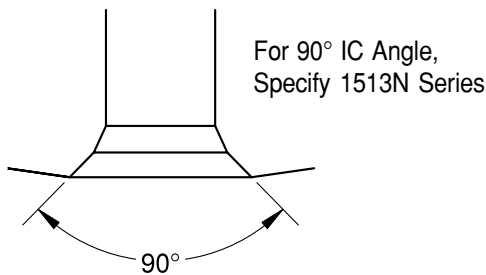
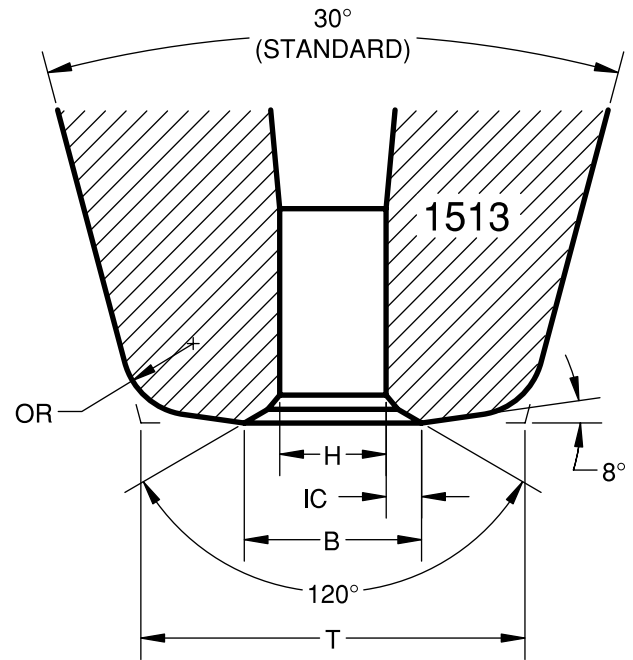


The 1513 series represents one of the most popular styles of wire bonding capillaries in the industry today. This series combines the popular 8° face angle with a 120° double inside chamfer. The 8° face angle provides excellent 2nd bond characteristics on a variety of surfaces. The 120° double inside chamfer exerts maximum downward force on the ball bond and provides good looping characteristics. Selected 1513 style tools are regular stock items based on demand.

The 1513N may be specified for a 90° inside chamfer for improved 2nd bond tailing and a more compact ball bond on materials with good bondability.



Specify: Series - Dash Number - Length+Finish - Options
Example: 1513-18-437GM-20D

Note: For Tungsten Carbide material, specify 1113 & 1113N series (1/16 in. diameter only).
 For 1/8 in. diameter ceramic, specify 1213 & 1213N series.

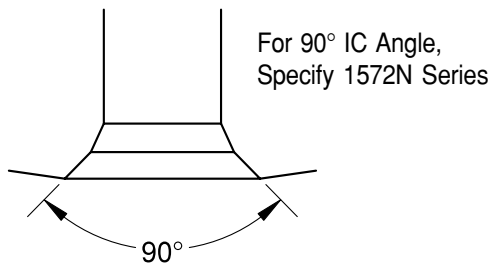
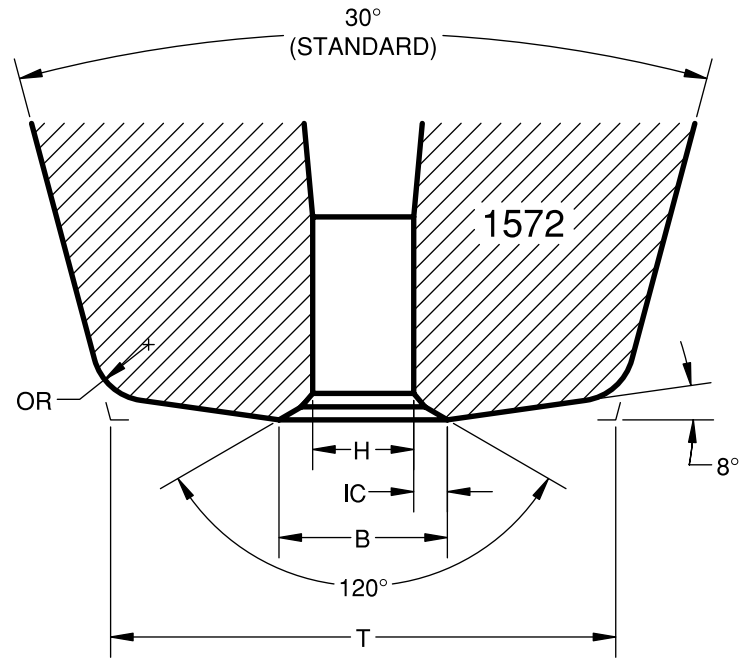
SERIES & DASH NO.	H* in./μm ±.0001/2.5	IC in./μm (ref)	B** in./μm ±.0002/5	OR in./μm ±.0003/8	T (30° CONE) in./μm ±.0003/8	T (20° CONE) in./μm ±.0003/8	SUGGESTED WIRE DIAMETER in./μm
1513-10	.0010/25	.0007/18	.0024/61	.0012/30	.0065/165	.0067/170	.0005/13 to .0008/20
1513-10S	.0010/25	.0004/10	.0018/46	.0012/30	.0065/165	.0067/170	
1513-12	.0012/30	.0006/15	.0024/61	.0012/30	.0065/165	.0067/170	.0007/18 to .0009/23
1513-15	.0015/38	.0007/18	.0029/74	.0015/38	.0080/203	.0082/208	.0009/23 to .0011/28
1513-17	.0017/43	.0007/18	.0031/79	.0015/38	.0080/203	.0082/208	.0010/25 to .0013/33
1513-17M	.0017/43	.0006/15	.0029/74	.0015/38	.0090/229	.0093/236	
1513-18	.0018/46	.00085/22	.0035/89	.0015/38	.0090/229	.0093/236	
1513-18A	.0018/46	.0006/15	.0030/76	.0015/38	.0080/203	.0082/208	
1513-18M	.0018/46	.0006/15	.0030/76	.0015/38	.0090/229	.0093/236	
1513-18S	.0018/46	.0006/15	.0030/76	.0012/30	.0065/165	.0067/170	.0013/33 to .0015/38
1513-20A	.0020/51	.00045/11	.0029/74	.0015/38	.0080/203	.0082/208	
1513-20B	.0020/51	.00075/19	.0035/89	.0015/38	.0090/229	.0093/236	
1513-20M	.0020/51	.00045/11	.0029/74	.0015/38	.0090/229	.0093/236	
1513-21	.0021/51	.00095/24	.0040/102	.0020/51	.0100/254	.0103/262	
1513-22	.0022/56	.0009/23	.0040/102	.0020/51	.0100/254	.0103/262	.0015/38 to .0020/51
1513-22A	.0022/56	.00065/17	.0035/89	.0015/38	.0090/229	.0093/236	
1513-22M	.0022/56	.0004/10	.0030/76	.0015/38	.0090/229	.0093/236	.0020/51
1513-25	.0025/64	.00075/19	.0040/102	.0020/51	.0100/254	.0103/262	
1513-27	.0027/69	.00115/29	.0050/127	.0025/64	.0120/305	.0124/315	.0020/51 to .0025/64
1513-33	.0033/84	.0011/28	.0055/140	.0030/76	.0140/356	.0145/368	.0030/76
1513-40	.0040/102	.0010/25	.0060/152	.0030/76	.0160/406	.0165/419	

* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-0.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-0.0002. Tighter tolerance available at additional charges.

** For B dimensions greater than 0.0040, the tolerance is +.0003/-0.0002. *Dimensions in inches unless otherwise specified*

The 1572 series represents one of the most popular styles of wire bonding capillaries in the industry today. This series combines the popular 8° face angle with a 120° double inside chamfer. The 8° face angle provides excellent 2nd bond characteristics on a variety of surfaces. The 120° double inside chamfer exerts maximum downward force on the ball bond and provides good looping characteristics. Selected 1572 style tools are regular stock items based on demand.

The 1572N may be specified for a 90° inside chamfer for improved 2nd bond tailing and a more compact ball bond on materials with good bondability.



Specify: Series - Dash Number - Length+Finish - Options
Example: 1572-18-437GM

Note: For Tungsten Carbide material, specify 1172 & 1172N series (1/16 in. diameter only).
 For 1/8 in. diameter ceramic, specify 1272 & 1272N series.

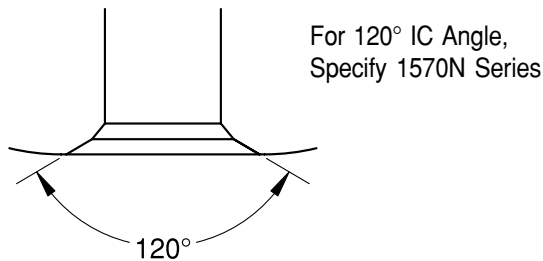
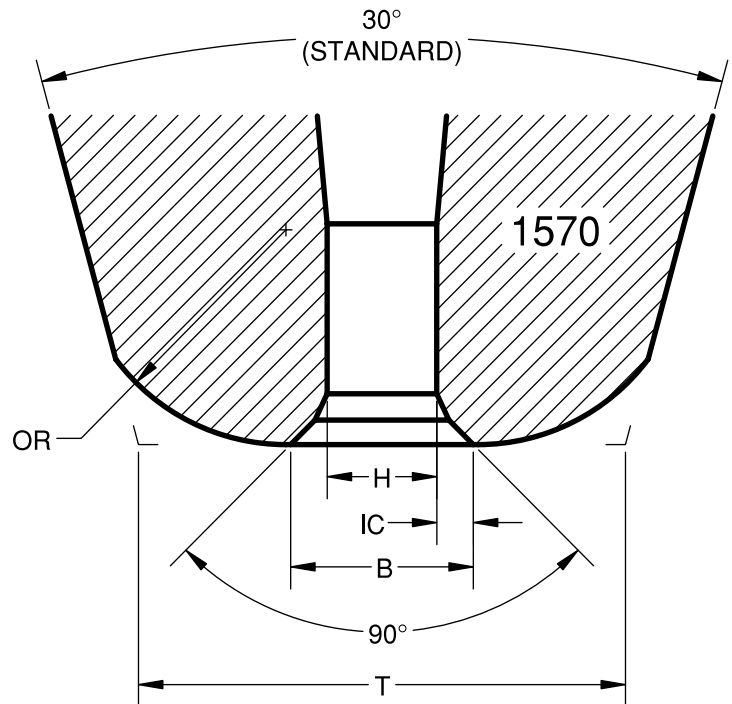
SERIES & DASH NO.	H* in./μm ±.0001/2.5	IC in./μm (ref)	B** in./μm ±.0002/5	OR in./μm ±.0003/8	T (30° CONE) in./μm ±.0003/8	T (20° CONE) in./μm ±.0003/8	SUGGESTED WIRE DIAMETER in./μm
1572-10	.0010/25	.0007/18	.0024/61	.0008/20	.0055/140	.0056/142	.0005/13 to .0008/20
1572-10S	.0010/25	.0004/10	.0018/46	.0008/20	.0055/140	.0056/142	
1572-12	.0012/30	.0006/15	.0024/61	.0008/20	.0055/140	.0056/142	.0007/18 to .0009/23
1572-13	.0013/33	.0006/15	.0025/64	.0008/20	.0055/140	.0056/142	.0008/20 to .0010/25
1572-13S	.0013/33	.0004/10	.0021/53	.0008/20	.0055/140	.0056/142	
1572-15	.0015/38	.0007/18	.0029/74	.0010/25	.0065/165	.0067/170	.0009/23 to .0011/28
1572-15S	.0015/38	.0006/15	.0027/69	.0008/20	.0055/140	.0056/142	
1572-17	.0017/43	.0006/15	.0029/74	.0010/25	.0090/229	.0092/234	.0010/25 to .0013/33
1572-17S	.0017/43	.0006/15	.0029/74	.0010/25	.0065/165	.0067/170	
1572-18	.0018/46	.0006/15	.0030/76	.0010/25	.0090/229	.0092/234	.0013/33 to .0015/38
1572-20	.0020/51	.0010/25	.0040/102	.0015/38	.0090/229	.0093/236	
1572-22	.0022/56	.0009/23	.0040/102	.0015/38	.0090/229	.0093/236	.0015/38 to .0020/51
1572-25	.0025/64	.0013/33	.0051/130	.0020/51	.0115/292	.0118/300	
1572-30	.0030/76	.0013/33	.0056/142	.0025/64	.0130/330	.0134/340	.0020/51
1572-35	.0035/89	.0010/25	.0055/140	.0030/76	.0140/356	.0145/368	.0020/51 to .0025/64
1572-40	.0040/102	.0010/25	.0060/152	.0030/76	.0140/356	.0145/368	.0030/76
1572-50	.0050/127	.0013/33	.0076/193	.0030/76	.0160/406	.0165/419	.0040/102
1572-70	.0070/178	.0015/38	.0100/254	.0050/127	.0280/711	.0288/732	.0050/127
1572-100	.0100/254	.0020/51	.0140/356	.0070/178	.0380/965	.0391/993	.0060/152

* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-.0002. Tighter tolerance available at additional charges.

** For B dimensions greater than 0.0040, the tolerance is +.0003/-.0002. *Dimensions in inches unless otherwise specified*

The 1570 series features a large outside radius design for good bondability on a variety of surfaces. The 90° double inside chamfer forms a compact ball bond and enhances 2nd bond tailing. The large outside radius design performs well even on surfaces with poor planarity. Selected 1570 style tools are regular stock items based on demand.

The 1570N may be specified for a 120° inside chamfer for applications with poor 1st bond bondability



Specify: Series - Dash Number - Length+Finish - Options
Example: 1570-18-437GM-20D

Note: For Tungsten Carbide material, specify 1170 & 1170N series (1/16 in. diameter only).
 For 1/8 in. diameter ceramic, specify 1270 & 1270N series.

SERIES & DASH NO.	H* in./μm ±.0001/2.5	IC in./μm (ref)	B** in./μm ±.0002/5	OR*** in./μm ±.0003/8	T (30° CONE) in./μm ±.0003/8	T (20° CONE) in./μm ±.0003/8	SUGGESTED WIRE DIAMETER in./μm
1570-10	.0010/25	.0003/8	.0016/41	.0020/51	.0050/127	.0051/130	.0005/13 to .0008/20
1570-12	.0012/30	.0003/8	.0018/46	.0020/51	.0050/127	.0051/130	.0007/18 to .0009/23
1570-13	.0013/33	.0004/10	.0021/53	.0025/64	.0060/152	.0062/157	.0008/20 to .0010/25
1570-15	.0015/38	.0005/13	.0025/64	.0030/76	.0070/178	.0072/183	.0009/23 to .0011/28
1570-17	.0017/43	.0006/15	.0029/74	.0035/89	.0080/203	.0083/211	.0010/25 to .0013/33
1570-18	.0018/46	.0006/15	.0030/76	.0035/89	.0080/203	.0083/211	
1570-20	.0020/51	.0007/18	.0034/86	.0040/102	.0090/229	.0093/236	.0013/33 to .0015/38
1570-22	.0022/56	.0007/18	.0036/91	.0040/102	.0090/229	.0093/236	
1570-25	.0025/64	.0008/20	.0041/104	.0050/127	.0115/292	.0119/302	.0015/38 to .0020/51
1570-30	.0030/76	.0009/23	.0048/122	.0060/152	.0140/356	.0144/366	.0020/51
1570-35	.0035/89	.0011/28	.0057/145	.0070/178	.0165/419	.0170/432	
1570-40	.0040/102	.0013/33	.0066/168	.0080/203	.0190/483	.0196/498	.0030/76
1570-45	.0045/114	.0014/36	.0073/185	.0090/229	.0211/536	.0218/554	
1570-50	.0050/127	.0015/38	.0080/203	.0100/254	.0240/610	.0247/627	.0040/102
1570-60	.0060/152	.0018/46	.0096/244	.0120/305	.0290/737	.0299/759	.0050/127
1570-70	.0070/178	.0021/53	.0112/284	.0140/356	.0350/889	.0360/914	

* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-.0002.

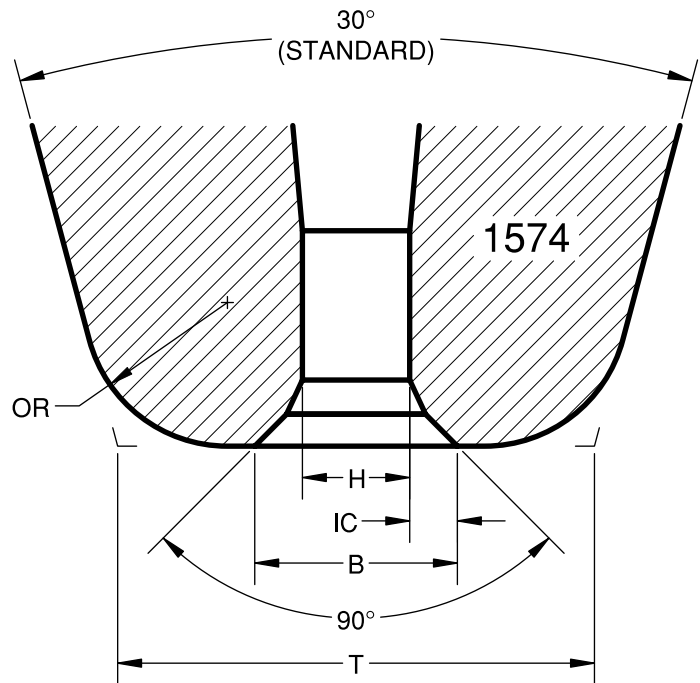
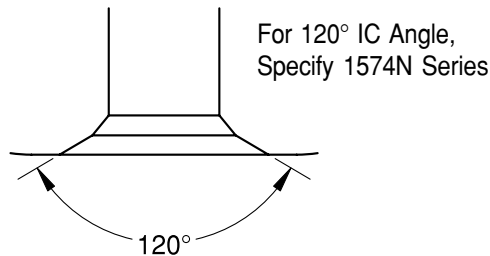
** For B dimensions greater than 0.0040, the tolerance is +.0003/-.0002.

***OR tolerance ±.0003 for OR less than or equal to .0030; for OR greater than .0030, tolerance is ±10%.

Tighter tolerance available at additional charges. *Dimensions in inches unless otherwise specified*

The 1574 series features a flat face design and a 90° double inside chamfer for surfaces with good bondability. The 90° double inside chamfer provides excellent 2nd bond tailing and a taller, more compact ball bond.

The 1574N may be specified for a 120° inside chamfer for surfaces with poor 1st bond bondability.



Specify: Series - Dash Number - Length+Finish - Options
Example: 1574-18-437GM-20D

Note: For Tungsten Carbide material, specify 1174 & 1174N series (1/16 in. diameter only).
 For 1/8 in. diameter ceramic, specify 1274 & 1274N series.

SERIES & DASH NO.	H* in./µm ±.0001/2.5	IC in./µm (ref)	B** in./µm ±.0002/5	OR*** in./µm ±.0003/8	T (30° CONE) in./µm ±.0003/8	T (20° CONE) in./µm ±.0003/8	SUGGESTED WIRE DIAMETER in./µm
1574-10	.0010/25	.0002/5	.0014/36	.0025/64	.0065/165	.0068/174	.0005/13 to .0008/20
1574-12	.0012/30	.0002/5	.0016/41	.0025/64	.0065/165	.0068/174	.0007/18 to .0009/23
1574-13	.0013/33	.0003/8	.0019/48	.0025/64	.0065/165	.0068/174	.0008/20 to .0010/25
1574-15S	.0015/38	.0003/8	.0021/53	.0035/89	.0080/203	.0085/216	.0009/23 to .0011/28
1574-17	.0017/43	.0007/18	.0031/79	.0024/61	.0080/203	.0083/211	.0010/25 to .0013/33
1574-17S	.0017/43	.0002/5	.0021/53	.0035/89	.0080/203	.0085/216	
1574-18	.0018/46	.0008/20	.0034/86	.0024/61	.0080/203	.0083/211	
1574-18M	.0018/46	.00055/14	.0029/74	.0024/61	.0080/203	.0083/211	
1574-18S	.0018/46	.0002/5	.0022/56	.0035/89	.0080/203	.0085/216	
1574-20	.0020/51	.0007/18	.0034/86	.0024/61	.0080/203	.0083/211	.0013/33 to .0015/38
1574-20M	.0020/51	.00045/11	.0029/74	.0024/61	.0080/203	.0083/211	
1574-22	.0022/56	.0006/15	.0034/86	.0024/61	.0080/203	.0083/211	
1574-22M	.0022/56	.00035/9	.0029/74	.0024/61	.0080/203	.0083/211	
1574-25	.0025/64	.0005/13	.0035/89	.0024/61	.0080/203	.0083/211	.0015/38 to .0020/51
1574-30	.0030/76	.0010/25	.0050/127	.0055/140	.0165/419	.0172/437	.0020/51
1574-35	.0035/89	.0008/20	.0051/130	.0065/165	.0165/419	.0174/442	.0020/51 to .0025/64
1574-35S	.0035/89	.0008/20	.0051/130	.0055/140	.0165/419	.0172/437	
1574-40	.0040/102	.0010/25	.0060/152	.0065/165	.0165/419	.0174/442	.0030/76
1574-50	.0050/127	.0012/30	.0074/188	.0070/178	.0190/483	.0200/508	.0040/102

* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-0.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-0.0002.

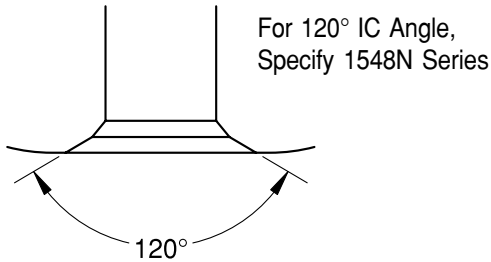
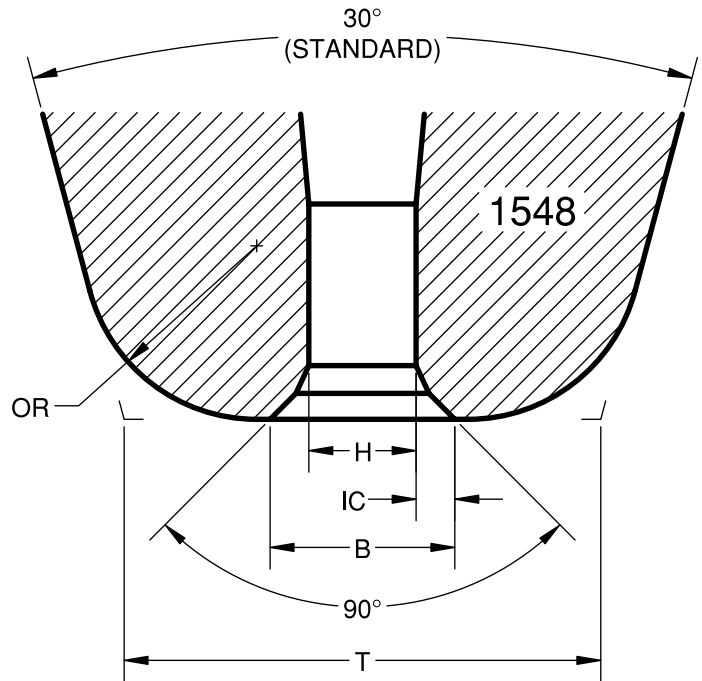
** For B dimensions greater than 0.0040, the tolerance is +.0003/-0.0002.

***OR tolerance ±.0003 for OR less than or equal to .0030; for OR greater than .0030, tolerance is ±10%.

Tighter tolerance available at additional charges. *Dimensions in inches unless otherwise specified*

The 1548 series capillary is designed for applications with good bondability. Typically specified with a polished finish, the 1548 will provide long tool life on surfaces with good metallization. The 1548 series features a flat face, large outside radius, and a 90° double inside chamfer design. The “GM” Gaiser matte finish may be specified for enhanced 2nd bond performance on surfaces with difficult bondability.

The 1548N may be specified for a 120° inside chamfer for applications with poor 1st bond bondability.



Specify: Series - Dash Number - Length+Finish - Options

Example: 1548-18-437P

Note: For Tungsten Carbide material, specify 1148 & 1148N series (1/16 in. diameter only).

For 1/8 in. diameter ceramic, specify 1248 & 1248N series.

SERIES & DASH NO.	H* in./µm ±.0001/2.5	IC in./µm (ref)	B** in./µm ±.0002/5	OR*** in./µm ±.0003/8	T (30° CONE) in./µm ±.0003/8	T (20° CONE) in./µm ±.0003/8	SUGGESTED WIRE DIAMETER in./µm
1548-10	.0010/25	.0004/10	.0018/46	.0018/46	.0050/127	.0052/132	.0005/13 to .0008/20
1548-12	.0012/30	.00035/9	.0019/48	.0018/46	.0050/127	.0052/132	.0007/18 to .0009/23
1548-13	.0013/33	.0004/10	.0021/53	.0021/53	.0060/152	.0063/160	.0008/20 to .0010/25
1548-15	.0015/38	.0005/13	.0025/64	.0025/64	.0070/178	.0073/185	.0009/23 to .0011/28
1548-17	.0017/43	.0006/15	.0029/74	.0029/74	.0080/203	.0084/213	.0010/25 to .0013/33
1548-18	.0018/46	.00065/17	.0031/79	.0029/74	.0080/203	.0084/213	
1548-20	.0020/51	.0007/18	.0034/86	.0032/81	.0090/229	.0094/239	.0013/33 to .0015/38
1548-22	.0022/56	.0007/18	.0036/91	.0032/81	.0090/229	.0094/239	
1548-30	.0030/76	.0009/23	.0048/122	.0048/122	.0140/356	.0147/373	.0020/51
1548-35	.0035/89	.0009/23	.0053/135	.0065/165	.0165/419	.0174/442	.0020/51 to .0025/64
1548-40	.0040/102	.00125/32	.0065/165	.0065/165	.0185/470	.0194/493	.0030/76

* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-0.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-0.0002.

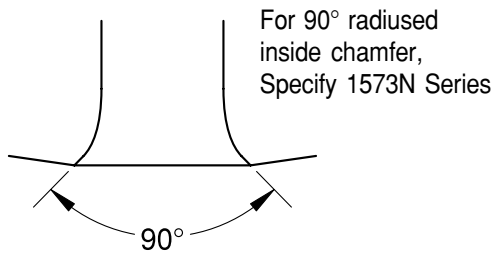
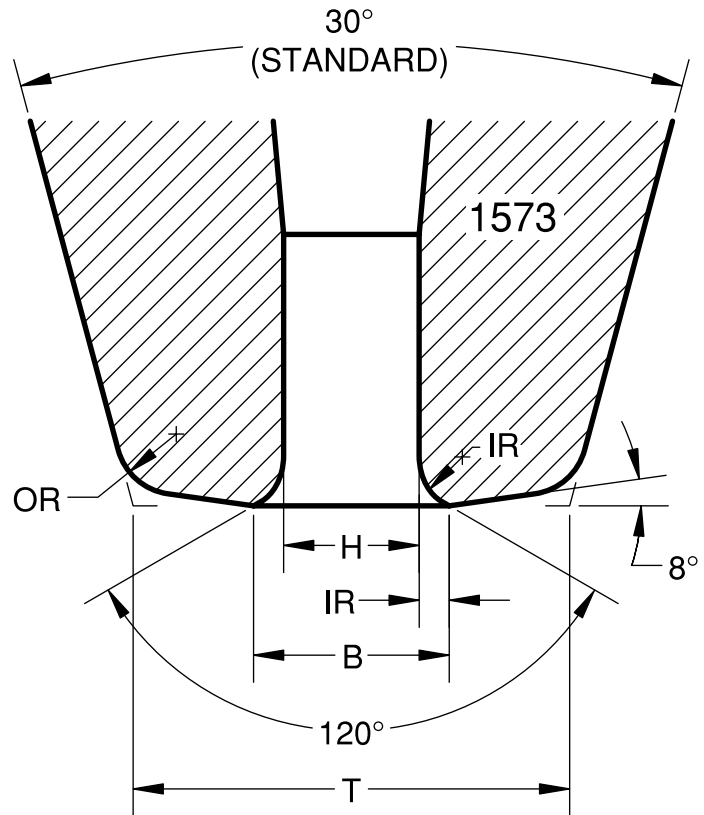
** For B dimensions greater than 0.0040, the tolerance is +.0003/-0.0002.

***OR tolerance ±.0003 for OR less than or equal to .0030; for OR greater than .0030, tolerance is ±10%.

Tighter tolerance available at additional charges. *Dimensions in inches unless otherwise specified*

The 1573 series is typically specified for fine pitch bonding applications where an angle bottleneck is not yet required. The small “T” and small “B” design work well with closely spaced, small bond pads, and the 120° radiused inside chamfer (IR) provides excellent looping and wire control for use in high-speed automated bonders. The 1573 series is most commonly specified with the optional 20° cone angle, but is also available in standard 30° and optional 15° angles.

The 1573N may be specified for a 90° radiused inside chamfer for a more compact ball bond on materials with good bondability.



Specify: Series - Dash Number - Length+Finish - Options

Example: 1573-18-437GM-20D

Note: For Tungsten Carbide material, specify 1173 & 1173N series (1/16 in. diameter only).

For 1/8 in. diameter ceramic, specify 1273 & 1273N series.

SERIES & DASH NO.	H* in./μm ±.0001/2.5	IR in./μm (ref)	B** in./μm ±.0002/5	OR*** in./μm ±.0003/8	T (30° CONE) in./μm ±.0003/8	T (20° CONE) in./μm ±.0003/8	SUGGESTED WIRE DIAMETER in./μm
1573-11	.0011/28	.0004/10	.0019/48	.0008/20	.0054/137	.0055/140	.0005/13 to .0008/20
1573-12	.0012/30	.0004/10	.0020/51	.0008/20	.0054/137	.0055/140	.0007/18 to .0009/23
1573-13	.0013/33	.0004/10	.0021/53	.0008/20	.0054/137	.0055/140	.0008/20 to .0010/25
1573-14	.0014/36	.0004/10	.0022/56	.0008/20	.0054/137	.0055/140	
1573-15	.0015/38	.0004/10	.0023/58	.0008/20	.0054/137	.0055/140	.0009/23 to .0011/28
1573-17	.0017/43	.0004/10	.0025/64	.0008/20	.0058/147	.0059/150	.0010/25 to .0013/33
1573-18	.0018/46	.0004/10	.0026/66	.0008/20	.0058/147	.0059/150	
1573-19	.0019/48	.0006/15	.0031/79	.0010/25	.0063/160	.0065/165	.0011/28 to .0013/33
1573-21	.0021/53	.0006/15	.0033/83	.0010/25	.0063/160	.0065/165	.0013/33 to .0015/38
1573-22	.0022/56	.0006/15	.0034/86	.0010/25	.0063/160	.0065/165	

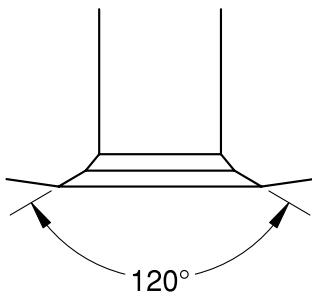
* For hole sizes less than 0.0011 and hole sizes 0.0025 through 0.0049, the tolerance is +.0002/-.0001. For hole sizes greater than 0.0049, the tolerance is +.0003/-.0002.

** For B dimensions greater than 0.0040, the tolerance is +.0003/-.0002.

***OR tolerance ±.0003 for OR less than or equal to .0030; for OR greater than .0030, tolerance is ±10%.

Tighter tolerance available at additional charges. *Dimensions in inches unless otherwise specified*

The 1551 series allows the user to specify all dimensions of the capillary within the part number and should be used when an existing catalog series will not meet the requirements of an application. This series comes standard with a 90° double inside chamfer, but may be specified with a 120° or other chamfer angles. The 1551 series can be designed for virtually any thermosonic wire bonding application.

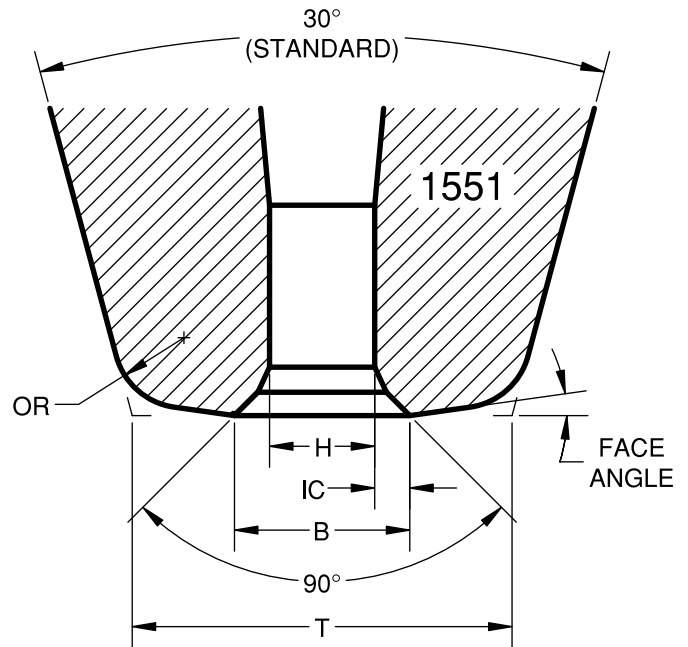


For 120° IC angle, specify "x120D" in part number. Other angle options also apply.

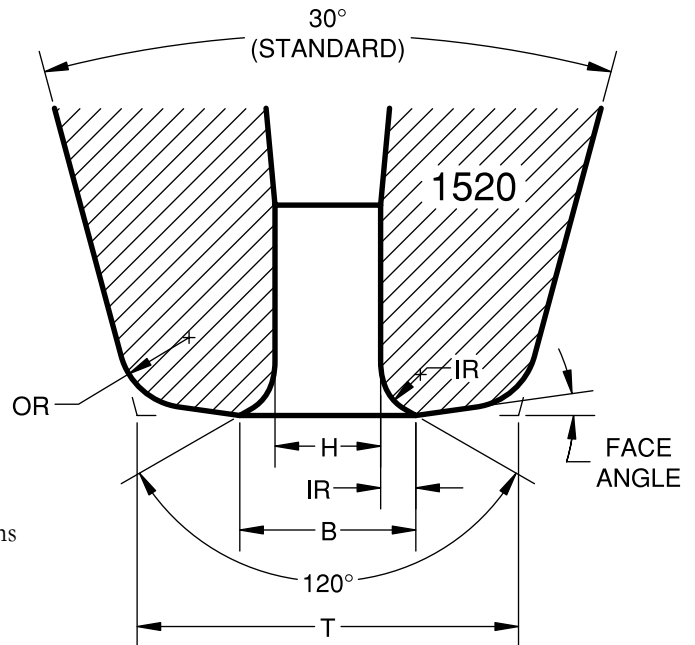
For single IC angle, specify as "1553" series. Standard angle is 90° unless otherwise specified.

Example:

- 1551-15-437GM-60(3x120D-8D-10)
- 1551-18-437GM-80(3x70D-8D-15)
- 1553-17-375GM-55(4x50D-4D-12)



The 1520 series also allows the user to specify all dimensions of the capillary but is designed with a standard 120° full radiused inside chamfer. This design is optimized for use in high-speed automated bonders and provides improved looping and wire control. The 1520 series helps to reduce sagging and wavy wire problems making the 1520 ideal for long loop and low loop bonding. When equipped with an angle bottleneck modification, this tool is an industry standard for fine pitch bonding applications.



Specify: Series - H - Length+Finsh - T(IC - Face Angle - OR)Options

Examples:

- 1551-18-437GM-60(3-8D-10)20D
- 1520-18-437GM-60(3-8D-10)
- 1551-18-437GM-60(3-F-10)20D-AB10x12-BLIC

Notes:

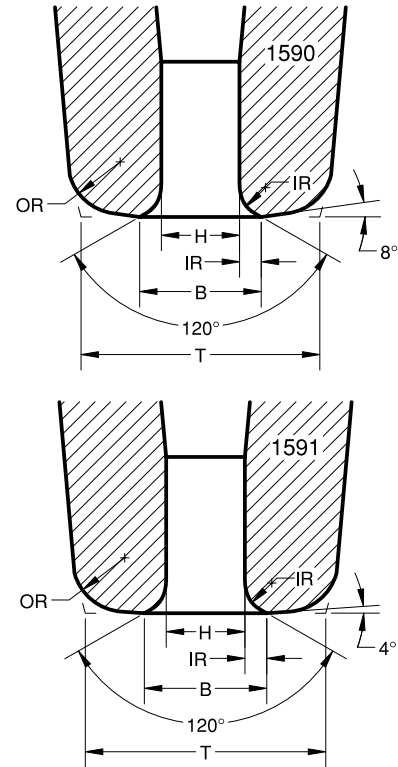
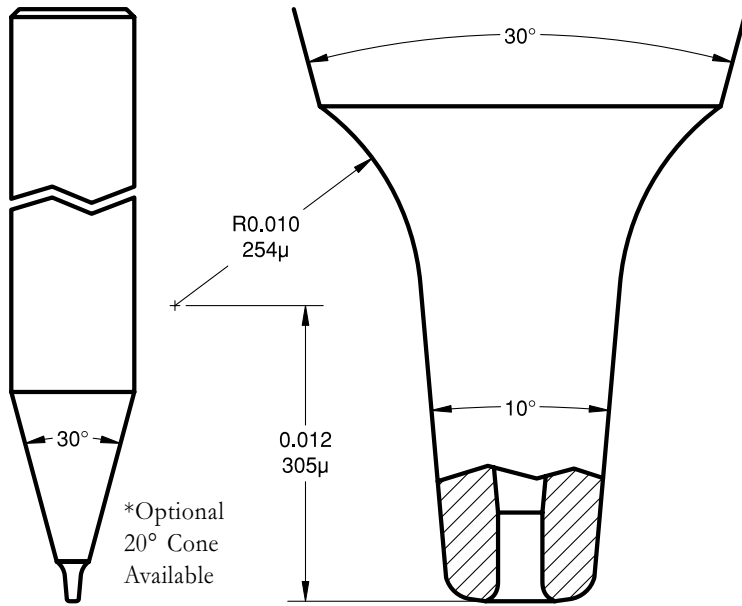
- A flat face 1551 or 1520 may be specified by a "-F" or by the actual numerical value in the part number.
- A mathematical relationship exists between the various dimensions at the capillary tip. When designing a part number or when simply changing the cone angle, you may wish to contact a Gaiser Tool Co. Sales Engineer.
- If a radiused inside chamfer is desired in a 90° IC 1551, specify "-BLIC" at the end of the part number.
- If a radiused inside chamfer is desired in a 120° IC 1551, use the 1520 series.
- For the 1553 series, a radiused inside chamfer is not available.

The chart below represents several example part numbers for a variety of pitches and wire diameters. These capillaries are useful for small ball, medium to fine pitch applications.

PITCH in./ μ m	WIRE DIAMETER in./ μ m	PART NUMBER
.006/150 to .007/170	.0009/23 to .0010/25	1551-13-437GM-70(3-F-25)20D
		1551-13-437GM-70(2.5-8D-15)20D
		1551-15-437GM-70(3.5-8D-15)20D
		1551-13-437GM-65(3.5-8D-15)20D
	.0010/25	1551-15-437GM-65(3.5-8D-15)20D
		1551-15-437GM-65(3.5-F-25)20D
		1551-15-437GM-65(4-8D-15)20D
	.0012/30 to .0013/33	1551-18-437GM-65(4-8D-15)20D
.005/125 to .006/150	.0009/23 to .0010/25	1551-13-437GM-60(3-F-20)20D
		1551-13-437GM-59(3-8D-15)20D
		1551-13-437GM-59(4-8D-15)20D
	.0010/25	1551-15-437GM-59(4-8D-15)20D
		1551-15-437GM-59(4-8D-15)20D-AB10x10
	.0011/28 to .0012/30	1551-17-437GM-59(3.5-8D-15)20D
		1551-17-437GM-59(3.5-8D-15)20D-AB10x10
	.0012/30 to .0013/33	1551-18-437GM-59(4-8D-15)20D
1551-18-437GM-59(4-8D-15)20D-AB10x10		
.0043/110 to .005/125	.0009/23 to .0010/25	1551-13-437GM-55(3-F-20)20D
		1551-13-437GM-55(3-8D-15)20D
		1551-13-437GM-55(4-8D-15)20D
	.0010/25	1551-15-437GM-55(4-8D-15)20D
		1551-15-437GM-55(4-8D-15)20D-AB10x10
	.0011/28 to .0012/30	1551-17-437GM-55(3.5-8D-15)20D
		1551-17-437GM-55(3.5-8D-15)20D-AB10x10
	.0012/30 to .0013/33	1551-18-437GM-55(4-8D-15)20D
1551-18-437GM-55(4-8D-15)20D-AB10x10		
.004/100	.0010/25	1551-13-437GM-49(3-F-17)20D
		1551-13-437GM-50(3-8D-15)20D
		1551-15-437GM-50(3-8D-15)20D
		1551-15-437GM-50(3.5-8D-15)20D
		1551-15-437GM-50(3.5-8D-15)20D-AB10x10
	.0012/30 to .0013/33	1551-17-437GM-50(3.5-8D-15)20D
		1551-18-437GM-50(4-8D-15)20D
		1551-18-437GM-50(4-8D-15)20D-AB10x10

The 1590 and 1591 series capillaries are designed with angle bottlenecks for loop clearance in fine pitch bonding applications of 100µm pitch and above. The 120° radiused inside chamfer works well in high-speed automated bonders, providing the finest looping characteristics and wire control available. The 8° face angle provides good 2nd bond tailing and allows

ample 2nd bond cross-sectional area for reduced heel cracking. The 8° face angle is ideal for modern high-speed automated bonders on a variety of bonding surfaces. The 4° face angle provides increased downward force on the 2nd bond to enhance weld attachment in situations of poor bondability.



Specify: Series - Dash Number - Length+Finish - Options

Example: 1590-18E-437GM-20D

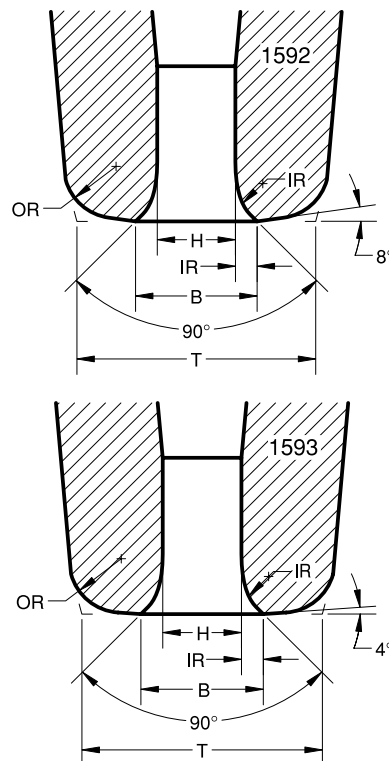
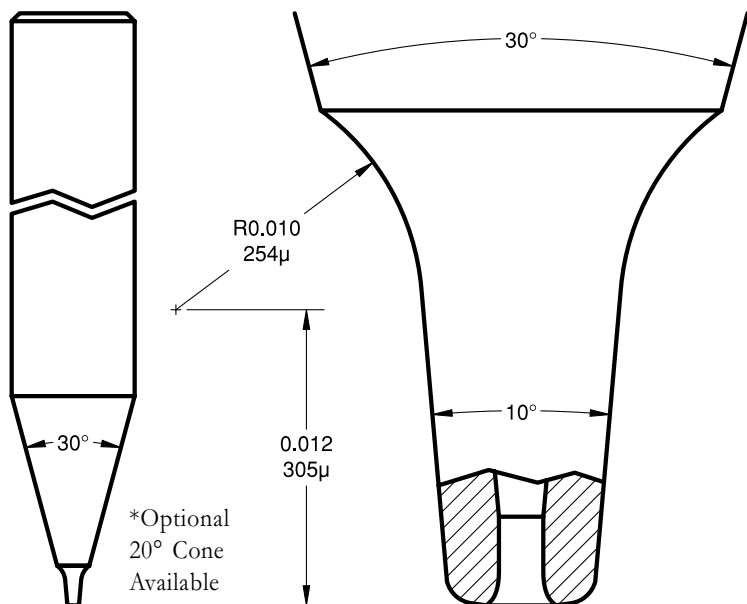
Note: A 10° by 0.012 in. (305µ) high angle bottleneck is standard in the 1590/1591 series. Other angle bottleneck configurations may be specified at the end of the part number.

SERIES & DASH NO.	H in./µm ±.0001/2.5	IR in./µm (ref)	B in./µm ±.0002/5	OR in./µm ±.0003/8	T		SUGGESTED WIRE DIAMETER in./µm
					(30° CONE) in./µm ±.0003/8	(10° ABTNK) in./µm ±.0003/8	
159X-15C	.0015/38	.0004/10	.0023/58	.0012/30	.0050/127	.0054/137	.0009/23 to .0011/28
159X-15D	.0015/38	.0004/10	.0023/58	.0012/30	.0055/140	.0059/150	
159X-15E	.0015/38	.0005/13	.0025/64	.0015/38	.0060/152	.0065/165	
159X-15F	.0015/38	.0005/13	.0025/64	.0015/38	.0065/165	.0070/178	
159X-15G	.0015/38	.0005/13	.0025/64	.0015/38	.0070/178	.0075/191	
159X-17C	.0017/43	.0004/10	.0025/64	.0012/30	.0050/127	.0054/137	.0010/25 to .0013/33
159X-17D	.0017/43	.0004/10	.0025/64	.0012/30	.0055/140	.0059/150	
159X-17E	.0017/43	.0005/13	.0027/69	.0015/38	.0060/152	.0065/165	
159X-17F	.0017/43	.0005/13	.0027/69	.0015/38	.0065/165	.0070/178	
159X-17G	.0017/43	.0005/13	.0027/69	.0015/38	.0070/178	.0075/191	
159X-17H	.0017/43	.0005/13	.0027/69	.0015/38	.0075/191	.0080/203	
159X-17J	.0017/43	.0005/13	.0027/69	.0015/38	.0080/203	.0085/216	
159X-18D	.0018/46	.0005/13	.0028/71	.0012/30	.0055/140	.0059/150	
159X-18E	.0018/46	.0005/13	.0028/71	.0015/38	.0060/152	.0065/165	
159X-18F	.0018/46	.0005/13	.0028/71	.0015/38	.0065/165	.0070/178	
159X-18G	.0018/46	.0006/15	.0030/76	.0015/38	.0070/178	.0075/191	
159X-18H	.0018/46	.0006/15	.0030/76	.0015/38	.0075/191	.0080/203	
159X-18J	.0018/46	.0006/15	.0030/76	.0015/38	.0080/203	.0085/216	

Tighter tolerances available at additional charge.

The 1592 and 1593 series capillaries are designed with angle bottlenecks for loop clearance in fine pitch bonding applications of 90µm pitch and above. The 90° radiused inside chamfer works well in high-speed automated bonders, providing excellent looping characteristics and wire control. The 90° inside chamfer forms a compact ball bond and

provides excellent 2nd bond tailing. The 8° face angle allows ample 2nd bond cross-sectional area for reduced heel cracking. The 8° face angle is ideal for modern high-speed automated bonders on a variety of bonding surfaces. The 4° face angle provides increased downward force on the 2nd bond to enhance weld attachment in situations of poor bondability.



Specify: Series - Dash Number - Length+Finish - Options

Example: 1592-18E-437GM-20D

Note: A 10° by 0.012 in. (305µ) high angle bottleneck is standard in the 1592/1593 series. Other angle bottleneck configurations may be specified at the end of the part number.

SERIES & DASH NO.	H in./µm ±.0001/2.5	IR in./µm (ref)	B in./µm ±.0002/5	OR in./µm ±.0003/8	T (30° CONE) in./µm ±.0003/8	T (10° ABTNK) in./µm ±.0003/8	SUGGESTED WIRE DIAMETER in./µm
159X-15A	.0015/38	.0003/8	.0021/53	.0010/25	.0040/102	.0043/109	.0009/23 to .0011/28
159X-15B	.0015/38	.0003/8	.0021/53	.0010/25	.0045/114	.0048/122	
159X-15C	.0015/38	.0004/10	.0023/58	.0012/30	.0050/127	.0054/137	
159X-15D	.0015/38	.0004/10	.0023/58	.0012/30	.0055/140	.0059/150	
159X-15E	.0015/38	.0005/13	.0025/64	.0015/38	.0060/152	.0065/165	
159X-15F	.0015/38	.0005/13	.0025/64	.0015/38	.0065/165	.0070/178	
159X-15G	.0015/38	.0005/13	.0025/64	.0015/38	.0070/178	.0075/191	.0010/25 to .0013/33
159X-17C	.0017/43	.0004/10	.0025/64	.0012/30	.0050/127	.0054/137	
159X-17D	.0017/43	.0004/10	.0025/64	.0012/30	.0055/140	.0059/150	
159X-17E	.0017/43	.0005/13	.0027/69	.0015/38	.0060/152	.0065/165	
159X-17F	.0017/43	.0005/13	.0027/69	.0015/38	.0065/165	.0070/178	
159X-17G	.0017/43	.0005/13	.0027/69	.0015/38	.0070/178	.0075/191	
159X-17H	.0017/43	.0005/13	.0027/69	.0015/38	.0075/191	.0080/203	
159X-17J	.0017/43	.0005/13	.0027/69	.0015/38	.0080/203	.0085/216	
159X-18D	.0018/46	.0005/13	.0028/71	.0012/30	.0055/140	.0059/150	
159X-18E	.0018/46	.0005/13	.0028/71	.0015/38	.0060/152	.0065/165	
159X-18F	.0018/46	.0005/13	.0028/71	.0015/38	.0065/165	.0070/178	
159X-18G	.0018/46	.0006/15	.0030/76	.0015/38	.0070/178	.0075/191	
159X-18H	.0018/46	.0006/15	.0030/76	.0015/38	.0075/191	.0080/203	
159X-18J	.0018/46	.0006/15	.0030/76	.0015/38	.0080/203	.0085/216	

Tighter tolerances available at additional charge.