

User Manual Labtest 400



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1. foreword

This operating manual describes the operation of **Labtest 400** series of test instruments.

Labtec test devices are professional tools that require comprehensive respiratory protection expertise, e.g. by completing training as a respirator maintenance technician, to ensure proper operation and correct measurement.

A prerequisite for proper operation of the device is that the device is operated and used exclusively in accordance with these operating instructions. Labtec is not liable for personal injury or damage to property or consequential damage of any kind if the device is used in a manner other than that described in this manual. The same applies to the acceptance of any warranty and guarantee claims.

Otherwise, the terms of sale and delivery as well as the warranty and guarantee conditions of Labtec GmbH apply, which are not extended in any way by these instructions.

2. safety instructions

Each Labtec test device requires device-specific instruction by an authorized Labtec employee or training partner.

The device may only be operated by instructed and authorized personnel.

The device may only be serviced and repaired by trained and certified Labtec service technicians. Only original spare parts and accessories must be used.

The device may only be opened by a Labtec service technician or, if expressly requested, under instruction by a Labtec employee.

To ensure proper functioning of the device and thus a correct measurement result, the device must be serviced at least once a year by a trained and certified Labtec service technician and tested and calibrated by him or her using a Labtec calibration device.

The list of current, certified employees, training partners and service technicians is updated daily and is available from Labtec or on the Labtec homepage.

Labtec devices are partly operated with breathing air in the high pressure range of up to 400bar. Operating a device under high pressure requires the greatest care. Before

connecting and disconnecting a test item / breathing apparatus, the test bench must always be completely depressurized and air supply lines, especially the main valve, closed.

The device connection must always be checked. Devices must always be connected completely correctly. When connecting to the high pressure device connection, the device thread must be completely screwed to the internal thread of the device connection.

Before switching off the test device electrically, the test bench must first be completely depressurized and vented and then all connected devices and any full face masks must be removed.

Never test dirty demand valves or masks on the test head. There is a risk of dust particles getting into the measuring system, which can impair the function.

The test device must be set up horizontally and rest well on all support buffers.

Care must be taken to ensure that the measuring nozzle in the mouth opening in the test head is not clogged. In case of false measuring values in low pressure, the opening can be cleaned with a 0.2 - 0.35 mm needle.

**In case of queries or uncertainties
contact the Labtec customer service!**

3. device description

Labtest 400 are manual test devices for the testing of breathing masks according to DIN EN 136, self-contained breathing apparatus (SCBA) according to DIN EN 137 and chemical protective suits (CPS) according to DIN EN 943-1.

The tests are performed in the low (-50 to 50 mbar), medium (0 to 20 bar) and high pressure measuring range (0 to 300 bar).

For testing other breathing apparatus or chemical protective suits, contact Labtec. Only breathing air according to DIN EN 12021 may be used.

Connection requirements

A 230-240 V / 50-60 Hz power supply is required to operate the test stand.

The high pressure supply required for operation is provided by a 300 or 200 bar breathing air cylinder or by a central air supply with 300 bar.

As medium pressure connection Euro-coupling and nipple are available as standard. If units with other coupling connections are tested, appropriate intermediate adapters must be used. Please contact the manufacturer of the units for this.

Scope of delivery and accessories

The scope of delivery of the device includes a high-pressure-connection cable incl. screw fitting and a power supply cable.

Adapters for the connection of CPS, regulators and sealing caps for respirators must be ordered separately depending on the connection used (e.g. ESA, PE45, RD40, manufacturer-specific connections).

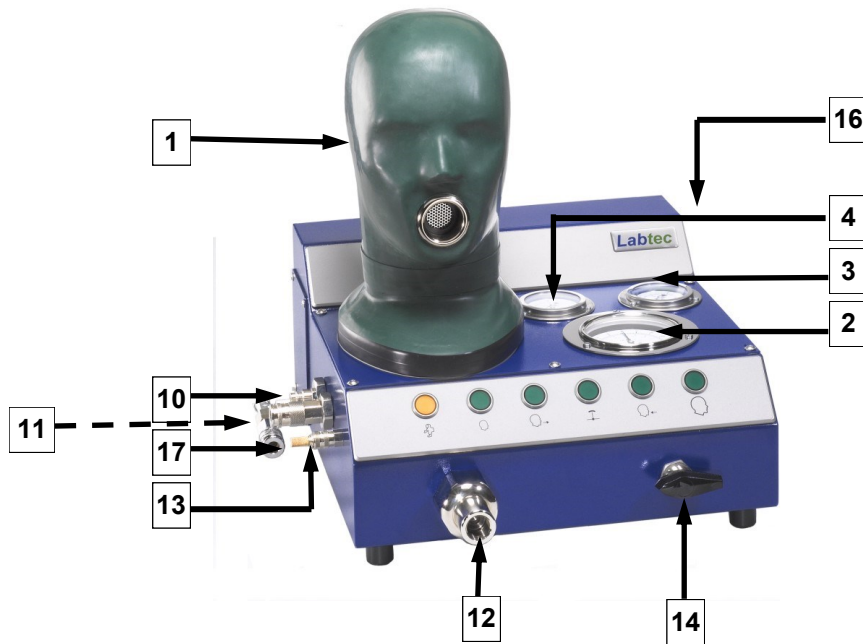
Labtec offers a wide range of accessories for test devices.

The range includes test adapters for adapting all respiratory protection devices on the market, quick release devices for quick device adaptation as well as holders for holding helmet-mask combinations

4. technical data

LP gauge	--30 to +30 mbar by 0.2 mbar, class 1.6
MP gauge	0 to +16 bar by 0.5 bar, class 1,6
HP gauge	0 to +400 bar by 20 bar, class 1,6
Medium pressure connection:	EURO coupling and nipple 0...20 bar
high pressure connection:	Tube screw connector 6 mm S for central 300 bar air supply and alternatively 300 and 200 bar cylinder hose.
Dead space	approx. 480 ml -w. o. Adapter
Power Transformer	Input: 230 V AC Output: 24 V DC
Dimensions	~ B 460 x H 490 x D 500 mm
Weight:	approx. 26 kg

5. operating elements



1	Test Head	10	Breathing apparatus connection
2	low-pressure gauge	11	Demand valve connection
3	medium pressure gauge	12	Connection for appliances 300 bar
4	high-pressure gauge	13	Connection for inflation of CPS
5	Test head deflation button	14	HP main valve
6	Exhalation button	15	CPS inflation button
7	Pressure relief button	16	Power connection
8	Inhalation button	17	High pressure connection
9	Test head inflation button		

6. commissioning

When setting up the unit, make sure that it is horizontal and rests well on all support buffers.

Establish high-pressure connection

Connect the high-pressure line to the air supply connection of the test device.

Establish power supply

Connect the power supply to a 230 V / 50-60 Hz power source using the supplied power cable. Switch on the unit at the switch.

Device connection (breathing mask)

The test head must be completely vented. The breathing connection of the mask is closed with a suitable sealing cap. Alternatively, connect the mask to a suitable demand valve and then make a device connection (SCBA).

The mask is put on the test head. The inner mask should rest correctly on the nose of the probe.

Then tighten the fasteners of the head mask starting from the bottom. The test head can now be inflated until a tight fit of the mask is ensured. If necessary, readjust the mask.

Device connection (SCBA)

The regulator of the compressed air breathing apparatus is screwed directly to the high pressure device connection. When connecting, make sure that the compressed air breathing apparatus is screwed completely into the internal thread of the device connection.

For tests in the medium pressure range, disconnect the medium pressure line of the SCBA at the Euro coupling and connect it to the plug nipple of the medium pressure device connection and the line of the demand valve to the EURO quick coupling of the medium pressure device connection.

If the SCBA to be tested does not have a Euro coupling, a suitable adapter must be used. Please contact the compressed air breathing apparatus manufacturer.

The demand valve is inserted into the mouth opening of the test head using a suitable adapter.

7. care and maintenance

The test instrument should be protected from external harmful influences such as water, moisture in the form of steam and dust.

The test head should be cleaned and maintained regularly. This can significantly increase the service life of the search unit.

The test head should always be covered with the enclosed protective hood after the instrument has been used.

> See separate test head care instructions

The test device must be serviced at least annually by a certified Labtec service technician.

The test device is recalibrated and deviations in the previous test cycle can be excluded. The maintenance is carried out with a special calibration device.

The maintenance is confirmed by a calibration certificate issued directly by Labtec. The maintenance may only be carried out by authorized and trained service technicians.

In order to ensure a cost-effective and timely maintenance, it is possible to conclude a maintenance contract with Labtec.

**Further information and brochures
can be found at www.labtec.de**

A 1 Test of full-face masks

1 Tightness and opening pressure

- 1.1 Tightness test with A valve open at # mbar (standard test, must always be carried out)
- 1.2 Tightness test with tightly closed A valve at +# mbar (performed when a leak has been detected, for precise location of the leak)
- 1.3 Measurement of the opening pressure of the flutter valve

Test step	Operation	Comments	Controls
1.1.1	Moisten flutter valve on mask. Close breathing connection on mask with cap	Flutter valve must be thoroughly moist	
1.1.2	Mount mask on test head and pull straps tight. Inflate test head	Time needed for inflation varies with type of mask	9
1.1.3	Generate negative test pressure down to intended level of --# mbar	Adjust with pushbutton (7) as needed	8 (7)
1.1.4	After # min read rise in pressure on LP manometer and compare with intended value		2
1.1.5	Deflate test head, take mask from test head		5
1.2.1	Seal flutter valve of mask with adapter. Close mask breathing connection with a tight cap	Use brand-specific adapters from manufacturer of mask	
1.2.2	Mount mask on test head and pull straps tight. Inflate test head	Time needed for inflation varies with type of mask	9
1.2.3	Generate positive test pressure to intended value of +# mbar	Adjust with pushbutton (7) as needed	6 (7)
1.2.4	After # min read the fall in pressure from the LP manometer and compare with intended value		2
1.2.5	Deflate test head, take mask from test head		5
1.3.1	Mount mask on test head and pull straps tight. Inflate test head	Time needed for inflation varies with type of mask	9
1.3.2	Turn on vacuum pump -- 10 l/min		8
1.3.3	Read opening pressure from LP manometer and compare with intended value		2
1.3.4	Turn off vacuum pump -- 10 l/min		8
1.3.5	Deflate test head, remove mask from test head		5

A 2 Test of demand valves

2 Tightness , static an opening pressure

- 2.1 Tightness: rise in pressure after xx min at --xx mbar negative pressure / +xx mbar positive pressure
- 2.2 Static pressure / positive pressure of demand valves
- 2.3 Opening pressure / additional pressure at # l/min aspiration

Step	Operation	Comments	Controls
Prep.	Completely relieve pressure on test stand		
	Plug test adapter into opening in mouth of test head		
	Connect demand valve into test adapter	Use appropriate adapter	1
2.1.1	Generate low pressure of >--# mbar	For tightness testing in negative pressure range (normal-pressure demand valves)	8 (7)
2.1.1	Generate low pressure to >+# mbar	For tightness testing in positive pressure range (high-pressure demand valves)	6 (7)
2.1.2	After prescribed time of # min, read change in pressure and compare with intended value		2
	Connect demand valve to appliance	Breathing apparatus	10
2.2.1	Open high pressure valve	High pressure flows into appliance	14
2.2.2	Read pressure and compare with intended value		2
2.3.1	Open high pressure valve	High pressure flows into appliance	14
2.3.2	Turn on vacuum pump - 10 l/min		8
2.3.4	Read opening pressure at opening of demand valve		2

A 3 Test of breathing apparatuses

3 Pressure indicator (comparative measurement with manometer)

3.1 Pressure comparison at # bar (e.g. 300 bar, 200--)

4 Acoustic warning system

4.1 Response pressure

5 Safety valve

5.1 Opening pressure

Step	Operation	Comments	Controls
Prep.	Connect respiratory apparatus to apparatus connection 200- or 300-bar		J
	Couple medium pressure connecting coupler with nipple, I, and demand valve with coupler, H. Plug demand valve into test head		I, H
	Open valve on cylinder	High pressure flows into appliance	
	Close valve on cylinder	High pressure persists in appliance	
3.1.1	Lower pressure to test pressure (300 mbar) via flow-off valve	Read from breathing apparatus valve	8
3.1.2	Read high pressure from HP manometer and compare with pressure in appliance		1
4.1.1	Open main valve	High pressure flows into the appliance	J
4.1.2	Close main valve	High pressure persists in the appliance	J
4.1.3	Lower pressure via flow-off valve	Until acoustic signal is heard	8
4.1.4	Read response pressure from HP test manometer		1
5.1.1	Open throttle valve really slowly	Medium pressure is raised in breathing apparatus	4
5.1.2	Observe rise in pressure		
5.1.3	When safety valve is heard to open, read opening pressure		2
5.1.4	Close throttle valve		4

A 3 Test of breathing apparatuses

6 Pressure reducer

- 6.1 Medium pressure, static at # bar inlet pressure
- 6.2 Medium pressure, dynamic at 10 l/min aspiration
- 6.3 Later pressure rise after # min

7 Appliance overall

- 7.1 High-pressure test

Step	Operation	Comments	Controls
6.1.1	Open main valve	High pressure flows into appliance	J
6.1.2	Close main valve	High pressure persists in appliance	J
6.1.3	Reduce high pressure	Reduce inlet pressure to prescribed level of # bar	8
6.1.4	Read medium pressure	Compare with prescribed value	2
6.2.1	Open valve on cylinder	High pressure flows into appliance	
6.2.2	Turn on vacuum pump -10 l/min		7 + 9
6.2.3	Read medium pressure		2
6.3.1	Open main valve	High pressure flows into appliance	J
6.3.2	Close main valve	High pressure persists in appliance	J
6.3.3	Read medium pressure, start stopwatch		2
6.3.4	After prescribed time of # min read medium pressure again and compare with value of previous measurement	Compare differential with allowed tolerance	2
7.1.1	Mount mask on test head, pull straps tight, inflate test head		
7.1.2	Screw demand valve into mask	With adapter RD 45, PE 45, etc	
7.1.3	Open main valve	High pressure flows into appliance	J
7.1.4	Close main valve	High pressure persists in appliance	J
7.1.5	Read high pressure, start stopwatch		1
7.1.6	After prescribed time read high pressure again and compare with value measured earlier	Compare differential with allowed tolerance	1

A 4 Test of gas-tight chemical protection suits (CPS)

8 Tightness

8.1 Tightness of the suit

9.1--4 Tightness of A-valves nos. 1--4 after # min at --# mbar

Step	Operation	Comments	Controls
8.1.1	Connect one flutter valve with test adapter, close all other flutter valves tightly	Use adapter CGA 1500 and brand-specific adapter	
8.1.2	Couple up filling hose of the test adapter to the filling point (G)		G
8.1.3	Plug in measuring hose of test adapters into test head (C)	Adapter CGA 2000	C
8.1.4	Open valve main	High pressure available at test stand	J
8.1.5	Press filling switch (8) to inflate CPS	CPS is inflated to pressure of ># mbar	8
8.1.6	Make fine adjustment to pressure if needed		12 + 9
8.1.7	Start stopwatch		
8.1.8	Once time is up lower filling pressure to test pressure		5 (7)
8.1.9	Start stopwatch		
8.1.10	Read off pressure differential and compare with intended value		3
8.1.11	Relieve pressure on system, remove test adapter		8
9.1.1-9.4.1	Plug measuring hose of test adapter into test head	Adapter CGA 2000	C
9.1.2-9.4.2	Connect flutter valves 1, 2, 3, 4, with test adapter from inside appliance	Use brand-specific adapters	
9.1.3-9.4.3	Generate negative pressure of --# mbar		5 + 9
9.1.4-9.4.4	Start stopwatch		
9.1.5-9.4.5	Read pressure differential and compare with intended value		3

Labtec
Gesellschaft für Labortechnik mbH

**Konformitätserklärung
Certificate of Conformity
Attestation de Conformité**



Bezeichnung der Maschine: Type of machine: Description de la machine:	Prüfgerät Test Equipment Instrument de vérification
Modell / Model / Modèle: Typ / Type / Type:	Labtest
Geräte Nr. / instrument no. / Instrument numéro:	240 / 400

Hiermit wird bestätigt, dass das Gerät den Anforderungen der **Maschinenrichtlinie 2016/42/EG**, sowie der **EMV - Richtlinie 2014/30/EU** einschließlich allen bis heute veröffentlichten Änderungen bzw. Nachträgen entspricht. Das Gerät entspricht folgenden Normen bzw. Richtlinien:

We do hereby certify that the above mentioned product meets the requirements set forth in **EEC-Guideline 2016/42/EG** and **EMC 2014/30/EU** including all changes and addendums to date thereto. The above mentioned product meets the following standards and guidelines:

Nous Vous Confirmons que l'appareil cité ci-dessus correspond aux exigences des directives **2016/42/EG** ainsi qu' à la directive **CEM 2014/30/EU** ci-inclus toutes les modifications ainsi que tous les suppléments publiés jusqu'à ce jour. L'appareil mentionné correspond aux nomes cités ci-après :

DIN EN 60950-1, Ausgabe / dates / en date du **2014-08**
DIN EN 135 Ausgabe / dates / en date du **1999**
DIN EN 136 Ausgabe / dates / en date du **1998**
DIN EN 137 Ausgabe / dates / en date du **2006**
DIN EN 837 Ausgabe / dates / en date du **1997**

Datum / date
01.01.2020

Diese Konformitätsbescheinigung wurde automatisch erstellt und ist ohne Unterschrift gültig.
This calibration certificate was produced automatically and is valid without signature.