

Material Testing Machine
for the
Quality Control

UNIMAT® BASIC
050 · 052 · 054 · 056

with
Software (intern)
for Stand Alone Usage



Long-travel feeler-arm extensometer



testing equipment for quality management

ERICHSEN
since 1910

Technical Description

**Universal Testing
Machines for
Tension and Compression**

General Information

The compact material testing machines of the **UNIMAT® BASIC serie** have been specifically designed to facilitate quality checks simple and fast. The machines are available with a capacity of **3 kN, 5 kN, 10 kN or 20 kN** (higher forces on request).

The robust construction of massive aluminium and stainless steel makes these testing machines suitable for in-process controls.

For driving the cross-arm the Universal Testing Machines are equipped with electric motor drive (microprocessor-controlled, recirculating ball screw and bellows).

The motor including controls as well as the measurement and control system are integrated into the desktop housing.

The force is measured via a strain gauge load cell.

All testing machines can also be operated as a **stand-alone version** (with internal software) - without a PC - or with an **external Windows program**.

The testing machines operated via control panel with foil keypad (LCD with 2-line display).

(at models 050/052 – integrated into housing; at model 054/056 – side mounting or by remote control)

Software (intern) – Stand Alone Usage

The BASIC version of the machine includes a program to determine the maximum force and travel distance as well as to determine the maximum breaking force and distance.

During the test force and displacement values are sent via the USB interface.

After the end these values are visible in the display.

There are two BASIC programs in the machine:

- *constant speed*:
the machine moves with a constant speed.
- *constant force*:
the machine holds the force constantly; a preset force maintained over a defined period.

The program in the machine is changeable via USB.

Available languages: German, English, Spanish, French, Danish, Italian.

Windows Program (on CD)

The package includes a Windows Program (runs under Windows 95/98/2000 / XP and NT / W7 or W8) for controlling, recording, display and saving data. Forces and distances will be presented, compared and stored.



Fig. Mod. 050-BASIC

UNIMAT® BASIC 050 – 3 kN

Universal Testing Machine **UNIMAT® BASIC 050**, with **one spindle and one bellow**, has a control panel **integrated** in the housing: (keypad, LCD with 2-line display: force / displacement).

Two versions of the testing machine are available (incl. load cell 3000 N):

- Testing force **3 kN**, travelling distance 500 mm
- Testing force **3 kN**, travelling distance 1200 mm

UNIMAT® BASIC 052 – 5 kN

Universal Testing Machine **UNIMAT® BASIC 052**, design as model 050-BASIC

Two versions of the testing machine are available (incl. load cell 5000 N):

- Testing force **5 kN**, travelling distance 500 mm
- Testing force **5 kN**, travelling distance 1200 mm

Optionally for Models 050/052:

Protective box (Plexiglas) with safety switch; required for rapid test procedures or inspection of workpieces, where the risk of flying fragments (components) is given – a subsequent installation is not possible !



Fig. Mod. 054-BASIC

UNIMAT® BASIC 054 – 10 kN

Universal Testing Machine **UNIMAT® BASIC 054**, with **two spindles and two bellows**, has a **separate** control panel for lateral attachment or can be operated by remote control (keypad, LCD with 2-line display: force / displacement).

Six versions of the testing machine are available (incl. load cell 10000 N):

- Testing force **10 kN**, travelling distance 700 mm / clearance 400 mm
- Testing force **10 kN**, travelling distance 700 mm / clearance 600 mm
- Testing force **10 kN**, travelling distance 700 mm / clearance 800 mm
- Testing force **10 kN**, travelling distance 1200 mm / clearance 400 mm
- Testing force **10 kN**, travelling distance 1200 mm / clearance 600 mm
- Testing force **10 kN**, travelling distance 1200 mm / clearance 800 mm

Optionally for Models 054:

Protective door (Plexiglas) with safety switch; required for rapid test procedures or inspection of workpieces, where the risk of flying fragments (components) is given – a subsequent installation is not possible !



Fig. Mod. 056-BASIC

UNIMAT® BASIC 056 – 20 kN

The Universal Testing Maschine **UNIMAT® BASIC 056**, is a **heavy two-spindle design** with a side-mounted cabinet, where is also the control panel (keypad, LCD with 2-line display: force / displacement).

Two versions of the testing machine are available (incl. load cell 20000 N):

- Testing force **20 kN**, travelling distance 700 mm / clearance 425 mm
- Testing force **20 kN**, travelling distance 1200 mm / clearance 425 mm

Optionally for Models 056:

Protective door (Plexiglas) with safety switch; required for rapid test procedures or inspection of workpieces, where the risk of flying fragments (components) is given – a subsequent installation is not possible !

Higher testing forces available on request.

As accessories load cells (from 5 N up to 20 kN) and various grips are available (please refer to our relevant selection guide as well as our price list).

Accessory (OPTION)

Long-travel feeler-arm extensometer MFE 900

The MFE 900 extensometer is specifically designed for applications with highly lengthening materials such as plastics and rubber, incorporating long travel (up to 900 mm). The MFE complements relatively low-cost instruments of the serie UNIMAT® BASIC, used for the testing of plastics. At this semi-automatic working measuring device, the position and the gauge length (L_e) have to be set manually whereas the moving to this position and the gauge length as well the attachment at the specimen, are done by electromotive drives.

The MFE is suitable for nearly all samples (from a gauge length of $L_e = 10$ mm) up to sample rupture.

Measuring direction upwards or downwards is available. The measuring heads may be removed from the device easily and quickly by means of a screw / insert system.

A subsequent installation
of MFE 900 to an **existing**
testing machine

UNIMAT-Basic can only
be done in our factory
(please note the changed
dimensions/weights).



Fig. UNIMAT® BASIC 050 with MFE 900

Order Information

Ord.-No.	Product-Description
00500151	UNIMAT® BASIC 050 – 3 kN – 500
00500251	UNIMAT® BASIC 050 – 3 kN – 1200
00520151	UNIMAT® BASIC 052 – 5 kN – 500
00520251	UNIMAT® BASIC 052 – 5 kN – 1200
00540151	UNIMAT® BASIC 054 – 10 kN – 700/400
00540251	UNIMAT® BASIC 054 – 10 kN – 700/600
00540351	UNIMAT® BASIC 054 – 10 kN – 700/800
00540451	UNIMAT® BASIC 054 – 10 kN – 1200/400
00540551	UNIMAT® BASIC 054 – 10 kN – 1200/600
00540651	UNIMAT® BASIC 054 – 10 kN – 1200/800
00560151	UNIMAT® BASIC 056 – 20 kN – 700/425
00560251	UNIMAT® BASIC 056 – 20 kN – 1200/425
Included in the scope of supply: • Load cell • Software (CD) • Power supply cable • Manual	

Technical Data

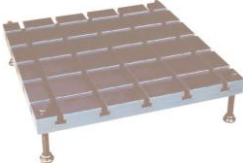
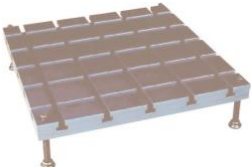
	UNIMAT® 050 BASIC		UNIMAT® 052 BASIC		UNIMAT® 054 BASIC		UNIMAT® 056 BASIC	
Max force	3 kN		5 kN		10 kN		20 kN	
Max speed [mm/min]	700		700		600		1600	
Min speed [mm/min]	0.1		0.1		0.1		0.1	
Smallest distance to adapter [mm]	66		66		--		--	
Clearance [mm]	--		--		400/600/800		425	
Adapter size [mm]	15.8		15.8		15.8		31.8	
Motor [Watt]	50		90		170		800	
Voltage [~V]	220/110		220/110		220/110		380	
Motor type Producer	DC Maxon		DC Maxon		DC Maxon		AC-Servo Stöber	
Stiffness / LZ [mm/kN]	0.3							
Max. travel distance [mm]	500	1200	500	1200	700	1200	700	1200
Weight [kg]/ incl. MFE900	36 / 68	55 / 87	37 / 69	56 / 88	80 / 112	105 / 137	235 / 267	260 / 292
Dimensions [mm] H x W x D / incl.MFE900	1036 390/900 300	1677 390/900 300	1036 390/900 300	1677 390/900 300	1226 640 240/750	1726 640 240/750	1317 1071 433/940	1837 1071 433/940
Packing dimensions [mm] H x W x D	1150 500 400	1800 500 400	1150 500 400	1800 740 400	1315 740 400	1916 740 400	1900 1200 800	1900 1200 800

Current grips for UNIMAT® BASIC Testing Machines					
Type of Machine (Model)	050-3 kN (1 - 3 kN)		052-5 kN	054-10 kN	056-20 kN
Measuring range	1 kN	3 kN	5 kN	10 kN	20 kN
Wedge Grips	SZS7-10 (5 kN) 00503552			SZS622-10 kN 00540152	SZ243-20 kN 00560152
Pyramid jaws	SZS7BP 00503652			SZS622-BP 00540252	SZ243-BP 00560252
V-jaws	SZS7-BV 00503752			SZ622-BV 00540352	SZ243-BV 00560352
Small Vice Grip (including pyramid jaws)	SZ140k-100N 00500452				
Vice Grips	SZ240k-1 kN 00500552	SZ240g-3 kN 00500852			
Pyramid jaws	SZ240k-BP 00500652	SZ240g-BP 00500952			
V-jaws	SZ240k-BV2 00500752	SZ240g-BV 00501052			
Round Compression Plate Ø 56 mm Ø 96 mm Ø 116 mm Ø 156 mm	SZ23-Al 00501152 00501252		SZ23-St 00540452 00540552		
Square Plate Chuck (with T-shaped grooves)			SZ36T-250 mm - Al 00540652		
Bending Grips (3-point)	SZ238-150 mm - Al 00501352		SZ238-300 mm - St 00520152		
Peeling Grips (Peel test 180°/FTM1/FTM3) Accessory: Carrier plate	SZ49 00501452 SZ49-EGP 00501552				
Peeling Grips (Peel test 90°/FTM2) Accessory: Carrier plate	SZ50 00501652 SZ50-PL03 00501752				
Cardan joint	SZ327-5 kN 00501852				
			SZ327-20 kN 00540752		

The list represents only a small selection of grips.

Figures	Ord.-No.	Description
Grips for Model 050-BASIC:		
	00503552	<u>Wedge Grips SZS7-10</u> (per pair) without jaws, tensile force 5 kN
	00503652	<u>Pyramid jaws SZS7-BP</u> (4 pcs./set) hardened, opening 0 – 8 mm, clamping surface 40 x 10 mm
	00503752	<u>V-jaws SZS7-BV</u> (4 pcs./set) hardened, for round samples Ø 2 – 8 mm, clamping level 40 mm
	00500452	<u>Small Vice Grip SZ140k-100N</u> (per pair) incl. pyramid jaws, opening 0 – 8 mm, clamping surface 15 x 15 mm (63 g)
	00500552	<u>Vice Grips SZ240k-1 kN</u> (per pair) without jaws, tensile force 1 kN, opening 0 – 10 mm
	00500652	<u>Pyramid jaws SZ240k-BP</u> (4 pcs./set) hardened, clamping surface 30 x 30 mm
	00500752	<u>V-jaws SZ240k-BV2</u> (4 pcs./set) hardened, for round samples from Ø 2 mm
	00500852	<u>Vice Grips SZ240g-5 kN</u> (per pair) without jaws, tensile force 5 kN, opening 0 – 30 mm
	00500952	<u>Pyramid jaws SZ240g-BP</u> (4 pcs./set) hardened, clamping surface 30 x 50 mm
	00501052	<u>V-jaws SZ240g-BV</u> (4 pcs./set) hardened, for round samples Ø 2 - 30 mm
	00501152	<u>Round Compression Plate SZ23-Ø56 mm - Al</u> (per pair) with centring grooves
	00501252	<u>Round Compression Plate SZ23-Ø96 mm - Al</u> (per pair) with centring grooves
	00501352	<u>3-Point Bending Grip SZ238-150 mm – Al</u> (per pc.) pressure force 2.5 kN, bearing area 4 – 150 mm, with steel fins (radius optionally: 1, 2, 3.2 or 5 mm – please specify when ordering)
	00501452	<u>Peeling Grip SZ49-GT (Peel test 180°/FTM1+3)</u> (per pc.) maximum load 5 kN, sample width 50 mm, sample length 280 mm
	00501552	<u>Necessary accessory: carrier plate SZ49-EGP</u> for samples (300 x 50 x 5 mm)
	00501652	<u>Peeling Grip SZ50 (Peel Test 90°/FTM2)</u> (per pc.) maximum load 5 kN, sample width 50 mm, sample length 280 mm
	00501752	<u>Necessary accessory: carrier plate SZ50-PL03</u> for samples (280 x 56 x 2 mm)

Figures	Ord.-No.	Description
	00501852	<u>Cardan joint SZ327-5 kN</u> (per pc.) tensile force 5 kN
Grips for Model 052-BASIC:		
	00503552	<u>Wedge Grips SZS7-10</u> (per pair) <u>without</u> jaws, tensile force 5 kN
	00503652	<u>Pyramid jaws SZS7-BP</u> (4 pcs./set) hardened, opening 0 – 8 mm, clamping surface 40 x 10 mm
	00503752	<u>V-jaws SZS7BV</u> (4 pcs./set) hardened, for round samples Ø 2 – 8 mm, clamping level 40 mm
	00501152	<u>Round Compression Plate SZ23-Ø56 mm - Al</u> (per pair) with centring grooves
	00501252	<u>Round Compression Plate SZ23-Ø96 mm - Al</u> (per pair) with centring grooves
	00520152	<u>3-Point Bending Grip SZ238-300 mm - St</u> (per pc.) pressure force 10 kN, bearing area 4 – 300 mm, with steel fins (radius optionally: 1, 2, 3.2 or 5 mm – please specify when ordering)
	00501452	<u>Peeling Grip SZ49-GT (Peel test 180°/FTM1+3)</u> (per pc.) maximum load 5 kN, sample width 50 mm, sample length 280 mm
	00501552	<u>Necessary accessory: carrier plate SZ49-EGP</u> for samples (300 x 50 x 5 mm)
	00501652	<u>Peeling Grip SZ50 (Peel test 90°/FTM2)</u> (per pc.) maximum load 5 kN, sample width 50 mm, sample length 280 mm
	00501752	<u>Necessary accessory: carrier plate SZ50-PL03</u> for samples (280 x 56 x 2 mm)
	00501852	<u>Cardan joint SZ327-5 kN</u> (per pc.) tensile force 5 kN
Grips for Model 054-BASIC:		
	00540152	<u>Wedge Grips SZ622-10 kN</u> (per pair) <u>without</u> jaws, tensile force 10 kN
	00540252	<u>Pyramid jaws SZ622-BP</u> (4 pcs./set) hardened, opening 0 – 9 mm clamping surface 40 x 34 mm
	00540352	<u>V-jaws SZ622-BV</u> (4 pcs./set) hardened, for round samples Ø 3 – 13 mm, clamping level 40 mm

Figures	Ord.-No.	Description
	00540452	<u>Round Compression Plate SZ23-Ø116 mm - Steel</u> (per pair) with centring grooves
	00540552	<u>Round Compression Plate SZ23-Ø156 mm - Steel</u> (per pair) with centring grooves
	00540652	<u>Square Plate Chuck SZ36T-250 mm – Al</u> (per pc.) with T-shaped grooves, size 250 x 250 mm
	00520152	<u>3-Point Bending Grip SZ238-300 mm – St</u> (per pc.) pressure force 10 kN, bearing area 4 – 300 mm, with steel fins (radius optionally: 1, 2, 3.2 or 5 mm – please specify when ordering)
	00540752	<u>Cardan joint SZ327-20 kN</u> (per pc.) tensile force 20 kN
Grips for Model 056-BASIC:		
	00560152	<u>Wedge Grips SZ243-20 kN</u> (per pair) <u>without</u> jaws, tensile force 20 kN
	00560252	Pyramid jaws SZ243-BP (4 pcs./set) hardened, opening 0 – 13 mm clamping surface 50 x 35 mm
	00560352	V-jaws SZ243-BV (4 pcs./set) hardened, for round samples Ø 3 – 13 mm, clamping level 50 mm
	00540452	<u>Round Compression Plate SZ23-Ø116 mm - Steel</u> (per pair) with centring grooves
	00540552	<u>Round Compression Plate SZ23-Ø156 mm - Steel</u> (per pair) with centring grooves
	00540652	<u>Square Plate Chuck SZ36T-250 mm – Al</u> (per pc.) with T-shaped grooves, size 250 x 250 mm
	00540752	<u>Cardan joint SZ327-20 kN</u> (per pc.) tensile force 20 kN

TBE 050/052/054/056-BASIC – III/2021
The right of technical modifications is reserved.