

Metkon Application Note

SAMPLE: Preperation of Cast Iron Sample

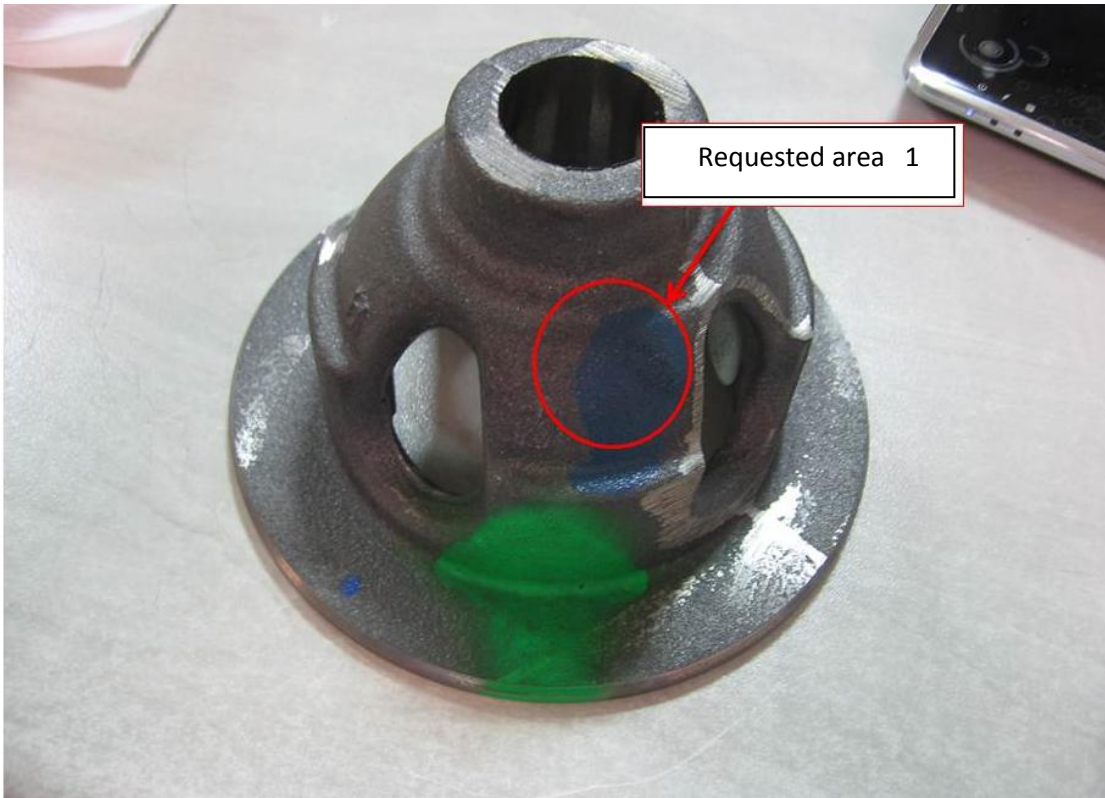
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2. APPLICATION REQUIREMENTS

**3. SAMPLE PREPARATION
PROCESSES**

4. RESULT



Requested areas to be investigated

A. SECTIONING



	Order Code	Description
Equipment Used :	14 66	Servocut 401 - MA
Clamping Device :	15 02	MBU 1031 Quick clamping Device with clamping shoe
	GR 0030	Vise assembly, Left
Cutting Fluid :	19-902	Metcool,Nature Friendly Soluble Oil,5lt.
Cutting Disc :	19-072	Treno-M, Ø400, for Medium Hard Steels >50-60 HRC

B. MOUNTING

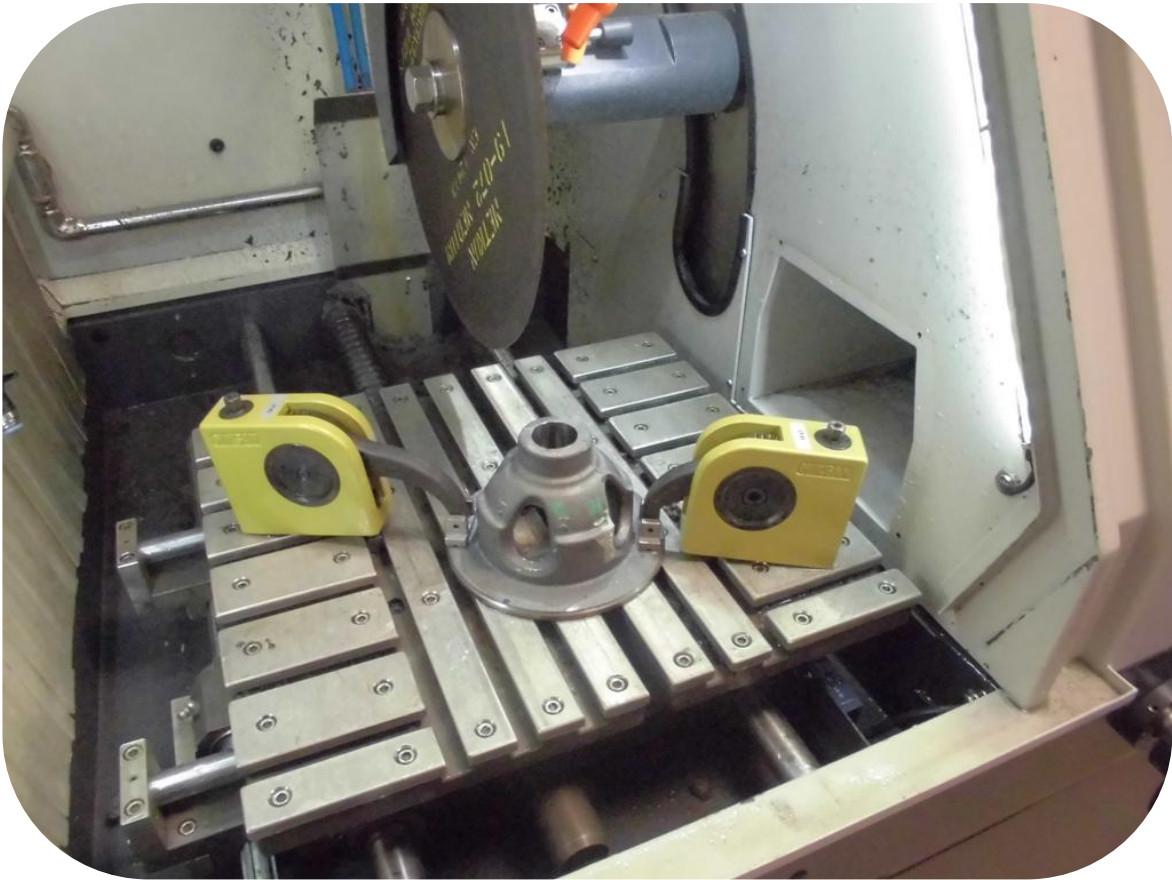


	Order Code	Description
Equipment Used :	25 07	Ecopress 100
Mould Assembly	26 06 - 02	Mould assembly 40 mm diameter
Mounting Powder	29-010	NET, Transparant acrylic powder

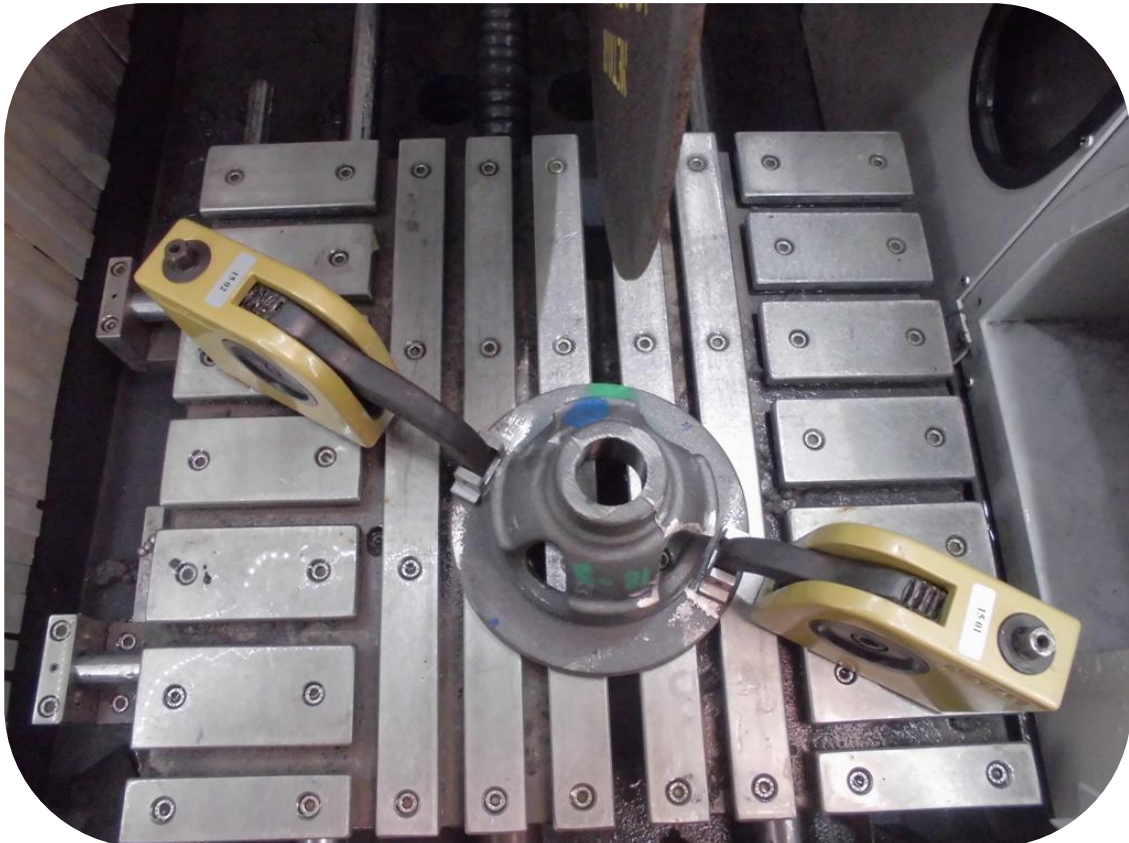
C. GRINDING & POLISHING

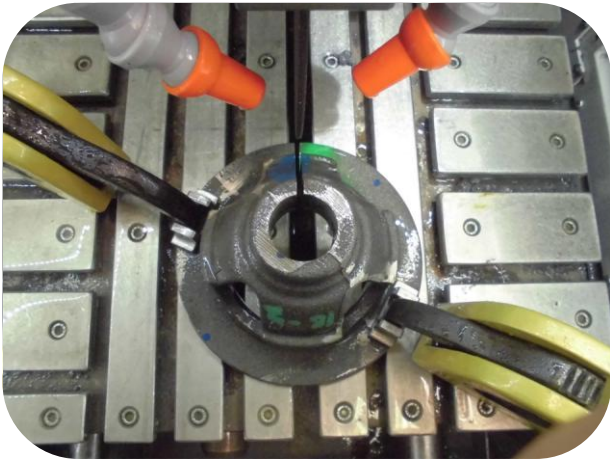


	Order Code	Description
Equipment Used	36 09-250	FORCIPOL 2V
	30 09	FORCIMAT AUTOMATIC HEAD
Equipment Accessories	31 21	PVC Wheel, 250 mm
	31 63	Splash Guard, 250 mm
	39-003-250	Ø 250 mm, Special Magnetic Foil
	39-093-250	Ø 250 mm, Thin Metal Plate(5 pcs)
Sample Holder	33 01	Specimen holder, 6 x Ø40 mm



The sample1 is attached as it shown in the above photo with the 15 02 clamping devices.





After first cutting the sample moved a little to get a slice and get requested area.

The cutting parameters are below;

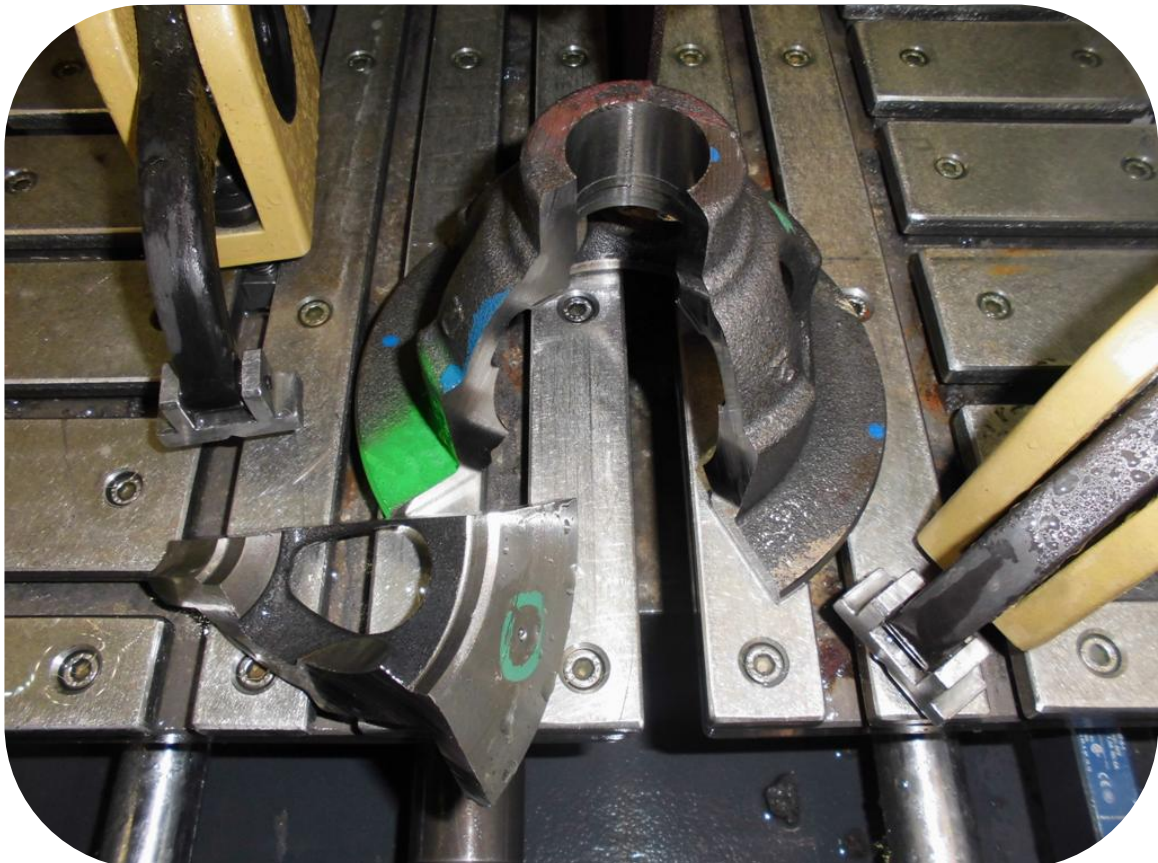
The Table feedrate is adjusted to; **250 μ / sec**

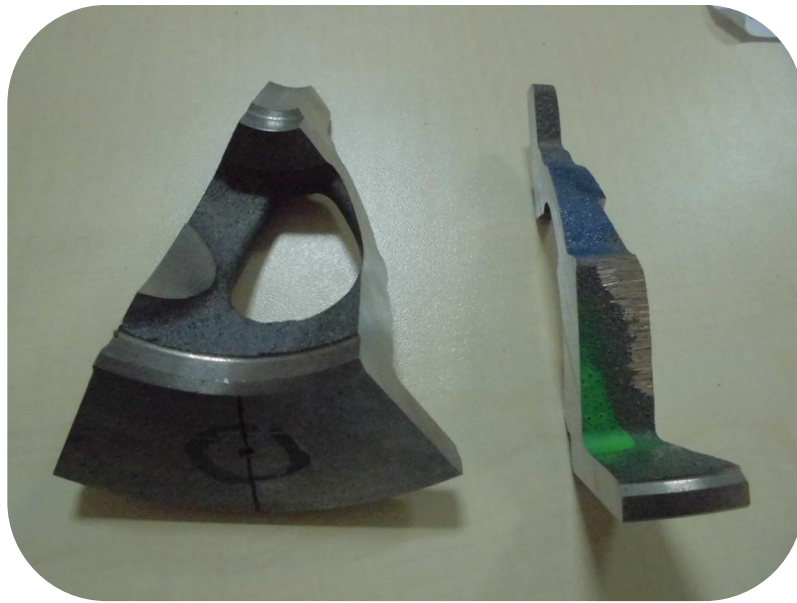
The Rpm is adjusted to; **2200**

The Travel is adjusted to; **100 mm**

The Force is adjusted to; **8A**

With these parameters, 2 cutting process took approx. 10 minutes.





After that the samples cut from the middle (shown below pics.) as a third cutting operation.



The final pieces divided into two part for molding operation with the help of GR 0030 vice





ECOPRESS 100 was used for mounting operation with below parameters;

Heating temperature: 180 °C

Pressure: 210 bar

Heating time: 3 min

Cooling type: Slow cooling

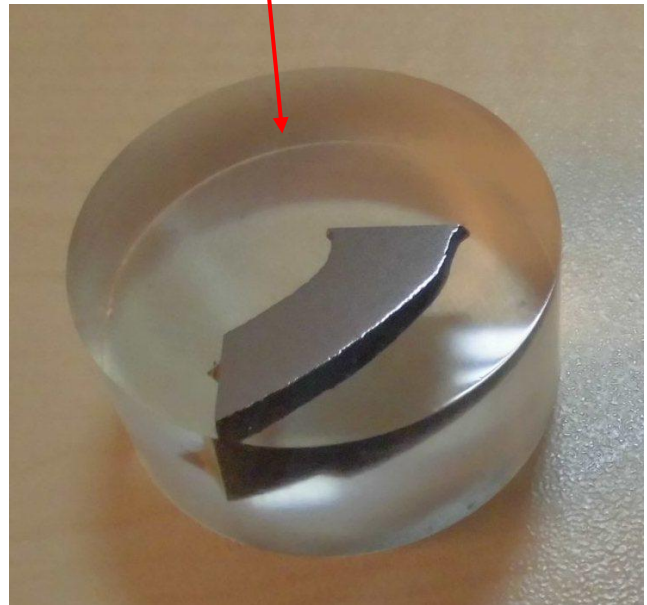
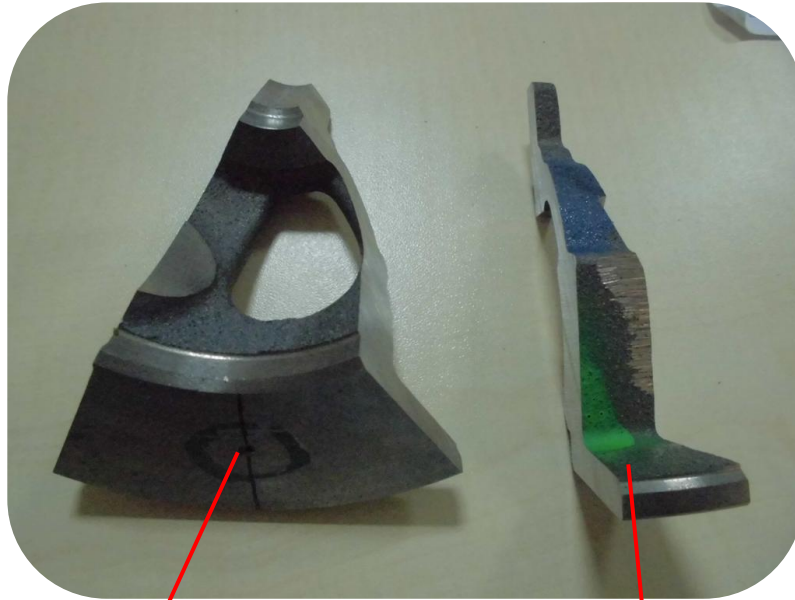
Cooling temperature: 35 °C

The Mounting process took approx. 10 minutes,

We used FORCIPOL 2V and FORCIMAT automatic grinding and polishing machine to grind and polish the samples. Our parameters are as below. The grinding & polishing process took app. 10 min.

	<i>Surface</i>	<i>Abrasive</i>	<i>Lubricant</i>	<i>Force per Sample, (N)</i>	<i>Time (min.)</i>	<i>Disc speed (rpm) Rotation</i>	<i>Head Speed (rpm) Rotation</i>
MG Step 1	<i>MAGNETO I</i> [38-040-54]	54μ Diamond	Water	20 N	2 min.	250 CCW	75 CW
MG Step 2	<i>MAGNETO II</i> [38-040-018]	18μ Diamond	Water	25 N	2 min.	250 CCW	100 CW
Final Grinding	<i>DEMPAX</i> [38-040-1200]	1200 Grit SiC	Water	25N	2 min.	250 CCW	100 CW
MP Step 1	<i>FEDO-3</i> [39-025-250]	<i>DIAPAT-M 3μ</i> [39-420-M]	<i>DIAPAT</i> [39-502]	20 N	2 min.	200 CCW	50 CW
Final Polishing	<i>FEDO-1</i> [39-065-250]	<i>ALU-MIK 1μ</i> [39-220]	Water	15 N	2 min.	200 CCW	50 CW

As a result after cutting operation our specimen have mounted, grinded and polished for investigate from the requested areas.



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