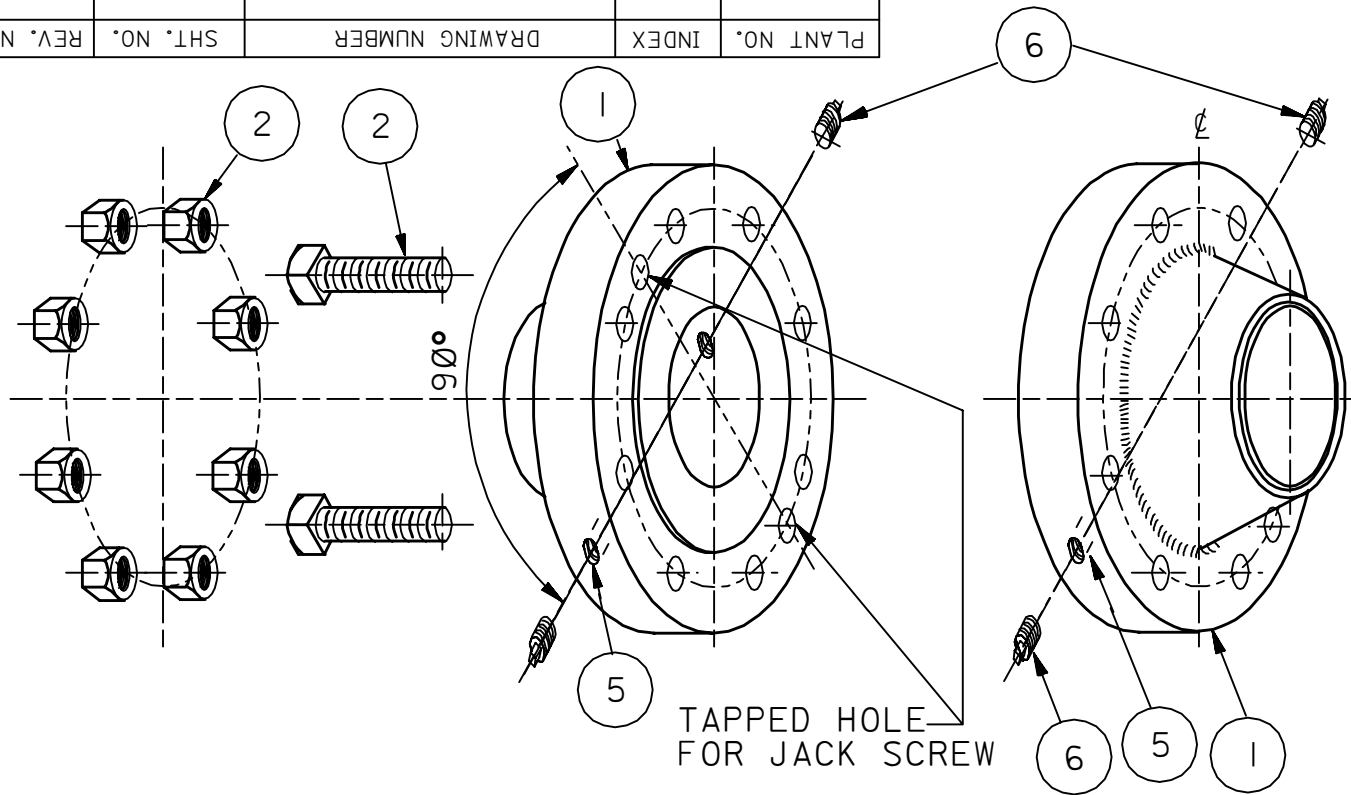


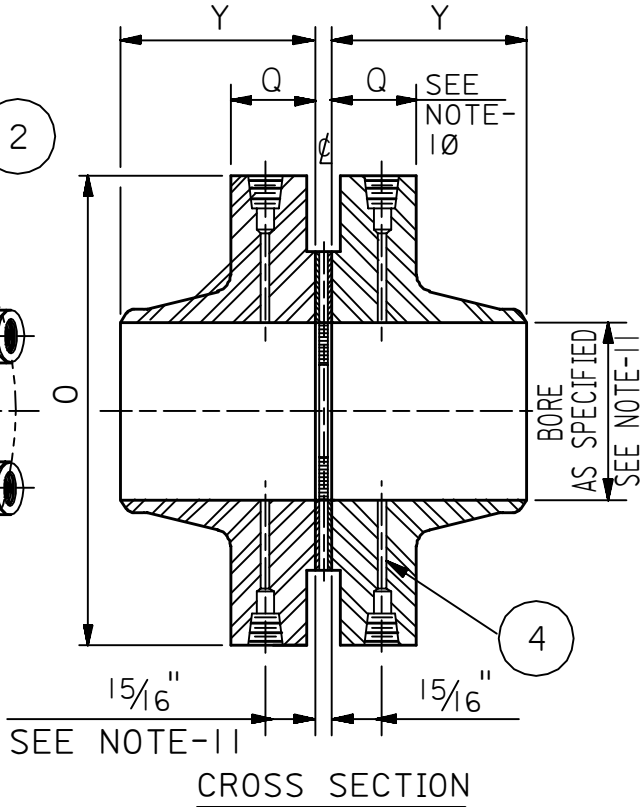
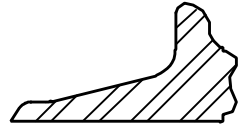
|           |       |                |          |          |
|-----------|-------|----------------|----------|----------|
| 20        | 100   | AC-036413      | J        | 096      |
| PLANT NO. | INDEX | DRAWING NUMBER | SHT. NO. | REV. NO. |



TAPPED HOLE  
FOR JACK SCREW

### EXPLODED VIEW

SINGLE TAPER HUB  
FOR SIZES 16" AND LARGER



### CROSS SECTION

JACK SCREWS TO BE INSTALLED  
AS SHOWN ON STD. DWG. AD-036630  
JACK SCREWS WITH HEXAGONAL HEAD ARE ACCEPTABLE  
FOR ORIENTATION OF TAPS SEE STD. DWG. AD-036004.

DIMENSIONS ARE IN INCHES

13. UNLESS NOTED OTHERWISE IN THE SPECIFICATION  
MAT'L. FLANGES 2"-24" TO BE ASTM A-350 LF2;  
FOR SIZES LARGER THAN 24" ASTM A-707 L3 CL3.  
MAXIMUM CE 0.44, MIN. 0.34.
14. PRESSURE TAP DETAILS & NOTES ON THIS DWG.  
ALSO APPLIES TO SIZES LARGER THAN 24",  
ALL RATINGS.

| CLASS 150 RAISED FACE | NOMINAL PIPE SIZE   | 2 | 3 | 4 | 6 | 8 | 10 | 12 | 14     | 16        | 18     | 20      | 22      | 24     | FOR SIZES LARGER THAN<br>24" REFER TO STD. DWG.<br>AE-036634. |
|-----------------------|---------------------|---|---|---|---|---|----|----|--------|-----------|--------|---------|---------|--------|---------------------------------------------------------------|
|                       | FLANGE DIAMETER-O   |   |   |   |   |   |    |    | 21     | 23 1/2    | 25     | 27 1/2  | 29 1/2  | 32     |                                                               |
|                       | FLANGE LENGTH-Y     |   |   |   |   |   |    |    | 5      | 5         | 5 1/2  | 5 1/16  | 5 7/8   | 6      |                                                               |
|                       | DIA. OF RAISED FACE |   |   |   |   |   |    |    | 16 1/4 | 18 1/2    | 21     | 23      | 25 1/4  | 27 1/4 |                                                               |
|                       | DIA. OF BOLTS       |   |   |   |   |   |    |    | 1      | 1         | 1 1/8  | 1 1/8   | 1 1/4   | 1 1/4  |                                                               |
|                       | LENGTH OF BOLTS     |   |   |   |   |   |    |    | 5 1/2  | 6         | 6 1/2  | 6 1/2   | 7       | 7      |                                                               |
|                       | NUMBER OF BOLTS     |   |   |   |   |   |    |    | 12     | 16        | 16     | 20      | 20      | 20     |                                                               |
|                       | JACKSCREWS          |   |   |   |   |   |    |    | 1 x 4  | 1 x 4 1/2 | 1 x 5  | 1 x 5   | 1 x 5   | 1 x 5  |                                                               |
|                       | FLANGE THICKNESS-Q  |   |   |   |   |   |    |    | 1 3/8  | 1 7/16    | 1 9/16 | 1 11/16 | 1 13/16 | 1 7/8  |                                                               |

| CLASS 300 RAISED FACE | NOMINAL PIPE SIZE   | 2     | 3       | 4       | 6       | 8         | 10     | 12     | 14        | 16     | 18    | 20     | 22     | 24     | FOR SIZES LARGER THAN<br>24" REFER TO STD. DWG.<br>AE-036991. |
|-----------------------|---------------------|-------|---------|---------|---------|-----------|--------|--------|-----------|--------|-------|--------|--------|--------|---------------------------------------------------------------|
|                       | FLANGE DIAMETER-O   | 6 1/2 | 8 1/4   | 10      | 12 1/2  | 15        | 17 1/2 | 20 1/2 | 23        | 25 1/2 | 28    | 30 1/2 | 33     | 36     |                                                               |
|                       | FLANGE LENGTH-Y     | 3 3/8 | 3 1/2   | 3 5/8   | 3 15/16 | 4 3/8     | 4 5/8  | 5 1/8  | 5 5/8     | 5 3/4  | 6 1/4 | 6 3/8  | 6 1/2  | 6 5/8  |                                                               |
|                       | DIA. OF RAISED FACE | 3 5/8 | 5       | 6 3/16  | 8 1/2   | 10 5/8    | 12 3/4 | 15     | 16 1/4    | 18 1/2 | 21    | 23     | 25 1/4 | 27 1/4 |                                                               |
|                       | DIA. OF BOLTS       | 5/8   | 3/4     | 3/4     | 3/4     | 7/8       | 1      | 1 1/8  | 1 1/8     | 1 1/4  | 1 1/4 | 1 1/4  | 1 1/2  | 1 1/2  |                                                               |
|                       | LENGTH OF BOLTS     | 5     | 5 1/2   | 5 1/2   | 5 1/2   | 6         | 6 1/2  | 7      | 7 1/2     | 8      | 8     | 8 1/2  | 9      | 9 1/2  |                                                               |
|                       | NUMBER OF BOLTS     | 8     | 8       | 8       | 12      | 12        | 16     | 16     | 20        | 20     | 24    | 24     | 24     | 24     |                                                               |
|                       | JACKSCREWS          | 5/8 x | 3 3/4 x | 3 3/4 x | 3 3/4 x | 3 11/16 x | 4      | 1 x 4  | 1 x 4 1/2 | 1 x 5  | 1 x 5 | 1 x 5  | 1 x 5  | 1 x 5  |                                                               |
|                       | FLANGE THICKNESS-Q  | 1 1/2 | 1 1/2   | 1 1/2   | 1 1/2   | 1 5/8     | 1 7/8  | 2      | 2 1/8     | 2 1/4  | 2 3/8 | 2 1/2  | 2 5/8  | 2 3/4  |                                                               |

| CLASS 600 RAISED FACE | NOMINAL PIPE SIZE   | 2     | 3       | 4       | 6       | 8         | 10     | 12    | 14        | 16     | 18     | 20    | 22      | 24      | FOR SIZES LARGER THAN<br>24" REFER TO STD. DWG.<br>AE-036673. |
|-----------------------|---------------------|-------|---------|---------|---------|-----------|--------|-------|-----------|--------|--------|-------|---------|---------|---------------------------------------------------------------|
|                       | FLANGE DIAMETER-O   | 6 1/2 | 8 1/4   | 10 3/4  | 14      | 16 1/2    | 20     | 22    | 23 3/4    | 27     | 29 1/4 | 32    | 34 1/4  | 37      |                                                               |
|                       | FLANGE LENGTH-Y     | 3 3/8 | 3 1/2   | 4       | 4 5/8   | 5 1/4     | 6      | 6 1/8 | 6 1/2     | 7      | 7 1/4  | 7 1/2 | 7 3/4   | 8       |                                                               |
|                       | DIA. OF RAISED FACE | 3 5/8 | 5       | 6 3/16  | 8 1/2   | 10 5/8    | 12 3/4 | 15    | 16 1/4    | 18 1/2 | 21     | 23    | 25 1/4  | 27 1/4  |                                                               |
|                       | DIA. OF BOLTS       | 5/8   | 3/4     | 7/8     | 1       | 1 1/8     | 1 1/4  | 1 1/4 | 1 3/8     | 1 1/2  | 1 5/8  | 1 5/8 | 1 3/4   | 1 7/8   |                                                               |
|                       | LENGTH OF BOLTS     | 5 1/2 | 6       | 6       | 7       | 8         | 9      | 9     | 9 1/2     | 10 1/2 | 11     | 12    | 12      | 13 1/2  |                                                               |
|                       | NUMBER OF BOLTS     | 8     | 8       | 8       | 12      | 12        | 16     | 20    | 20        | 20     | 20     | 24    | 24      | 24      |                                                               |
|                       | JACKSCREWS          | 5/8 x | 3 3/4 x | 3 3/4 x | 3 3/4 x | 3 11/16 x | 4      | 1 x 4 | 1 x 4 1/2 | 1 x 5  | 1 x 5  | 1 x 5 | 1 1/2 x | 5 1/2 x |                                                               |
|                       | FLANGE THICKNESS-Q  | 1 1/2 | 1 1/2   | 1 1/2   | 1 7/8   | 2 3/16    | 2 1/2  | 2 5/8 | 2 3/4     | 3      | 3 1/4  | 3 1/2 | 3 3/4   | 4       |                                                               |

### NOTES:

- FLANGES TO BE IN ACCORDANCE WITH ANSI B 16.5  
EXCEPT FOR THICKNESS "Q" AND FLANGE LENGTH "Y"  
OR IN ACCORDANCE W/ DIMENSIONS IN THIS DWG.  
AT MANUFACTURER'S OPTION. SEE ALSO NOTES 12 & 13.
- ALLOY STEEL STUDS, NUTS AND JACKSCREWS TO BE  
SUPPLIED WITH FLANGES ASSEMBLED.  
MATERIAL FOR BOLTS: ASTM A 193 B7  
NUTS: ASTM A 194 GRADE 2H
- THREADING OF STUDS, NUTS AND SCREWS;  
3.1 UP TO AND INCLUDING 1 INCH:  
TO BE THREADED IN ACCORDANCE WITH  
UNIFIED NATIONAL COARSE SERIES  
CLASS 2-A-FIT, ANSI B 1.1.  
3.2 SIZES LARGER THAN 1 INCH:  
TO BE THREADED IN ACCORDANCE WITH  
8N SERIES CLASS 2-A-FIT, ANSI B 1.1.
- HOLES FOR PRESSURE TAPS TO BE DRILLED 1/4 "  
FOR SIZES 2"; 3/8 " FOR SIZE 3"; AND  
1/2 " FOR SIZES 4" AND UP.
- FLANGE TAP CONNECTIONS TO BE TAPER THREADED  
IN ACCORDANCE WITH ANSI B1.20.1, SIZE 1/2 ", EXCEPT  
AS INDICATED IN NOTE-9.
- FLANGE TAP CONNECTIONS TO BE PROVIDED WITH  
CARBON STEEL PLUGS, SQUARE OR HEXAGONAL HEAD.
- ALL FLANGES SHALL BE WELDING NECK.
- FOR DETAIL OF ORIFICE PLATE, SEE DWG.AB-036094.
- CLASS 150 14" & 16" FLANGES SHALL HAVE 3/8 "  
FLANGE TAPS PROPER BOLT LENGTHS TO BE  
SUPPLIED.
- DIMENSIONS "Y" AND "Q" INCLUDE 1/16 " RAISED FACE  
FOR CLASS 150 & 300 FLANGES BUT EXCLUDE 1/4 "  
RAISED FACE FOR CLASS 600 FLANGES.
- TOLERANCES:ON DIMENSION 15/16":  
± 1/4" FOR SIZES 3" AND SMALLER  
± 1/2" FOR SIZES 4" AND LARGER  
ON FLANGE BORE:± 0.5% OF NOMINAL BORE  
ON BOLT CIRCLE:± 1/32" FOR SIZES 24" AND SMALLER  
± 1/16" FOR SIZES 26" AND LARGER
- HUBS OF FLANGES 16" AND LARGER SHALL BE  
OF THE SINGLE TAPER TYPE.

DWG. RESPONSIBILITY :  
INSTRUMENT STANDARDS COMMITTEE

|             |          |             |        |                                                                                 |                 |                 |                 |
|-------------|----------|-------------|--------|---------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| 20          | MAR96    | ESSD<br>RLO |        | REVISED NOTE-13 & CHANGED<br>"MANDATORY NOTE" TO "DWG.<br>RESPONSIBILITY NOTE". |                 |                 |                 |
| 19          | 04-19-89 | RLO         |        | REDRAWN AND ADDED<br>MANDATORY NOTE.                                            | ORIG.<br>SIGNED | ORIG.<br>SIGNED | ORIG.<br>SIGNED |
| REV.<br>NO. | DATE     | BY          | JO/EWO | DESCRIPTION                                                                     | CHKD.           | CERT.           | APPD.           |

### SAUDI ARABIAN OIL COMPANY

DRAWN BY AD HOUT CHECKED BY \_\_\_\_\_ SCALE NONE  
DATE STARTED \_\_\_\_\_ DATE COMPLETED \_\_\_\_\_  
OPR'G. DEPT. \_\_\_\_\_ ENG. DEPT. \_\_\_\_\_  
APP'D FOR CONSTR. \_\_\_\_\_

THIS DRAWING IS NOT TO BE USED FOR  
CONSTRUCTION OR FOR ORDERING  
MATERIAL UNTIL CERTIFIED AND DATED  
CERTIFIED ORIGINAL SIGNED  
BY \_\_\_\_\_ DATE 10-26-71

### ORIFICE FLANGE ASSEMBLY

STD. DWG.

|           |       |                |          |          |
|-----------|-------|----------------|----------|----------|
| PLANT NO. | INDEX | DRAWING NUMBER | SHT. NO. | REV. NO. |
| 990       | J     | AC-036413      | 001      | 20       |