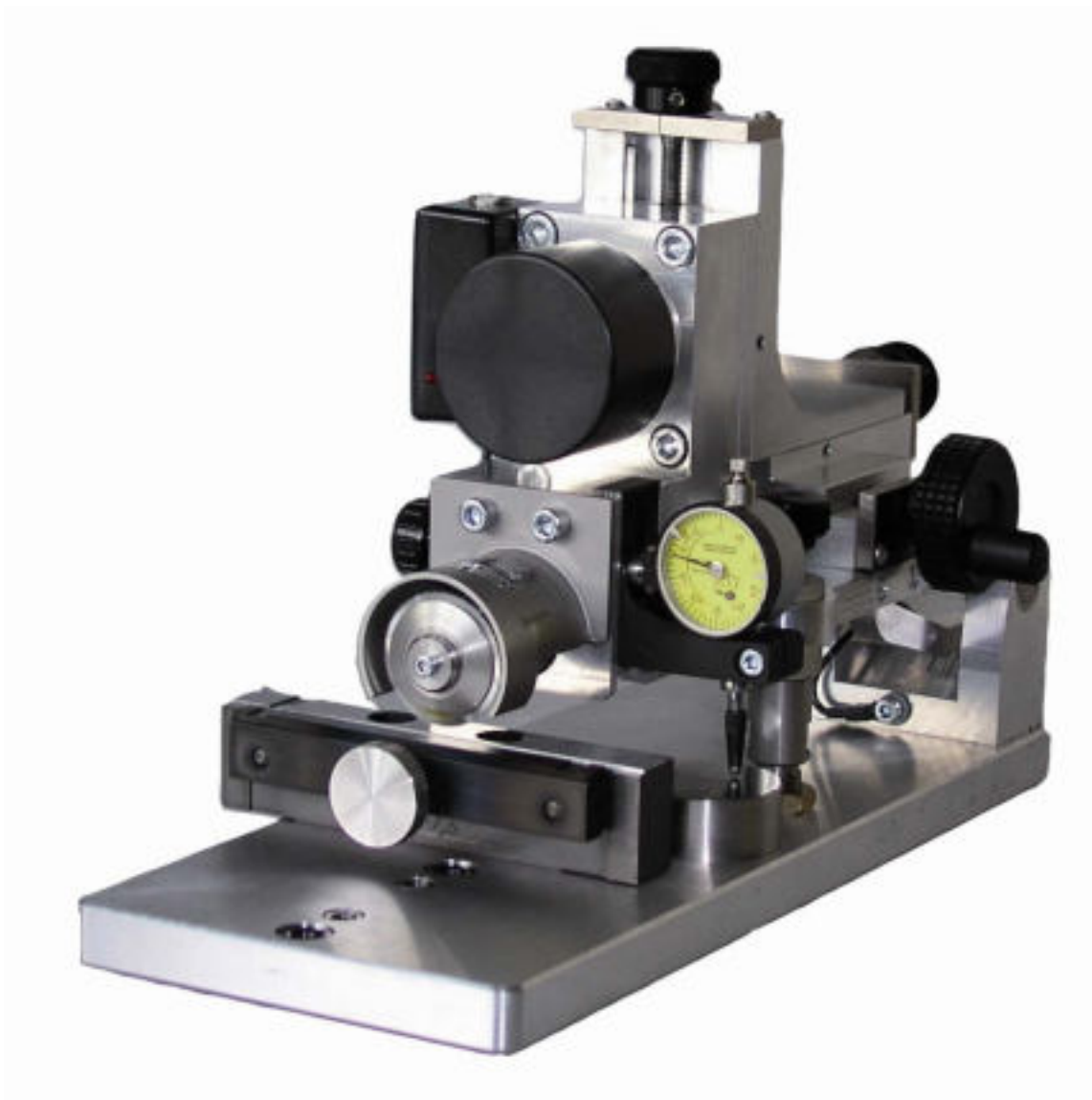


**Test defect saw S20**

**7.903**



*Fig 1 Test defect saw S20*

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## Application

International standards like EN 10246 define artificial test defects to fulfil a high quality level. The production of notches in longitudinal direction with specified depth, width and length is common practice for calibration. Now FOERSTER offers a practical solution for precise sawing of transverse defects. It is possible to produce external defects in metallic wires, tubes and bars with dimensions from 1 – 20 mm.

Just one clamping is necessary for sawing of longitudinal and transverse defects via the innovative Twist-Clamping-Set technology. This permits a uniform and reproducible defect depth for longitudinal and transverse defects. Fine grading of Twist-Clamping-Sets permits perfect fixing of the test material and the setting to zero-point (saw blade gets in contact with test material).



*Fig 2 Positioning of Twist-Clamping-Set in longitudinal and transverse direction*

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## Mode of operation

A cutting accuracy of 10  $\mu\text{m}$  and saw blade width from 0.08 – 0.1 – 0.2 – 0.3 mm permit extremely precise and narrow cuts. By default the saw blades consist of HSS (High Speed Steel). HM (Hard Metal) saw blades are used if higher abrasion resistance is required.



*Fig 3 Saw blades*

## Mechanical construction

A complete test defect saw S20 consists of

- Basic unit
- Dial gauge
- Saw blade
- Clamping-set
- Transport case
- Set of tools

### Basic unit

The basic plate (Fig 4, Pos. 1) guarantees a firm position of the test defect saw. The linear guide (Fig 4, Pos. 2) permits the positioning of the saw blade in x-axis, y-axis and z-axis. A drive motor (Fig 4, Pos. 3) moves the saw blade with a constant rotating speed.

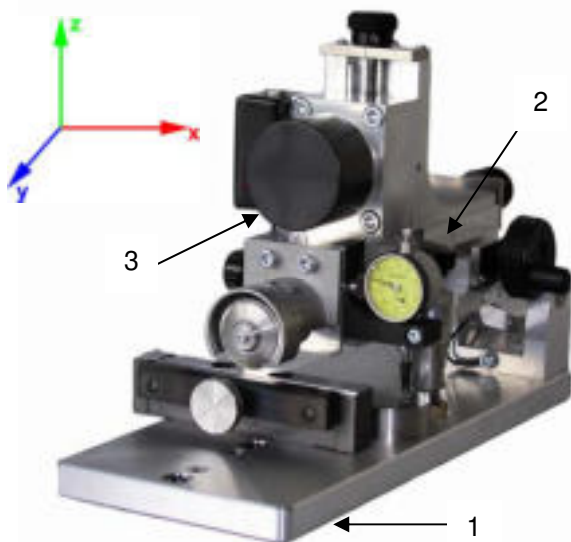


Fig 4 Main components of the basic unit

The drive motor is operated by an external power supply (Fig 5, Pos. 1). The connector of the power supply has to be connected to the adapter housing (Fig 5, Pos. 2).

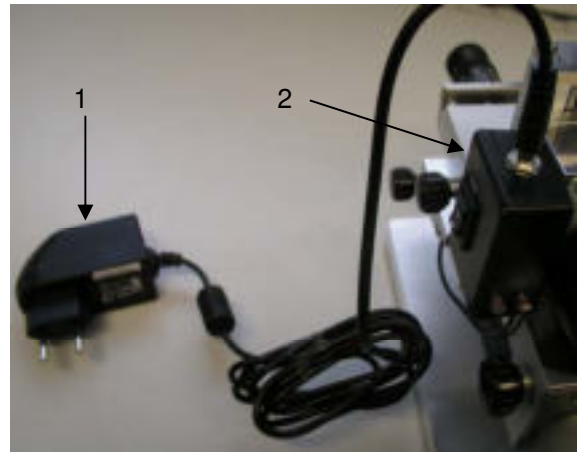


Fig 5 External power supply and adapter housing

A rocker switch (Fig 6, Pos. 1) controls the drive motor and has the three positions HSS (for usage of a HSS saw blade) – OFF (no power supply voltage) – HM (for usage of a HM saw blade). Two red LED signals (Fig 6, Pos. 2) are fixed to the adapter housing to indicate contact between saw blade and test material. One LED is shining at soft contact. If both LED are shining, than there is a strong contact between saw blade and test material.

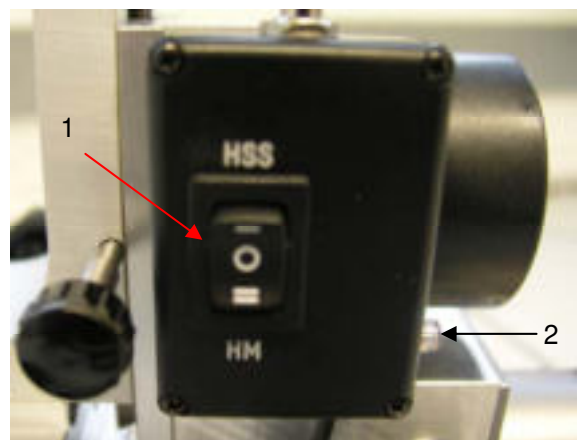


Fig 6 Rocker switch and LED signal

### Positioning facility in x-axis (Defect length)

To move the saw blade in x-axis use hand wheel (Fig 7, Pos. 1). So the length of the notch can be set. A scale (Fig 7, Pos. 2), divided in 1 mm sections is placed over the entire distance of 25 mm.

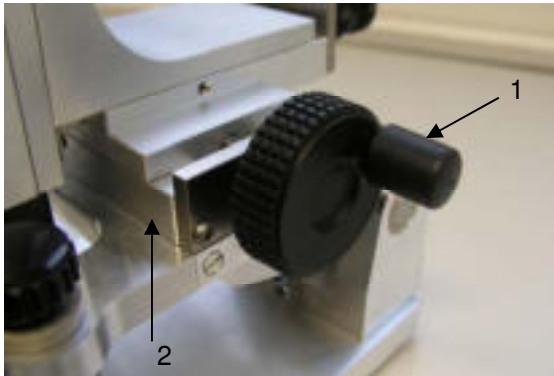


Fig 7 Hand wheel with scale for the x-axis

### Positioning facility in y-axis (Test material centre)

To move the saw blade in y-axis use hand wheel (Fig 8, Pos. 1). So the saw blade is set to the test material centre. The positioning can be done with a scale resolution of 0.02 mm. To arrest the y-position use the locking screw (Fig 8, Pos. 2).

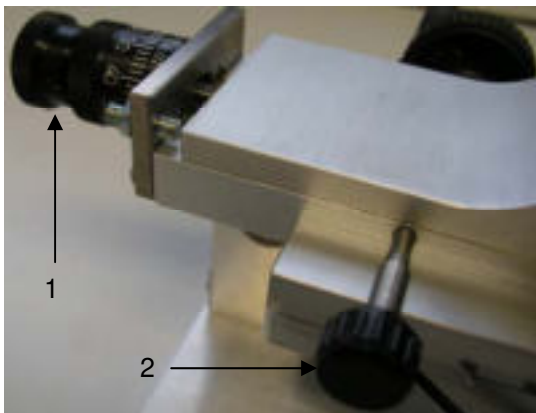


Fig 8 Hand wheel with scale for the y-axis

### Positioning facility in z-axis (defect depth)

To move the saw blade in z-axis use hand wheel (Fig 9, Pos. 1). So the depth of the notch can be set. Turning in clockwise direction moves the saw blade upwards away from the test material.

After reaching the predetermined z-position (Defect depth) use the locking screw (Fig 9, Pos. 2) to arrest.



Fig 9 Hand wheel for the z-axis

### Dial gauge

A dial gauge is used to set exactly the notch depth. By default an analogue dial gauge is supplied. Optionally this one can be replaced by a digital dial gauge. The dial gauge is fixed with the clamping shaft (Fig 10, Pos. 2) to the test defect saw. The measuring insert (Fig 10, Pos. 3) is a versatile metallic pin which range is proportional to the measured value display (Fig 10, Pos. 1) of the dial gauge. The resolution is 0.01 mm.



Fig 10 Default analogue dial gauge and optional digital dial gauge

The holder of the dial gauge can be pre-positioned in the measuring area and be fixed with the locking screw (Fig 11, Pos. 1). So it is guaranteed that the measuring insert (Fig 11, Pos. 2) always is in contact with the support of the basic plate while sawing.



Fig 11 Level adjustment of dial gauge

### Saw blade

The saw blade (Fig 12, Pos.1) is inserted between two thrust washers (Fig 12, Pos 2). Pay attention that the serration of the saw blade is in the position of the rotating direction (Fig 12, Pos. 3). With the set of tools (Fig 12, Pos. 4) the saw blade is mounted to the basic unit. A safety cover (Fig 12, Pos. 5) surrounds the saw blade and protects against injury.

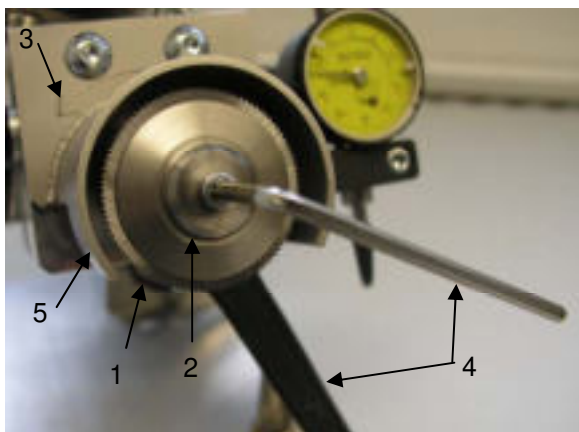


Fig 12 Insertion of saw blade

### Clamping-set

Diameter-adapted clamping-sets are used to fix precisely the test material. Seven clamping-sets are available for the test material diameter range from 1 – 20 mm (see table). The diameter range is marked on the clamping-set (Fig 13, Pos. 1). The clamping-set is inserted with two pins to the basic plate and fixed with Allen screws.

The test material is clamped into the longitudinal hollow (Fig 13, Pos. 2) and is fixed with the knurled screw (Fig 13, Pos. 3) respectively Allen screws. A transverse hollow in the clamping-set (Fig 13, Pos. 4) permits the sawing of transverse defects.

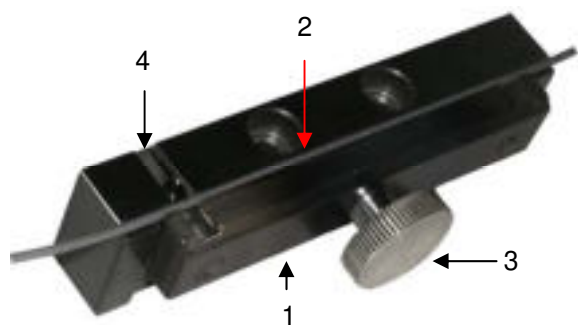


Fig 13 Clamping-set

Clamping-set	Diameter range of the test material
	[mm]
7.903.01-3200	1.0 – 1.5
7.903.01-3210	1.5 – 2.2
7.903.01-3220	2.2 – 3.4
7.903.01-3230	3.4 – 5.8
7.903.01-3240	5.8 – 9.0
7.903.01-3250	9.0 – 14.0
7.903.01-3260	14.0 – 20.0

### Transport case

The test defect saw has a weight of just approximate 4 kg and can be easily transported. A robust case is enclosed. Beside the test defect saw it is possible to store accessories and change parts securely.

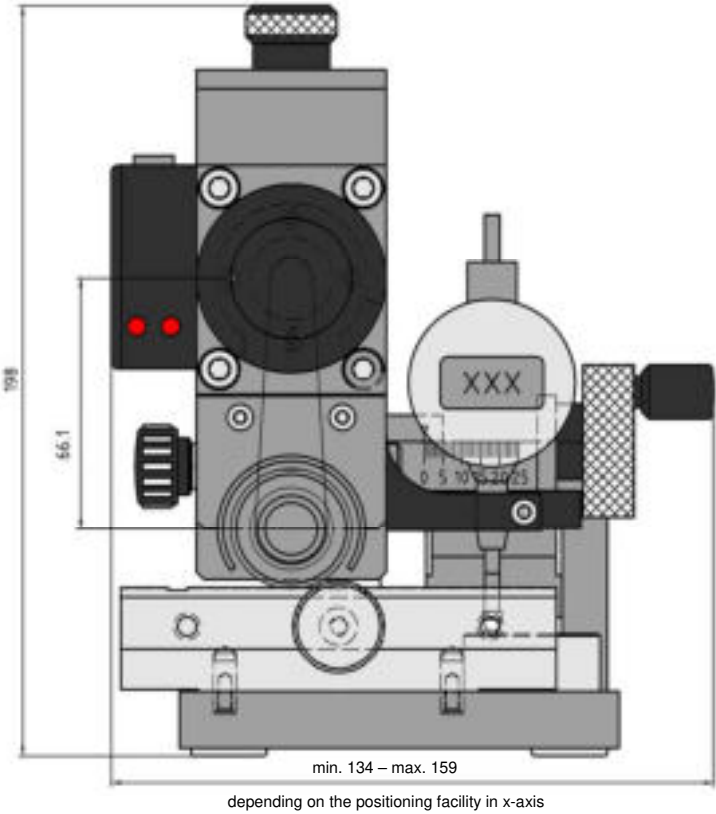
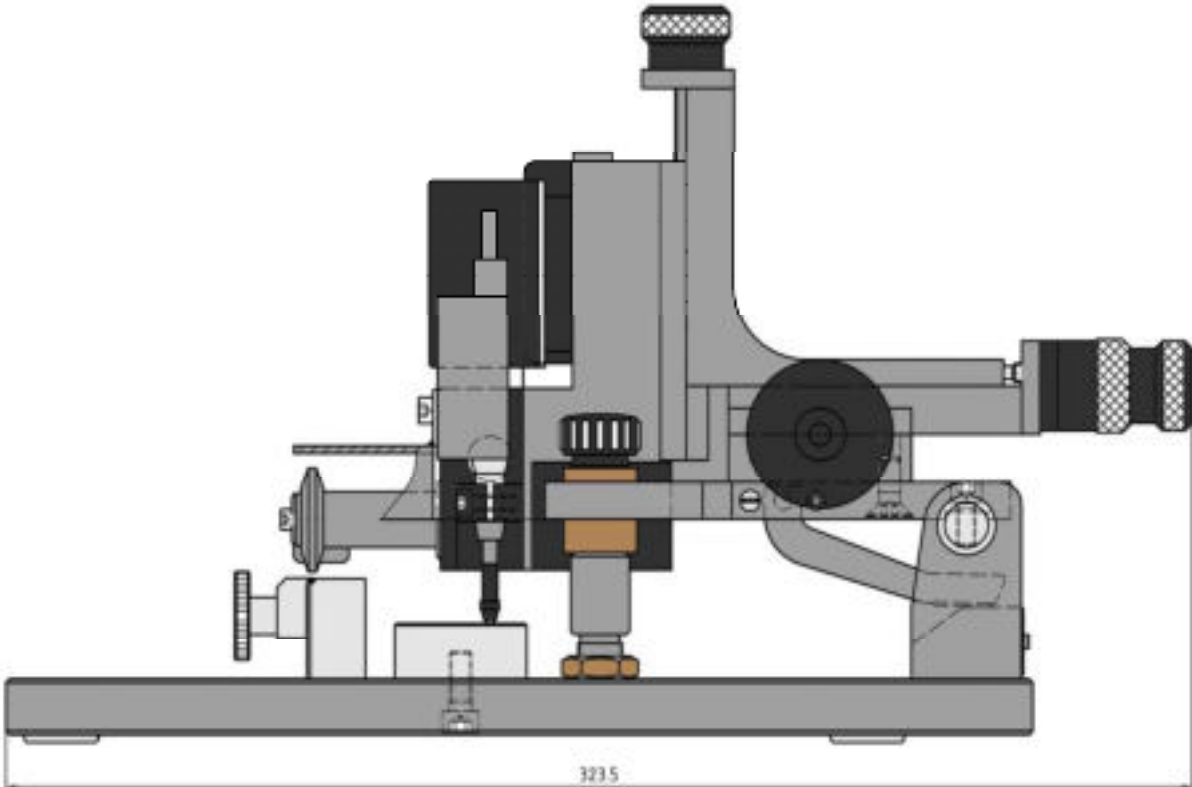


Fig 14 Transport case

**Technical data**

	<b>Test defect saw S20</b>
Test material	Metallic wires, tubes and bars
Diameter range	1 – 20 mm
Power supply (input)	100 – 240 V / 47 – 63 Hz
External power supply (output)	12 V
Drive motor power	max. 24 W
Rotating speed	200 rpm at switch setting HSS, 600 rpm at switch setting HM
Ambient temperature in operation	+5 °C to +45 °C
Ambient temperature at storage	-20 °C to +70 °C
Maximum relative humidity	85%, condensation not permitted
Dimensions of test defect saw	See dimension drawing
Weight of test defect saw	3.7 kg
Outside diameter of saw blade	32 mm
Inside diameter of saw blade	8 mm
Saw blade width (Notch width)	0.08 – 0.1 – 0.2 – 0.3 mm
Maximum notch length	25 mm
Accuracy of length sawing	100 µm
Accuracy of depth sawing	10 µm
Saw blade material	HSS – HM
Dimensions of transport case WxHxD	580 x 400 x 165 mm
Weight of transport case incl. test defect saw and clamping-set	11 kg

Dimensions



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## Ordering instructions

Designation	Part-No.	Order-No.
<u>STANDARD Components</u>		
Test defect saw S20 consists of	7.903.01-3	1909363
Basic unit		
Analogue dial gauge		
Saw blade HSS, B=0.1 mm		
Transport case		
Set of tools		
One clamping-set of choice		
Digital dial gauge replaces the analogue dial gauge		0408743
Clamping-set D=1 – 1.5 mm	7.903.01-3200	1909380
Clamping-set D=1.5 – 2.2 mm	7.903.01-3210	1909991
Clamping-set D=2.2 – 3.4 mm	7.903.01-3220	1910515
Clamping-set D=3.4 – 5.8 mm	7.903.01-3230	1909410
Clamping-set D=5.8 – 9 mm	7.903.01-3240	1909428
Clamping-set D=9 – 14 mm	7.903.01-3250	1909436
Clamping-set D=14 – 20 mm	7.903.01-3260	1909444
Saw blade HSS, B=0.08 mm	7.903.01-3308	1911287
Saw blade HSS, B=0.1 mm	7.903.01-3310	1911295
Saw blade HSS, B=0.2 mm	7.903.01-3320	1946781
Saw blade HSS, B=0.3 mm	7.903.01-3330	1946790
Saw blade HM, B=0.1 mm	7.903.01-3410	1946803
Saw blade HM, B=0.2 mm	7.903.01-3420	1946811
Saw blade HM, B=0.3 mm	7.903.01-3430	1946820
Transport case	7.903.01-3900	1911309
Set of tools	7.903.01-3950	1910701
Operating instructions German	7.903.01-3 UA06/DE	1947621
Operating instructions English	7.903.01-3 UA06/EN	1947630



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