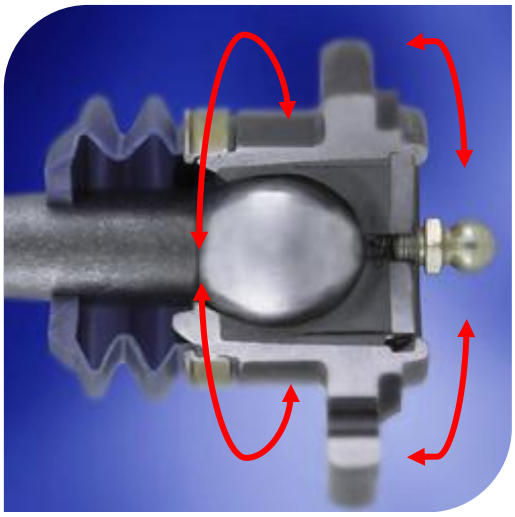
Metkon Application Note

Cutting operation of ball joint

metkon
Technology behind Specimen

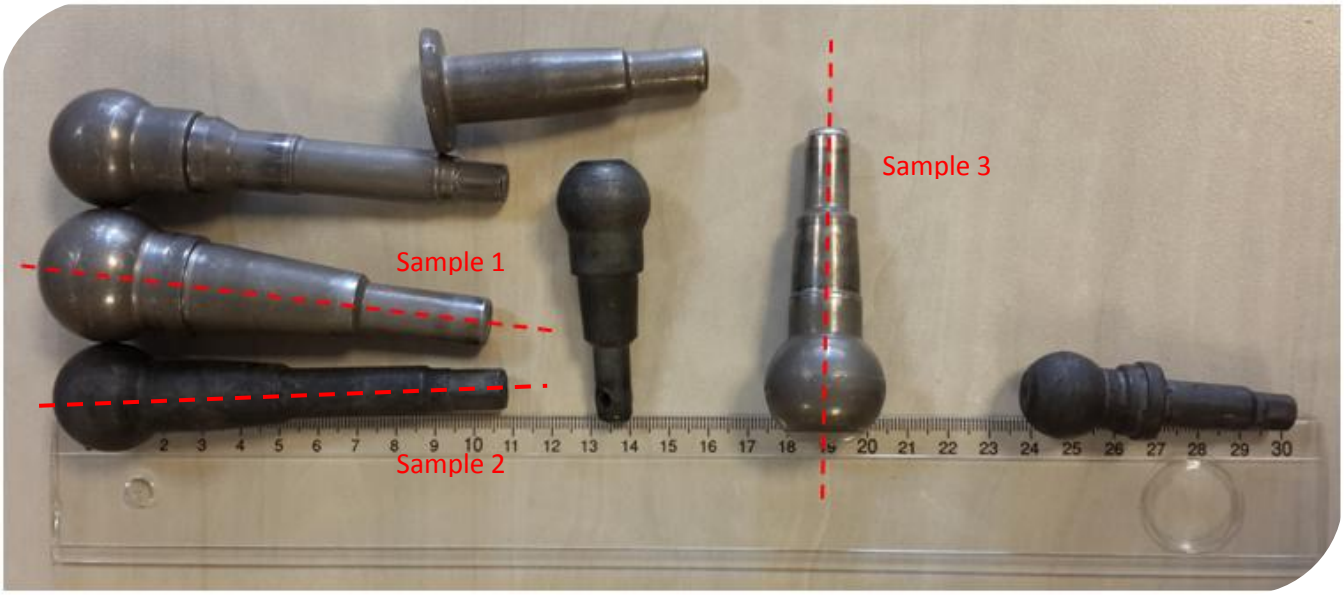


In an automobile, ball joints are spherical bearings that connect the control arms to the steering knuckles. They are used on virtually every automobile made and work similarly to the ball-and-socket design of the human hip joint.

A ball joint consists of a bearing stud and socket enclosed in a casing; all these parts are made of steel. The bearing stud is tapered and threaded, and fits into a tapered hole in the steering knuckle. A protective encasing prevents dirt from getting into the joint assembly. Usually, this is a rubber-like boot that allows movement and expansion of lubricant. Motion-control ball joints tend to be retained with an internal spring, which helps to prevent vibration problems in the linkage.

The "offset" ball joint provides means of movement in systems where thermal expansion and contraction, shock, seismic motion, and torsional motions, and forces are present.

Samples and the requested cutting lines:



APPLICATION REQUIREMENTS

SERVOCUT 301-MA MX

Automatic Abrasive Cutting Machine

Programmable with 5,7" HMI touch screen control, with Siemens PLC control unit, with handwheel driven chop cutting and automatic driven table-feed cutting systems, with various cutting methods, programmable with coloured LCD display of cutting parameters, accurate and motorized positioning of the specimen in X and Y axis (**X-axis for plane parallel cutting is optional),manual positioning of the cutting wheel in Z-axis, integrated feed path control, power dependent adjustable feed rate, variable cutting force, pulse cutting mode, bar graph overload display, compact cutting motor, 2800 rpm cutting speed, with electronic brake system, cutting capacity upto 90/110 mm solid stock, with cut-off wheels upto ø250/300mm, twin T-slotted table(Y-direction only) made of stainless steel, bottom part as rugged alloy base casting, 80 lt recirculating cooling unit with connection hoses, ready for operation. Without clamping devices.

Includes a standard set of cutting consumables composed of;

*An assortement of 20 cut-off wheels with 300 mm dia.

*5 lt of Metcool cooling fluid.

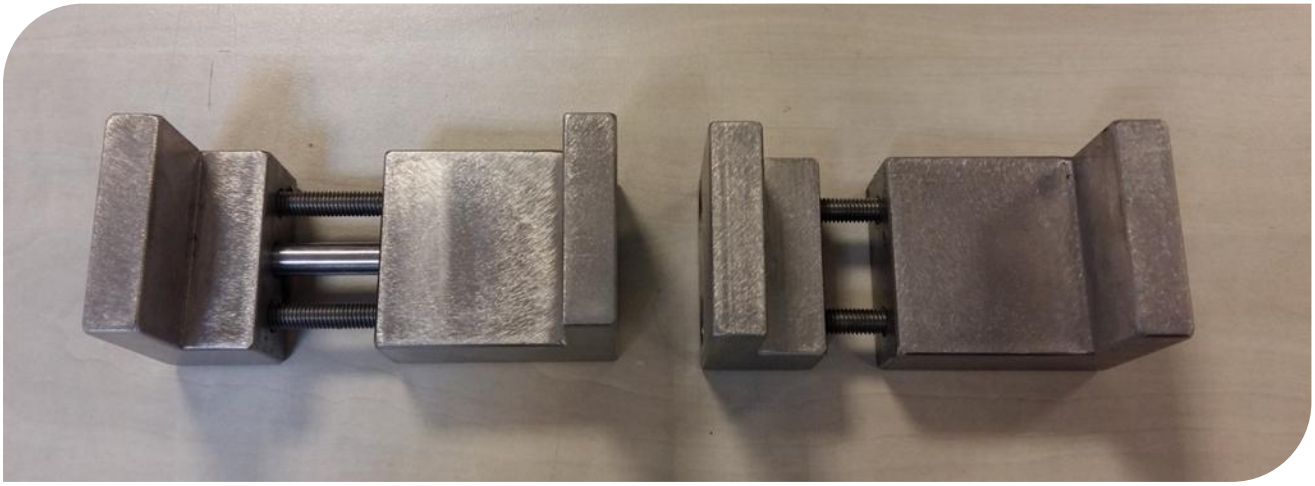
400 V, 3 phase, 50 Hz.

**as above(14 56) and including a manually driven X-axis table with 70mm travel for plane parallel cutting.

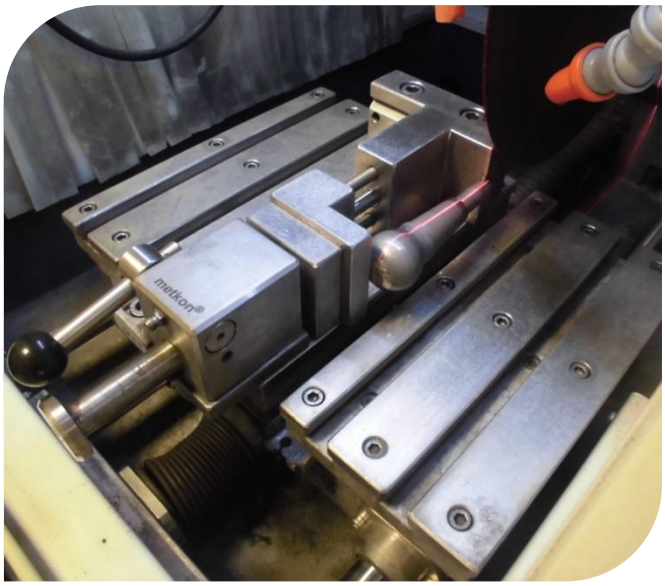
	Order Code	Description
Equipment Used	14 56-MX	SERVOCUT 301-MA MX
Clamping Device	GR 0170	Quick Acting Clamping Vise Assembly, Left
Cooling Fluid	19 905	METCOOL II Cooling Fluid, 1 lt.
Cutting Disc	19 042	TRENO-M ø 300

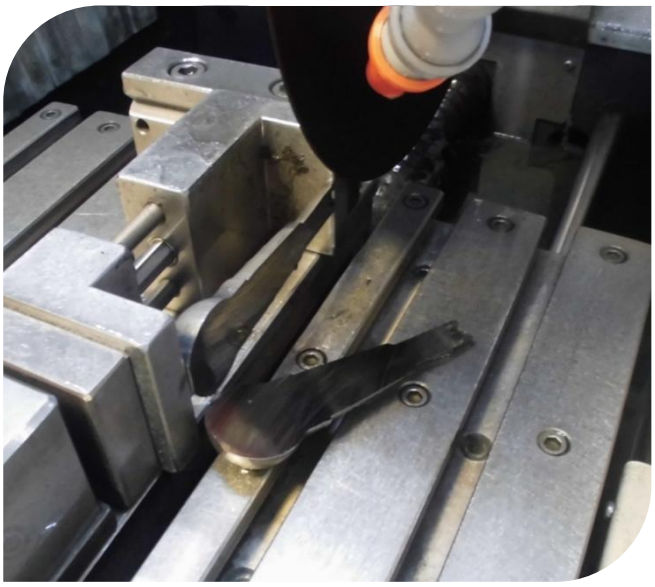
SAMPLE PREPARATION PROCESSES

With help of GR 0170 the samples has clamped properly. Also the new clamping devices were used for support.



Sample 1:





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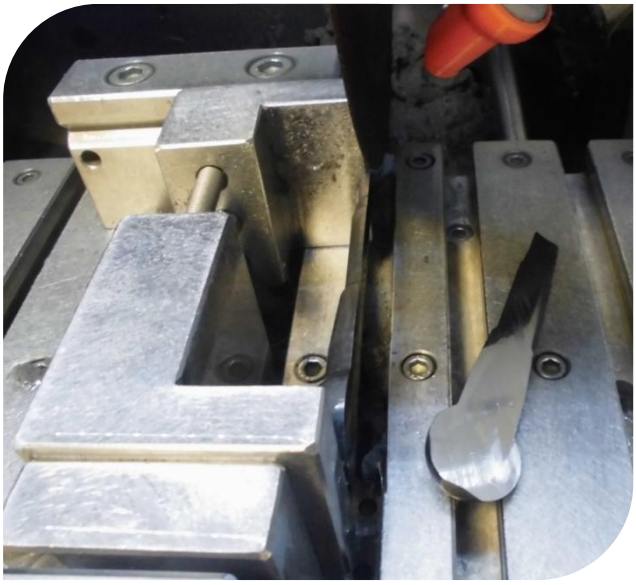

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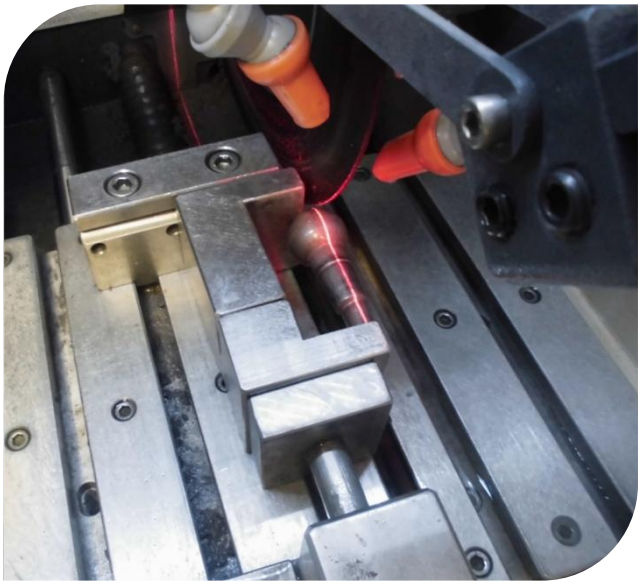


Cutting parameters are below:

Feedrate: 100-150 µ/sec.
RPM: 2000 r/min.

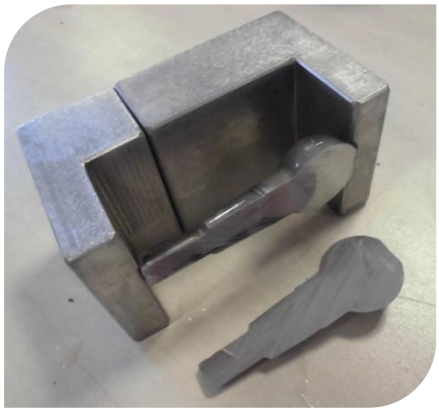
RESULT

At the result, the samples cutted properly.

Sample 1:

Sample 2:

Sample 3:



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