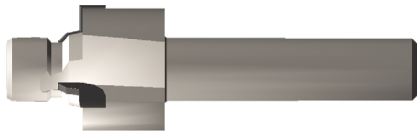
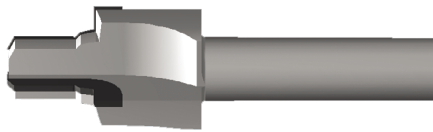


MS16142 to SAE J1926 Port Tool Crossover Charts

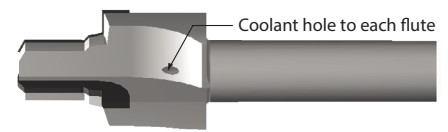
Scientific Cutting Tools is in the process of changing the MS16142 and MS33649 port tools. **MS16142 tools will be phased out and replaced with SAE J1926 port tools. MS33649 tools will be replaced with AS5202 port tools.** Order numbers and EDP numbers have changed (please refer to chart below.) The cutting dimensions remain the same except for the number of flutes on larger sizes. Previously, the larger-sized tools had 4 or 5 flutes. **All SAE J1926 and AS5202 port tools now have 3 flutes.**



SOLID PILOT



REAMER PILOT



COOLANT THROUGH

SAE J1926-S Replaces MS16142-S			
MS16142-S		SAE J1926-S	
Old Part #	Old EDP	New Part #	New EDP
MS16142-2S	401119	SAEJ1926-02S	406301
MS16142-2SA	401219	SAEJ1926-02SA	406303
MS16142-3S	401125	SAEJ1926-03S	406305
MS16142-3SA	401225	SAEJ1926-03SA	406307
MS16142-4S	401128	SAEJ1926-04S	406309
MS16142-4SA	401228	SAEJ1926-04SA	406311
MS16142-5S	401131	SAEJ1926-05S	406313
MS16142-5SA	401231	SAEJ1926-05SA	406315
MS16142-6S	401134	SAEJ1926-06S	406317
MS16142-6SA	401234	SAEJ1926-06SA	406319
MS16142-8S	401137	SAEJ1926-08S	406321
MS16142-8SA	401237	SAEJ1926-08SA	406323
MS16142-10S	401101	SAEJ1926-10S	406325
MS16142-10SA	401201	SAEJ1926-10SA	406327
MS16142-12S	401104	SAEJ1926-12S	406329
MS16142-12SA	401204	SAEJ1926-12SA	406331
MS16142-14S	401107	SAEJ1926-14S	406333
MS16142-14SA	401207	SAEJ1926-14SA	406335
MS16142-16S	401110	SAEJ1926-16S	406337
MS16142-16SA	401210	SAEJ1926-16SA	406339
MS16142-20S	401113	SAEJ1926-20S	406341
MS16142-20SA	401213	SAEJ1926-20SA	406343
MS16142-24S	401116	SAEJ1926-24S	406345
MS16142-24SA	401216	SAEJ1926-24SA	406347
MS16142-32S	401122	SAEJ1926-32S	406349
MS16142-32SA	401222	SAEJ1926-32SA	406351

SAE J1926-R Replaces MS16142-R			
MS16142-R		SAE J1926-R	
Old Part #	Old EDP	New Part #	New EDP
MS16142-2R	401319	SAEJ1926-02R	406001
MS16142-2RA	401369	SAEJ1926-02RA	406003
MS16142-3R	401325	SAEJ1926-03R	406007
MS16142-3RA	401375	SAEJ1926-03RA	406009
MS16142-4R	401328	SAEJ1926-04R	406013
MS16142-4RA	401378	SAEJ1926-04RA	406015
MS16142-5R	401331	SAEJ1926-05R	406019
MS16142-5RA	401381	SAEJ1926-05RA	406021
MS16142-6R	401334	SAEJ1926-06R	406025
MS16142-6RA	401384	SAEJ1926-06RA	406027
MS16142-8R	401337	SAEJ1926-08R	406031
MS16142-8RA	401387	SAEJ1926-08RA	406033
MS16142-10R	401301	SAEJ1926-10R	406037
MS16142-10RA	401351	SAEJ1926-10RA	406039
MS16142-12R	401304	SAEJ1926-12R	406043
MS16142-12RA	401354	SAEJ1926-12RA	406045
MS16142-14R	401307	SAEJ1926-14R	406049
MS16142-14RA	401357	SAEJ1926-14RA	406051
MS16142-16R	401310	SAEJ1926-16R	406055
MS16142-16RA	401360	SAEJ1926-16RA	406057
MS16142-20R	401313	SAEJ1926-20R	406061
MS16142-20RA	401363	SAEJ1926-20RA	406063
MS16142-24R	401316	SAEJ1926-24R	406067
MS16142-24RA	401366	SAEJ1926-24RA	406069
MS16142-32R	401322	SAEJ1926-32R	406073
MS16142-32RA	401372	SAEJ1926-32RA	406075

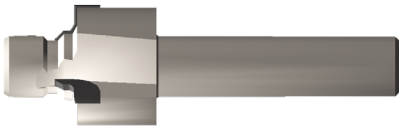
SAE J1926-X Replaces MS16142-X			
MS16142-X		SAE J1926-X	
Old Part #	Old EDP	New Part #	New EDP
MS16142-2R-X3	401513	SAEJ1926-02R-X3	406201
MS16142-2R-X3A	401563	SAEJ1926-02R-X3A	406203
MS16142-3R-X3	401516	SAEJ1926-03R-X3	406205
MS16142-3R-X3A	401566	SAEJ1926-03R-X3A	406207
MS16142-4R-X3	401519	SAEJ1926-04R-X3	406209
MS16142-4R-X3A	401569	SAEJ1926-04R-X3A	406211
MS16142-5R-X3	401522	SAEJ1926-05R-X3	406213
MS16142-5R-X3A	401572	SAEJ1926-05R-X3A	406215
MS16142-6R-X3	401525	SAEJ1926-06R-X3	406217
MS16142-6R-X3A	401575	SAEJ1926-06R-X3A	406219
MS16142-8R-X5	401528	SAEJ1926-08R-X3	406221
MS16142-8R-X5A	401578	SAEJ1926-08R-X3A	406223
MS16142-10R-X5	401501	SAEJ1926-10R-X3	406225
MS16142-10R-X5A	401551	SAEJ1926-10R-X3A	406227
MS16142-12R-X5	401504	SAEJ1926-12R-X3	406229
MS16142-12R-X5A	401554	SAEJ1926-12R-X3A	406231
MS16142-14R-X5	401507	SAEJ1926-14R-X3	406233
MS16142-14R-X5A	401557	SAEJ1926-14R-X3A	406235
MS16142-16R-X5	401510	SAEJ1926-16R-X3	406237
MS16142-16R-X5A	401560	SAEJ1926-16R-X3A	406239

The SAE J1926 port tools will replace MS16142 port tools.

The new 3 fluted design is less likely to chatter, requires less horsepower, and has a larger flute pocket for improved chip evacuation.

MS33649 to AS5202 Port Tool Crossover Charts

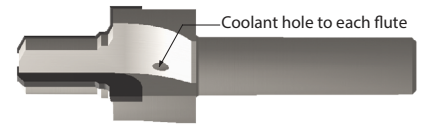
Scientific Cutting Tools is in the process of changing the MS33649 and MS16142 port tools. **MS33649 tools will be phased out and replaced with AS5202 port tools. MS16142 tools will be replaced with SAE J1926 port tools.** Order numbers and EDP numbers have changed (please refer to chart below.) The cutting dimensions remain the same except for the number of flutes on larger sizes. Previously, the larger-sized tools had 4 or 5 flutes. **All SAE J1926 and AS5202 port tools now have 3 flutes.**



SOLID PILOT



REAMER PILOT



COOLANT THROUGH

AS5202-S Replaces MS33649-S			
MS33649-S		AS5202-S	
Old Part #	Old EDP	New Part #	New EDP
MS33649-1S	401616	AS5202-01S	406701
MS33649-1SA	401686	AS5202-01SA	406703
MS33649-2S	401628	AS5202-02S	406705
MS33649-2SA	401698	AS5202-02SA	406707
MS33649-3S	401634	AS5202-03S	406709
MS33649-3SA	401704	AS5202-03SA	406711
MS33649-4S	401637	AS5202-04S	406713
MS33649-4SA	401707	AS5202-04SA	406715
MS33649-5S	401640	AS5202-05S	406717
MS33649-5SA	401710	AS5202-05SA	406719
MS33649-6S	401643	AS5202-06S	406721
MS33649-6SA	401713	AS5202-06SA	406723
MS33649-7S	401646	AS5202-07S	406725
MS33649-7SA	401716	AS5202-07SA	406727
MS33649-8S	401649	AS5202-08S	406729
MS33649-8SA	401719	AS5202-08SA	406731
MS33649-9S	401652	AS5202-09S	406733
MS33649-9SA	401722	AS5202-09SA	406735
MS33649-10S	401601	AS5202-10S	406737
MS33649-10SA	401671	AS5202-10SA	406739
MS33649-11S	401604	AS5202-11S	406741
MS33649-11SA	401674	AS5202-11SA	406743
MS33649-12S	401607	AS5202-12S	406745
MS33649-12SA	401677	AS5202-12SA	406747
MS33649-14S	401610	AS5202-14S	406749
MS33649-14SA	401680	AS5202-14SA	406751
MS33649-16S	401613	AS5202-16S	406753
MS33649-16SA	401683	AS5202-16SA	406755
MS33649-20S	401619	AS5202-20S	406757
MS33649-20SA	401689	AS5202-20SA	406759
MS33649-24S	401622	AS5202-24S	406761
MS33649-24SA	401692	AS5202-24SA	406763
MS33649-28S	401625	AS5202-28S	406765
MS33649-28SA	401695	AS5202-28SA	406767
MS33649-32S	401631	AS5202-32S	406769
MS33649-32SA	401701	AS5202-32SA	406771

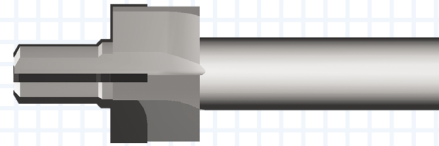
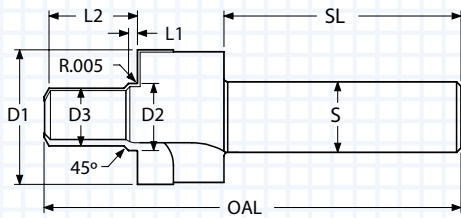
AS5202-R Replaces MS33649-R			
MS33649-R		AS5202-R	
Old Part #	Old EDP	New Part #	New EDP
MS33649-1R	401778	AS5202-01R	406501
MS33649-1RA	401878	AS5202-01RA	406503
MS33649-2R	401793	AS5202-02R	406505
MS33649-2RA	401893	AS5202-02RA	406511
MS33649-3R	401802	AS5202-03R	406513
MS33649-3RA	401902	AS5202-03RA	406519
MS33649-4R	401808	AS5202-04R	406521
MS33649-4RA	401908	AS5202-04RA	406527
MS33649-5R	401814	AS5202-05R	406529
MS33649-5RA	401914	AS5202-05RA	406535
MS33649-6R	401820	AS5202-06R	406537
MS33649-6RA	401920	AS5202-06RA	406543
MS33649-7R	401826	AS5202-07R	406545
MS33649-7RA	401926	AS5202-07RA	406547
MS33649-8R	401829	AS5202-08R	406549
MS33649-8RA	401929	AS5202-08RA	406555
MS33649-9R	401835	AS5202-09R	406557
MS33649-9RA	401935	AS5202-09RA	406559
MS33649-10R	401751	AS5202-10R	406561
MS33649-10RA	401851	AS5202-10RA	406567
MS33649-11R	401757	AS5202-11R	406569
MS33649-11RA	401857	AS5202-11RA	406571
MS33649-12R	401760	AS5202-12R	406573
MS33649-12RA	401860	AS5202-12RA	406579
MS33649-14R	401766	AS5202-14R	406581
MS33649-14RA	401866	AS5202-14RA	406587
MS33649-16R	401769	AS5202-16R	406589
MS33649-16RA	401869	AS5202-16RA	406595
MS33649-18R	401775	AS5202-18R	406597
MS33649-18RA	401875	AS5202-18RA	406599
MS33649-20R	401781	AS5202-20R	406601
MS33649-20RA	401881	AS5202-20RA	406603
MS33649-24R	401787	AS5202-24R	406605
MS33649-24RA	401887	AS5202-24RA	406607
MS33649-28R	401790	AS5202-28R	406609
MS33649-28RA	401890	AS5202-28RA	406611
MS33649-32R	401799	AS5202-32R	406613
MS33649-32RA	401899	AS5202-32RA	406615

AS5202-X Replaces MS33649-X			
MS33649-X		AS5202-X	
Old Part #	Old EDP	New Part #	New EDP
MS33649-2R-X3	401963	AS5202-02R-X3	406507
MS33649-2R-X3A	402013	AS5202-02R-X3A	406509
MS33649-3R-X3	401966	AS5202-03R-X3	406515
MS33649-3R-X3A	402016	AS5202-03R-X3A	406517
MS33649-4R-X3	401969	AS5202-04R-X3	406523
MS33649-4R-X3A	402019	AS5202-04R-X3A	406525
MS33649-5R-X3	401972	AS5202-05R-X3	406531
MS33649-5R-X3A	402022	AS5202-05R-X3A	406533
MS33649-6R-X3	401975	AS5202-06R-X3	406539
MS33649-6R-X3A	402025	AS5202-06R-X3A	406541
MS33649-8R-X5	401978	AS5202-08R-X3	406551
MS33649-8R-X5A	402028	AS5202-08R-X3A	406553
MS33649-10R-X5	401951	AS5202-10R-X3	406563
MS33649-10R-X5A	402001	AS5202-10R-X3A	406565
MS33649-12R-X5	401954	AS5202-12R-X3	406575
MS33649-12R-X5A	402004	AS5202-12R-X3A	406577
MS33649-14R-X5	401957	AS5202-14R-X3	406583
MS33649-14R-X5A	402007	AS5202-14R-X3A	406585
MS33649-16R-X5	401960	AS5202-16R-X3	406591
MS33649-16R-X5A	402010	AS5202-16R-X3A	406593

The AS5202 port tools will replace MS33649 port tools.

The new 3 fluted design is less likely to chatter, requires less horsepower, and has a larger flute pocket for improved chip evacuation.

MS33651 (AND10071) - PORT TOOL - CARBIDE TIPPED

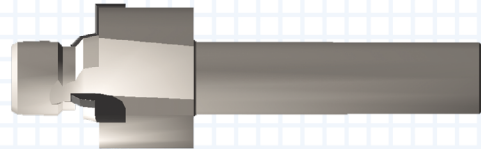
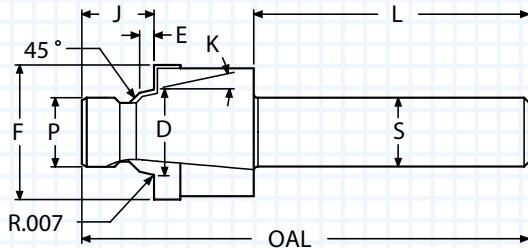


- Polished flute face for optimum performance
- ALTiN+ coating for improved surface finish

D1	D2	D3	L1	L2	S	SL	OAL	FLUTES	THREAD	ORDER #		EDP #	
										UNCOATED	ALTiN+	UNCOATED	ALTiN+
1.050	0.523	0.450	0.070	0.690	0.500	1.88	3.25	4	0.500-20 UNF-3B	MS33651	MS33651A	401001	401010

Thread mills are available. See pages 8-18

SAE J1926 (MS16142) O-RING BOSS PORT TOOL SOLID PILOT - CARBIDE TIPPED

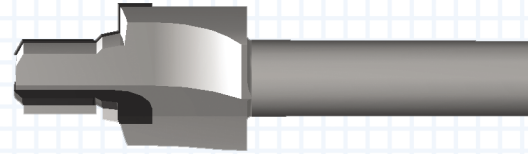
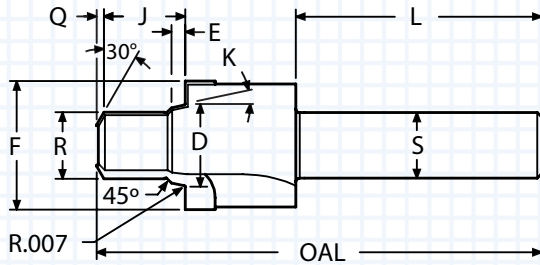


- Ideal for non-standard minor diameter lengths
- Often called ORB (followed by port size number)
- Meets the requirements of SAEJ1926/1
- Polished flute face for optimum performance
- ALTiN+ coating for improved surface finish
- Meets the requirements of MS16142

K	D	E	F	P	J	L	S	OAL	FLUTES	TUBE	THREAD	SAE#	ORDER #		EDP #	
													UNCOATED	ALTiN+	UNCOATED	ALTiN+
12°	0.3605	0.082	0.682	0.270	0.365	2.00	0.500	3.00	3	0.125	0.3125-24 UNF-2B	SAE#2	SAEJ1926-02S	SAEJ1926-02SA	406301	406303
12°	0.4235	0.082	0.760	0.331	0.415	2.00	0.500	3.00	3	0.188	0.3750-24 UNF-2B	SAE#3	SAEJ1926-03S	SAEJ1926-03SA	406305	406307
12°	0.4895	0.101	0.838	0.385	0.445	2.00	0.500	3.12	3	0.250	0.4375-20 UNF-2B	SAE#4	SAEJ1926-04S	SAEJ1926-04SA	406309	406311
12°	0.5525	0.101	0.916	0.448	0.465	2.00	0.500	3.12	3	0.312	0.5000-20 UNF-2B	SAE#5	SAEJ1926-05S	SAEJ1926-05SA	406313	406315
12°	0.6185	0.105	0.990	0.504	0.495	2.00	0.500	3.25	3	0.375	0.5625-18 UNF-2B	SAE#6	SAEJ1926-06S	SAEJ1926-06SA	406317	406319
15°	0.8135	0.108	1.198	0.685	0.560	2.12	0.750	3.57	3	0.500	0.7500-16 UNF-2B	SAE#8	SAEJ1926-08S	SAEJ1926-08SA	406321	406323
15°	0.9445	0.108	1.354	0.801	0.610	2.12	0.750	3.66	3	0.625	0.8750-14 UNF-2B	SAE#10	SAEJ1926-10S	SAEJ1926-10SA	406325	406327
15°	1.1505	0.138	1.635	0.975	0.640	2.12	0.750	3.75	3	0.750	1.0625-12 UN-2B	SAE#12	SAEJ1926-12S	SAEJ1926-12SA	406329	406331
15°	1.2755	0.138	1.775	1.101	0.710	2.25	1.000	4.00	3	0.875	1.1875-12 UN-2B	SAE#14	SAEJ1926-14S	SAEJ1926-14SA	406333	406335
15°	1.4005	0.138	1.935	1.225	0.710	2.25	1.000	4.05	3	1.000	1.3125-12 UN-2B	SAE#16	SAEJ1926-16S	SAEJ1926-16SA	406337	406339
15°	1.7155	0.140	2.290	1.537	0.750	2.25	1.000	4.20	3	1.250	1.6250-12 UN-2B	SAE#20	SAEJ1926-20S	SAEJ1926-20SA	406341	406343
15°	1.9645	0.140	2.570	1.787	0.750	2.25	1.000	4.20	3	1.500	1.8750-12 UN-2B	SAE#24	SAEJ1926-24S	SAEJ1926-24SA	406345	406347
15°	2.5895	0.140	3.490	2.412	0.800	2.50	1.250	4.60	3	2.000	2.5000-12 UN-2B	SAE#32	SAEJ1926-32S	SAEJ1926-32SA	406349	406351

Thread mills are available. See pages 8-18.

SAE J1926 (MS16142) O-RING BOSS PORT TOOL REAMER PILOT - CARBIDE TIPPED

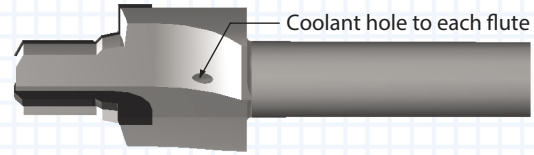
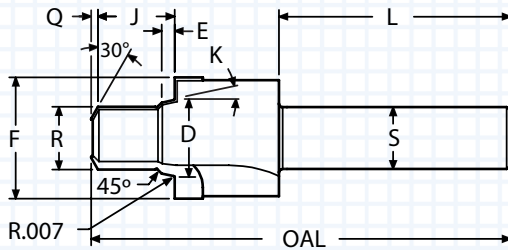


- Reams minor thread diameter to size
- Precision ground for maximum concentricity
- Often called ORB (followed by port size number)
- ALTiN+ coating extends tool life
- Meets the requirements of SAEJ1926/1
- Meets the requirements of MS16142

K	D	E	F	R	J	Q	L	S	OAL	FLUTES	TUBE	THREAD	SAE#	ORDER #		EDP #	
														UNCOATED	ALTiN+	UNCOATED	ALTiN+
12°	0.3605	0.082	0.682	0.271	0.479	0.032	1.75	0.500	3.00	3	0.125	0.3125-24 UNF-2B	SAE#2	SAEJ1926-02R	SAEJ1926-02RA	406001	406003
12°	0.4235	0.082	0.760	0.333	0.479	0.040	1.75	0.500	3.00	3	0.188	0.3750-24 UNF-2B	SAE#3	SAEJ1926-03R	SAEJ1926-03RA	406007	406009
12°	0.4895	0.101	0.838	0.388	0.558	0.045	1.88	0.500	3.12	3	0.250	0.4375-20 UNF-2B	SAE#4	SAEJ1926-04R	SAEJ1926-04RA	406013	406015
12°	0.5525	0.101	0.916	0.450	0.558	0.045	1.88	0.500	3.12	3	0.312	0.5000-20 UNF-2B	SAE#5	SAEJ1926-05R	SAEJ1926-05RA	406019	406021
12°	0.6185	0.105	0.990	0.507	0.620	0.055	1.88	0.500	3.38	3	0.375	0.5625-18 UNF-2B	SAE#6	SAEJ1926-06R	SAEJ1926-06RA	406025	406027
15°	0.8135	0.108	1.198	0.688	0.699	0.070	2.12	0.750	3.70	3	0.500	0.7500-16 UNF-2B	SAE#8	SAEJ1926-08R	SAEJ1926-08RA	406031	406033
15°	0.9445	0.108	1.354	0.804	0.792	0.080	2.12	0.750	3.80	3	0.625	0.8750-14 UNF-2B	SAE#10	SAEJ1926-10R	SAEJ1926-10RA	406037	406039
15°	1.1505	0.138	1.635	0.979	0.917	0.080	2.12	0.750	3.94	3	0.750	1.0625-12 UN-2B	SAE#12	SAEJ1926-12R	SAEJ1926-12RA	406043	406045
15°	1.2755	0.138	1.775	1.104	0.917	0.090	2.25	1.000	4.21	3	0.875	1.1875-12 UN-2B	SAE#14	SAEJ1926-14R	SAEJ1926-14RA	406049	406051
15°	1.4005	0.138	1.935	1.229	0.917	0.090	2.25	1.000	4.25	3	1.000	1.3125-12 UN-2B	SAE#16	SAEJ1926-16R	SAEJ1926-16RA	406055	406057
15°	1.7155	0.140	2.290	1.542	0.917	0.095	2.25	1.000	4.35	3	1.250	1.6250-12 UN-2B	SAE#20	SAEJ1926-20R	SAEJ1926-20RA	406061	406063
15°	1.9645	0.140	2.570	1.792	0.917	0.095	2.25	1.000	4.54	3	1.500	1.8750-12 UN-2B	SAE#24	SAEJ1926-24R	SAEJ1926-24RA	406067	406069
15°	2.5895	0.140	3.490	2.417	0.917	0.095	2.50	1.250	5.15	3	2.000	2.5000-12 UN-2B	SAE#32	SAEJ1926-32R	SAEJ1926-32RA	406073	406075

Thread mills are available. See pages 8-18.

SAE J1926 (SAEJ514) O-RING BOSS PORT TOOL REAMER PILOT - CARBIDE TIPPED - COOLANT THROUGH

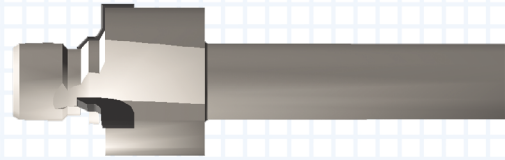
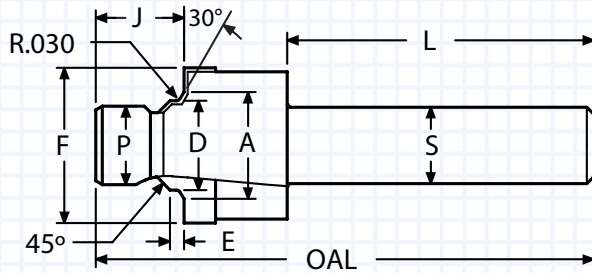


- Reams minor thread diameter to size
- Precision ground for maximum concentricity
- Often called ORB (followed by port size number)
- ALTiN+ coating extends tool life
- Meets the requirements of SAEJ1926/1
- Meets the requirements of MS16142

K	D	E	F	R	J	Q	L	S	OAL	FLUTES	TUBE	THREAD	SAE#	ORDER #			
														UNCOATED	ALTiN+	UNCOATED	ALTiN+
12°	0.3605	0.082	0.682	0.271	0.479	0.032	1.75	0.500	3.00	3	0.125	0.3125-24 UNF-2B	SAE#2	SAEJ1926-02R-X3	SAEJ1926-02R-X3A	406201	406203
12°	0.4235	0.082	0.760	0.333	0.479	0.040	1.75	0.500	3.00	3	0.188	0.3750-24 UNF-2B	SAE#3	SAEJ1926-03R-X3	SAEJ1926-03R-X3A	406205	406207
12°	0.4895	0.101	0.838	0.388	0.558	0.045	1.88	0.500	3.12	3	0.250	0.4375-20 UNF-2B	SAE#4	SAEJ1926-04R-X3	SAEJ1926-04R-X3A	406209	406211
12°	0.5525	0.101	0.916	0.450	0.558	0.045	1.88	0.500	3.12	3	0.312	0.5000-20 UNF-2B	SAE#5	SAEJ1926-05R-X3	SAEJ1926-05R-X3A	406213	406215
12°	0.6185	0.105	0.990	0.507	0.620	0.055	1.88	0.500	3.38	3	0.375	0.5625-18 UNF-2B	SAE#6	SAEJ1926-06R-X3	SAEJ1926-06R-X3A	406217	406219
15°	0.8135	0.108	1.198	0.688	0.699	0.070	2.12	0.750	3.70	3	0.500	0.7500-16 UNF-2B	SAE#8	SAEJ1926-08R-X3	SAEJ1926-08R-X3A	406221	406223
15°	0.9445	0.108	1.354	0.804	0.792	0.080	2.12	0.750	3.80	3	0.625	0.8750-14 UNF-2B	SAE#10	SAEJ1926-10R-X3	SAEJ1926-10R-X3A	406225	406227
15°	1.1505	0.138	1.635	0.979	0.917	0.080	2.12	0.750	3.94	3	0.750	1.0625-12 UN-2B	SAE#12	SAEJ1926-12R-X3	SAEJ1926-12R-X3A	406229	406231
15°	1.2755	0.138	1.775	1.104	0.917	0.090	2.25	1.000	4.21	3	0.875	1.1875-12 UN-2B	SAE#14	SAEJ1926-14R-X3	SAEJ1926-14R-X3A	406233	406235
15°	1.4005	0.138	1.935	1.229	0.917	0.090	2.25	1.000	4.25	3	1.000	1.3125-12 UN-2B	SAE#16	SAEJ1926-16R-X3	SAEJ1926-16R-X3A	406237	406239

Thread mills are available. See pages 8-18.

AS5202 (MS33649) - PORT TOOL SOLID PILOT - CARBIDE TIPPED

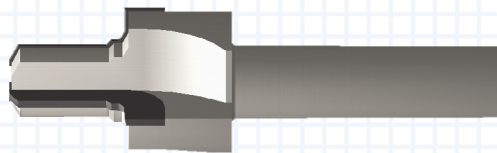
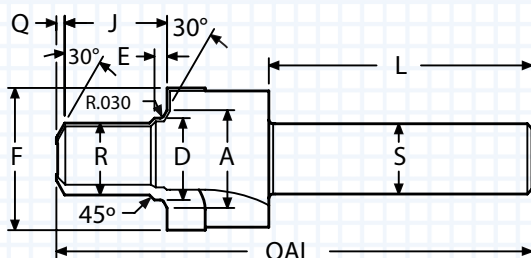


- Ideal for non-standard minor diameter lengths
- Polished flute face for optimum performance
- Meets the requirements of MS33649
- ALTiN+ coating for improved surface finish
- This port requires a UNJ thread which will specify a larger minor thread diameter

A	D	E	F	J	P	L	S	OAL	FLUTES	TUBE	THREAD	ORDER #		EDP #	
												UNCOATED	ALTiN+	UNCOATED	ALTiN+
0.367	0.2665	0.071	0.575	0.345	0.217	2.00	0.500	3.00	3	N/A	0.2500-28 UNJF-3B	AS5202-01S	AS5202-01SA	406701	406703
0.446	0.3305	0.071	0.742	0.365	0.274	2.00	0.500	3.00	3	0.125	0.3125-24 UNJF-3B	AS5202-02S	AS5202-02SA	406705	406707
0.508	0.3925	0.071	0.805	0.415	0.337	2.00	0.500	3.00	3	0.188	0.3750-24 UNJF-3B	AS5202-03S	AS5202-03SA	406709	406711
0.570	0.4565	0.083	0.888	0.445	0.392	2.00	0.500	3.12	3	0.250	0.4375-20 UNJF-3B	AS5202-04S	AS5202-04SA	406713	406715
0.633	0.5195	0.083	0.950	0.465	0.454	2.00	0.500	3.12	3	0.312	0.5000-20 UNJF-3B	AS5202-05S	AS5202-05SA	406717	406719
0.696	0.5825	0.091	1.012	0.495	0.511	2.00	0.500	3.25	3	0.375	0.5625-18 UNJF-3B	AS5202-06S	AS5202-06SA	406721	406723
0.758	0.6455	0.102	1.105	0.495	0.574	2.00	0.500	3.25	3	0.438	0.6250-18 UNJF-3B	AS5202-07S	AS5202-07SA	406725	406727
0.883	0.7715	0.102	1.240	0.560	0.692	2.12	0.750	3.57	3	0.500	0.7500-16 UNJF-3B	AS5202-08S	AS5202-08SA	406729	406731
0.946	0.8345	0.115	1.300	0.590	0.755	2.12	0.750	3.61	3	0.562	0.8125-16 UNJ-3B	AS5202-09S	AS5202-09SA	406733	406735
1.008	0.8985	0.115	1.415	0.610	0.809	2.12	0.750	3.66	3	0.625	0.8750-14 UNJF-3B	AS5202-10S	AS5202-10SA	406737	406739
1.164	1.0255	0.133	1.602	0.640	0.923	2.12	0.750	3.75	3	0.688	1.0000-12 UNJF-3B	AS5202-11S	AS5202-11SA	406741	406743
1.242	1.0885	0.133	1.665	0.640	0.983	2.12	0.750	3.75	3	0.750	1.0625-12 UNJ-3B	AS5202-12S	AS5202-12SA	406745	406747
1.370	1.2135	0.133	1.790	0.710	1.110	2.25	1.000	4.00	3	0.875	1.1875-12 UNJ-3B	AS5202-14S	AS5202-14SA	406749	406751
1.495	1.3385	0.133	1.965	0.710	1.233	2.25	1.000	4.05	3	1.000	1.3125-12 UNJ-3B	AS5202-16S	AS5202-16SA	406753	406755
1.808	1.6505	0.133	2.310	0.750	1.547	2.25	1.000	4.20	3	1.250	1.6250-12 UNJ-3B	AS5202-20S	AS5202-20SA	406757	406759
2.058	1.9005	0.133	2.628	0.750	1.797	2.25	1.000	4.20	3	1.500	1.8750-12 UNJ-3B	AS5202-24S	AS5202-24SA	406761	406763
2.433	2.2755	0.133	3.050	0.800	2.172	2.25	1.250	4.50	3	1.750	2.2500-12 UNJ-3B	AS5202-28S	AS5202-28SA	406765	406767
2.683	2.5265	0.133	3.520	0.800	2.422	2.50	1.250	4.60	3	2.000	2.5000-12 UNJ-3B	AS5202-32S	AS5202-32SA	406769	406771

Thread mills are available. See pages 8-18.

AS5202 (MS33649) - PORT TOOL REAMER PILOT - CARBIDE TIPPED

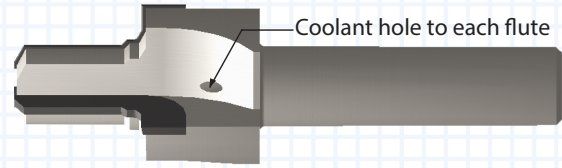
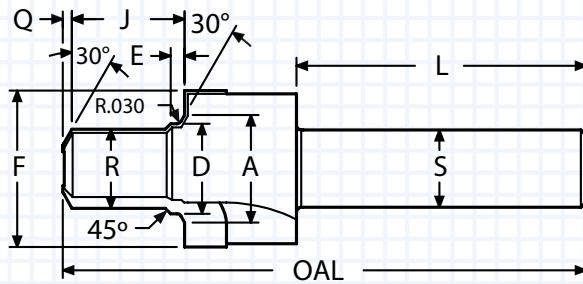


- Reams minor thread diameter to size
- Precision ground for maximum concentricity
- Meets the requirements of MS33649
- ALTiN+ coated tool for higher cutting speed
- This port requires a UNJ thread which specifies a larger minor-thread diameter

A	D	E	F	J	Q	R	L	S	OAL	FLUTES	TUBE	THREAD	ORDER #		EDP #	
													UNCOATED	ALTiN+	UNCOATED	ALTiN+
0.367	0.2665	0.071	0.575	0.425	0.025	0.219	2.00	0.500	3.00	3	N/A	0.2500-28 UNJF-3B	Solid Carbide			
													AS5202-01R	AS5202-01RA	406501	406503
0.446	0.3305	0.071	0.742	0.597	0.032	0.276	1.75	0.500	3.00	3	0.125	0.3125-24 UNJF-3B	Carbide Tipped			
													AS5202-02R	AS5202-02RA	406505	406511
0.508	0.3925	0.071	0.805	0.603	0.040	0.339	1.75	0.500	3.00	3	0.188	0.3750-24 UNJF-3B	AS5202-03R	AS5202-03RA	406513	406519
0.570	0.4565	0.083	0.888	0.676	0.040	0.393	1.88	0.500	3.12	3	0.250	0.4375-20 UNJF-3B	AS5202-04R	AS5202-04RA	406521	406527
0.633	0.5195	0.083	0.950	0.676	0.045	0.455	1.88	0.500	3.12	3	0.312	0.5000-20 UNJF-3B	AS5202-05R	AS5202-05RA	406529	406535
0.696	0.5825	0.091	1.012	0.729	0.060	0.513	1.88	0.500	3.38	3	0.375	0.5625-18 UNJF-3B	AS5202-06R	AS5202-06RA	406537	406543
0.758	0.6455	0.102	1.105	0.745	0.060	0.575	1.88	0.500	3.38	3	0.438	0.6250-18 UNJF-3B	AS5202-07R	AS5202-07RA	406545	406547
0.883	0.7715	0.102	1.240	0.854	0.070	0.693	2.12	0.750	3.84	3	0.500	0.7500-16 UNJF-3B	AS5202-08R	AS5202-08RA	406549	406555
0.946	0.8345	0.115	1.300	0.870	0.070	0.758	2.12	0.750	3.84	3	0.562	0.8125-16 UNJF-3B	AS5202-09R	AS5202-09RA	406557	406559
1.008	0.8985	0.115	1.415	0.950	0.080	0.810	2.12	0.750	3.94	3	0.625	0.8750-14 UNJF-3B	AS5202-10R	AS5202-10RA	406561	406567
1.164	1.0255	0.133	1.500	1.084	0.080	0.925	2.12	0.750	4.12	3	0.688	1.0000-12 UNJF-3B	AS5202-11R	AS5202-11RA	406569	406571
1.242	1.0885	0.133	1.665	1.084	0.080	0.985	2.12	0.750	4.12	3	0.750	1.0625-12 UNJF-3B	AS5202-12R	AS5202-12RA	406573	406579
1.370	1.2135	0.133	1.790	1.084	0.090	1.112	2.25	1.000	4.37	3	0.875	1.1875-12 UNJF-3B	AS5202-14R	AS5202-14RA	406581	406587
1.495	1.3385	0.133	1.965	1.084	0.090	1.235	2.25	1.000	4.37	3	1.000	1.3125-12 UNJF-3B	AS5202-16R	AS5202-16RA	406589	406595
1.683	1.5265	0.133	2.090	1.136	0.090	1.425	2.25	1.000	4.53	3	1.125	1.5000-12 UNJF-3B	AS5202-18R	AS5202-18RA	406597	406599
1.808	1.6505	0.133	2.310	1.136	0.090	1.549	2.25	1.000	4.54	3	1.250	1.6250-12 UNJF-3B	AS5202-20R	AS5202-20RA	406601	406603
2.058	1.9005	0.133	2.628	1.147	0.095	1.799	2.25	1.000	4.54	3	1.500	1.8750-12 UNJF-3B	AS5202-24R	AS5202-24RA	406605	406607
2.433	2.2755	0.133	3.050	1.263	0.095	2.174	2.50	1.250	4.92	3	1.750	2.2500-12 UNJF-3B	AS5202-28R	AS5202-28RA	406609	406611
2.683	2.5265	0.133	3.520	1.388	0.095	2.424	2.50	1.250	5.15	3	2.000	2.5000-12 UNJF-3B	AS5202-32R	AS5202-32RA	406613	406615

Thread mills are available. See pages 8-18.

AS5202 (MS33649) - REAMER PILOT PORT TOOL COOLANT THROUGH - CARBIDE TIPPED



- Reams minor thread diameter to size
- Precision ground for maximum concentricity
- Meets the requirements of MS33649
- ALTiN+ coated tool for higher cutting speed
- This port requires a UNJ thread which specifies a larger minor thread diameter

A	D	E	F	J	Q	R	L	S	OAL	FLUTES	TUBE	THREAD	ORDER #		EDP #	
													UNCOATED	ALTiN+	UNCOATED	ALTiN+
0.446	0.3305	0.071	0.742	0.597	0.032	0.276	1.75	0.500	3.00	3	0.125	0.3125-24 UNJF-3B	AS5202-02R-X3	AS5202-02R-X3A	406507	406509
0.508	0.3925	0.071	0.805	0.603	0.040	0.339	1.75	0.500	3.00	3	0.188	0.3750-24 UNJF-3B	AS5202-03R-X3	AS5202-03R-X3A	406515	406517
0.570	0.4565	0.083	0.888	0.676	0.040	0.393	1.88	0.500	3.12	3	0.250	0.4375-20 UNJF-3B	AS5202-04R-X3	AS5202-04R-X3A	406523	406525
0.633	0.5195	0.083	0.950	0.676	0.045	0.455	1.88	0.500	3.12	3	0.312	0.5000-20 UNJF-3B	AS5202-05R-X3	AS5202-05R-X3A	406531	406533
0.696	0.5825	0.091	1.012	0.729	0.060	0.513	1.88	0.500	3.38	3	0.375	0.5625-18 UNJF-3B	AS5202-06R-X3	AS5202-06R-X3A	406539	406541
0.883	0.7715	0.102	1.240	0.854	0.070	0.693	2.12	0.750	3.84	3	0.500	0.7500-16 UNJF-3B	AS5202-08R-X3	AS5202-08R-X3A	406551	406553
1.008	0.8985	0.115	1.415	0.950	0.080	0.810	2.12	0.750	3.94	3	0.625	0.8750-14 UNJF-3B	AS5202-10R-X3	AS5202-10R-X3A	406563	406565
1.242	1.0885	0.133	1.665	1.084	0.080	0.985	2.12	0.750	4.12	3	0.750	1.0625-12 UNJ-3B	AS5202-12R-X3	AS5202-12R-X3A	406575	406577
1.370	1.2135	0.133	1.790	1.084	0.090	1.112	2.25	1.000	4.37	3	0.875	1.1875-12 UNJ-3B	AS5202-14R-X3	AS5202-14R-X3A	406583	406585
1.495	1.3385	0.133	1.965	1.084	0.090	1.235	2.25	1.000	4.37	3	1.000	1.3125-12 UNJ-3B	AS5202-16R-X3	AS5202-16R-X3A	406591	406593

Thread mills are available. See pages 8-18.