Testing and Calibration Technology

Service Tools Catalog





Contents

This service tools catalog contains information on tools and devices required for the adjustment, calibration, assembly and dismantling of pressure and temperature measuring instruments in all available designs.

Special versions and extras may be supplied on request.

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Information on all products may also be found in the WIKA comprehensive catalog on CD-ROM, which you can order using the fax form on the back of this brochure.

Any questions?

Our staff is readily available to answer your questions and give you competent advice. Please see the back part of this brochure for contact addresses.

Ordering information

Please indicate the appropriate 7-digit order numbers in your orders, as specified in this brochure. For products that do not have an order number the product design is to be specified in detail. Please discuss such cases with our staff before ordering.

Prices

The current prices are listed in the price list test and calibration equipment, which you can order using the fax form on the back of this brochure.

Notes

Our general terms and conditions of delivery will apply. Specifications and dimensions given for the products in the catalogue represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.

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ST 01.01

Adjustment and calibration benches

Test and Calibration Equipment Service Tools

Pneumatic test bench -1/30 bar • -1/400 bar Hydraulic test bench 10/max. 1600 bar Combined test bench Application-specific test bench

Application

Adjustment and calibration benches have been designed for testing, adjusting and calibrating all types of pressure measuring instruments used to monitor the pressure supply required by production and test departments, service and maintenance shops as well as laboratories. All kinds of test specimens and reference gauges can be mounted to these benches. Pressure is controlled by means of fine adjustment valves.

General features

The adjustment and calibration benches are intended for pneumatic or hydraulic pressure media. The following standard versions are available:

- Pneumatic test bench, medium air or nitrogen, pressure range -1 / 30 bar
- Pneumatic test bench, medium air or nitrogen, pressure range -1 / 400 bar
- Hydraulic test bench, medium water or oil, pressure range 10 / max. 1600 bar
- Combined pneumatic / hydraulic test bench, media air or nitrogen and water or oil, Pneumatic pressure range -1 / max. 400 bar, hydraulic pressure range 10 / max. 1600 bar

Application-specific test benches are available on request. The possibilities of variation are specified in the table on the next page, from which you can select the best suitable test bench for your application.

The **pneumatic test benches** are fitted with a self-venting precision pressure reducing valve for the preselection of the desired test pressure with supply and vent pressure gauge, 2 test connections with knurled nut M28 x 1.5 and threaded adapter G 1/2, 2 fine adjustment valves for pressure inlet and outlet and a connection coupling for the adaption of the pressure supply from a cylinder or supply line. The vacuum version has an additional fine adjustment valve for vacuum and an electrical slide vane rotary vacuum pump integrated in the test bench.

The **hydraulic test benches** are fitted with a self-venting precision pressure reducing valve for the preselection of the desired test pressure with supply and vent pressure gauge, prestress reducing valve with pressure gauge, 2 test connections with knurled nut M28 x 1.5 and threaded adapter G 1/2, 2 fine adjustment valves for pressure inlet and outlet, a pressure converter for automatic pressure generation, a medium reservoir and a connection coupling for the adaption of the pneumatic prestress supply from a cylinder or a supply line.

The individual components of the adjustment and calibration benches are mounted to an assembly table which consists of a "Bosch" aluminium frame and, in the standard version, a 40 mm thick particle board with blue coating and edge bandings (750 x 1400 mm), including complete tubing.



Adjustment and calibration bench

On request the following designs are also available:

- Table top laminated, 40 mm thick, colour blue

- Table top as particle board plated with marbled stainless steel

The adjustment and calibration benches are intended for permanent operation and generally do not require any regular maintenance or servicing. Only the oil / water supply in hydraulic test benches has to be checked on a regular basis and refilled as required.

On-site requirements, to be provided by the customer: Compressed air supply of at least 30 bar.

Design	Pressure medium	Pressure range
Pneumatic test bench	air / nitrogen	-1/30 bar
Pneumatic test bench	air / nitrogen	-1/400 bar
Hydraulic test bench	water / oil	10/max. 1600 bar
Combined pneumatic / hydraulic test bench	air / nitrogen water / oil	-1/max. 400 bar 10/max. 1600 bar

This table lists the possible options for application-specific adjustment and calibration benches:

Options	Pneumatic test bench -1/30bar	Pneumatic test bench -1/400bar	Hydraulic test bench 1000bar	Hydraulic test bench 1600bar	Oil test bench 1600bar
Controls					
Electrically controlled					
Pneumatic with adjustment valve, low pressure					
Pneumatic with adjustment valve, high pressure					
Pneum. with manifold and adjustment valve, low					
pressure					
Pneum. with manifold and adjustment valve, high					
pressure					
Connector block with quick connection					
Pressure reducing valves					
High-precision reducing valves 0.02 - 4.0 bar					
Precision reducing valves 0.35- 28 bar					
Dome reducing valves 30 - 400 bar					
Mounting and clamping devices		•	•	I	
Measuring column G1/2", high pressure					
Measuring column G1/2", low pressure					
Table flange, G1/2"					
Clamp, pneumatically actuated, suitable					
accessories are available on request					
Operating system	1	1			
Pressure converter high pressure 1:56					
Pressure converter low pressure 1:9					
Nitrogen cylinder, 200 bar					
High-pressure compressor					
Extras					
Numatic hydrometer, 800 bar					
Pre-stress converter 1:4					
Pre-stress converter 1:2,5					
Dirt trap					
Vacuum pump					
Digital display / pressure transducer					
Safety shield (Macrolon)					
Pointer fixing gun with holder					
Micro air screw driver					
Shelving for master gauge					
Set of adapters for connection column					
Table tops					
Particle board, blue, standard			1		
Laminated, blue					
Table options					
Shelving, "Bosch" profile					
Electrical outlets (shock-proof)					
Plastic drawers					
Metal shelves, various lengths					
Drawer cabinet					
Panelling					
Light					

This variant is <u>not</u> possible for this test bench



Adjustment components and accessories

Components for gauge adaption

Test and Calibration Equipment Service Tools

Gauge adapter Table flange Triple distributor

Application

The components have been designed for the adaption of a wide variety of pressure gauges to be adjusted and calibrated.

General features

The gauge adapters are available in various lengths, connection angles and materials. They can also be mounted to a table top by means of a table flange. All components are provided with a threaded connection G1/2 B. On the gauge side a knurled nut M28 x 1.5 with threaded adapter G1/2 is mounted as a standard. For other threaded adapters see data sheet ST 02.03.

Gauge adapter

Design	Size	Material	Order No.
Gauge adapter	84 mm long	1.4571	1564846
Gauge adapter	150 mm long	brass	2015307
Gauge adapter	300 mm long	brass	2015315



Gauge adapter



Angle connection

90°



Angle connection 45°

Angle connection

Design	Size	Material	Order No.
Angle connection 45°	110 mm long	1.4571	2015196
Angle connection 90°	100 mm long	1.4571	1564838

Table flange

The table flange serves to hold gauge adapters, purifiers and dirt traps with threaded connection G 1/2.

Design	Size	Material	Order No.
Table flange	G 1/2 female	1.4571	2014254



Table flange

Triple distributor

For the adaption to gauge adapters and changeable columns with 2 test connections and 1 pressure connection. Each fitted with one knurled nut M28 x 1.5 and threaded adapter G 1/2.

Design	Size	Material	Order No.
Triple distributor	G 1/2 B	1.4571	2016311





Adjustment components and accessories

Pressure manifold and accessories

Test and Calibration Equipment Service Tools

Pressure manifold Changeable column Fine adjustment valve Dirt trap

Application

The pressure manifold is used for the adjustment and calibration of various types of pressure gauges. It is intended for holding the test specimen and the reference gauge and for pressure control by means of fine adjustment valves.

General features

The pressure manifold is available in low pressure and high pressure versions. It is fitted with 2 test connections with knurled nut M28 x 1.5 and threaded adapter G 1/2, and with adjustment valves for pressure inlet and outlet. The vacuum version features an additional adjustment valve for vacuum. Changeable columns, fine adjustment valves and dirt traps are available as accessories. For other threaded adapters see data sheet ST 02.03.

Pressure manifold

Design	Pressure range	Order No.
Pressure manifold low pressure with vacuum	-1 / 30 bar	1564862
Pressure manifold low pressure	0 / 30 bar	2036932
Pressure manifold high pressure with vacuum	-1 / 400 bar	1564870
Pressure manifold high pressure	0 / 400 bar	2036924



Pressure manifold with 3 adjustment valves

Changeable column for pressure manifold

For adaption to a pressure manifold. Fitted with knurled nut M28 x 1.5 and threaded adapter G1/2.

Design	Pressure range	Order No.
Changeable column for pressure manifold	-1/400 bar	2013461



Changeable column for pressure manifold

Dirt trap for pressure manifold

For adaption to a pressure manifold in order to avoid the penetration of dirt particles into the pressure manifold or the pressure gauge during adjustment or calibration. Fitted with knurled nut M28 x 1.5 and threaded adapter G1/2.

Design	Pressure range	Order No.
Dirt trap for pressure manifold	-1 / 400 bar	2013479
Dirt trap for pressure manifold	-1 / 1000 bar	2013487



Dirt trap for pressure manifold

Fine adjustment valve for pressure manifold

For adaption to a pressure manifold or to a table top by means of a table fixing device (see below).

Design	Pressure range	Order No.
Fine adjustment valve for pressure manifold	-1 / 30 bar	2048388
Fine adjustment valve for pressure manifold	-1 / 400 bar	2048400



Fine adjustment valve for pressure manifold

Table fixing device for fine adjustment valves

For the fixing of fine adjustment valves to table tops as an alternative to the adaption to a pressure manifold.

Design	Material	Order No.
Table fixing device for fine adjustment valves	Stainless steel	2048396



Table fixing device for fine adjustment valves



Adjustment components and accessories

Accessories and supplementary devices

Test and Calibration Equipment Service Tools

Purifier, dirt trap Rinsing glass, filling glass, dirt filter Shut-off valve, threaded adapter Set of adapters, set of O-rings / sealing rings

Application

Accessories and supplementary devices for the adjustment and calibration of a wide variety of pressure gauges.

Purifier

The purifier has been specially conceived for pressure gauges that must not come into contact with the medium of the test circuit and for pressure gauges with test media that must not come into the circuit of the test bench. Purifiers without diaphragm are suitable with test media water and oil for the pressurisation with air. Purifiers with diaphragm are suitable for the pressurisation with liquid media. On the pressure side they are fitted with a threaded connection G1/2 B and on the gauge side with a knurled nut M28 x 1.5 with threaded adapter G1/2. For adaption to the table flange (see data sheet ST 02.01)

Design	Pressure range	Order No.
Purifier (without diaphragm)	800 bar	1565389
Purifier (without diaphragm)	1000 bar	2025515
Purifier (with diaphragm)	1200 bar	2025540



Dirt trap

Dirt traps prevent the penetration of dirt particles into the circuit of the test bench during adjustment or calibration. On the pressure side they are fitted with a threaded connection G1/2 B and on the gauge side with a knurled nut M28 x 1.5 with threaded adapter G1/2. For adaption to the table flange (see data sheet ST 02.01)

Design	Pressure range	Order No.
Dirt trap	-1 / 400 bar	2015820
Dirt trap	-1 / 1000 bar	2015714



Rinsing glass

The rinsing glass is adapted to gauge adapters and changeable columns for the rinsing of measuring systems in order to remove dirt particles.

On the pressure side it is fitted with a threaded connection G 1/2 B and on the gauge side with a knurled nut M28 x 1.5 with threaded adapter G1/2.

Design	Pressure range	Order No.
Rinsing glass	max. 10 bar	1564919



Rinsing glass



The filling glass is adapted to gauge adapters and changeable columns in order to fill measuring systems with liquid testing media prior to the adjustment or calibration. The liquid test medium in the filling glass is sucked into the measuring system by means of evacuation of the measuring system and subsequent venting. On the vacuum side it is fitted with a threaded connection G1/2 B and on the gauge side with a knurled nut M28 x 1.5 with threaded adapter G1/2.

Design	Pressure range	Order No.
Filling glass	-1 / 0 bar	2040603



Filling glass

Dirt filter

Dirt filter for pneumatic applications with connection thread 1/4 NPT

Accessories: Spare dirt filter insert

Design	Pressure range	Order No.
Dirt filter	up to 200 bar	7139901
Dirt filter insert	up to 200 bar	7140002



Dirt filter



Shut-off valve

Shut-off valve

Design	Pressure range	Order No.
Shut-off valve	up to 1000 bar	2011620

Threaded adapters for knurled nuts

The threaded adapters with female threads are intended for adaption to the knurled nuts M28 x 1.5 of all gauge adapters and changeable columns, purifiers, dirt traps as well as rinsing and filling glasses. The thread variants listed cover the range of commonly used connection threads of pressure gauges. As a standard the adapters are made of brass. Please specify the material stainless steel for pressures of 1,000 bar or more.

Design	Thread	Order No.
Threaded adapter *)	G1/8	2010887
Threaded adapter *)	G1/4	2010879
Threaded adapter	G3/8	2010526
Threaded adapter	G1/2	2010348
Threaded adapter	G5/8	2011361
Threaded adapter *)	1/8 NPT	2011069
Threaded adapter *)	1/4 NPT	2010895
Threaded adapter *)	3/8 NPT	2011107
Threaded adapter	1/2 NPT	2010798
Threaded adapter *)	M10 x 1	2011093
Threaded adapter *)	M12 x 1,5	2011379
Threaded adapter *)	M14 x 1,5	2011425
Threaded adapter	M20 x 1,5	2010631
Threaded adapter	M20 x 1.5LH	2011794

*) For these threaded adapters the sealing insert specified below is required in order to fit them into knurled nuts M28 x 1.5.

Sealing insert

This sealing insert with O-ring 6 x 1.5 is required to fit shorter threaded adapters into knurled nuts M28 x 1.5 (marked with * in the above list).

Design	Material	Order No.
Sealing insert	Stainless steel	2011514



Threaded adapter with female thread for knurled nut M28 x 1.5

Set of adapters in a tool case

The set of adapters includes 5 different threaded adapters with female thread (G1/4, G3/8, 1/4 NPT and M20 x 1.5) and a sealing insert to be fitted into the knurled nut M28 x 1.5 as well as a spanner, flats 32 and flats 14. Just like the threaded adapters and the sealing inserts (see page 12) the spanner may also be obtained separately.

Design	Material	Order No.
Set of adapters in a tool case	Brass	2036941
Spanner, flats 32 and flats 14	Stainless steel	2015854



Set of adapters in a tool case



Spanner, flats 32 and flats 14

Blind plug

Blind plug with thread G1/2 B and flats 27

Design	Pressure range	Material	Order No.
Blind plug	up to 1600 bar	1.4571	1438964



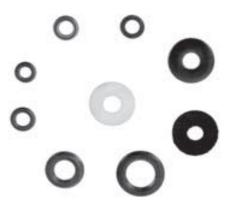
Blind plug

Set of O-rings / sealing rings

The set of O-rings consists of the following O-rings: 25 pieces 6 x 1.5, 35 pieces 8 x 2, 10 pieces 10 x 2, 10 pieces 12 x 2, 10 pieces 14 x 2, 3 pieces 24 x 3, 3 pieces 34 x 2, 2 pieces 45 x 3, 2 pieces 50 x 3, 2 pieces 5 x 2.5 and 4 sealing inserts for low pressure fine adjustment valve (order No. 2048388).

The set of sealing rings includes 40 standard sealing rings.

Design	Order No.
Set of O-rings	7140207
Set of sealing rings	7140274



Set of sealing rings





Adjustment components and accessories

Test and Calibration Equipment Service Tools

Pneumatic tube Hydraulic tube

Application

In combination with gauge adapters and changeable columns as well as various connections the tubes offer many possibilities of adaption in order to enable adjustment and calibration of a broad variety of pressure gauge designs. They are suitable for pneumatic and hydraulic media.

General features

The tubes are available in various standard lengths and pressure ranges. They are ready-to-use, with a connection thread G1/2 B at both tube ends or with a connection thread G1/2 B at one end and a knurled nut M28 x 1.5 with threaded adapter G1/2 at the other end of the tube. Further variants are available on request.

Pneumatic tube

Design	Size	Pressure range	Order No.
Pneumatic tube G1/2 B / G1/2 B	Length 2 m	max. 280 bar	2030748
Pneumatic tube G1/2 B / G1/2 B	Length 3 m	max. 280 bar	2030756
Pneumatic tube G1/2 B / G1/2 B	Length 5 m	max. 280 bar	2030781
Pneumatic tube G1/2 B / knurled nut M28 x 1.5	Length 2 m	max. 280 bar	2030799
Pneumatic tube G1/2 B / knurled nut M28 x 1.5	Length 3 m	max. 280 bar	2030845
Pneumatic tube G1/2 B / knurled nut M28 x 1.5	Length 5 m	max. 280 bar	2030861

Hydraulic tube

Design	Size	Pressure range	Order No.
Hydraulic tube G1/2 B / G1/2 B	Length 1 m	max. 800 bar	2036851
Hydraulic tube G1/2 B / G1/2 B	Length 2 m	max. 800 bar	2036860
Hydraulic tube G1/2 B / knurled nut M28 x 1.5	Length 1 m	max. 800 bar	2036878
Hydraulic tube G1/2 B / knurled nut M28 x 1.5	Length 2 m	max. 800 bar	2036886



Tube with connection thread G1/2B at both ends



Tube with connection thread G1/2 B and knurled nut M28 x 1.5



Adjustment tools, electrical / mechanical devices Adjustment tools

Test and Calibration Equipment Service Tools

Adjusting pliers Pointer pliers Tool set for CTS movement

Application

Adjustment tools are special tools that enable easy access to the movement for the adjustment of a broad variety of pressure gauges.

Adjusting pliers

The adjusting pliers are available in 3 different versions for the different types of adjusting interventions at the movement of bourdon tube pressure gauges.

Design	Order No.
Adjusting pliers to open the pull rod eye	0685151
Adjusting pliers to close the pull rod eye	0685160
Adjusting pliers to move the segment nut	0685143



Adjusting pliers to open the pull rod eye



Adjusting pliers to close the pull rod eye



Adjusting pliers to move the segment nut

Spare parts for adjusting pliers

For the adjusting pliers listed above replacement jaws and springs are available as spare parts.

Design	Order No.
Replacement jaws to open the pull rod eye	0818165
Replacement jaws to close the pull rod eye	0818166
Replacement jaws to move the segment nut	0818164
Replacement springs suitable for all 3 adjusting pliers	0818181

Pointer pliers

To lift off pointers of mechanical pressure gauges without electrical accessories (alarm contacts).

Design	Order No.
Pointer pliers for instruments without alarm contacts	9091823
Replacement pin	1312405



Pointer pliers for instruments without electrical accessories (alarm contacts)



Replacement pin

Tools to lift off pointers

Tools to lift off pointers have been designed to lift off pointers of pressure gauges with electrical accessories (alarm contacts). They are available in standard and high-quality versions.

Design	Order No.
Tool to lift off pointers, standard version	9091637
Tool to lift off pointers, high-quality version	9090690



Tool to lift off pointers for instruments with electrical accessories (alarm contacts), high-quality version

Tool set for CTS movement

The tool set has been conceived for the adjustment of instruments with CTS movements and consists of:

- 1 pair of pliers to remove rivets
- 1 pair of pointer pliers
- 1 pointer fixing stamp
- 1 socket spanner for eccentric rivet
- 1 screw driver 5 x 75
- 1 screw driver 2.5 x 60

Design	Order No.
Tool set for CTS movement	9091831



Tool to lift off pointers for instruments with electrical accessories (alarm contacts), standard version



Tool set for CTS movement



Adjustment tools, electrical / mechanical devices

Electrical / mechanical devices

Test and Calibration Equipment Service Tools

Jam screw driver Pointer fixing stamp Tool to move the pull rod Mechanical devices, Shunt resistor

Application

The electrical and mechanical devices listed below are tools used for the adjustment of various types of pressure gauges.

Jam screw driver

To jam slit screws during assembly.

Design	Order No.
Jam screw driver size 1	0816747
Jam screw driver size 2	0816748
Jam screw driver size 3	0816749



Jam screw drivers

Pointer fixing stamp

To fix pointers to mechanical pressure gauges.

Design	Order No.
Pointer fixing stamp	0589446



Pointer fixing stamp

Tool to move the pull rod

To loosen the pull rod at mechanical bourdon tube measuring systems in order to achieve a smooth pointer movement.

Design	Order No.
Tool to move the pull rod	1564978



Tool to move the pull rod

Hand mirror with bend

To enable inspection of the back of the toothing in the segment of a pointer movement

Design	Order No.
Hand mirror with bend	0815919



Hand mirror with bend

Holder for segment nut

This device is used to mount the segment nut of the pointer movement of a tube pressure gauge.

Design	Order No.
Holder for segment nut	1564986



Holder for segment nut

Shunt resistor

Shunt resistors are used to convert the current signals of pressure transmitters into voltage signals. The shunt resistors are directly attached to digital multimeters.

Technical data: Power consumption 1 W Accuracy 0.01 %

Design	Order No.
Shunt resistor, 100 Ohm	1565400
Shunt resistor, 500 Ohm	1565346



Shunt resistor



Pressure generation / control

Test and Calibration Equipment Service Tools

Pressure supply case Filling tube

Application

The portable pressure supply case is used for the field calibration of pressure gauges. It is suitable for the adjustment and calibration of a great variety of pressure gauges. It holds test specimen and reference gauge. Pressure is controlled by means of fine adjustment valves.

General features

The pressure supply case is available in a low pressure and a high pressure version. It is completely fitted with a nitrogen cylinder (2 litres), a precision pressure reducing valve with self-venting device for the presetting of the test pressure with inlet and outlet pressure gauge, overpressure safety device, 2 test connections with knurled nut M28 x 1.5 and threaded adapter G 1/2, 2 fine adjustment valves for pressure inlet and outlet and a filling tube with connection coupling for the refilling of the nitrogen cylinder. In addition the low pressure version includes a fine adjustment valve for vacuum and a small flange connection (DN 10) for the adaption of a vacuum pump.

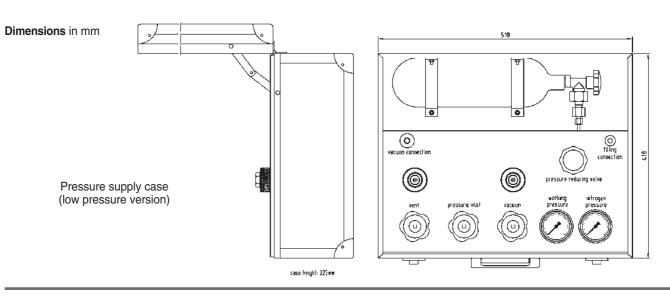


Pressure supply case

Design	Pressure range	Order No.
Pressure supply case, low pressure	-1 / 35 bar	1564820
Pressure supply case, high pressure	0 / 200 bar	1565192
Filling tube, 2 m (in scope of delivery)		2013495

On request the high pressure version of the pressure supply case is also available in a vacuum version.







Pressure generation / control

Precision pressure reducing valve Volume displacer

Test and Calibration Equipment Service Tools

Application

Precision pressure reducing valves are used to preset the test pressure for the adjustment and calibration of pressure gauges by means of reducing the cylinder pressure of nitrogen or compressed air cylinders. They have been designed for mounting to nitrogen cylinders.

Volume displacers have been conceived for the fine adjustment when the individual measuring points are generated during the adjustment and calibration of pressure gauges.

Precision pressure reducing valve

The precision pressure reducing valves are completely fitted with inlet and outlet pressure gauges, a connection for nitrogen cylinders (thread W24.32 x 1/14) and a tube connection with knurled nut G 1/2. All versions are self-venting.

They are available in 2 versions:

- Low pressure version:
- Supply pressure max. 240 bar / outlet pressure max. 35 bar High pressure version:
- Supply pressure max. 415 bar / outlet pressure max. 280 bar

Design	Order No.
Precision pressure reducing valve, low pressure	7140118
Precision pressure reducing valve, high pressure	7140185

On request the precision pressure reducing valves are also available without pressure gauge and connections for switch panel mounting, including mounting set.

Other pressure ranges are also available on request.

Volume displacer

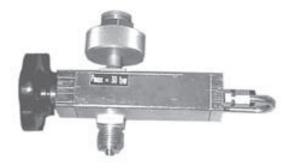
Volume displacers are available in low and high pressure versions for gaseous test media. The low pressure version is fitted with a threaded connection G 1/2 B for adaption and with a knurled nut M28 x 1.5 and threaded adapter G 1/2 on the pressure gauge side.

The high pressure version has been conceived for table mounting and has 3 connection thread holes 1/8" NPT (pressure supply, test pressure and venting) for tube connection with the test system.

Design	Pressure range	Order No.
Volume displacer, low pressure	-1 / 30 bar	1565419
Volume displacer, high pressure	0 / 200 bar	2016320



Precision pressure reducing valve



Volume displacer, low pressure version



Vacuum accessories

Vacuum pump, vacuum elements

Test and Calibration Equipment Service Tools

Vacuum pump, corrugated vacuum tube Reducer, T-piece Flexible connector, clamping connector Sealing ring, small flange adapter

Application

The vacuum elements specified are used for the vacuum generation and the gauge adaption for the adjustment and calibration of pressure gauges in the vacuum range.

Vacuum pump

The slide vane rotary vacuum pump is suitable for all noncorrosive applications. It is fitted with an oil mist filter as a standard feature.

Technical data:	
Nominal pumping capacity:	15 m³/h
Total end pressure:	2 x 10-3 mbar
Connection:	Small flange DN 25
Weight:	27.0 kg
Power rating:	0.45 kW
Voltage:	90 - 254 V

Design	Order No.
Vacuum pump	1564773

Other versions on request.

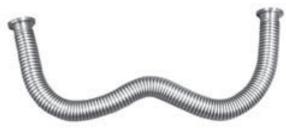
Corrugated vacuum tube

Corrugated vacuum tubes are flexible and suitable for adaption to a vacuum pump and other components. They are available in various lengths and with 2 different welded small flange tube ends.

Design	Size	Connection	Order No.
Corrugated vacuum tube	Length 0.5 m	DN 16	2025779
Corrugated vacuum tube	Length 1.0 m	DN 16	2025787
Corrugated vacuum tube	Length 1.5 m	DN 16	2025795
Corrugated vacuum tube	Length 0.5 m	DN 25	2025809
Corrugated vacuum tube	Length 1.0 m	DN 25	2025973
Corrugated vacuum tube	Length 1.5 m	DN 25	2025990







Corrugated vacuum tube



Vacuum pump

Reducer

for small flanges

Design	Connection	Order No.
Reducer	DN 25 / DN 16	1280864



Reducer



T-piece



Flexible connector

T-piece for small flanges

Design	Connection	Order No.
T-piece	DN 10	1280830
T-piece	DN 16	1280848

Flexible connector

for small flanges

Design	Connection	Order No.
Flexible connector	DN 16	1280872

Clamping connector

for small flanges

Design	Connection	Order No.
Clamping connector	DN 10 / DN 16	1280813
Clamping connector	DN 20 / DN 25	1280937



Clamping connector

Sealing ring

for small flanges

Design	Connection	Order No.
Sealing ring	DN 10	1280953
Sealing ring	DN 16	1280961
Sealing ring	DN 25	1280929
Sealing ring	DN 10 / DN 16	1284118
Sealing ring	DN 20 / DN 25	1280945



Sealing ring



Clamp-adapter

Clamp-adapter

for small flanges on female tube thread

Design	Connection	Order No.
Clamp-adapter	DN 10 / G 1/2	1565249

Adapter

for small flanges on male tube thread

Design	Connection	Order No.
Adapter	DN 16 / G 1/8	2343139
Adapter	DN 16 / G 1/4	2343156
Adapter	DN 16 / 1/8 NPT	2343121
Adapter	DN 16 / 1/4 NPT	2343164

Other versions on request.



Adapter



Assembly devices / tables and tools Assembly devices

Test and Calibration Equipment Service Tools

Hand-held flanging device, ring holder Pointer fixing gun, knuckle-joint press Device for the removal of windows Loosening/tightening device for bayonet lock bezels

Application

Assembly devices are suitable for the assembly and removal of windows, front rings, bayonet lock bezels and pointers of a broad variety of pressure gauges.

Hand-held flanging device

The hand-held flanging device is used to roll front rings onto the cases of pressure gauges of nominal sizes 40, 50, 63 und 100 with back and radial pressure connection. The scope of delivery includes the inserts for all nominal sizes and a socket spanner NS 35-60.

Suitable holders are required for the processing of different instrument models and nominal sizes. The exact model designation of the instruments is to be indicated when ordering these holders.

Design	for model	Nominal size	Order No.
Hand-held flanging device (without holders)		40/50/63 and 100	0824027
Ring holder for front ring	213.40 rad / back	63	on request
Ring holder for front ring	213.40 rad / back	100	on request
Ring holder for triangular front bezel	111.12 back	40/50/63	on request
Ring holder for triangular front bezel	111.12 back	100	on request
Ring holder for triangular front bezel	213.53 rad / back	50	on request
Ring holder for triangular front bezel	213.53 rad / back	63	on request
Ring holder for triangular front bezel	213.53 rad / back	100	on request



Hand-held flanging device



Ring holders for front ring, for model 213.40 rad / back



Ring holders for triangular front bezel, for model 111.12 back



Ring holders for triangular front bezel, for model 213.53 rad / back

Loosening/tightening device for bayonet lock bezels

The loosening/tightening device for bayonet lock bezels has been conceived for instruments with bayonet lock bezels of nominal sizes 63, 100 and 160. The scope of delivery includes replaceable inserts for the different nominal sizes.

Pneumatic pressure supply of 10 bar is required.

Design	Nominal size	Order No.
Loosening/tightening device for bayonet lock bezels	63/100/160	1564927



Loosening/tightening device for bayonet lock bezels

Device for the removal of windows

The device for the removal of windows is used to open welding pressure gauges model 111.11, nominal size 63.

Note: The window will be destroyed!

Design	for model	Order No.
Device for the removal of windows	111.11.63	1565222



Device for the removal of windows

Pointer fixing gun

The pneumatically actuated pointer fixing gun has been conceived for the fixing of pointers on the pointer shaft. As a standard it is fitted with an insert for a pointer socket diameter of 6 mm. The working pressure is 1.5 to 2.5 bar.

As accessories inserts for other pointer socket diameters and a pressure inlet tube are available.

Design	Order No.
Pointer fixing gun	2026431
Inserts for pointer sockets Ø 5 and 7 mm (standard)	2039265
Insert for pointer sockets Ø 6 mm (contact version)	2039311
Set of accessories for old design of pointer fixing gun	1565206
Pressure inlet tube	0498068



Pointer fixing gun

Knuckle-joint press

The knuckle-joint press serves as a base instrument for the fixing of the following devices in order to assemble and remove windows.

Technical data:

- Pressing power 12 kN
- Working height 80 210 mm Working stroke 0 45 mm
- Working radius 86 mm Weight approx. 23kg

Design	Order No.
Knuckle-joint press	1564951



Knuckle-joint press

Fixing tool

Fixing tool for the fixing of a back surface mounting flange, consisting of an instrument holder and a stamp for model 2XX.XX, nominal sizes 63 and 100.

For adaption to the knuckle-joint press.

Design	Order No.
Fixing tool	9689282



Fixing tool

Press-on tool

Fixing tool for the pressing on of a back or front surface mounting flange, consisting of an upper and a lower part for model 2XX.XX, nominal sizes 63 or 100.

For adaption to the knuckle-joint press.

Design	Nominal size	Order No.
Press-on tool	63	0823136
Press-on tool	100	0823135



Press-on tool

Tool set for the pressing out of windows

Tool set for the pressing-out of windows, consisting of a lower part, a stamp and 3 holding rings for nominal sizes 40, 50 and 63, for model 111.16.

For adaption to the knuckle-joint press.

Design	Order No.
Tool set for the pressing out of windows	0824773



Tool set for the pressing out of windows

Tool set for the pressing in of windows

Tool set for the pressing-in of windows, consisting of a stamp and 3 instrument holders for nominal sizes 40, 50 and 63, for model 111.16.

For adaption to the knuckle-joint press.

Design	Order No.
Tool set for the pressing in of windows	0837262



Tool set for the pressing in of windows



Assembly devices / tables and tools

Assembly tools

Test and Calibration Equipment Service Tools

Pneumatic screw driver and accessories Spanner belt for bayonet lock bezels Tool set for driving rivets in and out to replace dials Torx screw driver

Application

Assembly tools are used for the assembly and dismantling of a broad variety of pressure gauges.

Pneumatic screw driver

The pneumatic screw driver is intended for the assembly and dismantling of screw connections. The screw driver can be used clockwise and counterclockwise.

Operating condition: at least 6 bar oiled compressed air

The following accessories are available:

- Set of screw driver inserts for slit screws (size BA 3, 4) and cross slit screws (sizes 1, 2), consisting of screw driver blades, control tubings, distance bushes, boundary disks and springs
- Inlet tube (please indicate length when ordering)
- Suspension for pneumatic screw driver, 0.6 to 1.5 kg

Design	Order No.
Pneumatic screw driver	0815915
Set of screw driver inserts	1565168
Inlet tube (indicate desired length)	0498076
Suspension for pneumatic screw driver	0816825



Pneumatic screw driver

Spanner belt for bayonet lock bezels

With the spanner belt instruments with bayonet lock bezel can be opened and closed manually. The spanner belt is available for nominal size 100 and 160.

Design	Nominal size	Order No.
Spanner belt small	100	9092323
Spanner belt large	160	9092315



Spanner belt for bayonet lock bezels

Tool set for driving rivets in and out to replace dials

This tool set is a complete set for the replacement of dials of instrument models 1 and 2 of nominal sizes 40, 50 and 63, consisting of:

- Mounting plate for the fixing of the instruments
- Piercer for the disassemblage of the dial rivets
 Rivet setter for the riveting of dials
- Riveting tool for the fixing of the dial rivets
- Fixing tool for the fixing of the plastic dial adapters

Design	Order No.
Tool set for driving rivets in and out to replace dials	1564960



Tool set for driving rivets in and out to replace dials

Torx screw driver

Size TX 20/100 For case screws of instrument models 213.53.100 and 233.54.100.

Design	Order No.
Torx screw driver	0816771



Torx screw driver



Assembly devices / tables and tools

Auxiliary assembly devices

Air gun with spiral tube

Ultrasound bath

Glass eraser

Test and Calibration Equipment Service Tools

Application

The auxiliary devices listed below offer many possibilities of application in laboratories and maintenance shops and for the assembly and dismantling of a wide range of pressure gauges.

Air gun with spiral tube

Design	Order No.
Air gun with spiral tube	0815914



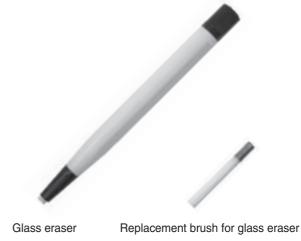
Air gun with spiral tube



Ultrasound bath

The ultrasound bath is used for the cleaning of dirty instruments, cases and other components. The capacity is 26 litres. The scope of delivery includes a cover and a basket.

Design	Order No.
Ultrasound bath	1564900



Glass eraser

The glass eraser (round) is used for the cleaning of contact pins of instruments with magnetic snap-action or sliding contacts.

Design	Order No.
Glass eraser	1565320
Replacement brush for glass eraser	1565338



Assembly devices / tables and tools

Work tables

Assembly table Washing table

Test and Calibration Equipment Service Tools

Application

The work tables are suitable for many applications in laboratories and maintenance shops.

General features

The **assembly table** consists of a "Bosch" aluminium frame and, in the standard version, a 40 mm thick particle board as table top, dimensions 750 x 1400 mm. The table top has a blue coating and edge bandings.

On request the following designs are also available:

- Table top laminated, 40 mm thick, colour blue
- Table top as particle board plated with marbled stainless steel

The **washing table** consists of a "Bosch" aluminium frame and a 40 mm thick particle board plated with marbled stainless steel, dimensions 750 x 1400 mm. 2 sinks with discharge fittings and 2 waste containers for disposal are let into the table top.

Design	Order No.
Assembly table, standard version	1564889
Washing table	1564897

Other versions are available on request.



Assembly table, special design plated with marbled stainless steel



Washing table



Filling devices

Filling station for diaphragm seals

Test and Calibration Equipment Service Tools

Application

The filling station for diaphragm seals has been designed for the filling of diaphragm seals measuring arrangements with up to 3 different filling liquids.

General features

The filling station for diaphragm seals is available in a table version and consists of the following components:

- Slide vane rotary vacuum pump
- Absorption trap
- Pirani measuring tube with scale
- Heating device with magnetic stirrer
- Flask with various holding devices
- Adapters

The entire filling station is mounted in a plexiglass enclosure, with complete tubing.

Design	Order No.
Filling station for diaphragm seals	0824681



Filling station for diaphragm seals



Filling devices

Filling station for cases Filling pistol for case filling

Test and Calibration Equipment Service Tools

Application

The filling stations for cases are suitable for the filling of a broad variety of pressure gauges of various nominal sizes with dampening fluids.

Filling station for cases

The filling station for cases has been designed for the filling of pressure gauges with up to 3 different filling media. The standard version consists of the following components:

- 3 pumps
- 3 filling guns with stroke
- Drawers
- Light
- Holders for NS 100/160

All components are mounted to a table consisting of a "Bosch" aluminium frame with a table top plated with marbled stainless steel, including complete tubing.

As required, the station can be additionally equipped with a reservoir and a heating device for the filling liquid glycerine.

Design	Order No.
Filling station for cases	1565001



Filling station for cases

Filling gun for case filling

The filling gun is suitable for the filling of pressure gauges with various types of filling media.

An inlet tube is available as an accessory.

Design	Order No.
Filling gun for case filling (without inlet tube)	9092366
Inlet tube for filling gun	0498076



Filling gun for case filling



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Overview of products and services

Individual customer applications

Customised system solutions Systems that have been specially designed to customer specifications Simple calibration systems, entire plants and even completely equipped calibration laboratories.



Mobile calibration and maintenance service

Mobile DKD laboratory and service vehicle Calibrations (DKD, inspection certificates, etc.), as well as maintenance and repair at the customer's premises. Your benefit: minimum downtimes and reliable functioning due to expert maintenance.





Calibration and maintenance centre

DKD laboratory and service workshop DKD calibrations as well as competent repair and maintenance

Ruska precision pressure measuring instruments

Sale of precision deadweight testers, quartz spindle manometers and controllers.



Bourdon tube pressure gauges, test series, class 0.25 and 0.1

Models 341.11 and 342.11, class 0.1 and 0.25. Please see data sheet PM 03.03 and price list pressure measurement for more information.



Leak testing systems

Our broad range of products also includes customer-specific leak testing systems for cases, fittings, tubes and other test pieces. We supply individual systems to suit your specific requirements. Profit from our testing know-how.





Test and Calibration Equipment Pressure & Temperature

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The WIKA calibration pyramid

Reference standards

Calibration instruments with maximum accuracy

Typical uncertainty of measurement:

 \leq 0.02 % with pressure \leq 0.01 K with temperature



Target groups

- National institutes
- Research and DKD laboratories
- Sensor and transmitter manufacturers

Products

Pressure

Precision sensors Deadweight testers Calibration systems

Temperature

Fix point cells and furnaces Normal resistance thermometers to ITS 90 Super thermometers (precision measuring bridge)

Working standards

Calibration instruments with average accuracy

Typical uncertainty of measurement:

> 0.02 % to 0.05 % with pressure

> 0.01 K to 0.1 K with temperature



Target groups

- Calibration laboratories
- Measuring instrument manufacturers
- Measuring and control workshops

Products

Pressure

Deadweight testers Digital manometers Pressure controllers Precision pressure transmitters

Temperature

Normal resistance thermometers Calibration baths and furnaces Electrical precision temperature instr. Calibration systems

Factory standards

Calibration instruments with general level accuracy

Typical uncertainty of measurement:

- >0.05 % to 0.25 % with pressure
- > 0.1 K with temperature



Target groups

- Measuring and control workshops
- Test laboratories in industry
- Service und monitoring of testing devices

Products

Pressure

- High-precision pressure gauges, test series
- EasyCal software
 - Precision pressure transmitters
- Hand-held service manometers

Temperature

Dry well calibrators Hand-held measuring instruments for special measuring tasks

(+49) 93 72/132-217

	Pressure	Temperature
How many and what types of measuring instruments are to be tested per year?	Pressure gauges pcs. Transmitters pcs. Complete measuring chains pcs.	Resistance thermometers pcs. Thermocouples pcs. Other electr. thermometers pcs. Other mech. thermometers pcs.
	Precision pressure gauges pcs. e.g. controllers, pcs. deadweight testers, etc. pcs. Vacuum pcs. Absolute pressure pcs. Differential pressure pcs. - Static pressure pcs.	
What are the measuring ranges, media and accuracies of the instruments to be tested?	from to class Medium:	from to Uncertainty of measurement:
Which type of calibration is to be performed?	 □ DKD calibration certificate □ Inspection certificate as per EN10204 3.1B □ Conformity certificate (not possible for temperature □ Calibration label (not possible for temperature calibra 	
	 Requests for technical consultation Visit by MOBILE SERVICE, date suggested: Do you require any further information on out 	Ir range of products and services?
Name, First Name		
Company		
Department		
Street/Number		

Postal Code, City

Phone

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Please send me the following documents:

- Price list calibration equipment for pressure and temperature (incl. prices for service tools)
- Stock price list pressure and temperature measurement
- □ Price list pressure measurement
- □ Price list temperature measurement

- □ Product catalogue on CD-ROM
- We request a visit by your field representative.

Name, First Name
Company
Department
Street/Number
Postal Code, City
Phone
Fax
E-Mail

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