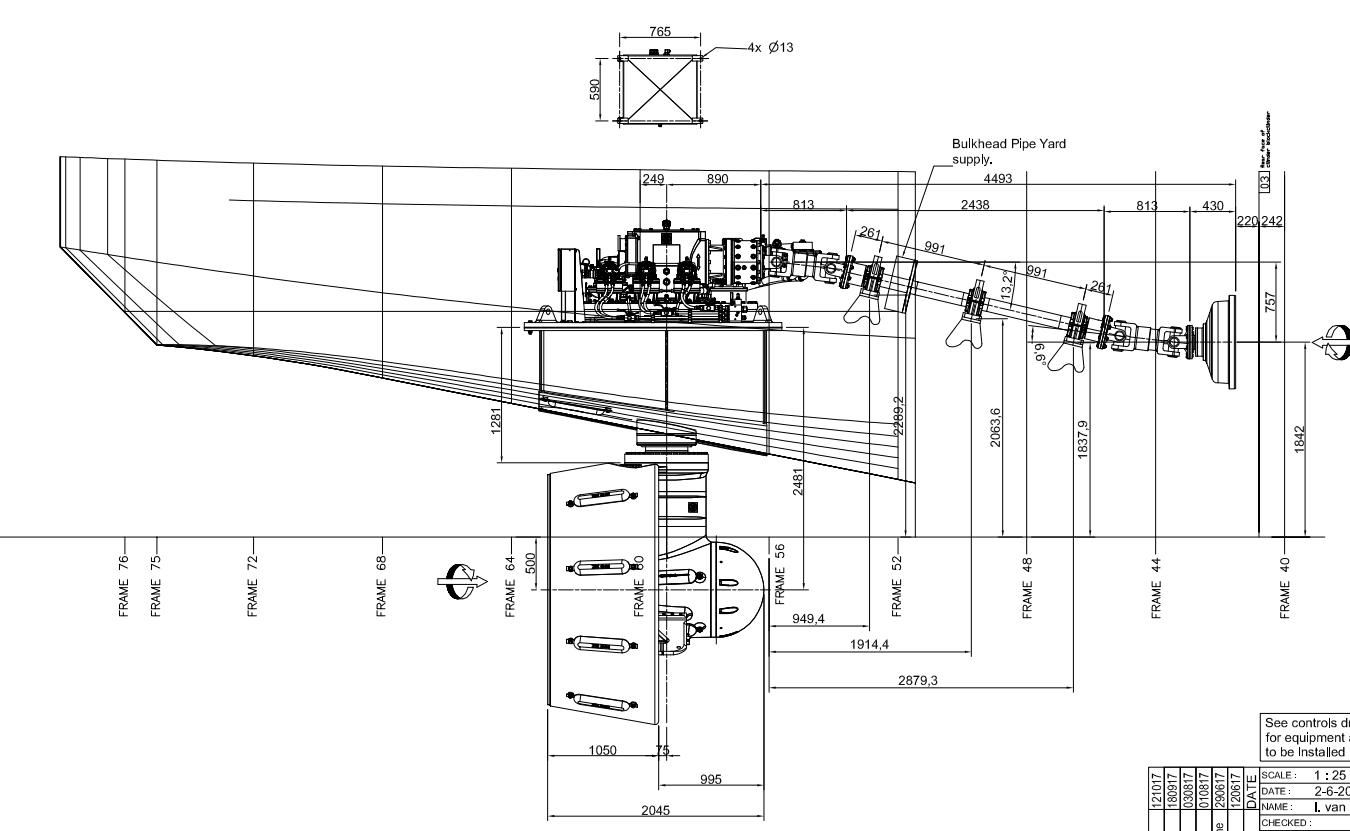
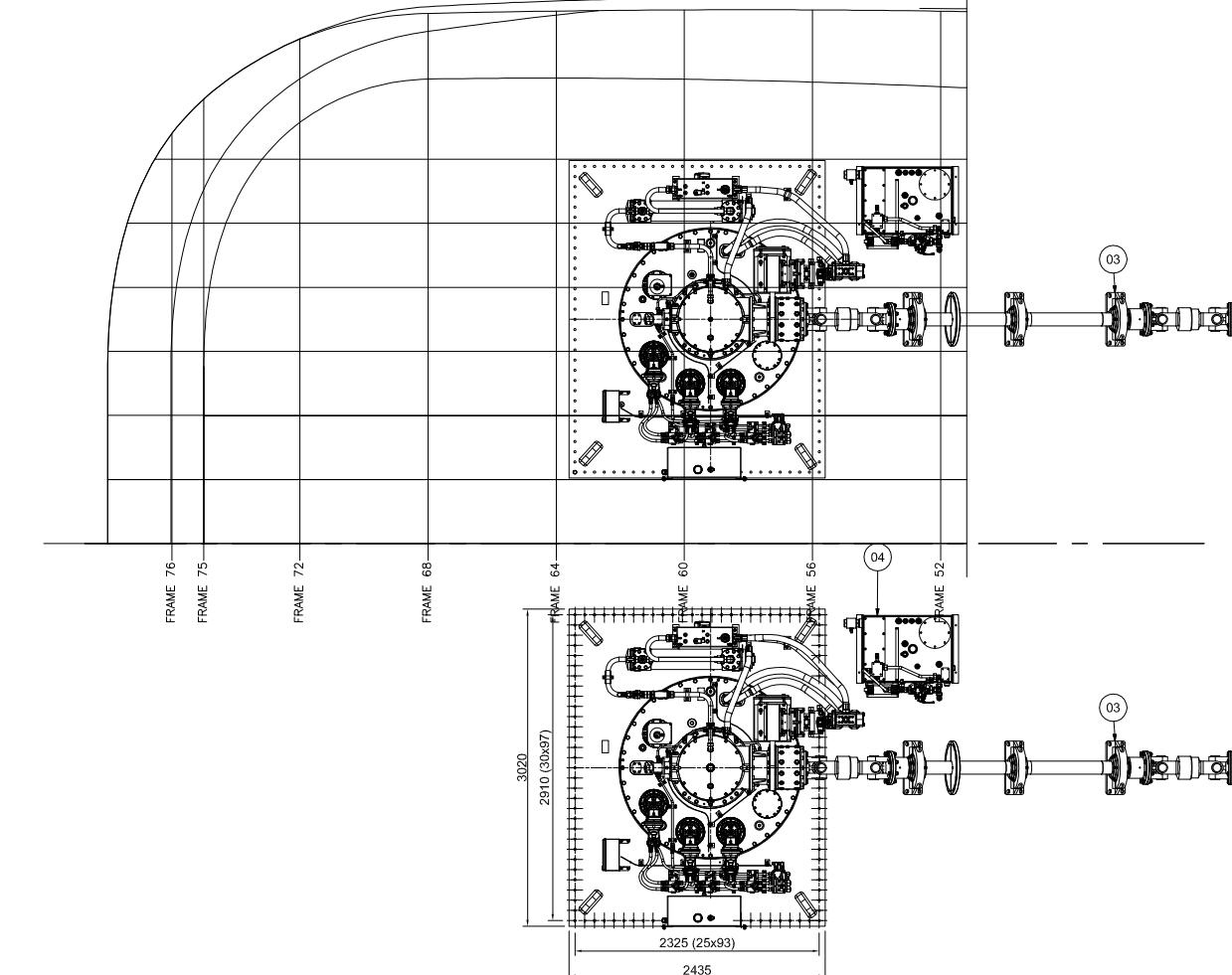
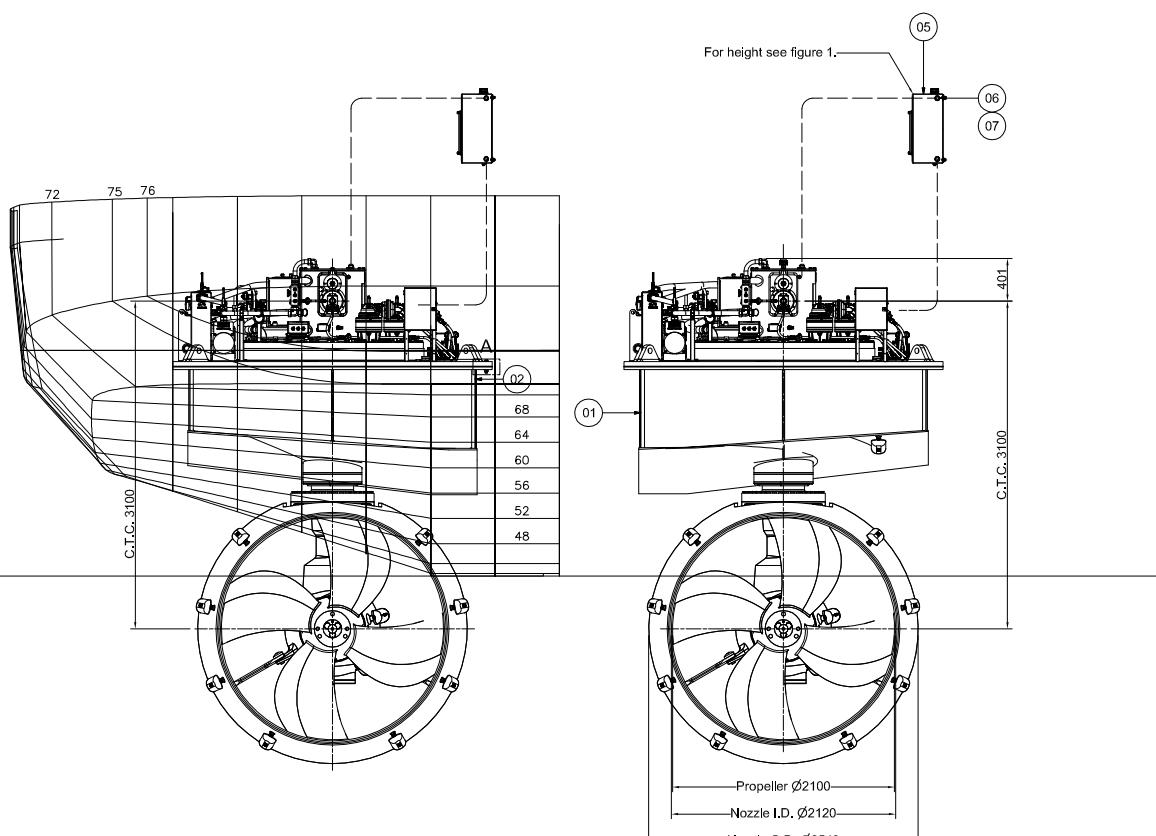
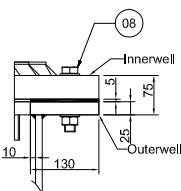


View A (1 : 5)



See controls drawing package for equipment and its location to be installed in the vessel	
SCALE : 1 : 25	REMARKS: Both units
DATE : 2-6-2017	
NAME : I. van Buuren	
CHECKED :	

Power rating	1591 kW
Input speed	1600 rpm
Reduction ratio	5,213 : 1
Propeller diameter	2100 mm
Nozzle / Tunnel outer dia.	2550 mm
Oil Content	911.2 L

Fig

units are Clockwise

	ZF FRIEDRICHSHAFEN GMBH	DRAWING NO.:	Rev.
www.zf.com	10	120015300	06

31 (0)180-331000
31 (0)180-331099

A0 123315300 00
ORDER No.: 15300-15301

12

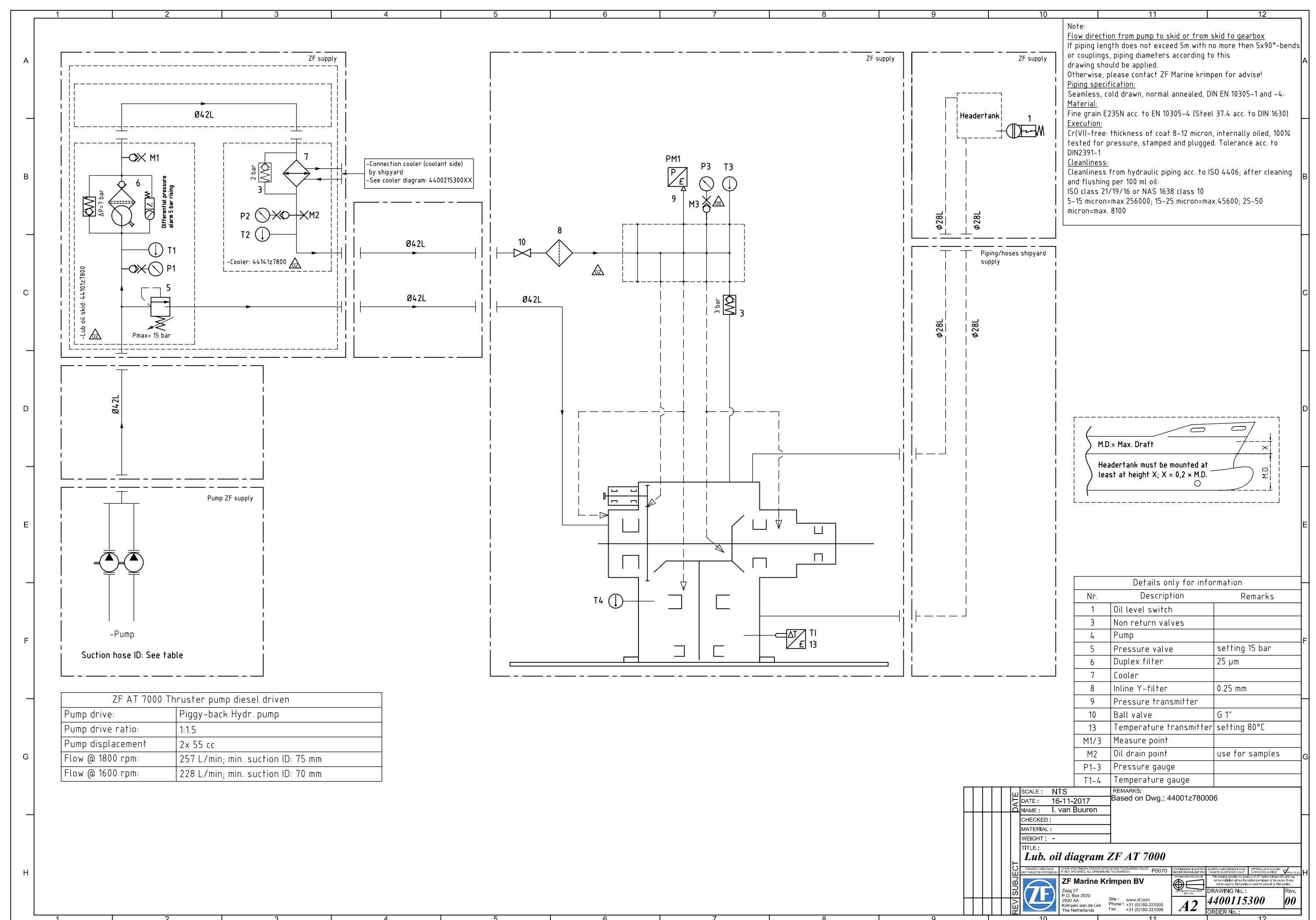


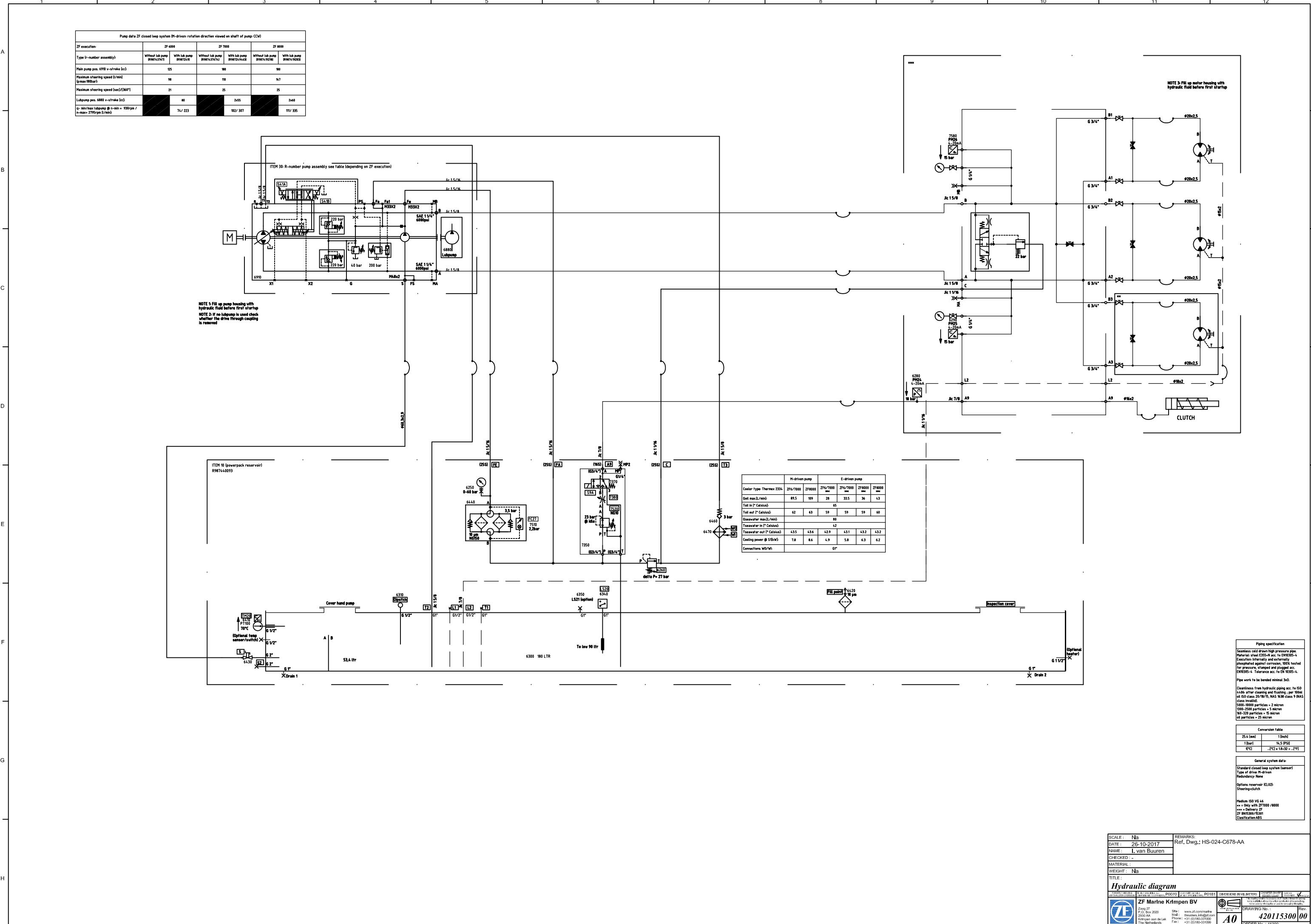
Part List

For external use

Partlist number **120015300**
Drawing No. **12001530006**
Description **General Arrangement in ship**
Last revision date **16-11-2017**

Pos	Qty	Part code	Part description	Weight
001	1	120215300	General arrangement ZF 7000(SB)	18.391,94
002	1	120115300	General arrangement ZF 7000(PS)	18.391,94
003	2	400515300	Shaft line assembly ZF AT 7311 WM	2.291,70
004	2	0501.009.332	Hydraulic power unit	400,00
005	2	54240X0000	Headertank 130l_Assembled	124,40
006	4	9500000744	Str. m. st. fit	2,64
007	4	9500000868	Plug	0,52
008	2	540015300	Mounting kit Inner Well	111,62
Total Weight				39.714,757 kg





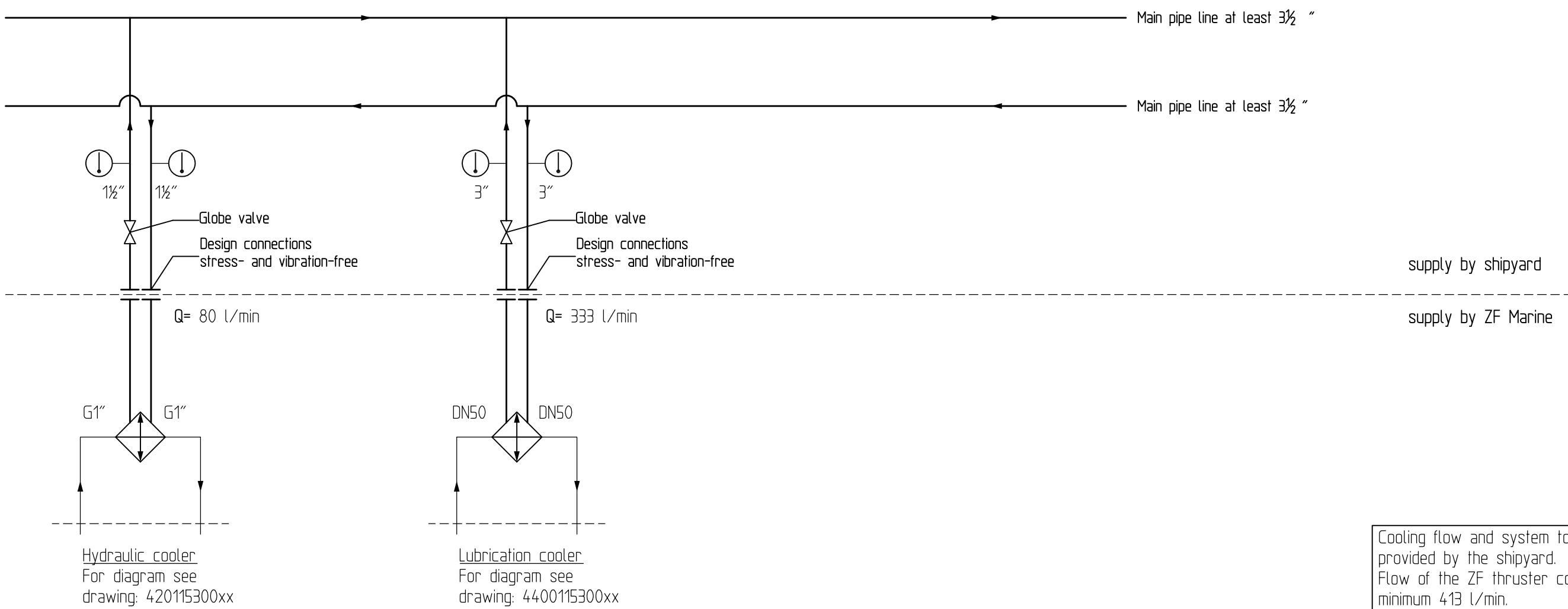


Table 01: ZF AT 7000 Hydraulic cooling data

Oil temp. in	65	°C
Oil temp. out	62	°C
Oil flow	89.5	l/min.
Coolant temp. in	42	°C
Coolant temp. out	43.5	°C
Coolant flow	80	l/min.
Cooling cap.	7.8	kW

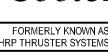
Table 02: ZF AT 7000 Lubrication cooling data

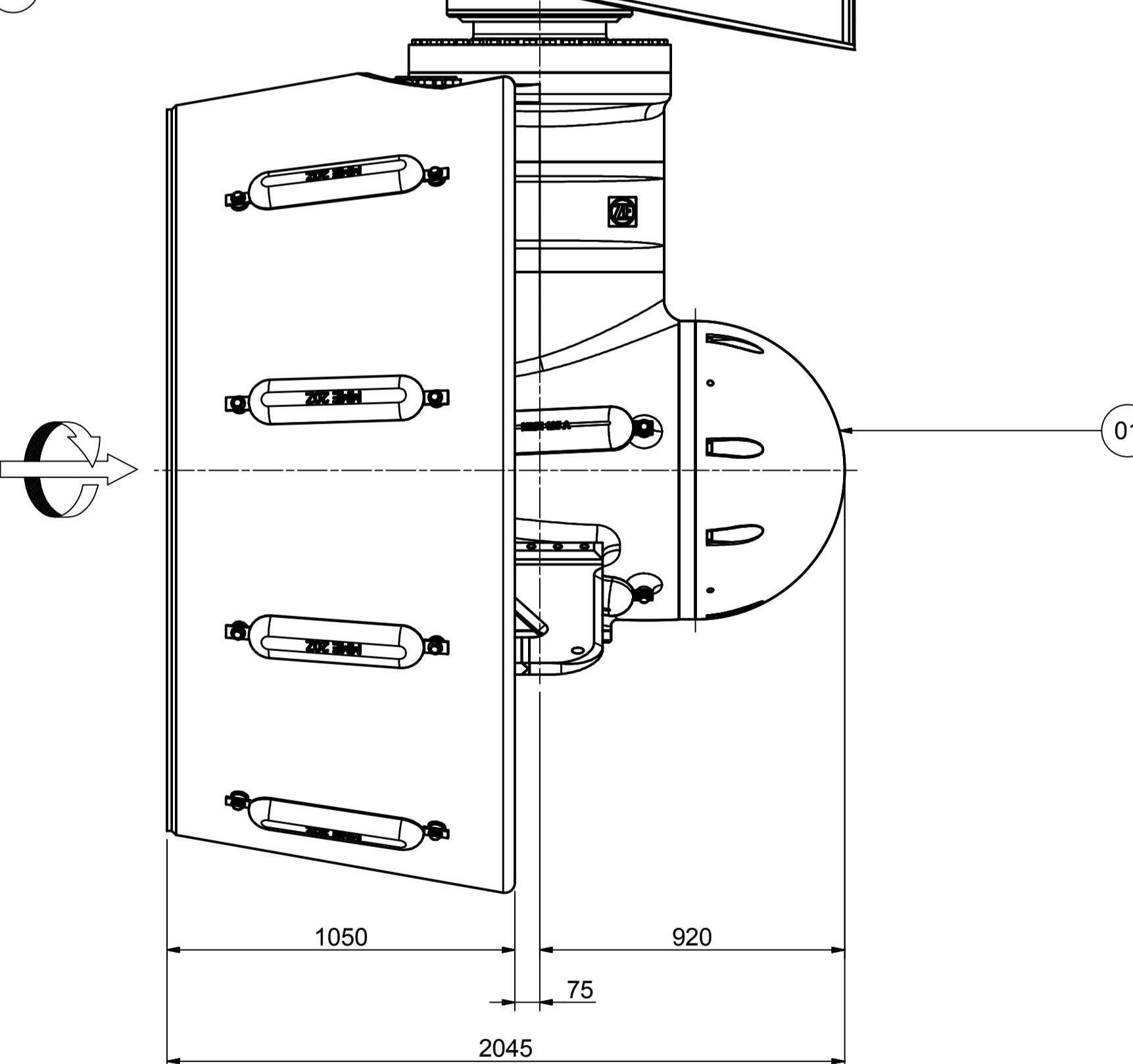
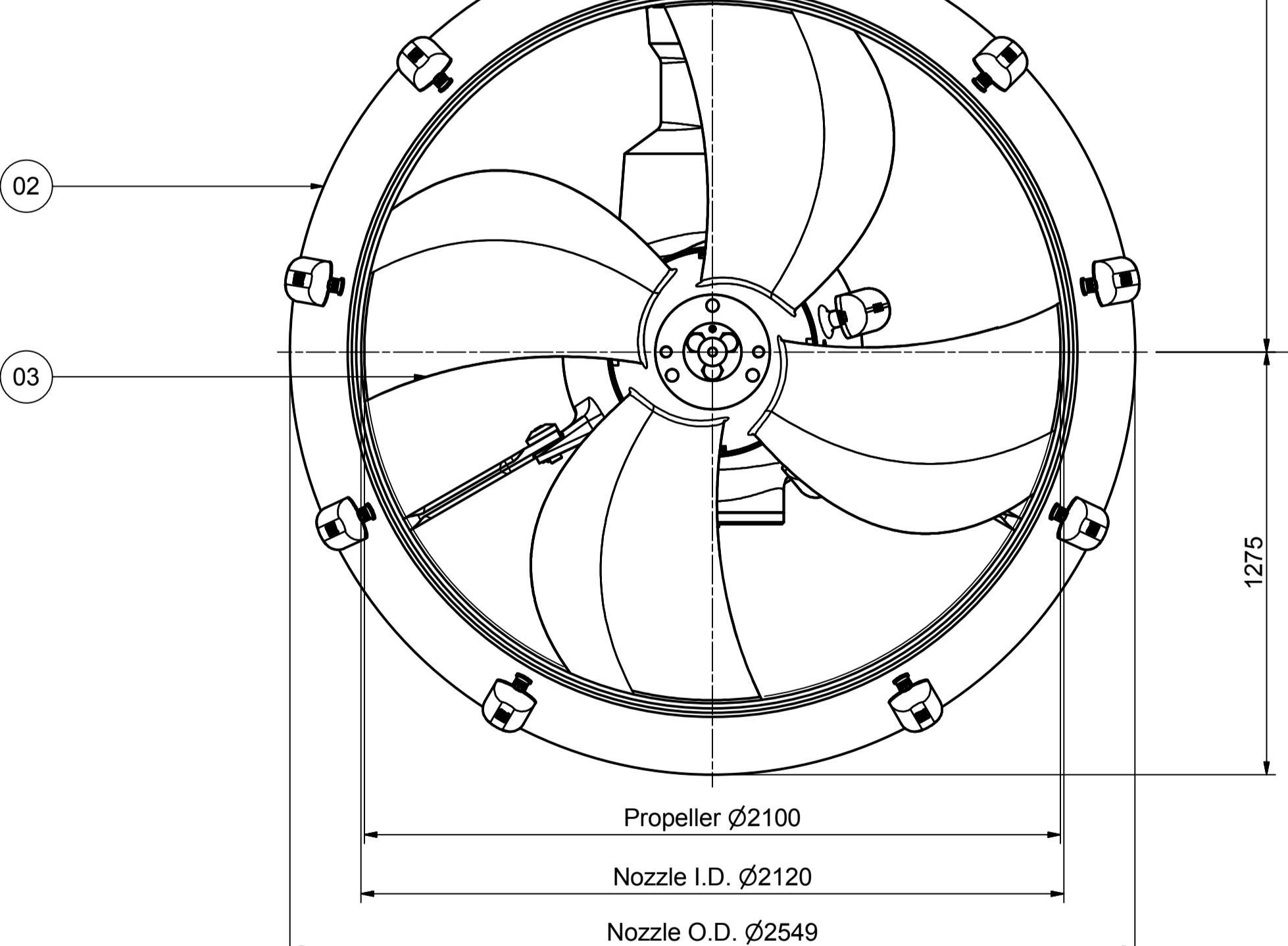
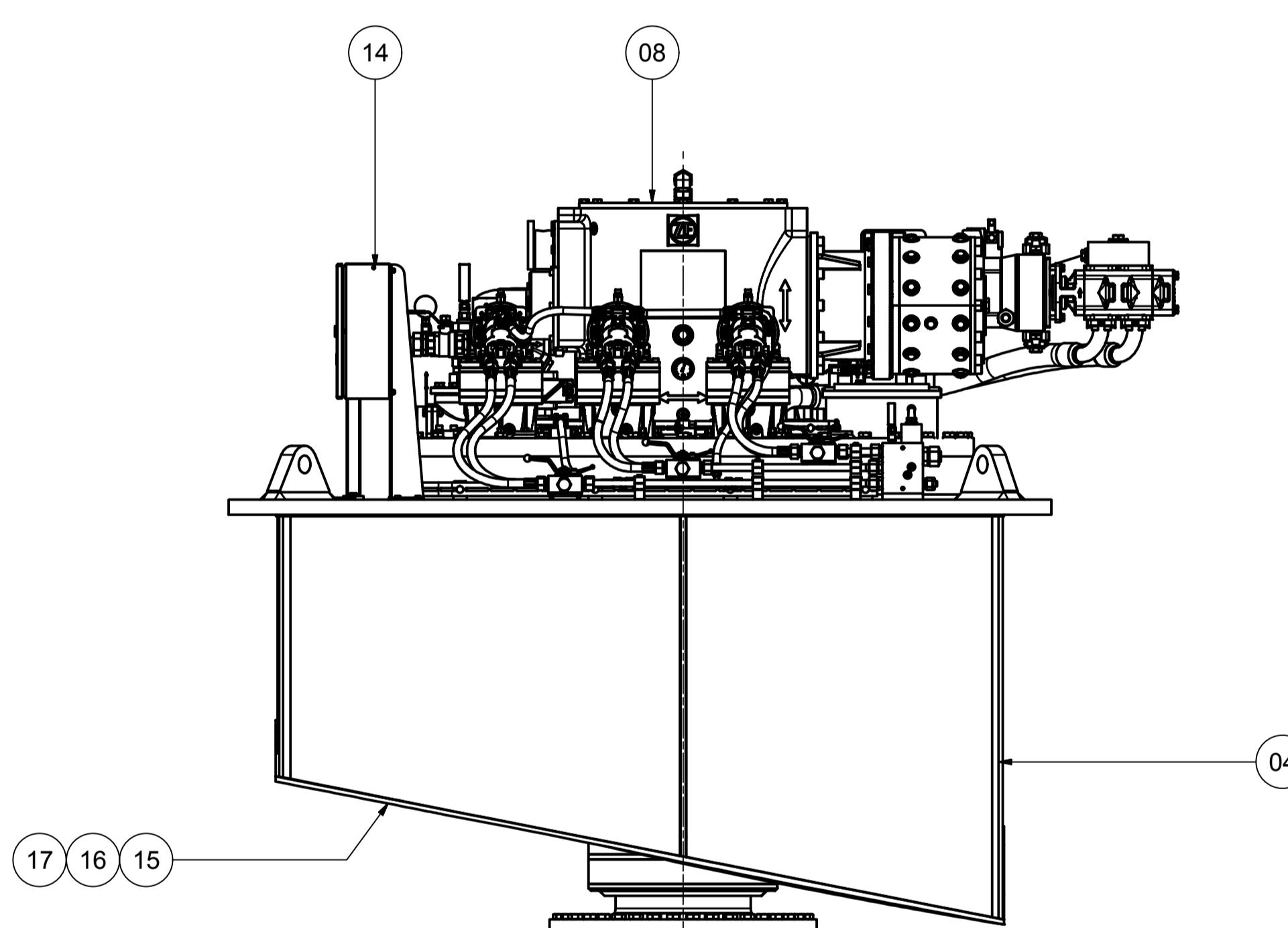
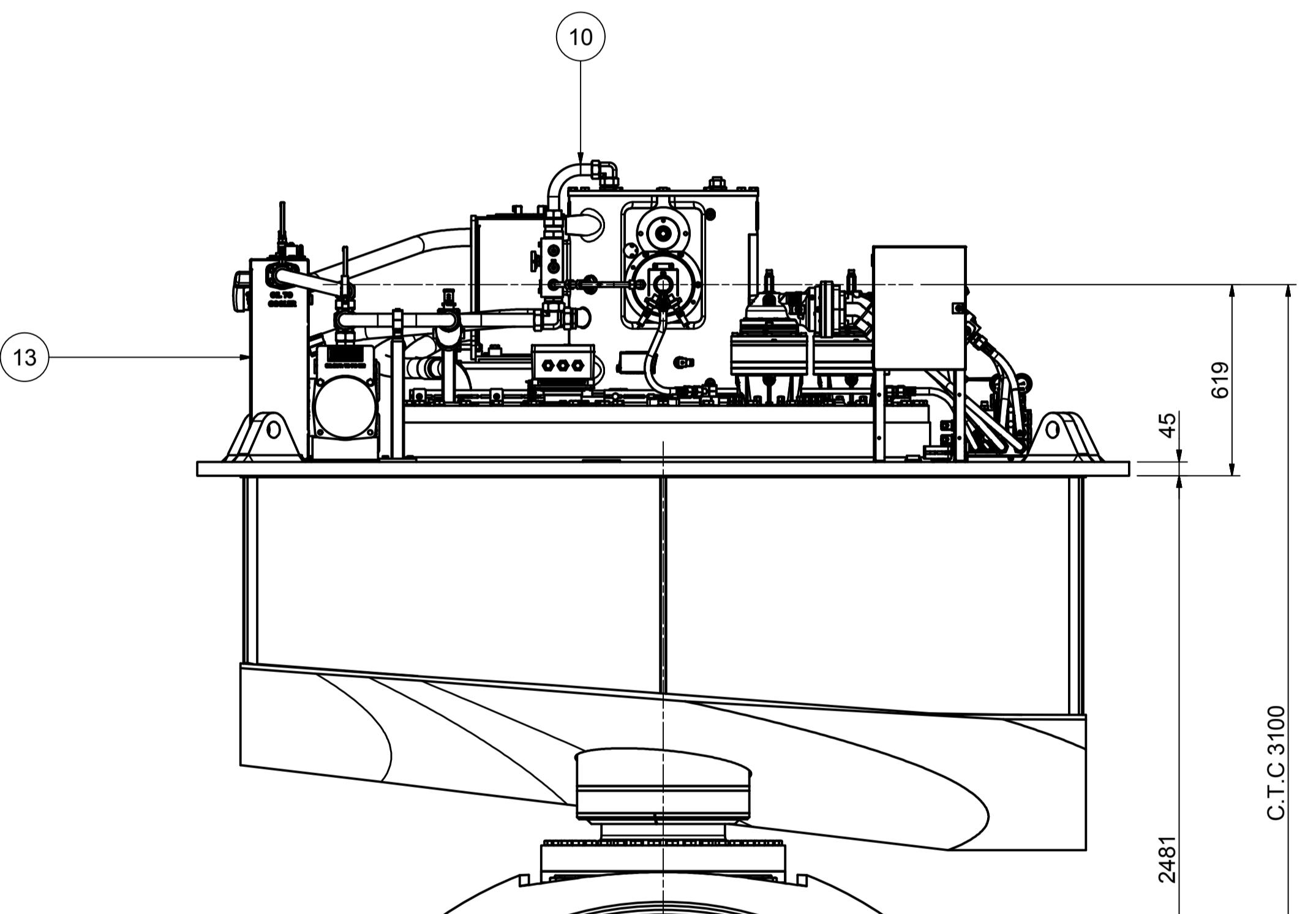
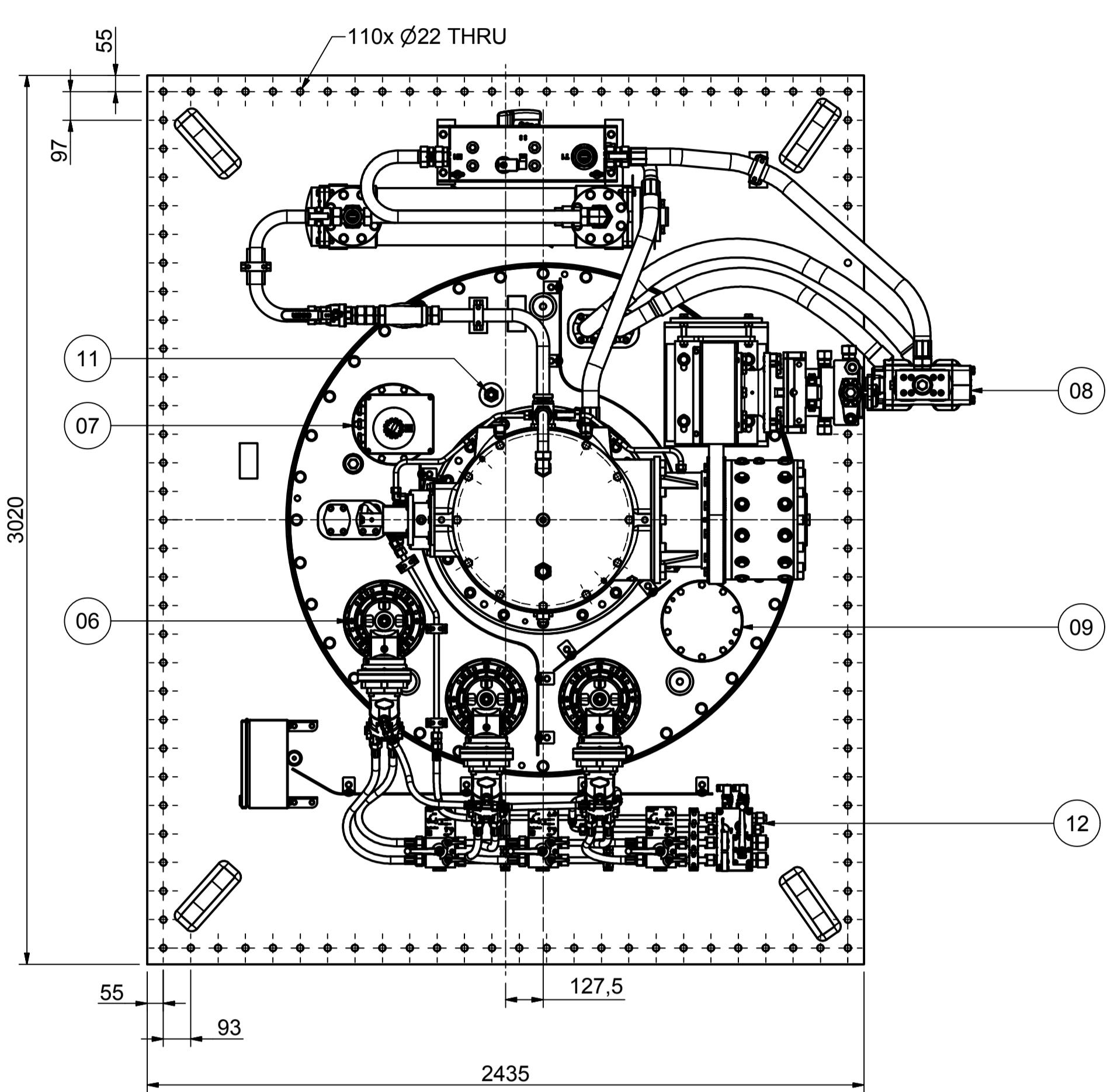
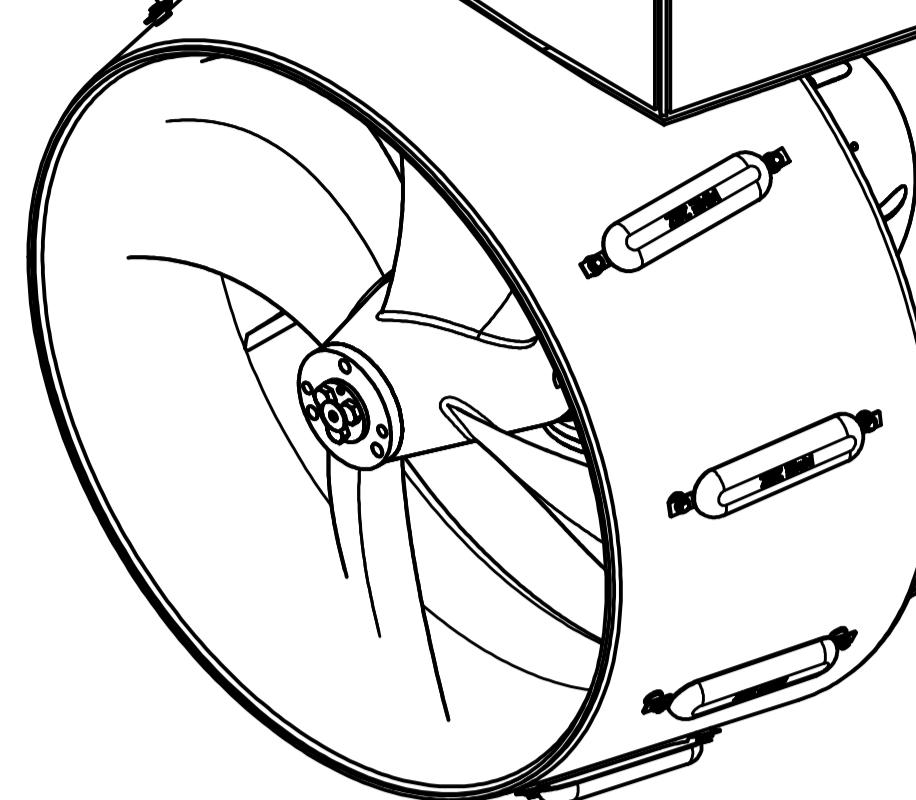
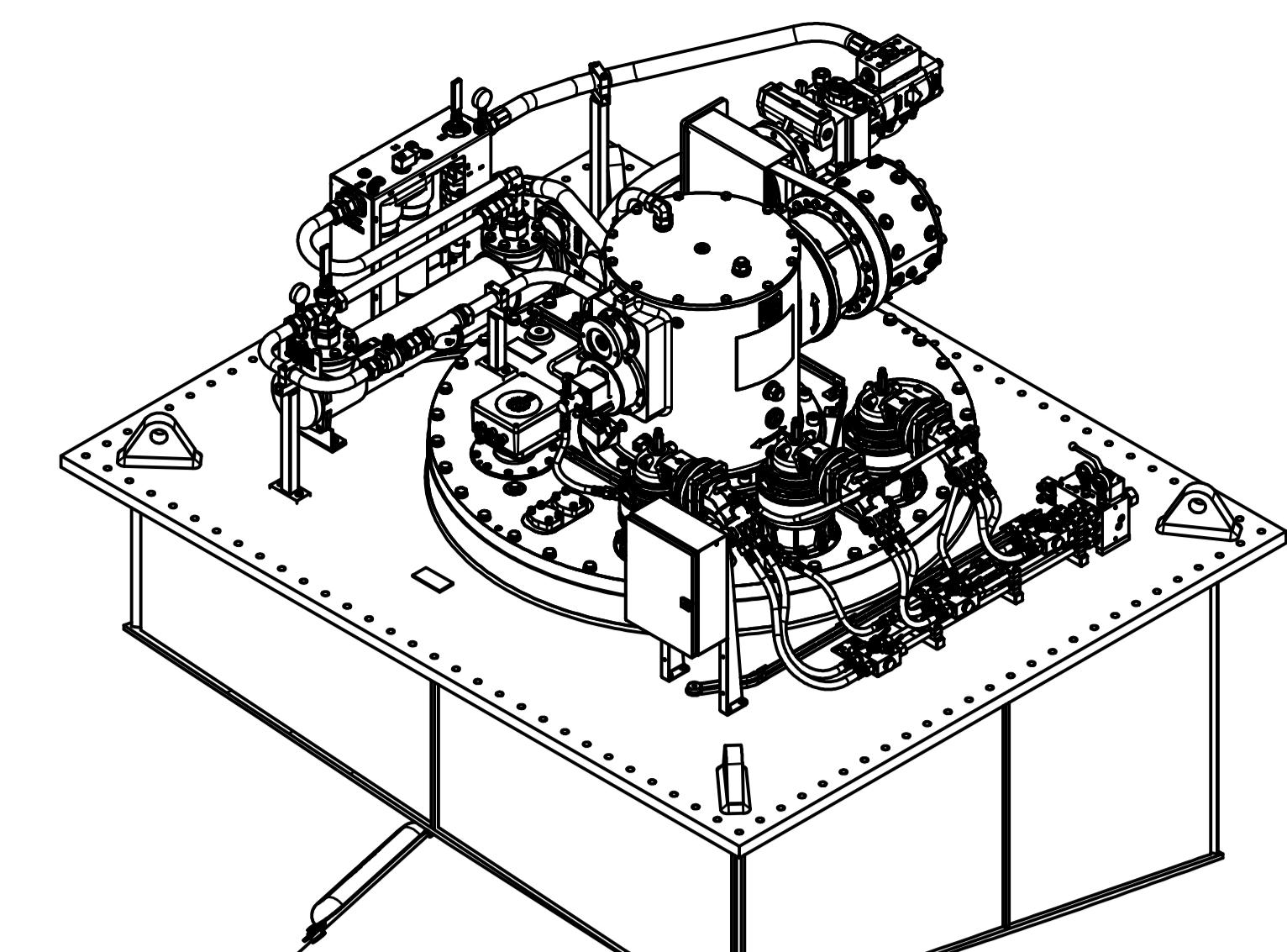
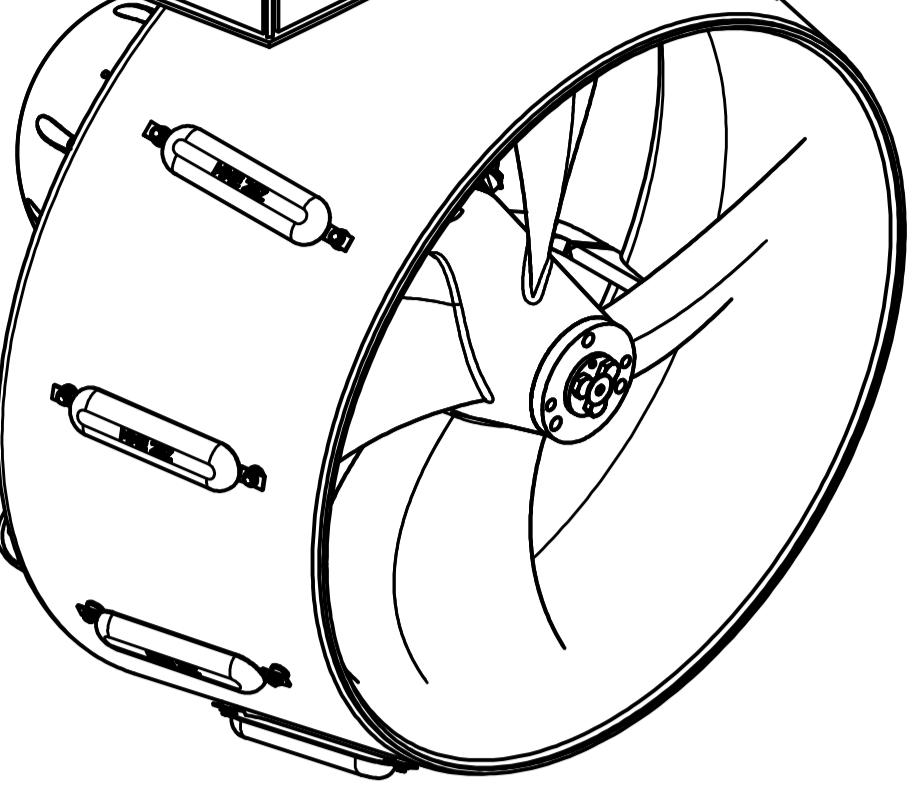
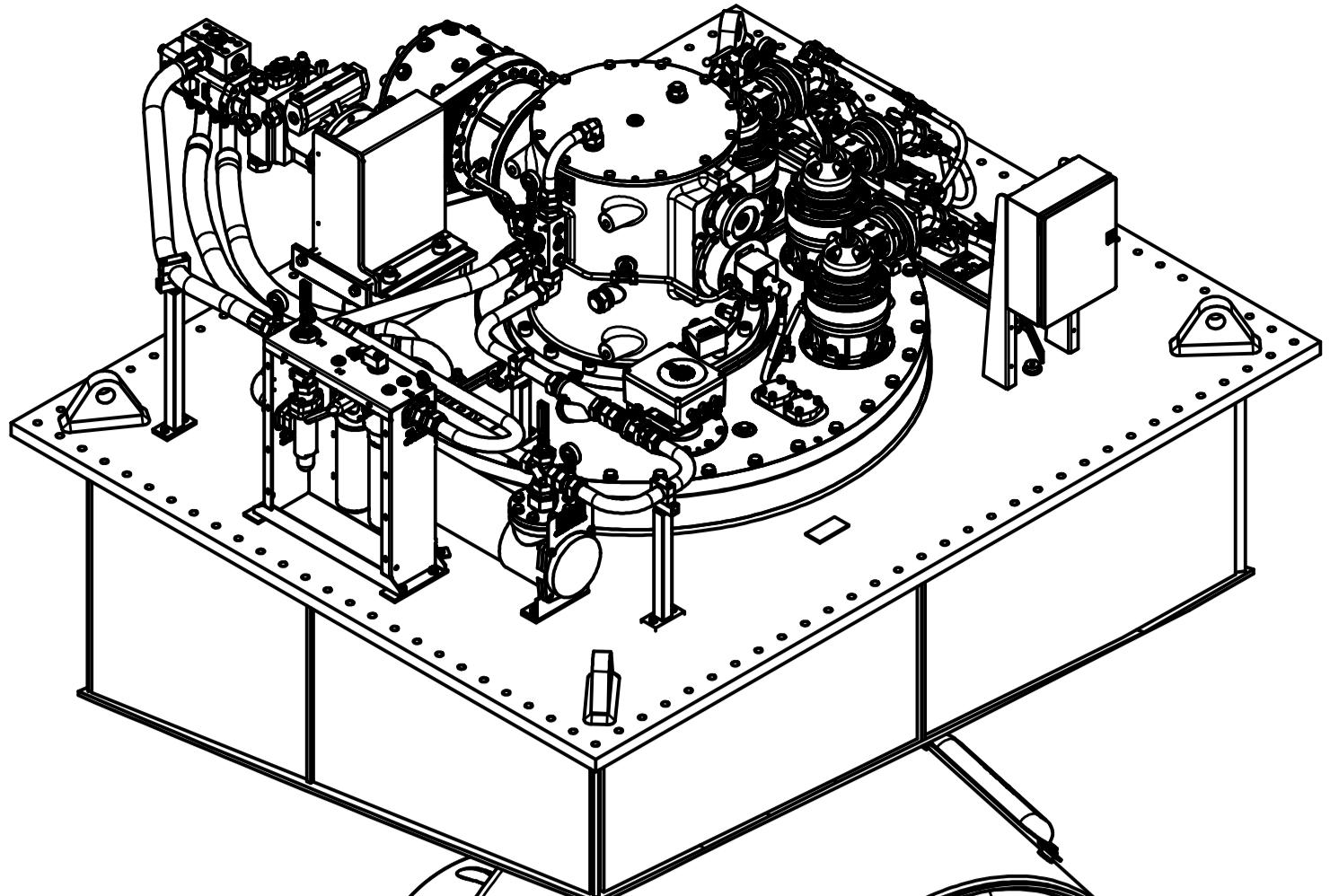
Oil temp. in	75	°C
Oil temp. out	57	°C
Oil flow	257	l/min.
Coolant temp. in	42	°C
Coolant temp. out	48	°C
Coolant flow	333	l/min.
Cooling cap.	134	kW

Cooling flow and system to be provided by the shipyard.
Flow of the ZF thruster coolers minimum 413 l/min.

All types of coolant are allowed.
ZF AT 7000 = max. 20% Glycol
(MEG-mono ethylene glycol, % = weight)
Otherwise a calculation must be made
to see the thermal consequences.

Note: by incorrect adjustment of the coolant flows the output temperatures may be different

				DATE	SCALE : NTS DATE : 16-11-2017 NAME : I. van Buuren CHECKED : MATERIAL : WEIGHT : -	REMARKS: based on 44002z780006		
				TITLE :	Cooler diagram ZF AT 7000 (coolant side)			
				REV. SUBJECT	FORMERLY KNOWN AS ZF THRUSTER SYSTEMS BV  ZF Marine Krimpen BV Zaag 27 P.O. Box 2020 2930 AA Krimpen aan de Lek The Netherlands Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099	VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANIES GELDT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES : P0070 AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS AMERIKAANSE PROJECTIE (ISO 128) A2	SOKKEL EN KANTEN BREKIG 0,5-4,0° CHAMFER SHARP EDGES 0,5-4,0° OPPERVLAKTE RUWHEID SURFACE ROUGHNESS	This drawing contains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for personal by third parties.
					DRAWING No. : 4400215300	Rev. 00		
					ORDER No. : 15269			



ee controls drawing package
r equipment and its location

Power rating	1591 kW
Input speed	1600 rpm
Reduction ratio	5.213 : 1
Propeller diameter	2100 mm
Nozzle / Tunnel outer dia.	2549 mm
Oil Content	867.8 l

to be installed in the vessel		Oil Content 607.8 L
SCALE : 1 : 15	REMARKS:	
DATE : 4-9-2017		
NAME : I. van Buuren		
CHECKED :		
MATERIAL :		
WEIGHT : N/A		
TITLE		



Part List

For external use

Partlist number

120115300

Drawing No.

12011530000

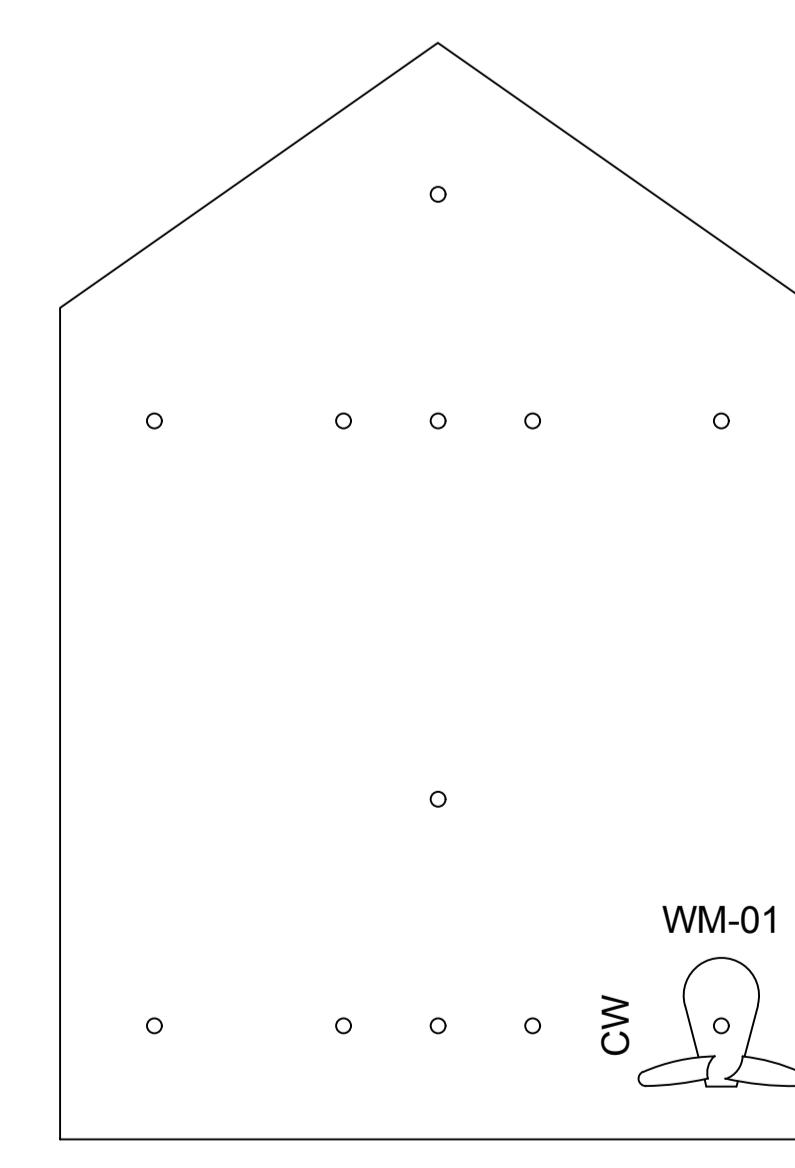
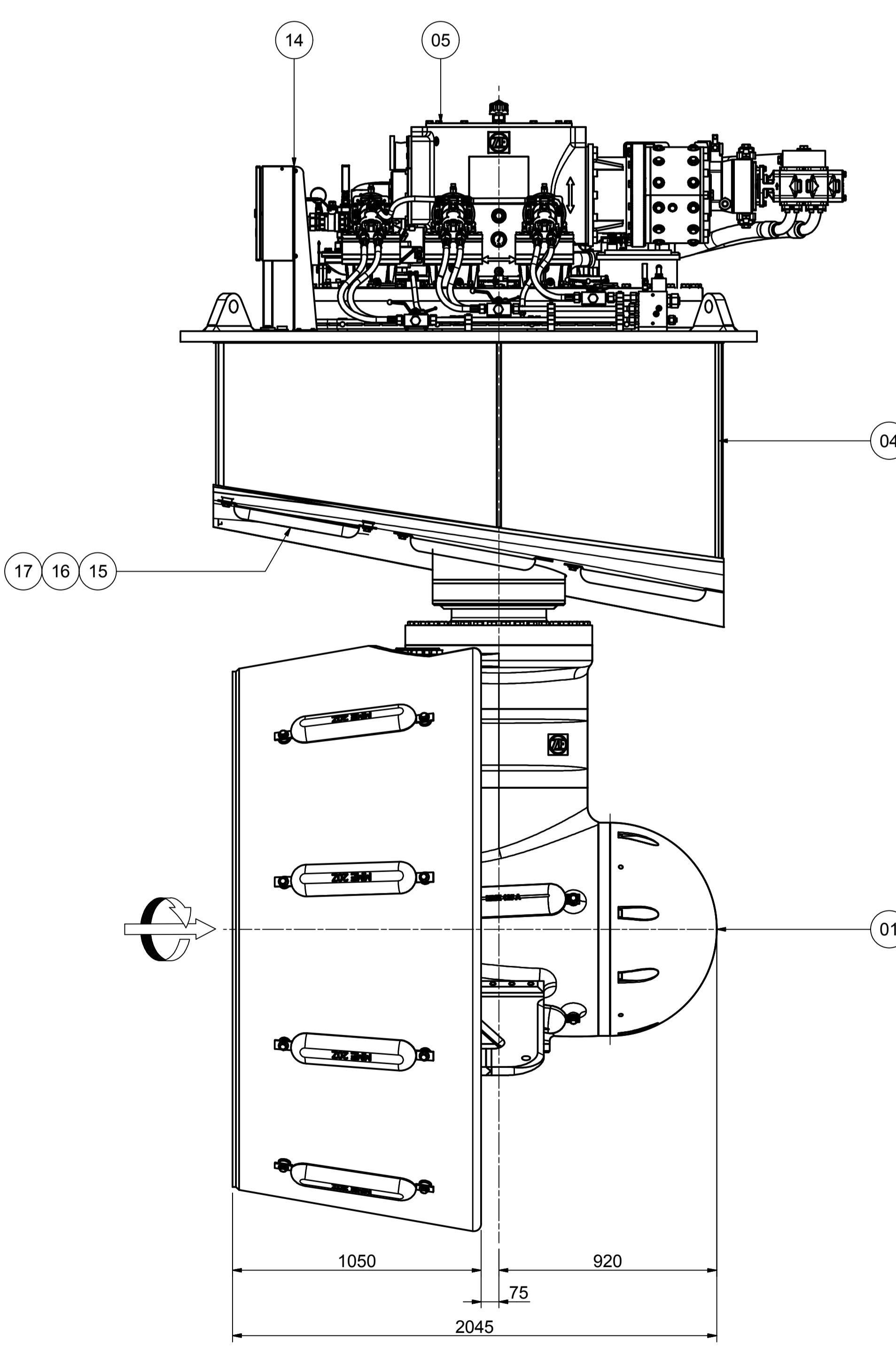
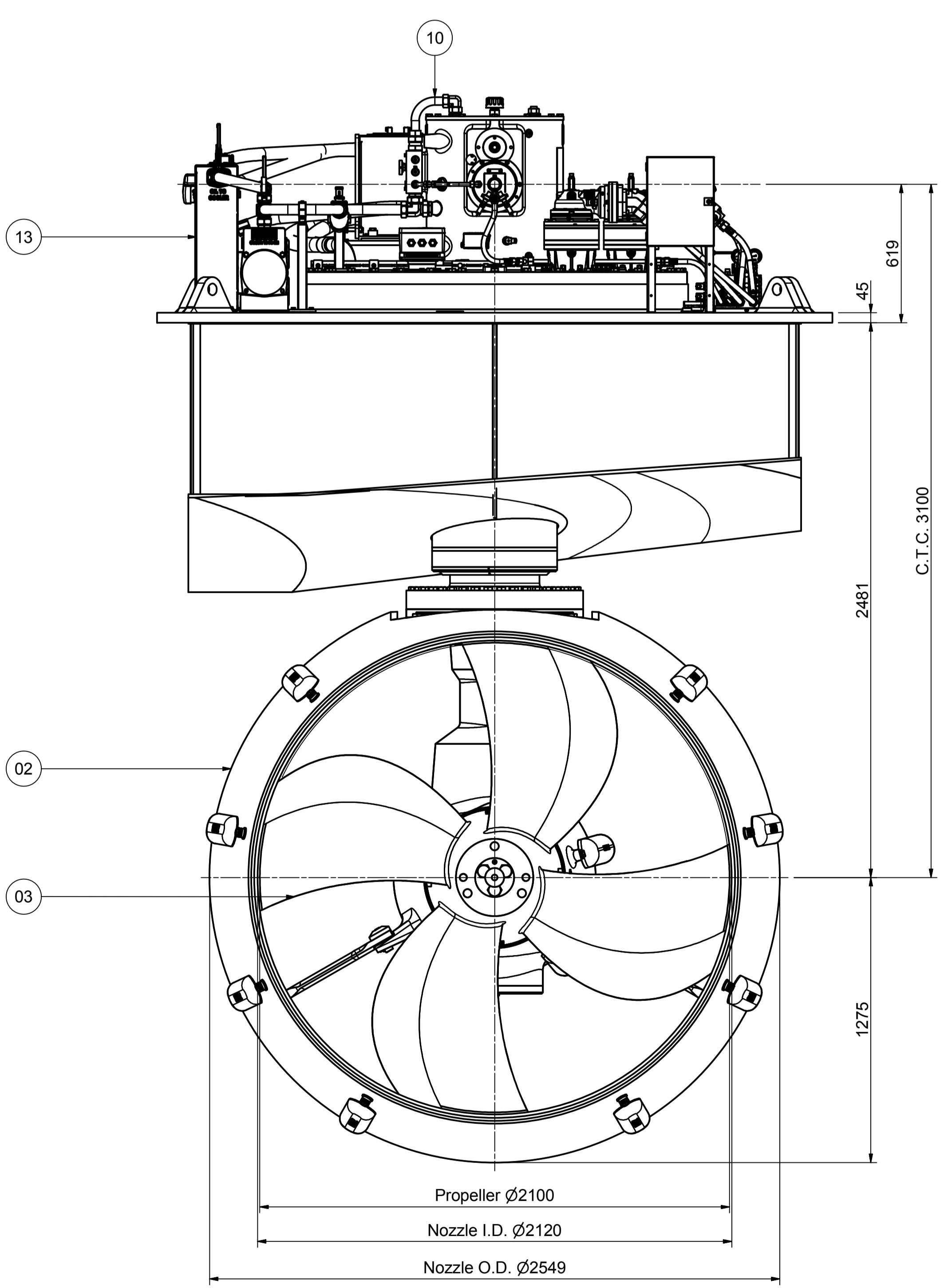
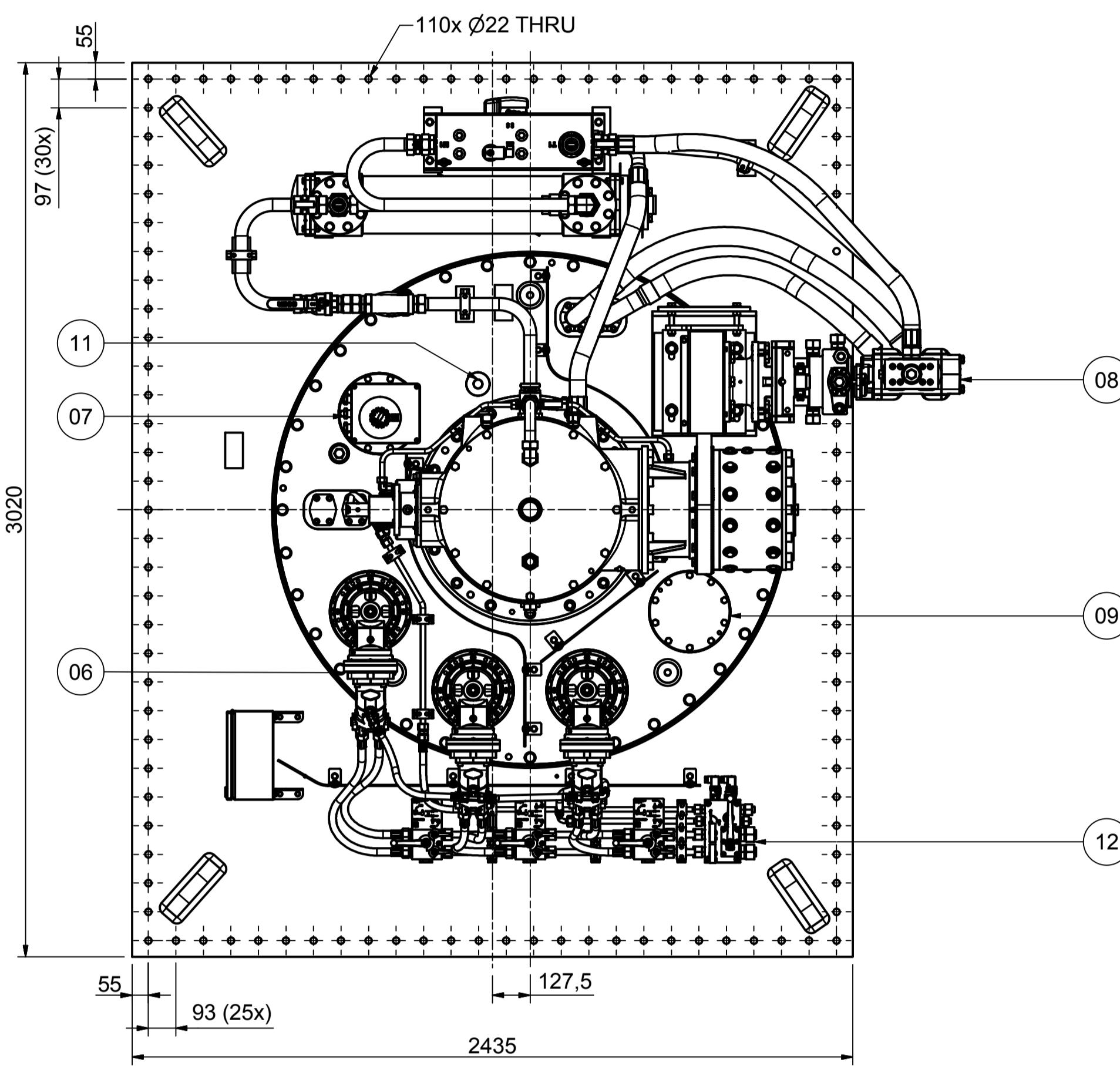
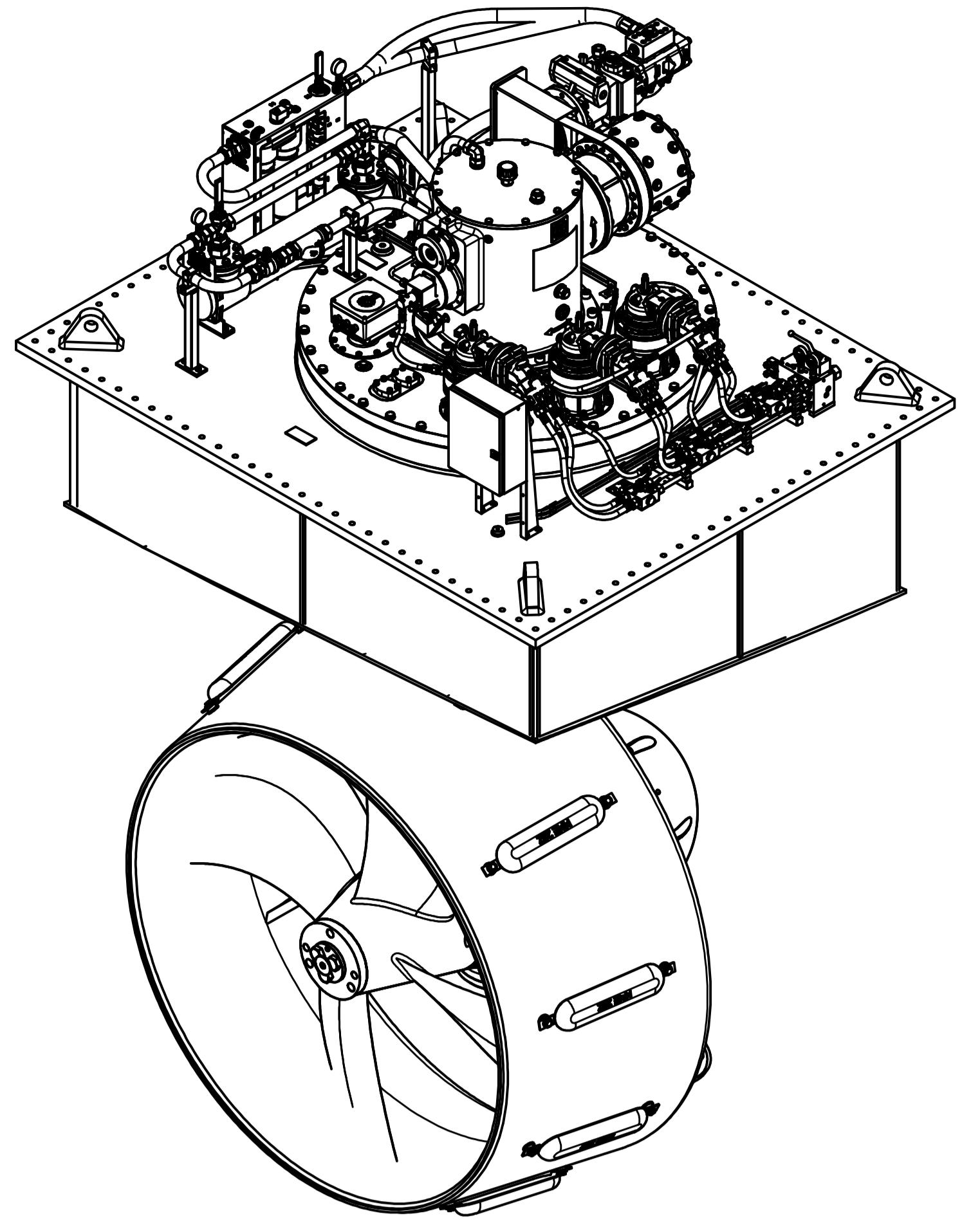
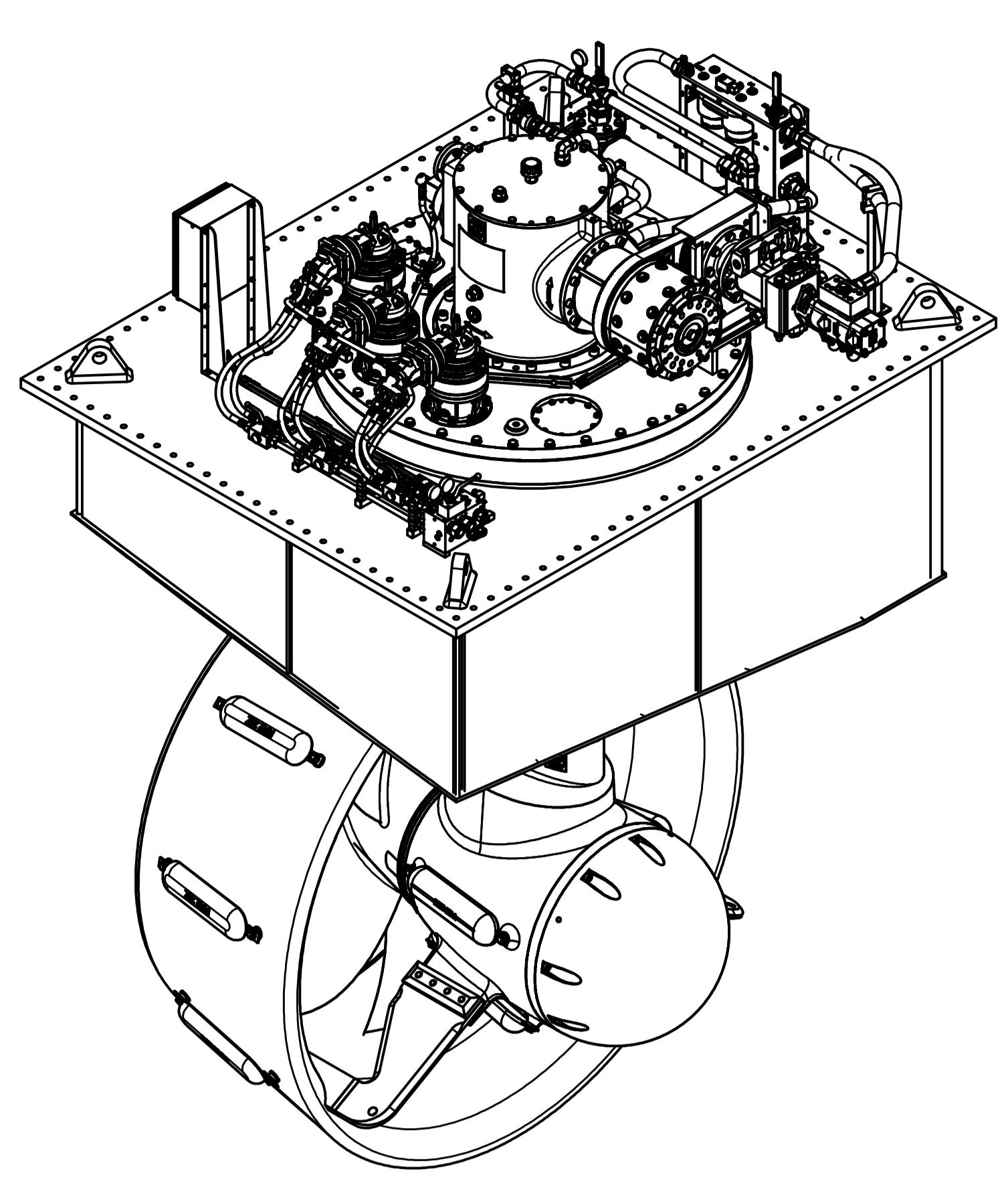
Description

General arrangement ZF 7000(PS)

Last revision date

6-10-2017

Pos	Qty	Part code	Part description	Weight
001	1	080315300	Lower Gearbox	3.954,29
002	1	38210615300	ZF 7000 Nozzle ø2100 assembly	2.303,27
003	1	380115300	Propeller	1.230,00
004	1	170215300	Stem section ZF 7000 WM Z-drive	8.450,87
005	1	060215300	Upper Gearbox CW	1.283,50
006	3	19106X7000	Steering drive	272,10
007	1	1960X7000	RRB Assembly	19,26
010	1	44220Z7000	Lub. system	15,81
011	1	5201Z000	Rudder angle tracer	0,00
015	6	1200000854	Anode	126,00
016	12	3000000016	Hexagon head screw	0,84
017	12	3500000484	Washer	0,48
Total Weight				17.656,413 kg
008	1	Pump assembly ZF 7000 HS (A4VG180)	437015300	
009	1	Blind cover assembly RRB ZF 8000	1997X8000	
012	1	GA Hydraulic system ZF 7000 AT	4260015300	
013	1	GA Lub syst. ZF 7000 AT(DOC-LUB)	4480015300	
014	1	Comp. controls system ZF 7000 AT	5450015300	



Power rating	1591 kW
Input speed	1600 rpm
Reduction ratio	5.213 : 1
Propeller diameter	2100 mm
Nozzle / Tunnel outer dia.	2549 mm
Oil Content	867.8 l

to be installed in the vessel		Oil Content	867.8 L
SCALE : 1 :15	REMARKS:		
DATE : 5-9-2017			
NAME : I. van Buuren			
CHECKED :			
MATERIAL :			
WEIGHT : 20103.6 Kg			
TITLE :	<i>General arrangement ZF AT 7311 WM-FP (SB)</i>		
FORMERLY KNOWN AS HRP THRUSTER SYSTEMS BV	VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES:	P0070	AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS
		SCHERPE KANTEN BREKEN 0.5x45° CHAMFER SHARP EDGES 0.5x45°	OPPERVLAKTE RUWHEID SURFACE ROUGHNESS
			3.2 =max 3.2 µm
ZF Marine Krimpen BV		This drawing remains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for resale by third parties.	



Part List

For external use

Partlist number

120215300

Drawing No.

12021530000


Description

General arrangement ZF 7000(SB)

Last revision date

6-10-2017

Pos	Qty	Part code	Part description	Weight
001	1	080315300	Lower Gearbox	3.954,29
002	1	38210615300	ZF 7000 Nozzle ø2100 assembly	2.303,27
003	1	380115300	Propeller	1.230,00
004	1	170115300	Stem section ZF 7000 WM Z-drive	8.450,87
005	1	060215300	Upper Gearbox CW	1.283,50
006	3	19106X7000	Steering drive	272,10
007	1	1960X7000	RRB Assembly	19,26
010	1	44220Z7000	Lub. system	15,81
011	1	5201Z000	Rudder angle tracer	0,00
015	6	1200000854	Anode	126,00
016	12	3000000016	Hexagon head screw	0,84
017	12	3500000484	Washer	0,48
Total Weight				17.656,413 kg
008	1	Pump assembly ZF 7000 HS (A4VG180)	437015300	
009	1	Blind cover assembly RRB ZF 8000	1997X8000	
012	1	GA Hydraulic system ZF 7000 AT	4260015300	
013	1	GA Lub syst. ZF 7000 AT(DOC-LUB)	4480015300	
014	1	Comp. controls system ZF 7000 AT	5450015300	





Part List

For external use

Partlist number **060215300**
Drawing No. **06021530001**
Description **Upper Gearbox CW**
Last revision date **3-7-2017**

MEMO Upper gearbox CW (1600rpm)Special ratio
Rev. 01.: Change Pos.22, 69/ Delete Pos.238/ Add. Pos640

Pos	Qty	Part code	Part description	Weight
001	1	0701Z700	Gear house	387,10
003	1	0703Z700	Vertical bearing pipe	93,00
005	1	4000000121	Lock nut	1,80
006	1	4000000068	Taper roller bearing	24,50
007	10	1200000007	Pressure spring	0,35
008	1	0708Z700	Spr. pressure plate	5,80
009	1	4000000033	Taper roller bearing	36,00
010	16	3000001063	Socket bolt	6,40
013	6	1200000005	Pressure spring	0,11
014	1	0714Z700	Spr. pressure plate	3,80
015	1	0715Z700	Spr. pressure plate	1,80
016	1	4000000187	Taper roller bearing	9,15
017	1	2000000076	O-ring	0,00
019	1	0719Z700	Seal cover	19,80
020	1	4000000120	Lock nut	1,60
021	3	3000000096	Socket set screw	0,01
022	1	5500000975	Clutch ZF 7000 DOC	185,00
023	1	0723Z700	Liner	1,60
024	2	2000000012	O-ring	0,00
025	1	2000000974	Lip seal Viton	0,00
026	1	2000000973	Lip seal Viton	0,00
028	1	0728Z700	Bearing pipe	68,60
029	12	3000000137	Socket head cap screw	2,33
030	1	2000000104	O-ring	0,02
031	1	4000000033	Taper roller bearing	36,00
032	1	0732Z700	Parallel key	0,80
038	1	0738Z700	Top plate	36,70
041	1	2000000136	O-ring	0,01
042	12	3000000018	Hexagon head screw	1,01



Part List

For external use

Partlist number **060215300**
Drawing No. **06021530001**
Description **Upper Gearbox CW**
Last revision date **3-7-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
045	2	2000000004	O-ring	0,00
048	1	4000000102	Cylindrical roller bearing	9,35
049	1	2000000279	Lip seal Viton	0,00
050	1	2000000278	Lip seal Viton	0,00
051	1	2000000063	O-ring	0,00
052	1	0752Z789	Liner	0,30
054	1	0754Z700	Seal cover	11,50
055	1	2000000045	O-ring	0,01
058	6	3000000110	Socket head cap screw	0,17
059	10	3000000127	Socket head cap screw	1,22
063	1	9500000697	Blanking plug	0,01
067	5	3000000009	Hexagon head screw	0,19
069	1	3000000691	Hexagon head screw	0,30
077	1	3900000020	Retaining ring	0,05
079	1	9000000005	Temperature gauge	0,00
085	2	3000000107	Socket head cap screw	0,04
104	1	07104Z700	Spacer	2,80
105	1	07105Z700	Spacer	4,20
166	2	3500000119	Washer	0,01
181	2	07181Z800	Sensor bracket	0,40
182	4	3000000239	Hexagon head bolt	0,05
232	1	07232Z700	Pinion shaft	107,30
241	1	07241Z700	Pinion	50,80
242	1	07242Z700	Crown wheel	125,30
258	1	8000000695	Rotating union	0,40
276	2	2000000116	O-ring	0,00
278	1	07278Z000	Blind lid gear pump	1,20
287	1	07287Z000	Bush	0,10
291	2	3000000464	Hexagon head screw	0,02
294	2	3000000464	Hexagon head screw	0,02



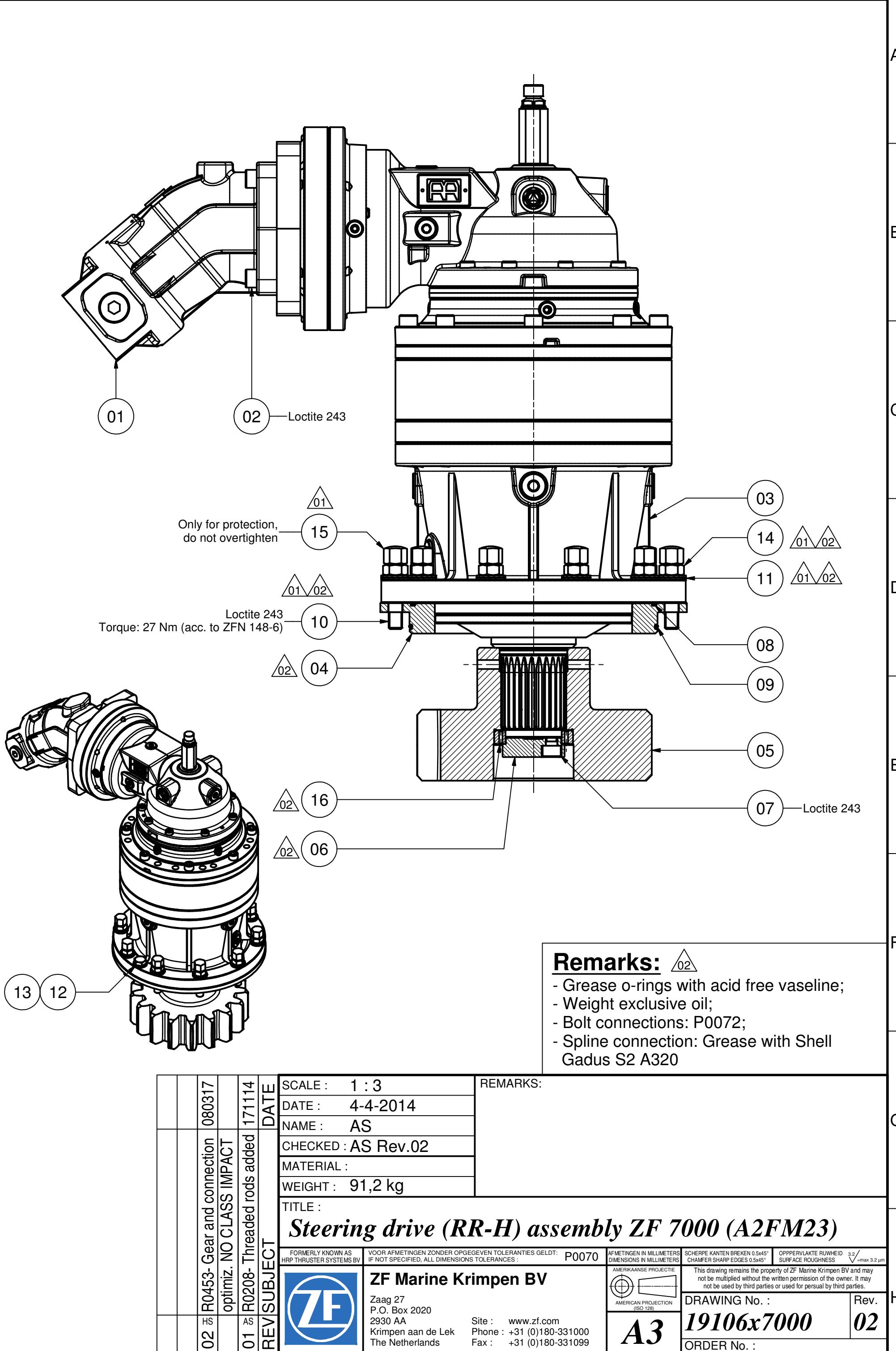
Part List

For external use

Partlist number **060215300**
Drawing No. **06021530001**
Description **Upper Gearbox CW**
Last revision date **3-7-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
296	2	3000000213	Hexagon nut	0,01
297	2	3000000464	Hexagon head screw	0,02
300	1	3000000940	Blanking plug	0,02
305	1	9500000697	Blanking plug	0,01
361	1	07361Z700	Ring	1,00
362	1	07362Z5678	Sensor bracket UG	0,10
363	1	07363Z5670	Blind lid spraypipe pumpgears	0,11
366	2	3000000147	Socket head cap screw	0,01
389	1	07389Z678	Protection cover	0,40
390	2	3000000040	Hexagon head screw	0,01
391	1	4260X0000	Rotorseal adapter assembly	0,34
392	2	9500000697	Blanking plug	0,02
5040	1	0646.120.333	Sensor	0,00
640	1	9500000773	Str. m. st. fit	0,09
Total Weight				1.241,159 kg



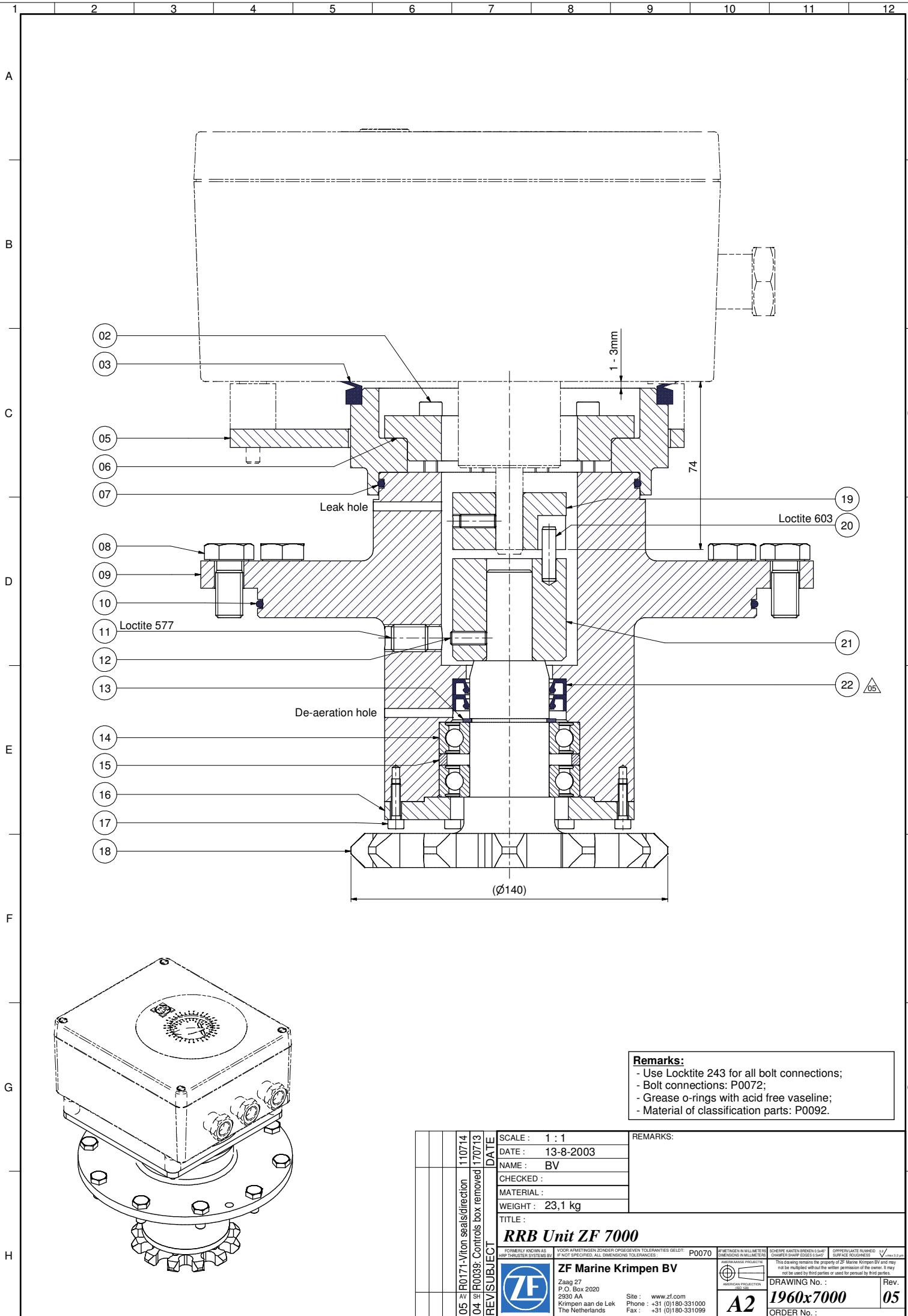


Part List

For external use

Partlist number **19106X7000**
Drawing No. **19106X700002**
Description **Steering drive (RR-H) A2FM23**
Last revision date **14-3-2017**

Pos	Qty	Part code	Part description	Weight
001	1	8000000105	Hydraulic motor	9,50
002	4	3000000112	Socket head cap screw	0,13
003	1	5500000825	Planetary gearbox	62,00
004	1	19200X5000	Adapter flange	4,00
005	1	1927X700	Pinion	14,00
006	1	1927X0000	Locking plate	0,20
007	3	3000000109	Socket head cap screw	0,08
008	1	2000000057	O-ring	0,00
009	1	2000000057	O-ring	0,00
010	10	3000001612	Stud bolt	0,62
011	10	3500000115	Washer	0,00
012	2	3000000009	Hexagon head screw	0,08
013	2	3500000052	Washer	0,01
014	10	3000001104	Hexagon nut	0,17
015	10	3000000224	Cap nut	0,24
016	1	1928X0000	Center ring	0,20
Total Weight				91,225 kg





Part List

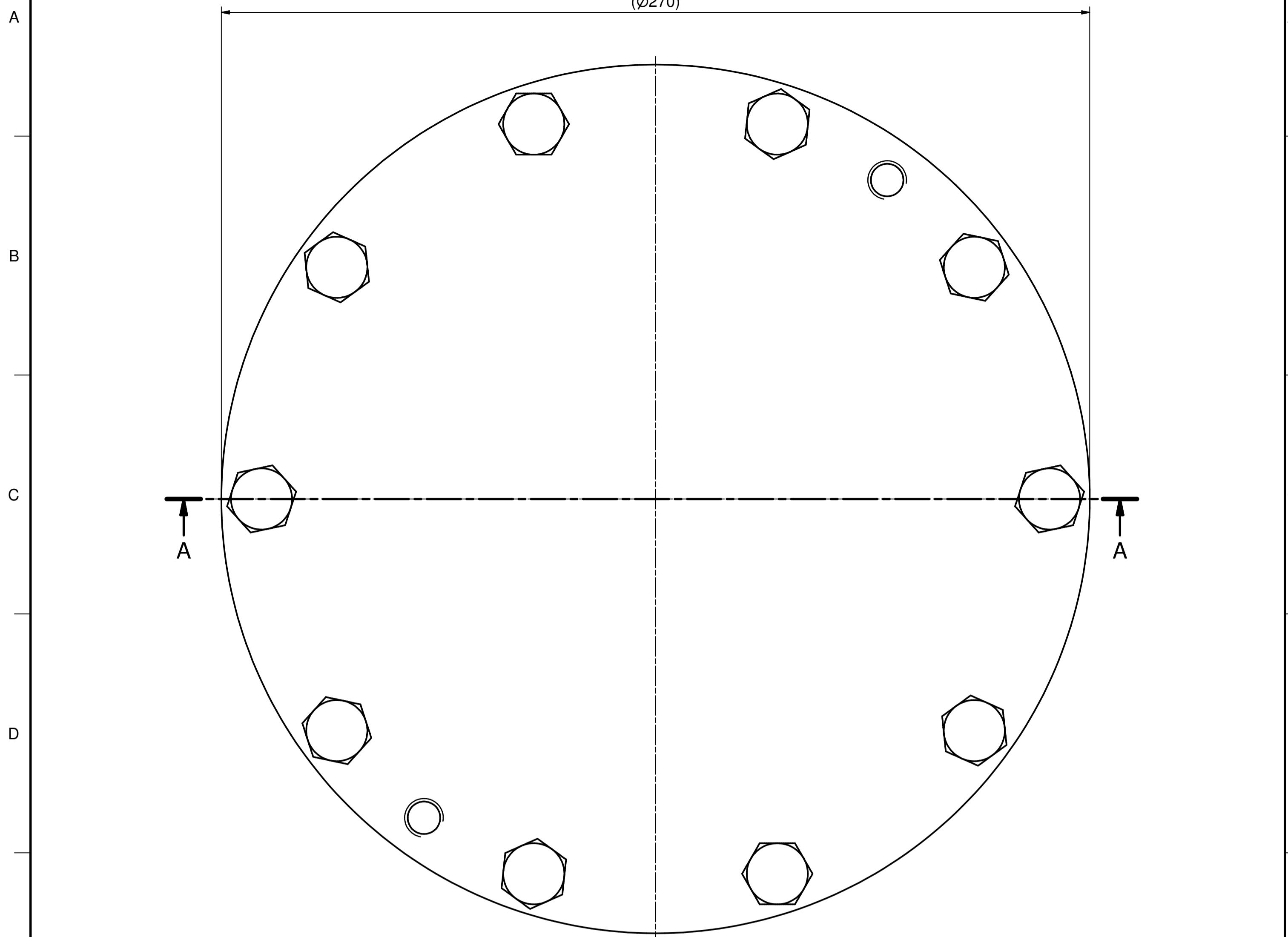
For external use

Partlist number **1960X7000**
Drawing No. **1960X700005**
Description **RRB Assembly**
Last revision date **11-7-2014**

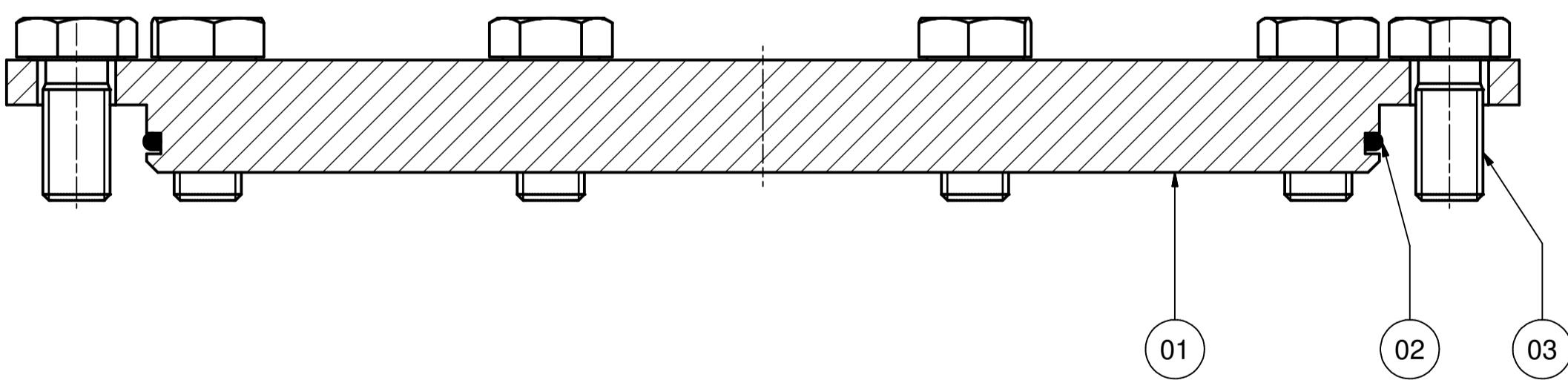
Pos	Qty	Part code	Part description	Weight
002	8	3000000374	Socket head cap screw	0,07
003	1	2000000219	End face seal	0,00
005	1	1918X5000	Adapter flange	3,46
006	1	1961X5000	Locking plate	0,75
007	1	2000000011	O-ring	0,00
008	10	3000000007	Hexagon head screw	0,34
009	1	1910X5000	RRB flange	15,40
010	1	2000000057	O-ring	0,00
011	1	3000000254	Socket set screw	0,10
012	2	3000000375	Socket set screw	0,01
013	1	3900000013	Retaining ring	0,00
014	2	4000000002	Dp gr.ball bearing	0,32
015	1	1929X5000	RRB Spacer ring	0,10
016	1	1930X5000	RRB Flange cover	0,49
017	6	3000000145	Socket head cap screw	0,01
018	1	1933X700	RRB pinion	1,87
019	1	1935X700	Coupling RRB	0,40
020	1	3600000016	Parallel pin	0,01
021	1	1934X700	Counter flange pinion	0,60
022	2	2000001330	Lip seal	0,00
Total Weight				23,929 kg

1 2 3 4 5 6 7 8 9 10 11 12

(Ø270)



A-A (1 : 1)



SCALE : 1 : 1	REMARKS:
DATE : 20-7-2012	
NAME : J. van Tilburg	
CHECKED :	
MATERIAL :	
WEIGHT : 7.1 kg	

TITLE:
Blind cover assembly RRB ZF 8000

FORMERLY KNOWN AS HRP THRUSTER SYSTEMS BV	VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES:	P0070	AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS	SCHERPE KANTEN BREKEN 0.5x45° CHAMFER SHARP EDGES 0.5x45°	OPPERVLAKTE RUWHEID SURFACE ROUGHNESS $\nabla_{\text{max}} 3.2 \mu\text{m}$
ZF Marine Krimpen BV					
Zaag 27 P.O. Box 2020 2930 AA Krimpen aan de Lek The Netherlands				This drawing remains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for personal use by third parties.	
Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099		American Projection (ISO 128)		DRAWING No. : 1997x8000	Rev. 00

1 2 3 4 5 6 7 8 9 10 11 12

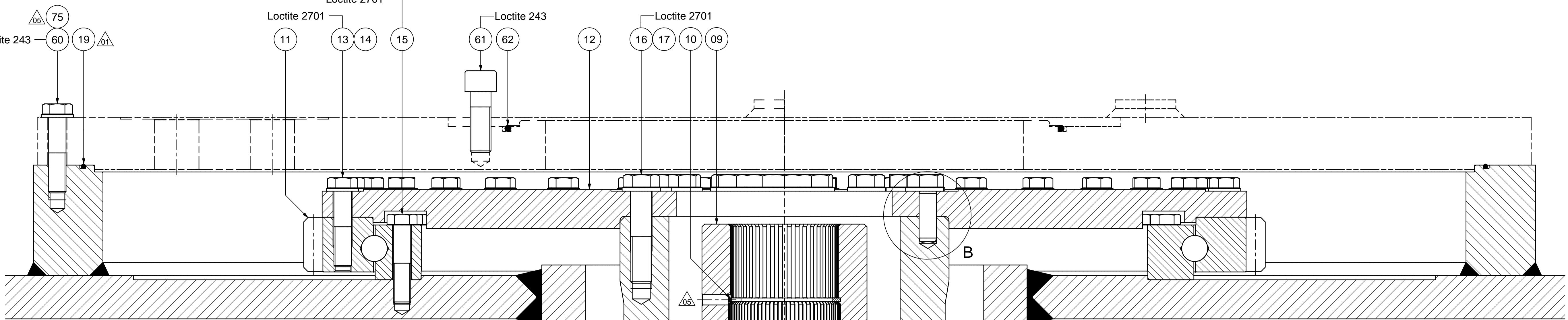


Part List

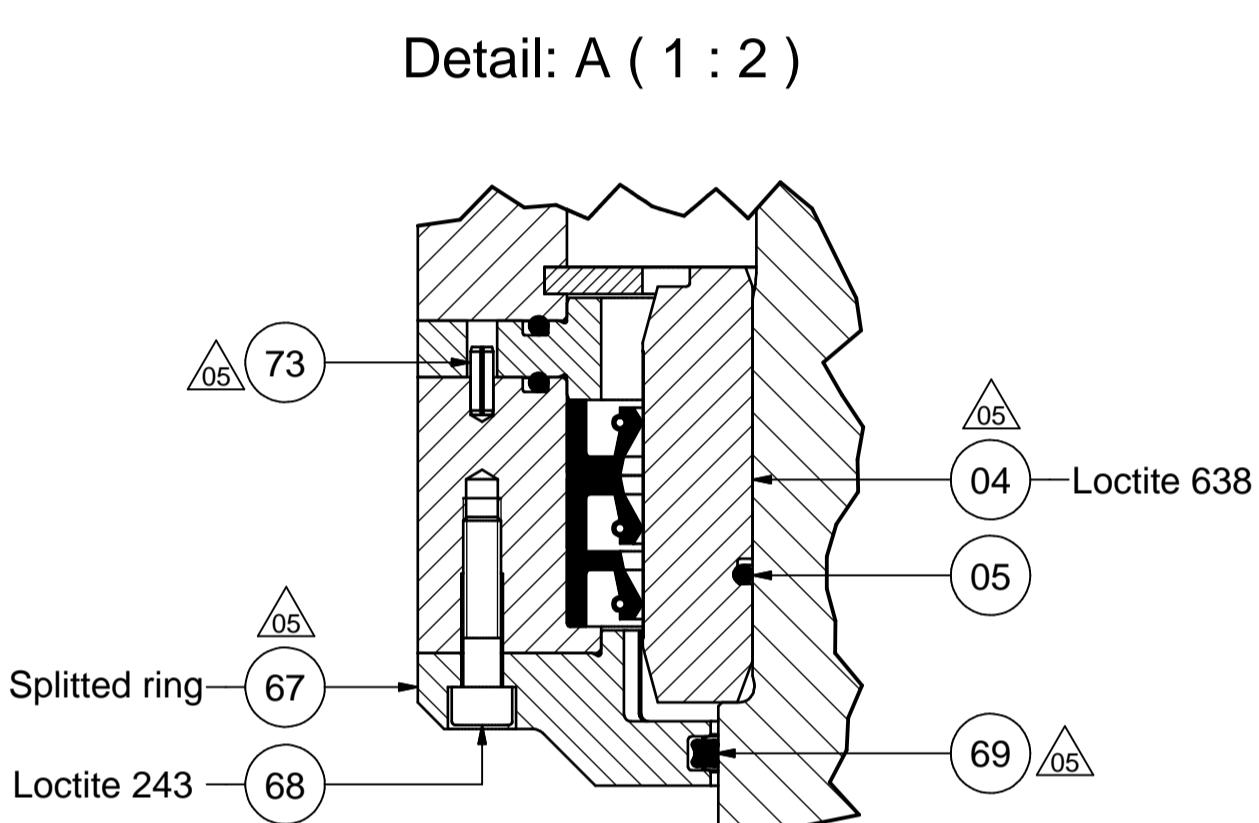
For external use

Partlist number **1997X8000**
Drawing No. **1997X800000**
Description **Blind cover assembly RRB ZF 8000**
Last revision date **20-7-2012**

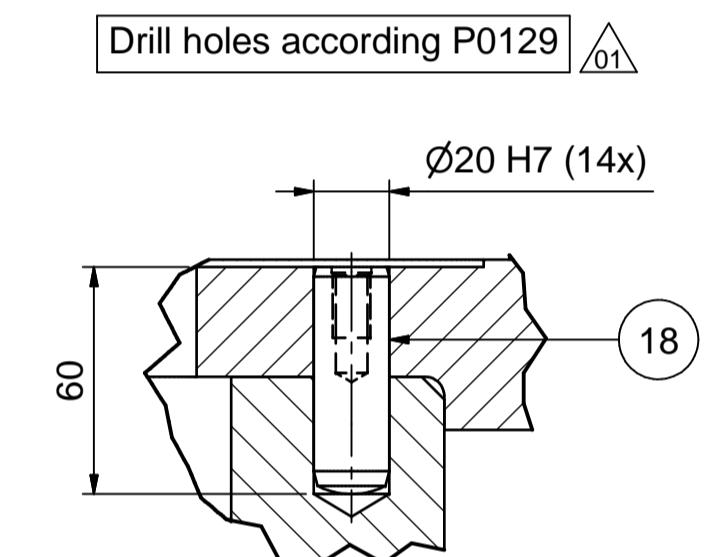
Pos	Qty	Part code	Part description	Weight
001	1	1978Z8000	Cover RRB	8,30
002	1	2000000378	O-ring	0,00
003	10	3000000007	Hexagon head screw	0,34
Total Weight				8,640 kg



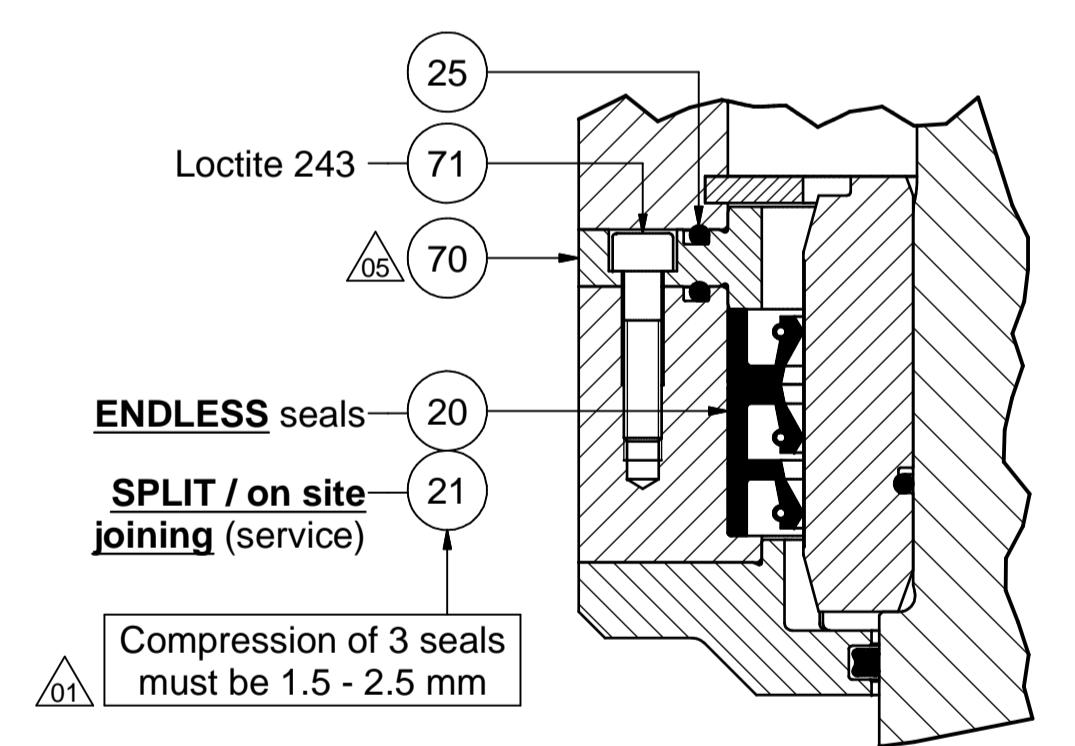
Detail: A (1 : 2)



Detail: B (1 : 2)

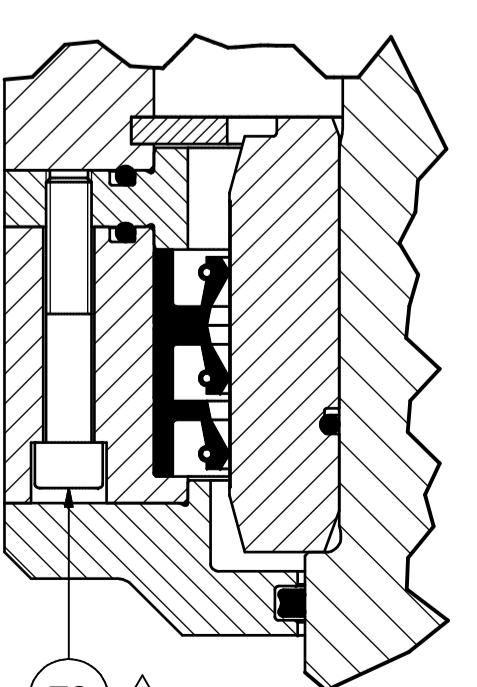


Detail: A (1 : 2)



Detail: A (1 : 2)

Disassembly holes (4x)



Remarks:

- Fill all disassembly holes with acid free clear silicon past;
- Grease o-rings with acid free vaseline;
- Bolt connections: P0072;
- Lip seal (re)placement: P1401, use grease according to P0166;
- Spline connections: assemble with 'Custos 20-45 W 1' corrosion protection oil or equivalent;
- Protect all machined surfaces with 'Custos 20-45 W 1' oil or equivalent;
- For coating contact surfaces: P0180;
- Bolt connections without Loctite 2701/243: 'Grease with "anti seize (copper) paste";
- Welded joints: none.

shaft	010617					SCALE : 1 : 2.5	REMARKS:
aling;	240117					DATE : 16-4-2010	
nged	101016					NAME : JvT	
th o-ring	190213					CHECKED : HS Rev.06	
	171212					MATERIAL :	
						WEIGHT : 3007 kg	



Part List

For external use

Partlist number

170115300

Drawing No.

1701W700005

Description

Stem section ZF 7000 WM Z-drive

Last revision date

4-10-2017

MEMO

Rev.01: Add. Pos 01, 02, 03

Pos	Qty	Part code	Part description	Weight
003	1	1911315300	Intermediate shaft	125,50
004	1	19122X7000	Liner	31,60
005	1	2000000310	O-ring	0,01
006	1	4000000087	Needle roll. bearing	42,50
007	1	3000001622	Set screw	0,00
008	1	3900000046	Retaining ring	1,64
009	2	1903Z700	Coupling box	40,60
010	2	3900000024	Retaining ring	0,16
011	1	4000000131	Slew bearing	173,00
012	1	1991X7000	Steering pipe cover	237,00
013	36	3000000075	Hexagon head bolt	10,04
014	36	3500000056	Washer	0,36
015	36	3000000075	Hexagon head bolt	10,04
016	16	3000000550	Hexagon head bolt	8,00
017	16	3500000055	Washer	0,16
018	14	3600000077	Parallel pin	0,14
019	1	2000000950	O-ring	0,00
020	3	2000001021	Lip seal	0,00
021	0	2000000961	Lip seal SPLIT	0,00
025	2	2000000991	O-ring	0,00
029	40	3000000897	Hexagon head bolt	20,00
060	36	3000000074	Hexagon head bolt	10,04
061	16	3000000141	Socket head cap screw	5,81
062	1	2000000680	O-ring	0,00
065	16	3000000219	Socket head cap screw	1,42
067	1	19124X7000	Wire shield	19,00
068	16	3000001021	Socket bolt	0,66
069	1	2000000257	Quad ring	0,00
070	1	19101X7000	Retaining plate	9,30
071	16	3000001096	Socket head cap screw	0,66



Part List

For external use

Partlist number

170115300

Drawing No.

1701W700005

Description

Stem section ZF 7000 WM Z-drive

Last revision date

4-10-2017

MEMO

Pos	Qty	Part code	Part description	Weight
072	4	3000000907	Socket head cap screw	0,32
073	1	3600000021	Spring pin	0,00
074	1	19123X7000	Seal cover	34,40
075	36	3500000054	Washer	0,36
			Total Weight	782,731 kg
001	1	Inner Well machining ZF 7000		241315300
002	1	Steering pipe machining ZF 7000		199015300



Part List

For external use

Partlist number

170215300

Drawing No.

1701W700005

Description

Stem section ZF 7000 WM Z-drive

Last revision date

4-10-2017

Pos	Qty	Part code	Part description	Weight
003	1	1911315300	Intermediate shaft	125,50
004	1	19122X7000	Liner	31,60
005	1	2000000310	O-ring	0,01
006	1	4000000087	Needle roll. bearing	42,50
007	1	3000001622	Set screw	0,00
008	1	3900000046	Retaining ring	1,64
009	2	1903Z700	Coupling box	40,60
010	2	3900000024	Retaining ring	0,16
011	1	4000000131	Slew bearing	173,00
012	1	1991X7000	Steering pipe cover	237,00
013	36	3000000075	Hexagon head bolt	10,04
014	36	3500000056	Washer	0,36
015	36	3000000075	Hexagon head bolt	10,04
016	16	3000000550	Hexagon head bolt	8,00
017	16	3500000055	Washer	0,16
018	14	3600000077	Parallel pin	0,14
019	1	2000000950	O-ring	0,00
020	3	2000001021	Lip seal	0,00
021	0	2000000961	Lip seal SPLIT	0,00
025	2	2000000991	O-ring	0,00
029	40	3000000897	Hexagon head bolt	20,00
060	36	3000000074	Hexagon head bolt	10,04
061	16	3000000141	Socket head cap screw	5,81
062	1	2000000680	O-ring	0,00
065	16	3000000219	Socket head cap screw	1,42
067	1	19124X7000	Wire shield	19,00
068	16	3000001021	Socket bolt	0,66
069	1	2000000257	Quad ring	0,00
070	1	19101X7000	Retaining plate	9,30
071	16	3000001096	Socket head cap screw	0,66
072	4	3000000907	Socket head cap screw	0,32



Part List

For external use

Partlist number

170215300

Drawing No.

1701W700005

Description

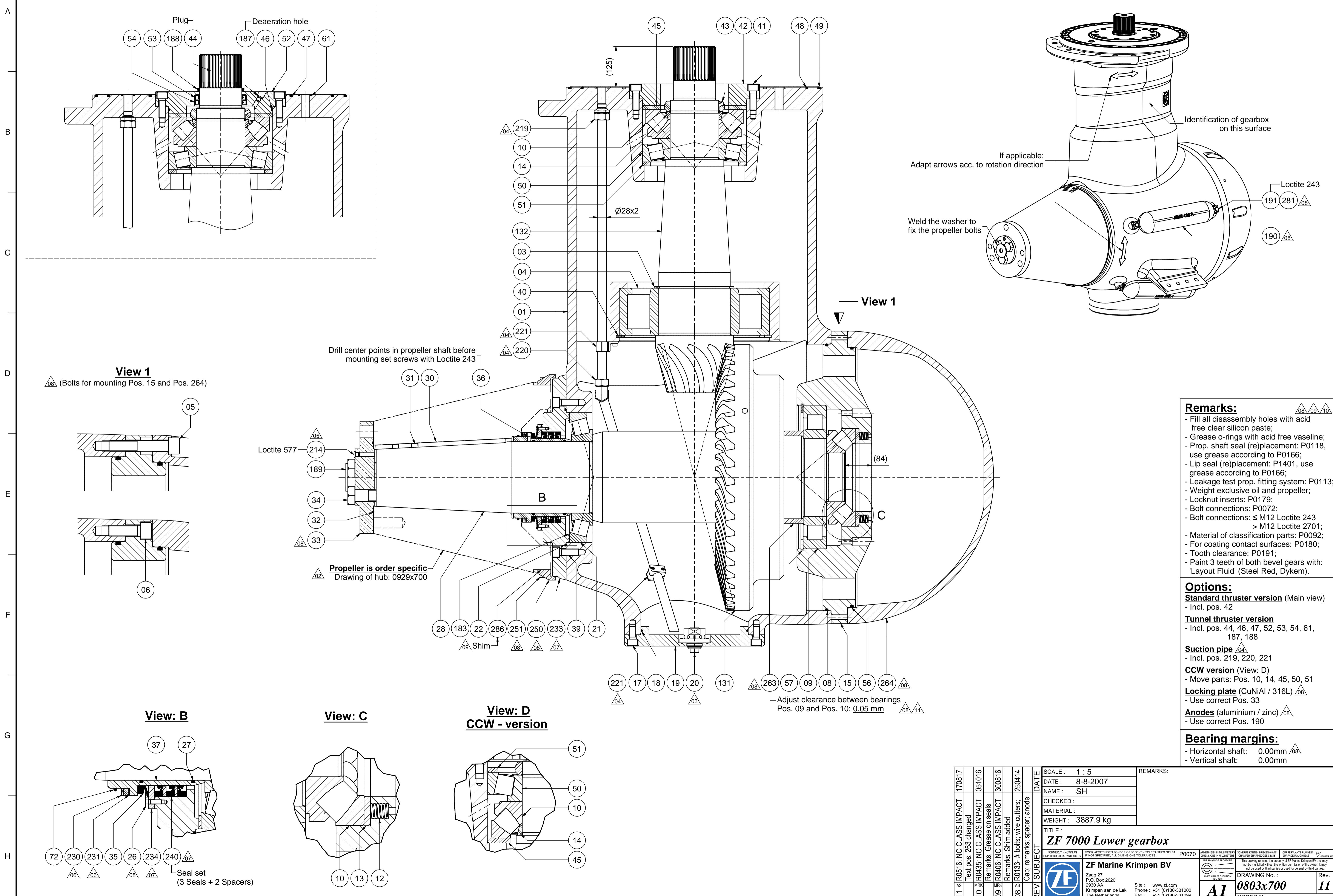
Stem section ZF 7000 WM Z-drive

Last revision date

4-10-2017

Pos	Qty	Part code	Part description	Weight
073	1	3600000021	Spring pin	0,00
074	1	19123X7000	Seal cover	34,40
075	36	3500000054	Washer	0,36
			Total Weight	782,731 kg
001	1	Inner Well machining ZF 7000		243315300
002	1	Steering pipe machining ZF 7000		199015300

Tunnel thruster version





Part List

For external use

Partlist number **080315300**
Drawing No. **08031530000**
Description **Lower Gearbox**
Last revision date **1-6-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
001	1	0901X700	Gear house	1.303,60
002	1	0902X700	Pinion	223,00
003	1	3900000009	Retaining ring	0,27
004	1	4000000104	Cylindrical roller bearing	120,00
005	8	3000001580	Socket head cap screw	2,88
006	12	3000000137	Socket head cap screw	2,33
008	1	2000000336	O-ring	0,11
009	1	4000000106	Cylindrical roller bearing	51,00
010	2	4000000061	Sph. roller thrust bearing	54,40
012	16	1200000006	Pressure spring	0,48
013	1	0913X700	Spacer	2,80
014	1	0914X700	Distance ring	0,80
015	1	0915X700	Bearing flange	389,10
016	1	0916X700	Crown wheel	559,00
017	8	3000000133	Socket head cap screw	1,20
018	1	2000000471	O-ring	0,00
019	1	0919X700	Inspection cover	41,00
020	1	4400X000	Drain Plug	0,00
021	1	4000000012	Taper roller bearing	40,00
022	1	2000000117	O-ring	0,00
026	16	3000000051	Hexagon head bolt	0,22
027	2	2000000060	O-ring	0,00
028	1	0928X700	Propeller shaft	496,10
030	1	0930X700	Parallel key	3,30
031	2	3000000113	Socket head cap screw	0,00
032	1	2000000054	O-ring	0,01
033	1	0933X700	Locking plate	29,40
034	3	3000000483	Hexagon head bolt	0,00
035	1	2000000223	End face seal	0,00
036	3	3000000448	Socket set screw	0,01



Part List

For external use

Partlist number **080315300**
Drawing No. **08031530000**
Description **Lower Gearbox**
Last revision date **1-6-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
037	1	0937X700	Liner	12,10
039	12	3000000137	Socket head cap screw	2,33
040	1	3900000044	Retaining ring	1,55
041	12	3000000137	Socket head cap screw	2,33
042	1	0942X700	Bearing cover	37,00
043	1	4000000122	Lock nut	1,95
045	1	0945X700	Spacer	4,30
048	1	2000000315	O-ring	0,00
049	1	2000000316	O-ring	0,00
050	1	4000000015	Taper roller bearing	25,10
051	1	0951X700	Spacer	2,10
056	1	2000000355	O-ring	0,10
057	1	3900000042	Retaining ring	1,47
072	1	2000000619	O-ring	0,00
183	1	09183X700	Spacer	0,90
189	1	3500000048	Washer	0,13
190	4	1200000854	Anode	80,00
191	8	3000000018	Hexagon head screw	0,67
214	1	3000000896	Blanking plug	0,02
230	2	09230X700	Seal	0,30
231	2	09231X700	Seal	0,10
233	1	09233X700	Seal cover	86,10
234	1	09234X700	Seal cover plate	3,00
240	1	2000001169	Seal set Prop.	0,00
250	2	09250X780	Wire cutter	0,80
251	4	3000000590	Socket head cap screw	0,17
263	1	09263X700	Spacer	5,90
264	1	09264X700	Cap	260,60
281	8	3500000484	Washer	0,32
286	0	09251X780	Shim	0,00



Part List

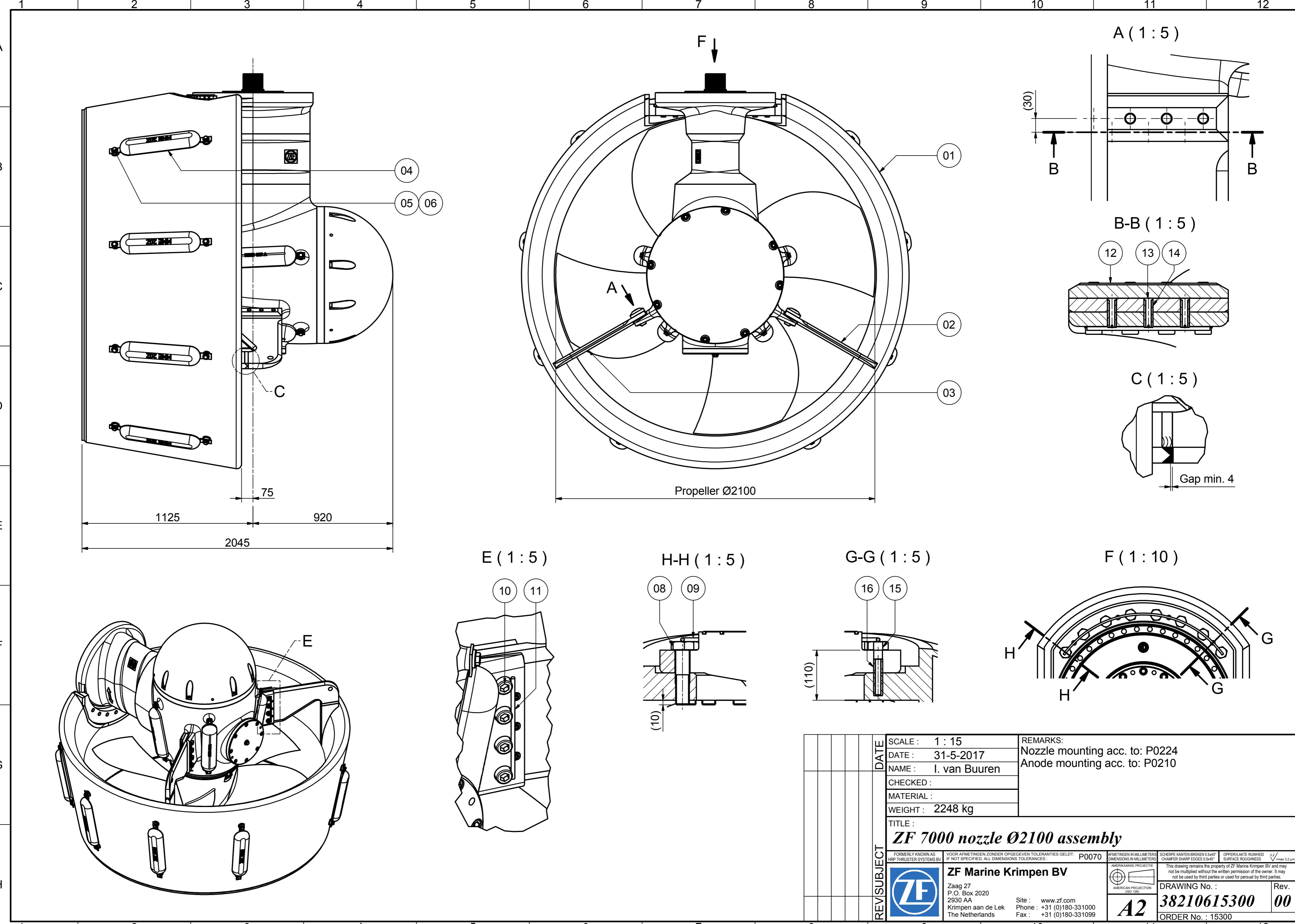
For external use

Partlist number **080315300**
Drawing No. **08031530000**
Description **Lower Gearbox**
Last revision date **1-6-2017**

MEMO

Total Weight

3.850,339 kg



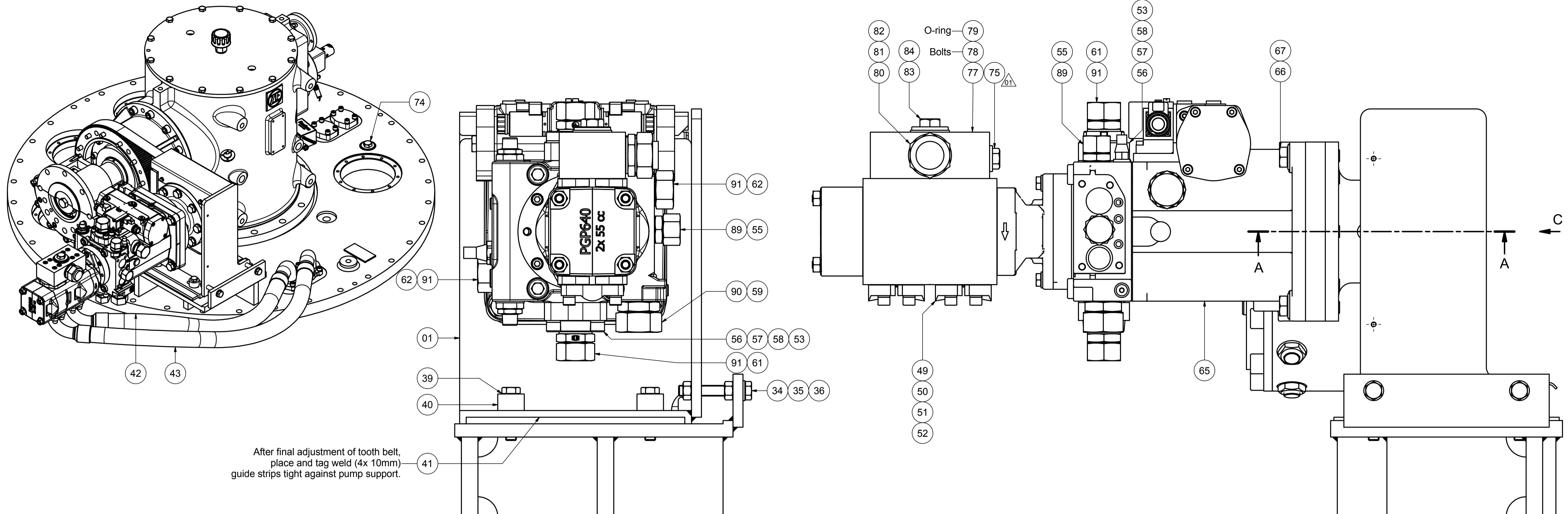


Part List

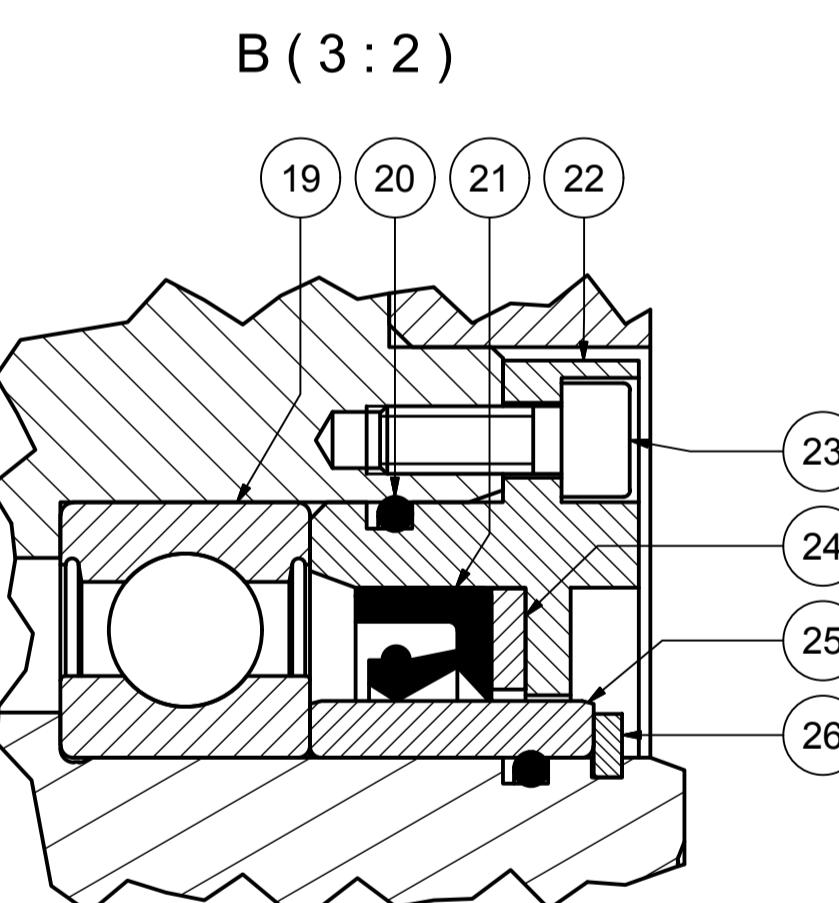
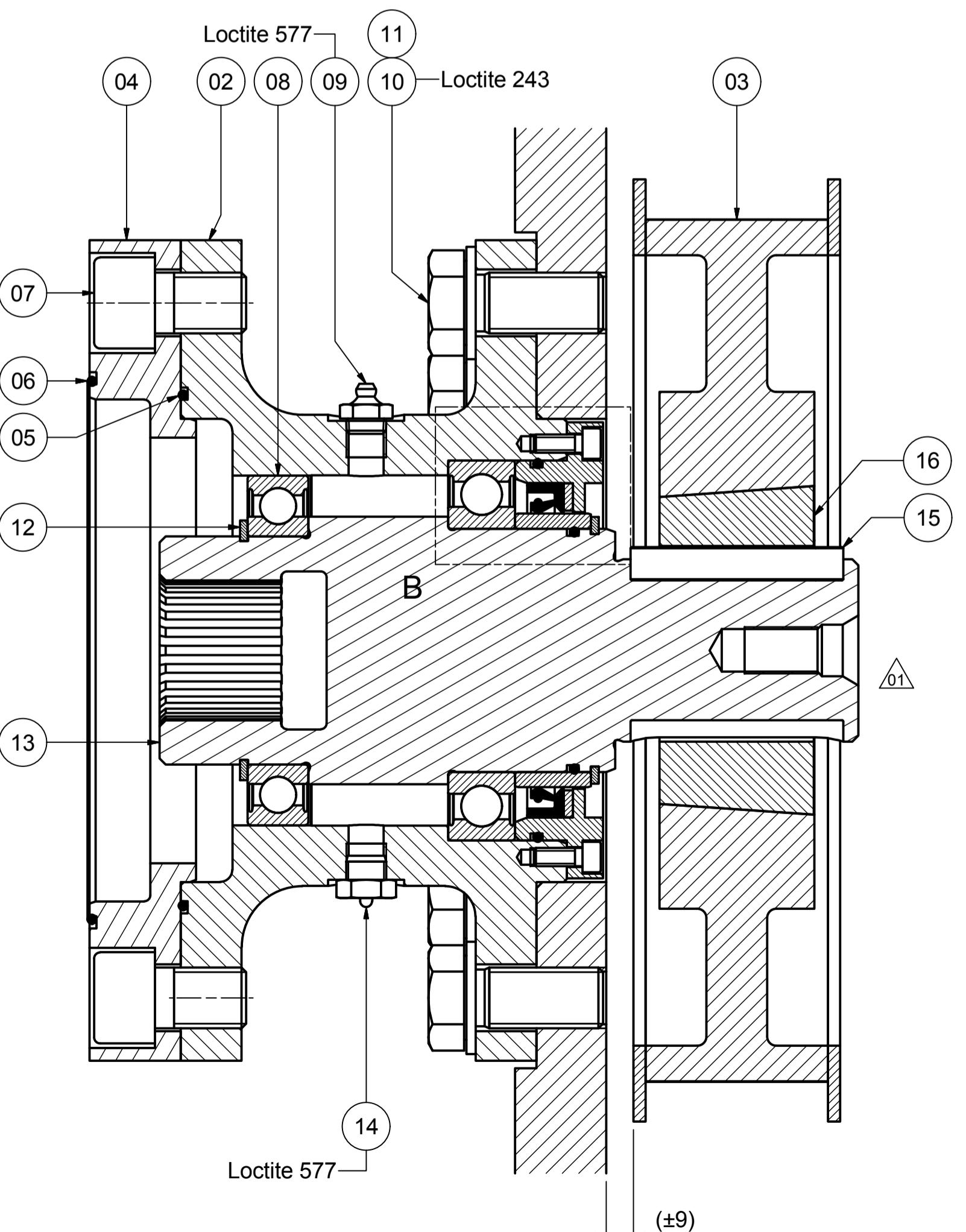
For external use

Partlist number **38210615300**
Drawing No. **3821061530000**
Description **ZF 7000 Nozzle ø2100 assembly**
Last revision date **31-5-2017**

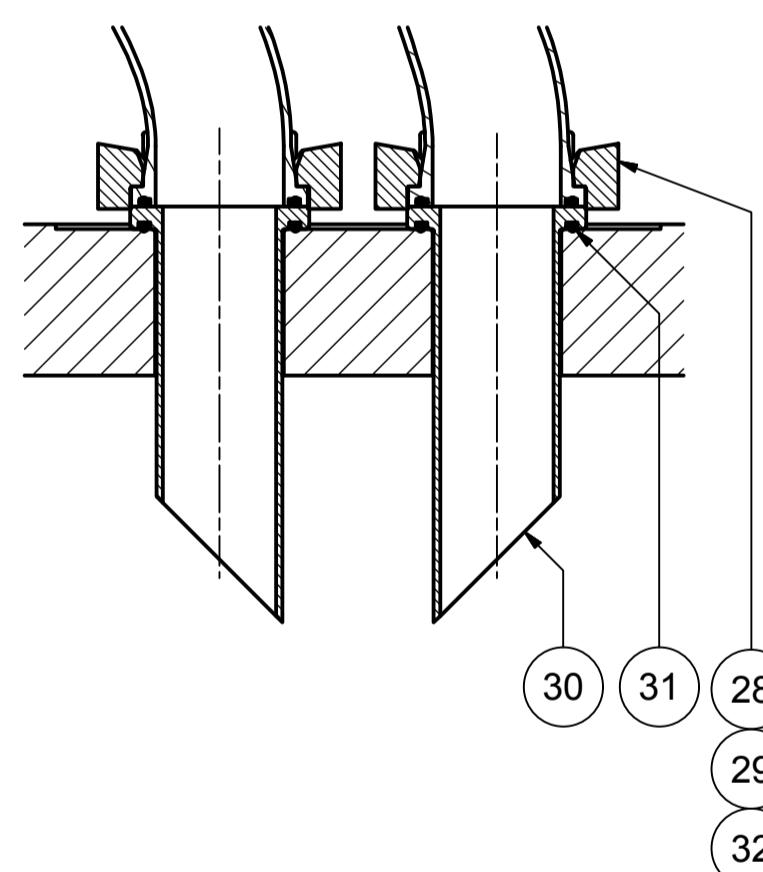
Pos	Qty	Part code	Part description	Weight
001	1	38210115300	Nozzle	2.000,00
002	1	382108X7000	Nozzle support	52,50
003	1	382107X7000	Nozzle support	52,50
004	8	1200000854	Anode	168,00
005	16	3000000016	Hexagon head screw	1,12
006	16	3500000484	Washer	0,64
008	9	3000000263	Hexagon head bolt	0,00
009	1	1100000805	Bar	0,18
010	8	3000000142	Socket head cap screw	3,48
011	2	1100000805	Bar	0,12
012	2	3814X7000	Connection plate	14,80
013	6	3815X7000	Connection pin	0,36
014	6	3600000051	Spring pin	0,01
015	4	3816X7000	ZF nozzle connection pin Ø12	0,64
016	4	3600000054	Spring pin	0,01
Total Weight				2.294,365 kg



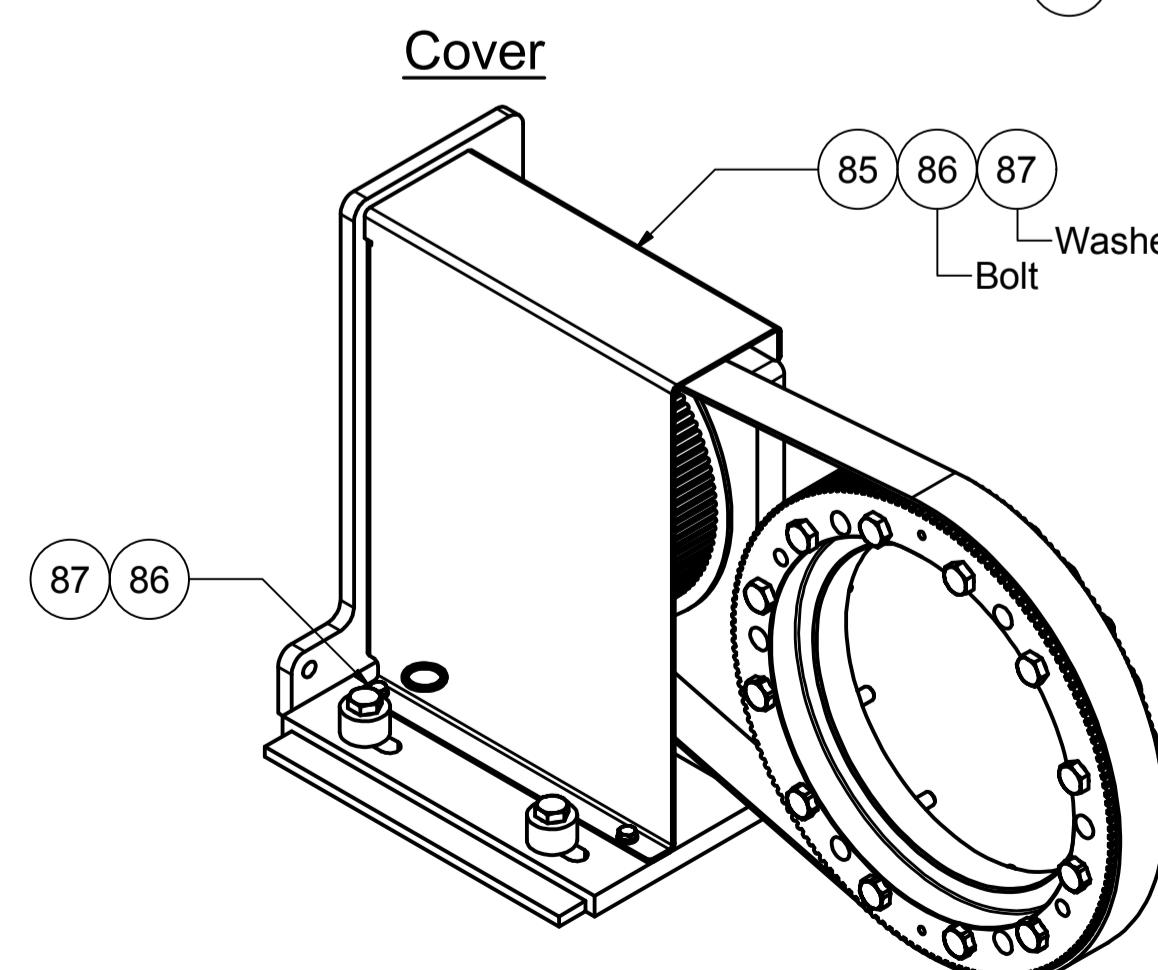
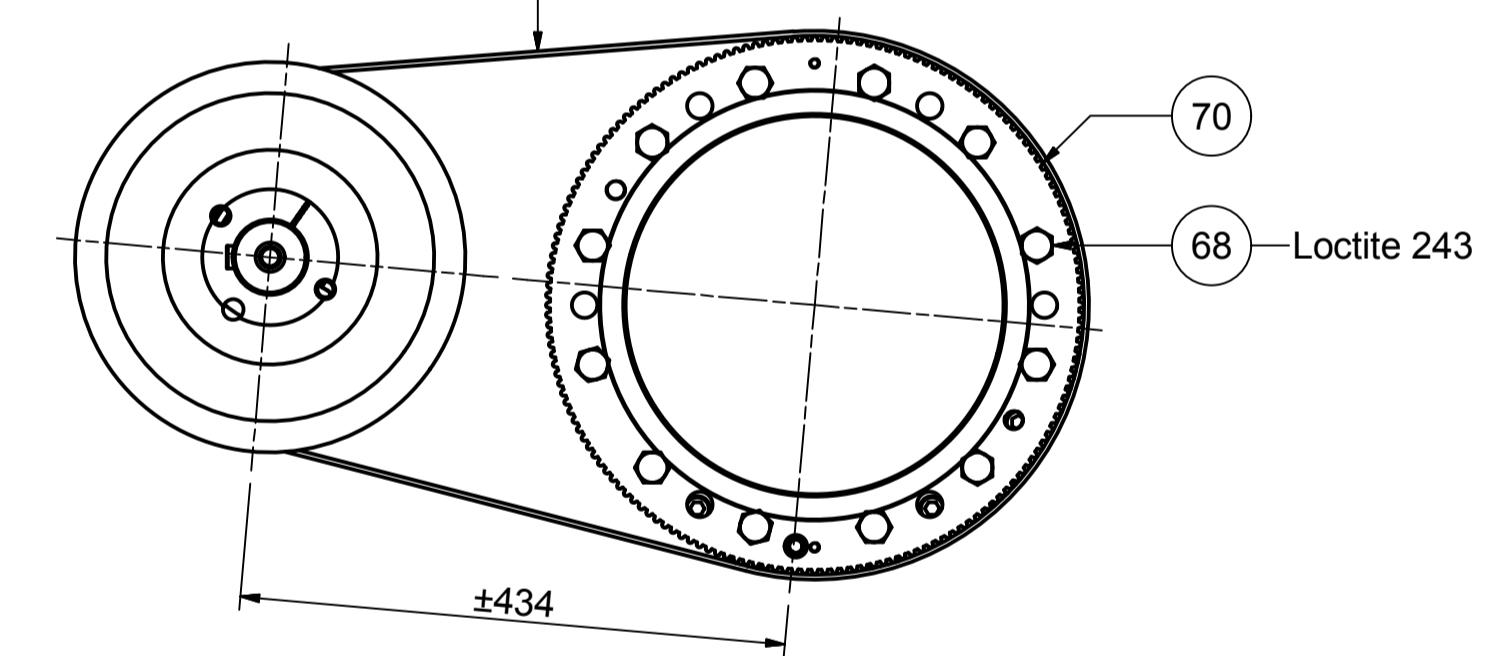
A-A (2 : 3)



Suction pipes



View: C



Remarks:

- Fill bearing house with 150 - 250g grease. Type: **Kluberplex ben 41-132**;
- Grease ONLY lip of lip seals with little bit 'Kluberplex ben 41-132';
- Spline connections: Grease with 'Kluberplex ben 41-132';
- Grease o-rings with acid free vaseline;
- Bolt connections without Loctite 2701/243: Grease with 'Anti seize (copper) paste'.

			SCALE : 1 : 3	REMARKS :
			DATE : 3-10-2017	
			NAME : I. van Buuren	
			CHECKED :	
			MATERIAL :	
			WEIGHT : ±250kg	
TITLE : ZF 7000 pump assembly A4VG180				
DRAWING No. : 437015300 Rev. 01				
REVISION SUBJECT				
01	Change Pos 13, del. Pos 76	300118	DATE	
FORMERLY KNOWN AS HRF THRUSTER SYSTEMS BY				REVISION NUMBER
NOT APPLICABLE FOR THIS DRAWING				00070
DIMENSIONS IN MILLIMETERS				AMERICAN PROJECT
TOLERANCES IN MILLIMETERS				ZF Marine Krimpen BV
NOT SPECIFIED, ALL DIMENSIONS TOLERANCES				Zaag 27 P.O. Box 2020 Krimpen aan de Lek The Netherlands
SCHERF KANTEN DRIEËNHALF GRAAD				Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099
OPPERVLAKTE RUGGED				AMERICAN PROJECTION
VRIJ VAN GROVE KANTEN				(ISO 128-32)
CHAMFER SHARP EDGES 0,5MM				SURFACE ROUGHNESS



Part List

For external use

Partlist number **437015300**
Drawing No. **43701530000**
Description **Pump assembly ZF 7000 HS (A4VG180)**
Last revision date **6-10-2017**
MEMO **(A4VG180 - PGP640)**

Pos	Qty	Part code	Part description	Weight
002	1	4317Z0000	Adapter	18,40
003	1	5500000433	Pulley	12,00
004	1	4318Z0000	Adapter	11,00
005	1	2000001230	O-ring	0,00
006	1	2000000038	O-ring	0,00
007	8	3000000131	Socket head cap screw	1,02
008	1	4000000890	Dp gr.ball bearing	0,65
009	1	9000000498	Grease nipple	0,01
010	8	3000000031	Hexagon head screw	1,32
011	8	3500000054	Washer	0,08
012	1	3900000018	Retaining ring	0,03
013	1	4314Z0000	Shaft	6,80
014	1	9000001276	De-aeration nipple	0,01
015	1	3800000044	Parallel key	0,10
016	1	5500000065	Taperbush	0,00
019	1	4000000891	Dp gr.ball bearing	0,85
020	1	2000000154	O-ring	0,00
021	1	2000001183	Lip seal	0,00
022	1	4319Z0000	Cover	1,10
023	8	3000000148	Socket head cap screw	0,05
024	1	4320Z0000	Spacer	0,07
025	1	4000000892	Inner ring	0,00
026	1	3900000018	Retaining ring	0,03
027	1	2000000490	O-ring	0,00
028	4	8000000374	SAE split flange halves	1,00
029	8	3000000118	Socket head cap screw	0,40
030	2	44525Z7000	Lub oil suction pipe	1,00
031	4	2000000656	O-ring	0,01
032	8	3500000065	M12 Washer spring	0,02
034	2	3000000426	Hexagon head screw	0,37



Part List

For external use

Partlist number **437015300**
Drawing No. **43701530000**
Description **Pump assembly ZF 7000 HS (A4VG180)**
Last revision date **6-10-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
035	2	3500000053	Washer	0,02
036	4	3000000207	Hexagon nut	0,13
039	4	3000000065	Hexagon head bolt	0,56
040	4	19112X5000	Bolt connection bush	0,00
041	2	1100000146	Strip	1,59
042	1	9000002345	Hose	0,00
043	1	9000002346	Hose	0,00
049	4	9500001019	SAE split flange halves	0,00
050	8	3000000116	Socket head cap screw	0,34
051	2	2000000913	O-ring	0,00
052	8	3500000065	M12 Washer spring	0,02
053	8	3500000063	M14 Washer spring	0,03
055	2	9500001260	Straight male standard fitting	0,00
056	2	8000000351	SAE flange	0,00
057	8	3000000649	Socket head cap screw	0,01
058	2	2000000110	O-ring	0,00
059	1	9500001257	Straight male standard fitting	0,00
061	2	9500001177	Connectingnipple	1,00
062	2	9500001077	Straight male standard fitting	0,00
064	4	3500000006	Washer	0,04
065	1	8000001563	Pump	123,50
066	6	3000000031	Hexagon head screw	0,99
067	6	3500000054	Washer	0,06
068	12	3000000067	Hexagon head bolt	1,86
069	1	5500000872	Tooth belt	0,00
070	1	4310Z7000	Pulley	26,30
074	1	3000000399	Hexagon head screw plug	0,38
075	1	3000000192	Hexagon head screw plug	0,30
076	1	2000000455	Bonded seal	0,02
077	1	44560Z7000	Manifold	7,20



Part List

For external use

Partlist number **437015300**
Drawing No. **43701530000**
Description **Pump assembly ZF 7000 HS (A4VG180)**
Last revision date **6-10-2017**

MEMO

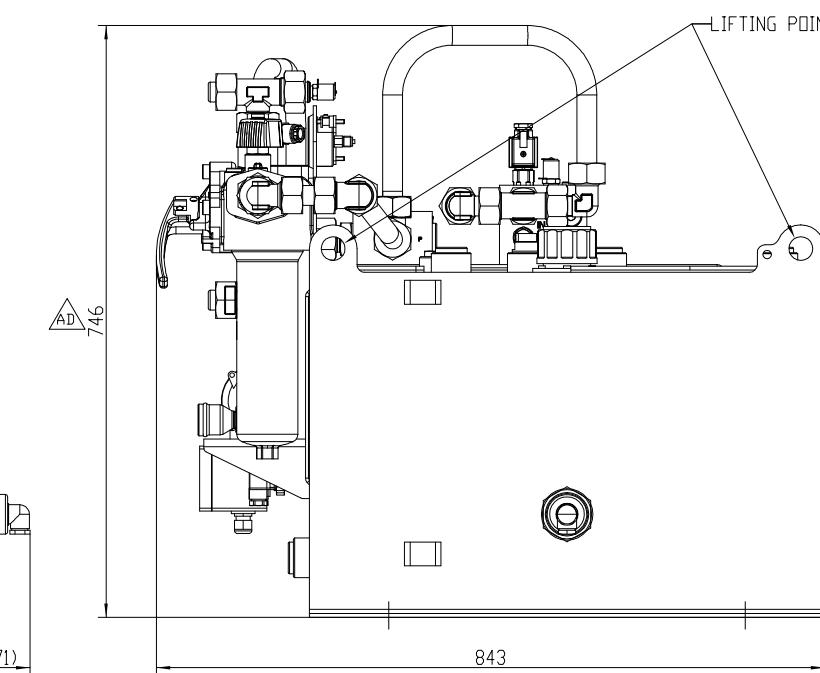
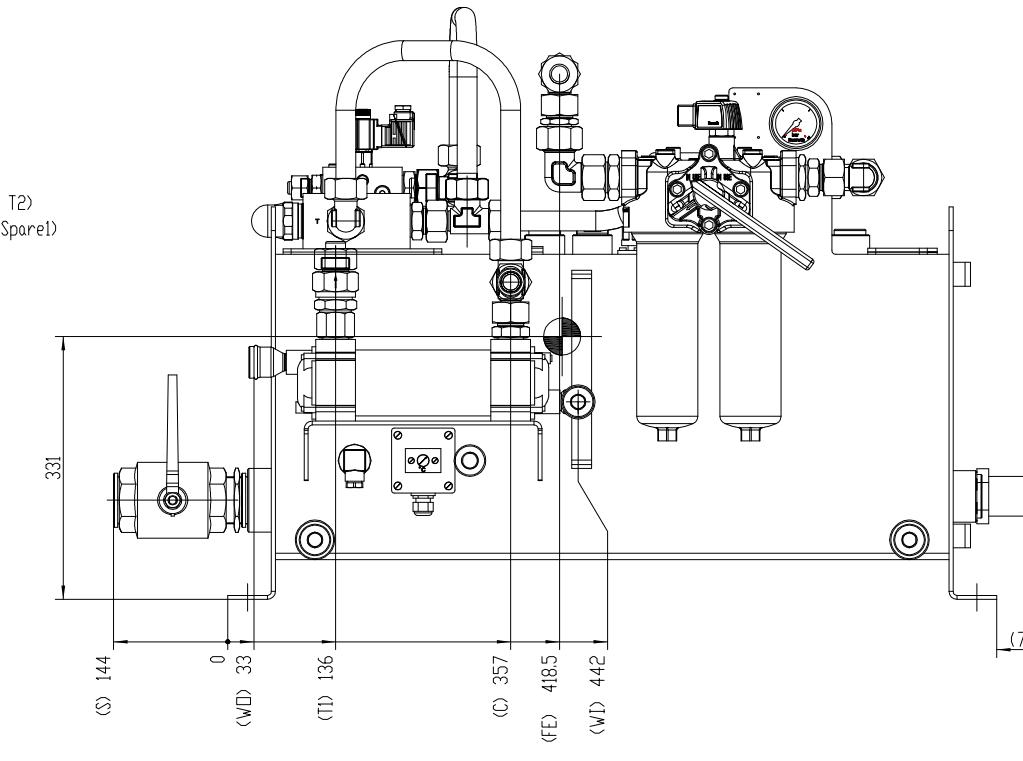
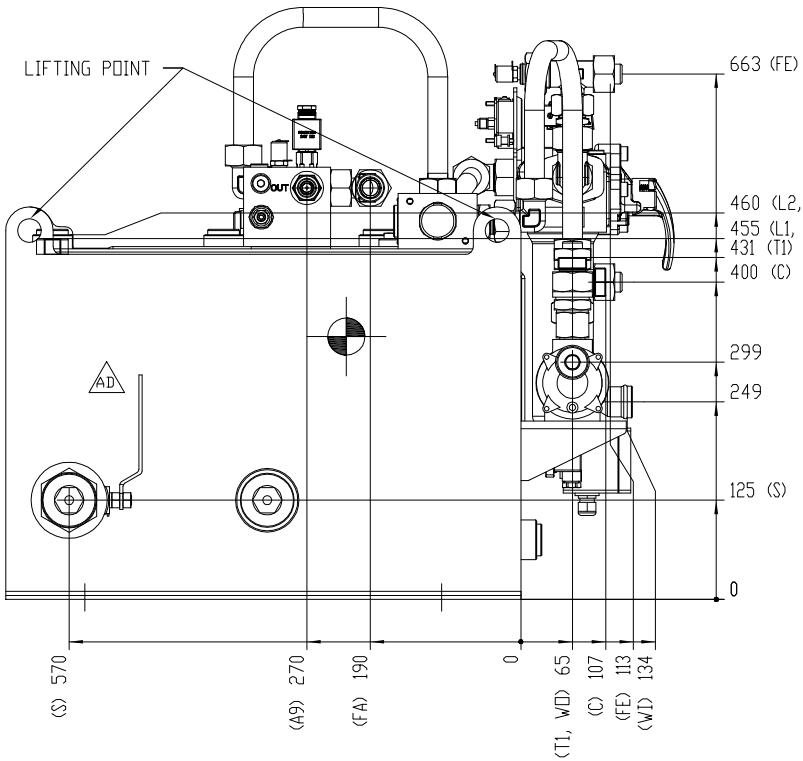
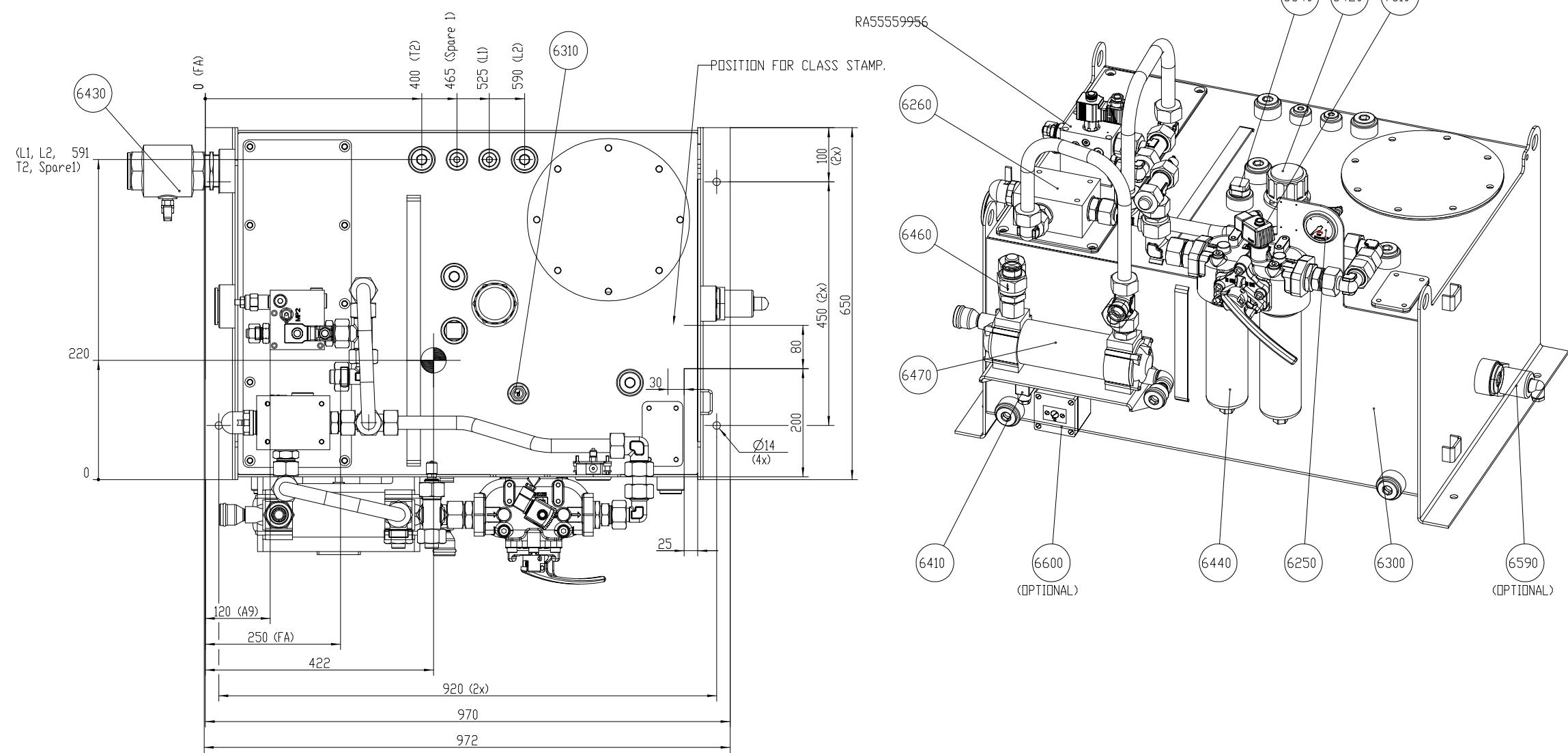
Pos	Qty	Part code	Part description	Weight
078	8	3000000573	Socket head cap screw	0,26
079	2	2000000644	O-ring	0,00
080	1	9500000414	Blanking Plug fit cones	0,00
081	1	9500001002	Nut	0,24
082	1	9500000489	Str. m. st. fit	0,10
083	1	3000000399	Hexagon head screw plug	0,38
084	1	2000000645	Bonded seal	0,02
085	1	4373Z0000	Cover	5,30
086	4	3000000047	Hexagon head screw	0,05
087	4	3500000119	Washer	0,01
089	2	9500001261	JIC female cap	0,40
090	1	9500001232	JIC female cap	0,55
091	4	9500001271	Jic female cap	1,09
Total Weight				229,074 kg
001	1	Pump support machining	4331Z0000	

PORT DESCRIPTION	PORT INTERFACE DIMENSION	DIRECTION
C	25S-24° DIN2353	B
S	2° BSP	F
FA	25S-24° DIN2353	A
FE	25S-24° DIN2353	B
T1	25S-24° DIN2353	C
L2, T2	1° BSP	C
Spare, L1	1/2° BSP	C
W1	1° BSP	F
W0	1° BSP	F
A9	16S-24° DIN2353	F

REMARKS :
Mass without fluid
WITH WALFORM

Maximum Dimension : 1087 x 843 x 746
Type : INDOOR INSTALLATION
Hydraulic Diagram : ..
Hydraulic Medium : ISO VG 46
Operating Pressure : 190 [bar]
AB-Description : ..

DIRECTION
C
F
A
B
E
D

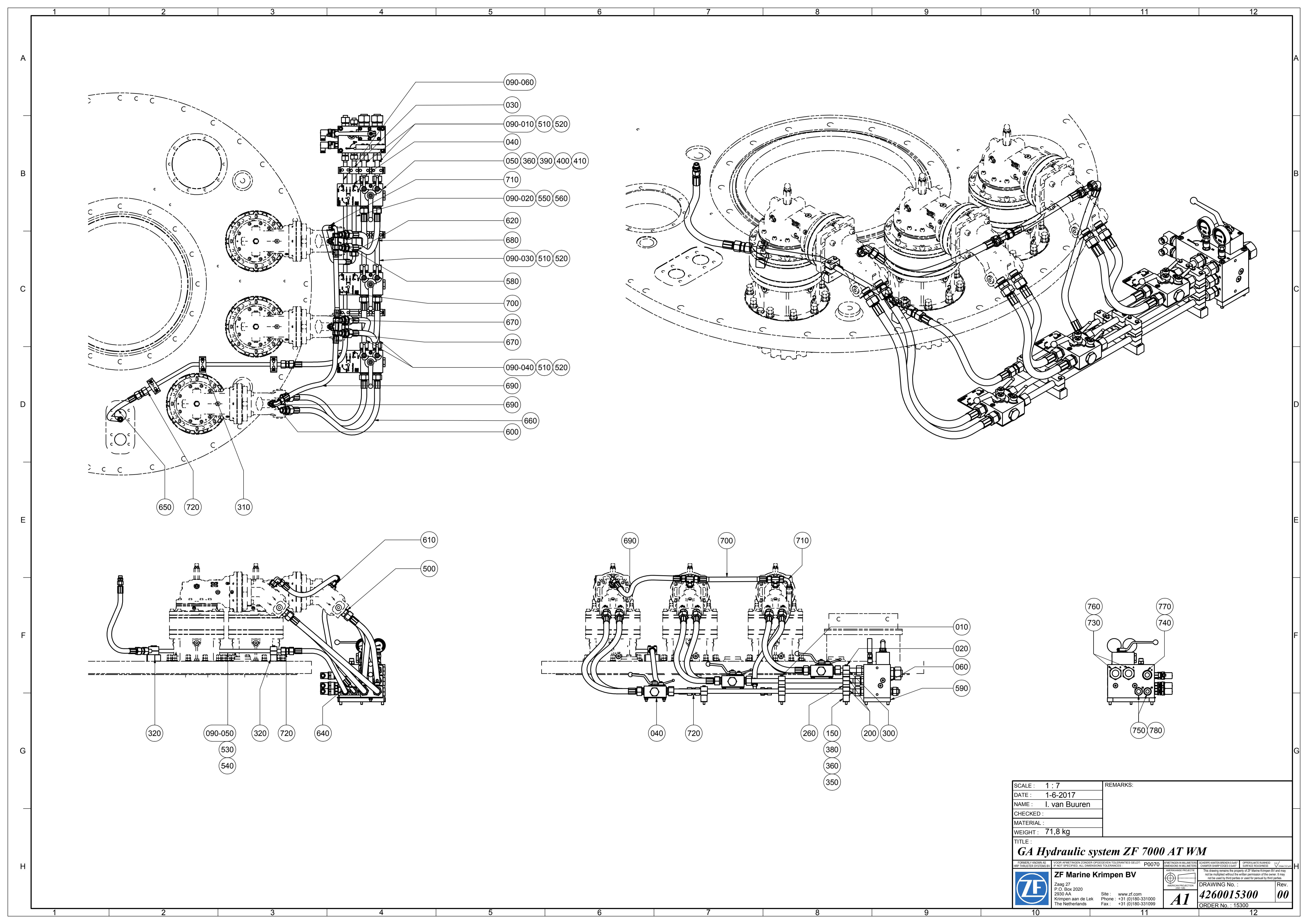


SCALE : -	DATE : 21-04-2017	REMARKS : Ref.: RA55530082
NAME : ADH	CHECKED : -	MATERIAL : -
WEIGHT : 185	REV/SUBJECT : -	DRAWING NO. : 0501.009.332 00
TITLE : Hydraulic System		
ZF Marine Krimpen BV		
Zaag 27 P.O. Box 2020 Site: www.zf.com/marite Krimpen aan de Lek The Netherlands Phone: +31 (0)18-531000 Fax: +31 (0)18-531050		

Rev. 00

12

				TITLE: ZF Marine Krimpen B.v. Partslist Hydraulic ZF CL reservoir 02	PROJECT : Generic			
					DOCUMENT : n.a.			
					DRAWN : msi			
					CHECKED : 0			
					DATE OF ORIGIN : 23-8-2016			
					CURRENT REVISION : 00			
REV.	DATE	DRWN	CHK.					
Rev	POS	Quantity		Equipment Description			Data Sheet	Additional Requirements / Remarks
		Hydraulic equipment			Part code			
	6300	1	OIL RESERVOIR					
	6300	1	NAMEPLATE					
	6250	1	PRESSURE GAUGE					
	6250	1	MEASURING HOSE					
	6260	1	PRESSURE RELIEF VALVE					
	6310	1	DIPSTICK					
	6340	1	INDICATOR					
	6410	1	TEMPERATURE SENSOR					
	6420	1	AIR FILTER					
	6430	1	BALL VALVE					
	7510	1	CLOGGING INDICATOR					
	6440	1	DUPLEX FILTER					
		2	FILTER ELEMENT		9000002393			
	6460	1	NON-RETURN VALVE					
	6470	1	OIL-WATER COOLER					
	7350	1	CONTROL BLOCK					
			DIRECTIONAL SPOOL					
	7370	1	VALVE					
	7370	1	COIL					
	7370	1	PLUG-IN CONNECTOR					
			SCREW-IN CARTRIDGE					
	7380	1	VALVE					
			SCREW-IN CARTRIDGE					
	7400	1	VALVE					
			SCREW-IN CARTRIDGE					
	7520	1	VALVE					





Part List

For external use

Partlist number

4260015300

Drawing No.

426001530000

Description

GA Hydraulic system ZF 7000 AT

Last revision date

3-10-2017

Pos	Qty	Part code	Part description	Weight
010	4	3000000522	Hexagon head bolt	0,09
020	4	3000001578	Hexagon head bolt	0,40
030	2	8000001490	Tube clamp	0,02
040	3	42620Z0000	Instruction plate valve	0,00
050	3	9000001641	Ball valve	14,37
060	1	42615Z0000	Manifold flush oil steering(sensor)	33,21
150	3	54305X0000	Mounting rails machined	0,90
200	6	8000001645	Tube clamp	1,20
260	6	54316X0000	Distance plate	0,06
300	6	8000001472	Tube clamp	2,22
310	6	8000001471	Tube clamp	1,74
320	3	54301X0000	Mounting rails machined	0,27
350	5	3000000157	Socket head cap screw	0,06
360	3	3500000428	Washer	0,01
380	6	1200000859	Plastic square cover	0,00
390	6	3000001574	Socket head cap screw	0,15
400	6	3500000428	Washer	0,01
410	6	3000000213	Hexagon nut	0,03
500	6	9500000069	Str. m. st. fit	1,56
510	12	9500001208	Nut	1,22
520	12	9500001195	Cutting ring	0,13
530	2	9500001206	Nut	0,13
540	2	9500001193	Cutting ring	0,01
550	2	9500001207	Nut	0,12
560	2	9500001194	Cutting ring	0,01
580	2	9500000996	Adj. br. T fit/sw L/st Ø15	1,92
590	2	54322X0000	Distance strip flushing manifold	0,10
600	1	9500000850	Fitting	0,20
610	3	9500001223	Str. m. st. fit	0,03
620	1	9500000862	Straight fitting	0,20
640	1	9000000141	Hose	0,00



Part List

For external use

Partlist number

4260015300

Drawing No.

426001530000

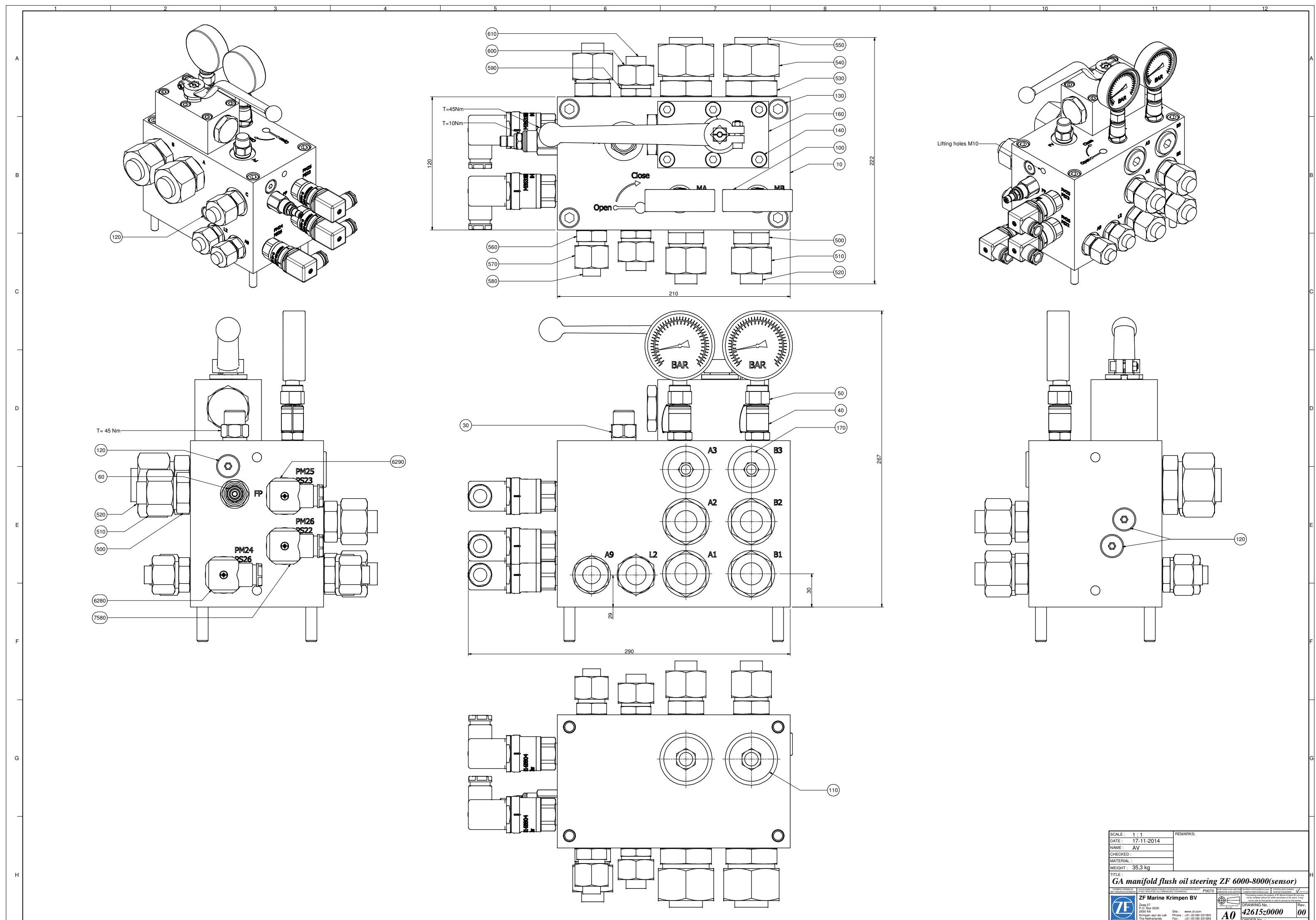
Description

GA Hydraulic system ZF 7000 AT

Last revision date

3-10-2017

Pos	Qty	Part code	Part description	Weight
650	1	9000002425	Hose	0,00
660	2	9000001480	Hose	4,00
670	2	9000002313	Hose 20S180B20S180B L=0530	0,00
680	2	9000000230	Hose	0,00
690	1	9000001536	Hose 15L180B1/2"15L180B-P1-P L=480	0,00
700	1	9000001537	Hose 15L180B1/2"15L180B-P1-P L=375	0,00
710	1	9000001538	Hose 15L090B1/2"18L090B-P5-P L=650	0,00
720	3	9500000046	Straight fitting	0,68
730	2	9500001219	Connectingnipple	0,90
740	1	9500001236	Straight male standard fitting	0,00
750	2	9500001233	Straight male standard fitting	0,00
760	2	9500001271	Jic female cap	0,54
770	1	9500001237	JIC female cap	0,11
780	2	9500001232	JIC female cap	1,11
Total Weight				67,732 kg
090	1	Special piping ZF 7000 AT(HYDR)	42600SP15300	





Part List

For external use

Partlist number **42615Z0000**
Drawing No. **42615Z000000**
Description **Manifold flush oil steering(sensor)**
Last revision date **17-9-2015**

Pos	Qty	Part code	Part description	Weight
010	1	42617Z0000	Manifold	24,20
030	1	8000001593	Cartridge _shuttle valve	0,17
040	2	9500000972	Test point	0,00
050	2	9000006771	Test point connector	0,00
060	1	8000002162	Cartridge	0,00
100	2	9000006786	Pressure gauge	0,50
110	2	3000000940	Blanking plug	0,03
120	5	9500000322	Blanking plug	0,09
130	4	3000001573	Socket bolt	0,48
140	6	3000001574	Socket head cap screw	0,00
160	1	8000011352	Ball valve 2-way manifold	2,44
170	2	3000000939	Blanking plug	0,03
500	5	9500000059	Str. m. st. fit	1,30
510	5	9500001208	Nut	0,51
520	5	9500000160	Blanking Plug fit cones	0,39
530	2	9500000524	Str. m. st. fit	1,32
540	2	9500001211	Nut	0,44
550	2	9500000280	Blanking Plug fit cones	0,24
560	2	9500000065	Str. m. st. fit	0,32
570	2	9500001206	Nut	0,13
580	2	9500000159	Blanking Plug fit cones	0,09
590	2	9500000784	Straight male standard fitting	0,31
600	2	9500001207	Nut	0,12
610	2	9500000860	Plug	0,10
6280	1	8000001552	Pressure transmitter	0,00
6290	1	8000001559	Pressure transmitter	0,00
7580	1	8000001559	Pressure transmitter	0,00

Total Weight

33,208 kg



Part List

For external use

Partlist number

42615Z0000

Drawing No.

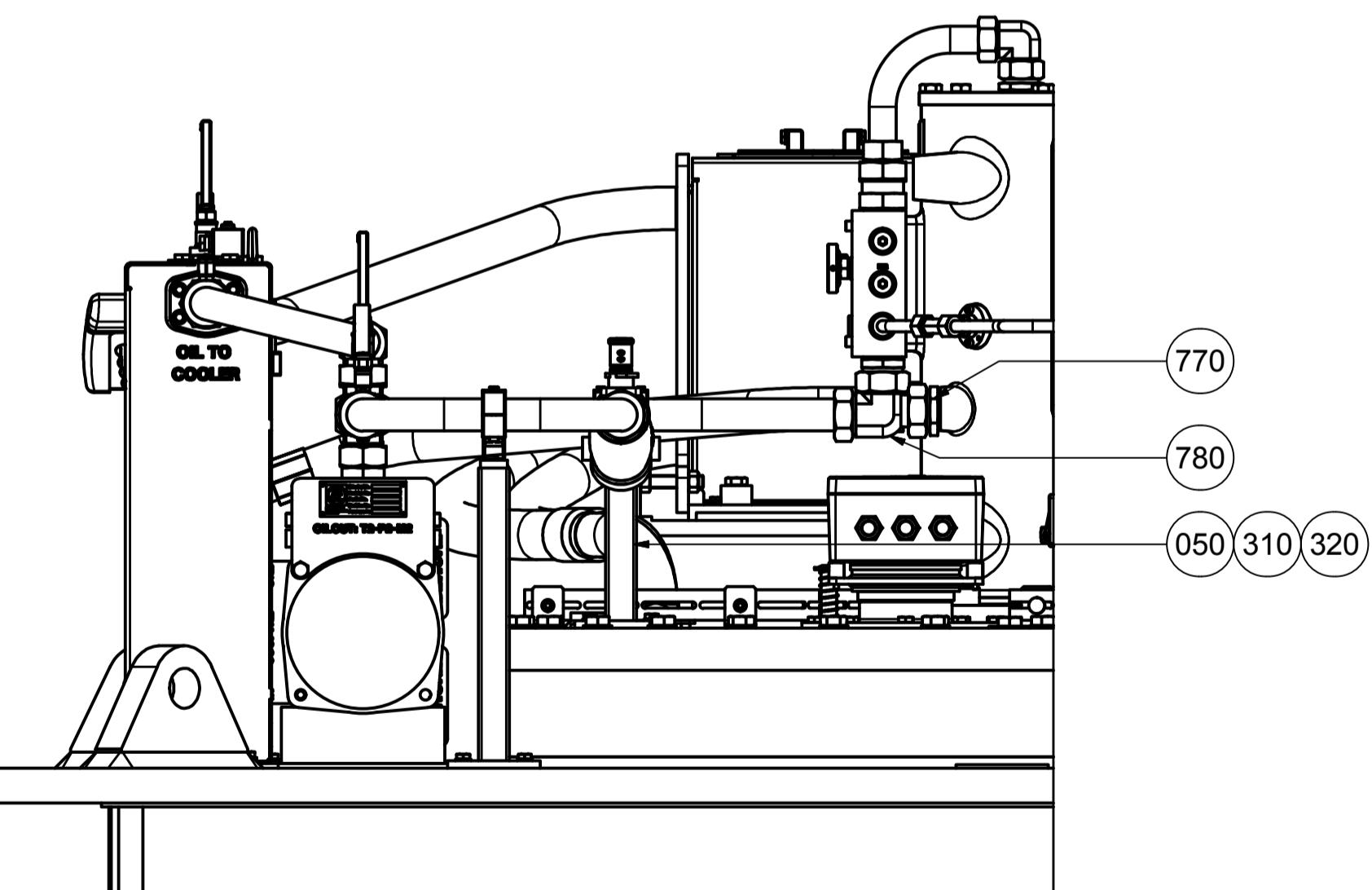
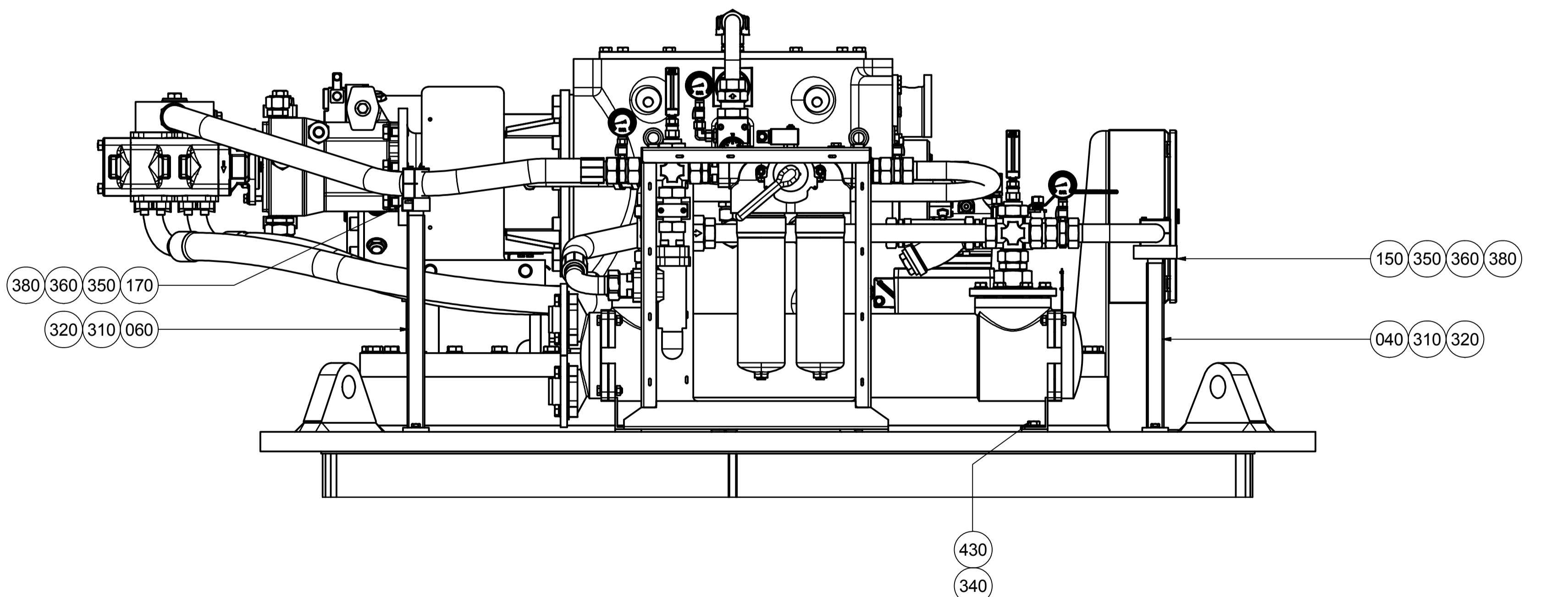
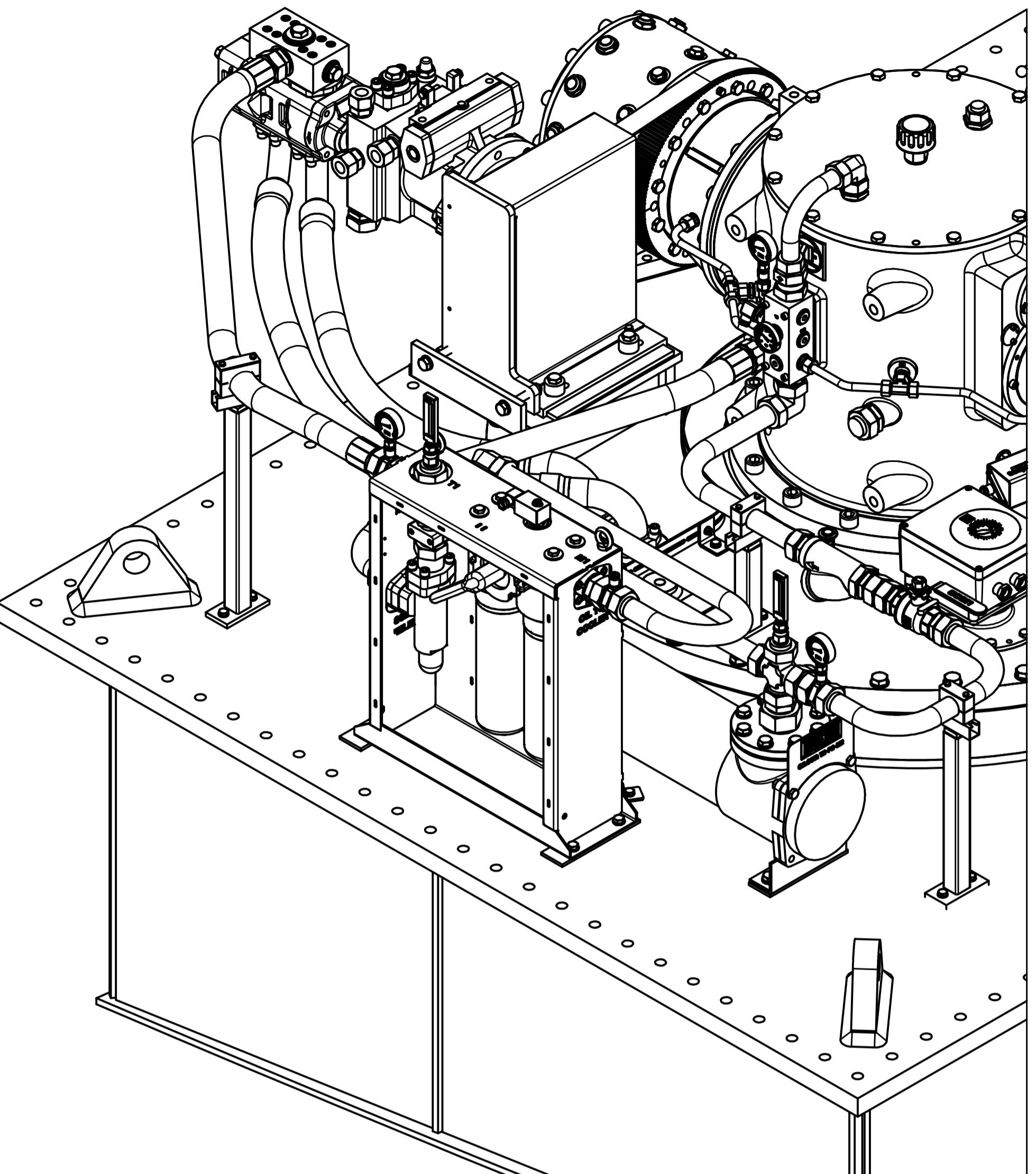
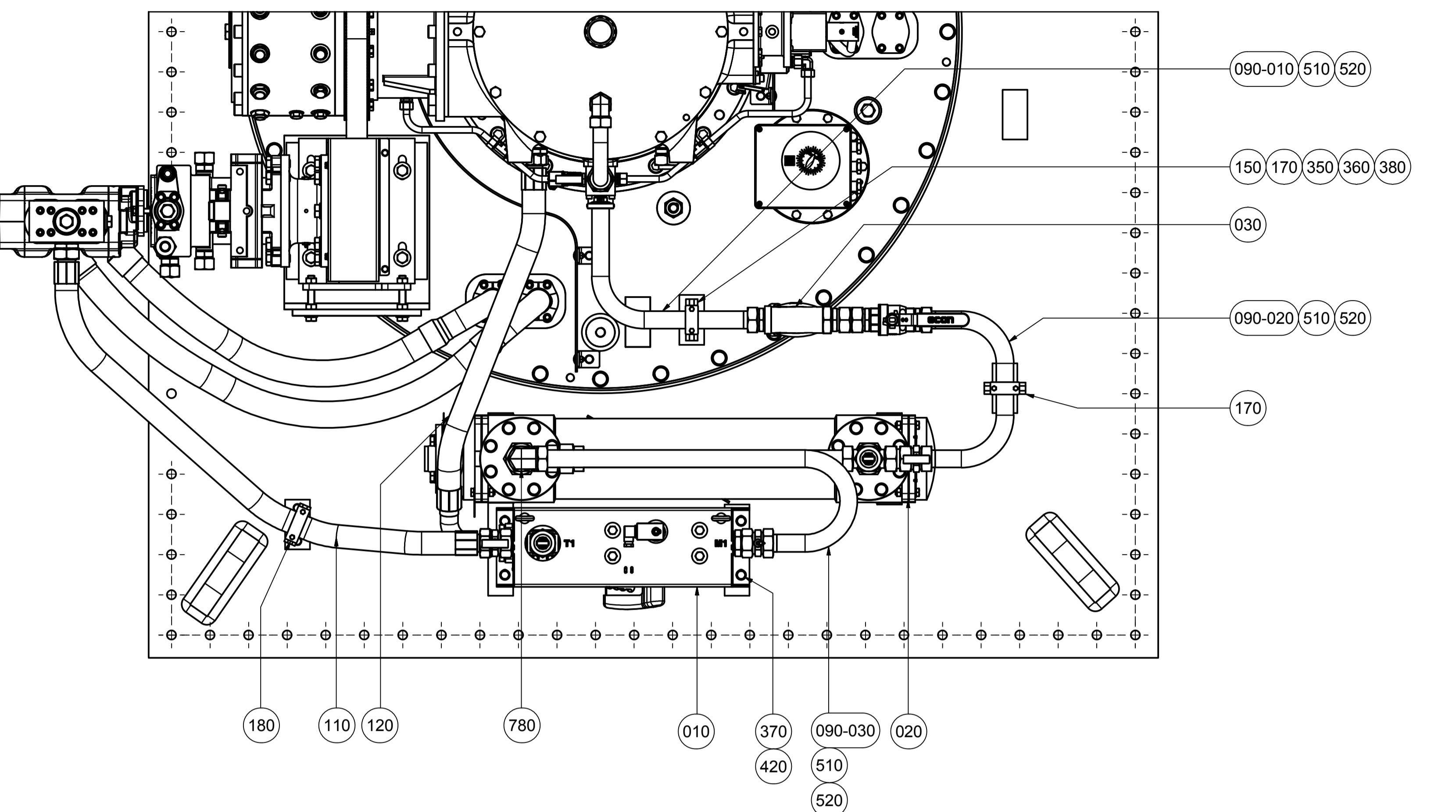
42615Z000000

Description

Manifold flush oil steering(sensor)

Last revision date

17-9-2015



SCALE : 1 : 8	REMARKS :
DATE : 5-9-2017	
NAME : I. van Buuren	
CHECKED :	
MATERIAL :	
WEIGHT : 221 Kg	
TITLE : GA lubrication system ZF AT 7000 WM (DOC)	
FORMEREL INHOUD AS VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDGT. HRP THRUSTER SYSTEMS BV DIMENSIES IN MILLIMETERS IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES	
P0070	
NEDERLANDSE PROJECTIE SURFACE FINISHES CHAMFER SHARP EDGES 0.5MM DRAFTING BY ZF Marine Krimpen BV SURFACE ROUGHNESS ✓ mm 1.2	
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ZF Marine Krimpen BV Zaag 27 5230 AA Krimpen aan de Lek The Netherlands	
Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099	
AMERICAN PROJECTION DRAWING No. : 4480015300 Rev. 00	
A1 ORDER No. : 15300	



Part List

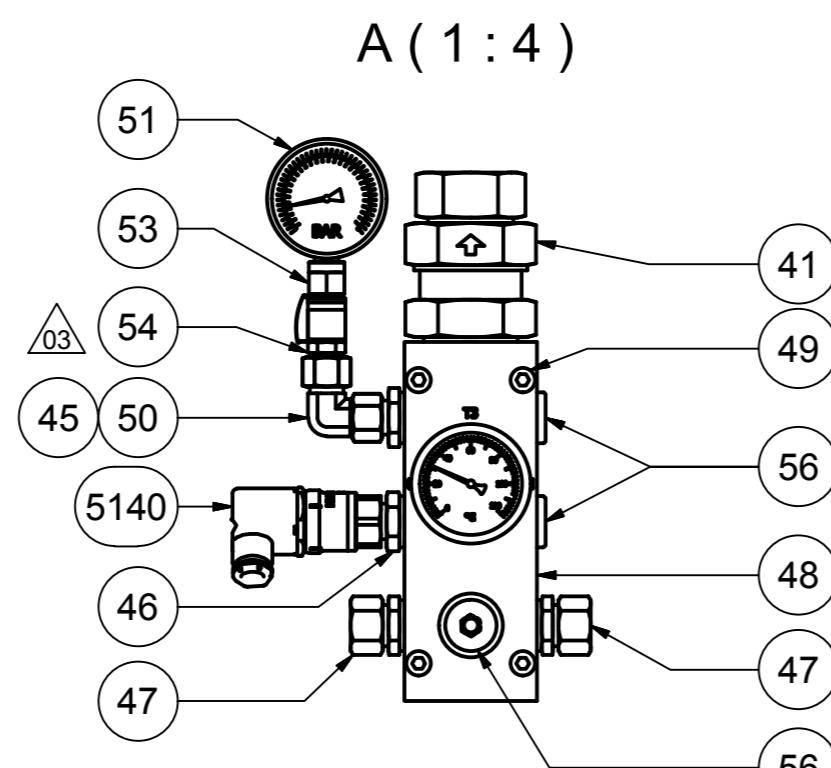
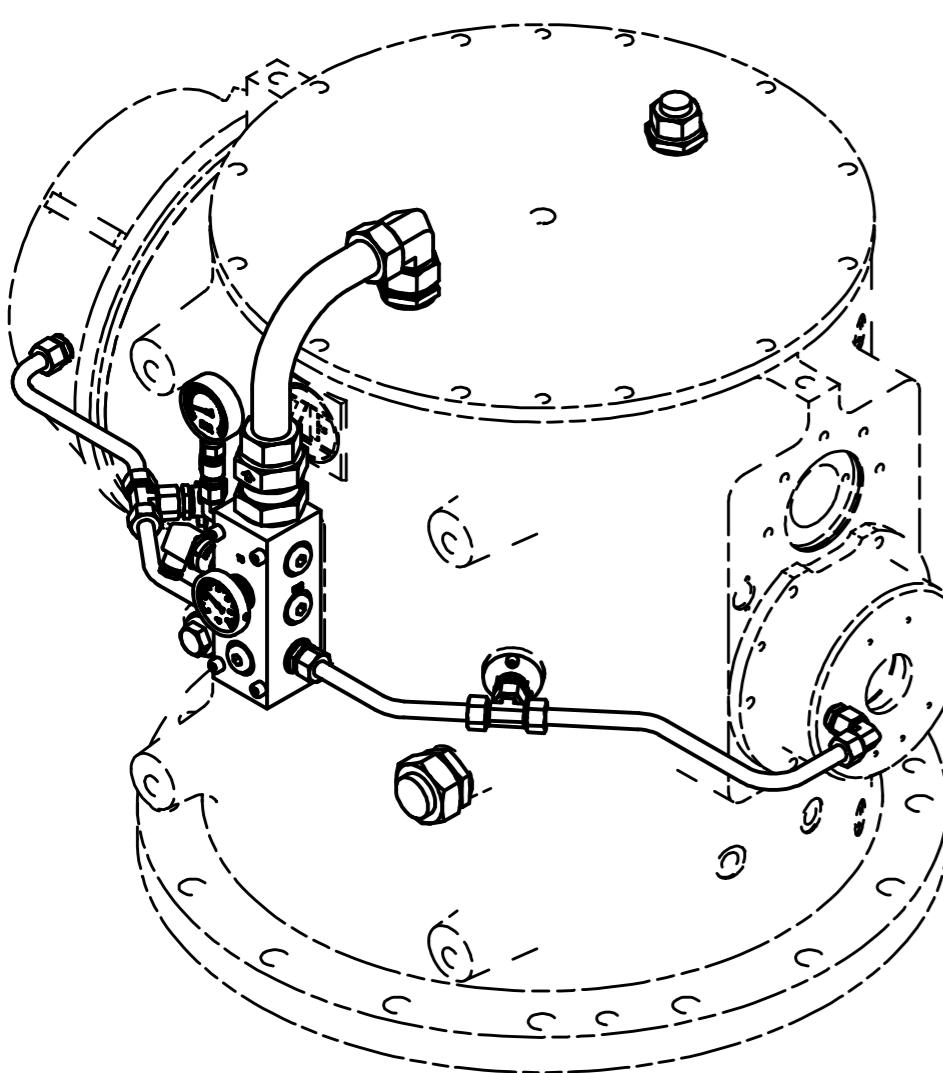
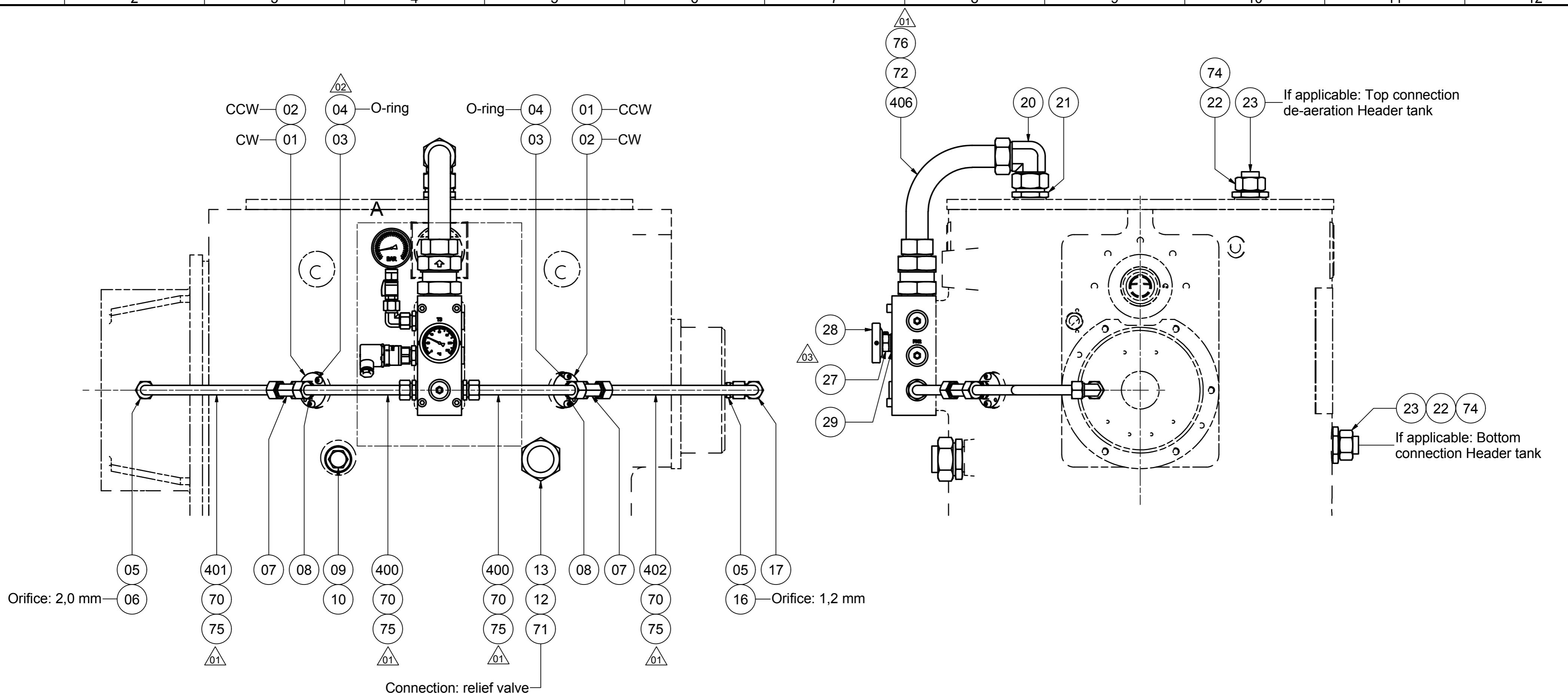
For external use

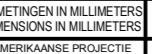
Partlist number **4480015300**
Drawing No. **448001530000**
Description **GA Lub syst. ZF 7000 AT(DOC-LUB)**
Last revision date **29-9-2017**

Pos	Qty	Part code	Part description	Weight
010	1	44101Z7800	Lub oil skid	83,00
020	1	44141Z7800	Cooler assembly	113,00
030	1	44250Z7800	Valve/Y-filter Lub. system	5,61
040	1	5450115300	Support lubrication pipe L=400	2,28
050	1	5450215300	Support lubrication pipe L=218	1,53
060	1	5450115269	Support lubrication pipe L=510	2,74
090	1	44800SP15300	Special piping ZF 7000 AT(DOC-LUB)	6,80
110	1	9000002618	Hose 42L180B11/2-11/2180B-P L=1450	0,00
120	1	9000000834	Hose	0,00
150	3	54302X0000	Mounting rails machined	0,45
170	2	8000001475	Tube clamp	0,02
180	1	8000001680	Tube clamp	0,20
310	6	3000000003	Hexagon head screw	0,14
320	6	3500000001	Washer	0,02
340	4	3500000053	Washer	0,04
350	3	3000000157	Socket head cap screw	0,04
360	3	3500000428	Washer	0,01
370	4	3000000007	Hexagon head screw	0,14
380	6	1200000859	Plastic square cover	0,00
420	4	3500000052	Washer	0,02
430	4	3000000016	Hexagon head screw	0,28
510	6	9500001213	Nut	1,30
520	6	9500001202	Cutting ring	0,14
770	1	9500000901	Str. m. st. fit	0,50
780	2	9500000099	Adj. elbow.	1,99

Total Weight

220,241 kg



		SCALE : 1 : 4.5	REMARKS: Keep it clean during assembly Fitting material: CF (Chromium6 Free)				
		DATE : 9-6-2015					
		NAME : CB					
		CHECKED : HS Rev.03					
		MATERIAL :					
		WEIGHT : ± 20 kg					
		TITLE : <i>Lub. system ZF 7000 UG with sensor</i>					
		FORMERLY KNOWN AS HRP THRUSTER SYSTEMS BV	VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES : P0070	AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS	SCHERPE KANTEN BREKEN 0.5x45° CHAMFER SHARP EDGES 0.5x45°	OOPPERVLAKTE RUWHEID SURFACE ROUGHNESS $\sqrt{ } = \text{max } 3.2 \mu\text{m}$	
03	R0517: Changed fittings		ZF Marine Krimpen BV	AMERIKAANSE PROJECTIE  AMERICAN PROJECTION (ISO 128)	This drawing remains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for personal by third parties.	DRAWING No. : 44220z7000	Rev. 03
02	R0493: Balloons corrected	Zaag 27 P.O. Box 2020 2930 AA Krimpen aan de Lek The Netherlands	Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099	A2	ORDER No. :		
01	R0333: Add cutting ring						
	REV / SUBJECT	DATE					



Part List

For external use

Partlist number

44220Z7000

Drawing No.

44220Z700003

Description

Lub. system ZF 7000 UG with sensor

Last revision date

28-8-2017

MEMO

Pos	Qty	Part code	Part description	Weight
001	1	44300Z7000	Spraypipe	0,51
002	1	44310Z7000	Spraypipe	0,64
003	5	3000000151	Socket head cap screw	0,04
004	2	2000001199	O-ring	0,00
005	2	4120X0000	Fitting	0,20
006	1	8000001342	Orifice	0,00
007	2	9500000996	Adj. br. T fit/sw L/st Ø15	1,92
008	2	9500000853	Str. m. st. fit	0,31
009	1	3000000193	Hexagon head screw plug	0,20
010	1	2000000286	Bonded seal	0,01
012	1	9500000414	Blanking Plug fit cones	0,00
013	1	9500000901	Str. m. st. fit	0,50
016	1	8000001279	Orifice	0,00
017	1	9500000850	Fitting	0,20
020	1	9500000098	Elbow fitting	0,69
021	1	9500000055	Str. m. st. fit	0,43
022	2	9500000721	Str. m. st. fit	1,32
023	2	9500000868	Plug	0,26
027	1	9000001353	Thermowell tube	0,00
028	1	9000001352	Temperature gauge	0,00
029	1	2000000688	Bonded seal	0,01
041	1	8000001350	Non return valve	0,00
045	1	9500000616	Str. m. st. fit	0,41
046	1	9500000657	Red. thr. adap. BSP RI	0,17
047	2	9500000853	Str. m. st. fit	0,31
048	1	44354Z6700	Manifold Lub.system	5,30
049	4	3000001110	Socket head cap screw	0,00
050	1	9500000528	Adj. elbow fitting	0,00
051	1	9000001349	Pressure gauge	0,00
053	1	9000006771	Test point connector	0,00



Part List

For external use

Partlist number **44220Z7000**

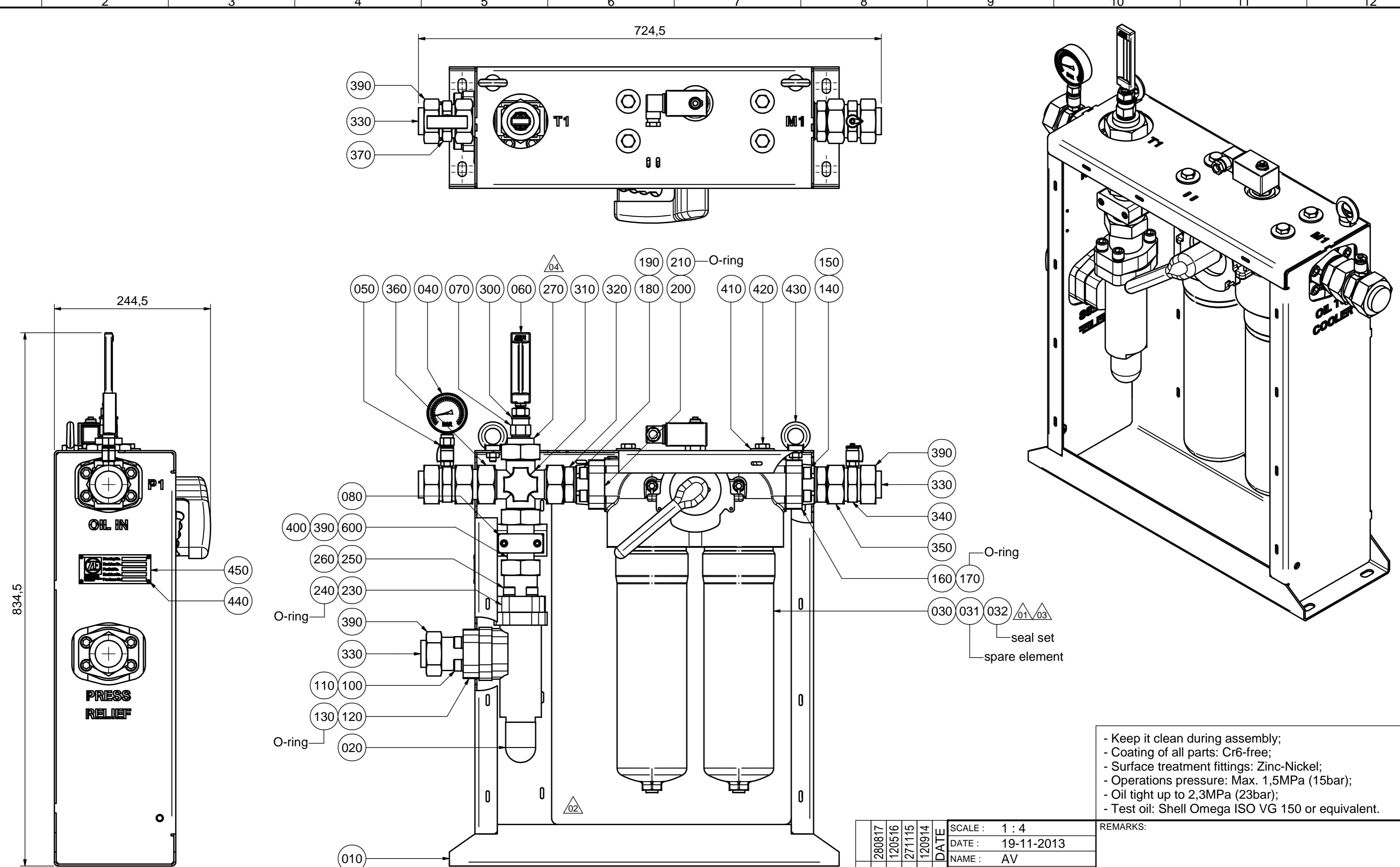
Drawing No. **44220Z700003**

Description **Lub. system ZF 7000 UG with sensor**

Last revision date **28-8-2017**

MEMO

Pos	Qty	Part code	Part description	Weight
054	1	9500001005	Test point 12L	0,00
056	3	9500000697	Blanking plug	0,02
070	8	9500000997	Nut	0,20
071	1	9500001213	Nut	0,22
072	2	9500000215	Nut	0,27
074	2	9500000432	Nut	0,18
075	8	9500001192	Cutting ring	0,04
077	2	9500001200	Cutting ring	0,04
400	2	44400Z7000	Pipe	0,20
401	1	44401Z7000	Pipe	0,20
402	1	44402Z7000	Pipe	0,20
406	1	44406Z7000	Pipe	0,60
5140	1	8000001552	Pressure transmitter	0,00
Total Weight				15,586 kg



REV SUBJECT		SCALE : 1 : 4	REMARKS:	
04	R0518: Pos. 270 added	280817		
03	R0388: Optional seal set	120516		
02	R0299: Change panel middle	271115		
01	R0196: Element on dwg	120914		
	DATE	DATE		
	NAME :	AV		
	CHECKED :	AS Rev.04		
	MATERIAL :			
	WEIGHT :	78.0 kg		
TITLE :		<i>Lubrication oil skid assembly</i>		
FORMERLY KNOWN AS		VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDGT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES:		
HRP THRUSTER SYSTEMS BV		AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS CHAMFER SHARP EDGES 0.5x45° SURFACE ROUGHNESS ∇ \pm 3.2 μ m		
Zag 27 P.O. Box 2020 2930 AA Krimpen aan de Lek The Netherlands		P0070		
ZF Marine Krimpen BV		AMERIKAANSE PROJECTIE AMERICAN PROJECTION (ISO 128)		
Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099		DRAWING No. : 44101z7800 Rev. 04		
		This drawing remains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for persual by third parties.		



Part List

For external use

Partlist number **44101Z7800**
Drawing No. **44101Z780004**
Description **Lubrication oil skid assembly**
Last revision date **28-8-2017**

Pos	Qty	Part code	Part description	Weight
010	1	44110Z7800	Lub. oil skid frame	20,20
020	1	8000001347	Relieve Valve G1-1/2"	6,00
030	1	9000006794	Filter	41,50
031	2	9000006795	Filter element	1,00
032	0	9000000719	Seal kit filter	0,00
040	1	9000006808	Pressure gauge	0,00
050	1	9000006771	Test point connector	0,00
060	1	9000006779	Temperature gauge	0,00
070	1	9000006780	Protection tube	0,00
080	1	8000001348	Tube clamp	0,10
100	4	3000000118	Socket head cap screw	0,20
110	4	3500000065	M12 Washer spring	0,01
120	1	8000001360	SAE flange	1,02
130	1	2000000913	O-ring	0,00
140	4	3000000118	Socket head cap screw	0,20
150	4	3500000065	M12 Washer spring	0,01
160	1	8000001359	Flange	1,05
170	1	2000000913	O-ring	0,00
180	4	3000000118	Socket head cap screw	0,20
190	4	3500000065	M12 Washer spring	0,01
200	1	8000001359	Flange	1,05
210	1	2000000913	O-ring	0,00
230	1	8000001360	SAE flange	1,02
240	1	2000000913	O-ring	0,00
250	4	3000000118	Socket head cap screw	0,20
260	4	3500000065	M12 Washer spring	0,01
270	1	44126Z0000	Plug	0,00
300	2	2000000688	Bonded seal	0,01
310	1	9500000900	Equal cross	1,50
320	1	9500000601	Str.st.adap.	0,00
330	3	9500000414	Blanking Plug fit cones	0,00

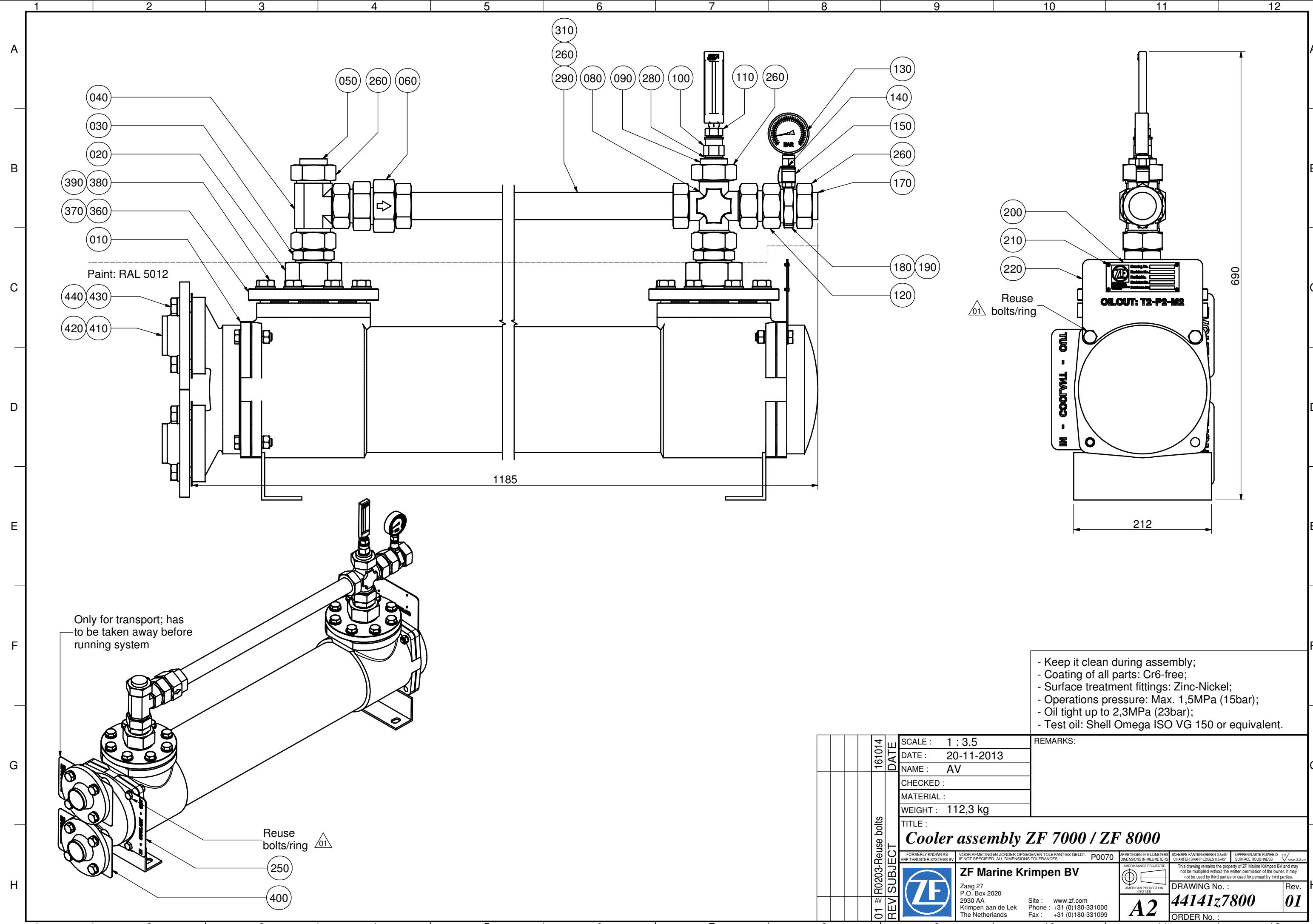


Part List

For external use

Partlist number **44101Z7800**
Drawing No. **44101Z780004**
Description **Lubrication oil skid assembly**
Last revision date **28-8-2017**

Pos	Qty	Part code	Part description	Weight
340	1	9500001000	Straight Test Point	0,42
350	1	9500000601	Str.st.adap.	0,00
360	1	9500000626	Swivel union	0,40
370	1	9500001000	Straight Test Point	0,42
390	6	9500001213	Nut	1,30
400	2	9500001202	Cutting ring	0,05
410	4	3500000051	Washer	0,00
420	4	3000000006	Hexagon head screw	0,12
430	2	3000000651	Eye bolt nut	0,02
440	4	3000000978	Pop rivet	0,28
450	1	44600Z0000	Type plate	0,01
600	1	44125Z0000	Pipe	0,30
Total Weight				78,628 kg





Part List

For external use

Partlist number

44141Z7800

Drawing No.

44141Z780001

Description

Cooler assembly ZF7000-ZF8000

Last revision date

28-8-2017

Pos	Qty	Part code	Part description	Weight
010	1	9000006787	Cooler P20-2P-L=1000 PF/MV	85,00
020	2	9500000422	Red. thr. adap. fem.	0,00
030	2	9500000601	Str.st.adap.	0,00
040	1	9500000876	Adj. br. T fit/sw	0,96
050	1	9500000414	Blanking Plug fit cones	0,00
060	1	8000001284	Non return valve	1,52
080	1	9500000900	Equal cross	1,50
090	1	44126Z0000	Plug	0,29
100	1	9000006780	Protection tube	0,00
110	1	9000006779	Temperature gauge	0,00
120	1	9500000626	Swivel union	0,40
130	1	9000006808	Pressure gauge	0,00
140	1	9000006771	Test point connector	0,00
150	1	44146Z0000	Test point	0,45
170	1	9500000414	Blanking Plug fit cones	0,00
180	1	3000000377	Hexagon socket screw plug	0,20
190	1	2000000769	Bonded seal	0,01
200	1	44600Z0000	Type plate	0,01
210	4	3000000978	Pop rivet	0,28
220	1	44145Z7800	Text plate	0,31
250	1	44144Z7800	Text plate	0,13
260	5	9500001213	Nut	1,08
280	2	2000000688	Bonded seal	0,01
290	1	44143Z7800	Cooler assembly Pipe	2,40
310	2	9500001202	Cutting ring	0,05
360	2	44147Z7800	Machined flange	6,80
370	2	9500000886	Gasket	2,00
380	16	3000000518	Hexagon head bolt	1,46
390	16	3500000053	Washer	0,16
400	2	54356X0000	Flange closing plate	0,40
410	2	9000002340	Flange	3,06

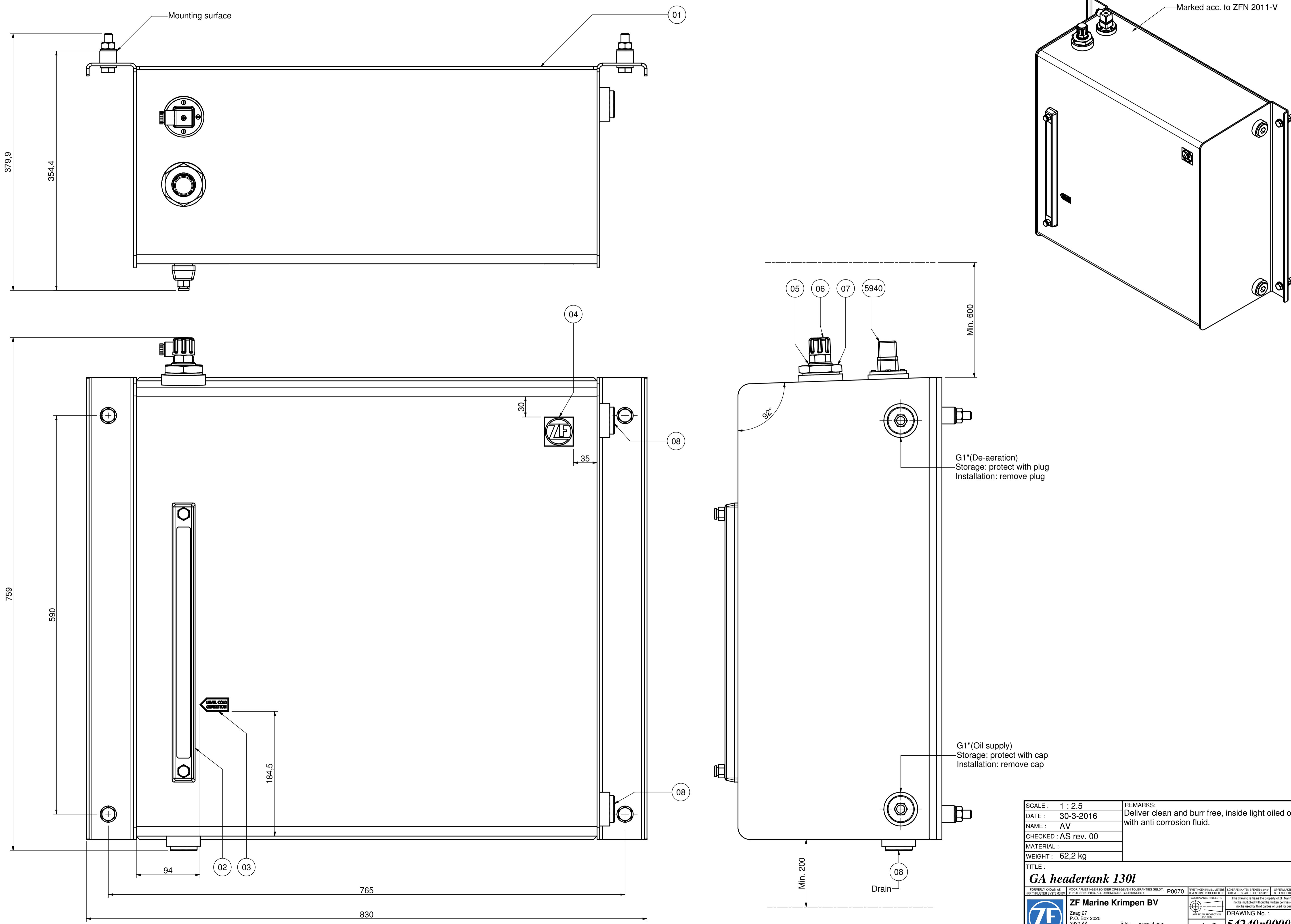


Part List

For external use

Partlist number **44141Z7800**
Drawing No. **44141Z780001**
Description **Cooler assembly ZF7000-ZF8000**
Last revision date **28-8-2017**

Pos	Qty	Part code	Part description	Weight
420	2	9500001147	Gasket	2,00
430	8	3000000021	Hexagon head screw	0,72
440	8	3500000006	Washer	0,07
Total Weight				111,260 kg



SCALE : 1 : 2.5	REMARKS: Deliver clean and burr free, inside light oiled or flushed with anti corrosion fluid.				
DATE : 30-3-2016					
NAME : AV					
CHECKED : AS rev. 00					
MATERIAL :					
WEIGHT : 62,2 kg					
TITLE : <i>GA headertank 130l</i>					
FORMERLY KNOWN AS HRP THRUSTER SYSTEMS BV	VOOR AFMETINGEN ZONDER OPGEGEVEN TOLERANTIES GELDT: IF NOT SPECIFIED, ALL DIMENSIONS TOLERANCES :	P0070	AFMETINGEN IN MILLIMETERS DIMENSIONS IN MILLIMETERS	SCHERPE KANTEN BREKEN 0.5x45° CHAMFER SHARP EDGES 0.5x45°	OPPERVLAKTE RUWHEID 3.2/ SURFACE ROUGHNESS $\sqrt{=}$ max 3.2 µm
	ZF Marine Krimpen BV Zaag 27 P.O. Box 2020 2930 AA Krimpen aan de Lek The Netherlands	Site : www.zf.com Phone : +31 (0)180-331000 Fax : +31 (0)180-331099	 AMERIKAANSE PROJECTIE (ISO 128)	This drawing remains the property of ZF Marine Krimpen BV and may not be multiplied without the written permission of the owner. It may not be used by third parties or used for personal by third parties.	DRAWING No. : 54240x0000 Rev. 00
			A1	ORDER No. :	

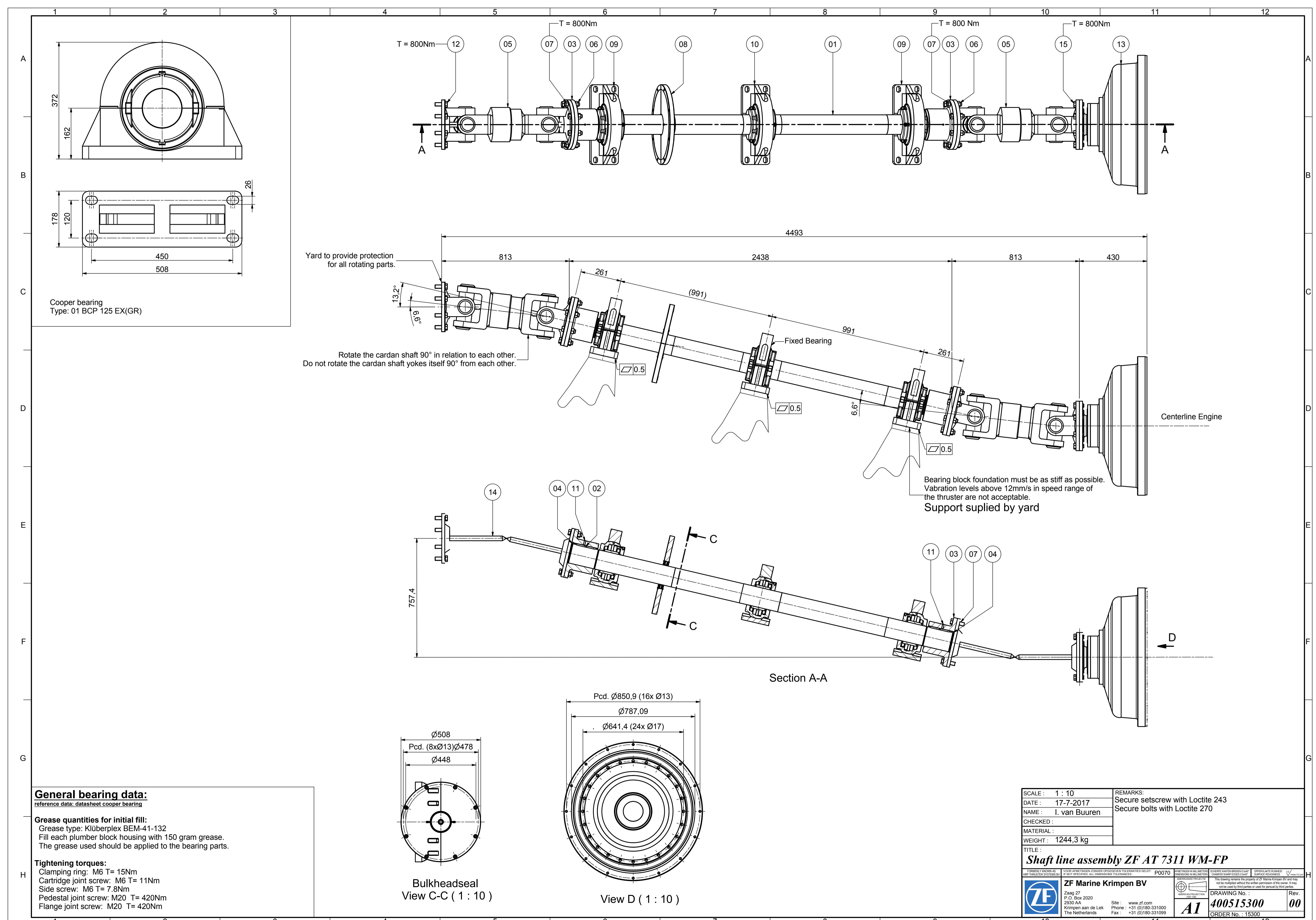


Part List

For external use

Partlist number **54240X0000**
Drawing No. **54240X000000**
Description **GA headertank 130l**
Last revision date **23-9-2016**

Pos	Qty	Part code	Part description	Weight
001	1	54241X0000	Headertank_Construction	60,00
002	1	0632.100.184	Oil level indicator	0,24
003	1	7400007003	STICKER	0,00
004	1	7400007002	STICKER ZF 40x40 mm	0,00
005	1	2000000689	Bonded seal	0,01
006	1	0637.101.232	Breather 3/4"	0,15
007	1	9500000687	Red. thr. adap. fem	0,34
008	3	3000000940	Blanking plug	0,05
5940	1	9000001392	Level switch lub. oil tank	0,00
Total Weight				60,783 kg





Part List

For external use

Partlist number **400515300**
Drawing No. **40051530000**
Description **Shaft line assembly ZF AT 7311 WM**
Last revision date **13-10-2017**

Pos	Qty	Part code	Part description	Weight
001	1	400315300	Shaft	238,70
002	2	4003X7000	Parallel key	1,00
003	2	4001X7000	Counterflange	68,40
004	2	3900000024	Retaining ring	0,16
005	2	400215300	Cardan shaft	476,00
006	16	3000000753	Self locking nut	0,02
007	16	3000000794	Hexagon head bolt	4,11
008	1	401250X0000	Bulkheadseal Shaft	25,00
009	2	4000000966	Cooper Bearing	0,00
010	1	4000000967	Cooper Bearing	0,00
011	2	3000000707	Socket set screw	0,02
012	8	3000000755	Hexagon head bolt	2,06
013	1	400115300	Flexible coupling	307,00
014	2	4031815300	Pointer ZF 7000 (\varnothing 315)	21,64
015	8	3000000773	Hexagon head bolt	1,75
Total Weight				1.145,851 kg