

## Hydraulic test pumps

Models CPP1000-M, CPP1000-L, hand spindle pump

Models CPP1000-X, CPP1600-X, CPP7000-X, comparison test pump

WIKA data sheet CT 91.05

### Applications

- Simple test pressure generation on site, in the laboratory or in the workshop
- For the testing, adjustment and calibration of all types of pressure measuring instruments
- Hydraulic pressure generation up to 7,000 bar

### Special features

- Ergonomic handling through the smooth-running, internally operating, precision spindle
- Integrated oil reservoir
- Removable star handle
- Freely rotating test connections (i.e. measuring instruments can be aligned)
- Proven technology of the model CPB5800 pressure balance

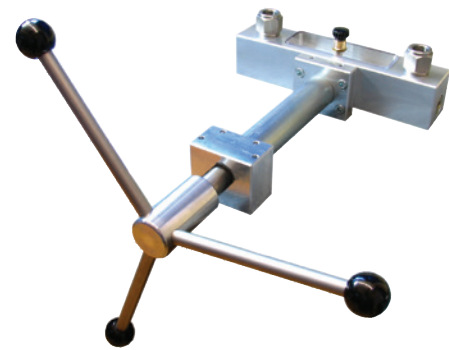
### Description

#### Application areas

Test pumps serve as pressure generators for the testing, adjustment and calibration of mechanical and electronic pressure measuring instruments through comparative measurements. These pressure tests can take place in the laboratory or workshop, or on site at the measuring point.

#### Easy operation

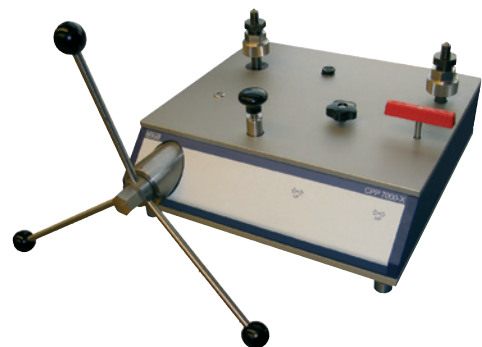
If one connects the test item and a sufficiently accurate reference measuring instrument to the test pump, on actuating the pump, the same pressure will act on both instruments. By comparison of the two measured values at any given pressure value, a check of the accuracy and/or adjustment of the pressure measuring instrument under test can be carried out.



Hand spindle pump, model CPP1000-M



Comparison test pump, model CPP1000-X



Comparison test pump, model CPP7000-X

### CPP-X series offers exceptional ease-of-use

For a precise approach to the measuring points, the test pumps are fitted with a spindle for fine control. In particular, the smooth running of the hand spindle enables this, even at very high pressures. Furthermore, the spindles for this model range only run within the pump body.

This eliminates any harmful bending moment from an externally running spindle and, especially for field operation, there is the advantage that dimensions of these pumps do not alter during operation through the rotation of the spindle.

With the integrated priming pump, large test volumes can be easily filled and primed for the models CPP-X.

Due to the design of the base, the CPP-X models have a high durability and offer the highest ease-of-use with the proven technology of the model CPB5800 pressure balance.

## Specifications Hand spindle pump

	CPP1000-M	CPP1000-L
Pressure range	0 ... 1,000 bar	
Pressure transmission medium	Hydraulic fluid from mineral oil/clean water, free of calcium-carbonate <sup>1)</sup>	
Reservoir	110 cm <sup>3</sup>	55 cm <sup>3</sup>

### Pressure connections

Test connection	2 x G ½ female thread, freely rotating, with O-ring	
Distance between test connections	200 mm	115 mm

### Piston of spindle pump

Piston diameter	8 mm	
Swept volume per revolution	approx. 0.1 cm <sup>3</sup>	
Overall swept volume	approx. 3.9 cm <sup>3</sup>	
Fine pressure adjustment	optional, see accessories	Fine adjustment valve on the side

### Required force at

250 bar	2.0 Nm	
500 bar	4.0 Nm	
1,000 bar	8.0 Nm	

### Material

Cylinder	Brass	
Piston	Stainless steel	
Rear flange	Aluminium	
Sealings	FKM, NBR (standard), optional EPDM	
Stationary mounting	2 x Ø 6.4 mm through-bores in the front flange	

### Instrument base

Dimensions	420 x 280 x 103 mm (L x W x H)	420 x 240 x 103 mm (L x W x H)
Weight	6.3 kg	5.6 kg

1) Other pressure transmission media on request.

## Comparison test pump

	CPP1000-X	CPP1600-X	CPP7000-X
Pressure range	0 ... 1,000 bar	0 ... 1,600 bar	0 ... 7,000 bar
Pressure transmission medium	Hydraulic fluid from mineral oil/clean water, free of calcium-carbonate <sup>1)</sup>		Sebacate oil
Reservoir	250 cm <sup>3</sup>		250 cm <sup>3</sup>
<b>Pressure connections</b>			
Test connection	2 x G ½ female threaded quick-connectors, freely rotating, exchangeable, with O-ring		2 x M16 x 1.5 male thread, freely rotating, exchangeable, with sealing cone
Distance between test connections	300 mm		346 mm
<b>Piston of the comparison test pump</b>			
Piston diameter	8 mm		7.5 mm
Swept volume per revolution	approx. 0.1 cm <sup>3</sup>		approx. 0.08 cm <sup>3</sup>
Overall swept volume	approx. 3.9 cm <sup>3</sup>		approx. 2.5 cm <sup>3</sup>
<b>Required force at</b>			
250 bar	2.0 Nm		1.5 Nm
500 bar	4.0 Nm		3.0 Nm
1,000 bar	8.0 Nm		6.0 Nm
3,000 bar	--		18 Nm
5,000 bar	--		30 Nm
7,000 bar	--		42 Nm
<b>Material</b>			
Cylinder	Brass		Stainless steel
Piston	Stainless steel		hardened stainless steel
Piping	1.4404 stainless steel, 6 x 2 mm		1.4404 stainless steel, 6 x 2 mm
Rear flange	Aluminium		--
Sealings	FKM, NBR (standard), optional EPDM		NBR
Stationary mounting	Stable base		Stable base
<b>Instrument base</b>			
Dimensions	400 x 375 x 265 mm (L x W x H)		460 x 445 x 265 mm (L x W x H)
Weight	20 kg		32.5 kg

1) Other pressure transmission media on request.

## CE conformity

Pressure equipment directive	97/23/EC (PS > 1,000 bar; module A, pressure accessory)
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Approvals and certificates, see website

## Hand spindle pumps model CPP1000-M and CPP1000-L, up to 1,000 bar, hydraulic

The model CPP1000-M and CPP1000-L hand spindle pumps, with their compact size and low weight, are the basic versions in the CPP series of test pumps.

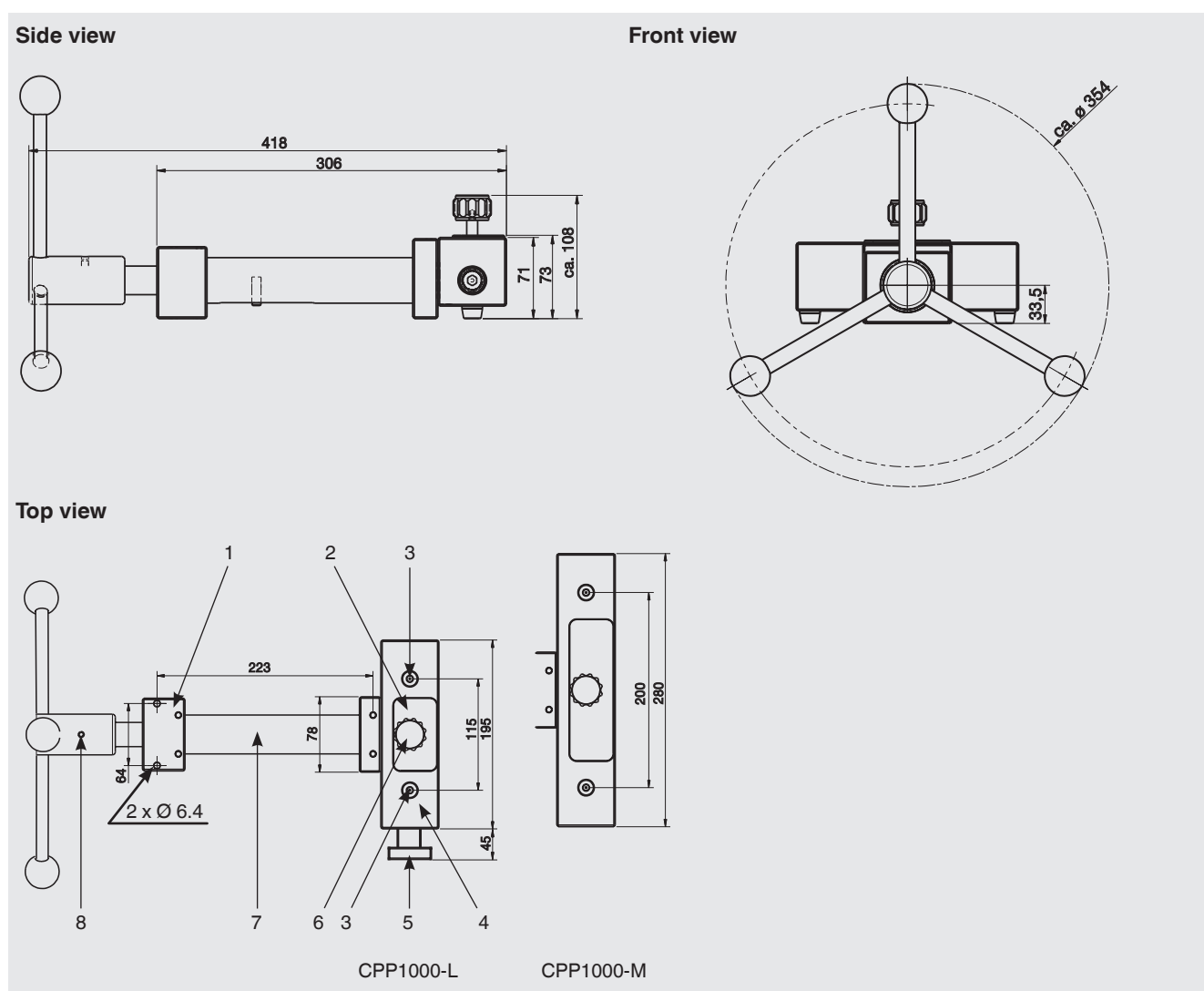
They have been designed primarily for the test and calibration of pressure measuring instruments with small volumes. Test items and reference instruments with larger volumes should either be pre-filled offline from the test pump or also simply and conveniently filled directly from the hand spindle pump, using the shut-off valves available as an accessory for the test connections.

The CPP1000-L is the case version with a narrow rear flange, sealed reservoir and a fine adjustment valve built-in as standard.

For the CPP1000-M, the fine adjustment valve is available as an accessory and can be fitted as an option. When using the fine adjustment valve, only one shut-off valve can be fitted for one test connection.

The test connections are G ½ female. Corresponding thread adapters are available for the calibration of instruments with different connection threads.

### Dimensions in mm



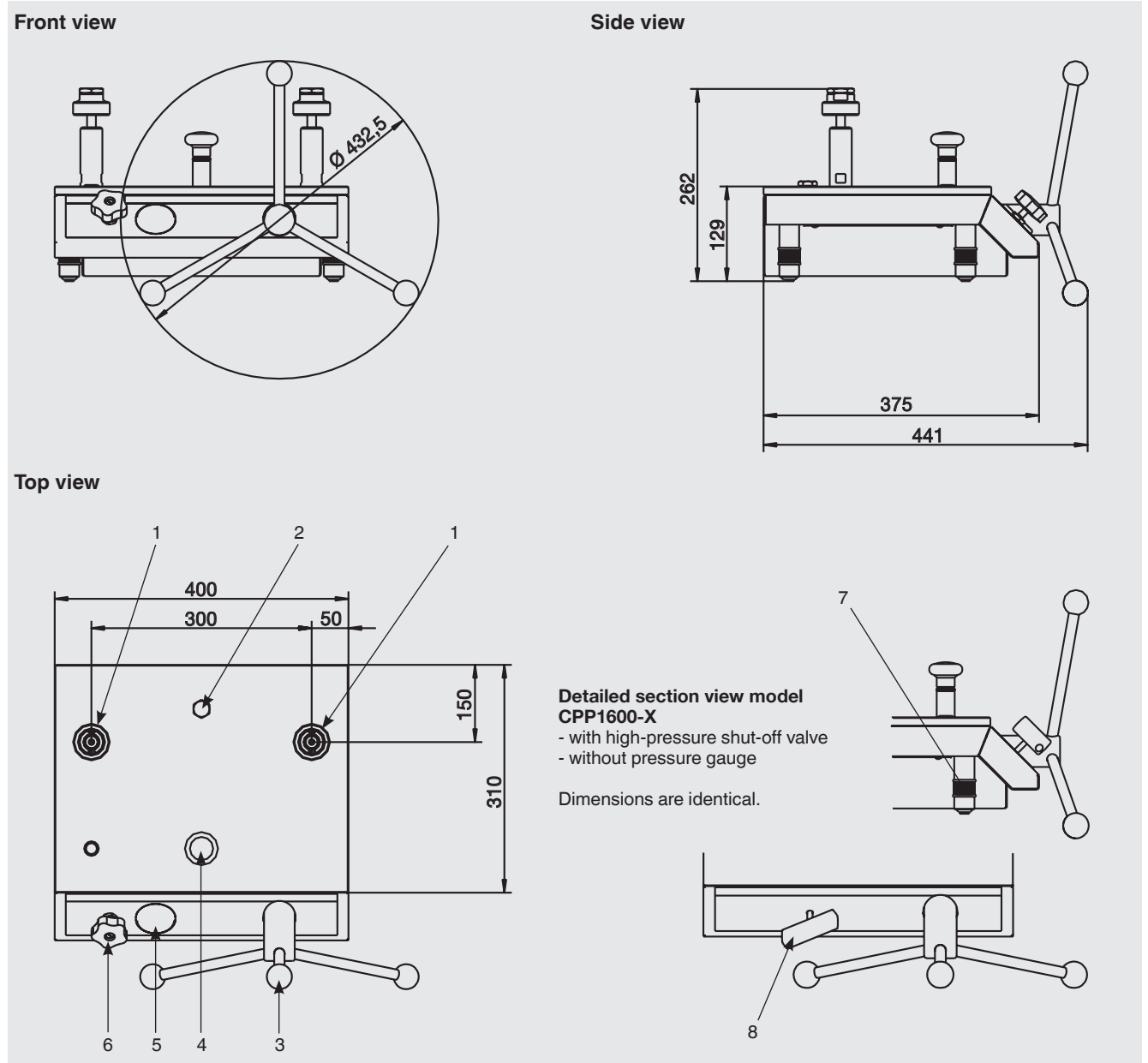
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| (1) Front flange with 2 fixing bores, $\varnothing$ 6.4 mm           | (6) Shut-off valve for reservoir              |
| (2) Medium reservoir   | (7) Cylinder with spindle and piston          |
| (3) Test connection, G ½ female thread, freely rotating, with O-ring | (8) Star handle with spring-loaded thrust pad |
| (4) Rear flange  |   |
| (5) Fine adjustment valve  |   |

## Comparison test pumps models CPP1000-X and CPP1600-X, up to 1,000 bar or 1,600 bar, hydraulic

The model CPP1000-X and CPP1600-X comparison test pumps have been designed around a solid base and, with the proven technology of the CPB5800 pressure balance, offer exceptional ease-of-use. With the integrated priming pump and the 250 ml tank, large test volumes can also be easily filled and primed.

Both test connections on both pump models are fitted with quick-release connectors with knurled nuts and exchangeable threaded inserts (as standard G ½ female thread). Corresponding threaded inserts are available for the calibration of instruments with different connection threads.

### Dimensions in mm



- (1) Test connections (quick-release connector with G ½ female thread, exchangeable, freely rotating, with O-ring)
- (2) Plug screw for medium reservoir
- (3) Spindle pump with star handle
- (4) Priming pump
- (5) Test pressure gauge

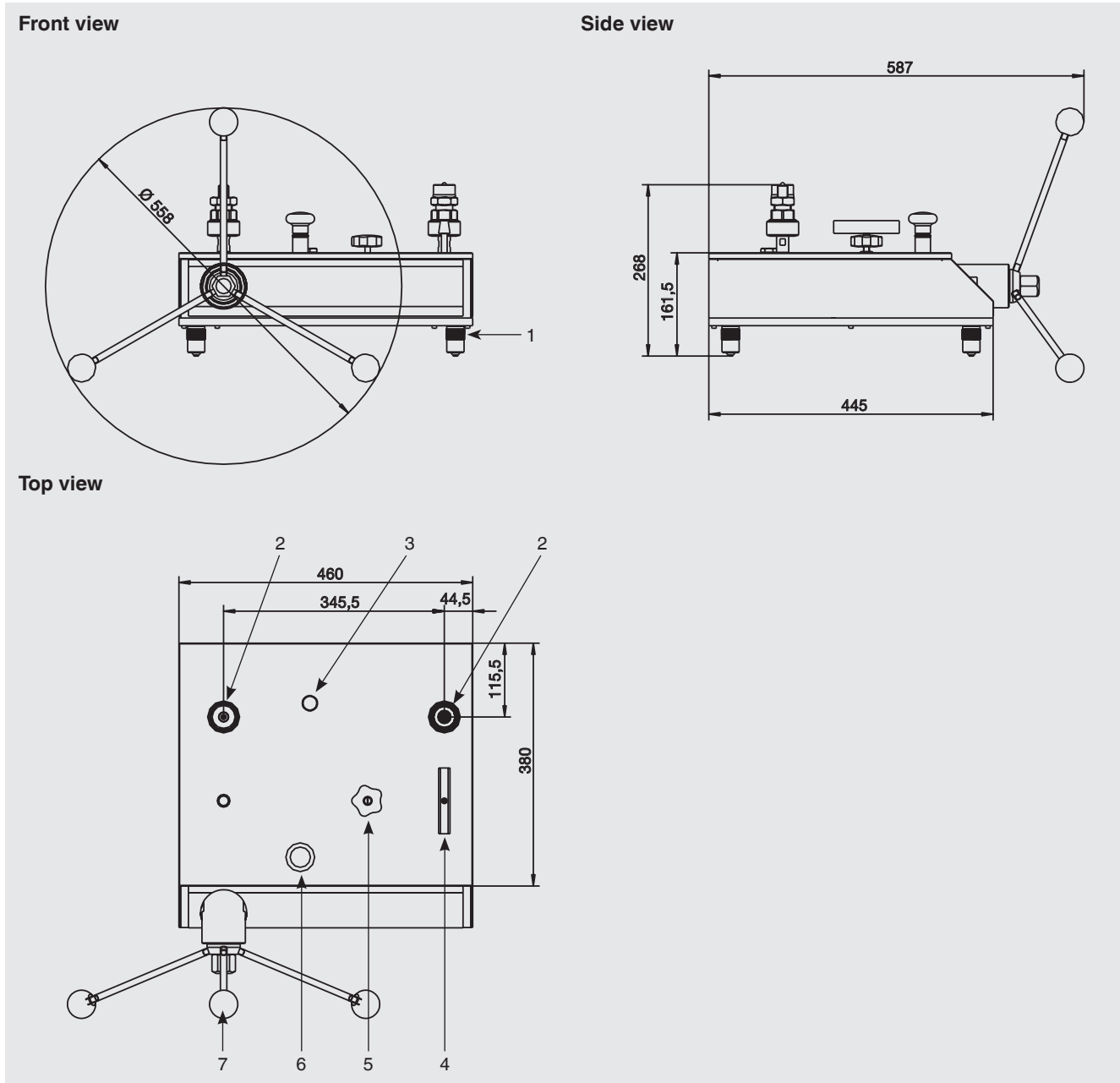
- (6) Shut-off valve 1,000 bar
- (7) Rotatable feet
- (8) High-pressure shut-off valve 1,600 bar

## Comparison test pump model CPP7000-X, up to 7,000 bar, hydraulic

The model CPP7000-X comparison test pump has been designed around a solid base and, with the proven technology of the CPB5000HP high-pressure pressure balance, offers exceptional ease-of-use. With the integrated priming pump and the 250 ml tank, large test volumes can also be easily filled and primed.

Both test connections are fitted with knurled nuts and exchangeable thread adapters with sealing cones (as standard M16 x 1.5 male threads). Corresponding thread adapters are available as accessories for the calibration of instruments with other connection threads.

### Dimensions in mm



- (1) Rotatable feet
- (2) Test connections (knurled nut with M16 x 1.5 male thread adapter, exchangeable, freely rotating, with sealing cone)
- (3) Plug screw for medium reservoir
- (4) High-pressure shut-off valve (HP)
- (5) Low-pressure shut-off valve (LP)
- (6) Priming pump
- (7) Spindle pump with star handle

## Recommended reference pressure measuring instruments:

### Precision digital pressure gauge model CPG1000

**Measuring ranges:** up to 700 bar  
**Accuracy:** 0.05 % of span

For further specifications see data sheet CT 10.01



### Hand-held pressure indicator model CPH6300

**Measuring ranges:** up to 1,000 bar  
**Accuracy:** 0.2 % of span

For further specifications see data sheet CT 12.01



### Precision hand-held pressure indicator model CPH6400

**Measuring ranges:** up to 6,000 bar  
**Accuracy:** up to 0.025 % of span

For further specifications see data sheet CT 14.01



### ProcessCalibrator model CPH6000

**Measuring ranges:** up to 8,000 bar  
**Accuracy:** up to 0.025 % of span

For further specifications see data sheet CT 15.01



## Calibration software

WIKA-CAL calibration software for creating calibration certificates or logger protocols

For specifications see data sheet CT 95.10



## Complete test and service cases with pressure generation

### Calibration case with model CPH6000

**ProcessCalibrator and model CPP1000-L hand spindle pump for pressures up to 1,000 bar consisting of:**

- Transport case with model CPH6000 ProcessCalibrator
- Hydraulic hand spindle pump model CPP1000-L up to 1,000 bar
- Sensor cable for external operation of sensor
- Test cable set with connection terminals
- Charger
- Interface cable
- Sealing set
- Spaces for several CPT6000 reference pressure sensors

For further specifications see data sheet CT 15.01.

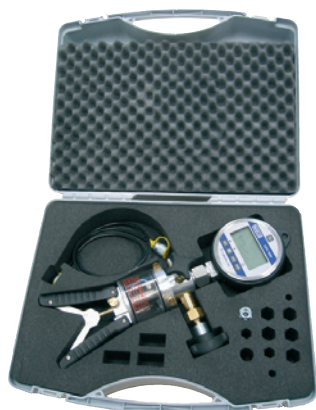


**Basic version incl. hydraulic pressure generation**

**Calibration case with model CPG1000 precision digital pressure gauge and model CPP700-H hand test pump, for pressures 0 ... 700 bar, consisting of:**

- Plastic service case with foam insert
- Precision digital pressure gauge model CPG1000
- Hydraulic hand test pump model CPP700-H; 0 ... 700 bar

For further specifications see data sheet CT 10.01 or CT 91.07



**Basic version incl. hydraulic pressure generation**

**Calibration case with model CPH6400 precision hand-held pressure indicator and model CPP30 hand test pump for pressures of -0.95 ... +35 bar, consisting of:**

- Service case with foam insert
- Precision hand-held pressure indicator model CPH6400
- Pneumatic hand test pump model CPP30, -0.95 ... +35 bar
- Sensor cable for external operation of sensor
- Charger
- Spaces for several CPT6400 reference pressure sensors

For further specifications see data sheet CT 91.06 or CT 14.01



**Basic version incl. pneumatic pressure generation**



## Spindle pump model CPP1000-M and CPP1000-L

### Scope of delivery

- Instrument base
- Spindle pump for filling, pressure generation and fine pressure adjustment
- Two test connections with G ½ female thread, loose union connection, with O-ring
- Operating instructions

### Accessories

#### Adapters

- Connection adapter, G ½ male to G ⅜ female, max. 250 bar, mat.: brass
- Connection adapter, G ½ male to G ⅝ female, max. 600 bar, mat.: brass
- Connection adapter, G ½ male to G ¼ female, max. 1,000 bar, mat.: 1.4571
- Connection adapter, G ½ male to M20 x 1.5 female, max. 1,000 bar, mat.: 1.4571
- Connection adapter, G ½ male to ¼ NPT female, max. 1,000 bar, mat.: 1.4571
- Connection adapter, G ½ male to ½ NPT female, max. 1,000 bar, mat.: 1.4571
- Blind plug, G ½ male, mat.: brass

#### Valves

- Shut-off valve for test connection, enabling the easy filling of instruments with large volumes with filling medium, directly from the hand spindle pump. Max. permissible pressure: 1,000 bar. For test items and reference instruments with a large volumes, two shut-off valves are recommended.

- Shut-off valve (recommended for connected volumes > 4 cm<sup>3</sup>), standard version
- Shut-off valve (recommended for connected volumes > 4 cm<sup>3</sup>), EPDM version
- Fine adjustment valve for retrofitting to the CPP1000-M; enables precise approach to the measuring points
  - Fine adjustment valve, standard version
  - Fine adjustment valve, EPDM version

#### Liquids

- Hydraulic fluid based on VG22 mineral oil in plastic bottle, content 1 litre

#### Other

- Set of O-rings, consisting of 10 seals for the test connections, mat.: FKM/FPM, standard version
- Set of O-rings, consisting of 10 seals for the test connections, mat.: EPDM
- 90° angle connection for test items with back mounting connection, standard version
- 90° angle connection, for test items with back mounting connection, NBR sealing
- Replacement tank cover incl. shut-off valve, standard version
- Replacement tank cover incl. shut-off valve, EPDM version
- Replacement seal for tank cover

#### Tools

- Maintenance set for hydraulic hand spindle pumps, standard version
- Maintenance set for hydraulic hand spindle pumps, EPDM version

## Comparison test pumps model CPP1000-X and CPP1600-X

### Scope of delivery

- Instrument base
- Priming pump for filling, spindle pump for pressure generation and fine pressure adjustment
- Two test connections with G ½ female thread, loose union connection, with O-ring
- Operating instructions

### Accessories

#### Adapters

- Adapter set for quick-release connector in case with G ¼, G ⅜, ½ NPT, ¼ NPT and M20 x 1.5 female, mat.: stainless steel
- "NPT" adapter set for quick-release connector in case with ⅜ NPT, ¼ NPT, ⅝ NPT und ½ NPT female, mat.: stainless steel
- Adapter for connection column, G ½ male to M16 x 1.5 male with sealing cone, mat.: stainless steel

#### Liquids

- Hydraulic fluid based on VG22 mineral oil in plastic bottle, content 1 litre

#### Other

- Set of O-rings, consisting of 10 replacement seals (8 x 2) for the test connections, mat.: NBR
- Set of O-rings, consisting of 10 replacement seals (8 x 2) for the test connections, mat.: EPDM
- 90° angle connection for test items with back mounting connection, standard version
- 90° angle connection, for test items with back mounting connection, NBR sealing
- Replacement seal set for needle valve, standard version
- Replacement seal set for needle valve, EPDM version

#### Tools

- Maintenance set for hydraulic volume adjuster, standard version
- Maintenance set for hydraulic volume adjuster, EPDM version
- Sealing and maintenance set for instrument base (without volume adjuster), standard version
- Sealing and maintenance set for instrument base (without volume adjuster), EPDM version

## Comparison test pumps model CPP7000-X

### Scope of delivery

- Instrument base
- Priming pump for filling, spindle pump for pressure generation and fine pressure adjustment
- Two test connections with M16 x 1.5 male thread, loose union connection, with sealing cone
- Operating instructions

### Accessories

#### Adapters

- Adapter for connection column, M16 x 1.5 male with sealing cone, mat.: hardened stainless steel
- Adapter for connection column, M20 x 1.5 male with sealing cone, mat.: hardened stainless steel
- Adapter for connection column, 9/16-18 UNF male with sealing cone, mat.: hardened stainless steel
- Adapter for connection column, G ½ female with O-ring, max. 1,600 bar, mat.: 1.4571

#### Liquids

- Sebacate oil in plastic bottle, content 0.5 litre

