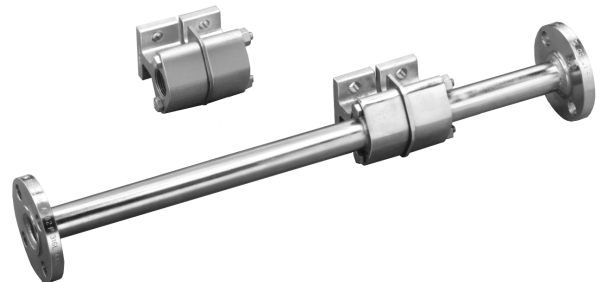


# Integral Orifice Flow Element

## 1/2, 1, 1-1/2" Pipe Sizes

Model 1330L

- 1/2 , 1 and 1-1/2" NPT sizes
- $\pm 0.5\%$  accuracy
- Flanged construction
- Wide variety of standard bores
- One-year warranty



Integral Orifice Flow Elements  
Model 1330L

## Integral Orifice Flow Element 1/2, 1, 1-1/2" Pipe sizes, Model 1330L

The integral orifice is a flow element capable of being close coupled with differential pressure transmitters to make a complete flow meter. It provides easy-to-install, low-cost measurement of the small flows found frequently in plant metering operations and research projects. It can be ordered with internal NPT threads or flanged pipe runs, welded both upstream and downstream of the flow restriction. The orifice assembly may be directly mounted to the transmitter or remote using optional adapter kit 155S711.

### PERFORMANCE SPECIFICATIONS

#### Accuracy

##### Calibrated

±0.5% of actual flow when operated within the calibrated range using the average value of K

##### Uncalibrated Orifice Bores

0.020-0.065 ±5% of rate

0.113-0.500 ±2% of rate

0.612-1.127 ±1.5% of rate

#### Pressure Rating

##### Threaded

1/2 in. and 1 in. NPT: 3000 psig (21 000 kPa )  
at 300°F (150°C)

1-1/2 NPT: 1500 psig (10 500 kPa)  
at 300°F (150°C)

##### Flanged

Class 150 ANSI: 275 psig (1900 kPa ) MWP  
at 100°F (38°C)

Class 300 ANSI: 720 psig (5000 kPa) MWP  
at 100°F (38°C)

### PHYSICAL SPECIFICATIONS

#### Materials of Construction

Threaded type body 316 SST,  
Orifice plate 316 SST, Hastelloy-C<sup>1</sup>  
Flanged type element All 316 SST only  
Sealing gasket Silicate ceramic filled TFE

#### Concentric Orifice Bores

1/2 in. 0.020, 0.035, 0.065, 0.113, 0.150, 0.196,  
0.270, 0.340 in.

1 in. 0.020, 0.035, 0.065, 0.113, 0.150,  
0.196, 0.270, 0.340, 0.500, 0.612,  
0.735 in.

1-1/2 in. 0.500, 0.612, 0.750, 0.918, 1.127 in.

#### Pipe Size

1/2, 1 and 1-1/2 in.

#### Pipe Schedule

Schedule 40, 80<sup>(2)</sup>

#### Connection to Transmitter

Flat gasketed surfaces bolted to transmitter or  
3-valve manifold.

#### Face to Face Dimensions

Threaded type 1/2 and 1 in.: 3-11/16 in.  
(93.7 mm)

1-1/2 in.: 4-1/16 in. (103.2 mm)

Flanged type 1/2 & 1 in.: 24 in. (609.6 mm) length

1-1/2 in.: 38 in. (965.2 mm) length

#### NACE Standard

Construction materials 316 SST with 316 SST  
orifice plate and 316 SST and Hastelloy C orifice  
plate conform to NACE Standard MR-0175-88.  
Conformance is on process wetted materials only  
and does not include bolting.

#### Temperature Rating

300°F (148.9°C) max.

#### Weights

##### 1330L

##### No Flanges

(1/2 in. and 1 in.) 4.9 lb (2.2 kg)

(1-1/2 in.) 7.5 lb (3.4 kg)

##### Class 150 ANSI Flange

(1/2 in. and 1 in.) 11.6 lb (5.3 kg)

##### Class 300 ANSI Flange

(1/2 in. and 1 in.) 17.6 lb (8 kg)

##### Class 150 ANSI Flange

(1-1/2 in.) 18.8 lb (8.5 kg)

##### Class 300 ANSI Flange

(1-1/2 in.) 24.8 lb (11 kg)

## DETERMINATION OF DIFFERENTIAL PRESSURE AND ORIFICE BORE

### Differential Pressure

To calculate exact differential pressure produced at known flow rate, use one of the following equations:

$$\text{Liquid: } h = gf \left[ \frac{q(\text{in U.S. qpm})}{5.668 \times F_a \times K \times d^2} \right]^2$$

$$\text{Gas: } h = \frac{GT_f}{P_f} \left[ \frac{Q(\text{in scfh})}{7727 \times F_a \times F_{pv} \times K \times d^2 \times Y} \right]^2$$

$$\text{Steam: } h = V \left[ \frac{W(\text{lb/hr})}{359 \times F_a \times K \times d^2 \times Y} \right]^2$$

d = bore diameter in inches

F<sub>a</sub> = thermal expansion factor of orifice plate

G = specific gravity of gas

gf = specific gravity of liquid at flow conditions

h = differential pressure in in. H<sub>2</sub>O

K = flow coefficient

P<sub>f</sub> = process pressure in psia (psig + 14.7)

Q = flow rate of gas

q = flow rate of liquid

T<sub>f</sub> = process temperature in °R (°F + 460)

V = specific volume of steam in cu ft/lb

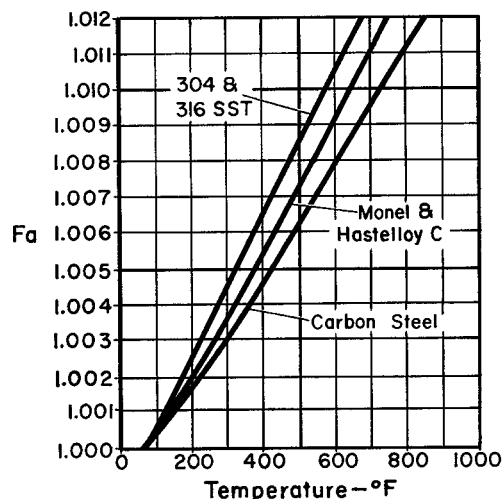
W = flow rate of steam

Y = gas expansion factor

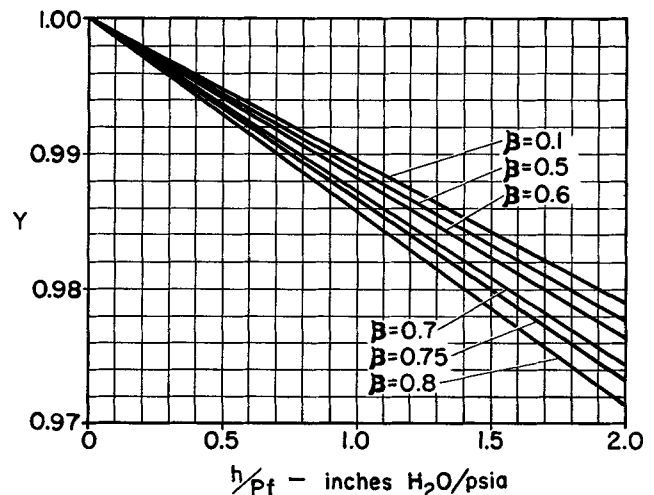
$$F_{pv} = \text{gas supercompressibility } F_{pv} = \sqrt{\frac{Z_b}{ZF}}$$

Z<sub>b</sub> = basic compressibility

ZF = flowing compressibility



A-904-50(1)



A-904-51(1)

## ORIFICE CAPACITIES

1/2 inch Integral Orifice Capacity Table

| Orifice Bore (Inches) | K     | Differential Pressure (Inches H <sub>2</sub> O) | Liquid <sup>1</sup> Flow Rate US gpm | Gas <sup>2</sup> Flow Rate scfh | Saturated Steam <sup>3</sup> Flow Rate pph |
|-----------------------|-------|-------------------------------------------------|--------------------------------------|---------------------------------|--------------------------------------------|
| 0.020                 | 0.723 | 200                                             | 0.020                                | 12.8                            | 0.6                                        |
|                       |       | 100                                             | 0.0014                               | 9.1                             | 0.5                                        |
|                       |       | 50                                              | 0.010                                | 6.4                             | 0.3                                        |
|                       |       | 20                                              | 0.006                                | 4.1                             | 0.2                                        |
|                       |       | 10                                              | 0.004                                | 2.9                             | 0.1                                        |
| 0.035                 | 0.642 | 200                                             | 0.060                                | 38.7                            | 1.9                                        |
|                       |       | 100                                             | 0.043                                | 27.3                            | 1.4                                        |
|                       |       | 50                                              | 0.030                                | 19.3                            | 1.0                                        |
|                       |       | 20                                              | 0.019                                | 12.2                            | 0.6                                        |
|                       |       | 10                                              | 0.014                                | 8.6                             | 0.4                                        |
| 0.065                 | 0.625 | 200                                             | 0.205                                | 131.0                           | 6.6                                        |
|                       |       | 100                                             | 0.145                                | 92.6                            | 4.7                                        |
|                       |       | 50                                              | 0.102                                | 65.5                            | 3.3                                        |
|                       |       | 20                                              | 0.065                                | 41.4                            | 2.1                                        |
|                       |       | 10                                              | 0.046                                | 29.3                            | 1.5                                        |
| 0.113                 | 0.612 | 200                                             | 0.616                                | 394.5                           | 19.8                                       |
|                       |       | 100                                             | 0.436                                | 279.0                           | 14.0                                       |
|                       |       | 50                                              | 0.308                                | 197.3                           | 9.9                                        |
|                       |       | 20                                              | 0.195                                | 124.8                           | 6.3                                        |
|                       |       | 10                                              | 0.138                                | 88.2                            | 4.4                                        |
| 0.150                 | 0.610 | 200                                             | 1.086                                | 695.2                           | 34.9                                       |
|                       |       | 100                                             | 0.768                                | 491.6                           | 24.7                                       |
|                       |       | 50                                              | 0.543                                | 347.6                           | 17.5                                       |
|                       |       | 20                                              | 0.343                                | 219.8                           | 11.0                                       |
|                       |       | 10                                              | 0.243                                | 155.4                           | 7.8                                        |
| 0.196                 | 0.608 | 200                                             | 1.863                                | 1192.8                          | 59.9                                       |
|                       |       | 100                                             | 1.317                                | 843.4                           | 42.4                                       |
|                       |       | 50                                              | 0.931                                | 596.4                           | 29.9                                       |
|                       |       | 20                                              | 0.589                                | 377.2                           | 18.9                                       |
|                       |       | 10                                              | 0.417                                | 266.7                           | 13.4                                       |
| 0.270                 | 0.623 | 200                                             | 3.640                                | 2330.9                          | 82.8                                       |
|                       |       | 100                                             | 2.574                                | 1648.2                          | 58.5                                       |
|                       |       | 50                                              | 1.820                                | 1165.4                          | 37.0                                       |
|                       |       | 20                                              | 1.151                                | 737.1                           | 26.2                                       |
|                       |       | 10                                              | 0.814                                | 521.2                           | 17.0                                       |
| 0.340                 | 0.642 | 200                                             | 6.051                                | 3874.2                          | 194.5                                      |
|                       |       | 100                                             | 4.279                                | 2739.4                          | 137.6                                      |
|                       |       | 50                                              | 3.025                                | 1937.1                          | 97.3                                       |
|                       |       | 20                                              | 1.913                                | 1225.1                          | 61.5                                       |
|                       |       | 10                                              | 1.353                                | 866.3                           | 43.5                                       |

1-1/2 inch Integral Orifice Capacity Table

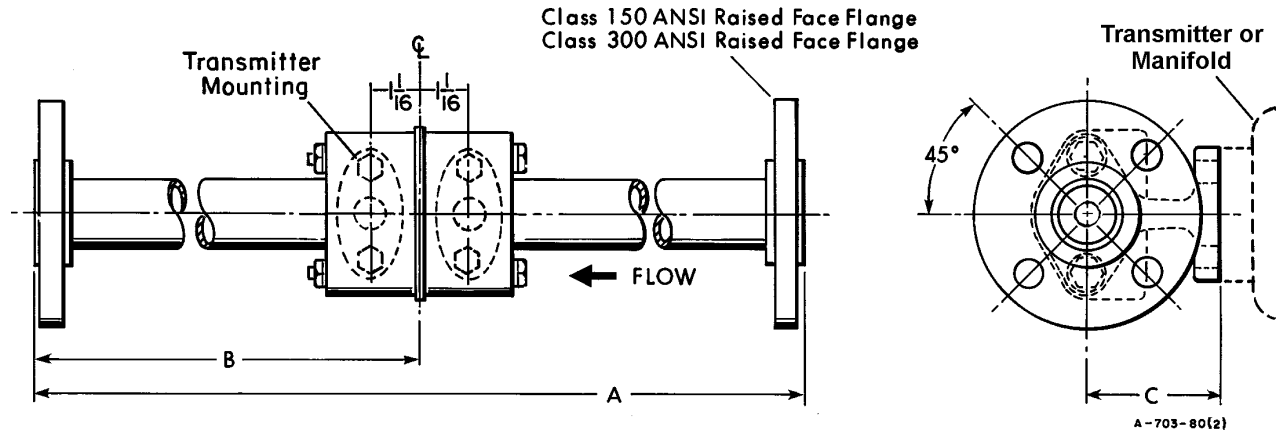
| Orifice Bore (Inches) | K     | Differential Pressure (Inches H <sub>2</sub> O) | Liquid <sup>1</sup> Flow Rate US gpm | Gas <sup>2</sup> Flow Rate scfh | Saturated Steam <sup>3</sup> Flow Rate pph |
|-----------------------|-------|-------------------------------------------------|--------------------------------------|---------------------------------|--------------------------------------------|
| 0.500                 | 0.611 | 200                                             | 12.244                               | 7839.5                          | 393.6                                      |
|                       |       | 100                                             | 8.658                                | 5543.3                          | 278.3                                      |
|                       |       | 50                                              | 6.122                                | 3919.7                          | 196.8                                      |
|                       |       | 20                                              | 3.872                                | 2479.1                          | 124.5                                      |
|                       |       | 10                                              | 2.738                                | 1753.0                          | 88.0                                       |
| 0.612                 | 0.614 | 200                                             | 18.434                               | 11802.6                         | 592.6                                      |
|                       |       | 100                                             | 13.035                               | 8345.7                          | 419.1                                      |
|                       |       | 50                                              | 9.217                                | 5901.3                          | 296.3                                      |
|                       |       | 20                                              | 5.829                                | 3732.3                          | 187.4                                      |
|                       |       | 10                                              | 4.122                                | 2639.1                          | 132.5                                      |
| 0.750                 | 0.623 | 200                                             | 28.090                               | 17985.3                         | 930.1                                      |
|                       |       | 100                                             | 19.863                               | 12717.5                         | 638.6                                      |
|                       |       | 50                                              | 14.045                               | 8992.6                          | 451.5                                      |
|                       |       | 20                                              | 8.883                                | 5687.4                          | 285.6                                      |
|                       |       | 10                                              | 6.281                                | 4021.6                          | 201.9                                      |
| 0.918                 | 0.650 | 200                                             | 43.812                               | 28051.6                         | 1408.6                                     |
|                       |       | 100                                             | 30.980                               | 19835.5                         | 996.0                                      |
|                       |       | 50                                              | 21.906                               | 14025.8                         | 704.3                                      |
|                       |       | 20                                              | 13.855                               | 8870.7                          | 445.4                                      |
|                       |       | 10                                              | 9.797                                | 6272.5                          | 315.0                                      |

1 inch Integral Orifice Capacity Table

| Orifice Bore (Inches) | K     | Differential Pressure (Inches H <sub>2</sub> O) | Liquid <sup>1</sup> Flow Rate US gpm | Gas <sup>2</sup> Flow Rate scfh | Saturated Steam <sup>3</sup> Flow Rate pph |
|-----------------------|-------|-------------------------------------------------|--------------------------------------|---------------------------------|--------------------------------------------|
| 0.020                 | 0.645 | 200                                             | 0.021                                | 13.2                            | 0.7                                        |
|                       |       | 100                                             | 0.015                                | 9.4                             | 0.5                                        |
|                       |       | 50                                              | 0.010                                | 6.6                             | 0.3                                        |
|                       |       | 20                                              | 0.007                                | 4.2                             | 0.2                                        |
|                       |       | 10                                              | 0.005                                | 3.0                             | 0.1                                        |
| 0.035                 | 0.635 | 200                                             | 0.062                                | 39.9                            | 1.9                                        |
|                       |       | 100                                             | 0.044                                | 28.2                            | 1.4                                        |
|                       |       | 50                                              | 0.031                                | 20.0                            | 1.0                                        |
|                       |       | 20                                              | 0.020                                | 12.6                            | 0.6                                        |
|                       |       | 10                                              | 0.014                                | 8.9                             | 0.4                                        |
| 0.065                 | 0.620 | 200                                             | 0.210                                | 134.4                           | 6.8                                        |
|                       |       | 100                                             | 0.148                                | 95.1                            | 4.8                                        |
|                       |       | 50                                              | 0.105                                | 67.2                            | 3.4                                        |
|                       |       | 20                                              | 0.066                                | 42.5                            | 2.1                                        |
|                       |       | 10                                              | 0.047                                | 30.1                            | 1.5                                        |
| 0.113                 | 0.605 | 200                                             | 0.619                                | 396.5                           | 19.9                                       |
|                       |       | 100                                             | 0.438                                | 280.4                           | 14.1                                       |
|                       |       | 50                                              | 0.310                                | 198.2                           | 10.0                                       |
|                       |       | 20                                              | 0.196                                | 125.4                           | 6.3                                        |
|                       |       | 10                                              | 0.138                                | 88.7                            | 4.5                                        |
| 0.150                 | 0.604 | 200                                             | 1.089                                | 697.5                           | 35.0                                       |
|                       |       | 100                                             | 0.770                                | 493.2                           | 24.8                                       |
|                       |       | 50                                              | 0.545                                | 348.7                           | 17.5                                       |
|                       |       | 20                                              | 0.344                                | 220.6                           | 11.1                                       |
|                       |       | 10                                              | 0.244                                | 156.0                           | 7.8                                        |
| 0.196                 | 0.603 | 200                                             | 1.857                                | 1188.9                          | 59.7                                       |
|                       |       | 100                                             | 1.313                                | 840.7                           | 42.2                                       |
|                       |       | 50                                              | 0.928                                | 594.4                           | 29.8                                       |
|                       |       | 20                                              | 0.587                                | 376.0                           | 18.9                                       |
|                       |       | 10                                              | 0.415                                | 265.8                           | 13.3                                       |
| 0.270                 | 0.604 | 200                                             | 3.529                                | 2259.8                          | 113.5                                      |
|                       |       | 100                                             | 2.496                                | 1597.9                          | 80.2                                       |
|                       |       | 50                                              | 1.765                                | 1129.9                          | 56.7                                       |
|                       |       | 20                                              | 1.116                                | 714.6                           | 35.9                                       |
|                       |       | 10                                              | 0.789                                | 505.3                           | 25.4                                       |
| 0.340                 | 0.605 | 200                                             | 5.606                                | 3589.4                          | 180.2                                      |
|                       |       | 100                                             | 3.964                                | 2538.1                          | 127.4                                      |
|                       |       | 50                                              | 2.803                                | 1794.7                          | 90.1                                       |
|                       |       | 20                                              | 1.773                                | 1135.1                          | 57.0                                       |
|                       |       | 10                                              | 1.254                                | 802.6                           | 40.3                                       |
| 0.500                 | 0.630 | 200                                             | 12.625                               | 8083.3                          | 405.9                                      |
|                       |       | 100                                             | 8.927                                | 5715.7                          | 287.0                                      |
|                       |       | 50                                              | 6.312                                | 4041.6                          | 202.9                                      |
|                       |       | 20                                              | 3.992                                | 2556.2                          | 128.4                                      |
|                       |       | 10                                              | 2.823                                | 1807.5                          | 90.8                                       |
| 0.612                 | 0.668 | 200                                             | 20.055                               | 12840.6                         | 644.8                                      |
|                       |       | 100                                             | 14.181                               | 9079.7                          | 455.9                                      |
|                       |       | 50                                              | 10.028                               | 6420.3                          | 322.4                                      |
|                       |       | 20                                              | 6.342                                | 4060.6                          | 203.9                                      |
|                       |       | 10                                              | 4.484                                | 2871.2                          | 144.2                                      |
| 0.735                 | 0.715 | 200                                             | 30.962                               | 19823.8                         | 995.4                                      |
|                       |       | 100                                             | 21.893                               | 14017.5                         | 703.9                                      |
|                       |       | 50                                              | 15.481                               | 9911.9                          | 497.7                                      |
|                       |       | 20                                              | 9.791                                | 6268.8                          | 314.8                                      |
|                       |       | 10                                              | 6.923                                | 4432.7                          | 222.6                                      |

1. Based on water flow at 60°F (15.6°C).
2. Based on air flow at 100 psig and 60°F, with base conditions of 14.7 psia and 60°F (15.6°C)
3. Based on saturated steam flow at 100 psig.
4. These tables are for approximation purposes only.

## DIMENSIONS

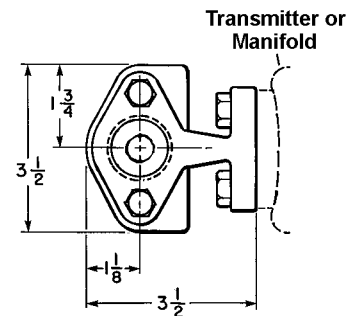
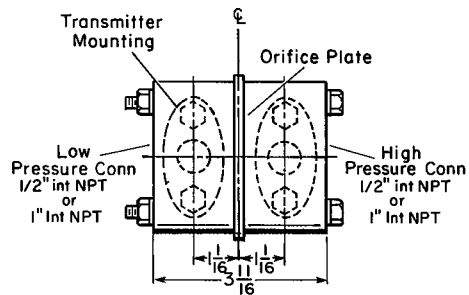


| Part No | Pipe Size | A<br>± 3/16 | B |
|---------|-----------|-------------|---|
| 1330LZ0 | 1/2       | 24          | 8 |
| 1330LZ1 | 1         | 24          | 8 |
| 1330LZ2 | 1         | 24          | 8 |
| 1330LZ3 | 1-1/2     | 38          | 8 |

| Inches | MM     |
|--------|--------|
| 3/16   | 4.76   |
| 1-1/16 | 26.99  |
| 8      | 203.20 |
| 24     | 609.20 |
| 38     | 985.20 |

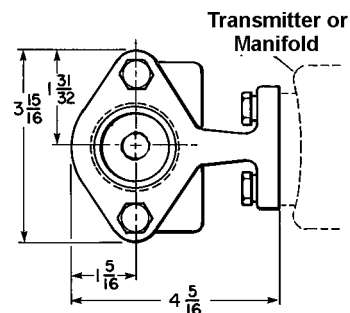
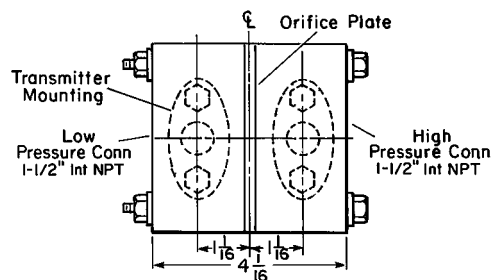
All dimensions in inches.

### 1/2" & 1" INTEGRAL ORIFICE FLOW ELEMENT



XB-1210-171(2)

### 1-1/2" INTEGRAL ORIFICE FLOW ELEMENT



XB-1210-170(1)

| INCHES | mm    | INCHES  | mm     |
|--------|-------|---------|--------|
| 1/2    | 12.7  | 1-31/32 | 50.01  |
| 1      | 25.4  | 3-1/2   | 88.9   |
| 1-1/8  | 28.57 | 3-11/16 | 93.66  |
| 1-1/16 | 26.99 | 3-15/16 | 100.01 |
| 1-5/16 | 33.34 | 4-1/16  | 103.9  |
| 1-1/2  | 38.10 | 4-5/16  | 109.54 |
| 1-3/4  | 44.45 |         |        |

## Model Number Designation

|                                                                              | 1330L | 06 | 07 | 08 | 09 | 10 | 11 |
|------------------------------------------------------------------------------|-------|----|----|----|----|----|----|
|                                                                              |       | └─ | └─ | └─ | └─ | └─ | └─ |
|                                                                              |       | └─ | └─ | └─ | └─ | └─ | └─ |
| Unused - Unused .....                                                        |       | Z  |    |    |    |    |    |
| <b>Pipe and Bore Size</b> (no piping, no flanges, select from 9th character) |       |    |    |    |    |    |    |
| 1/2 in. (13 mm), 0.020 in. (0.51 mm) .....                                   |       |    |    |    |    |    | 01 |
| 1/2 in. (13 mm), 0.035 in. (0.89 mm) .....                                   |       |    |    |    |    |    | 02 |
| 1/2 in. (13 mm), 0.065 in. (1.65 mm) .....                                   |       |    |    |    |    |    | 03 |
| 1/2 in. (13 mm), 0.113 in. (2.87 mm) .....                                   |       |    |    |    |    |    | 04 |
| 1/2 in. (13 mm), 0.150 in. (3.81 mm) .....                                   |       |    |    |    |    |    | 05 |
| 1/2 in. (13 mm), 0.196 in. (4.98 mm) .....                                   |       |    |    |    |    |    | 06 |
| 1/2 in. (13 mm), 0.270 in. (6.86 mm) .....                                   |       |    |    |    |    |    | 07 |
| 1/2 in. (13 mm), 0.340 in. (8.64 mm) .....                                   |       |    |    |    |    |    | 08 |
| 1/2 in. (13 mm), special bore size (2) .....                                 |       |    |    |    |    |    | 09 |
| 1 in. (25 mm), 0.150 in. (3.81 mm) .....                                     |       |    |    |    |    |    | 11 |
| 1 in. (25 mm), 0.270 in. (6.86 mm) .....                                     |       |    |    |    |    |    | 12 |
| 1 in. (25 mm), 0.612 in. (15.54 mm) .....                                    |       |    |    |    |    |    | 13 |
| 1 in. (25 mm), 0.020 in. (0.51 mm) .....                                     |       |    |    |    |    |    | 21 |
| 1 in. (25 mm), 0.035 in. (0.89 mm) .....                                     |       |    |    |    |    |    | 22 |
| 1 in. (25 mm), 0.065 in. (1.65 mm) .....                                     |       |    |    |    |    |    | 23 |
| 1 in. (25 mm), 0.113 in. (2.87 mm) .....                                     |       |    |    |    |    |    | 24 |
| 1 in. (25 mm), 0.196 in. (4.98 mm) .....                                     |       |    |    |    |    |    | 25 |
| 1 in. (25 mm), 0.340 in. (8.64 mm) .....                                     |       |    |    |    |    |    | 26 |
| 1 in. (25 mm), 0.500 in. (12.70 mm) .....                                    |       |    |    |    |    |    | 27 |
| 1 in. (25 mm), 0.735 in. (18.67 mm) .....                                    |       |    |    |    |    |    | 28 |
| 1 in. (25 mm), special bore size (2) .....                                   |       |    |    |    |    |    | 29 |
| 1-1/2 in. (40 mm), 0.500 in. (12.70 mm) .....                                |       |    |    |    |    |    | 31 |
| 1-1/2 in. (40 mm), 0.612 in. (15.54 mm) .....                                |       |    |    |    |    |    | 32 |
| 1-1/2 in. (40 mm), 0.750 in. (19.05 mm) .....                                |       |    |    |    |    |    | 33 |
| 1-1/2 in. (40 mm), 0.918 in. (23.32 mm) .....                                |       |    |    |    |    |    | 34 |
| 1-1/2 in. (40 mm), 1.127 in. (28.63 mm) .....                                |       |    |    |    |    |    | 35 |
| 1-1/2 in. (40 mm), special bore size (2) .....                               |       |    |    |    |    |    | 39 |
| <b>Upstream, Downstream Piping and Mating Flange Connection</b>              |       |    |    |    |    |    |    |
| No pipe, no flanges .....                                                    |       |    |    |    |    |    | 0  |
| Class 150 ANSI flange and Schedule 40 pipe                                   |       |    |    |    |    |    |    |
| 1/2 in. and 1 in. ....                                                       |       |    |    |    |    |    | 1  |
| 1-1/2 in. ....                                                               |       |    |    |    |    |    | 1  |
| Class 300 ANSI flange and Schedule 40 pipe                                   |       |    |    |    |    |    |    |
| 1/2 in. and 1 in. ....                                                       |       |    |    |    |    |    | 2  |
| 1-1/2 in. ....                                                               |       |    |    |    |    |    | 2  |
| Class 150 ANSI flange and Schedule 80 pipe                                   |       |    |    |    |    |    |    |
| 1/2 in. and 1 in. ....                                                       |       |    |    |    |    |    | A  |
| 1-1/2 in. ....                                                               |       |    |    |    |    |    | A  |
| Class 300 ANSI flange and Schedule 80 pipe                                   |       |    |    |    |    |    |    |
| 1/2 in. and 1 in. ....                                                       |       |    |    |    |    |    | B  |
| 1-1/2 in. ....                                                               |       |    |    |    |    |    | B  |
| <b>Construction Material</b>                                                 |       |    |    |    |    |    |    |
| 316 SST body with 316 SST orifice plate - NACE .....                         |       |    |    |    |    |    | 0  |
| 316 SST body with Hastelloy C <sup>1</sup> orifice plate - NACE .....        |       |    |    |    |    |    | 4  |
| Reserved for special constructions that do not comply with NACE .....        |       |    |    |    |    |    | 9  |
| <b>Calibration</b>                                                           |       |    |    |    |    |    |    |
| No calibration .....                                                         |       |    |    |    |    |    | 0  |
| Water calibration .....                                                      |       |    |    |    |    |    | 1  |
| No calibration with transmitter mounting .....                               |       |    |    |    |    |    | A  |
| Water calibration with transmitter mounting .....                            |       |    |    |    |    |    | B  |

Instruction Manual (One copie supplied with order at No Charge) IB-04H104

<sup>1</sup>Trademark of Haynes International, Inc.

<sup>2</sup>Special bore size to be specified at time of order placement

## Model Number Designation

### Optional Extras:

Orifice bore Calculation (Applies to Special Bore Only)

Replacement Orifice Plate Kits

Consist of standard bore orifice plate and two silicone-ceramic filled TFE gaskets.

Refer to Parts & Supplies Price Book.

Adapter Kit 155S711 for remote mounting of transmitter. Refer to Parts & Supplies Price Book.

Oxygen Service Cleaning - per CGA-G4.

---

*Notes*

---

ABB has Sales & Customer Support  
expertise in over 100 countries worldwide

[www.abb.com](http://www.abb.com)

The Company's policy is one of continuous product  
improvement and the right is reserved to modify the  
information contained herein without notice.

Printed in USA (5.12.03)

© ABB 2003



**ABB Inc.**  
125 East County Line Road  
Warminster  
PA 18974  
USA  
Tel: +1 215 674 6000  
Fax: +1 215 674 7183

**ABB Ltd**  
Howard Road, St. Neots  
Cambridgeshire  
PE19 8EU  
UK  
Tel: +44 (0)1480 475321  
Fax: +44 (0)1480 217948