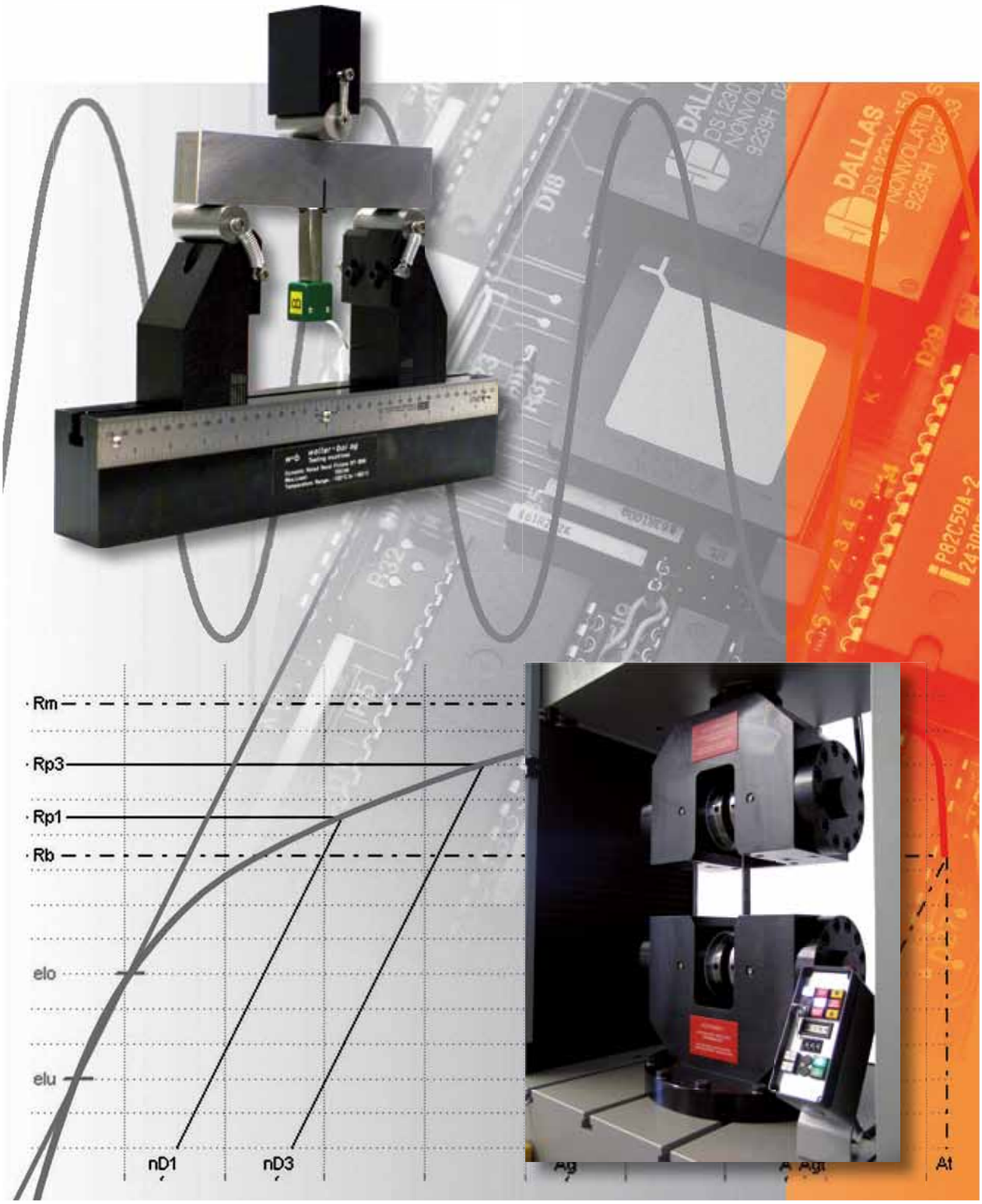
Grips and Fixtures
for Materials Testing



Testing Grips and Fixtures
for Materials Testing

The use of proper grips and inserts for testing is critical in obtaining meaningful results. w+b grips clamp your specimen continuously in exactly the same way for consistent, repeatable testing results.

The superior alignment and constant gripping force minimize the bending strains and slippage that can invalidate test results and cost time. Your can choose from a extensive range of grips for w+b Testing Machines. All grips are available in a variety of sizes and configurations to suits your application needs. Our internal machine shop provides great flexibility in tailoring all grips to the specific material, temperature and conditions being tested.

- **Grips for Static Testing**
  with manual, pneumatic or hydraulic clamping system, for low and high force range

- **Grips for Static and Dynamic Testing**
  with hydraulic clamping systems, for axial and biaxial tests, with different loading systems.

- **Grips for Special Applications**
  special tests require special griping need, w+b offers a large range including high temperature grips, low force special grips, special clamping grips and many more. We can build grips according to your needs upon request!

Content - Section P

Hydraulic Wedge Grips

Series WG - H 100 – 2000 kN

Hydraulic-operated wedge grips which provide excellent sample grip on a variety of materials. The gripping force increases linear to the axial test force.

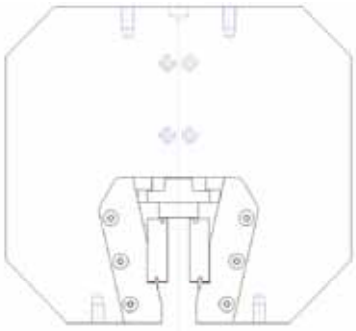
These grips are generally designed for tensile testing of metallic or non-metallic materials and are also well-suited for high capacity testing. The opening and closing is provided by the hydraulic oil supply. The grip control unit, which is usually mounted direct at the testing machine, allows the a separately operation of the upper and lower grip. These grips proved a constant gripping force regardless of the test load applied. The gripping force can be pre-selected in accordance with the test sample. The open-front construction make specimen insertion quick and easy. w+b wedge grips are designed for a wide clamping range of round, reinforcing bars and flat specimens. The inserts come in a variety of surfaces and shapes to meet your requirements.

Features

- Open front-design with large clamping range
- Grip control system for independent control
- Suitable for high capacity testing

Further Accessories

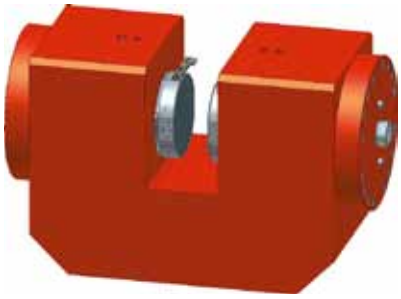
- Inserts for flat or round specimen
- Hydraulic Power Pack



Type WG - H		100/150	300	400	600	1000	1200	1500	2000
Test Force max.	kN	100/150	300	400	600	1000	1200	1500	2000
Width	mm	320	400	500	560	600	600	700	845
Depth	mm	80	125	190	230	260	300	300	350
Height	mm	250	350	425	500	550	550	650	770
Clamping Area	mm	60x72	80x80	80x100	80x100	100x140	100x140	120x150	120x160
Weight each Grip	kg	43	120	240	260	680	680	940	1500

Inserts		100/150	300	400	600	1000	1200	1500	2000
Flat Specimens	mm	0 - 16	0 - 16	0 - 16	0 - 16	0 - 16	0 - 16	0 - 25	0 - 25
	mm	16 - 32	16 - 32	16 - 32	16 - 32	16 - 32	16 - 32	20 - 40	20 - 40
	mm		32 - 48	32 - 48	32 - 48	32 - 48	32 - 48	40 - 60	40 - 60
	mm			45 - 60		48 - 64	48 - 64		60 - 70
Round Specimens	mm	2.5 - 6.5	5 - 10	5 - 10	5 - 10	5 - 10	5 - 10	10 - 20	10 - 20
	mm	4 - 10	8 - 20	8 - 20	8 - 20	9 - 16	9 - 16	20 - 30	20 - 30
	mm	8 - 20	20 - 30	20 - 30	20 - 30	16 - 28	16 - 28	30 - 40	30 - 40
	mm	20 - 30	30 - 40	30 - 40	30 - 40	28 - 40	28 - 40	40 - 50	40 - 50
	mm			40 - 50	40 - 50	40 - 52	40 - 52	50 - 60	52 - 65
	mm				50 - 60	52 - 64	52 - 64		

Hydraulic Parallel Wedge Grips
Series SPG 160 - 3000 kN

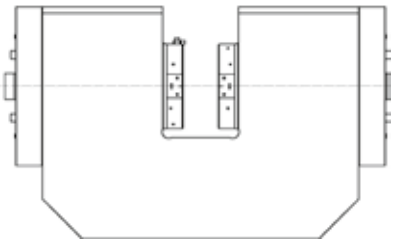


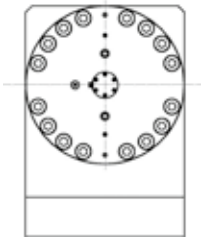
Two-clamping pistons, self centring in horizontal clamp action.
They are well suited for static or dynamic materials testing applications. They also can be used for axial-torsional applications.

The SPG clamp your specimen in exactly the same way for consistent, repeatable testing results. Their superior alignment and constant gripping force minimize the bending strains and slippage that can invalidate test results and cost you time. The SPG up to 600 kN are provided with mechanical synchronization of the clamping piston The SPG with force ratings above 600 kN feature integrated displacement transducers with controlled piston movement by proportional valve.

Features
- Two-clamping piston construction
- Open front-design
- Self centering
- Precision aligned
- Minimizes the bending strains that can invalidate your test results
- Prevent of scale and dust
- Hardened, grinded and polished pistons

Further Accessories & Options
- Inserts for flat and round specimens
- Hydraulic Power Pack
- Optional with linear gripping force increasement for tensile testing in relation to the axial test load.





Type SPG		160	250	400	600	1000	1500	2500	3000
Test Force stat. max.	kN	±160	±250	±400	±600	±1000	±1500	±2500	±3000
Test Force dyn. max.	kN	±100	±200	±320	±500	±800	±1200	±2000	±2500
Width	mm	335	510	540	570	800	860	960	1040
Depth	mm	140	180	200	260	300	340	390	430
Height	mm	210	300	365	380	500	520	600	650
Clamping Area	mm	60 x 60	Ø 100	Ø 120	Ø 125	Ø 180	Ø 200	Ø 220	Ø 220
Weight each Grip	kg	60	180	280	400	800	1050	1600	1850
Inserts		**160**	**250**	**400**	**600**	**1000**	**1500**	**2500**	**3000**
Flat Specimens	mm	0 - 30	0 - 40	0 - 40	0 - 60	0 - 70	0 - 80	0 - 90	0 - 100
Round Specimens	mm	5 - 30	5 - 36	5 - 36	6 - 50	10 - 70	10 - 80	10 - 90	6 - 100

Hydraulic Non-Shift Wedge Grips

Series WGR – H 32 - 2000 kN

Specially designed for Quasi-static, dynamic (through-zero testing), LCF-Low Cycle Fatigue and HCF-High Cycle Fatigue testing. They also can be used for axial-torsional applications.

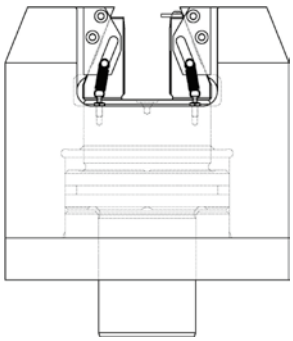
The opening and closing is provided by the hydraulic oil supply. The grip control unit, which is usually mounted direct at the testing machine, allows the a separately operation of the upper and lower grip. These grips proved a constant gripping force regardless of the test load applied. The gripping force can be pre-selected in accordance with the test sample.

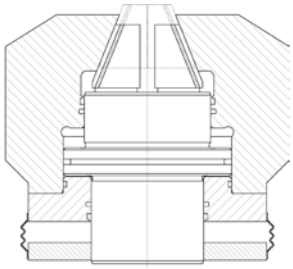
Features

- Side-loading hydraulic wedge grips
- Precision aligned
- Open front-design for easy change of inserts and specimen loading.
- Symmetrical housing provides a constant and lateral gripping force.
- Vertical loading forces minimizes slippage.
- Self centering for excellent repeatability-clamping onto your specimens

Further Accessories & Options

- Inserts for flat and round specimens
- Hydraulic Power Pack





Type WGR - H		32	63	160	400	630	1000	2000
Test Force stat. max.	kN	±32	±63	±160	±400	±630	±1000	±2000
Test Force dyn. max.	kN	±25	±50	±100	±320	±500	±800	±1500
Width	mm	158	158	190	300	405	540	
Depth	mm	158	158	190	280	360	500	upon
Height	mm	204	204	220	265	355	470	request!
Weight each Grip	kg	10.5	23	31	100	220	600	

Inserts		32	63	160	400	630	1000	2000
Flat Specimens	mm	0 - 10	0 - 10	0 - 10	0 - 14	0 - 21	0 - 30	
	mm	10 - 20	10 - 20	10 - 20	14 - 27	20 - 41	30 - 60	
	mm	20 - 30	20 - 30	20 - 30	27 - 41	40 - 60		
	mm		30 - 40	30 - 40				
Round Specimens	mm	4.5 - 11.5/13.5	4.5 - 11.5/13.5	5 - 12	5 - 12	5 - 12	10 - 22	upon
	mm	10 - 16/19	10 - 16/19	10 - 16/19	11 - 20	10 - 21	20 - 31/40	request!
	mm	14 - 16.5/22	14 - 16.5/22	14 - 16.5/22	19 - 26/28	20 - 31/35	40 - 49/60	
	mm	22 - 30	22 - 30	22 - 30	26 - 32/36	35 - 45/50		
	mm					47 - 50/63		

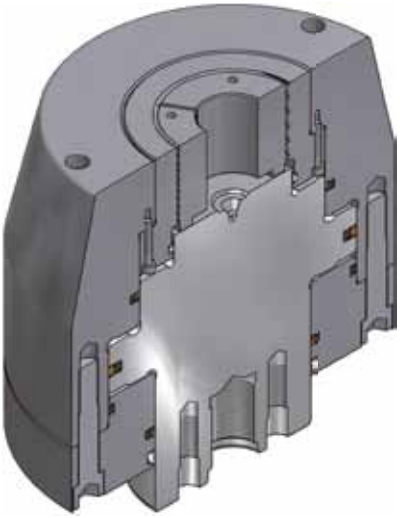
Hydraulic Collet Grips
Series HCG 30 - 250 kN

**The HCG grips are well suited for fatigue testing of plain end round samples.
They are also available for axial-torsional loading.**

The short and stiff grip design provides superb alignment and repeatability that minimize the bending strain onto the specimen. These grips permit an easy sample loading into to collet inserts. The grip control unit, which is usually mounted direct at the testing machine, allows the a separately operation of the upper and lower grip. These grips proved a constant gripping force regardless of the test load applied. The gripping force can be pre-selected in accordance with the test sample.

Features
- Providing constant, lateral gripping force
- Superior alignment
- Stiff and short construction
- Easy specimen loading
- Quick changing of collets

Further Accessories & Options
- Collets for different specimen shapes
- Hydraulic Power Pack
- Optional with water cooling



Type HCG		30	63	120	250
Test Force stat. max.	kN	±30	±63	±120	±250
Test Force dyn. max.	kN	±25	±50	±100	±200
Height	mm	160	160	175	245
Diameter	mm	160	160	160	260
Weight each Grip	kg	16	18	18	64
Collets		**30**	**63**	**120**	**250**
Round Specimens	mm	3 - 42	3 - 42	3 - 42	3 - 42
Rectangular Specimens	mm	4 - 30	4 - 30	4 - 30	4 - 30
Hexagonal Specimens	mm	6 - 36	6 - 36	6 - 36	6 - 36

Grip Control System
for Hydraulic Operated Grips

The system allows independent control of the upper and lower grips with clamping pressure adjustment. Mounted directly at the machine or placed on separate table.

The grip control system allows an independent control of the grips (upper and lower). The clamping force can be adjusted in order to improve better performance on a variety of specimens thanks to a wide pressure adjustment range (except Series WG-H). It prevents damage to your specimens from grip or specimen slippage during your tests. The clamping pressure is permanently measured, controlled and shown on a digital display. The hydraulic grip power pack provides a stable hydraulic pressure that does not increase even if the temperature does. Depending on installation the grip control is integral part of the touch screen remote control unit or comes as independent remote control box.

Oil Supply and Control
for Hydraulic Operated Grips

The oil supply for the hydraulic operated grips can either by used from the hydraulic power pack from the testing machine or an external stand alone units can be supplied if the grips are foreseen to be used in different testing machines.

Stand Alone Units

W+b offers the modular stand alone hydraulic grip supplies for the full range of hydraulic operated grips. They are compact designed, easy to maintenance with self contained hydraulic pump, control valves and electrical installation. This reliable units provides stable pressurized oil and independent operation of each grip. The grip control buttons are available direct at the stand alone unit or with remote control handset for easy installation and replacement of the specimen.

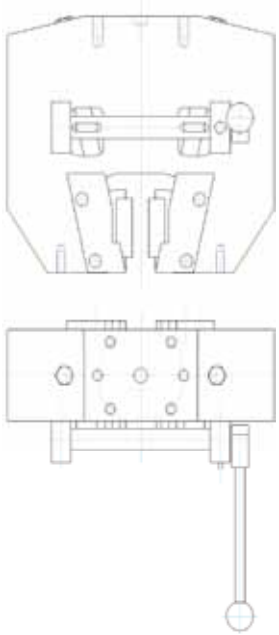
Mechanical Wedge Grips
Series WG 10 - 250 kN

Manual operated self tightening wedge grips providing excellent sample grip.
The opening and closing of the inserts is provided by operating the lever.

This results in a extremely quick operation for the most productive testing. The gripping force increase linear to the axial test force. The mechanical wedge grips Series WG are self tightening, general-purpose wedge grips which provides excellent sample grip on a variety of materials. The open-front construction make specimen insertion quick and easy. This translates into you spending less time inserting and aligning specimens and more time testing.

Features
- Self tightening
- Open front-design for easy change of inserts and specimen loading
- Unique design for quick manual operation
- Large clamping range
- No hydraulics needed
- Precision aligned

Further Accessories & Options
- Inserts for flat or round specimen



Type WG		10	25	50	100	150	200	250
Test Force max.	kN	10	25	50	100	150	200	250
Width	mm	120	140	220	320	320	400	400
Depth	mm	48	50	80	80	80	125	125
Height	mm	112	150	210	250	250	350	350
Clamping Area	mm	27 x 42	40 x 44	60 x 50	60 x 72	60 x 72	80 x 80	80 x 80
Weight each Grip	kg	4.8	8.0	29	43	43	120	120

Inserts		10	25	50	100	150	200	250
Flat Specimens	mm	0 - 8	0 - 8	0 - 14	0 - 16	0 - 16	0 - 16	0 - 16
	mm			12 - 26	16 - 32	16 - 32	16 - 32	16 - 32
	mm						32 - 48	32 - 48
Round Specimens	mm	2.5 - 7	2.5 - 9	4 - 10	2.5 - 6.5	2.5 - 6.5	5 - 10	5 - 10
	mm	4.5 - 10	8 - 12	8 - 18	4 - 10	4 - 10	8 - 20	8 - 20
	mm		12 - 18	16 - 24	8 - 20	8 - 20	20 - 30	20 - 30
	mm				20 - 30	20 - 30	30 - 40	30 - 40

Pre-Tightening Wedge-Action Grips

Series PWG 10 – 300 kN

Initial gripping force to sample is applied via hand wheel while the body of the grip is moving. This feature minimises the preload applied to the sample by the grips and avoids a compressive force being applied prior to testing.

A capstan operated wedge grip where the grip body moves upwards under the capstan action, closing the jaws on the sample. This action minimizes the preload applied to the sample by the grips. Further as the tightening is without altering the vertical position of the faces, it's possible to preselect the exact point at which the specimen will be held. The jaws are spring loaded to the capstan rod, this eliminates backlash and allows the jaws to move when load is applied. Jaws are easily interchanged, requiring only the loosening of two screws.

Features

- General purpose static wedge grips
- Open front-design for easy change of inserts and specimen loading
- No hydraulic needed
- Large clamping range
- Easy to operate

Further Accessories & Options

- Inserts for flat or round specimen
- Optional available for high temperature testing up to 600°C

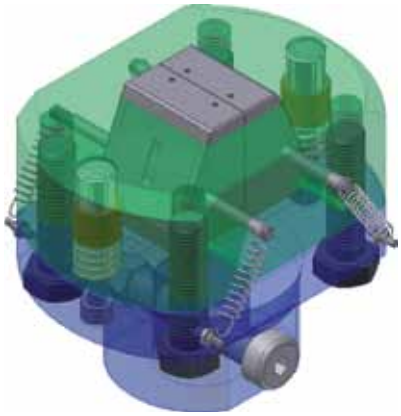
Type PWG		10	25	50	100	150	300
Test Force max.	kN	10	25	50	100	150	300
Length	mm	110	210	210	295	295	400
Clamping Area	mm	27 x 42	30 x 15	30 x 15	28 x 50	28 x 50	40 x 120
Weight each Grip	kg	4.8	6.3	6.3	27	40	120
Inserts		**10**	**25**	**50**	**100**	**150**	**300**
Flat Specimens	mm	0 - 8x25	0 - 15x30	0 - 15x30	0 - 21x50	0 - 21x50	0 - 20x100
	mm		12 - 20x30	12 - 20x30	10 - 28x50	10 - 28x50	20 - 40x100
Round Specimens	mm	2.5 - 8	3 - 5	3 - 5	6 - 12	6 - 12	10 - 20
	mm	4 - 10	4 - 8	4 - 8	12 - 24	12 - 24	15 - 30
	mm	5 - 11	8 - 15	8 - 15	24 - 36	24 - 36	26 - 40

Manual Non-Shift Wedge Grips
Series WGR - M 40 – 100 kN

Specially designed for static, quasi-static, dynamic and reverse stress testing. Can be used in static or dynamic material testing applications and provide sample grip on a variety of materials including metals and composites.

Each grip is mechanically operated by tightening four screws to apply the gripping force. The wedge inserts remain stationary on the same vertical position when applying gripping force to sample while the body of the grip is moving. This feature minimises the preload applied to the sample by the grips and avoids a compressive force being applied prior to testing.

Further Accessories
- Inserts for flat and round specimens



Type WGR - M		40	100
Test Force stat. max.	kN	±40	±100
Test Force dyn. max.	kN	±32	±80
Width	mm	140	150
Depth	mm	112	128
Height	mm	129	119
Weight each Grip	kg	7	8.5

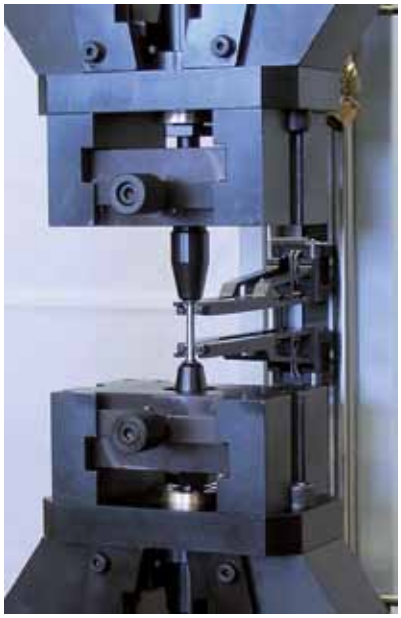
Inserts		40	100
Flat Specimens	mm	0 - 10 x 35	0 - 10 x 50
	mm		10 - 20 x 50
	mm		20 - 30 x 50
	mm		30 - 40 x 50
Round Specimens	mm	3 - 6.5	4 - 11.5 / 13.5
	mm	5 - 12	10 - 16 / 19
	mm		13 - 16.5 / 22
	mm		22 - 30

Self - Aligning Tension Grips

Series SWG 100 - 300 kN

Specially desigend grips for shoulder or threaded end holders according to DIN 50125 B and C, ASTM E8, A370 and A48, GOST or other standards.

Superior alignment with spherical seated inserts (holders) that minimize the bending strains that can invalidate test results. The specimen loading is easy and quick. Holders are available for specimens with shoulder or threaded ends. In combination with contacting extensometers which measures until specimens failure the SWG series is also available with hydraulic operating cylinders to hold down the samples. These grips can be fixed in the testing machine permanent or also mounted onto other grips as wedge, parallel or non-shift types. Also individual holders according drawings can be provided.



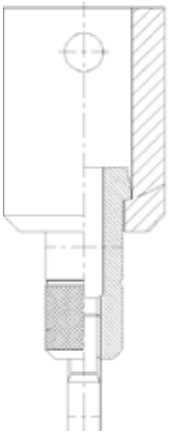
Models

- Series SWG: Manual
- Series SWG-H: with integrated hydraulic rebound device

Threaded Grips
Series 179 20 - 300 kN

to test samples with threaded ends according to DIN 50125 B a.s.o.

This series of grips providing excellent alignment and can be fixed onto different grips or onto spigots. The body can accept spherically seated and hardened inserts for different threads. Also available with inserts for screw heads. Inserts with larger or other threads available on request.



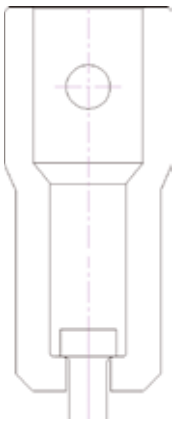
Type 179		20	50	100	200	300
Test Force max.	kN	20	50	100	200	300

Inserts	20	50	100	200	300
Threaded Ends	M3, M4, M6	M3, M4, M6	M3, M4, M6	M3, M4, M6	M3, M4, M6
	M8	M8, M10	M8, M10	M8, M10	M8, M10
		M12, M14	M12, M14	M12, M14	M12, M14
			M16	M16, M18	M16, M18
				M20, M22	M20, M22
				M24	M24, M27
					M30

Chuck Grips
Series 89 20 - 200 kN

to test samples with shoulders according to DIN 50125 C a.s.o.

This series of trips providing alignment and can be fixed onto different grips or onto spigots. With its open construction the sample loading is easy and quick.



Type 89		20	50	100	200
Test Force max.	kN	20	50	100	200

Inserts	20	50	100	200
$D_0/D_1/D_2$	4/7/5	4/7/5	4/7/5	4/7/5
	5/9/6	5/9/6	5/9/6	5/9/6
	6/11/8	6/11/8	6/11/8	6/11/8
	8/14/10	8/14/10	8/14/10	8/14/10
	10/18/12	10/18/12	10/18/12	10/18/12
		12/21/15	12/21/15	12/21/15
		14/25/17	14/25/17	14/25/17

Fastener Testing Grips
Series FTG

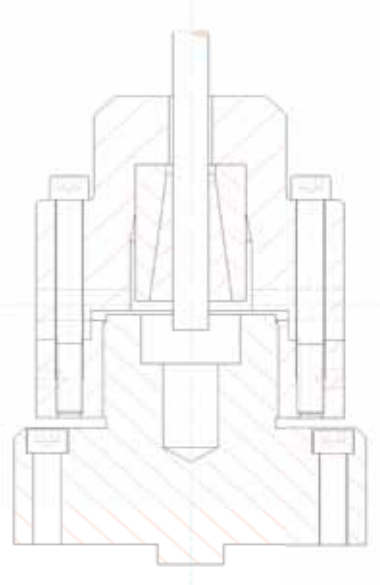
To accept inserts for round specimen with shoulder or thread-heads according to ISO 898-1, ASTM F606, a.s.o. Specially designed for static testing of socket head cap screws, nuts, threaded rods and other fasteners elements.

Features
- Open front construction for quick and easy insert of specimen
- Precision centring of the inserts minimize the bending strains that can invalidate your test results
- Providing excellent repeatability, test after test

Inserts
- Inserts to test specimens with two sides threaded ends
- Inserts to test screws or other samples with one side threaded end and head on the other side
- Inclination (washer) Disks 4, 6, 8 or 10°
- Tensile Bolts with rolled threads to test nuts

Mechanical Wire Strand Grips
Series WSG 100 - 500 kN

Specially designed for LCF Tests on different types of wire strands. The preload is applied mechanically by tightening a set of screws on the periphery of the grip.



Type WSG		100	200	500
Test Force max.	kN	100	200	500
Open Grips	mm	A20.5-14	A20.5-14	A20.5-14
	mm	A24-16	A24-16	A24-16
	mm	A30-22	A30-22	A30-22
	mm		A38-26	A38-26
	mm		A38-28	A38-28
	mm		A42-28	A42-28
	mm		A42-30	A42-30
	mm		A42-34	A42-34
	mm		A45-34	A45-34
	mm			A50-34
	mm			A50-38
	mm			A60-42

Shear Test Devices

Shear Test Device Series STD

for shear-testing of reinforcing steel welded wire meshes specimen according to EN 10080 (DIN 488), ISO 10287 and ISO EN 15630 - 2.

Double Shear Test Fixture Type B769 90 kN

To Determine Shear Ultimate Strengths of Wrought and Cast Aluminium Products according to ASTM B769.

Aluminium Alloys with Inserts Ø 0.250", 0.375" and 0.500".

- Capacity: 90 kN.
- Specimen Diameter: from Ø 3/16" to 1/2".
- Specimen Length: 3.0" typical.
- Temperature Range: -150 to +300 °C.
- Weight: approx. 7 kg.
- Dimensions: 50 x 100 x 200 mm.

Shear Test Devices Series SD

for cylindrical specimens

With changeable, exact machined and hardened inserts. The device can be easily fixed into gripping heads of testing machines. Direct Shear Test Devices are available in different force ratings to fix directly onto wedge grips. With exchangeable, exact machined and hardened inserts.

Fracture Mechanics Tension Testing Clevis
Series CT (Clevis Grips)

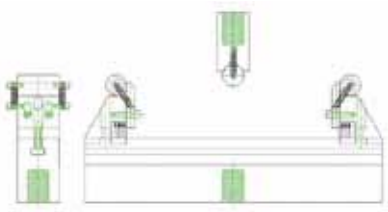
Specially designed for Fracture Toughness (KIC), Crack Growth, J-Integral or R-Curve tests in accordance with ASTM E399, E1820, E1290, E647, E561, E813 testing. They are available made of Heat Treated High Strength Steel as well as made from high temperature materials for tests up to 1000°C.

The Clevis Grips are manufactured to meet ASTM E399 for all shaped CT, WOL and panels (center-or edge-cracked) specimens. In order to provide rolling contact between the loading pins and the clevis holes, these holes are provided with small flats on the loading sufraces. The clevis corneers are cut off to accommodate seating of the clip gage in specimens with less thickness. They are available made of Heat Treated High Strength Steel as well as made from high temperature materials for tests up to 1000°C. Option: CT Clevis Grips with metric dimensions.

Type CT		0.400	0.500	0.600	0.750	0.800	1.000	1.250	1.500
Specimen Width	in	0.400	0.500	0.600	0.750	0.800	1.000	1.250	1.500
Specimen Length	in	0.800	1.000	1.200	1.500	3.000	2.000	2.500	3.000
Slot	in	0.412	0.515	0.618	0.773	0.824	1.030	1.288	1.545
Slot Depth	in	0.608	0.760	0.912	1.140	1.216	1.520	1.900	2.280
Hole Recess	in	0.208	0.260	0.312	0.390	0.416	0.520	0.650	0.780
Hole Flat	in	0.040	0.050	0.060	0.075	0.080	0.100	0.125	0.150
Pin Diameter	in	0.188	0.235	0.282	0.353	0.376	0.470	0.588	0.705

Type CT		1.750	1.875	2.000	2.250	2.500	3.000	3.500	4.000
Specimen Width	in	1.750	1.875	2.000	2.250	2.500	3.000	3.500	4.000
Specimen Length	in	3.500	3.750	4.000	4.500	5.000	6.000	7.000	8.000
Slot	in	1.803	1.931	2.060	2.318	2.575	3.090	3.605	4.120
Slot Depth	in	2.660	2.850	3.040	3.420	3.800	4.560	5.320	6.080
Hole Recess	in	0.10	0.975	1.040	1.170	1.300	1.5600	1.820	2.080
Hole Flat	in	0.175	0.188	0.200	0.225	0.250	0.300	0.350	0.400
Pin Diameter	in	0.823	0.881	0.940	1.058	1.175	1.410	1.645	1.880

Fracture Toughness Bending Fixtures
Series BT 399 50 – 250 kN



The Three Point Bend Plain Strain Fracutre Toughness Fixtures are manufactured to meet ASTM E399 and also well suited for short beam shear tests of composites (ASTM D2344) and plastics flex tests (ASTM D790).

The fixture is constructed from high strength steel but also available made of high temperature alloy for high temperature testing. The bend fixture is designed for specimen widths up to 2.0" (50 mm). The specimen support spans is continuously adjustable from 20 mm up to 305 mm. The BT 399 having integrated scale (English and Metric) for quick and accurate position the rollers for the suitable span. The fixture is supplied with 1.0", 0.75" and 0.5" or 25 mm, 20 mm and 10 mm rollers. Additional sizes including 0.13", 0.25", 5 mm and 15 mm are also available. As ASTM E399 dictates the rollers are free to rotate to minimize friction.

The support base (13" long by 2" wide / 330 mm long by 50 mm wide) with a T-slot running the length of the base. The specimen supports (2" wide with alignment rails) are free sliding along the support base to adjust the support span and can be reversed for short and long spans.

The supports are supplied with an adjustable roller stop to measure the initial span. When the three-point specimen is loaded the lower rollers rotate away from the specimen's centre. The stop can be adjusted from 0.13" (5 mm) Ø to 1.0" (25 mm) Ø rollers which are held in an alignment with a tension spring. The roller on the loading head is also held in alignment with a tension spring.

The fixture is designed in order that the COD (crack opening displacement) gage can be installed and allows the specimen deflect until failure.

The BT 399 is constructed from high strength steel with a protective black oxide oil finish. The rollers are constructed from stainless steel.

Option

- Fixture made of high temperature alloy for high temperature testing
- 4-point loading head 6 - 100 mm.

Available Force Capacities

50 kN, 100 kN and 250 kN

Compression Platens

Series DP 10 - 2000 kN

Designed to fix directly onto wedge grips. Upper spherically seated and the lower fixed platen.

Compression platens are made of hardened steel for long life and minimal wear with a accurate flatness minimal roughness used to perform compression tests on different materials. Upper platen feature a spherical seat to ensures pressure across the entire surface of your specimens. The lower compression platens has concentric rings, etched on the surface instead of grooved into it, let you visually centre your specimen for improved alignment. All platens complies with ISO 409-1, BS 1881, ISO 4012/2, ISO 6507-1 and other international standards. On request we supply all platens with calibration certificate for hardness, flatness and roughness from our accredited (ISO EN IEC 17025) calibration laboratory.

Features

- Hardened and smooth faced
- Accurate flatness
- Lower platen has concentric rings
- Platens comply to international standards

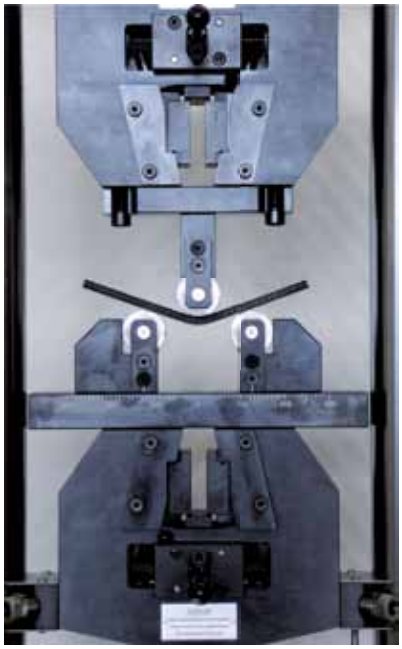
Type DP		10	20	50	100	250
Test Force max.	kN	10	20	50	100	250
Diameter	mm	120	150	150	175	200

Type DP		400	600	1000	1500	2000
Test Force max.	kN	400	600	1000	1500	2000
Diameter	mm	200	200	200	225	250

Bending Beams

Series BT 10 - 2000 kN

Desigend to fix directly onto wedge grips. Highest peak stress at 500 mm distance.



High durable bending beam ideal for testing of different materials. Hardened rollers ensure test result accuracy by reducing undesirable loading and frictional forces on the specimen. The beam is adjustable and equipped with a calibrated scale which indicates the span between the supports.

Features

- Highest peak stress at 500 mm distance between supports
- Different roller assemblies are available.
- Optional fixtures for 4-point tests.

Type BT		10	20	50	100	250
Test Force max.	kN	10	20	50	100	250
Distance betw. Support	mm	50 - 300	50 - 300	50 - 300	50 - 400	50 - 400
Breadth of Support	mm	80	80	80	80	80
Support Roller Diam.	mm	50	50	50	50	50
Bending Size max.	mm	70	70	70	70	70

Type BT		400	600	1000	1500	2000
Test Force max.	kN	400	600	1000	1500	2000
Distance betw. Support	mm	50 - 400	50 - 400	50 - 500	50 - 500	50 - 500
Breadth of Support	mm	80	100	100	120	120
Support Roller Diam.	mm	50	50	50	50	50
Bending Size max.	mm	70	70	70	70	70

Bending Beams with Folding Stamp
Series BTF 10 – 1000 kN

Used to perform cold bend tests, folding or straightening according to DIN 50121, ASTM A615 - 89 and A615 M-89

Used to perform cold bending tests, folding or straightening on flat or round specimens, mainly on reinforcing steel bars, according to DIN 50121, ASTM A615-89, A615M-89 or other international standards. The BTF can be fixed direct onto wedge grips. The beam is adjustable and equipped with a calibrated scale which indicates the span between the supports.
A typical test consists of buckling the bars e.g. for 180°. For steel bars with improved adherence, the test has to by made at 180° or 90° and a re-straightening of at least 20°. After the test the surface of the specimen should not have any defect such as crack or slit a.s.o. The diameter and wide of the rollers and the span of the beam can be designed to customers need or different standards.

Type BTF		10	20	50	100
Test Force max.	kN	10	20	50	100
Diameter folding stamp	mm	80	80	80	80
Bending size max.	mm	20, 30, 40	20, 30, 40	20, 30,40	20, 30, 40

Type BTF		250	400	600	1000
Test Force max.	kN	250	400	600	1000
Diameter folding stamp	mm	80	80	100	100
Bending size max.	mm	20, 30, 40	20, 30, 40 50, 60	20, 30, 40 50, 60	20, 30, 40 50, 60

As Alternative:
Steel Bending Testing Machines
Please refer to Section D - Hydraulic!

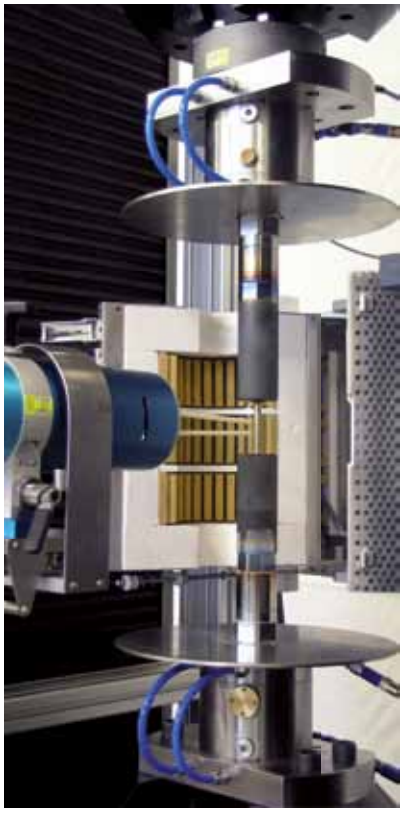
Series BTM - for Flat Specimens

Series SDM - for Round Specimens

Dynamic High Temperature Grips
Series HTG

Manual or Automatic operated high temperature grips for temperatures up to 1000 °C specially designed for low-cycle fatigue testing (through-zero testing) of samples with threaded ends or button-heads up to 6 Hz.

The Series HTG grips are primary designed for high temperature low-cycle-fatigue (LCF) testing but can also be used for high temperature tensile or tensile compression tests. This grips provide backlash free specimen clamping which is either reached through mechanical or automatic preloading. The interchangeable adapters, pullrods and preloading piston extend into the heated zone of the furnace and remain hot so that thermal gradients with the sample are minimized. All parts, which extend into the heated zone of the furnace, are made from high temperature PM-superalloys. The grip bodies, which remain outside of the chamber having additional high reflective electro, polished stainless steel shield to minimise the heat transfer. The grip bodies are additionally are air or water cooled to isolate the hot parts from the testing machine and load cell or other accessories. Depending on machine type the HTG comes with suitable interface adapter to other grips or spigots for the easy installation. The automatic version comes along with a remote control for independent opening and closing of upper and lower grip. The automatic version provides a mechanical push-lock and maintains the preloading force constant for the most repeatable testing results.



Features

- Changeable specimen adapters
- Available with air or water cooling kit
- Fatigue / monotonic testing at high temperatures for threaded and button-head samples
- Good alignment

High Temperature
Pull Rods, Clevises & Compression Platens

Machined with precision alignment. Wide range of parts and materials.

The challenging applications such as testing materials used in aircraft turbines, rocket propulsion, hot outer skin structures, automotive industry as materials for exhaust systems etc. requires high temperature testing installations with related high temperature pull rods, couplings and adapters.

High Temperature Wedge Grips
Series WGHT

Designed for tension only testing of flat specimens with thickness from 0.38 up to 6.75 mm.

This family of grips are available made of Inconel 713c or MAR M-246. Design of holders requires drilling of holes in specimen end tabs for initial loading and jaw alignment. Centring pin diameter 2.35 mm.

Type WGHT		713	713.1	246	246
Material		Inconel 713c	Inconel 713c	MAR M-246	MAR M-246
Specimen Width max.	mm	25	31	25	31
Inserts		**713**	**713.1**	**246**	**246**
Specimen Thickness	mm	0.38 - 1.19	0.38 - 1.19	0.38 - 1.19	0.38 - 1.19
	mm	1.17 - 1.98	1.17 - 1.98	1.17 - 1.98	1.17 - 1.98
	mm	1.98 - 2.80	1.98 - 2.80	1.98 - 2.80	1.98 - 2.80
	mm	2.77 - 3.58	2.77 - 3.58	2.77 - 3.58	2.77 - 3.58
	mm	3.56 - 4.36	3.56 - 4.36	3.56 - 4.36	3.56 - 4.36
	mm	4.35 - 5.15	4.35 - 5.15	4.35 - 5.15	4.35 - 5.15
	mm	5.15 - 5.97	5.15 - 5.97	5.15 - 5.97	5.15 - 5.97
	mm	5.95 - 6.75	5.95 - 6.75	5.95 - 6.75	5.95 - 6.75

Ceramic Bending Device with Fixed Span Series CBF - F

Designed for 3 and 4-point bending tests on ceramics according to ASTM C 1161 and other stiff composites.

Fully Articulating Three & Four Point Flexure Fixture with specimen with support span adjustable between 20 mm and 40 mm and four upper support span adjustable between 10 mm and 20 mm.
The roller diameters are 5 mm. The fixture is available with an incorporated accurate deformation measuring system for precise measurement of the bending strain.

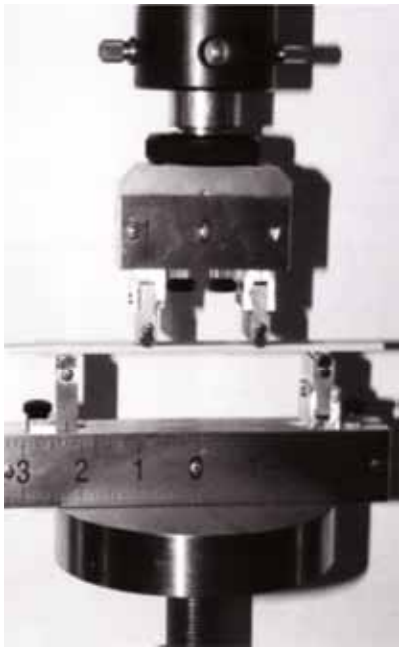
Options

- Type CBF - 1 with deformation measuring system.

Type CBF-F		10
Test Force max.	kN	10
Distance betw. lower rollers	mm	20 / 40 mm
Distance betw. upper rollers	mm	10 / 20 mm
Roller Diameter	mm	5 mm

Ceramic Bending Device with Adjustable Span Series CBF - A

Designed for 3 and 4-point bending tests on ceramics according to ASTM C 1161 and other stiff composites.



Fully Articulating Three & Four Point Flexure Fixture with specimen support spans adjustable to 175 mm (7.0") and four point loading span adjustable to 75 mm (3.0"). The rolling and pivoting specimen rollers are 25 mm (1.00") wide. The specimen supports incorporates a free rolling roller (loading pin) of 4.5 mm (or 0.25") diameter. One of the supports is free to pivot as mush as 7° in either direction to provide complete seating and maximum specimen contact to the test specimen.
The lower 3 & 4 point loading support are mounted on the base where the span is measured along a center finding scale located on the front surface of the 175 mm (7.0") support base. The base may be used on a compression platen or mounted with the suitable threaded hole located at the loading axis of the fixture. The 3 & 4 point loading head is pivoted and may be allowed to float freely or can be locked rigid with a locking nut. The 3 & 4 point loading head will be supplied with male clevis pin type adapter with dowel pin hole or suitable connection to your testing machine.

Type CBF-A		15	44	44
Test Force max.	kN	1.5	4.4	4.4
Temperature max.		Room Temperature	Room Temperature	530 °C
Material		Aluminium	Steel	Inconel 718 Steel
Standards		ASTM C1161 - 11	ASTM C1161 - 11	ASTM C1161.15

Ceramic Bending Device for High Temperatures Series CBF - HT

Designed for 3 and 4-point bending tests on ceramics according to ASTM C1161 and other stiff composites.

High Temperature Three & Four bending assembly for ceramic samples 3x4 mm cross section with high temperature water cooled deflection measuring system.

Fixture

- Material of the Fixture: SiC
- Max. Force of the Fixture: 2 kN at 1400°C
- Lower span: 40 mm
- Upper span for 4-point tests: 20 mm

Deformation Measuring System

- Water cooled fixture for high temperature deflection measurements on ceramic samples including bending or compression tests.
- Max. Temperature range: 1500°C
- Measuring range: ± 1 mm
- Other travels also available as ± 5 mm
- Resolution of the measuring system: 0.15 um

Option

- Assembly for other sample dimensions
- Compression device

Alignment Fixture
Series AF

The alignment fixtures are designed to minimize bending strains in axial testing.

A key factor to achieve accurate fatigue data include assuring that the applied load is aligned with the specimen axis. Poor and non-reproducible alignment create bending strains that reduce fatigue life considerable and increase the scatter in the data. Bending strain can be discovered when there is a misalignment somewhere in the load train. The Series AF device fits into one end of the load train, commonly mounted between the crosshead and the load cell, and allows the adjustment of both angular and concentric components of bending while the load train is under preload. This reduces the time needed for archiving correct alignment as required for example for LCF Testing (ASTM E606).

Available Force Capacities
25 kN, 50 kN, 100 kN, 250 kN, 630 kN

Motorized Alignment Fixture
Series AAF

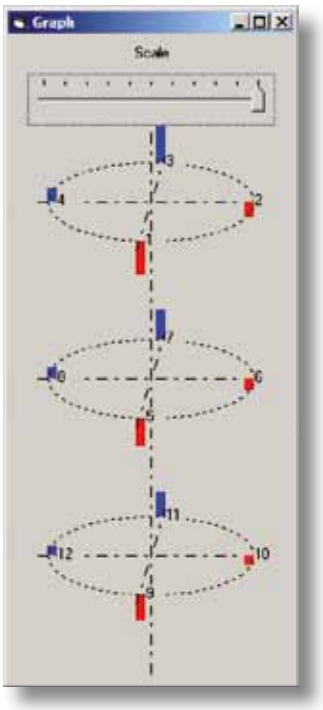
The alignment fixture enables to perform alignment adjustments during verification practice.

Alignment fixture ensures load frame accuracy and that the machine complies with industry (including Boeing and GE) regulations and standards for material testing accuracy.
The alignment fixture is specially designed for manual compensation of asymmetrical tensile force components including continuous display of compensation conditions (load capsule with additional strain gauge application).

Features
- Aligning mechanism
- Hydraulic locking device for releasing/locking the aligning mechanism before/after the manual adjustment procedure
- Plug-in module with digital display of asymmetrical tensile force components (measured from the load cell, 4 quadrants and mean value)
- Control block for disabling clamping jaw actuation when locking has not been engaged depending upon prevailing oil pressure, installed to a separate switch box (to be mounted in close proximity to the testing machine)

Alignment Verification
Electronics, Software and Rods

It has been proven that bending stresses associated with misalignment between the parallel length of the test sample and the load axis can significantly influence the material property under investigation in mechanical tests.



Sources of misalignment include insufficient test machine lateral stiffness, inadequate test machine alignment, inaccurate machining of the test piece, bad conformance of the test piece centre line with top and bottom grip centre lines and poor alignment in the loading train. Combinations of these influences of misalignment occur to various degrees in any test, depending on the configuration of the loading system and the test piece machining tolerances.
Many international standards as ASTM E4, E8, E606, BS1881, EN10002-1 and 5, MIL-STD-1312B, ASTM E1012 or regulations like for example GE S-400 refer to alignment issues or describe the practice for verification of test frame and specimen alignment under axial force applications.
The w+b alignment verification equipment consists of alignment rod (strain gauged specimen), alignment software and electronics for strain gauge conditioning and data acquisition.

Software and Electronics

The alignment software allows to choose between different alignment rods having gage arrangement for examples 1x4 gages (4 gages around the centre plain) as required according to MIL-STD-1312B, 1x3 (3 gages around centre), 3 x 3 gages (3 gages each around top, centre and bottom plane) according to GE S-400 or 3x4 gages (4 gages each around top, centre and bottom plane) according to ASTM E1012.

Alignment Rods

Different alignment rods suiting your requirement can be provided, including round and flat types.

IITRI Compression Loading Test Fixture for Composites Materials Series D3410

for the determination of the compressive properties of polymer matrix composite materials by shear loading according to ASTM D3410.

This compression loading fixture complies with ASTM D3410 for the determination of the compressive properties of polymer matrix composite materials by shear loading. Upper & Lower Bolster - Constructed from high strength steel. The lower bolster assembly consists of a main load block, two sets of hardened inserts and two guide rods. The upper bolster assembly consists of a main load block, two sets of hardened inserts and two liner bearings. The loading blocks are ground flat and parallel. The two vertical alignment rods are at different heights for easy alignment of the upper bolster. Constructed from high strength steel. The grip set includes two sets of matched halves of hardened high strength steel. To insure proper alignment and some times used for additional specimen support, keys are provided that fit into the keyways on the lower portion of the grip. The loading surfaces are flame sprayed the a high friction material to reduce slippage. Specimen Alignment Jig is constructed from aluminium with a protective black anodized coating. Each fixture comes with an alignment jig for proper assembly of the specimen grip assembly. The jig consists of a tapered with vertical side and a 1/2" gauge length spacer.

Type		D3410
Test Force max.	kN	335
Specimen Length	in	5.500
Specimen Width max.	in	1.500
Specimen Thickness max.	in	0.500
Temperature Range	°C	-150 up to +315°C
Dimensions	in	4 x 7 x 12
Weight	kg	39

Two Rail Shear Fixture for Composites Materials Series D4255

Available for the Tensile and Compression Mode for tests according to ASTM D4255

Tensile Fixture

Constructed from stainless steel in accordance with ASTM D4255. Includes two clamping rail set, two loading plates, two loading yokes and one specimen template.

Compression Fixture

Includes two clamping rail set, two loading plates, two loading yokes and one specimen template. Supplied with 1"-14 threaded studs and locking nuts. Conctructed from stainless steel in accordance with ASTM D4255.

Available upon request are also Three Rail Shear Fixtures.

Type D4255		Z	D
Mode		Tensile	Compression
Test Force max.	kN	88	88
Width	in	3.000	3.000
Length	in	6.000	6.000
Dimensions	in	2 x 4 x 12	2 x 4 x 12
Weight	kg	12	12

180° / 90° Peel Test Fixture
Type PF 180

Peel tests are often performed on adhesives or adhesive based products.

These tests are generally performed in a testing machine in tensile mode. This 180° Peel Unit includes the test bed with a spring loaded retaining plate for locating various test panels on which the sample is bonded. To grip the free end of the sample a ultra light vice grip is supplied. Applications: Testing of laminated coatings, labels and pressure sensitive tapes.

Type	PF 180
Test Force max.	2 kN
Sample Width	0 - 50 mm
Test Panel Length	200 mm according to BS 3887 127 mm according to ASTM D330M and D100
Temperature Range	-70°C upt to +80°C

Adhesion Strength Test Assembly
Series FPP

for testing the static adhesion strength of rubber to rigid materials in most cases metals.

Adhesion refers to the interfacial bond strength between two materials in close proximity with one another. Adhesive bond strength can be described I in several ways, depending on the nature of the interface. Fundamental adhesion refers to the basic intermolecular forces that occur whenever two materials are in close proximity. These intermolecular forces that act between the surfaces of bodies are called surface forces, and adhesion is one manifestation of the existence of surface forces.

Type	FPP
Test Force max.	10 kN
Platens Diameter	76 mm

Tensile Testing of Rubber, Textiles a.s.o.

Eccentric Roller Grips Series 7 1 - 10 kN

For tensile tests on rubber.

Small Scissor Grips Type 230 1 kN

Complete with round jaws.

Small Pincer Grips Type 470 2 kN

Complete with pyramid jaws.

Pneumatic Pincer Grips Type 501 2 kN

Complete with pyramid jaws 0.8 x 45°.

Type		7 - 1	7 - 5	7 - 10	230	470	501
Test Force max.	kN	1	5	10	2	2	1
Operation		back-action spring	back-action spring	back-action spring	spring-loaded	manual	pneumatic
Opening	mm	0 - 7	0 - 7	0 - 8	0 - 28	0 - 5	0 - 10
Specimen Size max.	mm	7 x 50	7 x 50	8 x 60	28 x 40	5 x 25	5 x 10
Clamping Area	mm	50	50	50	40	25 x 25	5
Dimensions W x D x H	mm	50 x 76 x 80	50 x 91 x 96	60 x 77 x 160	126 x 40 x 160	126 x 40 x 160	80 x 169

Scissor - Action Grips Series 11 5 - 50 kN

Specially suitable for fast and sure gripping of composites, carbons, shingles, rigid plastics or similar materials.

Type		11 - 5	11 - 20	11 - 50
Test Force max.	kN	5	20	50
Jaws Clamping Area / Opening		**11 - 5**	**11 - 20**	**11 - 50**
B - Flat Jaws	mm	20 x 55 / 0 - 19	25 x 50 / 0 - 25	
BP - Pyramid Jaws	mm	20 x 55 / 0 - 19	25 x 50 / 0 - 25	50 x 100 / 0 - 48
BR - Rollers	mm		25 x 50 / 0 - 20	
BW - Wave Jaws	mm		25 x 50 or 25 x 100 / 0 - 24	
BV - Round Samples	mm		Ø 5 - 20 x 50	Ø 12 - 48

Small Vice Grips Type 140 0.1 kN

Very light weight vice grips for testing forces up to 100 N.

Small Vice Grips Type 227 0.1 kN

Light weight grip for testing up to 100 N.

Small Vice Grips Serie 9 2.5 kN

For testing of thin wires up to 2.5 kN.

Small Pneumatic Vice Grips Type 94 0.1 kN

Light weight grip for testing up to 100 N.

Type		140	227	9	9K	94
Test Force max.	kN	0.1	0.1	2.5	2.5	0.1
Operation	mm	manual	manual	manual	1 pneumatic piston	pneumatic
Opening	mm	0 - 8	0 - 6	60	40	25 x 25
Jaws		**140**	**227**	**9**	**9K**	**94**
Flat Specimens	mm	15 x 15	10 x 25 / 50 / 100	5	5	25 x 25/50

Pneumatic Vice Grips Type 108 1.75 kN

With 1 pneumatic piston.

Pneumatic Vice Grips Type 22 1.75 kN

With 2 pneumatic pistons.

Pneumatic Vice Grips Type 232 8 kN

With 1 pneumatic piston.

Manual Vice Grips Type 154

For testing up to 10 or 20 kN.

Type		108	22	232	154-10	154-20
Test Force max.	kN	1.75	1.75	8	10	20
Operation		1 pneumatic piston	2 pneumatic pistons	1 pneumatic piston	manual	manual
Opening with Jaws	mm	0 - 30	0 - 60	0 - 10 / 10 - 20 / 20 - 30	0 - 30	0 - 30
Jaws		**108**	**22**	**232**	**154-10**	**154-20**
Flat Specimens	mm	50 x 50	50 x 100	40 x 60	40 x 60	40 x 60
		50 x 100			40 x 100	40 x 100
Round Specimens	mm	Ø 4 - 8			Ø 8 - 16	Ø 8 - 16
		Ø 8 - 16			Ø 16 - 32	Ø 16 - 32

Tensile Testing of Rubber, Textiles a.s.o.

Universal Vice Action Grips
Series 56 0.6 - 1.3 kN

For testing of paper, foils a.s.o. from 0.6 to 1.3 kN. Optional available with 1 or 2 pneumatic pistons.



Type		56K	56K-1K	56K-2K	56G	56G-1K	56G-2K
Test Force max.	kN	1	0.6	0.6	1.3	1.3	1.3
Operation		manual	1 piston	2 piston	manual	1 piston	2 piston
Opening	mm	0 - 11	0 - 11	0 - 11	0 - 15	0 - 15	0 - 15
Jaws Sizes		**56K**	**56K-1K**	**56K-2K**	**56G**	**56G-1K**	**56G-2K**
Flat Specimens	mm	30 x 30	30 x 30	30 x 30	30 x 50	30 x 50	30 x 50

Universal Vice Action Grips in U-Form
Series 240 1 - 5 kN

Can be configured with different insert sizes and surfaces.



Type 240		K8	K20	K50	K1K	K2K	G20	G50	G100	G1K	G2K
Test Force max.	kN	1	1	1	1	1	5	5	5	5	5
Operation		manual	manual	manual	1 piston	2 piston	manual	manual	manual	1 piston	2 piston
Opening	mm	0 - 8	0 - 20	0 - 50	0 - 28	0 - 24	0 - 20	0 - 50	10 - 100	0 - 24	0 - 24
Jaws Sizes		**K8**	**K20**	**K50**	**K1K**	**K2K**	**G20**	**G50**	**G100**	**G1K**	**G2K**
Flat Specimen	mm	30 x 30	30 x 30	30 x 30	30 x 30	30 x 30					
		30 x 50	30 x 50	30 x 50	30 x 50	30 x 50	30 x 50	30 x 50	30 x 50	30 x 50	30 x 50
		30 x 80	30 x 80	30 x 80	30 x 80	30 x 80	30 x 80	30 x 80	30 x 80	30 x 80	30 x 80
		30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100
Round Specimens	mm	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20	Ø 3 - 20

Pneumatic Operated Vice Action Grips
Types 229 / 149 / 83 1 – 3.5 kN

For tensile tests on elastomers, plastics, metals, textiles, insulating materials, paper, wood, rigid and semi-rigid films and sheets a.s.o.



Type		229	149	83
Test Force max.	kN	1	1.2	3.5
Operation		pneumatic	pneumatic	pneumatic
Opening	mm	0 - 6	0 - 6 / 3 - 9 / 6 - 12	0 - 30
Jaws Sizes		**229**	**149**	**83**
Flat Specimens	mm	10 x 25, 10 x 50	30 x 40	40 x 60
		10 x 60 , 10 x 80	30 x 50	40 x 80
		10 x 100		40 x 100

Pneumatic Vice Grips
Type 126 15 kN

ideal for testing of plastic, steel, textiles, geotexiles a.s.o.

Hydraulic Vice Grips
Type 135 60 kN

one clamping piston and extra-wide inserts for testing of high performance textiles and geotextiles.

Manual Wedge Grips
Series 243 20 - 50 kN

Self-tightening. Suitable for metal or plastic specimens. Clamping force increases with linear tension during testing.

Type		126	135	243-20	243-50
Test Force max.	kN	15	30	20	50
Operation		pneumatic	hydraulic	manual	manual
Jaws Sizes		**126**	**135**	**243-20**	**243-50**
Flat Specimen	mm	40 x 120 / 0 - 16	60 x 66 / 0 - 30 or 0 - 20	50 x 35 / 0 - 13	50 x 35 / 0 - 13
Clamping Area / Opening		40 x 200 / 0 - 16	70 x 210 / 0 - 20 or 0 - 16	50 x 35 / 4 - 16	50 x 35 / 4 - 16
Round Specimens	mm	Ø 2.5 - 5 / 0 - 16	Ø 8 - 30 / 60	Ø 3 - 13 / 50	Ø 3 - 13 / 50
Opening / Clamping Height		Ø 6 - 12 / 0 - 16		Ø 4 - 16 / 50	Ø 4 - 16 / 50
		Ø 10 - 26 / 0 - 16			

Types of Jaws for Vice Action Grips

Smooth Jaws Series B

Diamond Coated Jaws Series BD

Corrugated (Pyramid) Jaws Series BP

Wave Jaws Series BW

for Textiles or Geotextiles

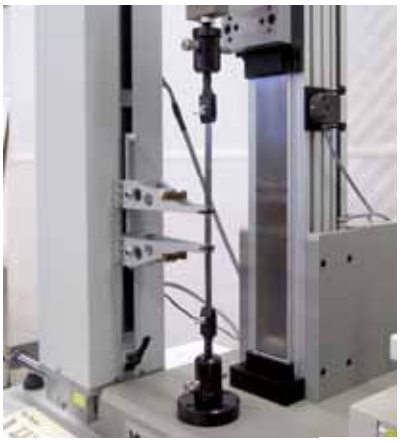
Rubber Coated Jaws Series BG

V – Jaws Series BV

for Round Specimen

Further Grips and Fixtures

Thin Film Grips
Series FG 500 N

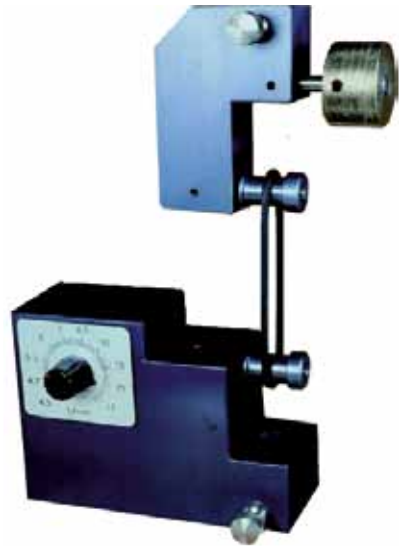


Spring-loaded thin film grips used for tensile tests on thin films of different materials with samples up to 2 mm thickness.

Type FG		20	40
Test Force max.	kN	0.5	0.5
Specimen Width	mm	0 - 20	0 - 40

Small Hook Grips
Type 231

Motorized O - Ring Test Fixture
Type 44 – 2



This O-Ring test fixture has been specially designed to facilitate the testing of O-Rings and other similar continuous loop specimens where it is important to minimize localized stressing in the sample.

This motorized version features a lower pulley drive which is continuous adjustable. Compared with spindle driven systems no changeable additional spindles are needed what cost you time. Inlcuding grip for rubber O-Rings type ORG – 1 for Capacitites up to 1000 N andspecimen sizes ½"wide x Ø 1".

Type	44 - 2
Test Force max.	1000 N

Rollers	44 - 2
ASTM D1414	Ø 4.75 x 7 mm
DIN 53504 R1	Ø 22.3 x 7
DIN 53504 R2	Ø 18.3 x 7
	Ø 3.18 (0.125 in) x 3.18 (0.125 in)
	Ø 6.35 (0.25 in) x 6.35 (0.25 in)
	Ø 12.7 (0.5 in) x 12.7 (0.5 in)

Grips for Testing of Ropes

Pneumatic Yarn Grips Series 130.2–5 kN

For small samples as yarn or small wires.

Manual Rope Grip Type 95 10 kN

Manual Rope Grip Type 25 25 kN

Pneumatic Rope Grips Series 185 20 - 50 kN

Type		13K	13M	13G	13-7	95	25	185-20	185-50
Test Force max.	kN	0.2	2	5	7	10	25	20	50
Operation		pneumatic	pneumatic	pneumatic	pneumatic	manual	manual	pneumatic	pneumatic
Specimen Diameter	mm	Ø 0 - 1.8	Ø 0 - 4	0 - 4	Ø 0 - 7	Ø 0 - 6	Ø 0 - 16	Ø 0 - 15	Ø 0 -20

Manual or Pneumatic Rope Grips Series 76 1 - 20 kN

For testing of ropes, wires and cables made of metal, natural fibre or plastic or other long, thin, flexible materials such as cord, yarn or tapes.

Manual or Hydraulic Rope Grips Series 170 50 - 250 kN

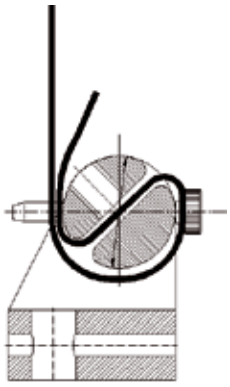
To reduce the stresses encountered at the grip face, specimens are wrapped around a pully before clamping them between the inserts.

Type 76		1	1K	5	5K	20
Test Force max.	kN	1	1	5	5	20
Operation		manual	pneumatic	manual	pneumatic	manual
Specimen Diameter	mm	Ø 0 - 3	Ø 0 - 3	Ø 0 - 5	Ø 0 - 5	Ø 0 - 7
Type 170		**50V**	**100V**	**150K**	**200K**	**250K**
Test Force max.	kN	50	100	150	200	250
Operation		manual	manual	hydraulic	hydraulic	hydraulic
Specimen Diameter	mm	Ø 0 - 18	Ø 5 - 20	Ø 05 - 20	Ø 5 - 20	Ø 5 - 25

Ribbon Grips

Series 222
20 - 400 kN

For testing of metallic ribbons, or tapes, foils and belts made of plastic, elastomers, woven or coated materials.



Series 221
50 kN

Available for different specimen widths.

Type 77
200 kN

Specially designed for testing of seat belts and other belts.

Type		222-20	222-50	222-100	222-200	222-300	222-400
Test Force max.	kN	20	50	100	200	300	400
Specimen Width	mm	0 - 50	0 - 80	0 - 100	0 - 130	0 - 160	0 - 200

Type		221-80	221-100	221-150	221-200		77
Test Force max.	kN	80	50	50	50		200
Specimen Width	mm	0 - 70	0 - 100	0 - 150	0 - 200		0 - 110

Series 172
20 kN

Series 375
10 kN

Type 172P
7 kN

Type 252
5 kN

Type		172-20	172-40	172-60	375	375P	172P	252
Test Force max.	kN	20	20	20	10	10	7	5
Operation		manual	manual	manual	manual	pneumatic	pneumatic	manual
Specimen Width	mm	0 - 20	0 - 40	0 - 60	0 - 20	0 - 20	0 - 60	0 - 22

3- and 4-Point Bending Fixtures

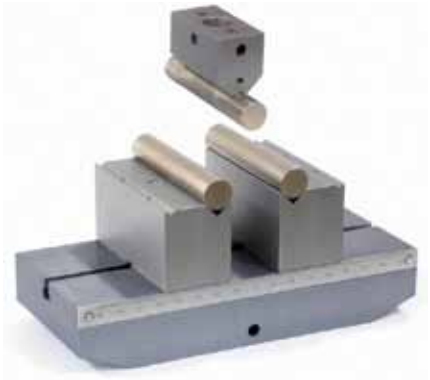
Small 3- and 4-Point Bending Fixtures Series 238 / 238X 2.5 - 10 kN

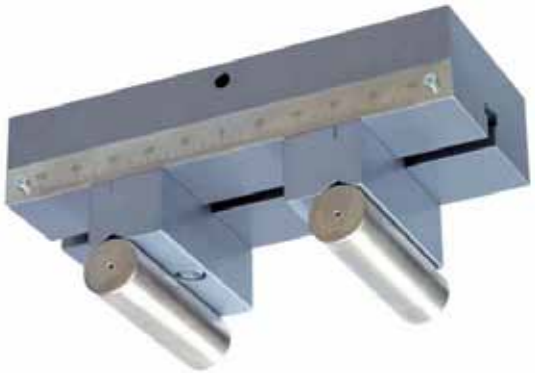
Series 238 - with plastic supports and Series 238X with steel rollers
Ideal for testing of plastics and composites.

Type 238 / 238X		200	300	200-4	300-4
Test Force max.	kN	2.5 / 10	2.5 / 10	2.5 / 10	2.5 / 10
Bending Type		3-Point	3-Point	4-Point	4-Point
Specimen Width	mm	0 - 30	0 - 30	0 - 30	0 - 30
Support Span	mm	4 - 150	4 - 250	4 - 150	4 - 250
Total Fixture Width	mm	200	300	200	300

3- and 4-Point Bending Fixtures Series 22 50 - 100 kN

ideal for testing of plastics, composites, steel and other materials.
Available upon request: different roller diameters, specimen width 0 - 160 mm, special supports.
Optional upper 4-point bending accessory Type 22 - 360 - DF for 4-point bending tests.





Type 22		360	500	600	700	1000	1200		360-DF
Test Force max.	kN	50 / 100	50 / 100	50 / 100	50 / 100	50 / 100	50 / 100		50 / 100
Bending Type		3-Point	3-Point	3-Point	3-Point	3-Point	3-Point		4-Point
Specimen Width	mm	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100	0 - 100		0 - 100
Support Span	mm	20 - 200	20 - 350	20 - 450	20 - 550	20 - 850	20 - 1050		35 - 205
Total Fixture Width	mm	360	500	600	700	1000	1200		240

3- and 4-Point Centric Bending Fixtures Series 103 50 kN

with mechanism to move the supports centric for universal use

Type		103	103-4
Test Force max.	kN	50	50
Bending Type		3-Point	4-Point
Specimen Width	mm	0 - 50	0 - 50
Support Span	mm	10 - 100	10 - 100
Total Fixture Width	mm	220	220

3- and 4-Point Tensile Bending Fixtures Series 165 10 kN

with mechanism to move the supports centric for universal use

Type		165	165-4
Test Force max.	kN	10	10
Bending Type		3-Point	4-Point
Specimen Width	mm	0 - 50	0 - 50
Support Span	mm	50 - 200	50 - 200
Total Fixture Width	mm	250	250

Compression Platens

Series 23 fixed / Series 223 upper movable

For compression tests on various specimens.
Optional with upper spherically seated platen.

Type		23	223
Test Force max.	kN	50	50
Diameters	mm	56, 96, 116, 136, 146, 196, 246, 296, 346	
Upper Platen		fix	spherically seated