

Quality Made in Germany since 1995.

Kammrath &
Weiss GmbH



Standard Holders

Material Testing using Microscopes



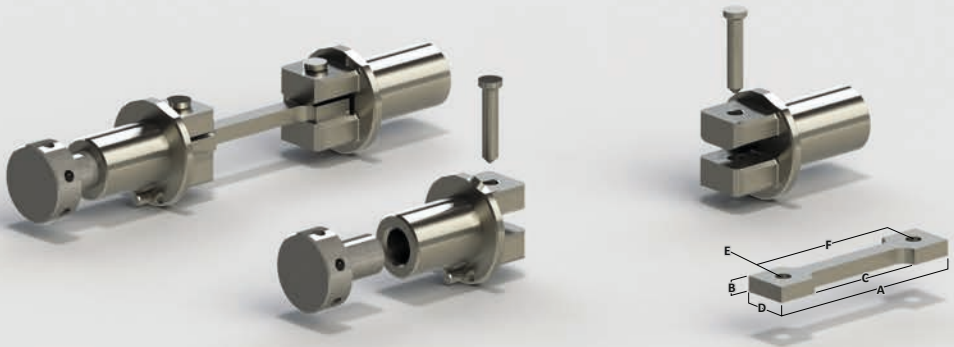
www.kammrath-weiss.com



Holder **TL0x4**

- tensile tests only
- flat specimens with reamed holes
- medium forces

Classical tensile sample holder for dog-bone shaped samples with reamed holes for medium forces (1000-5000N) and tensile only.



Holder	operation mode	tensile
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Tensile-Module
	purpose	tensile tests only, medium forces
Specimen	A-overall length	30mm to 60mm
	B-thickness	0.5mm to 3mm
	C-length	10mm to 40mm
	D-width at clamping ends	up to 10mm
	E-diameter of pivot holes	4mm
	F-distance of pivot holes	20mm to 50mm
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder **TL0x5**

- tensile tests only
- flat specimens with reamed holes
- high forces

Classical tensile sample holder for dog-bone shaped samples with reamed holes for high forces and tensile only.



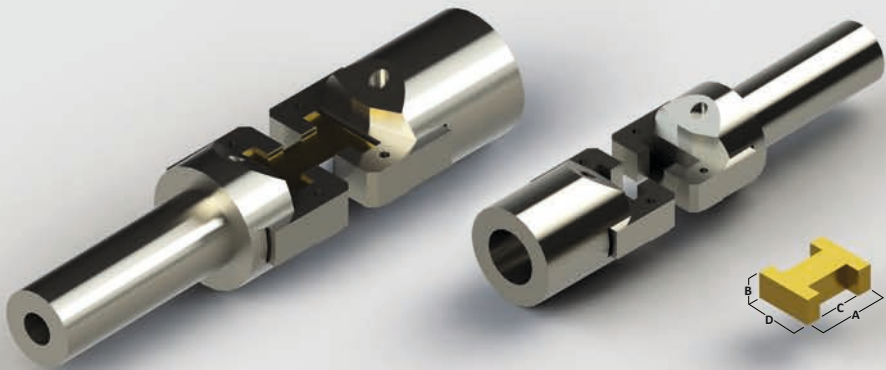
Holder	operation mode	tensile
	load cell interface	M10
	maximum load	10 000N
	required Module	K&W Tensile-Module
	purpose	tensile tests only, high forces
Specimen	A-overall length	30mm to 60mm
	B-thickness	0.5mm to 3mm
	C-length	10mm to 40mm
	D-width at clamping ends	up to 10mm
	E-diameter of pivot holes	5mm
	F-distance of pivot holes	20mm to 50mm
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder

TT

- tensile tests only
- for T-shaped specimens
- low forces

Sample holder for use of double T-shaped samples.
Form fitting orifice and self-aligning mechanism.

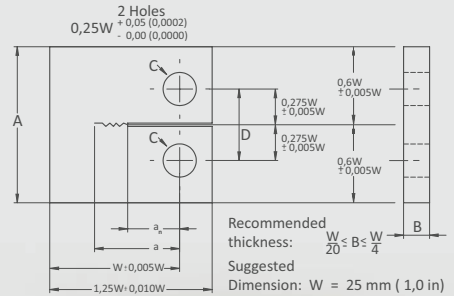


Holder	operation mode	tensile
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile-Module
	purpose	tensile tests only, T-shaped specimens
Specimen	A-overall length	30mm to 60mm
	B-thickness	4mm
	C-length of the area of interest	5mm or according to user's requirements
	D-width of the T-shaped head	10mm or according to user's requirements
	diameter of pivot holes	no pivot holes
	distance of pivot holes	no pivot holes
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	on request (not retrofittable)

Holder **TB** (special versions on request)

- tensile tests only
- for DCB and CT testing
- low or high forces

Sample Holder for DCB (Dual Cantilever Beam) or CT (Compact Tension) testing for observing the advancing of a crack through the material. Load range of 100-2000N.



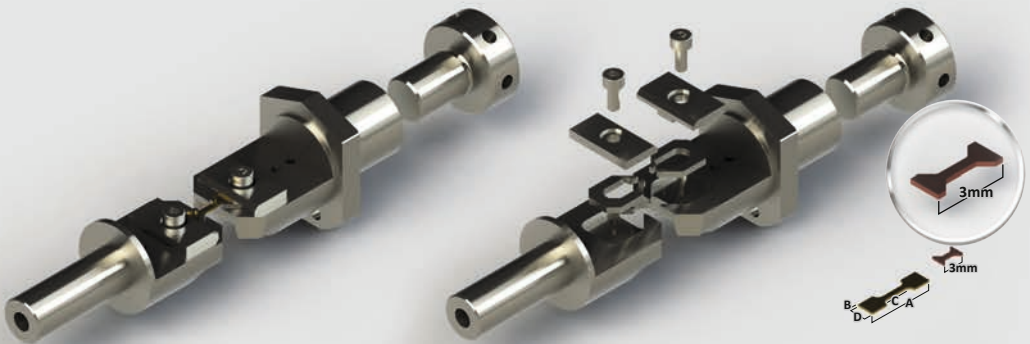
Holder	operation mode	tensile	
	load cell interface	M5	M10
	maximum load	500N	5000N
	required Module	K&W Tensile-Module	
	purpose	for DCB or CT testing	
Specimen	A-overall length	1,25W	
	B-thickness	see formula in above drawing	
	C-diameter of the alignment pivots	0,25W	
	D-distance of pivot holes	0,55W (2x0,275W)	
	W-suggested min. dimension	W = 25mm (1.0in)	
	F-distance of pivot holes	4mm	5mm
	specimen tilt angle	0°, - 20°, +20°	
	opt. cooling/heating Module usable	no	

Holder

TN5x0

- tensile tests only
- for small samples
- low forces

Sample Holder for small tensile samples with dogbone shape. The samples are hold by inserts which can be adopted in various shapes.



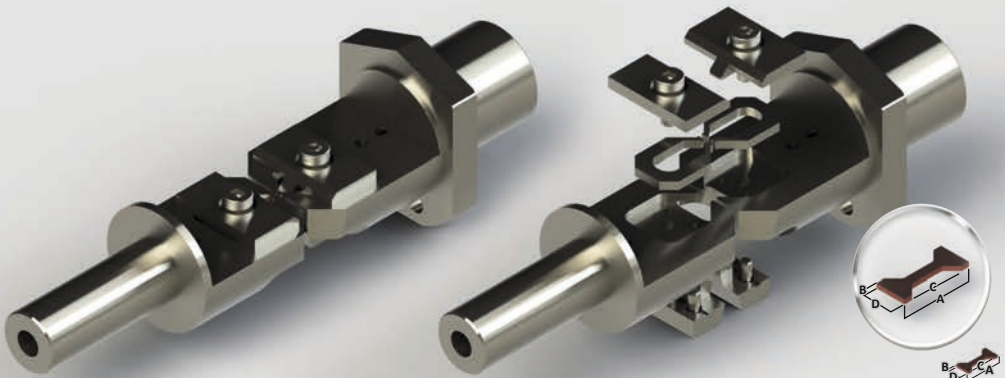
Holder	operation mode	tensile
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile-Module
	purpose	specimen holder with shaped inserts
Specimen	A-overall length	3mm to 40mm
	B-thickness	0,5mm to 2mm
	C-length of the area of interest	1,5mm to 23mm or according to user's requirements
	D-width at clamping ends	depends on specimen design
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	no



Holder **TN5xh** (usable with optional cooling/heating module)

- tensile tests only
- for small samples
- low forces & heating up to 800°C

Sample Holder for small tensile samples with dogbone shape. The samples are hold by inserts which can be adopted in various shapes.

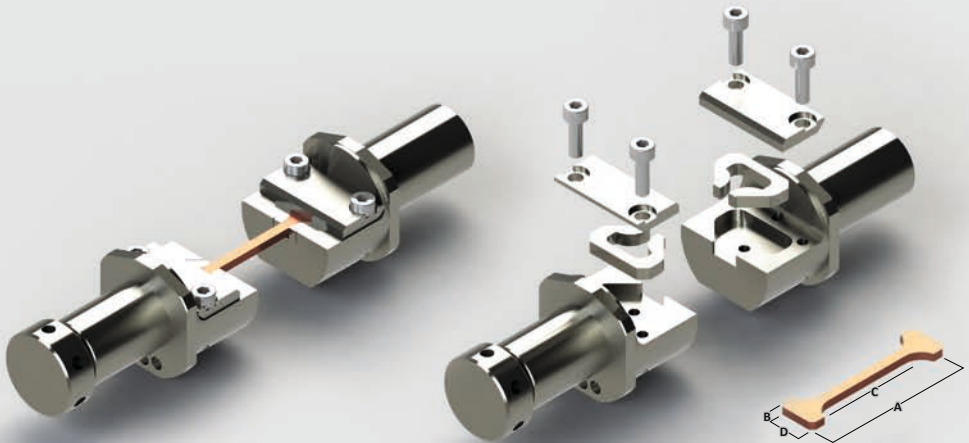


Holder	operation mode	tensile
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile-Module
	purpose	specimen holder with shaped inserts
Specimen	A-overall length	3mm to 40mm
	B-thickness	0,5mm to 2mm
	C-length of the area of interest	1,5mm to 23mm or according to user's requirements
	D-width at clamping ends	depends on specimen design
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder **TN0x0** (usable with optional cooling/heating module)

- tensile tests only
- for big samples
- medium forces & heating up to 1200°C

Form fitting holder for regular specimens and tensile only. Inserts after standard or custom specifications available for forces up to 10.000N.



Holder	operation mode	tensile
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Tensile-Module
	purpose	specimen holder with shaped inserts
Specimen	A-overall length	10mm to 40mm
	B-thickness	0,5mm to 2mm
	C-length of the area of interest	1,5mm to 23mm
	D-width at clamping ends	depends on specimen design
	diameter of pivot holes	—
	distance of pivot holes	—
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder **TF5**

- tensile tests only
- for foils, tissues, etc.
- low forces

Holder specially designed for clamping thin foils or tissue material without damaging them. Forces up to 500N.



Holder	operation mode	tensile
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile-Module
	purpose	for foils and tissues etc.
Specimen	A-overall length	30mm to 60mm
	B-thickness	0,1mm to 1mm
	C-length of the area of interest	10mm to 40mm
	D-width at clamping ends	4mm to 16mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

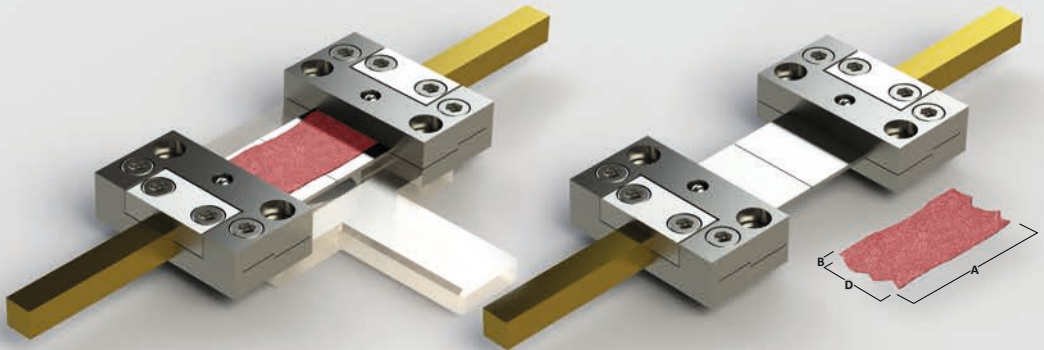
Holder

TFC00

(only in combination with K&W Fiber Tensile Module)

- tensile tests only
- for ultra-thin (rubber) samples
- very low forces

Holder for ultra-thin specimens optimized for clamping fragile samples without influencing them before begin of the experiment.



Holder	operation mode	tensile
	load cell interface	3mm square rod
	maximum load	1N
	required Module	K&W Fiber Tensile Module
	purpose	thin cut rubber samples
Specimen	A-overall length	appr. 8mm
	B-thickness	< 10µm
	length of the area of interest	fixed length
	D-width at clamping ends	appr. 5mm (lengths and width come out usually irregular)
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	yes

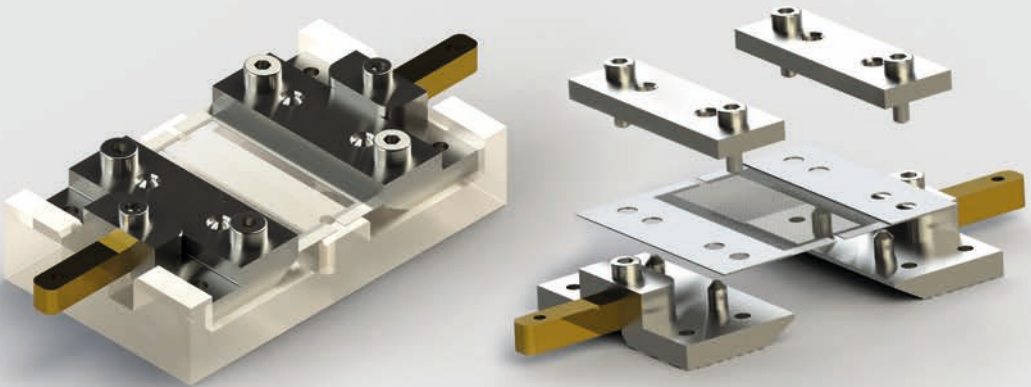
Holder

TFC01

(only in combination with K&W Fiber Tensile Module)

- tensile tests only
- for ultra-thin (fabric fiber) samples
- very low forces

Holder for ultra-thin specimens optimized for evenly clamping fragile fabric fiber samples without influencing them before begin of the experiment.



Holder	operation mode	tensile
	load cell interface	3mm square rod
	maximum load	1N
	required Module	K&W Fiber Tensile Module
	purpose	thin fabric fiber samples
Specimen	overall length	appr. 8mm
	thickness	< 10µm
	length of the area of interest	fixed length
	width at clamping ends	appr. 20mm (lengths and width come out usually irregular)
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	no
	opt. cooling/heating Module usable	yes

Holder **TF2** (only in combination with K&W Fiber Tensile Module)

- tensile tests only
- for thin wires, foils and similar objects
- very low forces

Multi purpose holder (wires, foils and similar specimens) for low forces.



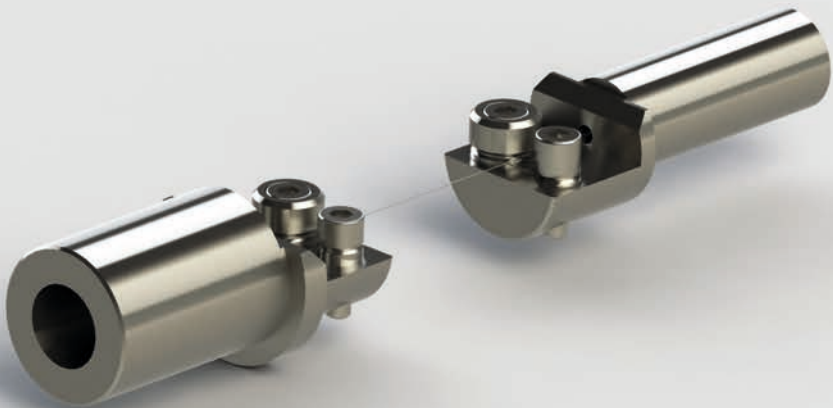
Holder	operation mode	tensile	
	load cell interface	2mm round rod	
	maximum load	1N	
	required Module	K&W Fiber Tensile Module	
	purpose	thin fabric fibre samples	
Specimen	overall length	appr. 8mm	
	thickness	< 100µm	
	length of the area of interest	fixed length	
	width at clamping ends	5mm	10mm
	diameter of pivot holes	–	
	distance of pivot holes	–	
	specimen tilt angle	no	
	opt. cooling/heating Module usable	yes	

Holder

TW5

- tensile tests only
- for thin wires, filaments and similar objects
- low forces

Sample holder optimized for safe clamping of fibers and filament.
The wire is wound around two heads on each side.



Holder	operation mode	tensile
	load cell interface	5mm
	maximum load	500N
	required Module	K&W Fiber Tensile Module
	purpose	thin cut rubber samples
Specimen	overall length	–
	thickness	max. 2mm wire diameter
	length of the area of interest	as much as yoke separation will allow; usually 60 mm
	size of clamping heads	Ø 12mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	360°
	opt. cooling/heating Module usable	no

Holder

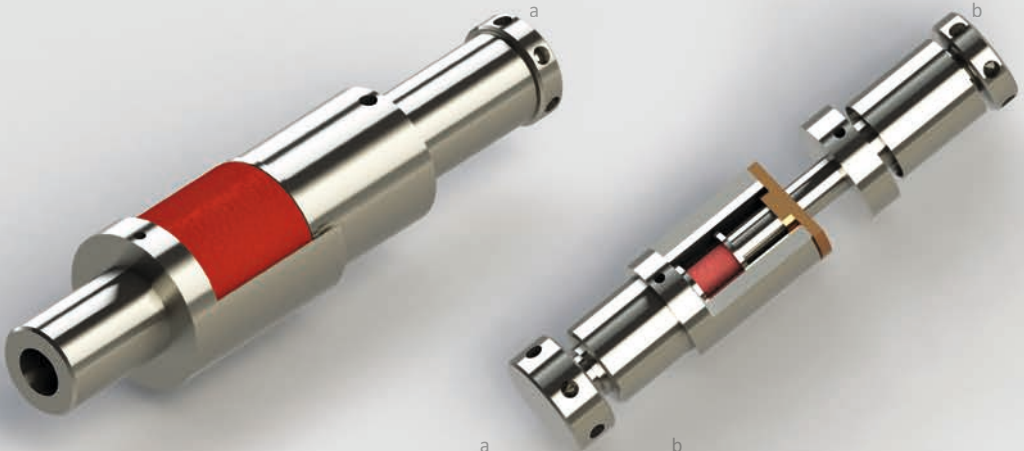
CS

(a = for big voluminous specimen)

(b = for small, compact specimen which can shatter, splitter or crumble)

- for compression experiments
- for load cell calibration
- low or high forces

Holder for compression experiments on a wide range of material.



	a	b
Holder	compression	
	M10	M5
	2000N	500N
	K&W Tensile & Compression Module	
	compression experiments	
Specimen	5mm to 25mm	
	25mm	5mm
	as much as yoke separation will allow; usually 60 mm	
	25mm	5mm
	–	
	–	
	0°	
	no	

Holder

CM

- for compression experiments
- low and high forces
- small sampels

Sample holder for performing compression experiments on small specimens. The specimen is held with caps, caps for different specimen diameters are available.



Holder	operation mode	compression	
	load cell interface	M5	M10
	maximum load	100N	500N
	required Module	K&W Tensile & Compression Module	
	purpose	compression experiments	
Specimen	A-overall length	min. 2mm to 10mm	
	diameter of specimen	Ø 0,5mm to 5mm	
	length of the area of interest	min. 2mm	
	width at clamping ends	–	
	diameter of pivot holes	–	
	distance of pivot holes	–	
	specimen tilt angle	0°	
	opt. cooling/heating Module usable	no	

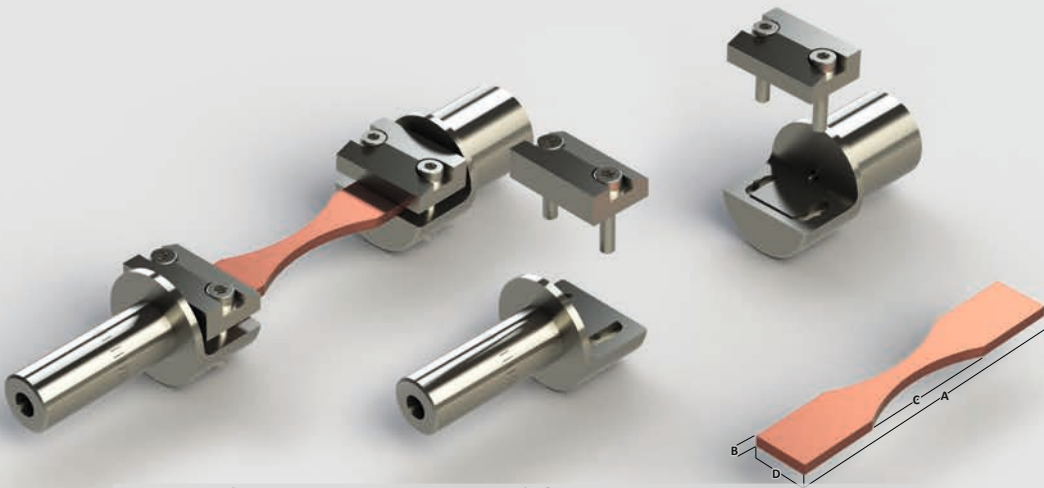


Holder

UL5

- for tensile & compression experiments
- for flat specimens without reamed holes
- low forces

Holder for flat samples with various geometry. Designed for low forces up to 500N.



Holder	operation mode	tensile & compression
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile & Compression Module
	purpose	tensile and compression experiments
Specimen	A-overall length	30mm to 60mm
	B-thickness	0,2mm to 1mm
	C-length of the area of interest	10mm to 40mm
	D-width at clamping ends	10mm
	diameter of pivot holes	—
	distance of pivot holes	—
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

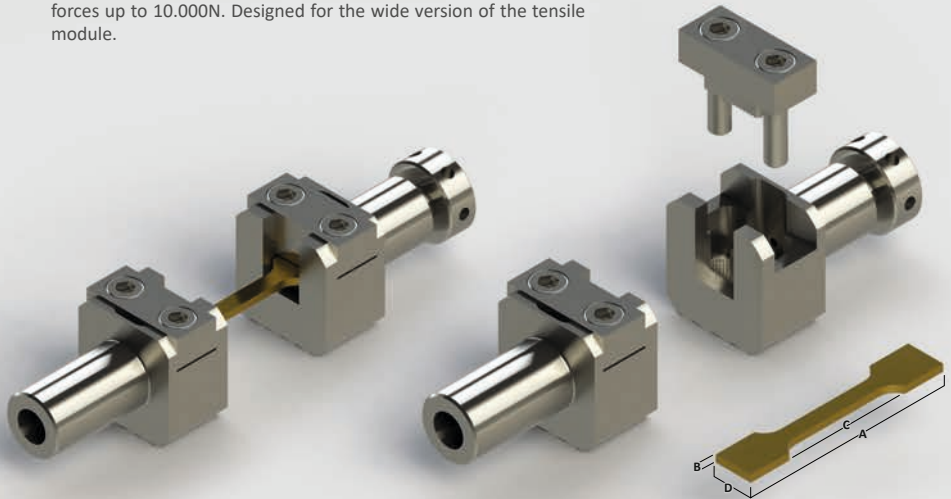
Holder

UH020

(square version for 58mm & 60mm)

- for tensile & compression experiments
- for flat specimens without reamed holes
- high forces

Holder for samples of various shape up to 4mm thickness and high forces up to 10.000N. Designed for the wide version of the tensile module.



Holder

operation mode	tensile & compression
load cell interface	M10
maximum load	10 000N
required Module	K&W Tensile & Compression Module
purpose	tensile and compression experiments

Specimen

A-overall length	30mm to 60mm
B-thickness	0,5mm to 5mm
C-length of the area of interest	10mm to 40mm
D-width at clamping ends	10mm
diameter of pivot holes	—
distance of pivot holes	—
specimen tilt angle	0°, - 20°, +20°
opt. cooling/heating Module usable	yes



Holder

UH010 (round version for EBSD)

- for tensile & compression experiments
- for flat specimens without reamed holes
- high forces

Holder for samples of various shape up to 4mm thickness and high forces up to 10.000N. Designed for the narrow version of the K&W Tensile & Compression Module.



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	10 000N
	required Module	K&W Tensile & Compression Module
	purpose	tensile and compression experiments
Specimen	A-overall length	30mm to 60mm
	B-thickness	0,5mm to 5mm
	C-length of the area of interest	10mm to 40mm
	D-width at clamping ends	10mm
	diameter of pivot holes	—
	distance of pivot holes	—
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder

UH031

- for tensile & compression experiments
- for flat specimens without reamed holes
- high forces

Holder for samples that are wider than usual (up to 18mm width) and high forces up to 15.000N. Only available for the wide version of the tensile module.



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	15 000N
	required Module	K&W Tensile & Compression Module
	purpose	tensile and compression experiments
Specimen	A-overall length	30mm to 60mm
	B-thickness	0,5mm to 5mm
	C-length of the area of interest	10mm to 40mm
	D-width at clamping ends	18mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	yes



Holder

UH032

- for tensile & compression experiments
- for flat specimens without reamed holes
- high forces

Holder for extra-wide samples (24mm width) and high forces up to 15.000 N. Only available for the wide version of the tensile module.



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	15 000N
	required Module	K&W Tensile & Compression Module
	purpose	tensile and compression experiments
Specimen	A-overall length	30mm to 60mm
	B-thickness	0,5mm to 5mm
	C-length of the area of interest	10mm to 40mm
	D-width at clamping ends	28mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	yes



Holder

UH01C

(for use in selected AFM's, light microscopes and low working distances)

- for tensile & compression experiments
- for flat specimens without reamed holes
- high forces

Holder for samples of various shape up to 4mm thickness and high forces up to 5000N. Designed for a low working distance for use in an atomic force or optical microscope.



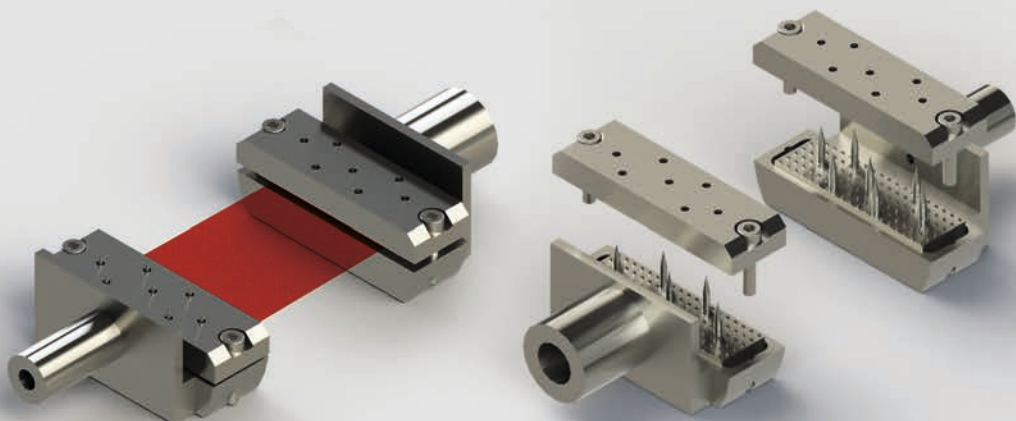
Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Tensile & Compression Module
	purpose	tensile and compression experiments
Specimen	A-overall length	30mm to 50mm
	B-thickness	0,5mm to 4mm
	C-length of the area of interest	10mm to 30mm
	D-width at clamping ends	10mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	yes

Holder

UF

- for tensile & compression experiments
- for soft and pliable specimens
- low forces

Holder optimized for clamping soft samples by using exchangeable teeth.



Holder	operation mode	tensile & compression
	load cell interface	M5
	maximum load	500N
	required Module	K&W Tensile & Compression Module
	purpose	for biological sheet specimens
Specimen	overall length	30mm to 60mm
	thickness	1mm to 5mm
	length of the area of interest	10mm to 40mm
	width at clamping ends	40mm
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	yes

Holder

UROxT

- for tensile & compression experiments
- for round threaded specimens
- high forces

Holder for round threaded samples and high forces.



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Tensile & Compression Module
	purpose	for threaded specimens
Specimen	overall length	30mm to 60mm
	thickness	Ø 4mm to 12mm
	length of the area of interest	10mm to 30mm
	diameter at clamping ends	Ø 10mm (different diameters on request)
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	360°
	opt. cooling/heating Module usable	no

Holder

UROx0

- for tensile & compression experiments
- for round specimens
- high forces

Holder for round samples of custom geometry. Form fitting and high forces.
The diameter at the clamping ends must be determined before ordering.



Holder	operation mode	tensile & compression
	load cell interface	10M
	maximum load	5000N
	required Module	K&W Tensile & Compression Module
	purpose	for round specimens
Specimen	overall length	30mm to 60mm
	thickness	Ø 4mm to 12mm
	length of the area of interest	10mm to 30mm
	diameter at clamping ends	Ø 10mm (different diameters on request)
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	360°
	opt. cooling/heating Module usable	no

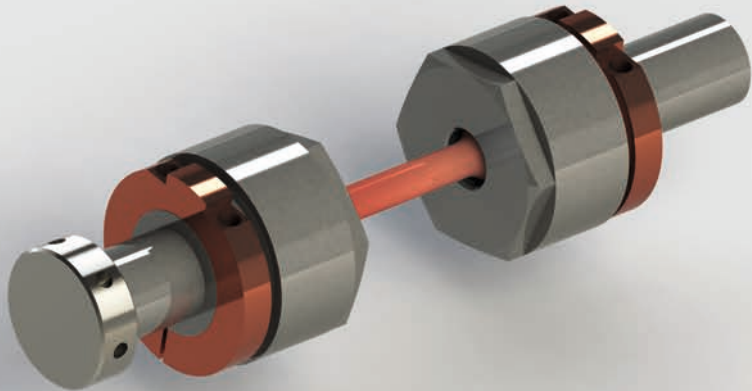


Holder

UR03B

- for tensile & compression experiments
- for round threaded specimens
- high forces

Holder for round threaded samples. Insulated version to bias with a voltage or heat by direct current.



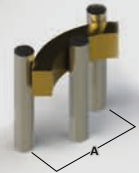
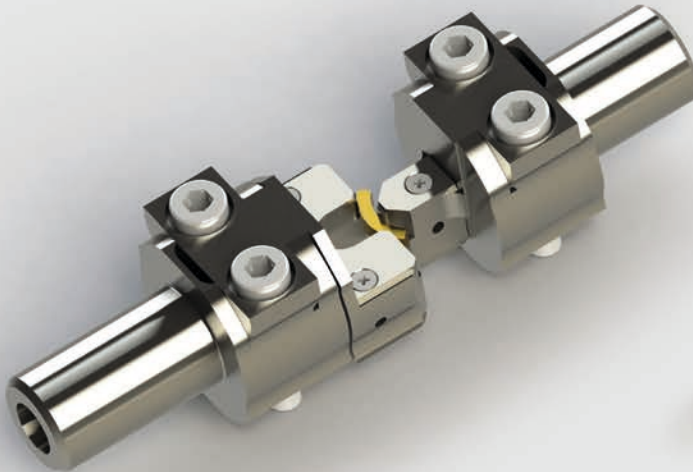
Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	10 000N
	required Module	K&W Tensile & Compression Module
	purpose	for threaded specimens
Specimen	overall length	30mm to 60mm
	thickness	Ø 4mm to 12mm
	length specimen	10mm to 30mm
	width at clamping ends	Ø M4 - M10
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	360°
	opt. cooling/heating Module usable	heating

Holder

UHB3

- for 3-point bending experiments
- for rectangular specimens
- high forces

Inserts for MZC-Ub and MZC-Uc to perform 3-point bending experiments.



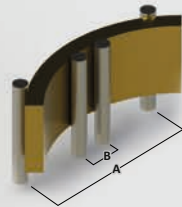
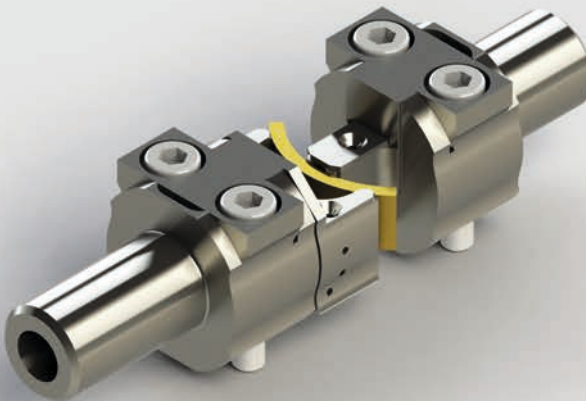
Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Compression Module
	purpose	3-point bending experiments
Specimen	Specimen size in different Tensile Modules:	
	38mm spindle distance (MZ.Ms)	26mm x 10mm
	58mm spindle distance (MZ.Mb)	46mm x 10mm
	60mm spindle distance (MZ.Mb-L)	48mm x 10mm
	specimen thickness	0,5mm to 5mm
	bending movement	up to 5mm
	A-distance of outer pins	42,44mm
	B-distance of inner pins	single pin
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	no

Holder

UHB4

- for 4-point bending experiments
- for rectangular specimens
- high forces

Inserts for MZC-Ub and MZC-Uc to perform 4-point bending experiments.



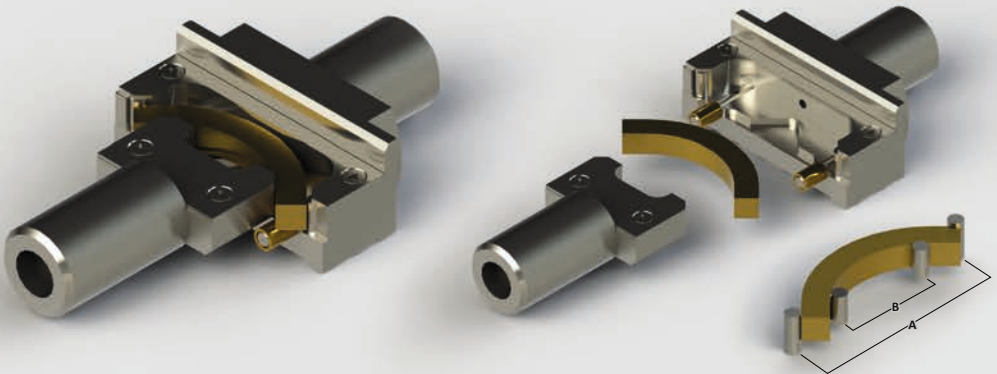
Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Compression Module
	purpose	4-point bending experiments
Specimen	Specimen size in different Tensile Modules:	
	38mm spindle distance (MZ.Ms)	26mm x 10mm
	58mm spindle distance (MZ.Mb)	46mm x 10mm
	60mm spindle distance (MZ.Mb-L)	48mm x 10mm
	specimen thickness	0,5mm to 5mm
	bending movement	up to 5mm
	A-distance of outer pins	42,44mm
	B-distance of inner pins	4mm
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	no

Holder

CB024

- for 4-point bending experiments
- for rectangular specimens
- high forces

Sample holder to perform 4-point bending experiments on wide samples. Designed for the wide version of the tensile module only.



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	5000N
	required Module	K&W Compression Module
	purpose	4-point bending experiments
Specimen	Specimen size in different Tensile Modules:	
	38mm spindle distance (MZ.Ms)	26mm x 10mm
	58mm spindle distance (MZ.Mb)	46mm x 10mm
	60mm spindle distance (MZ.Mb-L)	48mm x 10mm
	specimen thickness	0,5mm to 5mm
	bending movement	up to 5mm
	A-distance of outer pins	22mm
	B-distance of inner pins	4mm
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	no

Holder

ULB3

- for bending experiments
- for rectangular specimens
- low forces

Adaptation for MZC-Ua to perform 3-point bending experiments.



Holder	operation mode	tensile & compression
	load cell interface	M5
	maximum load	500N
	required Module	K&W Compression Module
	purpose	3-point bending experiments

Specimen	Specimen size in different Tensile Modules:	
	38mm spindle distance (MZ.Ms)	26mm x 10mm
	58mm spindle distance (MZ.Mb)	46mm x 10mm
	60mm spindle distance (MZ.Mb-L)	48mm x 10mm
	specimen thickness	0,5mm to 2mm
	bending movement	up to 5mm
	A-distance of outer pins	10mm up to 20mm
	distance of inner pins	single pin
	specimen tilt angle	0°, - 20°, +20°
	opt. cooling/heating Module usable	no

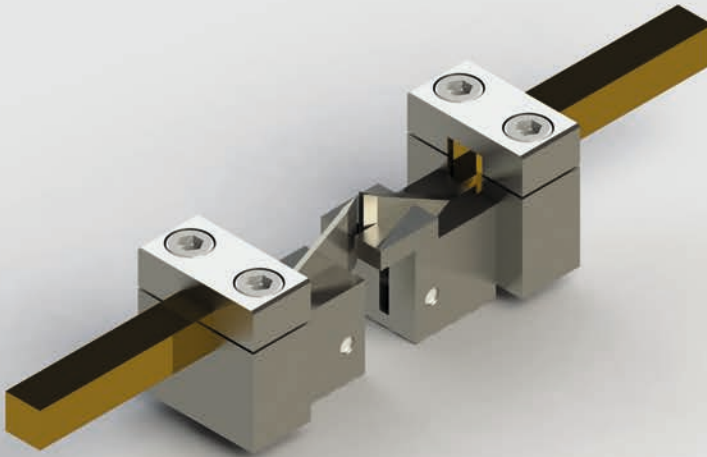
Holder

CBC03

(only in combination with a K&W fiber tensile module)

- for bending experiments
- for fiber specimens
- very low forces

Sample holder to perform 3-point bending experiments on very small samples and very low forces.



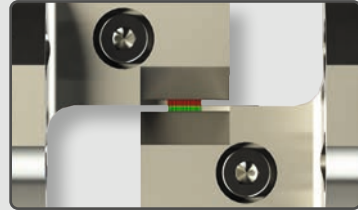
Holder	operation mode	tensile & compression
	load cell interface	square 3mm rod
	maximum load	1N
	required Module	K&W Fiber Tensile Module
	purpose	3-point bending experiments
Specimen	overall length	longer than 500 μm
	thickness	0,2 μm
	length of the area of interest	–
	width at clamping ends	–
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	no

Holder

US

- for shear tests
- for solder- or cement interfaces
- medium forces

Holder to perform shear testing experiments.



top view of clamped samples



Holder	operation mode	tensile & compression
	load cell interface	M10
	maximum load	2000N
	required Module	K&W Tensile & Compression Module
	purpose	shear tests on solder- or cement interfaces
Specimen	overall length	8mm
	thickness	4mm
	length of the area of interest	4mm
	width at clamping ends	–
	diameter of pivot holes	–
	distance of pivot holes	–
	specimen tilt angle	0°
	opt. cooling/heating Module usable	no