1. **Intended use**

IRINO-PRO is a composite polishing pad that can be used with the addition of diamond suspension to polish workpieces made of metal, sapphire, ceramics and plastics. The IRINO-PRO pad is typically used on planar polishing machines in single and double-side processes. IRINO-PRO is mounted directly on the polishing plate or carrier plate by means of self-adhesive backing.

2. **Safety instructions**

**ATTENTION:** IRINO-PRO may only be used by trained personnel.

For maximum speed parameters see point 3.5. The maximum peripheral speed of 10 m/s must never be exceeded under any circumstances. Maximum operating temperature 45° C/113° F.

Oil and chemical resistance: Only diamond suspensions or lubricants approved by Pureon may be used. IRINO-PRO must not be used with defective, uneven or uncleaned carrier plates. In the case of visible external damage, IRINO-PRO may no longer be used.

3. **Requirements**

3.1. **Abrasive feed**

The polishing machine must be equipped for the automatic feeding of diamond suspension. The diamond suspension should be stirred continuously (unless it is a fully stabilized formulation).

3.2. **Carrier rings**

Carrier rings are used exclusively for material guiding and should be as light as possible so as not to impair the service life of IRINO-PRO. Slotted designs made of plastic or aluminum are suitable.

3.3. **Contact pressure of the workpiece**

Recommended: 0.2-0.4 kg/cm²; maximum: 1.5 kg/cm²

3.4. **Recommended peripheral speed**

Approx. 2-5 m/s, maximum peripheral speed 10 m/s.

3.5. **Reference values for speed**

<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>800</th>
<th>1'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended speed (RPM)</td>
<td>400</td>
<td>300</td>
<td>250</td>
<td>200</td>
<td>150</td>
<td>120</td>
<td>100</td>
</tr>
<tr>
<td>Max. speed (RPM)</td>
<td>990</td>
<td>630</td>
<td>470</td>
<td>380</td>
<td>310</td>
<td>240</td>
<td>190</td>
</tr>
</tbody>
</table>

3.6. **Carrier plate**

Flat-ground, clean lapping and polishing pads are suitable.

4. **Preparation**

4.1. **Carrier plate**

The carrier plate must be absolutely clean, plane, dry and free of grease.

4.2. **Mount with PSA, Teflon, magnetic plate**

IRINO-PRO must be centrally aligned and applied without bubbles.
4.3. Provide diamond suspension/lubricant
   A regular suspension supply must be ensured. The IRINO-PRO polishing pad must not run dry.

5. **Dressing and conditioning before first use**
   Before using the IRINO-PRO pad for the first time, it must be conditioned or dressed. This resets the surface structure caused by the manufacturing process; only then can the pad develop its full performance. For double-side machining, dressing should be carried out in order to set the plane parallelism before the first use.

5.1. Determine actual geometry
   Before dressing, please determine the flatness (single-side machine) or the flatness and plane parallelism (double-side machine) using suitable measuring equipment.

5.2. Dressing
   Wet the IRINO-PRO pads with water, then carry out dressing without adding any more water. Select the correct correction program in accordance with the machine manufacturer's specifications and dress with a suitable dressing tool.

5.3. Dressing tool
   MicroDress nickel-bonded diamond dressing tools from Pureon, 120/140 mesh

5.4. Contact pressure of the workpiece
   Recommended: 0.1-0.2 kg/cm²

5.5. Peripheral speed and duration
   Speed and duration depending on the actual geometry determined and in accordance with the machine manufacturer's specifications.

5.6. Clean with brushes
   After dressing or conditioning, clean the IRINO-PRO pads from the generated grinding sludge with machine-specific nylon brushes.

5.7. Measure
   Measure the geometry of the IRINO-PRO pad using a measuring tool provided with the machine. After dressing, the flatness should be +/- 20 µm, the plane parallelism should be <10 µm (these are approximate figures, the actual figures strongly depend on the geometry requirements for the finished workpiece).
   If the geometry is insufficient, repeat the dressing process.
6. Parameters for production

6.1. Machine parameters
Recommended contact pressure: 0.2-0.4 kg/cm², maximum contact pressure: 1.5 kg/cm²
Recommended peripheral speed: 2-5 m/s, maximum peripheral speed: 10 m/s

6.2. Suspension feed
Dosage quantities for single-side machines

<table>
<thead>
<tr>
<th>Pad diameter (mm)</th>
<th>300</th>
<th>500</th>
<th>700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revolutions per minute (RPM)</td>
<td>30-100</td>
<td>20-80</td>
<td>10-50</td>
</tr>
<tr>
<td>Peripheral speed (m/s)</td>
<td>1-4</td>
<td>1-4</td>
<td>1-4</td>
</tr>
<tr>
<td>Initial dosage (ml)</td>
<td>30</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Suspension dosing (ml/h)</td>
<td>30-50</td>
<td>60-100</td>
<td>150-200</td>
</tr>
</tbody>
</table>

Dosage quantities for double-side machines

<table>
<thead>
<tr>
<th>Pad diameter (mm)</th>
<th>300</th>
<th>500</th>
<th>700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revolutions per minute (RPM)</td>
<td>100-150</td>
<td>60-100</td>
<td>40-70</td>
</tr>
<tr>
<td>Peripheral speed (m/s)</td>
<td>3-5</td>
<td>3-5</td>
<td>3-5</td>
</tr>
<tr>
<td>Initial dosage (ml)</td>
<td>100</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Suspension dosing (ml/h)</td>
<td>100-150</td>
<td>200-250</td>
<td>400-500</td>
</tr>
</tbody>
</table>

6.3. Positioning the parts
The entire surface of the IRINO-PRO pad must be used and thus used up.
This can be done in two ways:
1. By overrun of the workpieces, i.e. the workpieces extend beyond the outer and inner edge or the center.
2. By overrun of the drive plates, carrier plates and conditioning rings.

7. Reconditioning

7.1. Clean with a brush
To remove workpiece abrasion, manual brushing using a nylon brush with water-soluble surfactants (detergent) is recommended. To do this, turn the pad slowly.

Nylon brush

7.2. Dressing
If the geometry of the workpieces is no longer sufficiently precise, the IRINO-PRO pad must be dressed until it is plane over the entire surface. Procedure see point 5.

8. Troubleshooting and tips

8.1. If the removal rate is initially too low or decreases significantly during the service life, the pad must be conditioned or dressed. See point 5.

8.2. If the surface of the pad is heavily clogged with abrasion, the pad should be cleaned. See point 5 and point 7.

8.3. Excessive supply of suspension (“flooding”) generally leads to lower removal rates and high costs.
8.4. If the IRINO-PRO pad is not used for a long time, it should be cleaned, dried and protected against dirt with a clean cover.

9. **Storage**
   Store lying flat or standing up at an angle of approx. 30 degrees to the vertical. Store at room temperature, dry and protected from direct sunlight. Clean used pads completely before storage.

10. **Service life**
    The end of the pad’s service life is reached as soon as the light structure of the carrier material becomes partially visible.

11. **Demounting of the pad**
    Pads with self-adhesive backing can only be mounted once. Teflon-coated adapters are available for repeated mounting.

12. **Disposal**
    The IRINO pads can be disposed of with normal household waste. Metal plates can be recycled. Please note the relevant local regulations.

13. **Application video**
    An application video for IRINO-PRO-C is available on YouTube under the QR code on the left and under the following link: https://youtu.be/1AEBYjC_A8s