

# Elastocon®

## Sample preparation

– an important part of the testing of rubber and plastic materials

The preparation of the test pieces is an extremely important part of the testing itself and it must not be the case that the test results reflect the effects of the sample preparation rather than the properties of the materials being tested.

Temperature conditioning of the test material is also an important part of the preparation.

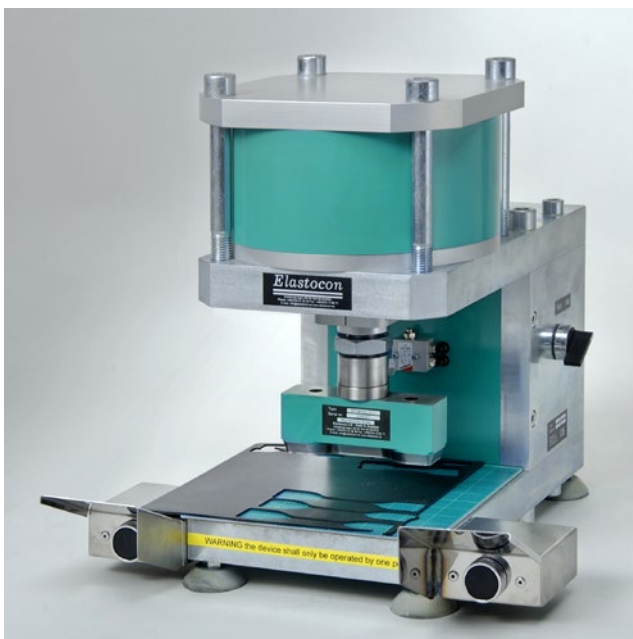
Elastocon offers a complete range of precision instruments for sample preparation of rubber and plastic materials:

- Cutting presses
- Cutting dies
- Nick cutters
- Conditioning cabinets
- Additional equipment, such as slicers, silver pens etc.

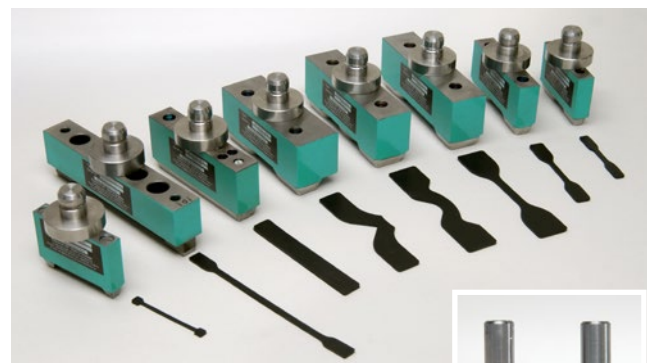
Our equipment gives you flawless samples, which will help you produce correct results from your testing.



Manual cutting press, EP 08.



Pneumatic cutting press, EP 02.



Specimen cutting dies.

Rotating knives with 10, 13 or 16 mm diameter for making buttons.



# Specimen cutting presses – reliable, easy to place, and with a system for quick change of cutting dies

Elastocon offers two specimen cutting presses:

- a pneumatic press, EP 02, with a cutting force up to 25 kN
- a manual press, EP 08, with a cutting force up to 10 kN.

Both cutting presses are used for preparation of test specimens of rubber and plastic materials by punching.

The cutting presses are small and compact, and will fit perfect either in your laboratory, your production or wherever you like to place it. They stand steady on rubber feet and do not need to be attached to the table.

The **pneumatic press, EP 02**, has a two hand operating system to increase the security and minimize the risk of injuries to the operator. A model with a wide table (200 × 300 mm), is also available, **EP 02W**. A safety protection screen, **EP 02.04** (**EP 02.07** for EP 02W), can be mounted as an optional accessory (not included by default).

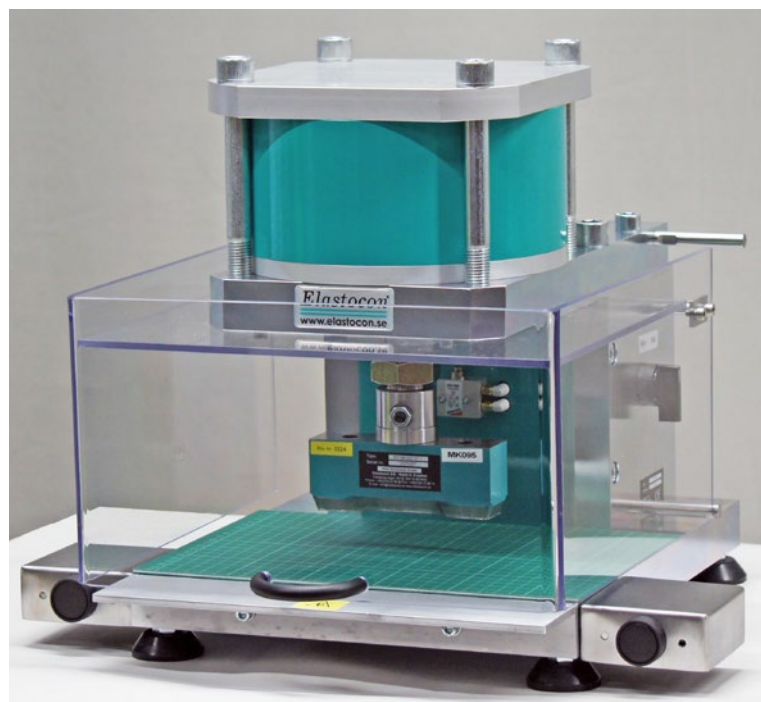
When using the **manual cutting press, EP 08**, you need only to do a small movement with your arm. This is good for the operator since the small movement together with Elastocon's special gearing makes it very easy to operate.

The press has a security pin that should be released before each punch, which can be compared to a two hand operating system to increase the security and minimize the risk for injuries to the operator.

## Quick change system

Both cutting presses have an appreciated system for quick changing between different cutting dies, which is developed by Elastocon. Some of the advantages of the quick change system are:

- Easy to change dies
- No need for height adjustments between different dies
- Saves time for the operator
- Minimize the risk of fault adjustments that might damage the die
- Increases the amount of flawless samples



The EP 02 pneumatic cutting press is also available with a wide table (200 × 300 mm), EP 02W. A safety protection screen can be mounted as an optional accessory on both models (not included by default).



Manual cutting press, EP 08.



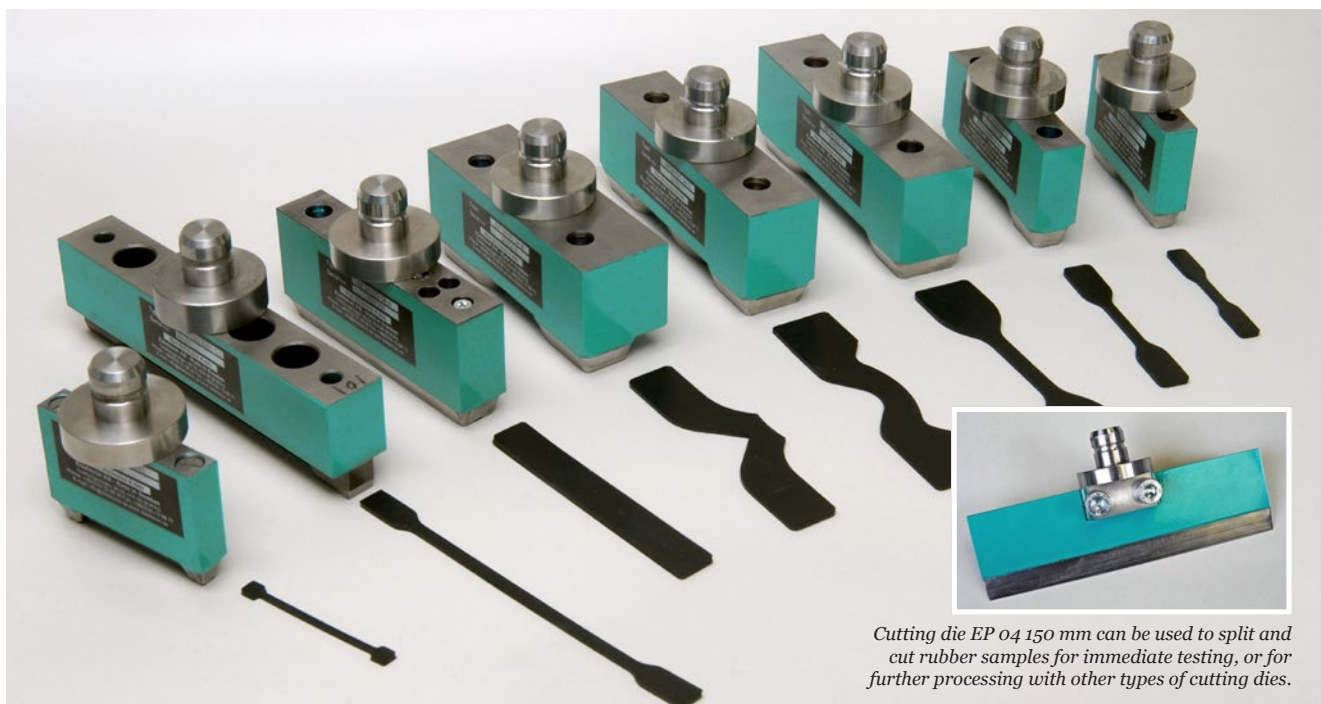
Guiding rod, EP 04.04.

## Using of cutting dies with a guiding rod

When cutting samples which curl and do not lie flat, the guiding rod (EP 04.04) can be used.

The guiding rod makes it possible to have the cutting die standing on the sample and yet get guiding. The rod is included when purchasing EP 02 or EP 08.

## Specimen cutting dies, EP 04



*Cutting die EP 04 150 mm can be used to split and cut rubber samples for immediate testing, or for further processing with other types of cutting dies.*

**Specimen cutting dies, EP 04, are manufactured in both standard and special shapes. A special shank is used when mounting the cutting die in presses EP 02 and EP 08. Shanks for other cutting presses are also available.**

The cutting die is an important part of sample preparation. It is crucial that the cutting die is flawless and will give you excellent samples when you cut. The smallest nick in the sample could cause a failure that will represent your sample preparation instead of your materials properties.

### **Ejector pins and ejector plates**

Elastocon cutting dies has sharp edges and are equipped with ejectors – ejector pins in the smallest dies and ejector plates in the other dies. The ejectors/ejector plates will ensure that your sample will be released from the die automatically. If the sample get stuck in the die and it is poked out with a tweezer, scalpel or anything else pointy/sharp, you will often damage the sample and need to scrap it and prepare a new sample again. With Elastocons ejector system the samples come out from the die without damages – hence no need to do over or to scrap the samples. This saves times, material and frustration for the operator.

### **The shank – a special attaching device**

All Elastocon cutting dies consist of two parts, the die and the attaching device called shank, which is mandatory. The shank is both the fastening device that is attached to the press, and a guarantee that the quick change system will work, and thus eliminate the need for height adjustments between different dies. Each die will therefore need its own individual shank.

Elastocon manufactures shanks for cutting dies for use in our own cutting presses (EP 02 and EP 08) as well as other brands of presses. Please specify the brand and model of your cutting press already when you ask for a quotation.

### **Shanks for the cutting dies**

We have different article numbers for the shanks depending on which cutting press that is used.

**EP 04.01** – Shank for cutting dies for Elastocon EP 02 and EP 08 cutting presses.

**EP 04.02** – Shank for cutting dies for Wallace S1 cutting press.

**EP 04.03** – Shank for cutting dies for CEAST 6051 and 6052 cutting presses.

Shanks for cutting dies for other cutting presses can also be manufactured, please contact us for more information.

### **Elastocon's sample preparation equipment has a very long lifetime**

All Elastocon cutting dies will be delivered measured and with a calibration certificate. Many times they can be re-sharpened if the need will occur. This, together with our excellent quality, gives our sample preparation equipment a very long lifetime, which our customers appreciate.

### **We offer standard or customized cutting dies**

Our standard assortment of cutting dies includes many dies from international standards, as well as rectangular and round dies, and we can manufacture customized cutting dies as well.

For the quickest help, please specify both which standard and type/model of die you want when contacting us, many standards has several dies in them.

## Specimen rotating knives, EP 03



**Specimen rotating knives, EP 03**, are sharp to give excellent samples when you cut out your test specimens from sheets or finished products. These test specimens are often used for compression set, stress relaxation tests in compression and abrasion tests.

The rotating knives are manufactured of specially grounded hardened steel. They are used in a stationary drilling machine, against a soft base material and the test material should be lubricated with ethanol or propanol during the preparation. The rotating knives are delivered with a calibration certificate.

### Sizes

**EP 03-10** – Rotating knife with 10 mm diameter

**EP 03-13** – Rotating knife with 13 mm diameter (according to ISO 815)

**EP 03-16** – Rotating knife with 16 mm diameter (according to ISO 4649)

## Nick cutter, EP 07



## Specimen cutting dies, EP 10



**Specimen Cutting Dies, EP 10**, are suitable for punching in most materials. A thinner knife is inset into plywood and manufactured in special shapes.

A pressure plate is mounted in the EP 02 or EP 08 cutting press. When punching test specimens, the plate presses the EP 10 cutting die, which is loosely placed on the material.

The cutting die is an important part of sample preparation. It is crucial that the cutting die is flawless and will give you excellent samples when you cut. The smallest nick in the sample could cause a failure that will represent your sample preparation instead of your materials properties.

### We offer customized EP 10 cutting dies

For the quickest help, please contact us.

### EP 10 pressure plate models

**EP 10.02-120** Pressure plate 120 × 120 × 12 mm including fastening knob for EP 08

**EP 10.02-190** Pressure plate 150 × 190 × 25 mm including fastening knob for EP 02

**EP 10.02-290** Pressure plate 150 × 290 × 25 mm including fastening knob for EP 02W

**The EP 07 nick cutter** makes the nick in test specimens for tear testing.

To have absolute control over the nick we recommend to do the nick after cutting the sample. For that purpose we can offer nick cutter, EP 07.

The nick cutter is available in three different configurations: for ISO 34 die B, ISO 34 die C and ASTM D624 die B.

The nick depth is 1 mm alternatively 0,5 mm depending on which standard you are going to use.

Extra special cutting blades can be offered as well. These blades are of a special steel and have a special sharpening compared to standardized blade on the market. Cutting blades in set of 10 blades has article no. EP 07.01.

## Temperature boxes EB 02.08/EB 02.25/EP 05



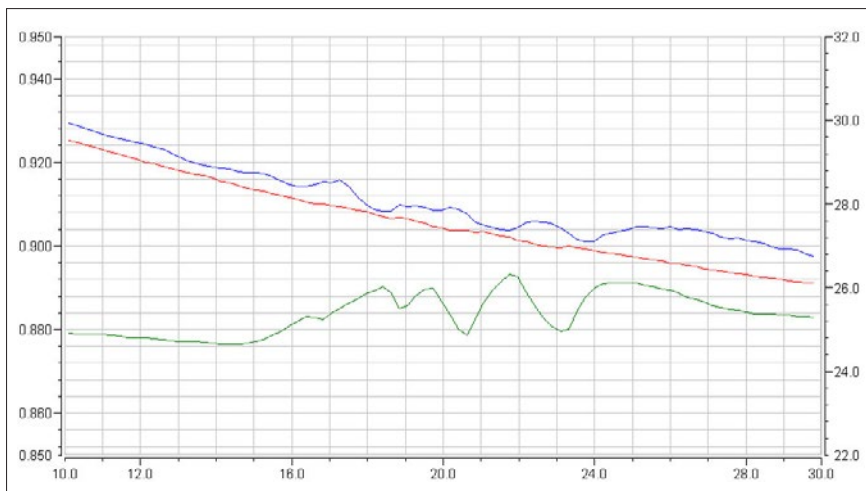
The room temperature box, EB 02.08, is used when testing at room temperature to avoid variation in the load curve caused by temperature variation in the laboratory.

The capacity of the box is 8 rigs. It can also be used for conditioning test pieces at 23 °C.

The low temperature box, EB 02.25, is almost the same as EB 02.08, but is equipped with water cooling by tap water, which enables temperature range between +4 to +40 °C. Tap water temperature cannot exceed +15 °C.

The EP 05 conditioning box is used for temperature conditioning of the samples in a stable environment before testing, usually at 23 °C.

One important part of your specimen preparation and testing is the conditioning of your samples. For conditioning in standard laboratory temperature we recommend the usage of a conditioning box. In the box you have the correct environment without the natural fluctuations in your laboratory, and no sunlight that can affect your samples.



This graph shows a test run with and without the Room temperature box when testing at 23 °C. The blue curves are the rigs without the box and for the red curves the box is used. The green curve is the room temperature.

## Bizerba slicer



The Bizerba slicer is used for slicing rubber products for preparation of test pieces.

When you prepare test pieces from rubber products you need to slice them to a suitable thickness before further preparation of the samples. For this purpose Elastocon can offer the Bizerba Slicer, which is a countertop machine that suits most of the common materials that need to be cut.

The VSP manual vertical slicer offers you more than just average. Simplify your processes with the intelligent support SmarterSlicing: The digital display will automatically indicate you when it's time to clean, sharpen or maintain the VSP. Your benefits: You ensure high quality of your products and optimize your processes.

## Silver pen



This silver pen is ideal for writing on rubber, when you want to mark your samples.

You can buy the pen one by one, or in sets of 10, 30 or 100 pens, with a gradual price reduction.

# Technical specifications

## Specimen cutting press, EP 02/EP 02W

Cutting pressure, kN:	18, max 25
Air pressure, bar:	6, max 8
Stroke, mm:	25
Height adjustment, mm:	50
Cutting die height, mm:	25–65
Base plate size, mm:	200 × 200 (200 × 300, EP 02W)
Dimensions w × d × h, mm:	360 × 420 × 400
Weight, kg:	62
Material:	aluminium and zinc coated steel
Safety:	2-hand operation

## EP 08

Cutting pressure, kN:	10
Air pressure, bar:	–
Stroke, mm:	20
Height adjustment, mm:	30
Cutting die height, mm:	30–60
Base plate size, mm:	200 × 150
Dimensions w × d × h, mm:	215 × 265 × 525
Weight, kg:	19
Material:	aluminium and painted steel
Safety:	safety stop

### Options, EP 02

- EP 02.04** – Safety protection screen for EP 02
- EP 02.07** – Safety protection screen for EP 02W
- EA 01** – Silent and oil-free air compressor, 105 l/min

### Consumables

- EP 02.01** – Cutting mat, size mm: 200 × 200
- EP 02.06** – Cutting mat, size mm: 200 × 300

## Specimen cutting dies, EP 04

Material:	hardened steel
Standard sizes, dia mm:	10 13 (ISO 815) 16 (ISO 4649)

### We manufacture dies in both standard and special shapes

This is a listing of standard shape cutting dies from Elastocon.  
If you don't find a suitable one, please contact us and we will try to help you.

#### ISO standard cutting dies

ISO 34 A Trouser	ISO 816
ISO 34 B, Angle	ISO 974
ISO 34 C, Crescent	ISO 1431
ISO 34-2, delft	ISO 1432 Gehman
ISO 37 ring type A	ISO 1798
ISO 37-1	ISO 2285 T50
ISO 37-2	ISO 2285CL
ISO 37-3	ISO 2921 T50
ISO 37-4	ISO 4674-A2
ISO 178, Izod/Sharpy	ISO 5603
ISO 179, 80 × 10 mm, Izod/Sharpy	ISO 6259-3 die 2
ISO 294-2	ISO 6383-1 Trouser 150 × 50
ISO 527-1	ISO 6383-2 Tear 75 × 63 mm
ISO 527-2	ISO 6603-1&2 60 × 60 mm
ISO 527-2 type 1A	ISO 8256 die 3
ISO 527-2 die 1B	ISO 8256 die 4
ISO 527-2 die 1BA	ISO 12244
ISO 527-2 die 1BB	
ISO 527-2 die 5	
ISO 527-2 die 5A	
ISO 527-2 die 5B	
ISO 527-3 type 1B	
ISO 527-3 type 2	
ISO 527-3 type 5	
ISO 527-5	
ISO 812 type A, 35 × 6 mm	

#### ASTM standard cutting dies

ASTM D256 Izod
ASTM D412 die A
ASTM D412 die C
ASTM D412 die C Tum
ASTM D412 die D
ASTM D470
ASTM D471 dia 60 mm
ASTM D624 B

**Our cutting dies are made for soft materials such as rubber and soft plastic materials.**

Cutting is only possible for specimen showing a hardness less than 85 Shore A. Harder materials shall be machined by use of milling machines or other convenient machinery acc. to ISO 2818. Normal thickness of 2 mm or maximum 4 mm. Other dimensions of cutting dies on request.

ASTM D624 C
ASTM D624 T
ASTM D638 type I
ASTM D638 type II
ASTM D638 type IV
ASTM D638 type V
ASTM D648 127 × 12.7 mm
ASTM D-746 Type II
ASTM D1693 38 × 13 mm
ASTM D1822 die S
ASTM D3763, dia 80 mm

#### DIN standard cutting dies

DIN 53504, 44,6–52,6 mm
DIN 53504 type S1
DIN 53504 type S2
DIN 53504 type S3
DIN 53504 type S3a

#### IEC standard cutting dies

IEC 60811-501 fig. 1
IEC 60811-501 fig. 2

### Included accessories, EP 04

- Measurement and calibration certificate
- Plastic box

*ELASTOCON reserve the right to modify these specifications in part or in whole.*

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# Technical specifications

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## Temperature boxes

	<b>EB 02.08</b>	<b>EB 02.25</b>	<b>EP 05</b>
Temperature range, °C:	+ 10 to + 40 <sup>1</sup>	+ 10 to + 40 <sup>1,2</sup>	+ 10 to + 40 <sup>1</sup>
Nominal temperature, °C:	+ 23	+ 23	+ 23
Temp. variation in time, °C:	± 0,5	± 0,5	± 0,5
Temp. variation in space, %:	± 1,0	± 1,0	± 1,0
Temperature reduction, below ambient, °C:	min 12	min 21	min 12
Temperature sensor:	NTC	NTC	NTC
Dimensions, external, w × d × h, mm:	620 × 610 × 630	620 × 610 × 630	620 × 610 × 630
No. of shelves:	–	–	1
No. of relaxation rigs:	8	8	–
Weight, kg:	33	36	33
Voltage, V / phase / freq:	200–240 / 1 / 50–60 or 100–120 / 1 / 50–60	200–240 / 1 / 50–60 –	200–240 / 1 / 50–60 or 100–120 / 1 / 50–60
Cooling power, W:	62	234	62
Total power, W:	200	500	200

<sup>1</sup> Lowest temperature depending of ambient temperature

<sup>2</sup> Equipped with water cooling by tap water. Tap water temperature cannot exceed +15 °C.

- The casing consists of steel, painted with powder paint in bluegreen colour.
- Temperature set point is set from a computer with supplied software.

### Included accessories, EP 05

- Software
- 1 shelf
- Accredited calibration including certificate
- Manual in English

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## Nick cutter, EP 07

Material:	painted and stainless steel
Nick depth:	1 mm, alternatively 0,5 mm depending on configuration (ISO 34 die B / ISO 34 die C / ASTM D624 die B)

### Spare parts

Cutting blade EP 07.01	Set of 10 cutting blades
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### Included accessories, EP 07

- Calibration certificate

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## Bizerba slicer, BVSP

Voltage, V/phase/freq:	220–240/1/50 (BVSP-60: 100–120/1/60)
Cutter diameter, mm:	330
Cutter speed, rpm:	160–300 (adjustable on the touch screen)
Max. material channel	
mm, circular:	225
mm, rectangular:	260 × 180
Cutting Thickness setting	
mm, fine adjustment:	0–3
Mounting space, l × w:	520 × 430
Overall size, mm, l × w × h:	628 × 563 × 432
Working area, mm, l × w × h:	673 × 678 × 454
Degree of protection:	IP 33

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*Elastocon*<sup>®</sup>

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