|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ybDESIGN LIMITS | | | | | | | | | |
| TEMPERATURE (C) | | | | | | | | | |
|  | -200 | 0 | 50 | 75 | 100 | 125 | 150 | 175 | 200 |
| PRESSURE (BAR GA)\* | | | | | | | | |
| DN 15- 80 | 18.9 | 18.9 | 18.2 | 16.8 | 15.6 | 14.6 | 14.1 | 13.6 | 11.0 |
| DN 100- 150 | 18.9 | 18 . 9 | 18.2 | 16.8 | 15.6 | 14. 8 | 14.1 | 13.6 | 9.0 |
| DN 200- 600 | 18. 9 | 18 . 9 | 18.2 | 16.8 | 15.6 | 14.8 | 14 . 1 | 12 . 0 | 7.0 |
| DN 750-1600 | 18.9 | 18.9 | 18.2 | 16.8 | 15.6 | 14.8 | 14.1 | 12.0 | 11.0 |
| DN1800-1800 | 10.4 | 10.4 | 10.4 | 10.4 |  |  |  |  |  |
| DN1800-2000 | 16.8 | 16.8 | 16.8 | 16.8 | 15.6 | 14.8 | 14.1 | 12.0 | 11.0 |

NOTES

* DESIGN LIMITS ACC. TO ASME B16.5 FLANGE RATING MAT. GRP 2.1 AND LIMITED BY BS5351 BALL VALVE RATING FOR SIZE DN600FOR SIZE DN 1600 AND SMALLER, AND MAXIMUM ALLOWABLE WORKING PRESSURE OP PIPE FOR SIZES DN1800 TO DN 2000.
* FOR FULL VACUUM DESIGN CONDITION, THE FOLLOWING LINES AND SIZES SHALL HAVE REINFORCING RINGS AT 6M INTERVALS

R14501-1200,R14504-1200,R14522-1200,R14515-1200,R14507-1800,R14508- 1800,R14509-1800

* FOR BENDING OF PIPE SEE DEP 31.38.01.31-GEN.
* FOR BASIS OF DESIGN SEE DEP 31.38.01.10-GEN.
* FOR CONNECTIONS CLASS 300 OR ABOVE, USE EQUIVALENT CLASS 300 OR ABOVE FOR FLANGE, BOLTING AND GASKET SELECTION
* MAXIMUM SERVICE TEMPERATURE OF SOFT SEATED BALL VALVES TO BS5351 SHALL NOT EXCEED 150 DEGR. C

TABLE OF SCHEDULES

|  |  |
| --- | --- |
| DN SCHEDULE | |
| 15 | 40S |
| 20 | 40S |
| 25 | 10S |
| 40 | 10S |
| 50 | 10S |
| 80 | 10S |
| 100 | 10S |
| 150 | 10S |
| 200 | 10S |
| 250 | 10S |
| 300 | 10S |
| 350 | 10S |
| 400 | 10S |
| 450 | 10S |
| 500 | 10S |
| (550) | 10 |
| 600 | 10S |
| 750 | 10S (7.92 MM) |
| 900 | 10 (7.92 MM) |
| 1050 | STD(9.53 MM) |
| 1200 | STD(9.5 3 MM) |
| 1400 | 12.7 MM |
| 1600 | 12.7 MM |
| 1800 | 12.7 MM |
| 2000 | 14.27 MM |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BRANCH CONNECTIONS 90 DEGREES | | | | | | | | | | | | | | | | | | | | | | | | |
| BRANCH SIZE | | | | | | | | | | | | | | | | | | | | | | | | |
| RUN SIZE | 15 | 20 | 25 | 40 | 50 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 750 | 900 | 1050 | 1200 | 1400 | 1600 | 1800 | 2000 |
| 2000 | C | c | c | c | E | E | E | E | E | E | 1 | F | F | F | F | F | F | F | F | B | B | B | B | A |
| 1800 | C | c | c | c | E | E | E | E | E | E | F | F | F | F | F | F | F | F | B | B | B | B | A |  |
| 1600 | C | c | c | c | E | E | E | E | E | E | F | F | F | F | F | F | F | B | B | B | B | A |  |  |
| 1400 | C | c | c | c | E | E | E | E | E | E | F | F | F | F | F | F | B | B | B | B | A |  |  |  |
| 1200 | C | c | c | c | E | E | E | E | E | E | F | F | F | F | F | B | B | B | B | A |  |  |  |  |
| 1050 | C | c | c | c | E | E | E | E | E | E | F | F | B | B | B | B | B | B | A |  |  |  |  |  |
| 900 | C | c | c | c | E | E | E | E | E | E | F | F | B | B | B | B | B | A |  |  |  |  |  |  |
| 750 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | B | B | A |  |  |  |  |  |  |  |
| 600 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | B | A |  |  |  |  |  |  |  |  |
| 500 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | A |  |  |  |  |  |  |  |  |  |
| 450 | c | c | c | c | E | E | E | E | E | B | B | B | B | A |  |  |  |  |  |  |  |  |  |  |
| 400 | c | c | c | c | E | E | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |
| 350 | c | c | c | c | E | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |
| 300 | c | c | c | c | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 250 | c | c | c | c | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 200 | c | c | c | c | E | E | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 150 | c | c | c | c | E | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 | c | c | c | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80 | c | c | c | c | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 | c | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40 | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| CODE | EXPLANATION OF CHARACTERS |
| A | EQUAL TEE |
| B | REDUCING TEE |
| c | BRANCH FITTING |
| E | BRANCH OUTLET |
| F | (RED.)TEE PLUS REDUCER |
| D FITTINGS LARGER THEN DN 1200 ARE OUTSIDE THE SCOPE OF ASME B16.9 | |

|  |  |  |  |
| --- | --- | --- | --- |
| STAINL STEEL AISI 304 LT | | PLANT | SE-LNG |
| CLASS NO. | 13091X | CONSIGNEE | SAKHALIN ENERGY IC Ltd |
| ASME RATING | CLASS 150 | ENGINEERED BY |  |
| CORROSION ALL. | 0 MM | PRINCIPAL |  |
| REVISION LETTER | B#A# | CONTR. JOB NO. |  |
| REVISION DATE | March 16,2006 | PROJECT NO. |  |

|  |  |  |  |
| --- | --- | --- | --- |
| COMPONENT MATERIAL DESCRIPTION | | | |
| (FOR FULL MATERIAL DESCRIPTION SEE RELEVANT MESC BUYING DESCRIPTION.) | | | |
| \* PIPE | | | |
| PIPE | PIPE | DN 15- 300 | ASTM A312-TP304 |
| PIPE | PIPE | DN350-2000 | ASTM A358-304 |
| PNPP | PIPE NIPPLE L-50MM | DN 15- 40 | ASTM A312-TP304 |
| (PIPE | PIPE SCH80S) | DN 15- 300 | ASTM A312-TP304) |
| \* FLANGES | | | |
| BLFL | BLIND FLANGE | DN 15-2000 | ASTM A182-F304 |
| COFL | COVER FLANGE THERMOWELL NOZZLE | DN 40- 40 | ASTM A182-F304 |
| LJFL | LAP JOINT FLANGE | DN 15- 15 | ASTM A182-F304 |
| SBFL | SPECTACLE BLIND | DN 15- 600 | ASTM A240-TP304 |
| SPRT | SPACER RING (ASME FLANGE) | DN 15-2000 | ASTM A240-TP304 |
| WNFL | WELDING NECK FLANGE | DN 15-2000 | ASTM A182-F304 |
| BLND | BLIND | DN 15-2000 | ASTM A240-TP304 |
| \* FITTINGS | | | |
| CAPB | CAP BW | DN 15-2000 | ASTM A403-WP304 |
| E45B | ELBOW 45 DEG BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |
| E90B | ELBOW 90 DEG BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |
| (E90B | ELBOW 90 DEG BW SCH80S) | DN 15- 50 | ASTM A403-WP304) |
| E90B | ELBOW 90 DEG SR BW | DN500- 600 | ASTM A403 -WP304W |
| TEEB | TEE EQUAL BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |
| (TEEB | TEE EQUAL BW SCH80S) | DN 50- 50 | ASTM A403-WP304) |
| ♦ REDUCING FITTINGS | |  |  |
| BNIP | BRANCH FITTING PLAIN | DN 15- 40 | ASTM A182-F304 |
| BNLF | BRANCH FITT LIGHT-WEIGHT FLGD | DN 15- 40 | ASTM A182-F304 |
| BROB | BRANCH OUTLET BW | DN150-2000 | ASTM A182-F304 |
| RECB | REDUCER CONCENTRIC BW | DN 20-150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |
| REEB | REDUCER ECCENTRIC BW | DN 20-150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |
| TERB | TEE REDUCING BW | DN 20-150 | ASTM A403-WP304 |
|  |  | DN200-2000 | ASTM A403-WP304W |

|  |  |  |  |
| --- | --- | --- | --- |
| \* VALVES | | | |
| BUDP | BUTTERFLY VALVE FLANGED | DN250-1400 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L) |
| BARF | BALL VALVE RB FLGD | DN 15- 250 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), PTFE |
| CHVF | CHECK VALVE FLGD | DN 15- 600 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| CHDP | CHECK VALVE DUAL PLATE FLANGED | DN750-1400 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| GAVF | GATE VALVE FLGD | DN15-1200 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| GLVF | GLOBE VALVE FLGD | DN 15- 250 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| \* INSTRUMENTS | | | |
| TWSG | THERMOWELL STRAIGHT | DN 40- 40 | AISI 316 |
| TWSL | THERMOWELL STRAIGHT L=255MM | ... | AISI 316 |
| THSS | THERMOWELL STRAIGHT L=230MM |  | AISI 316 |
| TWXX | THERMOWELL STRAIGHT L=XXXMM |  | AISI 316 |
| \* MISCELLANEOUS | | | |
| GKTI | GASKET TANGED INSERT | DN 15-2000 | GRAPHITE |
| GKSW | GASKET SPIRAL WOUND | DN 15-900 | AISI 316(L).GRAPHITE FILLED |
|  |  |  | SS CENTRING/SS INNER RING |
| MTRR | METER RUN | DN 15- 40 | AISI 316 |
| ORFS | ORIFICE FLANGE SET | DN 53- 600 | ASTM A182-F304 |
| STBT | STUD BOLT WITH NUTS |  | ASTM A193-B8 CLASS 2/A194-8 |
|  |  |  | BOLTDIA > 1 1/2 INCH: |
|  |  |  | ASTM A193-B8M2 CLASS 2B/A194-8M |

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PIPING COMPONENTS

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ITEM DESCRIPTION | NOMINAL PIPE SIZE  15 20 25  MESC | | | | 40 | 50 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| PIPE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PIPE | 743603 | 0181 | 0261 | 0331 | 0411 | 0571 | 0651 | 0731 | 0821 | 0911 | 1031 | 1151 |  |  |  |  |  |  |
| PIPE | 743605 |  |  |  |  |  |  |  |  |  |  |  | 1271 | 1371 | 1471 | 1571 | E229 | 1781 |
| PIPE NIPPLE L=50MM | 763357 | 6311 | 6411 | 6491 | 6681 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (PIPE SCH80S) | 743603 | 0201 |  | 0361 | 0441 | 0601 | 0681 |  | 0851 | 0971 | 1101 | 1221 |  |  |  |  |  |  |
| (PIPE SCH30) | 743605 |  |  |  |  |  |  |  |  |  |  |  |  |  | 1521 | 1621 |  | 1831 |
| (PIPE SCH60) | 743605 |  |  |  |  |  |  |  |  |  |  |  | 1331 | 1441 | 1541 |  |  |  |
| (PIPE SCH40S) | 743603 |  |  |  |  |  |  |  | 0831 |  |  |  |  |  |  |  |  |  |
| FLANGES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BLIND FLANGE | 766510 | 6121 | 6141 | 6161 | 6181 | 6201 | 6221 | 6241 | 6261 | 6281 | 6301 | 6321 | 6341 | 6361 | 6381 | 6401 |  | 6421 |
| (BLIND FLANGE CL300) | 766510 |  |  | 7161 | 7181 | 7201 | 7221 | 7241 | 7261 | 7281 |  |  |  |  |  |  |  |  |
| (BLIND FLANGE CL600) | 766510 |  |  |  | 7681 | 7701 |  | 7741 | 7761 | 7781 |  |  |  |  |  |  |  |  |
| SPACER RING (ASME FLANGE) | 768819 | 0581 | 0621 | 0661 | 0681 | 0701 | 0721 | 0741 | 0761 | 0781 | 0801 | 0821 | 0841 | 0861 | 0881 | 0901 |  | 0941 |
| SPECTACLE BLIND | 768809 | 7081 | 7121 | 7161 | 7181 | 7201 | 7221 | 7241 | 7261 | 7281 | 7301 | 7321 | 7341 | 7361 | 7381 | 7401 |  | 7441 |
| WELDING NECK FLANGE | 766579 |  |  | 1061 | 1081 | 1101 | 1121 | 1141 | 1161 | 1181 | 1201 | 1221 | 1241 | 1261 | 1281 | 1301 |  | 1321 |
| WELDING NECK FLANGE | 766580 | 7321 | 7341 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (WELDING NECK FLANGE CL300) | 766579 | 8601 |  | 0461 | 0481 | 0501 | 0521 | 0541 | 0561 | 0581 | 0601 | 0621 |  | 0661 | 0681 | 0701 |  | 0721 |
| (WELDING NECK FLANGE CL300 SCH40S) | 766580 |  | 8621 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| (WELDING NECK FLANGE CL600) | 766581 | 0821 |  | P014 | P154 | P024 | P034 | P044 | P064 | P084 | P104 | P124 | P144 | P164 | P184 | P204 |  | P244 |
| (WELDING NECK FLANGE CL600 SCH20) | 766581 |  |  |  |  |  |  |  |  |  |  |  | 0241 |  |  |  |  |  |
| (WELDING NECK FLANGE CL900) | 766581 |  |  |  |  |  |  | P045 |  | P085 |  |  |  |  |  |  |  |  |
| BLIND | 768843 | A052 | A072 | A012 | A152 | 0101 | 0121 | A042 | 0161 | 0181 | 0201 | A122 | 0241 | 0261 | 0281 | A202 |  | 0321 |
| FITTINGS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CAP BW | 763318 | 5361 | 5461 | 5541 | 5741 | 5841 | 6041 | 6241 | 6431 | 6541 | 6671 | 6831 | 6981 | 7071 | 7181 | 7291 |  | 7501 |
| ELBOW 45 DEG BW | 763338 | 5361 | 5461 | 5541 | 5741 | 5841 | 6041 | 6241 | 6431 | 6541 | 6671 | 6831 | 6981 | 7071 | 7181 | 72 91 |  | 7501 |
| ELBOW 90 DEG BW | 763340 | 5361 | 5461 | 5541 | 5741 | 5841 | 6041 | 6241 | 6431 | 6541 | 6671 | 6831 | 6981 | 7071 | 7181 | 7291 |  | 7501 |
| (EDBOW 90 DEG BW SCH80S) | 763340 | 5381 |  | 5581 | 5781 | 5881 |  |  |  |  |  |  |  |  |  |  |  |  |
| (ELBOW 90 DEG BW SCH60) | 763340 |  |  |  |  |  |  |  |  |  |  |  |  | 7131 |  |  |  |  |
| ELBOW 90 DEG SR BW | 763340 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 729S |  | 750S |
| TEE EQUAL BW | 763384 | 5361 | 5461 | 5541 | 5741 | 5841 | 6041 | 6241 | 6431 | 6541 | 6671 | 6831 | 6981 | 7071 | 7181 | 7291 |  | 7501 |
| \_(TEE EQUAL BW SCH80S)\_ | 763384 |  |  |  |  | 5881 |  |  |  |  |  |  |  |  |  |  |  |  |
| (TEE EQUAL BW SCH20) | 763384 |  |  |  |  |  |  |  |  |  |  |  | 6991 |  |  | 7311 |  |  |
| (TEE EQUAL BW SCH30) | 763384 |  |  |  |  |  |  |  |  |  |  |  |  |  | 7221 |  |  |  |
| (TEE EQUAL BW SCH60) | 763384 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7411 |  |  |
| VALVES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BUTTERFLY VALVE FLGD | 774434 |  |  |  |  |  |  |  |  |  | 0161 | 0171 | 0181 | 0191 | 0201 | 0211 |  | 0231 |
| BALL VALVE RB FLGD | 770308 | 0031 | 0041 | 0051 | 0071 | 0081 | 0101 | 0121 | 0641 | 0651 | 0661 |  |  |  |  |  |  |  |
| CHECK VALVE FLGD | 771308 | 0031 | 0041 | 0051 | 0071 | 0081 | 0101 | 0121 | 0141 | 0151 | 0161 | 0171 | 0181 | 0191 | 0201 | 0211 |  | 0231 |
| GATE VALVE FLGD | 772308 | 0031 | 0041 | 0051 | 0071 | 0081 | 0101 | 0121 | 0141 | 0151 | 0161 | 0171 | 0181 | 0191 | 0201 | 0211 |  | 0231 |
| GLOBE VALVE FLGD | 773308 | 0031 | 0041 | 0051 | 0071 | 0081 | 0101 | 0121 | 0141 | 0151 | A102 |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MISCELLANEOUS GASKET TANGED INSERT | 853001 | 0041 | 0061 | 0081 | 0121 | 0141 | 0181 | 0201 | 0241 | 0261 | 0281 | 0301 | 0321 | 0341 | 0361 | 0381 | 0421 |
| (GASKET TANGED INSERT CL300) | 853001 | 1041 | 1061 | 1081 | 1121 | 1141 | 1181 | 1201 | 1241 | 1261 | 1281 | 1301 |  | 1341 | 1361 | 1381 | 1421 |
| {GASKET SPIRAL WOUND CL600) | 854136 | X054 |  | X014 | X154 | X024 | X034 | X044 | X064 | X084 | X104 | X124 | X144 | X164 | X184 | X204 | X244 |
| (GASKET SPIRAL WOUND CL900) | 854136 |  |  |  |  |  |  | X04 5 |  | X085 |  |  |  |  |  |  |  |
| METER RUN ORIFICE FLANGE SET | 766596 766590 | 4021 | 4041 | 4061 | 4081 | 0891 | 0911 | 0011 | 0021 | 0031 | 0041 | 0051 | 0061 | 0071 | 0081 | 0091 | 0101 |

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piping components

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| nominal pipe size | | | | | | | | | | |
|  |  | 650 | 750 | 900 | 1050 | 1200 | 1400 | 1600 | 1800 | 2000 |
| item description | mesc |  |  |  |  |  |  |  |  |  |
| \* pipe | | | | | | | | | | |
| pipe | 713605 |  | 2431 | 3031 | 3621 | 4221 | s569 | s649 | s729 | s809 |
| (pipe sch20) | 74 3605 |  | 2491 | 3071 |  |  |  |  |  |  |
| (pipe sch40) | 743605 |  |  | 3091 |  |  |  |  |  |  |
| (pipe 14.3mm) | 743605 |  |  |  | s429 |  |  |  |  |  |
| (pipe 15.9mm) | 743605 |  |  |  |  | t489 |  |  |  |  |
| (pipe 17.5mm) | 743605 |  |  |  |  |  | t569 |  |  |  |
| (pipe 23.8mm) | 743605 |  |  |  |  | v48 9 |  |  |  |  |
| (pipe 22.2mm) | 743605 |  | s309 |  | 3731 |  |  |  |  |  |
| \* flanges | | | | | | | | | | |
| blind flange 1) | 767112 |  | 5061 | 5121 |  |  |  |  |  |  |
| (blind flange 1)) | 766510 |  |  |  | a422 | a4 82 | a562 |  |  |  |
| (blind flange 4)) | 766510 |  |  |  |  |  |  | a642 | a722 | a802 |
| welding neck flange 1) | 766580 |  | p302 | e362 | a422 | a4 82 | s562 | s642 | s722 | s802 |
| welding neck flange |  |  |  |  |  |  |  | 4) | 4) | 4) |
| spacer ring (asme flange) | 768819 |  | a302 | a362 | a422 | a482 | a562 | a642 | a722 | a802 |
| (welding neck flange cl300) 1) | 766579 |  | 0781 |  |  |  |  |  |  |  |
| (welding neck flange cl600) 1) | 766581 |  |  | e364 |  |  |  |  |  |  |
| (welding neck flange cl300) 1) | 766580 | e263 |  | e363 |  |  |  | 4) |  | 4) |
| blind 1) | 768843 |  | a302 | a362 | a422 | a4 82 | a562 | a642 | a722 | a802 |
| \* fittings | | | | | | | | | | |
| cap bw | 763318 |  | p309 | e369 | a429 | a489 | s569 | s649 | s729 | s809 |
| cap bw |  |  |  |  |  |  | 5) | 5) | 5) | 5) |
| (cap bw sch20) | 763318 |  | f309 |  |  |  |  |  |  |  |
| elbow 45 deg bw | 763338 |  | p309 | e369 | a429 | a4 8 9 | s569 | s64 9 | s72 9 | s809 |
| elbow 45 deg bw |  |  |  |  |  |  | 5) | 5) | 5) | 5) |
| elbow 90 deg bw | 763340 |  | p309 | e369 | a429 | a489 | s569 | s649 | s729 | s809 |
| elbow 90 deg bw |  |  |  |  |  |  | 5) | 5) | 5) | 5) |
| (elbow 90 deg bw sch20) | 763340 |  | f309 |  |  |  |  |  |  |  |
| tee equal bw | 763384 |  | p309 | e369 | a429 | a489 | s569 | s64 9 | s729 | s809 |
| tee equal bw |  |  |  |  |  |  | 5) | 5) | 5) | 5) |
| (tee equal bw 23.8mm) | 763384 |  |  |  |  | v489 |  |  |  |  |
| \* valves | | | | | | | | | | |
| butterfly valve flgd 2) | 774434 |  | 0261 | 0291 | 0321 | 0341 | a562 | na | na | na |
| check valve flgd 3) | 7 76 8ac |  | b302 | b362 | b422 | b482 | b562 | na | na | na |
| gate valve flgd | 772308 |  | a3 02 | a362 | a422 | a482 |  |  |  |  |
| \* miscellaneous | | | | | | | | | | |
| gasket tanged insert | 853001 |  | 0481 | 0541 | 0601 | 0661 | a562 | a642 | a722 | a802 |
| gasket |  |  |  |  |  |  |  | 6) | 6) | 6) |
| (gasket tanged insert cl300) | 853001 | 1441 | 1841 | 1541 |  |  |  |  |  |  |
| (gasket spiral wound cl600) | 854136 |  |  | x364 |  |  |  |  |  |  |
| notes : | | | | | | | | | | |

1. FLANGES DN750-1400 ASME B16.47 SERIES A.
2. BUTTERFLY VALVES DN750-1400 DOUBLE FLANGE TYPE (HIGH PERFORMANCE).
3. CHECK VALVES DN750-1400 DUAL PLATE TYPE DOUBLE FLANGED
4. FLANGES LARGER THEN DN 1500 ARE OUTSIDE THE SCOPE OF ASME B16.47 SERIES A AND ARE SPECIAL DESIGN.
5. FITTINGS LARGER THEN DN 1200 ARE OUTSIDE THE SCOPE OF ASME B16.9 AND ARE SPECIAL DESIGN.

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1. GASKETS LARGER THEN DN 1500 ARE OUTSIDE THE SCOPE OF ASME B16.21.

REDUCING/PIPING COMPONENTS

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RUN | X | BR | BROB | RECB | REEB | TERB | RUN | X | BR | BROB | RECB | REEB | TERB | BRANCH | RUN | PIPE | BNIP | BNLF |
| 20 | X | 15 |  | 7633700661 | 7633720661 | 7636900031 | 400 | X | 50 | 7679603741 |  |  |  | 15 | 40 | - 40 | 7680323021 | 7680553511 |
| 25 | X | 15 |  | 7633700791 | 7633720791 | 7636900251 | 400 | X | 80 | 7679603981 |  |  |  | 15 | 50 | - 50 | 7680323031 | 7680553521 |
| 25 | X | 20 |  | 7633700891 | 7633720891 | 7636900411 | 400 | X | 100 | 7679604201 |  |  |  | 15 | 80 | - 200 | 7680323041 | 7680553531 |
| 40 | X | 15 |  | 7633700991 | 7633720991 |  | 400 | X | 150 | 7679604401 |  |  |  | 15 | 250 | - 600 | 7680323051 | 7680553541 |
| 40 | X | 20 |  | 7633701191 | 7633721191 | 7636900691 | 400 | X | 200 | 7679604581 | 7633703731 | 7633723731 |  | 20 | 50 | - 50 | 7680323061 | 7680553561 |
| 40 | X | 25 |  | 7633701241 | 7633721241 | 7636900861 | 400 | X | 250 |  | 7633703751 | 7633723751 | 7636906461 | 20 | 80 | - 100 | 7680323071 | 7680553571 |
| 50 | X | 20 |  | 7636510901 | 7636660901 |  | 400 | X | 300 |  | 7633703781 | 7633723781 | 7636906671 | 20 | 150 | - 300 | 7680323081 | 7680553581 |
| 50 | X | 25 |  | 7633701341. | 7633721341 | 7636901191 | 400 | X | 350 |  | 7633703921 | 7633723921 | 7636906821 | 20 | 350 | - 600 | 7680323091 | 7680553591 |
| 50 | X | 40 |  | 7633701441 | 7633721441 | 7636901361 | 450 | X | 50 | 7679603761 |  |  |  | 25 | 80 | - 80 | 7680323111 | 7680553611 |
| 80 | X | 40 |  | 7633701741 | 7633721741 |  | 450 | X | 80 | 7679604001 |  |  |  | 25 | 100 | - 100 | 7680323121 | 7680553621 |
| 80 | X | 50 |  | 7633701841 | 7633721841 | 7636901701 | 450 | X | 100 | 7679604221 |  |  |  | 25 | 150 | - 250 | 7680323131 | 7680553631 |
| 100 | X | 40 |  | 7633701941 | 7633721941 |  | 450 | X | 150 | 7679604421 |  |  |  | 25 | 300 | - 600 | 7680323141 | 7680553641 |
| 100 | X | 50 |  | 7633702041 | 7633722041 | 7636902051 | 450 | X | 200 | 7679604601 |  |  |  | 40 | 80 | - 80 | 7680323161 | 7680553661 |
| 100 | X | 80 |  | 7633702141 | 7633722141 | 7636902241 | 450 | X | 250 |  | 7636517121 | 7633724001 | 7636907121 | 40 | 100 | - 100 | 7680323171 | 7680553671 |
| 150 | X | 50 | 7679603641 |  |  |  | 450 | X | 300 |  | 7633704011 | 7633724011 | 7636907331 | 40 | 150 | - 150 | 7680323181 | 7680553681 |
| 150 | X | 80 |  | 7633702441 | 7633722441 | 7636902431 | 450 | X | 350 |  | 7633704031 | 7633724031 | 7636907511 | 40 | 200 | - 300 | 7680323191 | 7680553691 |
| 150 | X | 100 |  | 7633702542. | 7633722541 | 7636902601 | 450 | X | 400 |  | 7633704141 | 7633724141 | 7636907651 | 40 | 350 | - 600 | 7680323201 | 7680553701 |
| 200 | X | 50 | 7679603661 |  |  |  | 500 | X | 50 | 7679603781 |  |  |  |  |  |  |  |  |
| 200 | X | 80 | 7679603901 |  |  |  | 500 | X | 80 | 7679604021 |  |  |  |  |  |  |  |  |
| 200 | X | 100 |  | 7633702641 | 7633722641 | 7636902811 | 500 | X | 100 | 7679604241 |  |  |  |  |  |  |  |  |
| 200 | X | 150 |  | 7633702741 | 7633722741 | 7636903051 | 500 | X | 150 | 7679604441 |  |  |  |  |  |  |  |  |
| 250 | X | 50 | 7679603681 |  |  |  | 500 | X | 200 | 7679604621 |  |  |  | THERMOWELL STRAIGHT | | | |  |
| 250 | X | 80 | 7679603921 |  |  |  | 500 | X | 250 | 7679604781 | 7636518101 | 7636668101 |  | LENGTH | MESC NUMBER | | |  |
| 250 | X | 100 |  | 7633702841 | 7633722851 | 7636903291 | 500 | X | 300 |  | 7633704201 | 7633724201 | 7636908181 |  |  | | |  |
| 250 | X | 150 |  | 7633702891 | 7633722891 | 7636903521 | 500 | X | 350 |  | 7633704231 | 7633724231 | 7636908361 | 230 | 7683371011 | |  |  |
| 250 | X | 200 |  | 7633703031 | 7633723031 | 7636903741 | 500 | X | 400 |  | 7633704251 | 7633724251 | 7636908531 | 255 | 7683371021 | |  |  |
| 300 | X | 50 | 7679603701 |  |  |  | 500 | X | 450 |  | 7633704351 | 7633724351 | 7636908671 | 305 | 7683371031 | |  |  |
| 300 | X | 80 | 7679603941 |  |  |  | 600 | X | 50 | 7679603821 |  |  |  | 355 | 7683371051 | |  |  |
| 300 | X | 100 | 7679604161 |  |  |  | 600 | X | 80 | 7679604061 |  |  |  | 405 | 7683371061 | |  |  |
| 300 | X | 150 |  | 7633703161 | 7633723161 | 7636904211 | 600 | X | 100 | 7679604281 |  |  |  | 455 | 7683371071 | |  |  |
| 300 | X | 200 |  | 7633703271 | 7633723271 | 7636904521 | 600 | X | 150 | 7679604481 |  |  |  |  |  |  |  |  |
| 300 | X | 250 |  | 7633703391 | 7633723391 | 7636904701 | 600 | X | 200 | 7679604661 |  |  |  |  |  |  |  |  |
| 350 | X | 50 | 7679603721 |  |  |  | 600 | X | 250 | 7679604821 | 763370GFPP |  |  |  |  |  |  |  |
| 350 | X | 80 | 7679603961 |  |  |  | 600 | X | 300 |  | 7636519101 | 7636669101 | 7636909031 |  |  |  |  |  |
| 350 | X | 100 | 7679604181 |  |  |  | 600 | X | 350 |  | 7636519201 | 7636669201 | 7636909241 |  |  |  |  |  |
| 350 | X | 150 | 7679604381 | 7636515061 | 7636665061 |  | 600 | X | 400 |  | 7633704601 | 7633724601 | 7636909441 |  |  |  |  |  |
| 350 | X | 200 |  | 7633703491 | 7633723591 | 7636905421 | 600 | X | 450 |  | 7633704651 | 7633724651 | 7636909641 |  |  |  |  |  |
| 350 | X | 250 |  | 7633703511 | 7633723511 | 7636905611 | 600 | X | 500 |  | 7633704811 | 7633724751 | 7636909811 |  |  |  |  |  |
| 350 | X | 300 |  | 7633703631 | 7633723631 | 7636905961 | 650 | X | 500 |  | 763370GWEP |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | 900 | X | 650 |  | 763370PBEE |  |  |  |  |  |  |  |

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| --- | --- |
| COMP . NAME | DESCRIPTION |
| BNIP | BRANCH FITTING PLAIN |
| BNLF | BRANCH FITT LIGHT-WEIGHT FLGD |
| BROB | BRANCH OUTLET BW |
| RECB | REDUCER CONCENTRIC BW |
| REEB | REDUCER ECCENTRIC BW |
| TERB | TEE REDUCING BW |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| REDUCING/PIPING COMPONENTS | | | | |
| RUN X BR | BROB | RECB | REEB | TERB |
| 750 X 50 | 767960HAPP |  |  |  |
| 750 X 80 | 767960HBPP |  |  |  |
| 750 X 100 | 767960HCPP |  |  |  |
| 750 X 150 | 767960HDPP |  |  |  |
| 750 X 200 | 767960HEPP |  |  |  |
| 750 X 250 | 767960HFPP |  |  |  |
| 750 X 300 |  |  |  | 763690HGPP |
| 750 X 350 |  |  |  | 7636 90HHPP |
| (750 X 350 |  |  |  | 7636 90HHFP |
| SCH20 SCH10S) |  |  |  |  |
| 750 X 400 |  |  |  | 763690HIPP |
| 750 X 450 |  |  |  | 763690HJPP |
| 750 X S00 |  | 763370HKPP | 763372HKPP | 763690HKPP |
| 750 X 600 |  | 763370HLPP | 763372HLPP | 763690HLPP |
| 750 X 650 |  |  | 763372HMPE |  |
| 900 X 50 | 767960IAEP |  |  |  |
| 900 X 80 | 767960IBEP |  |  |  |
| 900 X 100 | 767960ICEP |  |  |  |
| 900 X 150 | 767960IDEP |  |  |  |
| 900 X 200 | 767960IEEP |  |  |  |
| 900 X 250 | 7679601FEP |  |  |  |
| 900 X 300 |  |  |  |  |
| 900 X 350 |  |  |  |  |
| 900 X 400 |  |  |  | 763690IIEP |
| 900 X 450 |  |  |  | 763690IJEP |
| 900 X 500 |  | 763370IKEP |  | 763690IKEP |
| 900 X 600 |  | 763370ILEP | 763372ILEP | 763690ILEP |
| 900 X 750 |  | 763370IMEP | 763372IMEP | 763690IMEP |
| 1050 X 50 | 767960JAAP |  |  |  |
| 1050 X 80 | 767960JBAP |  |  |  |
| 1050 X 100 | 767960JCAP |  |  |  |
| 1050 X 150 | 767960JDAP |  |  |  |
| 1050 X 200 | 767960JEAP |  |  |  |
| 1050 X 250 | 767960JFAP |  |  |  |
| 1050 X 300 |  |  |  |  |
| 1050 X 350 |  |  |  |  |
| 1050 X 400 |  |  |  | 763690JXAP |
| 1050 X 450 |  |  |  | 763690JJAP |
| 1050 X 500 |  |  |  | 763690JKAP |
| 1050 X 600 |  |  |  | 763690JLAP |
| 1050 X 750 |  | 763370JMAP | 763372JMAP | 763690JMAP |
| 1050 X 900 |  | 763370JNAE | 763372JNAE | 763690JNAE |
| 1200 X 50 | 767960KAAP |  |  |  |
| 1200 X 80 | 767960KBAP |  |  |  |
| 1200 X 100 | 767960KCAP |  |  |  |
| 1200 X 150 | 767960KDAP |  |  |  |
| 1200 X 200 | 767960KEAP |  |  |  |
| 1200 X 250 | 767960KFAP |  |  |  |
| 1200 X 300 |  |  |  |  |
| 1200 X 350 |  |  |  |  |
| 1200 X 400 |  |  |  |  |
| 1200 X 450 |  |  |  |  |

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| --- |
| 1200 X 500 |
| 1200 X 600 |
| (1200 X 600 |
| 23.8MM SCH30) |
| 1200 X 750 |
| 1200 X 900 |
| 1200 X 1050 |

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| --- | --- | --- |
|  |  | 763690KLAP |
|  |  | 763690KLVG |
| 763370KMAP | 763372KMAP | 763690KMAP |
| 763370KNAE | 763372KNAE | 763690KNAE |
| 763370KOAA | 763372KOAA | 76369QKOAA |

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| --- | --- | --- | --- |
| RON X BR | BROB | RECB | REE |
| 1400 X SO | 767960LASP |  |  |
| 1400 X 80 | 767960LBSP |  |  |
| 1400 X 100 | 767960LCSP |  |  |
| 1400 X ISO | 767960LDSP |  |  |
| 1400 X 200 | 767960LESP |  |  |
| 1400 X 250 | 767960LFSP |  |  |
| 1400 X 750 |  |  |  |
| 1400 X 900 |  | 763370LNSE | 7633721 |
| 1400 X 1050 |  | 763370LOSA | 7633721 |
| 1400 X 1200 |  | 763370LPSA | 7633721 |
| 1600 X 50 | 767960MASP |  |  |
| 1600 X 80 | 767960MBSP |  |  |
| 1600 X 100 | 767960MCSP |  |  |
| 1600 X 150 | 767960MDSP |  |  |
| 1600 X 200 | 767960MESP |  |  |
| 1600 X 250 | 767960MFSP |  |  |
| 1600 X 900 |  |  |  |
| 1600 X 1050 |  |  |  |
| 1600 X 1200 |  |  |  |
| 1600 X 1400 |  |  |  |
| 1800 X 50 | 767960NASP |  |  |
| 1800 X 80 | 767960NBSP |  |  |
| 1800 X 100 | 767960NCSP |  |  |
| 1800 X 150 | 767960NDSP |  |  |
| 1800 X 200 | 767960NESP |  |  |
| 1800 X 250 | 767960NFSP |  |  |
| 1800 X 1050 |  |  |  |
| 1800 X 1200 |  | 763370NPSA | 763372f |
| 1800 X 1400 |  |  |  |
| 1800 X 1600 |  |  |  |
| 2000 X SO | 7679600ASP |  |  |
| 2000 X 80 | 7679600BSP |  |  |
| 2000 X 100 | 7679600CSP |  |  |
| 2000 X 150 | 7679600DSP |  |  |
| 2000 X 200 | 7679600ESP |  |  |
| 2000 X 250 | 7679600FSP |  |  |
| 2000 X 1200 |  | 7633700PSA |  |
| 2000 X 1400 |  | 7633700QSS | 763372C |
| 2000 X 1600 |  |  |  |
| 2000 X 1800 |  |  | 763372C |

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| --- | --- |
| COMP. NAME | DESCRIPTION |
| BNIP | BRANCH FITTING PLAIN |
| BNLF | BRANCH FITT LIGHT-WEIGHT FLGD |
| BROB | BRANCH OUTLET BW |
| RECB | REDUCER CONCENTRIC BW |
| REEB | REDUCER ECCENTRIC BW |
| TERB | TEE REDUCING BW |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BRANCH | RUN | PIPE | BNIP | BNLF |
| 15 | 750 | - 900 | 7680323051 | 7680553541 |
|  | 950 | - 1400 | 768032RAF7 | 768055QAF2 |
|  | 1450 | - 2000 | 768032RAG7 | 768055QAG2 |
| 20 | 750 | - 900 | 7680323061 | 7680553591 |
|  | 950 | - 1400 | 768032RBF7 | 768055QBF2 |
|  | 1450 | - 2000 | 768032RBG7 | 768055QBG2 |
| 25 | 750 | - 900 | 7680323141 | 7680553641 |
|  | 950 | - 1400 | 768032RCF7 | 768055QCF2 |
|  | 1450 | - 2000 | 768032RCG7 | 768055QCG2 |
| 40 | 750 | - 900 | 768032RDE7 | 768055QDE2 |
|  | 950 | - 1400 | 768032RDF7 | 768055QDF2 |
|  | 1450 | - 2000 | 768032RDG7 | 768055QDG2 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BOLTING | |  |  |  |  |  |  |  |  |  |  |  |
| BOLTSET | | FLANGED JOINTS | | BOLTSET | | FLANGED JOINTS CL600 | | | BOLTSET | | SPECTACLE/SPACER | |
| DN | NR | INCH X MM | MESC NUMBER | DN | NR | INCH | X MM | MESC NUMBER | DN | NR | INCH X MM | MESC NUMBER |
| 15 | 4 | 1/2 X 60 | 8138431531 | 15 | 4 | 1/2 | X 80 | 8138431571 | 15 | 4 | 1/2 X 70 | 8138431551 |
| 20 | 4 | 1/2 X 70 | 8138431551 | 20 | 4 | 5/8 | X 90 | 8138432711 | 20 | 4 | 1/2 X 70 | 8138431551 |
| 25 | 4 | 1/2 X 70 | 8138431551 | 25 | 4 | 5/8 | X 90 | 8138432711 | 25 | 4 | 1/2 X 80 | 8138431571 |
| 40 | 4 | 1/2 X 80 | 8138431571 | 40 | 4 | 3/4 | X 110 | 8138433301 | 40 | 4 | 1/2 X 80 | 8138431571 |
| SO | 4 | 5/8 X 80 | 8138432691 | 50 | 8 | 5/8 | X 110 | 8138432741 | 50 | 4 | 5/8 X 90 | 8138432711 |
| 80 | 4 | 5/8 X 100 | 8138432731 | 80 | 8 | 3/4 | X 130 | 8138433341 | 80 | 4 | 5/8 X 110 | 8138432741 |
| 100 | 8 | 5/8 X 100 | 8138432731 | 100 | 8 | 7/8 | X 150 | 8138434061 | 100 | 8 | 5/8 X 110 | 8138432741 |
| 150 | 8 | 3/4 X 100 | 8138433291 | 153 | 12 | 1 | X 195 | 8138434781 | 150 | 8 | 3/4 X 120 | 8138433321 |
| 200 | 8 | 3/4 X 110 | 8138433301 | 203 | 12 | 1 1/8 X 220 | | 8138435401 | 200 | 8 | 3/4 X 130 | 8138433341 |
| 250 | 12 | 7/8 X 120 | 8138434011 | 253 | 16 | 1 1/4 X 255 | | 8138436021 | 250 | 12 | 7/8 X 140 | 8138434041 |
| 300 | 12 | 7/8 X 120 | 8138434011 | 303 | 20 | 1 1/4 X 255 | | 8138436021 | 300 | 12 | 7/8 X 150 | 8138434061 |
| 350 | 12 | 1 X 155 | 8138431S5A | 350 | 20 | 1 3/8 X 275 | | 8138436511 | 350 | 12 | 1 X 185 | 8138434761 |
| 400 | 16 | 1 X 165 | 8138434731 | 400 | 20 | 1 1/2 X 290 | | 813843290E | 400 | 16 | 1 X 195 | 8138434781 |
| 450 | 16 | 1 1/8 X 180 | 8138435331 | 450 | 20 | 1 5/8 X 325 | | 8138437291 | 450 | 16 | 1 1/8 X 210 | 8138435381 |
| 500 | 20 | 1 1/8 X 190 | 8138435351 | 500 | 24 | 1 5/8 X 335 | | 813843335F | 500 | 20 | 1 1/8 X 230 | 8138435411 |
| 600 | 20 | 1 1/4 X 215 | 8138435961 | 600 | 24 | 1 7/8 X 380 | | 8138437941 | 600 | 20 | 1 1/4 X 255 | 8138436021 |
| 750 | 28 | 1 1/4 X 260 | 813843260C | 900 | 28 | 2 1/2 X 540 | | 8138877051 | 750 | 28 | 1 1/4 X 310 | 813843310C |
| 900 | 32 | 1 1/2 X 315 | 813843315E® |  |  |  |  |  | 900 | 32 | 1 1/2 X XXX | 813 843XXXX |
|  |  |  | 138436981 | BOLTSET | | FLANGED JOINTS CL900 | | | 1050 | 36 | 1 1/2 X 390 | 813843390E |
| 1050 | 36 | 1 1/2 X 325 | 8138437011 | DN | NR | INCH | X MM | MESC NUMBER | 1200 | 44 | 1 1/2 X 420 | 813843420E |
| 1200 | 44 | 1 1/2 X 345 | 8138437031 |  |  |  |  |  | 1400 | 48 | 1 3/4 485 | 81383848 5G& |
| 1400 | 48 | 1 3/4 X 395 | 813838395G | 100 | 8 | 1 1/8 X 200 | | 8138435271 |  |  | XXX | 13-843XXXX |
| 1600 |  |  |  | 200 | 12 | 1 3/8 X 260 | | 8138436491 | 1600 |  |  |  |
| 1800 | 72 | 1 5/8 X 355 | 8138387351 |  |  |  |  |  | 1800 | 72 | 1 5/8 X 445 | 8138387471 |
| 2000 |  |  |  | BOLTSET | | ORIFICE FLANGES | | | 2000 |  |  |  |
|  |  |  |  | DN | NR | INCH | X MM | MESC NUMBER |  |  |  |  |
| BOLTSET | | FLANGED JOINTS | |  |  |  |  |  |  |  |  |  |
| (CL.: | 300) |  |  | 50 | 8 | 5/8 | X 150 | 8138432811 | BOLTSET | | METER RUN |  |
| DN | NR | INCH X MM | MESC NUMBER | 80 | 8 | 3/4 | X 150 | 8138433371 | DN | NR | INCH X MM | MESC NUMBER |
|  |  |  |  | 100 | 12 | 3/4 | X 140 | 8138433351 |  |  |  |  |
| 15 | 4 | 1/2 X 70 | 8138431551 | 150 | 12 | 3/4 | X 140 | 8138433351 | 15 | 4 | 1/2 X 70 | 8138431551 |
| 20 | 4 | 5/8 X 80 | 8138432691 | 200 | 12 | 7/8 | X 150 | 8138434061 | 20 | 4 | 1/2 X 70 | 8138431551 |
| 25 | 4 | 5/8 X 80 | 8138432691 | 250 | 16 | 1 | X 170 | 8138434741 | 25 | 4 | 1/2 X 80 | 8138431571 |
| 40 | 4 | 3/4 X 90 | 8138433271 | 300 | 16 | 1 1/8 | X 190 | 8138435351 | 40 | 4 | 1/2 X 80 | 8138431571 |
| 50 | 8 | 5/8 X 90 | 8138432711 | 350 | 20 | 1 1/8 | X 200 | 8138435271 |  |  |  |  |
| 80 | 8 | 3/4 X 110 | 8138433301 | 400 | 20 | 1 1/4 | X 210 | 8138435951 | BOLTSET | | FLANGED JOINTS PSV-IN | |
| 100 | 8 | 3/4 X 120 | 8138433321 | 450 | 24 | 1 1/4 | X 220 | 8138435971 | DN | NR | INCH X MM | MESC NUMBER |
| 150 | 12 | 3/4 X 130 | 8138433341 | 500 | 24 | 1 1/4 | X 230 | 8138435981 |  |  |  |  |
| 200 | 12 | 7/8 X 140 | 8138434041 | 600 | 24 | 1 1/2 | X 260 | 8138436901 | 25 | 4 | 5/8 X 100 | 8138432731 |
| 250 | 16 | 1 X 185 | 8138434761 |  |  |  |  |  | 40 | 4 | 3/4 X 110 | 8138433301 |
| 300 | 16 | 1 1/8 X 200 | 8138435271 |  |  |  |  |  | 50 | 8 | 5/8 X 110 | 8138432741 |
| 350 | 20 | 1 1/8 X 210 | 8138435381 |  |  |  |  |  | 80 | 8 | 3/4 X 130 | 8138433341 |
| 400 | 20 | 1 1/4 X 225 | 813843225C |  |  |  |  |  | 100 | 8 | 3/4 X 140 | 8138433351 |
| 450 | 24 | 1 1/4 X 235 | 8138435991 |  |  |  |  |  | 150 | 12 | 3/4 X 160 | 8138433381 |
| 500 | 24 | 1 1/4 X 245 | 8138436011 |  |  |  |  |  | 200 | 12 | 7/8 X 140 | 8138434041 |
| 600 | 24 | 1 1/2 X 280 | 8138436931 |  |  |  |  |  |  |  |  |  |
| 650 | 28 | 1 5/8 X 310 | 8138387271 |  |  |  |  |  |  |  |  |  |

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|  |  |  |
| --- | --- | --- |
| ASSEMBLIES | | |
| \* DRAIN/VENT POINT DN IS FIG.I DN15 - 25 | | |
| BRANCH: ACCORDING TO BRANCH TABLE | | |
| BLIND FLANGE | 1 | 7665106121 |
| GASKET TANGED INSERT | 1 | 8530010041 |
| WELDING NECK FLANGE | 1 | 7665807321 |
| STUD BOLT WITH NUTS | 4 | 8138431531 |
| • DRAIN/VENT POINT DN 20 FIG. I DN4 0 - 40 | | |
| BRANCH: ACCORDING TO BRANCH TABLE | | |
| BLIND FLANGE | 1 | 7665106141 |
| GASKET TANGED INSERT | 1 | 8530010061 |
| WELDING NECK FLANGE | 1 | 7665807341 |
| STUD BOLT WITH NUTS | 4 | 8138431551 |
| \* DRAIN/VENT POINT DN 20 FIG.H DN50 - 600 | | |
| BRANCH: BRANCH NIPPLE FLANGED | | |
| BLIND FLANGE | 1 | 7665106141 |
| GASKET TANGED INSERT | 1 | 8530010061 |
| STUD BOLT WITH NUTS | 4 | 8138431551 |
| \* DRAIN/VENT POINT DN 40 FIG.H DN750-2000 | | |
| BRANCH: BRANCH NIPPLE FLANGED | | |
| BLIND FLANGE | 1 | 7665106181 |
| GASKET TANGED INSERT | 1 | 8530010121 |
| STUD BOLT WITH NUTS | 4 | 8138431571 |
| « METER RUN CONNECTION DN 15 FIG.2H DN15 - 40 | | |
| BRANCH: NOT APPLICABLE | | |
| BALL VALVE RB FLGD | 2 | 7703080031 |
| GASKET TANGED INSERT | 4 | 8530010041 |
| LAP JOINT FLANGE | 2 | 7665202081 |
| STUD BOLT WITH NUTS | 8 | 8138431531 |
| STUD BOLT WITH NUTS | 8 | 8138431551 |
| \* ORIFICE CONNECTION DN 15 FIG.21 DN50 - 600 | | |
| BRANCH: NOT APPLICABLE |  |  |
| BALL VALVE RB FLGD | 2 | 7703080031 |
| GASKET TANGED INSERT | 4 | 8530010041 |
| LAP JOINT FLANGE | 2 | 7665202081 |
| WELDING NECK FLANGE | 2 | 7665807321 |
| STUD BOLT WITH NUTS | 8 | 8138431531 |
| STUD BOLT WITH NUTS | 8 | 8138431551 |
| \* PRESSURE INSTRUMENT DN 15 FIG.2J DN15- 25 | | |
| BRANCH: ACCORDING TO BRANCH TABLE | | |
| BALL VALVE RB FLGD | 1 | 7703080031 |
| GASKET TANGED INSERT | 2 | 8530010041 |
| LAP JOINT FLANGE | 1 | 7665202081 |
| PIPE NIPPLE L=50MM | 1 | 7633576311 |
| WELDING NECK FLANGE | 1 | 7665807321 |
| STUD BOLT WITH NUTS | 4 | 8138431531 |
| STUD BOLT WITH NUTS | 4 | 8138431551 |

|  |  |  |
| --- | --- | --- |
| \* PRESSURE INSTRUMENT DN 15 FIG.2H DN40 -2000 | | |
| BRANCH: BRANCH NIPPLE FLANGED | | |
| BALL VALVE RB FLGD | 1 | 7703080031 |
| GASKET TANGED INSERT | 2 | 8530010041 |
| LAP JOINT FLANGE | 1 | 7665202081 |
| STUD BOLT WITH NUTS | 4 | 8138431531 |
| STUD BOLT WITH NUTS | 4 | 8138431551 |

|  |  |  |
| --- | --- | --- |
| \* TEMPERATURE INSTRUM DN 40 FIG.AA DN80 - 100 | | |
| BRANCH: BRANCH NIPPLE FLANGED | | |
| COVER FLANGE THERMOWELL NOZZLE | 1 | 7665606311 |
| GASKET TANGED INSERT | 1 | 8530010121 |
| THERMOWELL STRAIGHT L.230MM | 1 | 7683371011 |
| STUD BOLT WITH NUTS | 4 | 8138431591 |
| \* TEMPERATURE INSTRUM DN 40 FIG.BB DN150 - 600 | | |
| BRANCH: BRANCH NIPPLE FLANGED |  |  |
| COVER FLANGE THERMOWELL NOZZLE | 1 | 7665606311 |
| GASKET TANGED INSERT | 1 | 8530010121 |
| THERMOWELL STRAIGHT L=255MM | 1 | 7683371021 |
| STUD BOLT WITH NUTS | 4 | 8138431591 |
| \* TEMPERATURE INSTRUM DN 40 FIG.XX | DN7S0 -2000 | |
| BRANCH: BRANCH NIPPLE FLANGED |  |  |
| COVER FLANGE THERMOWELL NOZZLE | 1 | 7665606311 |
| GASKET TANGED INSERT | 1 | 8530010121 |
| THERMOWELL STRAIGHT L=XXXMM | 1 | 768337XXXX |
| STUD BOLT WITH NUTS | 4 | 8138431591 |

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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| DESIGN LIMITS | | | | | | | |
| TEMPERATURE CC) | | | | | | | |
|  | | -200 | 0 | SO | 100 | 125 | 150 |
| PRESSURE (BAR GA) | | | | | | | |
| DN IS­ | 80 | 49.6 | 49.6 | 47.8 | 40.7 | 38.0 | 29.0 |
| DN 100- | 150 | 42.0 | 42.0 | 42.0 | 39.0 | 32.0 | 24 . 0 |
| DN 200- | 300 | 31.0 | 31.0 | 31 . 0 | 29.0 | 23.0 | 18.0 |
| DN 350- | 1200 | 31.0 | 31.0 | 31.0 | 29.0 | 23.0 | 18.0 |
| DN1350- | 1600 | 20.0 | 20.0 | 20.0 | 20.0 | - | - |

NOTES

* DESIGN LIMITS ACC. TO AS ME B16.5 FLANGE RATING MAT. GRP 2.1, AND LIMITED BY BS5351 BALL VALVE RATING
* FOR BENDING OF PIPE SEE DEP 31.38.01.31-GEN.
* FOR BASIS OF DESIGN SEE DEP 31.38.01.10-GEN.
* PISTON TYPE CHECK VALVES FOR HORIZONTAL MOUNTING ONLY
* FOR CONNECTIONS CLASS 600 OR ABOVE, USE EQUIVALENT CLASS 600 OR ABOVE FOR FLANGE, BOLTING AND GASKET SELECTION

TABLE OF SCHEDULES

|  |  |
| --- | --- |
| DN SCHEDULE | |
| 15 | 40S |
| 20 | 40S |
| 25 | 10S |
| 40 | 10S |
| SO | 10S |
| 80 | 10S |
| 100 | 10S |
| 150 | 10S |
| 200 | 10S |
| 250 | 10S |
| 300 | 10S |
| 350 | ios |
| 400 | 10 |
| 450 | 10 |
| 500 | 20 |
| 600 | 20 |
| 650 | STD (9.53 MM) |
| 750 | 20 |
| 800 | 20 |
| 900 | 20 |
| 1050 | 14.27 MM |
| 1200 | 15.88 MM |
| 1350 | 12.70 MM |
| 1400 | 17.50 MM |
| 1600 | 19.10 MM |

BRANCH CONNECTIONS 90 DEGREES

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BRANCH SIZE | | | | | | | | | | | | | | | | | | | | | | | |
| RUN SIZE | 15 | 20 | 25 | 40 | 50 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 650 | 750 | 900 | lOSO | 1 1200 | 1400 | 1600 |
| 1600 | C | c | C | C | E | E | E | E | E | E | F | F | F | F | F | F | F | F | B | B | B | B | A |
| 1400 | c | c | C | C | E | E | E | E | E | E | F | F | F | F | F | F | F | B | B | B | B | A |  |
| 1200 | c | c | C | C | E | E | E | E | E | E | F | F | F | F | F | B | B | B | B | B | A |  |  |
| 1050 | c | c | C | C | E | E | E | E | E | E | F | F | B | B | B | B | B | B | B | A |  |  |  |
| 900 | c | c | C | c | E | E | E | E | E | E | F | F | B | B | B | B | B | B | A |  |  |  |  |
| 750 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | B | B | B | A |  |  |  |  |  |
| 650 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | B | B | A |  |  |  |  |  |  |
| 600 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | B | A |  |  |  |  |  |  |  |
| 500 | c | c | c | c | E | E | E | E | E | E | B | B | B | B | A |  |  |  |  |  |  |  |  |
| 450 | c | c | c | c | E | E | E | E | E | B | B | B | B | A |  |  |  |  |  |  |  |  |  |
| 400 | c | c | c | c | E | E | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |
| 350 | c | c | c | c | E | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |
| 300 | c | c | c | c | E | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |
| 250 | c | c | c | c | E | E | B | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 200 | c | c | c | c | E | E | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 150 | c | c | c | c | E | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 | c | c | c | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80 | c | c | c | c | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| so | c | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40 | c | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 | B | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | B | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

FOR SIZE DN 650 RUN PIPE

DN 15- 40 C

DN 50-250 E

DN300-500 B

DN6 00-600 A

|  |  |  |
| --- | --- | --- |
| CODE | EXPLANATION OF | CHARACTERS |
| A | EQUAL TEE |  |
| B | REDUCING TEE |  |
| C | BRANCH FITTING |  |
| E | BRANCH OUTLET |  |
| F | (RED.)TEE PLUS | REDUCER |

|  |  |  |  |
| --- | --- | --- | --- |
| STAINL STEEL AISI 304 LT | | PLANT | SE-LNG |
| CLASS NO. | 33091X | CONSIGNEE | SAKHALIN ENERGY IC Ltd |
| ASME RATING | CLASS 300 | ENGINEERED BY |  |
| CORROSION ALL. | 0 MM | PRINCIPAL |  |
| REVISION LETTER | B#A# | CONTR. JOB NO. | t |
| REVISION DATE | March 16,2006 | PROJECT NO. |  |

COMPONENT MATERIAL DESCRIPTION

(FOR FULL MATERIAL DESCRIPTION SES RELEVANT MESC BUYING DESCRIPTION.)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| \* PIPE |  |  |  |  |  |  |  |
| PIPE | PIPE | DN | 15- | 300 | ASTM | A312 | -TP304 |
|  |  | DN350- | | 1600 | ASTM | A358 | -304 |
| PNPP | PIPE NIPPLE L=50MM | DN | 15- | 40 | ASTM | A312 | -TP304 |
| \* FLANGES | |  |  |  |  |  |  |
| BLFL | BLIND FLANGE | DN | 15- | 1600 | ASTM | A182 | -F304 |
| COFL | COVER FLANGE THERMOWELL NOZZLE | DN | 40- | 40 | ASTM | A182 | -F304 |
| LJFL | LAP JOINT FLANGE | DN | 15- | 15 | ASTM | A182 | -F304 |
| SBFL | SPECTACLE BLIND | DN | 15- | 600 | ASTM | A240 | -TP304 |
| SPRT | SPACER RING (ASME FLANGE) | DN | 15- | 1600 | ASTM | A240 | -TP304 |
| WNFL | WELDING NECK FLANGE | DN | 15- | 1600 | ASTM | A182 | -F304 |
| BLND | BLIND | DN | 15- | 1600 | ASTM | A240 | -TP304 |

\* FITTINGS

|  |  |  |  |
| --- | --- | --- | --- |
| CAPB | CAP BW | DN 15-1600 | ASTM A403-WP304 |
| E45B | ELBOW 4 5 DEG BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN2 00-1600 | ASTM A4 03-WP304W |
| E90B | ELBOW 90 DEG BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN2 00-1600 | ASTM A403-WP304W |
| TEEB | TEE EQUAL BW | DN 15- 150 | ASTM A403-WP304 |
|  |  | DN2 00-1600 | ASTM A403-WP304W |

\* REDUCING FITTINGS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BNIP | BRANCH FITTING PLAIN | DN 15- 40 | ASTM | A182-F304 |
| BNLF | BRANCH FITT LIGHT-WEIGHT FLGD | DN 15- 40 | ASTM | A182-F304 |
| BROB RECB | BRANCH OUTLET BW REDUCER CONCENTRIC BW | DN150-1600 DN 20- 150 | ASTM ASTM | A182-F304 A403-WP304 |
|  |  | DN2 00-1600 | ASTM | A403-WP304W |
| REEB | REDUCER ECCENTRIC BW | DN 20- 150 | ASTM | A403-WP304 |
|  |  | DN2 00-1600 | ASTM | A403-WP304W |
| TERB | TEE REDUCING BW | DN 20- 150 | ASTM | A403-WP304 |
|  |  | DN2 00-1600 | ASTM | A403-WP304W |

\* VALVES

|  |  |  |  |
| --- | --- | --- | --- |
| BUDP | BUTTERFLY VALVE FLANGED | DN250-1200 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L) |
| BARF | BALL VALVE RB FLGD | DN IS- 250 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L>, PTFE |
| CHVF | CHECK VALVE FLGD | DN 15- 400 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L), STELLITE 6 |
| CHDP | CHECK VALVE DUAL PLATE FLANGED | DN4 50-1200 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L), STELLITE 6 |
| GAVF | GATE VALVE FLGD | DN 15- 600 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L), STELLITE 6 |
| GLVF | GLOBE VALVE FLGD | DN 15- 300 | BODY: ASTM A182-F316/A351-CF8M TRIM: AISI 316(L), STELLITE 6 |
| \* INSTRUMENTS | |  |  |
| TWSG | THERMOWELL STRAIGHT | DN 40- 40 | AISI 316 |
| TWSL | THERMOWELL STRAIGHT L-255MM |  | AISI 316 |
| TWSS | THERMOWELL STRAIGHT L=230MM |  | AISI 316 |
| TWXX | THERMOWELL STRAIGHT L=XXXMM |  | AISI 316 |
|  | |  |  |

\* MISCELLANEOUS

|  |  |  |  |
| --- | --- | --- | --- |
| GKTI | GASKET TANGED INSERT | DN 15-1600 | GRAPHITE |
| GKSW | GASKET SPIRAL WOUND | DN 1513\*0-1350 | AISI 316(L), GRAPHITE FILLED |
|  |  |  | SS CENTRING/SS INNER RING |
| MTRR | METER RUN | DN 15- 40 | AISI 316 |
| ORFS | ORIFICE FLANGE SET | DN 50- 600 | ASTM A182-F304 |
| STBT | STUD BOLT WITH NUTS |  | BOLTDIA <= 1 1/2 INCH: ASTM A193-B8 CLASS 2/A194-8 BOLTDIA >11/2 INCH: ASTM A193-B8M2 CLASS 2B/A194-8M |

component material description

(for full material description see relevant mesc buying description.)

\* pipe

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| pipe pnpp • flai blfl | pipe  pipe nipple l=50mm toes  blind flange | dn  dn:  dn dn | 15- s50- 15-  15- | 300 1600 40  1600 | astm astm astm  astm | a312 a3 5 a a312  a182 | -tp304  -304  -tp304  -f304 |
| cofl | cover flange thermowell nozzle | dn | 40- | 40 | astm | a182 | -f304 |
| ljfl | lap joint flange | dn | 15- | 15 | astm | a182 | -f304 |
| sbfl | spectacle blind | dn | 15- | 600 | astm | a240 | -tp304 |
| sprt | spacer ring (asme flange) | dn | 15- | 1600 | astm | a240 | -tp304 |
| wnfl | welding neck flange | dn | 15- | 1600 | astm | a182 | -f304 |
| blnd | blind | dn | 15- | 1600 | astm | a240 | -tp304 |

» fittings

|  |  |  |  |
| --- | --- | --- | --- |
| capb | cap bw | dn 15-1600 | astm a403-wp304 |
| e45b | elbow 4 5 deg bw | dn 15- 150 | astm a403-wp304 |
|  |  | dn2 00-1600 | astm a403-wp304w |
| e90b | elbow 90 deg bw | dn 15- 150 | astm a403-wp304 |
|  |  | dn200-1600 | astm a403-wp304w |
| teeb | tee equal bw | dn 15- 150 | astm a403-wp304 |
|  |  | dn2 00-1600 | astm a403-wp304w |

\* reducing fittings

|  |  |  |  |
| --- | --- | --- | --- |
| bnip | branch fitting plain | dn 15- 40 | astm a182-f304 |
| bnlf | branch fitt light-weight flgd | dn 15- 40 | astm a182-f304 |
| brob | branch outlet bw | dn150-1600 | astm a182-f304 |
| recb | reducer concentric bw | dn 20- 150 | astm a403-wp304 |
|  |  | dn2 00-1600 | astm a403-wp304w |
| reeb | reducer eccentric bw | dn 20- 150 | astm a403-wp304 |
|  |  | dn2 00-1600 | astm a403-wp304w |
| terb | tee reducing bw | dn 20- 150 | astm a403-wp304 |
|  |  | dn200-1600 | astm a403-wp304w |

VALVES

|  |  |  |  |
| --- | --- | --- | --- |
| BUDP | BUTTERFLY VALVE FLANGED | DN250-1200 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L) |
| BARF | BALL VALVE RB FLGD | DN IS- 250 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), PTFE |
| CHVF | CHECK VALVE FLGD | DN 15- 400 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| CHDP | CHECK VALVE DUAL PLATE FLANGED | DN450-1200 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| GAVF | GATE VALVE FLGD | DN 15- 600 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| GLVF | GLOBE VALVE FLGD | DN 15- 300 | BODY: ASTM A182-F316/A351-CF8M |
|  |  |  | TRIM: AISI 316(L), STELLITE 6 |
| \* INSTRUMENTS | |  |  |
| TWSG | THERMOWELL STRAIGHT | DN 40- 40 | AISI 316 |
| TWSL | THERMOWELL STRAIGHT L=255MM |  | AISI 316 |
| TWSS | THERMOWELL STRAIGHT L=230MM |  | AISI 316 |
| TWXX | THERMOWELL STRAIGHT L.XXXMM |  | AISI 316 |

MISCELLANEOUS

|  |  |  |  |
| --- | --- | --- | --- |
| GKTI | GASKET TANGED INSERT | DN 15-1600 | GRAPHITE |
| GKSW | GASKET SPIRAL WOUND | DN 1514&&-13S0 | AISI 316(L), GRAPHITE FILLED |
|  |  |  | SS CENTRING/SS INNER RING |
| MTRR | METER RUN | DN IS- 40 | AISI 316 |
| ORFS | ORIFICE FLANGE SET | DN 50- 600 | ASTM A182-F304 |
| STBT | STUD BOLT WITH NUTS |  | BOLTDIA <= 1 1/2 INCH: ASTM A193-B8 CLASS 2/A194-8 BOLTDIA > 1 1/2 INCH: ASTM A193-B8M2 CLASS 2B/A194-8M |

PIPING COMPONENTS

NOMINAL PIPE SIZE

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ITEM DESCRIPTION | MESC | 650 | 7S0 | 800 | 900 | 1050 | 1200 | 1350 | 1400 | 1600 |
| • PIPE PIPE | 743605 | 2051 | 2491 | F329 | 3071 | S429 | T48 9 |  | T569 | T64 9 |
| \* FLANGES  BLIND FLANGE 1), 4) SPACER RING (ASME FLANGE) WELDING NECK FLANGE 1) , 4 ) WELDING NECK FLANGE CL600 1) BLIND | 766510 768819   1. 768843 | A263 A263 A263  A263 | A3 03 A303 F303  A3 03 |  | A3 6 3 A363 F363 F364 A3 6 3 | A423 A423 S423  A42 3 | A483 A483 T483  A4 83 |  | A563 A563 T563  A563 | A643 A643 T643  A643 |
| \* FITTINGS CAP BW  ELBOW 45 DEG BW ELBOW 90 DEG BW TEE EQUAL BW | 763318 763338 763340 763384 | A269 A269 A269 A269 | F309 F309 F309 F309 | F329 F329 | F369 F369 F369 F369 | S429 S429 S429 S429 | T489 T489 T489 T489 |  | T569 T569 T569 T569 | T64 9 T649 T649 T649 |
| ♦ VALVES  BUTTERFLY VALVE FLGD 2) CHECK VALVE FLGD 3) | 774434  7768AC | ; | 0761 B303 |  | 0791 B363 | 0821 B423 | 0841 B483 |  |  |  |
| \* MISCELLANEOUS GASKET TANGED INSERT GASKET SPIRAL WOUND CL600 | 853001 854136 | 1441 | 1481 |  | 1541 X364 | 1601 | 1661 | A543 X544 | A563 | A643 |

NOTES:

1. FLANGES DN\*750-1400 ASME B16.47 SERIES A.
2. BUTTERFLY VALVES DN7S0-120D DOUBLE FLANGE TYPE (HIGH PERFORMANCE).
3. CHECK VALVES DN750-1200 DUAL PLATE TYPE DOUBLE FLANGED
4. FLANGES LARGER THEN DN 1500 ARE OUTSIDE THE SCOPE OF ASME B16.47 SERIES A AND ARE SPECIAL DESIGN.

PIPING COMPONENTS

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NOMINAL PIPE SIZE | | | | | | | | | |
|  |  | 650 | 750 | 800 900 | 1050 | 1200 | 1350 | 1400 | 1600 |
| ITEM DESCRIPTION | MESC | | | | | | | | |
| \* PIPE | | | | | | | | | |
| PIPE | 743605 | 2051 | 2491 | F329 3071 | S429 | T489 |  | T569 | T64 9 |
| • FLANGES | | | | | | | | | |
| BLIND FLANGE I), 4) | 766510 | A263 | A3 03 | A363 | A423 | A483 |  | A563 | A64 3 |
| SPACER RING (ASME FLANGE) | 768819 | A263 | A303 | A3 6 3 | A423 | A4 83 |  | A563 | A643 |
| WELDING NECK FLANGE 1), 4) | 766580 | A263 | F303 | F363 | S423 | T4 83 | S543 | T563 | T643 |
| WELDING NECK FLANGE CL600 1) | 766581 |  |  | F364 |  |  | SS44 |  |  |
| BLIND | 768843 | A263 | A3 03 | A3 6 3 | A423 | A483 |  | A563 | A643 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| \* FITTINGS CAP BW  ELBOW 45 DEG BW ELBOW 90 DEG BW TEE EQUAL BW | 763318 763338 763340 763384 | A269 A269 A269 A269 | F30 9 F309 F309 F309 | F329 F329 | F369 F369 F369 F369 | S429 S429 S429 S429 | T489 T489 T489 T489 |  | T56 9 T569 T569 T569 | T649 T64 9 T649 T649 |
| \* VALVES  BUTTERFLY VALVE FLGD 2) CHECK VALVE FLGD 3) | 774434 7768AC | - | 0761 B303 |  | 0791 B363 | 0821 B423 | 0841 B483 |  |  |  |
| \* MISCELLANEOUS GASKET TANGED INSERT GASKET SPIRAL WOUND CL600 | £53001 654136 | 1441 | 1481 |  | 1541 X364 | 1601 | 1661 | A543 X544 | A563 | A643 |

NOTES :

* 1. FLANGES DN750-1400 ASHE B16.47 SERIES A.
  2. BUTTERFLY VALVES DN750-1200 DOUBLE FLANGE TYPE (HIGH PERFORMANCE).
  3. CHECK VALVES DN750-1200 DUAL PLATE TYPE DOUBLE FLANGED
  4. FLANGES LARGER THEN DN 1S00 ARE OUTSIDE THE SCOPE OF ASME B16.47 SERIES A AND ARE SPECIAL DESIGN.

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|  |  |  |  |
| --- | --- | --- | --- |
| BRANCH | RUN PIPE | BNIP | BNLF |
| 15 | 40 - 40 | 7680323021 | 7660553791 |
| 15 | 50 - 50 | 7680323031 | 7660553801 |
| 15 | 80 - 200 | 7680323041 | 7660553811 |
| 15 | 250 - 600 | 7680323051 | 7660553821 |
| 20 | 50 - 50 | 7680323061 | 7660553841 |
| 20 | 80 - 100 | 7680323071 | 7660553851 |
| 20 | 150 - 300 | 7680323081 | 7660553861 |
| 20 | 350 - 600 | 7680323091 | 7680553871 |
| 25 | 80 - 80 | 7680323111 | 7680553891 |
| 25 | 100 - 100 | 7680323121 | 7680553901 |
| 25 | 150 - 250 | 7680323131 | 7680553911 |
| 25 | 300 - 600 | 7680323141 | 7680553921 |
| 40 | 80 - 80 | 7680323161 | 7680553941 |
| 40 | 100 - 100 | 7680323171 | 7680553951 |
| 40 | 150 -ISO | 7680323181 | 7680553961 |
| 40 | 200 - 300 | 7680323191 | 7680553971 |
| 40 | 350 - 600 | 7680323201 | 7680553981 |

|  |  |
| --- | --- |
| THERMOWELL STRAIGHT LENGTH MESC NUMBER | |
| 230 | 7683371011 |
| 255 | 7683371021 |
| 305 | 7683371031 |
| 355 | 7683371051 |
| 405 | 7683371061 |
| 455 | 7683371071 |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| REDUCING/PIPING COMPONENTS | | | | | | | | | | | | | |
| RUN X BR | BROB | RECB | REEB | • TERB | RUN X BR | BROB | RECB | REEB | TERB | BRANCH | RUN PIPE | BNIP | BNLF |
| 750 X 50 | 767 960HAFP |  |  |  | 1200 X 50 | 767960KATP |  |  |  | 15 | 650 - 900 | 7680323051 | 7680553821 |
| 750 X 80 | 767960HBFP |  |  |  | 1200 X 80 | 767960KBTP |  |  |  |  |  |  |  |
| 750 X 100 | 767960HCFP |  |  |  | 1200 X 100 | 767960KCTP |  |  |  | 15 | 950 - 1400 | 768032RAF7 | 76 8055GAF3 |
| 750 X 150 | 767960HDFP |  |  |  | 1200 X 150 | 767960KDTP |  |  |  |  |  |  |  |
| 750 X 200 | 767960HEFP |  |  |  | 1200 X 200 | 767960KETP |  |  |  | 15 | 1450 - 1600 | 768032 RAG 7 | 768055QAG3 |
| 750 X 250 | 767960HFFP |  |  |  | 1200 X 250 | 767960KFTP |  |  |  | 20 | 650 - 900 | 7680323091 | 7680553871 |
| 750 X 300 |  |  |  | 763690HGFP | 1200 X 300 |  |  |  |  |  |  |  |  |
| 750 X 350 |  |  |  | 763690HHFP | 1200 X 350 |  |  |  |  | 20 | 950 - 1400 | 768032RBF7 | 768055QBF3 |
| 750 X 400 |  |  |  | 763690HIFE | 1200 X 400 |  |  |  |  |  |  |  |  |
| 750 X 450 |  |  | 763372HIFE | 763690HJFE | 1200 X 450 |  |  |  |  | 20 | 1450 - 1600 | 768032RBG7 | 768055QBG3 |
| 750 X 500 |  | 763370HKFF | 763372HKFF | 763690HKFF | 1200 X 500 |  |  |  |  | 25 | 650 - 900 | 7680323141 | 7680553921 |
| 750 X 600 |  | 763370HLFF | 763372HLFF | 763690HLFF | 1200 X 600 |  |  |  | 7636 90KLTF |  |  |  |  |
| 800 X 600 |  | 763370 PAFF | 763372PAFF |  | 1200 X 750 |  | 763370KMTK | 763372KMTK | 763690KMTF | 25 | 950 - 1400 | 768032RCF7 | 768055QCF3 |
| 900 X 50 | 767960IAFP |  |  |  | 1200 X 900 |  | 763370KNTF | 763372KNTF | 763690KNTF |  |  |  |  |
| 900 X 80 | 767960IBFP |  |  |  | 1200 X 1050 |  | 763370KOTS | 763372KOTS | 763690KOTS | 25 | 1450 - 1600 | 768032RCG7 | 768055QCG3 |
| 900 X 100 | 767960ICFP |  |  |  | 1400 X 50 | 767960LATP |  |  |  | 40 | 650 - 900 | 768032RDE7 | 768055QDE3 |
| 900 X 150 | 767960IDFP |  |  |  | 1400 X 80 | 767960LBTP |  |  |  |  |  |  |  |
| 900 X 200 | 767960IEFP |  |  |  | 1400 X 100 | 767960LCTP |  |  |  | 40 | 950 - 1400 | 768032RDF7 | 7680S5QDF3 |
| 900 X 250 | 767960IFFP |  |  |  | 1400 X 150 | 767960LDTP |  |  |  | 40 | 1450 - 1600 | 768032RDG7 | 768055QDG3 |
| 900 X 300 |  |  |  |  | 1400 X 200 | 767960LETP |  |  |  |  |  |  |  |
| 900 X 350 |  |  |  |  | 1400 X 250 | 767960LFTP |  |  |  |  |  |  |  |
| 900 X 400 |  |  |  | 763690IIFE | 1400 X 750 |  |  | 763372LMTF | 763690LMTF |  |  |  |  |
| 900 X 450 |  |  |  | 763690IJFE | 1400 X 900 |  |  |  | 763690LNTF |  |  |  |  |
| 900 X 500 |  |  |  | 763690IKFF | 1400 X 1050 |  | 763370LOTS | 7 63372LOTS | 763690LOTS |  |  |  |  |
| 900 X 600 |  | 763370ILFF | 763372ILFF | 763690ILFF | 1400 X 1200 |  | 763370LPTT | 763372LPTT | 763690LPTT |  |  |  |  |
| 900 X 750 |  | 763370IMFF | 763372IMFF | 763690IMFF | 1400 X 1350 |  | 763370LQTS |  |  |  |  |  |  |
| 1050 X 50 | 767960JASP |  |  |  | 1600 X 50 | 767960MATP |  |  |  |  |  |  |  |
| 1050 X 80 | 767960JBSP |  |  |  | 1600 X 80 | 767960MBTP |  |  |  |  |  |  |  |
| 1050 X 100 | 767960JCSP |  |  |  | 1600 X 100 | 767960MCTP |  |  |  |  |  |  |  |
| 1050 X 150 | 767960JDSP |  |  |  | 1600 X 150 | 767960MDTP |  |  |  |  |  |  |  |
| 1050 X 200 | 767960JESP |  |  |  | 1600 X 200 | 767960METP |  |  |  |  |  |  |  |
| 1050 X 250 | 767960JFSP |  |  |  | 1600 X 250 | 767960MFTP |  |  |  |  |  |  |  |
| 1050 X 300 |  |  |  |  | 1600 X 900 |  |  |  | 763690MNTF |  |  |  |  |
| 1050 X 350 |  |  |  |  | 1600 X 1050 |  |  |  | 76369 OMOTS |  |  |  |  |
| 1050 X 400 |  |  |  | 763690JISE | 1600 X 1200 |  | 763370MPTT | 763372MPTT | 763690MPTT |  |  |  |  |
| 1050 X 450 |  |  |  | 763690JJSE | 1600 X 1400 |  | 76337 OMQTT | 763372MQTT | 763690MQTT |  |  |  |  |
| 1050 X 500 |  |  |  | 763690JKSF |  |  |  |  |  |  |  |  |  |
| 1050 X 600 |  |  |  | 763690JLSF |  |  |  |  |  |  |  |  |  |
| 1050 X 750 |  | 763370JMSF | 763372JMSF | 763690JMSF |  |  |  |  |  |  |  |  |  |
| 1050 X 900 |  | 763370JNSF | 763372JNSF | 763690JNSF |  |  |  |  |  |  |  |  |  |

COMP. NAME DESCRIPTION

BNIP BRANCH FITTING PLAIN

BNLF BRANCH FITT LIGHT-WEIGHT ?LGD

BROB BRANCH OUTLET BW

RECB REDUCER CONCENTRIC BW

REEB REDUCER ECCENTRIC BW

TERB TEE REDUCING BW

PIPING MATERIAL SPECIFICATION

Sakhalin Energy Investment Company

|  |  |  |  |
| --- | --- | --- | --- |
| bolting | | | |
| boltset flanged joints | | | |
| dn | nr | inch x mm | mesc numbe: |
| 15 | 4 | 1/2 x 70 | 8138431551 |
| 20 | 4 | 5/8 x 80 | 8138432691 |
| 25 | 4 | 5/8 x 80 | 8138432691 |
| 40 | 4 | 3/4 x 90 | 8138433271 |
| 50 | 8 | 5/8 x 90 | 8138432711 |
| 80 | 8 | 3/4 x 110 | 8138433301 |
| 100 | 8 | 3/4 x 120 | 8138433321 |
| 150 | 12 | 3/4 x 130 | 8138433341 |
| 200 | 12 | 7/8 x 140 | 8138434041 |
| 250 | 16 | 1 x 185 | 8138434761 |
| 300 | 16 | 1 1/8 x 200 | 8138435271 |
| 350 | 20 | 1 1/8 x 210 | 8138435381 |
| 400 | 20 | 1 1/4 x 225 | 813843225c |
| 450 | 24 | 1 1/4 x 235 | 8138435991 |
| 500 | 24 | 1 1/4 x 245 | 8138436011 |
| 600 | 24 | 1 1/2 x 280 | 8138436931 |
| 650 | 28 | 1 5/8 x 310 | 8138387271 |
| 750 | 28 | 1 3/4 x 340 | 813838340g |
| 900 | 32 | 2 x 390 | 8138383901 |
| 1050 | 32 | 1 5/8 x 380 | 8138387391 |
| 1200 | 32 | 1 7/8 x 425 | 8138388011 |
| 1350 | 28 | 2 1/4 x 495 | 813838495j |
| 1400 | 28 | 2 1/4 x 495 | 813838495j |
| 1600 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| boltset flanged joints cl600 | | | |
| dn | nr | inch x mm | mesc numbe1 |
| 15 | 4 | 1/2 x 80 | 8138431571 |
| 20 | 4 | 5/8 x 90 | 8138432711 |
| 25 | 4 | 5/8 x 90 | 8138432711 |
| 40 | 4 | 3/4 x 110 | 8138433301 |
| 50 | 8 | 5/8 x 110 | 8138432741 |
| 80 | 8 | 3/4 x 130 | 8138433341 |
| 100 | 8 | 7/8 x 150 | 8138434061 |
| 150 | 12 | 1 x 195 | 8138434781 |
| 200 | 12 | 1 1/8 x 220 | 813843s401 |
| 250 | 16 | 1 1/4 x 255 | 8138436021 |
| 300 | 20 | 1 1/4 x 255 | 8138436021 |
| 350 | 20 | 1 3/8 x 275 | 8138436511 |
| 400 | 20 | 1 1/2 x 290 | 813843290e |
| 600 | 24 | 1 7/8 x 380 | 8138387941 |
| 900 | 28 | 2 1/2 x 540 | 8138877051 |
| 1350 | 32 | 3 x 695 | 813887695m |

|  |  |  |  |
| --- | --- | --- | --- |
| boltset meter run | | | |
| dn | nr | inch x mm | mesc numbe. |
| 15 | 4 | 1/2 x 70 | 8138431551 |
| 20 | 4 | 5/8 x 80 | 8138432691 |
| 25 | 4 | 5/8 x 90 | 8138432711 |
| 40 | 4 | 3/4 x 100 | 8138433291 |

|  |  |  |  |
| --- | --- | --- | --- |
| boltset orifice flanges | | | |
| dn | nr | inch x mm | mesc number |
| 50 | 8 | 5/8 x 150 | 8138432811 |
| 80 | 8 | 3/4 x 150 | 8138433371 |
| 100 | 12 | 3/4 x 140 | 8138433351 |
| 150 | 12 | 3/4 x 140 | 8138433351 |
| 200 | 12 | 7/8 x 150 | 8138434061 |
| 250 | 16 | 1 x 170 | 8138434741 |
| 300 | 16 | 1 1/8 x 190 | 8138435351 |
| boltset spectacle/spacer | | | |
| dn | nr | inch x mm | mesc number |
| 15 | 4 | 1/2 x 80 | 8138431571 |
| 20 | 4 | 5/8 x 90 | 8138432711 |
| 25 | 4 | 5/8 x 90 | 8138432711 |
| 40 | 4 | 3/4 x 100 | 8138433291 |
| 50 | 8 | 5/8 x 100 | 8138432731 |
| 80 | 8 | 3/4 x 120 | 8138433321 |
| 100 | 8 | 3/4 x 130 | 8138433341 |
| 150 | 12 | 3/4 x 150 | 8138433371 |
| 200 | 12 | 7/8 x 170 | 8138434091 |
| 250 | 16 | 1 x 215 | 813843215a |
| 300 | 16 | 1 1/8 x 240 | 8138435431 |
| 350 | 20 | 1 1/8 x 245 | 813843245b6- |
|  |  | 344 | Aii, |
| 400 | 20 | 1 1/4 x 265 | 81384360413 |
|  |  | 364 | 64g |
| 450 | 24 | 1 1/4 x 275 | 81384360614 |
|  |  |  | 4sa |
| 500 | 24 | 1 1/4 x 285 | 813843285c |
| 600 | 24 | 1 1/2 x 325 | 8138437011 |
| 650 | 28 | 1 5/8 x |  |
| 750 | 28 | 1 3/4 x 415 | 813838415g |
| 900 | 32 | 2 x 480 | 8138384801 |
| 1050 | 32 | 1 5/8 x 475 | 813838475f |
| 1200 | 32 | 1 7/8 x 535 | 813887535h |
| 1400 | 28 | 2 1/4 x 625 | 8138876431 |
| 1600 |  |  |  |
| boltset flanged joints psv-in | | | |
| dn | nr | inch x mm | mesc number |
| 25 | 4 | 5/8 x 100 | 8138432731 |
| 40 | 4 | 3/4 x 110 | 8138433301 |
| 50 | 8 | 5/8 x 110 | 8138432741 |
| 80 | 8 | 3/4 x 130 | 8138433341 |
| 100 |  | 3/4 x 140 | 8138433351 |
| iso | 12 | 3/4 x 160 | 8138433381 |
| 200 | 12 | 7/8 x 140 | 8138434041 |

assemblies

|  |  |  |
| --- | --- | --- |
| \* drain/vent point dn 15 fig. i dn15 - 25 | | |
| branch: according to branch table | | |
| blind flange | 1 | 7665107121 |
| gasket tanged insert | 1 | 8530011041 |
| welding neck flange | 1 | 7665808601 |
| stud bolt with nuts | 4 | 8138431551 |
| \* drain/vent point dn 20 fig. i dn40 - 40 | | |
| branch: according to branch table | | |
| blind flange | 1 | 7665107141 |
| gasket tanged insert | 1 | 8530011061 |
| welding neck flange | 1 | 7665808621 |
| stud bolt with nuts | 4 | 8138432691 |
| \* drain/vent point dn 20 fig.h dn50 - 600 | | |
| branch: branch nipple flanged | | |
| blind flange | 1 | 7665107141 |
| gasket tanged insert | 1 | 8530011061 |
| stud bolt with nuts | 4 | 8138432691 |
| » drain/vent point dn 40 fig.h dn750 -1200 | | |
| branch: branch nipple flanged |  |  |
| blind flange | 1 | 7665107181 |
| gasket tanged insert | 1 | 8530011121 |
| stud bolt with nuts | 4 | 8138433271 |
| \* meter ron connection dn 15 fig.2h dn15 - 40 | | |
| branch: not applicable |  |  |
| ball valve rb flgd | 2 | 7703081031 |
| gasket tanged insert | 4 | 8530011041 |
| lap joint flange | 2 | 7665203081 |
| stud bolt with nuts | 8 | 8138431551 |
| stud bolt with nuts | 8 | 8138431571 |
| \* orifice connection dn 15 fig.21 dn50 - 600 | | |
| branch: not applicable |  |  |
| ball valve rb flgd | 2 | 7703081031 |
| gasket tanged insert | 4 | 8530011041 |
| lap joint flange | 2 | 7665203081 |
| welding neck flange | 2 | 7665808601 |
| stud bolt with nuts | 8 | 8138431551 |
| stud bolt with nuts | 8 | 8138431571 |
| \* pressure instrument dn 15 fig.2j dn15- 25 | | |
| branch: according to branch table | | |
| ball valve rb flgd | 1 | 7703081031 |
| gasket tanged insert | 2 | 8530011041 |
| lap joint flange | 1 | 7665203081 |
| pipe nipple l-50mm | 1 | 7633576311 |
| welding neck flange | 1 | 7665808601 |
| stud bolt with nuts | 4 | 8138431551 |
| stud bolt with nuts | 4 | 8138431571 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \* PRESSURE INSTRUMENT DN 15 FIG.2H DN 40-1200 | | | | |
| BRANCH: BRANCH NIPPLE FLANGED | |  |  |  |
| BALL VALVE RB FLGD |  | 1 TEtWEEtaratRE INSTRUM DN 40 FIG. AA DN 80 - 100 | | |
| GASKET TANGED INSERT |  | BRASEHGOBBftSEH NIPPLE FLANGED |  |  |
| LAP JOINT FLANGE |  | COVER6RLftiraElTHERMOWELL NOZZLE | 1 | 7665606331 |
| STUD BOLT KITH NUTS |  | aASKETSTAMBED INSERT | 1 | 8530011121 |
| STUD BOLT WITH NUTS |  | 1HE8UI®»BS,L5STRAIGHT L=230MM | 1 | 7683371011 |
|  |  | STUD BOLT WITH NUTS | 4 | 8138433301 |
|  |  | \* TEMPERATURE INSTRUM DN 40 FIG.BB DN150 - 600 | | |
|  |  | BRANCH: BRANCH NIPPLE FLANGED |  |  |
|  |  | COVER FLANGE THERMOWELL NOZZLE | 1 | 7665606331 |
|  |  | GASKET TANGED INSERT | 1 | 8530011121 |
|  |  | THERMOWELL STRAIGHT L=255MM | 1 | 7683371021 |
|  |  | STUD BOLT WITH NUTS | 4 | 8138433301 |
|  |  | \* TEMPERATURE INSTRUM DN 40 FIG.XX DN750 -1200 | | |
|  |  | ERANCH: BRANCH NIPPLE FLANGED |  |  |
|  |  | COVER FLANGE THERMOWELL NOZZLE | 1 | 7665606331 |
|  |  | GASKET TANGED INSERT | 1 | 8530011121 |
|  |  | THERMOWELL STRAIGHT L=XXXMM | 1 | 768337XXXX |
|  |  | STUD BOLT WITH NUTS | 4 | 8138433301 |

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