

ORIFICE PARTS AND NUMBERS

Standard Sapphire and Ruby Orifices

As technology demands precision and smaller tolerances, engineers are turning to Bird Precision micro-drilled inserts. Bird Precision offers laser drilled, wire lapped orifices that are burr-free, extremely round and sharp-edged. Bird Precision's synthetic sapphire or ruby orifices feature zero porosity, high temperature tolerance and wear resistance, and are almost chemically inert. Bird Precision orifices exhibit highly repeatable flows from .5 cc/min and offer the industry paradigm for strength and dependability. Bird Precision orifices are available in standard hole sizes ranging from .00029" to .081", with or without stainless steel micro screen filtration, in many standard design sizes.

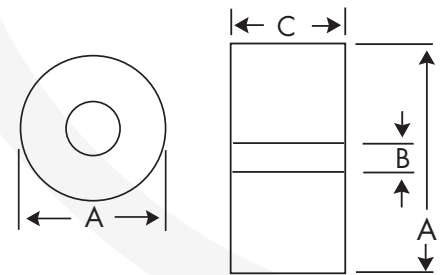
Please contact a knowledgeable Bird Sales Representative (800) 454-7369 with any questions you might have or to inquire about having Bird Precision design a custom fitting to your specifications.

Precision Ruby Orifice Numbers and Part Sizes

Outside Diameter .0600"

Thickness .0100"

Part#	I.D.	Part#	I.D.	Part#	I.D.
22138	0.00029	22049	0.0095	22103	0.0215
22329	0.0004	22081	0.0100	22107	0.0220
22104	0.0008	22050	0.0105	22123	0.0225
22143	0.0010	22051	0.0110	22108	0.0230
22111	0.0012	22053	0.0115	22151	0.0240
22231	0.0014	22010	0.0120	22127	0.0250
22114	0.0016	22054	0.0125	22128	0.0260
22276	0.0018	22055	0.0130	22129	0.0270
22021	0.0020	22056	0.0135	22147	0.0280
22029	0.0025	22057	0.0140	22172	0.0290
22033	0.0030	22058	0.0145	22184	0.0300
22034	0.0035	22059	0.0150	22285	0.0310
22037	0.0040	22060	0.0155	22286	0.0320
22038	0.0045	22061	0.0160	22287	0.0330
22039	0.0050	22062	0.0165	22288	0.0340
22042	0.0055	22063	0.0170	22289	0.0350
22012	0.0060	22067	0.0175		
22043	0.0065	22068	0.0180		
22844	0.0070	22069	0.0185		
22044	0.0075	22071	0.0190		
22045	0.0080	22074	0.0195		
22046	0.0085	22075	0.0200		
22016	0.0090	22085	0.0210		



A - Outside Diameter .060" ± 0.0005

B - Inside Diameter - see chart
Tolerance $+0.0002/-0.0000$ "

C - Thickness .010" ± 0.001

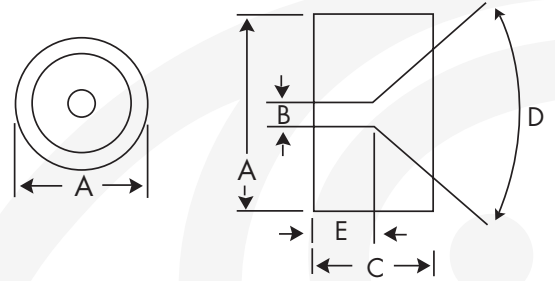
ORIFICE PARTS AND NUMBERS

Precision Sapphire Orifice Numbers and Part Sizes

Outside Diameter .0870"

Thickness .0470"

Part#	I.D.	Part#	I.D.	Part#	I.D.
24015	0.0020	24031	0.0090	24114	0.0160
24059	0.0025	24032	0.0095	24115	0.0165
24016	0.0030	24033	0.0100	24046	0.0170
24017	0.0035	24034	0.0105	24050	0.0180
24018	0.0040	24035	0.0110	24005	0.0185
24019	0.0045	24111	0.0115	24051	0.0190
24022	0.0050	24036	0.0120	24029	0.0200
24024	0.0055	24112	0.0125	24060	0.0210
24025	0.0060	24037	0.0130	24014	0.0230
24026	0.0065	24038	0.0135	24009	0.0240
24028	0.0070	24039	0.0140	24054	0.0290
24030	0.0075	24040	0.0145	24027	0.0330
24010	0.0080	24041	0.0150		
24110	0.0085	24113	0.0155		



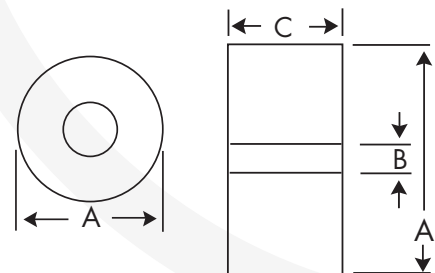
- A - Outside Diameter .087" ± 0.0005
- B - Inside Diameter - see chart
Tolerance $+0.0002"/-0.0000$ "
- C - Thickness .047" ± 0.001
- D - Angle (\angle) $85 \pm 5^\circ$
- E - Length of Hole .010" Nominal

Precision Ruby Orifice Numbers and Part Sizes

Outside Diameter .1180"

Thickness .0260"

Part#	I.D.	Part#	I.D.	Part#	I.D.
22027	0.0100	22295	0.0400	22066	0.0560
22022	0.0118	22109	0.0420	22206	0.0580
22098	0.0150	22117	0.0440	22299	0.0600
22326	0.0200	22296	0.0450	22312	0.0610
22313	0.0250	22139	0.0460	22080	0.0620
22342	0.0280	22113	0.0470	22294	0.0625
22345	0.0290	22293	0.0480	22086	0.0630
22317	0.0300	22297	0.0500	22302	0.0650
22304	0.0320	22031	0.0510	22310	0.0730
22014	0.0350	22052	0.0520	22303	0.0750
22306	0.0360	22065	0.0530	22311	0.0810
22341	0.0380	22298	0.0550		



- A - Outside Diameter .118" ± 0.0005
- B - Inside Diameter - see chart
Tolerance $+0.0002"/-0.0000$ "
- C - Thickness .026" ± 0.001