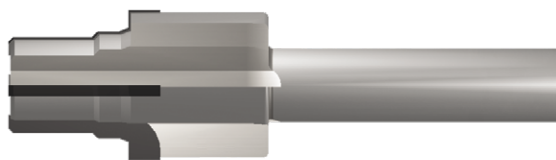
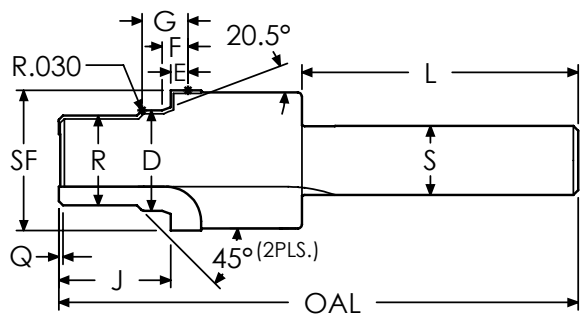


# RPT (AS1300) (PS10035) - ROSAN CAVITY PORT TOOL CARBIDE TIPPED

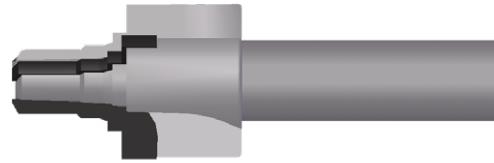
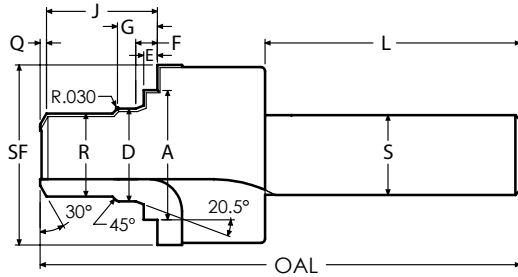


- Polished flute face for optimum performance
- Bodies made with heat-treated alloy steel
- Meets requirements of PS10035, AS1300, AS4201, and 6M152
- Precision ground for maximum concentricity
- ALTiN+ coating extends tool life

| D     | E     | F      | G      | J     | R     | SF    | L     | S     | OAL  | FLUTES | TUBE  | THREAD             | ORDER #        |         | EDP #    |        |
|-------|-------|--------|--------|-------|-------|-------|-------|-------|------|--------|-------|--------------------|----------------|---------|----------|--------|
|       |       |        |        |       |       |       |       |       |      |        |       |                    | UNCOATED       | ALTiN+  | UNCOATED | ALTiN+ |
|       |       |        |        |       |       |       |       |       |      |        |       |                    | Solid Carbide  |         |          |        |
| 0.255 | 0.093 | 0.1555 | 0.2985 | 0.610 | 0.184 | 0.382 | 2.00  | 0.500 | 3.50 | 3      | 0.125 | 0.2160-28 UNJF-3B  | RPT-2          | RPT-2A  | 402910   | 402966 |
| 0.287 | 0.093 | 0.1555 | 0.2985 | 0.670 | 0.218 | 0.449 | 2.00  | 0.500 | 4.00 | 3      | 0.188 | 0.2500-28 UNJF-3B  | RPT-3          | RPT-3A  | 402919   | 402969 |
| 0.340 | 0.093 | 0.1555 | 0.2985 | 0.700 | 0.275 | 0.496 | 2.00  | 0.500 | 4.00 | 3      | 0.250 | 0.3125-24 UNJF-3B  | RPT-4          | RPT-4A  | 402922   | 402972 |
|       |       |        |        |       |       |       |       |       |      |        |       |                    | Carbide Tipped |         |          |        |
| 0.402 | 0.093 | 0.1555 | 0.2985 | 0.725 | 0.337 | 0.602 | 2.00  | 0.500 | 3.48 | 3      | 0.312 | 0.3750-24 UNJF-3B  | RPT-5          | RPT-5A  | 402925   | 402975 |
| 0.465 | 0.108 | 0.1705 | 0.3135 | 0.785 | 0.392 | 0.676 | 2.00  | 0.500 | 3.53 | 4      | 0.375 | 0.4375-20 UNJF-3B  | RPT-6          | RPT-6A  | 402928   | 402978 |
| 0.583 | 0.108 | 0.1705 | 0.3135 | 0.850 | 0.511 | 0.785 | 2.00  | 0.500 | 3.85 | 4      | 0.500 | 0.5625-18 UNJF-3B  | RPT-8          | RPT-8A  | 402931   | 402981 |
| 0.726 | 0.108 | 0.1705 | 0.3135 | 0.810 | 0.650 | 1.016 | 2.00  | 0.500 | 3.81 | 4      | 0.625 | 0.6875-24 UNJEF-3B | RPT-10         | RPT-10A | 402901   | 402951 |
| 0.900 | 0.108 | 0.1705 | 0.3455 | 0.950 | 0.767 | 1.140 | 2.00  | 0.750 | 4.20 | 4      | 0.750 | 0.8125-20 UNJEF-3B | RPT-12         | RPT-12A | 402904   | 402954 |
| 1.163 | 0.108 | 0.1705 | 0.3455 | 1.015 | 1.073 | 1.428 | 2.00  | 0.750 | 4.26 | 4      | 1.000 | 1.1250-18 UNJEF-3B | RPT-16         | RPT-16A | 402907   | 402957 |
| 1.388 | 0.135 | 0.1975 | 0.3775 | 1.020 | 1.261 | 1.751 | 2.00  | 0.750 | 4.52 | 4      | 1.250 | 1.3125-18 UNJEF-3B | RPT-20         | RPT-20A | 402913   | 402960 |
| 1.665 | 0.135 | 0.1975 | 0.3775 | 1.205 | 1.574 | 2.002 | 0.750 | 2.00  | 4.52 | 4      | 1.500 | 1.6250-18 UNJEF-3B | RPT-24         | RPT-24A | 402916   | 402963 |

Thread mills are available. See pages 7-18.

# RFPT - ROSAN CAVITY PORT TOOL CARBIDE TIPPED



- Polished flute face for optimum performance
- Bodies made with heat-treated alloy steel
- Meets requirements of PS10035, AS1300, AS4201, and 6M152
- Precision ground for maximum concentricity
- ALTiN+ coating extends tool life

| A              | D     | R     | SF    | E     | F      | G      | J     | Q     | L    | S     | OAL  | FLUTES | TUBE  | THREAD             | ORDER #  |          | EDP #    |        |
|----------------|-------|-------|-------|-------|--------|--------|-------|-------|------|-------|------|--------|-------|--------------------|----------|----------|----------|--------|
|                |       |       |       |       |        |        |       |       |      |       |      |        |       |                    | UNCOATED | ALTiN+   | UNCOATED | ALTiN+ |
| Solid Carbide  |       |       |       |       |        |        |       |       |      |       |      |        |       |                    |          |          |          |        |
| 0.382          | 0.255 | 0.184 | 0.590 | 0.093 | 0.1555 | 0.2985 | 0.602 | 0.015 | 2.00 | 0.500 | 3.38 | 3      | 0.125 | 0.2160-28 UNJF-3B  | RFPT-02  | RFPT-02A | 403001   | 403051 |
| 0.449          | 0.287 | 0.218 | 0.728 | 0.093 | 0.1555 | 0.2985 | 0.663 | 0.015 | 2.00 | 0.500 | 3.38 | 3      | 0.188 | 0.2500-28 UNJF-3B  | RFPT-03  | RFPT-03A | 403004   | 403054 |
| Carbide Tipped |       |       |       |       |        |        |       |       |      |       |      |        |       |                    |          |          |          |        |
| 0.496          | 0.340 | 0.275 | 0.797 | 0.093 | 0.1555 | 0.2985 | 0.678 | 0.025 | 2.00 | 0.500 | 3.50 | 3      | 0.250 | 0.3125-24 UNJF-3B  | RFPT-04  | RFPT-04A | 403007   | 403057 |
| 0.602          | 0.402 | 0.337 | 0.924 | 0.093 | 0.1555 | 0.2985 | 0.708 | 0.708 | 2.00 | 0.500 | 3.50 | 3      | 0.312 | 0.375-24 UNJF-3B   | RFPT-05  | RFPT-05A | 403010   | 403060 |
| 0.676          | 0.465 | 0.392 | 0.995 | 0.108 | 0.1705 | 0.3135 | 0.734 | 0.050 | 2.00 | 0.500 | 3.50 | 3      | 0.375 | 0.4375-20 UNJF-3B  | RFPT-06  | RFPT-06A | 403013   | 403063 |
| 0.785          | 0.583 | 0.511 | 1.211 | 0.108 | 0.1705 | 0.3135 | 0.798 | 0.050 | 2.00 | 0.500 | 3.50 | 3      | 0.500 | 0.5625-18 UNJF-3B  | RFPT-08  | RFPT-08A | 403016   | 403066 |
| 1.016          | 0.726 | 0.650 | 1.355 | 0.108 | 0.1705 | 0.3135 | 0.828 | 0.060 | 2.00 | 0.750 | 3.85 | 4      | 0.625 | 0.6875-24 UNJEF-3B | RFPT-10  | RFPT-10A | 403019   | 403069 |
| 1.140          | 0.900 | 0.767 | 1.643 | 0.108 | 0.1705 | 0.3455 | 0.898 | 0.080 | 2.00 | 0.750 | 4.00 | 4      | 0.750 | 0.8125-20 UNJEF-3B | RFPT-12  | RFPT-12A | 403022   | 403072 |
| 1.312          | 1.031 | 0.892 | 1.780 | 0.108 | 0.1705 | 0.3455 | 0.935 | 0.090 | 2.25 | 1.000 | 4.25 | 4      | 0.875 | 0.9375-20 UNJEF-3B | RFPT-14  | RFPT-14A | 403025   | 403075 |
| 1.428          | 1.163 | 1.073 | 1.930 | 0.108 | 0.1705 | 0.3455 | 1.008 | 0.100 | 2.25 | 1.000 | 4.50 | 4      | 1.000 | 1.1250-18 UNJEF-3B | RFPT-16  | RFPT-16A | 403028   | 403078 |
| 1.751          | 1.388 | 1.261 | 2.298 | 0.135 | 0.1975 | 0.3775 | 1.040 | 0.120 | 2.25 | 1.000 | 4.50 | 4      | 1.250 | 1.3125-18 UNJEF-3B | RFPT-20  | RFPT-20A | 403031   | 403081 |
| 2.002          | 1.665 | 1.574 | 2.591 | 0.135 | 0.1975 | 0.3775 | 1.131 | 0.120 | 2.25 | 1.000 | 4.50 | 4      | 1.500 | 1.6250-18 UNJEF-3B | RFPT-24  | RFPT-24A | 403034   | 403084 |
| 2.518          | 2.203 | 2.064 | 3.500 | 0.135 | 0.2385 | 0.4185 | 1.338 | 0.120 | 2.50 | 1.250 | 5.00 | 4      | 2.000 | 2.1250-16 UNJ-3B   | RFPT-32  | RFPT-32A | 403037   | 403087 |

Thread mills are available. See pages 7-18.

# 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<br>(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<br>(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.<br>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.<br>Increase chip load.                                |
| LIGHT CHATTER    | PROGRAM            | Increase speed by 15-20%. A faster speed reduces forces.<br>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**