



XTP Series

Thermic Fluid / Hot Oil Pumps

INSTRUCTION, OPERATION, & MAINTENANCE MANUAL



INTRODUCTION

These instructions are for the maintenance personnel for maintenance and/or repair of the indicated pump series. Disassembly and assembly require expertise and knowledge of the procedures, therefore the work must be carried out by qualified personnel. These instructions must be carefully read and understood in conjunction with the section drawings and tables contained in the manual and enclosed, prior to attempt any work on the pumps. For safety, installation and maintenance instructions consult the manual "XTP INSTRUCTION, OPERATION, & MAINTENANCE MANUAL" attached to the pump at time of shipment. Consult also any other attached instructions for accessories and/or components included with the pumps such as mechanical seals, heat exchangers, flushing systems, instrumentation, etc. Before operating or working on the pump it is recommended to adopt safety precautions wearing safety attire (hat, glasses, gloves, shoes, etc.) and have ready the necessary tools required for the work to be done. Do not subject the pump or its components to sudden mechanical impacts and /or distortions. Do not damage or scratch the sealing faces. Pay particular attention not to damage flat gaskets and O-Rings. Careful not to leave foreign matters such as moulds, screws, washers, rags, etc. in the pump.

The pump model and serial number appear on the pump nameplate, ALWAYS provide this information when requesting spare parts or technical assistance. The pump model correlates to the pump size. For example, model XTP 32-200 is pump with 32mm discharge flange and 200mm maximum impeller diameter. The model number may also reflect suction flange before the discharge such as 50x32-200. This is the same as model 32-200.

Disassembly and assembly operations require a good understanding of the pump design and the procedures to be followed. Therefore, please familiarise yourself with these instructions and when in doubt do not hesitate to contact our offices for clarifications or send the pump back to the factory for repair. Pump repairs and/or service carried out by customer or unauthorised personnel are not guaranteed by XTF or by its subsidiaries.

Note: Pump parts list identify all pump components by item number (VDMA) in connection with the sectional drawings. All drawings are for reference purpose and not are certified for construction, however should additional information be required, contact XTF or its closest representative.

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5HSODFLQWKHSDFNLQULQV

6SDUHSUWV

6HFWLRQGUDZQJ

1RPHQFODWXUHRISXPSSDUWV

QLQHHULQWDEOHV

1 - STEPS TO BE FOLLOWED PRIOR TO PUMP DISASSEMBLY

Should pump repairs be required, it is recommended to acquire full familiarity of the procedures to be followed by studying these instructions and the "Operating Manual for Centrifugal Pumps".



FOLLOW THE SAFETY INSTRUCTIONS LISTED UNDER CHAPTER 2 OF THE AFORE MENTIONED OPERATING MANUAL.

It is important to adhere to the following before working on the pump:

- use the appropriate steps to stop the pump
- close the isolating valves at suction and discharge piping
- wear the safety clothing (hard hat, safety glasses, gloves, safety boots, etc.)
- disconnect the electrical power to the motor and all the electrical instrumentation and, if necessary, disconnect the electrical cables
- if the pump is handling hot liquids, let it cool down to ambient temperature
- drain the pump casing through by removing the drain plugs, rinse the pump with neutral liquid, if required



- adopt all safety precautions when the pump handles hazardous liquids, pollutant or toxic; these liquids as well as the liquid used for rinsing the pump must be collected and disposed of with the maximum caution and always in compliance with the local safety regulations.

To remove the pump and the motor (if required) from the installation proceed as follows:

- remove the bolts on the suction and discharge flanges.
- disconnect any flushing lines, accessories and/or instrumentation connected to the pump assembly.
- remove the coupling guard.
- remove the coupling spacer, if present.
- remove the motor, if necessary, by removing the anchor bolts from motor feet or from the motor flange in the case of monoblock assemblies.
- remove the pump by removing the bolts from the pump's feet.
- disconnect the pump from the installation with caution, do not damage any components.
- refer to the "Operating manual for centrifugal pumps" for instructions on transporting the pump.

2 - PUMP DISASSEMBLY AND ASSEMBLY

2.1 - DISASSEMBLY

(See the section drawings of fig. 15 and 16 of chapter 8).

Drain the oil from the bearing frame by removing the drain plug VDMA 903.4.

Remove the bolts from the studs VDMA 902.2 so that the rotor may be removed from the pump.

Remove the impeller nut VDMA 922 (for Cast Iron construction) or VDMA 925 and 922 (for Stainless Steel construction) and remove impeller VDMA 230 from the shaft VDMA 210, remove key VDMA 940.2. Remove screws VDMA 900.1 and cooling plate VDMA 167.

Remove the screws VDMA 902.1.

Remove the casing cover VDMA 163, loosen the set screws on the rotating element of the mechanical seal, remove both elements of the mechanical seal. Also remove the reducing flange VDMA 184.

To completely disassemble the bearing frame proceed as described below.

With a gear puller remove the half coupling from the pump shaft and the key VDMA 940.

Remove screws VDMA 901 and bearing cover VDMA 360.

Remove the retaining rings VDMA 932.3, push the shaft VDMA 210 out toward the free end, together with the bearing VDMA 320.1. Remove the snap ring VDMA 932 and the bearing VDMA 320.1.

2.2 - ASSEMBLY

For assembly procedures see paragraph 2.2 in combination with the tab. 1 below that contains the specific components dimensions pertaining this pump series only.

Tab. 1 - XTP pump series

PUMP MODEL discharge / max impeller	BEARINGS TYPE		SHAFT SEAL RINGS TYPE	MECHANICAL SEAL Ø (mm)	OIL KG.
25 - 32 - 40 - 50 - 65/ 125	Seal side	Drive side	N°1 AS25357 (25x35x7)	Ø30	0,20
25 - 32 - 40 - 50 - 65 - 80 / 160	N°1 6206 C3 (30x62x16)	N°1 6305 C3 (25x62x17)			
25 - 32 - 40 - 50 / 200					
65 - 80 - 100 / 200	N°2 6308 C3		N°1 AS35477 (35x47x7)	Ø40	0,40
40 - 50 - 65 - 80 / 250	(40x90x23)				

3 - MECHANICAL SEALS ASSEMBLY

Clean the stationary seal element of any encrustations, oxidation or residues from the handled liquid.

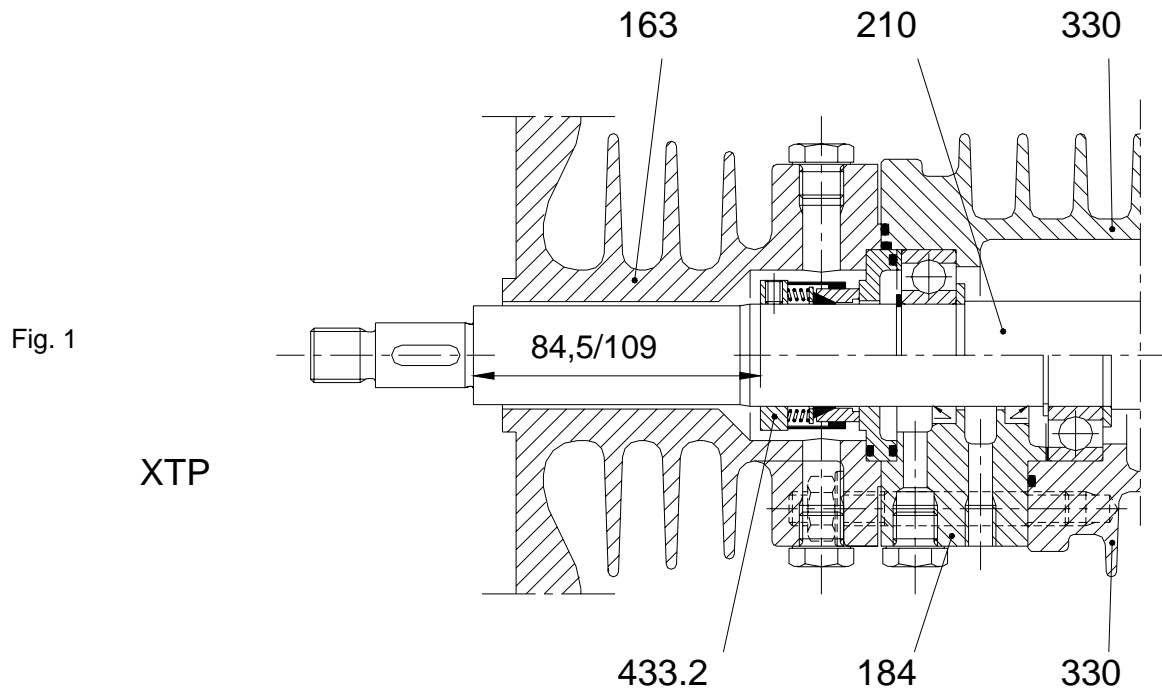
Lubricate the seal cavity and the elastomers with a compatible light oil.

Place the bearing frame VDMA 330 in the vertical position with the shaft drive end at the bottom, (in the case of pump /SP the bearing frame should have attached the extension flange VDMA 184), install the seal stationary element with the pertaining O-Rings, the lapped seal face should be at the top, clean the seal face with a soft tissue.

Lubricate the shaft and the Viton booth of the seal rotating element. Clean seal face with a soft tissue and slide the rotating seal element on to the shaft VDMA 210 with the carbon face to the bottom.

Pumps of the Group 1, position the seal rotating element 84.5 mm from the shaft shoulder (against which the impeller VDMA 230 will rest), pumps of the Group 2 this distance should be 109 mm, tighten the set screws to lock the seal to the shaft (see fig. 1).

Place the O-Rings required and install the casing cover VDMA 163 on the bearing frame VDMA 330 (on the extension VDMA 184 for pump design /SP). Tighten the 4 bolts or studs and proceed then with assembling the balance of the pump.



4 - REPLACING THE PACKING RINGS

Replacement of the packing rings can be accomplished without disassembling the pump but proceeding as follows. Remove the nuts on the packing gland studs VDMA 902.3, move the gland packing VDMA 452 as much as possible toward the drive end. Remove with a suitable tool the old packing rings VDMA 461 and the lantern ring VDMA 458. Clean the packing chamber and the shaft sleeve removing any encrustation, oxidation and deposits from the flushing fluid.

Install the packing rings one by one and the lantern ring. Be sure to relocate the lantern ring in the original location and the packing rings should be rotated so that the joints are 90° apart.

Replace the seal gland with the associated adjusting nuts.

In the event the pump has been completely disassembled, it is recommended to fit the casing VDMA 161 with packing rings VDMA 461, lantern ring VDMA 458 and gland packing VDMA 452, then this sub-assembly will be attached to the pump frame. Be careful not to disturb the packing rings while inserting the shaft sleeve on to the shaft.

Alternatively, assembly first the pump and then the stuffing box as discussed above.

5 - SPARE PARTS

When ordering the pump it is good practice to also order the necessary spare parts, especially when there are no stand-by pumps in the installation. This will minimise unnecessary down times in the event of pump failure or routine maintenance. Following spare parts are suggested for each pump size:

- 1 Impeller
- 1 Wear ring
- 1 Shaft assembly
- 1 Set of bearings
- 1 Set of mechanical seals or packing
- 2 Sets of gaskets

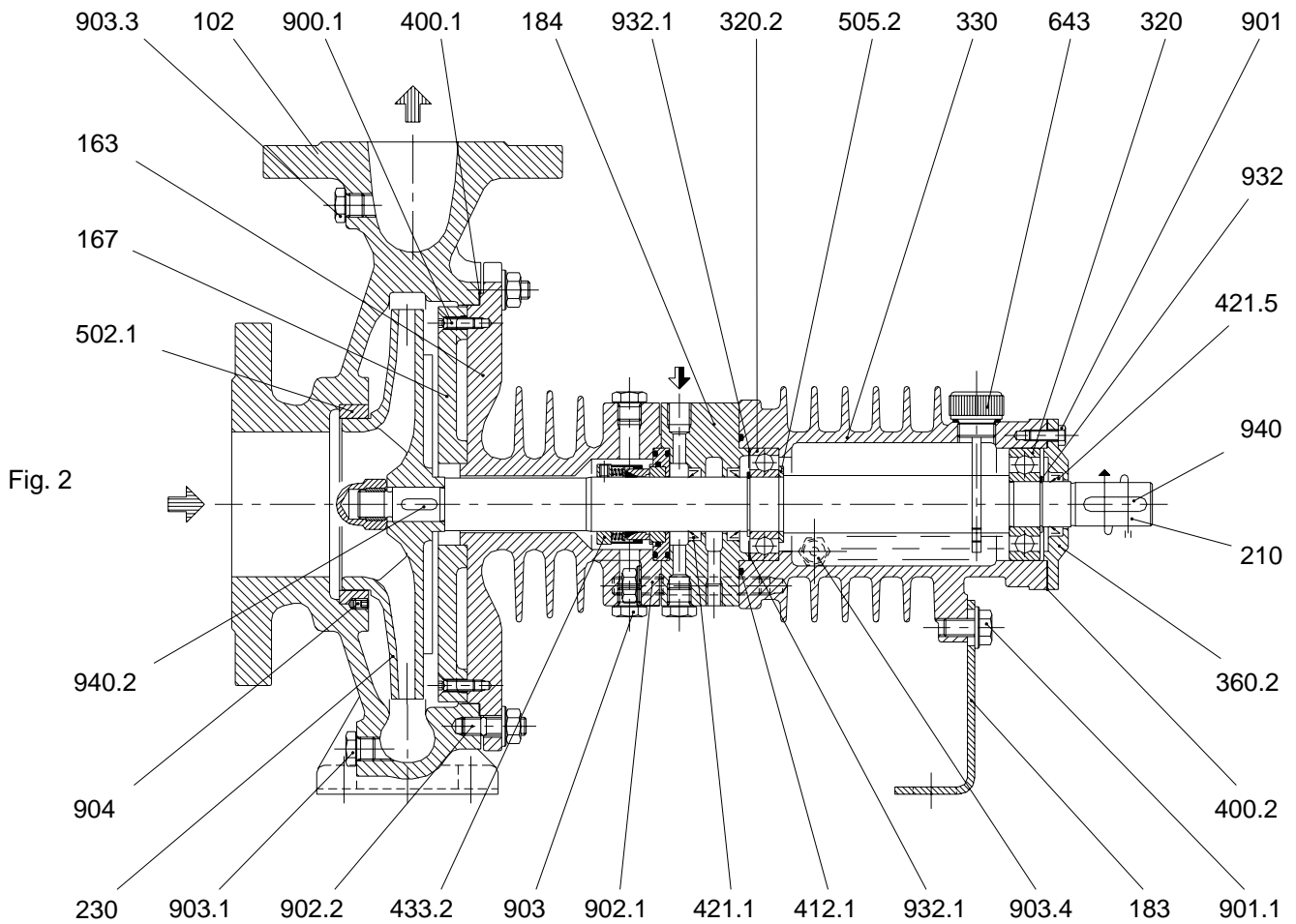
However for proper parts management, consult the VDMA 24296 standard that recommends the quantity of spare parts to be stocked in relation to the number of pumps installed.

On the pump nameplate are printed the pump model, the year of manufacture and the pump serial number: always provide this information when requesting spare parts.

Specify also the VDMA number of the required part, as seen on the pump sectional drawing and parts list for proper identification of spare parts.

We recommend the use of original spares: in case this is not respected, XTF declines any responsibility for eventual damages caused by not original spare parts.

6 - SECTIONAL DRAWING



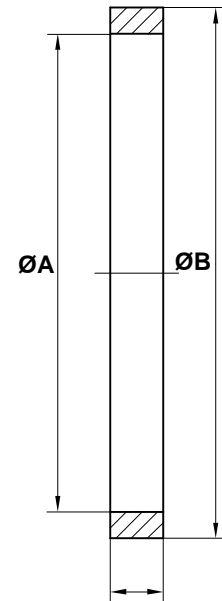
7 - NOMENCLATURE OF PUMP PARTS

VDMA N°	DESCRIPTION
102	Suction casing
110	Spacer ring
135...	Wear plate
161	Casing cover
163	Casing cover
165	Cooling cover
167	Cooling plate
183	Support foot
184	Extension flange
210	Shaft
230	Impeller
320...	Ball bearing
321	Ball bearing
323	Roller bearing
330	Bearing frame
350	Bearing frame
360...	Bearing cover
400...	Gasket
412...	O-Ring
421...	Radial seal ring
433...	Mechanical seal
452	Gland packing
458	Lantern ring
461	Packing ring
471...	Mechanical seal cover
485	Seal locating ring

VDMA N°	DESCRIPTION
502...	Wear ring
505...	Spacer ring
507	Splash ring
524	Shaft sleeve
542	Mechanical seal bush
561	Elastic pin
637	Oil filling plug
639	Oil sight gauge
643	Oil dipstick
672	Cock
701	Piping
730	Fitting
731...	Fitting
735	Nipple
900...	Screw
901...	Screw
902...	Stud
903...	Plug
904	Grub screw
914	Screw
922	Locking nut
923	Bearing nut
925	Impeller locking nut
932...	Circlip
935	Elastic ring
940...	Key

Tab. 2

PUMP MODEL	NOMINAL DIMENSIONS OF WEAR RINGS			RADIAL CLEARANCE in mm BETWEEN IMPELLER HUB AND WEAR RING				IMPELLER MINIMUM BALL SIZE mm
				CASING		CASING COVER		
	A	B	H	DESIGN		DESIGN		
				F - RA	A3	F - RA	A3	
25-125	72	84	13	0,33 - 0,48	0,43 - 0,58			6
25-160	72	84	13	0,33 - 0,48	0,43 - 0,58			6
25-200	72	84	13	0,33 - 0,48	0,43 - 0,58			5
32-125	72	84	13	0,33 - 0,48	0,43 - 0,58			6
32-160	72	84	13	0,33 - 0,48	0,43 - 0,58			5
32-200	72	84	13	0,33 - 0,48	0,43 - 0,58			5
32-250	85	97	13	0,44 - 0,59	0,74 - 0,89			6
40-125	85	97	13	0,34 - 0,49	0,44 - 0,59			10
40-160	85	97	13	0,34 - 0,49	0,44 - 0,59			7,5
40-200	85	97	13	0,34 - 0,49	0,44 - 0,59			6
40-250	95	110	16	0,44 - 0,59	0,74 - 0,89			6,5
40-315	95	110	16	0,44 - 0,59	0,74 - 0,89			8
50-125	95	110	16	0,34 - 0,49	0,44 - 0,59			16
50-160	95	110	16	0,34 - 0,49	0,44 - 0,59			13
50-200	95	110	16	0,34 - 0,49	0,44 - 0,59			9
50-250	105	120	16	0,44 - 0,59	0,74 - 0,89			5
50-315	105	120	16	0,44 - 0,59	0,74 - 0,89			7,5
65-125	105	120	16	0,44 - 0,59	0,74 - 0,89			20,3
65-160	120	135	16	0,44 - 0,59	0,74 - 0,89			18
65-200	120	135	16	0,44 - 0,59	0,74 - 0,89			14
65-250	120	135	16	0,44 - 0,59	0,74 - 0,89			12
65-315	130	150	18	0,44 - 0,61	0,84 - 1,01			10
65-315	130	190	26			0,44 - 0,61	0,84 - 1,01	10
80-160	135	150	16	0,44 - 0,61	0,74 - 0,91			25
80-200	135	150	16	0,44 - 0,61	0,74 - 0,91			21
80-250	135	150	16	0,44 - 0,61	0,74 - 0,91			15
80-315	140	160	18	0,44 - 0,61	0,84 - 1,01			13
80-315	140	190	24			0,44 - 0,61	0,84 - 1,01	13
100-200	150	170	18	0,44 - 0,61	0,74 - 0,91			27
100-250	150	170	18	0,44 - 0,61	0,84 - 1,01			18
100-250	150	200	22			0,44 - 0,61	0,84 - 1,01	18
100-315	180	200	20	0,44 - 0,61	0,84 - 1,01	0,44 - 0,61	0,84 - 1,01	14,5
100-400	180	200	20	0,44 - 0,61	0,84 - 1,01	0,44 - 0,61	0,84 - 1,01	12
125-250	180	200	20	0,44 - 0,61	0,84 - 1,01	0,44 - 0,61	0,84 - 1,01	30
125-315	200	220	18	0,45 - 0,62	0,85 - 1,02	0,45 - 0,62	0,85 - 1,02	24
125-400	200	220	18	0,45 - 0,62	0,85 - 1,02	0,45 - 0,62	0,85 - 1,02	15
150-250	215	235	20	0,45 - 0,62	0,85 - 1,02	0,45 - 0,62	0,85 - 1,02	48
150-315	232	252	22	0,45 - 0,62	0,85 - 1,02	0,45 - 0,62	0,85 - 1,02	32
150-400	232	252	22	0,45 - 0,62	0,85 - 1,02	0,45 - 0,62	0,85 - 1,02	25
200-315	262	282	22	0,46 - 0,64	0,86 - 1,04	0,46 - 0,64	0,86 - 1,04	48
200-400	262	282	22	0,46 - 0,64	0,86 - 1,04	0,46 - 0,64	0,86 - 1,04	34
250-315	312	332	22	0,46 - 0,64	0,86 - 1,04	0,46 - 0,64	0,86 - 1,04	68





XTF Corporation

**7105 Cessna Drive
Greensboro, NC 27409, USA**

Phone: (800) 789-1864

Fax: (336) 664-1353

Email: sales@xtfpumps.com