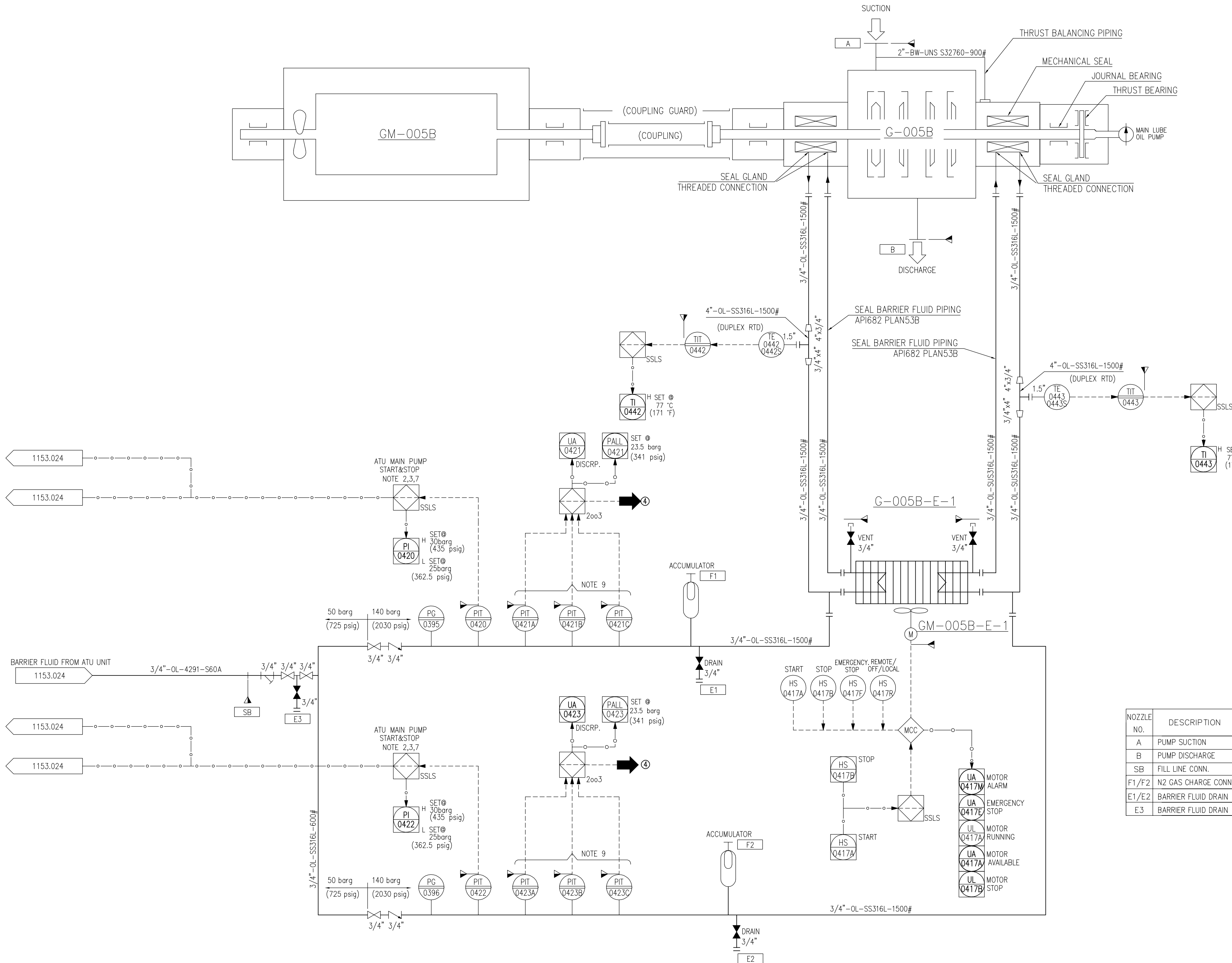


G-005B-E-1  
SEAL FLUID COOLER

DUTY KW (HP) : 6 (8)  
OPERATING PRESS./DESIGN PRESS barg (psig). : 30 (435)/ 140 (2030)  
OPERATING INLET/OUTLET TEMP. °C (°F) : 80 (176)/ 65 (149)  
DESIGN TEMP. °C (°F) : -3~100 (27~212)



| NOZZLE NO. | DESCRIPTION         | NOZZLE SIZE (INCH) | RATING (Lbs) | TYPE | MATERIAL |             |
|------------|---------------------|--------------------|--------------|------|----------|-------------|
|            |                     |                    |              |      | JIS      | ASTM EQUIV. |
| A          | PUMP SUCTION        | 12                 | 900          | RTJ  | —        | A890 Gr5A   |
| B          | PUMP DISCHARGE      | 8                  | 900          | RTJ  | —        | A890 Gr5A   |
| SB         | FILL LINE CONN.     | 3/4                | 600          | RF   | —        | A182 F316L  |
| F1/F2      | N2 GAS CHARGE CONN. | 1/4                | BSP M        | —    | —        | A182 F316L  |
| E1/E2      | BARRIER FLUID DRAIN | 3/4                | 1500         | RTJ  | —        | A182 F316L  |
| E3         | BARRIER FLUID DRAIN | 3/4                | 1500         | RTJ  | —        | A182 F316L  |

## GENERAL NOTES:

- FOR STANDARD SYMBOLS AND NOMENCLATURE SEE DRAWINGS 50489-530-020-PID-1104.001 & .002.
- ALL EQUIPMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 530-.
- ALL INSTRUMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 030-.
- FOR TYPICAL INSTRUMENT CONNECTION, SBDV, XV, MOV & ESDV DETAILS SEE DRAWINGS 50489-530-020-PID-1106.001, .002, .003, .004, .005, .006 & .007.
- FOR MISCELLANEOUS PIPING TYPICAL VALVING, DRAINAGE & GENERAL ARRANGEMENT OF LEVEL INSTRUMENTS, PUMPS, STRAINERS & CONTROL VALVES SEE DRAWINGS 50489-530-020-PID-1108.001 TO 1108.010.
- DRAWING NUMBERS SHOWN IN P&ID CONTINUATION BOXES ARE ABBREVIATED SHOWING DRAWING SEQUENTIAL NUMBERS ONLY. THE FULL FORM OF THE DRAWING NUMBER IS 50489-530-020-PID-XXXX.SHT.NO.
- FOR MATERIAL SELECTION DIAGRAM SEE DRAWINGS 50489-530-020-MSD-1001.001 TO 1023.
- DETAIL NUMBERING FOR CI, SC, CC & CP SEE DRAWING 50489-530-020-PID-1108.003.
- PAINTING & COATING SHALL BE IN ACCORDANCE WITH KOC-P-001.
- LOW POINT DRAIN & HIGH POINT VENT SHALL BE INDICATED IN P&ID AT AS-BUILT STAGE AS PER PIPING LAYOUT.
- FOR CAUSE & EFFECT REFER DOC. NO. 50489-530-020-PHL-1009.
- FOR ALARM VALUES REFER DOC. NO. 50489-530-020-SUM-1006.

## NOTES:

- CABLE GLANDS FOR CONTRACTOR CONNECTION ARE PUMP VENDOR SCOPE OF SUPPLY.
- ABSENCE OF PAL-0420 AND PAL-0422 IS USED FOR START PERMISSIVE SIGNAL OF G-005B.
- DELETED.
- VENDOR

CONTRACTOR
- BARRIER FLUID: POTABLE WATER / PROPYLENE GLYCOL (85% / 15%).
- WHEN PUMP IS OPERATED, SEAL FLUID FAN COOLER MOTOR IS OPERATED AND WHEN PUMP IS STOPPED, SEAL FLUID FAN COOLER MOTOR IS STOPPED.
- a) WHEN PIT-0416 OR 0418 IS ALARMED AS LOW WHILE MAIN PUMP RUNNING, ATU DUTY PUMP IS STARTED AND WHEN BOTH PIT IS ALARMED AS HIGH WHILE MAIN PUMP RUNNING, ATU PUMPS ARE STOPPED.  
b) IN CASE OF DEMAND & DUTY PUMP FAIL TO START ARE DEVELOP PRESSURE, STANDBY SHALL START.
1. VENDOR REFERENCE DOC. NO.  
(a) 50489-530-020-07673-PID-V002.  
(b) OPERATION CONTROL PHILOSOPHY OF PACKAGES (50489-530-020-07673-PHL-V001).  
(c) ALARM & TRIP SCHEDULE (50489-530-020-07673-LST-V006).
- ISOLATION VALVES OF PRESSURE TRANSMITTER (CONNECTED TO ESD) ARE LO TYPE.

## AS-BUILT

### KOC APPROVAL

NAME / KOC No:  
DESIGNATION:  
GROUP / TEAM:  
SIGNATURE:  
DATE:

## AS-BUILT

### LARSEN & TOUBRO LIMITED

NAME : VAIBHAV VERMA  
DESIGNATION : AGM  
SIGNATURE :  
DATE : 27-Sep-2018  
DEPT/ DIVISION : ENGINEERING

|      |                                     |         |         |        |     |          |
|------|-------------------------------------|---------|---------|--------|-----|----------|
| Z0   | ISSUED FOR AS-BUILT                 | BAK/SSI | AKG     | SRA    | RAK | 27.09.18 |
| 01   | ISSUED FOR CONSTRUCTION             | BAK/SSI | AKG     | SRA    | RAK | 08.11.16 |
| 0    | ISSUED FOR CONSTRUCTION             | HSH/PS  | AKG     | SRA    | RAK | 26.05.16 |
| D    | ISSUED INCORPORATED CLIENT COMMENTS | HSH/PS  | AKG     | SRA    | RAK | 19.04.16 |
| C    | ISSUED INCORPORATED CLIENT COMMENTS | BAK/VSA | AKG     | SRA    | RAK | 10.09.15 |
| B    | ISSUED INCORPORATED CLIENT COMMENTS | BAK/VSA | AKG     | SRA    | RAK | 19.02.15 |
| A    | ISSUED FOR APPROVAL                 | BAK/VSA | AKG     | SRA    | RAK | 05.12.14 |
| REV. | DESCRIPTION                         | DRAWN   | CHECKED | HOD    | PEM | DATE     |
|      |                                     |         |         | APPRD. |     |          |

## CONTRACTOR REVISION

**KUWAIT OIL CO.**  
**K. S. C.**



**شركة نفط الكويت**  
**ش.م.ك.**

CONTRACTOR DETAILS:-



**LARSEN & TOUBRO LIMITED**  
**FARIDABAD**

PROJECT TITLE:-

**NEW GATHERING CENTRE GC-30**  
**IN NORTH KUWAIT**

DOCUMENT TITLE:-

**PIPING & INSTRUMENTATION DIAGRAM**  
**SEAL SYSTEM FOR TREATED WATER DISPOSAL PUMP**  
**(G-005B)**

| PROJECT NO. | DRAWING NO.                 |      |              |      |
|-------------|-----------------------------|------|--------------|------|
|             | CONTRACTOR DRG. NO.         | REV. | KOC DRG. NO. | REV. |
| EF1902      | 50489-530-020-PID-1153.019  | Z0   |              |      |
|             | SHEET NO. 19 OF 25          |      | SHEET NO.    |      |
|             | COMPANY DRG. NO.            | REV. |              |      |
|             | EF1902-530-DC0-PID-0153.008 | A1   |              |      |
|             | SHEET NO.                   |      |              |      |