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OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD
SCHEDULE OF REQUIREMENT

Due Date:

Material :MECHANICAL SEALS FOR PUMPS

Tender Enquiry No: PROC-LD/P&P/18386/21

EVALUATION WILL BE CARRIED OUT ON GROUP WISE

Bid Bond Value : GROUP WISE
Attachment(if any) : YES

Group A

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
1	SEAL, MECHANICAL COMPLETE, P# 0530-U002,(WCQ) TB2SMB2SM ,TB2SMB2SM 0530-U002, Dwg# FB36558,or equivalent FOR "INGERSOLL-RAND" GA-601 A/B AS PER ATTACHED TOR	1		Number					
2	SEAL MECANICAL COMPLETE, P# 87460106, Type: RREL-0560-92CY-U013, Dwg # FB36535, or equivalent FOR "IGERSOL-RAND" 911-GA-01 A/B AS PER ATTACHED TOR	1		Number					
3	SEAL MECHANICAL COMPLETE, TYPE: TB2SMB2SM-0630-U001(WCQ)(M), Dwg# FB 36566, or equivalentFOR "INGERSOLL-RAND" GA-603 A/B AS PER ATTACHED TOR	1		Number					
4	SEAL MECHANICAL COMPLETE, P# 5034967930, Type: RROR 0360-Y017(CBPO), Dwg# 25556, or equivalent For Worthington Pumps 100-GA 1 A/B AS PER ATTACHED TOR	1		Number					
5	SEAL MECHANICAL COMPLETE, P# 5084968140, Type: RROR-0320-Y010 (CBQ), Dwg# 24672, or equivalent For "WORTHINGTON" PUMPS, 902-GA-01 A/B, 910-GA-1 A/B, GA-401 A/B, GA-404, 912-GA-01 A/B, 804-GA-01 AS PER ATTACHED TOR	2		Number					

Group B

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
6	SEAL MECHANICAL COMPLETE, P # BC-008769, REF# BC008769, Dwg # 616 552 C20081 A00 or equivalent, FOR "INGERSOL RAND" 830-GA-1 A/B/C AS PER ATTACHED TOR	2		Number					
7	SEAL MECHANICAL COMPLETE, P # 6235058-C, SEALOL Ref# BC008769, Dwg# 616538 C200B2A00, or equivalent FOR "INGERSOL RAND" 830-GA-02 A/B AS PER ATTACHED TOR	2		Number					

Group C

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
8	SEAL MECHANICAL COMPLETE, Type: QB-1750-5A1N, Dwg # 6035028-C, or equivalent FOR "INGERSOL RAND" 803-GA-1 A/B AS PER ATTACHED TOR	1		Number					



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OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD
SCHEDULE OF REQUIREMENT

Due Date:

Material : **MECHANICAL SEALS FOR PUMPS**

Tender Enquiry No: **PROC-LD/P&P/18386/21**

EVALUATION WILL BE CARRIED OUT ON GROUP WISE

Group C

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
9	SEAL MECHANICAL COMPLETE, Type: QB-2000-5A1N, Dwg # 6035018-C, or equivalent FOR "INGERSOL RAND" 802-GA-1 A/B AS PER ATTACHED TOR	1		Number					
10	SEAL MECHANICAL COMPLETE P # 6035008-B, TYPE :QB 2750/5A1N, Dwg# 6035008-C, or equivalent FOR "INGERSOL RAND" 801-GA-01 A/B AS PER ATTACHED TOR	1		Number					

Special Note: The prospective bidders also download the master set of Tender Document

- The prospective bidders may keep in touch with OGDCL web site for downloading the clarifications/amendments (if any) issued by OGDCL.
 - BID VALIDITY: 120 DAYS AFTER TECHNICAL BID OPENING. BID BOND FOR GROUP-A=PKR 32,000.00, GROUP B=PKR 26,000.00 GROUP C=PKR 10,000.00 DELIVERY LOCATION: DAKHNI OIL FIELD, DELIVERY PERIOD: 180 DAYS AFTER ISSUANCE OF LPO.
- PAYMENT TERMS: 100% AFTER DELIVERY.



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OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD
SCHEDULE OF REQUIREMENT

Mandatory Checklist

Please confirm the compliance of the following mandatory information along with the bid(s) (failing which bids(s) will not be accepted)

Documents	To be Attached with the Technical/Financial Bids	Compliance	
		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Original Bid Bond	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of NTN Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of GST Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Confirmation that the Firm is appearing on FBR's Active Taxpayer List	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped Annexure-A (Un-priced)	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-B	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-D	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-L on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped Annexure-M on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped Annexure-N on Non-Judicial Stamp Paper duly attested by Notary Public	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-A (Priced)	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-C	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped Annexure-E	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>



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OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD
SCHEDULE OF REQUIREMENT

For the Vendors/Contractors who opt to submit Bank Draft/Call Deposit/Pay order against Bid Bond/Performance Bond, our Accounts Department has finalized an arrangement for online payment to such Vendors/Contractors, which will be processed through (IBFT & LFT) for which following information is required:

i.	IBAN No. (International Bank Account Number 24 Digits)	
ii.	Vendor Name as per Title of their Bank Account	
iii.	Contact No. of Company's CEO/ Owner (Mobile & Landline)	
iv.	Bank Name.	
v.	Bank Branch Name and Code	

Name, Sign and Stamp of the authorized official of the Bidder(s) _____

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Terms of References (Mechanical seal)

OGDCL Intends to Procure the Mechanical Seals for the following Pumps as under details. Bidder to mention country of origin against each item: -

SOR Sr#	Description	DWG NO	MAKE	UOM	QTY	Country Of Origin
Group-A						
1	SEAL, MECHANICAL COMPLETE , P# 0530-U002, (WCQ) TB2SMB2SM ,TB2SMB2 SM 0530-U002 For Ingersoll-Rand Pumps	FB36558	FLEXI BOX / EQUIVALENT	No	01	
2	SEAL MECHANICAL COMPLETE P# 87460106, Type: RREL-0560-92CY-U013 For Ingersoll-Rand Pumps	FB 36535	FLEXI BOX / EQUIVALENT	No	01	
3	SEAL MECHANICAL COMPLETE, Type: TB2SMB2SM-0630-U001(WCQ)(M) For Ingersoll-Rand Pumps	FB 36566 6235048-C	FLEXI BOX/ EQUIVALENT	No	01	
4	SEAL MECHANICAL COMPLETE P# 5034967930 Type: RROR 0360-Y017(CBPQ) For Worthington Pumps	25556 (Y52150)	FLEXI BOX / EQUIVALENT	No	01	
5	SEAL MECHANICAL COMPLETE, P# 5084968140 Type: RROR-0320-Y010 (CBQ) FOR Worthington Pumps	24672 (Y50540)	FLEXI BOX / EQUIVALENT	No	02	
Group-B						
6	SEAL MECHANICAL COMP, P # BC-008769 For Ingersoll-Rand Pumps	616 552 C20081 A00	EG&G SEALOL / EQUIVALENT	No	02	
7	SEAL MECHANICAL COMP, P # 6235058-C For Ingersoll-Rand Pumps	616 538 C200B2 A00	EG&G SEALOL / EQUIVALENT	No	02	
Group C						
8	SEAL MECHANICAL COMP, Type: QB-1750-5A1N For Ingersoll-Rand Pumps	6035028-C	BORG-WARNER / EQUIVALENT	No	01	
9	SEAL MECHANICAL COMP, Type: QB-2000-5A1N, For Ingersoll-Rand Pumps	6035018-C	BORG-WARNER / EQUIVALENT	No	01	
10	SEAL MECHANICAL COMP, P # 6035008-B, Type :QB 2750/5A1N, For Ingersoll-Rand Pumps	6035008-C	BORG-WARNER / EQUIVALENT	No	01	

Signed and Seal Stamped TOR

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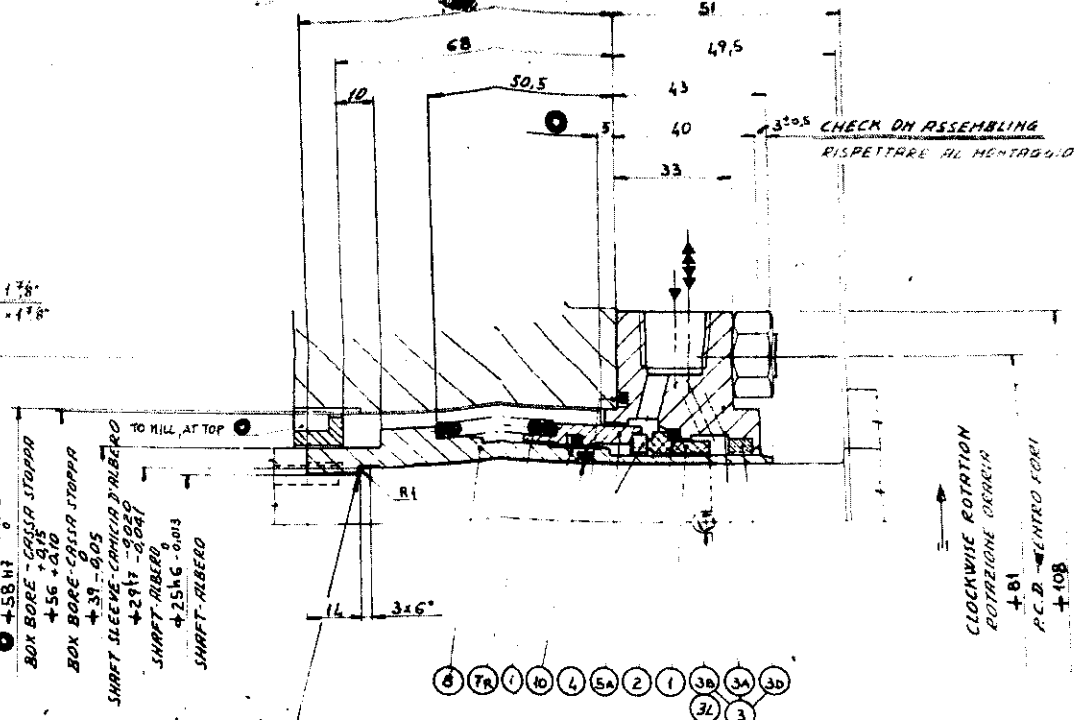
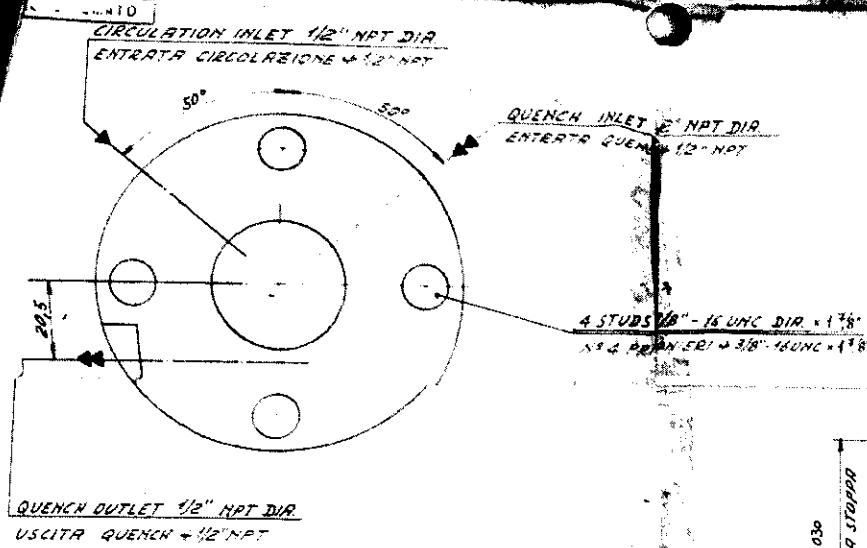
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1. Bidder to provide the previous supply record/reference of similar type of material in Oil and Gas/petrochemical/industrial Sector in Pakistan.
2. Bidder must confirm that quoted mechanical seals are 100% fit in size and function/metallurgy as per drawing and Pumps models mentioned by OGDCL. Genuine OEM mechanical seals to be provided.
3. If bidder found any ambiguity in part nos., it should be cleared prior to bid opening date (Drawing are attached).
4. Mechanical seals must be in original OEM Packing.
5. Mechanical seals must be new & free from any defect.
6. If bidder found any change/update/superseded part nos., it should be incorporated in bid with OEM confirmation.
7. Mechanical seals must have standard warranty/guarantee.
8. Delivery period is 180 days from date of issuance of purchase order at delivery location of Dakhni plant (Tehsil Jand Dist Attock).
9. Evaluation will be on group wise basis.
10. Bidder must confirm country of origin in technical bid.
11. Bidder should submit the complete compliance of TOR duly signed and stamped.

Signed and Seal Stamped TOR

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h



+58 H1 +0.036
 BOX BORE - CASSIA STOPPA
 +56 +0.05
 BOX BORE - CASSIA STOPPA
 +59 -0.05
 SHAFT SLEEVE - Camicia d'albero
 +29 H1 -0.041
 SHAFT ALBERO
 +25 H6 -0.03
 SHAFT - ALBERO
 TO MILL, AT TOP
 R1
 +29.5 x 25.5 x 1 (AN 508045)
 1mm THICK GASKET
 SUPPLIED BY CLIENT
 GUARNIZIONE SP 1mm
 FORNITA DAL CLIENTE

FIT O-RING 1324 OR FLEX-O-RING 42518
 MONTARE O-RING 1324 OPPURE FLEX-O-RING 42518

ID	QTY	REF	DESCRIPTION	MATERIAL	QTY	WORTHINGTON
10	1318	-	O-RING	PTFE	1	
8	Y50198	21488	PACKING	PTFE	1	
7R	2037R	FB1246	CAMICIA D'ALBERO	STAINLESS STEEL	1	
C	0	-	SHAFT SLEEVE	STAINLESS STEEL	1	
59971	MT21775	-	MOLLA DESTRA	STEEL	1	
5A	60426	INT27850	RIGHT HAND SPRING	STEEL	1	
60396	INT27869	-	O-RING	PTFE	1	
4	1338	-	PACKING	PTFE	1	129
3L	10840	D.S.753	INSERTO PIANTATO	TUNGSTEN CARBIDE	1	
3b	65025	INT29075	INSERT C	STAINLESS STEEL	1	127
3c	1497	24673	CONTENITORE ROTANTE	STAINLESS STEEL	1	
3A	Y100663	24673	ROTTORI SEAL RING BODY	STEEL	1	
3	Y100653	24673	ANELLO ROTANTE COMPLETO	STEEL	1	
2	1326	-	ROTTORI SEAL RING ASSEMBLY	STEEL	1	
1	5293	INT.1236	O-RING	PTFE	1	178
REF	CLASSIFICA PART. NR	DWG. N°	DESCRIZIONE	MATERIALE	QTY	WORTHINGTON

CLIENTE WORTHINGTON SUD	LIQUID PRODUCT DEA SOL	EVENTUALI MODIFICHE RICHIESTE BOX BORE - CASSIA STOPPA AN. 512142 SHAFT 1/2"	UNITA' SUEDE
PRODOTTORE P.C. 0775	PERO SPECIFIC SPECIFIC WEIGHT 0.971	ALTRI IN TIR	INCAMERATURA N° DRAWING N° DH 508121/A
OPERAZIONE P.C. 0775	VISCOSITA' VISCOSITY 0.37 C1	CONSTRUTTORE WORTHINGTON SUD	SUPPORTO N° 2 BRACKET N° 2
INDICAZIONE 01-00615	TEMPERATURA TEMPERATURE 252° F	MACCHINA TIPO PUMP TYPE 1 1/2 HAS 52	DWG. WIDTH N° DEPTH DWG. N° CN.514004
CHIAMATA CLIENTE 12003570	TENSIONE VAPORE VAPOR PRESSURE 2.6 B1A	OPERAZIONE SC 29-7-85	FLEXIBOX BPA.
CHIAMATA CLIENTE 12003570	PRESSIONE ASPIRAZIONE SUCTION PRESSURE -3.9 RIG	APPROV. P	DESCRIZIONE DESCRIPTION MECHANICAL SEAL TYPE TENUTA TIPO RROR 0320 - Y010 (LBO)
CHIAMATA CLIENTE 12003570	PRESSIONE MANDATA DISCHARGE PRESSURE 26 B1G	MACCHINA N°	REPLAZI 24672
CHIAMATA CLIENTE 12003570	PRESSIONE CASSIA STOPPA STOPPING BOX PRESSURE	VELOCITA' RPM	CLASSIFICA PART. NR Y50540
CHIAMATA CLIENTE 12003570	VELOCITA' SPEED 2900 RPM		

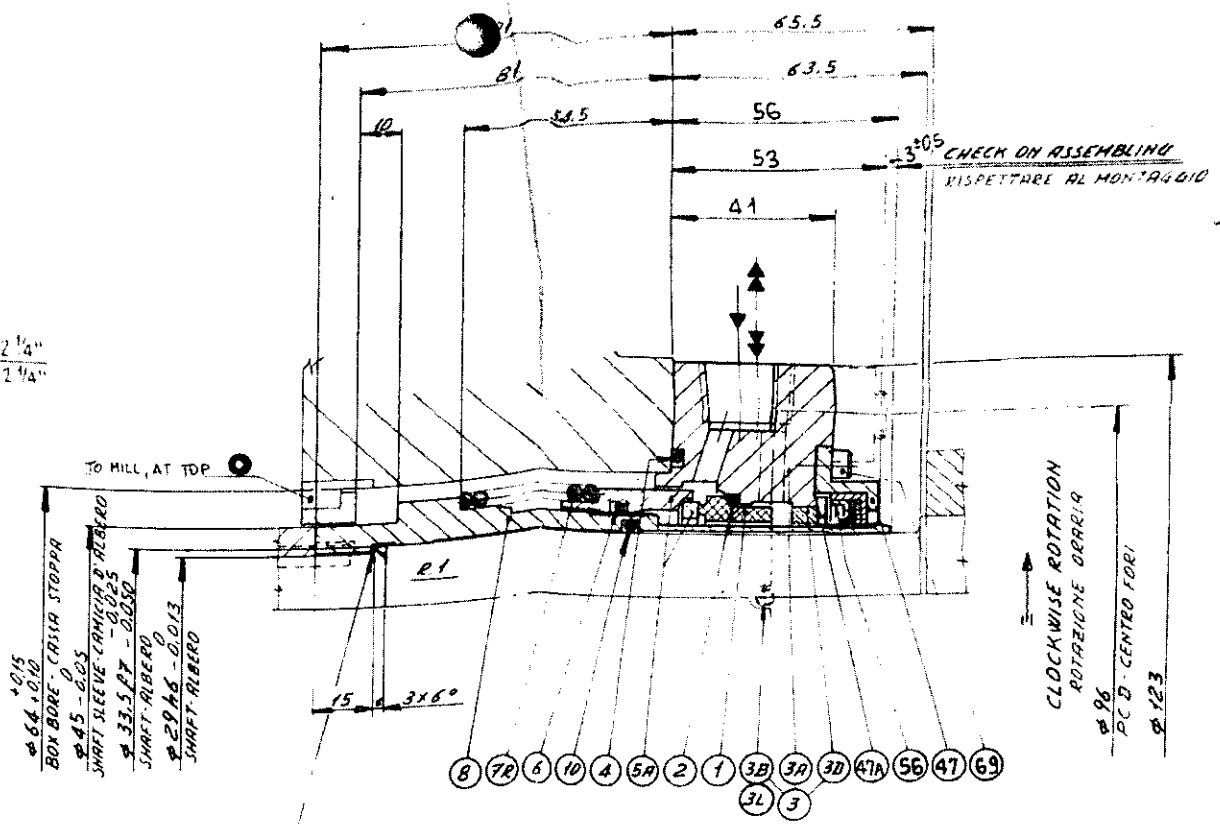
CIRCULATION INLET 1/2" NPT DIA
ENTRATA CIRCULAZIONE 1/2" NPT

QUENCH INLET 1/2" NPT DIA
ENTRATA QUENCH 1/2" NPT

4 STUDS 1/2" BUNG DIA x 2 1/4"
N° 4 PRISONIERI 1/2" BUNG DIA x 2 1/4"

QUENCH OUTLET 1/2" NPT DIA
USCITA QUENCH 1/2" NPT

5



1mm THICK GASKET
SUPPLIED BY CLIENT
GUARNIZIONE SP 1mm
FORNITA DAL CLIENTE
Ø 33.3 x Ø 29.2 x 1 (AM 36156)

● FIT O-RING 1327 OR FLEX-O-RING 42522
MONTARE O-RING 1327 OPPURE FLEX-O-RING 42522

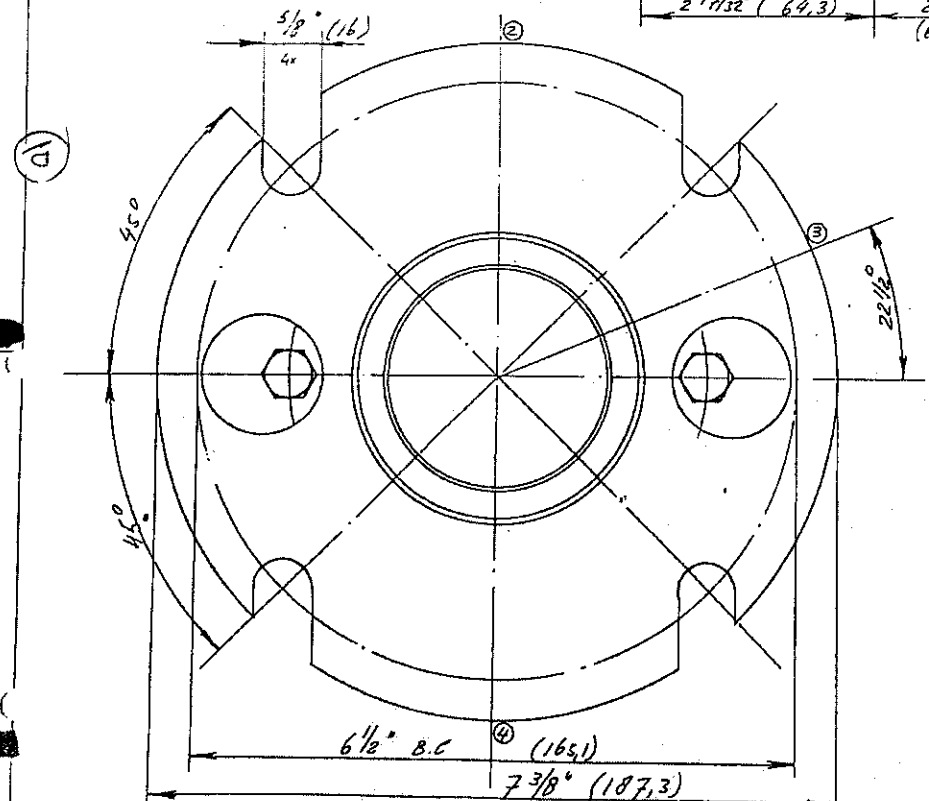
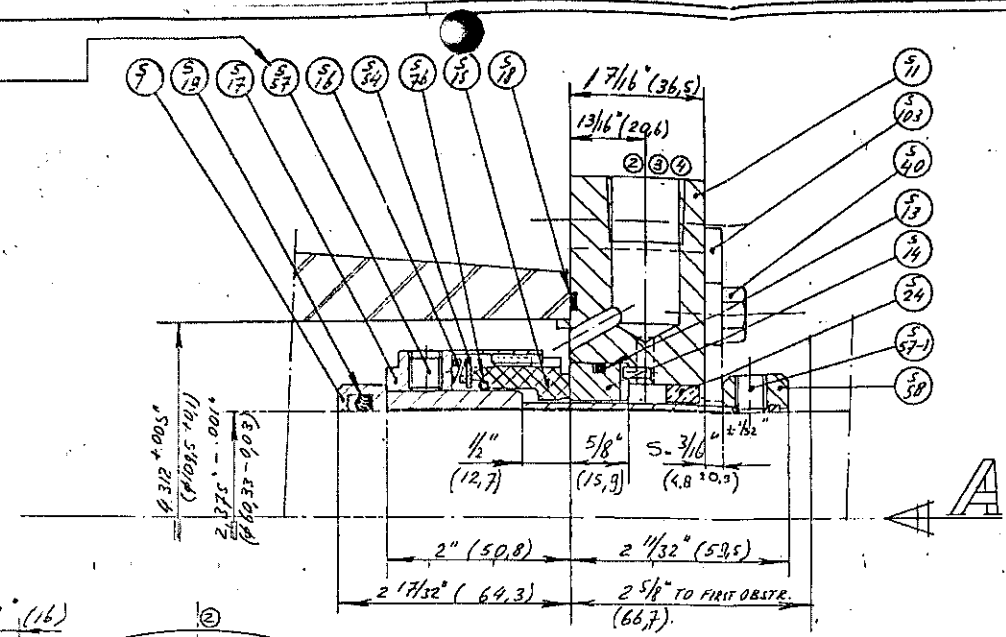
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Y1703s	07966	VITE T.C.E.I. M5 SCREW	4	STAINLESS STEEL	
Y221/56	✓ 19651	GUARNIZIONE A LABRO LIP SEAL	1	GYLON	
Y1864	02985	GUARNIZIONE GASKET	1	ASBESTOS	
Y527/47	25559	COPERCHIETTO COVER	1	STAINLESS STEEL	
1321	—	PACKING O-RING	✓	VITON	
Y59988	✓ 25558	SHAFT SLEEVE ✓ CANNICIA D'ALBERO	1	STAINLESS STEEL HARDENED	
3601R	FB 1246	RIGHT HAND SPRING MOLLA DESTRA	✓	STAINLESS STEEL	
●	—	PACKING O-RING	✓	VITON	
59973	✓ INT 27775	INSERT ✓ INSERTO PIANTATO	1	TUNGSTEN CARBIDE	✓
60427	✓ INT 27850	ROTRARY SEAL RING BODY ✓ CONTENITORE ROTANTE	1	STAINLESS STEEL	✓
60397	✓ INT 27849	ROTRARY SEAL RING ASSEMBLY ✓ ANELLO ROTANTE COMPLETO	1	/	
1343	—	PACKING O-RING	✓	VITON	
65026	✓ INT 29075	SAFETY BUSH ✓ BUSSOLA DI SICUREZZA	1	BRONZE	✓
10840	D.S.753	PIV SLEEVE RIVESTIMENTO SPINA	1	P.T.F.E.	
Y02738	25557	SPINA SEAL PLATE BODY	1	STAINLESS STEEL	
Y103883	25557	FLANGIA SEMPLICE SEAL PLATE ASSEMBLY	1	STAINLESS STEEL	
Y103873	25557	FLANGIA COMPLETA PACKING	1	/	
1329	—	PACKING O-RING	✓	VITON	
5291	✓ INT 1236	STATIONARY SEAL RING ✓ ANELLO STAZIONARIO	1	CARBON	
PROT. N°	DWG. N°	DESCRIPTION	QTY	MATERIAL	WORTH DWG.

SHAHID SHAHJAHAN ENGINEERING LTD.
11/11/95

WORTH POMPE ITALIA CUSTOMER MARCHIA PIST ICE1	FLUIDO PRODUCT SOUR CRUDE	VAL. BORE Ø BN 511178	REQUIR. MODIFICAZIONI NONE
2VT-6-0775	FLUID SPEC. SPECIFIC WEIGHT 0.8	OTHERS NONE	NO. JOB S/BOX. NO DN508116
LE 30535	VISCOSITA' VISCOSITY /	TEMPERATURA TEMPERATURE	WORTHINGTON WORTHINGTON POMPE ITALIA
01-00615	TEMPERATURE TEMPERATURE	AMB.	1 1/2 HA S 83
12-03572	TENSIONE VAPORI VAPOR PRESSURE	10 PSIA	SUPPORTO N° 3
LUMMUS DAXHNI PAKISTAN	PRESIONE ASPIRAZIONE SUCTION PRESSURE	0.975 B PSIG	21-2-86
100 GA 1A/B	PRESIONE MANDATA DISCHARGE PRESSURE	50 PSIG	FLEXIBOX SPA
7ACS	PRESIONE CASA SUFFO DISCHARGE NON PRESSURE		DESCRIZIONE DESCRIPTION TENUTA TIPO MECHANICAL SEAL TYPE RROR D360-Y017 (CBPO)
	REVISIONI REVISED	7 900 RPM	25556
			CLASSIFICA - PART. N° Y52150

Stake setscrews at assembly



- ② Injection 1/2" NPT
- ③ Quench 1/2" NPT
- ④ Drain 1/2" NPT

Dimensions between (...) are in mm.

Note: Boxpress. to be positive

View-A

BORG WARNER DRG. No. A2N03079

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DATA SHEET AND BILL OF MATERIAL

QTY	ITEM NO	DESCRIPTION	DRAWING NO	CODE	MATERIAL
8 4	S 103	Setting Plate	4N01635	DB	316
8 4	S 40	Cap Screw	4R2893	AC	4340-HT
4 2	S 58	Drive Collar	670144	DB	316
26 12	S 57-1	Set Screw	4R0433	CI	SAE-8735
4 2	S 76	ROTATING FACE GASKET	568232	GS	Nitrile
12 6	S 57	HEX SOCK SET SCREW C.P.	4R0437	DY	Alloy-20
4 2	S 54	RETAINING RING	668844	DB	316
4 2	S 24	FLANGE BUSHING	670046	FJ	SAE-65
4 2	S 19	SLEEVE GASKET	568332	GS	Nitrile
4 2	S 18	FLANGE GASKET	4N00265	GR	Impr. Asbestos
4 2	S 17	SPRINGHOLDER	154786	DB	316
24 12	S 16	SPRING	668830	DB	316
4 2	S 15	ROTATING FACE	154784	GE	Carbon
4 2	S 14	STATIONARY FACE	668830	LV	Yungsten Carb.
4 2	S 13	SEAT GASKET	568235	GS	Nitrile
4 2	S 11	SEAL FLANGE	2N05517	DB	316
4 2	S 1	SHAFT SLEEVE	3N04127	DB	316

CLIENTS	Ingersoll Rand	CLIENT ORDER NO	41222
ULTIMATE USER	GNAR / Ocul	LOCATION	Gakym Pakistan
PUMP MANUFACTURER	Ingersoll Rand	LOCATION	Gateshead U.K.
PUMP SIZE & TYPE	6x18, Sc 1 Stg. Hor.		
STUFFINGBOX DWG NO	TA 3317 A	PUMP SERIAL NO	6035008
ITEM NO	601-6A-ARB	SPEC SHEET NO	
FLUID	Cooling Water		
TEMPERATURE	90 to 120 F	VAPOR PRESSURE	10.82 PSIA
VISCOSITY	1.0 cP	SUCTION PRESSURE	See Note
DNCE DR	1.0	STUFFINGBOX PR	See Note
RPM	1470	DISCHARGE PR	See Note
ENGINEER/DATE	C. Neuss 26-3-86	SCALE	1:1
CHECKED BY/DATE			
MECHANICAL SEAL ASSEMBLY		SEAL TYPE & SIZE	QB 2750
		MATERIAL CODE	SA1N
		ORDER NO.	815753
		ASSEMBLY DRAWING NO	6035008-C
		SHT. 1	

BORG WARNER MECHANICAL SEALS

2116

THIS MATERIAL IS THE PROPERTY OF BORG-WARNER CORPORATION AND IS LOANED TO YOU ONLY FOR THE PURPOSE INDICATED AND ALL CONFIDENTIAL, PROPRIETARY PATENT AND OTHER RIGHTS IN THE SUBJECT MATTER BEING RETAINED INCLUDING ANY EXCLUSIVE RIGHTS OF USE AND OF MANUFACTURE AND OF SALE POSSESSION OF THIS MATERIAL DOES NOT CONVEY ANY PERMISSION TO REPRODUCE THIS MATERIAL IN WHOLE OR IN PART OR MANUFACTURE THE SUBJECT MATTER SHOWN THEREIN. USE THE CONFIDENTIAL OR PROPRIETARY DESIGNATION THEREON WITHOUT PERMISSION IS NOT GRANTED ONLY BY A WRITTEN AUTHORIZATION IN WRITING FROM AN OFFICER OR EMPLOYEE OF BORG-WARNER CORPORATION OR ITS SUBSIDIARIES.

DATA SHEET AND BILL OF MATERIAL

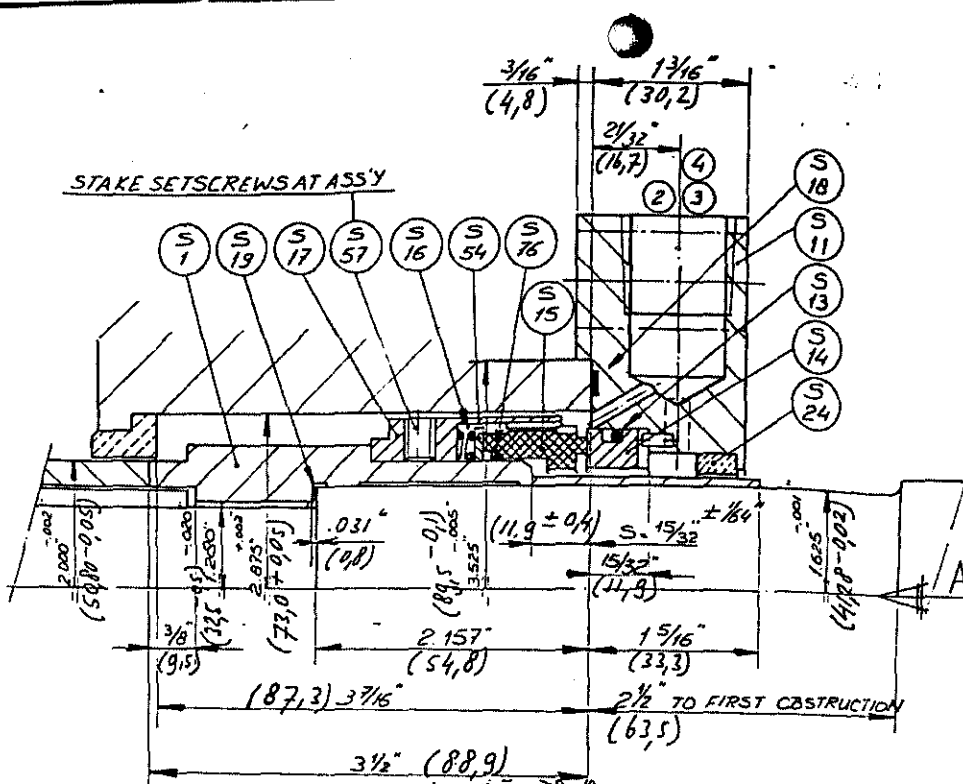
QTY	ITEM NO	DESCRIPTION	ITEM NO	UNIT	MATERIAL
2	1	ROT. FACE GASKET	568226	GS	Nitrile
8	4	H.S. SETSCREW C.P.	470432	DY	Alloy-20
2	1	RETAINING RING ✓	668813	DB	316
2	1	FLANGE BUSHING ✓	669571	FJ	SAE-64 ✓
2	1	SLEEVE GASKET	BY CUSTOMER	(A)	
2	1	FLANGE GASKET	4101292	GR	Impr. Asbestos
2	1	SPRINGHOLDER ✓	154768	DB	316 ✓
16	8	SPRING	668796	DB	316
2	1	ROT. FACE ✓	154766	GE	Carbon ✓
2	1	STAT. FACE ✓	668799	LV	Tungsten Carb.
2	1	SEAT GASKET	568228	GS	Nitrile
2	1	SEAL FLANGE	2N05524	DB	316
2	1	SHAFT SLEEVE ✓	2N01121	DB	316 ✓

MANUFACTURER	Ingersoll Rand	41222
TRADE NAME	Enar/OGDC	Dakhni Pakistan
MANUFACTURER'S ADDRESS	INGERSOLL-RAND CO. LTD.	GATESHEAD - ENGLAND
TRADE NAME	1 1/2x10 A 1 Sig Hor.	
TRADE NAME	1227DS4XG1	6035018
TRADE NAME	802 GA-1 A/B	
TRADE NAME	Well Water	
TRADE NAME	80° F	
TRADE NAME	10	17.9 PSIA
TRADE NAME	2920	17.9 PSIA
TRADE NAME	C. Meeyu	164 PSIA
TRADE NAME	11-3-86	1/1 (1/2)
TRADE NAME	11-3-86	

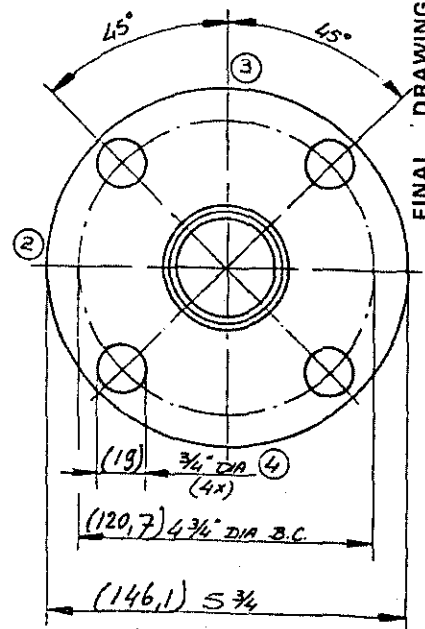
MECHANICAL SEAL ASSEMBLY **QB-2000** 5A1N

BORG-WARNER Borg-Warner Mechanical Seals 815754

6035018-C 001

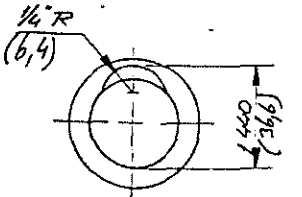


10



FINAL DRAWING
No further changes shall be made by the Vendor or the Buyer, includes all revisions; all descriptions of material and equipment are true.

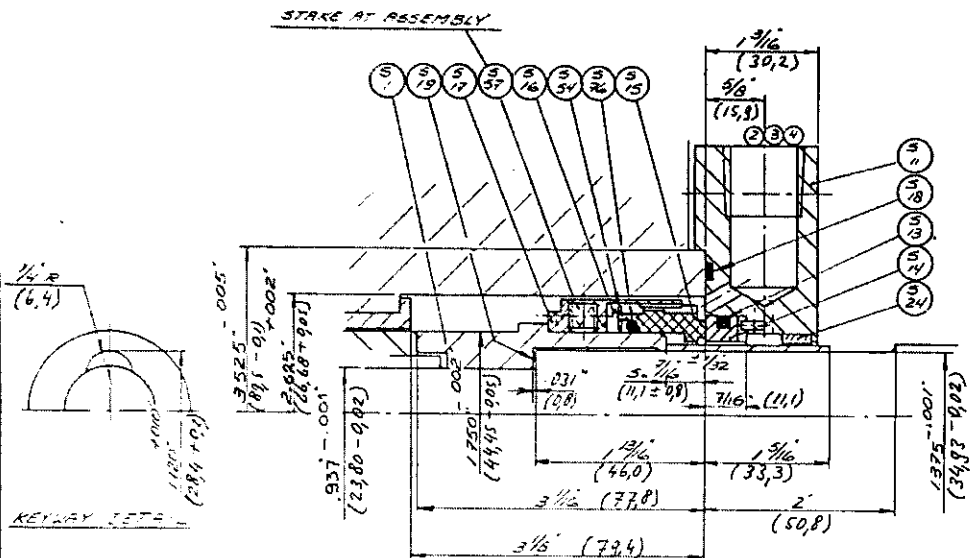
SIGNATURE: *[Signature]* DATE: 11-3-86
BORG-WARNER MECHANICAL SEALS
A DIVISION OF
BORG-WARNER CORPORATION
② INJECTION 1/2" NPT
③ QUENCH 1/2" NPT
④ DRAIN 1/2" NPT



KEYWAY-DETAIL
Dimensions between (...) are in mm.
VIEW-A

B.W. DRG. NO. A3N0017-A

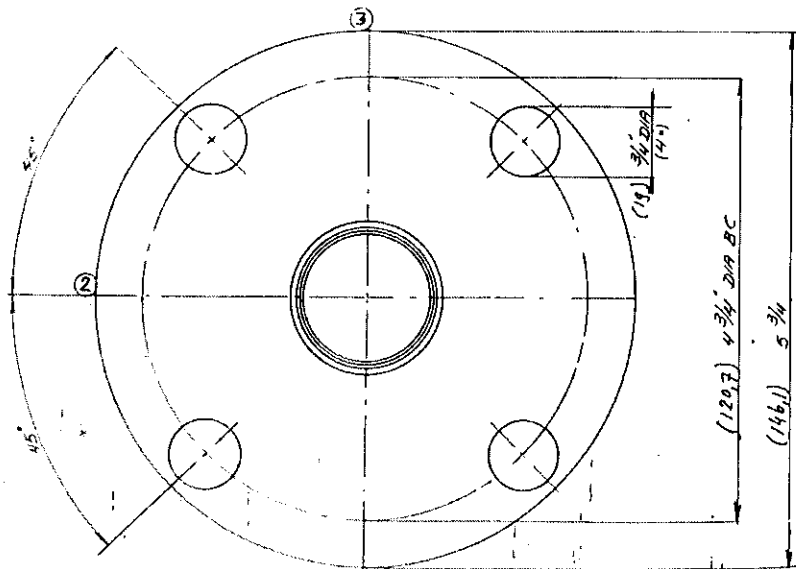
10/16



Dimensions between (...) are in mm.

- ② INJECTION 1/2 NPT
- ③ QUENCH 1/2 NPT
- ④ DRAIN 1/2 NPT

IR PUMP TYPES	
1 X 7 A	
1 1/2 X 7 AL/ALN	
3 X 7 A/AN	
3 X 7 AL/ALN	
4 X 7 AL/ALN	
1 X 8 A/AN/AT	
1 1/2 X 8 A/AN/AT	
2 X 8 A/AN/AT	
3 X 8 A/AN/AT	
4 X 8 A/AN/AT	



VIEW - A

B.W. DRG. No. A2N0733-A

FINAL DRAWING

No further changes shall be made by the Vendor at the Buyer includes all revisions all descriptions of material and equipment are true.

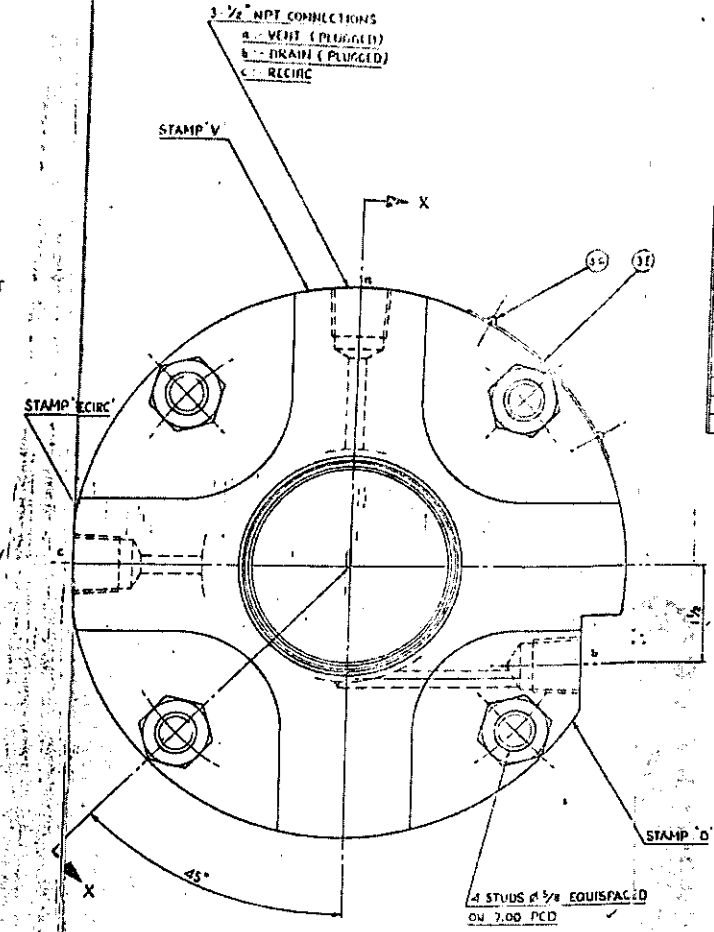
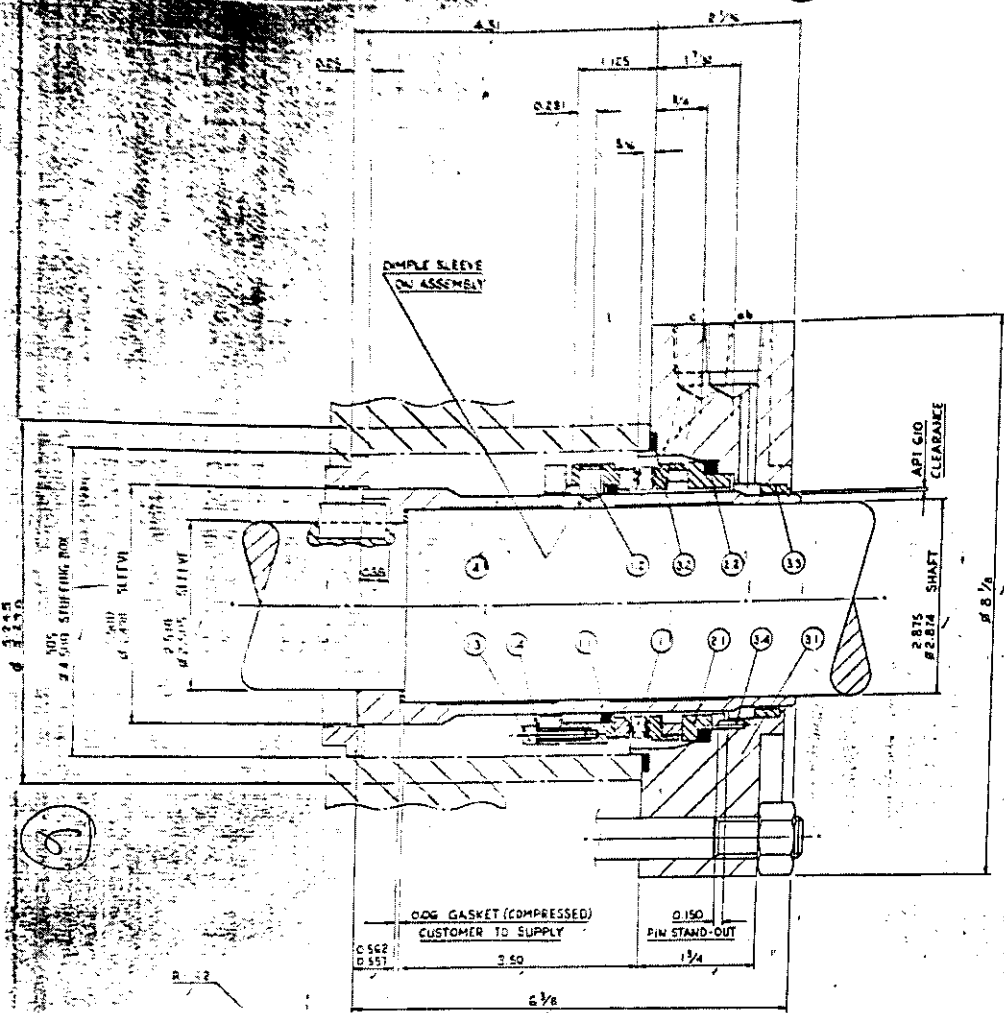
SIGNATURE: *[Signature]* DATE: 11-3-86
 BORG - WARNER MECHANICAL SEALS
 A DIVISION OF
 BORG - WARNER CORPORATION

DATA SHEET AND BILL OF MATERIAL					
QTY	DESCRIPTION	PART NO.	CODE	MATERIAL	
2	RETAINING FACE GASKET	568224	GS	Nitrile	
6	U.S. SET SCREW CP	440432	DY	Alloy-20	
2	RETAINING RING	668003	DB	316	
2	FLANGE BUSHING	669719	FJ	SAE-66	
2	SLEEVE GASKET	BY CUSTOMER	Ⓟ		
2	FLANGE GASKET	4401292	GR	Impc. Asbestos	
2	SPRING HOLDER	154762	DB	316	
12	SPRING	668716	DB	316	
2	ROTATING FACE	154760	GE	Carchon	
2	STATIONARY FACE	668788	LV	Tungsten Carb.	
2	SEAT GASKET	568225	GS	Nitrile	
2	SEAL FLANGE	2405523	DB	316	
2	SHAFT SLEEVE	3401055	DB	316	

CUSTOMER	Ingersoll Rand	CUSTOMER NO.	6772
ULTIMATE USER	En-10600	LOCATION	Dakhoi Pakistan
PUMP MANUFACTURER	INGERSOLL RAND	LOCATION	GATESHEAD ENGLAND
PUMP SITE & TYPE	1x4 1 Stg Hop		
STUFFINGBOX DIA	2 1/2 DB4 XBT		
ITEM NO.	80-GA-1 A/B	PUMP SERIAL NO.	6035028
FLUID	Well Water	SPEC SHEET NO.	
TEMPERATURE	80°F	VAPOR PRESSURE	0.51 PSIA
VISCOSITY		SUCTION PRESSURE	15.56 PSIA
SPEC. OR		STUFFINGBOX PN	15.56 PSIA
RFW	J.O.	DISCHARGE PN	63.02 PSIA
DATE	11-3-86	SCALE	1:1
CHECKED BY DATE	L. HESUS 11-3-86		

MECHANICAL SEAL ASSEMBLY		SEAL TYPE & SIZE	DB - 1750	MATERIAL CODE	SA1N
BORG-WARNER Mechanical Seals		ORDER NO.	815755	ASTM DRAWING NO.	
DIVISION OF BORG-WARNER CORPORATION		6035028-C		001	

DO NOT SCALE



ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	SEAL ASSEMBLY	1	EA	CIC 552 EF 2AA BAA
INCLUDING:				
1.1	PACKING	1	EA	CIC 956 EL CEI BAA
1.2	SOE SET SCREW	4	ST. ST.	T04 0M3 CG SH AAA
1.3	SOE HD CAP SCREW	8	ST. ST.	T02 075 CC SH AAA
1.4	LOCK WASHER	8	ST. ST.	979 303 FC SH AAA
2	MATING KING ASSEMBLY	1	EA	RBC 552 CJ AAA BAA
COMPRISING:				
2.1	MATING RING	1	EA	RBC 552 EY H40 BAA
2.2	PACKING	1	EA	RBC 552 EM 221 BAA
3	CLAMP ASSEMBLY	1	EA	RBC 652 AZ0081 A01
COMPRISING:				
3.1	CLAMP PLATE	1	EA	RBC 552 B20081 A02
3.2	GASKET	1	EA	939 912 FJ 005 BAA
3.3	THROTTLE BUSH	1	EA	939 916 FM B53 BAA
3.4	DOVEL PIN	1	EA	P41 125 FF SH AAM
3.5	IDENTIFICATION PLATE	1	EA	999 000 AK765 A00
3.6	HAMMER DRIVE SCREW	2	EA	939 904 AD5791 B00
3.7	BLANKING PLUG	2	EA	999 901 FS SH AAA
4	SLEEVE	1	EA	616 552 AZ0081 A03

OPERATING CONDITIONS		UNITS
PRODUCT	SANTOTHERM 66 OR EXMIL	
TEMPERATURE	400	°F
SUCTION PRESSURE	12 - 57.5	PSI A
DISCHARGE PRESSURE	31.9 - 131.5	PSI A
VAPOUR PRESSURE	0.05	PSI A
SPECIFIC GRAVITY	0.92 - 0.96	
VISCOSITY	1.9	CP
SPEED	1485	RPM

CUSTOMER - INGERSOLL RAND

ULTIMATE USER HMC ENAR PETROLEUM

SITE N° ITEM N° B3/GA A/B/C

PUMP SUPPLIER INGERSOLL RAND PUMP TYPE 10x12x21 AC

PLANT NAME DAKINI PAKISTAN

PUMP SERIAL N°

EQUIPMENT TAG N°

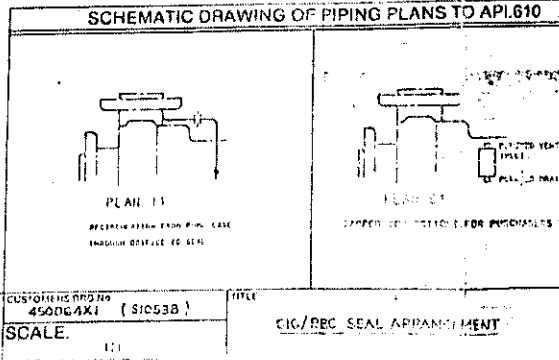
PUMP VENDOR ORDER N°

CUSTOMER PURCHASE ORDER N°

SEALOL REFERENCE/JOB N° 8C 008154

SEALOL LTD.
120 LANE END ROAD, SANDA, HIGH WYCOMBE HP12 4NE

DRG N° C1C 552 E F 2AA BAA
INT CODE N° C1C YAC SCP 207 52



DRG. CERTIFIED FINAL
SIGNED: [Signature] DATE: [Date]

DATE	BY	SCALE	DATE
11.9.86	[Signature]		
11.9.86	[Signature]		

INGERSOLL RAND PRODUCTION
FOR DIMENSIONAL DIMENSIONS NOTE DIMENSIONS SHALL BE IN INCHES
UNLESS OTHERWISE SPECIFIED OTHERWISE IN MILLIMETERS

SEALOL LTD. 100% MADE IN GREAT BRITAIN

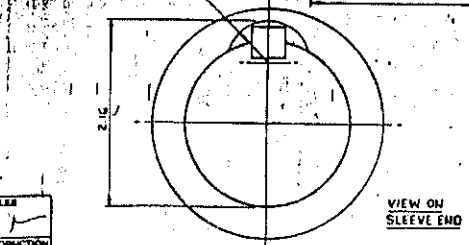
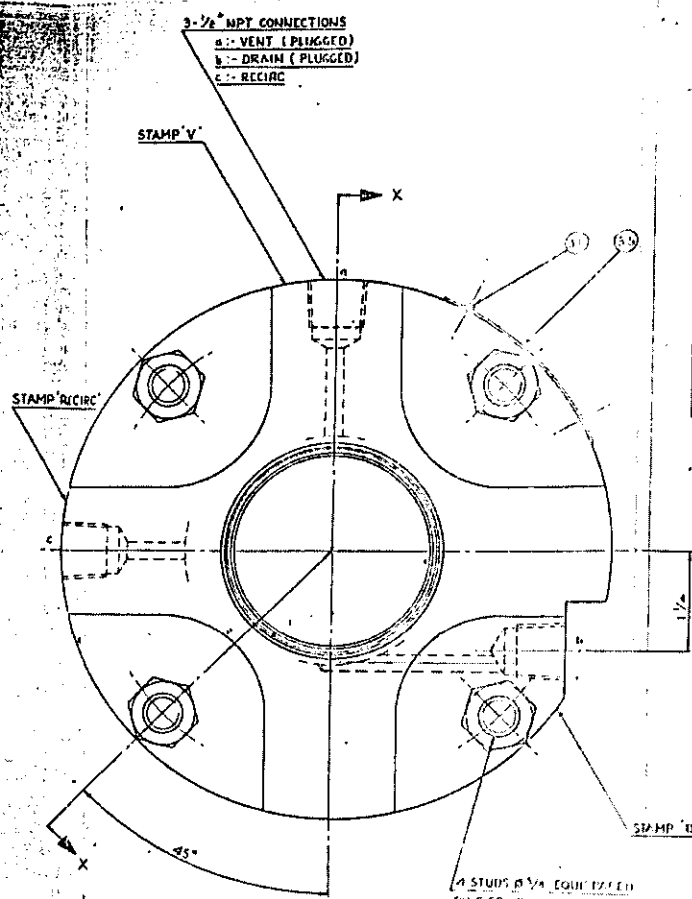
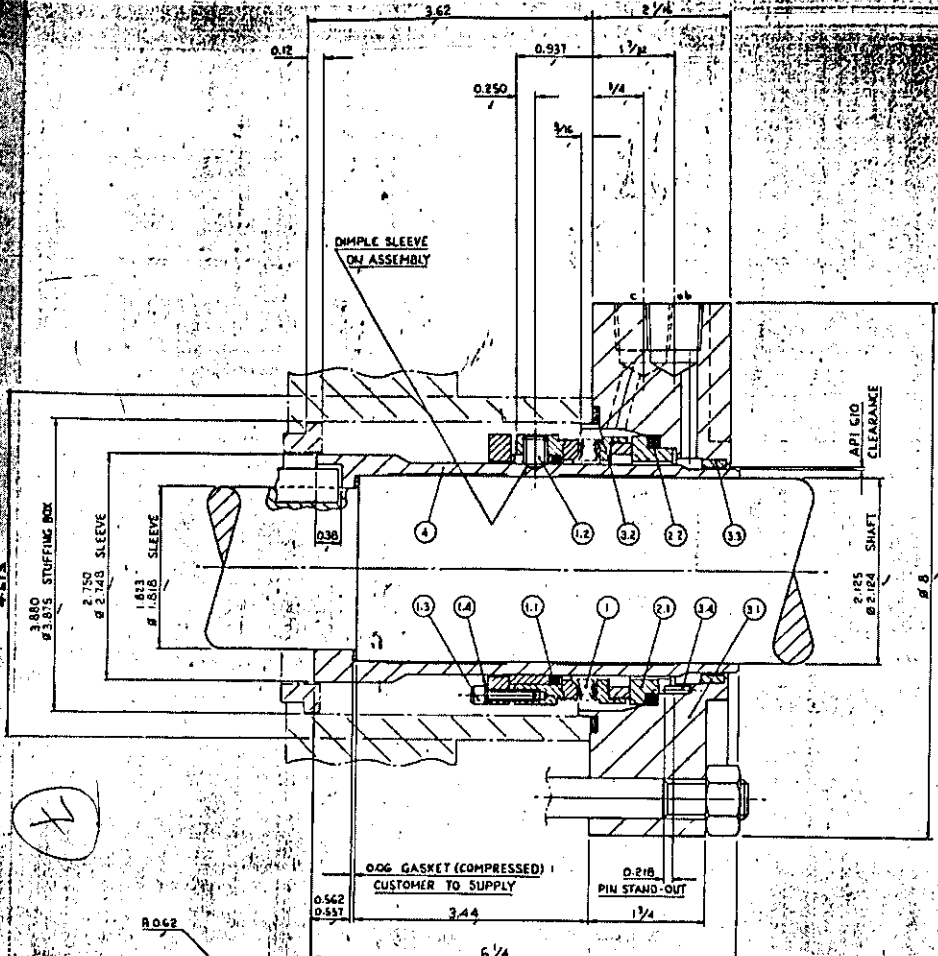
INGERSOLL RAND LTD OWNS THE COPYRIGHT IN THIS DRAWING WHICH IS SUPPLIED IN CONFIDENCE AND WHICH MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS NOT BE PRODUCED WITHOUT PERMISSION IN WRITING AND MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

DO NOT SCALE

IF IN DOUBT ASK

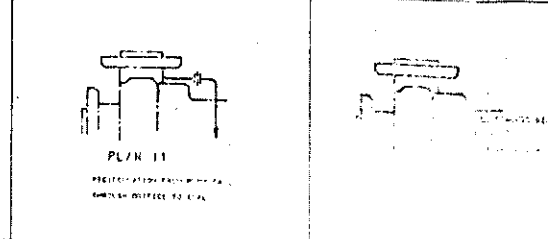
COMMENDED ON SITE SPARES

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



SECTION X-X

SCHEMATIC DRAWING OF PIPING PLANS IF API 610



DRG. CERTIFIED FINAL
 23/11/86
 23/11/86

NO.	DATE	BY	CHKD.	APPD.
1	10.9.86			

THIRD ANGLE PROJECTION
 FOR EXPLANATION OF DIMENSIONS NOTES SYMBOLS ETC SEE B 55
 UNLESS OTHERWISE STATED ALL DIMENSIONS IN INCHES
 1 PLACE DECIMALS 2 PLACE DECIMALS 3 0.010"
 4 PLACE DECIMALS 5 SURFACE FEATURE 600 MICROMETER DIA
 ALL DIMENTS IS TO BE DIMENSIONING TO WITHIN .001" IF DIMENT IN
 REMOVE ALL ZEROES

© EDAG SEAL LTD OWNS THE COPYRIGHT OF THIS DRAWING WHICH IS SUPPLIED IN CONFIDENCE AND WHICH MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED WITHOUT PERMISSION IN WRITING FROM THE DRAWER

CUSTOMER REF NO: 347054X26 (516537)
 SCALE: N.T.S.

ITEM NO	DESCRIPTION	PART NO	QTY	MATL
1	SCREW ASSEMBLY	G16 538 BF JAA BAA	1	
2	PACKING	COG 542 EL G21 BAA	1	GRAFOL
3	SOC. SET SCREW	T04 031 GF S11 AAA	4	ST.ST.
4	SOC. HD CAP SCREW	T02 075 GC S11 AAA	6	ST.ST.
5	LOCK WASHER	999 912 FG S11 AAA	6	ST.ST.
6	MATING RING ASSEMBLY	RBC 538 CJ AAA BAA	1	
7	COMI RISING			
8	MATING RING	RBC 538 EY H40 BAA	1	SEALIDE
9	PACKING	RBC 538 EM G21 BAB	1	GRAFOL
10	GLAND ASSEMBLY	RBC 538 A80082 AD1	1	
11	COMPISSING			
12	GLAND PLATE	RBC 538 B80082 AD2	1	ST.ST.
13	GASKET	999 992 FJ G05 BAA	1	ST.ST./ASB
14	THROTTLE BUSH	999 911 FN 053 BAB	1	ST.ST./ASB
15	POWER PIN	P41 126 FF S11 AAP	1	ST.ST.
16	IDENTIFICATION PLATE	999 000 AK765 A00	1	ALUM.
17	HAMMER DRIVE SCREW	999 904 AD591 B00	2	ST.ST.
18	BLANKING PLUG	999 901 FB S11 AAA	2	ST.ST.
19	SLEEVE	G16 538 A80082 A03	1	ST.ST.

OPERATING CONDITIONS		UNITS
PRODUCT	SANTOTHERM 66 OR EQUAL	
TEMPERATURE	400	°F
SUCTION PRESSURE	11.5 - 57.5	PSI A
DISCHARGE PRESSURE	130 - 175	PSI A
VAPOUR PRESSURE	0.05	PSI A
SPECIFIC GRAVITY	0.76	
VISCOSITY	0.05	CP
SPEED	2975	RPM

CUSTOMER - INGERSOLL RAND	
ULTIMATE USER - HMC ENAR PETROLEUM	
SITE N°	ITEM N° 930 GA 2A/B
PUMP SUPPLIER - INGERSOLL RAND	PUMP TYPE B-10-212A
PLANT NAME	DAKNI PAKISTAN
PUMP SERIAL N°	
EQUIPMENT TAG N°	
PUMP VENDOR ORDER N°	
CUSTOMER PURCHASE ORDER N°	
SEAL O/L REFERENCE/JOB N°	BC008169
121 LINE FOR ROAD, SANDS, HIGH WYCOMBE MK12 0NE	
DRG N°	G16 538 E20082 A00
INT CODE N°	G16 YAG SCP 207 3B
Inverness Road Ref 423405B-C	

19/16

QTY	PART NO	DRG. NO	DESCRIPTION	QUANTITY	LOCATION
1	75842 - 0390	NT 97035	STATIONARY SEAL RING ✓	1	1
1	53548 - 0248	NT 26104	STATIONARY SEAL RING PACKING ✓	1	1
1	75843 - 0304	NT 97034	ROTARY SEAL RING ✓	1	1
1	75843 - 0304	NT 97034	ROTARY SEAL RING PACKING ✓	1	1
12	75843 - 0304	NT 97034	SPRING	12	1
1	53789 - 0224	INT 26113	ROTARY SEAL RING CHAMFER ✓	1	1
3	53855 - 0201		SET SCREW	3	1
1	52937 - 0203	INT 26115	UNIT ASSEMBLY NUT ✓	1	1
1	5492 - 0401	INT 26113	PRESSURE PLATE	1	1
1	53191 - 0393	NT 97033	STATIONARY SEAL RING ✓	1	1
1	53546 - 0248	NT 26104	STATIONARY SEAL RING PACKING ✓	1	1
1	75843 - 0304	INT 97034	ROTARY SEAL RING ✓	1	1
1	53789 - 0224		ROTARY SEAL RING PACKING ✓	1	1
12	53789 - 0224	INT 26112	SPRING	12	1
1	75843 - 0401	FB 36542	ROTARY SEAL RING ✓	1	1
3	53789 - 0401		SET SCREW	3	1
1	77858 - 0401	FB 36549	UNIT ASSEMBLY NUT ✓	1	1
1	53859 - 0401	NT 26114	PRESSURE PLATE	1	1

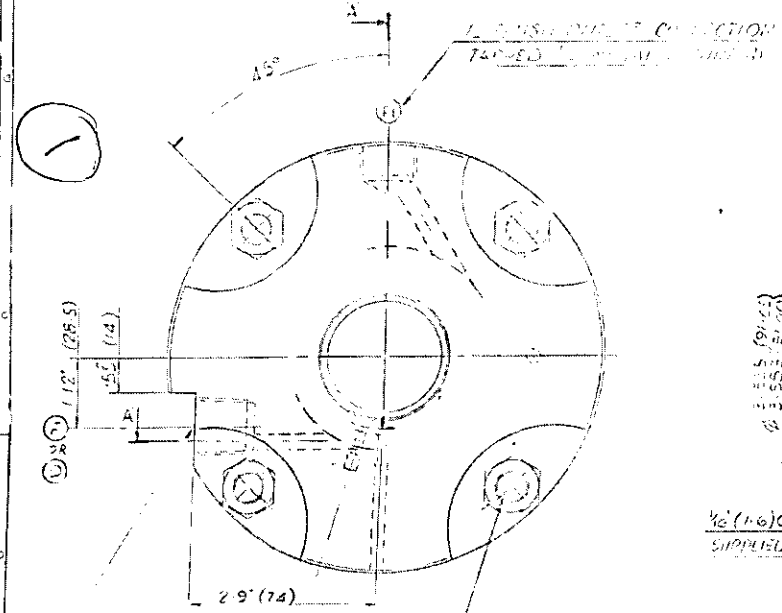
MODIFICATIONS REQUIRED TO PUMP

1. BOX BORE TO BE INCREASED TO DIMENSIONS SHOWN.
2. REMOVE SHARP CORNER FROM BOX FACE WHERE SHOWN THIS *.

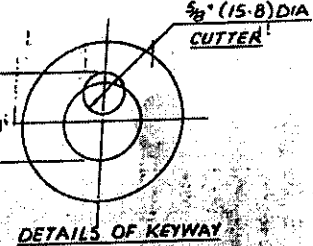
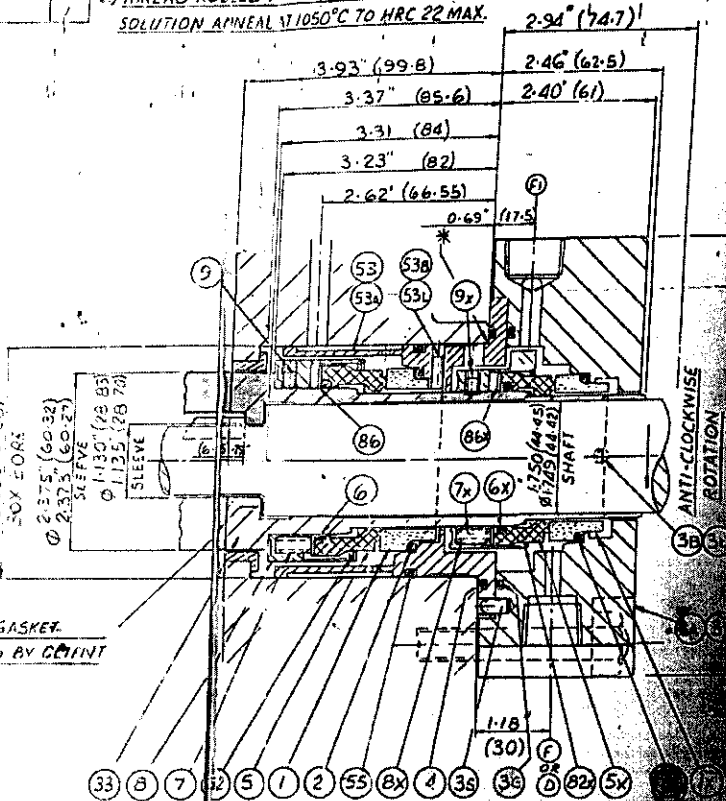
**** NOTE - REFS 9 & 9X HAS THE FOLLOWING ALTERNATIVES :-**

- 1) CUT THREAD FROM SOLUTION
- 2) THREAD ROLLED FOLLOWED BY SOLUTION ANNEAL 11050°C TO HRC 22 MAX.

REF.	PAK.	DRG. NO	DESCRIPTION	MATERIAL SPECIFICATION	QTY
3	77843 - 0401	FB 36559	SEAL PLATE ASSY. COMPRISING:-	18/8/3 SS EN 58J	1
3A	77844 - 0401	FB 36559	SEAL PLATE BODY.	18/8/3 SS EN 58J	1
3B	77032 - 0401	FB 16617	PIN.	18/8/3 SS EN 58J	1
3C	59644 - 0263	INT 27557	PIN SLEEVE.	P.T.F.E.	1
3S	68836 - 0401	FB 16617	PIN	18/8/3 SS EN 58J	1
3G	1396 - 0248		INTERMEDIATE SEAL PLATE PKG.	VITON 70/75° SHORE	1
4	1396 - 0248		SEAL PLATE PACKING.	VITON 70/75° SHORE	1
33	77847 - 0401	FB 36561	SHAFT SLEEVE.	18/8/3 SS EN 58J	1
53	77845 - 0401	FB 36560	ADAPTOR BUSH ASSEMBLY :-	18/8/3 S.S. EN 58J	1
53A	77846 - 0401	FB 36560	ADAPTOR BUSH BODY.	18/8/3 S.S. EN 58J	1
53B	60331 - 0401	FB 16617	PIN.	18/8/3 S.S. EN 58J	1
53L	59644 - 0263	INT 27557	PIN SLEEVE.	P.T.F.E.	1
55	6254 - 0248		ADAPTOR BUSH PACKING.	VITON 70/75° SHORE	1



1. FLUSH INLET OR DRAIN CONNECTION TAPPED 1/2" NPT TAPER THREAD
4. 1/2" DIA STUDS EQUI-SPACED ON 90°



IMPLANTING DATA

1. PREPARE SURFACE TO BE IMPLANTED BY GRINDING TO RA 1.6

2. CLEAN SURFACE BY WASHING WITH MILD ALKALINE SOLUTION

3. RINSE WITH DI WATER

4. DRY SURFACE

5. IMPLANT

6. CLEAN SURFACE BY WASHING WITH MILD ALKALINE SOLUTION

7. RINSE WITH DI WATER

8. DRY SURFACE

9. IMPLANT

10. CLEAN SURFACE BY WASHING WITH MILD ALKALINE SOLUTION

11. RINSE WITH DI WATER

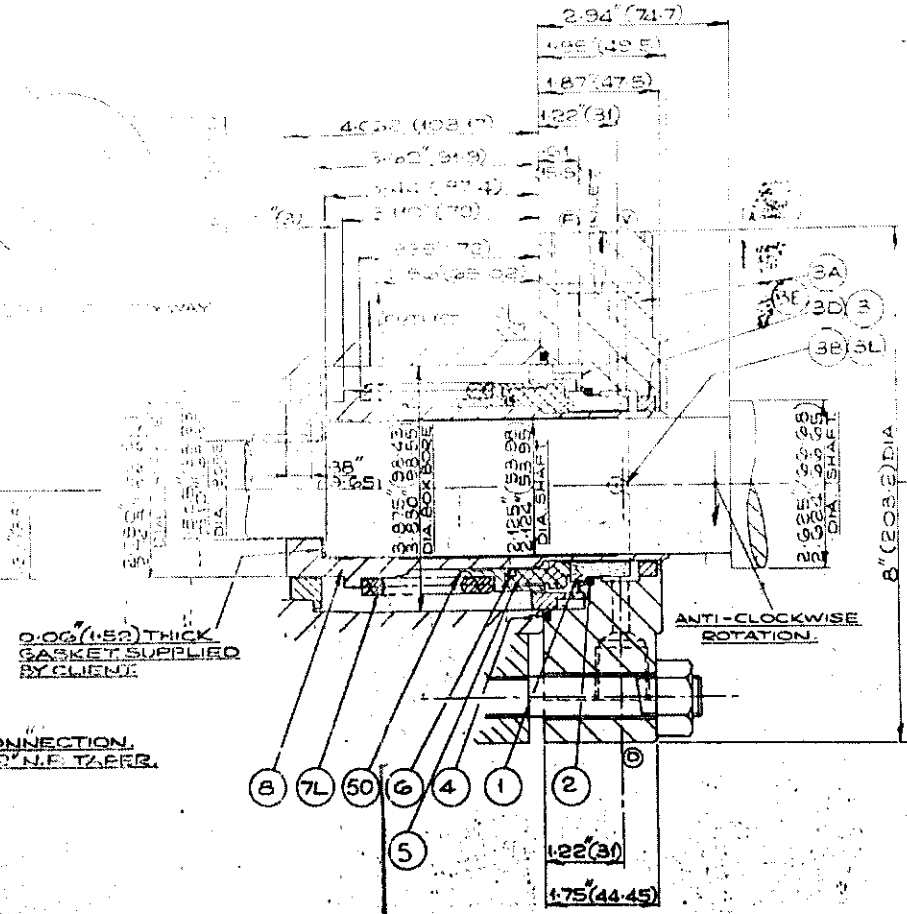
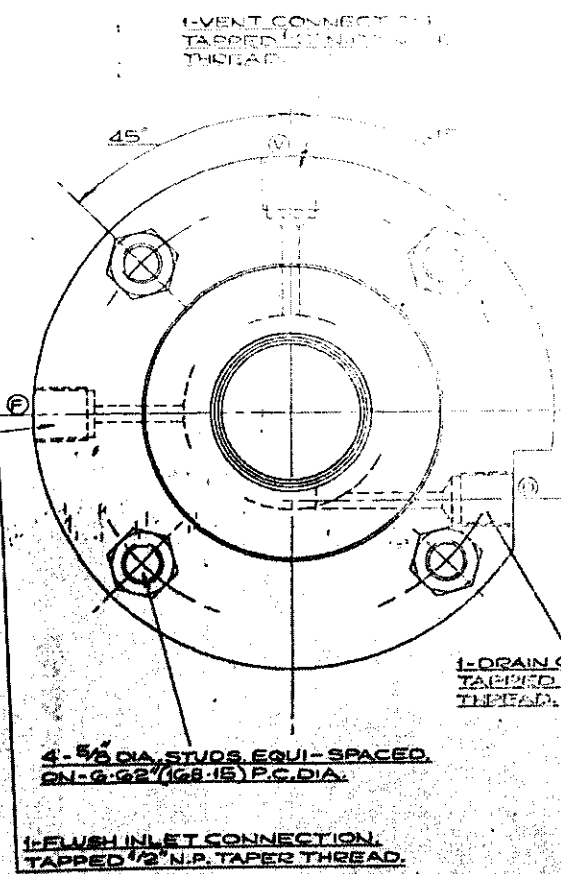
12. DRY SURFACE

13. IMPLANT

CUSTOMER: 35512X4 STUFFING BOX 0 1845	FILE NO: B6CUG73-0196	DATE: 12.4.86 11.0.86	1 SQUARENESS	2 ROUNDNESS	3 PART NUMBER	4 SURFACE FINISH	5 DESCRIPTION
1/2" NPT TAPER	2.0000		4 PARALLELISM	5 FLATNESS	6 GENERAL TOLERANCES	7 SURFACE FINISH	8 ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED
1/2" NPT TAPER			6 SYMMETRY	7 ANGULARITY	7 SURFACE FINISH	7 SURFACE FINISH	9 PART NUMBER
1/2" NPT TAPER			7 POSITION	8 RUN OUT	8 SURFACE FINISH	8 SURFACE FINISH	10 DATE
1/2" NPT TAPER			8 FINISH SPECIFIC	9 FINISH SPECIFIC	9 SURFACE FINISH	9 SURFACE FINISH	11 APPROVED

19/16

DRAWING No FB36535 REVISED BY 6235078	DO NOT SCALE IN THIS DRAWING	WHEN THIS DRAWING IS REWORKED IT MUST BE APPROVED BY THE DESIGNER	DIMENSIONS UNLESS OTHERWISE SPECIFIED	MATERIAL SPECIFICATION (QTY)	REF.	PART NO.	DRG. NO.	DESCRIPTION	MATERIAL SPECIFICATION	QTY
					1	1475 - 0390	INT 1236	STATIONARY SEALING RING	TUNGSTEN CARBIDE	1
				5.5 AISI 316	2	1344 - 0248		STATIONARY SEALING RING PKG	1	
				5.5 AISI 316	5	65270 - 0304	INT 29196	PRIMARY SEALING RING	1	
				PHOSPHOR BRONZE	6	1340 - 0248		PRIMARY SEALING RING PKG	1	
				5.5 AISI 316	7L	2463L - 0 58	INT 1246	SEALING RING (LEFT HAND)	1	
				VITON	50	65140 - 0153	INT 1246	SEALING RING CARRIER	1	
				5.5 AISI 316						



APPLICATION DATA

USER: JOHN WINTONSON
PURCHASE ORDER NO./PART: 2426711-2207
INVESTIGATION: 12/02
PUMP SERIAL NO.: 2426711-2207
PUMP SIZE AND TYPE: 1.5" DIA. 1.5" DIA.

PUMP DATA

Product: 2426711-2207
Suction Pressure: 102.1 (14.1) INK HG
Suction Pipe Pressure: 222.1 (29.8) INK HG
Suction Pipe Pressure: 14.7 (1.9) MPa
Speed: 1470 RPM
Product Temp: 167 (64) °C
Vapour Pressure: 102.1 (14.1) INK HG
Viscosity: 102.1 (14.1) INK HG
Sol: Gravity: 1.048

SEAL DATA

API Code: 6B11
API Plan: 11.01
Seal Flush Requirement: 6
Seal Quench Requirement: 6

DESIGNER'S SIGNATURE EDIPING BOX SKETCH 1387064XES 211817	PART NUMBER 860673-0029	EXTERNAL FLANGES SYMBOL: FLANGE ONLY	TOTAL FLANGES JOINT: 005 A	FLANGES SYMBOL: FLANGE ONLY	TOTAL FLANGES JOINT: 005 A	FLANGES SYMBOL: FLANGE ONLY	TOTAL FLANGES JOINT: 005 A	FLANGES SYMBOL: FLANGE ONLY	TOTAL FLANGES JOINT: 005 A	FLANGES SYMBOL: FLANGE ONLY	TOTAL FLANGES JOINT: 005 A
DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]	DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]	DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]	DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]	DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]	DATE: 12.9.86	DESIGNER'S APPROVAL BY: [Signature]
GENERAL TOLERANCES	FINISHES	SHAPE	POSITION	PERPENDICULARITY	PARALLELISM	SYMMETRY	CONCENTRICITY	COINCIDENCE	CHAMFERED EDGES	CHAMFERED EDGES	CHAMFERED EDGES
D 30 ±0.1 30 ±0.1 100 ±0.1 300 ±0.1 1000 ±0.1	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

1	CERTIFIED FINAL	DATE: 12/02/86	BY: [Signature]
A	FIRST ISSUE	DATE: 12/02/86	BY: [Signature]
DATE: 12-9-86	ARRANGEMENT OF FLEXIBOX MECHANICAL SEAL TYPE: RREL-0560-920-013	DRAWING NO: FB36535	REVISED BY: 6235078
CHECKED: [Signature]	DATE: 12-9-86	DATE: 12-9-86	DATE: 12-9-86

2
12/16

