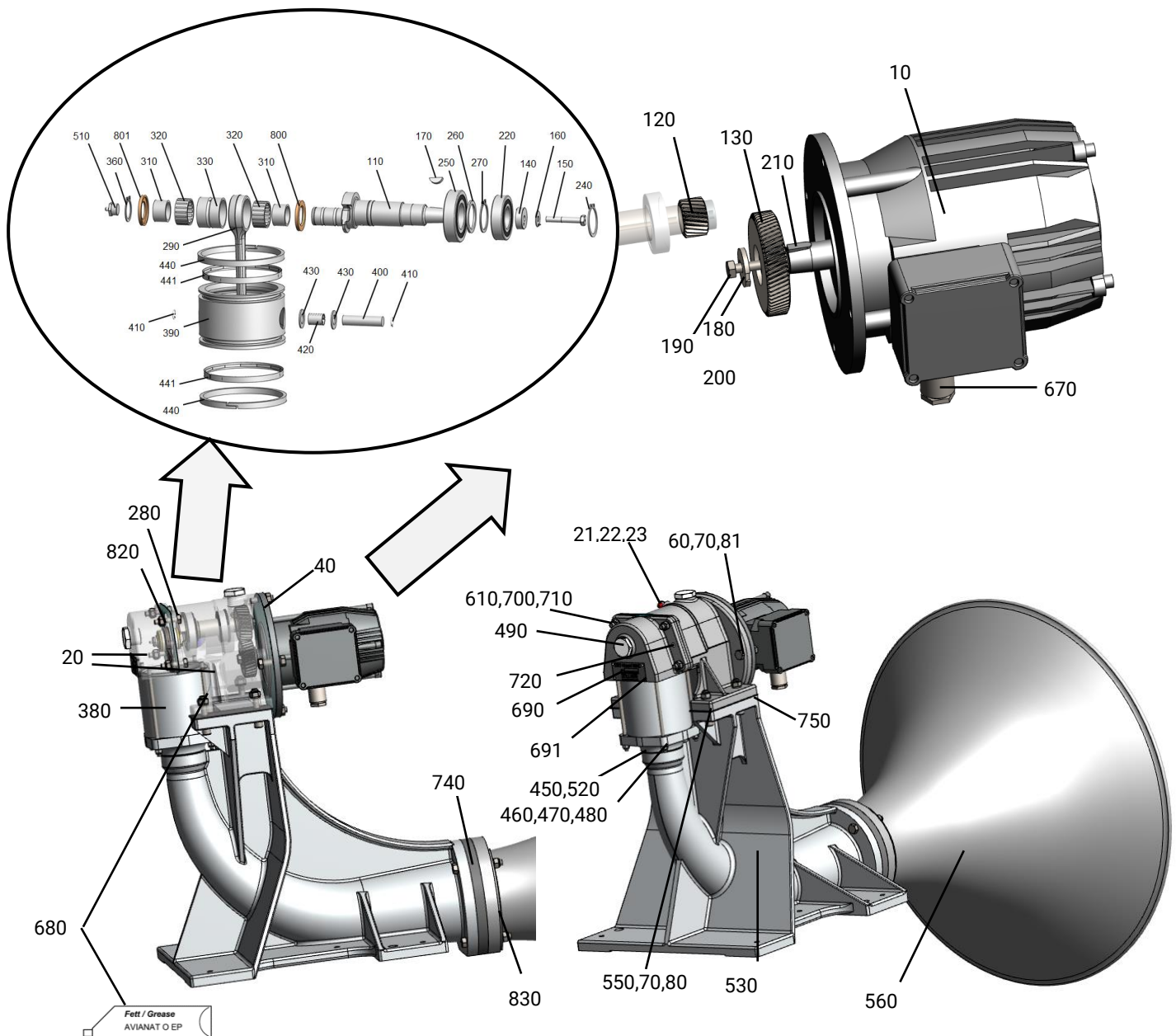


ZET-Horn 90/110AC



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Overview All Parts / Übersicht alle Teile


Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
10	803690230	1	Drehstrommotor	ACmotor	5.5 kW
20	01036380	1	Gehäuse A + B	casing A + B	Mod.2954/55G
21	556154101	1	Schmiernippel	grease nipple	AM 10x1
22	20941011	1	Verschlußschraube	screw plug	M 10x1
23	2433000	1	Schmiernippelkappe	grease nipple cap	GPN 1300
40	0104487	1	Flanschdichtung	flange gasket	250/130/ x0.5
50	2046120301	2	Stiftschraube	stud bolt	M 12x30
60	2044120451	2	Sechskantschraube	hexagon screw	M 12x45
70	211100121	12	Sicherungsscheibe	washer	Ø13,0 Nist A2
80	21037121	8	Sicherungsmutter	safety nut	VM 12
81	21034121	4	Sechskantmutter	hexagon nut	M12
110	0104124	1	Kurbelwelle 90/110AC	crankshaft	188.5 lg

Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
120	01...	1	Zahnrad	gear wheel	
130	01...	1	Zahnrad	gear wheel	
140	0103530	1	Sicherungsdeckel	safety cap	Ø 30x12
150	0103952	1	Sechskantschraube	hexagon screw	M 8x50
160	254208	1	Sicherungsblech	locking plate	Ø 8.4
170	22006075	1	Scheibenfeder	fitting key	6x7.5
180	0102817	1	Zahnradzscheibe	gear wheel disk	Ø 40x5
190	2043100406	1	Sechskantschraube	hexagon screw	M 10x40
200	254210	1	Sicherungsblech	locking plate	Ø 10.5
210	0103044	1	Paßfeder	fitting key	A 10x8x30
220	251062061	1	Rillenkugellager	ball bearing	62062RS1
240	2572062	1	Sicherungsring	safety ring	J 62x2
250	251062071	1	Rillenkugellager	ball bearing	62072RS1
260	253304525	1	Stützscheibe	support disk	SS 35x45x2.5
270	2571035	1	Sicherungsring	safety ring	A 35x1.5
280	2572072	1	Sicherungsring	safety ring	I 72x2.5
290	0104117	1	Pleuelstange	connecting rod	145 lg
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
380	0105039	1	Zylinder	cylinder	Ø 120
390	0104362	1	Kolben	piston	Ø 120
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120
450	0103526	1	Trichterflansch	flange of horn	130x59
460	0104546	4	Gewindestange	tie rod	M 8x175
470	211300081	4	Sicherungsscheibe	washer	Ø 8x14,8x2
480	21032081	4	Sicherungsmutter	safety nut	M 8
490	20983325	2	Verschlußschraube	screw plug	R1"
510	55615436	1	Schmiernippel	grease nipple	R 3/8"
520	50210655	1	O-Ring	o-ring	65x5
530	0103527	1	Trichterbogen	arched piece of horn	M1.2825550
540	2043120901	4	Sechskantschraube	hexagon screw	M12x90 f.110AC
540	2043121101	4	Sechskantschraube	hexagon screw	M12x110 f.90AC
550	2035120601	4	Sechskantschraube	hexagon screw	M 12x60
560	0103676	1	Trichterendstück	110AC mouth of horn	850x592
560	0103642	1	Trichterendstück	90AC mouth of horn	850x814

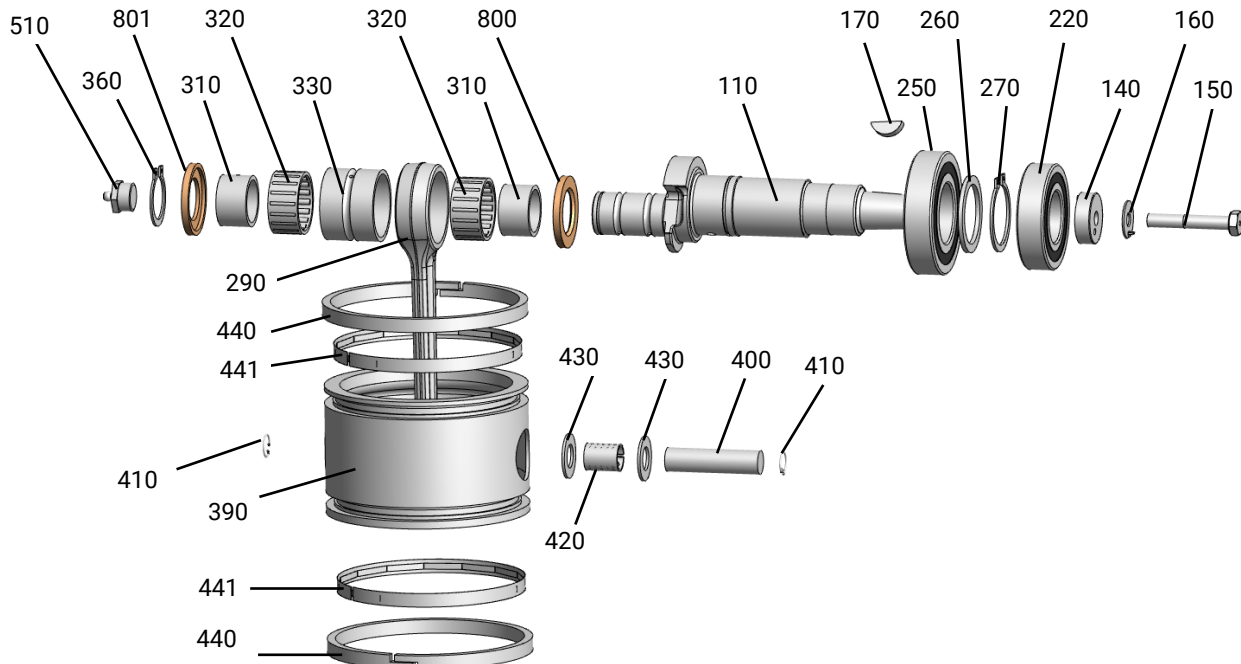
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
610	211300101	4	Sicherungsscheibe	washer	10x18x2,2
670	677073027	1	Kabelverschraubung	cable gland	MGCG M 30x2
680	933003702	0.8 kg	Getriebefettfüllung	gear grease	AVIANAT 0 EP
690	24910	1	Typenschild	name plate	110x40
691	2122703061	4	Kerbnagel	grooved drive stud	3x6
700	2043100451	4	Sechskantschraube	hexagon screw	M 10x45
710	21037101	4	Sicherungsmutter	safety nut	VM 10
720	212210025	2	Zylinderstift	locking bolt	10m6x24
740	0103658	1	Distanzring (110AC)	distance ring	Ø240x150x20
740	0103658	2	Distanzring (90AC)	distance ring	Ø240x150x20
750	0103748	2	Dämpfungsplatte	damping plate	161x60x2
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4
820	0104120	1	Gehäusedichtung	casing gasket	229/127x1
830	01906087	2	Unterlegblech	sheet Bl.4	

content of set, for reference only

Set of Spare Parts ZET-Horn 90/110AC (crankshaft + bearing + piston)

Ident-No. 014143851

Ersatzteilsatz ZET-Horn 90/110AC (Kurbelwelle + Lager + Kolben)



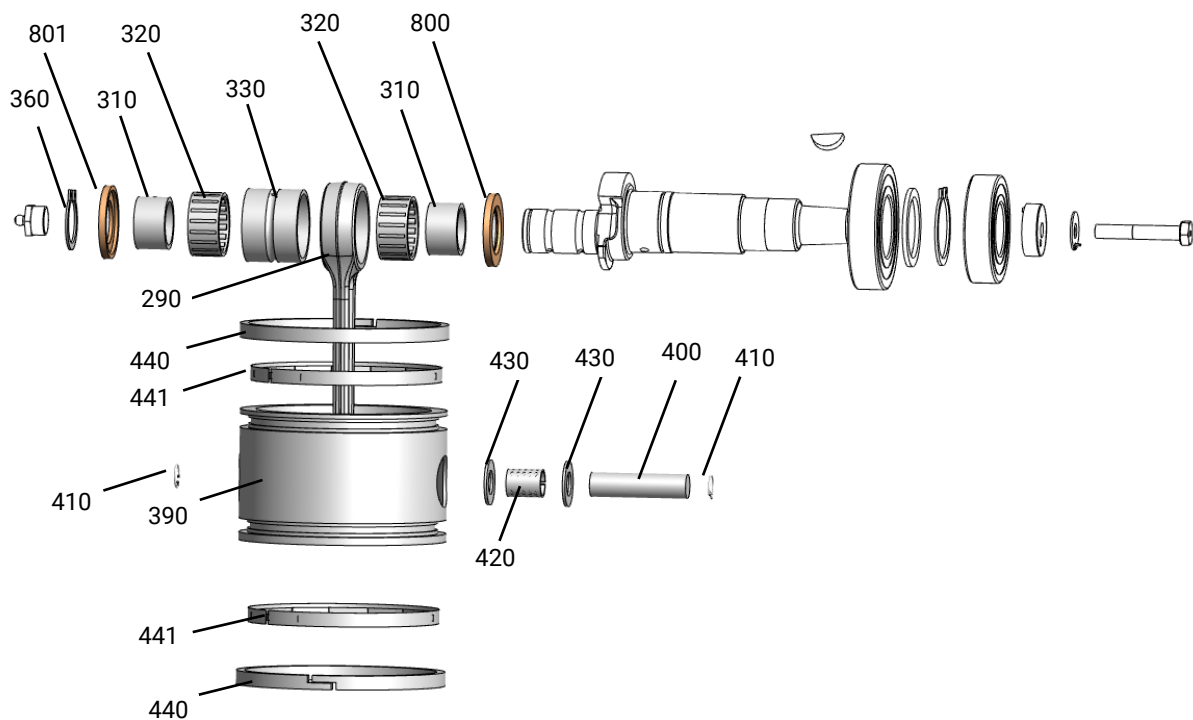
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
110	0104124	1	Kurbelwelle 90/110AC	crankshaft	188.5 lg
140	0103530	1	Sicherungsdeckel	safety cap	Ø 30x12
150	0103952	1	Sechskantschraube	hexagon screw	M 8x50
160	254208	1	Sicherungsblech	locking plate	Ø 8.4
170	22006075	1	Scheibenfeder	fitting key	6x7.5
220	251062061	1	Rillenkugellager	ball bearing	62062RS1
240	2572062	1	Sicherungsring	safety ring	J 62x2
250	251062071	1	Rillenkugellager	ball bearing	62072RS1
260	253304525	1	Stützscheibe	support disk	SS 35x45x2.5
270	2571035	1	Sicherungsring	safety ring	A 35x1.5
290	0104117	1	Pleuelstange	connecting rod	145 lg
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
390	0104362	1	Kolben	piston	Ø 120
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120
510	55615436	1	Schmiernippel	grease nipple	R 3/8"
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4

content of set, for reference only

Set of Spare Parts ZET-Horn (piston + connecting rod + bearing)

Ident-No. 014143850

Ersatzteilsatz ZET-Horn (Kolben + Pleuelstange + Lager)



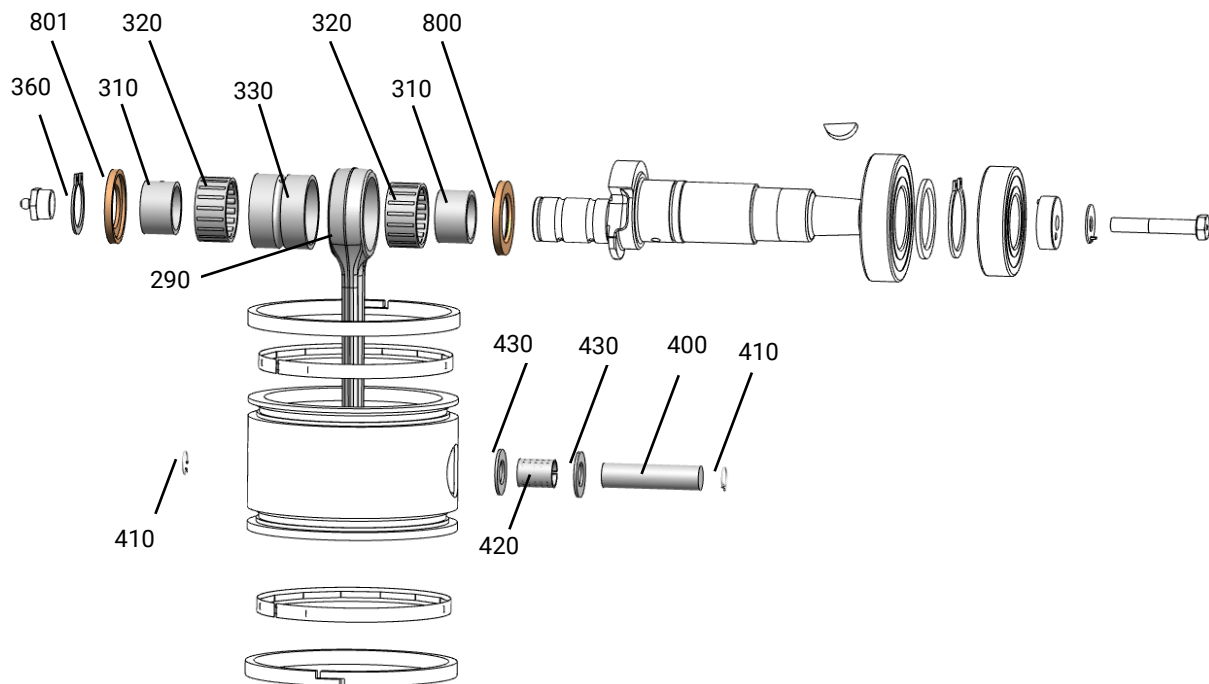
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
290	0104117	1	Pleuelstange	connecting rod	145 lg
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
390	0104362	1	Kolben	piston	Ø 120
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4
820	0104120	1	Gehäusedichtung	casing gasket	229/127x1

content of set, for reference only

Set of Spare Parts ZET-Horn (connecting rod complete)

Ident-No. 014143855

Ersatzteilsatz ZET-Horn (Pleuelstange komplett)



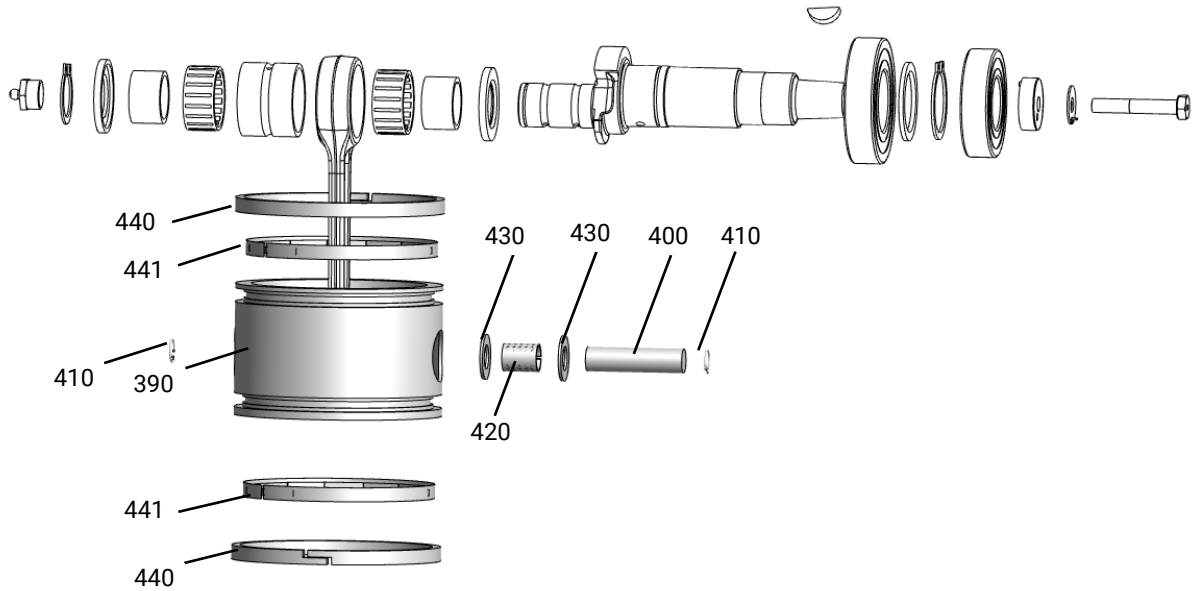
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
290	0104117	1	Pleuelstange	connecting rod	145 lg
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4
820	0104120	1	Gehäusedichtung	casing gasket	229/127x1

content of set, for reference only

Set of Spare Parts ZET-Horn (piston complete)

Ident-No. 014143856

Ersatzteilsatz ZET-Horn (Kolben komplett)



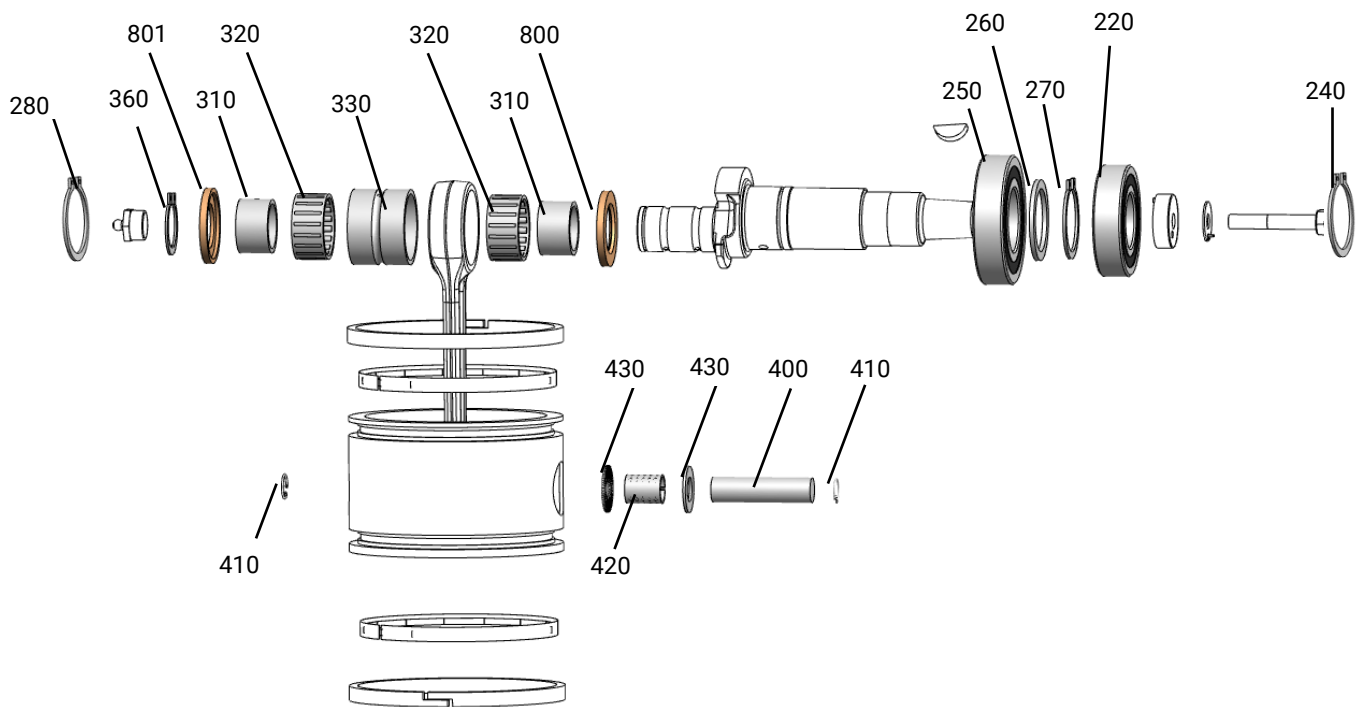
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
390	0104362	1	Kolben	piston	Ø 120
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120

content of set, for reference only

Set of Spare Parts ZET-Horn (bearings + safety rings)

Ident-No. 0171361

Ersatzteilsatz ZET-Horn (Lager + Sicherheitsringe)



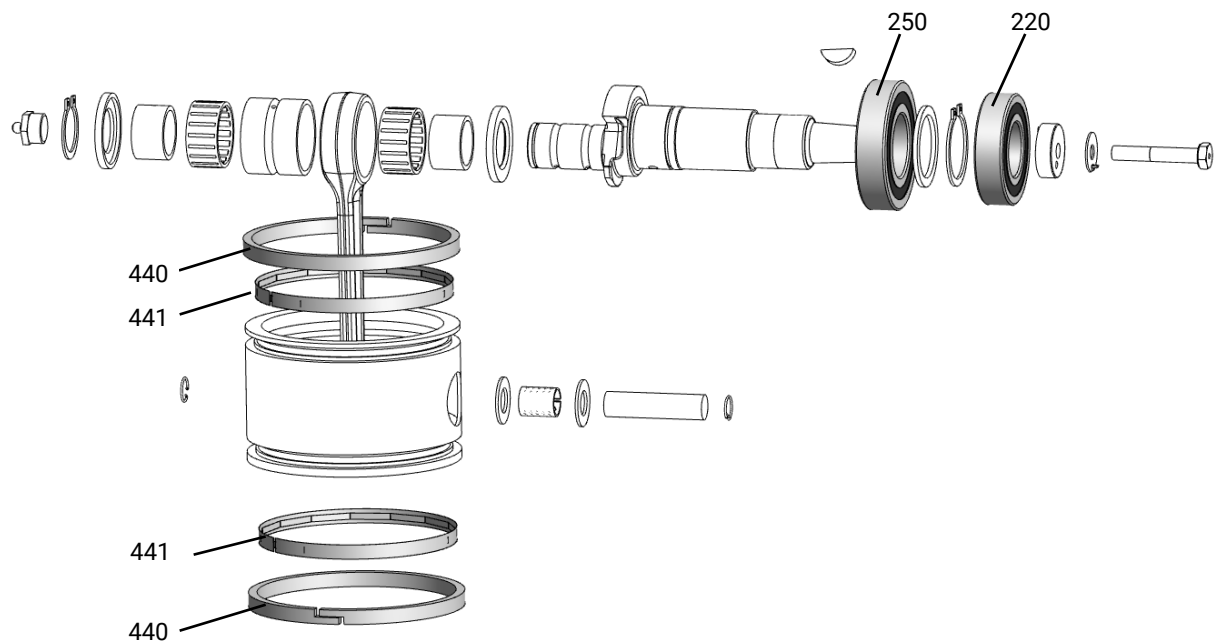
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
220	251062061	1	Rillenkugellager	ball bearing	62062RS1
240	2572062	1	Sicherungsring	safety ring	J 62x2
250	251062071	1	Rillenkugellager	ball bearing	62072RS1
260	253304525	1	Stützscheibe	support disk	SS 35x45x2.5
270	2571035	1	Sicherungsring	safety ring	A 35x1.5
280	2572072	1	Sicherungsring	safety ring	I 72x2.5
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4

content of set, for reference only

Set of Spare Parts ZET-Horn (bearings + piston rings + springs)

Ident-No. 017144

Ersatzteilsatz ZET-Horn (Lager + Kolbenringe + Wellfedern)

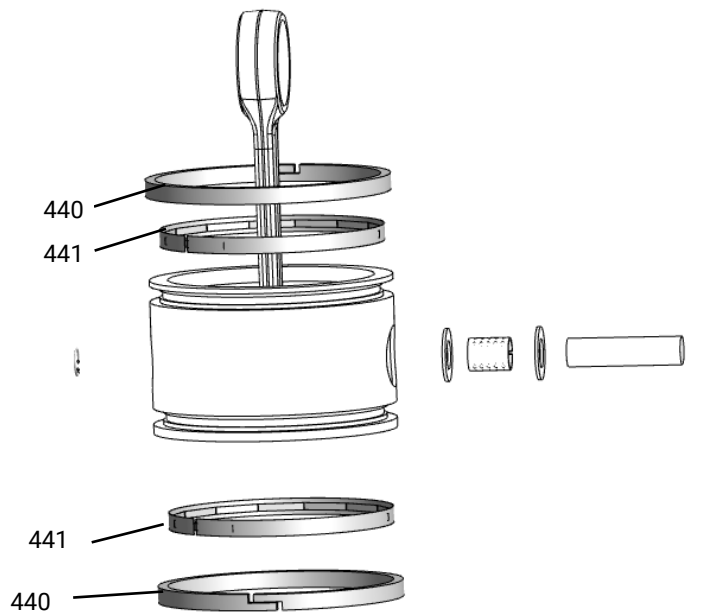


Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
220	251062061	1	Rillenkugellager	ball bearing	62062RS1
250	251062071	1	Rillenkugellager	ball bearing	62072RS1
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120

content of set, for reference only

Set of Spare Parts ZET-Horn (springs + piston rings)
Ersatzteilsatz ZET-Horn (Wellfedern + Kolbenringe)

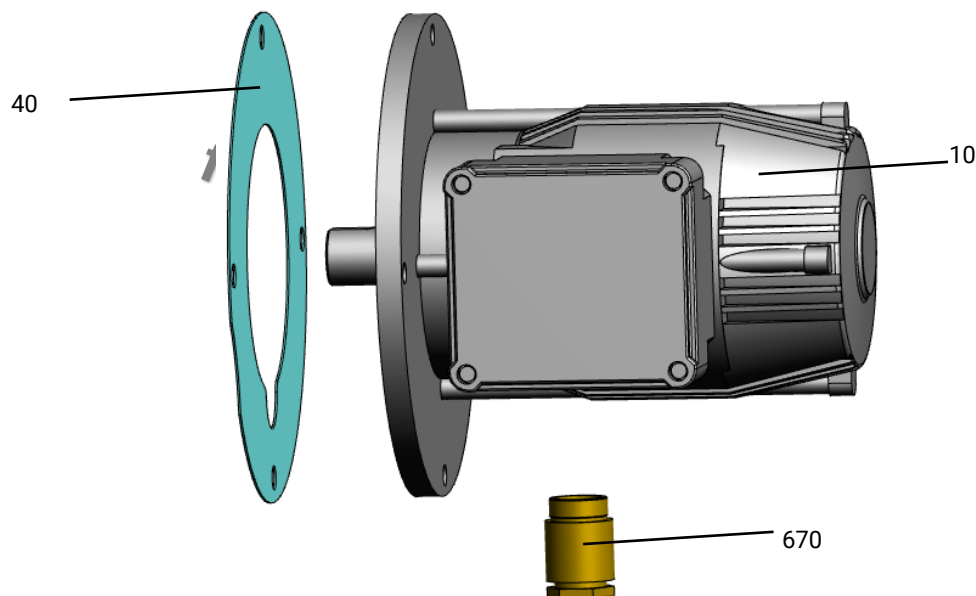
Ident-No. 0171441



Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120

content of set, for reference only**Set Motor 3 phase 230V, 380V or 440V**

Ident-No. 8036902301



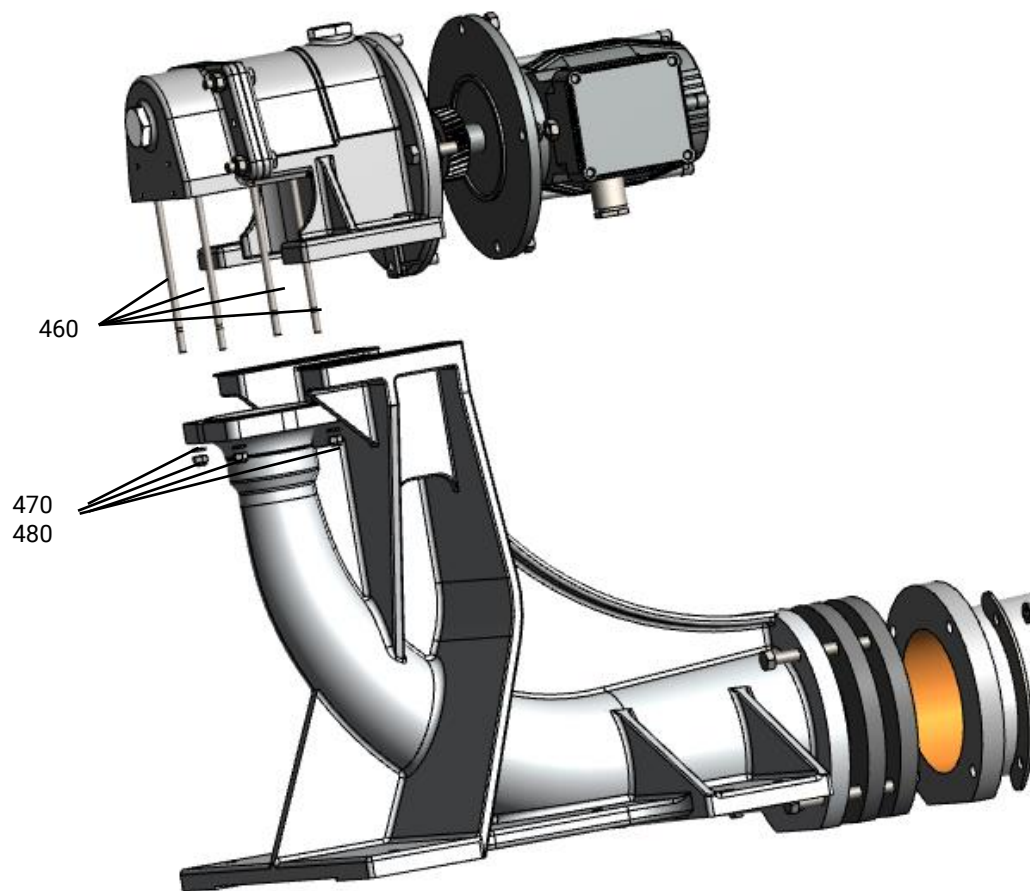
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
10	803690230	1	Drehstrommotor	ACmotor	5.5 kW
40	0104487	1	Flanschdichtung	flange gasket	250/130/ x0.5
670	677073027	1	Kabelverschraubung	cable gland	MGCG M 30x2

content of set, for reference only

Set of spare parts ZET-Horn (tie rod)

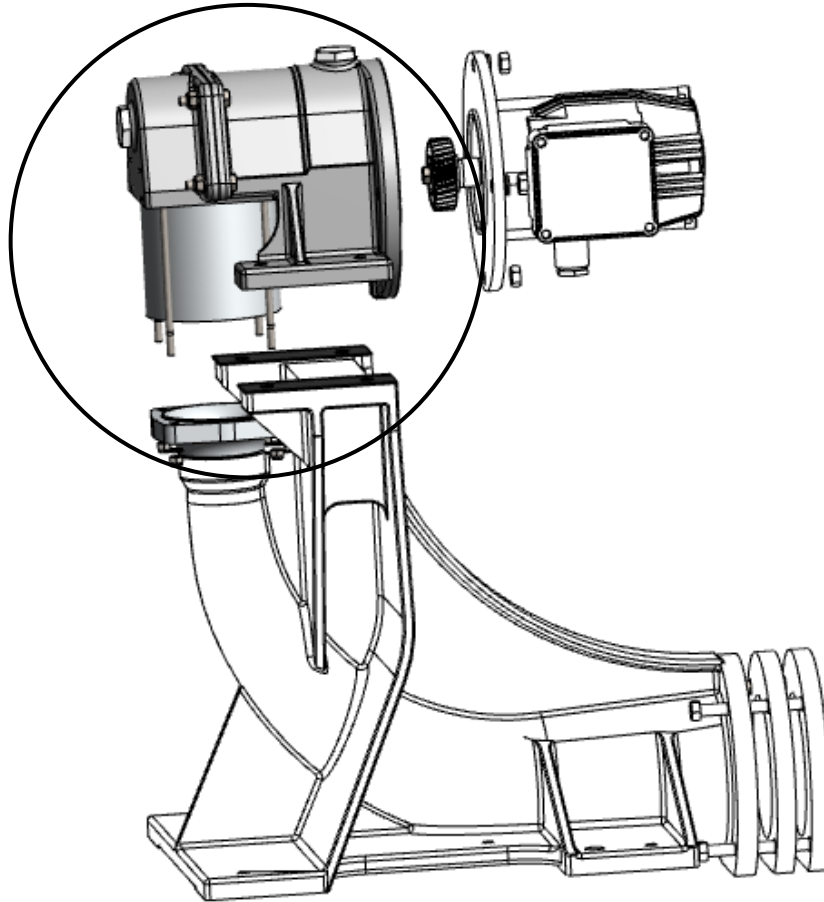
Ident-No. 01048294

Ersatzteilsatz ZET-Horn (Gewindestangen)



Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
460	0104546	4	Gewindestange	tie rod	M 8x175
470	211300081	4	Sicherungsscheibe	washer	Ø 8x14,8x2
480	21032081	4	Sicherungsmutter	safety nut	M 8

content of set, for reference only

Exchange Gearing without Motor
Getriebebausatz ohne Motor
Ident-No. see below


Ident-Nr.	Bezeichnung	Description
0104270099	Getriebebausatz 90AC/6, ohne Motor	exchange gearing ZET-Horn without motor
0104270100	Getriebebausatz 90AC/5, ohne Motor	exchange gearing ZET-Horn without motor
0104270119	Getriebebausatz 110AC/6, ohne Motor	exchange gearing ZET-Horn without motor
0104270120	Getriebebausatz 110AC/5, ohne Motor	exchange gearing ZET-Horn without motor

Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
20	01036380	1	Gehäuse A + B	casing A + B	Mod.2954/55G
21	556154101	1	Schmiernippel	grease nipple	AM 10x1
22	20941011	1	Verschlußschraube	screw plug	M 10x1
23	2433000	1	Schmiernippelkappe	grease nipple cap	GPN 1300
40	0104487	1	Flanschdichtung	flange gasket	250/130/ x0.5
50	2046120301	2	Stiftschraube	stud bolt	M 12x30
60	2044120451	2	Sechskantschraube	hexagon screw	M 12x45
70	211100121	12	Sicherungsscheibe	washer	Ø13,0 Nist A2
81	21034121	4	Sechskantmutter	hexagon nut	M12
110	0104124	1	Kurbelwelle 90/110AC	crankshaft	188.5 lg
120	01...	1	Zahnrad	gear wheel	
130	01...	1	Zahnrad	gear wheel	
140	0103530	1	Sicherungsdeckel	safety cap	Ø 30x12

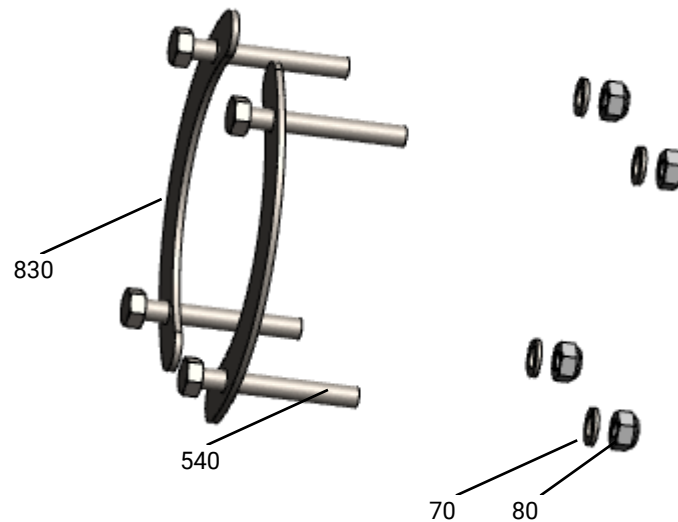
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
150	0103952	1	Sechskantschraube	hexagon screw	M 8x50
160	254208	1	Sicherungsblech	locking plate	Ø 8.4
170	22006075	1	Scheibenfeder	fitting key	6x7.5
180	0102817	1	Zahnradscheibe	gear wheel disk	Ø 40x5
190	2043100406	1	Sechskantschraube	hexagon screw	M 10x40
200	254210	1	Sicherungsblech	locking plate	Ø 10.5
220	251062061	1	Rillenkugellager	ball bearing	62062RS1
240	2572062	1	Sicherungsring	safety ring	J 62x2
250	251062071	1	Rillenkugellager	ball bearing	62072RS1
260	253304525	1	Stützscheibe	support disk	SS 35x45x2.5
270	2571035	1	Sicherungsring	safety ring	A 35x1.5
280	2572072	1	Sicherungsring	safety ring	I 72x2.5
290	0104117	1	Pleuelstange	connecting rod	145 lg
310	251900300	2	Innenring	inside bearing ring	IR 25x30x18
320	251900200	2	Nadelkäfig	needle bearing cage	K 30x37x18
330	251900393	1	Lageraußenring	outside bearing ring	AR 37x42x32
360	2571025	1	Sicherungsring	safety ring	A 25x1.2
380	0105039	1	Zylinder	cylinder	Ø 120
390	0104362	1	Kolben	piston	Ø 120
400	885514562	1	Kolbenbolzen	wrist pin	Ø 14x56
410	2580014	2	Sprengring	safety ring	A 14x1
420	381001420	1	Buchse	bush	Ø 14x16x20
430	381001415	2	Anlaufscheibe	guard plate	Ø 14x26x1,5
440	0105069	2	Kolbenring	piston ring with	Ø 120/110x8
441	0104757	2	Wellfeder	spring	Ø 120
450	0103526	1	Trichterflansch	flange of horn	130x59
460	0104546	4	Gewindestange	tie rod	M 8x175
470	211300081	4	Sicherungsscheibe	washer	Ø 8x14,8x2
480	21032081	4	Sicherungsmutter	safety nut	M 8
490	20983325	2	Verschlußschraube	screw plug	R1"
510	55615436	1	Schmiernippel	grease nipple	R 3/8"
520	50210655	1	O-Ring	o-ring	65x5
530	0103527	1	Trichterbogen	arched piece of horn	M1.2825550
610	211300101	4	Sicherungsscheibe	washer	10x18x2,2
680	933003702	0.8 kg	Getriebefettfüllung	gear grease	AVIANAT 0 EP
690	24910	1	Typenschild	name plate	110x40
691	2122703061	4	Kerbnagel	grooved drive stud	3x6
700	2043100451	4	Sechskantschraube	hexagon screw	M 10x45
710	21037101	4	Sicherungsmutter	safety nut	VM 10
720	212210025	2	Zylinderstift	locking bolt	10m6x24
800	0105260	1	Anlaufscheibe	thrust washer	42x4
801	0105320	1	Anlaufscheibe	thrust washer	42x4
820	0104120	1	Gehäusedichtung	casing gasket	229/127x1

content of set, for reference only

Mounting set for mouth of horn

Montageset für Trichterendstück

Ident-No. see below

**Bezeichnung / Description**
 Montageset für Trichterendstück 90 AC
 Mounting set for mouth of horn 90 AC
Ident-No.

019060871

 Montageset für Trichterendstück 110 AC
 Mounting set for mouth of horn 110 AC

019060872

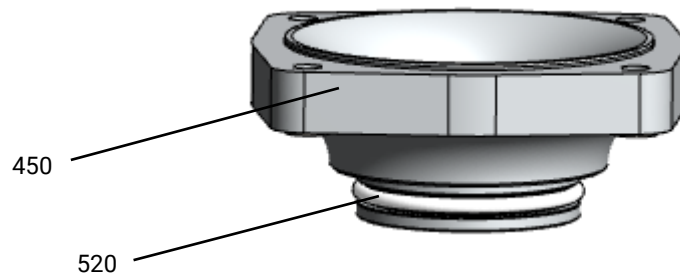
Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
70	211100121	4	Sicherungsscheibe	washer	Ø13,0 Nist A2
80	21037121	4	Sicherungsmutter	safety nut	VM 12540
540	2043120901	4	Sechskantschraube	hexagon screw	M12x90 f.110AC
540	2043121101	4	Sechskantschraube	hexagon screw	M12x110 f.90AC
830	01906087	2	Unterlegblech	sheet	

content of set, for reference only

Set of spare parts ZET-Horn (flange of horn)

Ident-No. 01035261

Ersatzteilsatz ZET-Horn (Trichterflansch)



Teil part	Ident-Nr. Ident-No.	Stck Qty.	Bezeichnung	Description	Techn. Daten Techn. Data
450	0103526	1	Trichterflansch	flange of horn	130x59
520	50210655	1	O-Ring	flange gasket	65x5

content of set, for reference only