

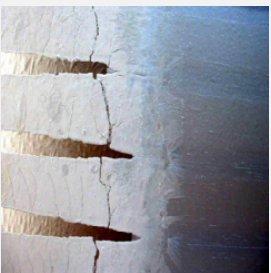


# Test Equipment for Lab and Production

## Products for



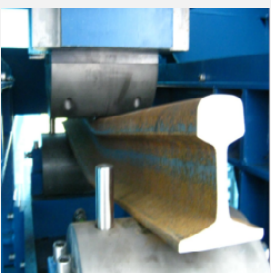
Testing of  
Plastics and Rubber



Paint/ Coatings



Pipes



Special Solutions/  
Service Strength

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## Rubber and Plastics



Plastics, rubber and composites are in great focus of our activities. We offer products for static and dynamic tests, impact testing, measurement of hardness as well as thermal test as heat distortion (HDT) and softening temperature (VICAT) and equipment for raw material tests as granulates. Of course we offer the corresponding accessories and instruments for your specimen preparation.

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### Specimen Preparation

page **2**

- CNC Cutting
- Notch Cutting
- Punching
- Molding
- more ...

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### Vicat/ HDT

page **21**

- Basic
- Compact
- Integrated Cooling
- Oil Free
- Fully Automated

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### Mechanical Testing

page **37**

- Creep and Relaxation
- Impact Testing
- Brittleness Temperature
- more ...

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### Dynamic Testing

page **53**

- Fatigue and Crack Growth
- Biaxial Testing
- more ...

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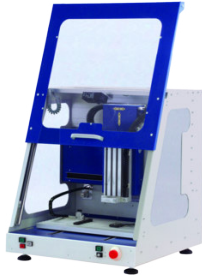
### COESFELD

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## Specimen preparation



### CNC Milling Machine

page **3**

- Production of standard-conform specimen
- Three linear axes
- Milling, boring, cutting, engraving, proportioning, metering, positioning, and many similar applications
- Previously generated CNC data to initiate the processing of the work piece



### Automatic Notch Milling Machine

page **8**

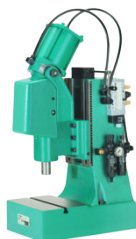
- Notches standard-conform plastic specimens (Charpy, Izod and Impact Tensile tests)
- Notches several specimens in one pass
- Milling cutters are available for different materials and notch radii
- Cutting speed and feed rate progressively adjustable



### Manual Toggle Press

page **11**

- Exact and effort-saving cutting-out of samples with forces up to 25 kN
- Extra rigid design of press base
- Working height adjustable by a threaded spindle
- Nominal capacity of the press achievable with minimal effort
- Punching dies available according to standards



### Pneumatic Toggle Press

page **11**

- Exact and effort-saving cutting-out with up to 60 kN
- Height adjustment of the press head by means of the bevel gear and crank handle
- Maintenance-free double-action cylinder
- Electro-pneumatic two-hand control
- Punching dies available according to standards

### Others



## 79-300-005 / 79-400-008 CNC controlled milling machine

### Standards

ASTM D256, ASTM D6110, BS 2782 P.3, DIN 53 453, EN 20179, EN ISO 179, EN ISO 180, EN ISO 8256, UNI 6323



### Application

Automatic CNC milling machine for machining standard samples for tensile-, flexural-, impact-strength- and many other tests

### Features

The CNC milling machine is equipped with three linear axes that can be controlled electronically. Additionally, a fourth (rotary) axis is available.

The machine is suitable for milling, boring, cutting, engraving, proportioning, metering, positioning, and many similar applications. Many different cutting tools and accessories appropriate for the applications mentioned above can be installed.

The CNC milling machine is suitable for plastics (PE/PA/PC/PMMA/GPR and CFRP composites), aluminium, brass and wood (equipment for other materials available on request).

For removing milling chips the machine is prepared for connecting a vacuum cleaner.

The selection of specimen with standard geometry is done by the software and a standard windows PC (optional, available on request). For this purpose, a large library with milling files according to many different standards is to the user's disposal.

### Technical Data

Model	CNC 3020	CNC 4030
Traverse path X/Y/Z	300 x 200 x 90 mm	400 x 300 x 140 mm
Maximum axis speed X/Y/Z	20 mm/s	20 mm/s
Pass-through height	115 mm	170 mm
T-nut clamping plate L x W	500 x 250 mm	600 x 375 mm
T-slot-grid	25 mm	25 mm
Sound pressure level	<75 dB	<75 dB



### Dimensions and Connection

Model	CNC 3020	CNC 4030
Dimensions (WxDxH)	610 x 650 x 715 mm	780 x 850 x 810 mm
Weight	102 kg	120 kg
Mains	230 V, 50 Hz	230 V, 50 Hz
Power	1500 W	1500 W
Interfaces	RS232	
Air	n.a.	
Cooling	Optional: cooling air	
Others	n.a.	

### Device configuration

incl.	Item no.	Description
-	79-300-005	CNC controlled milling machine CNC 3020
-	79-400-008	CNC controlled milling machine CNC 4030

### Accessories

incl.	Item no.	Description
1	6-102-104	Control software for CNC models Windows Version
-	6-102-112	Design software 2.5D CAD/CAM
1	79-024-010	Milling motor 220 V, 1050 W
-	79-029-001	Collet chuck 3 mm for milling motor 1050 W
-	79-029-003	Collet chuck 4 mm for milling motor 1050 W
-	79-029-004	Collet chuck 6 mm for milling motor 1050 W
-	79-029-007	Collet chuck 8 mm for milling motor 1050 W
-	79-029-005	Collet chuck 10 mm for milling motor 1050 W
-	79-006	Designing of one milling file acc. to customer specification
-	79-309	Length measuring sensor for the z-position of tools
-	79-300-001	Luminous source for CNC Milling Machine
-	52-060-003	Coesfeld PC with TFT-Monitor, keyboard and mouse

### Suction device

incl.	Item no.	Description
-	79-017-005	Industrial vacuum cleaner
-	79-026	Brushes vacuum device

### Air cooling

incl.	Item no.	Description
-	79-015-008	Cooling unit up to -20°C for compressed air
-	79-015-009	Magnet valve for software control handling of 79-015-008



### Clamping devices

incl.	Item no.	Description
-	79-002	Universal tension support
-	79-003-001	Clamping device for laminated plastic, plate dimensions max. 200x290x10 mm
-	201-124-050	Form-locking clamping device for standard rod DIN 527-1A
-	201-124-051	Form-locking clamping device for standard rod DIN 527-5A
-	201-124-052	Form-locking clamping device for standard rod DIN 527-1BA
-	201-124-053	Form-locking clamping device for standard rod DIN 527-1BB
-	201-124-054	Form-locking clamping device for standard rod DIN 527-5B
-	201-124-055	Form-locking clamping device for standard rod EN 527-5/ ISO 6259-3 Typ 2
-	201-124-056	Form-locking clamping device for standard rod ISO 6259-3 Typ 3
-	201-124-057	Form-locking clamping device for standard rod ISO 13953
-	201-124-058	Form-locking clamping device for standard rod DIN 53504 Typ S3A
-	201-124-059	Form-locking clamping device for standard rod ASTM D 638 Type 1
-	201-124-060	Form-locking clamping device for standard rod 80x10 mm
-	201-124-061	Form-locking clamping device for standard rod ISO 179 (120 x 15 mm)
-	201-124-062	Form-locking clamping device for standard rod ISO 178/EN 310 (80 x 25 mm)
-	201-124	Base plate with 5 clamping devices for standard bars > 8 mm
-	201-125	Base plate with 5 clamping devices for standard bars > 3 mm
-	201-125-050	Form-locking clamping device for 3 rods DIN 527-1A/1B
-	201-125-051	Form-locking clamping device for 3 rods DIN 527-5A
-	201-125-100	Clamping device for tensile specimens DIN EN 527

### Millers (to be used selectively, at least 1 unit necessary for use)

inkl.	Item no.	Beschreibung
-	79-014-013	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 4 mm Ø, shank 6 mm Ø
-	79-014-014	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 3 mm Ø, shank 6 mm Ø, selling unit = 5 pc.
-	79-014-016	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 10mm Ø, length of cut 35mm
-	79-014-017	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 8mm Ø, length of cut 30 mm
-	79-014-019	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 6mm Ø, length of cut 25 mm
-	79-014-020	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 10mm Ø, length of cut 50 mm
-	79-014-023	Cutter with 2 cutting teeth hard metal for PE/PA and similar plastics, 1 mm Ø, shank 3 mm Ø
-	79-014-041	Cutter with 2 cutting teeth Ø 8mm, L 100mm, spiral 20°
-	79-014-043	Cutter with 2 cutting teeth, PKD, CFRP, Ø 6mm, L 60mm
-	79-014-044	Cutter with 2 cutting teeth, PKD, CFK, Ø 8mm, L 80mm
-	79-014-046	Solid carbide cutter with DLC Ø 6 mm, for Alu and plastics
-	79-014-047	Solid carbide cutter with DLC Ø 8 mm, for Alu and plastics

(other millers are available on request)



### Accessories for sample notching (necessary, also for upgrading millers in stock)

incl.	Item no.	Description
-	79-024-100	Extension module for sample notching (for initial equipment) (incl. bevel gear with fixture and tool holder)
-	79-024-200	Extension module for parallel sample notching and sawing of shouldered test bars
-	205-009-001	Measuring instrument for testing the residual specimen width of a single V-shaped notch
-	205-009-003	Measuring tip for digital Measuring device for measuring the residual specimen width (0.1 mm notches)

### Notch cutters (to be used selectively, but at least 1 unit necessary)

incl.	Item no.	Description
-	75-840-210 LM	Single-tooth notch cutter, carbide, V-shaped, radius 0.25 mm
-	75-840-211 LM	Single-tooth notch cutter, carbide, V-shaped, radius 0.1 mm
-	75-840-212 LM	Single-tooth notch cutter, carbide, V-shaped, radius 1.0 mm
-	75-840-213 LM	Single-tooth notch cutter, PCD, V-shaped, radius 0.25 mm
-	75-840-214 LM	Single-tooth notch cutter, PCD, V-shaped, radius 0.1 mm
-	75-840-215 LM	Single-tooth notch cutter, PCD, V-shaped, radius 1.0 mm
-	75-840-216 LM	Single-tooth notch cutter, carbide, U-shaped, width 0.8 mm
-	75-840-217 LM	Single-tooth notch cutter, carbide, U-shaped, width 2.0 mm

(PCD = polycrystalline diamond)

### Sample magazines (Mounting plate necessary - remaining accessories to be used selectively, but at least 1 unit necessary)

incl.	Item no.	Description
-	79-101	Precision clamp block to fix the sample magazine
-	79-101-004	Mounting plate for fixing sample magazines with quick release
-	79-101-006	Magazine for notching of Dynstat samples
-	75-840-145	Revolving magazine for standard small rods 50 x 6 x 4 mm (requires 75-840-220)
-	75-840-146	Revolving magazine for ISO standard rods 80 x 10 x 4 mm (requires 75-840-220)
-	75-840-147	Revolving magazine for ASTM specimens ASTM D 6110 or ASTM D 256 (requires 75-840-220)

### Accessories for metal cutting (absolutely necessary for metal cutting; Alu or brass up to maximum 5 mm thickness)

incl.	Item no.	Description
-	79-015	Cooling / spraying system for CNC 3020
-	79-015-005	T-nut groove plate with channeling for 79-015
-	79-015-003	Cooling spraying system for CNC 4030
-	79-015-006	T-nut groove plate with channeling for 79-015-003
-	79-016	Cooling Spray Oil, 1 liter
-	79-016/5	Cooling Spray Oil, 5 liter
-	79-016/10	Cooling Spray Oil, 10 liter



## List of standardized milling files (*Ask us for custom milling files*)

Standard	Description
DIN 53435	Dynstat Sample
DIN 53453	Standard Small Bar 50 x 6 mm
DIN 53453	Standard Bar 120 x 15 mm
DIN 53455	Sample 3
DIN 53455	Sample 4
DIN 53504	Sample S1
DIN 53504	Sample S2
DIN 53504	Sample S3A
DIN 53571	Sample A
DIN EN ISO 75	Sample 80 x 10 mm
DIN EN ISO 75	Sample 120 x 10 mm
DIN EN ISO 75201	Sample Circle 80 mm Ø
DIN EN ISO 178	Standard Sample 80 x 10 mm
DIN EN ISO 179	Standard Sample 80 x 10 mm
DIN EN ISO 180	Sample 63,5 x 12,7 mm
DIN EN ISO 180	Sample 80 x 10 mm
DIN EN ISO 527-2	Sample 1A
DIN EN ISO 527-2	Sample 1B
DIN EN ISO 527-2	Sample 1BA
DIN EN ISO 527-2	Sample 1BB
DIN EN ISO 527-2	Sample 4
DIN EN ISO 527-2	Sample 5
DIN EN ISO 527-3	Sample 5A
DIN EN ISO 527-3	Sample 5B
ISO 1798	Sample 1
ISO 6259	Sample 2
ISO 6259	Sample 3
ISO 8256	Sample 1
ISO 8256	Sample 2
ISO 8256	Sample 3
ISO 8256	Sample 4
ISO 8256	Sample 5
ASTM D 256	Standard Sample
ASTM D 638	Sample 1
ASTM D 638	Sample 2
ASTM D 638	Sample 3
ASTM D 638	Sample 4
ASTM D 638	Sample 5
ASTM D 638M	Sample 1
ASTM D 790	Standard Sample
ASTM E 96	Standard Sample





## 75-840-070 Automatic notch milling machine

### Standards

ASTM D 256, ASTM D 6110, ISO 179, ISO 180, ISO 8256



### Application

The notch milling machine is used to notch plastic specimens in accordance with the standards listed above.

### Features

Using a milling head, a V-shaped notch is milled into one side of the specimen. The most important characteristics are the radius and the residual specimen width in the notch root. A pack of specimens is clamped in an universal clamping device and notched in one pass. Other milling cutters are available for different materials and notch radii. The cutting speed and feed rate are progressively adjustable. New parameter can be typed in by the help of the LCD display.

### Technical Data

Tool Diameter	63 mm
Cutting speed	40-200 mm/min
Rate of feed	200-1000 rpm
Advance Feed length	80 mm
Feed speed	70-500 mm/min
Compressed-air supply (cooling)	max. 8 bar



### Dimensions and Connection

Dimensions (WxDxH)	650 x 500 x 450 mm
Weight	approx. 57.5 kg
Mains	230 V – 50/60 Hz (110 V on demand)
Power	2500 W
Interfaces	n.a.
Air	n.a.
Cooling	compressed air
Others	n.a.

### Accessories

Incl.	Item no.	Description
-	75-840-145	Revolving magazine for standard small rods 50 x 6 x 4 mm (requires 75-840-220)
-	75-840-146	Revolving magazine for manufacturing double notches for 12 specimens - according to ISO 179 type 1, ISO 180 and - ISO 8256 type 1 Specimen dimensions: length 80 mm, width 10 mm, thickness 4 mm (requires 75-840-220)
-	75-840-147	Revolving magazine for ASTM specimens ASTM D 6110 + ASTM D 256 (requires 75-840-220)
-	75-840-148	Universal clamping device maximum clamping length 50 mm, for specimens according to: ISO 179 type 1 and ISO 180, ISO 8256 type 1, ASTM D 256 and ASTM D 6110
-	75-840-221	Universal sample magazine incl. extension for Dynstat samples
-	75-840-220	Quick-action clamping elements for all revolving magazines
-	75-840-210 LM	Single-tooth carbide cutter 45 degree, r = 0.25 mm +/- 0.05 mm (notch type A)
-	75-840-212 LM	Single-tooth carbide cutter 45 degree, r = 1.00 mm +/- 0.05 mm (notch type B)
-	75-840-211 LM	Single-tooth carbide cutter 45 degree, r = 0.10 mm +/- 0.02 mm (notch type C)
-	75-840-213 LM	Single-tooth diamond cutter 45 degree, r = 0.25 mm +/- 0.05 mm (notch type A)
-	75-840-215 LM	Single-tooth diamond cutter 45 degree, r = 1.00 mm +/- 0.05 mm (notch type B)
-	75-840-214 LM	Single-tooth diamond cutter 45 degree, r = 0.10 mm +/- 0.02 mm (notch type C)
-	75-840-215 LM	Single-tooth notch cutter PKD, V-shaped, radius 1,0 mm
-	75-840-216 LM	Single-tooth notch cutter HM, U-shaped, width 0,8 mm
-	75-840-217 LM	Single-tooth notch cutter HM, U-shaped, width 2,0 mm
-	205-009-001	Digital Measuring device for measuring the residual specimen width incl. digital dial gauge, measuring range: 0-12 mm, indicating accuracy 0.001 mm
-	205-009-003	Measuring tip for digital Measuring device for measuring the residual specimen width (0.1 mm notches)
-	75-840-060	Magnetic valve device for automatic activation of the compressed air during the milling process



## 20-103-000 Manual Notching Plane

### Standards

ASTM D256, ASTM D6110, ISO 179, ISO 180, ISO 8256



### Application

The hand-operated notching plane is used for notching filled and unfilled plastics specimens.

### Features

This table-top instrument features one-handed manual operation. Additional adjustment of the forming blade is not necessary, as the cutter advance and plane movement are both actuated simultaneously by the sidemounted handwheel, making operation convenient and ergonomic. Various specimen magazines are available depending on the standard. Via the removable magazine several specimens can be notched simultaneously. In addition, more magazines can be pre-filled; no extra tools or fixtures are required for this. The durable notch-cutter has three cutting edges and can quickly be changed. Once the remaining width specified in the standard has been attained the advance is stopped and the specimens can be removed.

### Technical Data

Dimensions (DxWxH)      225 x 350 x 220 mm  
Weight                      ca. 9.2 kg

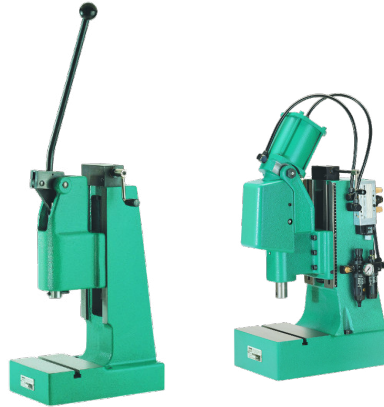
### Accessories

incl.	Article no.	Description
-	20-103-101	Specimen magazine for 4 specimens as per ISO 179 for manual notching plane
-	20-103-102	Specimen magazine for up to 5 specimens as per ASTM D6110 for manual notching plane
-	20-103-103	Specimen magazine for 4 specimens as per ASTM D256 for manual notching plane
-	20-103-201	Cutter for manual notching plane (notch shape A, radius 0.25 mm)

Other specimen magazines and notching shapes are available on request.



## 40-116-001 – Manual Toggle Press 40-115-001 – Pneumatic Toggle Press



### Application

The manual toggle press allows an exact and effort-saving cutting-out of specimen with forces up to 25 kN.

The pneumatic toggle press allows an exact and effort-saving cutting-out of specimen with forces up to 60 kN.

### Features

Manual Toggle Press (40-116-001)	Pneumatic Toggle Press (40-115-001)
<ul style="list-style-type: none"> <li>▪ extra rigid design of press base</li> <li>▪ the working height can be adjusted by means of a threaded spindle</li> <li>▪ the nominal capacity of the press can be achieved with minimal effort</li> </ul>	<ul style="list-style-type: none"> <li>▪ factory set bottom dead center (BDC)</li> <li>▪ height adjustment of the press head by means of the bevel gear and crank handle</li> <li>▪ maintenance-free double-action cylinder</li> <li>▪ low noise: under 75 dB</li> <li>▪ electro-pneumatic two-hand control</li> </ul>

### Technical Data

Manual Toggle Press	Pneumatic Toggle Press
<ul style="list-style-type: none"> <li>▪ Capacity: 25 kN</li> <li>▪ Total stroke: 40 mm</li> <li>▪ Working height: 57-238 mm</li> </ul>	<ul style="list-style-type: none"> <li>▪ Capacity: 60 kN</li> <li>▪ Total Stroke: 40 mm</li> <li>▪ Throat: 150 mm</li> <li>▪ Working height: 87-310 mm</li> </ul>



## Dimensions and Connection

	Manual Toggle Press	Pneumatic Toggle Press
Space Requirement	185 x 145 mm	305 x 440 mm
Table Size	185 x 300 mm	305 x 210 mm
Weight	ca. 41 kg	ca. 140 kg
Mains	n.a.	n.a.
Power	n.a.	n.a.
Interfaces	n.a.	n.a.
Air	n.a.	R 3/8"
Cooling	n.a.	n.a.
Others	n.a.	n.a.

## Accessories

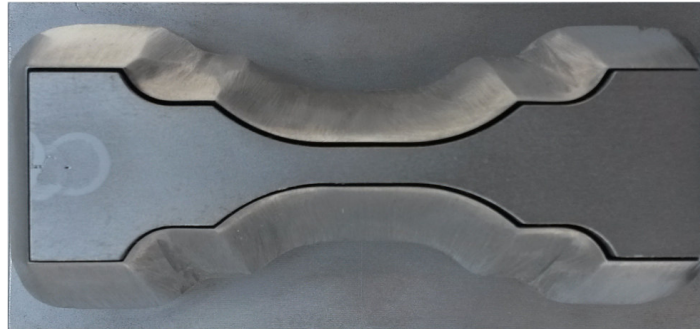
Suitable stamping tie plates do not belong to the scope of delivery.

You can choose punching dies from our list "*Punching dies for Toggle presses*".

We also offer custom made punching dies as well as punching dies for presses from other manufacturers.



## 34-... Punch dies



### Application

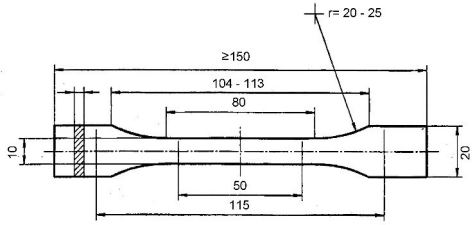
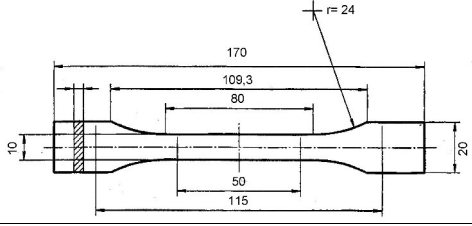
Punch dies serve for cutting specimens out of plastics and elastomers

### Features

Coesfeld specimen punch dies are manufactured from homogenous, solid, high carbon content A2 tool steel. Each one undergoes multi-axis precision grinding and conventional, plunge or wire EDM (Electrical Discharge Machining) process. Precision grinding and EDM processes ensure true parallelism and multi-plane dimensional accuracy. The quality of materials, design, and engineering serve to provide the highest possible specimen quality over an extended service life. The sample ejectors are spring operated.

### Technical Data

The punch dies by default are delivered as follows: punching die 28 mm height, complete with cover plate 12 mm, mounting spigot  $\varnothing$  20 mm and spring ejector.  
Customized punch dies are available on request.

Standard	Item no.	Drawing
DIN EN ISO 527-2 Typ 1A <i>identically constructed:</i> EN ISO 3167 Typ A BS 2782-3 Fig.3	34-000	
DIN EN ISO 527-2 Typ 1A New dimensions 2012-06	34-000-006	



<p>DIN EN ISO 527-2 Typ 1B <i>identically constructed:</i> EN ISO 3167 Typ B ISO 6259 Typ 1 DIN 53455 Nr.3 BS 2782-3 Fig.2 GOST 11 262 – 80 Typ 2</p>	<p>34-001</p>	
<p>DIN EN ISO 527-2 Typ 1BA</p>	<p>34-002</p>	
<p>DIN EN ISO 527-2 Typ 1BB</p>	<p>34-003</p>	
<p>DIN EN ISO 527-2 Typ 5A <i>identically constructed:</i> DIN 53504 Typ S2 ISO 37 Typ 2</p>	<p>34-004</p>	
<p>DIN EN ISO 527-2 Typ 5B <i>identically constructed:</i> DIN 53504 Typ S3 ISO 37 Typ 4</p>	<p>34-005</p>	
<p>DIN EN ISO 527-3 Typ 2</p>	<p>34-006</p>	
<p>DIN EN ISO 527-3 Typ 4</p>	<p>34-007</p>	
<p>DIN EN ISO 527-3 Typ 5 <i>identically constructed:</i> ISO 6259 Typ 2 ISO 37-1 Typ 1 DIN 53504 Typ S1 DIN 53455 Nr.4 BS 2782-3 Fig.1 GOST 11 262 – 80 Typ 1 ASTM D 412 Die C ISO/DIS 3604, Figure 1</p>	<p>34-008</p>	
<p>DIN ISO 34-1 Bild 1 Method A (Streifenprobe/ Trouser Test piece) <i>identically constructed:</i> DIN 53507 ISO 8067 Method A</p>	<p>34-020</p>	
<p>DIN ISO 34-1 Bild 2 Method B, Verfahren a (Angle test specimen, without Slit) <i>identically constructed:</i> ISO 8067 Method B</p>	<p>34-021</p>	
<p>DIN ISO 34-1 Bild 2 Method B, Verfahren b (Angle test specimen, with Slit) <i>identically constructed:</i> DIN 53515 (Graves-Probe)</p>	<p>34-022</p>	<p>Dimensions in millimeters</p> <p>Key 1 location of risk for method B, procedure (b)</p> <p>Figure 2 — Angle test piece die</p>



DIN EN  
ISO 9001



**DAkkS**  
Deutsche  
Akkreditierungsstelle  
DIN EN ISO D-K-15093-01-00  
IEC 17025



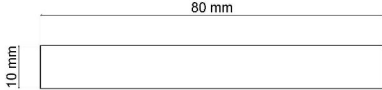
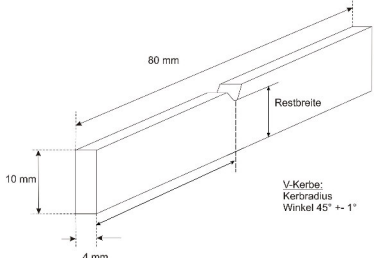
DIN ISO 34-1 Bild 3 (arc-shaped specimen, with 1 mm Slit, Crescent Test Piece)	34-023	
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DIN ISO 34-1 Bild 3 (arc-shaped specimen, without Slit)	34-023-100	
DIN ISO 34-2 (Delft specimen with Slit) <i>identically constructed:</i> ISO 816	34-024	
DIN ISO 34-2 <u>Only for Slit</u> Delft specimen	34-024-002	
DIN ISO 34-2 (Delft specimen with Slit) <i>identically constructed:</i> ISO 816	34-024-003	
DIN EN ISO 1798 Typ 1 <i>identically constructed:</i> DIN 53571 Typ A GMI 60283, Part 2, Type S2	34-030	
DIN EN ISO 1798 Typ 1A	34-031	
ISO/DIS 3604, Figure 2	34-032	
DIN EN ISO 8256 Type 5	34-033	
ISO 37 Typ 3 <i>identically constructed:</i> DIN 53504 Typ S3A	34-050	
ASTM D 638 , Typ 1	34-100	
ASTM D 638 , Typ IV	34-101	
ASTM D 2209-10 (Tensile Strength Leather)	34-102	
ASTM D 624, Die B (arc-shaped specimen, with 0,5 mm Slit, Crescent Test Piece)	34-103	

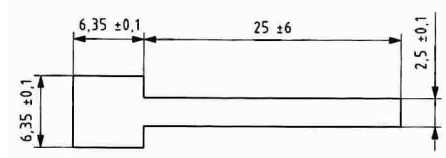


JIS K6251-2 / JIS 6301-2	34-140	
GOST 270 Type II	34-150	
GOST 262-93	34-160	
DIN EN ISO 75 Rectangular form, L X W: 80 x 10 mm	34-200	
Rectangular form, L X W: 100 x 25 mm	34-201	
Rectangular form, L X W: 300 x 50 mm	34-202	
Rectangular form, L X W: 150 x 10 mm	34-203	
Rectangular form, L X W: 210 x 148 mm	34-204	
Rectangular form, L X W: 40 x 40 mm	34-205	
Rectangular form, L X W: 50 x 50 mm	34-206	
Rectangular form, L X W: 100 x 100 mm	34-207	
DIN EN ISO 179 Rectangular form, L X W: 80 x 10 mm, Kerbe A <i>identically constructed:</i> DIN EN ISO 180	34-208	
Rectangular form, L X W: 50 x 20 mm	34-209	
Rectangular form, L X W: 150 x 25,4 mm	34-210	
Rectangular form, L X W: 150 x 15 mm	34-211	
Rectangular form, L X W: 125 x 13 mm UL 94 IEC/DIN EN 60695-11-10 CSA C 22.2	34-212	
Rectangular form, L X W: 100 x 5 mm	34-213	
Rectangular form, L X W: 140 x 10 mm	34-214	
Rectangular form, L X W: 30 x 10 mm	34-215	



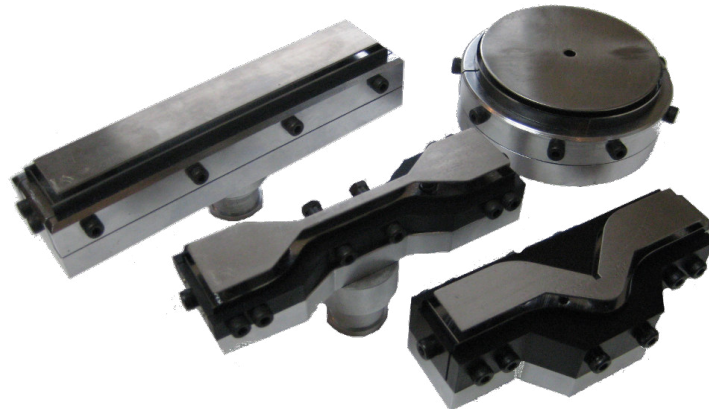
Rectangular form, L X W: 50 x 6 mm	34-216	
Rectangular form, L X W: 150 x 20 mm	34-217	
Rectangular form, L X W: 150 x 20 mm with Slit 50 mm	34-218	
Square form, L X W: 30 x 30 mm	34-219	
Rectangular form, L X W: 80 x 6 mm	34-220	
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Round form Ø 40 mm	34-250	
DIN EN ISO 815, Form A Round form Ø 29 mm <i>identically constructed:</i> DIN 53517 , Specimen II	34-251	
DIN EN ISO 815, Form B Round form Ø 13 mm <i>identically constructed:</i> DIN 53517 , Specimen I	34-252	
ASTM D 792 - Density of plastics Round form Ø 30 mm (sample thickness: > 1,5 mm)	34-253	
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Round form Ø 16.2 mm	34-266	
Round form Ø 38 mm	34-267	
Round form Ø 36.6 mm	34-268	
Round form Ø 33.86 mm, 28 mm hoch	34-269	
Round form Ø 112.86 mm, 28 mm hoch	34-270	
Round form Ø 16 mm	34-271	



ISO 812 Typ B (Low temperature brittleness) <i>identically constructed:</i> BS ISO 812	34-500	
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## 34-... High Precision Punch Dies



### Application

High precision punch dies serve for cutting specimens out of plastics, elastomer and foils even within a low thickness range.

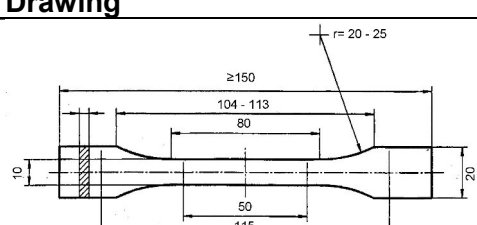
### Features

It is an entirely different system from the conventional forging type die. When a cutting edge might be worn or damaged you can instantly replace that damaged edge by a new sharp blade. Thanks to special grinding method, it can minimize undesirable effects, such as crack and burr that may happen quite often with the cut test piece. The high precision cutter has a spring type ejecting device that directly ejects a cut test piece with ease. This sample ejector sticks out a little bit from the edge of blade usually, which prevents accidentally touching the edge.  
*(High precision punch dies are not for use with hydraulic toggle presses.)*

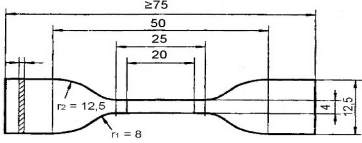
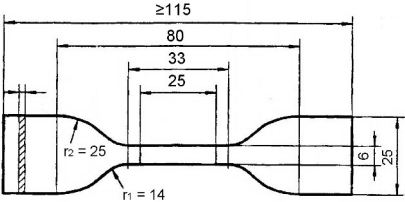
### Technical Data

High Precision Punch Dies are by default delivered with exchangeable cutters and built in ejector, 5 sets spare cutters and pivot  $\varnothing$  20 mm.

The below table represents an exemplary selection based on our portfolio. Spare cutters for High Precision Punch Dies such as customized High Precision Punch Dies are available on request.

Standard	Item no.	Drawing
DIN EN ISO 527-2 Typ 1A <i>identically constructed:</i> EN ISO 3167 Typ A BS 2782-3 Fig.3	34-000-004	



<p>DIN EN ISO 527-2 Typ 5A <i>identically constructed:</i> DIN 53504 Typ S2 ISO 37 Typ 2</p>	<p>34-004-004</p>	
<p>DIN EN ISO 527-3 Typ 5 <i>identically constructed:</i> ISO 6259 Typ 2 ISO 37-1 Typ 1 DIN 53504 Typ S1 DIN 53455 Nr.4 BS 2782-3 Fig.1 GOST 11 262 – 80 Typ 1 ASTM D 412 Die C ISO/DIS 3604, Figure 1</p>	<p>34-008-005</p>	
<p>ASTM D 638 , Typ IV</p>	<p>34-101-002</p>	
<p>Rectangular form, L x W: 210 x 148 mm</p>	<p>34-204-002</p>	
<p>ISO 5262 Sample 140 x 15 mm</p>	<p>34-220-002</p>	
<p>ISO 6383 Sample 63 x 75 mm with 20 mm slit</p>	<p>34-504-002</p>	



## Vicat/ HDT series



### Basic Vicat/HDT

page **23**

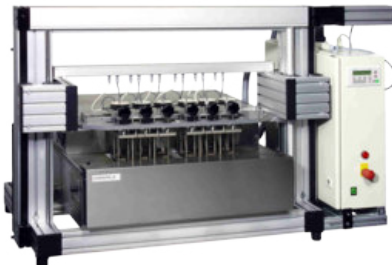
- Tests according to ISO and ASTM
- Creep tests possible
- Automatic start of cooling (water supply required)
- Manual specimen immersion
- Manual load application



### Compact Vicat/HDT

page **26**

- Tests according to ISO and ASTM
- Creep tests possible
- Automatic start of cooling (water supply required)
- Motorized specimen immersion
- Upgrade to Compact+ for automatic load application



### IC Vicat/HDT

page **29**

- Tests according to ISO and ASTM
- Creep tests are possible
- Automatic start of integrated cooling  
(*water supply required*)
- Motorized specimen immersion
- Upgrade to IC+ for automatic load application



### External heat exchanger for Basic/Compact

page **32**

- Device for fast cooling of heat transfer fluid
- Cooling time from 300 °C to 23 °C in approx. 25 min.
- Volume: approx. 2.0 l transfer oil
- To activate manually after measurement  
(*Water supply required*)



The ECO Vicat and the HDT Automat enable tests to be carried out without an operator, e.g. overnight or at the weekend.



### ECO Vicat

page **33**

- Tests without oil (contact heat transfer) acc. to ISO 306
- Automatic test procedure
- Cooling by pressurized air or water
- No need to apply weights, automatic loading
- Optional: robotic sample feed → can test up to 120 specimens fully automatically



### HDT Automat

page **35**

- Fully automated 24/7 measurement of the heat deflection temperature
- 6 measuring stations
- Automatic weight appliance, sample measurement and sample feeding
- Cooling from 300°C to room temperature in 12 minutes
- Magazine for up to 90 samples

## Features overview

Product	Basic Vicat/HDT	Compact Vicat/HDT	IC Vicat/HDT	ECO Vicat	Automat HDT
Test method	Vicat/HDT	Vicat/HDT	Vicat/HDT	Vicat	HDT
Test stations	1 to 6	2 to 6	1 to 6	2, 3 or 6	6
Temperatures up to 300°C	•	•	•	•	•
Temperature sensor for each measurement station		•	•	•	•
Creep tests possible	•	•	•		
Thermal-mechanical-analysis possible	•				
Automatic start of cooling	•	•	•	•	•
water cooling coil	•	•		•	
Integrated cooling			•		•
Optional external oil-cooling	•	•			
Automatic specimen immersion		•	•	•	•
Automatic load application		optional	optional	•	•





## 40-272-... Basic Vicat/HDT (up to 3 or up to 6 measuring stations)

### Standards

ASTM D 648, ASTM D 1525, BSI 2782 (method 120 C), BSI 2782 (method 121 C), DIN 53460, DIN 53461, DIN EN ISO 306, ISO 75, ISO 302, NT T 51-005, NT T 51-201, UNE 53075, UNE 53118



### Application

The Coesfeld Basic Vicat/HDT are test devices for determining the VICAT softening temperature of thermoplastics and the heat deflection temperature (HDT) of fibre-reinforced and filled thermosetting plastics, as well as of thermoplastics and hard rubber.

### Features

Vicat/HDT basic devices are manually operated testers. Control and measured value recording can be carried out with the help of the Coesfeld software. Depending on requirements, there are different device versions, with from 1 to 6 measuring stations. An optional external heat exchanger can be connected for quick cooling in addition to the standard heat exchanger water connection.

### Technical Data

Temperature range	from +20°C ... +300°C
Temperature gradient	50 K/h, 120 K/h or freely selectable
Start temperature	freely selectable
Digital displacement gauges, resolution	0.001 mm
Digital displacement gauges, accuracy	better than 0.01 mm
Displacement range	up to 13 mm
HDT support clearance	64 mm, 100 mm, 101.6 mm
Bath volume	approx. 18 l (Basic/A) / 26 l (Basic/B) heat transfer oil
Creep tests	possible






### Dimensions and Connection

	Basic/A - up to 3 measuring stations	Basic/B - up to 6 measuring stations
Dimensions (WxDxH)	440 x 500 x 500 mm	710 x 500 x 500 mm
Weight	30 kg (without accessories)	35 kg (without accessories)
Mains	230 V, 50 Hz	
Power	2000 VA	
Interfaces	RS232 output	
Air	n.a.	
Cooling	Water cooling (from 150°C to 23°C in approx. 90 min.); optional: external heat exchanger (from 300°C to 23°C in approx. 25 min.)	
Others	n.a.	




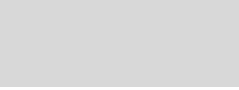


### Device configuration

incl.	Articlenumber	Description
-	40-272-009	Vicat/HDT Basic 300/1
-	40-272-010	Vicat/HDT Basic 300/2
-	40-272-006	Vicat/HDT Basic 300/3
-	40-272-005	Vicat/HDT Basic 300/4
-	40-272-008	Vicat/HDT Basic 300/5
-	40-272-007	Vicat/HDT Basic 300/6

### Accessories

incl.	Articlenumber	Description	
-	3-897-068	Transformator for Coesfeld devices; 110 V / 5000 KW	
-	3-897-065	Transformator for Coesfeld devices; 127 V / 5000 KW	
-	40-191	Vicat indenter	
-	40-192	HDT compression fin	
-	40-275	Vicat weights set 10 N and 50 N in accordance with ISO 306 and ASTM D 1525 (1 set required per measuring station)	
-	40-276	HDT weight set ISO 75-2, flatwise; for test samples 4 x 10 x 80mm for bending stresses of 1.8/0.45 or 8 MPa (1 set required per measuring station)	



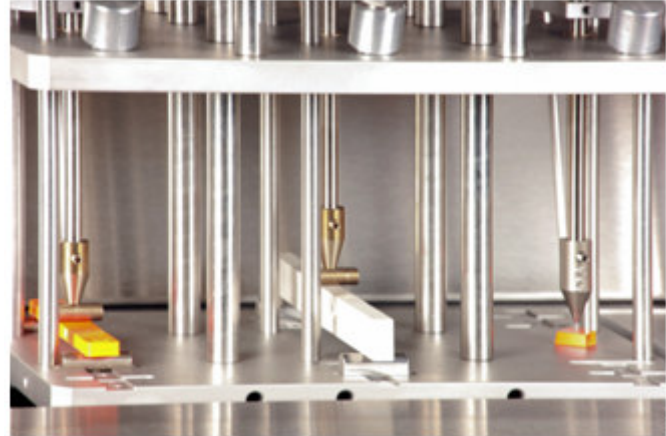
-	40-277	HDT weight set ISO 75-2, edgewise; for test samples 4 x 10 x 120mm for bending stresses of 1.8/0.45 or 8 MPa (1 set required per measuring station)	
-	40-261	Universal weight set for Vicat/HDT test standards, consists of 21 stackable individual weights: 10x1g, 2x10g, 2x100g, 2x1000g, 1x20g, 1x50g, 1x200g, 1x500g, 1x2500g (1 set required per measuring station)	
-	40-194-001	HDT calibrating and centring tool for aligning the HDT compression fin (1 required per tester)	
-	40-240	Calibrating set for displacement sensor, for VICAT and HDT (1 required per tester)	
-	40-212-006	Heat transfer liquid (silicone oil, 5 l container)	
-	40-212-005	Heat transfer liquid (silicone oil, 10 l container)	
-	60-005-001	Recirculating cooler for Vicat/HDT water cooling (Volume water reservoir: 35 l; Cooling output at 25°C water outlet temp.: 4.70 kW)	
-	9-944-019	External heat exchanger for Vicat/HDT Basic Test Device	
-	40-210	Cutting pincers for 10x10 mm Vicat specimen preparation	



## 40-197-... Vicat/HDT Compact

### Standards

ASTM D 648, ASTM D 1525, BSI 2782 (method 120 C), BSI 2782 (method 121 C), DIN 53460, DIN 53461, ISO 75, ISO 306, NT T 51-005, NT T 51-201, UNE 53075, UNE 53118



### Application

The Coesfeld Vicat/HDT Compact are test devices for determining the VICAT softening temperature of thermoplastics and the heat deflection temperature (HDT) of fibre-reinforced and filled thermosetting plastics, as well as of thermoplastics and hard rubber.

### Features

Compact series devices are semi-automated, computer-controlled systems. Depending on requirements, the devices can be equipped with up to 6 measuring stations. During the automated test sequence an integrated motorised platform lowers the measuring stations with the manually fitted weights into the test bath. The cooling water connection, which is fitted with a magnetic valve, can be extended optionally with an external oil heat exchanger system.

### Technical Data

Temperature range	from +20°C ... +300°C, resolution $\pm 0.1$ K
Temperature gradient	50 K/h, 120 K/h or freely selectable
Start temperature	freely selectable
Inductive displacement gauges, resolution	0.001 mm
Inductive displacement gauges, accuracy	better than 0.01 mm
Displacement range	up to 15 mm
HDT support clearance	64 mm, 100 mm, 101,6 mm
Bath volume	approx. 12 l / 17 l heat transfer oil (up to 3 / 6 measuring stations)
Creep tests	possible







### Dimensions and Connection

	<b>A - up to 3 measuring stations</b>	<b>B - up to 6 measuring stations</b>
Dimensions (WxDxH)	700 x 560 x 460 mm	700 x 780 x 460 mm
Weight	70 kg (without accessories)	80 kg (without accessories)
Mains	230 V, 50 Hz / 240 V, 60 Hz	230 V, 50 Hz / 240 V, 60 Hz
Power	3200 VA	3200 VA
Interfaces	RS232	
Air	n.a.	
Cooling	Water cooling (from 150°C to 23°C in approx. 90 min.); optional: external heat exchanger (from 300°C to 23°C in approx. 25 min.)	
Others	n.a.	





### Device configuration

incl.	Articlenumber	Description
-	40-190-103	Vicat/HDT-Tester Compact 2
-	40-190-100	Vicat/HDT-Tester Compact 3
-	40-197-101	Vicat/HDT-Tester Compact 4
-	40-197-100	Vicat/HDT-Tester Compact 6

### Accessories

incl.	Articlenumber	Description	
-	3-897-068	Transformator for Coesfeld devices; 110 V / 5000 KW	
-	3-897-065	Transformator for Coesfeld devices; 127 V / 5000 KW	
-	40-191	Vicat indenter (1 required per measuring station)	
-	40-192	HDT compression fin (1 required per measuring station)	
-	40-196	Vicat weights set 10 N and 50 N in accordance with ISO 306 and ASTM D 1525 (1 set required per measuring station)	
-	40-217	HDT weight set ISO 75-2, flatwise; for test samples 4 x 10 x 80mm for bending stresses of 1.8/0.45 or 8 MPa (1 set required per measuring station)	
-	40-218	HDT weight set ISO 75-2, edgewise; for test samples 4 x 10 x 120mm for bending stresses of 1.8/0.45 or 8 Mpa (1 set required per measuring station)	



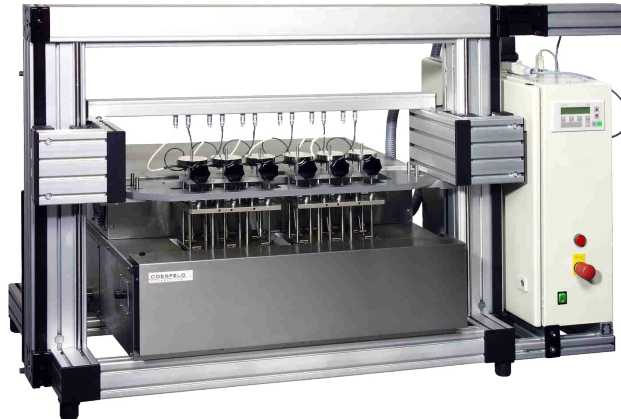
-	40-261	Universal weight set for Vicat/HDT test standards, All loads from 1 to 5500g are possible in 1g steps. (1 set required per measuring station)	
-	40-199-001	Automatic load application for Compact series	
-	40-194-001	HDT calibrating and centring tool for aligning the HDT compression fin (1 required per tester)	
-	40-240	Calibrating set for displacement sensor, for VICAT and HDT (1 required per tester)	
-	40-212-006	Heat transfer liquid (silicone oil, 5 l container)	
-	40-212-005	Heat transfer liquid (silicone oil, 10 l container)	
-	60-005-001	Recirculating cooler for Vicat/HDT water cooling (Volume water reservoir: 35 l; Cooling output at 25°C water outlet temp.: 4.70 kW)	
-	9-944-019	External heat exchanger for Vicat/HDT Compact Test Device	
-	40-210	Cutting pincers for 10x10 mm Vicat specimen preparation	



## 40-190-... IC Vicat/HDT

### Standards

ASTM D 648, ASTM D 1525, BSI 2782 (method 120 C), BSI 2782 (method 121 C), DIN 53460, DIN 53461, ISO 75, ISO 306, NT T 51-005, NT T 51-201, UNE 53075, UNE 53118



### Application

The Coesfeld Vicat/HDT IC series provides test devices for determining the VICAT softening temperature of thermoplastics and the heat deflection temperature (HDT) of fibre-reinforced and filled thermosetting plastics, as well as of thermoplastics and hard rubber.

### Features

The IC series provides automatic measuring and with integrated cooling. Depending on the requirements, there are device configurations with 1 to 6 measuring stations. The integrated motorised platform with the optionally extendable weight support lowers the measuring stations automatically into the tempering bath during the tests. After measuring, the integrated high-performance heat exchanger ensures rapid recooling of the bath liquid to the start temperature.

### Technical Data

Temperature range	from +20°C ... +300°C
Temperature gradient	50 K/h, 120 K/h or freely selectable
Start temperature	freely selectable
Inductive displacement gauges, resolution	0.001 mm
Inductive displacement gauges, accuracy	better than 0.01 mm
Displacement range	up to 13 mm
HDT support clearance	64 mm, 100 mm, 101,6 mm
Bath volume	approx. 12.5 l (IC/A) / 18.6 l (IC/B) heat transfer oil
Creep tests	possible







### Dimensions and Connection

	IC/A - up to 3 measuring stations	IC/B - up to 6 measuring stations
Dimensions (WxDxH)	1080 x 750 x 900 mm	1330 x 750 x 900 mm
Weight	approx. 140 kg (without accessories)	approx. 160 kg (without accessories)
Mains	230 V, 50 Hz	230 V, 50 Hz
Power	3000 VA	3000 VA
Interfaces	RS232	
Air	n.a.	
Cooling	integrated high-performance heat exchanger; from 300°C to 23°C in approx. 25 min (depending on cooling water temperature)	
Others	n.a.	

### Device configuration





incl.	Articlenumber	Description
-	40-190-001	Vicat/HDT Tester IC 3
-	40-190-002	Vicat/HDT Tester IC 3+
-	40-197-004	Vicat/HDT Tester IC 4
-	40-197-003	Vicat/HDT Tester IC 4+
-	40-197-001	Vicat/HDT Tester IC 6
-	40-197-002	Vicat/HDT Tester IC 6+

### Accessories

incl.	Articlenumber	Description	
-	3-897-068	Transformator for Coesfeld devices; 110 V / 5000 KW	
-	3-897-065	Transformator for Coesfeld devices; 127 V / 5000 KW	
-	40-191	Vicat indenter	
-	40-192	HDT compression fin	
-	40-196	Vicat weights set 10 N and 50 N in accordance with ISO 306 and ASTM D 1525 (1 set required per measuring station)	
-	40-217	HDT weight set ISO 75-2, flatwise; for test samples 4 x 10 x 80mm for bending stresses of 1.8/0.45 or 8 MPa (1 set required per measuring station)	





-	40-218	HDT weight set ISO 75-2, edgewise; for test samples 4 x 10 x 120mm for bending stresses of 1.8/0.45 or 8 Mpa (1 set required per measuring station)	
-	40-261	Universal weight set for Vicat/HDT test standards, all loads from 1 to 5500g are possible in 1g steps (1 set required per measuring station)	
-	40-199-001	Automatic weight application device	
-	40-194-001	HDT calibrating and centring tool for aligning the HDT compression fin (1 required per tester)	
-	40-240	Calibrating set for displacement sensor, for VICAT and HDT (1 required per tester)	
-	40-197-MESS	Measuring station, complete (measuring stand, displacement sensor and temperature sensor), for retrofitting to existing IC devices	
-	40-212-006	Heat transfer liquid (silcone oil, 5 l container)	
-	40-212-005	Heat transfer liquid (silcone oil, 10 l container)	
-	60-005-001	Recirculating cooler for Vicat/HDT water cooling (Volume water reservoir 35 l; Cooling output at 25°C water outlet temp. 4.70 kW)	
-	60-005-002	Recirculating cooler for Vicat/HDT water cooling (Volume water reservoir 100 l; Cooling output at 25°C water outlet temp. 22.3 kW)	
-	40-213	Nitrogen cover for additional cooling for IC devices	
-	40-210	Cutting pincers for 10x10 mm Vicat specimen preparation	



## 9-944-019 – External Oil Cooling Unit



### Application

Cooling unit for systems of Vicat/HDT Basic and Compact series

### Features

The external oil cooling unit is a device for fast recooling heat transfer fluid to activate manually after measurement. Water supply for cooling is required.

### Technical Data

Volumen	2.0 l transfer oil
Cooling	from 300°C to 23°C in approx. 25 min (depending on cooling water temperature)

### Dimensions and Connection

Dimensions (WxDxH)	600 x 580 x 560 mm
Weight	approx. 35 kg
Mains	230/240 V, 50/60 Hz
Power	470 W
Interfaces	n.a.
Air	n.a.
Cooling	High-performance heat exchanger; from 300°C to 23°C in approx. 25 min (depending on cooling water temperature)
Others	n.a.



## 40-280-... Eco Vicat (oil-free)

### Standards

ASTM D 1525, BSI 2782 (Method 120 C), DIN 53460, ISO 306, NT T 51-021, UNE 53118



### Application

Test devices for determining the VICAT softening temperature of thermoplastics

### Features

Due to direct contact tempering Coesfeld's Eco Vicat series allows clean, oil free determination of the Vicat softening temperature. As soon as the test needles have penetrated 1 mm into the samples, the test ends automatically. The results are stored in the PC and the tester is cooled down to the preset start temperature. An intelligent controller detects faults, e.g. if a sample is penetrated completely or if samples start to melt. The standardized weight loading with 10 N or 50 N is carried out fully automatically, so the operator no longer has to handle weights.

### Technical Data

Temperature range	from +20°C ... +300°C, resolution $\pm 0.1$ K
Temperature gradient	50 K/h, 120 K/h or freely selectable
Start temperature	freely selectable
Inductive displacement gauges, resolution	0.001 mm
Inductive displacement gauges, accuracy	better than 0.01 mm
Compressed air supply	6-10 bar



### Dimensions and Connection

	<i>ECO-Vicat 300/2</i>	<i>ECO-Vicat 300/3</i>	<i>ECO-Vicat 300/6</i>
Dimensions (WxDxH)	ca. 400 x 750 x 700 mm (open) / 400 x 750 x 620 mm (closed)		
Weight	46 kg	51 kg	64 kg
Mains	230 V, 50 Hz / 240 V, 60 Hz		
Power	800 VA		
Interfaces	RS232 output		
Air	pressurized air		
Cooling	cooling water coil; optional: water circulator – heat exchanging time approx. 15 min. from 300°C to 20°C at 10°C cooling water		
Others	n.a.		

### Device configuration

incl.	Artiklenummer	Description
-	40-287-002	ECO-Vicat 300/2
-	40-280-003	ECO-Vicat 300/3
-	40-280-001	ECO-Vicat 300/6

### Accessories

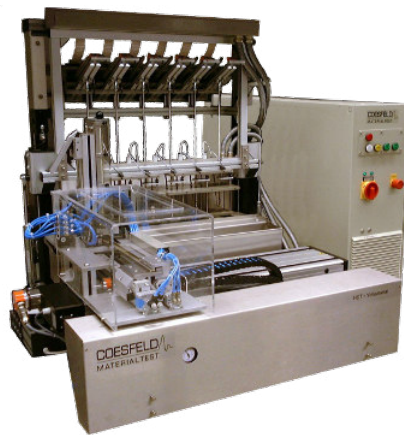
incl.	Artiklenummer	Description
-	40-282-001	Automatic sample feed (only for use with the sixfold appliance 40-280-001) For the fully automatic continuous operation of the ECO Vicat tester, including magazine for 120 samples à 10x10x4 mm, Dimensions: 1000 x 800 x 600 mm, weight: 30 kg
-	60-005-003	Water circulator for connecting to ECO Vicat testers, Heat exchanging time approx. 15 min. from 300°C to 20°C at 10°C cooling water
-	42-505	Small compressor for supplying compressed air, max. pressure 10 bar
-	97-316	Displacement calibration set for calibrating the LVDT displacement sensor
-	97-317	Temperature calibration set for calibrating the integrated temperature sensor



## 40-230 HDT Automat

### Standards

DIN EN ISO 75, ASTM D648, (DIN 53461)



### Application

The HDT automat allows a fully automated 24/7 measurement of the HDT heat deflection temperature.

### Features

Weight appliance, sample measurement and sample feeding occur automatically. A high-performance cooling system allows recooling from 300°C down to room temperature in only 12 minutes. The sample magazine can hold up to 90 samples. Data acquisition and storage in ASCII-format is done by the included Coesfeld software. The user has permanent data presentation on the screen and can display HDT-Bending curves versus time or temperature.

### Technical Data

Measuring stations	6
Recording of HDT-temperature	automatic
Displacement measurement	inductive, accuracy 0.01 mm
Temperature range	+20...+300°C, resolution better than: $\pm 0.1$ K
Temperature gradient	arbitrary
Weight appliance	automatic, accuracy $\pm 1$ g
Sample magazine capacity	90 samples (4x10x80 mm)
Sample measurement and feeding	automatic, resolution 0.01 mm
Bath volume	approx. 35 l
Cooling water temperature	10°C (optimal)



## Dimensions and Connection

Dimensions (WxDxH)	1480 x 1300 x 1100 mm (with control cabinet)
Weight	approx. 195 kg (without control cabinet)
Mains	400V-3P/N/PE/16A, 50Hz
Power	4000 VA
Interfaces	RS232
Air	pressurized air supply, 6-10 bar
Cooling	heat exchanger, automatic
Others	n.a.

## Accessories

incl.	Articlenumber	Description
6	40-192	HDT compression fin
1	40-194-001	HDT calibrating and centring tool for aligning the HDT compression fin
-	40-198	Weight calibration set for HDT Automat
-	40-212-006	Heat transfer liquid (silicone oil, 5 l container)
-	40-212-005	Heat transfer liquid (silicone oil, 10 l container)



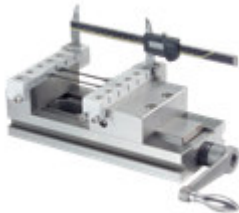
## Mechanical Testing



### Creep and Relaxation

page **39**

- Automatic and comfortable loading
- Programmable loading sequences
- Optical Strain Measurement
- Various Accessories



### Tension Set

page **41**



### Compression Set

page **42**



### Dart Tester

page **44**

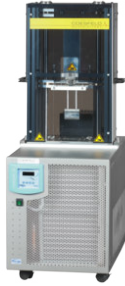
Non-instrumented dart test



### Impact Tester

page **47**

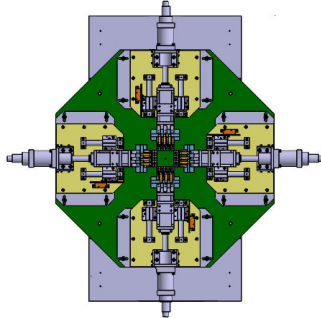
- Fully automated
- Fully instrumented
- Various Accessories
- Great Variability



### Brittleness Tester

page **49**

- Breakage at impact in low temperature
- High power compressor cooling
- 10 simultaneous tests



### Biaxial Tester – Quasi-Static

page **51**

### Others

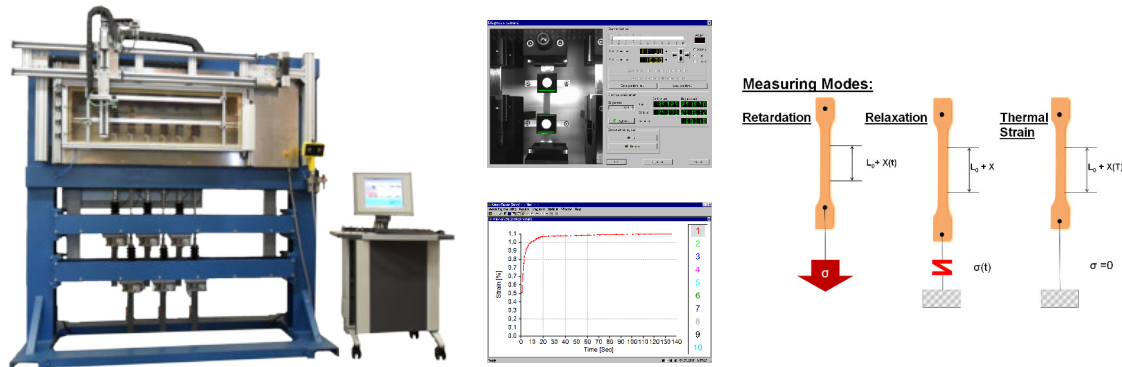




## 40-300-ff Creep Tester (electro drive)

### Standards

DIN EN ISO 899-1/ -2



### Application

Automated creep and relaxation test with loading up to 20 kN.

### Features

The Coesfeld Creep Tester (electro drive) offers flexibility and measuring precision. Up to 10 measuring stations each controlled via electro-mechanical drive with high power density and high stepping accuracy can be equipped with exchangeable clamping systems for tension, bending and compression tests. The stable steel frame provides high stiffness, precision and durability. Integrated force and path sensors assure precise machine control and measuring data collection. Tempering or environmental test chambers and intelligent moving or fixed optical strain measurement systems with day light filter are main accessories in the list of options. The WIN-Creep software with user definable control sequences completes the system for fully automated creep and relaxation tests.

### Specifications

Measuring stations	up to 10 (sequent extension of stations possible)
Loading FN	up to 20 kN
Force Sensor	Exchangeable force package (1 kN, 2,5 kN, 5 kN, 10 kN, 20 kN, ...)
Force measuring accuracy	0,04 % FN
Drives/ Sensor	Electro-mechanical with integrated incremental sensor
Resolution path sensor	0,25 µm
Movement range	up to 200 mm
Movement accuracy	0,025 µm
Movement speed	up to 120 mm/min
Camera	up to 16 Mpx
Optical Lenses	Precise Optical Lenses (optional telecentric) with day light filter
Light	Infrared Light
Resolution optical strain	up to 0,5 µm
Test Chamber	2.000 W heating power Heat exchanger with valve controlled closed loop cooling circuit
Temperature	(-50°C)* +45°C to 250°C, *with external cooling, e.g. LN2, chiller, ...
Temperature uniformity	+/-2 °C for T<150°C



### Dimensions and Connection

Dimensions (WxDxH)	< 2.600 x 1.500 x 2.700 mm
Weight	< 2.000 kg
Mains	three phase, 400 V N/P/E, 50 Hz
Power	< 30 kW

Interfaces	RJ-45 to PC
Air	6 bar, 6 mm hoses inlet
Cooling	12 mm hoses inlet and outlet for closed cooling circle
Others	optional: large volume connection for climatic conditioner optional: hoses inlet and outlet for inert gas connection

### Accessories

Incl.	Description
Y	PC with WIN-Creep software
Y	Force Sensor Package
Y	Tension Grips
N	Three Point Bending Support
N	Four Point Bending Support
N	Compression Plates
Y	Optical Strain Measurement System (Moving)
N	Optical Strain Measurement System (fixed per station)
Y	Tempering Chamber incl. heater and controlled cooling connection
N	Chiller
N	Air Dryer
N	Environmental Conditioner
N	Inert Gas Connection

The Coesfeld Creep Tester (electro drive) offers a variety of options to choose in machine specifications and detailed specs of accessories.

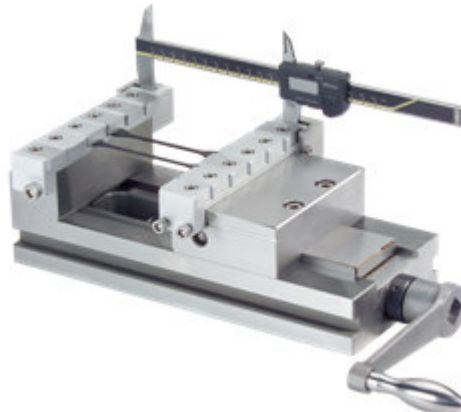
Please contact us for a detailed discussion of your measuring tasks.



## 40-113-001 Tension set for 6 S2 bars

### Standards

DIN ISO 2285



### Application

Manual tension tester for 6 S2 bars.

### Features

- Made of stainless steel and other stainless materials
- Special construction to be used in low temperature ranges

### Technical Data

Distance between the clamping devices	min. = 40 mm max. = 260 mm
Width of the clamping devices	20 mm
Length of the tester	460 mm
Accuracy of the path measurement	$\pm 0.05$ mm
Weight	approx. 16 kg



## 40-520 Compression Set (4-place or 8-place)

### Standards

DIN ISO 815 (formerly DIN 53 517), DIN EN ISO 1856



### Application

Manual compression tester for 4 or 8 samples form I and II.

### Features

For determination of the behaviour of elastomere at a long lasting constant compression at ambient, at higher and at lower temperatures. The compression set consists of a polished basic plate and a polished compression plate with tense screws. These parts are made of stainless steel.

### Technical Data

Weight approx. 5 kg

### Accessories

Polished spacer blocks made of stainless steel (each 3 sets á 4 pieces)

incl.	Item no.	Description
-	40-521	Sample form A, shore hardness A up to 80
-	40-522	Sample form A, shore hardness A 80 up to 90
-	40-523	Sample form A, shore hardness A 90 up to 95
-	40-524	Sample form B, shore hardness A up to 80
-	40-525	Sample form B, shore hardness A 80 up to 90
-	40-526	Sample form B, shore hardness A 90 up to 95

*We also offer customized spacer blocks.*



## DART TESTER

**Dart Tester**  
DIN EN ISO 7765-1  
ASTM D 1709



Non-Instrumented and non-automated dart tester

**Dart Tester 660 Energy**  
ASTM D 4272



Semi-Instrumented and semi-automated dart tester

## IMPACT TESTER

**PRIMUS Series**  
DIN EN ISO 6603-1



Non instrumented and manual impact test system

**MAGNUS Series**  
DIN EN ISO 6603-2  
DIN EN ISO 7765-2  
ASTM D 3763



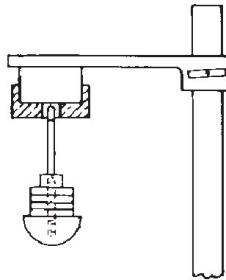
Fully instrumented and automated impact test system



## 40- Dart Tester 660/ 1500/ 660-Energy

### Standards

DIN EN ISO 7765-1, ASTM D 1709, ASTM D 4272



Sketch of Dart



Dart Tester 660



Dart Tester 660 Energy

### Application

Dart drop test on foils determining the energy that causes plastic film to fail under specified conditions of impact of a free-falling dart.

### Features

Drop tower with mechanical dart drop release and mechanical clamping system. Darts and drop height can be used for Method A (660) and Method B (1500). Dart tester 1500 can be used for both methods by mechanical change of falling height in-between 660 and 1500 mm. Energy is determine via stair case method.

The Dart Tester 660 Energy is equipped with a pneumatic dart drop release and pneumatic clamping system. The energy is measured by instrumentation acc. to ASTM D 4272.

### Technical Data

	Dart Tester 660 - Method A	Dart Tester 1500 - Method B
Drop Height	660 mm	1500 mm
Impact Speed	3,6 m/s	5,4 m/s
Impact Weight	0,05 ... 2 kg	0,3 ... 2 kg
Impact Energy	0,32 ... 12,9 J	4,4 ... 29,4 J
Diameter of Dart	38,1 mm	50,8 mm

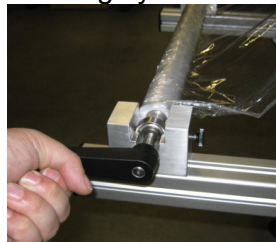


### Dimensions and Connection

Dimensions (HxWxD)	aprx. 1.260 (2.100 mm) x 700 x 700 mm
Weight	aprx. 70 kg
Mains	230 V / 50 Hz (Dart Tester 660 Energy only)
Air	6 – 10 bar hoses connection 6 mm outer diameter (Dart Tester 660 Energy only)

### Accessories

incl.	Article	Description
1	40-Dart-A	38,1 mm Dart incl. set of weight 0,05 to 2 kg
1	40-Dart-B	50,8 mm Dart incl. set of weight 0,3 to 2 kg
-	40-Foil	Feeding system for foils via coiling

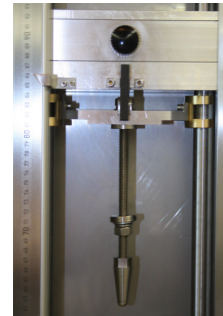




## 40- Impact Tester Primus 1000

### Standards

DIN EN ISO 6603-1



### Application

Non-instrumented impact tester determining energy of breakage of plastics at impact.

### Features

Drop Tower with manual drop release, clamping system and setting of drop height. Impact energy is determined via stair case method by variation of drop weight or drop height.

### Technical Data

	Primus 1000
Drop Height	0 ... 1,000 mm
Impact Speed	0 ... 4.4 m/s
Impact Weight	0,5 ... 5 kg
Impact Energy	0 ... 49 J

### Dimensions and Connection

Dimensions (HxWxD)	aprx. 1,200 x 700 x 700 mm
Weight	aprx. 80 kg
Mains	n.a.
Power	n.a.
Interfaces	n.a.
Air	n.a.
Cooling	n.a.

### Accessories

incl.	Article	Description
1	40-DF5	Drop Frame 2-5 kg
-	40-IB10	Impact Body 10 mm
1	40-IB20	Impact Body 20 mm
1	40-SF40	Specimen Clamp 40 mm
-	40-SF100	Specimen Clamp 100 mm

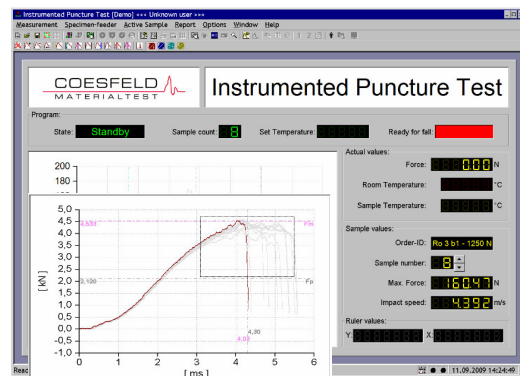




## 42-400 Impact Tester Magnus 1000/ 2000

### Standards

DIN EN ISO 6603-2, DIN EN ISO 7765-2, ASTM D 3763  
CAI: ASTM D 7316, DIN 65561, ISO 18352, EN 6038



### Application

Instrumented impact resistance tester for testing foils, plastics and parts.

### Features

Fully automated impact tester with PC-control and data recording as well as a practical manual operation via direct buttons and touch panel. The robust steel frame achieves high rigidity and stiffness even at high impact energies. The system measures impact speed and the precisely triggered, high resolved force curve obtained during penetration. Characteristic points as maximum value are automatically detected, but can also be altered by the operator. Up to 35 Curves can be simultaneously loaded. A full data export enables an individual analysis if desired. Numerous accessories as tempering, anti-rebound for compression after impact tests (CAI), acceleration for high speeds for automobile standards and drop frames, impactors or clamping devices make the drop tower very versatile. The trigger system can also be used to start a high speed camera system.

### Technical Data

	Magnus 1000	Magnus 2000
Drop Height	60 ... 1,000 mm	60 ... 2,000 mm
Impact Speed	1.2 ... 4.4 m/s	1.2 ... 6.2 m/s
Impact Weight	2 - 70 kg	
Impact Energy	1.4 ... 687 J	1.4 ... 1,373 J
Max. Force	22 kN	
Temperature	-50 °C ... + 150 °C	
Temp.-Setting Accuracy	0.1 °C	
Temp.-Control Accuracy	+/- 1 °C	
Cooling	Heat Exchanger (Chiller, LN2)	



### Dimensions and Connection

Dimensions (HxWxD)	aprx. 2,700 x 1,400 x 700 mm / 3,700 mm (Magnus 2000)
Weight	aprx. 1,200 kg
Mains	230 V / 50 Hz
Power	2,500 VA
Interfaces	n.a.
Air	6 – 10 bar hoses connection 6 mm outer diameter
Cooling	in-/ outlet hoses connection 12.5 mm / 0.5 inch inner diameter

### Accessories

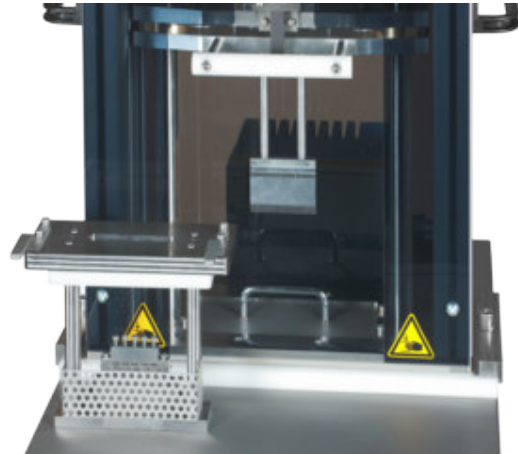
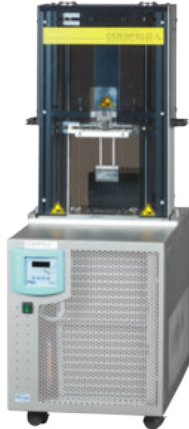
incl.	Article	Description
-	42-400-040	Tempering Chamber 150°C
-	42-400-042	LN2 Valve
-	42-400-A10	Acceleration System 10 m/s
-	42-400-A25	Acceleration System 25 m/s
-	42-400-AR	Anti-Rebound System
-	42-400-P22	Piezoelectric force transducer 22 kN for impact body
-	42-400-PTE	Piezoelectric force transducer 22 kN for clamping body
-	42-400-PCAI	Piezoelectric force transducer 80 kN for CAI
-	42-400-DF5	Drop Frame 2-5 kg
-	42-400-DF20	Drop Frame 5-20 kg
-	42-400-DF40	Drop Frame 10-40 kg
-	42-400-DF	Drop Frame on request
-	42-400-IB10	Impact Body 10 mm (ISO 6603)
-	42-400-IB13	Impact Body 12,7 mm (ASTM D 3763)
-	42-400-IB16	Impact Body 16 mm (CAI: ASTM D 7136)
-	42-400-IB20	Impact Body 20 mm (ISO 6603)
-	42-400-IB	Impact Body on request
-	42-400-SF40	Specimen Clamp 40 mm (ISO 6603)
-	42-400-SF76	Specimen Clamp 76 mm (ASTM D 3763)
-	42-SFCAI1	Specimen Clamp 3x5 inch (CAI: ASTM D 7136)
-	42-SFCAI2	Specimen Clamp 75x125 mm (CAI: ISO 18352)
-	42-400-SF	Specimen Clamp on request
-	42-400-IZOD	Impact Body and Clamp IZOD (ISO 180/ ASTM D 256)
-	42-400-CHA	Impact Body and Clamp Charpy (ISO 179/ ASTM D 6110)
-	42-400-TEN	Impact Body and Clamp Tensile Test (ISO 8256)
-	42-400-PTE	Impact Body and Clamp Peeling Wedge Test (ISO 11343)



## 24-901-000 Brittleness Temperature Tester

### Standards

ISO 812, ISO 974, ASTM D 746



### Application

Determination of the temperature at which plastics, which are not rigid at normal ambient temperature, exhibit brittle failure under specified impact conditions

### Features

The machine consists of two components: The drop tower and the cooling unit. Temperature is set directly on the front-panel of the cooling unit. The unit works with a continuous running, ozone friendly compressor and an electrical heater, which controls the temperature. The input module holding the sample fixture is equipped with a floating guard and is inserted into the cooling bath. Via mechanical trigger the impactor is released to free fall accelerating to a drop speed of 2 m/s. The drop mass of 5 kg and thus energy of about 10 Joules assures that the drop speed will remain constant throughout the impact process.

### Technical Data

Drop Height	220 mm
Drop Speed	2 m/s
Sample Holder	exchangeable
Temperature	-80°C to RT
Cooling Time	approx. 120 min (+20°C to - 80°C)
Temp. Set Accuracy	0.1 K
Temp. Control Accuracy	+/- 0.05 K
Cooling Media	e.g. Methanol
Capacity	14 l
Coolant	CFK/ HCFC free



## Dimensions and Connection

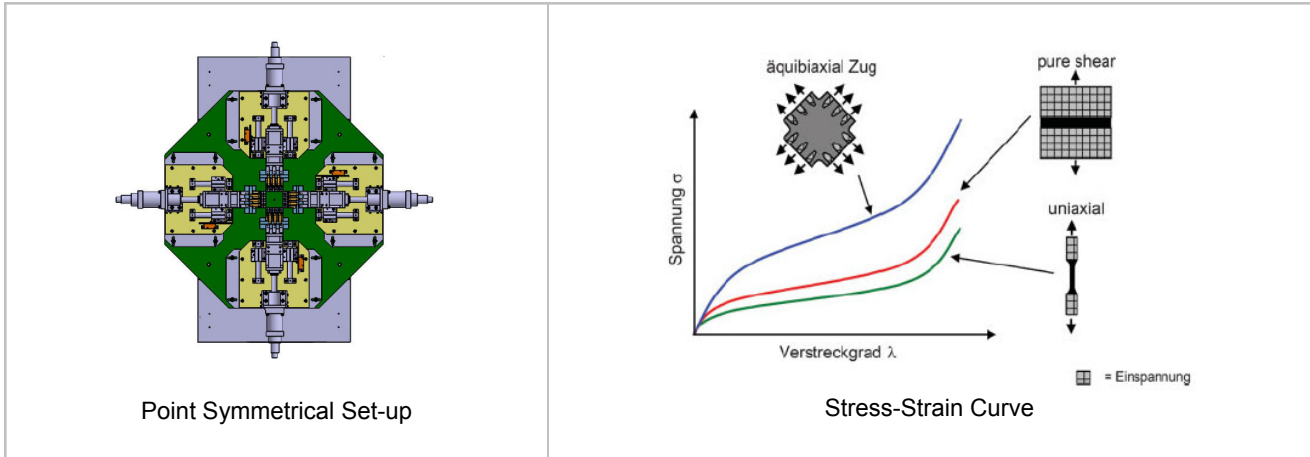
Dimension (HxWxD)	approx. 1470 x 460 x 810 mm
Weight	approx. 120 kg
Mains	230 V / 50 Hz (optional: 230 V / 60 Hz or 115 V / 60 Hz)
Power	2.800 Watt
Interfaces	RS232 for remote control of cooler
Air	n.a.
Cooling	n.a.

## Accessories

Incl.	Item no.	Description
-	24-901-001	Clamping Fixture TYPE A (ASTM D 746, ISO 821)
-	24-901-002	Clamping Fixture TYPE B (ASTM D 746, ISO 974)
1	24-901-101	Lid to close cooling bath
1	24-901-102	Input Module for Clamping Fixture
1	24-901-103	Floating Guard for 24-901-102



## 23-500-000 Biaxial Test System (quasi-static)



### Field of Application

Quasi-static biaxial tensile testing machine for characterisation via tensile, creep or relaxation measurement.

### Features

The biaxial test system consists of four high precisely controlled electro-mechanical linear drive systems, which are orthogonally oriented to each other. Each drive can be controlled individually to achieve uni-axial, equi-biaxial and arbitrary biaxial strain pictures. Each drive can be individually programmed. Each axis hold a digital path and force sensor. Optionally a camera system can be implemented with a centred view on top of the specimen, which online captures crack propagation or strain data of the main axes. The pictures can be saved for further offline analysis, e.g. local strain. All raw data is available via text export.

### Technical Specs

	Biax S 5	Biax S 10	Biax S 20
Tensile, Pressure Force	5 kN	10 kN	20 kN
Acc. Class Force	0,2		
Path	200 mm		
Data Recording Force	1.000 Hz		
Acc. Path Sensor	0,25 $\mu$ m		
Speed	60 mm/min (120 mm/min manual setting)		
Data Recording Travel	1.000 Hz		

Other specs on request..



## Dimensions and Interfaces

	Biax S 5	Biax S 10	Biax S20
Dimension Main Unit (HxBxT)	ca. 1,6x3x3 m	ca. 1,6x3x3 m	ca. 1,6x3x3 m
Dimension Controller (HxBxT)	ca. 2x1,2x0,8 m	ca. 2x1,2x0,8 m	ca. 2x1,2x0,8 m
Weight	ca. 1.800 kg	ca. 2.200 kg	ca. 3.000 kg
Mains	400V/ 50Hz 3P/N/PE		
Power	30 kVA		
Interfaces	n.a.		
Air	n.a.		
Cooling	n.a.		

## Accessories

incl.	Article	Description
1		PC with WIN-Biax-S Software
-	23-500-MK	Clamping with free running clamping fingers
-	23-500-S	Clamping after specification
-	23-500-T	Tempering Chamber -50 bis 150 °C
-	60-K	Cooling Machines after specification
-	23-500-K	Optical Measuring System with WIN-Biax-S Optical Software Module
-	61-490-K1	1 Mpx Camera with daylight filter
-	61-490-K5	5 Mpx Camera with daylight filter
-	61-490-K10	10 Mpx Camera with daylight filter
-	61-490-FL	Infrared Frontlight for strain measurement
-	61-490-BL	Infrared Backlight for crack measurement

Other accessories on request.



## Dynamic Testing



### DeMattia Flex Tester

page **54**

- Silent machine run
- 32 stations
- 16 simultaneous readings
- LED Light bar for accurate sample observation
- Control via touch panel



### Tear and Fatigue Analyser

page **56**

- Highly dynamic Loading
- Optical Crack Measurement
- Fatigue and Service time prediction
- Programmable Test sequences



### Biaxial Test Stands

page **58**

- Dynamic and Static Loading
- Local Strain Measurement
- Programmable Test sequences
- Individual Loading on each axis
- Adaptive Learning Control



### Dynamic Friction Tester

page **60**

### Others



## 61-450 DeMattia32

### Standards

DIN ISO 132



32 Measuring Stations

### Application

Dynamic test system for determination of flex and crack growth properties of rubber.

### Features

Sturdy machine set-up fitting 32 specimens for simultaneous measurement. 16 stations are at observation point at a time. The observation position is in a comfortable working height. A moveable light bar enables measurement at reproducible sight. The machine is controlled via touch panel. In automatic mode a timer indicates the remaining time until observation and the machine automatically stops in defined position. Further the machine can be stopped at any time and restarted for continuation of the running test.

### Technical Data

Specimen	25 x 200 mm (W x L)/ 6-8 mm thickness
Load per station	70 N
Span distance	75.5 +/- 0.50 mm
Span observation	65 mm
Stroke	57.25 +/- 0.25 mm
Stroke frequency	10 to 300 (+/- 2) strokes per min (selectable)
Cycle Counter	1 to 2,000,000 cycles

### Dimensions and Connection

Dimensions (HxWxD)	approx. 1,750 x 560 x 1,360 mm
Weight	approx. 300 kg
Mains	3 ~ 400 V / 50 Hz N/PE / 32 A CCE-Plug
Power	3,100 VA
Interfaces	n.a.
Air	n.a.
Cooling	(optional)





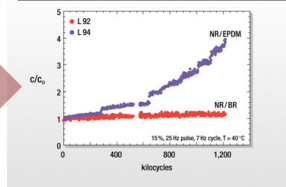
## 61-471-ff Tear and Fatigue Analyser



### Key finding:

Good correlation between  
Tear Analyser  
and  
Tire Drum or Belt Test

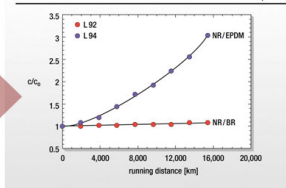
Pulsed load crack propagation sidewall compounds



Tire drum test



Tire machine test sidewall compounds



### Application

Measuring appliance for dynamic determination of the fracture mechanical behaviour of plastic and elastomeric samples and determination of crack growth.

### Technical Data

Stations	10
Load per station	360 N
Span distance	50 - 150 mm
Stroke	1 - 50 mm
Frequency Range	1 - 50 Hz
Stroke Measurement	1 $\mu$ m
Pre-Force Accuracy	1 N

### Technology

Hydraulic Piston or Electro Drive

### Dimensions and Connection

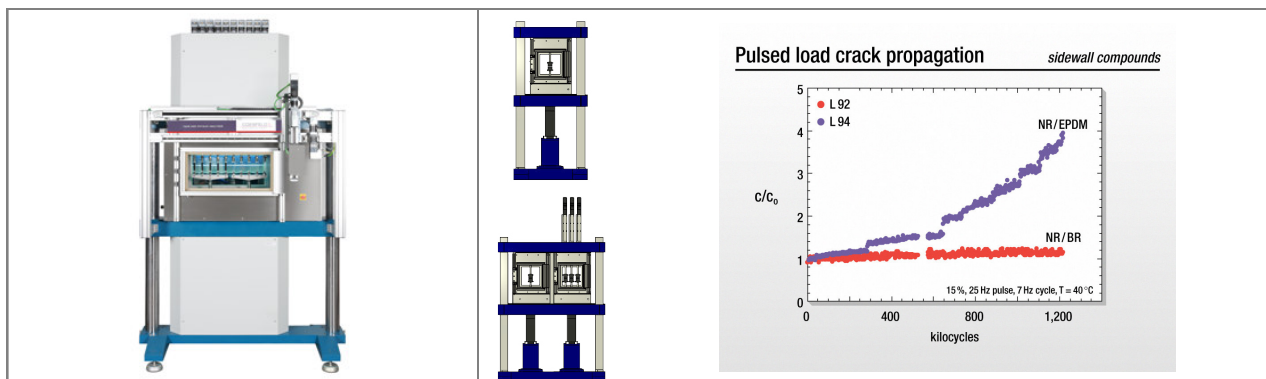
Dimensions (HxWxD)	approx. 2,700 x 2,000 x 1,100 mm
Weight	approx. 2,500 kg
Mains	3 ~ 400 V / 50 Hz N/PE / 60 A
Power	40 kVA

### Accessories and Options

- Tempering Chamber
- Climate/ Humidity/ Gas Control
- Air Dryer
- Camera System
- Specimen Molds
- Notch Cutter
- Clampings
- Thermocamera



## 61-471-ff Tear and Fatigue Analyzer (electro drive)



### Application

Dynamic tear and fatigue testing to analyze crack growth  $c$  and fatigue properties  $G^*$ ,  $G'$ ,  $G''$ ,... for material characterization and life-time prediction.

### Features

The Coesfeld Tear and Fatigue Analyzer (TFA) Tester (electro drive) offers flexibility and measuring precision. Electrical actuators offers high dynamic at low noise and energy level. The modular concept allows a choice of implementing multiple stations from 1-4 highly dynamic electro drives with each operating up-to 5 measuring stations yielding a total of up-to 20 simultaneous dynamic measurements. The stable steel frame provides high stiffness, precision and durability. With the universal clamping adapters it is possible to test a variety of different sample geometries, e.g. Single Edge Notch (SEN), Pure Shear (PS), Mini-Pure Shear (MPS), Dumbbell ... Integrated force and path sensors assure precise machine control and measuring data collection with full and unfiltered raw-data access to the end-user. Tempering or environmental test chambers and intelligent moving or fixed optical crack and strain measurement systems with day light filters are main accessories in the list of options. The WIN-TFA software with user definable control sequences completes the system for fully automated dynamic testing.

### Specifications

Measuring stations	1 to 20 station/ 1-4 dynamic drives/ 1-5 stepper per drive
Loading FN	1 kN, higher force on request
Force Sensor	500 N or 1 kN, ...
Force measuring accuracy	0,04 % FN
Drives/ Sensor	Direct electro drive with integrated absolute sensor and break
Resolution path sensor	1 $\mu$ m
Movement range	50 mm
Movement speed	up to 3 m/s
Frequency range	0.1 to 50 Hz
Camera	1 Mpx (up to 16 Mpx)
Optical Lenses	Precise Optical Lenses (optional telecentric) with day light filter
Light	Infrared Light
Resolution optical strain	10 $\mu$ m (up to 1 $\mu$ m)
Resolution crack length	40 $\mu$ m (optional up to 1 $\mu$ m)
Test Chamber	1- 4 Chambers with 2.000 W integrated heating power Heat exchanger + direct LN2 valve controlled cooling inlet
Temperature	(-50°C)* +45°C to 250°C, *with external cooling, e.g. LN2, chiller, ...
Temperature uniformity	+/-2 °C for T<150°C



## Dimensions and Connection

Dimensions (WxDxH)	min 1.500 x 1.100 x 2.000/ max 2.600 x 1.500 x 2.700 mm
Weight	min 1.000 kg/ max 3.500 kg
Mains	three phase, 400 V N/P/E, 50 Hz
Power	min 30 kW/ max 80 kW

Interfaces	TCP/IP to PC
Air	6 bar, 6 mm hoses inlet
Cooling	12 mm hoses inlet and outlet for closed cooling circle
Others	optional: large volume connection for climatic conditioner optional: hoses inlet and outlet for inert gas connection

## Accessories

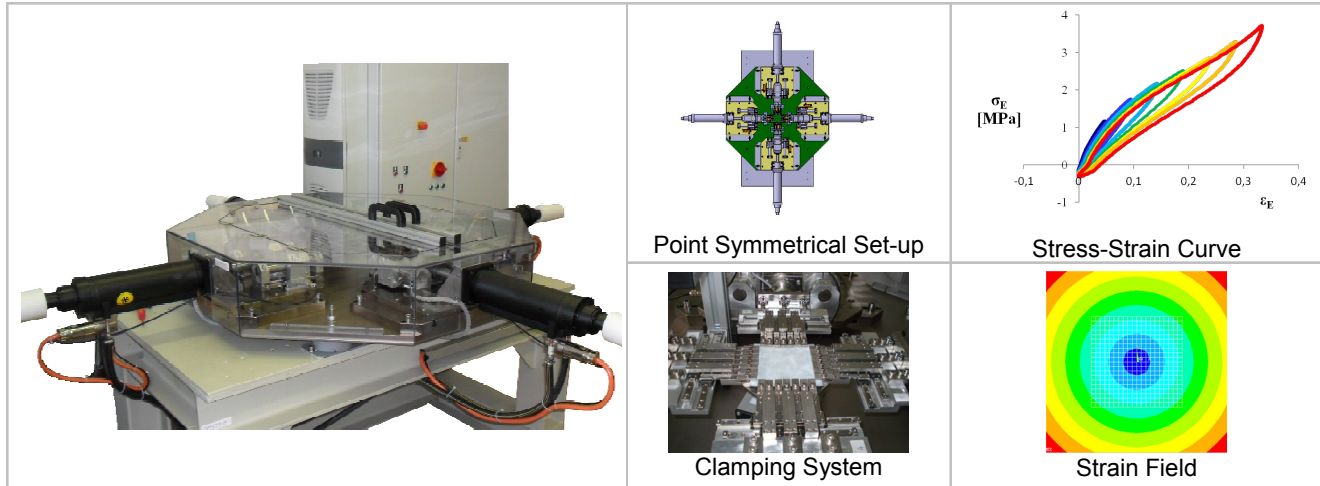
Incl.	Description
Y	PC with WIN-TFA software
Y	MPS Mini-Pure-Shear Grips 40 mm
N	SEN Single-Edge-Notch Grips 15 mm
N	PS Pure Shear Grips 120 mm
Y	Optical Strain Measurement System (Moving)
N	Optical Strain Measurement System (fixed per station)
Y	Tempering Chamber incl. heater and controlled cooling connection
Y	Chiller for electric drive cooling
N	Chiller for tempering chamber
N	Air Dryer for low temperature application
N	Environmental conditioner for humidity
N	Gas Generator (Ozone, N <sub>2</sub> , ...)
Y	Inert Gas Connection

The Coesfeld Tear and Fatigue Analyser (electro drive) offers a variety of options to choose in machine specifications and detailed specs of accessories.

Please contact us for a detailed discussion of your measuring tasks.



## 61-490 Biaxial Test System (dynamic)



### Field of Application

Dynamic biaxial tensile testing machine for fatigue testing.

### Features

The biaxial test system consists of four high dynamic direct electro linear drive systems, which are orthogonally oriented to each other. Each drive can be controlled individually to achieve uni-axial, equi-biaxial and arbitrary biaxial strain pictures. Each drive can be individually programmed. Each axis holds a digital path and force sensor. Optionally a camera system can be implemented with a centred view on top of the specimen, which online captures crack propagation or strain data of the main axes. The pictures can be saved for further offline analysis, e.g. local strain. All raw data is available via text export.

### Technical Specs

	<b>Biax 800</b>	<b>Biax 1800</b>	<b>Biax 6000</b>
Tensile, Pressure Force	800 kN	1800 kN	6000 kN
Acc. Class Force	0,2		
Path	50 mm		
Data Recording Force	1.000 Hz		
Acc. Path Sensor	1 µm		
Speed	1 m/s		
Data Recording Path	1.000 Hz		

Other specs on request.



### Dimensions and Interfaces

	<b>Biax D 800</b>	<b>Biax D 1800</b>	<b>Biax D 6000</b>
Dimension Main Unit (HxBxT)	ca. 1,6x3x3 m	ca. 1,6x3x3 m	ca. 1,6x3x3 m
Dimension Controller (HxBxT)	ca. 2x1,2x0,8 m	ca. 2x1,2x0,8 m	ca. 2x1,2x0,8 m
Dimension Cooler(HxBxT)	ca. 1,3x0,9x0,9 m	ca. 1,3x0,9x0,9 m	ca. 1,3x0,9x0,9 m
Weight	ca. 1.200 kg	ca. 2.500 kg	ca. 3.000 kg
Mains	400V/ 50Hz 3P/N/PE	400V/ 50Hz 3P/N/PE	400V/ 50Hz 3P/N/PE
Power	30 kVA	50 kVA	90 kVA
Interfaces	n.a.		
Air	n.a.		
Cooling	In-/ Outlet Hoses Connection 12.5 mm Innerdiameter		

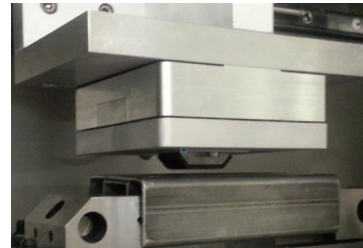
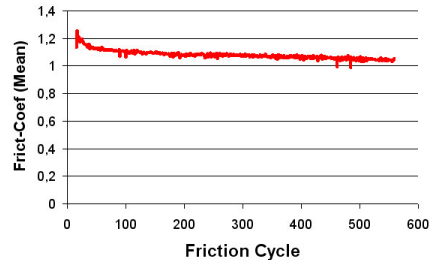
### Accessories

inkl.	Article	Description
1		PC with WIN-Biax-D Software
-	61-490-MK	Clamping with free running clamping fingers
-	61-490-S	Clamping on request
-	61-490-T	Tempering Chamber -50 bis 150 °C
-	60-K	Cooling machine on request
-	60-007-001	10 kW Cooling machine for E-Drives
-	61-490-K	Optical Measuring System with WIN-Biax-S Optical Software Module
-	29-K01	1 Mpx Camera with daylight filter
-	29-K05	5 Mpx Camera with daylight filter
-	61-K10	10 Mpx Camera with daylight filter
-	61-490-FL	Infrared Frontlight for strain measurement
-	61-490-BL	Infrared Backlight for crack measurement

Other accessories on request.



## 76-100-001 Dynamic Friction Tester



### Field of Application

Dynamic tribological tests within a tempered surrounding for a wide range of materials.

### Machine Characteristics

The dynamic friction tester is controlled from PC via Coesfeld WIN-Friction software. The machine consists of a highly dynamic linear electro drive, which horizontally moves a friction partner. A second electro-mechanical drive moves an exchangeable friction ground in the vertical plane. Via three-component force sensor normal, friction and lateral forces are measured. The test setting is placed in a tempering chamber.

### Technical Specifications

Friction force:	max. 500 N placed in a tempering chamber.
Friction surface:	max. 250 mm
Friction speed:	max. 1.5 m/s
Temperature:	(-10°C)* to 100°C * with optional external cooling

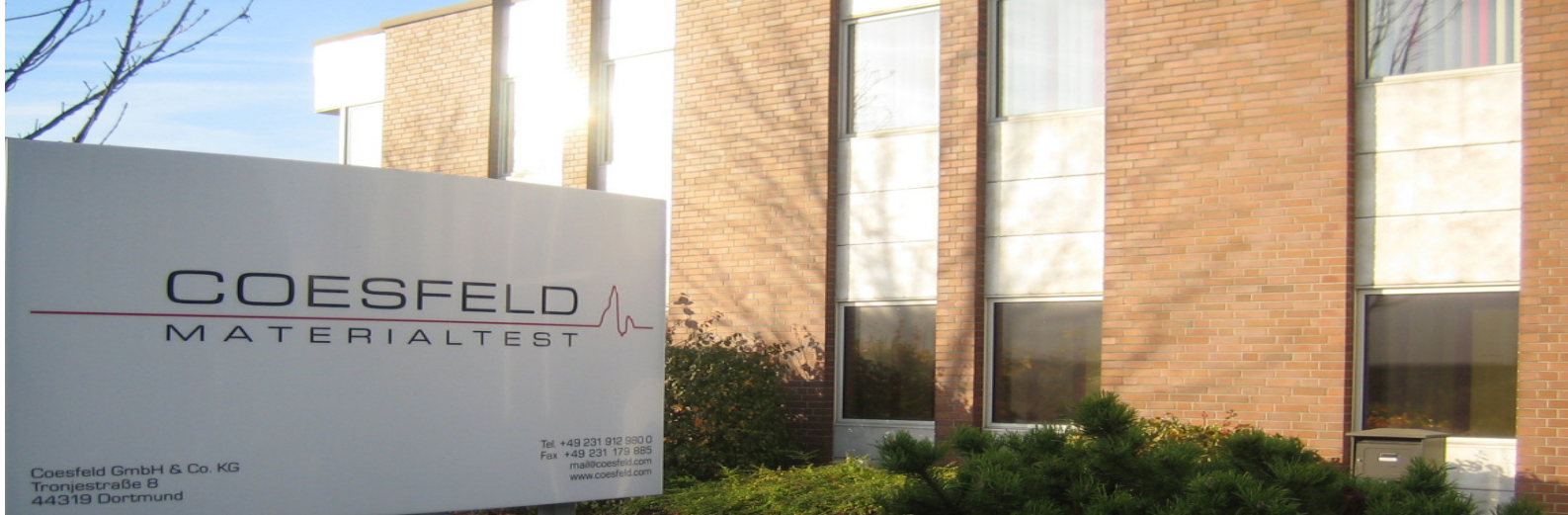
### Dimensions and Connections

Size (HxWxD):	2300x2400x720 mm
Weight:	700 kg

- 1 x IEC309 Plug IP44 3P+N+E 32A 380V / 50Hz
- 2 x cooling hoses plug connection for cooling electrical drives, Ø 12 mm, 25°C, rate 8l/min
- 2 x cooling hoses plug connection for cooling tempering chamber, Ø 12 mm
- 1 x air hoses plug connection for flushing chamber door, Ø 5 mm, max. 8 bar

### Accessories

- PC
- diverse clamping devices
- chiller



# Coesfeld Materialtest

## *the more intelligent solution ...*

Force, temperature, velocity, acceleration, travel, energy - if it has to do with the accurate generation and precise measurement of physical quantities on material, it is our core expertise.

Since our establishment in 1968 as a technical service organisation we have successively expanded our activities to order related production and consequently to small batch series. Today our machines are successfully installed all over the world. This is a indication for our continuity and reliability on the one hand; on the other hand it is a proof of our aims to always find the optimal solution for our customers.

At Coesfeld, we have managed to optimize the relation of supplier network, vertical integration, core competences, costs of production and process reliability.

Goal oriented and pragmatic processes form our organisation. This approach is formulated in our ISO 9001 certified Quality Management System covering our production, service and calibration services, which are performed by our ISO/IEC 17025:2005 accredited calibration laboratory CaLab.

That is why we are confident to claim that we will provide you the more intelligent solution. We will be happy to demonstrate this to you.

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DIN EN  
ISO 9001

