

Section 8. Hubs and Clamps

Section 8a API 16A Hubs and Clamps

Hubs and Clamps are designed and manufactured in accordance with the following specifications:-

| | |
|----------------------|---|
| API 16A | Specification for Drill Through Equipment. |
| API 6A | Specification for Wellhead and Christmas Tree Equipment. |
| NACE MR-01-75 | Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment. |
| ASME VIII | Boiler and Pressure Vessel Code. |
| ANSI B31.3 | Chemical Plant and Petroleum Piping. |

Hubs are available as Weld Neck, Integral & Blinds and are available in the following materials and pressure ratings:-

| MAX. WORKING PRESSURE | 2,000 PSI | 3,000 PSI | 5,000 PSI | 10,000 PSI | 15,000 PSI | 20,000 PSI |
|------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| TEST PRESSURE | 3,000 PSI | 4,500 PSI | 7,500 PSI | 15,000 PSI | 22,500 PSI | 30,000 PSI |
| PRODUCT SPECIFICATION LEVELS | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 |
| API TEMPERATURE RATING | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) |
| Min.YIELD | 60,000 PSI | 60,000 PSI | 60,000 PSI | 60,000 PSI | 75,000 PSI | 75,000 PSI |
| Min.TENSILE | 85,000 PSI | 85,000 PSI | 85,000 PSI | 85,000 PSI | 95,000 PSI | 95,000 PSI |
| MATERIAL | API 60K | API 60K | API 60K | API 60K | API 75K | API 75K |

GENERAL NOTE: Please contact GonPetro for any special material or dimensional requirements.
 Max.working pressures stated are suitable for temperatures up to 121°C.
 De-rating of max.working pressure will occur as the operating temperature increases above 121°C. Consult GonPetro for further details.

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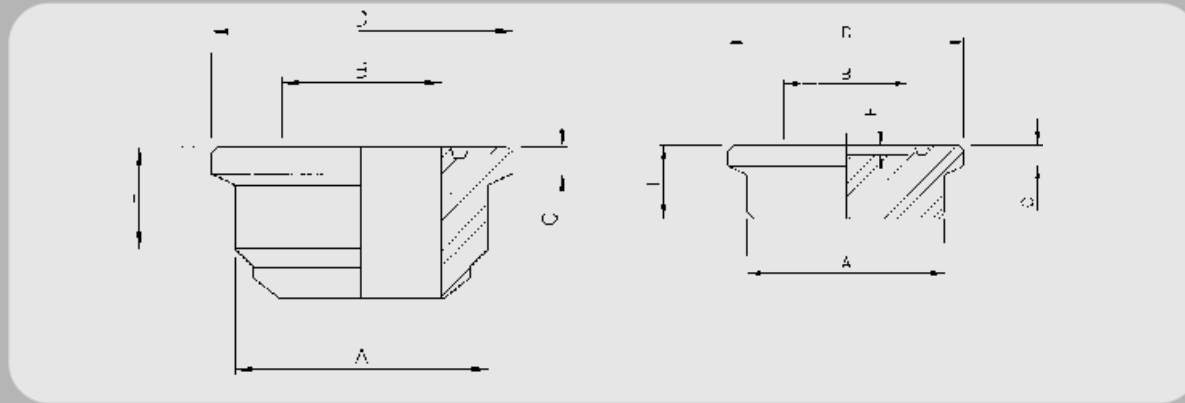


Table 8a.1 API Type 16B Integral Hub Connections for 2,000 psi and 3,000 psi Rated Working Pressure

| Nominal Size and Bore B | Outside Diameter D | Total Thickness C | Large Diameter of Neck A | Neck Length for Clamp Clearance L | Ring Groove Number | Ring Gasket Number | Clamp Number | |
|----------------------------|-----------------------|----------------------|-----------------------------|--------------------------------------|--------------------|--------------------|--------------|----|
| 2,000 psi | | | | | | | | |
| 7 | 1/16 | 10.375 | 1.443 | 8.875 | 2.50 | SR-45 | RX-45 | 25 |
| | 16 3/4 | 20.375 | 1.269 | 19.000 | 3.13 | SR-65 | RX-65 | 12 |
| | 21 1/4 | 26.375 | 1.872 | 24.500 | 5.00 | SR-73 | RX-73 | 18 |
| 3,000 psi | | | | | | | | |
| | 11 | 15.625 | 1.399 | 14.000 | 3.13 | SR-53 | RX-53 | 9 |
| | 13 5/8 | 18.375 | 1.336 | 16.750 | 3.19 | SR-57 | RX-57 | 11 |
| | 16 3/4 | 21.250 | 1.459 | 19.625 | 3.68 | SR-65 | RX-65 | 14 |

GENERAL NOTES: Dimensions are in inches.
Dimension 'E' Counterbore is optional

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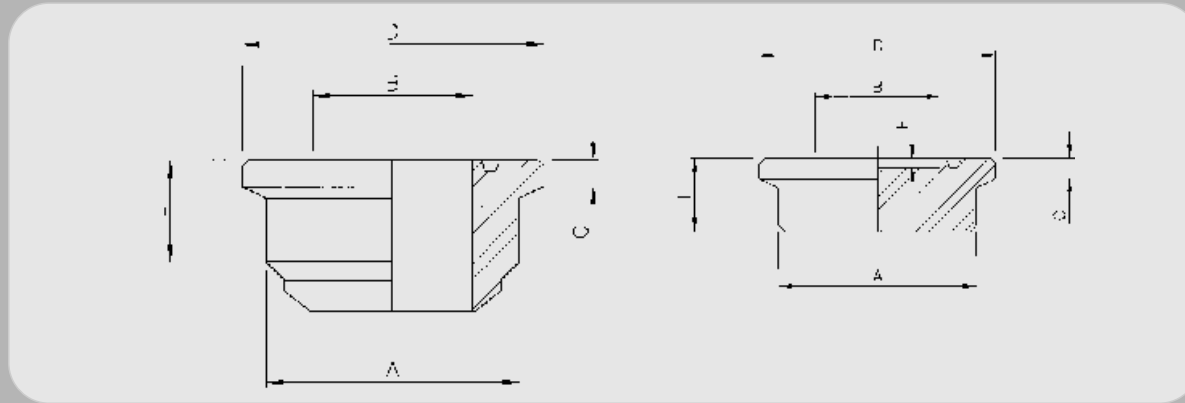


Table 8a.2 API Type 16BX Integral Hub Connections for 5,000 psi Rated Working Pressure

| Nominal Size and Bore B | Outside Diameter D | Total Thickness C | Large Diameter of Neck A | Neck Length for Clamp Clearance L | Ring Gasket Number | Clamp Number |
|--------------------------------|-----------------------|----------------------|-----------------------------|--------------------------------------|--------------------|--------------|
| 5,000 psi | | | | | | |
| 2 ¹ / ₁₆ | 5.031 | 1.166 | 3.656 | 2.22 | BX-152 | 1 |
| 2 ³ / ₁₆ | 5.781 | 1.166 | 4.406 | 2.27 | BX-153 | 2 |
| 3 ¹ / ₈ | 6.312 | 1.166 | 4.938 | 2.36 | BX-154 | 4 |
| 4 ¹ / ₁₆ | 7.625 | 1.197 | 6.250 | 2.38 | BX-155 | 5 |
| 7 ¹ / ₁₆ | 13.250 | 1.622 | 11.625 | 3.38 | BX-156 | 6 |
| 9 | 13.250 | 1.622 | 11.625 | 3.38 | BX-157 | 8 |
| 11 | 16.250 | 1.654 | 14.625 | 4.13 | BX-158 | 10 |
| 13 ³ / ₈ | 20.625 | 1.871 | 19.000 | 4.88 | BX-160 | 13 |
| 16 ¹ / ₄ | 25.625 | 1.778 | 24.000 | 5.50 | BX-162 | 19 |
| 21 ¹ / ₄ | 31.250 | 3.630 | 27.875 | 6.75 | BX-165 | 27 |

GENERAL NOTES: Dimensions are in inches.
Dimension 'E' Counterbore is optional

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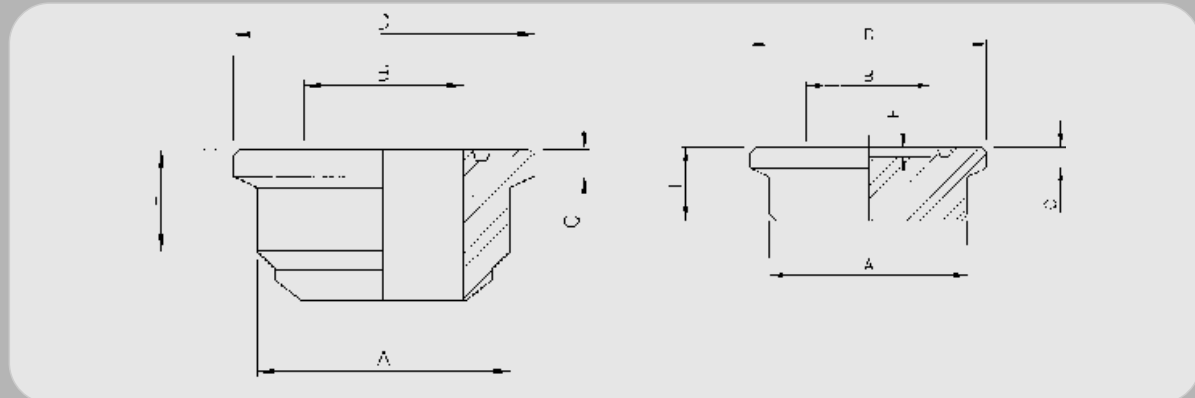


Table 8a.3 API Type 16BX Integral Hub Connections for 10,000 psi Rated Working Pressure

| Nominal Size and Bore B | Outside Diameter D | Total Thickness C | Large Diameter of Neck A | Neck Length for Clamp Clearance L | Ring Gasket Number | Clamp Number |
|--------------------------------|-----------------------|----------------------|-----------------------------|--------------------------------------|--------------------|--------------|
| 10,000 psi | | | | | | |
| 1 ³ / ₁₆ | 5.031 | 1.166 | 3.656 | 2.22 | BX-151 | 1 |
| 2 ¹ / ₁₆ | 5.781 | 1.166 | 4.406 | 2.27 | BX-152 | 2 |
| 2 ⁹ / ₁₆ | 6.312 | 1.166 | 4.938 | 2.36 | BX-153 | 4 |
| 3 ¹ / ₁₆ | 7.625 | 1.197 | 6.250 | 2.38 | BX-154 | 5 |
| 4 ¹ / ₁₆ | 8.437 | 1.310 | 6.812 | 2.82 | BX-155 | 6 |
| 7 ¹ / ₁₆ | 16.250 | 1.653 | 14.625 | 4.13 | BX-156 | 10 |
| 9 | 16.250 | 1.653 | 14.625 | 4.13 | BX-157 | 10 |
| 11 | 20.625 | 2.035 | 18.625 | 4.75 | BX-158 | 22 |
| 13 ³ / ₈ | 22.250 | 2.309 | 20.625 | 5.31 | BX-159 | 15 |
| 16 ³ / ₄ | 28.000 | 3.005 | 25.000 | 6.17 | BX-162 | 28 |
| 18 ³ / ₄ | 31.250 | 3.630 | 27.875 | 6.75 | BX-164 | 27 |
| 21 ¹ / ₄ | 34.000 | 4.005 | 30.500 | 8.22 | BX-166 | 26 |

GENERAL NOTES: Dimensions are in inches.
Dimension 'E' Counterbore is optional

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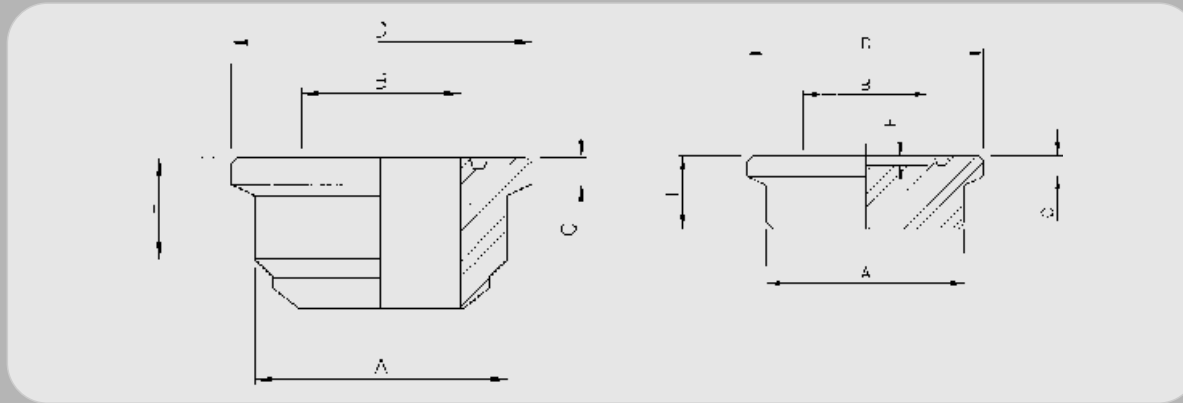


Table 8a.4 API Type 16BX Integral Hub Connections for 15,000 psi Rated Working Pressure

| Nominal Size and Bore B | Outside Diameter D | Total Thickness C | Large Diameter of Neck A | Neck Length for Clamp Clearance L | Ring Gasket Number | Clamp Number |
|--------------------------------|-----------------------|----------------------|-----------------------------|--------------------------------------|--------------------|--------------|
| 15,000 psi | | | | | | |
| 1 ³ / ₁₆ | 5.781 | 1.166 | 4.406 | 2.27 | BX-151 | 2 |
| 2 ¹ / ₁₆ | 6.125 | 1.622 | 4.500 | 3.22 | BX-152 | 3 |
| 2 ⁹ / ₁₆ | 6.125 | 1.622 | 4.500 | 3.22 | BX-153 | 3 |
| 3 ¹ / ₁₆ | 8.437 | 1.310 | 6.812 | 2.82 | BX-154 | 6 |
| 4 ¹ / ₁₆ | 13.250 | 1.622 | 11.625 | 3.38 | BX-155 | 8 |
| 7 ¹ / ₁₆ | 20.626 | 2.035 | 18.625 | 4.75 | BX-156 | 22 |
| 11 | 22.250 | 2.309 | 20.625 | 5.31 | BX-158 | 15 |
| 13 ⁵ / ₈ | 28.000 | 3.005 | 25.000 | 6.17 | BX-159 | 28 |
| 18 ³ / ₄ | 34.000 | 4.005 | 30.500 | 8.22 | BX-164 | 26 |

GENERAL NOTES: Dimensions are in inches.
Dimension 'E' Counterbore is optional

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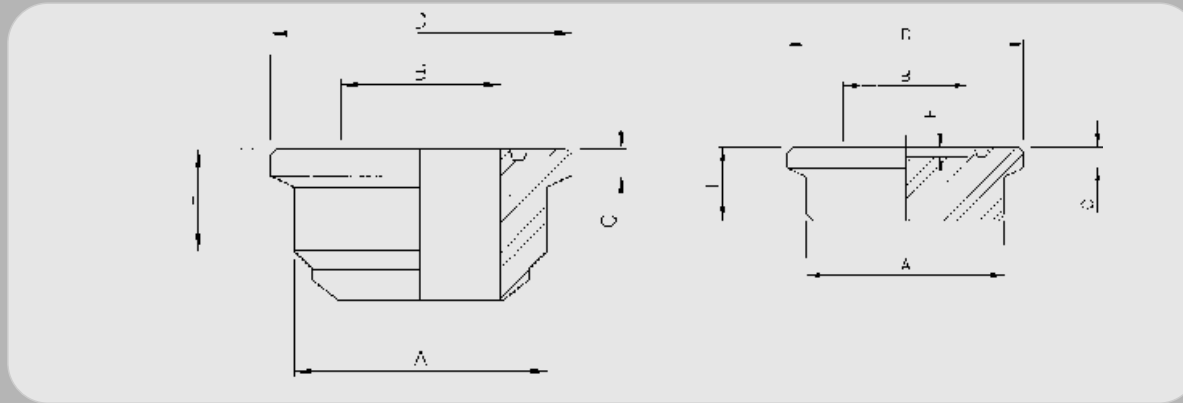


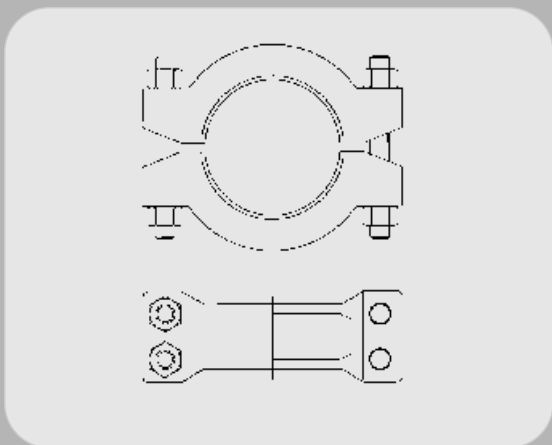
Table 8a.5 API Type 16BX Integral Hub Connections for 20,000 psi Rated Working Pressure

| Nominal Size and Bore B | Outside Diameter D | Total Thickness C | Large Diameter of Neck A | Neck Length for Clamp Clearance L | Ring Gasket Number | Clamp Number |
|---------------------------------|-----------------------|----------------------|-----------------------------|--------------------------------------|--------------------|--------------|
| 20,000 psi | | | | | | |
| 1 ¹³ / ₁₆ | 6.125 | 1.622 | 4.500 | 3.22 | BX-151 | 3 |
| 2 ¹ / ₁₆ | 6.125 | 1.622 | 4.500 | 3.22 | BX-152 | 3 |
| 2 ⁹ / ₁₆ | 8.437 | 1.310 | 6.812 | 2.82 | BX-153 | 6 |
| 3 ¹ / ₁₆ | 13.250 | 1.622 | 11.625 | 3.38 | BX-154 | 8 |
| 4 ¹ / ₁₆ | 16.250 | 1.653 | 14.625 | 4.13 | BX-155 | 10 |
| 7 ¹ / ₁₆ | 22.250 | 2.308 | 20.625 | 5.31 | BX-156 | 15 |
| 11 | 27.997 | 3.005 | 25.000 | 6.17 | BX-158 | 28 |

GENERAL NOTES: Dimensions are in inches.
Dimension 'E' Counterbore is optional

Section 8a. API 16A Hubs and Clamps

Table 8a.6 Clamps for API Type 16B and 16BX Hub Connections



| HUB | | |
|--------------|--------------------------------|------------------------|
| Clamp Number | API Designated Size | Working Pressure (psi) |
| 1 | 1 ³ / ₁₆ | 10,000 |
| | 2 ⁷ / ₁₆ | 5,000 |
| 2 | 1 ³ / ₁₆ | 15,000 |
| | 2 ⁷ / ₁₆ | 10,000 |
| | 2 ⁹ / ₁₆ | 5,000 |

| HUB | | | |
|--------------|--------------------------------|--------------------------------|--------|
| Clamp Number | API Designated Size | Working Pressure (psi) | |
| 3 | 1 ³ / ₁₆ | 20,000 | |
| | 2 ⁷ / ₁₆ | 15,000 | |
| | 2 ⁷ / ₁₆ | 20,000 | |
| | 2 ⁹ / ₁₆ | 15,000 | |
| 4 | 2 ⁹ / ₁₆ | 10,000 | |
| | 3 ¹ / ₈ | 5,000 | |
| 5 | 3 ¹ / ₁₆ | 10,000 | |
| | 4 ¹ / ₁₆ | 5,000 | |
| 6 | 2 ⁹ / ₁₆ | 20,000 | |
| | 3 ¹ / ₁₆ | 15,000 | |
| | 4 ¹ / ₁₆ | 10,000 | |
| 8 | 3 ¹ / ₁₆ | 20,000 | |
| | 4 ¹ / ₁₆ | 15,000 | |
| | 7 ¹ / ₁₆ | 5,000 | |
| | 9 | 5,000 | |
| 9 | 11 | 3,000 | |
| | 10 | 4 ¹ / ₁₆ | 20,000 |
| | | 7 ¹ / ₁₆ | 10,000 |
| 10 | 9 | 10,000 | |
| | 11 | 5,000 | |

| HUB | | | |
|--------------------------------|--------------------------------|--------------------------------|--------|
| Clamp Number | API Designated Size | Working Pressure (psi) | |
| 11 | 13 ⁵ / ₈ | 3,000 | |
| 12 | 16 ³ / ₄ | 2,000 | |
| 13 | 13 ⁵ / ₈ | 5,000 | |
| 14 | 16 ³ / ₄ | 3,000 | |
| 15 | 7 ¹ / ₁₆ | 20,000 | |
| | 11 | 15,000 | |
| 18 | 13 ⁵ / ₈ | 10,000 | |
| | 21 ¹ / ₄ | 2,000 | |
| 19 | 16 ³ / ₄ | 5,000 | |
| | 22 | 7 ¹ / ₁₆ | 15,000 |
| 22 | 11 | 10,000 | |
| | 25 | 7 ¹ / ₁₆ | 2,000 |
| | 26 | 16 ³ / ₄ | 15,000 |
| 21 ¹ / ₄ | | 10,000 | |
| 27 | 18 ³ / ₄ | 10,000 | |
| | 21 ¹ / ₄ | 5,000 | |
| 28 | 11 | 20,000 | |
| | 13 ⁵ / ₈ | 15,000 | |
| | 16 ³ / ₄ | 10,000 | |

Section 8a. API 16A Hubs and Clamps

Table 8a.7 RX & BX RTJ Ring Numbers for API Specification 16A Equipment

| Ring Number | API Designated Size | Rated Working Pressure | Ring Number | API Designated Size | Rated Working Pressure | Ring Number | API Designated Size | Rated Working Pressure |
|------------------------------------|--------------------------------|------------------------|-------------------------------------|--------------------------------|------------------------|-------------------------------------|--------------------------------|------------------------|
| Type 16B Integral Hub Connections: | | | Type 16BX Integral Hub Connections: | | | Type 16BX Integral Hub Connections: | | |
| RX 45 | 7 ¹ / ₁₆ | 2,000 | BX 156 | 7 ¹ / ₁₆ | 5,000 | BX 156 | 7 ¹ / ₁₆ | 15,000 |
| RX 65 | 16 ³ / ₄ | 2,000 | BX 157 | 9 | 5,000 | BX 158 | 11 | 15,000 |
| RX 73 | 21 ¹ / ₄ | 2,000 | BX 158 | 11 | 5,000 | BX 159 | 13 ⁵ / ₈ | 15,000 |
| RX 53 | 11 | 3,000 | BX 160 | 13 ⁵ / ₈ | 5,000 | BX 164 | 18 ³ / ₄ | 15,000 |
| RX 57 | 13 ⁵ / ₈ | 3,000 | BX 162 | 16 ³ / ₄ | 5,000 | BX 156 | 7 ¹ / ₁₆ | 20,000 |
| RX 65 | 16 ³ / ₄ | 3,000 | BX 165 | 21 ¹ / ₄ | 5,000 | BX 158 | 11 | 20,000 |
| | | | BX 156 | 7 ¹ / ₁₆ | 10,000 | | | |
| | | | BX 157 | 9 | 10,000 | | | |
| | | | BX 158 | 11 | 10,000 | | | |
| | | | BX 159 | 13 ⁵ / ₈ | 10,000 | | | |
| | | | BX 162 | 16 ³ / ₄ | 10,000 | | | |
| | | | BX 164 | 18 ³ / ₄ | 10,000 | | | |
| | | | BX 166 | 21 ¹ / ₄ | 10,000 | | | |

Section 8. Hubs and Clamps

Section 8b. Pipeline Hubs and Clamps

Hubs and Clamps are designed and manufactured in accordance with the following specifications:-

| | |
|----------------------|---|
| API 16A | Specification for Drill Through Equipment. |
| API 6A | Specification for Wellhead and Christmas Tree Equipment. |
| NACE MR-01-75 | Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment. |
| ASME VIII | Boiler and Pressure Vessel Code. |
| ANSI B31.3 | Chemical Plant and Petroleum Piping. |

Hubs are available as Weld Neck, Integral & Blinds and are available in the following materials and pressure ratings:-

| | HUBS | | | | CLAMPS | | SEALRINGS | |
|-------------------|--------------|--------------|------------|--------------|--------------|------------|--------------|-------------------|
| | A350 LF2 MoD | AISI 4130 | A182 F316L | A182 F51 | AISI 4140 | A182 F304 | AISI 4130 | A564 630 (17-4PH) |
| MIN. TENSILE | 70,000 PSI | 90,000 PSI | 75,000 PSI | 90,000 PSI | 100,000 PSI | 75,000PSI | 100,000 PSI | 115,000 PSI |
| MIN. YIELD | 52,000 PSI | 60,000 PSI | 30,000 PSI | 65,000 PSI | 75,000 PSI | 30,000 PSI | 75,000 PSI | 75,000 PSI |
| HARDNESS (MAX.) | 197 BHN | 235 BHN | N/A | 28HRC | 22 HRC | N/A | 22 HRC | 33 HRC |
| IMPACT VALUES | 54/40 JOULES | 40/32 JOULES | N/A | 70/65 JOULES | 42/32 JOULES | N/A | 27/20 JOULES | 27/20 JOULES |
| IMPACT TEST TEMP. | -46 DEG C | -46 DEG C | N/A | -46 DEG C | -46 DEG C | N/A | -46 DEG C | -46 DEG C |
| TEMPER TEMP | 650 DEG C | 650 DEG C | N/A | N/A | 620 DEG C | N/A | N/A | N/A |

GENERAL NOTE: Please contact GonPetro for any special material or dimensional requirements.

Section 8b. Pipeline Hubs and Clamps

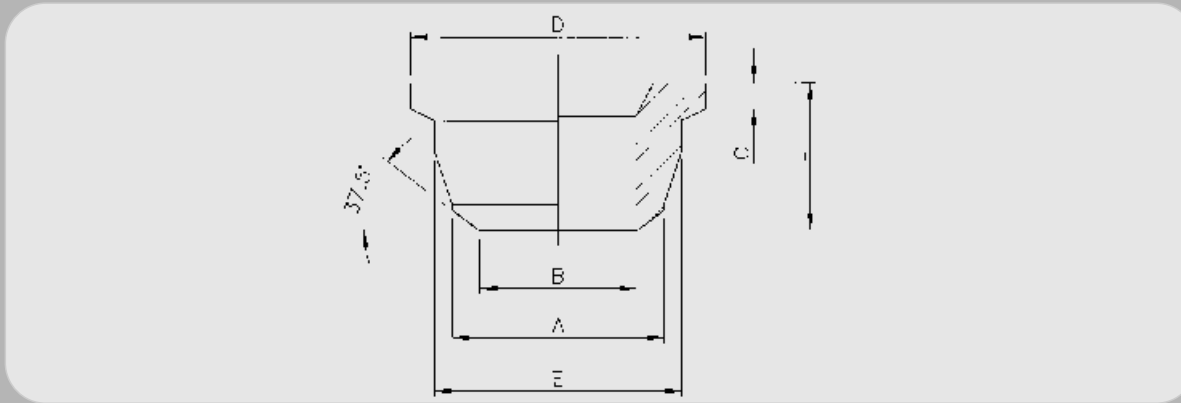


Table 8b.1 Butt Weld Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|-------|---------------------|-----|-----|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg | |
| 1/2" | (DN 15) | Std 40 40S | 1in/5 | 0.622 | 15.8 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.6 | 0.3 | |
| | | 0.840 | XS 80 80S | 1in/5 | 0.546 | 13.9 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.6 | 0.3 |
| | | 160 | 1in/4 | 0.466 | 11.8 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.6 | 0.3 | |
| | | XXS | 1in/4 | 0.252 | 6.4 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.7 | 0.3 | |
| 3/4" | (DN20) | Std 40 40S | 1in/7 | 0.824 | 20.9 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.5 | 0.2 | |
| | | 1.050 | XS 80 80S | 1in/7 | 0.742 | 18.8 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.6 | 0.3 |
| | | 160 | 1in/5 | 0.614 | 15.6 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.7 | 0.3 | |
| | | XXS | 1in/4 | 0.434 | 11.0 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.7 | 0.3 | |
| 1" | (DN25) | Std 40 40S | 1in/11 | 1.049 | 26.6 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.5 | 0.2 | |
| | | 1.315 | XS 80 80S | 1in/11 | 0.957 | 24.3 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.5 | 0.2 |
| | | 160 | 1in/7 | 0.815 | 20.7 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.6 | 0.3 | |
| | | XXS | 1in/5 | 0.599 | 15.2 | 2.000 | 50.8 | 1.750 | 44.5 | 1.500 | 38.1 | 0.313 | 8.0 | 0.7 | 0.3 | |

Table 8b.1 Butt Weld Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|------|---------------------|-----|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 1 ½" | (DN40) | Std 40 40S | 1-½in/14 | 1.610 | 40.9 | 3.125 | 79.4 | 2.375 | 60.3 | 2.375 | 60.3 | 0.473 | 11.1 | 1.6 | 0.7 |
| 1.900 | (48.3) | XS 80 80S | 1-½in/13 | 1.500 | 38.1 | 3.125 | 79.4 | 2.375 | 60.3 | 2.375 | 60.3 | 0.500 | 12.7 | 1.9 | 0.8 |
| | | 160 | 1-½in/13 | 1.338 | 34.0 | 3.125 | 79.4 | 2.375 | 60.3 | 2.375 | 60.3 | 0.500 | 12.7 | 2.0 | 0.9 |
| | | XXS | 1-½in/11 | 1.100 | 27.9 | 3.125 | 79.4 | 2.375 | 60.3 | 2.375 | 60.3 | 0.500 | 12.7 | 2.4 | 1.1 |
| 2" | (DN50) | Std 40 40S | 2in/20 | 2.067 | 52.5 | 3.625 | 92.1 | 2.750 | 69.9 | 2.875 | 73.0 | 0.473 | 11.1 | 2.2 | 1.0 |
| 2.375 | (60.3) | XS 80 80S | 2in/20 | 1.939 | 49.3 | 3.625 | 92.1 | 2.750 | 69.9 | 2.875 | 73.0 | 0.473 | 11.1 | 2.5 | 1.1 |
| | | 160 | 2in/16 | 1.689 | 42.9 | 3.625 | 92.1 | 2.750 | 69.9 | 2.875 | 73.0 | 0.473 | 11.1 | 3.0 | 1.4 |
| | | XXS | 2in/14 | 1.503 | 38.2 | 3.625 | 92.1 | 2.750 | 69.9 | 2.875 | 73.0 | 0.473 | 11.1 | 3.4 | 1.5 |
| 3" | (DN75) | Std 40 40S | 3in/27 | 3.068 | 77.9 | 5.000 | 127.0 | 3.250 | 82.6 | 4.000 | 101.6 | 0.500 | 12.7 | 4.7 | 2.1 |
| 3.500 | (88.9) | XS 80 80S | 3in/27 | 2.900 | 73.7 | 5.000 | 127.0 | 3.250 | 82.6 | 4.000 | 101.6 | 0.500 | 12.7 | 5.2 | 2.4 |
| | | 160 | 3in/26 | 2.624 | 66.6 | 5.000 | 127.0 | 3.250 | 82.6 | 4.000 | 101.6 | 0.500 | 12.7 | 6.3 | 2.9 |
| | | XXS | 3in/23 | 2.300 | 58.4 | 5.000 | 127.0 | 3.250 | 82.6 | 4.000 | 101.6 | 0.500 | 12.7 | 7.4 | 3.3 |
| 4" | (DN100) | Std 40 40S | 4in/40 | 4.026 | 102.3 | 6.000 | 152.4 | 3.625 | 92.1 | 5.000 | 127.0 | 0.500 | 12.7 | 6.7 | 3.1 |
| 4.500 | (114.3) | XS 80 80S | 4in/40 | 3.826 | 97.2 | 6.000 | 152.4 | 3.625 | 92.1 | 5.000 | 127.0 | 0.500 | 12.7 | 7.7 | 3.5 |
| | | 160 | 4in/34 | 3.438 | 87.3 | 6.000 | 152.4 | 3.625 | 92.1 | 5.000 | 127.0 | 0.500 | 12.7 | 10.0 | 4.5 |
| | | XXS | 4in/31 | 3.152 | 80.1 | 6.000 | 152.4 | 3.625 | 92.1 | 5.000 | 127.0 | 0.500 | 12.7 | 11.5 | 5.2 |
| 5" | (DN125) | Std 40 40S | 5in/52 | 5.047 | 128.2 | 7.500 | 190.5 | 4.375 | 111.1 | 6.500 | 165.1 | 0.625 | 15.9 | 13.3 | 6.0 |
| 5.563 | (141.3) | XS 80 80S | 5in/52 | 4.813 | 122.3 | 7.500 | 190.5 | 4.375 | 111.1 | 6.500 | 165.1 | 0.625 | 15.9 | 14.8 | 6.7 |
| | | 160 | 5in/46 | 4.313 | 109.6 | 7.500 | 190.5 | 4.375 | 111.1 | 6.500 | 165.1 | 0.625 | 15.9 | 19.2 | 8.7 |
| | | XXS | 5in/40 | 4.063 | 103.2 | 7.500 | 190.5 | 4.375 | 111.1 | 6.500 | 165.1 | 0.625 | 15.9 | 21.9 | 9.9 |
| 6" | (DN150) | Std 40 40S | 6in/62 | 6.065 | 154.1 | 9.250 | 235.0 | 4.625 | 117.5 | 7.750 | 196.9 | 0.750 | 19.1 | 20.4 | 9.2 |

Section 8. Pipeline Hubs and Clamps

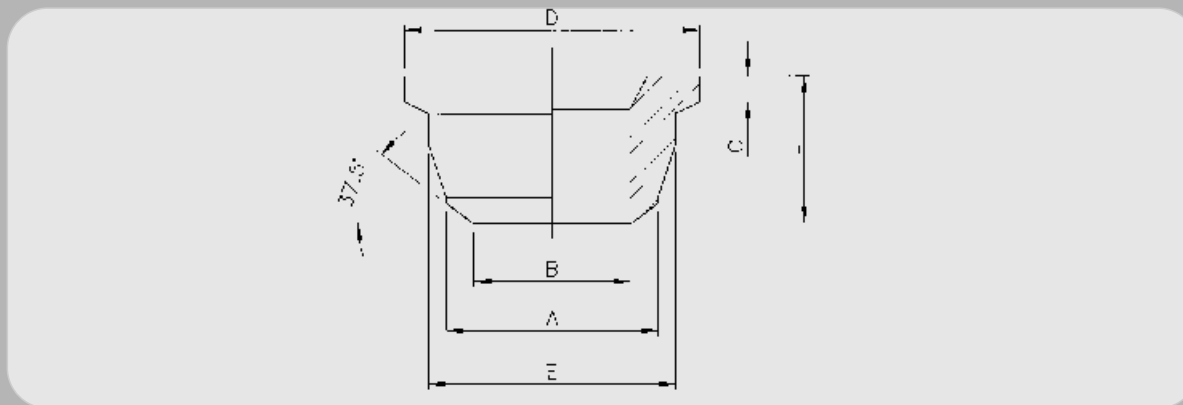


Table 8b.1 Butt Weld Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 6.625 | (168.3) | XS 80 80S | 6in/56 | 5.761 | 146.3 | 9.250 | 235.0 | 4.625 | 117.5 | 7.750 | 196.9 | 0.812 | 20.6 | 24.9 | 11.3 |
| | | 120 | 6in/54 | 5.501 | 139.7 | 9.250 | 235.0 | 4.625 | 117.5 | 7.750 | 196.9 | 0.812 | 20.6 | 27.7 | 12.6 |
| | | 160 | 6in/52 | 5.189 | 131.8 | 9.250 | 235.0 | 4.625 | 117.5 | 7.750 | 196.9 | 0.812 | 20.6 | 30.7 | 13.9 |
| | | XXS | 6in/52 | 4.897 | 124.4 | 9.250 | 235.0 | 4.625 | 117.5 | 7.750 | 196.9 | 0.812 | 20.6 | 32.7 | 14.8 |
| 8" | (DN200) | Std 40 40S | 8in/82 | 7.981 | 202.7 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 33.0 | 15.0 |
| 8.625 | (219.1) | XS 80 80S | 8in/76 | 7.625 | 193.7 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 40.3 | 18.3 |
| | | 100 | 8in/76 | 7.439 | 189.0 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 42.4 | 19.2 |
| | | 120 | 8in/72 | 7.189 | 182.6 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 47.8 | 21.7 |
| | | 140 | 8in/72 | 7.001 | 177.8 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 49.9 | 22.6 |
| | | XXS | 8in/67 | 6.875 | 174.6 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 52.9 | 24.0 |
| | | 160 | 8in/67 | 6.813 | 173.1 | 11.500 | 292.1 | 5.375 | 136.5 | 10.000 | 254.0 | 0.750 | 19.1 | 53.6 | 24.3 |

Section 8b. Pipeline Hubs and Clamps

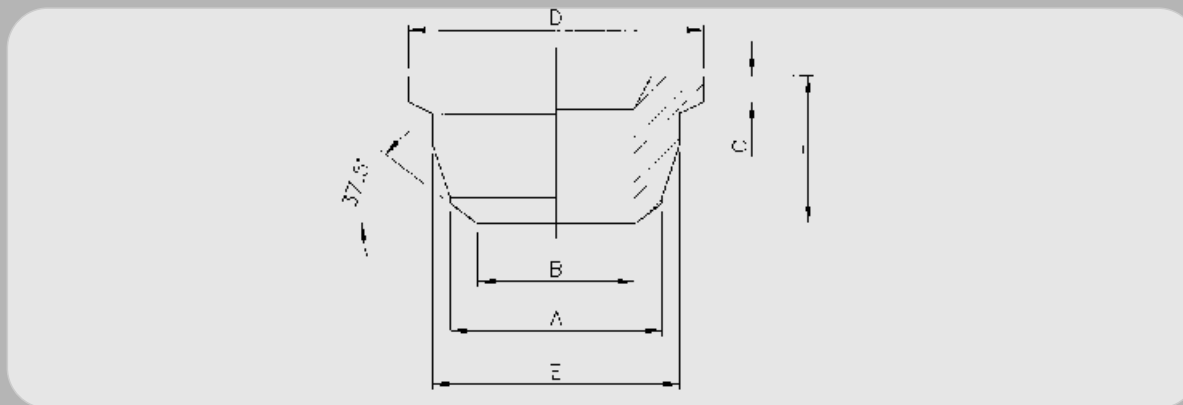


Table 8b.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 2" | (DN50) | Std 40 40S | H2in/20 | 2.067 | 52.5 | 4.750 | 120.7 | 3.250 | 82.6 | 3.750 | 95.3 | 0.625 | 15.9 | 6.2 | 2.8 |
| 2.375 | (60.3) | XS 80 80S | H2in/20 | 1.939 | 49.3 | 4.750 | 120.7 | 3.250 | 82.6 | 3.750 | 95.3 | 0.625 | 15.9 | 6.5 | 2.9 |
| | | 160 | H2in/16 | 1.689 | 42.9 | 4.750 | 120.7 | 3.250 | 82.6 | 3.750 | 95.3 | 0.625 | 15.9 | 7.1 | 3.2 |
| | | XXS | H2in/14 | 1.503 | 38.2 | 4.750 | 120.7 | 3.250 | 82.6 | 3.750 | 95.3 | 0.625 | 15.9 | 7.5 | 3.4 |
| 3" | (DN75) | Std 40 40S | H3in/27 | 3.068 | 77.9 | 5.500 | 139.7 | 3.500 | 88.9 | 4.500 | 114.3 | 0.625 | 15.9 | 7.3 | 3.3 |
| 3.500 | (88.9) | XS 80 80S | H3in/27 | 2.900 | 73.7 | 5.500 | 139.7 | 3.500 | 88.9 | 4.500 | 114.3 | 0.625 | 15.9 | 8.0 | 3.6 |
| | | 160 | H3in/25 | 2.624 | 66.6 | 5.500 | 139.7 | 3.500 | 88.9 | 4.500 | 114.3 | 0.625 | 15.9 | 9.2 | 4.2 |
| | | XXS | H3in/23 | 2.300 | 58.4 | 5.500 | 139.7 | 3.500 | 88.9 | 4.500 | 114.3 | 0.625 | 15.9 | 10.3 | 4.7 |
| 4" | (DN100) | Std 40 40S | H4in/40 | 4.026 | 102.3 | 6.750 | 171.5 | 4.000 | 101.6 | 5.750 | 146.1 | 0.625 | 15.9 | 11.9 | 5.4 |
| 4.500 | (114.3) | XS 80 80S | H4in/40 | 3.826 | 97.2 | 6.750 | 171.5 | 4.000 | 101.6 | 5.750 | 146.1 | 0.625 | 15.9 | 13.0 | 5.9 |
| | | 160 | H4in/34 | 3.438 | 87.3 | 6.750 | 171.5 | 4.000 | 101.6 | 5.750 | 146.1 | 0.625 | 15.9 | 15.5 | 7.0 |
| | | XXS | H4in/31 | 3.152 | 80.1 | 6.750 | 171.5 | 4.000 | 101.6 | 5.750 | 146.1 | 0.625 | 15.9 | 17.2 | 7.8 |
| 8" | (DN200) | Std 40 40S | H8in/82 | 7.981 | 202.7 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 31.6 | 14.3 |

Section 8b. Pipeline Hubs and Clamps

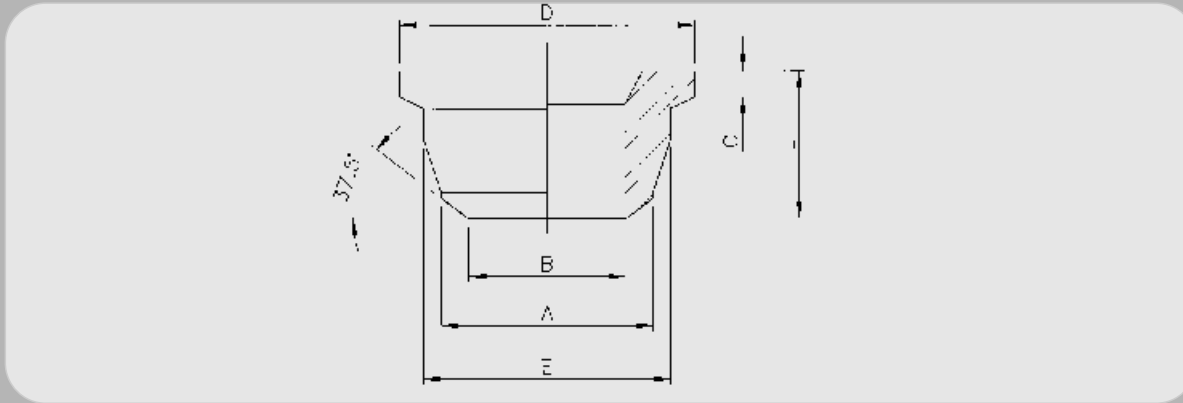


Table 8b.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 8.625 | (219.1) | XS 80 80S | H8in/76 | 7.625 | 193.7 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 38.3 | 17.4 |
| | | 100 | H8in/76 | 7.439 | 189.0 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 40.3 | 18.3 |
| | | 120 | H8in/72 | 7.189 | 182.6 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 45.4 | 20.6 |
| | | 140 | H8in/72 | 7.001 | 177.8 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 47.2 | 21.4 |
| | | XXS | H8in/67 | 6.875 | 174.6 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 50.1 | 22.7 |
| | | 160 | H8in/67 | 6.813 | 173.1 | 11.500 | 292.1 | 5.000 | 127.0 | 9.500 | 241.3 | 1.000 | 25.4 | 50.7 | 23.0 |
| 10" | (DN250) | Std 40 40S | H10in/102 | 10.020 | 254.5 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 49.9 | 22.6 |
| 10.750 | (273.1) | XS 60 80S | H10in/97 | 9.750 | 247.7 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 57.5 | 26.1 |
| | | 80 | H10in/97 | 9.564 | 242.9 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 60.7 | 27.6 |
| | | 100 | H10in/94 | 9.314 | 236.6 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 67.6 | 30.7 |
| | | 120 | H10in/94 | 9.064 | 230.2 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 71.4 | 32.4 |
| | | XXS 140 | H10in/87 | 8.750 | 222.3 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 80.5 | 36.5 |
| | | 160 | H10in/84 | 8.500 | 215.9 | 13.625 | 346.1 | 6.000 | 152.4 | 11.625 | 295.3 | 1.250 | 31.8 | 86.2 | 39.1 |
| 12" | (DN300) | Std 40S | H12in/120 | 12.000 | 304.8 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 77.1 | 35.0 |

Table 8b.2 Butt Weld Hubs Heavy Duty Clamp Series (Non-standard)

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness C | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|-------|-------------------------------|-------|-----------------------|------|---------------------|-------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 12.750 | (323.9) | 40 | H12in/120 | 11.938 | 303.2 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 78.8 | 35.8 |
| | | XS 80S | H12in/116 | 11.750 | 298.5 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 85.4 | 38.7 |
| | | 80 | H12in/116 | 11.376 | 289.0 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 94.4 | 42.8 |
| | | 100 | H12in/112 | 11.064 | 281.0 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.250 | 31.8 | 104.3 | 47.3 |
| | | XXS 120 | H12in/106 | 10.750 | 273.1 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 112.9 | 51.2 |
| | | 140 | H12in/106 | 10.500 | 266.7 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 118.3 | 53.7 |
| | | 160 | H12in/102 | 10.126 | 257.2 | 16.000 | 406.4 | 6.625 | 168.3 | 14.000 | 355.6 | 1.375 | 34.9 | 129.3 | 58.7 |
| 14" | (DN350) | 40 | H14in/134 | 13.124 | 333.3 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.187 | 30.1 | 124.7 | 56.6 |
| 14.000 | (355.6) | XS | H14in/130 | 13.000 | 330.2 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.187 | 30.1 | 133.2 | 60.4 |
| | | 80 | H14in/124 | 12.500 | 317.5 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.250 | 31.8 | 153.3 | 69.5 |
| | | 100 | H14in/124 | 12.124 | 307.9 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.250 | 31.8 | 163.8 | 74.3 |
| | | 120 | H14in/120 | 11.814 | 300.1 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.250 | 31.8 | 177.3 | 80.4 |
| | | 140 | H14in/116 | 11.500 | 292.1 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.250 | 31.8 | 187.2 | 84.9 |
| | | 160 | H14in/112 | 11.188 | 284.2 | 18.500 | 469.9 | 7.250 | 184.2 | 16.500 | 419.1 | 1.125 | 28.6 | 197.0 | 89.4 |
| 16" | (DN400) | XS 40 | H16in/152 | 15.000 | 381.0 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 194.8 | 88.4 |
| 16.000 | (406.4) | 60 | H16in/152 | 14.688 | 373.1 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 206.3 | 93.6 |
| | | 80 | H16in/144 | 14.314 | 363.6 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 229.1 | 103.9 |
| | | 100 | H16in/140 | 13.398 | 354.0 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 247.5 | 112.3 |
| | | 120 | H16in/137 | 13.564 | 344.5 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.625 | 41.3 | 260.5 | 118.2 |
| | | 140 | H16in/134 | 13.124 | 333.3 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 279.4 | 126.8 |
| | | 160 | H16in/130 | 12.812 | 325.4 | 21.000 | 533.4 | 7.875 | 200.0 | 19.000 | 482.6 | 1.688 | 42.9 | 293.9 | 133.3 |

Section 8b. Pipeline Hubs and Clamps

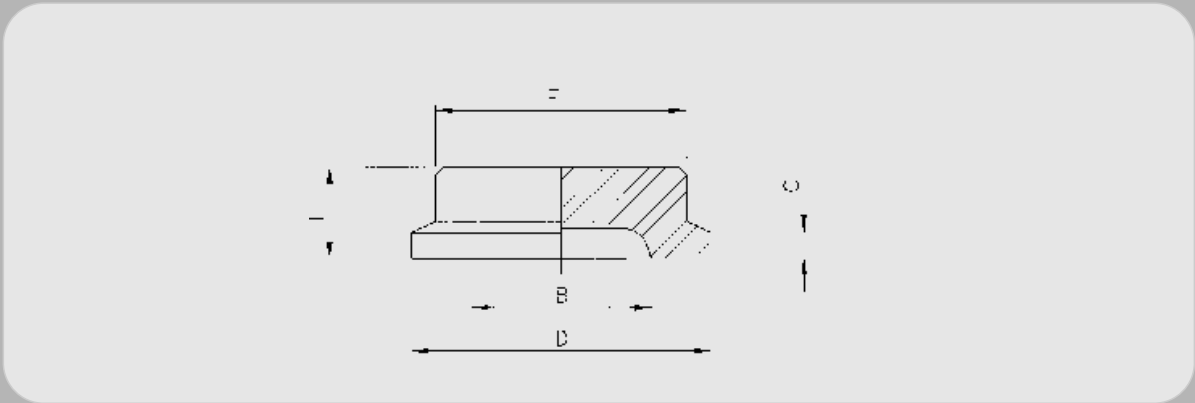


Table 8b.3 Blind Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|---------|------------------|--------------------------------------|------------------------------|------|------------------------------|------|--------------------|------|-------------------------------|------|-----------------------|------|---------------------|-----|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 1/2" | (DN 15) | Std 40 40S | 1in/5 | 0.622 | 15.8 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 0.840 | (21.3) | XS 80 80S | 1in/5 | 0.546 | 13.9 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | 160 | 1in/4 | 0.466 | 11.8 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | XXS | 1in/4 | 0.252 | 6.4 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 3/4" | (DN 20) | Std 40 40S | 1in/7 | 0.824 | 20.9 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 1.050 | (26.7) | XS 80 80S | 1in/7 | 0.742 | 18.8 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | 160 | 1in/5 | 0.614 | 15.6 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | XXS | 1in/4 | 0.434 | 11.0 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 1" | (DN 25) | Std 40 40S | 1in/11 | 1.049 | 26.6 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 1.315 | (33.4) | XS 80 80S | 1in/11 | 0.957 | 24.3 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | 160 | 1in/7 | 0.815 | 20.7 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| | | XXS | 1in/5 | 0.599 | 15.2 | 2.000 | 50.8 | 1.313 | 33.4 | 1.500 | 38.1 | 0.313 | 8.0 | 0.8 | 0.4 |
| 1 1/2" | (DN 40) | Std 40 40S | 1-1/2in/14 | 1.610 | 40.9 | 3.125 | 79.4 | 1.625 | 41.3 | 2.375 | 60.3 | 0.437 | 11.1 | 2.4 | 1.1 |
| | | XS 80 80S | 1-1/2in/13 | 1.500 | 38.1 | 3.125 | 79.4 | 1.625 | 41.3 | 2.375 | 60.3 | 0.500 | 12.7 | 2.5 | 1.1 |
| | | 160 | 1-1/2in/13 | 1.338 | 34.0 | 3.125 | 79.4 | 1.625 | 41.3 | 2.375 | 60.3 | 0.500 | 12.7 | 2.5 | 1.1 |
| | | XXS | 1-1/2in/11 | 1.100 | 27.9 | 3.125 | 79.4 | 1.625 | 41.3 | 2.375 | 60.3 | 0.500 | 12.7 | 2.5 | 1.1 |

Table 8b.3 Blind Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Hub Outside Diameter D | | Hub Length L | | Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|----------|------------------|--------------------------------------|------------------------------|-------|------------------------------|-------|--------------------|------|-------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 2" | (DN 50) | Std 40 40S | 2in/20 | 2.067 | 52.5 | 3.625 | 92.1 | 1.750 | 44.5 | 2.875 | 73.0 | 0.437 | 11.1 | 3.7 | 1.7 |
| 2.375 | (60.3) | XS 80 80S | 2in/20 | 1.939 | 49.3 | 3.625 | 92.1 | 1.750 | 44.5 | 2.875 | 73.0 | 0.437 | 11.1 | 3.7 | 1.7 |
| | | 160 | 2in/16 | 1.689 | 42.9 | 3.625 | 92.1 | 1.750 | 44.5 | 2.875 | 73.0 | 0.437 | 11.1 | 3.7 | 1.7 |
| | | XXS | 2in/14 | 1.503 | 38.2 | 3.625 | 92.1 | 1.750 | 44.5 | 2.875 | 73.0 | 0.437 | 11.1 | 3.7 | 1.7 |
| 3" | (DN 75) | Std 40 40S | 3in/27 | 3.068 | 77.9 | 5.000 | 127.0 | 1.875 | 47.6 | 4.000 | 101.6 | 0.500 | 12.7 | 7.7 | 3.5 |
| 3.500 | (88.9) | XS 80 80S | 3in/27 | 2.900 | 73.7 | 5.000 | 127.0 | 1.875 | 47.6 | 4.000 | 101.6 | 0.500 | 12.7 | 7.7 | 3.5 |
| | | 160 | 3in/25 | 2.624 | 66.6 | 5.000 | 127.0 | 1.875 | 47.6 | 4.000 | 101.6 | 0.500 | 12.7 | 7.7 | 3.5 |
| | | XXS | 3in/23 | 2.300 | 58.4 | 5.000 | 127.0 | 1.875 | 47.6 | 4.000 | 101.6 | 0.500 | 12.7 | 7.7 | 3.5 |
| 4" | (DN 100) | Std 40 40S | 4in/40 | 4.026 | 102.3 | 6.000 | 152.4 | 2.125 | 54.0 | 5.000 | 127.0 | 0.500 | 12.7 | 13.0 | 5.9 |
| 4.500 | (114.3) | XS 80 80S | 4in/40 | 3.826 | 97.2 | 6.000 | 152.4 | 2.125 | 54.0 | 5.000 | 127.0 | 0.500 | 12.7 | 13.0 | 5.9 |
| | | 160 | 4in/34 | 3.438 | 87.3 | 6.000 | 152.4 | 2.125 | 54.0 | 5.000 | 127.0 | 0.500 | 12.7 | 13.0 | 5.9 |
| | | XXS | 4in/31 | 3.152 | 80.1 | 6.000 | 152.4 | 2.125 | 54.0 | 5.000 | 127.0 | 0.500 | 12.7 | 13.0 | 5.9 |
| 5" | (DN 125) | Std 40 40S | 5in/52 | 5.047 | 128.2 | 7.500 | 190.5 | 2.750 | 69.9 | 6.500 | 165.1 | 0.625 | 15.9 | 27.8 | 12.6 |
| 5.563 | (141.3) | XS 80 80S | 5in/52 | 4.813 | 122.3 | 7.500 | 190.5 | 2.750 | 69.9 | 6.500 | 165.1 | 0.625 | 15.9 | 27.8 | 12.6 |
| | | 160 | 5in/46 | 4.313 | 109.6 | 7.500 | 190.5 | 2.750 | 69.9 | 6.500 | 165.1 | 0.625 | 15.9 | 27.8 | 12.6 |
| | | XXS | 5in/40 | 4.063 | 103.2 | 7.500 | 190.5 | 2.750 | 69.9 | 6.500 | 165.1 | 0.625 | 15.9 | 27.8 | 12.6 |
| 6" | (DN 150) | Std 40 40S | 6in/62 | 6.065 | 154.1 | 9.250 | 235.0 | 2.875 | 73.0 | 7.750 | 196.9 | 0.750 | 19.1 | 42.6 | 19.3 |
| 6.625 | (168.3) | XS 80 80S | 6in/56 | 5.761 | 146.3 | 9.250 | 235.0 | 2.875 | 73.0 | 7.750 | 196.9 | 0.812 | 20.6 | 43.0 | 19.5 |
| | | 120 | 6in/54 | 5.501 | 139.7 | 9.250 | 235.0 | 2.875 | 73.0 | 7.750 | 196.9 | 0.812 | 20.6 | 43.0 | 19.5 |
| | | 160 | 6in/52 | 5.189 | 131.8 | 9.250 | 235.0 | 2.875 | 73.0 | 7.750 | 196.9 | 0.812 | 20.6 | 43.0 | 19.5 |

Section 8b. Pipeline Hubs and Clamps

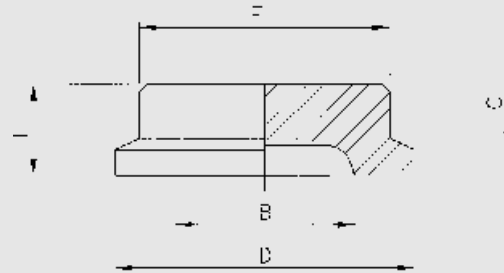


Table 8b.3 Blind Hubs Standard Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Blind Hub Diameter D | | Blind Hub Length L | | Blind Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|----------|------------------|--------------------------------------|------------------------------|-------|----------------------------|-------|--------------------------|------|-------------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| | | XXS | 6in/52 | 4.897 | 124.4 | 9.250 | 235.0 | 2.875 | 73.0 | 7.750 | 196.9 | 0.812 | 20.6 | 43.0 | 19.5 |
| 8" | (DN 200) | Std 40 40S | 8in/82 | 7.981 | 202.7 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| 8.625 | (168.3) | XS 80 80S | 8in/76 | 7.625 | 193.7 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| | | 100 | 8in/76 | 7.439 | 189.0 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| | | 120 | 8in/72 | 7.189 | 182.6 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| | | 140 | 8in/72 | 7.001 | 177.8 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| | | XXS | 8in/67 | 6.875 | 174.6 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |
| | | 160 | 8in/67 | 6.813 | 173.1 | 11.500 | 292.1 | 3.188 | 81.0 | 10.000 | 254.0 | 0.750 | 19.1 | 76.2 | 34.6 |

Section 8b. Pipeline Hubs and Clamps

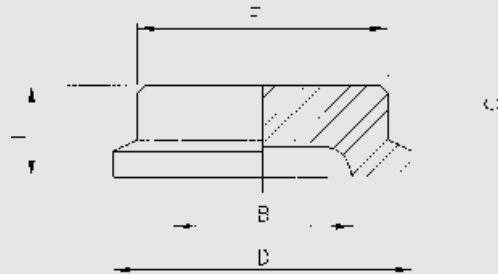


Table 8b.4 Blind Hubs Heavy Duty Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Blind Hub Diameter D | | Blind Hub Length L | | Blind Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|----------|------------------|--------------------------------------|------------------------------|-------|----------------------------|-------|--------------------------|------|-------------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 2" | (DN 50) | Std 40 40S | H2in/20 | 2.067 | 52.5 | 4.750 | 120.7 | 2.500 | 63.5 | 3.750 | 95.3 | 0.625 | 15.9 | 9.0 | 4.1 |
| 2.375 | (60.3) | XS 80 80S | H2in/20 | 1.939 | 49.3 | 4.750 | 120.7 | 2.500 | 63.5 | 3.750 | 95.3 | 0.625 | 15.9 | 9.0 | 4.1 |
| | | 160 | H2in/16 | 1.689 | 42.9 | 4.750 | 120.7 | 2.500 | 63.5 | 3.750 | 95.3 | 0.625 | 15.9 | 9.0 | 4.1 |
| | | XXS | H2in/14 | 1.503 | 38.2 | 4.750 | 120.7 | 2.500 | 63.5 | 3.750 | 95.3 | 0.625 | 15.9 | 9.0 | 4.1 |
| 3" | (DN 75) | Std 40 40S | H3in/27 | 3.068 | 77.9 | 5.500 | 139.7 | 2.625 | 66.7 | 4.500 | 144.3 | 0.625 | 15.9 | 13.2 | 6.0 |
| 3.500 | (88.9) | XS 80 80S | H3in/27 | 2.900 | 73.7 | 5.500 | 139.7 | 2.625 | 66.7 | 4.500 | 144.3 | 0.625 | 15.9 | 13.2 | 6.0 |
| | | 160 | H3in/25 | 2.624 | 66.6 | 5.500 | 139.7 | 2.625 | 66.7 | 4.500 | 144.3 | 0.625 | 15.9 | 13.2 | 6.0 |
| | | XXS | H3in/23 | 2.300 | 58.4 | 5.500 | 139.7 | 2.625 | 66.7 | 4.500 | 144.3 | 0.625 | 15.9 | 13.2 | 6.0 |
| 4" | (DN 100) | Std 40 40S | H4in/40 | 4.026 | 102.3 | 6.750 | 171.5 | 3.250 | 82.6 | 5.750 | 146.1 | 0.625 | 15.9 | 25.6 | 11.6 |
| 4.500 | (114.3) | XS 80 80S | H4in/40 | 3.826 | 97.2 | 6.750 | 171.5 | 3.250 | 82.6 | 5.750 | 146.1 | 0.625 | 15.9 | 25.6 | 11.6 |
| | | 160 | H4in/34 | 3.483 | 87.3 | 6.750 | 171.5 | 3.250 | 82.6 | 5.750 | 146.1 | 0.625 | 15.9 | 25.6 | 11.6 |
| | | XXS | H4in/31 | 3.152 | 80.1 | 6.750 | 171.5 | 3.250 | 82.6 | 5.750 | 146.1 | 0.625 | 15.9 | 25.6 | 11.6 |

Section 8b. Pipeline Hubs and Clamps

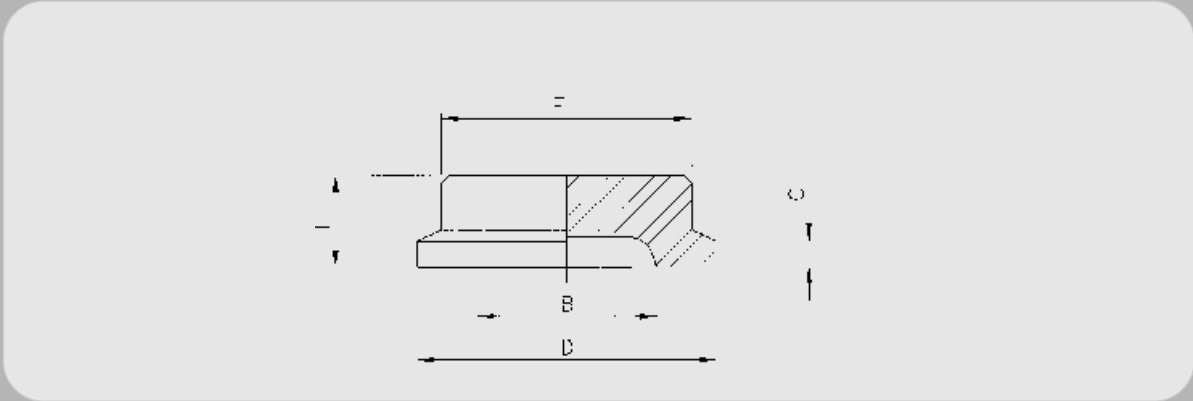


Table 8b.4 Blind Hubs Heavy Duty Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Blind Hub Diameter D | | Blind Hub Length L | | Blind Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|----------|------------------|--------------------------------------|------------------------------|-------|----------------------------|-------|--------------------------|------|-------------------------------------|-------|-----------------------|------|---------------------|------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 8" | (DN 200) | Std 40 40S | H8in/82 | 7.981 | 202.7 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| 8.625 | (219.1) | XS 80 80S | H8in/76 | 7.625 | 193.7 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| | | 100 | H8in/76 | 7.439 | 189.0 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| | | 120 | H8in/72 | 7.189 | 182.6 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| | | 140 | H8in/72 | 7.001 | 177.8 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| | | XXS | H8in/67 | 6.875 | 174.6 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| | | 160 | H8in/67 | 6.813 | 173.1 | 11.500 | 292.1 | 3.500 | 88.9 | 9.500 | 241.3 | 1.000 | 25.4 | 79.5 | 36.1 |
| 10" | (DN 250) | Std 40 40S | H10in/102 | 10.020 | 254.5 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| 10.750 | (273.1) | XS 60 80S | H10in/97 | 9.750 | 247.7 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| | | 80 | H10in/97 | 9.564 | 242.9 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| | | 100 | H10in/94 | 9.314 | 236.6 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| | | 120 | H10in/94 | 9.064 | 230.2 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| | | XXS 140 | H10in/87 | 8.750 | 222.3 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |
| | | 160 | H10in/84 | 8.500 | 215.9 | 13.625 | 346.1 | 3.188 | 81.0 | 11.625 | 295.3 | 1.250 | 31.8 | 109.8 | 49.8 |

Table 8b.4 Blind Hubs Heavy Duty Clamp Series

| N.P.S. O.Dia A | (DN) | Pipe Schedule | Typical Designation Hub/S.Ring | Pipe Inside Diameter B | | Blind Hub Diameter D | | Blind Hub Length L | | Blind Hub Backface Diameter E | | Lip Thickness G | | BW Hub Weight | |
|----------------------|----------|------------------|--------------------------------------|------------------------------|-------|----------------------------|-------|--------------------------|-------|-------------------------------------|-------|-----------------------|------|---------------------|-------|
| | | | | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 12" | (DN 300) | Std 40S | H12in/120 | 12.000 | 304.8 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| 12.750 | (232.9) | 40 | H12in/120 | 11.938 | 303.2 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| | | XS 80S | H12in/116 | 11.750 | 298.5 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| | | 80 | H12in/116 | 11.376 | 298.0 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| | | 100 | H12in/112 | 11.064 | 281.0 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 31.8 | 182.8 | 82.9 |
| | | XXS 120 | H12in/106 | 10.750 | 273.1 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| | | 140 | H12in/106 | 10.500 | 266.7 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| | | 160 | H12in/102 | 10.126 | 257.2 | 16.000 | 406.4 | 3.813 | 96.9 | 14.000 | 355.6 | 1.375 | 34.9 | 184.5 | 83.7 |
| 14" | (DN 350) | 40 | H14in/134 | 13.124 | 333.3 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.187 | 30.1 | 290.8 | 131.9 |
| 14.000 | (355.6) | XS | H14in/130 | 13.000 | 320.2 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.187 | 30.1 | 290.8 | 131.9 |
| | | 80 | H14in/124 | 12.500 | 317.5 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.250 | 30.8 | 291.8 | 132.3 |
| | | 100 | H14in/124 | 12.124 | 307.9 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.250 | 30.8 | 291.8 | 132.3 |
| | | 120 | H14in/120 | 11.814 | 300.1 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.250 | 30.8 | 291.8 | 132.3 |
| | | 140 | H14in/116 | 11.500 | 292.1 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.250 | 30.8 | 291.8 | 132.3 |
| | | 160 | H14in/112 | 11.188 | 284.2 | 18.500 | 469.9 | 4.500 | 114.3 | 16.500 | 419.1 | 1.125 | 28.6 | 289.8 | 131.5 |
| 16" | (DN 400) | XS 40 | H16in/152 | 15.000 | 381.0 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 431.2 | 195.6 |
| 16.000 | (406.4) | 60 | H16in/152 | 14.688 | 373.1 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 431.5 | 195.7 |
| | | 80 | H16in/144 | 14.314 | 363.6 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 431.8 | 195.9 |
| | | 100 | H16in/140 | 13.938 | 354.0 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 432.1 | 196.0 |
| | | 120 | H16in/137 | 13.564 | 344.5 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.625 | 41.3 | 431.2 | 195.6 |
| | | 140 | H16in/134 | 13.124 | 333.3 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 432.6 | 196.2 |
| | | 160 | H16in/130 | 12.812 | 325.4 | 21.000 | 533.4 | 5.000 | 127.0 | 19.000 | 482.6 | 1.688 | 42.9 | 432.9 | 196.4 |

Section 8b. Pipeline Hubs and Clamps

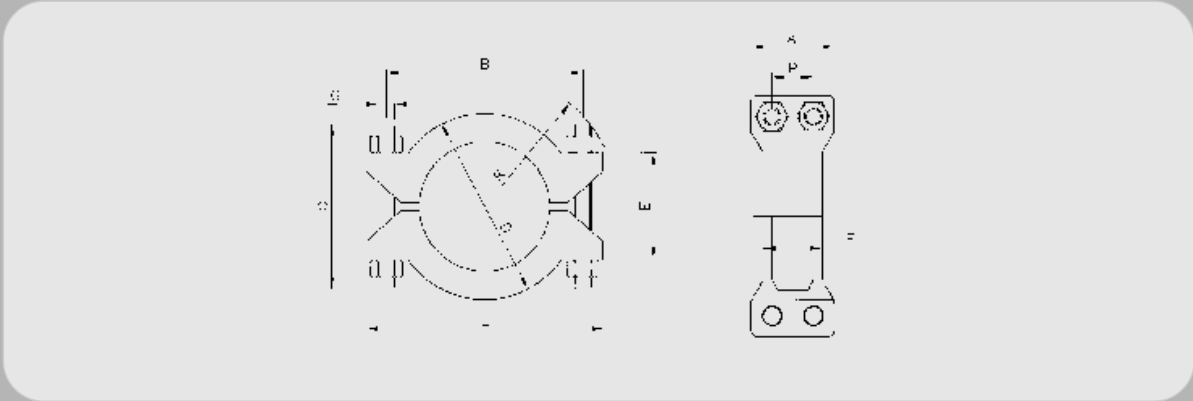


Table 8b.5 Clamps

| Clamp Bolts Coating | Bolt Centres B | | Clamp OD D | | Overall Length L | | Clamp Width F | | Lug Separation E | | Clamp Clearance R | | Bolt Dia G | | Bolt Length C | | Bolt Lug Width A | | Bolt Pitch P | | Clamp Weight | | |
|------------------------------|----------------|-------|------------|------|------------------|-------|---------------|------|------------------|------|-------------------|------|------------|-------|---------------|-------|------------------|------|--------------|------|--------------|------|------|
| | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg | |
| Standard Series Clamp size | | | | | | | | | | | | | | | | | | | | | | | |
| | 1" | 3.25 | 83 | 2.81 | 71 | 4.25 | 108 | 1.38 | 35 | 2.13 | 54 | 2.63 | 67 | 0.500 | 13 | 3.50 | 89 | 2.25 | 57 | 1.25 | 32 | 4.2 | 1.9 |
| 1 | ½" | 5.00 | 127 | 4.50 | 114 | 6.50 | 165 | 2.00 | 51 | 3.25 | 83 | 4.00 | 102 | 0.625 | 16 | 5.00 | 127 | 3.13 | 79 | 1.63 | 41 | 9.9 | 4.5 |
| | 2" | 5.75 | 146 | 5.50 | 140 | 7.50 | 191 | 2.00 | 51 | 3.63 | 92 | 4.50 | 114 | 0.750 | 19 | 5.25 | 133 | 3.38 | 86 | 1.81 | 46 | 13.2 | 6.0 |
| | 3" | 7.50 | 191 | 6.88 | 175 | 9.25 | 235 | 2.38 | 60 | 4.50 | 114 | 5.25 | 133 | 0.750 | 19 | 6.50 | 165 | 3.38 | 86 | 1.81 | 46 | 23.6 | 10.7 |
| | 4" | 8.50 | 216 | 8.25 | 210 | 10.50 | 267 | 2.38 | 60 | 5.25 | 133 | 6.00 | 152 | 0.875 | 22 | 7.50 | 191 | 4.00 | 102 | 2.06 | 52 | 28.7 | 13.0 |
| | 5" | 10.25 | 260 | 9.88 | 251 | 12.38 | 314 | 3.13 | 79 | 6.13 | 156 | 7.25 | 184 | 1.000 | 25 | 8.00 | 203 | 4.50 | 114 | 2.31 | 59 | 41.0 | 18.6 |
| | 6" | 12.63 | 321 | 12.0 | 305 | 15.25 | 387 | 3.75 | 95 | 6.63 | 168 | 8.75 | 222 | 1.125 | 29 | 10.00 | 254 | 5.25 | 133 | 2.44 | 62 | 70.3 | 31.9 |
| | 8" | 15.25 | 387 | 14.5 | 386 | 18.5 | 470 | 3.75 | 95 | 7.5 | 191 | 9.88 | 251 | 1.250 | 32 | 10.50 | 267 | 5.75 | 146 | 2.88 | 73 | 110 | 50.0 |
| Heavy Duty Series Clamp size | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | " | 7.25 | 184 | 6.88 | 175 | 9.00 | 229 | 2.88 | 73 | 5.00 | 127 | 5.63 | 143 | 0.875 | 22 | 7.50 | 191 | 3.75 | 95 | 2.00 | 51 | 24.3 | 11.0 |
| 3 | " | 8.00 | 203 | 7.75 | 197 | 10.00 | 254 | 3.00 | 76 | 5.25 | 133 | 6.13 | 156 | 0.875 | 22 | 7.50 | 191 | 4.00 | 102 | 2.06 | 52 | 33.1 | 15.0 |
| | 4" | 9.56 | 243 | 9.00 | 229 | 11.75 | 298 | 3.00 | 76 | 5.75 | 146 | 7.00 | 178 | 1.000 | 25 | 8.00 | 203 | 4.38 | 111 | 2.31 | 59 | 39.9 | 18.1 |

Table 8b.5 Clamps

| Clamp Bolts Coating | Bolt Centres B | | Clamp OD D | | Overall Length L | | Clamp Width F | | Lug Separation E | | Clamp Clearance R | | Bolt Dia G | | Bolt Length C | | Bolt Lug Width A | | Bolt Pitch P | | Clamp Weight | |
|---------------------|----------------|-----|------------|-----|------------------|-----|---------------|-----|------------------|-----|-------------------|-----|------------|----|---------------|-----|------------------|-----|--------------|-----|--------------|-------|
| | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | ins | mm | lb | kg |
| 8 “ | 16.00 | 406 | 14.75 | 375 | 18.63 | 473 | 4.50 | 114 | 7.00 | 178 | 10.75 | 273 | 1.375 | 35 | 11.00 | 279 | 5.88 | 149 | 3.13 | 79 | 138 | 62.6 |
| 10” | 18.25 | 464 | 17.63 | 448 | 22.50 | 572 | 5.50 | 140 | 10.00 | 254 | 12.75 | 324 | 1.625 | 41 | 14.25 | 362 | 7.25 | 184 | 3.63 | 92 | 243 | 110.0 |
| 12” | 21.00 | 533 | 20.38 | 518 | 25.00 | 635 | 5.75 | 146 | 10.63 | 270 | 14.25 | 362 | 1.750 | 44 | 17.00 | 432 | 7.50 | 191 | 3.75 | 95 | 320 | 145.0 |
| 14” | 24.75 | 629 | 23.00 | 584 | 29.25 | 743 | 6.13 | 156 | 12.25 | 311 | 16.25 | 413 | 1.875 | 48 | 16.50 | 419 | 8.25 | 210 | 4.25 | 108 | 430 | 195.0 |
| 16” | 29.25 | 743 | 27.19 | 691 | 34.25 | 870 | 7.63 | 194 | 13.50 | 343 | 19.13 | 486 | 2.250 | 57 | 22.00 | 559 | 9.63 | 244 | 5.00 | 127 | 683 | 310.0 |

Section 8b. Pipeline Hubs and Clamps

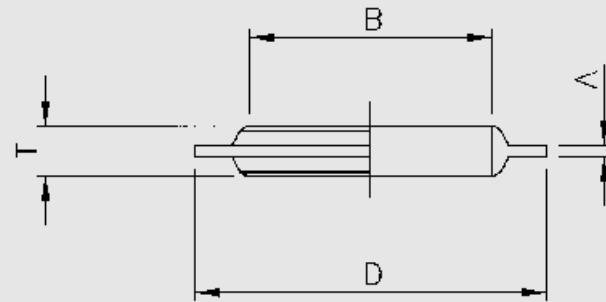


Table 8b.6 Sealrings

| Sealring Size | Outside Diameter D | | Inside Diameter B | | Rib Thickness A | | Overall Thickness T | | Sealring Weight | |
|---------------|--------------------|------|-------------------|------|-----------------|-----|---------------------|------|-----------------|------|
| | ins | mm | ins | mm | ins | mm | ins | mm | lbs | kg |
| 4 | 1.000 | 25.4 | 0.500 | 12.7 | 0.125 | 3.2 | 0.375 | 9.5 | 0.03 | 0.01 |
| 5 | 1.094 | 27.8 | 0.625 | 15.9 | 0.125 | 3.2 | 0.375 | 9.5 | 0.03 | 0.01 |
| 7 | 1.375 | 34.9 | 0.906 | 23 | 0.125 | 3.2 | 0.375 | 9.5 | 0.04 | 0.02 |
| 11 | 1.750 | 44.5 | 1.125 | 28.6 | 0.125 | 3.2 | 0.375 | 9.5 | 0.06 | 0.03 |
| 13 | 2.375 | 60.3 | 1.500 | 38.1 | 0.125 | 3.2 | 0.375 | 9.5 | 0.11 | 0.05 |
| 14 | 2.625 | 66.7 | 1.609 | 40.9 | 0.250 | 6.4 | 0.563 | 14.3 | 0.28 | 0.13 |
| 16 | 2.750 | 69.9 | 1.868 | 47.4 | 0.250 | 6.4 | 0.625 | 15.9 | 0.28 | 0.13 |
| 20 | 3.250 | 82.6 | 2.063 | 52.4 | 0.250 | 6.4 | 0.750 | 19.1 | 0.45 | 0.2 |
| 23 | 3.500 | 88.9 | 2.375 | 60.3 | 0.250 | 6.4 | 0.750 | 19.1 | 0.48 | 0.22 |
| 25 | 4.000 | 102 | 2.672 | 67.9 | 0.250 | 6.4 | 0.750 | 19.1 | 0.62 | 0.28 |
| 27 | 4.250 | 108 | 3.063 | 77.8 | 0.250 | 6.4 | 0.750 | 19.1 | 0.62 | 0.28 |
| 31 | 4.500 | 114 | 3.250 | 82.6 | 0.250 | 6.4 | 0.750 | 19.1 | 0.69 | 0.31 |
| 34 | 5.000 | 127 | 3.688 | 93.7 | 0.250 | 6.4 | 0.750 | 19.1 | 0.80 | 0.36 |
| 40 | 5.500 | 140 | 4.063 | 103 | 0.250 | 6.4 | 1.000 | 25.4 | 1.13 | 0.51 |

Table 8b.6 Sealrings

| Sealring Size | Outside Diameter D | | Inside Diameter B | | Rib Thickness A | | Overall Thickness T | | Sealring Weight | |
|---------------|--------------------|-----|-------------------|-----|-----------------|------|---------------------|------|-----------------|------|
| | ins | mm | ins | mm | ins | mm | ins | mm | lbs | kg |
| 42 | 6.375 | 162 | 4.188 | 106 | 0.250 | 6.4 | 1.000 | 25.4 | 1.68 | 0.76 |
| 46 | 6.250 | 159 | 4.750 | 121 | 0.250 | 6.4 | 1.000 | 25.4 | 1.34 | 0.61 |
| 52 | 6.625 | 168 | 5.313 | 135 | 0.250 | 6.4 | 1.000 | 25.4 | 1.33 | 0.60 |
| 54 | 6.812 | 173 | 5.500 | 140 | 0.250 | 6.4 | 1.000 | 25.4 | 1.57 | 0.71 |
| 56 | 7.500 | 191 | 5.750 | 146 | 0.250 | 6.4 | 1.000 | 25.4 | 1.82 | 0.83 |
| 62 | 7.875 | 200 | 6.065 | 154 | 0.375 | 9.5 | 1.375 | 34.9 | 3.13 | 1.42 |
| 64 | 8.625 | 219 | 6.500 | 165 | 0.375 | 9.5 | 1.375 | 34.9 | 3.80 | 1.72 |
| 67 | 8.750 | 222 | 6.875 | 175 | 0.375 | 9.5 | 1.375 | 34.9 | 3.61 | 1.64 |
| 72 | 9.500 | 241 | 7.250 | 184 | 0.375 | 9.5 | 1.375 | 34.9 | 4.40 | 2.00 |
| 76 | 10.000 | 254 | 7.750 | 197 | 0.375 | 9.5 | 1.375 | 34.9 | 4.67 | 2.12 |
| 82 | 10.125 | 257 | 8.250 | 210 | 0.375 | 9.5 | 1.375 | 34.9 | 4.26 | 1.93 |
| 84 | 11.125 | 283 | 8.500 | 216 | 0.375 | 9.5 | 1.375 | 34.9 | 5.79 | 2.63 |
| 87 | 11.375 | 289 | 8.875 | 225 | 0.375 | 9.5 | 1.375 | 34.9 | 5.77 | 2.62 |
| 91 | 11.500 | 292 | 9.125 | 232 | 0.375 | 9.5 | 1.375 | 34.9 | 5.66 | 2.57 |
| 92 | 11.625 | 295 | 9.250 | 235 | 0.375 | 9.5 | 1.375 | 34.9 | 5.78 | 2.62 |
| 94 | 11.750 | 298 | 9.500 | 241 | 0.375 | 9.5 | 1.375 | 34.9 | 5.61 | 2.54 |
| 97 | 12.000 | 305 | 9.875 | 251 | 0.375 | 9.5 | 1.375 | 34.9 | 5.55 | 2.52 |
| 102 | 12.250 | 311 | 10.250 | 260 | 0.375 | 9.5 | 1.375 | 34.9 | 5.48 | 2.49 |
| 106 | 12.750 | 324 | 10.750 | 273 | 0.375 | 9.5 | 1.375 | 34.9 | 5.72 | 2.59 |
| 112 | 14.125 | 359 | 11.250 | 286 | 0.625 | 15.9 | 1.625 | 41.3 | 12.30 | 5.59 |
| 116 | 14.125 | 359 | 11.750 | 298 | 0.375 | 9.5 | 1.375 | 34.9 | 7.21 | 3.27 |
| 120 | 13.875 | 352 | 12.000 | 305 | 0.375 | 9.5 | 1.375 | 34.9 | 6.04 | 2.74 |

Section 8b. Pipeline Hubs and Clamps

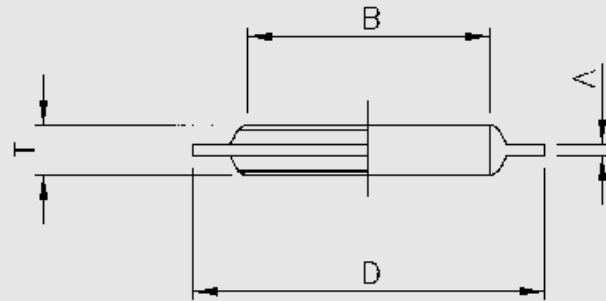


Table 8b.6 Sealrings

| Sealring Size | Outside Diameter D | | Inside Diameter B | | Rib Thickness A | | Overall Thickness T | | Sealring Weight | |
|---------------|--------------------|-----|-------------------|-----|-----------------|------|---------------------|------|-----------------|------|
| | ins | mm | ins | mm | ins | mm | ins | mm | lbs | kg |
| 122 | 14.125 | 359 | 12.250 | 311 | 0.375 | 9.5 | 1.375 | 34.9 | 6.16 | 2.79 |
| 124 | 14.625 | 371 | 12.500 | 318 | 0.375 | 9.5 | 1.375 | 34.9 | 7.10 | 3.22 |
| 130 | 15.000 | 381 | 13.000 | 330 | 0.500 | 12.7 | 1.500 | 38.1 | 8.47 | 3.84 |
| 134 | 15.500 | 394 | 13.500 | 343 | 0.500 | 12.7 | 1.500 | 38.1 | 8.78 | 3.98 |
| 137 | 16.500 | 419 | 13.875 | 352 | 0.625 | 15.9 | 1.625 | 41.3 | 13.70 | 6.21 |
| 140 | 16.500 | 419 | 14.000 | 356 | 0.500 | 12.7 | 1.500 | 38.1 | 10.98 | 4.98 |
| 144 | 17.000 | 432 | 14.500 | 368 | 0.500 | 12.7 | 1.500 | 38.1 | 11.35 | 5.15 |
| 152 | 17.750 | 451 | 15.250 | 387 | 0.500 | 12.7 | 1.500 | 38.1 | 11.89 | 5.39 |
| 160 | 18.500 | 470 | 16.000 | 406 | 0.500 | 12.7 | 1.500 | 38.1 | 12.44 | 5.64 |

Section 9. API 6A Gate Valves

Gate Valves are designed and manufactured in accordance with the following specifications:-

| | |
|----------------------|--|
| API 6A | Specification for Wellhead and Christmas Tree Equipment |
| API 14D | Specification for Wellhead Surface Safety Valves and Underwater Safety Valves for Offshore Service |
| ANSI B31.3 | Chemical Plant and Petroleum Refinery Piping |
| ASME VIII | Boiler and Pressure Vessel Code |
| MSS-SP-55 | Quality Standard for Steel Castings for Valve, Flanges and Fittings and Other Piping Components |
| NACE MR-01-75 | Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment |

Gate Valves are available in manual or remote operation for use in the following pressure ratings and services:-

| PRESSURE & TEMPERATURE RATINGS | | | | | |
|--------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| MAX. WORKING PRESSURE | 3,000 PSI | 5,000PSI | 10,000PSI | 15,000PSI | 20,000PSI |
| TEST PRESSURE | 4,500PSI | 7,500PSI | 15,000PSI | 22,500PSI | 30,000PSI |
| PRODUCT SPECIFICATION LEVELS | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 | 1,2,3 & 4 |
| PRODUCT RATING | 1 & 2 | 1 & 2 | 1 & 2 | 1 & 2 | 1 & 2 |
| API TEMPERATURE RATING | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) | K (-60 DEG C) TO Y (+345 DEG C) |

| MATERIAL REQUIREMENTS | | |
|-----------------------|--|---------------------------------------|
| MATERIAL CLASS | BoDY, BoNNET, END AND oUTLET CoNNECTIoNS | PRESSURE CoNTRoLLING PARTS E.G. STEMS |
| AA - GENERAL SERVICE | CARBON OR LOW ALLOY STEEL | CARBON OR LOW ALLOY STEEL |
| BB - GENERAL SERVICE | CARBON OR LOW ALLOY STEEL | STAINLESS STEEL |
| CC - GENERAL SERVICE | STAINLESS STEEL | STAINLESS STEEL |
| DD - SOUR SERVICE** | CARBON OR LOW ALLOY STEEL* | CARBON OR LOW ALLOY STEEL* |
| EE - SOUR SERVICE** | CARBON OR LOW ALLOY STEEL* | STAINLESS STEEL* |
| FF - SOUR SERVICE** | STAINLESS STEEL* | STAINLESS STEEL* |
| HH - SOUR SERVICE** | CORROSION RESISTANT ALLOYS* | CORROSION RESISTANT ALLOYS* |

**As defined in NACE MR-01-75 *In accordance with NACE MR-01-75

GENERAL NOTE: Please contact GonPetro for any special material or dimensional requirements.

Max.working pressures stated are suitable for temperatures up to 121°C.

De-rating of max.working pressure will occur as the operating temperature increases above 121°C. Consult GonPetro for further details.