



## VEDOVELL O-Rings

The O-ring is the most widely used seal in industry. It is easy to install, can be used as a double-acting seal, can seal pressures to over 5,000 psi in static and dynamic applications and is very economical.

While simple in concept, the O-ring can be sophisticated in application. The information in this catalog is intended to give a brief overview of O-ring design and selection.

### Specifying O-rings

O-rings are specified by calling out the O-ring *size*, and the *compound*.

#### Size

O-rings are available in 349 sizes as set up by the Aerospace Standard 568 published by the Society of Automotive Engineers. These sizes are designated by dash numbers as shown on the 568 DASH Chart. For instance, an O-ring with an inside diameter (I.D.) of  $.362 \pm .007$ " and a cross section (W) of  $.103 \pm .005$  is designated as: "AS568-110."

#### Compound Selection

Compounds are available in a variety of elastomers such as Nitrile, Neoprene, Ethylene Propylene, Fluoroelastomer, etc. To select the proper elastomer, check the following in properties:

*Fluid Compatibility Chart*

*Temperature Range Chart*

*General Elastomeric Properties*

For O-ring sizes other than standard sizes, specify the actual dimensions desired for the inside diameter (I.D.) and the cross section (W). There may be a tooling charge for such non-standards.

Usually you will be able to find one best base elastomer to meet these requirements. The next step is to determine the durometer (hardness) needed, from the "*Durometer-Pressure-Gap Chart*" (see *Properties* section).



# VEDOVELL

## Groove Design Chart For O-ring Installation

A = Uniform Dash Number  
 B = Actual Cross Section Dia.  
 C = Dynamic<sup>1</sup>  
 D = Static

E = Dynamic<sup>1</sup> + .000/- .001  
 F = Static +.000/- .001  
 G = No Backup Ring

H = One Backup Ring  
 I = Two Backup Rings  
 J = 500 PSI

K = 1500 PSI  
 L = Eccentricity<sup>3</sup> (Maximum)  
 M = Radius (R)

See A above	See B above	Diametral Squeeze (Minimum)		Gland Depth F		Groove Width G + .003			Diametral <sup>2</sup> Clearance (Max) D		See L above	See M above
		See C above	See D above	See E above	See F above	See G above	See H above	See I above	See J above	See K above		
-001	.040+.003	.004	.006	.033	.031	.056	-	-	.005	.0025	.002	.010
-002	.050 +.003	.005	.008	.042	.039	.070	-	-	.006	.003	.002	.010
-003	.060 +.003	.006	.009	.051	.048	.084	-	-	.007	.0035	.002	.016
-004thru-050	.070 +.003	.007	.011	.060	.056	.098	.140	.207	.008	.004	.002	.016
-102thru-178	.103 +.003	.010	.015	.090	.085	.144	.173	.240	.009	.004	.002	.016
-201thru-284	.139 +.004	.014	.021	.121	.114	.195	.210	.277	.010	.006	.003	.031
-309thru-395	.210 +.005	.021	.032	.184	.173	.294	.313	.412	.011	.007	.004	.031
-425thru-475	.275 +.006	.028	.042	.241	.227	.385	.410	.540	.012	.008	.005	.047

1. The following sizes are not normally recommended for dynamic service, although special applications may permit their use:

- 001 thru -003            -223 thru -284
- 013 thru -050        -350 thru -395
- 117 thru -178        -461 thru -475

2. Clearances shown are based on 70 durometer materials. The clearances must be held to an absolute minimum consistent with design requirements for temperature variations and should not exceed the values shown.

3. Total indicator reading between groove and adjacent bearing surface. All surfaces and corners must be free of tool marks and scratches.

Surface Finishes for O-ring Installation		
Type	Possible Result	Comments
Polished (non-porous)	Lubrication will be lost resulting in high friction rate and possible seal failure.	Not recommended
Rough	Tearing and abrasion of seal may occur, possible seal failure.	Not recommended
Burnished/Mandrel	A surface finish exceeding the recommended surface finish range, possible seal failure.	Although these methods produce a very accurate diameter, they are not recommended.
Ideal	20-24 RMS (.5-.6 Bar) 20-32 RMS (.5-.81 Bar) Not to be finer than 16 RMS (.4 Bar)	Recommended



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## Groove Design for O-ring Installation

O-ring groove dimensions may be calculated as follows:

<p><b>Rod Seal</b>            Given:            Rod Diameter <b>C</b>            O-ring Cross Section <b>W</b>            Dynamic application            No back-ups required</p>	<p>Example:            = .500"            = 3/32" nominal</p>
<p><b>Determine:</b>            O-ring size            Gland Depth <b>F</b>            Groove Width <b>G</b>            Rod Gland <b>D</b></p>	<p>Example:            = AS-568-112 (1/2" <b>ID</b> x 3/32" <b>W</b> nominal dimensions)            = .090 <sup>+.000</sup><sub>-.001</sub>" (from chart, page 2)            = .144 ± .003" (from chart, page 2)            = <b>C</b> + 2<b>F</b> = .500" + 2x.090" = .680"</p>
<p><b>Piston Seal</b>            Given:            Cylinder Bore <b>A</b>            O-ring Cross Section <b>W</b>            Static application            No back-ups required</p>	<p>Example:            = 1.000"            = 1/8" nominal</p>
<p><b>Determine:</b>            O-ring size            Gland Depth <b>F</b>            Piston Groove <b>B</b></p>	<p>Example:            = AS 568-210 (1" <b>OD</b> x 1/8" <b>W</b> nominal dimensions)            = .114 <sup>+.000</sup><sub>-.004</sub>" (from chart, page 2)            Groove Width <b>C</b> = .195 + .003" (from chart, page 2)            = <b>A</b>-2<b>F</b> = 1.000" -2x.114"            = .772"</p>



## VEDOVELL Encapsulated O-Rings

A circular shaped seal with a round cross section consisting of two components, a Teflon® jacket and an internal (core) energizer, which imparts memory to the seal. The encapsulated O-ring is intended to close off potential leak paths between mating surfaces in both static and dynamic applications.

Encapsulated O-rings are offered in two Teflon® grades, *FEP* and *PFA* with a selection of three different energizers which give the user a choice depending on temperature and operating environment.

### Teflon® grades

#### FEP

The most versatile when considering overall corrosion resistance, sealing capability and temperature. Temperature range -450°F to +400°F (-267°C to 205°C).

#### PFA

A fluorocarbon copolymer similar to FEP but it also offers greatly improved mechanical and creep properties at elevated operating temperatures. Temperature range -450°F to + 500°F (-267°C to +260°C).

### Features

When considering the encapsulated concept, one should take into account the many features which FEP and PFA Teflon have to offer:

Corrosion resistance	Permeation resistance
Ultra low moisture absorption	Abrasion resistance
Uniformity	Non-flammable
Low cold flow	Good impact strength
Broad temperature range	Excellent resilience
Good dielectric properties	Lubricity
Flexibility	No swelling
Low coefficient of friction	Reusable

FDA Approval The United States Federal Food and Drug Administration have published amendment 21 CFR 177.1550 which permits the use of FEP and PFA as articles or components of articles intended for use in contact with food. There is no general approval for use of these grades in medical applications.

### CORE MATERIALS

The core material is the component which imparts "life" or "memory" to the encapsulated O-ring when it is subjected to compressive force.

#### VITON®

A fluoroelastomer compound with a combination of exceptional mechanical properties and compression set resistance. This particular energizer gives an O-ring excellent memory and the ability to recover rapidly from deformation. This core has a Shore A hardness of 75 with a suggested operating temperature range of -10°F to +300°F (-23°C to +150°C) in encapsulated applications.

#### SILICONE

This elastomer possesses mechanical properties similar to Viton®, with the exception of its slightly lower compression set resistance. It is more suitable for sensitive applications where lighter compressive forces are applied to energize the seal. This core has a Shore A hardness of 70 but it also offers a broader operating temperature range of -80°F to +500°F. (-62°C to +260°C).



## VEDOVELL

### ASTRA SEAL

The spring energizer, made from precision rolled stainless high strength steel gives a very high compression set resistance. The stainless spring core maintains its resilience during in long term exposure to cryogenic temperatures -420°F to +500°F (-250°C to +260°C). It offers superior sealing characteristics in face seal applications, especially in liquid oxygen and hydrogen service.

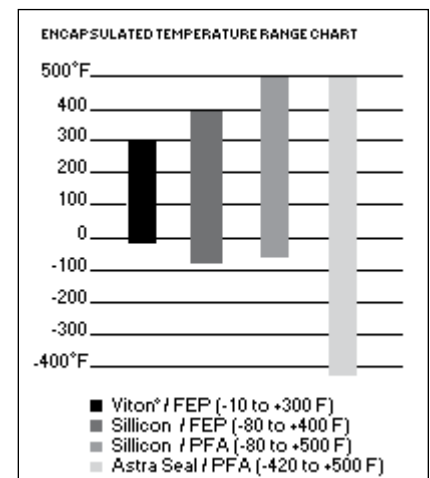
### HOLLOW CORE

Hollow core O-rings provide effective sealing properties in applications where lower compressive forces may limit sealing ability of our standard O-rings. The combination of a hollow core insert with a slightly lower hardness offers a more flexible, easier to squeeze O-ring requiring less energy to activate its sealing capability.

Note: Hollow core energizers are available in a limited size range. Please contact Vedovell for specific details.

### Encapsulated Materials Chart

Comparison of Properties	FEP 160	PFA
Excellent resiliency	1	1
Corrosion resistance	1	1
Mechanical properties of elevated temp	2	1
Dielectric properties	1	1
Flexibility	1	1
Low moisture absorption	2	2
Permeation resistance	2	2
Cold flow	4	3
Non-stick characteristics	1	1
Low coefficient of friction	1	1
Abrasion resistance	3	3
Operating temperature range	2	1
Impact strength	3	2
Non-flammability	1	1
F.D.A. approval	yes	yes
Shore Durometer (D)	55	60
Temperature High F	400	500
Temperature Low L	- 400	- 400

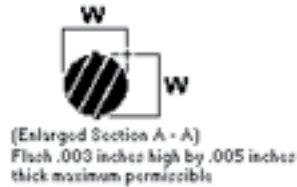
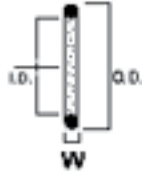


1 - excellent 2 = good 3 = fair 4 = poor



## VEDOVELL Aerospace Standard 568 Dash Numbers

The following is a list of O-ring sizes published by the Society of Automotive Engineers and are designated by dash numbers.



Example:  
ID (inside diameter) of .362" + .007"  
and W (cross section) of .103" + is  
designated as AS 568-11

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-001	1/32	3/32	1/32	0.029	.004	0.040	.003	0.74	0.10	1.02	0.08
-002	3/64	9/64	3/64	0.042	.004	0.050	.003	1.07	0.10	1.27	0.08
-003	1/16	3/16	1/16	0.056	.004	0.060	.003	1.42	0.10	1.52	0.08
-004	5/64	13/64	1/16	0.070	.005	0.070	.003	1.78	0.12	1.78	0.08
-005	7/64	15/64	1/16	0.101	.005	0.070	.003	2.57	0.12	1.78	0.08
-006	1/8	1/4	1/16	0.114	.005	0.070	.003	2.90	0.12	1.78	0.08
-007	5/32	9/32	1/16	0.145	.005	0.070	.003	3.68	0.12	1.78	0.08
-008	3/16	5/16	1/16	0.176	.005	0.070	.003	4.47	0.12	1.78	0.08
-009	7/32	11/32	1/16	0.208	.005	0.070	.003	5.28	0.12	1.78	0.08
-010	1/4	3/8	1/16	0.239	.005	0.070	.003	6.07	0.12	1.78	0.08
-011	5/16	7/16	1/16	0.301	.005	0.070	.003	7.65	0.12	1.78	0.08
-012	3/8	1/2	1/16	0.364	.005	0.070	.003	9.25	0.12	1.78	0.08
-013	7/16	9/16	1/16	0.426	.005	0.070	.003	10.82	0.12	1.78	0.08
-014	1/ 2	5/8	1/16	0.489	.005	0.070	.003	12.42	0.12	1.78	0.08
-015	9/16	11/16	1/16	0.551	.007	0.070	.003	14.00	0.17	1.78	0.08
-016	5/8	3/4	1/16	0.614	.009	0.070	.003	15.60	0.22	1.78	0.08
-017	11/16	13/16	1/16	0.676	.009	0.070	.003	17.17	0.22	1.78	0.08
-018	3/4	7/8	1/16	0.739	.009	0.070	.003	18.77	0.22	1.78	0.08
-019	13/16	15/16	1/16	0.801	.009	0.070	.003	20.35	0.22	1.78	0.08
-020	7/8	1	1/16	0.864	.009	0.070	.003	21.95	0.22	1.78	0.08
-021	15/16	1-1/16	1/16	0.926	.009	0.070	.003	23.52	0.22	1.78	0.08
-022	1	1-1/8	1/16	0.989	.010	0.070	.003	25.12	0.25	1.78	0.08
-023	1-1/16	1-3/16	1/16	1.051	.010	0.070	.003	26.70	0.25	1.78	0.08
-024	1-1/8	1-1/4	1/16	1.114	.010	0.070	.003	28.30	0.25	1.78	0.08
-025	1-3/16	1-5/16	1/16	1.176	.011	0.070	.003	29.87	0.28	1.78	0.08
-026	1-1/4	1-3/8	1/16	1.239	.011	0.070	.003	31.47	0.28	1.78	0.08
-027	1-5/16	1-7/16	1/16	1.301	.011	0.070	.003	33.05	0.28	1.78	0.08
-028	1-3/8	1-1/2	1/16	1.364	.013	0.070	.003	34.65	0.33	1.78	0.08
-029	1-1/2	1-5/8	1/16	1.489	.013	0.070	.003	37.82	0.33	1.78	0.08
-030	1-5/8	1-3/4	1/16	1.614	.013	0.070	.003	41.00	0.33	1.78	0.08
-031	1-3/4	1-7/8	1/16	1.739	.015	0.070	.003	44.17	0.38	1.78	0.08
-032	1-7/8	2	1/16	1.864	.015	0.070	.003	47.35	0.38	1.78	0.08
-033	2	2-1/8	1/16	1.989	.018	0.070	.003	50.52	0.46	1.78	0.08
-034	2-1/8	2-1/4	1/16	2.114	.018	0.070	.003	53.70	0.46	1.78	0.08
-035	2-1/4	2-3/8	1/16	2.239	.018	0.070	.003	56.87	0.46	1.78	0.08



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Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-036	2-3/8	2-1/2	1/16	2.364	.018	0.070	.003	60.05	0.46	1.78	0.08
-037	2-1/2	2-5/8	1/16	2.489	.018	0.070	.003	63.22	0.46	1.78	0.08
-038	2-5/8	2-3/4	1/16	2.614	.020	0.070	.003	66.40	0.50	1.78	0.08
-039	2-3/4	2-7/8	1/16	2.739	.020	0.070	.003	69.57	0.50	1.78	0.08
-040	2-7/8	3	1/16	2.864	.020	0.070	.003	72.75	0.50	1.78	0.08
-041	3	3-1/8	1/16	2.989	.024	0.070	.003	75.92	0.61	1.78	0.08
-042	3-1/4	3-3/8	1/16	3.239	.024	0.070	.003	82.27	0.61	1.78	0.08
-043	3-1/2	3-5/8	1/16	3.489	.024	0.070	.003	88.62	0.61	1.78	0.08
-044	3-3/4	3-7/8	1/16	3.739	.027	0.070	.003	94.97	0.69	1.78	0.08
-045	4	4-1/8	1/16	3.989	.027	0.070	.003	101.32	0.69	1.78	0.08
-046	4-1/4	4-3/8	1/16	4.239	.030	0.070	.003	107.67	0.76	1.78	0.08
-047	4-1/2	4-5/8	1/16	4.489	.030	0.070	.003	114.02	0.76	1.78	0.08
-048	4-3/4	4-7/8	1/16	4.739	.030	0.070	.003	120.37	0.76	1.78	0.08
-049	5	5-1/8	1/16	4.989	.037	0.070	.003	126.72	0.94	1.78	0.08
-050	5-1/4	5-3/8	1/16	5.239	.037	0.070	.003	133.07	0.94	1.78	0.08
-102	1/16	1/4	3/32	0.049	.005	0.103	.003	1.24	0.12	2.62	0.08
-103	3/32	9/32	3/32	0.081	.005	0.103	.003	2.06	0.12	2.62	0.08
-104	1/8	5/16	3/32	0.112	.005	0.103	.003	2.84	0.12	2.62	0.08
-105	5/32	11/32	3/32	0.143	.005	0.103	.003	3.63	0.12	2.62	0.08
-106	3/16	3/8	3/32	0.174	.005	0.103	.003	4.42	0.12	2.62	0.08
-107	7/32	13/32	3/32	0.206	.005	0.103	.003	5.23	0.12	2.62	0.08
-108	1/4	7/16	3/32	0.237	.005	0.103	.003	6.02	0.12	2.62	0.08
-109	5/16	1/2	3/32	0.299	.005	0.103	.003	7.59	0.12	2.62	0.08
-110	3/8	9/16	3/32	0.362	.005	0.103	.003	9.19	0.12	2.62	0.08
-111	7/16	5/8	3/32	0.424	.005	0.103	.003	10.77	0.12	2.62	0.08
-112	1/2	11/16	3/32	0.487	.005	0.103	.003	12.37	0.12	2.62	0.08
-113	9/16	3/4	3/32	0.549	.005	0.103	.003	13.94	0.17	2.62	0.08
-114	5/8	13/16	3/32	0.612	.009	0.103	.003	15.54	0.22	2.62	0.08
-115	11/16	7/8	3/32	0.674	.009	0.103	.003	17.12	0.22	2.62	0.08
-116	3/4	15/16	3/32	0.737	.009	0.103	.003	18.72	0.22	2.62	0.08
-117	13/16	1	3/32	0.799	.010	0.103	.003	20.29	0.25	2.62	0.08
-118	7/8	1-1/16	3/32	0.862	.010	0.103	.003	21.89	0.25	2.62	0.08
-119	15/16	1-1/8	3/32	0.924	.010	0.103	.003	23.47	0.25	2.62	0.08
-120	1	1-3/16	3/32	0.987	.010	0.103	.003	25.07	0.25	2.62	0.08
-121	1-1/16	1-1/4	3/32	1.049	.010	0.103	.003	26.64	0.25	2.62	0.08
-122	1-1/8	1-5/16	3/32	1.112	.010	0.103	.003	28.24	0.25	2.62	0.08
-123	1-3/16	1-3/8	3/32	1.174	.012	0.103	.003	29.82	0.30	2.62	0.08
-124	1-1/4	1-7/16	3/32	1.237	.012	0.103	.003	31.42	0.30	2.62	0.08
-125	1-5/16	1-1/2	3/32	1.299	.012	0.103	.003	32.99	0.30	2.62	0.08
-126	1-3/8	1-9/16	3/32	1.362	.012	0.103	.003	34.59	0.30	2.62	0.08
-127	1-7/16	1-5/8	3/32	1.424	.012	0.103	.003	36.17	0.30	2.62	0.08
-128	1-1/2	1-11/16	3/32	1.487	.012	0.103	.003	37.77	0.30	2.62	0.08
-129	1-9/16	1-3/4	3/32	1.549	.015	0.103	.003	39.34	0.38	2.62	0.08
-130	1-5/8	1-13/16	3/32	1.612	.015	0.103	.003	40.94	0.38	2.62	0.08
-131	1-11/16	1-7/8	3/32	1.674	.015	0.103	.003	42.52	0.38	2.62	0.08



# VEDOVELL

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-132	1-3/4	1-15/16	3/32	1.737	.015	0.103	.003	44.12	0.38	2.62	0.08
-133	1 13/16	2	3/32	1.799	.015	0.103	.003	45.69	0.38	2.62	0.08
-134	1-7/8	2-1/16	3/32	1.862	.015	0.103	.003	47.29	0.38	2.62	0.08
-135	1-15/16	2-1/8	3/32	1.925	.017	0.103	.003	48.90	0.43	2.62	0.08
-136	2	2-3/16	3/32	1.987	.017	0.103	.003	50.47	0.43	2.62	0.08
-137	2-1/16	2-1/4	3/32	2.050	.017	0.103	.003	52.07	0.43	2.62	0.08
-138	2-1/8	2-5/16	3/32	2.112	.017	0.103	.003	53.64	0.43	2.62	0.08
-139	2-3/16	2-3/8	3/32	2.175	.017	0.103	.003	55.25	0.43	2.62	0.08
-140	2-1/4	2-7/16	3/32	2.237	.017	0.103	.003	56.82	0.43	2.62	0.08
-141	2-5/16	2-1/2	3/32	2.300	.020	0.103	.003	58.42	0.50	2.62	0.08
-142	2-3/8	2-9/16	3/32	2.362	.020	0.103	.003	59.99	0.50	2.62	0.08
-143	2-7/16	2-5/8	3/32	2.425	.020	0.103	.003	61.60	0.50	2.62	0.08
-144	2-1/2	2 11/16	3/32	2.487	.020	0.103	.003	63.17	0.50	2.62	0.08
-145	2-9/16	2-3/4	3/32	2.550	.020	0.103	.003	64.77	0.50	2.62	0.08
-146	2-5/8	2-13/16	3/32	2.612	.020	0.103	.003	66.34	0.50	2.62	0.08
-147	2 11/16	2-7/8	3/32	2.675	.022	0.103	.003	67.95	0.55	2.62	0.08
-148	2-3/4	2-15/16	3/32	2.737	.022	0.103	.003	69.52	0.55	2.62	0.08
-149	2-13/16	3	3/32	2.800	.022	0.103	.003	71.12	0.55	2.62	0.08
-150	2-7/8	3-1/16	3/32	2.862	.022	0.103	.003	72.69	0.55	2.62	0.08
-151	3	3-3/16	3/32	2.987	.024	0.103	.003	75.87	0.61	2.62	0.08
-152	3-1/4	3-7/16	3/32	3.237	.024	0.103	.003	82.22	0.61	2.62	0.08
-153	3-1/2	3-11/16	3/32	3.487	.024	0.103	.003	88.57	0.61	2.62	0.08
-154	3-3/4	3-15/16	3/32	3.737	.028	0.103	.003	94.92	0.71	2.62	0.08
-155	4	4-3/16	3/32	3.987	.028	0.103	.003	101.27	0.71	2.62	0.08
-156	4-1/4	4-7/16	3/32	4.237	.030	0.103	.003	107.62	0.76	2.62	0.08
-157	4-1/2	4-11/16	3/32	4.487	.030	0.103	.003	113.97	0.76	2.62	0.08
-158	4-3/4	4-15/16	3/32	4.737	.030	0.103	.003	120.32	0.76	2.62	0.08
-159	5	5-3/16	3/32	4.987	.035	0.103	.003	126.67	0.89	2.62	0.08
-160	5-1/4	5-7/16	3/32	5.237	.035	0.103	.003	133.02	0.89	2.62	0.08
-161	5-1/2	5-11/16	3/32	5.487	.035	0.103	.003	139.37	0.89	2.62	0.08
-162	5-3/4	5-15/16	3/32	5.737	.035	0.103	.003	145.72	0.89	2.62	0.08
-163	6	6-3/16	3/32	5.987	.035	0.103	.003	152.07	0.89	2.62	0.08
-164	6-1/4	6-7/16	3/32	6.237	.040	0.103	.003	158.42	1.02	2.62	0.08
-165	6-1/2	6-11/16	3/32	6.487	.040	0.103	.003	164.77	1.02	2.62	0.08
-166	6-3/4	6-15/16	3/32	6.737	.040	0.103	.003	171.12	1.02	2.62	0.08
-167	7	7-3/16	3/32	6.987	.040	0.103	.003	177.47	1.02	2.62	0.08
-168	7-1/4	7-7/16	3/32	7.237	.045	0.103	.003	183.82	1.14	2.62	0.08
-169	7-1/2	7-11/16	3/32	7.487	.045	0.103	.003	190.17	1.14	2.62	0.08
-170	7-3/4	7-15/16	3/32	7.737	.045	0.103	.003	196.52	1.14	2.62	0.08
-171	8	8-3/16	3/32	7.987	.045	0.103	.003	202.87	1.14	2.62	0.08



# VEDOVELL

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-172	8-1/4	8-7/16	3/32	8.237	.050	0.103	.003	209.22	1.25	2.62	0.08
-173	8-1/2	8-11/16	3/32	8.487	.050	0.103	.003	215.57	1.25	2.62	0.08
-174	8-3/4	8-15/16	3/32	8.737	.050	0.103	.003	221.92	1.25	2.62	0.08
-175	9	9-3/16	3/32	8.987	.050	0.103	.003	228.27	1.25	2.62	0.08
-176	9-1/4	9-7/16	3/32	9.237	.055	0.103	.003	234.62	1.40	2.62	0.08
-177	9-1/2	9-11/16	3/32	9.487	.055	0.103	.003	240.97	1.40	2.62	0.08
-178	9-3/4	9-15/16	3/32	9.737	.055	0.103	.003	247.32	1.40	2.62	0.08
-201	3/16	7/16	1/8	0.171	.005	0.139	.004	4.34	0.12	3.53	0.10
-202	1/4	1/2	1/8	0.234	.005	0.139	.004	5.94	0.12	3.53	0.10
-203	5/16	9/16	1/8	0.296	.005	0.139	.004	7.52	0.12	3.53	0.10
-204	3/8	5/8	1/8	0.359	.005	0.139	.004	9.12	0.12	3.53	0.10
-205	7/16	11/16	1/8	0.421	.005	0.139	.004	10.69	0.12	3.53	0.10
-206	1/2	3/4	1/8	0.484	.005	0.139	.004	12.29	0.12	3.53	0.10
-207	9/16	13/16	1/8	0.546	.007	0.139	.004	13.87	0.17	3.53	0.10
-208	5/8	7/8	1/8	0.609	.009	0.139	.004	15.47	0.23	3.53	0.10
-209	11/16	15/16	1/8	0.671	.009	0.139	.004	17.04	0.23	3.53	0.10
-210	3/4	1	1/8	0.734	.010	0.139	.004	18.64	0.25	3.53	0.10
-211	13/16	1-1/16	1/8	0.796	.010	0.139	.004	20.22	0.25	3.53	0.10
-212	7/8	1-1/8	1/8	0.859	.010	0.139	.004	21.82	0.25	3.53	0.10
-213	15/16	1-3/16	1/8	0.921	.010	0.139	.004	23.39	0.25	3.53	0.10
-214	1	1-1/4	1/8	0.984	.010	0.139	.004	24.99	0.25	3.53	0.10
-215	1-1/16	1-5/16	1/8	1.046	.010	0.139	.004	26.57	0.25	3.53	0.10
-216	1-1/8	1-3/8	1/8	1.109	.012	0.139	.004	28.17	0.30	3.53	0.10
-217	1-3/16	1-7/16	1/8	1.171	.012	0.139	.004	29.74	0.30	3.53	0.10
-218	1-1/4	1-1/2	1/8	1.234	.012	0.139	.004	31.34	0.30	3.53	0.10
-219	1-5/16	1-9/16	1/8	1.296	.012	0.139	.004	32.92	0.30	3.53	0.10
-220	1-3/8	1-5/8	1/8	1.359	.012	0.139	.004	34.52	0.30	3.53	0.10
-221	1-7/16	1 11/16	1/8	1.421	.012	0.139	.004	36.09	0.30	3.53	0.10
-222	1-1/2	1-3/4	1/8	1.484	.015	0.139	.004	37.69	0.38	3.53	0.10
-223	1-5/8	1-7/8	1/8	1.609	.015	0.139	.004	40.87	0.38	3.53	0.10
-224	1-3/4	2	1/8	1.734	.015	0.139	.004	44.04	0.38	3.53	0.10
-225	1-7/8	2-1/8	1/8	1.859	.018	0.139	.004	47.22	0.46	3.53	0.10
-226	2	2-1/4	1/8	1.984	.018	0.139	.004	50.39	0.46	3.53	0.10
-227	2-1/8	2-3/8	1/8	2.109	.018	0.139	.004	53.57	0.46	3.53	0.10
-228	2-1/4	2-1/2	1/8	2.234	.020	0.139	.004	56.74	0.50	3.53	0.10
-229	2-3/8	2-5/8	1/8	2.359	.020	0.139	.004	59.92	0.50	3.53	0.10
-230	2-1/2	2-3/4	1/8	2.484	.020	0.139	.004	63.09	0.50	3.53	0.10
-231	2-5/8	2-7/8	1/8	2.609	.020	0.139	.004	66.27	0.50	3.53	0.10
-232	2-3/4	3	1/8	2.734	.024	0.139	.004	69.44	0.61	3.53	0.10
-233	2-7/8	3-1/8	1/8	2.859	.024	0.139	.004	72.62	0.61	3.53	0.10
-234	3	3-1/4	1/8	2.984	.024	0.139	.004	75.79	0.61	3.53	0.10
-235	3-1/8	3-3/8	1/8	3.109	.024	0.139	.004	78.97	0.61	3.53	0.10



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Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-236	3-1/4	3-1/2	1/8	3.234	.024	0.139	.004	82.14	0.61	3.53	0.10
-237	3-3/8	3-5/8	1/8	3.359	.024	0.139	.004	85.32	0.61	3.53	0.10
-238	3-1/2	3-3/4	1/8	3.484	.024	0.139	.004	88.49	0.61	3.53	0.10
-239	3-5/8	3-7/8	1/8	3.609	.028	0.139	.004	91.67	0.71	3.53	0.10
-240	3-3/4	4	1/8	3.734	.028	0.139	.004	94.84	0.71	3.53	0.10
-241	3-7/8	4-1/8	1/8	3.859	.028	0.139	.004	98.02	0.71	3.53	0.10
-242	4	4-1/4	1/8	3.984	.028	0.139	.004	101.19	0.71	3.53	0.10
-243	4-1/8	4-3/8	1/8	4.109	.028	0.139	.004	104.37	0.71	3.53	0.10
-244	4-1/4	4-1/2	1/8	4.234	.030	0.139	.004	107.54	0.76	3.53	0.10
-245	4-3/8	4-5/8	1/8	4.359	.030	0.139	.004	110.72	0.76	3.53	0.10
-246	4-1/2	4-3/4	1/8	4.484	.030	0.139	.004	113.89	0.76	3.53	0.10
-247	4-5/8	4-7/8	1/8	4.609	.030	0.139	.004	117.07	0.76	3.53	0.10
-248	4-3/4	5	1/8	4.734	.030	0.139	.004	120.24	0.76	3.53	0.10
-249	4-7/8	5-1/8	1/8	4.859	.035	0.139	.004	123.42	0.89	3.53	0.10
-250	5	5-1/4	1/8	4.984	.035	0.139	.004	126.59	0.89	3.53	0.10
-251	5-1/8	5-3/8	1/8	5.109	.035	0.139	.004	129.77	0.89	3.53	0.10
-252	5-1/4	5-1/2	1/8	5.234	.035	0.139	.004	132.94	0.89	3.53	0.10
-253	5-3/8	5-5/8	1/8	5.359	.035	0.139	.004	136.12	0.89	3.53	0.10
-254	5-1/2	5-3/4	1/8	5.484	.035	0.139	.004	139.29	0.89	3.53	0.10
-255	5-5/8	5-7/8	1/8	5.609	.035	0.139	.004	142.47	0.89	3.53	0.10
-256	5-3/4	6	1/8	5.734	.035	0.139	.004	145.64	0.89	3.53	0.10
-257	5-7/8	6-1/8	1/8	5.859	.035	0.139	.004	148.82	0.89	3.53	0.10
-258	6	6-1/4	1/8	5.984	.035	0.139	.004	151.99	0.89	3.53	0.10
-259	6-1/4	6-1/2	1/8	6.234	.040	0.139	.004	158.34	1.02	3.53	0.10
-260	6-1/2	6-3/4	1/8	6.484	.040	0.139	.004	164.69	1.02	3.53	0.10
-261	6-3/4	7	1/8	6.734	.040	0.139	.004	171.04	1.02	3.53	0.10
-262	7	7-1/4	1/8	6.984	.040	0.139	.004	177.39	1.02	3.53	0.10
-263	7-1/4	7-1/2	1/8	7.234	.045	0.139	.004	183.74	1.14	3.53	0.10
-264	7-1/2	7-3/4	1/8	7.484	.045	0.139	.004	190.09	1.14	3.53	0.10
-265	7-3/4	8	1/8	7.734	.045	0.139	.004	196.44	1.14	3.53	0.10
-266	8	8-1/4	1/8	7.984	.045	0.139	.004	202.79	1.14	3.53	0.10
-267	8-1/4	8-1/2	1/8	8.234	.050	0.139	.004	209.14	1.25	3.53	0.10
-268	8-1/2	8-3/4	1/8	8.484	.050	0.139	.004	215.49	1.25	3.53	0.10
-269	8-3/4	9	1/8	8.734	.050	0.139	.004	221.84	1.25	3.53	0.10
-270	9	9-1/4	1/8	8.984	.050	0.139	.004	228.19	1.25	3.53	0.10
-271	9-1/4	9-1/2	1/8	9.234	.055	0.139	.004	234.54	1.40	3.53	0.10
-272	9-1/2	9-3/4	1/8	9.484	.055	0.139	.004	240.89	1.40	3.53	0.10
-273	9-3/4	10	1/8	9.734	.055	0.139	.004	247.24	1.40	3.53	0.10
-274	10	10-1/4	1/8	9.984	.055	0.139	.004	253.59	1.40	3.53	0.10
-275	10-1/2	10-3/4	1/8	10.484	.055	0.139	.004	266.29	1.40	3.53	0.10



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Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-276	11	11-1/4	1/8	10.984	.065	0.139	.004	278.99	1.65	3.53	0.10
-277	11-1/2	11-3/4	1/8	11.484	.065	0.139	.004	291.69	1.65	3.53	0.10
-278	12	12-1/4	1/8	11.984	.065	0.139	.004	304.39	1.65	3.53	0.10
-279	13	13-1/4	1/8	12.984	.065	0.139	.004	329.79	1.65	3.53	0.10
-280	14	14-1/4	1/8	13.984	.065	0.139	.004	355.19	1.65	3.53	0.10
-281	15	15-1/4	1/8	14.984	.065	0.139	.004	380.59	1.65	3.53	0.10
-282	16	16-1/4	1/8	15.955	.075	0.139	.004	405.26	1.90	3.53	0.10
-283	17	17-1/4	1/8	16.955	.080	0.139	.004	430.66	2.05	3.53	0.10
-284	18	18-1/4	1/8	17.955	.085	0.139	.004	456.06	2.15	3.53	0.10
-309	7/16	13/16	3/16	0.412	.005	0.210	.005	10.46	0.12	5.33	0.12
-310	1/12	7/8	3/16	0.475	.005	0.210	.005	12.07	0.12	5.33	0.12
-311	9/16	15/16	3/16	0.537	.007	0.210	.005	13.64	0.17	5.33	0.12
-312	5/8	1	3/16	0.600	.009	0.210	.005	15.24	0.22	5.33	0.12
-313	11/16	1-1/16	3/16	0.662	.009	0.210	.005	16.81	0.22	5.33	0.12
-314	3/4	1-1/8	3/16	0.725	.010	0.210	.005	18.42	0.25	5.33	0.12
-315	13/16	1-3/16	3/16	0.787	.010	0.210	.005	19.99	0.25	5.33	0.12
-316	7/8	1-1/4	3/16	0.850	.010	0.210	.005	21.59	0.25	5.33	0.12
-317	15/16	1-5/16	3/16	0.912	.010	0.210	.005	23.16	0.25	5.33	0.12
-318	1	1-3/8	3/16	0.975	.010	0.210	.005	24.77	0.25	5.33	0.12
-319	1-1/16	1-7/16	3/16	1.037	.010	0.210	.005	26.34	0.25	5.33	0.12
-320	1-1/8	1-1/2	3/16	1.100	.012	0.210	.005	27.94	0.30	5.33	0.12
-321	1-3/16	1-9/16	3/16	1.162	.012	0.210	.005	29.51	0.30	5.33	0.12
-322	1-1/4	1-5/8	3/16	1.225	.012	0.210	.005	31.12	0.30	5.33	0.12
-323	1-5/16	1 11/16	3/16	1.287	.012	0.210	.005	32.69	0.30	5.33	0.12
-324	1-3/8	1-3/4	3/16	1.350	.012	0.210	.005	34.29	0.30	5.33	0.12
-325	1-1/2	1-7/8	3/16	1.475	.015	0.210	.005	37.47	0.38	5.33	0.12
-326	1-5/8	2	3/16	1.600	.015	0.210	.005	40.64	0.38	5.33	0.12
-327	1-3/4	2-1/8	3/16	1.725	.015	0.210	.005	43.82	0.38	5.33	0.12
-328	1-7/8	2-1/4	3/16	1.850	.015	0.210	.005	46.99	0.38	5.33	0.12
-329	2	2-3/8	3/16	1.975	.018	0.210	.005	50.17	0.46	5.33	0.12
-330	2-1/8	2-1/2	3/16	2.100	.018	0.210	.005	53.34	0.46	5.33	0.12
-331	2-1/4	2-5/8	3/16	2.225	.018	0.210	.005	56.52	0.46	5.33	0.12
-332	2-3/8	2-3/4	3/16	2.350	.018	0.210	.005	59.69	0.46	5.33	0.12
-333	2-1/2	2-7/8	3/16	2.475	.020	0.210	.005	62.87	0.50	5.33	0.12
-334	2-5/8	3	3/16	2.600	.020	0.210	.005	66.04	0.50	5.33	0.12
-335	2-3/4	3-1/8	3/16	2.725	.020	0.210	.005	69.22	0.50	5.33	0.12
-336	2-7/8	3-1/4	3/16	2.850	.020	0.210	.005	72.39	0.50	5.33	0.12
-337	3	3-3/8	3/16	2.975	.024	0.210	.005	75.57	0.61	5.33	0.12
-338	3-1/8	3-1/2	3/16	3.100	.024	0.210	.005	78.74	0.61	5.33	0.12
-339	3-1/4	3-5/8	3/16	3.225	.024	0.210	.005	81.92	0.61	5.33	0.12
-340	3-3/8	3-3/4	3/16	3.350	.024	0.210	.005	85.09	0.61	5.33	0.12
-341	3-1/2	3-7/8	3/16	3.475	.024	0.210	.005	88.27	0.61	5.33	0.12
-342	3-5/8	4	3/16	3.600	.028	0.210	.005	91.44	0.71	5.33	0.12
-343	3-3/4	4-1/8	3/16	3.725	.028	0.210	.005	94.62	0.71	5.33	0.12



**VEDOVELL**

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-344	3-7/8	4-1/4	3/16	3.850	.028	0.210	.005	97.79	0.71	5.33	0.12
-345	4	4-3/8	3/16	3.975	.028	0.210	.005	100.97	0.71	5.33	0.12
-346	4-1/8	4-1/2	3/16	4.100	.028	0.210	.005	104.14	0.71	5.33	0.12
-347	4-1/4	4-5/8	3/16	4.225	.030	0.210	.005	107.32	0.76	5.33	0.12
-348	4-3/8	4-3/4	3/16	4.350	.030	0.210	.005	110.49	0.76	5.33	0.12
-349	4-1/2	4-7/8	3/16	4.475	.030	0.210	.005	113.67	0.76	5.33	0.12
-350	4-5/8	5	3/16	4.600	.030	0.210	.005	116.84	0.76	5.33	0.12
-351	4-3/4	5-1/8	3/16	4.725	.030	0.210	.005	120.02	0.76	5.33	0.12
-352	4-7/8	5-1/4	3/16	4.850	.030	0.210	.005	123.19	0.76	5.33	0.12
-353	5	5-3/8	3/16	4.975	.037	0.210	.005	126.37	0.94	5.33	0.12
-354	5-1/8	5-1/2	3/16	5.100	.037	0.210	.005	129.54	0.94	5.33	0.12
-355	5-1/4	5-5/8	3/16	5.225	.037	0.210	.005	132.72	0.94	5.33	0.12
-356	5-3/8	5-3/4	3/16	5.350	.037	0.210	.005	135.89	0.94	5.33	0.12
-357	5-1/2	5-7/8	3/16	5.475	.037	0.210	.005	139.07	0.94	5.33	0.12
-358	5-5/8	6	3/16	5.600	.037	0.210	.005	142.24	0.94	5.33	0.12
-359	5-3/4	6-1/8	3/16	5.725	.037	0.210	.005	145.42	0.94	5.33	0.12
-360	5-7/8	6-1/4	3/16	5.850	.037	0.210	.005	148.59	0.94	5.33	0.12
-361	6	6-3/8	3/16	5.975	.037	0.210	.005	151.77	0.94	5.33	0.12
-362	6-1/4	6-5/8	3/16	6.225	.040	0.210	.005	158.12	1.02	5.33	0.12
-363	6-1/2	6-7/8	3/16	6.475	.040	0.210	.005	164.47	1.02	5.33	0.12
-364	6-3/4	7-1/8	3/16	6.725	.040	0.210	.005	170.82	1.02	5.33	0.12
-365	7	7-3/8	3/16	6.975	.040	0.210	.005	177.17	1.02	5.33	0.12
-366	7-1/2	7-5/8	3/16	7.225	.045	0.210	.005	183.52	1.14	5.33	0.12
-367	7-1/2	7-7/8	3/16	7.475	.045	0.210	.005	189.87	1.14	5.33	0.12
-368	7-3/4	8-1/8	3/16	7.725	.045	0.210	.005	196.22	1.14	5.33	0.12
-369	8	8-3/8	3/16	7.975	.045	0.210	.005	202.57	1.14	5.33	0.12
-370	8-1/4	8-5/8	3/16	8.225	.050	0.210	.005	208.92	1.30	5.33	0.12
-371	8-1/2	8-7/8	3/16	8.475	.050	0.210	.005	215.27	1.30	5.33	0.12
-372	8-3/4	9-1/8	3/16	8.725	.050	0.210	.005	221.62	1.30	5.33	0.12
-373	9	9-3/8	3/16	8.975	.050	0.210	.005	227.97	1.30	5.33	0.12
-374	9-1/4	9-5/8	3/16	9.225	.055	0.210	.005	234.32	1.40	5.33	0.12
-375	9-1/2	9-7/8	3/16	9.475	.055	0.210	.005	240.67	1.40	5.33	0.12
-376	9-3/4	10-1/8	3/16	9.725	.055	0.210	.005	247.02	1.40	5.33	0.12
-377	10	10-3/8	3/16	9.975	.055	0.210	.005	253.37	1.40	5.33	0.12
-378	10-1/2	10-7/8	3/16	10.475	.060	0.210	.005	266.07	1.52	5.33	0.12
-379	11	11-3/8	3/16	10.975	.060	0.210	.005	278.77	1.52	5.33	0.12
-380	11-1/2	11-7/8	3/16	11.475	.065	0.210	.005	291.47	1.65	5.33	0.12
-381	12	12-3/8	3/16	11.975	.065	0.210	.005	304.17	1.65	5.33	0.12
-382	13	13-3/8	3/16	12.975	.065	0.210	.005	329.55	1.65	5.34	0.12
-383	14	14-3/8	3/16	13.975	.070	0.210	.005	354.97	1.78	5.33	0.12
-384	15	15-3/8	3/16	14.975	.070	0.210	.005	380.37	1.78	5.33	0.12
-385	16	16-3/8	3/16	15.955	.075	0.210	.005	405.26	1.90	5.33	0.12
-386	17	17-3/8	3/16	16.955	.080	0.210	.005	430.66	2.05	5.33	0.12



# VEDOVELL

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-387	18	18-3/8	3/16	17.955	.085	0.210	.005	456.06	2.15	5.33	0.12
-388	19	19-3/8	3/16	18.955	.090	0.210	.005	481.46	2.25	5.33	0.12
-389	20	20-3/8	3/16	19.955	.095	0.210	.005	506.86	2.25	5.33	0.12
-390	21	21-3/8	3/16	20.955	.095	0.210	.005	532.26	2.25	5.33	0.12
-391	22	22-3/8	3/16	21.955	.100	0.210	.005	557.66	2.55	5.33	0.12
-392	23	23-3/8	3/16	22.940	.105	0.210	.005	582.65	2.65	5.33	0.12
-393	24	24-3/8	3/16	23.940	.110	0.210	.005	608.10	2.80	5.33	0.12
-394	25	25-3/8	3/16	24.940	.115	0.210	.005	633.50	2.90	5.33	0.12
-395	26	26-3/8	3/16	25.940	.012	0.210	.005	658.88	3.05	5.33	0.12
-400	1-3/8	1-7/8	1/4	1.350	.015	0.275	.006	34.29	0.38	6.99	0.15
-401	1-1/2	2	1/4	1.475	.015	0.275	.006	37.47	0.38	6.99	0.15
-402	1-5/8	2-1/8	1/4	1.600	.015	0.275	.006	40.64	0.38	6.99	0.15
-403	1-3/4	2-1/4	1/4	1.725	.015	0.275	.006	43.82	0.38	6.99	0.15
-404	1-7/8	2-3/8	1/4	1.850	.018	0.275	.006	46.99	0.38	6.99	0.15
-405	2	2-1/2	1/4	1.975	.018	0.275	.006	50.17	0.46	6.99	0.15
-406	2-1/8	2-5/8	1/4	2.100	.018	0.275	.006	53.34	0.46	6.99	0.15
-407	2-1/4	2-3/4	1/4	2.225	.018	0.275	.006	56.52	0.46	6.99	0.15
-408	2-3/8	2-7/8	1/4	2.350	.020	0.275	.006	59.69	0.46	6.99	0.15
-409	2-1/2	3	1/4	2.475	.020	0.275	.006	62.87	0.51	6.99	0.15
-410	2-5/8	3-1/8	1/4	2.600	.020	0.275	.006	66.04	0.51	6.99	0.15
-411	2-3/4	3-1/4	1/4	2.725	.020	0.275	.006	69.22	0.51	6.99	0.15
-412	2-7/8	3-3/8	1/4	2.850	.020	0.275	.006	72.39	0.51	6.99	0.15
-413	3	3-1/2	1/4	2.975	.024	0.275	.006	75.57	0.61	6.99	0.15
-414	3-1/8	3-5/8	1/4	3.100	.024	0.275	.006	78.74	0.61	6.99	0.15
-415	3-1/4	3-3/4	1/4	3.225	.024	0.275	.006	81.92	0.61	6.99	0.15
-416	3-3/8	3-7/8	1/4	3.350	.024	0.275	.006	85.09	0.61	6.99	0.15
-417	3-1/2	4	1/4	3.475	.024	0.275	.006	88.27	0.61	6.99	0.15
-418	3-5/8	4-1/8	1/4	3.600	.028	0.275	.006	91.44	0.71	6.99	0.15
-419	3-3/4	4-1/4	1/4	3.725	.028	0.275	.006	94.62	0.71	6.99	0.15
-420	3-7/8	4-3/8	1/4	3.850	.028	0.275	.006	97.79	0.71	6.99	0.15
-421	4	4-1/2	1/4	3.975	.028	0.275	.006	100.97	0.71	6.99	0.15
-422	4-1/8	4-5/8	1/4	4.100	.028	0.275	.006	104.14	0.71	6.99	0.15
-423	4-1/4	4-3/4	1/4	4.225	.030	0.275	.006	107.32	0.76	6.99	0.15
-424	4-3/8	4-7/8	1/4	4.350	.030	0.275	.006	110.49	0.76	6.99	0.15
-425	4-1/2	5	1/4	4.475	.033	0.275	.006	113.67	0.83	6.99	0.15
-426	4-5/8	5-1/8	1/4	4.600	.033	0.275	.006	116.84	0.83	6.99	0.15
-427	4-3/4	5-1/4	1/4	4.725	.033	0.275	.006	120.02	0.83	6.99	0.15
-428	4-7/8	5-3/8	1/4	4.850	.033	0.275	.006	123.19	0.83	6.99	0.15
-429	5	5-1/2	1/4	4.975	.037	0.275	.006	126.37	0.93	6.99	0.15
-430	5-1/8	5-5/8	1/4	5.100	.037	0.275	.006	129.54	0.93	6.99	0.15
-431	5-1/4	5-3/4	1/4	5.225	.037	0.275	.006	132.72	0.93	6.99	0.15
-432	5-3/8	5-7/8	1/4	5.350	.037	0.275	.006	135.89	0.93	6.99	0.15
-433	5-1/2	6	1/4	5.475	.037	0.275	.006	139.07	0.93	6.99	0.15
-434	5-5/8	6-1/8	1/4	5.600	.037	0.275	.006	142.24	0.93	6.99	0.15



# VEDOVELL

Size Ref. AS568-	Nominal Size Inches			Actual Size Inches				Actual Size Millimeters			
	ID	OD	W	ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
-435	5-3/4	6-1/4	1/4	5.725	.037	0.275	.006	145.42	0.93	6.99	0.15
-436	5-7/8	6-3/8	1/4	5.850	.037	0.275	.006	148.59	0.93	6.99	0.15
-437	6	6-1/2	1/4	5.975	.037	0.275	.006	151.77	0.93	6.99	0.15
-438	6-1/4	6-3/4	1/4	6.225	.040	0.275	.006	158.12	1.01	6.99	0.15
-439	6-1/2	7	1/4	6.475	.040	0.275	.006	164.47	1.01	6.99	0.15
-440	6-3/4	7-1/4	1/4	6.725	.040	0.275	.006	170.82	1.01	6.99	0.15
-441	7	7-1/2	1/4	6.975	.040	0.275	.006	177.17	1.01	6.99	0.15
-442	7-1/4	7-3/4	1/4	7.225	.045	0.275	.006	183.52	1.14	6.99	0.15
-443	7-1/2	8	1/4	7.475	.045	0.275	.006	189.87	1.14	6.99	0.15
-444	7-3/4	8-1/4	1/4	7.725	.045	0.275	.006	196.22	1.14	6.99	0.15
-445	8	8-1/2	1/4	7.975	.045	0.275	.006	202.57	1.14	6.99	0.15
-446	8-1/2	9	1/4	8.475	.055	0.275	.006	215.27	1.40	6.99	0.15
-447	9	9-1/2	1/4	8.975	.055	0.275	.006	227.97	1.40	6.99	0.15
-448	9-1/2	10	1/4	9.475	.055	0.275	.006	240.67	1.40	6.99	0.15
-449	10	10-1/2	1/4	9.975	.055	0.275	.006	253.37	1.40	6.99	0.15
-450	10-1/2	11	1/4	10.475	.060	0.275	.006	266.07	1.52	6.99	0.15
-451	11	11-1/2	1/4	10.975	.060	0.275	.006	278.77	1.52	6.99	0.15
-452	11-1/2	12	1/4	11.475	.060	0.275	.006	291.47	1.52	6.99	0.15
-453	12	12-1/2	1/4	11.975	.060	0.275	.006	304.17	1.52	6.99	0.15
-454	12-1/2	13	1/4	12.475	.060	0.275	.006	316.87	1.52	6.99	0.15
-455	13	13-1/2	1/4	12.975	.060	0.275	.006	329.57	1.52	6.99	0.15
-456	13-1/2	14	1/4	13.475	.070	0.275	.006	342.27	1.78	6.99	0.15
-457	14	14-1/2	1/4	13.975	.070	0.275	.006	354.97	1.78	6.99	0.15
-458	14-1/2	15	1/4	14.475	.070	0.275	.006	367.67	1.78	6.99	0.15
-459	15	15-1/2	1/4	14.975	.070	0.275	.006	380.37	1.78	6.99	0.15
-460	15-1/2	16	1/4	15.475	.070	0.275	.006	393.07	1.78	6.99	0.15
-461	16	16-1/2	1/4	15.955	.075	0.275	.006	405.26	1.90	6.99	0.15
-462	16-1/2	17	1/4	16.455	.075	0.275	.006	417.96	1.90	6.99	0.15
-463	17	17-1/2	1/4	16.955	.080	0.275	.006	430.66	2.05	6.99	0.15
-464	17-1/2	18	1/4	17.455	.085	0.275	.006	443.36	2.15	6.99	0.15
-465	18	18-1/2	1/4	17.955	.085	0.275	.006	456.06	2.15	6.99	0.15
-466	18-1/2	19	1/4	18.455	.085	0.275	.006	468.76	2.15	6.99	0.15
-467	19	19-1/2	1/4	18.955	.090	0.275	.006	481.46	2.25	6.99	0.15
-468	19-1/2	20	1/4	19.455	.090	0.275	.006	494.16	2.25	6.99	0.15
-469	20	20-1/2	1/4	19.955	.090	0.275	.006	506.86	2.45	6.99	0.15
-470	21	21-1/2	1/4	20.955	.090	0.275	.006	532.26	2.45	6.99	0.15
-471	22	22-1/2	1/4	21.955	.100	0.275	.006	557.66	2.55	6.99	0.15
-472	23	23-1/2	1/4	22.940	.105	0.275	.006	582.65	2.65	6.99	0.15
-473	24	24-1/2	1/4	23.940	.110	0.275	.006	608.10	2.80	6.99	0.15
-474	25	25-1/2	1/4	24.940	.115	0.275	.006	633.50	2.90	6.99	0.15
-475	26	26-1/2	1/4	25.940	0.12	0.275	.006	658.85	3.05	6.99	0.15



## VEDOVELL O-Rings for Tube Fitting Bosses

Size Ref. AS568-	Tube Size O.D.	Actual Size Inches				Actual Size Millimeters			
		ID	ID Tol. ±	W	W Tol. ±	ID	ID Tol. ±	W	W Tol. ±
901	3/32	0.185	.005	0.056	.003	4.7	0.13	1.42	0.08
902	1/8	0.239	.005	0.064	.003	6.07	0.13	1.63	0.08
903	3/16	0.301	.005	0.064	.003	7.65	0.13	1.63	0.08
904	1/4	0.351	.005	0.072	.003	8.92	0.13	1.83	0.08
905	5/16	0.414	.005	0.072	.003	10.52	0.13	1.83	0.08
906	3/8	0.468	.005	0.078	.003	11.89	0.13	1.98	0.08
907	7/16	0.530	.005	0.082	.003	13.46	0.18	2.08	0.08
908	1/2	0.644	.009	0.087	.003	16.36	0.23	2.21	0.08
909	9/16	0.706	.009	0.097	.003	17.93	0.23	2.46	0.08
910	5/8	0.755	.009	0.097	.003	19.18	0.23	2.46	0.08
911	11/16	0.863	.009	0.116	.004	21.92	0.23	2.95	0.10
912	3/4	0.924	.009	0.116	.004	23.47	0.23	2.95	0.10
913	13/16	0.986	.010	0.116	.004	25.04	0.26	2.95	0.10
914	7/8	1.047	.010	0.116	.004	26.59	0.26	2.95	0.10
916	1	1.171	.010	0.116	.004	29.74	0.26	2.95	0.10
918	1 1/8	1.355	.012	0.116	.004	34.42	0.30	2.95	0.10
920	1 1/4	1.475	.014	0.118	.004	37.47	0.36	3.00	0.10
924	1 1/2	1.720	.014	0.118	.004	43.69	0.36	3.00	0.10
928	1 3/4	2.090	.018	0.118	.004	53.09	0.46	3.00	0.10
932	2	2.337	.018	0.118	.004	59.36	0.46	3.00	0.10



## VEDOVELL Metric Sizes

Inside Diameter mm		Cross Section mm	Size Cross Reference
1.80	X	0.70	
22.80	X	0.80	
5.36	X	0.81	
6.10	X	0.84	
22.80	X	0.90	
2.54	X	0.97	
1.15	X	1.00	
1.25	X	1.00	
1.50	X	1.00	
1.80	X	1.00	
2.00	X	1.00	
2.50	X	1.00	
2.70	X	1.00	
3.00	X	1.00	
3.30	X	1.00	
3.50	X	1.00	
4.00	X	1.00	
4.50	X	1.00	
5.00	X	1.00	
5.50	X	1.00	
6.00	X	1.00	
6.50	X	1.00	
7.00	X	1.00	
7.20	X	1.00	
7.50	X	1.00	
8.00	X	1.00	
8.50	X	1.00	
9.00	X	1.00	
9.50	X	1.00	
10.00	X	1.00	
10.50	X	1.00	
11.00	X	1.00	
11.50	X	1.00	
12.00	X	1.00	
12.50	X	1.00	
13.00	X	1.00	
13.50	X	1.00	
14.00	X	1.00	
14.50	X	1.00	
15.00	X	1.00	
15.50	X	1.00	
16.00	X	1.00	
16.50	X	1.00	
17.00	X	1.00	
17.50	X	1.00	
18.00	X	1.00	
18.50	X	1.00	
19.00	X	1.00	
19.50	X	1.00	
20.00	X	1.00	
20.50	X	1.00	
21.00	X	1.00	
21.50	X	1.00	
22.00	X	1.00	
22.50	X	1.00	
23.00	X	1.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
23.50	X	1.00	
24.00	X	1.00	
24.50	X	1.00	
25.00	X	1.00	
28.00	X	1.00	
29.40	X	1.00	
29.90	X	1.00	
30.50	X	1.00	
31.80	X	1.00	
32.00	X	1.00	
39.00	X	1.00	
42.00	X	1.00	
60.00	X	1.00	
0.74	X	1.02	001
1.78	X	1.02	BS606
2.54	X	1.02	BS607
42.10	X	1.15	
4.32	X	1.19	
2.50	X	1.20	
2.60	X	1.20	
3.50	X	1.20	
5.00	X	1.20	
24.00	X	1.20	
26.00	X	1.20	
28.00	X	1.20	
35.00	X	1.20	
40.00	X	1.20	
53.50	X	1.20	
98.00	X	1.20	
3.80	X	1.25	
8.00	X	1.25	
16.00	X	1.25	
1.07	X	1.27	002
3.25	X	1.27	
3.91	X	1.27	
4.47	X	1.27	
2.50	X	1.30	
8.00	X	1.30	
10.00	X	1.30	
11.00	X	1.30	
13.50	X	1.30	
20.00	X	1.30	
4.70	X	1.42	901
1.80	X	1.50	
1.85	X	1.50	
2.00	X	1.50	
2.50	X	1.50	S3
2.80	X	1.50	
3.00	X	1.50	
3.50	X	1.50	S4
4.00	X	1.50	
4.50	X	1.50	S5
5.00	X	1.50	
5.50	X	1.50	S6
6.00	X	1.50	
6.50	X	1.50	S7

Inside Diameter mm		Cross Section mm	Size Cross Reference
7.00	X	1.50	
7.50	X	1.50	S8
8.00	X	1.50	
8.50	X	1.50	S9
9.00	X	1.50	
9.50	X	1.50	S10
10.00	X	1.50	
10.50	X	1.50	
10.70	X	1.50	S11.2
11.00	X	1.50	
11.50	X	1.50	S12
12.00	X	1.50	S12.5
12.50	X	1.50	
13.00	X	1.50	
13.25	X	1.50	
13.50	X	1.50	S14
14.00	X	1.50	
14.50	X	1.50	S15
15.00	X	1.50	
15.50	X	1.50	S16
16.00	X	1.50	
16.50	X	1.50	
17.00	X	1.50	
17.50	X	1.50	S18
18.00	X	1.50	
18.50	X	1.50	
19.00	X	1.50	
19.50	X	1.50	S20
20.00	X	1.50	
20.50	X	1.50	
21.00	X	1.50	
21.50	X	1.50	S22
22.00	X	1.50	
22.50	X	1.50	
23.00	X	1.50	
23.50	X	1.50	
24.00	X	1.50	
24.50	X	1.50	
25.00	X	1.50	
25.50	X	1.50	
26.00	X	1.50	
26.50	X	1.50	
27.00	X	1.50	
27.50	X	1.50	
28.00	X	1.50	
28.50	X	1.50	
29.00	X	1.50	
29.50	X	1.50	
30.00	X	1.50	
30.50	X	1.50	
31.00	X	1.50	
31.50	X	1.50	
32.00	X	1.50	
32.50	X	1.50	
33.00	X	1.50	
33.50	X	1.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
34.00	X	1.50	
34.50	X	1.50	
35.00	X	1.50	
35.50	X	1.50	
36.00	X	1.50	
36.50	X	1.50	
37.00	X	1.50	
37.50	X	1.50	
38.00	X	1.50	
38.50	X	1.50	
39.00	X	1.50	
39.50	X	1.50	
40.00	X	1.50	
41.00	X	1.50	
42.00	X	1.50	
43.00	X	1.50	
44.00	X	1.50	
45.00	X	1.50	
46.00	X	1.50	
47.00	X	1.50	
48.00	X	1.50	
49.00	X	1.50	
50.00	X	1.50	
51.00	X	1.50	
52.00	X	1.50	
53.00	X	1.50	
54.00	X	1.50	
55.00	X	1.50	
56.00	X	1.50	
57.00	X	1.50	
58.00	X	1.50	
59.00	X	1.50	
60.00	X	1.50	
61.00	X	1.50	
62.00	X	1.50	
63.00	X	1.50	
64.00	X	1.50	
65.00	X	1.50	
66.00	X	1.50	
67.00	X	1.50	
68.00	X	1.50	
69.00	X	1.50	
70.00	X	1.50	
71.00	X	1.50	
72.00	X	1.50	
73.00	X	1.50	
74.00	X	1.50	
75.00	X	1.50	
76.00	X	1.50	
77.00	X	1.50	
78.00	X	1.50	
79.00	X	1.50	
80.00	X	1.50	
81.00	X	1.50	
82.00	X	1.50	
83.00	X	1.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
84.00	X	1.50	
85.00	X	1.50	
86.00	X	1.50	
87.00	X	1.50	
88.00	X	1.50	
89.00	X	1.50	
90.00	X	1.50	
91.00	X	1.50	
92.00	X	1.50	
93.00	X	1.50	
94.00	X	1.50	
95.00	X	1.50	
96.00	X	1.50	
97.00	X	1.50	
98.00	X	1.50	
99.00	X	1.50	
100.00	X	1.50	
1.42	X	1.52	3
2.20	X	1.60	
2.75	X	1.60	
2.80	X	1.60	
3.10	X	1.60	
3.20	X	1.60	
3.70	X	1.60	
4.10	X	1.60	
4.70	X	1.60	
5.00	X	1.60	
5.10	X	1.60	
6.10	X	1.60	
7.10	X	1.60	
8.10	X	1.60	
9.10	X	1.60	
10.10	X	1.60	
11.10	X	1.60	
12.10	X	1.60	
13.10	X	1.60	
14.10	X	1.60	
15.10	X	1.60	
16.10	X	1.60	
17.10	X	1.60	
18.10	X	1.60	
19.10	X	1.60	
20.30	X	1.60	
21.10	X	1.60	
22.10	X	1.60	
25.10	X	1.60	
27.10	X	1.60	
29.10	X	1.60	
32.10	X	1.60	
35.10	X	1.60	
37.10	X	1.60	
51.10	X	1.60	
86.00	X	1.60	
96.60	X	1.60	
115.00	X	1.60	
6.07	X	1.63	902

Inside Diameter mm		Cross Section mm	Size Cross Reference
7.65	X	1.63	903
1.78	X	1.78	4
2.57	X	1.78	5
2.90	X	1.78	6
3.17	X	1.78	BS801
3.68	X	1.78	7
4.47	X	1.78	8
4.76	X	1.78	BS802
5.28	X	1.78	9
6.07	X	1.78	10
6.35	X	1.78	BS803
6.75	X	1.78	BS610
7.65	X	1.78	11
7.94	X	1.78	BS804
8.73	X	1.78	BS611
9.25	X	1.78	12
9.52	X	1.78	
10.82	X	1.78	13
11.11	X	1.78	BS806
11.91	X	1.78	
12.42	X	1.78	14
14.00	X	1.78	15
15.60	X	1.78	16
17.17	X	1.78	17
18.77	X	1.78	18
19.05	X	1.78	
19.15	X	1.78	
20.35	X	1.78	19
21.47	X	1.78	
21.95	X	1.78	20
23.52	X	1.78	21
25.12	X	1.78	22
26.70	X	1.78	23
28.30	X	1.78	24
29.87	X	1.78	25
31.47	X	1.78	26
33.05	X	1.78	27
34.65	X	1.78	28
36.00	X	1.78	
36.27	X	1.78	BS517
37.82	X	1.78	29
39.45	X	1.78	BS519
41.00	X	1.78	30
44.17	X	1.78	31
45.84	X	1.78	
47.35	X	1.78	32
50.52	X	1.78	33
53.70	X	1.78	34
56.87	X	1.78	35
60.05	X	1.78	36
63.22	X	1.78	37
66.40	X	1.78	38
69.57	X	1.78	39
72.75	X	1.78	40
75.92	X	1.78	41
79.00	X	1.78	BS532



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Inside Diameter mm		Cross Section mm	Size Cross Reference
82.27	X	1.78	42
85.34	X	1.78	BS534
88.62	X	1.78	43
91.70	X	1.78	BS536
94.97	X	1.78	44
98.05	X	1.78	BS538
101.32	X	1.78	45
104.40	X	1.78	BS540
107.67	X	1.78	46
110.74	X	1.78	BS542
114.02	X	1.78	47
117.10	X	1.78	BS544
120.37	X	1.78	48
123.44	X	1.78	BS546
126.72	X	1.78	49
129.40	X	1.78	BS548
133.07	X	1.78	50
135.76	X	1.78	BS550
138.94	X	1.78	BS551
142.11	X	1.78	BS552
145.29	X	1.78	BS553
148.46	X	1.78	BS554
151.64	X	1.78	BS555
154.81	X	1.78	BS556
158.00	X	1.78	BS557
161.16	X	1.78	BS558
164.34	X	1.78	BS559
167.51	X	1.78	BS560
170.69	X	1.78	BS561
173.87	X	1.78	BS562
1.80	X	1.80	
2.00	X	1.80	
2.24	X	1.80	
2.50	X	1.80	
2.80	X	1.80	
3.15	X	1.80	
3.55	X	1.80	
3.75	X	1.80	
4.00	X	1.80	
4.50	X	1.80	
4.87	X	1.80	
5.00	X	1.80	
5.15	X	1.80	
5.30	X	1.80	
5.60	X	1.80	
6.00	X	1.80	
6.30	X	1.80	
6.70	X	1.80	
6.90	X	1.80	
7.10	X	1.80	
7.50	X	1.80	
8.00	X	1.80	
8.50	X	1.80	
8.76	X	1.80	
9.00	X	1.80	
9.50	X	1.80	

Inside Diameter mm		Cross Section mm	Size Cross Reference
10.00	X	1.80	
10.60	X	1.80	
11.20	X	1.80	
11.80	X	1.80	
12.50	X	1.80	
13.20	X	1.80	
14.00	X	1.80	
15.00	X	1.80	
16.00	X	1.80	
17.00	X	1.80	
8.92	X	1.83	904
10.52	X	1.83	905
2.40	X	1.90	
2.60	X	1.90	
2.80	X	1.90	P3
3.40	X	1.90	
3.70	X	1.90	
3.80	X	1.90	P4
4.20	X	1.90	
4.80	X	1.90	P5
4.90	X	1.90	
5.70	X	1.90	
5.80	X	1.90	P6
6.40	X	1.90	
6.80	X	1.90	P7
7.20	X	1.90	
7.80	X	1.90	P8
8.00	X	1.90	
8.80	X	1.90	P9
8.90	X	1.90	
9.80	X	1.90	P10
67.10	X	1.92	
11.89	X	1.98	906
2.00	X	2.00	
2.50	X	2.00	
2.60	X	2.00	
3.00	X	2.00	
3.50	X	2.00	
4.00	X	2.00	
4.50	X	2.00	
4.60	X	2.00	
5.00	X	2.00	
5.50	X	2.00	
6.00	X	2.00	
6.50	X	2.00	
7.00	X	2.00	
7.50	X	2.00	
8.00	X	2.00	
8.50	X	2.00	
9.00	X	2.00	
9.50	X	2.00	
10.00	X	2.00	
10.50	X	2.00	
11.00	X	2.00	
11.50	X	2.00	
12.00	X	2.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
12.50	X	2.00	
13.00	X	2.00	
13.50	X	2.00	
14.00	X	2.00	
14.50	X	2.00	
15.00	X	2.00	
15.50	X	2.00	
16.00	X	2.00	
16.50	X	2.00	
17.00	X	2.00	
17.50	X	2.00	
18.00	X	2.00	
18.50	X	2.00	
19.00	X	2.00	
19.50	X	2.00	
20.00	X	2.00	
20.50	X	2.00	
21.00	X	2.00	
21.50	X	2.00	
21.90	X	2.00	S22.4
22.00	X	2.00	
22.50	X	2.00	
23.00	X	2.00	
23.50	X	2.00	S24
24.00	X	2.00	
24.50	X	2.00	S25
25.00	X	2.00	
25.50	X	2.00	S26
26.00	X	2.00	
26.50	X	2.00	
27.00	X	2.00	
27.50	X	2.00	S28
28.00	X	2.00	
28.50	X	2.00	S29
29.00	X	2.00	
29.50	X	2.00	S30
30.00	X	2.00	
30.50	X	2.00	
31.00	X	2.00	S31.5
31.50	X	2.00	S32
32.00	X	2.00	
32.50	X	2.00	
33.00	X	2.00	
33.50	X	2.00	S34
34.00	X	2.00	
34.50	X	2.00	S35
35.00	X	2.00	S35.5
35.50	X	2.00	S36
36.00	X	2.00	
36.50	X	2.00	
37.00	X	2.00	
37.50	X	2.00	S38
38.00	X	2.00	
38.50	X	2.00	S39
39.00	X	2.00	
39.50	X	2.00	S40



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Inside Diameter mm		Cross Section mm	Size Cross Reference
40.00	X	2.00	
41.00	X	2.00	
41.50	X	2.00	S42
42.00	X	2.00	
42.00	X	2.00	
42.50	X	2.00	S43
43.00	X	2.00	
43.50	X	2.00	S44
44.00	X	2.00	
44.50	X	2.00	S45
45.00	X	2.00	
45.50	X	2.00	S46
46.00	X	2.00	
47.00	X	2.00	
47.50	X	2.00	S48
48.00	X	2.00	
49.00	X	2.00	
49.50	X	2.00	S50
50.00	X	2.00	
51.00	X	2.00	
52.00	X	2.00	
52.50	X	2.00	S53
53.00	X	2.00	
54.00	X	2.00	
54.50	X	2.00	S55
55.00	X	2.00	
55.50	X	2.00	S56
56.00	X	2.00	
57.00	X	2.00	
58.00	X	2.00	
59.00	X	2.00	
59.50	X	2.00	S60
60.00	X	2.00	
61.00	X	2.00	
62.00	X	2.00	
62.50	X	2.00	S63
63.00	X	2.00	
64.00	X	2.00	
64.50	X	2.00	S65
65.00	X	2.00	
66.00	X	2.00	
66.50	X	2.00	S67
67.00	X	2.00	
68.00	X	2.00	
69.00	X	2.00	
69.50	X	2.00	S70
70.00	X	2.00	
70.50	X	2.00	S71
71.00	X	2.00	
72.00	X	2.00	
73.00	X	2.00	
74.00	X	2.00	
74.50	X	2.00	S75
75.00	X	2.00	
76.00	X	2.00	
77.00	X	2.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
78.00	X	2.00	
79.00	X	2.00	
79.50	X	2.00	S80
80.00	X	2.00	
81.00	X	2.00	
82.00	X	2.00	
83.00	X	2.00	
84.00	X	2.00	
84.50	X	2.00	S85
85.00	X	2.00	
86.00	X	2.00	
87.00	X	2.00	
88.00	X	2.00	
89.00	X	2.00	
89.50	X	2.00	S90
90.00	X	2.00	
91.00	X	2.00	
92.00	X	2.00	
93.00	X	2.00	
94.00	X	2.00	
94.50	X	2.00	S95
95.00	X	2.00	
96.00	X	2.00	
97.00	X	2.00	
98.00	X	2.00	
99.00	X	2.00	
99.50	X	2.00	S100
100.00	X	2.00	
102.00	X	2.00	
104.50	X	2.00	S105
105.00	X	2.00	
109.00	X	2.00	
109.50	X	2.00	S110
110.00	X	2.00	
111.50	X	2.00	S112
114.50	X	2.00	S115
115.00	X	2.00	
119.50	X	2.00	S120
120.00	X	2.00	
124.50	X	2.00	S125
125.60	X	2.00	
129.50	X	2.00	S130
130.00	X	2.00	
131.50	X	2.00	S132
134.50	X	2.00	S135
139.50	X	2.00	S140
140.00	X	2.00	
144.50	X	2.00	S145
149.50	X	2.00	S150
165.00	X	2.00	
180.00	X	2.00	
194.00	X	2.00	
13.46	X	2.08	907
12.40	X	2.18	
194.00	X	2.18	
6.00	X	2.20	

Inside Diameter mm		Cross Section mm	Size Cross Reference
9.00	X	2.20	
10.00	X	2.20	
12.40	X	2.20	
18.00	X	2.20	
16.36	X	2.21	908
3.30	X	2.40	
3.60	X	2.40	
4.30	X	2.40	
4.60	X	2.40	
5.30	X	2.40	
5.50	X	2.40	
5.60	X	2.40	
6.30	X	2.40	
6.60	X	2.40	
7.30	X	2.40	
7.50	X	2.40	
7.60	X	2.40	
8.00	X	2.40	
8.30	X	2.40	
8.60	X	2.40	
9.30	X	2.40	
9.60	X	2.40	
9.80	X	2.40	P10A
10.30	X	2.40	
10.50	X	2.40	
10.60	X	2.40	
10.80	X	2.40	P11
11.00	X	2.40	P11.2
11.30	X	2.40	
11.50	X	2.40	
11.60	X	2.40	
11.80	X	2.40	P12
12.30	X	2.40	P12.5
12.60	X	2.40	
13.30	X	2.40	
13.50	X	2.40	
13.60	X	2.40	
13.80	X	2.40	P14
14.30	X	2.40	
14.50	X	2.40	
14.60	X	2.40	
14.80	X	2.40	P15
15.30	X	2.40	
15.50	X	2.40	
15.60	X	2.40	
15.80	X	2.40	P16
15.90	X	2.40	
16.30	X	2.40	
16.60	X	2.40	
17.30	X	2.40	
17.50	X	2.40	
17.60	X	2.40	
17.80	X	2.40	P18
18.30	X	2.40	
18.60	X	2.40	
19.30	X	2.40	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
19.60	X	2.40	
19.80	X	2.40	P20
20.30	X	2.40	
20.50	X	2.40	
20.80	X	2.40	P21
21.30	X	2.40	
21.50	X	2.40	
21.60	X	2.40	
21.80	X	2.40	P22
22.30	X	2.40	
22.60	X	2.40	
23.30	X	2.40	
23.50	X	2.40	
23.60	X	2.40	
24.30	X	2.40	
24.50	X	2.40	
24.60	X	2.40	
25.00	X	2.40	
25.30	X	2.40	
25.60	X	2.40	
27.30	X	2.40	
27.50	X	2.40	
27.60	X	2.40	
29.60	X	2.40	
30.30	X	2.40	
31.60	X	2.40	
33.30	X	2.40	
34.60	X	2.40	
36.50	X	2.40	
37.60	X	2.40	
39.60	X	2.40	
41.60	X	2.40	
44.60	X	2.40	
47.60	X	2.40	
49.60	X	2.40	
51.60	X	2.40	
54.60	X	2.40	
57.60	X	2.40	
59.60	X	2.40	
61.60	X	2.40	
64.60	X	2.40	
67.60	X	2.40	
69.60	X	2.40	
161.60	X	2.40	
17.93	X	2.46	909
19.18	X	2.46	910
4.00	X	2.50	
4.60	X	2.50	
5.00	X	2.50	
5.50	X	2.50	
6.00	X	2.50	
6.50	X	2.50	
7.00	X	2.50	
7.50	X	2.50	
8.00	X	2.50	
8.50	X	2.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
9.00	X	2.50	
9.50	X	2.50	
10.00	X	2.50	
10.50	X	2.50	
11.00	X	2.50	
11.50	X	2.50	
12.00	X	2.50	
12.50	X	2.50	
13.00	X	2.50	
13.50	X	2.50	
14.00	X	2.50	
14.50	X	2.50	
15.00	X	2.50	
15.50	X	2.50	
16.00	X	2.50	
16.50	X	2.50	
17.00	X	2.50	
17.50	X	2.50	
18.00	X	2.50	
18.50	X	2.50	
19.00	X	2.50	
19.50	X	2.50	
20.00	X	2.50	
20.50	X	2.50	
21.00	X	2.50	
21.50	X	2.50	
22.00	X	2.50	
22.50	X	2.50	
23.00	X	2.50	
23.50	X	2.50	
24.00	X	2.50	
24.50	X	2.50	
25.00	X	2.50	
25.50	X	2.50	
26.00	X	2.50	
26.50	X	2.50	
27.00	X	2.50	
27.50	X	2.50	
28.00	X	2.50	
28.50	X	2.50	
29.00	X	2.50	
29.50	X	2.50	
30.00	X	2.50	
30.50	X	2.50	
31.00	X	2.50	
31.50	X	2.50	
32.00	X	2.50	
32.50	X	2.50	
33.00	X	2.50	
33.50	X	2.50	
34.00	X	2.50	
34.50	X	2.50	
35.00	X	2.50	
35.50	X	2.50	
36.00	X	2.50	
36.50	X	2.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
37.00	X	2.50	
37.50	X	2.50	
38.00	X	2.50	
38.50	X	2.50	
39.00	X	2.50	
39.50	X	2.50	
40.00	X	2.50	
41.00	X	2.50	
42.00	X	2.50	
43.00	X	2.50	
44.00	X	2.50	
45.00	X	2.50	
46.00	X	2.50	
47.00	X	2.50	
48.00	X	2.50	
49.00	X	2.50	
50.00	X	2.50	
51.00	X	2.50	
52.00	X	2.50	
53.00	X	2.50	
54.00	X	2.50	
55.00	X	2.50	
56.00	X	2.50	
57.00	X	2.50	
58.00	X	2.50	
59.00	X	2.50	
60.00	X	2.50	
61.00	X	2.50	
62.00	X	2.50	
63.00	X	2.50	
64.00	X	2.50	
65.00	X	2.50	
66.00	X	2.50	
67.00	X	2.50	
68.00	X	2.50	
69.00	X	2.50	
70.00	X	2.50	
71.00	X	2.50	
72.00	X	2.50	
73.00	X	2.50	
74.00	X	2.50	
75.00	X	2.50	
76.00	X	2.50	
77.00	X	2.50	
78.00	X	2.50	
79.00	X	2.50	
80.00	X	2.50	
81.00	X	2.50	
82.00	X	2.50	
83.00	X	2.50	
84.00	X	2.50	
85.00	X	2.50	
86.00	X	2.50	
87.00	X	2.50	
88.00	X	2.50	
89.00	X	2.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
90.00	X	2.50	
91.00	X	2.50	
92.00	X	2.50	
93.00	X	2.50	
95.00	X	2.50	
96.00	X	2.50	
98.00	X	2.50	
100.00	X	2.50	
101.00	X	2.50	
103.00	X	2.50	
105.00	X	2.50	
106.00	X	2.50	
107.00	X	2.50	
108.00	X	2.50	
109.00	X	2.50	
110.00	X	2.50	
111.00	X	2.50	
112.00	X	2.50	
113.00	X	2.50	
114.00	X	2.50	
115.00	X	2.50	
116.00	X	2.50	
117.00	X	2.50	
118.00	X	2.50	
119.00	X	2.50	
120.00	X	2.50	
121.00	X	2.50	
122.00	X	2.50	
123.00	X	2.50	
124.00	X	2.50	
125.00	X	2.50	
126.00	X	2.50	
127.00	X	2.50	
128.00	X	2.50	
129.00	X	2.50	
130.00	X	2.50	
131.00	X	2.50	
132.00	X	2.50	
133.00	X	2.50	
134.00	X	2.50	
135.00	X	2.50	
136.00	X	2.50	
137.00	X	2.50	
138.00	X	2.50	
139.00	X	2.50	
140.00	X	2.50	
141.00	X	2.50	
142.00	X	2.50	
143.00	X	2.50	
144.00	X	2.50	
145.00	X	2.50	
146.00	X	2.50	
147.00	X	2.50	
148.00	X	2.50	
149.00	X	2.50	
150.00	X	2.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
29.10	X	2.55	
1.24	X	2.62	102
2.06	X	2.62	103
2.84	X	2.62	104
3.63	X	2.62	105
4.42	X	2.62	106
5.23	X	2.62	107
6.02	X	2.62	108
7.59	X	2.62	109
9.13	X	2.62	
9.19	X	2.62	110
9.90	X	2.62	BS613
10.77	X	2.62	111
11.91	X	2.62	BS614
12.37	X	2.62	112
12.70	X	2.62	BS807
13.10	X	2.62	BS615
13.94	X	2.62	113
15.08	X	2.62	BS616
15.08	X	2.62	
15.54	X	2.62	114
15.88	X	2.62	BS809
17.12	X	2.62	115
17.46	X	2.62	BS810
17.86	X	2.62	BS617
17.86	X	2.62	
18.72	X	2.62	116
20.29	X	2.62	117
20.64	X	2.62	BS812
21.89	X	2.62	118
22.23	X	2.62	BS813
22.23	X	2.62	
23.47	X	2.62	119
23.81	X	2.62	BS814
25.07	X	2.62	120
26.64	X	2.62	121
28.24	X	2.62	122
29.82	X	2.62	123
31.42	X	2.62	124
32.99	X	2.62	125
34.59	X	2.62	126
36.17	X	2.62	127
37.77	X	2.62	128
39.34	X	2.62	129
40.94	X	2.62	130
42.52	X	2.62	131
44.12	X	2.62	132
45.69	X	2.62	133
47.29	X	2.62	134
48.90	X	2.62	135
50.47	X	2.62	136
52.07	X	2.62	137
53.64	X	2.62	138
55.25	X	2.62	139
56.82	X	2.62	140
58.42	X	2.62	141

Inside Diameter mm		Cross Section mm	Size Cross Reference
59.99	X	2.62	142
61.60	X	2.62	143
63.17	X	2.62	144
64.77	X	2.62	145
66.34	X	2.62	146
67.95	X	2.62	147
69.52	X	2.62	148
71.12	X	2.62	149
72.69	X	2.62	150
74.30	X	2.62	BS640
75.87	X	2.62	151
77.50	X	2.62	BS641
77.50	X	2.62	
80.60	X	2.62	BS642
82.22	X	2.62	152
83.80	X	2.62	BS643
83.80	X	2.62	
88.57	X	2.62	153
92.75	X	2.62	
94.92	X	2.62	154
101.62	X	2.62	155
107.62	X	2.62	156
113.97	X	2.62	157
120.32	X	2.62	158
126.67	X	2.62	159
133.02	X	2.62	160
139.37	X	2.62	161
145.72	X	2.62	162
152.07	X	2.62	163
158.42	X	2.62	164
164.77	X	2.62	165
171.12	X	2.62	166
177.47	X	2.62	167
183.82	X	2.62	168
190.17	X	2.62	169
196.52	X	2.62	170
202.87	X	2.62	171
209.22	X	2.62	172
215.57	X	2.62	173
221.92	X	2.62	174
228.27	X	2.62	175
234.62	X	2.62	176
240.97	X	2.62	177
247.32	X	2.62	178
14.00	X	2.65	
15.00	X	2.65	
16.00	X	2.65	
17.00	X	2.65	
18.00	X	2.65	
19.00	X	2.65	
20.00	X	2.65	
21.20	X	2.65	
22.40	X	2.65	
23.60	X	2.65	
25.00	X	2.65	
25.80	X	2.65	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
26.50	X	2.65	
28.00	X	2.65	
30.00	X	2.65	
31.50	X	2.65	
32.50	X	2.65	
33.50	X	2.65	
34.50	X	2.65	
35.50	X	2.65	
36.50	X	2.65	
37.50	X	2.65	
38.70	X	2.65	
8.35	X	2.70	
8.90	X	2.70	
10.50	X	2.70	
12.10	X	2.70	
13.60	X	2.70	
15.10	X	2.70	
16.90	X	2.70	
18.40	X	2.70	
18.60	X	2.70	
27.30	X	2.70	
28.40	X	2.70	
117.00	X	2.70	
9.53	X	2.93	
21.92	X	2.95	911
23.47	X	2.95	912
25.04	X	2.95	913
26.59	X	2.95	914
29.74	X	2.95	916
34.42	X	2.95	918
3.00	X	3.00	
3.50	X	3.00	
4.00	X	3.00	
4.50	X	3.00	
5.00	X	3.00	
5.50	X	3.00	
6.00	X	3.00	
6.50	X	3.00	
7.00	X	3.00	
7.50	X	3.00	
8.00	X	3.00	
8.50	X	3.00	
9.00	X	3.00	
9.50	X	3.00	
10.00	X	3.00	
10.50	X	3.00	
11.00	X	3.00	
11.50	X	3.00	
12.00	X	3.00	
12.50	X	3.00	
13.00	X	3.00	
13.50	X	3.00	
14.00	X	3.00	
14.50	X	3.00	
15.00	X	3.00	
15.50	X	3.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
16.00	X	3.00	
16.50	X	3.00	
17.00	X	3.00	
17.50	X	3.00	
18.00	X	3.00	
18.20	X	3.00	
18.50	X	3.00	
19.00	X	3.00	
19.20	X	3.00	
19.50	X	3.00	
20.00	X	3.00	
20.50	X	3.00	
21.00	X	3.00	
21.50	X	3.00	
22.00	X	3.00	
22.20	X	3.00	
22.50	X	3.00	
23.00	X	3.00	
23.50	X	3.00	
24.00	X	3.00	
24.20	X	3.00	
24.50	X	3.00	
24.60	X	3.00	
25.00	X	3.00	
25.20	X	3.00	
25.50	X	3.00	
26.00	X	3.00	
26.20	X	3.00	
26.50	X	3.00	
27.00	X	3.00	
27.50	X	3.00	
28.00	X	3.00	
28.50	X	3.00	
29.00	X	3.00	
29.20	X	3.00	
29.50	X	3.00	
30.00	X	3.00	
30.20	X	3.00	
30.50	X	3.00	
31.00	X	3.00	
31.50	X	3.00	
32.00	X	3.00	
32.20	X	3.00	
32.50	X	3.00	
33.00	X	3.00	
33.50	X	3.00	
34.00	X	3.00	
34.20	X	3.00	
34.50	X	3.00	
35.00	X	3.00	
35.50	X	3.00	
36.00	X	3.00	
36.20	X	3.00	
36.50	X	3.00	
37.00	X	3.00	
37.20	X	3.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
37.47	X	3.00	920
37.50	X	3.00	
38.00	X	3.00	
38.50	X	3.00	
39.00	X	3.00	
39.20	X	3.00	
39.50	X	3.00	
40.00	X	3.00	
40.20	X	3.00	
41.00	X	3.00	
41.50	X	3.00	
42.00	X	3.00	
42.20	X	3.00	
42.50	X	3.00	
43.00	X	3.00	
43.69	X	3.00	924
44.00	X	3.00	
44.20	X	3.00	
44.50	X	3.00	
45.00	X	3.00	
46.00	X	3.00	
47.00	X	3.00	
48.00	X	3.00	
49.00	X	3.00	
49.50	X	3.00	
50.00	X	3.00	
50.50	X	3.00	
51.00	X	3.00	
52.00	X	3.00	
53.00	X	3.00	
53.09	X	3.00	928
54.00	X	3.00	
54.20	X	3.00	
54.50	X	3.00	
55.00	X	3.00	
56.00	X	3.00	
56.20	X	3.00	
57.00	X	3.00	
58.00	X	3.00	
59.00	X	3.00	
59.36	X	3.00	932
59.50	X	3.00	
60.00	X	3.00	
61.00	X	3.00	
62.00	X	3.00	
62.20	X	3.00	
63.00	X	3.00	
64.00	X	3.00	
64.50	X	3.00	
65.00	X	3.00	
66.00	X	3.00	
67.00	X	3.00	
68.00	X	3.00	
69.00	X	3.00	
69.50	X	3.00	
70.00	X	3.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
71.00	X	3.00	
72.00	X	3.00	
73.00	X	3.00	
74.00	X	3.00	
74.50	X	3.00	
75.00	X	3.00	
76.00	X	3.00	
77.00	X	3.00	
78.00	X	3.00	
79.00	X	3.00	
79.50	X	3.00	
80.00	X	3.00	
81.00	X	3.00	
82.00	X	3.00	
83.00	X	3.00	
84.00	X	3.00	
84.50	X	3.00	
85.00	X	3.00	
86.00	X	3.00	
87.00	X	3.00	
88.00	X	3.00	
89.00	X	3.00	
89.50	X	3.00	
90.00	X	3.00	
91.00	X	3.00	
92.00	X	3.00	
93.00	X	3.00	
94.00	X	3.00	
94.50	X	3.00	
95.00	X	3.00	
96.00	X	3.00	
97.00	X	3.00	
98.00	X	3.00	
99.00	X	3.00	
99.50	X	3.00	
100.00	X	3.00	
101.00	X	3.00	
102.00	X	3.00	
103.00	X	3.00	
104.00	X	3.00	
104.50	X	3.00	
105.00	X	3.00	
106.00	X	3.00	
107.00	X	3.00	
108.00	X	3.00	
109.00	X	3.00	
109.50	X	3.00	
110.00	X	3.00	
111.00	X	3.00	
112.00	X	3.00	
113.00	X	3.00	
114.00	X	3.00	
114.50	X	3.00	
115.00	X	3.00	
116.00	X	3.00	
117.00	X	3.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
118.00	X	3.00	
119.00	X	3.00	
119.50	X	3.00	
120.00	X	3.00	
121.00	X	3.00	
122.00	X	3.00	
123.00	X	3.00	
124.00	X	3.00	
124.50	X	3.00	
125.00	X	3.00	
126.00	X	3.00	
126.50	X	3.00	
127.00	X	3.00	
128.00	X	3.00	
129.00	X	3.00	
129.50	X	3.00	
130.00	X	3.00	
131.00	X	3.00	
132.00	X	3.00	
133.00	X	3.00	
134.00	X	3.00	
134.50	X	3.00	
135.00	X	3.00	
136.00	X	3.00	
137.00	X	3.00	
138.00	X	3.00	
139.00	X	3.00	
139.50	X	3.00	
140.00	X	3.00	
141.00	X	3.00	
142.00	X	3.00	
143.00	X	3.00	
144.00	X	3.00	
144.50	X	3.00	
145.00	X	3.00	
146.00	X	3.00	
147.00	X	3.00	
148.00	X	3.00	
149.00	X	3.00	
149.50	X	3.00	
150.00	X	3.00	
151.00	X	3.00	
152.00	X	3.00	
153.00	X	3.00	
154.00	X	3.00	
154.50	X	3.00	
155.00	X	3.00	
156.00	X	3.00	
157.00	X	3.00	
158.00	X	3.00	
159.00	X	3.00	
159.50	X	3.00	
160.00	X	3.00	
161.00	X	3.00	
162.00	X	3.00	
163.00	X	3.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
164.00	X	3.00	
164.50	X	3.00	
165.00	X	3.00	
166.00	X	3.00	
167.00	X	3.00	
168.00	X	3.00	
169.00	X	3.00	
169.50	X	3.00	
170.00	X	3.00	
171.00	X	3.00	
172.00	X	3.00	
173.00	X	3.00	
174.00	X	3.00	
174.50	X	3.00	
175.00	X	3.00	
176.00	X	3.00	
177.00	X	3.00	
178.00	X	3.00	
179.00	X	3.00	
179.50	X	3.00	
180.00	X	3.00	
181.00	X	3.00	
182.00	X	3.00	
183.00	X	3.00	
183.50	X	3.00	
184.00	X	3.00	
184.50	X	3.00	
185.00	X	3.00	
186.00	X	3.00	
187.00	X	3.00	
188.00	X	3.00	
189.00	X	3.00	
189.50	X	3.00	
190.00	X	3.00	
191.00	X	3.00	
192.00	X	3.00	
193.00	X	3.00	
194.00	X	3.00	
194.50	X	3.00	
195.00	X	3.00	
196.00	X	3.00	
197.00	X	3.00	
198.00	X	3.00	
199.00	X	3.00	
199.50	X	3.00	
200.00	X	3.00	
201.00	X	3.00	
202.00	X	3.00	
203.00	X	3.00	
204.00	X	3.00	
204.50	X	3.00	
205.00	X	3.00	
206.00	X	3.00	
207.00	X	3.00	
208.00	X	3.00	
209.00	X	3.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
209.50	X	3.00	
210.00	X	3.00	
211.00	X	3.00	
212.00	X	3.00	
213.00	X	3.00	
214.00	X	3.00	
215.00	X	3.00	
216.00	X	3.00	
217.00	X	3.00	
218.00	X	3.00	
219.00	X	3.00	
219.50	X	3.00	
220.00	X	3.00	
221.00	X	3.00	
222.00	X	3.00	
223.00	X	3.00	
224.00	X	3.00	
225.00	X	3.00	
226.00	X	3.00	
227.00	X	3.00	
228.00	X	3.00	
229.00	X	3.00	
229.50	X	3.00	
230.00	X	3.00	
231.00	X	3.00	
232.00	X	3.00	
233.00	X	3.00	
234.00	X	3.00	
235.00	X	3.00	
236.00	X	3.00	
237.00	X	3.00	
238.00	X	3.00	
239.00	X	3.00	
239.50	X	3.00	
240.00	X	3.00	
241.00	X	3.00	
242.00	X	3.00	
243.00	X	3.00	
244.00	X	3.00	
245.00	X	3.00	
246.00	X	3.00	
247.00	X	3.00	
248.00	X	3.00	
249.00	X	3.00	
249.50	X	3.00	
250.00	X	3.00	
255.00	X	3.00	
259.30	X	3.00	
260.00	X	3.00	
264.00	X	3.00	
270.00	X	3.00	
280.00	X	3.00	
300.00	X	3.00	
315.00	X	3.00	
320.00	X	3.00	
350.00	X	3.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
440.00	X	3.00	
505.00	X	3.00	
518.50	X	3.00	
24.40	X	3.10	G25
29.40	X	3.10	G30
34.40	X	3.10	G35
39.40	X	3.10	G40
44.40	X	3.10	G45
49.40	X	3.10	G50
54.40	X	3.10	G55
59.40	X	3.10	G60
64.40	X	3.10	G65
69.40	X	3.10	G70
74.40	X	3.10	G75
79.40	X	3.10	G80
84.40	X	3.10	G85
89.40	X	3.10	G90
94.40	X	3.10	G95
99.40	X	3.10	G100
104.40	X	3.10	G105
109.40	X	3.10	G110
114.40	X	3.10	G115
114.40	X	3.10	G145
119.40	X	3.10	G120
124.40	X	3.10	G125
129.40	X	3.10	G130
134.40	X	3.10	G135
139.40	X	3.10	G140
144.40	X	3.10	G145
174.00	X	3.20	
219.50	X	3.20	
227.00	X	3.20	
5.00	X	3.50	
8.00	X	3.50	
9.00	X	3.50	
9.20	X	3.50	
10.00	X	3.50	
11.00	X	3.50	
12.00	X	3.50	
13.00	X	3.50	
14.00	X	3.50	
15.00	X	3.50	
16.00	X	3.50	
17.00	X	3.50	
17.50	X	3.50	
18.00	X	3.50	
19.00	X	3.50	
20.00	X	3.50	
21.00	X	3.50	
21.70	X	3.50	P22A
22.00	X	3.50	
22.10	X	3.50	P22.4
23.00	X	3.50	
23.70	X	3.50	P24
24.00	X	3.50	
24.70	X	3.50	P25

Inside Diameter mm		Cross Section mm	Size Cross Reference
25.00	X	3.50	
25.20	X	3.50	P25.5
25.70	X	3.50	P26
26.00	X	3.50	
27.00	X	3.50	
27.70	X	3.50	P28
28.00	X	3.50	
28.70	X	3.50	P29
29.00	X	3.50	
29.20	X	3.50	P29.5
29.70	X	3.50	P30
30.00	X	3.50	
30.50	X	3.50	
30.70	X	3.50	P31
31.00	X	3.50	
31.20	X	3.50	P31.5
31.70	X	3.50	P32
32.00	X	3.50	
33.00	X	3.50	
33.70	X	3.50	P34
34.00	X	3.50	
34.70	X	3.50	P35
35.00	X	3.50	
35.20	X	3.50	P35.5
35.70	X	3.50	P36
36.00	X	3.50	
37.00	X	3.50	
37.70	X	3.50	P38
38.00	X	3.50	
38.70	X	3.50	P39
39.00	X	3.50	
39.70	X	3.50	P40
40.00	X	3.50	
40.70	X	3.50	P41
41.00	X	3.50	
41.70	X	3.50	P42
42.00	X	3.50	
43.00	X	3.50	
43.70	X	3.50	P44
44.00	X	3.50	
44.70	X	3.50	P45
45.00	X	3.50	
45.70	X	3.50	P46
46.00	X	3.50	
47.00	X	3.50	
47.70	X	3.50	P48
48.00	X	3.50	
48.70	X	3.50	P49
49.00	X	3.50	
49.70	X	3.50	P50
50.00	X	3.50	
51.00	X	3.50	
52.00	X	3.50	
53.00	X	3.50	
54.00	X	3.50	
55.00	X	3.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
56.00	X	3.50	
57.00	X	3.50	
58.00	X	3.50	
59.00	X	3.50	
60.00	X	3.50	
61.00	X	3.50	
62.00	X	3.50	
63.00	X	3.50	
64.00	X	3.50	
65.00	X	3.50	
66.00	X	3.50	
67.00	X	3.50	
68.00	X	3.50	
69.00	X	3.50	
70.00	X	3.50	
71.00	X	3.50	
72.00	X	3.50	
73.00	X	3.50	
74.00	X	3.50	
75.00	X	3.50	
76.00	X	3.50	
77.00	X	3.50	
78.00	X	3.50	
79.00	X	3.50	
80.00	X	3.50	
81.00	X	3.50	
82.00	X	3.50	
83.00	X	3.50	
84.00	X	3.50	
85.00	X	3.50	
86.00	X	3.50	
87.00	X	3.50	
88.00	X	3.50	
89.00	X	3.50	
90.00	X	3.50	
91.00	X	3.50	
92.00	X	3.50	
93.00	X	3.50	
94.00	X	3.50	
95.00	X	3.50	
96.00	X	3.50	
97.00	X	3.50	
98.00	X	3.50	
99.00	X	3.50	
100.00	X	3.50	
101.00	X	3.50	
102.00	X	3.50	
103.00	X	3.50	
104.00	X	3.50	
105.00	X	3.50	
106.00	X	3.50	
107.00	X	3.50	
108.00	X	3.50	
109.00	X	3.50	
110.00	X	3.50	
111.00	X	3.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
112.00	X	3.50	
113.00	X	3.50	
114.00	X	3.50	
115.00	X	3.50	
116.00	X	3.50	
117.00	X	3.50	
118.00	X	3.50	
119.00	X	3.50	
120.00	X	3.50	
121.00	X	3.50	
122.00	X	3.50	
123.00	X	3.50	
124.00	X	3.50	
125.00	X	3.50	
126.00	X	3.50	
127.00	X	3.50	
128.00	X	3.50	
129.00	X	3.50	
130.00	X	3.50	
131.00	X	3.50	
132.00	X	3.50	
133.00	X	3.50	
134.00	X	3.50	
135.00	X	3.50	
136.00	X	3.50	
137.00	X	3.50	
138.00	X	3.50	
139.00	X	3.50	
140.00	X	3.50	
141.00	X	3.50	
142.00	X	3.50	
143.00	X	3.50	
144.00	X	3.50	
145.00	X	3.50	
146.00	X	3.50	
147.00	X	3.50	
148.00	X	3.50	
149.00	X	3.50	
150.00	X	3.50	
151.00	X	3.50	
152.00	X	3.50	
153.00	X	3.50	
154.00	X	3.50	
155.00	X	3.50	
156.00	X	3.50	
157.00	X	3.50	
158.00	X	3.50	
159.00	X	3.50	
160.00	X	3.50	
161.00	X	3.50	
162.00	X	3.50	
163.00	X	3.50	
164.00	X	3.50	
165.00	X	3.50	
166.00	X	3.50	
167.00	X	3.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
168.00	X	3.50	
169.00	X	3.50	
170.00	X	3.50	
171.00	X	3.50	
172.00	X	3.50	
173.00	X	3.50	
174.00	X	3.50	
175.00	X	3.50	
176.00	X	3.50	
177.00	X	3.50	
178.00	X	3.50	
179.00	X	3.50	
180.00	X	3.50	
181.00	X	3.50	
182.00	X	3.50	
183.00	X	3.50	
184.00	X	3.50	
185.00	X	3.50	
186.00	X	3.50	
187.00	X	3.50	
188.00	X	3.50	
189.00	X	3.50	
190.00	X	3.50	
191.00	X	3.50	
192.00	X	3.50	
193.00	X	3.50	
194.00	X	3.50	
195.00	X	3.50	
196.00	X	3.50	
197.00	X	3.50	
198.00	X	3.50	
199.00	X	3.50	
200.00	X	3.50	
201.00	X	3.50	
202.00	X	3.50	
203.00	X	3.50	
204.00	X	3.50	
205.00	X	3.50	
206.00	X	3.50	
207.00	X	3.50	
208.00	X	3.50	
209.00	X	3.50	
210.00	X	3.50	
211.00	X	3.50	
212.00	X	3.50	
213.00	X	3.50	
214.00	X	3.50	
215.00	X	3.50	
216.00	X	3.50	
217.00	X	3.50	
218.00	X	3.50	
219.00	X	3.50	
220.00	X	3.50	
221.00	X	3.50	
222.00	X	3.50	
223.00	X	3.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
224.00	X	3.50	
225.00	X	3.50	
226.00	X	3.50	
227.00	X	3.50	
228.00	X	3.50	
229.00	X	3.50	
230.00	X	3.50	
231.00	X	3.50	
232.00	X	3.50	
233.00	X	3.50	
234.00	X	3.50	
235.00	X	3.50	
236.00	X	3.50	
237.00	X	3.50	
238.00	X	3.50	
239.00	X	3.50	
240.00	X	3.50	
241.00	X	3.50	
242.00	X	3.50	
243.00	X	3.50	
244.00	X	3.50	
245.00	X	3.50	
246.00	X	3.50	
247.00	X	3.50	
248.00	X	3.50	
249.00	X	3.50	
250.00	X	3.50	
251.00	X	3.50	
252.00	X	3.50	
253.00	X	3.50	
254.00	X	3.50	
255.00	X	3.50	
256.00	X	3.50	
257.00	X	3.50	
258.00	X	3.50	
259.00	X	3.50	
260.00	X	3.50	
261.00	X	3.50	
262.00	X	3.50	
263.00	X	3.50	
264.00	X	3.50	
265.00	X	3.50	
266.00	X	3.50	
267.00	X	3.50	
268.00	X	3.50	
269.00	X	3.50	
270.00	X	3.50	
271.00	X	3.50	
272.00	X	3.50	
273.00	X	3.50	
274.00	X	3.50	
275.00	X	3.50	
276.00	X	3.50	
277.00	X	3.50	
278.00	X	3.50	
279.00	X	3.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
280.00	X	3.50	
281.00	X	3.50	
282.00	X	3.50	
283.00	X	3.50	
284.00	X	3.50	
285.00	X	3.50	
286.00	X	3.50	
287.00	X	3.50	
288.00	X	3.50	
289.00	X	3.50	
290.00	X	3.50	
291.00	X	3.50	
292.00	X	3.50	
293.00	X	3.50	
294.00	X	3.50	
295.00	X	3.50	
296.00	X	3.50	
297.00	X	3.50	
298.00	X	3.50	
299.00	X	3.50	
300.00	X	3.50	
301.00	X	3.50	
302.00	X	3.50	
303.00	X	3.50	
304.00	X	3.50	
305.00	X	3.50	
306.00	X	3.50	
307.00	X	3.50	
308.00	X	3.50	
309.00	X	3.50	
310.00	X	3.50	
311.00	X	3.50	
312.00	X	3.50	
313.00	X	3.50	
314.00	X	3.50	
315.00	X	3.50	
316.00	X	3.50	
317.00	X	3.50	
318.00	X	3.50	
319.00	X	3.50	
320.00	X	3.50	
321.00	X	3.50	
322.00	X	3.50	
323.00	X	3.50	
324.00	X	3.50	
325.00	X	3.50	
326.00	X	3.50	
327.00	X	3.50	
328.00	X	3.50	
329.00	X	3.50	
330.00	X	3.50	
331.00	X	3.50	
332.00	X	3.50	
333.00	X	3.50	
334.00	X	3.50	
335.00	X	3.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
336.00	X	3.50	
337.00	X	3.50	
338.00	X	3.50	
339.00	X	3.50	
340.00	X	3.50	
341.00	X	3.50	
342.00	X	3.50	
343.00	X	3.50	
344.00	X	3.50	
345.00	X	3.50	
346.00	X	3.50	
347.00	X	3.50	
348.00	X	3.50	
349.00	X	3.50	
350.00	X	3.50	
351.00	X	3.50	
352.00	X	3.50	
353.00	X	3.50	
354.00	X	3.50	
355.00	X	3.50	
356.00	X	3.50	
357.00	X	3.50	
358.00	X	3.50	
359.00	X	3.50	
360.00	X	3.50	
361.00	X	3.50	
362.00	X	3.50	
363.00	X	3.50	
364.00	X	3.50	
365.00	X	3.50	
366.00	X	3.50	
367.00	X	3.50	
368.00	X	3.50	
369.00	X	3.50	
370.00	X	3.50	
371.00	X	3.50	
372.00	X	3.50	
373.00	X	3.50	
374.00	X	3.50	
375.00	X	3.50	
376.00	X	3.50	
377.00	X	3.50	
378.00	X	3.50	
379.00	X	3.50	
380.00	X	3.50	
381.00	X	3.50	
382.00	X	3.50	
383.00	X	3.50	
384.00	X	3.50	
385.00	X	3.50	
386.00	X	3.50	
387.00	X	3.50	
388.00	X	3.50	
389.00	X	3.50	
390.00	X	3.50	
391.00	X	3.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
392.00	X	3.50	
393.00	X	3.50	
394.00	X	3.50	
395.00	X	3.50	
396.00	X	3.50	
397.00	X	3.50	
398.00	X	3.50	
399.00	X	3.50	
400.00	X	3.50	
401.00	X	3.50	
402.00	X	3.50	
403.00	X	3.50	
404.00	X	3.50	
405.00	X	3.50	
406.00	X	3.50	
407.00	X	3.50	
408.00	X	3.50	
409.00	X	3.50	
410.00	X	3.50	
411.00	X	3.50	
412.00	X	3.50	
413.00	X	3.50	
414.00	X	3.50	
415.00	X	3.50	
416.00	X	3.50	
417.00	X	3.50	
418.00	X	3.50	
419.00	X	3.50	
420.00	X	3.50	
421.00	X	3.50	
422.00	X	3.50	
423.00	X	3.50	
424.00	X	3.50	
425.00	X	3.50	
426.00	X	3.50	
427.00	X	3.50	
428.00	X	3.50	
429.00	X	3.50	
430.00	X	3.50	
431.00	X	3.50	
432.00	X	3.50	
433.00	X	3.50	
434.00	X	3.50	
435.00	X	3.50	
436.00	X	3.50	
437.00	X	3.50	
438.00	X	3.50	
439.00	X	3.50	
440.00	X	3.50	
4.34	X	3.53	201
5.94	X	3.53	202
7.52	X	3.53	203
9.34	X	3.53	204
10.69	X	3.53	205
12.29	X	3.53	206
13.87	X	3.53	207

Inside Diameter mm		Cross Section mm	Size Cross Reference
15.47	X	3.53	208
17.04	X	3.53	209
18.64	X	3.53	210
20.22	X	3.53	211
21.82	X	3.53	212
23.39	X	3.53	213
24.99	X	3.53	214
25.80	X	3.53	BS618
26.57	X	3.53	215
28.17	X	3.53	216
29.74	X	3.53	217
31.34	X	3.53	218
32.92	X	3.53	219
34.52	X	3.53	220
36.09	X	3.53	221
37.69	X	3.53	222
39.70	X	3.53	BS824
40.87	X	3.53	223
41.26	X	3.53	BSW825
41.28	X	3.53	BS825
42.86	X	3.53	BS826
44.04	X	3.53	224
44.45	X	3.53	BS827
46.04	X	3.53	BS828
47.22	X	3.53	225
47.62	X	3.53	BS829
49.20	X	3.53	BS830
50.39	X	3.53	226
50.80	X	3.53	BS831
52.40	X	3.53	BS832
53.57	X	3.53	227
53.97	X	3.53	BS833
55.56	X	3.53	BS834
56.74	X	3.53	228
57.15	X	3.53	BS835
58.74	X	3.53	BS836
59.92	X	3.53	229
60.32	X	3.53	BS837
61.90	X	3.53	BS838
63.09	X	3.53	230
63.50	X	3.53	BS839
63.50	X	3.53	
65.10	X	3.53	BS840
66.27	X	3.53	231
66.67	X	3.53	BS841
68.26	X	3.53	BS842
69.44	X	3.53	232
69.85	X	3.53	BS843
71.44	X	3.53	BS844
72.62	X	3.53	233
73.02	X	3.53	BS845
74.60	X	3.53	BS846
75.79	X	3.53	234
78.97	X	3.53	235
82.14	X	3.53	236
85.32	X	3.53	237

Inside Diameter mm		Cross Section mm	Size Cross Reference
88.49	X	3.53	238
91.67	X	3.53	239
94.84	X	3.53	240
98.02	X	3.53	241
101.19	X	3.53	242
104.37	X	3.53	243
107.54	X	3.53	244
110.72	X	3.53	245
113.89	X	3.53	246
117.07	X	3.53	247
120.24	X	3.53	248
123.42	X	3.53	249
126.59	X	3.53	250
129.77	X	3.53	251
132.94	X	3.53	252
136.12	X	3.53	253
139.29	X	3.53	254
142.47	X	3.53	255
145.64	X	3.53	256
148.82	X	3.53	257
151.99	X	3.53	258
158.34	X	3.53	259
158.82	X	3.53	
164.69	X	3.53	260
171.04	X	3.53	261
177.39	X	3.53	262
183.74	X	3.53	263
190.09	X	3.53	264
196.44	X	3.53	265
202.79	X	3.53	266
209.14	X	3.53	267
215.49	X	3.53	268
221.84	X	3.53	269
228.19	X	3.53	270
234.54	X	3.53	271
240.89	X	3.53	272
247.24	X	3.53	273
253.59	X	3.53	274
266.29	X	3.53	275
278.99	X	3.53	276
291.69	X	3.53	277
304.39	X	3.53	278
319.20	X	3.53	
329.79	X	3.53	279
355.19	X	3.53	280
380.59	X	3.53	281
405.26	X	3.53	282
430.66	X	3.53	283
456.06	X	3.53	284
18.00	X	3.55	
19.00	X	3.55	
20.00	X	3.55	
21.20	X	3.55	
22.40	X	3.55	
23.60	X	3.55	
25.00	X	3.55	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
25.80	X	3.55	
26.50	X	3.55	
28.00	X	3.55	
30.00	X	3.55	
31.50	X	3.55	
32.50	X	3.55	
33.50	X	3.55	
34.50	X	3.55	
35.50	X	3.55	
36.50	X	3.55	
37.50	X	3.55	
38.70	X	3.55	
40.00	X	3.55	
41.20	X	3.55	
42.50	X	3.55	
43.70	X	3.55	
45.00	X	3.55	
46.20	X	3.55	
47.50	X	3.55	
48.70	X	3.55	
50.00	X	3.55	
51.50	X	3.55	
53.00	X	3.55	
54.50	X	3.55	
56.00	X	3.55	
58.00	X	3.55	
60.00	X	3.55	
61.50	X	3.55	
63.00	X	3.55	
65.00	X	3.55	
67.00	X	3.55	
69.00	X	3.55	
71.00	X	3.55	
73.00	X	3.55	
75.00	X	3.55	
77.50	X	3.55	
80.00	X	3.55	
82.50	X	3.55	
85.00	X	3.55	
87.50	X	3.55	
90.00	X	3.55	
92.50	X	3.55	
95.00	X	3.55	
97.50	X	3.55	
100.00	X	3.55	
103.00	X	3.55	
106.00	X	3.55	
109.00	X	3.55	
112.00	X	3.55	
115.00	X	3.55	
118.00	X	3.55	
122.00	X	3.55	
125.00	X	3.55	
128.00	X	3.55	
132.00	X	3.55	
136.00	X	3.55	

Inside Diameter mm		Cross Section mm	Size Cross Reference
140.00	X	3.55	
145.00	X	3.55	
150.00	X	3.55	
155.00	X	3.55	
160.00	X	3.55	
165.00	X	3.55	
170.00	X	3.55	
175.00	X	3.55	
180.00	X	3.55	
185.00	X	3.55	
190.00	X	3.55	
195.00	X	3.55	
200.00	X	3.55	
18.30	X	3.60	
19.80	X	3.60	
21.30	X	3.60	
23.00	X	3.60	
24.60	X	3.60	
26.20	X	3.60	
27.80	X	3.60	
29.30	X	3.60	
30.80	X	3.60	
32.50	X	3.60	
34.10	X	3.60	
35.60	X	3.60	
37.30	X	3.60	
43.40	X	3.60	
4.00	X	4.00	
5.00	X	4.00	
6.00	X	4.00	
7.00	X	4.00	
7.60	X	4.00	
8.00	X	4.00	
9.00	X	4.00	
10.00	X	4.00	
11.00	X	4.00	
12.00	X	4.00	
13.00	X	4.00	
14.00	X	4.00	
14.50	X	4.00	V15
15.00	X	4.00	
16.00	X	4.00	
17.00	X	4.00	
18.00	X	4.00	
19.00	X	4.00	
20.00	X	4.00	
21.00	X	4.00	
22.00	X	4.00	
23.00	X	4.00	
23.50	X	4.00	V24
24.00	X	4.00	
25.00	X	4.00	
26.00	X	4.00	
27.00	X	4.00	
28.00	X	4.00	
29.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
30.00	X	4.00	
31.00	X	4.00	
32.00	X	4.00	
33.00	X	4.00	
33.50	X	4.00	V34
34.00	X	4.00	
35.00	X	4.00	
36.00	X	4.00	
37.00	X	4.00	
38.00	X	4.00	
39.00	X	4.00	
39.50	X	4.00	V40
40.00	X	4.00	
41.00	X	4.00	
42.00	X	4.00	
43.00	X	4.00	
44.00	X	4.00	
45.00	X	4.00	
46.00	X	4.00	
47.00	X	4.00	
48.00	X	4.00	
49.00	X	4.00	
50.00	X	4.00	
51.00	X	4.00	
52.00	X	4.00	
53.00	X	4.00	
54.00	X	4.00	
54.50	X	4.00	V55
55.00	X	4.00	
56.00	X	4.00	
57.00	X	4.00	
58.00	X	4.00	
59.00	X	4.00	
60.00	X	4.00	
61.00	X	4.00	
62.00	X	4.00	
63.00	X	4.00	
64.00	X	4.00	
65.00	X	4.00	
66.00	X	4.00	
67.00	X	4.00	
68.00	X	4.00	
69.00	X	4.00	V70
70.00	X	4.00	
71.00	X	4.00	
72.00	X	4.00	
73.00	X	4.00	
74.00	X	4.00	
75.00	X	4.00	
76.00	X	4.00	
77.00	X	4.00	
78.00	X	4.00	
79.00	X	4.00	
80.00	X	4.00	
81.00	X	4.00	
82.00	X	4.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
83.00	X	4.00	
84.00	X	4.00	V85
84.00	X	4.00	
85.00	X	4.00	
86.00	X	4.00	
86.50	X	4.00	
87.00	X	4.00	
88.00	X	4.00	
89.00	X	4.00	
90.00	X	4.00	
91.00	X	4.00	
92.00	X	4.00	
93.00	X	4.00	
94.00	X	4.00	
95.00	X	4.00	
96.00	X	4.00	
97.00	X	4.00	
98.00	X	4.00	
99.00	X	4.00	V100
100.00	X	4.00	
101.00	X	4.00	
102.00	X	4.00	
103.00	X	4.00	
104.00	X	4.00	
105.00	X	4.00	
106.00	X	4.00	
107.00	X	4.00	
108.00	X	4.00	
109.00	X	4.00	
110.00	X	4.00	
111.00	X	4.00	
112.00	X	4.00	
113.00	X	4.00	
114.00	X	4.00	
115.00	X	4.00	
116.00	X	4.00	
117.00	X	4.00	
118.00	X	4.00	
119.00	X	4.00	V120
120.00	X	4.00	
121.00	X	4.00	
122.00	X	4.00	
123.00	X	4.00	
124.00	X	4.00	
125.00	X	4.00	
126.00	X	4.00	
127.00	X	4.00	
128.00	X	4.00	
129.00	X	4.00	
130.00	X	4.00	
131.00	X	4.00	
132.00	X	4.00	
133.00	X	4.00	
134.00	X	4.00	
135.00	X	4.00	
136.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
137.00	X	4.00	
138.00	X	4.00	
139.00	X	4.00	
140.00	X	4.00	
141.00	X	4.00	
142.00	X	4.00	
143.00	X	4.00	
144.00	X	4.00	
145.00	X	4.00	
146.00	X	4.00	
147.00	X	4.00	
148.00	X	4.00	
148.50	X	4.00	V150
149.00	X	4.00	
150.00	X	4.00	
151.00	X	4.00	
152.00	X	4.00	
153.00	X	4.00	
154.00	X	4.00	
155.00	X	4.00	
156.00	X	4.00	
157.00	X	4.00	
158.00	X	4.00	
159.00	X	4.00	
160.00	X	4.00	
161.00	X	4.00	
162.00	X	4.00	
163.00	X	4.00	
164.00	X	4.00	
165.00	X	4.00	
166.00	X	4.00	
167.00	X	4.00	
168.00	X	4.00	
169.00	X	4.00	
170.00	X	4.00	
171.00	X	4.00	
172.00	X	4.00	
173.00	X	4.00	V175
173.00	X	4.00	
174.00	X	4.00	
175.00	X	4.00	
176.00	X	4.00	
177.00	X	4.00	
178.00	X	4.00	
179.00	X	4.00	
180.00	X	4.00	
181.00	X	4.00	
182.00	X	4.00	
183.00	X	4.00	
184.00	X	4.00	
185.00	X	4.00	
186.00	X	4.00	
187.00	X	4.00	
188.00	X	4.00	
189.00	X	4.00	
190.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
191.00	X	4.00	
192.00	X	4.00	
193.00	X	4.00	
194.00	X	4.00	
195.00	X	4.00	
196.00	X	4.00	
197.00	X	4.00	
198.00	X	4.00	
199.00	X	4.00	
200.00	X	4.00	
201.00	X	4.00	
202.00	X	4.00	
203.00	X	4.00	
204.00	X	4.00	
205.00	X	4.00	
206.00	X	4.00	
207.00	X	4.00	
208.00	X	4.00	
209.00	X	4.00	
210.00	X	4.00	
211.00	X	4.00	
212.00	X	4.00	
213.00	X	4.00	
214.00	X	4.00	
215.00	X	4.00	
216.00	X	4.00	
217.00	X	4.00	
218.00	X	4.00	
219.00	X	4.00	
220.00	X	4.00	
221.00	X	4.00	
222.00	X	4.00	
223.00	X	4.00	
224.00	X	4.00	
225.00	X	4.00	
226.00	X	4.00	
227.00	X	4.00	
228.00	X	4.00	
229.00	X	4.00	
230.00	X	4.00	
231.00	X	4.00	
232.00	X	4.00	
233.00	X	4.00	
234.00	X	4.00	
235.00	X	4.00	
236.00	X	4.00	
237.00	X	4.00	
238.00	X	4.00	
239.00	X	4.00	
240.00	X	4.00	
241.00	X	4.00	
242.00	X	4.00	
243.00	X	4.00	
244.00	X	4.00	
245.00	X	4.00	
246.00	X	4.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
247.00	X	4.00	
248.00	X	4.00	
249.00	X	4.00	
250.00	X	4.00	
251.00	X	4.00	
252.00	X	4.00	
253.00	X	4.00	
254.00	X	4.00	
255.00	X	4.00	
256.00	X	4.00	
257.00	X	4.00	
258.00	X	4.00	
259.00	X	4.00	
260.00	X	4.00	
261.00	X	4.00	
262.00	X	4.00	
263.00	X	4.00	
264.00	X	4.00	
265.00	X	4.00	
266.00	X	4.00	
267.00	X	4.00	
268.00	X	4.00	
269.00	X	4.00	
270.00	X	4.00	
271.00	X	4.00	
272.00	X	4.00	
273.00	X	4.00	
274.00	X	4.00	
275.00	X	4.00	
276.00	X	4.00	
277.00	X	4.00	
278.00	X	4.00	
279.00	X	4.00	
280.00	X	4.00	
281.00	X	4.00	
282.00	X	4.00	
283.00	X	4.00	
284.00	X	4.00	
285.00	X	4.00	
286.00	X	4.00	
287.00	X	4.00	
288.00	X	4.00	
289.00	X	4.00	
290.00	X	4.00	
291.00	X	4.00	
292.00	X	4.00	
293.00	X	4.00	
294.00	X	4.00	
295.00	X	4.00	
296.00	X	4.00	
297.00	X	4.00	
298.00	X	4.00	
299.00	X	4.00	
300.00	X	4.00	
301.00	X	4.00	
302.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
303.00	X	4.00	
304.00	X	4.00	
305.00	X	4.00	
306.00	X	4.00	
307.00	X	4.00	
308.00	X	4.00	
309.00	X	4.00	
310.00	X	4.00	
311.00	X	4.00	
312.00	X	4.00	
313.00	X	4.00	
314.00	X	4.00	
315.00	X	4.00	
316.00	X	4.00	
317.00	X	4.00	
318.00	X	4.00	
319.00	X	4.00	
320.00	X	4.00	
321.00	X	4.00	
322.00	X	4.00	
323.00	X	4.00	
324.00	X	4.00	
325.00	X	4.00	
326.00	X	4.00	
327.00	X	4.00	
328.00	X	4.00	
329.00	X	4.00	
330.00	X	4.00	
331.00	X	4.00	
332.00	X	4.00	
333.00	X	4.00	
334.00	X	4.00	
335.00	X	4.00	
336.00	X	4.00	
337.00	X	4.00	
338.00	X	4.00	
339.00	X	4.00	
340.00	X	4.00	
341.00	X	4.00	
342.00	X	4.00	
343.00	X	4.00	
344.00	X	4.00	
345.00	X	4.00	
346.00	X	4.00	
347.00	X	4.00	
348.00	X	4.00	
349.00	X	4.00	
350.00	X	4.00	
351.00	X	4.00	
352.00	X	4.00	
353.00	X	4.00	
354.00	X	4.00	
355.00	X	4.00	
356.00	X	4.00	
357.00	X	4.00	
358.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
359.00	X	4.00	
360.00	X	4.00	
361.00	X	4.00	
362.00	X	4.00	
363.00	X	4.00	
364.00	X	4.00	
365.00	X	4.00	
366.00	X	4.00	
367.00	X	4.00	
368.00	X	4.00	
369.00	X	4.00	
370.00	X	4.00	
371.00	X	4.00	
372.00	X	4.00	
373.00	X	4.00	
374.00	X	4.00	
375.00	X	4.00	
376.00	X	4.00	
377.00	X	4.00	
378.00	X	4.00	
379.00	X	4.00	
380.00	X	4.00	
381.00	X	4.00	
382.00	X	4.00	
383.00	X	4.00	
384.00	X	4.00	
385.00	X	4.00	
386.00	X	4.00	
387.00	X	4.00	
388.00	X	4.00	
389.00	X	4.00	
390.00	X	4.00	
391.00	X	4.00	
392.00	X	4.00	
393.00	X	4.00	
394.00	X	4.00	
395.00	X	4.00	
396.00	X	4.00	
397.00	X	4.00	
398.00	X	4.00	
399.00	X	4.00	
400.00	X	4.00	
401.00	X	4.00	
402.00	X	4.00	
403.00	X	4.00	
404.00	X	4.00	
405.00	X	4.00	
406.00	X	4.00	
407.00	X	4.00	
408.00	X	4.00	
409.00	X	4.00	
410.00	X	4.00	
411.00	X	4.00	
412.00	X	4.00	
413.00	X	4.00	
414.00	X	4.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
415.00	X	4.00	
416.00	X	4.00	
417.00	X	4.00	
418.00	X	4.00	
419.00	X	4.00	
420.00	X	4.00	
421.00	X	4.00	
422.00	X	4.00	
423.00	X	4.00	
424.00	X	4.00	
425.00	X	4.00	
426.00	X	4.00	
427.00	X	4.00	
428.00	X	4.00	
429.00	X	4.00	
430.00	X	4.00	
431.00	X	4.00	
432.00	X	4.00	
433.00	X	4.00	
434.00	X	4.00	
435.00	X	4.00	
436.00	X	4.00	
437.00	X	4.00	
438.00	X	4.00	
439.00	X	4.00	
440.00	X	4.00	
441.00	X	4.00	
442.00	X	4.00	
443.00	X	4.00	
444.00	X	4.00	
445.00	X	4.00	
446.00	X	4.00	
447.00	X	4.00	
448.00	X	4.00	
449.00	X	4.00	
450.00	X	4.00	
451.00	X	4.00	
452.00	X	4.00	
453.00	X	4.00	
454.00	X	4.00	
455.00	X	4.00	
456.00	X	4.00	
457.00	X	4.00	
458.00	X	4.00	
459.00	X	4.00	
460.00	X	4.00	
461.00	X	4.00	
462.00	X	4.00	
463.00	X	4.00	
464.00	X	4.00	
465.00	X	4.00	
466.00	X	4.00	
467.00	X	4.00	
468.00	X	4.00	
469.00	X	4.00	
470.00	X	4.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
471.00	X	4.00	
472.00	X	4.00	
473.00	X	4.00	
474.00	X	4.00	
475.00	X	4.00	
476.00	X	4.00	
477.00	X	4.00	
478.00	X	4.00	
479.00	X	4.00	
480.00	X	4.00	
481.00	X	4.00	
482.00	X	4.00	
483.00	X	4.00	
484.00	X	4.00	
485.00	X	4.00	
486.00	X	4.00	
487.00	X	4.00	
488.00	X	4.00	
489.00	X	4.00	
490.00	X	4.00	
491.00	X	4.00	
492.00	X	4.00	
493.00	X	4.00	
494.00	X	4.00	
495.00	X	4.00	
496.00	X	4.00	
497.00	X	4.00	
498.00	X	4.00	
499.00	X	4.00	
500.00	X	4.00	
139.00	X	4.20	
6.00	X	4.50	
8.00	X	4.50	
9.00	X	4.50	
9.50	X	4.50	
10.00	X	4.50	
10.50	X	4.50	
11.00	X	4.50	
12.00	X	4.50	
13.00	X	4.50	
15.00	X	4.50	
15.50	X	4.50	
16.00	X	4.50	
17.00	X	4.50	
18.00	X	4.50	
19.00	X	4.50	
20.00	X	4.50	
21.00	X	4.50	
21.50	X	4.50	
22.00	X	4.50	
22.50	X	4.50	
23.00	X	4.50	
24.00	X	4.50	
24.50	X	4.50	
25.00	X	4.50	
26.00	X	4.50	

Inside Diameter mm		Cross Section mm	Size Cross Reference
27.00	X	4.50	
27.50	X	4.50	
28.00	X	4.50	
28.50	X	4.50	
29.00	X	4.50	
29.50	X	4.50	
30.00	X	4.50	
31.00	X	4.50	
31.50	X	4.50	
32.00	X	4.50	
33.00	X	4.50	
34.00	X	4.50	
34.50	X	4.50	
35.00	X	4.50	
35.50	X	4.50	
36.00	X	4.50	
37.00	X	4.50	
37.50	X	4.50	
38.00	X	4.50	
39.00	X	4.50	
40.00	X	4.50	
40.50	X	4.50	
41.00	X	4.50	
42.00	X	4.50	
43.00	X	4.50	
44.00	X	4.50	
45.00	X	4.50	
46.00	X	4.50	
47.00	X	4.50	
48.00	X	4.50	
49.00	X	4.50	
50.00	X	4.50	
51.00	X	4.50	
53.00	X	4.50	
56.00	X	4.50	
57.00	X	4.50	
60.00	X	4.50	
61.00	X	4.50	
62.00	X	4.50	
63.00	X	4.50	
64.00	X	4.50	
65.00	X	4.50	
66.00	X	4.50	
68.00	X	4.50	
69.00	X	4.50	
70.00	X	4.50	
71.00	X	4.50	
73.00	X	4.50	
74.00	X	4.50	
75.00	X	4.50	
76.00	X	4.50	
80.00	X	4.50	
81.00	X	4.50	
83.00	X	4.50	
85.00	X	4.50	
86.00	X	4.50	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
89.00	X	4.50	
90.00	X	4.50	
92.00	X	4.50	
93.50	X	4.50	
95.00	X	4.50	
97.50	X	4.50	
98.00	X	4.50	
99.50	X	4.50	
100.00	X	4.50	
100.50	X	4.50	
101.00	X	4.50	
103.50	X	4.50	
105.00	X	4.50	
106.00	X	4.50	
110.00	X	4.50	
115.00	X	4.50	
118.00	X	4.50	
120.00	X	4.50	
122.00	X	4.50	
124.00	X	4.50	
126.00	X	4.50	
128.00	X	4.50	
130.00	X	4.50	
131.50	X	4.50	
134.50	X	4.50	
137.00	X	4.50	
140.00	X	4.50	
140.50	X	4.50	
150.00	X	4.50	
153.00	X	4.50	
155.00	X	4.50	
157.00	X	4.50	
160.00	X	4.50	
165.00	X	4.50	
167.00	X	4.50	
172.00	X	4.50	
178.00	X	4.50	
180.00	X	4.50	
185.00	X	4.50	
186.00	X	4.50	
189.50	X	4.50	
192.00	X	4.50	
208.00	X	4.50	
215.00	X	4.50	
218.00	X	4.50	
225.00	X	4.50	
227.00	X	4.50	
250.00	X	4.50	
267.00	X	4.50	
280.00	X	4.50	
315.00	X	4.50	
7.93	X	4.76	
4.00	X	5.00	
5.00	X	5.00	
6.00	X	5.00	
7.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
8.00	X	5.00	
9.00	X	5.00	
10.00	X	5.00	
11.00	X	5.00	
12.00	X	5.00	
13.00	X	5.00	
14.00	X	5.00	
15.00	X	5.00	
16.00	X	5.00	
17.00	X	5.00	
18.00	X	5.00	
19.00	X	5.00	
20.00	X	5.00	
21.00	X	5.00	
22.00	X	5.00	
23.00	X	5.00	
24.00	X	5.00	
25.00	X	5.00	
26.00	X	5.00	
27.00	X	5.00	
28.00	X	5.00	
29.00	X	5.00	
30.00	X	5.00	
31.00	X	5.00	
32.00	X	5.00	
33.00	X	5.00	
34.00	X	5.00	
35.00	X	5.00	
36.00	X	5.00	
37.00	X	5.00	
38.00	X	5.00	
39.00	X	5.00	
40.00	X	5.00	
41.00	X	5.00	
42.00	X	5.00	
43.00	X	5.00	
44.00	X	5.00	
45.00	X	5.00	
46.00	X	5.00	
47.00	X	5.00	
48.00	X	5.00	
49.00	X	5.00	
50.00	X	5.00	
51.00	X	5.00	
52.00	X	5.00	
53.00	X	5.00	
54.00	X	5.00	
55.00	X	5.00	
56.00	X	5.00	
57.00	X	5.00	
58.00	X	5.00	
59.00	X	5.00	
60.00	X	5.00	
61.00	X	5.00	
62.00	X	5.00	
63.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
64.00	X	5.00	
65.00	X	5.00	
66.00	X	5.00	
67.00	X	5.00	
68.00	X	5.00	
69.00	X	5.00	
70.00	X	5.00	
71.00	X	5.00	
72.00	X	5.00	
73.00	X	5.00	
74.00	X	5.00	
75.00	X	5.00	
76.00	X	5.00	
77.00	X	5.00	
78.00	X	5.00	
79.00	X	5.00	
80.00	X	5.00	
81.00	X	5.00	
82.00	X	5.00	
83.00	X	5.00	
84.00	X	5.00	
85.00	X	5.00	
86.00	X	5.00	
87.00	X	5.00	
88.00	X	5.00	
89.00	X	5.00	
90.00	X	5.00	
91.00	X	5.00	
92.00	X	5.00	
93.00	X	5.00	
94.00	X	5.00	
95.00	X	5.00	
96.00	X	5.00	
97.00	X	5.00	
98.00	X	5.00	
99.00	X	5.00	
100.00	X	5.00	
101.00	X	5.00	
102.00	X	5.00	
103.00	X	5.00	
104.00	X	5.00	
105.00	X	5.00	
106.00	X	5.00	
107.00	X	5.00	
108.00	X	5.00	
109.00	X	5.00	
110.00	X	5.00	
111.00	X	5.00	
112.00	X	5.00	
113.00	X	5.00	
114.00	X	5.00	
115.00	X	5.00	
116.00	X	5.00	
117.00	X	5.00	
118.00	X	5.00	
119.00	X	5.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
120.00	X	5.00	
121.00	X	5.00	
122.00	X	5.00	
123.00	X	5.00	
124.00	X	5.00	
125.00	X	5.00	
126.00	X	5.00	
127.00	X	5.00	
128.00	X	5.00	
129.00	X	5.00	
130.00	X	5.00	
131.00	X	5.00	
132.00	X	5.00	
133.00	X	5.00	
134.00	X	5.00	
135.00	X	5.00	
136.00	X	5.00	
137.00	X	5.00	
138.00	X	5.00	
139.00	X	5.00	
140.00	X	5.00	
141.00	X	5.00	
142.00	X	5.00	
143.00	X	5.00	
144.00	X	5.00	
145.00	X	5.00	
146.00	X	5.00	
147.00	X	5.00	
148.00	X	5.00	
149.00	X	5.00	
150.00	X	5.00	
151.00	X	5.00	
152.00	X	5.00	
153.00	X	5.00	
154.00	X	5.00	
155.00	X	5.00	
156.00	X	5.00	
157.00	X	5.00	
158.00	X	5.00	
159.00	X	5.00	
160.00	X	5.00	
161.00	X	5.00	
162.00	X	5.00	
163.00	X	5.00	
164.00	X	5.00	
165.00	X	5.00	
166.00	X	5.00	
167.00	X	5.00	
168.00	X	5.00	
169.00	X	5.00	
170.00	X	5.00	
171.00	X	5.00	
172.00	X	5.00	
173.00	X	5.00	
174.00	X	5.00	
175.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
176.00	X	5.00	
177.00	X	5.00	
178.00	X	5.00	
179.00	X	5.00	
180.00	X	5.00	
181.00	X	5.00	
182.00	X	5.00	
183.00	X	5.00	
184.00	X	5.00	
185.00	X	5.00	
186.00	X	5.00	
187.00	X	5.00	
188.00	X	5.00	
189.00	X	5.00	
190.00	X	5.00	
191.00	X	5.00	
192.00	X	5.00	
193.00	X	5.00	
194.00	X	5.00	
195.00	X	5.00	
196.00	X	5.00	
197.00	X	5.00	
198.00	X	5.00	
199.00	X	5.00	
200.00	X	5.00	
201.00	X	5.00	
202.00	X	5.00	
203.00	X	5.00	
204.00	X	5.00	
205.00	X	5.00	
206.00	X	5.00	
208.00	X	5.00	
209.00	X	5.00	
210.00	X	5.00	
211.00	X	5.00	
212.00	X	5.00	
213.00	X	5.00	
214.00	X	5.00	
215.00	X	5.00	
216.00	X	5.00	
217.00	X	5.00	
218.00	X	5.00	
219.00	X	5.00	
220.00	X	5.00	
221.00	X	5.00	
222.00	X	5.00	
223.00	X	5.00	
224.00	X	5.00	
225.00	X	5.00	
226.00	X	5.00	
227.00	X	5.00	
228.00	X	5.00	
229.00	X	5.00	
230.00	X	5.00	
231.00	X	5.00	
232.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
233.00	X	5.00	
234.00	X	5.00	
235.00	X	5.00	
236.00	X	5.00	
237.00	X	5.00	
238.00	X	5.00	
239.00	X	5.00	
240.00	X	5.00	
241.00	X	5.00	
242.00	X	5.00	
243.00	X	5.00	
244.00	X	5.00	
245.00	X	5.00	
246.00	X	5.00	
247.00	X	5.00	
248.00	X	5.00	
249.00	X	5.00	
250.00	X	5.00	
251.00	X	5.00	
252.00	X	5.00	
253.00	X	5.00	
254.00	X	5.00	
255.00	X	5.00	
256.00	X	5.00	
257.00	X	5.00	
258.00	X	5.00	
259.00	X	5.00	
260.00	X	5.00	
261.00	X	5.00	
262.00	X	5.00	
263.00	X	5.00	
264.00	X	5.00	
265.00	X	5.00	
266.00	X	5.00	
267.00	X	5.00	
268.00	X	5.00	
269.00	X	5.00	
270.00	X	5.00	
271.00	X	5.00	
272.00	X	5.00	
273.00	X	5.00	
274.00	X	5.00	
275.00	X	5.00	
276.00	X	5.00	
277.00	X	5.00	
278.00	X	5.00	
279.00	X	5.00	
280.00	X	5.00	
281.00	X	5.00	
282.00	X	5.00	
283.00	X	5.00	
284.00	X	5.00	
285.00	X	5.00	
286.00	X	5.00	
287.00	X	5.00	
288.00	X	5.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
289.00	X	5.00	
290.00	X	5.00	
291.00	X	5.00	
292.00	X	5.00	
293.00	X	5.00	
294.00	X	5.00	
295.00	X	5.00	
296.00	X	5.00	
297.00	X	5.00	
298.00	X	5.00	
299.00	X	5.00	
300.00	X	5.00	
301.00	X	5.00	
301.00	X	5.00	
302.00	X	5.00	
303.00	X	5.00	
304.00	X	5.00	
305.00	X	5.00	
306.00	X	5.00	
307.00	X	5.00	
308.00	X	5.00	
309.00	X	5.00	
310.00	X	5.00	
311.00	X	5.00	
312.00	X	5.00	
313.00	X	5.00	
314.00	X	5.00	
315.00	X	5.00	
316.00	X	5.00	
317.00	X	5.00	
318.00	X	5.00	
319.00	X	5.00	
320.00	X	5.00	
321.00	X	5.00	
322.00	X	5.00	
323.00	X	5.00	
324.00	X	5.00	
325.00	X	5.00	
326.00	X	5.00	
327.00	X	5.00	
328.00	X	5.00	
329.00	X	5.00	
330.00	X	5.00	
331.00	X	5.00	
332.00	X	5.00	
333.00	X	5.00	
334.00	X	5.00	
335.00	X	5.00	
336.00	X	5.00	
337.00	X	5.00	
338.00	X	5.00	
339.00	X	5.00	
340.00	X	5.00	
341.00	X	5.00	
342.00	X	5.00	
343.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
344.00	X	5.00	
345.00	X	5.00	
346.00	X	5.00	
347.00	X	5.00	
348.00	X	5.00	
349.00	X	5.00	
350.00	X	5.00	
351.00	X	5.00	
352.00	X	5.00	
353.00	X	5.00	
354.00	X	5.00	
355.00	X	5.00	
356.00	X	5.00	
357.00	X	5.00	
358.00	X	5.00	
359.00	X	5.00	
360.00	X	5.00	
361.00	X	5.00	
362.00	X	5.00	
363.00	X	5.00	
364.00	X	5.00	
365.00	X	5.00	
366.00	X	5.00	
367.00	X	5.00	
368.00	X	5.00	
369.00	X	5.00	
370.00	X	5.00	
371.00	X	5.00	
372.00	X	5.00	
373.00	X	5.00	
374.00	X	5.00	
375.00	X	5.00	
376.00	X	5.00	
377.00	X	5.00	
378.00	X	5.00	
379.00	X	5.00	
380.00	X	5.00	
381.00	X	5.00	
382.00	X	5.00	
383.00	X	5.00	
384.00	X	5.00	
385.00	X	5.00	
386.00	X	5.00	
387.00	X	5.00	
388.00	X	5.00	
389.00	X	5.00	
390.00	X	5.00	
391.00	X	5.00	
392.00	X	5.00	
393.00	X	5.00	
394.00	X	5.00	
395.00	X	5.00	
396.00	X	5.00	
397.00	X	5.00	
398.00	X	5.00	
399.00	X	5.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
400.00	X	5.00	
415.00	X	5.00	
460.00	X	5.00	
470.00	X	5.00	
40.00	X	5.30	
41.20	X	5.30	
41.40	X	5.30	
42.50	X	5.30	
43.70	X	5.30	
45.00	X	5.30	
46.20	X	5.30	
47.50	X	5.30	
48.70	X	5.30	
50.00	X	5.30	
51.50	X	5.30	
53.00	X	5.30	
54.40	X	5.30	
54.50	X	5.30	
56.00	X	5.30	
58.00	X	5.30	
60.00	X	5.30	
61.50	X	5.30	
63.00	X	5.30	
65.00	X	5.30	
67.00	X	5.30	
69.00	X	5.30	
71.00	X	5.30	
73.00	X	5.30	
75.00	X	5.30	
77.50	X	5.30	
80.00	X	5.30	
82.50	X	5.30	
85.00	X	5.30	
87.50	X	5.30	
90.00	X	5.30	
92.50	X	5.30	
95.00	X	5.30	
97.50	X	5.30	
100.00	X	5.30	
103.00	X	5.30	
106.00	X	5.30	
109.00	X	5.30	
112.00	X	5.30	
115.00	X	5.30	
118.00	X	5.30	
122.00	X	5.30	
125.00	X	5.30	
128.00	X	5.30	
132.00	X	5.30	
136.00	X	5.30	
140.00	X	5.30	
145.00	X	5.30	
150.00	X	5.30	
155.00	X	5.30	
160.00	X	5.30	
165.00	X	5.30	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
170.00	X	5.30	
175.00	X	5.30	
180.00	X	5.30	
185.00	X	5.30	
190.00	X	5.30	
195.00	X	5.30	
200.00	X	5.30	
10.46	X	5.33	309
12.07	X	5.33	310
13.64	X	5.33	311
15.24	X	5.33	312
16.81	X	5.33	313
18.42	X	5.33	314
19.99	X	5.33	315
21.59	X	5.33	316
23.16	X	5.33	317
24.77	X	5.33	318
26.34	X	5.33	319
27.94	X	5.33	320
29.51	X	5.33	321
31.12	X	5.33	322
32.69	X	5.33	323
34.29	X	5.33	324
37.47	X	5.33	325
40.64	X	5.33	326
43.82	X	5.33	327
46.99	X	5.33	328
50.17	X	5.33	329
53.34	X	5.33	330
56.52	X	5.33	331
59.69	X	5.33	332
62.87	X	5.33	333
66.04	X	5.33	334
69.22	X	5.33	335
72.39	X	5.33	336
74.63	X	5.33	BS619
75.57	X	5.33	337
78.74	X	5.33	338
79.73	X	5.33	BS620
81.92	X	5.33	339
85.09	X	5.33	340
88.27	X	5.33	341
89.69	X	5.33	BS621
91.44	X	5.33	342
94.62	X	5.33	343
97.79	X	5.33	344
100.00	X	5.33	BS622
100.97	X	5.33	345
104.14	X	5.33	346
107.32	X	5.33	347
109.54	X	5.33	BS623
110.49	X	5.33	348
113.67	X	5.33	349
116.84	X	5.33	350
117.48	X	5.33	BS860
120.02	X	5.33	351

Inside Diameter mm		Cross Section mm	Size Cross Reference
120.65	X	5.33	BS861
123.19	X	5.33	352
123.83	X	5.33	BS862
126.37	X	5.33	353
127.00	X	5.33	BS863
129.54	X	5.33	354
130.18	X	5.33	BS864
132.72	X	5.33	355
133.35	X	5.33	BS865
135.89	X	5.33	356
136.53	X	5.33	BS866
139.07	X	5.33	357
139.70	X	5.33	BS867
142.24	X	5.33	358
142.88	X	5.33	BS868
145.42	X	5.33	359
146.05	X	5.33	BS869
148.59	X	5.33	360
149.23	X	5.33	BS870
151.77	X	5.33	361
155.00	X	5.33	BS644
158.12	X	5.33	362
161.30	X	5.33	BS645
164.47	X	5.33	363
167.70	X	5.33	BS646
170.82	X	5.33	364
174.00	X	5.33	BS647
177.17	X	5.33	365
183.52	X	5.33	366
189.87	X	5.33	367
196.22	X	5.33	368
202.57	X	5.33	369
208.92	X	5.33	370
215.27	X	5.33	371
221.62	X	5.33	372
227.97	X	5.33	373
234.32	X	5.33	374
240.67	X	5.33	375
247.02	X	5.33	376
253.37	X	5.33	377
266.07	X	5.33	378
278.77	X	5.33	379
291.47	X	5.33	380
291.69	X	5.33	
304.17	X	5.33	381
329.55	X	5.33	382
354.97	X	5.33	383
380.37	X	5.33	384
405.26	X	5.33	385
430.66	X	5.33	386
456.06	X	5.33	387
481.46	X	5.33	388
491.49	X	5.33	
506.86	X	5.33	389
532.26	X	5.33	390
557.66	X	5.33	391

Inside Diameter mm		Cross Section mm	Size Cross Reference
582.65	X	5.33	392
608.10	X	5.33	393
633.50	X	5.33	394
658.88	X	5.33	395
702.66	X	5.33	
34.00	X	5.50	
72.00	X	5.50	
75.00	X	5.50	
145.00	X	5.50	
24.20	X	5.70	
35.20	X	5.70	
36.20	X	5.70	
37.20	X	5.70	
39.20	X	5.70	
41.20	X	5.70	
44.20	X	5.70	
44.30	X	5.70	
45.20	X	5.70	
45.30	X	5.70	
47.20	X	5.70	
47.60	X	5.70	P48A
49.20	X	5.70	
49.30	X	5.70	
49.60	X	5.70	P50A
51.20	X	5.70	
51.60	X	5.70	P52
52.20	X	5.70	
52.30	X	5.70	
52.50	X	5.70	
52.60	X	5.70	P53
53.00	X	5.70	
54.20	X	5.70	
54.30	X	5.70	
54.60	X	5.70	P55
55.20	X	5.70	
55.30	X	5.70	
55.60	X	5.70	P56
57.20	X	5.70	
57.60	X	5.70	P58
59.20	X	5.70	
59.30	X	5.70	
59.60	X	5.70	P60
59.70	X	5.70	
61.20	X	5.70	
61.60	X	5.70	P62
62.00	X	5.70	
62.20	X	5.70	
62.30	X	5.70	
62.60	X	5.70	P63
64.00	X	5.70	
64.20	X	5.70	
64.30	X	5.70	
64.60	X	5.70	P65
66.60	X	5.70	P67
67.20	X	5.70	
67.60	X	5.70	P68



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Inside Diameter mm		Cross Section mm	Size Cross Reference
69.00	X	5.70	
69.20	X	5.70	
69.30	X	5.70	
69.60	X	5.70	P70
70.20	X	5.70	
70.60	X	5.70	P71
71.20	X	5.70	
72.20	X	5.70	
72.30	X	5.70	
74.00	X	5.70	
74.20	X	5.70	
74.30	X	5.70	
74.60	X	5.70	P75
77.20	X	5.70	
79.00	X	5.70	
79.20	X	5.70	
79.30	X	5.70	
79.60	X	5.70	P80
81.20	X	5.70	
82.20	X	5.70	
84.00	X	5.70	
84.10	X	5.70	
84.20	X	5.70	
84.30	X	5.70	
84.60	X	5.70	P85
87.20	X	5.70	
89.00	X	5.70	
89.10	X	5.70	
89.20	X	5.70	
89.30	X	5.70	
89.60	X	5.70	P90
92.20	X	5.70	
94.00	X	5.70	
94.10	X	5.70	
94.20	X	5.70	
94.30	X	5.70	
94.60	X	5.70	P95
97.20	X	5.70	
99.00	X	5.70	
99.10	X	5.70	
99.20	X	5.70	
99.30	X	5.70	
99.60	X	5.70	P100
101.60	X	5.70	P102
104.00	X	5.70	
104.10	X	5.70	
104.20	X	5.70	
104.30	X	5.70	
104.60	X	5.70	P105
109.00	X	5.70	
109.10	X	5.70	
109.20	X	5.70	
109.30	X	5.70	
111.60	X	5.70	P112
114.00	X	5.70	
114.20	X	5.70	

Inside Diameter mm		Cross Section mm	Size Cross Reference
114.30	X	5.70	
114.60	X	5.70	P115
119.00	X	5.70	
119.20	X	5.70	
119.30	X	5.70	
119.50	X	5.70	
119.60	X	5.70	P120
124.00	X	5.70	
124.30	X	5.70	
124.60	X	5.70	P125
125.30	X	5.70	
129.20	X	5.70	
129.30	X	5.70	
129.60	X	5.70	P130
131.60	X	5.70	P132
132.20	X	5.70	
133.20	X	5.70	
134.20	X	5.70	
134.30	X	5.70	
134.60	X	5.70	P135
139.20	X	5.70	
139.30	X	5.70	
139.60	X	5.70	P140
144.20	X	5.70	
144.30	X	5.70	
144.60	X	5.70	P145
149.20	X	5.70	
149.30	X	5.70	G150
149.60	X	5.70	P150
154.30	X	5.70	G155
159.30	X	5.70	G160
164.20	X	5.70	
164.30	X	5.70	G165
168.00	X	5.70	
169.30	X	5.70	G170
174.20	X	5.70	
174.30	X	5.70	G175
179.30	X	5.70	G180
184.30	X	5.70	G185
189.20	X	5.70	
189.30	X	5.70	G190
194.20	X	5.70	
194.30	X	5.70	G195
199.20	X	5.70	
199.30	X	5.70	G200
204.20	X	5.70	
209.20	X	5.70	
209.30	X	5.70	G210
219.30	X	5.70	G220
229.30	X	5.70	G230
234.30	X	5.70	
239.30	X	5.70	G240
249.30	X	5.70	G250
259.30	X	5.70	G260
269.30	X	5.70	G270
279.30	X	5.70	G280

Inside Diameter mm		Cross Section mm	Size Cross Reference
289.20	X	5.70	
289.30	X	5.70	G290
299.30	X	5.70	G300
319.30	X	5.70	
329.30	X	5.70	
339.30	X	5.70	
349.30	X	5.70	
359.30	X	5.70	
379.30	X	5.70	
399.30	X	5.70	
419.30	X	5.70	
439.30	X	5.70	
449.20	X	5.70	
459.30	X	5.70	
479.30	X	5.70	
499.30	X	5.70	
519.30	X	5.70	
529.30	X	5.70	
594.00	X	5.70	
594.30	X	5.70	
725.00	X	5.70	
11.70	X	5.80	
218.00	X	5.80	
6.00	X	6.00	
7.00	X	6.00	
9.00	X	6.00	
10.00	X	6.00	
11.00	X	6.00	
12.00	X	6.00	
13.00	X	6.00	
14.00	X	6.00	
15.00	X	6.00	
16.00	X	6.00	
18.00	X	6.00	
19.00	X	6.00	
19.50	X	6.00	
20.00	X	6.00	
21.00	X	6.00	
22.00	X	6.00	
23.00	X	6.00	
23.50	X	6.00	
24.00	X	6.00	
25.00	X	6.00	
26.00	X	6.00	
27.00	X	6.00	
28.00	X	6.00	
29.00	X	6.00	
30.00	X	6.00	
31.00	X	6.00	
32.00	X	6.00	
33.00	X	6.00	
34.00	X	6.00	
35.00	X	6.00	
36.00	X	6.00	
37.00	X	6.00	
38.00	X	6.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
39.00	X	6.00	
39.50	X	6.00	
40.00	X	6.00	
41.00	X	6.00	
41.50	X	6.00	
42.00	X	6.00	
43.00	X	6.00	
44.00	X	6.00	
44.50	X	6.00	
45.00	X	6.00	
46.00	X	6.00	
47.00	X	6.00	
48.00	X	6.00	
49.00	X	6.00	
50.00	X	6.00	
51.00	X	6.00	
52.00	X	6.00	
53.00	X	6.00	
54.00	X	6.00	
55.00	X	6.00	
56.00	X	6.00	
57.00	X	6.00	
58.00	X	6.00	
59.50	X	6.00	
60.00	X	6.00	
61.00	X	6.00	
62.00	X	6.00	
63.00	X	6.00	
64.00	X	6.00	
65.00	X	6.00	
66.00	X	6.00	
67.00	X	6.00	
68.00	X	6.00	
69.00	X	6.00	
70.00	X	6.00	
71.00	X	6.00	
72.00	X	6.00	
73.00	X	6.00	
74.00	X	6.00	
75.00	X	6.00	
76.00	X	6.00	
78.00	X	6.00	
78.50	X	6.00	
79.00	X	6.00	
80.00	X	6.00	
81.00	X	6.00	
81.50	X	6.00	
84.00	X	6.00	
85.00	X	6.00	
86.00	X	6.00	
88.00	X	6.00	
89.00	X	6.00	
90.00	X	6.00	
92.00	X	6.00	
93.00	X	6.00	
95.00	X	6.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
96.00	X	6.00	
98.00	X	6.00	
99.00	X	6.00	
100.00	X	6.00	
101.00	X	6.00	
103.00	X	6.00	
104.00	X	6.00	
104.50	X	6.00	
105.00	X	6.00	
106.00	X	6.00	
108.00	X	6.00	
110.00	X	6.00	
111.00	X	6.00	
112.00	X	6.00	
114.00	X	6.00	
115.00	X	6.00	
118.00	X	6.00	
120.00	X	6.00	
122.00	X	6.00	
123.00	X	6.00	
124.00	X	6.00	
125.00	X	6.00	
126.00	X	6.00	
128.00	X	6.00	
130.00	X	6.00	
132.00	X	6.00	
134.00	X	6.00	
135.00	X	6.00	
136.00	X	6.00	
138.00	X	6.00	
139.20	X	6.00	
140.00	X	6.00	
142.00	X	6.00	
143.00	X	6.00	
145.00	X	6.00	
146.00	X	6.00	
148.00	X	6.00	
150.00	X	6.00	
153.00	X	6.00	
154.00	X	6.00	
155.00	X	6.00	
155.50	X	6.00	
156.00	X	6.00	
157.00	X	6.00	
158.00	X	6.00	
159.00	X	6.00	
160.00	X	6.00	
162.00	X	6.00	
165.00	X	6.00	
166.00	X	6.00	
169.00	X	6.00	
170.00	X	6.00	
172.00	X	6.00	
175.00	X	6.00	
176.00	X	6.00	
180.00	X	6.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
182.00	X	6.00	
184.00	X	6.00	
185.00	X	6.00	
188.00	X	6.00	
190.00	X	6.00	
191.20	X	6.00	
193.00	X	6.00	
195.00	X	6.00	
196.00	X	6.00	
198.00	X	6.00	
200.00	X	6.00	
201.00	X	6.00	
202.00	X	6.00	
203.00	X	6.00	
203.50	X	6.00	
204.00	X	6.00	
205.00	X	6.00	
206.00	X	6.00	
208.00	X	6.00	
210.00	X	6.00	
212.00	X	6.00	
215.00	X	6.00	
216.00	X	6.00	
217.00	X	6.00	
218.00	X	6.00	
220.00	X	6.00	
221.00	X	6.00	
222.50	X	6.00	V225
222.50	X	6.00	
225.00	X	6.00	
226.00	X	6.00	
229.00	X	6.00	
230.00	X	6.00	
235.00	X	6.00	
236.00	X	6.00	
237.00	X	6.00	
237.50	X	6.00	
238.00	X	6.00	
240.00	X	6.00	
242.00	X	6.00	
244.00	X	6.00	
247.00	X	6.00	
249.00	X	6.00	
250.00	X	6.00	
258.00	X	6.00	
259.00	X	6.00	
260.00	X	6.00	
262.00	X	6.00	
265.00	X	6.00	
266.00	X	6.00	
270.00	X	6.00	
272.00	X	6.00	V275
272.00	X	6.00	
278.00	X	6.00	
280.00	X	6.00	
284.00	X	6.00	



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Inside Diameter mm		Cross Section mm	Size Cross Reference
285.00	X	6.00	
288.00	X	6.00	
290.00	X	6.00	
294.00	X	6.00	
295.00	X	6.00	
300.00	X	6.00	
301.00	X	6.00	
305.00	X	6.00	
310.00	X	6.00	
311.00	X	6.00	
315.00	X	6.00	
320.00	X	6.00	
321.50	X	6.00	V325
321.50	X	6.00	
324.00	X	6.00	
325.00	X	6.00	
330.00	X	6.00	
333.00	X	6.00	
335.00	X	6.00	
338.00	X	6.00	
340.00	X	6.00	
345.00	X	6.00	
347.00	X	6.00	
348.00	X	6.00	
350.00	X	6.00	
355.00	X	6.00	
358.00	X	6.00	
360.00	X	6.00	
365.00	X	6.00	
368.00	X	6.00	
370.00	X	6.00	
375.00	X	6.00	
376.00	X	6.00	V380
376.00	X	6.00	
380.00	X	6.00	
385.00	X	6.00	
386.00	X	6.00	
388.00	X	6.00	
389.00	X	6.00	
390.00	X	6.00	
392.00	X	6.00	
394.00	X	6.00	
395.00	X	6.00	
398.00	X	6.00	
400.00	X	6.00	
415.00	X	6.00	
422.00	X	6.00	
425.50	X	6.00	V430
429.00	X	6.00	
446.00	X	6.00	
448.00	X	6.00	
450.00	X	6.00	
453.00	X	6.00	
470.00	X	6.00	
478.00	X	6.00	
480.00	X	6.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
483.00	X	6.00	
486.00	X	6.00	
489.00	X	6.00	
500.00	X	6.00	
504.00	X	6.00	
505.00	X	6.00	
508.00	X	6.00	
510.00	X	6.00	
516.00	X	6.00	
530.00	X	6.00	
540.00	X	6.00	
544.00	X	6.00	
549.00	X	6.00	
552.00	X	6.00	
555.00	X	6.00	
560.00	X	6.00	
569.00	X	6.00	
575.00	X	6.00	
579.00	X	6.00	
422.20	X	6.20	
610.00	X	6.35	
50.00	X	6.50	
57.00	X	6.50	
422.20	X	6.90	
34.29	X	6.99	400
37.47	X	6.99	401
40.64	X	6.99	402
43.82	X	6.99	403
45.59	X	6.99	405
46.99	X	6.99	404
53.34	X	6.99	406
56.52	X	6.99	407
59.69	X	6.99	408
62.87	X	6.99	409
66.04	X	6.99	410
69.22	X	6.99	411
72.39	X	6.99	412
75.57	X	6.99	413
78.74	X	6.99	414
81.92	X	6.99	415
85.09	X	6.99	416
88.27	X	6.99	417
91.44	X	6.99	418
94.62	X	6.99	419
97.79	X	6.99	420
100.97	X	6.99	421
104.14	X	6.99	422
107.32	X	6.99	423
110.49	X	6.99	424
113.67	X	6.99	425
114.70	X	6.99	BS624
116.84	X	6.99	426
120.02	X	6.99	427
123.19	X	6.99	428
124.60	X	6.99	BS625
126.37	X	6.99	429

Inside Diameter mm		Cross Section mm	Size Cross Reference
129.54	X	6.99	430
132.72	X	6.99	431
134.50	X	6.99	BS626
135.89	X	6.99	432
139.07	X	6.99	433
142.24	X	6.99	434
145.42	X	6.99	435
148.59	X	6.99	436
151.77	X	6.99	437
155.60	X	6.99	BS872
158.12	X	6.99	438
159.50	X	6.99	BS627
161.90	X	6.99	BS874
164.47	X	6.99	439
166.70	X	6.99	BS628
168.30	X	6.99	BS876
170.82	X	6.99	440
174.60	X	6.99	BS878
177.17	X	6.99	441
181.00	X	6.99	BS880
183.52	X	6.99	442
187.30	X	6.99	BS882
189.87	X	6.99	443
193.70	X	6.99	BS884
196.22	X	6.99	444
200.00	X	6.99	BS886
202.57	X	6.99	445
208.92	X	6.99	BS674
215.27	X	6.99	446
221.62	X	6.99	BS676
227.97	X	6.99	447
234.32	X	6.99	BS678
240.67	X	6.99	448
247.00	X	6.99	BS680
253.37	X	6.99	449
259.70	X	6.99	BS682
266.07	X	6.99	450
272.40	X	6.99	BS684
278.77	X	6.99	451
285.10	X	6.99	BS686
291.47	X	6.99	452
297.80	X	6.99	BS688
304.17	X	6.99	453
310.50	X	6.99	BS648
316.87	X	6.99	454
323.20	X	6.99	BS649
329.57	X	6.99	455
335.90	X	6.99	BS650
342.27	X	6.99	456
354.97	X	6.99	457
367.67	X	6.99	458
380.37	X	6.99	459
393.07	X	6.99	460
405.26	X	6.99	461
417.96	X	6.99	462
430.66	X	6.99	463



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Inside Diameter mm		Cross Section mm	Size Cross Reference
443.36	X	6.99	464
456.06	X	6.99	465
468.76	X	6.99	466
481.46	X	6.99	467
494.16	X	6.99	468
506.86	X	6.99	469
532.26	X	6.99	470
557.66	X	6.99	471
582.65	X	6.99	472
608.10	X	6.99	473
633.50	X	6.99	474
658.85	X	6.99	475
675.16	X	6.99	
12.00	X	7.00	
54.00	X	7.00	
60.00	X	7.00	
70.00	X	7.00	
75.00	X	7.00	
82.00	X	7.00	
90.00	X	7.00	
95.00	X	7.00	
105.00	X	7.00	
110.00	X	7.00	
192.00	X	7.00	
206.00	X	7.00	
212.00	X	7.00	
218.00	X	7.00	
224.00	X	7.00	
230.00	X	7.00	
236.00	X	7.00	
243.00	X	7.00	
250.00	X	7.00	
250.37	X	7.00	
258.00	X	7.00	
265.00	X	7.00	
272.00	X	7.00	
280.00	X	7.00	
290.00	X	7.00	
300.00	X	7.00	
307.00	X	7.00	
315.00	X	7.00	
325.00	X	7.00	
335.00	X	7.00	
345.00	X	7.00	
355.00	X	7.00	
360.00	X	7.00	
365.00	X	7.00	
375.00	X	7.00	
387.00	X	7.00	
400.00	X	7.00	
412.00	X	7.00	
425.00	X	7.00	
437.00	X	7.00	
450.00	X	7.00	
457.20	X	7.00	
462.00	X	7.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
475.00	X	7.00	
487.00	X	7.00	
490.00	X	7.00	
494.67	X	7.00	
500.00	X	7.00	
515.00	X	7.00	
530.00	X	7.00	
545.00	X	7.00	
545.47	X	7.00	
560.00	X	7.00	
580.00	X	7.00	
596.27	X	7.00	
600.00	X	7.00	
615.00	X	7.00	
630.00	X	7.00	
647.07	X	7.00	
650.00	X	7.00	
670.00	X	7.00	
699.00	X	7.00	
724.00	X	7.00	
730.50	X	7.00	
745.00	X	7.00	
760.00	X	7.00	
880.00	X	7.00	
75.00	X	7.50	
25.00	X	8.00	
42.00	X	8.00	
57.00	X	8.00	
60.00	X	8.00	
97.00	X	8.00	
100.00	X	8.00	
108.00	X	8.00	
114.00	X	8.00	
150.00	X	8.00	
160.00	X	8.00	
180.00	X	8.00	
195.00	X	8.00	
216.00	X	8.00	
226.00	X	8.00	
230.00	X	8.00	
240.00	X	8.00	
242.00	X	8.00	
260.00	X	8.00	
265.00	X	8.00	
280.00	X	8.00	
310.00	X	8.00	
326.00	X	8.00	
330.00	X	8.00	
350.00	X	8.00	
360.00	X	8.00	
400.00	X	8.00	
425.00	X	8.00	
450.00	X	8.00	
460.00	X	8.00	
490.00	X	8.00	
500.00	X	8.00	

Inside Diameter mm		Cross Section mm	Size Cross Reference
520.00	X	8.00	
630.00	X	8.00	
638.00	X	8.00	
800.00	X	8.00	
125.00	X	8.30	
144.10	X	8.40	
149.10	X	8.40	
149.50	X	8.40	P150A
154.10	X	8.40	
154.50	X	8.40	P155
159.10	X	8.40	
159.50	X	8.40	P160
164.10	X	8.40	
164.50	X	8.40	P165
169.10	X	8.40	
169.50	X	8.40	P170
174.10	X	8.40	
174.50	X	8.40	P175
179.10	X	8.40	
179.50	X	8.40	P180
184.10	X	8.40	
184.50	X	8.40	P185
189.10	X	8.40	
189.50	X	8.40	P190
194.10	X	8.40	
194.50	X	8.40	P195
199.10	X	8.40	P200
204.10	X	8.40	
204.50	X	8.40	P205
208.50	X	8.40	P209
209.10	X	8.40	
209.50	X	8.40	P210
214.50	X	8.40	P215
219.10	X	8.40	
219.50	X	8.40	P220
224.50	X	8.40	P225
229.10	X	8.40	
229.50	X	8.40	P230
234.10	X	8.40	
234.50	X	8.40	P235
239.10	X	8.40	
239.50	X	8.40	P240
244.50	X	8.40	P245
249.10	X	8.40	
249.50	X	8.40	P250
254.50	X	8.40	P255
259.50	X	8.40	P260
264.50	X	8.40	P265
269.50	X	8.40	P270
274.50	X	8.40	P275
279.50	X	8.40	P280
284.50	X	8.40	P285
289.50	X	8.40	P290
294.50	X	8.40	P295
299.50	X	8.40	P300
304.00	X	8.40	

