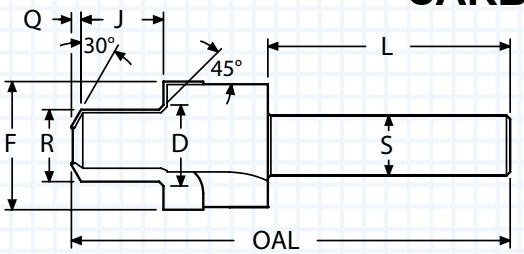
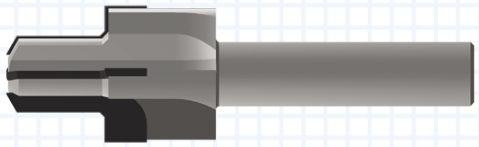
BRITISH STANDARD PARALLEL PIPE - PORT TOOL

CARBIDE TIPPED



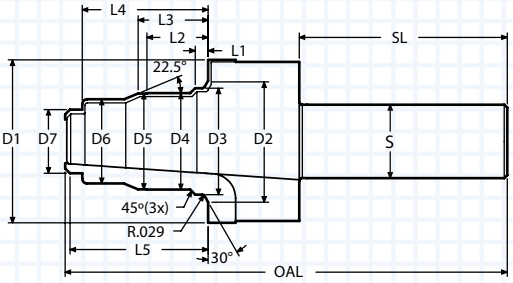


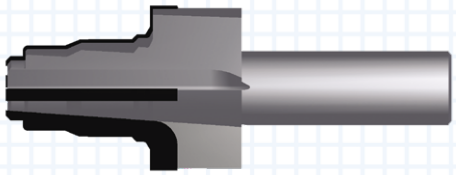
- Meets the requirements of the ISO/BS2779
- Precision ground for maximum concentricity
- Polished flute face for optimum performance
- Bodies made with head treated alloy steel

D	F	J	R	Q	L	S	OAL	FLUTES	THREAD	ORDER #		EDP #	
										UNCOATED	ALTiN+	UNCOATED	ALTiN+
0.398	0.719	0.565	0.345	0.045	2.00	0.500	3.62	3	1/8 BSPP	PT-BSPP-1/8	PT-BSPP-1/8A	402816	402866
0.533	0.938	0.683	0.459	0.065	2.00	0.500	3.62	3	1/4 BSPP	PT-BSPP-1/4	PT-BSPP-1/4A	402813	402863
0.671	1.063	0.683	0.597	0.080	2.00	0.500	3.62	4	3/8 BSPP	PT-BSPP-3/8	PT-BSPP-3/8A	402822	402872
0.840	1.250	0.801	0.741	0.090	2.00	0.750	3.62	4	1/2 BSPP	PT-BSPP-1/2	PT-BSPP-1/2A	402810	402860
1.055	1.500	0.880	0.958	0.120	2.50	0.750	4.37	4	3/4 BSPP	PT-BSPP-3/4	PT-BSPP-3/4A	402819	402869
1.325	1.875	0.998	1.201	0.120	2.50	1.000	4.62	4	1.0 BSPP	PT-BSPP-1.0	PT-BSPP-1.0A	402807	402857
1.665	2.313	1.078	1.541	0.125	2.50	1.000	4.62	4	1 ¼ BSPP	PT-BSPP-1-1/4	PT-BSPP-1-1/4A	402804	402854
1.897	2.563	1.078	1.774	0.125	2.50	1.000	4.88	4	1 ½ BSPP	PT-BSPP-1-1/2	PT-BSPP-1-1/2A	402801	402851

Thread mills are available. See page 22.

BACD2036 - PORT TOOL - CARBIDE TIPPED





D1	D2	D3	D4	D5	D6	D7	L1	L2	L3	L4	L5	S	SL	OAL	FLUTES	THREAD	ORDER #		EDP #	
																	UNCOATED	ALTiN+	UNCOATED	ALTiN+
																	Solid Carbide			
0.888	0.570	0.4565	0.392	0.387	0.2945	.170	.083	.425	.480	0.971	1.071	½	2.00	4.00	3	0.4375-20 UNJF-3B	BACD2036-4	BACD2036-4A	403413	403443
																	Carbide Tipped			
1.012	0.696	0.5825	0.512	0.507	0.4195	.280	.091	.450	.505	1.004	1.104	½	2.00	4.00	3	0.5625-18 UNJF-3B	BACD2036-6	BACD2036-6A	403416	403446
1.290	0.883	0.7715	0.693	0.688	0.6110	.400	.104	.545	.605	1.144	1.244	¾	2.13	4.25	4	0.7500-18 UNJF-3B	BACD2036-8	BACD2036-8A	403419	403449
1.415	1.008	0.8985	0.810	0.804	0.7330	.490	.115	.600	.665	1.215	1.340	¾	2.13	4.50	4	0.8750-14 UNJF-3B	BACD2036-10	BACD2036-10A	403401	403431
1.665	1.242	1.0885	0.985	0.980	0.8610	.650	.133	.625	.715	1.287	1.412	¾	2.13	4.50	4	1.0625-12 UNJF-3B	BACD2036-12	BACD2036-12A	403404	403434
1.965	1.495	1.3385	1.235	1.230	1.1140	.825	.133	.665	.755	1.392	1.517	1	2.13	4.50	4	1.3125-16 UNJF-3B	BACD2036-16	BACD2036-16A	403407	403437
2.310	1.808	1.6502	1.549	1.542	1.4260	1.130	0.133	0.650	0.755	1.396	1.616	1	2.25	5.00	4	1.6250-12 UNJF-3B	BACD2036-20	BACD2036-20A	403410	403440

Thread mills are available. See pages 8-18.

Scientific Cutting Tools, Inc.
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(800) 383-2244 Fax: (888) 728-3295

PORT & CAVITY TECHNICAL INFORMATION

MATERIAL	HB/Rc	SPEED (SFM)		CUTTING CONDITIONS	
		UNCOATED	ALTiN+	INFEED PER FLUTE REAM	INFEED PER FLUTE SPOT FACE
CAST IRON	130 HB	75-210	200-450	.001-.0025	.0008-.0020
CARBON STEEL	18 Rc	125-190	190-400	.001-.0030	.001-.0020
ALLOY STEEL	20 Rc	70-135	130-350	.001-.0030	.0008-.0020
TOOL STEEL	25 Rc	75-100	100-220	.001-.0025	.0005-.0020
300 STAINLESS STEEL	150 HB	90-100	100-230	.001-.0020	.0007-.0015
400 STAINLESS STEEL	195 HB	90-135	135-300	.001-.0020	.0005-.0015
HIGH TEMP ALLOY (NICKEL & COBALT BASE)	20 Rc	30-125	100-150	.0008-.0015	.0005-.0010
TITANIUM	25 Rc	50-100	100-140	.001-.0020	.0005-.0010
HEAT TREATED ALLOYS (38-45Rc)	40 Rc	50-75	75-130	.0008-.0015	.0005-.0010
ALUMINUM	100 HB	850-1000	800-1500	.002-.0040	.0010-.0030
BRASS, ZINC	80 HB	750-950	800-1200	.002-.0040	.0010-.0030

SFM = Surface Feet per Minute
RPM = SFM x 3.82 divided by tool diameter

Starting parameters only. Setup and machine rigidity may affect performance.

PROBLEM	CAUSE	SOLUTION
RAPID FLANK WEAR	CUTTING CONDITIONS	Check for excessive speed and feed - see chart.
	TOOL	Select a coated tool.
	PROGRAM	Remove dwell from program at end of cut.
BUILT-UP EDGE	TOOL	Select a coated tool. The coating will resist built-up edges.
	HEAT	Use coolant through port tool. If coolant is not available, use shop air and a coated tool.
SURFACE TORN	TOOL	Use a coated tool. On most carbon steels, an uncoated tool will not produce an acceptable finish.
CHATTER	TOOL	Hone cutting edge of spot face. Use Coated Tool. Increase chip load.
LIGHT CHATTER	PROGRAM	Increase speed by 15-20%. A faster speed reduces forces. A dwell typically will not remove chatter.
POOR TOOL LIFE	AMOUNT OF STOCK	Rough port to 0.97 inch of finish size.
	PART	Make sure prior operation did not work harden the material.

SAMPLE PROGRAM FOR MAXIMUM PRODUCTIVITY

N51 (Sample Port Tool Program: MS33649-4RA (ALTiN+) cutting Carbon Steel

T51 M06	**Select Tool**
S2916 M03	**SFM = 300 ; RPM = 300 x 3.82 / Reamer Diameter**
G00 G90 G54 X0. Y0.	**RPM = 300 X 3.82 / 0.393**
G43 H51 Z0.1 M08	**RPM = 2916**
G01 Z-0.6 F23.3	**Feed Rate = RPM x 0.002 x 4 (Number of Flutes)**
S1290 M03	**RPM = 300 x 3.82 / 0.888 (Spot Face Diameter)**
G04 P1.	**Dwell to slow down spindle**
G01 Z-.73 F10.3	**Feed rate = RPM x 0.002 x 4 (Number of Flutes)**
G00 Z5. M09	

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