

107443

Zentrifugalpumpen
Pompes centrifuges
Centrifugal Pumps

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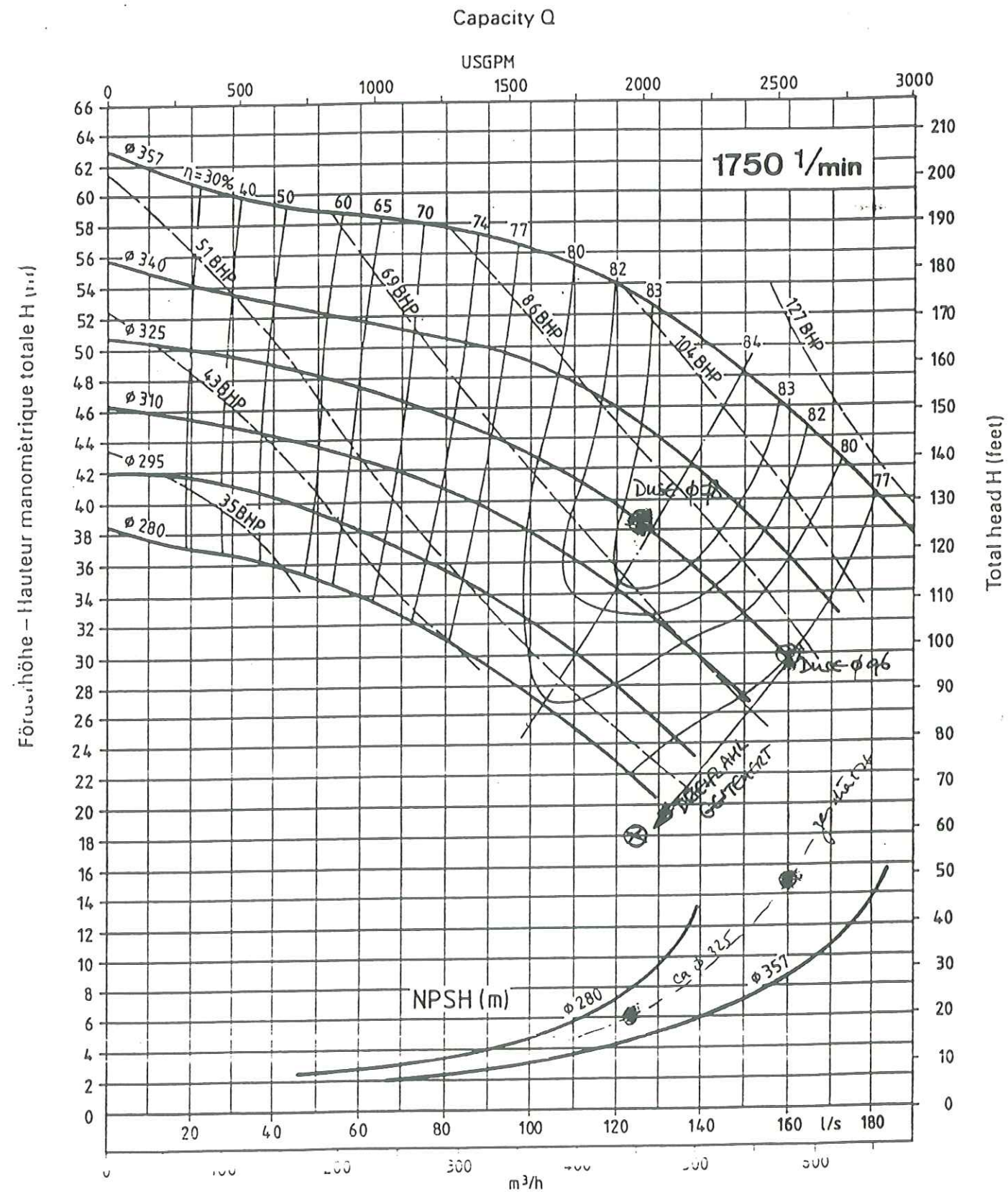
 **Biral-Buss**

6/87

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1750 1/min

NZP 340R-200-1

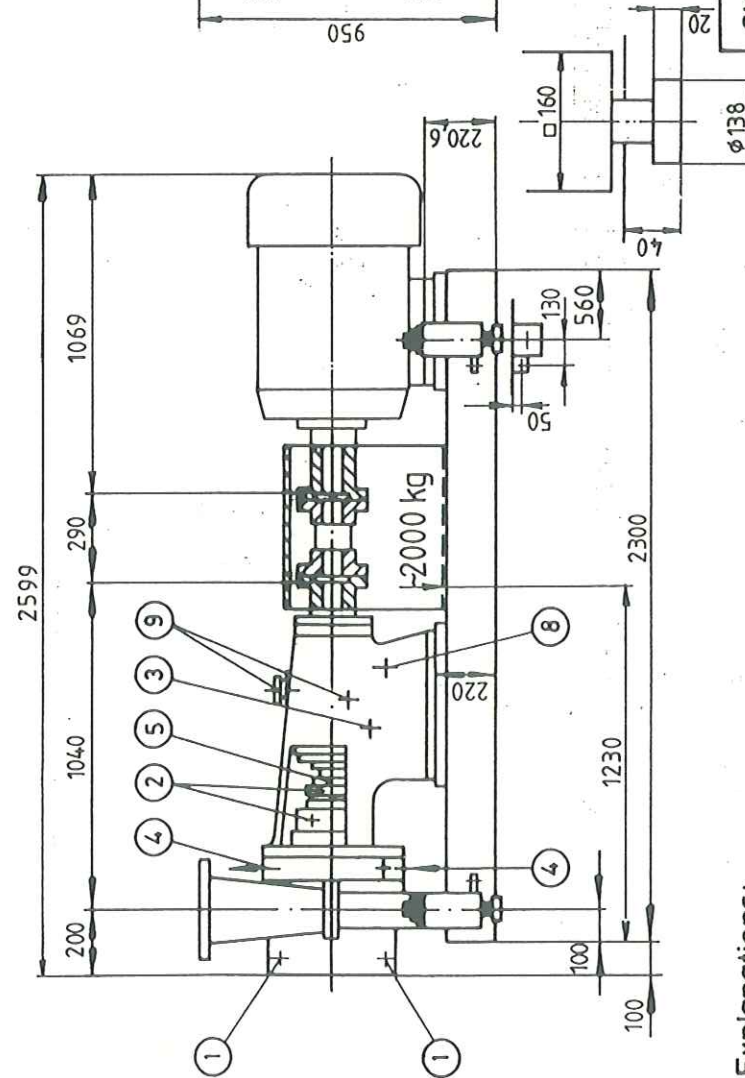
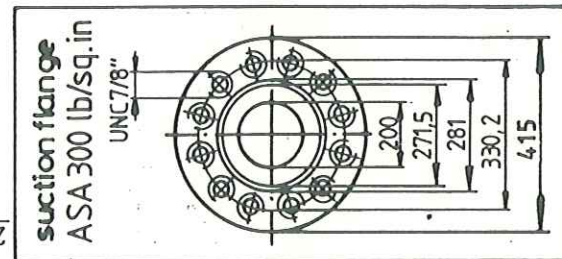
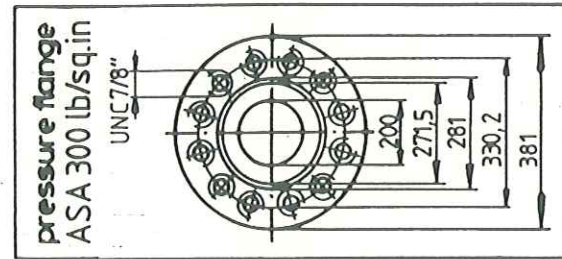
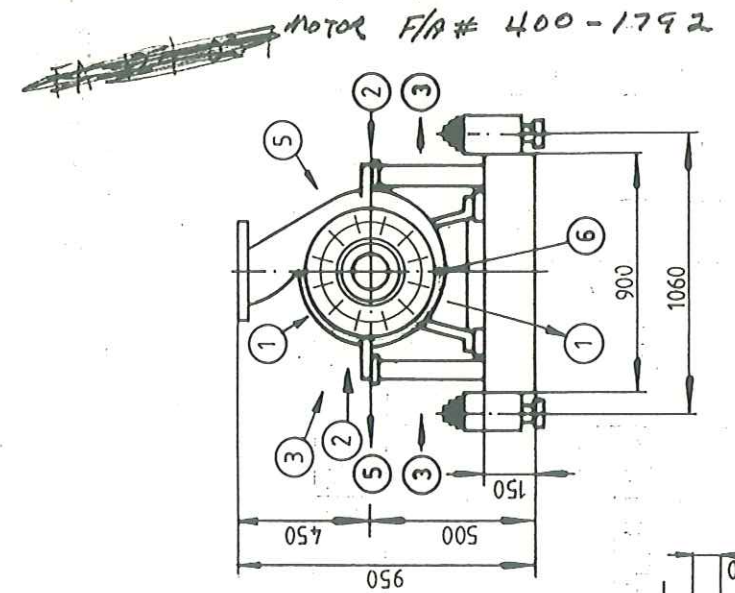


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Biral®-Buss

Order No. 87/40'806



Centrifugal pump with heating jacket at suction flange, cooling of seal flange and bearing support, mechanical shaft seal. Connections for cooling water are symmetrically arranged on both sides of the pump and can be made by choice.

- ① Heating of suction flange 1/2" BSP
- ② Connections of sealing liquid 1/2" BSP
- ③ Connections of cooling water at bearing support 1/2" BSP
- ④ Connections of cooling water at seal flange 1/2" BSP
- ⑤ Connections of cooling water at mechanical seal
- ⑥ Drain of pump casing 1/2" BSP
- ⑦
- ⑧ Drain of bearing support 1/2 BSP
- ⑨ Oil dipstick, oil - level indicator

OPERATING INSTRUCTION

Low pressure Centrifugal Pumps with double rotating mechanical shaft seal for
chemical hydrogenation

1. Erection of the Pump (Drawing Nr. 15 2024)

- 1.1. Setting pump upon foundation and turning down levelling screws Pos. 15, levelling bed plate length- & crosswise by means of a spirit level, (pay attention to height up to pump shaft).
- 1.2. Installing laminated springs Item 12, including footing Item 8 and rings Item 13 and rods Pos. 9 in all four spring housing.
Tighten laminated springs by means of the recessed head machine screws (Philip screws) Item 10 until bed plate is being slightly raised.
Measuring and marking note of protruding height of the recessed head machine screws on all four points. Turning back recessed head machine screws.
- 1.3. Setting pump in proper position, supported by the recessed machine screws.
Assembling suction- & pressure lines without stress.
Screw-in recessed head machine screws up to the protruding height previously measured.
Locking with nut Item 11.
Turning back completely levelling screws Item 15.

2. Starting operation of the Pump

- 2.1. Checking sense of rotation of the motor. Regard arrow of sense of rotation indicated on the pump.

The checking of the sense of rotation of the motor is only permitted with disengaged pump, but with filled up sealing liquid and with functioning system of the sealing liquid.

- 2.2. Upon checking the sense of rotation of the motor and eventually disengaging the pump, replace motor in its proper position.
- 2.3. Examine if the pump is not blocked and can be turned by hand (at the coupling).
- 2.4. Examine oil level in the bearing pedestal, see also information note under rubric 4.1.

2.5. Cooling system

2.5.1 Check if watercooling system is properly connected up and ready for operation.

2.5.2 Turn on the cooling water before commissioning the pump.

2.5.3 Ordinary tap water may be used for the cooling of bearing pedestal and seal flange Item 63 (Drawing 15 2025) and insert bush Item 165 (Drawing 15 2079)

2.6. Sealing liquid system

2.6.1 - Check if sealing liquid system is properly connected up.

- Check if liquid is filled-up in order and deaerated.

2.6.2 Adjust pressure of the sealing liquid circuit.

The pressure of the sealing liquid should be at least 3 bar above the added up system and pump pressure.

2.6.3 The addition of the system and pump pressure should on no account be above the pressure of the sealing liquid.

If the pumped catalyser liquid runs into the mechanical shaft seal chamber, damage is likely to be caused to the mechanical shaft seal and the pump might break down.

2.6.4 The sealing liquid consists of Glycerin/Water mixture 50/50% or mineral oil.

2.6.5 Keep temperature of the sealing liquid at max. 60°C.

2.7 Start of the pump

2.7.1 Turn on sealing liquid and adjust pressure gradually at approx. 3 bar above the added up system and pump pressure. The chamber of the mechanical shaft seal and screw conveyor should be aerated.

2.7.2 Start up the pump. Adjust system pressure.

IMPORTANT: On account of thermic shocks it is important to avoid inlet temperature 250°C.

Filling temperature approx. 50°C.

2.8 Points of check-up after setting pump - for short time - out of operation

2.8.1 Testing if pump can be turned by hand (at the coupling)

2.8.2 Check-up on sealing liquid and cooling systems. (as listed under rubr. 2.5 and 2.6)

Pay attention to sealing liquid pressure (see also under 2.6.2 and 2.6.3).

3. Stoppage of the pump

- 3.1. Stop the pump. At first reduce system pressure gradually to zero, then put the sealing liquid system out of service and reduce gradually the pressure. Thermic shocks should also be avoided in the course of stoppage of the pump.
- 3.2. The full pressure of the sealing liquid may be retained during temporary stoppage of the pump, i.e. even for few hours.

4. Maintenance

- 4.1. Weekly check-up of oil level in the bearing pedestal. Pay attention to the oil level, in quiescent condition of the pump, it must always remain within the minimum and maximum mark.



4.2. Change of oil after 5000 operating hours, or at least once a year.

- drain well old oil at the drain plug.
thoroughly clean anti-friction bearing and bearing pedestal with kerosene.
- filling in new oil, thereby watching oil inspection window and oil dipstick, as mentioned in rubric 4.1.

Quality of oil: Machine- or motoroil, SAE 20 or 30 (5-6° E at approx. 50°C)

4.3 Lubrication of the motor according to directions of the motor manufacturer.

5. Mechanical shaft seal

5.1. Dismantling of mechanical shaft seal unit (Flexibox)

- Empty supplying liquid, sealing liquid and cooling water.
- Dismantle sealing liquid pipes, cooling water inlet, pipe at bearing pedestal and cooling water outlet pipe at seal flange and insert bush.
- Unscrew water pipe fitting between bearing pedestal and seal flange.
- Empty gear oil at "ZAPEX"-coupling.
- Remove coupling adapters and dismantle intermediate shaft.
- Unscrew hexagonal screws Item 16 (Drawing 15 2024) at bearing pedestal base as well as nuts Item 88 (Drawing 15 2025) at bearing pedestal flange.
- Push bearing pedestal in direction of motor.
- Screw eyebolt 1/2" BSP into seal flange Item 63 (Drawing 15 2025) at cooling water outlet and fasten with crane hook.
- Dismantle impeller Item 62 with impeller nut Item 17 and hexagonal socket screw Item 36 and unscrew hexagonal socket screws Item 89.
- Fix excentric discs Item 198 (15 2079) in groove of Item 175 shaft sleeve.
- Loosen gripping device Item 195
- Dismantle seal flange Item 63 together with mechanical shaft seal unit; adjust the balance of weight by hand.
- Put seal flange Item 63 in vertical position with suction side end downward and mechanical shaft seal unit upward.
- Unscrew hexagonal socket screws Item 90 and dismantle mechanical shaft seal unit.

5.2. Dismantling of mechanical shaft seal

- Put Insert bush Item 165 (Drawing 15 2079) in vertical position on thickwalled pipe or ring or vice with suction side and downward.
- Unscrew 2 hexagonal socket screws Item 166 simultaneously.
(Attention: The springs of the mechanical shaft seal press on the cover Item 184
- Dismantle shaft sleeve Item 175 together with conveyer Item 177 and mechanical shaft seal.
- Dismantle intermediate ring Item 167 and seat of mechanical shaft seal at pump side Item 161 + 164.
- Dismantle mechanical shaft seals.

5.3. Fitting of mechanical shaft seal (Drawing 15 2079)

- Put insert bush Item 165 in vertical position (pump side down) and fit cup ring Item 161 together with springs Item 173 and seat ring Item 164.
- Fix intermediate ring Item 167 with pin Item 200 into insert bush Item 165.
- Insert shaft sleeve Item 175 with conveyor Item 177 and face rings Item 172 and 190.
- Add seat ring Item 181 and cup ring Item 178.
- Screw on cover Item 184 with springs Item 193 using screws Item 166.
- Turn excentric discs Item 198 into groove of shaft sleeve and fix.
- Add gripping device Item 195 on shaft sleeve.

5.4. Fitting of mechanical shaft seal unit

- Fit mechanical shaft seal unit into seal flange Item 63 and screw on hexagonal socket screws Item 90. (do not forget the gasket Item 171 Drawing 15 2079).
- Fasten seal flange Item 63 with eyebolt 1/2" BSP and crane hook; fit it together with bearing pedestal. Screw hexagonal socket screws Item 89. Gasket Item 29 must be exchanged. Fasten gripping device Item 195.

ATTENTION: Shaft sleeve and shaft tend to pit. Thus before mounting shaft and sleeve must be checked for damages which, eventually must be remedied.

All contaminations must be removed. Outer diameter of the shaft and the slip planes at the shaft sleeve must always be lubricated with a grease of good sliding quality, prior to mounting:
for instance lubricating and assembly paste "Klüber-Aptemp, QNB 50"

- Fit impeller Item 62 with keys Item 44, nut Item 17, hexagonal socket screw Item 36, spring washer Item 30.
- Align bearing pedestal, screw on hexagonal screws Item 16 at bearing base and nuts Item 80 with spring washers Item 85.
- Turn excenter discs Item 198 out of groove of shaft sleeve.

IMPORTANT: Watch fastening torque

- Fit intermediate shaft and "ZAPEX"-coupling. Fill gear oil in "ZAPEX"-coupling according to the "ZAPEX"-coupling instructions.
- Fit all pipes.

6. Restarting operation of the pump

6.1. Testing if pump can be turned by hand.

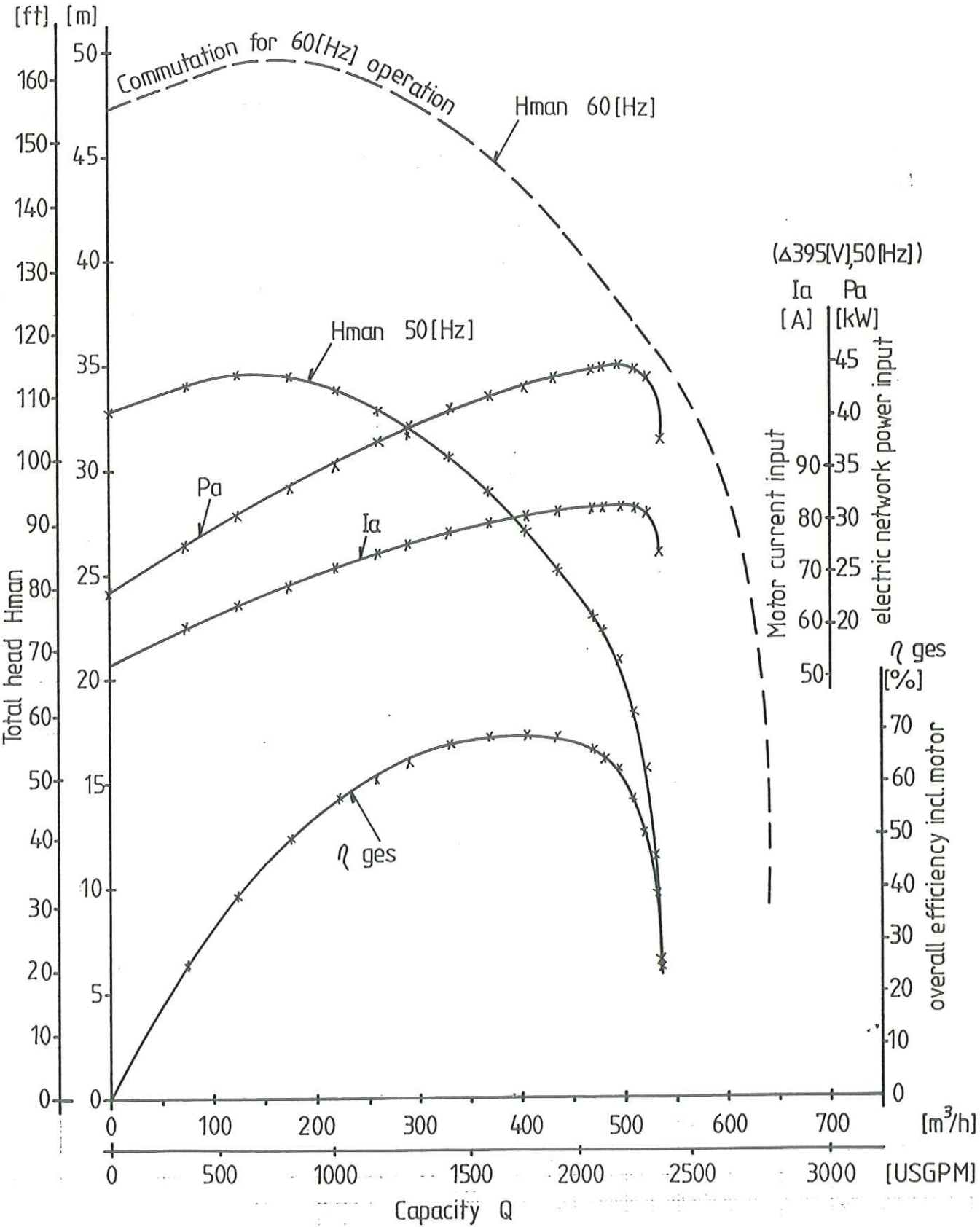
6.2. Check-up on sealing liquid and cooling systems (as listed under rubr. 2.5 and 2.6)

7. General remarks

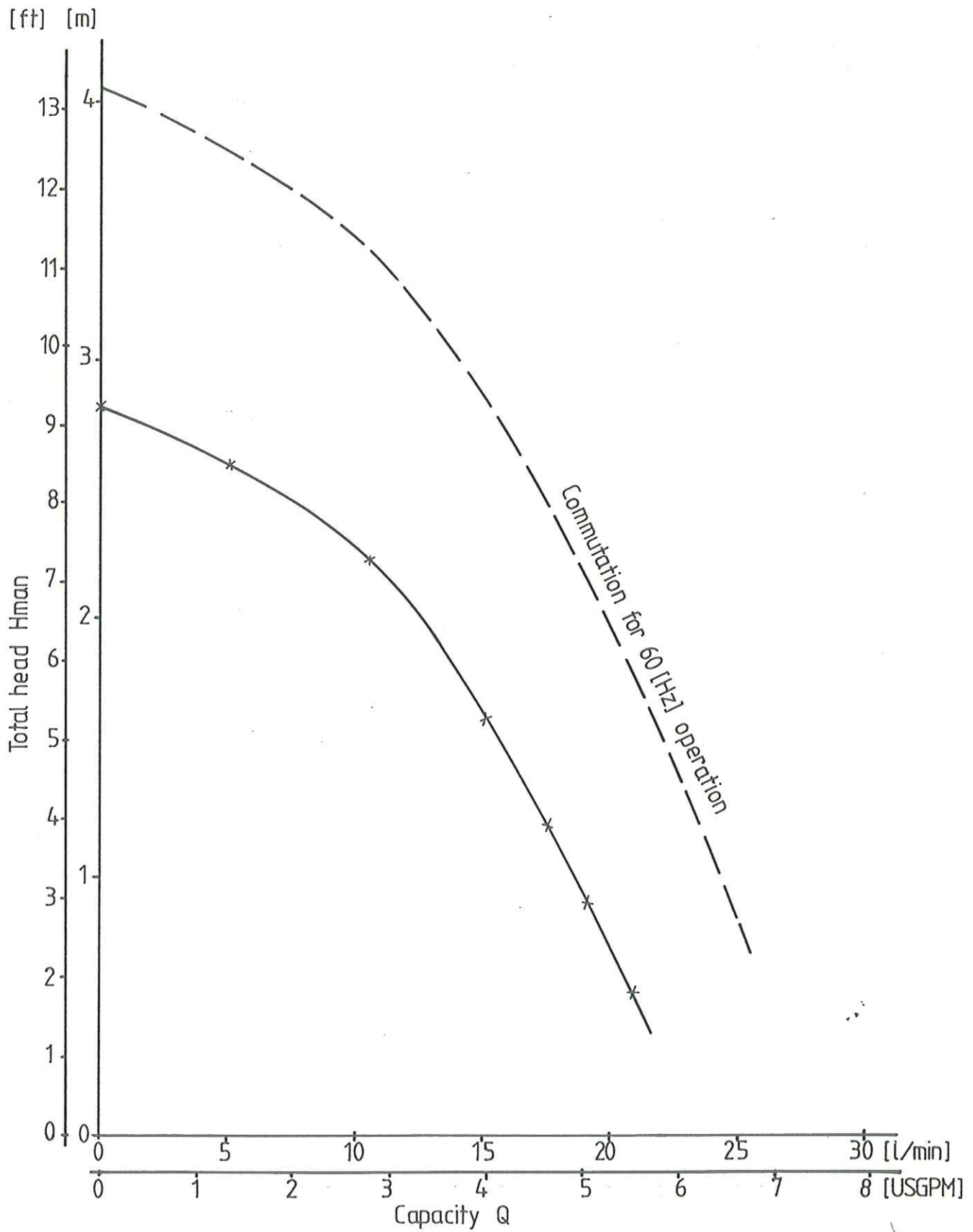
7.1. Prior to leaving the works all pumps are being subjected to a test run and checking measurements with water of about 18°C (system pressure 70 bars). The pump will work to your entire satisfaction if the operating instruction are adhered to, especially by observing the superimposed blocking pressure with sufficient blocking liquid, as well as pertaining cooling.

7.2 In case of complaint, or when ordering replacement parts, please quote at any rate the type of pump and the manufacturer's number.
These data are found on the manufacturer's name plate of BIERI PUMPENBAU AG:

NZP340R-200-1: spez. Buss Auftrags-Nr.87/40 806 MOTOR:Siemens Albis Type RGZZECH
n =1785 r.p.m Zeichnungs-Nr.15 2024 (15 2025) Nr.51.556.637; U =460[V], I =140[A]
Laufradø 325 mit Rückenschaufelnø 357 P =90 [kW] = 125 [HP], f =60 [Hz]



NZP340R-200-1: Capacity of flow in the sealing system
spez. Buss Auftrags-Nr. 87/40 806
Zeichnungs-Nr. 15 2025



LIST OF SPARE PARTS

to overall assembly drawing nr. 15 2o24

Pump type NZP 34oR - 2oo - 1 Nr. 87/4o'8o6

<u>Quantity</u>	<u>Item</u>	<u>Part</u>	<u>Art.Nr.</u>
1	1	Pump NZP 34oR-2oo-1 (see spare parts list nr. o8 o529.2215)	15 2o25.o15o
1 M444 2o	2	Electric motor make Siemens frame 444T, 125 HP, 175o rpm	
1	4	Coupling Zapex ZZW 175	
1	5	Intermediate shaft	15 13o1.2o25
1	6	Protection cap	15 21o9.1ooo
1	7	Base plate cpl.	15 211o.o1oo
4	8	Foot	15 2134.1o26
4	9	Guide bar	15 2135.1o23
4	1o	Capstan headed screw	15 2136.1oo6
4	11	Nut M1oo x 2	15 1441.1oo5
184	12	Belleville spring washer 8o/31 x 3	o5 2452.223o
4	13	Ring	15 2o71.1o26
4	14	Bush 21/3o x 3o,5	41 o1o9.4o26
4	15	Hex. head screw M 2o x 12o	o5 2oo4.9o34
8	16	Hex.head screw M 2o x 6o	o5 2oo4.8134
4	18	Hex. head screw M 16 x 6o/38	o5 2oo7.3134
4	19	Washer 21/37 x 3	o5 2325.184o
1	2o	Bush	15 21o8.1o37
4	21	Protection cap	15 1893.o1oo
6	22	Thumb screw M 8 x 16	o5 2oo1.o258
4	23	Washer 17/3o x 3	o5 2325.144o
2	24	Key 18/11 x 8o	o5 243o.o7o7
2	25	Name plate	15 2o41.1o61
4	26	T-head bolt 2,89 x 4,76	o5 2222.174o
6	27	Washer 8,4/17 x 1,6	o5 2325.o84o
1	28	Key	15 21o7.1oo7

LIST OF SPARE PARTS

to assembly drawing nr. 15 2o25

Pump type NZP 34oR - 2oo - 1 Nr. 87/4o'8o6

Quantity	Item	Part	Art.nr.
1	1	Bearing pedestal	1o 2317.0159
1	2	Bearing cover, pump side	15 o459.2o55
1	3	Bearing cover, drive side	15 2o78.2o59
1	4	Cooling cover	1o o851.1o59
1	5	Shaft 1o/2	15 2o29.1o26
1	7	Bearing bush	15 o458.1oo6
1	8	Pressure disc	15 1292.1oo5✓
1	9	Oil driving disc	15 o453.1o37✓
1	1o	Bush	15 1291.1oo4✓
1	11	Disc 7o/1o5 x 19	15 1o43.1oo4✓
1	12	Ring 7o/85 x 1o	oo o586.1oo4✓
2	14	Ball bearing 6314 1o/2	o5 2612.49oo✓
1	15	Roller thrust bearing 29414 1o/2	o5 2625.52oo✓
1611o48	17	Impeller nut M 28 x 2	oo 175o.1o26✓
2	18	Belleville spring washer K 6314	o5 2451.343o✓
8611o67	19	Pressure spring 2, o x 1o,7 x 14	o5 2441.o932✓
1611o6o	2o	Shaft seal 7o/9o x 1o	o5 2521.79oo✓
1611o62	21	Shaft seal 6o/8o x 1o	o5 2521.71oo✓
1	22	Shaft nut KM 13	o5 2311.1449✓
1	23	Lock washer MB 13	o5 2337.1449✓
1611o38	24	Gasket 26o/18o x 3	oo o7o3.1o99✓
1611o34	25	Gasket 15o/215 x o,2	oo o7o4.7o99✓
1611o36	26	Gasket 171/215 x o,2	oo o7o5.1o99✓
1611o32	27	Gasket 15o/2oo x o,2	oo o7o4.1o99✓
2611o3o	29	Gasket 48/61 x o,6	o5 25o5.9599✓
1611o75	3o	Spring washer B 1o,2	o5 2341.1o29✓
5611o29	31	Gasket 21/26 x 1,5	o5 25o7.5962✓
5	32	Plug G 1/2"	o5 22o1.244o
8	33	Hex.head screw M 1o x 3o	o5 2oo3.5834
6	34	Hex.head screw M 1o x 25	o5 2oo3.5734
6	35	Hex.socket head screw M 1o x 45/32	o5 2o12.8436
1611o66	36	Hex.socket head screw M 1o x 45/26	o5 2o12.8429
4	38	T-head bolt 2,89 x 4,76	o5 2222.174o
1	41	Pin 3 x 12	o5 2421.3632
2	42	Key 14/9 x 8o	o5 2431.92o7
2	44	Key 14/9 x 7o	o5 2431.3829
1	45	Name plate	15 2o42.1o61
1	46	Direction arrow	oo ooo5.1o61
1	47	Oil dipstick G 3/4" x 183	oo 1o23.o3oo
2	48	Oil level indicator G 1 1/4"	o5 27o3.o4oo
1,8 lt	52	Industrial oil SAE 25 or 3o	o5 2799.2o99
1611o1o	61	Pump casing	15 2o26.o153
1611o41	62	Impeller	15 1892.1o53
1	63	Sealingflange	15 2o3o.o2oo
1611o51	64	Wear ring	15 2o94.1o53✓
1611o5o	65	Wear ring	15 2o28.1o53✓
32	72	Disc 24,5/51 x 1o	oo o647.2o18
1	76	O-Ring 3,53 x 171,o4	o5 2534.5999✓

229289 - SUCTION & DISCH. PIPING BASKET

Quantity	Item	Part	Art.nr.
1611040	77	Gasket 361/381 x 4	15 2049.1029 ✓
8	78	Spring washer B 16,2	05 2341.1329
1611025	80	Gasket 14/18 x 1,5	05 2508.9199 ✓
5611027	82	Gasket 21/26 x 1,5	05 2508.9399 ✓
224	85	Belleville spring washer 50/25,4 x 3	05 2452.2530 ✓
16	86	Stud bolt M 24 x 185/25/40	00 1262.7046
16	88	Hex.nut M 24	05 2301.2835
2	89	Hex.socket head screw M 16 x 40	05 2011.4434
8	90	Hex.socket head screw M 16 x 100/44	05 2013.4736
8	91	Spring washer B 16,2	05 2341.1329
12611065	93	Hex.socket head screw M 8 x 16	05 2010.5929
1	96	Plug G 1/4"	05 2201.2229
5	98	Plug G 1/2"	05 2201.2429
Item nr. 101 - 112 are signboards			
32	114	T-head bolt 1,85 x 3,17	05 2222.0640
4	119	Spring washer 8,1	05 2341.2029
5	120	Extention	15 1822.1026
2	150	O-ring K 3,53 x 56,74	05 2539.9099 ✓
2	151	O-ring K 3,53 x 85,32	05 2539.9699 ✓
1	152	O-ring K 3,53 x 78,74	05 2539. 99 ✓
1	153	Supporting ring	05 2549. 99 ✓
1	160	Mechanical seal unit	15 2079.0100

Mechanical seal unit Biral-Buss special

Quantity	Item	Part
1	161	Seat ring carrier
2	162	Key
2	163	Hex.socket head screw M 3,5 x 9
1	164✓	Seat ring✓
1	165	Insert bush
2	166	Hex.socket head screw M 12 x 9o
1	167	Intermediate ring
1	168✓	O-ring
4	169	Hex.socket head screw M 5 x 12
1	17o	Deflection disc
1	171✓	Gasket
1	172✓	Face
6	173	Pressure spring
4	174	Spring washer
1	175	Shaft sleeve
3	176	Stud bolt M 8 x 14
1	177	Driving wheel
1	178	Seat ring carrier
2	179	Key
2	18o	Hex.socket head screw M 3,5 x 9
1	181✓	Seat ring✓
1	182✓	O-ring
1	183✓	O-ring
1	184	Cover
1	186	O-ring
4	187	Hex.socket head screw M 5 x 12
1	189	Deflection ring
1	19o✓	Face
1	191	Supporting ring
1	192✓	O-ring
6	193	Pressure spring
4	194	Spring washer
1	195	Clamping device
1	196	Supporting ring
2	198	Excentric disc
3	199✓	O-ring
1	2oo	Pin
2	2o1	Spring washer
2	2o5✓	Packing
1	2o6	Ring
1	2o7	Cover
6	2o8	Spring washer
6	2o9	Hex.head screw M 8 x 3o

Die Anschlüsse C1,C2,C3,P,V1,V2 und Q sind mit G1/2" Gewinde gebohrt

C1.C2 : Spermiumzirkulation : Eintritt
C3 : Spermiumzirkulation : Austritt
V1 : Kühlkreislauf : Eintritt
V2 : Kühlkreislauf : Austritt } Betriebsdruck max. 8 bar
Q : Anschluss für ev. Leckflüssigkeitableitung
P : Prestostat

* Die angegebenen Masse beziehen sich auf den Dichtungsflansch

* The dimensions indicated are those of the sealing flange

Connections C1,C2...and 9 with cylindrical pipe thread G1/2"

C1.C2 : sealing liquid circulation : inlet
C3 : sealing liquid circulation : outlet
V1 : cooling water circulation : inlet
V2 : cooling water circulation : outlet } max. service pressure : 8 bar
Q : ev. leakage outlet
P : pressostat

O-Ring siehe Zusammenstellung
Gasket see assembly drawing

Anzugsmoment
Torque 6 Nm

2 Halteschrauben Deckel / Einsatzbüchse
2 Hold down screws of the cartridge

Bemerkung: Pos. 177 wird auf die Wellenrille Pos. 175 geklebt.
Die Sicherungsschraube Pos. 176 wird mit Loctite oder einem ähnlichen Produkt gesichert.
Rundlauf und Seitenschlag müssen nach dem Trocknen des Klebers kontrolliert werden.
Max. Unruhmheit zur Bohrung: 0,04mm
Max. Seitenschlag gegenüber der Auflagefläche der Pos. 172: 0,05mm

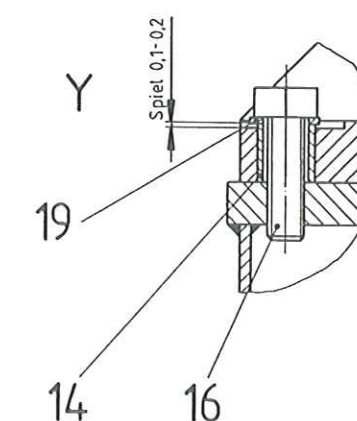
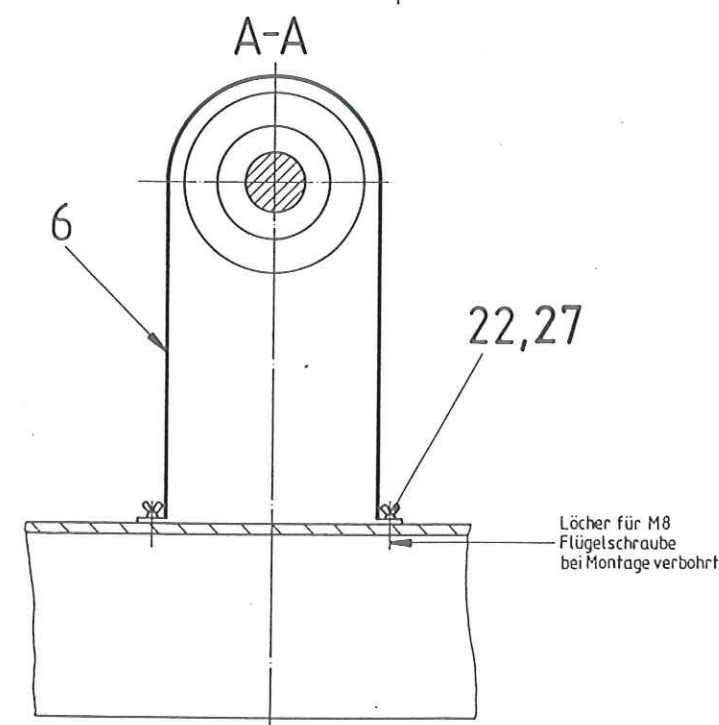
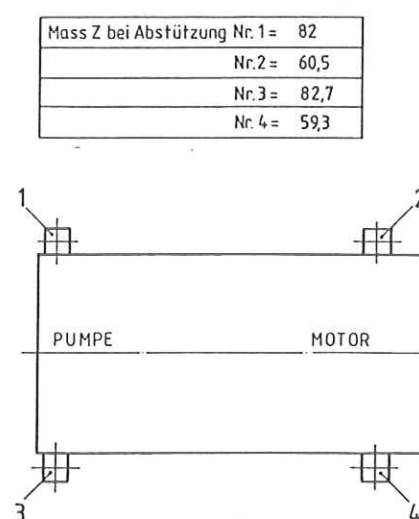
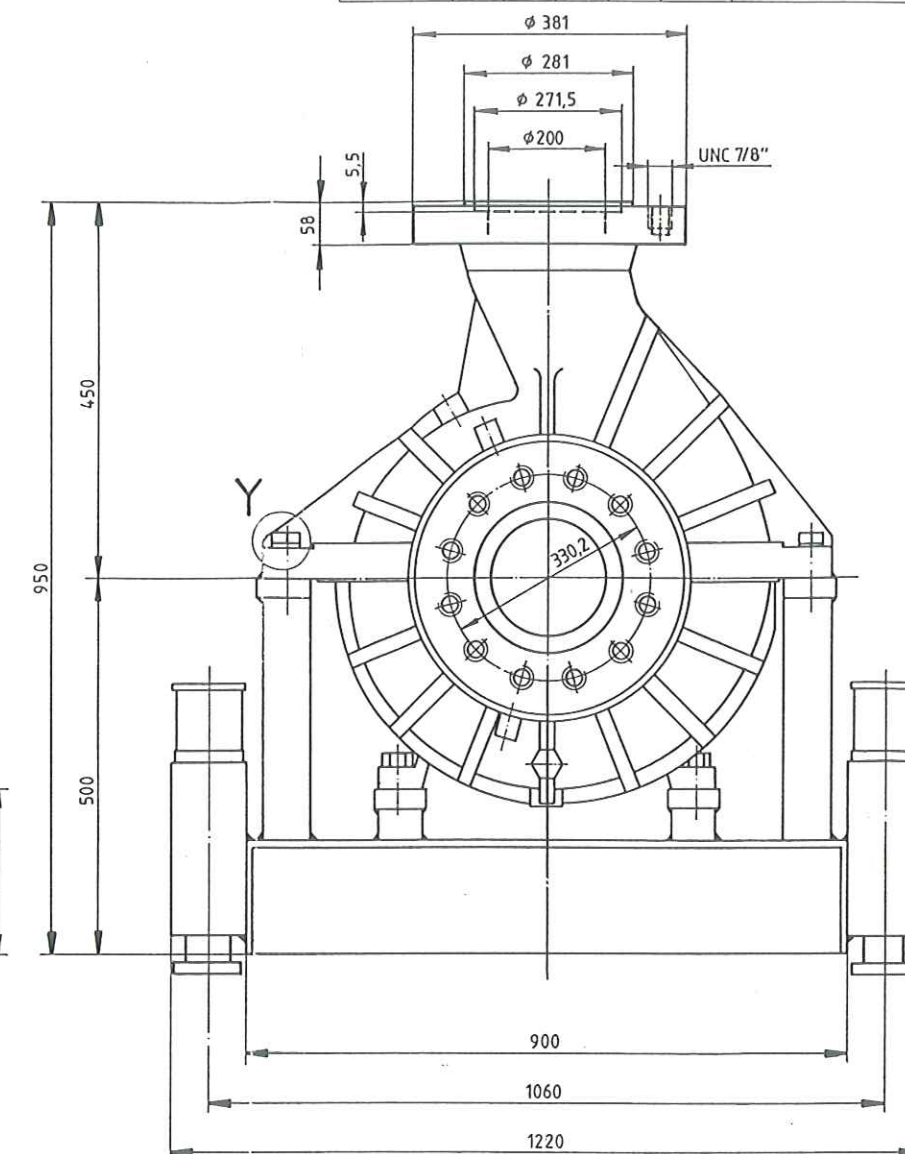
Note: Item 177 is fixed with glue on shaft sleeve item 175.
Locking screws item 176 are secured with Loctite
of similar.
Truth of running and wobble of item 177 must be checked
after drying of glue.
Truth of running max. 0.04mm against internal diameter.
Wobble against back of item 172 : 0.05mm

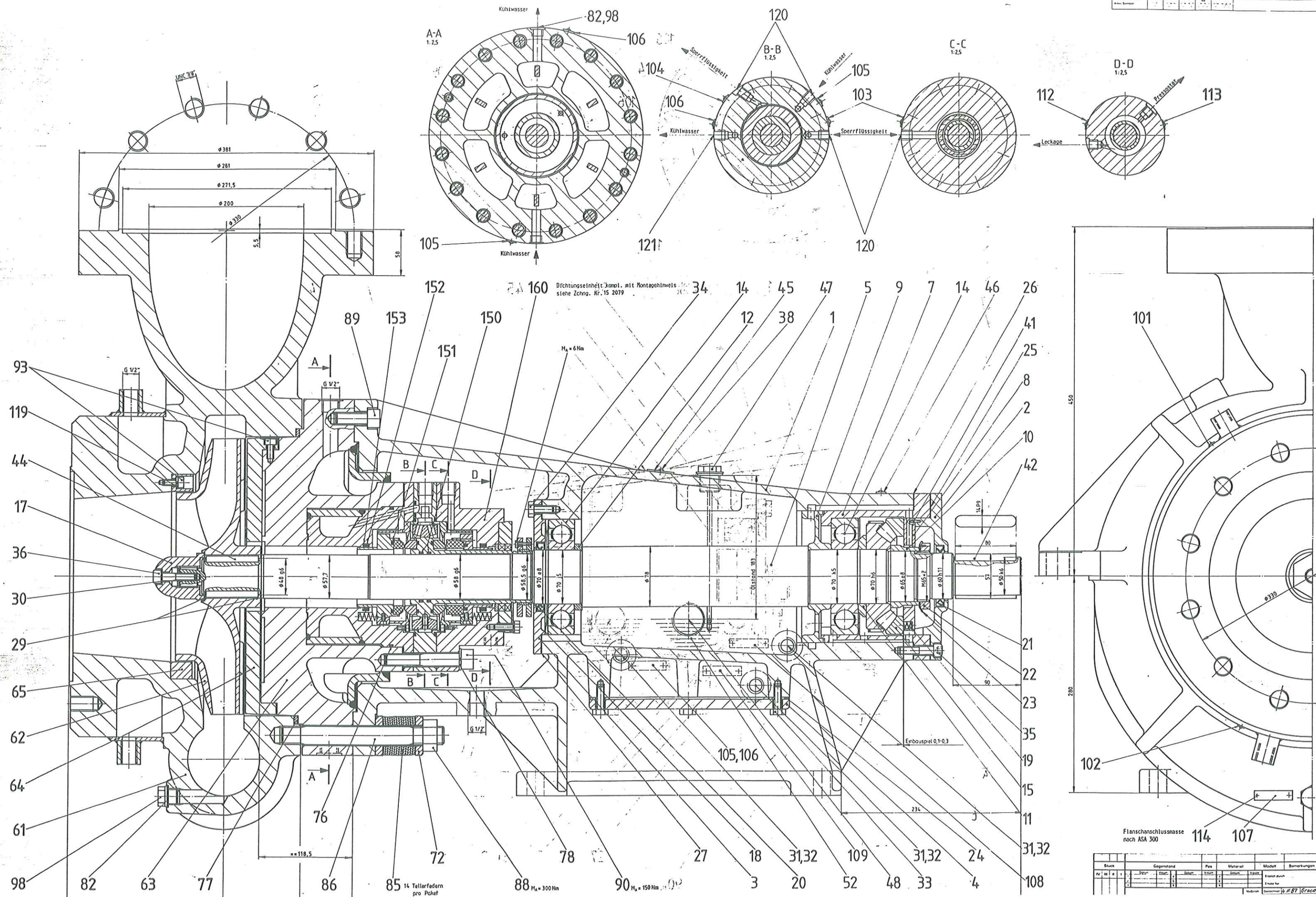
Um die Darstellung der Anschlüsse zu vereinfachen wurden diese in die Schnittebene verlegt. Die Stellung auf der Ansichtszeichnung bleibt aber verbindlich.

To simplify the presentation, connections C1, C2, ..., and Y2 have been displayed in one section drawing, but only the positions presented in the view-drawing are valid.

Mech seal assembly drawing

Sheet										Gegenstand										Pos										Material										Menge										Bemerkungen																													
Nr.										Datum										Menge										Datum										Menge										Datum										Menge																			
1										2										3										4										5										6										7										8									

[illegible]



Stück	Gezeichnet	Pos.	Material	Modell	Bemerkungen
Nr.	Stück	Stück	Stück	Stück	Stück
1	1	1	1	1	1
2	1	1	1	1	1
3	1	1	1	1	1
4	1	1	1	1	1
5	1	1	1	1	1
6	1	1	1	1	1
7	1	1	1	1	1
8	1	1	1	1	1
9	1	1	1	1	1
10	1	1	1	1	1
11	1	1	1	1	1
12	1	1	1	1	1
13	1	1	1	1	1
14	1	1	1	1	1
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16	1	1	1	1	1
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45	1	1	1	1	1
46	1	1	1	1	1
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48	1	1	1	1	1
49	1	1	1	1	1
50	1	1	1	1	1
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Fluid Sealing Division

MS-24 Data Sheet
Specification Sheet for Engineered Mechanical Seals
*Required Information

*Order Number		Customer Code	
*By		Project Number	
Seal Configuration	Type	Size	Material
	*Inner		
	Middle		
API Code	*Outer		
*If Configuration is non-standard, Reason			
Proposal Number		Job/Env/Ser Nbr ☐ Ref ☐ Dup	
Form/Assy Nbr ☐ Ref ☐ Dup		*Cust Approval Req Prior to MFG. ☐ YES ☐ NO	
Value		*Reservoir MS-24 Attached ☐ YES ☐ NO	
*Dwg Request Date		*Hardware Delivery Date	

*Customer
*Customer Order Number
Ultimate User if Different than Customer
*User Item Number

Equipment

*Manufacturer <i>Bical - Buss</i>			
*Type/Model <i>NZP 340R-200-1</i>		*Horz/Vert ☐ H ☐ V	
Bracket Size	*Stages	*Chambers	*RPM <i>1750</i>
Seal Chamber Dwg.		Serial Number <i>87/40,806</i>	
Layout Dwg.	Supp. Sketch	*Pump Rotation ☒ CW ☐ CCW	

Operating Conditions

*Product	☐ Coking ☐ Polymer ☐ Batch * ☐ Salting ☐ Solids ☒ Continuous		
*Temperature ☐ F ☐ C	*Product Type		
*Viscosity at Pump Temp ¹	*Units	*Specific Grav. at Pump Temp	
*Vapor Pressure ²	*Units	*Seal Chamber Pressure	*Units
*Suction Pressure		*Discharge Pressure	

Special Parts Requirements

*Shaft Sleeve Style	*Material
*Seal Flange Style	*Material
*Flange Bushing Style	*Material
*Shaft Gasket Type	*Material
*Flange Gasket Type	*Material
*Throat Bushing Type	*Material

Piping Requirements

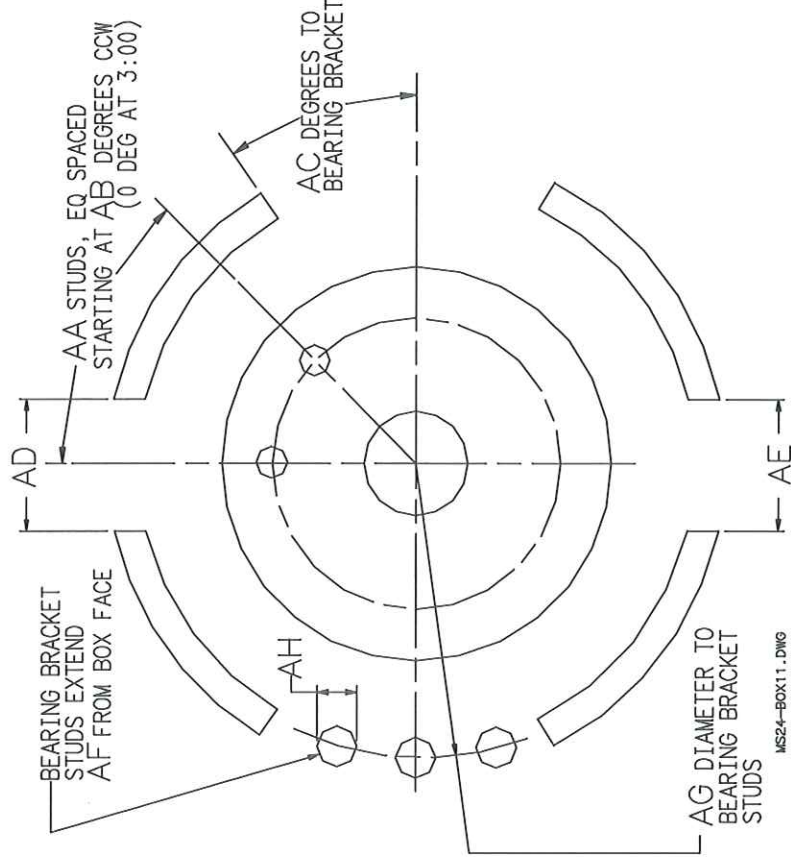
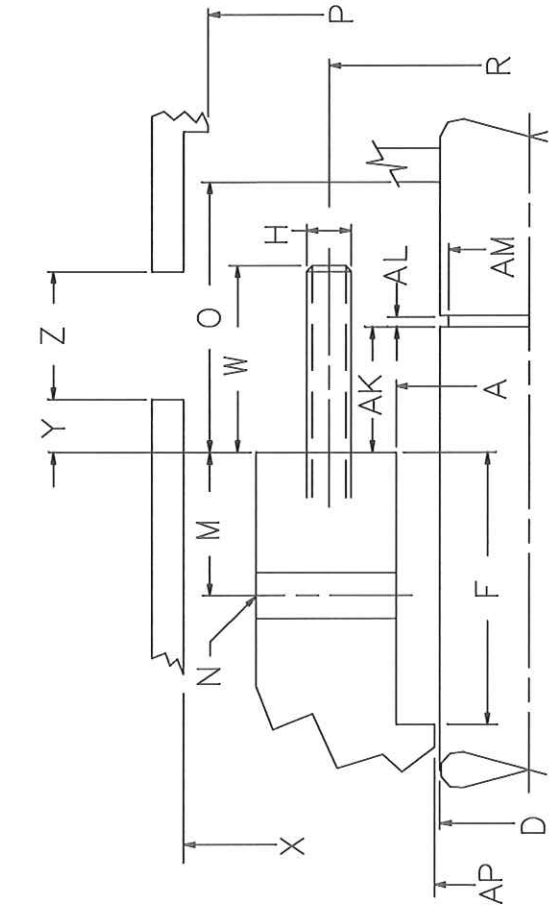
*API Plan Number	Coupling Space	
Water Jacket Cooling ☐ YES ☐ NO	Medium	Cooling Temperature
FLSH/BAR/BUF		FLSH/BAR/BUF Temp
FLSH/BAR/BUF Pressure		FLSH/BAR/BUF Requirements
Cyclone Separator Model		Heat Exchanger Model
If required, customer will machine ☐ Shaft ☐ Shaft Keyway ☐ Shaft/Sleeve ☐ Box Bore ☐ Addt'l Flange Bolting ☐ Other		

Drawing Distribution	Qty. Repro	Size	Qty. Copy	Size
Customer 1				
Customer 2				
FOB Point				
Sales Eng				
Sales Office				
UU Sales Eng				
UU Sales Office				
Other 1				
Other 2				
Other 3				

Notes:

¹ Viscosity required for hard face combinations.
² Vapor pressure required for light Hydrocarbon service.

A.	—	BOX BORE
B.	—	BOX FACE TO SHOULDER
C.	—	BOX FACE TO STEP OUTBOARD
D.	—	SHAFT DIA UNDER SEAL
E.	—	EXISTING SLEEVE OD
F.	—	BOX DEPTH
G.	—	TO END OF EXISTING SLEEVE
H.	—	STUD DIAMETER
I.	—	MINOR SHAFT DIA, INBOARD
J.	—	DISTANCE TO IMPELLER
K.	—	KEYWAY SIZE
L.	—	DISTANCE FROM SHOULDER TO KEYWAY
M.	—	DISTANCE TO CAGE RING TAP
N.	—	CAGE RING DIA HOLE
O.	—	FIRST OBSTRUCTION
P.	—	BEARING BRACKET OPENING ID-MAX FLANGE OD
Q.	—	SHAFT DIAMETER AFTER STEP OUTBOARD
R.	—	BOLT CIRCLE DIAMETER FOR STUDS PILOT DEPTH
S.	—	PILOT DEPTH
T.	—	PILOT THICKNESS – RADIALLY
U.	—	DISTANCE TO THREADS – OUTBOARD
V.	—	THREAD CALLOUT
W.	—	STUD LENGTH
X.	—	RADIAL DISTANCE TO BEARING BRACKET
Y.	—	DISTANCE TO BEARING BRACKET WINDOW FROM BOX FACE
Z.	—	LENGTH OF BRACKET WINDOW
AA.	—	NUMBER OF STUDS
AB.	—	DEGREES TO FIRST STUD
AC.	—	DEGREES TO BEARING BRACKET SIDE – TOP AND BOTTOM WINDOW WIDTH TOP
AD.	—	WINDOW WIDTH BOTTOM
AE.	—	BEARING BRACKET STUD EXTENSION
AF.	—	BEARING BRACKET STUD DBC
AG.	—	BEARING STUD DIA (ACCOUNT FOR NUTS)
AH.	—	DISTANCE TO TAPER IN BOX
AI.	—	TAPER IN DEGREES
AJ.	—	DISTANCE TO GROOVE
AK.	—	WIDTH OF GROOVE
AL.	—	SHAFT DIA IN GROOVE
AM.	—	COUNTERBORE DIAMETER
AN.	—	COUNTERBORE DEPTH
AO.	—	BORE DIAMETER
AP.	—	LENGTH OF VPE/FLOW MODIFIER
AQ.	—	DEGREES TO BEARING BRACKET STUDS
AR.	—	DISTANCE TO SLEEVE NUT
AS.	—	DEPTH OF VPE/FLOW MODIFIER
AT.	—	



MS24-BOX11.DWG

Box Type:

Shaft With Groove

Straight Box



SHEET _____ OF _____

SERIAL 87/40, 806 MODEL NZP 340R-200-1 HP 125
TYPE _____ SIZE _____ RPM 1750
GPM _____ FOOT HEAD _____ TEMP _____ VISC _____
SP GRAV _____ LIQUID _____ CURVE _____
DRAWING 15-2024 & 15-2025 GASKET THICKNESS _____
IMPELLER: MAT'L SS RING MAT'L SS
ROTATION CW PATTERN M CLEARANCE _____
DIA _____ MAX DIA _____ MIN DIA _____

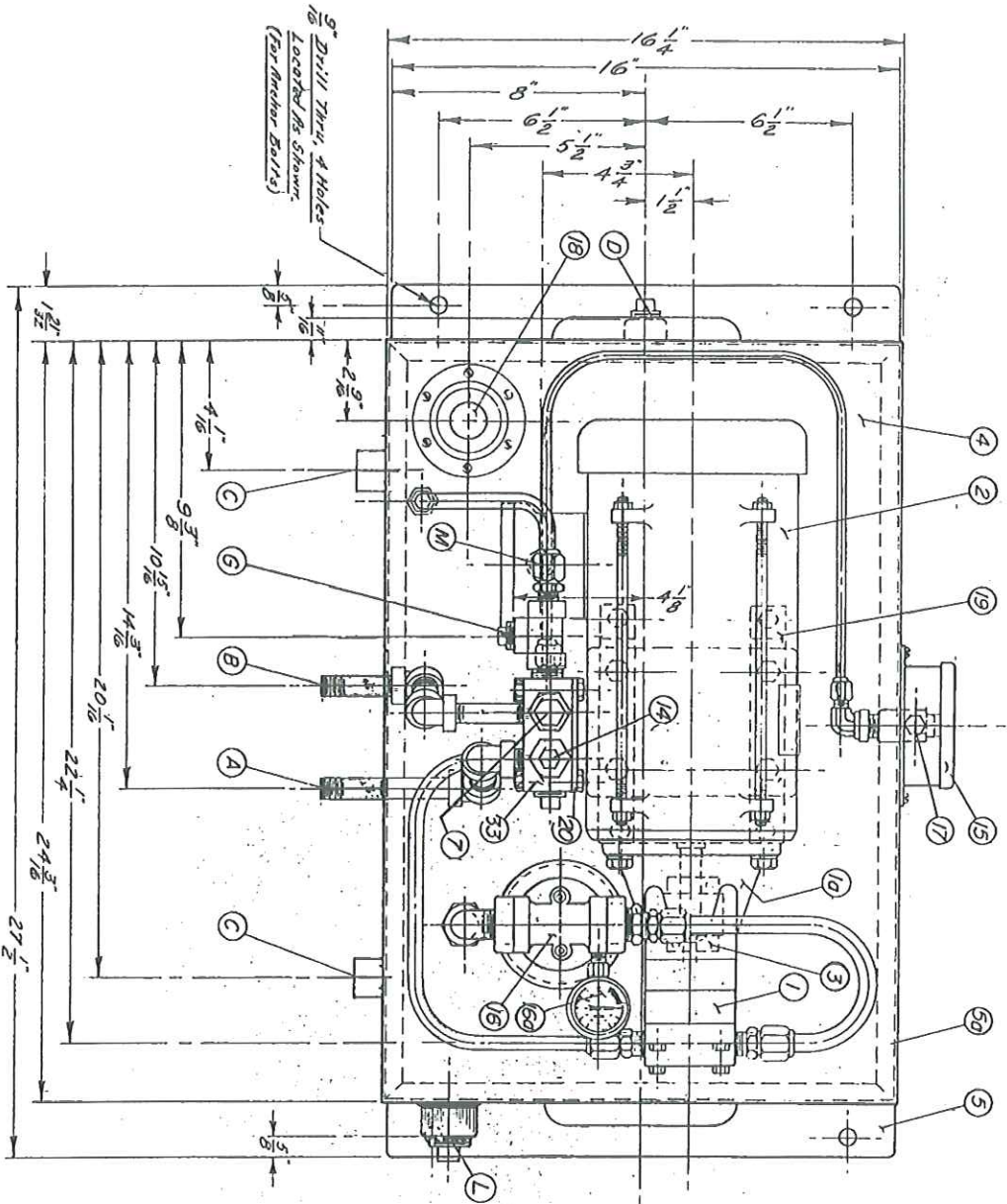
MECH SEAL: MFR DURAMETALLIC MFR No. DWG. # 2D-249570
TYPE CART DBL SHAFT DIA. 3" CODE D(4/R)2 E(F/V)VV
STUFFING BOX TYPE _____ & BOX BORE _____

CASING: MAT'L SS RING MAT'L SS
SHAFT: MAT'L SS SLEEVE MAT'L SS
RADIAL BRG: TYPE BALL SIZE 2EA. - 6314-C3
THRUST BRG: TYPE ROLLER SIZE 29414
COUPLING: BORE Pump-50K6 MOTOR-3³/₈ SIZE ZAPEX ZZW 175
ADDITIONAL DATA & REMARKS: ① COUPLING OIL NL GEAR 460,
CAPACITY-30Z.

[illegible]

DATE	UNIT	TITLE	SERVICE No.
1988	B	8-P-210. HYPERREATION Loss Pump	AK050-118

NOTE — For Front and Side Elevation View of unit
see Drawing No. 3P-127,261.



SEE INSTALLATION INSTRUCTIONS FOR
REQUIRED MECHANICAL CONDITION OF
EQUIPMENT.

— TOP VIEW—With Cover Removed—

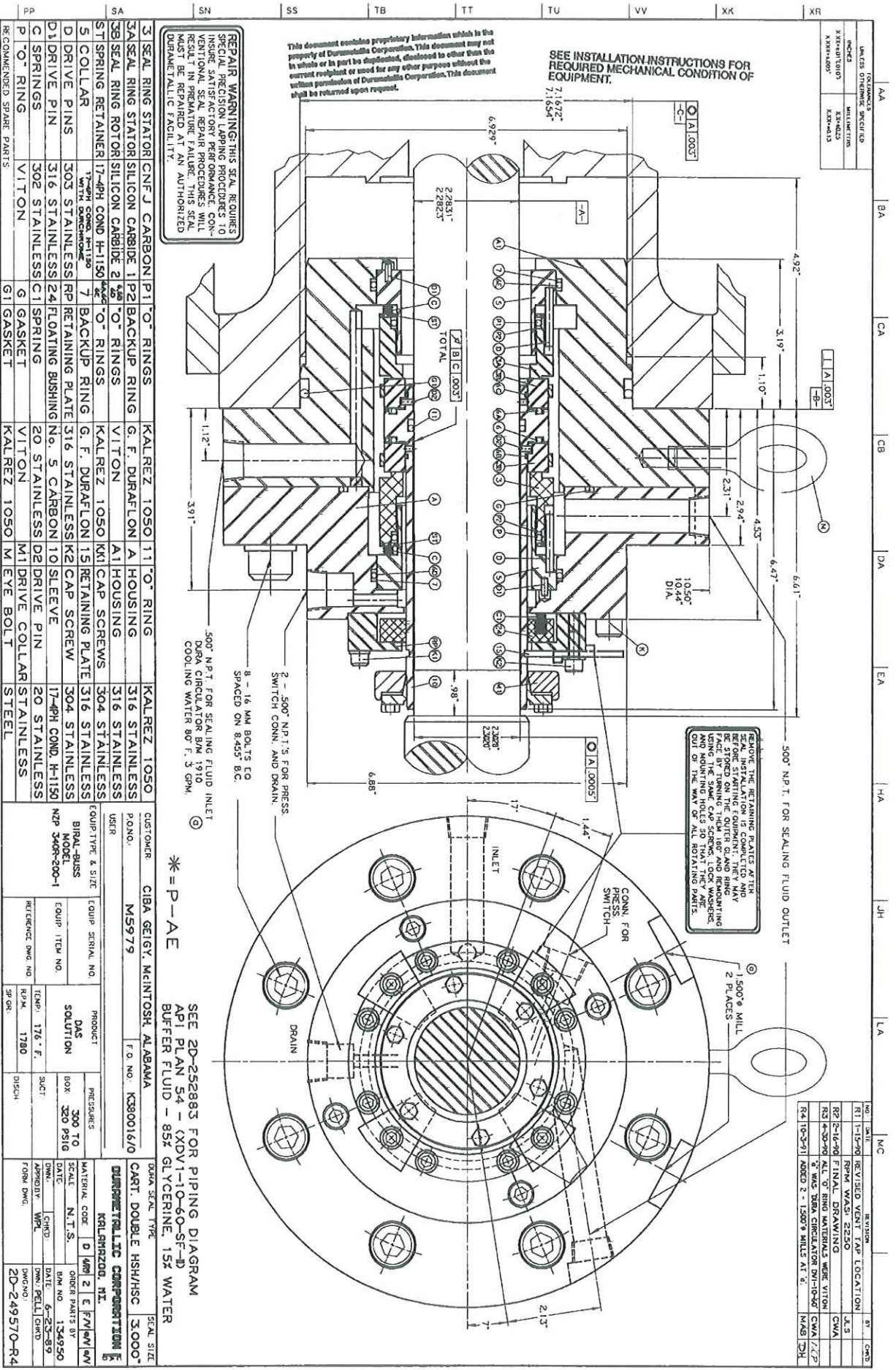
NO	PART NAME
1.	Pump
1a.	Pump (Supplier) Adaptor Bracket
2.	Motor
3.	Coupling
4.	Base Plate (Equip. mounting)
5.	Reservoir — 25 gallon Capacity
5a.	Upper Shroud & Cover
6.	Cooling Coil
7.	Regulator Cartridge
14.	Relief Valve Cartridge
15.	Pressure Gauge
16.	Suction Filter (Line Type)
16a.	Suction-Vacuum Indicator Gauge
17.	Liquid Level Gauge
18.	Breather, Filter & Filler Port
19.	Mixer Support Mounts (2)
20.	L.H.C. Support Bracket
33.	Integrated Hydraulic Circuit
A.	Service Opening, 3/8 N.P.T.
B.	Return Opening, 3/8 N.P.T.
C.	Cooling Coil Inlet & Outlet, 1/2 N.P.T.
D.	Reservoir Drain, 1/2 N.P.T.
G.	Gravity-flow Return Opening, 3/8 N.P.T. w/ plug
L.	1" N.P.T. Half Coupling w/ Plug (L.L.)
M.	Motor Conduit Opening

✓ Recommended Spare Parts To
Consider Stocking.

DURA CIRCULATOR

DURAMETALLIC CORPORATION			
KALAMAZOO, MICH.			
P.O.	B.M. NO.	SCALE 3/8" = 1' APPROX.	
DATE 6-14-74			
DRAWN S.T.R.			
CHECKED			
	SHG. NO.	3P-127,260	

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