39200 Inspection mirrors

39200 101
Design
2 pieces, with metal handle.

39200 102
Design
2 pieces, with plastic handle.

39200 101

39200 102

Mirror Ø mm	Length mm	39200	...
30	210		101
24	260		102

39205 Flexible workshop mirror

BAHCO

39205

Design
- Aluminium mirror housing
- Metal guide hose chrome-plated brass
- The mirror can be adjusted from the handle to the desired angle

Mirror size mm	Shaft length mm	39205	...
50 x 70	500		101

39206 Inspection mirror

Design
- Inspection mirror with telescopic handle
- No unintentional twisting of the mirror with the oval telescopic tube

39206 101

39206 102

Mirror Ø mm	Extendable length from–to mm	39206	...
30	240 - 680		101
50	240 - 680		102

39210 Inspection mirror

Design
- With lighting, flexible shaft plus plastic handle for 1.5 V battery, type LR 03
- With 2 replaceable mirrors, 24 and 30 mm Ø flat
- The mirrors are threaded for easy replacement, enabling you to see even into small openings
- Smallest Ø without mirrors 11 mm, smallest Ø with mirror 24 mm

Applications
The light falls on the mirror and is reflected onto the visible surface in the mirror.

Note:
Replacement batteries, see art. no. 39900 304.

39210

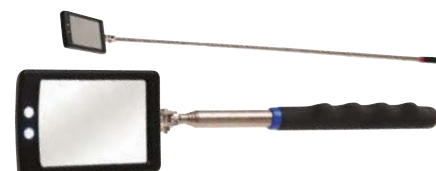| Mirror Ø mm	39210	...
24/30		101

39209 LED telescopic inspection mirror

Design
- Inspection mirror with handy and slip-proof telescopic handle
- Mirror can be folded and turned
- With 2 LEDs

39209

Length mm	Mirror size mm	39209	...
285–870	41 x 62		101

39211 Illuminated inspection mirror

HAZET

Note:
Replacement batteries, see art. no. 39900 303.

39211

Design
- Flexible shaft
- Mirror angle adjustable by up to 90° via thumb control
- Powerful lamp for illuminating dark places

Length mm	39211	...
620		101

Measuring/ testing technology

39212   LED inspection mirror set

39212

Design
- 1 telescopic pick-up magnet with LED lighting, extendable up to 665 mm, load-bearing capacity 450 g
- 1 telescopic pick-up magnet, extendable up to 665 mm, load-bearing capacity 3500 g
- 3 inspection mirrors, mirror Ø 21, 31 and 38 mm
- Practical storage bag
- Includes 3 batteries (type SR41)

Note:
Replacement batteries, see art. no. 39900 100.

Mirror Ø mm	39212	...
21/31/38		101

39214   Pocket magnifier lamp easyPOCKET

39214

ESCHENBACH

Design
Diffractive, aspherical PXM® lightweight lens (very flat and thin) for inserting into the credit card-sized housing. Housing colour: blue metallic.
- Ultra-flat and lightweight design: Small-sized case for protected storage guaranteed in every pocket
- Brilliant image with 4x magnification
- Very bright LED lighting when lens is extended

- Very economical. The LED light switches on automatically only when the lens is fully extended.
- Very small, bright SMD LED lighting with virtually unlimited life
Supplied with 2 batteries (AA 1.5 V, type 2025)

Magnification	Housing dimensions mm	39214	...
4x	86 x 54 x 6		101

39215   Folding magnifier visoPOCKET

39215

ESCHENBACH

Design
- Diffractive aspherical lens
- Large visual field with super flat lens
- Handy credit card size
- Lens protected from scratches thanks to leather case

Applications
Ideal for on the go, when small print needs to magnified quickly and easily.

NEW

Magnification	Dimensions mm	Dioptre	Colour	39215	...
2.5x	74 x 48	6	brown		101

39216   Folding pocket magnifiers

39216

Design
- 2 lenses
- Housing made of brass
- Frame made of zinc, chrome-plated

Magnification	Lens Ø mm	39216	...
10x	21		101
20x	21		102

39217   Folding magnifier

39217

ATORN®

Design
- Biconvex glass lens in plastic frame
- Nickel-plated brass cover plates

Magnification	Lens Ø mm	39217	...
3/6/9x	30		201

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39220 — Watchmaker's magnifier/stone magnifier

ESCHENBACH

Design
- PXM® lightweight lens with duplex coating
- With ventilation hole to prevent misting
- Made from flame retardant plastic
- Colour anthracite

39220 301

39220 304

Magnification	Lens	Lens Ø mm	Design	39220	...
5x	plano-convex	25	Watchmaker's magnifier		301
7x	plano-convex	25	Watchmaker's magnifier		302
10x	aspheric	25	Watchmaker's magnifier		303
15x	aspheric	25	Stone magnifier		304

39222 — Watchmaker's magnifier

Design
- With 2 glass lenses

39222

Magnification	Lens Ø mm	39222	...
3x	25		101

39223 — Reading glasses

Design
- Glass lens

39223 102

39223 103

Magnification	Lens Ø mm	39223	...
10x	30		102
15x	21		103

39225 — Reading glasses

Design
- **Biconvex**
- Glass lens
- With plastic/wooden handle
- Metal frame

39225 105

ATORN®

Design
- Round aluminium handle with recessed grips
- Nickel-plated brass frame.

39225 102

39225 105

39225 104

Magnification	Dimension Ø approx. mm	39225	...
2.0x	100		102
2.5x	75		105
4.0x	65		104

39224 — Handheld magnifiers

ATORN®

Design
- Aplanatic glass lens for high-contrast and very sharp image up to the edge
- Frame and handle made of black anodised aluminium

39224

Magnification	Lens Ø mm	39224	...
4x	50		201
5x	40		202
8x	30		203
10x	23		204
15x	23		205

39218 — LED magnifier lamps powerlux

⊟ ESCHENBACH

Design
- PXM® lightweight lens with cera-tec® coating
- Very easy, intuitive movement over the reading material thanks to ergonomic design
- With battery conserving, automatic switch-off
- Consistently bright and dazzle-free illumination
- Shadow-free illumination thanks to the 2 opposing SMD LEDs

- Suitable for right-handed and left-handed people
- Switches off after 30 minutes.
- Supplied with 3 batteries (AAA) and protective hard foam case

Note:
Replacement batteries, see art. no. 39900 304.

39218

Magnification	Lens Ø mm	Light colour	39218	...
5x	58	8000 K		**101**
7x	58	8000 K		**102**

39230 — Digital magnifier mobilux DIGITAL Inspection

⊟ ESCHENBACH

Design
- Large magnification range and extensive configuration options
- Test images in HD quality
- Software for live streaming and as measuring software
- Integrated 1/4 inch thread for tripod
- Touchscreen 4.3 inch display resolution 480 x 272 pixels
- Photographic resolution 1280 x 720 pixels, 16:9 format, JPEG
- Automatic shut-off
- Memory feature for storing up to 10,000 images

Applications
Checking specific quality characteristics during incoming and outgoing goods inspections, with warehouse samples and during the production process is a basic prerequisite for ensuring high customer satisfaction.
mobilux DIGITAL Inspection is an ideal tool for **non-contact visual inspection** in areas such as production, quality control or repairs – both at the workbench and on the go.
For enlarged presentation and documentation.

Scope of delivery:
- Measuring software
- 4 GB SD card
- Charger with plug adapters (EU, US, UK, AUS)
- Storage case
- Stand (optional)

39230

Magnification	39230	...
1.25–15x		**101**

39219 — Pocket magnifier lamps mobiluxLED

⊟ ESCHENBACH

Design
- Three different colours of light can be selected using supplied filter
- No lamp replacement is required, the LED lighting used has a lifespan of approx. 50,000 hours
- Voltage control via step-up converter, meaning brighter, constant illumination over a longer period of time
- Bright, homogeneous illumination from SMD-LED and collimating lens

- Easy battery replacement thanks to easy-to-use battery cover and clearly specified battery location due to contact springs
- Improved comfort due to eyelet for lanyard
- Supplied with 2 batteries (AA) and case with loop for connection.

Note:
Replacement batteries, see art. no. 39900 303.

39219 100

39219 101-104

Magnification	Lens size mm	39219	...
3x	90 x 54		**100** NEW
5x	Ø 58		**101**
7x	Ø 35		**102**
10x	Ø 35		**103**
12.5x	Ø 35		**104**

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39227 Magnifier lamps

Design
- Biconvex plastic lens
- Frame and handle in impact-resistant plastic
- Batteries not included in the scope of delivery

39227 101
Design
- Power supply 2 x 1.5 volt AA batteries
  type LR 6, AA (art. no. 39900 303)

39227 102
Design
- With **LED lamp**
- Power supply 3 x 1.5 V micro batteries
  type LR 03, AAA (art. no. 39900 304)

39227 101

39227 102

Magnification	Lens Ø mm	39227	...
3x	50		101
10x	30		102

39236 Magnifying glasses maxDetail

ESCHENBACH
Design
- Very light
- Straight arms for comfortable fit
- Also suited for spectacle wearers since dioptric
  compensation of +/- 3 dpt is possible
- Large visual field (approx. Ø 150 mm at a distance
  of 400 mm)
- Long working distance and large field of vision
- Supplied in glasses case

Applications
Relaxed and detailed view with maximum freedom
of movement.

39236

Magnification (Galileo system)	Working distance approx. mm	39236	...
2x	400		101

39229 Headband magnifying glasses

Design
- User-friendly due to adjustable head band with
  hook and loop fastener
- Weight only approx. 120 g
- Large field of vision
- Suitable for users who wear glasses
- Both hands remain free
- 2nd lens can be folded down for greater
  magnification

Applications
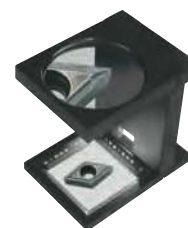For reading, precision work, quality controls, etc.

39229

Magnification	Lens size mm	39229	...
2.2–3.3x	100 x 30		101

39233 Measuring magnifying glass

Design
- **With illumination**
- **Biconvex plastic lens**
- Frame and stand part in impact-resistant plastic
- **Measuring plate,** pitch 1 mm, scale length 60 mm
  and from 0–2.1/4
- Power supply 4 x 1.5 V AA batteries type LR 6, AA
- Batteries not included in the scope of delivery

Note:
Batteries, see art. no. 39900 303.

39233

Magnification	Lens Ø mm	Height approx. mm	39233	...
3x	89	133		101

39234 Measuring magnifying glass (thread counter)

Design
- With millimetre and inch scale

39234

Magnification	Lens Ø mm	39234	...
6x	30		101

eng/P   ( ) = Items with prices in brackets partly available from stock.

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Fax order hotline: 0800 0 915910   HHW   **39.15**

39238   Precision thread counter

⊟ ESCHENBACH

39238

Design
- **Biconvex**
- With a square cut-out, without scale
- Thread counter in precision design
- Brass housing, semi-gloss chrome-plated
- Silicate glass

Magnification	Lens Ø mm	Cut-out mm	39238	...
8x	17.6	20 x 20		**101**

39241   Measuring magnifiers

ATORN®

39241

Design
- Full metal design
- Achromatic glass lens system
- Parallax-free, distortion-free reading
- Brass scale plate, chrome-plated, high-precision laser graduated
- Half-open tube with white background for optimum, glare-free illumination of objects

- Superb edge sharpness for near parallax-free viewing

Applications
For surface measuring tasks, e.g. measuring the indentation in the Brinell hardness test.

Magnification	Measuring range mm	Scale interval mm	Height mm	39241	...
6x	20	0.1	56		**101**
8x	10	0.1	45		**102**
10x	10	0.1	52		**103**

39242   Precision scale magnifiers

⊟ ESCHENBACH

39242 101-102
Precision scale magnifiers
Design
- **Achromatic glass lens,** tempered
- Distortion-free and razor-sharp picture
- Sharpness setting using non-slip focusing ring
- **With scale type A** (art. no. 39242 201)
- Supplied in a solid plastic box with space for other scales

39242 201-204
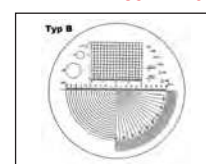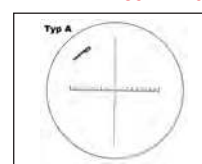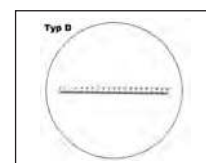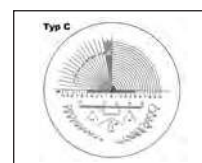**Scales, individual**

39242 101   39242 102

39242 201   39242 202

39242 203   39242 204

Type	Magnification	Lens Ø mm	39242	...
Scale magnifier	7x	23		**101**
Scale magnifier	10x	23		**102**
Scale type A	-	-		**201**
Scale type B	-	-		**202**
Scale type C	-	-		**203**
Scale type D	-	-		**204**

39243   LED lighting equipment for scale magnifiers art. no. 39242

⊟ ESCHENBACH

39243

Design
- Illumination with 2 high-quality LEDs for highest image quality
- Grip cover for 2 batteries, type Baby
- Supplied with lamp, but without batteries.

Applications
For scale magnifiers (art. no. 39242) if the ambient light is no longer sufficient.

Note:
Batteries, see art. no. 39900 402.

	39243	...
		101

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39249 — Measuring microscopes

ATORN®

Design
- Achromatic lens system
- Robust light metal housing
- Focussing using screw thread in lens and eyepiece
- Mounted LED lighting
- Power supply via 4 x button cell 1.5 V
  (type SR 44)

Scope of delivery:
- Measuring microscope with LED illumination
- 4 batteries
- In transport case

Applications
For general measuring tasks in linear measurement technology, the graphics industry or hardness tests for Brinell and Vickers.

Note:
Replacement batteries, see art. no. 39900 101.

39249

Magnification	Object field Ø mm	Measuring range mm	Scale interval mm	Lens distance mm	39249	...
20x	8.0	7	0.05	57		101
40x	5.0	4	0.02	36		102
60x	2.5	2	0.0125	26		103

39252 — Magnifying glass on stand

ATORN®

Design
- Aplanatic silicate lens
- Flexible metal gooseneck arm
- Heavy table base

39252

Magnification	Lens Ø mm	Arm length mm	Table base Ø mm	39252	...
2x	75	300	110		101

39253 — Magnifying glass on stand with LED lighting

ATORN®

Design
- **Biconvex** wide field glass lens
- **5 power LEDs** for very bright lighting
- Extremely sturdy construction (heavy steel base, flexible gooseneck arm, magnifier head made of aluminium)

- Half-frame lens mount for viewing without disturbing edges
- Shadow-free light
- Low power consumption
- With 5 V mains plug

39253

Magnification	Lens Ø mm		39253	...
2x	120			101

39254 — LED magnifying lamps

ATORN®

39254 301-302
LED magnifying lamps
Design
- Segmented switching of the SMD LEDs in two stages
- High-quality, clear optical lens
- Compact lamp housing with integrated hinge
- Non-slip, well-designed soft plastic ring provides impact protection
- Can also be used as a reading lamp using external lamp switch
- Even distribution of light in the working area
- Concealed, easily moveable arm mechanism that does not present a risk of trapping
- Large working radius
- Removable protective cover
- Replaceable glass lens

39254 201-202
Replacement lenses

39254 203
Universal holder
Design
- Made of cast aluminium with plastic plain bearings
- A plain bearing and a cover for the hole that is not required are supplied
- The plain bearing mount is suitable for bolts up to 12.9 mm.
Applications
Can be mounted either as a wall or table holder.

39254 301-302

Technical data: Technology	LED magnifying lamps (art. no. 39254 301-302)
Lamp:	90 ultrabright SMD LEDs, 2 settings using electronic button
Service life of the LEDs:	Up to 25,000 hours
Colour temperature:	6500 K
Mains voltage:	240 V/50 Hz
Power consumption:	3.5 W (art. no. 39254 301)/9 W (art. no. 39254 302)
Energy efficiency class:	A+
Power consumption in standby mode:	0.3 Watt
Dimensions and weights	
Lamp housing (L x W x H):	230 x 200 x 30 mm
Upper arm length:	approx. 500 mm
Lower arm length:	approx. 470 mm
Distance from lower joint to lens centre:	approx. 1060 mm
Mandrel diameter for clamp or tripod:	12.7 mm, length approx. 48 mm
Maximum bench plate thickness:	approx. 65 mm
Length of connecting cable:	approx. 165 mm
Weight:	2.4 kg
Scope of delivery:	Magnifying lamp, table clamp, instructions

Magnification	Dioptres	Lens-Ø mm	Lamp 39254 ...	Replacement lens 39254 ...	Universal holder 39254 ...
1.75x	3	125	301	201	203
2.25x	5	125	302	202	203

39254 — LED magnifying lamp

ATORN®

Design
- Real glass lens
- 45 extremely bright, highly efficient SMD LEDs
- Low power consumption of 7 watts
- New gooseneck design with silicone cover
- Lamp head with recessed handle
- Lens removable without the need for tools
- Lamp base with blue rubber ring
- Integrated power supply: AC 220–240 V, 50 Hz, Euro plug
- Well-balanced table-top base
- Colour: White

39254 303

Magnification	Dioptres	Lens Ø mm	Luminous flux lm	39254 ...
1.75x	3	100	665	303

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39262 — LED magnifier lamp TEVISIO

Waldmann W
ENGINEER OF LIGHT.

Design
- 48 premium SMD LEDs
- 40% energy saving
- Powerful 6000 lx with only 14 W
- Maintenance-free: LED service life up to 50,000 hours and more
- Dimmable up to 10%
- Structure-emphasised effects at the push of a button
- Approximately twice the magnification by 3.5 dioptres
- Absolutely scratch-resistant magnifying glass

- Large field of vision with a diameter of 153 mm for distortion-free view
- Closed joints protect the cables inside
- Enormous operating radius, unique movable head joint
- Balanced linkage: easily adjustable, can be locked exactly as required

39262

Magnification	Lens Ø mm	39262	...
2x	160		**101**

69167 — Scotch-Brite high-performance cleaning cloth

3M

Design
- With patented fibre combination of polyester and nylon
- This enables extremely economical cleaning of both aqueous and fatty dirt with little effort
- The grease and dirt absorption is up to 100 times greater than for conventional cleaning cloths
- The cloth is machine washable up to 95°C
- Colour: blue

Applications
Suitable for all surfaces.
Cleans dry, damp or wet.

69167

Cloth size approx. cm	Pack = pieces	69167	...
36 x 32	5		**101**

| 39308 | **Video endoscope** |

HAZET

39308 301

Video endoscope with 4.9 mm Ø probe
Design

- 1 m camera cable with 4.9 mm Ø micro lens, LED light sources and 90° switching function and 0° viewing direction
- Videos and photos can be played back instantly on the TFT monitor
- Date and time can be shown or hidden
- Automatic switch-off function to save energy
- Improved image resolution
- Improved connection between probe and housing (metal) - For adapter for using older probes, see art. no. 39308 206
- One-handed operation of the multifunctional console
- All in one: observation, recording and playback via TFT monitor

2nd generation probe:
- Position of the side LED altered for improved illumination in the 90° function
- Improved LED luminosity
- Simplified handling
- Improved quality of the probe sheath

Scope of delivery:
- Control panel
- 1 m camera cable with probe Ø 4.9 mm
- Hook including magnet
- 4 GB SD card
- 4 x AA batteries
- In plastic case

Applications
For perfect documentation of damage images etc. by recording video and/or taking images. Live observation via the TFT colour display or recording straight to the SD card in the multifunctional console.

Note:
Replacement batteries, see art. no. 39900 303.

39308 301

Probes

39308 203 + 303–306
Individual probes to supplement the Video endoscope
Design
- With metal connector
- Camera resolution:
  325 (H) x 250 (V) = 76,800 pixels
- Camera opening angle:
  horizontal 46°, vertical 34°, diagonal 56°
- Depth of focus: 10 to 60 mm
- Probe length: 1000 mm
- Ambient conditions: 0° to +55°C
- Weight: 220 g

39308 203
Standard probe 5.5 mm Ø
- Camera viewing direction: Straight ahead (front view)
- Light source: 4 dimmable LEDs

39308 304
Semi flexible probe 3.9 mm Ø
- Camera viewing direction: Straight ahead (front view)
- Light source: 3 dimmable LEDs

39308 303
Semi flexible probe 3.9 mm Ø
- Camera viewing direction: 90° – fixed mirror (side view) – no edges in the image
- Light source: 2 dimmable LEDs in 90° direction – no reflection in the mirror

39308 305
Flexible probe 6.0 mm Ø
- Camera viewing direction: Straight ahead (front view)
- Pivot range: 2 x 150°
- Swivel radius: approx. 48 mm
- Probe head can be locked in swivel position
- Probe head: IP 67
- Light source: 4 dimmable LEDs

39308 306
Flexible probe 6.0 mm Ø
- Camera viewing direction:
  90° (side view) – no edges in the image
- Pivot range: 2 x 150°
- Swivel radius: approx. 48 mm
- Probe head can be locked in swivel position
- Probe head: IP 67
- Light source: 1 LED in 90° direction

39308 203

39308 304

39308 303

39308 305

39308 306

Probe adapter

39308 206
Probe adapter for old probes
Applications
For older probes (4812-) in conjunction with the video endoscope art. no. 39308 301.

39308 207
Probe adapter for new probes
Applications
For probes, with new, improved connection (4812 N-) in conjunction with the video endoscopes (4812-1/7, 4812-1/6 and 4812-1/8).

39308 206

39308 207

Type	Probe Ø mm	Cable length m	39308	...
Video endoscope (set)	4.9	1		**301**
Probe, standard	5.5	1		**203**
Probe, semi-flexible (0°)	3.9	1		**304**
Probe, semi-flexible (90°)	3.9	1		**303**
Probe, flexible (0°)	6.0	1		**305**
Probe, flexible (90°)	6.0	1		**306**
Adapter for old probes	-	-		**206**
Adapter for new probes	-	-		**207**

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39317 Inspection camera micro CA-150

RIDGID
39317 401
Inspection camera micro CA-150
Design
- **Endoscope with camera Ø 17 mm and 4 adjustable LED lamps**
- With **3.5 inch LC display** (resolution 320 x 240 pixels) with control panel
- Comfortable pistol grip enables one-handed operation while manoeuvring the camera cable and camera head
- Saves up to 20 images on the internal memory (for direct view or subsequent playback on the camera display)
- Camera head with aluminium housing, rotatable through 360° (4 x 90° steps)
- Semi-flexible 90 cm long cable, with optional accessories can be extended by up to 9 m
- The accessories include a **hook, magnet and mirror attachment,** which are simply attached to the camera head and expand the area of application

Scope of delivery:
- Inspection camera micro CA-150
- Accessory kit, 3 pieces (hook, magnet and mirror attachment)
- RCA cable
- 4 batteries
- In transport case

Applications
For inspecting and problem-solving behind and in objects, walls, cables, lines and other hard-to-reach places.

Note:
Replacement batteries, see art. no. 39900 303.

39317 102-203 + 39318
Accessories for inspection camera micro CA-150

39317 401

Type	Weight approx. kg	39317 ...	39318 ...
Inspection camera micro CA-150	2.5	401	
Cable extension 90 cm	-	102	
Cable extension 180 cm	-		203
Camera head Ø 6 mm with 100 cm cable	-		105
Camera head Ø 6 mm with 400 cm cable	-		106
Camera head Ø 17 mm	-	203	

39318 Digital inspection camera micro CA-350

RIDGID
39318 201
Digital inspection camera micro CA-350
Design
- Comfortable pistol grip, large screen and simple operation
- **Longer operating time** thanks to 12 V Li-ion battery, as well as **extremely fast charging time** (only 45 minutes)
- Watertight aluminium camera head Ø 17 mm
- 3.5 inch (90 mm) colour TFT
- Dark areas are illuminated with 4 bright LEDs
- The image rotation in 90° steps as well as the digital zoom ensure the best view
- **USB:** Simple transfer of image and video material to your computer or laptop via the mini USB connector
- **Video output (PAL and NTSC):** Live broadcast e.g. on larger monitors or units for even better visibility and detailed observation
- **Saving to SD:** Supports all SD cards up to 32 GB
- **Integrated audio recorder:** Record voice notes or comments on your video recording with the built-in speaker/microphone or headset with microphone
- **Internal memory:** 235 MB

Scope of delivery:
- Inspection camera micro CA-350 with 17 mm camera head
- 12 V Li-ion rechargeable battery
- Charger
- USB cable
- Accessory kit, 3 pieces (hook, magnet and mirror attachment)
- RCA cable
- Power supply unit
- Headset
- 8 GB SD card
- In transport case

Applications
For inspecting and problem-solving behind and in objects, walls, cables, lines and other hard-to-reach places.

39318 104-203
Accessories for inspection camera micro CA-350

39318 104
Accessory kit, 3 pieces consisting of mirror, hook and magnet attachment.

39318 201

Type	Weight approx. kg	39318 ...
Inspection camera micro CA-350	0.9	201
Cable extension 180 cm	-	203
Camera head Ø 6 mm with 100 cm cable	-	105
Camera head Ø 6 mm with 400 cm cable	-	106
Accessory kit, 3 pieces	-	104

Stethoscopes | Polyscopes | Microscopes

39325 — Automotive stethoscope

Design
- With steel tip
- Tester to locate mechanical damage to the engine

Applications
For reliable fault diagnosis.
Enables sources of error to be pinpointed.

39325

39325	...
	101

88060 — Polyscope (listening device)

BAHCO

Design
- Probe tip made of steel
- Handle and sound conduction made of plastic

Applications
For detecting and identifying mechanical damage on all apparatuses and devices with moving parts. Even hard-to-reach places are easy to access.

88060

88060	...
	101

Info

Technical endoscopy
MICRO-EPSILON Eltrotec

MICRO-EPSILON

Endoscopes are high-quality optical devices developed specifically for use in industrial environments. They essentially consist of high-precision optical and mechanical components. Their design and structure make them ideal for applications in industrial environments.

Thanks to a wide product range featuring a variety of functions, a multitude of testing tasks can be performed even on complex objects.

Use focus areas:
- Surface inspection and general maintenance tasks in engine, gearbox, power station and aircraft manufacturing (e.g. detecting cracks, burrs, wear etc.)
- Welding seam checks in cavities (e.g. pipelines)
- Inspections of cast parts (mould residue, scale, completeness)
- Monitoring functions or soldering joints in components for precision and electrical engineering
- Criminology/ballistics (e.g. smoke detection in weapons)

Rigid endoscopes

TOP-LINE rigid endoscopes
- Gradient lenses for image transmission
- 360° panoramic view thanks to mirror tube
- Two versions available as standard
  with Mini Maglite lighting (halogen)
  with SuperNova lighting (Xenon)
- No mains power supply required to allow mobile use
- Optional: TV adaptation
- As a complete set:
  TOP-LINE rigid endoscope
  90° mirror tube
  Mini Maglite or SuperNova light source
  Robust aluminium case

Model	Probe diameter in mm	Useful length in mm	Mirror tube diameter in mm	Image angle
ProMicroslim	1.85	80/120/180	2.2	40°
Superslim	2.4	120/185	2.77	32°
Slim	4.2	50/180/305/435/560	4.8	42°
Hardy	6.35	180/305/435/560	8.0	50°

Our product portfolio:

Rigid endoscopes   Video endoscopes   Flexible endoscopes   Light sources   Cameras   Monitors

From a simple complete set to a set-up workplace, we can create your individual package according to your needs and requirements. Get in touch.

= The specified prices are unit prices. Only sold in the specified packing units. Always specify number of units in order information.

eng/P

39326 — Stereo microscopes

KERN

39326 101
Type OSF 439
Design
- Practical and robust microscope for school, the workshop and in the laboratory
- Integrated handle and sturdy mechanical stand
- LED incident light and transmitted illumination
- Ergonomically designed work surface
- Interchangeable lens
- Eyepieces fixed in the tube to protect them against damage or loss
- Incl. dust cover and eyepieces

39326 102-103
Type OZL463/OZL464
Design
- The flexible and cost-effective all-rounder with zoom function
- LED incident light and transmitted illumination
- Large working area

33926 104-107
Stereo microscope sets
Design
- Predefined sets, consisting of a stereo microscope head, a universal stand, a holder, ring lighting and a dust cover
- Holder with coarse drive, adjustable rotational strength of the hand wheels
- Simple, practical and cost effective, saves time-consuming configuration work and being spoilt for choice when it comes to combining different components

NEW

39326 101

39326 102-103

39326 104-105

39326 106-107

Model	Tube	Eyepiece	Visual field mm	Lens	Stand	Lighting	39326 ...
OSF 439	Binocular	WF 10x/Ø 20 mm	Ø 20	1x/2x/4x	Mechanical	1 W LED (incident light)/0.35 W LED (transmitted light)	101
OZL 463	Binocular	HWF 10x/Ø 20 mm	Ø 28.6–4.4	0.7x–4.5x	Pillar	3 W LED (incident light)/3 W LED (transmitted light)	102
OZL 464	Trinocular	HWF 10x/Ø 20 mm	Ø 28.6–4.4	0.7x–4.5x	Pillar	3 W LED (incident light)/3 W LED (transmitted light)	103
OZM 912	Binocular	HSWF 10x/Ø 23 mm	Ø 32.8–5.1	0.7x–4.5x	Telescopic arm with plate	4.5 W LED ring light	104
OZM 913	Trinocular	HSWF 10x/Ø 23 mm	Ø 32.8–5.1	0.7x–4.5x	Telescopic arm with plate	4.5 W LED ring light	105
OZM 952	Binocular	HSWF 10x/Ø 23 mm	Ø 32.8–5.1	0.7x–4.5x	Articulated arm with table clamp	4.5 W LED ring light	106
OZM 953	Trinocular	HSWF 10x/Ø 23 mm	Ø 32.8–5.1	0.7x–4.5x	Articulated arm with table clamp	4.5 W LED ring light	107

39327 — Accessories for stereo zoom microscopes, art. no. 39326

KERN

39327 101
C mount camera adapter OZB-A4811
Applications
For mounting a camera on a microscope OZL 464 (art. no. 39326 103).

39327 102
C mount camera adapter OZB-A5702
Applications
For mounting a camera on the microscopes OZM 913 (art. no. 39326 105) and OZM 953 (art. no. 39326 107).

39327 103
Tablet camera for microscopes
Design
- With integrated camera for optimal observation as well as digital documentation
- A 2-in-1 solution in digital microscopy as a universal system for all trinocular microscopes with C mount adapters
- Integrated 5 MP camera enables live broadcasting and creation of images and videos for documentation
- Automatic white balance and contrast adjustment
- Integrated interfaces:
- Data storage on a USB stick or SD card

- Connection of a USB mouse
- Transfer of the image to an external display via HDMI
- Transfer of stored data to an external receiver via WiFi

39327 104-105
C mount cameras type ODC-82
Design
- CMOS technology, in combination with USB 2.0 or USB 3.0
- Multilingual camera software Microscope VIS KERN OXM 901
- 1x USB cable (2 m long), various eyepiece adapters and a stage micrometer for calibrating the software

39327 106
HDMI microscope camera type ODC-851
Design
- Specifically developed for direct HDMI connection to your HDMI-capable playback device
- The images can also be saved directly to the supplied SD card
- Alternatively, a USB 2.0 connection is available for connecting to a laptop or PC via the USB interface
Note:
Please also order the appropriate C mount adapter (see art. no. 39327 101–102).

NEW

39327 103

39327 104-105

39327 106

Type	39327 ...
C mount camera adapter OZB-A4811	101
C mount camera adapter OZB-A5702	102
Tablet camera ODC 241	103

Type	39327 ...
Microscope camera ODC 824	104
Microscope camera ODC 825	105
HDMI microscope camera ODC 851	106

Image viewing system

39319	Software combi package dhs Basic CAM

dhs-Basic CAM
Design
- With C mount thread
- Resolution of 4.92 Mpix
- 1/2 inch sensor
- USB 3.0 interface

Software for image recording and processing:
- Two-dimensional measuring
- Fast live image
- Comprehensive automatic functions for recording
- Clear operating menu
- Management of 300 images and 5 data fields

Modular expansion with software tools:
- Panorama, depth of focus
- Indicative range, HDR
- Welding seam
- Grain size
- Phases and pores
- Digital camera dhs-Basic CAM
- Stage micrometer for calibration
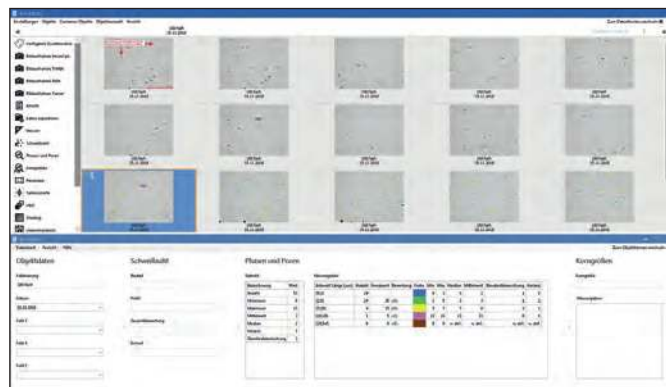- USB 3.0 connection cable
- Online licensing

Applications
- For all commercially available microscopes, macroscopes, endoscopes and lenses with C mount thread
- Stand-alone solution for industry, QA, laboratory, teaching and research
- Can be extended for special image analysis applications
- Simple operation and licensing
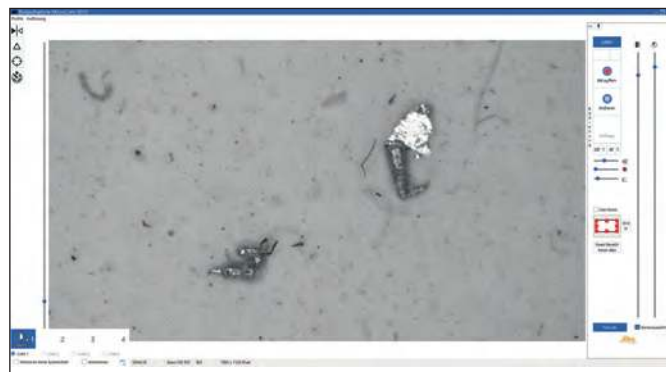- Possible to upgrade from pixel-fox to dhs-Basic

39319

dhs-Basic software with object window and data window in the overview

dhs-Basic image measurement

dhs-Basic image recording

Resolution Mpix	39319	...
4.92		101

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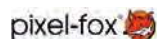**Info** | **Image viewing systems**

pixel-fox

dhs

Image management system
Professional, modular, compliant with standards -
perfect for a wide variety of tasks in the QA workflow

dhs Image Data Base® is mainly used in QA and laboratory applications. With its wide range of software functions for image archiving, image acquisition, image processing, image analysis and documentation, it can be used for the following applications:

- Incoming goods inspections
- In-production inspections
- Surface assessments
- Particle and pore analyses
- Steel purity determination tests
- Weld seam measurements
- Casting and damage analyses
- Residual dirt analyses and many more

Basic module of the dhs Image Data Base®

Advantages and features of dhs Image Data Base®:

- All test results are professionally reproduced and easy to share

- An interface-independent SQL database that can be adjusted specifically for the application (included in the basic module)

- The system can be adapted to existing organisational units and EDP landscapes

- Stand-alone/network and integrated solutions are available either locally or across multiple sites

- Can be fully programmed to allow customer-specific customisation

- Individual installation service, training and support

Complete image management system with dhs Image Data Base®

Software functions	Archiving	Holder	Processing	Analysis	Documentation	Service
Modules	Licence server	Image acquisition	Image measurement	Surface determination	Report generation	dhs consulting
	Viewer		Panorama image	Grain size	Communication	dhs service contract
	DataImEx		Sharper structure	Cast analysis		Individual programming
			ImageWizard	Particle analysis		Training
			Photo retouching	Coating thickness		Microscope maintenance
			Reference charts	Residual dirt analysis		dhs online support
			HDR	Spherical cap		
				Dendrite arms spacing		
				Steel purity		

Tool presetters

39385 — Tool presetters ATORN IC basic

ATORN®

Design
The ImageController basic is a professional entry model to the world of tool presetters. The table-top unit with ImageController basic is simple to operate and returns precise measurement results thanks to thorough checks and high-quality brand components. Pressing the unique EZclick rotary/push-button starts standard measuring functions such as length, diameter, concentricity and axial runout. **Delivery does not include a workbench.**

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration balls
- Fast measurement, setting and testing of tools (length and diameter)

- EZmax software function for easy creation of tool contours
- Various measurement programs make it incredibly easy to measure variables such as concentricity and axial runout on the tool blades
- Quick and convenient printing of measurement results on labels (optional)
- One-handed control button for rapid, simultaneous positioning of the Z and X axes
- Data output via RS232 interface

Note:
Cardboard packaging (art. no. 39385 411) is mandatory when ordering a tool presetting device.
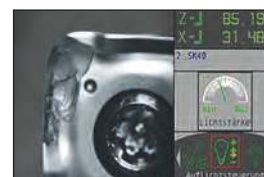*For accessories, see art. no. 39388–39389.*

39385 501-503

39385 405

39385 412

Type	Measuring range Z axis mm	Measuring range X axis mm	Spindle	39385 ...
ATORN IC basic 350	350	320	SK 50	501
ATORN IC basic 420	420	420	SK 50	502
ATORN IC basic 600	600	420	SK 50	503
Equipment table for IC basic	-	-	-	505 NEW

Accessories	39385 ...
Pneumatic spindle brake	403
Pneumatic spindle indexer	404
Software extension, tool memory	407
Software extension, measurement programs	408
Blade inspection with LED incident light	405

Accessories	39385 ...
Software extension, measurement values	406
Thermal printer for IC basic	412 NEW
Label roll matt white 25 x 75 mm (950 pieces)	413 NEW
Spindle hood for IC basic	410 NEW
Carton packaging for ATORN IC basic 350, 420 and 600	411

39384 — Tool presetters ATORN IC 1

ATORN®

Design
The ImageController 1 is a professional entry-level model that functions as an excellent introduction to the world of tool presetters. Manufactured using high-quality branded components and subjected to thorough testing, the tool presetter with ImageController 1 is characterised by simple operation without the need for extensive training and by rapid and precise measuring results. Standard measuring functions such as length, diameter, radius, two blade angles, concentricity and axial runout can be selected and performed quickly and easily using the 13.3-inch touchscreen monitor. **Delivery includes a workbench.**

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration edge **including** spindle indexing and spindle brake
- Fast measurement, setting and testing of tool blades (length, diameter, radius, two angles)
- EZmax software function for easy creation of tool contours
- Various measurement programmes, e.g. to measure concentricity and axial runout on the tool blades with µm accuracy

- Fast and convenient printing of measurement results on labels
- One-handed control button for rapid, simultaneous positioning of the Z and X axes

Note:
Carton packaging (art. no. 39388 207) is mandatory when ordering a tool presetter.
For accessories, see art. no. 39388–39389.

39384 501-504

EZstart:
- Fast and user-independent measuring of several parameters on different tool types: Selection of 16 tool types
- Graphic menu for selecting the tool type

Type	Measuring range Z axis mm	Measuring range X axis mm	Spindle	Snap gauge mm	39384 ...
ATORN IC 1 350	350	320	SK 50	0	501
ATORN IC 1 420	420	420	SK 50	100	502
ATORN IC 1 600	600	420	SK 50	100	503
ATORN IC 1 600/570	600	570	SK 50	0	504

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eng/P

39386 - 39387   Tool presetters ATORN IC 2

ATORN®

Design
The ImageController 2 measures, stores and documents tool blades in a matter of seconds. It is also possible to save multi-step tools. Image processing using the 13.3 or 24-inch touchscreen monitor of the Image Controller2 is intuitive and guarantees fast and simple measurement procedures.
Delivery includes a workbench.

Advantages and benefits for you:
- Speedy familiarisation with minimal training thanks to easy operation
- High-precision spindle SK 50 with integrated calibration balls including spindle indexer and spindle brake
- Fast measurement, setting and testing of tool blades
- EZmax software function for easy creation of tool contours
- Various measurement programmes, e.g. concentricity and axial runout at the tool cutting edge to accurately measure μm
- Fast and convenient printing of measurement results on labels
- One-handed control button for rapid, simultaneous positioning of the Z and X axes
- Turning centre camera and auto-focus available as options (art. no. 39387 403)
- Data output package available as an option (art. no. 39388 206)

Note:
Cardboard packaging (art. no. 39388 207) is mandatory when ordering a tool presetting device.
For accessories, see art. no. 39388–39389.

39386 501-504

39386 501-504
Design
With 13.3-inch touchscreen

NEW

39386 601-604

39386 601-604
Design
With 24-inch touchscreen

| | | | | | 13.3 inch | | 24 inch | |
| | | | | | **39386** | **...** | **39386** | **...** |
Type	**Measuring range Z axis mm**	**Measuring range X axis mm**	**Spindle**	**Snap gauge mm**				
ATORN IC 2 350	350	320	SK 50	0		**501**		**601** NEW
ATORN IC 2 420	420	420	SK 50	100		**502**		**602** NEW
ATORN IC 2 600	600	420	SK 50	100		**503**		**603** NEW
ATORN IC 2 600/570	600	570	SK 50	0		**504**		**604** NEW

39387 403
Auto focus CNC drive for IC 2 spindle
Design
- Automatic focusing of the tool cutting edge by CNC rotation of the spindle to the highest point of the tool cutting edge

39387 403

Accessories	39387	...
Automatic-focus CNC drive for spindle for ATORN IC 2		403

39388 — Accessories for tool presetters

ATORN®

Note:
Further accessories deliverable on request.

39388 202

Accessories	39388	…
Optional vacuum clamping device		202
Uni spindle for power-driven tool clamping		217 NEW
Rotation centre measurement camera for ATORN IC 1/IC 2		205
Data output package format generator for ATORN IC 2		206
Post-processor for ATORN IC 2		211
Barcode printer zidCode		214 NEW
Tool identification with fixed scanner		215 NEW
Tool identification with hand-held scanner		216 NEW
Conditioning unit NL1-G 1/8 inch with pressure reducer		203
Q-check device maintenance incl. certificate		213 NEW
Cover		212
Cleaning agent		210
Work surface with keyboard and mouse		218 NEW
Commissioning/training daily rate in Germany		209
Cardboard packaging for ATORN IC 1/IC 2		207
Shipping within Germany		208

39388 205

39388 206

39389 — Adapter for SK 50 tool presetters

ATORN®

Note:
Other adapters (e.g. Capto) deliverable on request.

39389 201-202
Adapter SK 50/steep taper SK
- For mounting tool shanks with steep taper
  DIN 69871-1
- Integrated calibration balls

39389 203-209
Adapter SK 50/VDI straight shank
with manual tool holder clamp
- For mounting tools with a VDI straight shank
  DIN 69880
- Integrated calibration balls

39389 210-216
Adapter SK 50/hollow shank taper HSK
with manual offset clamp
- For mounting tool shanks with hollow shank
  taper DIN 69893 with and without cooling tube
- Flat contact surface for HSK tool chuck
- Integrated calibration balls

39389 217-220
Adapter SK 50/hollow shank taper HSK
without tool clamp
- For mounting tool shanks with hollow shank
  taper DIN 69893
- Flat contact surface for HSK tool chuck
- Integrated calibration balls

Size	39389	…
SK 30		201
SK 40		202
VDI 16		203
VDI 20		204
VDI 25		205
VDI 30		206
VDI 40		207
VDI 50		208
VDI 60		209
HSK A25-F32		210
HSK A32-F40		211
HSK A40-F50		212
HSK A50-F63		213
HSK A63-F80		214
HSK A80-F100		215
HSK A100-F125		216
HSK A32-F40		217 NEW
HSK A40-F50		218 NEW
HSK A50-F63		219 NEW
HSK A63-F80		220 NEW

39389 201-202 **39389 203-209**

39389 210-216 **39389 217-220**

39.28 www.hhw.de
Fax order hotline: 0800 0 915910

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39392 — Video measuring microscope

ATORN®

39392 101-104
Video measuring microscope
Design
- Precision measuring table
- Quick adjustment with friction drive
- Innovative measuring software, easy to use
  without submenus
- 23 inch touchscreen monitor
- Four-segment LED ring light for individual
  lighting scenarios
- Windows 10 operating system
- M3 measuring software for automatic edge
  detection
- Clear geometry functions
- Individual lighting control
- Live image display during measuring
- Saving of images
- Free axis alignment

Scope of delivery:
Video measuring microscope with 23 inch touchscreen PC, keyboard, mouse, calibration certificate and operating instructions.

Applications
For optical measurement of complex workpieces, which would be extremely difficult or impossible to measure by tactile means. Can be used universally in the measuring room and in production.

39392 201
Z-axis measuring system

39392 202
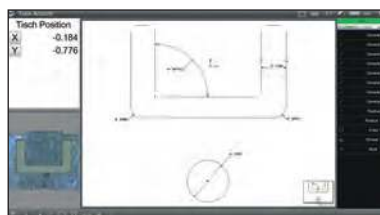**dxf software module**
Applications
For importing CAD data.

39392 203
Calibration standard (circles/scale)
- 50 mm
- Without certificate

39392 101-104

Features:
- Precision measuring table
- Quick adjustment with friction drive
- Fixed lens or motorised zoom lens
- USB camera (1.3 megapixels)
- 4-segment LED ring light
- LED transmitted light
- Laser pointer for positioning

23-inch large touchscreen PC

Note:
We would be happy to send you the operating instructions as well as detailed technical information.

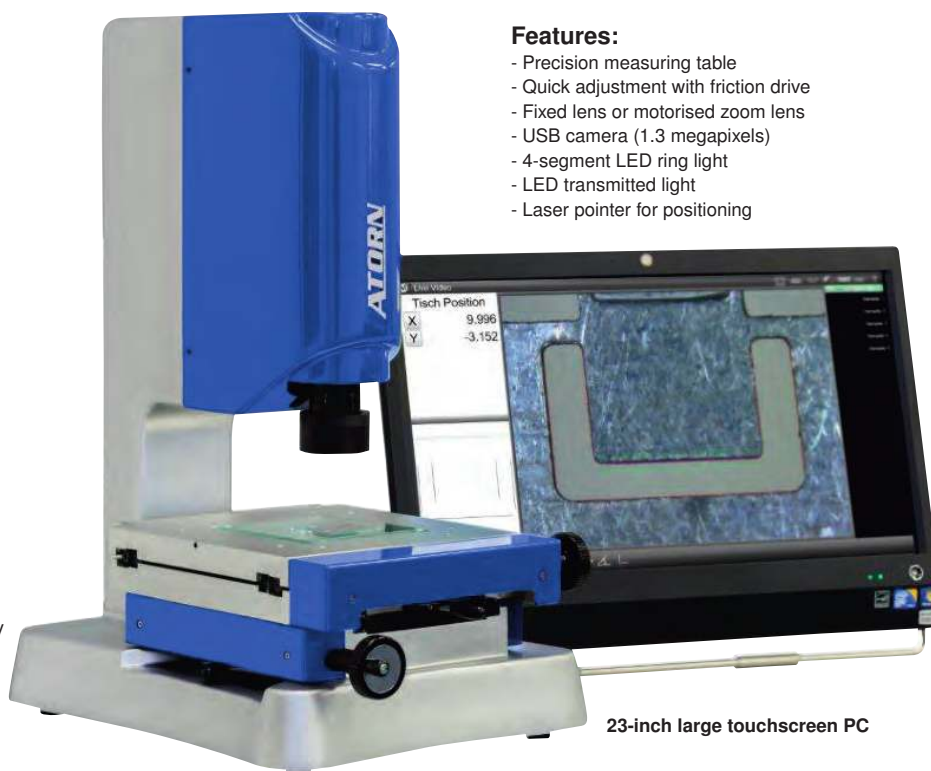*Please contact us.*

39392 203

M3 Measuring software
- Simple and intuitive software operation
  without submenus
- Automatic edge detection
- Clear geometry functions
- Live image
- Data export in different formats
- USB interface

Technical data:	39392 101–102	39392 103–104
Error limits:	E1 = 1.5 + L/100 (L in mm) E2 = 2.9 + L/100 (L in mm)	E1 = 1.5 + L/100 (L in mm) E2 = 2.9 + L/100 (L in mm)
Camera:	USB 2.0, 25 images/s, 1.3 megapixels	USB 2.0, 25 images/s, 1.3 megapixels
Lens:	40x fixed	Zoom 35–225x
Image section:	8 mm	9 mm–1.5 mm
Incident light:	4-segment LED ring light	4-segment LED ring light
Transmitted light:	LED	LED
Positioning aid:	Laser pointer	Laser pointer
Max. table load:	20 kg	20 kg

Measuring range X, Y, Z axis mm	Lens	Magnification	39392	…
100 x 100 x 100	Fixed lens	40x		101
200 x 100 x 100	Fixed lens	40x		102
100 x 100 x 100	Motorised zoom lens	34–225x		103
200 x 100 x 100	Motorised zoom lens	34–225x		104
Z axis measuring system	-	-		201
dxf software module	-	-		202
Calibration standard	-	-		203

| 39392 | **Video measuring microscope CNC** |

ATORN®

Design
- Precision measuring table
- Innovative measuring software, easy to use without submenus
- 23 inch touchscreen monitor
- Four-segment LED ring light for individual lighting scenarios
- Windows 10 operating system
- M3 measuring software for automatic edge detection
- Clear geometry functions
- Individual lighting control
- Live image display during measuring
- Saving of images
- Free axis alignment
- Motorised control of the 3 axes by joystick
- Z axis measuring system enables depth measurement using depth of focus
- Simple creation of measurement programmes even for complex workpieces

39392 301

M3 Measuring software
- Simple, intuitive software operation without submenus
- Automatic edge detection
- Clear geometry functions
- Live image
- Data export in different formats
- USB interface

Scope of delivery:
- Video measuring microscope with 23-inch touchscreen PC
- Keyboard with mouse
- Calibration certificate
- Operating instructions

Applications
For optical measurement of complex workpieces, which would be extremely difficult or impossible to measure by tactile means. Can be used universally in the measuring room and in production.

Note:
Can be supplied with dxf software module for measuring against CAD data as an option, see art. no. 39392 202.
We would be happy to send you the operating instructions as well as detailed technical information.

Technical data:	
Error limits:	E1 = 1.5 + L/100 (L in mm) E2 = 2.9 + L/100 (L in mm)
Camera:	USB 2.0, 25 images/s, 1.3 megapixels
Lens:	35–225x zoom
Image section:	9 mm–1.5 mm
Incident light:	4-segment LED ring light
Transmitted light:	LED
Positioning aid:	Laser pointer
Max. table load:	20 kg

Measuring range X, Y, Z axis mm	Lens	Magnification	39392	...
200 x 100 x 100	Motorised zoom lens	34–225x		**301**

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