

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 .0004" to .081", with or without stainless steel micro screen filtration, in many standard design sizes.

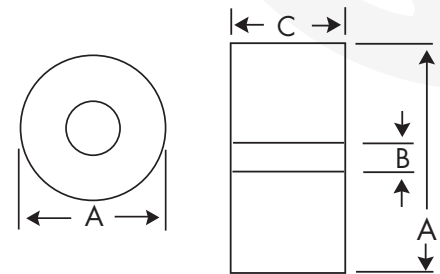
Please contact a knowledgeable Bird Sales Representative (800) 454-7369 with any questions you might have or to inquire about having Bird Precision design a custom fitting to your specifications.

Precision Ruby Orifice Numbers and Part Sizes

Outside Diameter .0600"

Thickness .0100"

Part#	I.D.	Part#	I.D.	Part#	I.D.
22329	0.0004	22049	0.0095	22103	0.0215
22023	0.0006	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" $\pm .0005$

B - Inside Diameter - see chart
Tolerance $+.0002/-0.0000$ "

C - Thickness .010" $\pm .001$

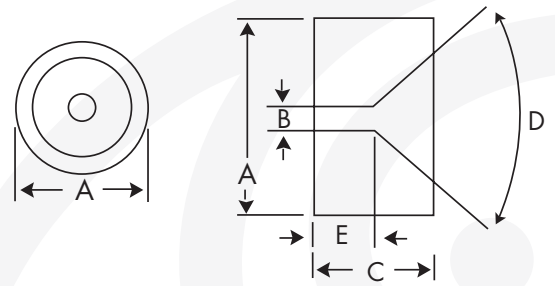
ORIFICE PARTS AND NUMBERS

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		



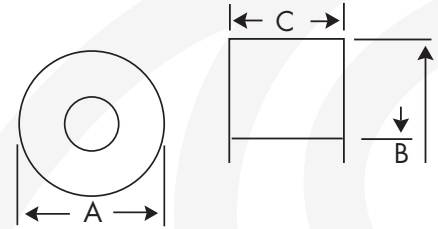
- A - Outside Diameter .087" ± 0.0005
- B - Inside Diameter - see chart
Tolerance $+0.0002"/-0.0000"$
- C - Thickness .047" ± 0.001
- D - Angle (\angle) $85 \pm 5^\circ$
- E - Length of Hole .010" Nominal

ORIFICE PARTS AND NUMBERS

Precision Ruby Orifice Numbers and Part Sizes

Outside Diameter .1180" Thickness .0250"

Part#	I.D.	Part#	I.D.	Part#	I.D.
22241	.00500	22420	.02100	22274	.04650
22242	.00550	22421	.02200	22113	.04700
22244	.00600	22378	.02300	22293	.04800
22247	.00650	22409	.02400	22152	.04900
22249	.00700	22313	.02500	22297	.05000
22261	.00750	22119	.02600	22031	.05100
22263	.00800	22126	.02700	22052	.05200
22398	.00850	22513	.02750	22065	.05300
22090	.00900	22342	.02800	22377	.05400
22267	.00950	22345	.02900	22298	.05500
22027	.01000	22317	.03000	22066	.05600
22273	.01050	22416	.03100	22015	.05700
22093	.01100	22304	.03200	22206	.05800
22279	.01150	22471	.03300	22390	.05900
22022	.01180	22323	.03400	22299	.06000
22157	.01200	22014	.03500	22312	.06100
22281	.01250	22306	.03600	22080	.06200
22099	.01300	22009	.03700	22294	.06250
22290	.01350	22341	.03800	22086	.06300
22100	.01400	22358	.03900	22396	.06400
22301	.01450	22295	.04000	22302	.06500
22098	.01500	22144	.04100	22243	.07000
22106	.01600	22109	.04200	22310	.07300
22110	.01700	22145	.04300	22303	.07500
22305	.01800	22117	.04400	22311	.08100
22307	.01900	22296	.04500		
22326	.02000	22139	.04600		



A - Outside Diameter .118" $\pm .0005$
 B - Inside Diameter - see chart
 Tolerance $+.0002"/-.0000"$
 C - Thickness .025" $\pm .001$