## Black and Galvanized

## Steel Pipe

Wheatland Steel Pipe is made by specialists who understand that it's the small details that make the difference between average products and superior products. At the Wheatland Plant, most department heads and foremen have been employed in some phase of pipe manufacturing for 25 or more years.
This kind of specialization, experience and knowledge pays off . . . in workable, threadable, uniform pipe. Delivered clean. Delivered promptly.

Wheatland specializes in manufacturing welded steel pipe in $1 / 2^{\prime \prime}$ through 4 " nominal sizes. Available inventory in $1 / 8$ " to 12 " pipe sizes produced to various ASTM standards is maintained to meet your pipe requirements. Care, pride and personal concern are bonus features that go into every inch of Wheatland Pipe. Don't settle for less.
Make sure it's quality. Make sure it's Wheatland.

## Standard and Extra Strong Welded Steel Pipe

| Specifications |  | Standard Pipe Schedule 40 |  |  |  | Extra Strong Pipe Schedule 80 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Outside | Inside Diameter (inches) | Wall Thickness (inches) | Weight per foot (lbs.) |  | Inside Diameter (inches) | Wall Thickness (inches) | Plain End Weight per ft. (lbs.) |
| Nominal Pipe Size | Diameter (inches) |  |  | Plain End | Threads \& Couplings |  |  |  |
| 1/8" | . 405 | . 269 | . 068 | . 24 | . 24 | . 215 | . 095 | . 31 |
| 1/4" | . 540 | . 364 | . 088 | . 42 | . 42 | . 302 | . 119 | . 54 |
| 3/8" | . 675 | . 493 | . 091 | . 57 | . 57 | . 423 | . 126 | . 74 |
| 1/2" | . 840 | . 622 | . 109 | . 85 | . 85 | . 546 | . 147 | 1.09 |
| 3/4" | 1.050 | . 824 | . 113 | 1.13 | 1.13 | . 742 | . 154 | 1.47 |
| 1" | 1.315 | 1.049 | . 133 | 1.68 | 1.68 | . 957 | . 179 | 2.17 |
| 1-1/4" | 1.660 | 1.380 | . 140 | 2.27 | 2.28 | 1.278 | . 191 | 3.00 |
| 1-1/2" | 1.900 | 1.610 | . 145 | 2.72 | 2.73 | 1.500 | . 200 | 3.63 |
| 2" | 2.375 | 2.067 | . 154 | 3.65 | 3.68 | 1.939 | . 218 | 5.02 |
| 2-1/2" | 2.875 | 2.469 | . 203 | 5.79 | 5.82 | 2.323 | . 276 | 7.66 |
| 3" | 3.500 | 3.068 | . 216 | 7.58 | 7.62 | 2.900 | . 300 | 10.25 |
| 3-1/2" | 4.000 | 3.548 | . 226 | 9.11 | 9.20 | 3.364 | . 318 | 12.51 |
| $4{ }^{\prime \prime}$ | 4.500 | 4.026 | . 237 | 10.79 | 10.89 | 3.826 | . 337 | 14.98 |
| 5" | 5.563 | 5.047 | . 258 | 14.62 | 14.81 | 4.813 | . 375 | 20.78 |
| $6 "$ | 6.625 | 6.065 | . 280 | 18.97 | 19.18 | 5.761 | . 432 | 28.57 |
| 8" | 8.625 | 7.981 | . 322 | 28.55 | 29.35 | 7.625 | . 500 | 43.39 |
| 10" | 10.750 | 10.020 | . 365 | 40.48 | 41.85 |  |  |  |
| 12 " | 12.750 | 12.000 | . 375 | 49.56 | 51.15 |  |  |  |

## Specs For Standard and Extra Strong Pipe

Standard and extra strong welded pipe are produced in $1 / 8$ " to 4 ". Trade sizes 5 " and up are available in seamless or electric resistance welded. Trade sizes $1 / 8$ " to 4 " are produced to ASTM A 53, A 501* and A 589** Type II, API 5L and Federal Specification WW-P404, Trade sizes 5" and up are produced to ASTM A 53 and API 5L. All pipe threads conform to ANSI B1.20.1. Merchant couplings comply with ASTM A 865.

[^0]Permissible Variations for ASTM A 53-A Pipe
$\begin{array}{llll}\text { O.D. } & 1 / 8 " \text { to } 1-1 / 2^{\prime \prime} & \text { Over 1/64" } & \text { Under 1/64" } \\ \text { O.D. } \quad 2 " \text { and up } & \text { Over 1\% } & \text { Under 1\% } \\ \text { Wall Thickness at Any Point } & - & \text { Under 12.5\% }\end{array}$
ASTM A 53-1: Black and Galvanized Pipe is manufactured for ordinary uses in steam, water, gas and air lines.
Mechanical Properties:
Yield: 30,000 psi minimum Tensile: 48,000 psi minimum


## Common ASTM Pipe Specifications

| Specification \& Size Range Where Indicated | Scope | Type | Grades | Bend Test | Chemistry |  |  |  |  | Tensiles |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { A 53 } \\ 1 / 8^{\prime \prime}-26 " \end{gathered}$ | - Black and galvanized welded and SMLS pipe suitable for welding and forming operations. <br> - CW not intended for flanging. <br> - Grade B not intended for close coiling or severe cold forming. <br> - Pipe requiring for close coiling should be specified on order. | CW-Type F | CW <br> Grade A | Yes over 2" nominal XHY $90^{\circ}$ to 12 times nominal diameter close coiling $180^{\circ}$ to 8 times nominal diameter | Ladle and Check \% MAX |  |  |  |  | Minimum P.S.I. |  |  |
|  |  | ERW-Type E |  |  | F |  |  |  |  | Grade | Yield | Tensile |
|  |  | SMLS-Type S | Grades A \& B |  | E \& S Gr. A Gr. B | . 25 | $\begin{array}{r} .95 \\ 1.20 \end{array}$ | $\begin{aligned} & .05 \\ & .05 \end{aligned}$ | $\begin{aligned} & .045 \\ & .045 \end{aligned}$ | F Gr. A Gr. B | 30,000 30,000 35,000 | 48,000 48,000 60,000 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| A 589 <br> Type II 2"-4" <br> Type III 2"-4" | Type II <br>  <br> Drifted <br> Type III Driven Well Pipe | Type II SMLS, ERW or CW <br> Type III SMLS, ERW or CW | Type II A or CW <br> Type III A or CW | Non specified | \% MAX |  |  |  |  | Minimum P.S.I. |  |  |
|  |  |  |  |  |  |  |  |  |  | Grade | Yield | Tensile |
|  |  |  |  |  |  | P |  |  |  | CW | 30,000 | 48,000 |
|  |  |  |  |  |  | . 050 | . 0 |  |  | Gr. A Gr. B | 30,000 35,000 | 48,000 60,000 |
| API 5L | Welded and SMLS Line Pipe | CW-Type F <br> ERW-Type E SMLS-Type S | CW <br> Grade 25 <br> ERW \& SMLS <br> Grades A \& B | Yes for A 25 pipe 2-3/8" \& smaller | Ladle \% MAX |  |  |  |  | Minimum P.S.I. |  |  |
|  |  |  |  |  | Grade | C | MN | P | S |  |  |  |
|  |  |  |  |  | A 25 <br> SMLS <br> A <br> B <br> ERW <br> A <br> B | $\begin{aligned} & .21 \\ & .22 \\ & .27 \\ & .21 \\ & .26 \end{aligned}$ | .60.901.15.901.15 | $\begin{aligned} & .08 \\ & .04 \\ & .04 \\ & .04 \\ & .04 \end{aligned}$ | .06 <br> .05 <br> .05 <br> .05 <br> .05 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | Grade | Yield | Tensile |
|  |  |  |  |  |  |  |  |  |  | A 25 | 25,000 | 45,000 |
|  |  |  |  |  |  |  |  |  |  | Gr. A | 30,000 | 48,000 |
|  |  |  |  |  |  |  |  |  |  | Gr. B | 35,000 | 60,000 |

## Common ASTM Pipe Specifications Continued

| Specification <br> \& Size Range <br> Where Indicated | Hydrostatic |  |  |  |
| :---: | :---: | :--- | :--- | :--- |
| Flattening |  |  |  |  |

The following A53 Black and Galvanized Standard Pipe has been approved by Factory Mutual (FM) and listed by Underwriters Laboratories (UL) and meets the ASTM A53 standard:
Schedule 40-Type F-UL listed for sizes NPS 1" through 4" and FM approved for sizes NPS 3/4" through 4"
Schedule 40-Type E—Sizes NPS 1" through 2"
Fire Sprinkler Pipe
Fence Pipe and Tubing
Steel Electrical Conduit
10" Hardware Pipe
Coupling Stock

| Reamed and Drifted Pipe | Fusion Bonded Pipe |
| :--- | :--- |
| Galvanized Mechanical Tubing | Special Lengths |
| Grade B ERW Pipe | Roll groove and Cut groove |
| Galvanized Conduit Shells | Plumbing and Electrical Fittings |
| X-tru-Coat Pipe | NSF Approved Pipe |

## Wheatland Tube Company <br> (X-TRU-COAT)

Prices and shipping weights are per 100 lineal feet:

| Pipe <br> Size | Adhesive Thickness (Minimum) | Plastic Thickness (Nominal) | Coating Weight |
| :---: | :---: | :---: | :---: |
| 1/2" Nom. | .010" | .025" | 4\# |
| 3/4" Nom. | .010" | .025" | 5\# |
| 1" Nom. | .010" | .025" | 7\# |
| 1-1/4" Nom. | .010" | .025" | 8\# |
| 1-1/2" Nom. | .010" | .025" | 10\# |
| 2-3/8" O.D. | .010" | .030" | 13\# |
| 2-7/8" O.D. | .010" | .030" | 16\# |
| 3-1/2" O.D. | .010" | .035" | 22\# |
| 4" O.D. | .010" | .035" | 25\# |
| 4-1/2" O.D. | .010" | .035" | 28\# |
| 4-12" O.D. | .010" | .060" | 43\# |
| 5-9/16" O.D. | .010" | .040" | 38\# |
| 5-9/16" O.D. | .010" | .060" | 53\# |
| 6-5/8" O.D. | .010" | .040" | 45\# |
| 6-5/8" O.D. | .010" | .060" | 63\# |
| 8-5/8" O.D. | .010" | .040" | 59\# |
| 8-5/8" O.D. | .010" | .060" | 82\# |
| 10-3/4" O.D. | .010" | .040" | 73\# |
| 10-3/4" O.D. | .010" | .060" | 102\# |
| 12-3/4" O.D. | .010" | .040" | 87\# |
| 12-3/4" O.D. | .010" | .060" | 121\# |

## PIPE FABRICATION

We offer a full line of fabricated pipe for Sprinkler and other installations. We can cut, thread, groove, weld and make-on fittings to your specifications. We are always happy to quote you on any fabrication work-be it one piece or an entire system. Lakeside can fabricate carbon steel, stainless steel, P.V.C., ductile iron,
brass and copper. We can work with any size pipe from $1 / 8$ " through 24 ".
Contact a sales representative for a thorough quotation.

# FIRE SPRINKLER PIPE 

## PRODUCT DESCRIPTION

## WLS

Wheatland Lightweight Sprinkler Pipe (WLS) is a threadable lightweight steel pipe used for sprinkler applications. WLS is a standard nominal diameter pipe product and conforms to the Schedule 30 dimensions set forth in ANSI/ASME B36.10M-1995. Wheatland has engineered over 60 years of experience and quality control into its sprinkler pipe products using the continuous furnace weld manufacturing process. WLS has the service life and application range needed to produce a quality sprinler system installation.

WLS is approved for use with threaded, welded, roll grooved or plain end fittings. When hot dip galvanized, WLS is FM approved for use in dry system applications. WLS complies with the appropriate ASTM, ANSI, UL and NFPA standards and is FM approved.

## DIMENSIONS AND PRODUCT INFORMATION

| Size | Nom. O.D. | Nom. Wall | Nom. Wt./Ft. | Lift Sizes |  | Threaded CRR Ratio | End <br> Finish+ | Friction Loss (PSI/Ft) C=120 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 21' | 25' |  |  | Flow Rate GPM | Friction Loss |
| 1" | 1.315 | . 114 | 1.462 | 1470 | 1500 | . 57 | Plain End | 40 | . 3945 |
| 1-1/4" | 1.660 | . 117 | 1.928 | 1155 | 1125 | . 46 | Plain End | 100 | . 5729 |
| 1-1/2" | 1.900 | . 125 | 2.370 | 945 | 1000 | . 64 | Plain End | 120 | . 3944 |
| $2 "$ | 2.375 | . 125 | 3.004 | 735 | 750 | . 52 | Plain End | 150 | . 1739 |

- Corrosion Resistance Ratio (CRR) - The CRR measures the ability of the pipe to withstand corrosion. Schedule 40 pipe is used as the benchmark (value of 1.0).
+ can be threaded to order.
Available in Black and Hot-Dip Galvanized.


## WST

WST is UL listed and FM approved. WST can be joined using Victaulic's PRESSFIT ${ }^{\text {TM }}$ fittings, roll grooved fittings, roll grooved fittings or welded fittings. This lightwall Schedule 5 pipe from Wheatland exceeds the standards set by UL and FM. Based on the CRR values, the life expectancy of Wheatland's WST pipe is equivalent to or greater than the threaded portion of Schedule 40 pipe.

WST has galvanized O.D. for longer service life. It provides a dry surface and gives a better appearance, matching the PRESSFIT ${ }^{\text {TM }}$ fittings. WST's larger I.D. normally yields better hydraulics and can often lead to down sizing of sprinkler tubing required.

DIMENSIONS AND PRODUCT INFORMATION

| Size | $\begin{aligned} & \text { Nom. } \\ & \text { O.D. } \end{aligned}$ | Nom. Wall | Nom. Wt./Ft. | $\begin{gathered} \text { Lift } \\ \text { Sizes } \end{gathered}$ | CRR <br> Ratio* | End <br> Finish | Friction Loss (PSI/Ft) C=120 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | Flow Rate GPM | Friction Loss |
| 3/4" | 1.050 | . 065 | 0.68 | 91 | 3.38 | Plain End | 20 | . 2366 |
| $1{ }^{\prime \prime}$ | 1.315 | . 065 | 0.87 | 91 | 2.16 | Plain End | 40 | . 2591 |
| 1-1/4" | 1.660 | . 065 | 1.11 | 61 | 1.39 | Plain End | 100 | . 4066 |
| 1-1/2" | 1.900 | . 065 | 1.27 | 61 | 1.10 | Plain End | 120 | . 2802 |
| $2 "$ | 2.375 | . 065 | 1.60 | 37 | . 90 | Plain End | 150 | . 1330 |

Standard Finish: Galvanized O.D., Bare Pipe I.D.
Length: 21' standard.
*CRR measures the ability of the pipe to withstand corrosion. Schedule 40 threaded pipe is used as the benchmark (value of 1.0). The CRR values of WST are higher than any threaded sprinkler pipe (except $2^{\prime \prime}$ ).
For further information and pricing, please contact your local representative or district sales office.

## PIPE SCHEDULES-ANSI/ASME B36.10M-1995

|  |  | TOP FIGURES, Nominal Wall Thickness in Inches |  |  |  |  |  |  | BOTTOM FIGURES, Nominal Weight per Foot in Pounds |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pipe <br> Size | $\begin{array}{r} \text { O.D. } \\ \text { Inches } \end{array}$ | 10 | 20 | 30 | 40 | STD. | 60 | 80 | E.H. | 100 | 120 | 140 | 160 | DBLE. E.H. |
| 1/8" | . 405 |  |  | $\begin{array}{r} .057 \\ .21 \\ \hline \end{array}$ | $\begin{array}{r} .068 \\ .24 \\ \hline \end{array}$ | $\begin{array}{r} \hline .068 \\ .24 \\ \hline \end{array}$ |  | $\begin{array}{r} .095 \\ .31 \end{array}$ | $\begin{array}{r} .095 \\ .31 \\ \hline \end{array}$ |  |  |  |  |  |
| 1/4" | . 540 |  |  | $\begin{array}{r} \hline .073 \\ .36 \\ \hline \end{array}$ | $\begin{array}{r} \hline .088 \\ .42 \\ \hline \end{array}$ | $\begin{array}{r} \hline .088 \\ .42 \\ \hline \end{array}$ |  | $\begin{array}{r} \hline .119 \\ .54 \\ \hline \end{array}$ | $\begin{array}{r} \hline .119 \\ .54 \\ \hline \end{array}$ |  |  |  |  |  |
| 3/8" | . 675 |  |  | $\begin{array}{r} \hline .073 \\ .47 \\ \hline \end{array}$ | $\begin{array}{r} \hline .091 \\ .56 \end{array}$ | $\begin{array}{r} \hline .091 \\ .56 \end{array}$ |  | $\begin{array}{r} .126 \\ .74 \end{array}$ | $\begin{array}{r} .126 \\ .74 \\ \hline \end{array}$ |  |  |  |  |  |
| 1/2" | . 840 |  |  | $\begin{array}{r} .095 \\ .76 \\ \hline \end{array}$ | $\begin{array}{r} .109 \\ .85 \\ \hline \end{array}$ | $\begin{array}{r} .109 \\ .85 \\ \hline \end{array}$ |  | $\begin{aligned} & .147 \\ & 1.09 \\ & \hline \end{aligned}$ | $\begin{aligned} & .147 \\ & 1.09 \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & .188 \\ & 1.31 \\ & \hline \end{aligned}$ | $\begin{aligned} & .294 \\ & 1.71 \\ & \hline \end{aligned}$ |
| 3/4" | 1.050 |  |  | $\begin{array}{r} .095 \\ .97 \\ \hline \end{array}$ | $\begin{aligned} & \hline .113 \\ & 1.13 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .113 \\ & 1.13 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline .154 \\ & 1.47 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .154 \\ & 1.47 \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & \hline .219 \\ & 1.94 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .308 \\ & 2.44 \\ & \hline \end{aligned}$ |
| $1 "$ | 1.315 |  |  | $\begin{aligned} & \hline .114 \\ & 1.46 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .133 \\ & 1.68 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .133 \\ & 1.68 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline .179 \\ & 2.17 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .179 \\ & 2.17 \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & .250 \\ & 2.84 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .358 \\ & 3.66 \\ & \hline \end{aligned}$ |
| 1-1/4" | 1.660 |  |  | $\begin{aligned} & \hline .117 \\ & 1.93 \\ & \hline \end{aligned}$ | $\begin{array}{r} .140 \\ 2.27 \\ \hline \end{array}$ | $\begin{aligned} & .140 \\ & 2.27 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & .191 \\ & 3.00 \\ & \hline \end{aligned}$ | $\begin{aligned} & .191 \\ & 3.00 \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & .250 \\ & 3.76 \\ & \hline \end{aligned}$ | $\begin{array}{r} \hline .382 \\ 5.21 \\ \hline \end{array}$ |
| 1-1/2" | 1.900 |  |  | $\begin{aligned} & .125 \\ & 2.37 \\ & \hline \end{aligned}$ | $\begin{aligned} & .145 \\ & 2.72 \end{aligned}$ | $\begin{aligned} & \hline .145 \\ & 2.72 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & .200 \\ & 3.63 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .200 \\ & 3.63 \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & .281 \\ & 4.86 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .400 \\ & 6.41 \end{aligned}$ |
| $2{ }^{\prime \prime}$ | 2.375 |  |  | $\begin{aligned} & .125 \\ & 3.00 \\ & \hline \end{aligned}$ | $\begin{aligned} & .154 \\ & 3.65 \\ & \hline \end{aligned}$ | $\begin{aligned} & .154 \\ & 3.65 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline .218 \\ & 5.02 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .218 \\ & 5.02 \\ & \hline \end{aligned}$ |  |  |  | $\begin{array}{r} .344 \\ 7.46 \\ \hline \end{array}$ | $\begin{array}{r} .436 \\ 9.03 \\ \hline \end{array}$ |
| 2-1/2" | 2.875 |  |  | $\begin{aligned} & \hline .188 \\ & 5.40 \end{aligned}$ | $\begin{aligned} & \hline .203 \\ & 5.79 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .203 \\ & 5.79 \end{aligned}$ |  | $\begin{aligned} & \hline .276 \\ & 7.66 \end{aligned}$ | $\begin{aligned} & \hline .276 \\ & 7.66 \\ & \hline \end{aligned}$ |  |  |  | $\begin{array}{r} .375 \\ 10.01 \end{array}$ | $\begin{array}{r} .552 \\ 13.70 \end{array}$ |
| $3 "$ | 3.500 |  |  | $\begin{aligned} & \hline .188 \\ & 6.65 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .216 \\ & 7.58 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline .216 \\ & 7.58 \\ & \hline \end{aligned}$ |  | $\begin{array}{r} .300 \\ 10.25 \end{array}$ | $\begin{array}{r} .300 \\ 10.25 \\ \hline \end{array}$ |  |  |  | $\begin{array}{r} .438 \\ 14.31 \\ \hline \end{array}$ | $\begin{array}{r} .600 \\ 18.58 \\ \hline \end{array}$ |
| 3-1/2" | 4.00 |  |  | $\begin{aligned} & .188 \\ & 7.65 \\ & \hline \end{aligned}$ | $\begin{aligned} & .226 \\ & 9.11 \\ & \hline \end{aligned}$ | $\begin{array}{r} .226 \\ 9.11 \\ \hline \end{array}$ |  | $\begin{array}{r} .318 \\ 12.51 \\ \hline \end{array}$ | $\begin{array}{r} .318 \\ 12.51 \\ \hline \end{array}$ |  |  |  |  |  |
| 4" | 4.500 |  |  | $\begin{aligned} & \hline .188 \\ & 8.66 \\ & \hline \end{aligned}$ | $\begin{array}{r} .237 \\ 10.79 \end{array}$ | $\begin{array}{r} .237 \\ 10.79 \end{array}$ |  | $\begin{array}{r} .337 \\ 14.98 \\ \hline \end{array}$ | $\begin{array}{r} .337 \\ 14.98 \\ \hline \end{array}$ |  | $\begin{array}{r} .438 \\ 18.98 \\ \hline \end{array}$ |  | $\begin{array}{r} .531 \\ 22.52 \\ \hline \end{array}$ | $\begin{array}{r} .674 \\ 27.54 \\ \hline \end{array}$ |
| 4-1/2" | 5.000 |  |  |  |  | $\begin{array}{r} .247 \\ 12.53 \\ \hline \end{array}$ |  |  | $\begin{array}{r} .355 \\ 17.61 \\ \hline \end{array}$ |  |  |  |  | $\begin{array}{r} .710 \\ 32.53 \\ \hline \end{array}$ |
| 5" | 5.563 |  |  |  | $\begin{array}{r} .258 \\ 14.62 \\ \hline \end{array}$ | $\begin{array}{r} .258 \\ 14.62 \\ \hline \end{array}$ |  | $\begin{array}{r} .375 \\ 20.78 \\ \hline \end{array}$ | $\begin{array}{r} .375 \\ 20.78 \\ \hline \end{array}$ |  | $\begin{array}{r} .500 \\ 27.04 \\ \hline \end{array}$ |  | $\begin{array}{r} \hline .625 \\ 32.96 \\ \hline \end{array}$ | $\begin{array}{r} .750 \\ 38.55 \\ \hline \end{array}$ |
| $6 "$ | 6.625 |  |  |  | $\begin{array}{r} .280 \\ 18.97 \\ \hline \end{array}$ | $\begin{array}{r} .280 \\ 18.97 \\ \hline \end{array}$ |  | $\begin{array}{r} .432 \\ 28.57 \\ \hline \end{array}$ | $\begin{array}{r} .432 \\ 28.57 \\ \hline \end{array}$ |  | $\begin{array}{r} .562 \\ 36.42 \end{array}$ |  | $\begin{array}{r} .719 \\ 45.34 \end{array}$ | $\begin{array}{r} .864 \\ 53.16 \end{array}$ |
| 7" | 7.625 |  |  |  |  | $\begin{array}{r} .301 \\ 23.57 \\ \hline \end{array}$ |  |  | $\begin{array}{r} .500 \\ 38.05 \\ \hline \end{array}$ |  |  |  |  | $\begin{array}{r} .875 \\ 63.08 \\ \hline \end{array}$ |
| 8" | 8.625 |  | $\begin{array}{r} .250 \\ 22.36 \\ \hline \end{array}$ | $\begin{array}{r} .277 \\ 24.70 \\ \hline \end{array}$ | $\begin{array}{r} .322 \\ 28.55 \\ \hline \end{array}$ | $\begin{array}{r} .322 \\ 28.55 \\ \hline \end{array}$ | $\begin{array}{r} .406 \\ 35.66 \\ \hline \end{array}$ | $\begin{array}{r} .500 \\ 43.39 \\ \hline \end{array}$ | $\begin{array}{r} .500 \\ 43.39 \\ \hline \end{array}$ | $\begin{array}{r} .594 \\ 50.93 \\ \hline \end{array}$ | $\begin{array}{r} .719 \\ 60.69 \\ \hline \end{array}$ | $\begin{array}{r} .812 \\ 67.79 \\ \hline \end{array}$ | $\begin{array}{r} .906 \\ 74.71 \\ \hline \end{array}$ | $\begin{array}{r} .875 \\ 72.42 \\ \hline \end{array}$ |
| $9{ }^{\prime \prime}$ | 9.625 |  |  |  |  | $\begin{array}{r} .342 \\ 33.90 \\ \hline \end{array}$ |  |  | $\begin{array}{r} .500 \\ 48.72 \end{array}$ |  |  |  |  |  |
| 10" | 10.750 |  | $\begin{array}{r} .250 \\ 28.04 \\ \hline \end{array}$ | $\begin{array}{r} .307 \\ 34.24 \\ \hline \end{array}$ | $\begin{array}{r} .365 \\ 40.48 \\ \hline \end{array}$ | $\begin{array}{r} .365 \\ 40.48 \\ \hline \end{array}$ | $\begin{array}{r} .500 \\ 54.74 \end{array}$ | $\begin{array}{r} .594 \\ 64.40 \end{array}$ | $\begin{array}{r} .500 \\ 54.74 \end{array}$ | $\begin{array}{r} .719 \\ 77.00 \\ \hline \end{array}$ | $\begin{array}{r} .844 \\ 89.27 \end{array}$ | $\begin{array}{r} 1.000 \\ 104.13 \end{array}$ | $\begin{array}{r} 1.125 \\ 115.65 \\ \hline \end{array}$ | $\begin{array}{r} \hline 1.000 \\ 104.13 \\ \hline \end{array}$ |
| $12 "$ | 12.750 |  | $\begin{array}{r} .250 \\ 33.38 \\ \hline \end{array}$ | $\begin{array}{r} .330 \\ 43.77 \end{array}$ | $\begin{array}{r} .406 \\ 53.53 \end{array}$ | $\begin{array}{r} .375 \\ 49.56 \\ \hline \end{array}$ | $\begin{array}{r} .562 \\ 73.22 \end{array}$ | $\begin{array}{r} .688 \\ 88.57 \end{array}$ | $\begin{array}{r} .500 \\ 65.42 \end{array}$ | $\begin{array}{r} .844 \\ 107.29 \\ \hline \end{array}$ | $\begin{array}{r} 1.000 \\ 125.49 \end{array}$ | $\begin{array}{r} 1.125 \\ 139.68 \\ \hline \end{array}$ | $\begin{array}{r} 1.312 \\ 160.33 \\ \hline \end{array}$ | $\begin{array}{r} 1.000 \\ 125.49 \end{array}$ |
| $14 "$ | 14.000 | $\begin{array}{r} .250 \\ 36.71 \end{array}$ | $\begin{array}{r} .312 \\ 45.68 \end{array}$ | $\begin{array}{r} .375 \\ 54.57 \end{array}$ | $\begin{array}{r} .438 \\ 63.37 \end{array}$ | $\begin{array}{r} .375 \\ 54.57 \\ \hline \end{array}$ | $\begin{array}{r} .594 \\ 85.01 \end{array}$ | $\begin{array}{r} .750 \\ 106.13 \\ \hline \end{array}$ | $\begin{array}{r} .500 \\ 72.09 \end{array}$ | $\begin{array}{r} .938 \\ 130.79 \end{array}$ | $\begin{array}{r} 1.094 \\ 150.76 \end{array}$ | $\begin{array}{r} 1.250 \\ 170.22 \\ \hline \end{array}$ | $\begin{array}{r} 1.406 \\ 189.15 \end{array}$ |  |
| $16 "$ | 16.000 | $\begin{array}{r} .250 \\ 42.05 \end{array}$ | $\begin{array}{r} .312 \\ 52.36 \end{array}$ | $\begin{array}{r} .375 \\ 62.58 \end{array}$ | $\begin{array}{r} .500 \\ 82.77 \end{array}$ | $\begin{array}{r} .375 \\ 62.58 \end{array}$ | $\begin{array}{r} .656 \\ 107.54 \end{array}$ | $\begin{array}{r} .844 \\ 136.58 \end{array}$ | $\begin{array}{r} .500 \\ 82.77 \end{array}$ | $\begin{array}{r} 1.031 \\ 164.86 \end{array}$ | $\begin{array}{r} 1.219 \\ 192.40 \end{array}$ | $\begin{array}{r} 1.438 \\ 223.57 \end{array}$ | $\begin{array}{r} 1.594 \\ 245.22 \end{array}$ |  |


[^0]:    *1/2" through 4" only
    **1" through 4" only

