**PARTS LIST**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>TITLE</th>
<th>DWG. NO.</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PROTON DETECTOR SHIELD</td>
<td>PD_22_Shell</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>PROTON DETECTOR SHOULDER SCREW</td>
<td>PD_22_shoulder_screw</td>
<td>3</td>
</tr>
</tbody>
</table>

---

**TOLERANCES LINEAR DIMENSIONS**

<table>
<thead>
<tr>
<th>OVER 6.5 TO 0.5</th>
<th>OVER 3.5 TO 0.5</th>
<th>OVER 2.0 TO 0.5</th>
<th>OVER 1.5 TO 0.5</th>
<th>OVER 1.0 TO 0.5</th>
<th>OVER 0.5 TO 0.5</th>
<th>OVER 0.375 TO 0.5</th>
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<tbody>
<tr>
<td>+/- 0.004</td>
<td>+/- 0.003</td>
<td>+/- 0.003</td>
<td>+/- 0.003</td>
<td>+/- 0.002</td>
<td>+/- 0.002</td>
<td>+/- 0.001</td>
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Do not scale drawing.

---

**TITLE:**

PROTON DETECTOR ASSEMBLED SHIELD

---

**MATERIAL:**

316 Stainless Steel and B4C Ceramic Grade XP

**DRAWN:**

RAMONA V PÉREZ 01/06/13

**CHECKED:**

RAMONA V PÉREZ 02/28/13

**DRAWN:**

RAMONA V PÉREZ 09/05/14

---

**SIZE:**

A

**DWG. NO.:**

PD_22_Shield_assembled

**REV:**

2

---

**NAME:**

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NOTES:
1. SHIELD ATTACHED TO SS316 COMPONENTS WITH SHOULDER SCREWS.
2. CROSS SECTIONAL VIEW OF 10mm DIAMETER COLLIMATOR HOLES IN SHIELD.
3. VIEW OF ASSEMBLED INSTRUMENT WITH SHIELD HOLES (SHIELD IS TRANSPARENT).

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1. ALL MACHINING TOLERANCES TO +/- 0.2mm AND +/- 0.0DEGREE 30' EXCEPT WHERE SHOWN OTHERWISE.

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NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm AND +/-0 Degree 30' EXCEPT WHERE SHOWN OTHERWISE.
NOTES:
1. M6X1 THREAD ALONG LENGTH.
2. CHEESEHEAD/ SLOT DRIVE.
3. REQUEST QUANTITY 3.
4. ALL MACHINING TOLERANCES TO +/- 0.2mm EXCEPT WHERE SHOWN OTHERWISE.
WELD PROTON DETECTOR CONNECTOR TO PROTON DETECTOR MAST CONNECTOR.
WELD FOR ULTRA HIGH VACUUM.

---

**Parts List**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>TITLE</th>
<th>DWG. NO.</th>
<th>QUANTITY</th>
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<tr>
<td>4</td>
<td>PROTON DETECTOR CONNECTOR</td>
<td>PD_22_connector</td>
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<tr>
<td>5</td>
<td>PROTON DETECTOR MAST CONNECTOR</td>
<td>MAST_connector_1</td>
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</table>
1. WELD PROTON DETECTOR MODULE A TO PROTON DETECTOR CONNECTOR
2. WELD FOR ULTRA HIGH VACUUM
3. NOTE STEP ON CONNECTOR IS TO CORRECTLY POSITION PROTON DETECTOR MODULE A

NOTES: ANOTHER VIEW OF STEP ON TRANSPARENT CONNECTOR.
NOTES:
1. ALL MACHINING TOLERANCES TO +/- 0.2mm
   EXCEPT WHERE SHOWN OTHERWISE.
2. THREAD FOR M6 X 1 MACHINE SCREW.
3. THIS PROVIDES FOR PLACEMENT OF CORNER OF
   PROTON DETECTOR MODULE A PIECE DURING
   WELDING.

Ø6 THRU
SEE NOTE 2.
NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm
   EXCEPT WHERE SHOWN OTHERWISE.
2. AIR VENT THRU HOLES, SEE SECTION D-D.
3. THRU HOLES FOR TWO METER 9MM MACHINE
   SCREWS, SEE SECTION D-D.
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NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm
   EXCEPT WHERE SHOWN OTHERWISE.
2. THREAD FOR M6 X 1 MACHINE SCREW.
3. SEE SECTION D-D IN SHEET 1 OF 2.
4. THREAD FOR M3 X 0.5 SET/GRUB SCREWS.
NOTES:
1. WELD PROTON DETECTOR MODULE B TO PROTON DETECTOR MODULE A
2. WELD FOR ULTRA HIGH VACUUM
3. NOTE STEP ON PROTON MODULE A TO CORRECTLY POSITION PROTON DETECTOR MODULE B

NOTES:
ANOTHER VIEW OF STEP TO USE FOR WELDING MODULE B TO MODULE A.
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<table>
<thead>
<tr>
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<td>7</td>
<td>PROTON DETECTOR WASHER</td>
<td>PD_22_Washer</td>
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<td>8</td>
<td>PROTON DETECTOR PEEK SLEEVE</td>
<td>PD_22_Peek_sleeve</td>
<td>4</td>
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<td>9</td>
<td>PROTON DETECTOR PEEK BOTTOM</td>
<td>PD_22_Peek_bottom</td>
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<td>10</td>
<td>PROTON DETECTOR MODULE BASE</td>
<td>PD_22_base</td>
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<td>11</td>
<td>PROTON DETECTOR MODULE A</td>
<td>PD_22_a</td>
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<td>12</td>
<td>PROTON DETECTOR MODULE B</td>
<td>PD_22_b</td>
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<tr>
<td>13</td>
<td>McMaster-Carr PN#92290A118</td>
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</table>
NOTES:
1. ALL MACHINING TOLERANCES TO +/- 0.2mm EXCEPT WHERE SHOWN OTHERWISE.
2. NOTE THAT THE WASHER IS USED AS A SPACER FOR TWO SS316 SHIM STOCK WASHERS (OF SAME DIAMETER) ATTACHED TO A FOIL. ASSEMBLY OF SHIM STOCK WASHERS AND FOIL IS EQUIVALENT TO 1mm.

<table>
<thead>
<tr>
<th>TOLERANCES LINEAR DIMENSIONS</th>
<th>OVER</th>
<th>OVER</th>
<th>OVER</th>
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NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm EXCEPT WHERE SHOWN OTHERWISE.
NOTES:
1. ALL MACHINING TOLERANCES TO +/- 0.2mm
   EXCEPT WHERE SHOWN OTHERWISE.
2. MACHINED AS R6.4mm.
NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm EXCEPT WHERE SHOWN OTHERWISE.
2. THRU HOLES FOR M3 MACHINE SCREW.

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NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm EXCEPT WHERE SHOWN OTHERWISE.
2. ENGRAVE "2."
3. ENGRAVE "1."
4. THREAD FOR M3X0.5 MACHINE SCREW.
5. THIS PROVIDES FOR PLACEMENT OF CORNER OF MODULE B PIECE DURING WELDING.
SEE NOTE 2. SEE NOTE 3.

SEE NOTE 4.

NOTES:
1. ALL MACHINING TOLERANCES TO +/-0.2mm EXCEPT WHERE SHOWN OTHERWISE.
2. ENGRAVE "3."
3. ENGRAVE "4."
4. THREAD FOR M3X0.5 MACHINE SCREW.
NOTES 08/02/13:
1. DURING WELDING ONE THREADED HOLE ON ONE MODULE WAS DEFORMED. FOR THAT HOLE USE M3x0.5 THREAD WITH 6MM LENGTH AS OPPOSED TO 14MM LENGTH.

http://www.mcmaster.com
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Unless otherwise specified, dimensions are in millimeters. Information in this drawing is provided for reference only.
<table>
<thead>
<tr>
<th>ITEM No</th>
<th>DRAWING No</th>
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<td>PIN HOUSING</td>
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<td>M11501202</td>
<td>PIN RETAINER</td>
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<td>CONTACT PIN 1.5-2.5sq.mm</td>
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<td>JCHS-2-6</td>
<td>SCREW M2 x 6G CHEESE HD STAIN.S.</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTES:-

1. ITEMS 4 AVAILABLE FROM:-
   RS COMPONENTS LTD
   WALSINGHAM DRIVE
   NUNEATON
   CV10 7NS
   TEL.: 02476 3377700 FAX: 0845 850 9911
   uk.rs-online.com

2. ITEMS 5 AVAILABLE FROM:-
   CABURN-MOC LTD
   MENZIES ROAD
   PONSWOOD INDUSTRIAL ESTATE
   ST. LEONARDS-ON-SEA
   EAST SUSSEX TN38 9BB
   TEL.: 0870 428 7646 FAX: 0870 428 7647
   www.sales@caburn.co.uk

CAD DRAWN NOT TO BE MODIFIED BY HAND

DIMENSIONS IN MILLIMETERS UNLESS STATED

SURFACE TEXTURE UNLESS STATED

SURFACE TREATMENT CLEAN

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1. ALL CUT OR MACHINED SHARP EDGES TO BE DE-BURRED.
2. DIMENSIONS IN BRACKETS ARE FOR REFERENCE ONLY.
NOTES:
1. ALL CUT OR MACHINE SHARP EDGES TO BE DE-BURGED.
2. TOLERANCES +/- .008 in (+/- .02 mm) UNLESS OTHERWISE STATED.
3. DIMENSIONS IN BRACKETS ARE FOR REFERENCE ONLY.
4. THRU HOLE FOR M3 MACHINE SCREW.
THIRD ANGLE PROJECTION - DO NOT SCALE - IF IN DOUBT ASK

ISOMETRIC VIEW

SECTION A - A

NOTES:

1. ALL CUT OR MACHINED SHARP EDGES TO BE DE-BURRED.

2. ALL THREADS ARE METRIC COARSE SERIES 6H/6g (RIGHT HAND)

SECTION B - B

MATERIAL AND SPECIFICATION

PEEK 1000

DIMENSIONS IN MILLIMETERS UNLESS STATED

REMARKS OR SPECIFICATIONS FOR SPECIAL REQUIREMENTS

SURFACE TREATMENT

CLEAN

SURFACE FINISH, UNLESS STATED

SURFACE TREATMENT

USED ON REPR DRAWING

PIN RETAINER

DRAWN BY

APPROVED BY

QUALITY CLASS

TITLE

M11501202

0.02kg

REMOVE ALL BURRS AND SHARP EDGES

206

0.0 - 0.5

2:1

010310

2

1

SMARTCAM
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SECTION A-A

NOTES:
1. M6X1 THREAD.
2. REQUEST QUANTITY 3.
3. ALL MACHINING TOLERANCES TO +/- 0.5mm EXCEPT WHERE SHOWN OTHERWISE.

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Material: Aluminum

Title: PD Clamp for RP RF Screen Cap Barrel

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NOTES:
1. HOLE CENTERS LIE ALONG 92MM DIAMETER CIRCLE (FROM BARREL CENTER).
2. ALL MACHINING TOLERANCES TO +/-0.5mm EXCEPT WHERE SHOWN OTHERWISE.
NOTES:
1. TOLERANCES +/- .01 INCHES UNLESS OTHERWISE STATED.