Operating Manual

SmartCHECK

Test Bench

Order No. 10107834/02

MSA AUER GmbH
D-12059 Berlin
Thiemannstrasse 1

Germany

Declaration of Conformity

The manufacturer or his in the community established authorized representative

MSA AUER GmbH
Thiemannstrasse 1
D-12059 Berlin

declares that the product

MSA AUER SmartCHECK

is in conformance with the EMC directive 2004 / 108/ EC, [EMC]:

EN 61000-6-2 :2006, EN 61000-6-3:2011

The product is in conformance with the directive 2006 / 95/ EC, [LVD] :

EN 60950 – 1: 2011

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Berlin, November 2012

Contents

1 Safety Regulations

1.1 Correct Use

The MSA test benches of the SmartCHECK product family [hereafter referred to as test bench] are designed for testing full face masks, lung governed demand valves, compressed air breathing apparatus, chemical protective suits and closed circuit breathing apparatus. Some of this equipment can only be tested using special adapters.

It is imperative that this operating manual be read and observed when using the product. In particular, the safety instructions, as well as the information for the use and operation of the product, must be carefully read and observed. Furthermore, the national regulations applicable in the user's country must be taken into account for a safe use.

Danger!

This product is supporting life and health. Inappropriate use, maintenance or servicing may affect the function of the device and thereby seriously compromise the user's life.

Before use the product operability must be verified. The product must not be used if the function test is unsuccessful, it is damaged, a competent servicing/maintenance has not been made, genuine MSA spare parts have not been used.

Alternative use, or use outside this specification will be considered as non-compliance. This also applies especially to unauthorised alterations to the product and to commissioning work that has not been carried out by MSA or authorised persons.

1.2 Liability Information

MSA accepts no liability in cases where the product has been used inappropriately or not as intended. The selection and use of the product are the exclusive responsibility of the individual operator.

Product liability claims, warranties also as guarantees made by MSA with respect to the product are voided, if it is not used, serviced or maintained in accordance with the instructions in this manual.

1.3 Safety and Precautionary Measures

The test bench is built and tested in accordance with EN 60950 part 1, protection measures for electronic measuring equipment and was released from the factory in a perfectly safe condition. In order to maintain this condition, and to ensure safe operation, the user must observe the instructions and warning notes which are contained in these instructions for use.

Calibration

Only use a calibrated test bench. MSA recommends one annual calibration.

Connection to the Supply Voltage

Prior to switching on, please ensure that the set operating voltage and mains voltage on the test bench concur. The mains connector can only be connected to a socket with sealed contact. The protective effect must not be removed by an extension without protective wire.

Protective Wire

Any disconnection of the protective wire, inside or outside the test bench, or loosening of the protective wire connection, can make the test bench dangerous. Intentional disconnection is not permitted.

Opening Covers

Do not open any covers or remove parts.

Fuses

Only the stipulated type of fuses with the given rated amperage can be used as a replacement. Do not use patched fuses or short-circuit the fuse holder.

Errors and Unusual Stresses

If it is ascertained that safe operation is no longer possible, the test bench must be shut down and secured against unintentional switching on. Error recovery must be performed by the manufacturer's customer service or by qualified and authorised personnel.

Breathable Air

Only use breathable air which complies with the requirements of EN 12021 or USCGA grade D [or better].

Data Base Entries

All entries in the data base of the test bench have to be checked by the user. The data base entries must comply with the specifications of the devices to be tested.

Oxygen

Keep oxygen cylinder and tubing away from any source of heat.

Never use grease or oil on oxygen equipment. Keep equipment away from all flammable materials such as oil, grease, aerosols, paints, gasoline and solvents.

High Pressures

- Never open filling or shut-off valves when the test bench is under pressure and not connected.
- Always shut down and decompress the complete system prior to carrying out any repair or maintenance work on the test bench.
- In case of damage to the high pressure lines from heat, chemicals, mechanical impact or similar that can be detected, the test bench must be taken out of service and the components concerned must be replaced without delay by an authorised service centre.

2 Description

This manual applies to the test benches according to chapter 2.2.

Where content does not apply to all configurations this is explicitly stated.

2.1 Overview

The test bench is designed for testing full face masks, lung governed demand valves, compressed air breathing apparatus, chemical protective suits and closed circuit breathing apparatus. Some of this equipment can only be tested using special adapters. [→ chapter 10].

All possible tests are listed in chapter 2.2.

The connections necessary to carry out the tests are described in chapter 6 for all devices.

The test and tolerance values used in the software for MSA devices should be compared with the relevant device servicing manuals.

Tolerance and test values for other device manufacturers must be compared with the respective manufacturers or their servicing manuals. MSA accepts no liability for these values.

The user may modify or adjust the test data.

Standard devices are included in the pool database.

2.2 Tests Possible Depending on SmartCHECK Model

SmartCHECK Basic Version
Full face masks:
- Measurement of leak tightness with positive pressure
- Measurement of leak tightness with negative pressure
- Measurement of the opening pressure of the exhalation valve
- Measurement of the inhalation resistance with constant flow of 10 l/min

Lung governed demand valves:
- Measurement of leak tightness with positive pressure
- Measurement of leak tightness with negative pressure
- Measurement of rise in low pressure
- Measurement of the switch over/activation pressure (positive pressure)
- Measurement of the static pressure (positive pressure)
- Measurement of the opening pressure (negative pressure)

Self contained breathing apparatus:
- Measurement of the leak tightness of the medium pressure
- Measurement of rise in medium pressure

Chemical protective suits:
- Measurement of leak tightness with positive pressure
- Measurement of leak tightness of the suit valves with negative pressure

Closed circuit breathing apparatus:
- Complete test of the MSA closed circuit breathing apparatus AirElite 4h

Transponder Reader
All devices:
- Device identification using RFID technology 125 kHz

Closed Circuit Breathing Apparatus with constant dosage
Closed circuit breathing apparatus:
Complete test of Closed Circuit Breathing Apparatus with constant dosage
(Extension with measurement of the constant dosage)

Standard High Pressure
Self contained breathing apparatus:
- Measurement of the leak tightness of the high pressure
- Measurement of the opening pressure of the warning signal
- Measurement gauge comparison with varying filling pressures including automatic pressure drop
- Measurement of the static medium pressure at a specified high pressure

Gauge Camera
Self contained breathing apparatus:
- En bloc confirmation and image documentation of the gauge comparisons

Artificial Lung
Full face masks:
- Measurement of the dynamic inhalation and exhalation resistance

Lung governed demand valves:
- Measurement of the dynamic inhalation resistance

Self contained breathing apparatus:
- Measurement of the dynamic medium pressure

Vacuum Device for Standard High Pressure
Lung governed demand valves:
- Measurement of the inhalation resistance with suction and test bench inlet pressure

Lung governed demand valves:
- Measurement of the dynamic inhalation resistance

Self contained breathing apparatus:
- Measurement of the medium pressure with suction and test bench inlet pressure

Free-adjustable High Pressure
Self contained breathing apparatus:
See **Standard High Pressure** with extension with:
- Tests with free-adjustable filling pressures (with air consumption the filling pressure stays stable/will be hold)
- Maintenance: adjustment of i.e. warning signals, medium pressure

Breathing Simulation within Residual Pressure Range
Self contained breathing apparatus:
- Dynamic test of pressure reducers and lung governed demand valves within residual pressure range

Safety Valve Test
Self contained breathing apparatus:
- Measurement of the safety valve opening pressure
- Measurement of the safety valve closing pressure

Vacuum Device for Free-adjustable High Pressure
Lung governed demand valves:
- Measurement of the inhalation resistance with suction and variable high pressure

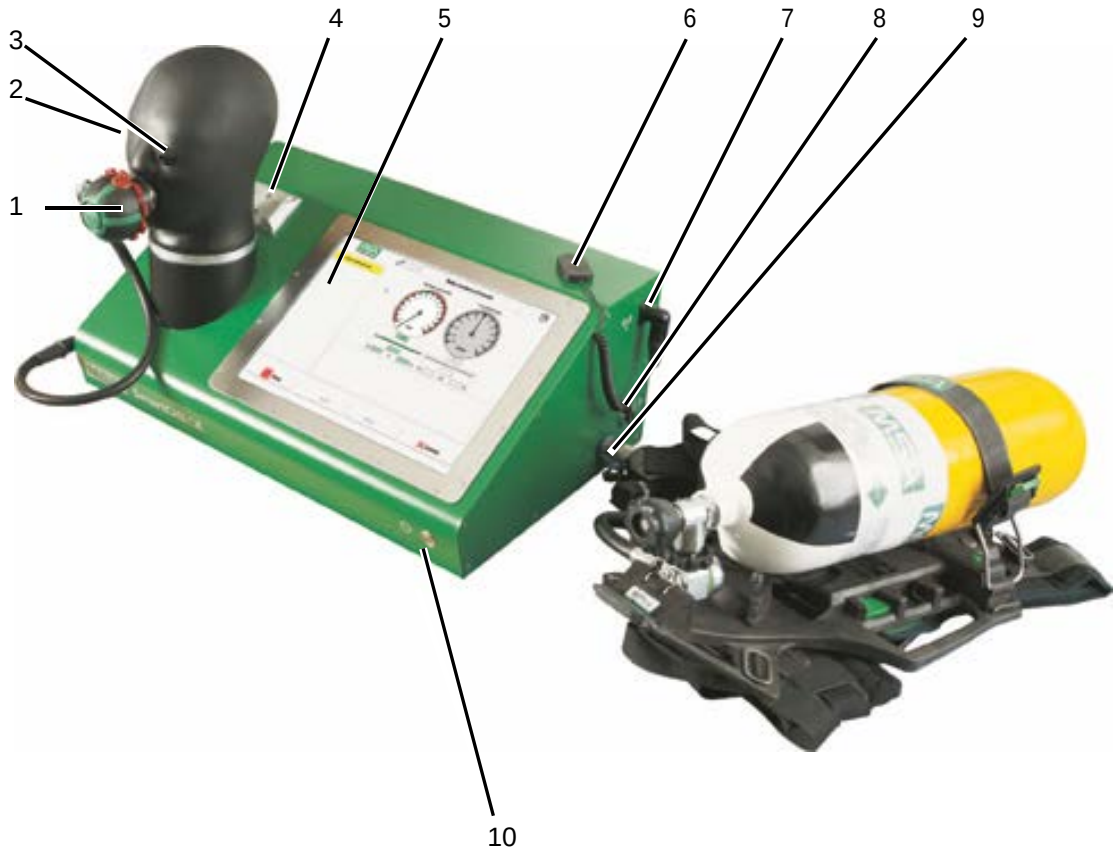
Self contained breathing apparatus:
- Measurement of the medium pressure with suction and variable high pressure

2.3 Scope of Delivery (SmartCHECK Basic Version)

- Test bench
- Quick start guide
- Touch screen pen
- Protective hood for test head
- Microfibre cloth
- Silicone oil
- Transponder antenna (if transmitter reader was ordered)
- High pressure supply line (for High Pressure versions)
- High pressure test line (for High Pressure versions)
- Power supply cable (version depending on country)
- Testing software TecBOS.Tech (depending on license)
- Log-on cards, starter set

2.4 Operating Elements

SmartCHECK Basic Version (depending on ATO configuration)



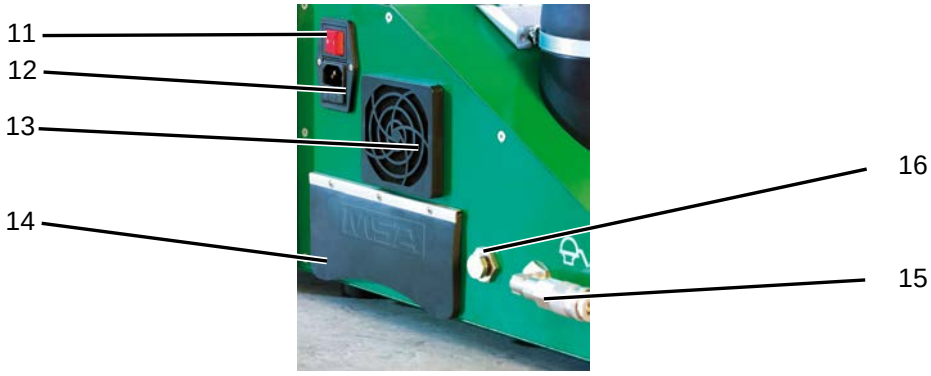


Fig. 1 SmartCHECK Basic Version

1	*Connection for lung governed demand valve*	*9*	*Medium pressure inlet [nipple] 4 - 10 bar*
2	*Test head*	*10*	*Push button*
3	*Measuring point eye*	*11*	*Main switch*
4	*Holder for adapter mask helmet combinations*	*12*	*Power connector/fuse*
5	*Touch screen*	*13*	*Test bench ventilation: fan with filter*
6	*Transponder antenna*	*14*	*PC Interfaces [see next page]*
7	*Connection for transponder antenna*	*15*	*Medium pressure outlet [coupling]*
8	*Manual pressure release*	*16*	*Calibration connection test head*

SmartCHECK Modules

Additional features of the Modules version are shown below.

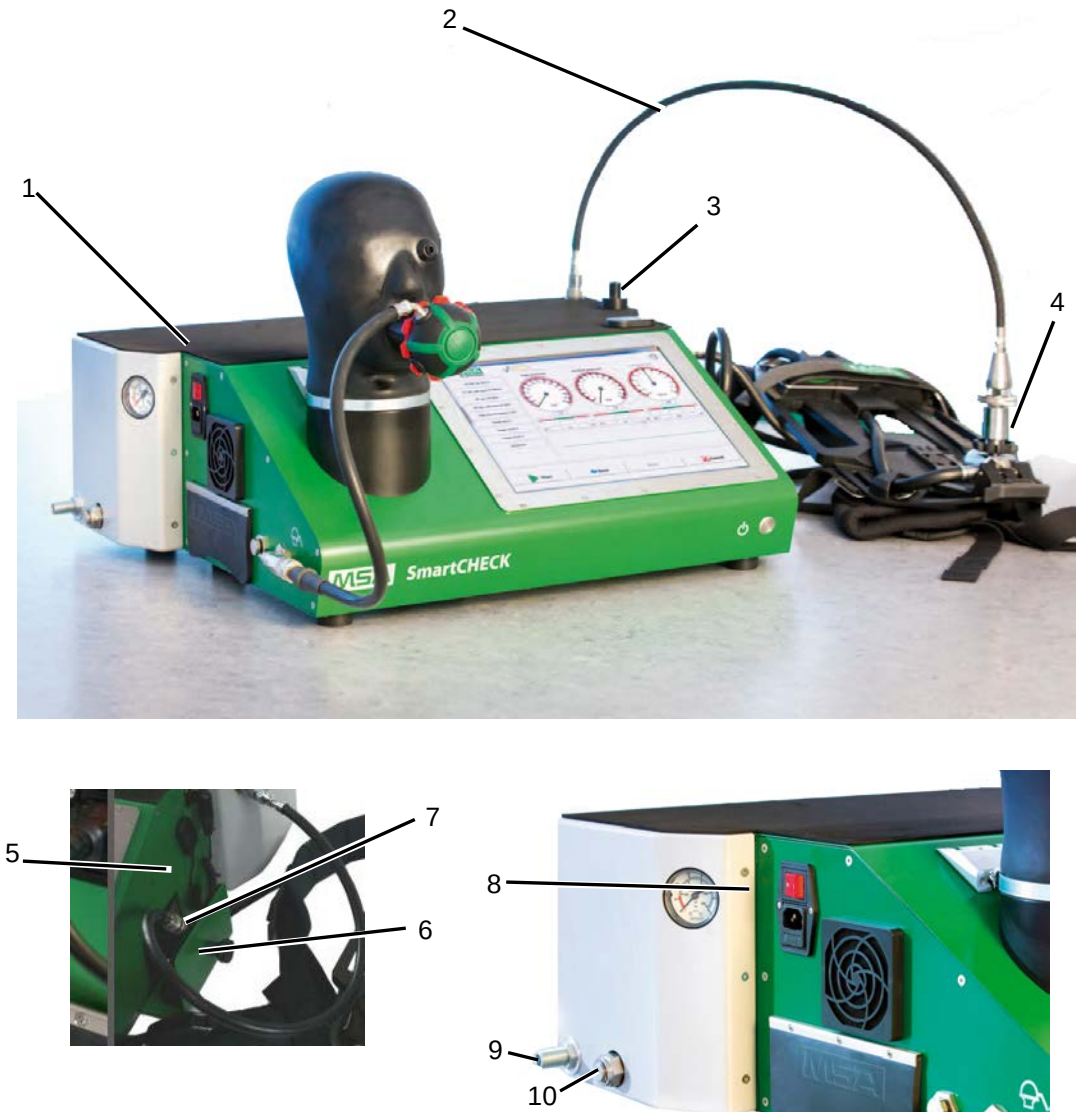


Fig. 2 SmartCHECK Modules Version

1	*Artificial lung and high pressure housing*	*6*	*Spring loaded drawer for fixing gauge during test*
2	*High pressure test line*	*7*	*Pressure gauge*
3	*Holder for high pressure test line when not in use*	*8*	*Pressure gauge camera (internal)*
4	*Test adapter*	*9*	*High pressure inlet*
5	*Microphone*	*10*	*Pressure gauge (inlet pressure)*

Minimal Configuration for PC Interfaces

The test bench is at least equipped with:

- 2 USB interfaces
- 1 Ethernet port
- 1 serial interface [COM]
- 1 monitor port

3 Basic Information Software

Attention!

To avoid losing saved tests and data base entries, make sure that the main database is backed up continuously.

3.1 Touch Screen Functions

Attention!

To prevent damage to the touch screen, avoid touching it with sharp objects. Only use fingers or the touch screen pen provided.

While the testing procedure has been optimised for touch screen operation, an external keyboard and a mouse are recommended for data base entries.

Calibration Touch Screen

(1) Start the program to calibrate the touch screen via:
Start -> All programs -> Touchkit -> Configure utility

(2) Click on tab *Tools*.

(3) On this tab, click on *4 Points Calibration*.
- ▷ Touch screen calibration opens.
- ▷ The display shows a white screen with a reticle in the lower left corner.

(4) Touch the reticle by finger or touch pen.
- ■ Keep finger or touch pen on the screen until the reticle turns blue.

(5) Remove finger or touch pen.
- ▷ The reticle moves to the lower right corner.

(6) Carry out this calibration for all corners.
- ▷ After calibration is finished, a pop-up- window is displayed.

(7) Confirm this window with “OK” , then leave the application with “OK”.

Using the On-screen Keyboard

The handling of the on-screen keyboard is the same as of a standard keyboard.

The on-screen keyboard will appear when necessary. When minimised it can by default be found on the left side of the screen.

Fig. 3 On-screen keyboard

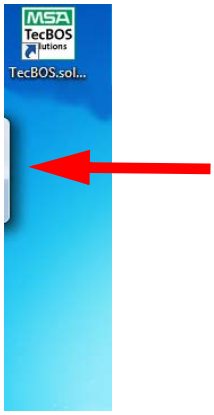


Fig. 4 Minimised on-screen keyboard

3.2 Symbol Menu

Fig. 5 Symbol Menu

1	*Close current module*	*10*	*Next preselected data set*
2	*Create new data set*	*11*	*Last preselected data set*
3	*Open data set*	*12*	*Collective change*
4	*Save data set*	*13*	*Print selected data*
5	*Copy data set*	*14*	*Print current data set*
6	*Delete current data set*	*15*	*Export data*
7	*Multiple deletion of data sets*	*16*	*Change log*
8	*First preselected data set*	*17*	*Mask administration [interface administrator]*
9	*Previous preselected data set*	*18*	*Kat's allocation plan*

3.3 Layout Submenus

Fig. 6 Layout of some submenus

1	*Create new sub entry in list*	*3*	*Delete entry from list*
2	*Allocate entered value [blue arrow]*		

Attention!

A deleted entry can only be restored through a new allocation.

3.4 Keyboard Shortcuts

Key/Key combination	Action
<F1>	Start help
<F4>	Open the selection lists [Field lists]
<F7>	Activate selection mode in sub-tables
<F9>	Scroll through selected data sets in decreasing order
<F10>	Save data set, scroll forward to the next data set. If used as save function a new data set will be created automatically.
<F11>	Jump to first data set
<F12>	Jump to last data set
<TAB>	Cursor jump to the next input field
<SHIFT+TAB>	Cursor jump to the previous input field
<STRG+TAB>	Change to the next tab
<STRG+V>	Insert from intermediate document storage

3.5 Search Functions

Search field input	Meaning
amt	String
amt../ amt*	Search of all data sets starting with "Amt"
..amt / *amt	Search of all data sets ending in "amt"
..amt.. / *amt*	Search of all data sets containing "amt"
a..c / a*c	Search of all data sets from "a to c"
=	Show all data sets which do not have an entry in this input field
/=	Show all data sets which do have an entry in this input field
/a	All data sets except for the string
>1	Larger than string
<1	Smaller than string
x;y;z	Multiple selection

How to Search

Module independent, functionality does exist for all modules providing the open button.

Click on *Open data record*. All green fields can now be used to enter search criteria. F10 or another click on the Open button starts the search. If there is more than one dataset matching the entered criteria the application will show the selection window. If there is only one data set matching the entered criteria it will be opened immediately.

The **Identification** field can be used for a quick search by either

- scanning the transponder or bar code

or

- entering the object number, serial number or manufacturer number via keyboard.

After pressing Enter the device appears.

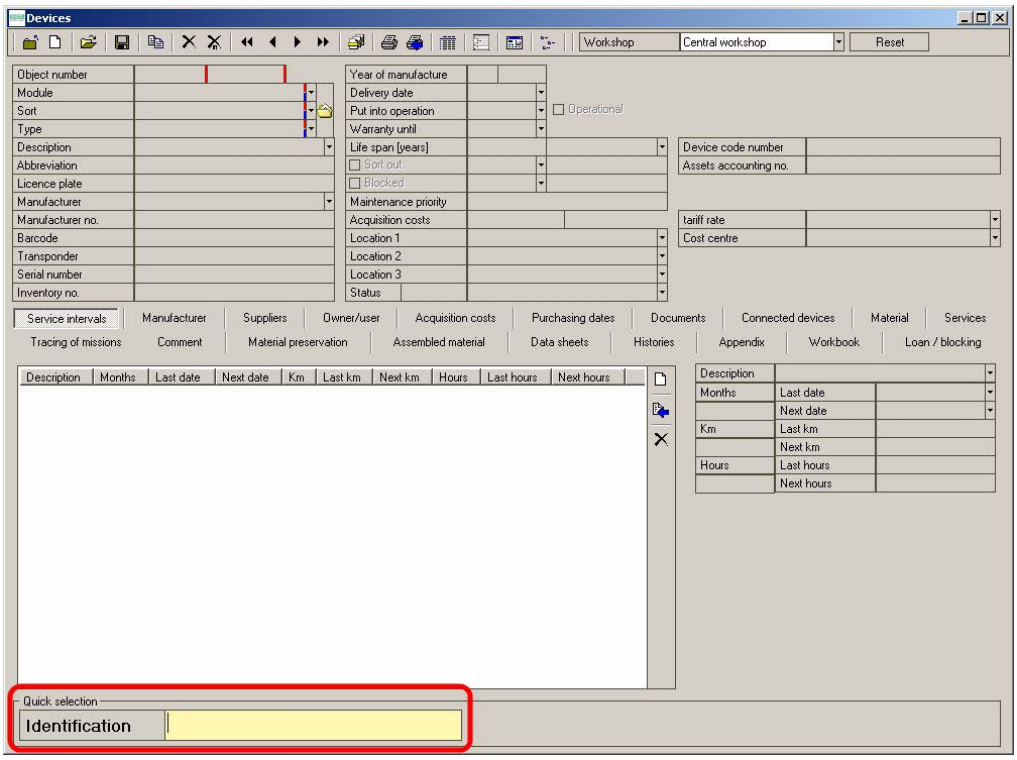


Fig. 7 Identification field

3.6 Software Backup Options

The MSA Backup Utility:

- saves the content of the hard disk
- can save the complete operating system including the TecBOS software and TecBOS database
- creates a bootable medium to restore the backup in case of problems with the hard disk
- allows a complete recovery or restoring the database

The MSA Backup Utility will start automatically when Windows starts.

Running a Backup

Required accessory:

- An **empty** external USB storage device (USB flash drive or USB hard disk) with min. 8 GB of memory. (All existing data on the USB storage device will be overwritten in the process.)

> **Attention!**
>
> The external disk is to be used exclusively for the backup. It is recommended to backup regularly and to safe the full backup on the external USB storage device!

(1) Close all running programs.

The MSA Backup Utility shows two buttons. Initially, only the left button "System Backup" is active.

(2) Click on the left button "System Backup".

(3) Confirm the message with "OK".

▷ The computer shuts down and starts the backup process automatically.

> **Attention!**
>
> Do not turn off the PC manually. It will reboot automatically after backup process is finished and start Windows.

Create a Bootable Medium

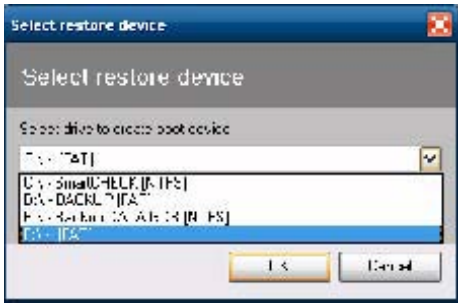
The image of the hard drive has been created.

(4) Connect the external USB storage device to a free USB port (on the left side of the SmartCHECK).

(5) Click on the right button "Create restore device".

(6) Select the target drive.

▷ Only select the external USB storage device.



Attention!

Do not select one of the SmartCHECK/test bench disks ("SmartCHECK", "Backup" or "Backup DATA GDB").

(7) Click "OK".

▷ The external USB storage device will be converted to a bootable USB storage device which contains the entire backup.

Recovery from Backup

Required accessory:

- The bootable medium created with the MSA Backup Utility
- Externally connected keyboard

Complete recovery

In the case of total failure of hard disks the external USB storage device with the entire backup will restore the complete operating system and the TecBOS software with the TecBOS database.

To run the restore process turn off the test bench and plug in the external USB storage device.

(1) Turn on the test bench.

(2) Connect externally connected keyboard.

(3) Press “F12” on keyboard and choose the external USB storage device.

▷ The restore process starts.

(4) Confirm the displayed message by pressing key Y or Z.

▷ After successful restoration the test bench will restart and Windows will appear.

▷ The recovery process is completed.

Restoring the database

If the database is faulty, either a database from the drive E:\ called "Backup Data GDB" or a previously externally saved database can be restored.

(1) Rename the previously saved database to data.gdb

(2) Copy the renamed database into the folder C:\Program Files\MSA\TecBOS Solutions\data.

▷ The existing database will be overwritten.

4 Startup

4.1 Setting Up

When setting up the test bench the following conditions have to be met:

- Set up the test bench on an even and stable surface. If necessary fix the test bench.
- Do not block or cover the fans of the test bench. During operation there has to be a minimum distance of 10 cm between the fans of the test bench [→ fig.8] and a wall.
- At the place of use, contact to water or other liquids must be avoided.
- The test bench may only be operated at temperatures between +5 °C and +60 °C and a relative humidity between 15 % and 80 %.
- During a test of devices the ambient conditions [temperature, humidity] must not change significantly.
- Only carry out tests with acclimatised devices.
- Avoid direct sunlight and proximity to strong electromagnetic fields to ensure reliable test results.

Fig. 8 Minimum distances SmartCHECK basic

4.2 Switching On

The test bench is fully operational, all necessary software to operate the device is pre-installed. For testing devices and components no further software installation is required.

(1) Attach the power cord to the test bench and connect to the power supply.

(2) Optional: Connect transponder antenna [→ chapter 2.4, fig. 1].

(3) Optional: Connect high pressure feeding line, plug in high pressure test line.

(4) Make sure that the opening of the test head is empty [no adapters attached] and clean.

(5) Switch on test bench with the power switch on the left side of the test bench.
   ▷ Power switch glows red.

(6) Press push button.
   ▷ Test bench is powered completely.
   ▷ Push button glows green continuously.
   ▷ Integrated computer begins to boot.
   ▷ Operating system of the computer and testing software are started.

The software can be operated with the touch screen or with mouse and keyboard.

4.3 Logging In

- Log -in by typing user name and password:

Fig. 9 Log-In screen

The user name is **Administrator**, the abbreviation is **AD** and the default password is **Administrator** [not case sensitive].

After logging in for the first time, change the password for the administrator. Using the button "change password" on the bottom of the login dialog. Then follow the password change dialog.

Using a Card

[→**chapter** 7.2]

Licensing and Activation of the Software

Usually the test bench software has already been licensed when the test bench is delivered.

- Choose the user *Administrator*, enter the password, and choose the *Options* button from the login dialog box.

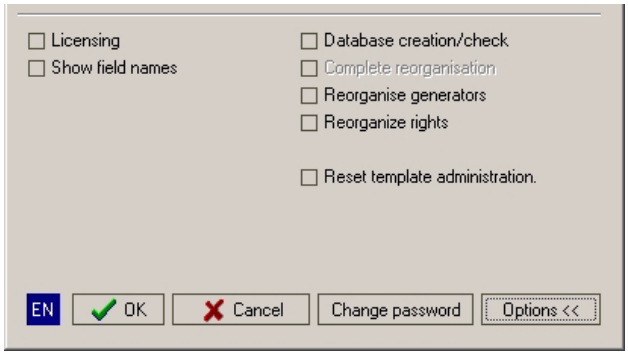


Fig. 10 Options

(1) Tick licensing and then click on OK.

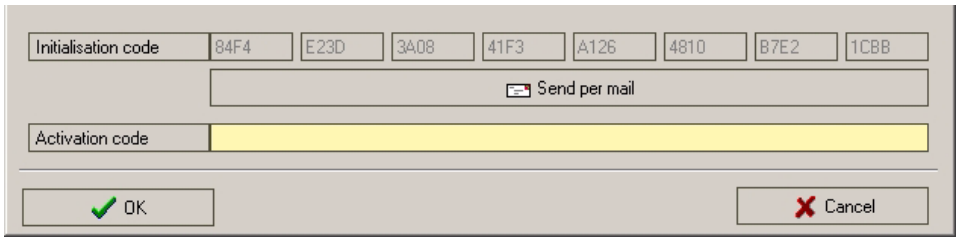


Fig. 11 Activation code

(2) Proceed by entering the activation code [has to be entered completely, including hyphens].

(3) After confirming with OK answer the question
[Do you want to execute 'database create/test'?] with Yes. This will start the debug server process to customise the database to your license.

Attention!

When using the network version, do not use the software on another device while the licensing process is running, otherwise the data base could be compromised.

4.4 Desktop Overview

Fig. 12 Module Navigator

1	*Logs off from TecBOS*	*5*	*Starts the devices module*
2	*Shuts down the computer*	*6*	*Menu bar*
3	*Logs off from the operating system*	*7*	*Drop-down menu of menu bar*
4	*Starts the testing module*		

5 Testing Information for all Devices

The following devices can be tested with the SmartCHECK:

- Masks
- Lung governed demand valves
- Breathing apparatus
- Chemical protective suits
- Closed circuit breathing apparatus
- Closed circuit breathing apparatus with constant dosage

The test bench accesses a database where test procedures and tolerance values are stored.

If it is required to add an additional type for implementing in the data pool, enter the required device to your testing database.

Attention!

Specifications of the device to be tested and national regulations apply.

The data base entries must comply with the specifications of the devices to be tested.

5.1 Starting the Test Software

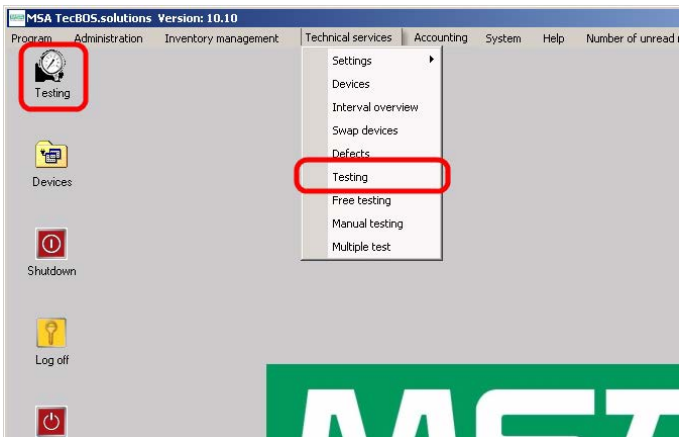


Fig. 13 Starting the testing software

(1) Double click on the icon *Testing* or start via path *Technical services-Testing*.

▷ The test bench starts, the internal pump fills the test head.

5.2 Connecting Devices

The testing software describes the connection of standard devices.

For testing special accessories may be necessary. For detailed information → chapter 10 and the operating manual of the device to be tested.

The testing software provides illustrations how to connect a device. Since these hints can be deactivated chapter 6 provides an overview. Depending on the type of construction there may be deviations.

■ Follow the on-screen instructions [can vary depending on selected type of device].

5.3 Testing Combined Devices

It is possible to test combined devices with the test bench.

- Select all devices that are combined when selecting devices.
  - ▷ Tests for all devices selected will be carried out consecutively.

5.4 Overview Test Screen SmartCHECK basic

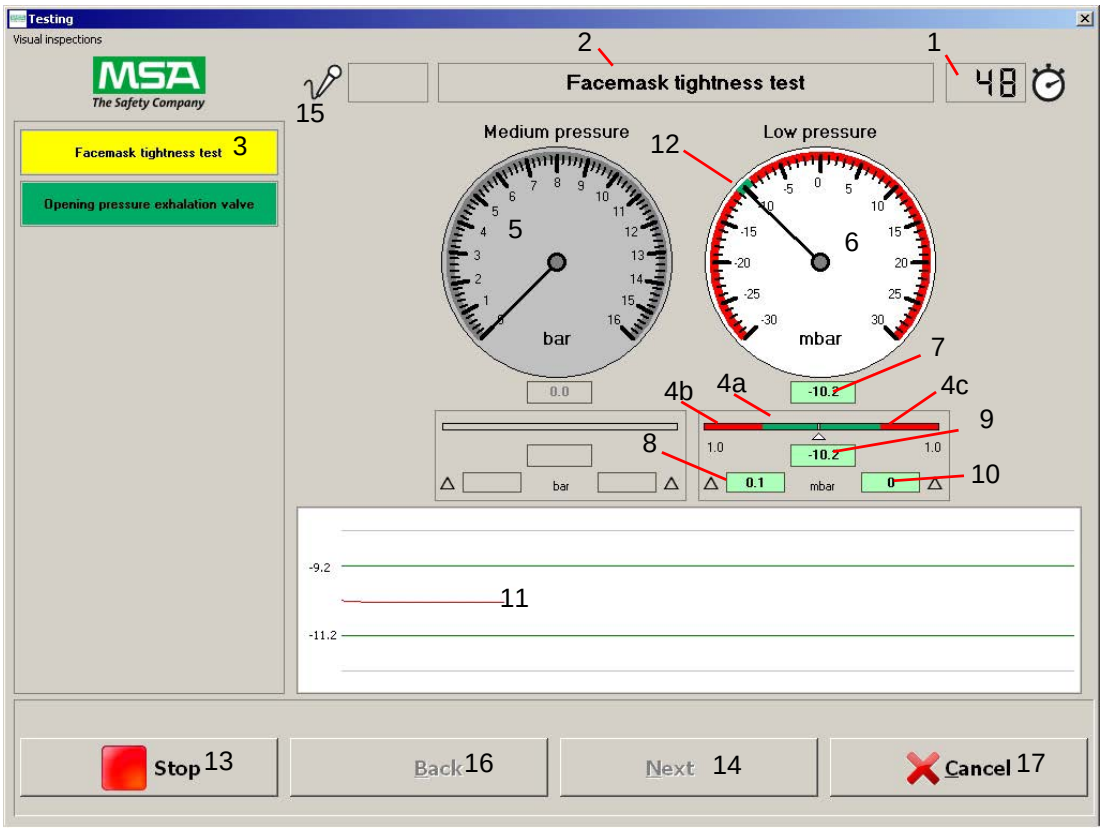


Fig. 14 Overview Test Screen

1	*Timer [Countdown]*	*9*	*Start value of measurement*
2	*Current test*	*10*	*Positive pressure deviation from start value*
3	*List of tests*	*11*	*Pressure curve [with graphical tolerance values]*
4a	*Magnified view of the tolerance range*	*12*	*Display of tolerance range*
4b	*Lower tolerance level*	*13*	*Interrupt current test*
4c	*Upper tolerance level*	*14*	*Go to next page [active after test has finished or is interrupted, dimmed]*
5	*Gauge not necessary for test [dimmed]*	*15*	*Measurement warning signal [not active]*
6	*Active gauge*	*16*	*Go to previous page [active after test has finished or is interrupted, dimmed]*
7	*Current measurement*	*17*	*Ends this test and opens device selection*
8	*Negative pressure deviation from start value*		

5.5 Overview Test Screen SmartCHECK Modules

This test screen shows an additional gauge for high pressure, all other fields are the same.

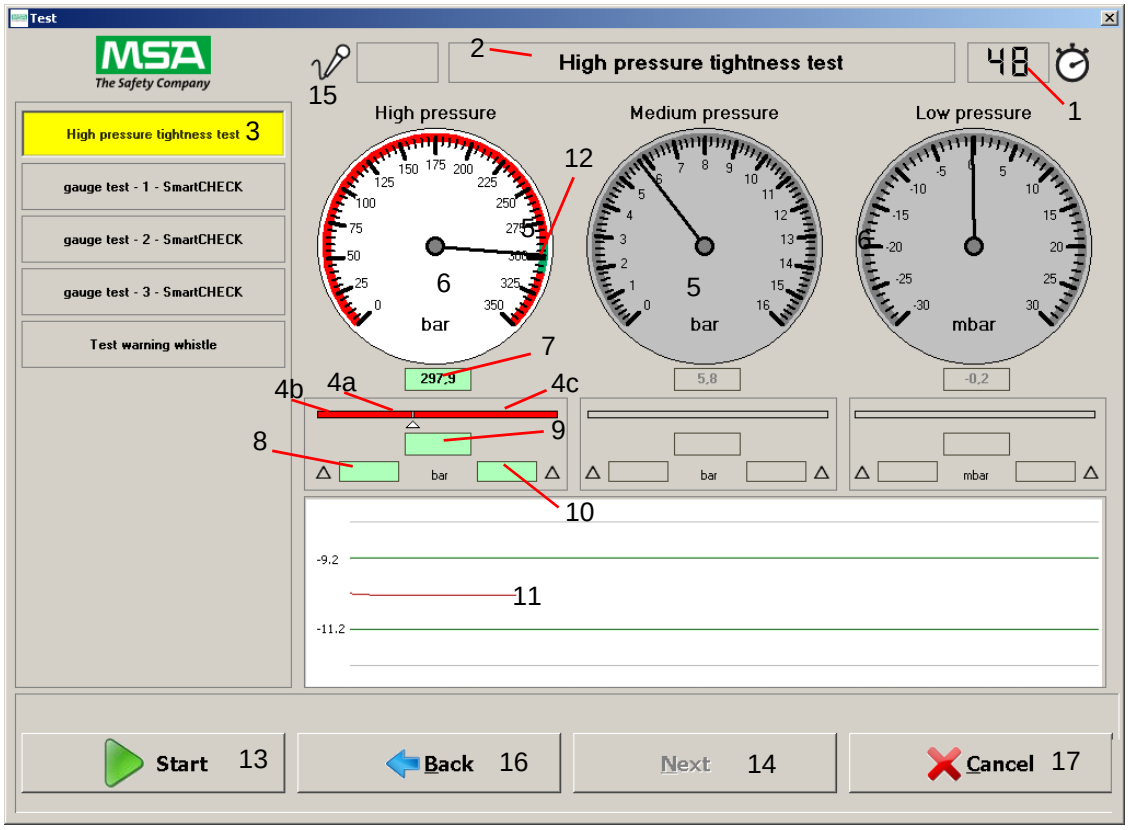


Fig. 15 Overview Test Screen

1	*Timer [Countdown]*	*9*	*Start value of measurement*
2	*Current test*	*10*	*Positive pressure deviation from start value*
3	*List of tests*	*11*	*Pressure curve [with graphical tolerance values]*
4a	*Magnified view of the tolerance range*	*12*	*Display of tolerance range*
4b	*Lower tolerance level*	*13*	*Interrupt current test*
4c	*Upper tolerance level*	*14*	*Go to next page [active after test has finished or is interrupted, dimmed]*
5	*Gauge not necessary for test [dimmed]*	*15*	*Measurement warning signal [not active]*
6	*Active gauge*	*16*	*Go to previous page [active after test has finished or is interrupted, dimmed]*
7	*Current measurement*	*17*	*Ends this test and opens device selection*
8	*Negative pressure deviation from start value*		

5.6 Manual Operation

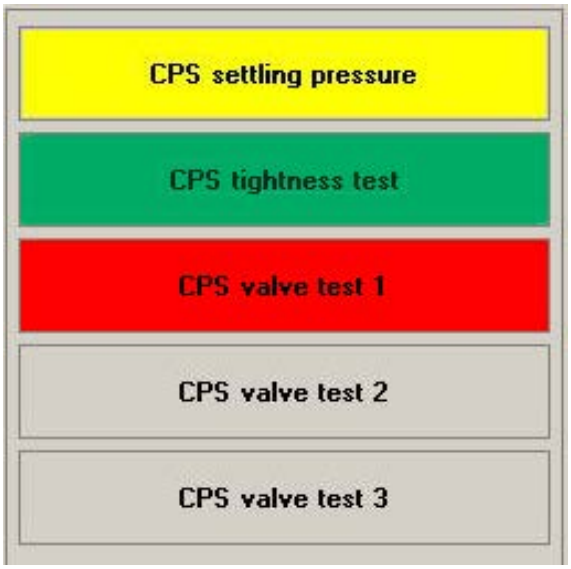


Fig. 16 During a test

All tests necessary for the device are listed as buttons.

Tests which have been successfully completed are highlighted green. Failed or stopped tests are highlighted red. Active, running tests are highlighted yellow.

During the automatic test process each test is carried out successively. When an error is detected the test stops. The test can be repeated, skipped or aborted.

Each test can also be started individually [by double-clicking on the respective test]. Active manually started tests are highlighted yellow.

Clicking once on a test shows the results of this test if test has already been carried out. Clicking once on a test not yet carried out marks this test, clicking on *Start* starts with this test and the following tests are carried out successively similar to the automatic test routine.

While a test is active and running, only the buttons *Stop* and *Cancel* can be used. It is not possible to mark or start tests while they are carried out and highlighted yellow.

Stop stops a running test, but the system stays pressurised.

Cancel stops a running test, the system depressurises.

5.7 Test Criteria for MSA Respiratory Protection Apparatus

Test criteria are subject to national regulations, applicable national regulations must be observed. For orientation, MSA recommended test criteria can be found in the service manuals for the devices to be tested.

6 Testing Devices

For testing special accessories may be necessary. For detailed information → chapter 10 and the operating manual of the device to be tested.

6.1 Masks

Fig. 17 Connecting Mask

(1) Put mask onto test head.

(2) Pull harness tight in indicated order.

(3) Screw lock screw into demand valve connector [→ arrow].

The following tests can be carried out for masks:

- Mask tightness test.
- Mask opening pressure exhalation valve.

This section describes a test according to default settings. If settings have been changed there may be deviations [→ chapter 7 for how to change settings].

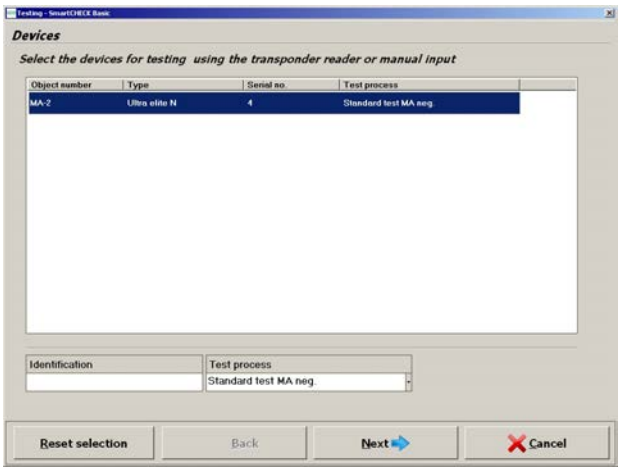


Fig. 18 Selecting a device for testing

Selecting Device

(1) Switch on the test bench and log in [→ chapter 4.3].

(2) Start the testing by double-clicking the testing icon on the desktop [→ chapter 4.4].

(3) Select a device for testing. To select a device type in one of the identification properties press enter to run the selection against the database.

The following identification properties are available:

- Object number
- Transponder
- Bar code
- Serial number
- Manufacturer number

(4) Click on *Next*.

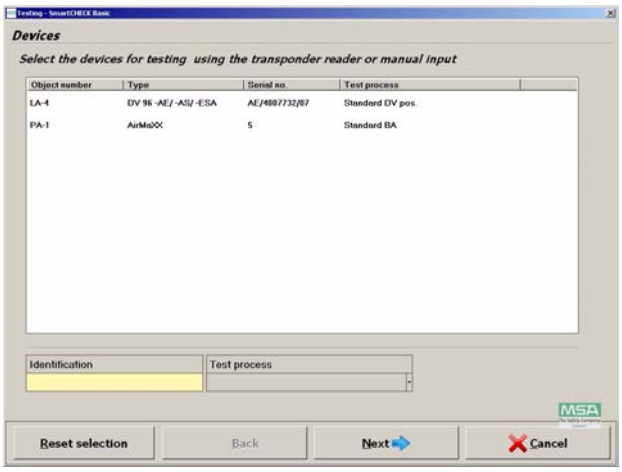


Fig. 19 Selecting connected devices

Related devices are connected by selection of the main device or one of its sub devices.

For all possible search functions → chapter 3.5.

It is possible to search for devices with the transponder if they are equipped with the necessary tag.

A bar code reader for the test bench is available as an accessory and can be used instead of the transponder reader.

If the device cannot be found, → chapter 7.5 for details on entering data sets.

(5) Click on *Next*.

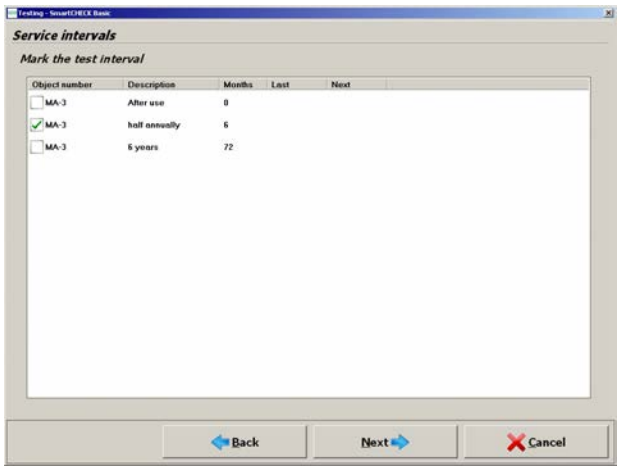


Fig. 20 Tests

After selecting one or more devices you will have an immediate overview of possible and required tests.

Red-marked fields are due and marked automatically by the program. Manual change of tests is possible.

(6) Tick the test to be performed.

(7) Click on *Next*.

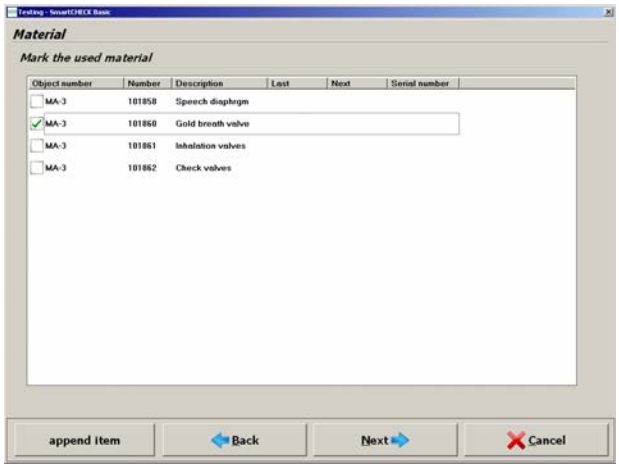


Fig. 21 Overview material

An overview of materials to be used appears.

(8) Tick the used material.

If the material cannot be found, → chapter 7.5 for details on entering data sets.

After the material has been chosen the material is booked out of storage management when successfully saving the test.

(9) To append material, click on *add item*.

(10) Tick the material to be added.

(11) Click on *OK*.

▷ The material is added.

(12) Click on *Next*.

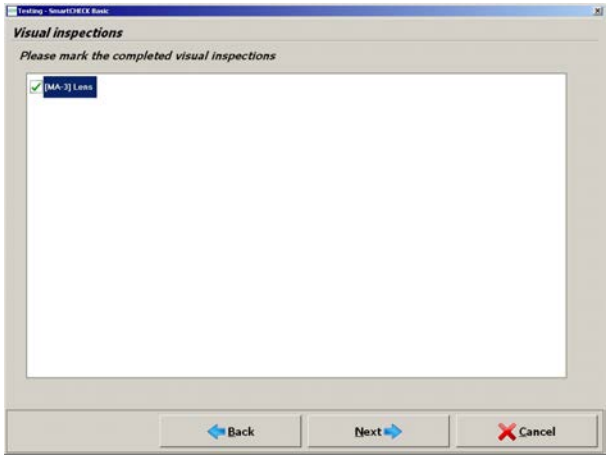


Fig. 22 Visual inspections

All necessary visual inspections are listed

(13) Tick the performed visual inspections.

If a visual inspection cannot be found, → chapter 7.5 for details on entering data sets.

If not all visual inspections are confirmed, testing does not proceed and a warning appears. The warning has to be confirmed in order to proceed.

(14) Click on *Next*.

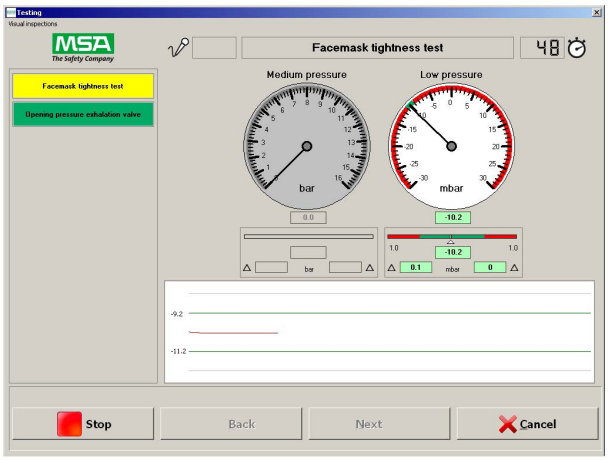


Fig. 23 Test screen

The test screen appears.

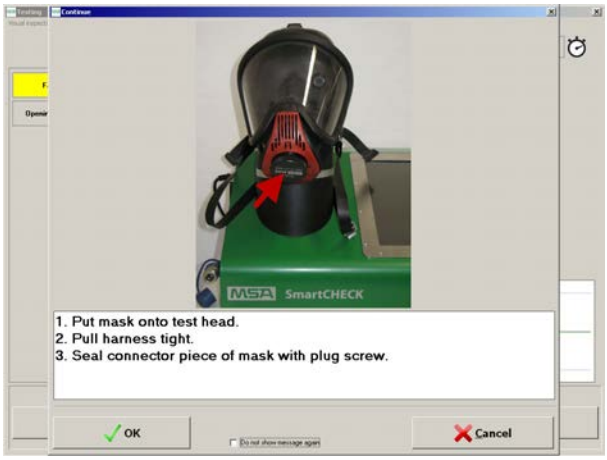


Fig. 24 Connect mask

(15) Click on *Start*.

An illustrated description appears to show how the device has to be connected.

(16) Connect mask to test bench according to instructions.

(17) Click on *OK*.

When *Do not show message in the future again* is checked by a user, only the administrator can reactivate these messages for this user.

The test routine starts.

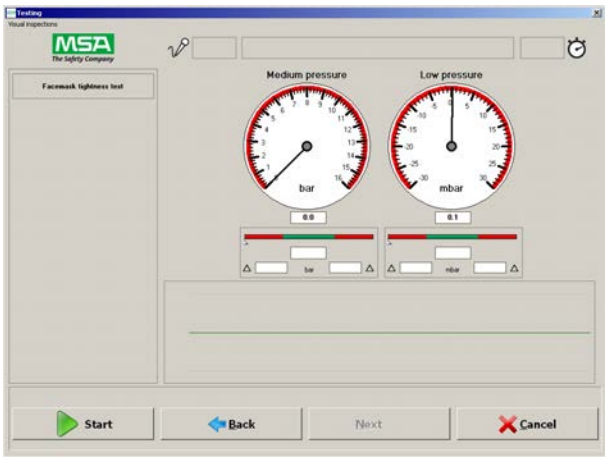


Fig. 25 Test proceeds

The start button changes into a stop button. By clicking on *Stop* you can interrupt the test at any time.

All test necessary for the device are listed as buttons.

Tests which have been successfully completed are highlighted green. Failed tests are highlighted red. Active, running tests are highlighted yellow [→ chapter 5.6].

Once the test procedure has been started, all test sequences proceed completely automatically.

Fig. 26 Test interrupted

If one of the test fails, the test is aborted and the test bench is requiring a user interaction.

A dialogue box appears with the choice to repeat the test. Possible causes of fault and troubleshooting directions are listed.

- Eliminate the cause of fault and repeat the test.

It is possible to save failed tests.

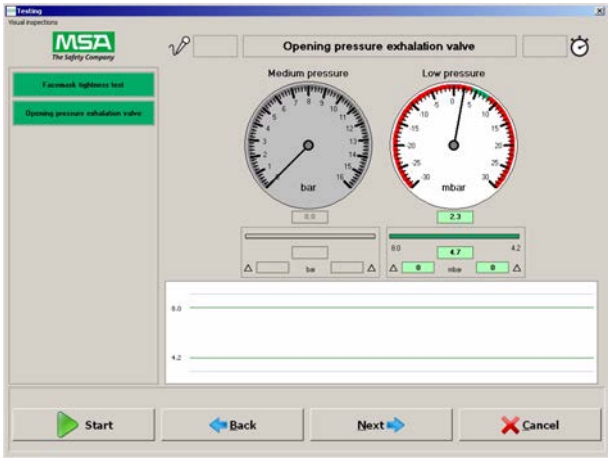


Fig. 27 Successful test

After a successful test, all individual test buttons are highlighted green.

- Click on *Next* to continue.

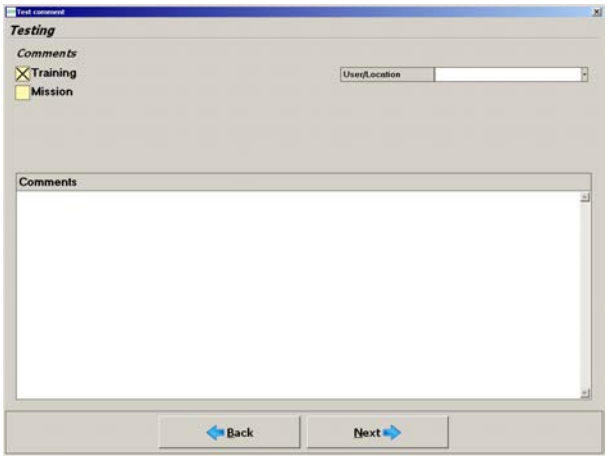


Fig. 28 Commenting test

A window opens for saving comments for the test:

- training
- mission
- scheduled test
- User/Location

If the required user/location cannot be found, → chapter 7.5 for details on entering data sets,

(18) Enter the necessary comments.

(19) Click on *OK*.

▷ The test can now be saved.

Options in the saving dialogue:

- Save the test with *Yes*
  - ▷ Click on *Continue*.
- Click *No*
  - ▷ A new dialogue appears.
  - *Yes* ends test routine with saving the data
  - *No* ends the test routine without saving data
  - With *Cancel* the dialogue is closed and test can be repeated.
- With *Cancel* the dialogue is closed and test can be repeated.

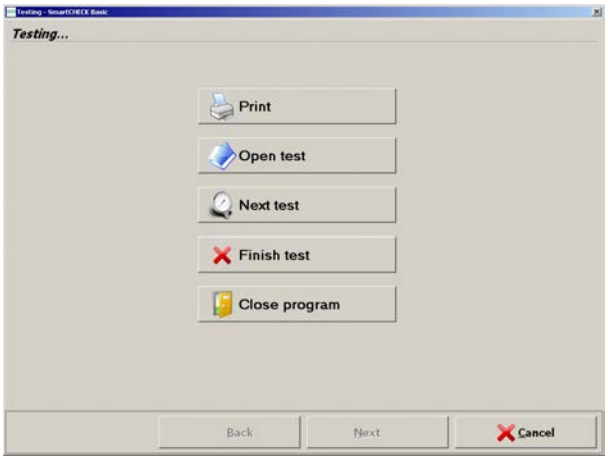


Fig. 29 Options

The final screen of the testing procedure offers the following options:

- Print [→ chapter 7.9]
- Open test [shows the test data → chapter 7.8]
- Next test [another device for testing can be chosen, → fig. 18]
- Finish test [ends the testing]
- Exit program [ends the program and shuts down the test bench.]

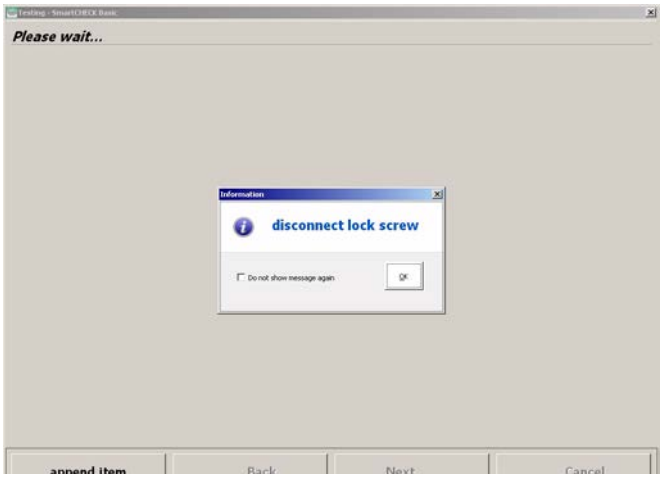


Fig. 30 Disconnect device

(20) Remove mask from test bench.

(21) Remove adapter/plug.

6.2 Lung Governed Demand Valves

The following tests can be carried out for lung governed demand valves [DV]:

- DV tightness test positive.
- DV control piston leak test with medium pressure.
- DV switch-over pressure.
- DV static closing pressure.
- DV dynamic breathing resistance with lung simulator [with or without mask]

The test procedure is similar as described for masks [chapter 6.1]. The screens will appear in the same order, but contain device specific information.

Connecting Medium Pressure Line (for Basic Configuration)

(1) Supply test device with medium pressure 6 - 10 bar.

Fig. 31 Connecting medium pressure line

Attention!

In order to test a lung governed demand valve, medium pressure is required.

Connecting High Pressure Lines (for Configurations with High Pressure Module)

(1) Open high pressure connection. Watch for sufficient primary pressure.

(2) Test preparation: Connect breathing apparatus with high pressure outlet (use Click-adaptor when necessary).

(3) Connect breathing apparatus with medium pressure input (use medium pressure hose extension when necessary).

Fig. 32 Connecting high pressure lines

Attention!

In order to test a lung governed demand valve, a compressed air breathing apparatus has to be connected. Use the medium pressure from the compressed air breathing apparatus to carry out the breathing tests.

Connecting Adapter

(1) Demand valve must be in standby.

(2) Connect DV with adapter.

(3) Connect medium pressure hose to medium pressure coupling.

(4) Connect combination of adapter/demand valve with test head.

Fig. 33 Connecting Lung Governed Demand Valve

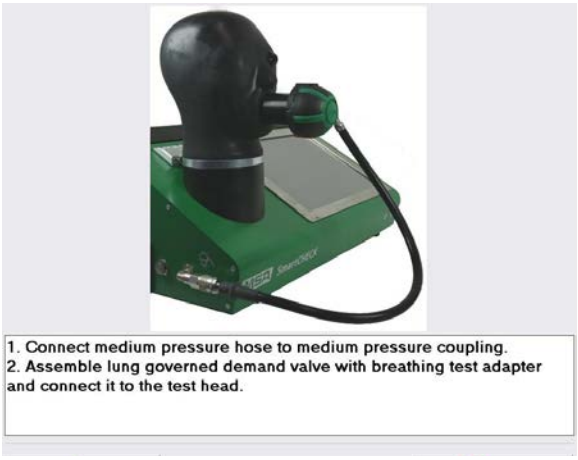


Fig. 34 Connecting the lung governed demand valve

(1) Proceed as described in chapter 6.1.

(2) Connect the lung governed demand valve as illustrated.

(3) Continue with the test as described in chapter 6.1.

After testing is completely finished

Basic Configuration

- After testing is completely finished, close the medium pressure line [e.g. by closing the cylinder valve] and depressurise the test bench using the button for discharging medium pressure.
  - ▷ Now the medium pressure line can be removed effortlessly.

Configurations with High Pressure Module

- After testing is completely finished, the test bench depressurises automatically.
  - ▷ Now the pressure lines can be removed effortlessly.

6.3 Compressed Air Breathing Apparatus

The following tests can be carried out for compressed air breathing apparatus [SCBA]:

- High pressure tightness test
- SCBA Medium pressure test
- Pressure gauge comparison test
- Warning signal test

The test procedure is similar as described for masks [chapter 6.1]. The screens will appear in the same order, but contain device specific information.

Connecting Medium Pressure Line (for Basic Configuration)

Fig. 35 Connecting Breathing Apparatus

(1) Connect medium pressure hose of SCBA to test bench medium pressure coupling.

(2) Open the cylinder.

(3) Adjust high pressure to 200 bar.

Connecting High Pressure Lines (for Configurations with High Pressure Module)

Warning!

Only start testing after all necessary connections have been made in the correct order. Otherwise the high pressure line could be propelled uncontrollably by the escaping air. Failure to follow this warning can result in serious injury.

Fig. 36 Connecting high pressure line

(1) Open high pressure connection. Watch for sufficient primary pressure.

(2) Test preparation: Connect breathing apparatus with high pressure outlet.

(3) For SCBA not equipped with the alpha-click system: Connect the SCBA test adapter (see chapter 10.4) to the pressure reducer.

(4) Connect breathing apparatus with medium pressure input (use medium pressure hose extension when necessary).

Fig. 37 Connecting the compressed air breathing apparatus

(1) Proceed as described in chapter 6.1.

(2) Connect the compressed air breathing apparatus as illustrated.

(3) Continue with the test as described in chapter 6.1.

After testing is completely finished

Basic Configuration

- After testing is completely finished, close the medium pressure line [e.g. by closing the cylinder valve] and depressurise the test bench using the button for discharging medium pressure.
  - ▷ Now the medium pressure line can be removed effortlessly.

Configurations with High Pressure Module

For SCBA equipped with the alpha-click system:

- After testing is completely finished, the test bench depressurises automatically.
  - ▷ Now the pressure lines can be removed effortlessly.

For SCBA **not** equipped with the alpha-click system:

> **Warning!**
>
> Always carry out the disconnection procedure completely as described below in the correct order.
>
> Failure to follow this warning can result in serious injury.

- After testing is completely finished, the test bench depressurises automatically.

(1) Disconnect the SCBA test adapter (see chapter 10.4) from the high pressure test line.

(2) Disconnect the test adapter from the pressure reducer.
  - ▷ Now the pressure lines can be removed effortlessly.

6.4 Chemical Protective Suit

The following tests can be carried out for chemical protective suits:

- CPS stabilising pressure
- CPS tightness test
- CPS valve test 1...6

The test procedure is similar as described for masks [chapter 6.1]. The screens will appear in the same order, but contain device specific information.

Attention!

Watch the filling and test sequence.

Connecting Medium Pressure Line (for Basic Configuration)

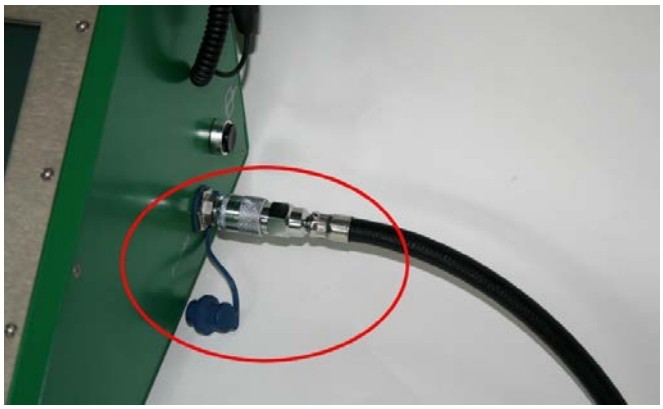


Fig. 38 Connecting medium pressure line

(1) Supply test device with medium pressure 6 - 10 bar.

Connecting High Pressure Lines (for Configurations with High Pressure Module)

Fig. 39 Connecting high pressure line

(1) Open high pressure connection. Watch for sufficient primary pressure.

(2) Test preparation: Connect breathing apparatus with high pressure outlet (use Click-adaptor when necessary).

(3) Connect breathing apparatus with medium pressure input (use medium pressure hose extension when necessary).

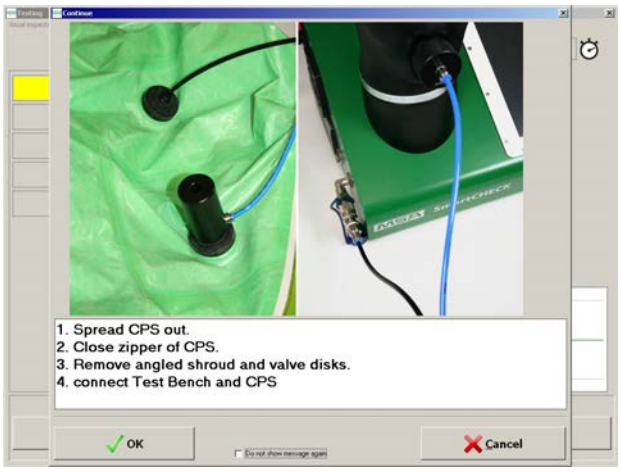


Fig. 40 Connecting CPS

(1) Spread CPS [→ fig.42].

(2) Close zipper of CPS.

(3) Remove angled prechamber and valve disks.

(4) Connect test bench and CPS via adapter.

(5) **Watch the filling and test sequence.**

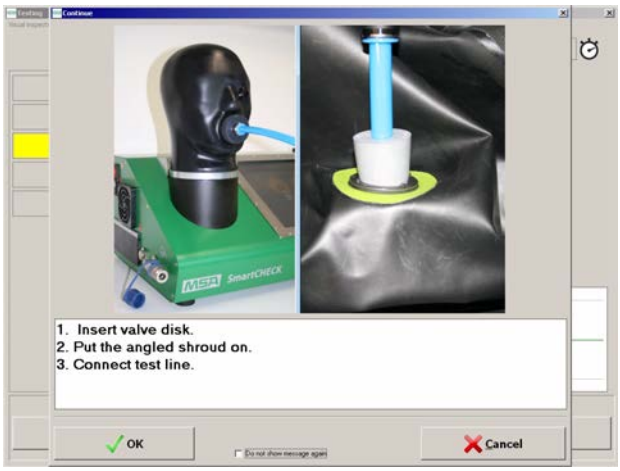


Fig. 41 Connecting CPS

(1) Assemble valve disk.

(2) Connect test line.

Fig. 42 Spreading out CPS

(1) Proceed as described in chapter 6.1.

(2) Spread out and connect the chemical protective suit.

(3) Continue with the test as described in chapter 6.1.

After testing is completely finished

Basic Configuration

- After testing is completely finished, close the medium pressure line [e.g. by closing the cylinder valve] and depressurise the test bench using the button for discharging medium pressure.
  - ▷ Now the medium pressure line can be removed effortlessly.

Configurations with High Pressure Module

- After testing is completely finished, the test bench depressurises automatically.
  - ▷ Now the pressure lines can be removed effortlessly.

6.5 Closed Circuit Breathing Apparatus

The following tests can be carried out for Closed Circuit Breathing Apparatus:

- Inhalation valve
- Exhalation valve
- Tightness test
- Surplus valve
- Make device operational ready
- IC-Air test

The test procedure is similar as described for masks [chapter 6.1]. The screens will appear in the same order, but contain device specific information.

Attention!

For testing the Closed Circuit Breathing Apparatus the battery must be disconnected from the electronic distributor. Otherwise the respiratory protective device will be started.

Tightness test must be executed with dry air only.

The testing procedure requires the tester to change connections at certain points for certain tests. All safety related steps regarding the equipment will be displayed at the appropriate time, showing these messages cannot be switched off. Here all necessary actions are listed for an overview.

Disconnecting battery

Fig. 43 Disconnecting battery of closed circuit breathing apparatus

(1) Disconnect battery from the electronic distributor before test.

Inhalation/Exhalation Valve

Fig. 44 Connecting adapter hose to test head.

(1) Connect adapter hose with inserted adapter unit to test head.

Inhalation/Exhalation Valve

Fig. 45 Screwing adapter into inhalation side

(2) Screw adapter into inhalation side (marked white at the top) of the respiratory protective device.

Fig. 46 Screwing adapter into exhalation side

(3) Screw adapter into exhalation side (bottom) of the respiratory protective device.

Tightness Test/Surplus Valve

Fig. 47 Connecting breathing hose assembly to test head

(1) Remove the breathing hose assembly from the socket on the left hand shoulder harness.

(2) Connect the breathing hose assembly with adapter to the test head.

Tightness Test/Surplus Valve

Fig. 48 Blocking surplus valve on exhalation bag

(3) Block surplus valve on exhalation bag laterally with metal bracket to stop the valve from blowing off air.

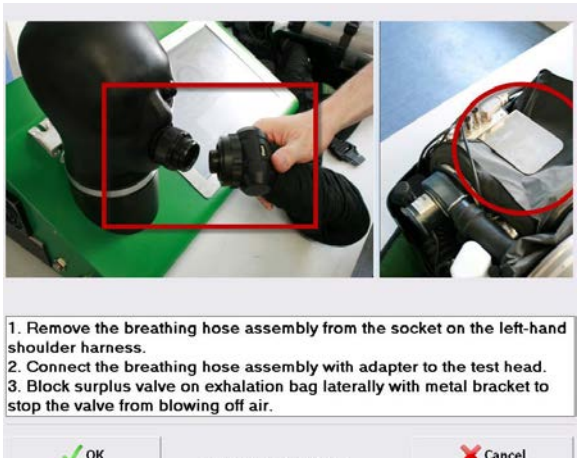


Fig. 49

(1) Proceed as described in chapter 6.1.

(2) Follow the instructions regarding adapters and connections displayed by the software.

(3) After testing is finished, make sure that the apparatus is ready for use again:

- Unblock surplus valve on exhalation bag laterally (remove metal bracket).
- Carry out self-test (IC-Active test).

6.6 Closed Circuit Breathing Apparatus with Constant Dosage

The SmartCHECK has been tested by BAM (Federal Institute for Materials Research and Testing) for safety with regards to operating with oxygen.

The following tests can be carried out for Closed Circuit Breathing Apparatus with Constant Dosage:

- Low pressure warning
- Leak test with negative pressure
- Inhalation valve
- Exhalation valve
- Drainage valve
- Relief pressure valve
- High pressure leak test
- Constant dosage
- Minimum valve
- Bypass valve
- Residual pressure warning

The test procedure is similar as described for masks [chapter 6.1]. The screens will appear in the same order, but contain device specific information.

Attention!

During the testing procedure the software displays several warnings.

Follow all instructions given in those warnings to avoid damage to the equipment tested or the test bench.

The testing procedure requires the tester to change connections at certain points for certain tests. All safety related steps regarding the equipment will be displayed at the appropriate time, showing these messages cannot be switched off. Here all necessary actions are listed for an overview.

Low Pressure Warning, Inhalation/Exhalation Valve, Draining Valve

(1) Connect breathing hose to demand valve adapter.

(2) Bodyguard switched off.

Fig. 50 Connecting device

Bypass Valve

Fig. 51 Bypass

(1) Push red button of the bypass valve briefly.
   ▷ Oxygen shall be audible when flowing into the closed circuit system (flow noise).

Constant Dosage

Fig. 52 Sealing cap

(1) Put the open side of the sealing cap R 22 086 over the plunger.

(2) Hold sealing cap until the filled breathing bag is holding it.

Fig. 53

(1) Proceed as described in chapter 6.1.

(2) Follow the instructions regarding adapters and connections displayed by the software.

(3) After testing is finished, make sure that the apparatus is ready for use again.

7 Using the Software

The illustrations featured may vary due to software updates and different licences.

While the testing procedure has been optimised for touch screen operation, an external keyboard and a mouse are only recommended for data base entries.

7.1 General

Attention!

To avoid losing saved tests and data base entries, make sure that the main database is backed up continuously.

- It is recommended to install an antivirus software on the test bench.

MSA offers software maintenance contracts, contact MSA for details.

If the test bench is integrated in a network, further licenses may be necessary, because the license included in the scope of delivery is a single-user license [→ chapter 10].

If problems occur with the software that cannot be fixed, contact MSA.

7.2 User Administration

(1) Choose *System - User Administration - User* in the menu.

(2) Create data set via the menu bar.

(3) Enter user abbreviation, user name and password. Password can be used when no ID card is used.

(4) Read in the ID card number using the transponder reader or the bar code with the bar code reader.

(5) Set up user rights in the *Usergroup Administration*.

(6) Activate checkbox *User has to change password on next login*.

(7) Save changes by clicking the save button.

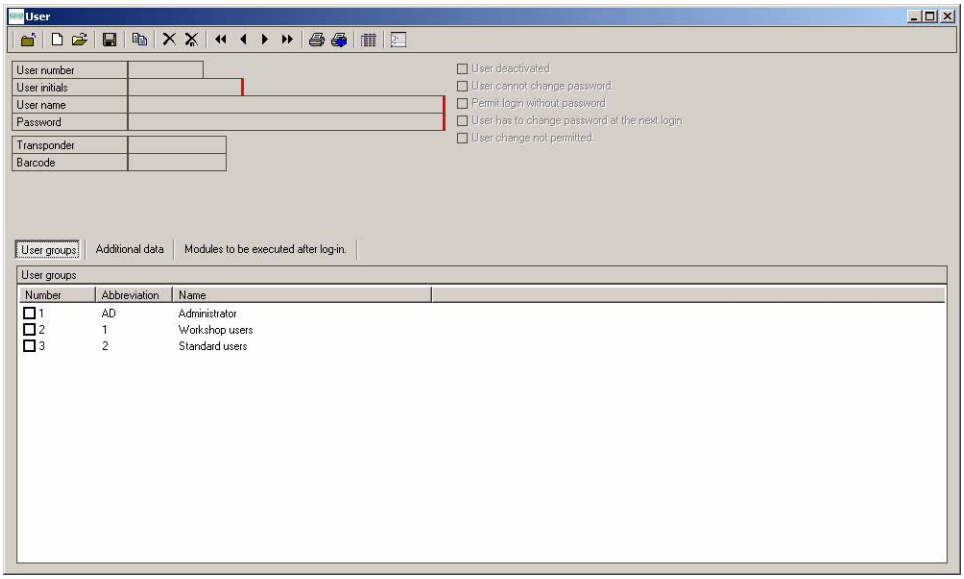


Fig. 54

Passwords are not subject to any restrictions concerning choice of characters or number of characters.

(8) If a user ID is no longer needed or an ID card was lost, delete the transponder code. Additionally deactivate the user. If a card was lost it is also possible to overwrite the old number with the number of a new card.

Attention!

Do not delete the user, tests may be stored under the ID number.

7.3 Mandator

The letterhead in the reports and the report language can be changed via the mandator module.

MSA's address is set by default. Change the information on first use.

Menu: *System – Mandator*s

(1) Open the existing mandator by double clicking the Open button.

(2) Overwrite the existing information with the information of your organisation.

(3) Modify the footer for print outs on register under *Report settings*.

(4) Ensure that the country code is set to your language.

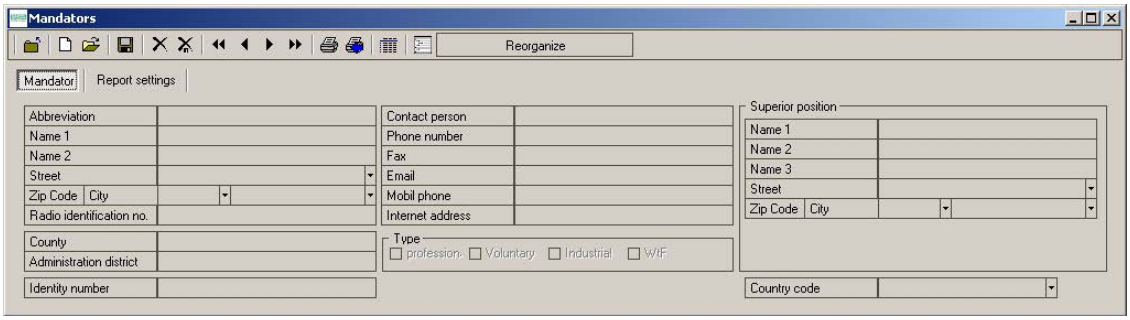


Fig. 55 Mandator

(5) Save changes by clicking the save button.

7.4 Settings

(1) Start the software as described in chapter 4.

(2) Choose *System – Settings – Settings* in the menu.

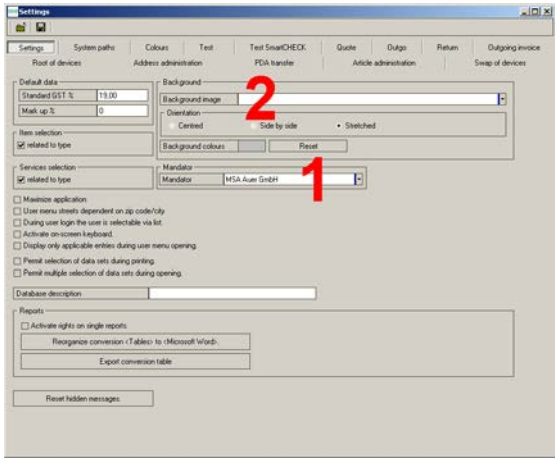


Fig. 56 Data card: Settings

(3) Select mandator [1 in the picture].

(4) If you want to change the background picture you can select a different background image using the selection box [position 2 in the picture].

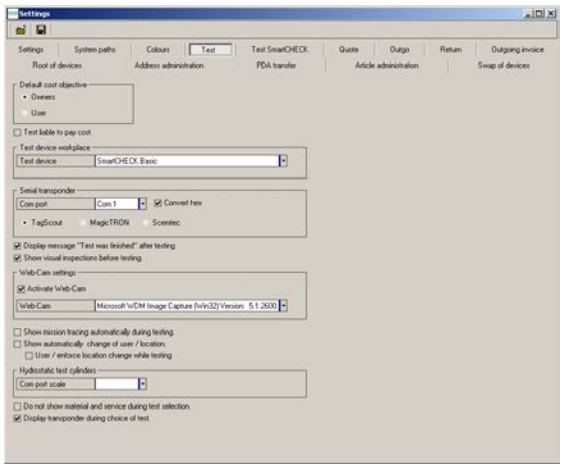


Fig. 57 Data card: Test

(1) Select the required test bench.

(2) Select the connected test bench [position 1 in the picture].

(3) Save settings in accordance with these entries.

7.5 Entering Data Sets

Entering and Modifying Addresses

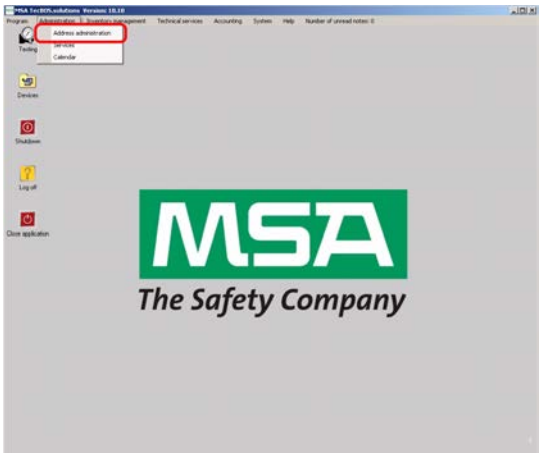


Fig. 58 Menu: Administration - Address Administration

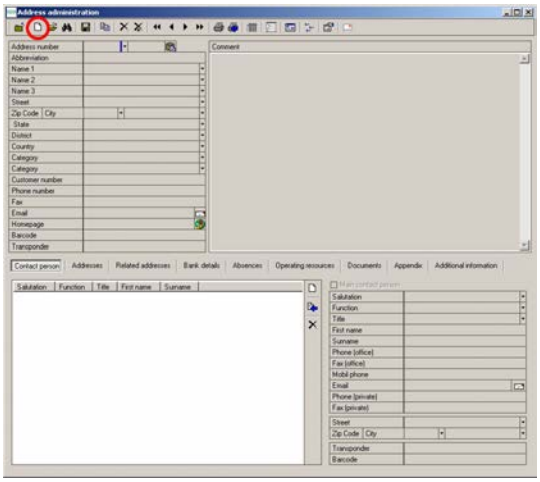


Fig. 59 Menu: Administration - Create data set

(1) Create data set via the menu bar

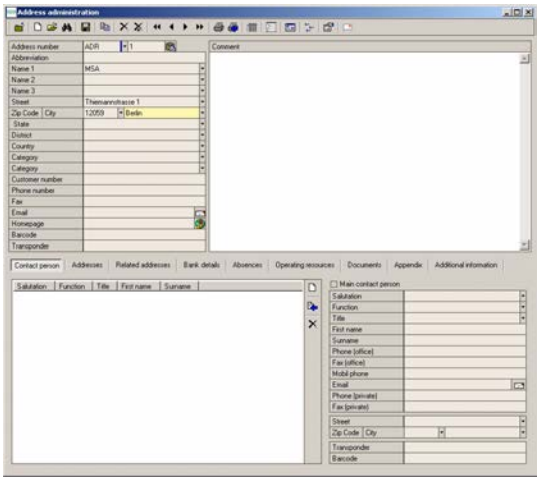


Fig. 60 Menu: Administration - Entering information

(2) Enter the required information.

Address number:

- Part 1: abbreviation for address [e.g. ADR] or supplier [e.g. SUPP]
- Part 2: consecutive number

Name 1: Name of company owner or user

For possible invoicing or when creating a delivery note, it is important to enter an owner or user.

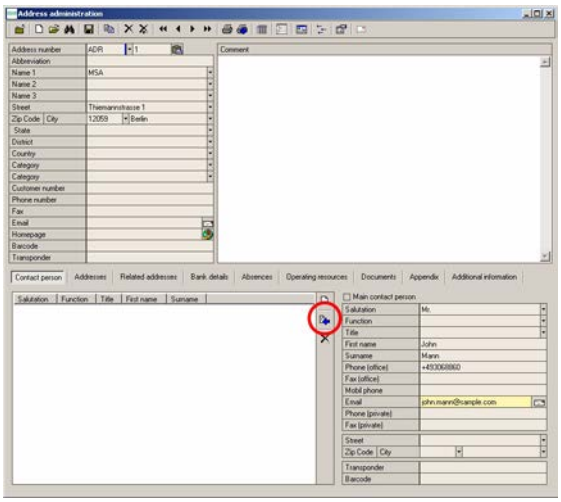


Fig. 61 Menu: Administration - Contact information

Several contact persons can also be inserted for each address.

(3) Save the contact information entered using the blue arrow button on the right side of the list view box.

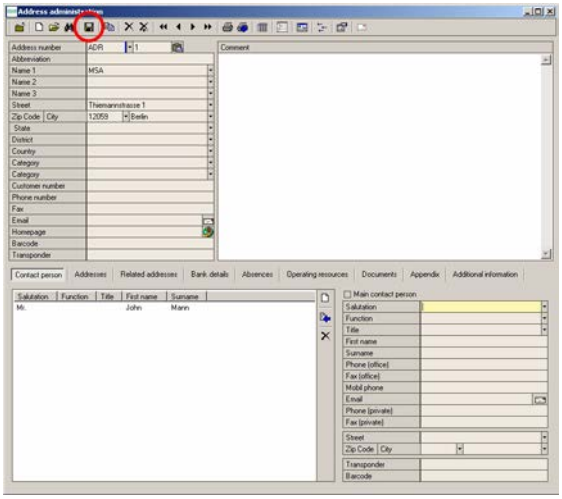


Fig. 62 Menu: Administration - Saving information

(4) After entering the data save it by clicking on the floppy disk symbol on the menu bar.

Capturing and Modifying Device Data

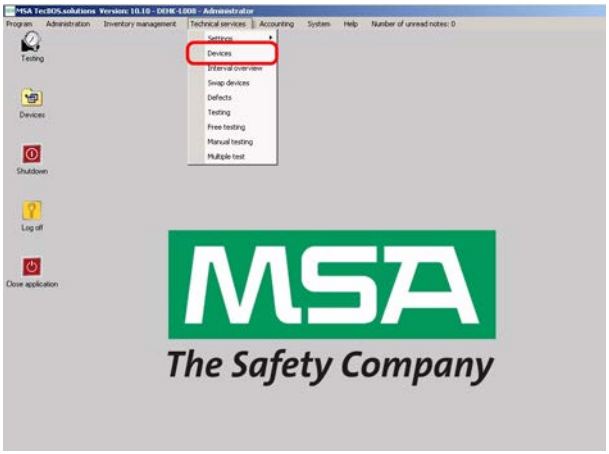


Fig. 63 Menu: Technical Services – Devices

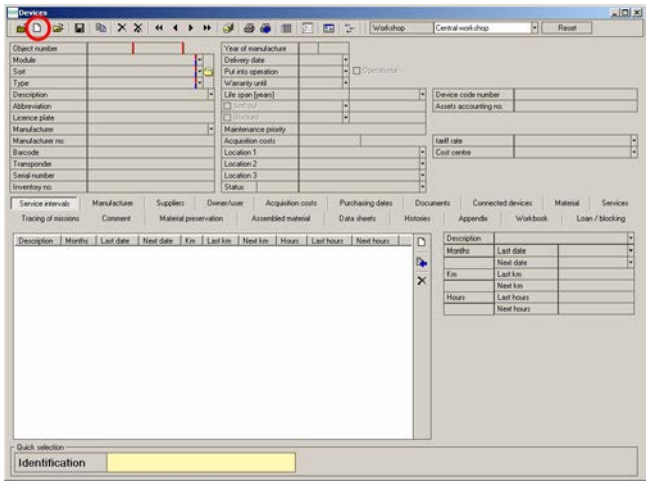


Fig. 64 Menu: Technical Services – Devices – Create data set

Create data set:

(1) Select "create data set" on the menu bar.

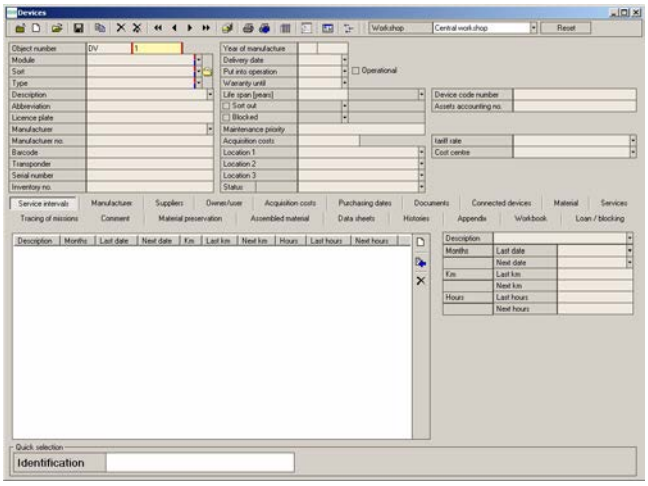


Fig. 65 Menu: Technical Services – Devices – Object number

(2) All fields with a red mark **must** be completed to save the data set.

Object number:

- Part 1: alphanumeric field for abbreviated designation, e.g. DV for Demand valve or RE for Reducer.
- Part 2: consecutive numeric field dependent on part 1. It can be overwritten if required. It is also possible to enter numbers like for example 10000 the application will then select the next available number following the maximum of the last entered number.

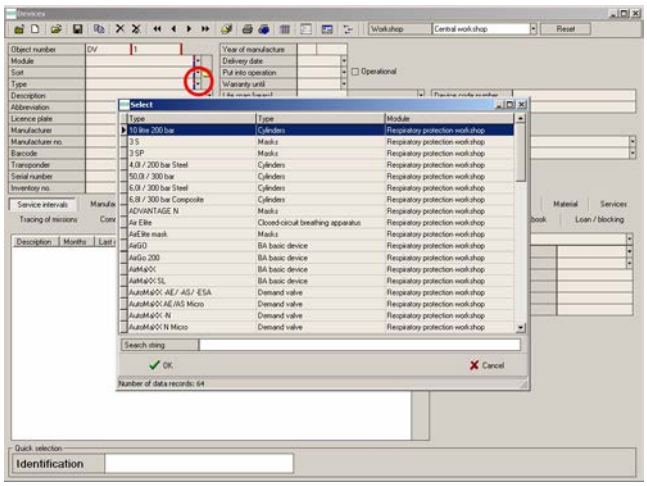


Fig. 66 Menu: Technical Services – Devices – Available device models

If you click on the right-hand arrow next to Type, the window with the available device models opens.

To enter new types → chapter 7.7.

There are two views available for selecting the required device model.

- the selection view by click on type
- the tree view by click on Module or Sort.

The first option will be used here.

(3) Choose the model from this list by double clicking.

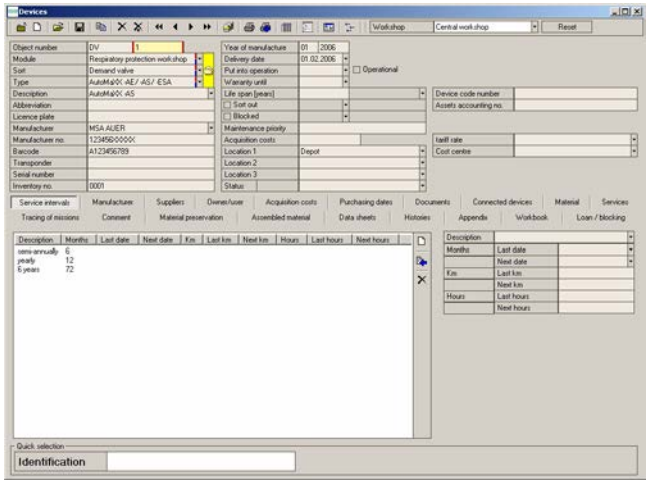


Fig. 67 Menu: Technical Services – Devices – Introducing device information

(4) Enter the device information.

For example:

- Year of manufacture
- Put into operation
- Warranty until
- Life span
- Manufacturer
- Manufacturer number
- Barcode
- Transponder
- Serial number
- Inventory number
- Location [split into 3 levels, e.g. department - car - location on car]

Single part related serial numbers or device numbers can be entered on the materials register after adding the spare part:

- Pressure gauge number
- Pressure reducer number

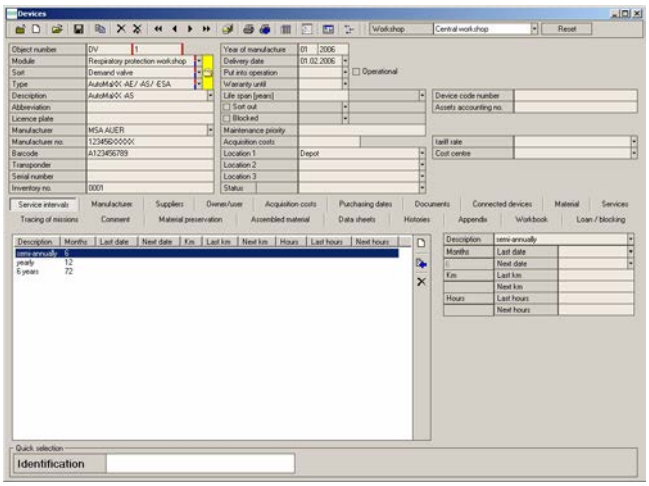


Fig. 68 Menu: Technical Services – Data card device intervals

Data Card Device Intervals

Intervals are automatically added based on a model link that can be edited in *Technical services - Settings - Service Intervals*.

To allocate/connect new intervals → chapter 7.6.

(1) Select the data card intervals and then click on the interval to be entered.

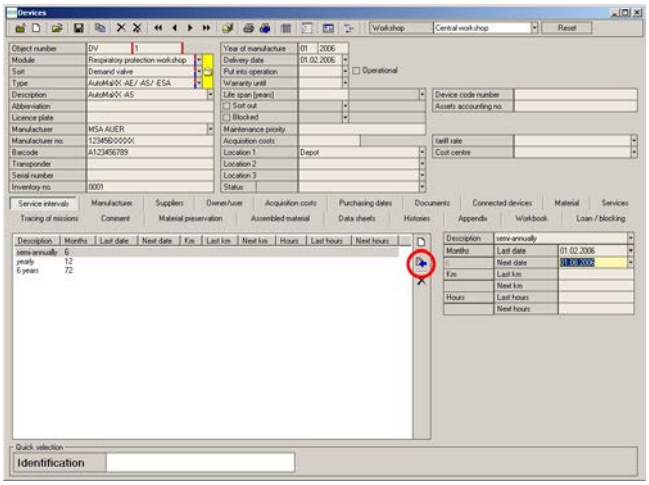


Fig. 69 Menu: Technical Services – Next test date

(2) On the right-hand side enter the last test date and jump to the *Next test date* field.

▷ The field is then automatically completed.

(3) Save the entry by clicking on the blue arrow

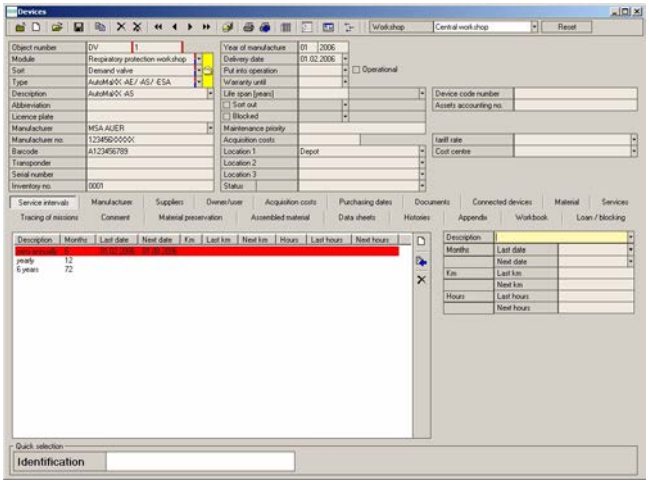


Fig. 70 Menu: Technical Services – Test is due

The date then appears on the left-hand side.

Red background: test is due.

It is possible that intervals appear in grey. Those intervals have been disabled for the model in the interval module.

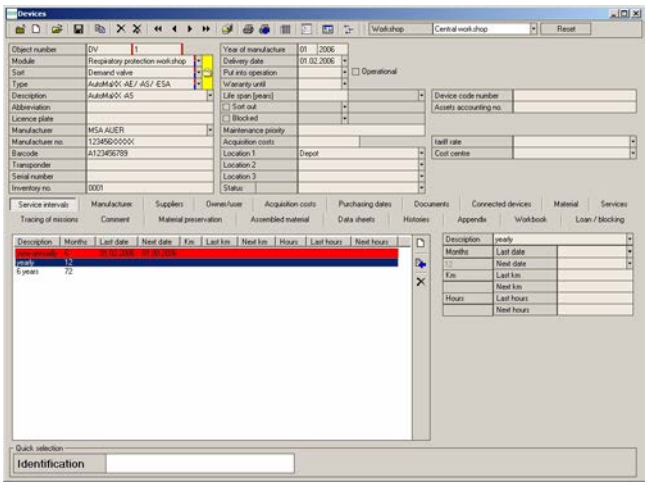


Fig. 71 Menu: Technical Services – Other intervals

(4) Carry out the same entry for the other intervals.

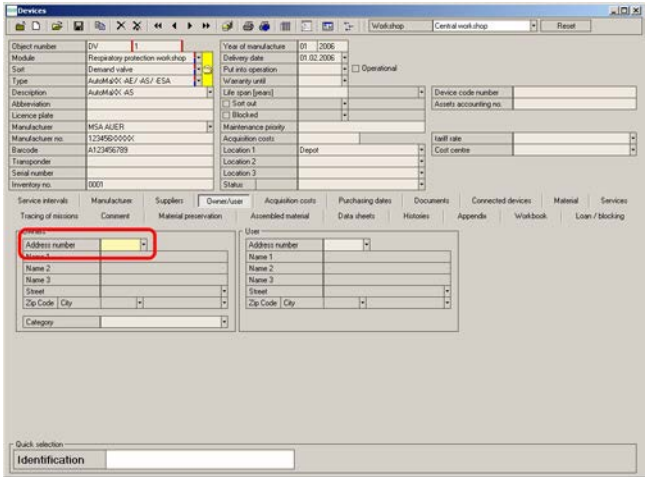


Fig. 72 Menu: Technical Services – Data card devices owner/ user

Data Card Owner/ User

(1) To preselect entries press F7 on the keyboard to enter the sub selection.

To enter new users/owners
→ chapter 7.2.

(2) Enter the selection criteria and press F10 to perform the search against the database.

(3) Click on the arrow at address number.

▷ The window with the addresses already entered opens.

To enter new addresses
→ chapter 7.5.

(4) Proceed to choose the owner, followed, if required, by the user, from this list.

For possible invoicing or when creating a delivery note, it is important to enter an owner or user.

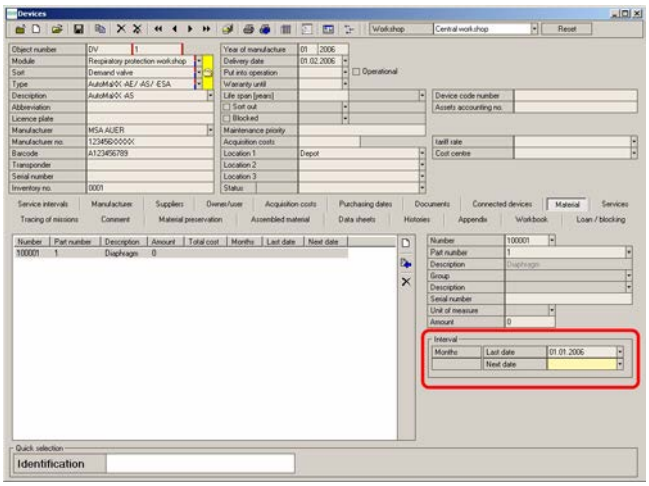


Fig. 73 Menu: Technical Services – Data card devices material

Data Card Inventory Management

Material is automatically added based on the model connection made in Article Administration.

(1) Proceed as for *Intervals* [→ Fig. 68].

(2) Select the material and then enter the last replacement date on the right-hand side.

To allocate/connect new material → chapter 7.7.

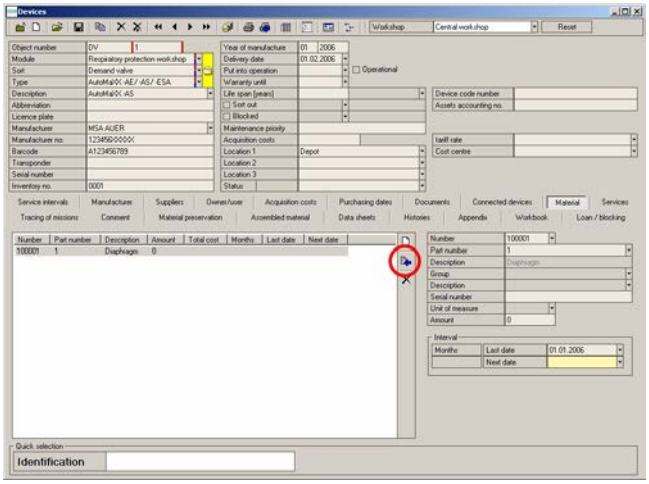


Fig. 74 Menu: Technical Services – Accept information

(3) Accept the information with the blue arrow in the left-hand table.

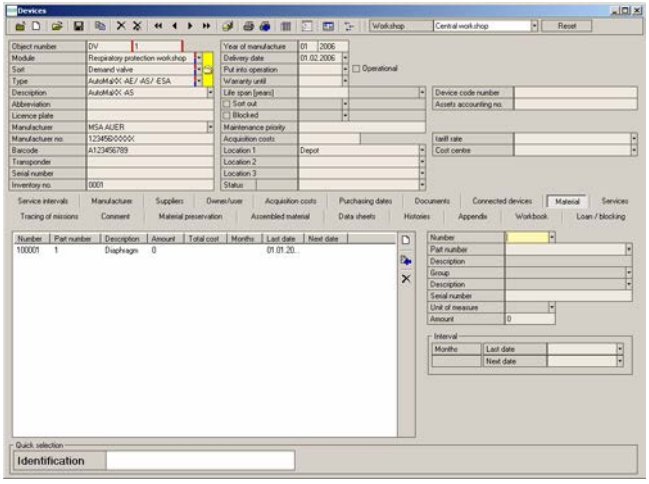


Fig. 75 Menu: Technical Services – Save information

(4) Save the information by clicking on the floppy disk symbol.

(5) In order to enter other devices proceed as described above.

Related Devices

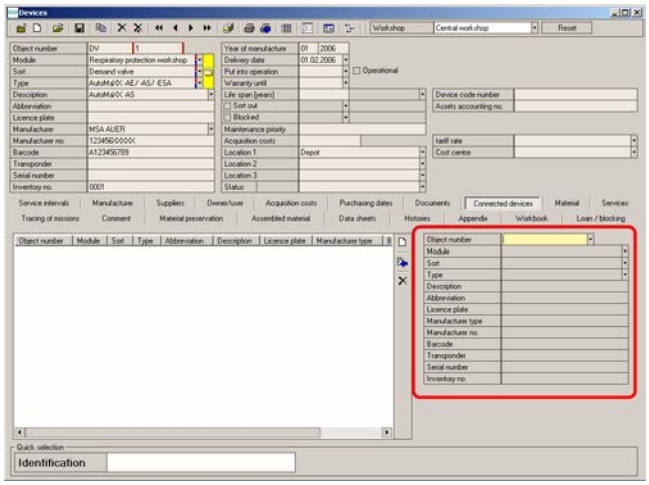


Fig. 76 Menu: Related devices - data card devices

Data Card Devices
Connected Devices

If devices which are permanently related to each other should also be tested as one device it is possible to connect these devices using the data card "connected devices". Devices can be related to each other here, the application then automatically selects the connected device for testing if the other is scanned/selected for a test.

(1) To achieve this, go to the *Object number* field and enter the following information of the device to be linked:
- ▷ object number
- ▷ bar code /transponder number [scan possible]

(2) After entering the information press *Enter* to select the device.

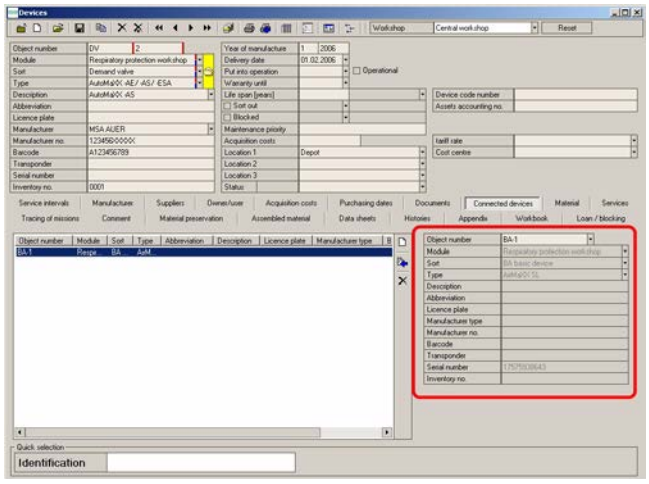
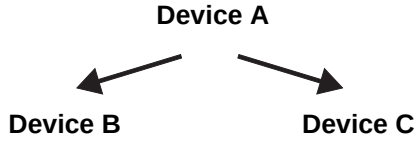


Fig. 77 Menu: Related devices - connected devices

After intermediate saving, the connected device can be seen on the left-hand side.

When connecting devices, ensure that a main device [e.g. compressed air breathing apparatus] is established and that the connections are created from this main device. Only from this main device the connection to all connected devices can be traced and changed for the other devices automatically.

Example:



Devices are only tested together if the main device is requested for testing.

7.6 Type Settings

Modifying Type Settings

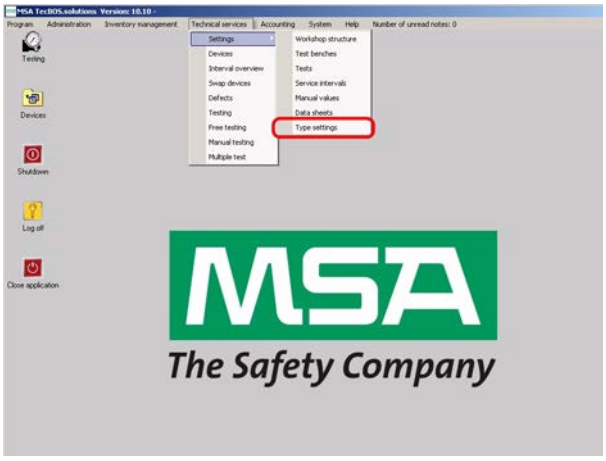


Fig. 78 Menu: Technical Services – Settings – Type Settings

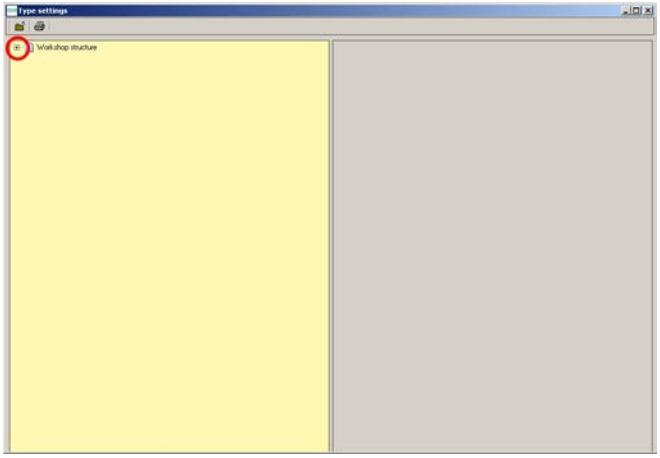


Fig. 79 Menu: Technical Service - Settings - Type Settings – Directory tree

By clicking on the **+** symbol the next level opens.

The directory tree which is opening is subdivided into:

- Module
  [e.g. respiratory protection workshop]
- Sort
  [e.g. lung governed demand valve]
- Type [e.g. AutoMaXX AE – AS]

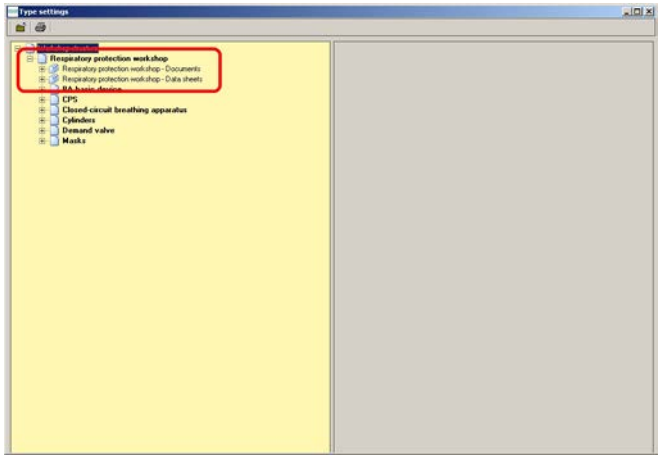


Fig. 80 Menu: Technical Services – Settings – File

The file is valid for the entire Respiratory Protection Group. The additional description [e.g. respiratory protection workshop - Documents] refers to the groups / type allocation.

Documents:

- For incorporating text, PDF documents. Documents and drawings.

Data sheets:

- For creating own input masks [available from Tech.Professional]

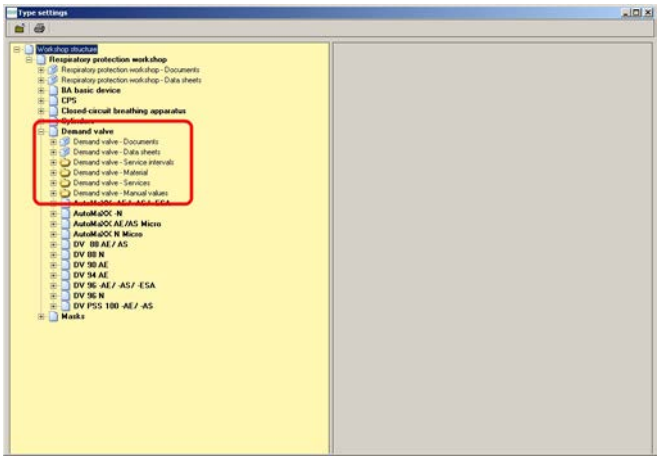


Fig. 81 Menu: Technical Services – Settings – Allocations

Specific allocations for a specific type. The allocations then have validity for all subordinate types.

- Documents
- Data sheets
- **Intervals** settings under path: *Technical Services – Settings –Intervals*
- **Material** settings under path: *Inventory Management - Item administration*
- **Services** settings under path: *Management - Service*
- **Manual values** under path: *Technical Services – Settings – Manual Values*

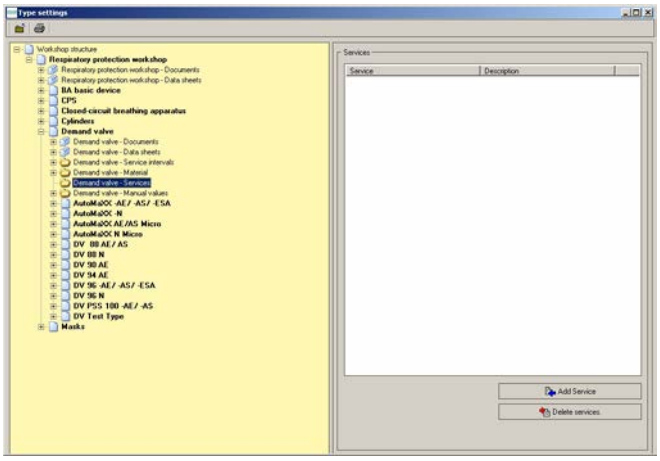


Fig. 82 Menu: Technical Services – Settings – Example

Example: allocate service for a type:

(1) Select the service for the desired type.

(2) Select the service to be added on the right-hand side.

Input of new services via path:

- *Administration - Services*

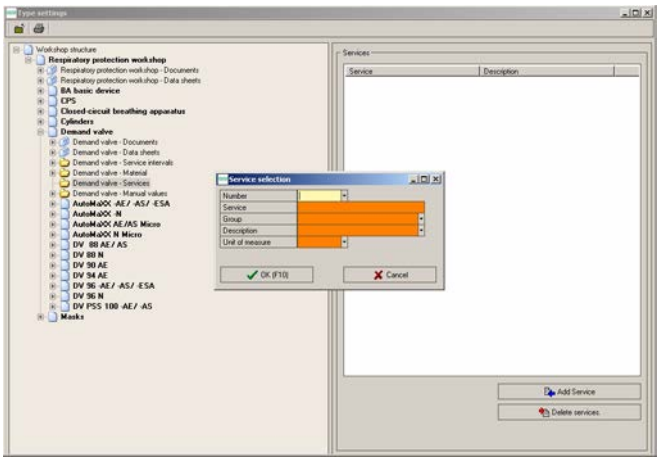


Fig. 83 Menu: Technical Services – Settings – Enter number

After clicking the add service button a selection window appears. In the selection window the user can directly select the required service.

(3) Enter a number or use F10/OK button to select a service from the opening selection list.

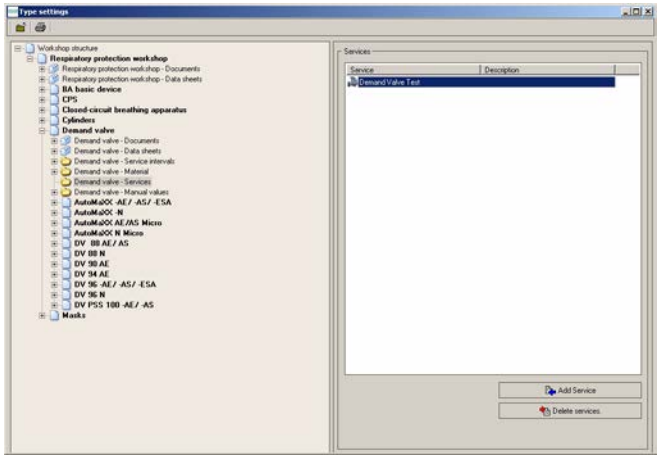


Fig. 84 Menu: Technical Services – Settings – Service

The service can now be seen on the right hand side.

This service can also be deleted by clicking and then selecting *Delete service*.

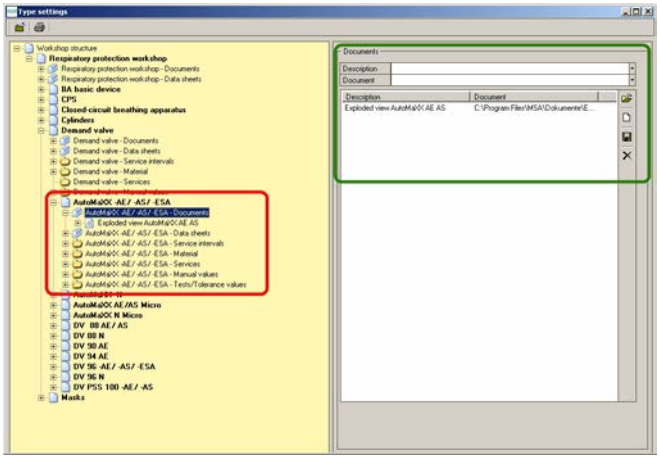


Fig. 85 Menu: Technical Services – Settings – Allocations models

The same allocation possibilities as for type also exist for models, the only difference being that here the allocations are only valid for these models.

Example: allocating documents for one model:

The prerequisite is that a document is filed on a saving medium, that a permanent access to this medium is available and that the computer can display the selected format, e.g. if a PDF document is selected Adobe Acrobat Reader should be installed.

(4) Select *Documents* under *Type*.

(5) Click on the downward arrow on the right side of *Document*.

(6) Select the document.

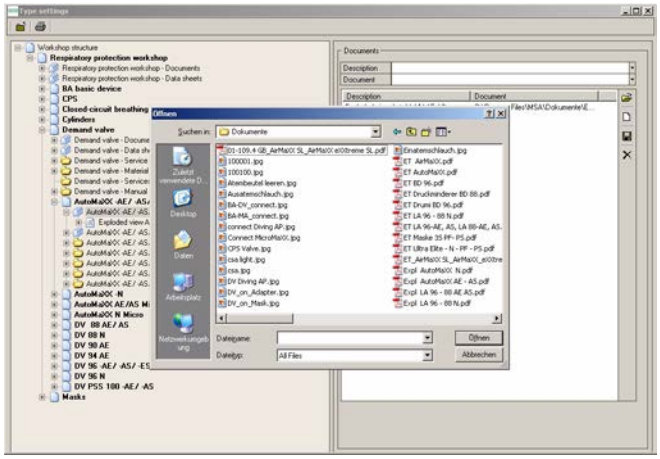
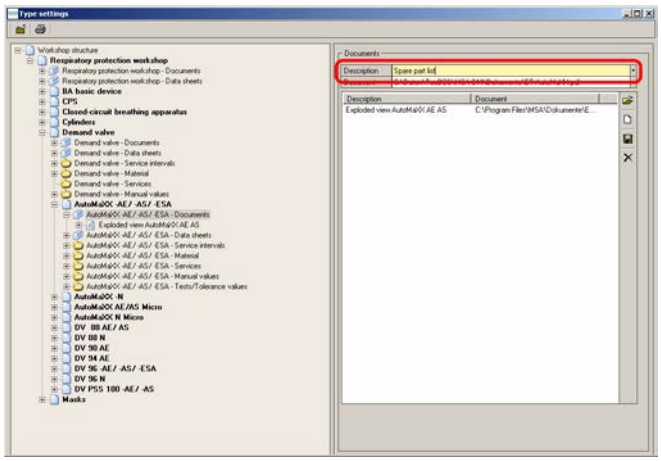


Fig. 86 Menu: Technical Services – Settings – Select document

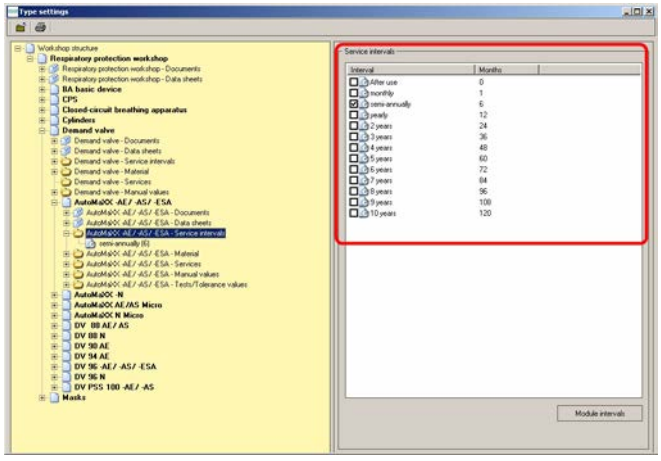


(7) Enter the name of the document under *Description*.

(8) Save by clicking on the floppy disk symbol on the right-hand side.

You can now add other documents, those documents can be viewed in the devices or the device selection using the document view button.

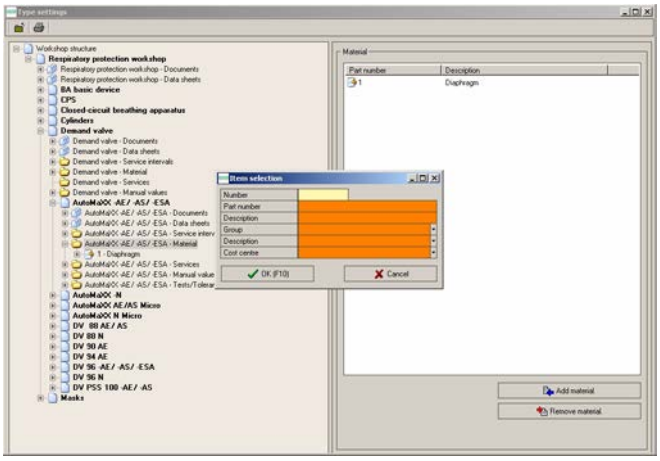
Fig. 87 Menu: Technical Services – Settings – Enter name



Intervals can be entered specific to type or models. Intervals can be added or removed by setting or removing a tick.

- Tick at type = interval for all models of this type
- Tick at model= interval only for this model

Fig. 88 Menu: Technical Services – Settings – Intervals



Example: allocating material for one model:

(1) Select the material for the desired model.

(2) Select on the right-hand side the material to be added.

(3) Enter a number or use F10 to select a material from the list which is opening.

Input of new material via path:

- *Inventory Management - Item administration*

Fig. 89 Menu: Technical Services – Settings – Allocations material

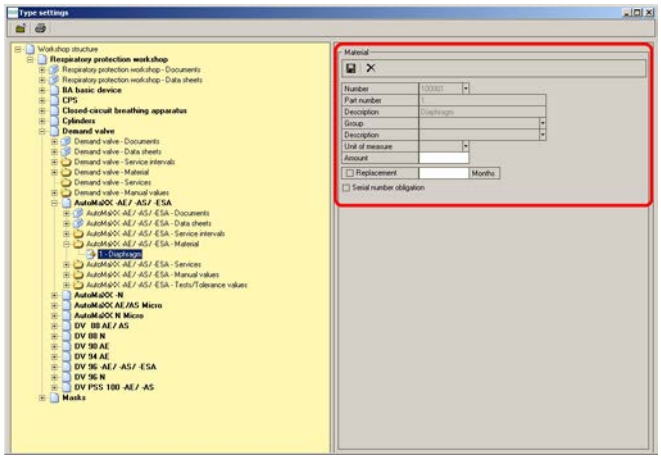


Fig. 90 Menu: Technical Services – Settings – Months/number

(4) Click on the material appearing in the directory tree and, if required, add the months for the next replacement as well as the required amount of spare parts for this article.

The monitoring of the interval starts with the next test following this change. Additionally it is possible to mark *Serial number obligation*. The software will then request a serial number when testing the device.

(5) Save the entry by clicking on the floppy disk symbol.

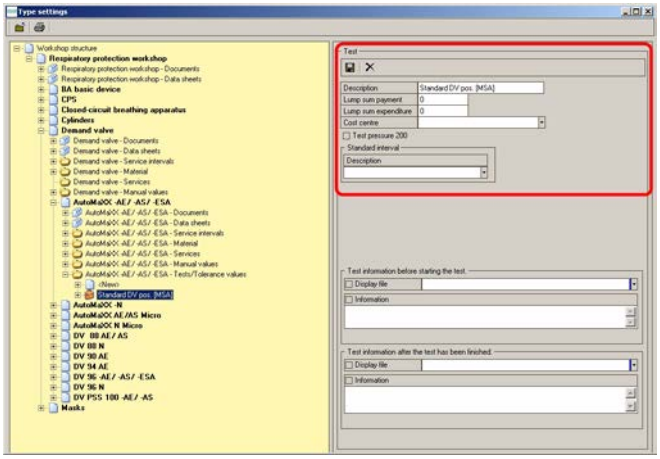


Fig. 91 Menu: Technical Services – Settings – Standard test

In the settings a standard test is available for each model.

This test is entered for each test bench.

The test process and the tolerance values for a device model are concealed behind the standard test.

(1) Enter test designation.

(2) Predetermine standard interval that will be marked in the device selection window after selecting the device if none of shown intervals is due.

To enter new tests: *Technical services - Settings - Tests*

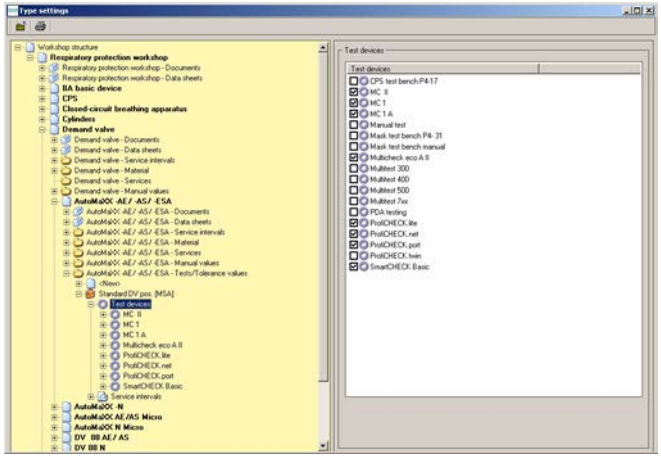


Fig. 92 Menu: Technical Services – Settings – Test Sequences

The matching test values for the specific test bench are entered.

(1) Click on the **+** before test process and then on test bench.

On the right-hand side you will now see for which device the test process has been set up.

(2) Click on the **+** before **Test bench**.

Only those test benches are shown which have been activated in the menu *Technical Services – Settings – Test Benches*.

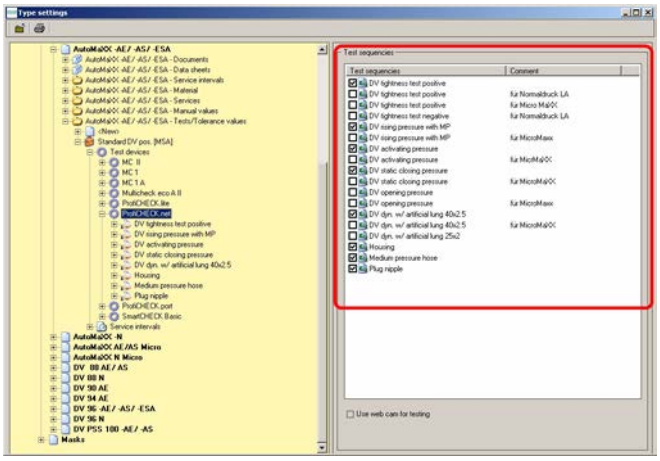


Fig. 93 Menu: Technical Services – Settings – Test Sequences

On the right you see now all connected test sequences for the selected test bench activated in the test bench module.

(3) To change one of the test values open the sequence by double clicking on it [located on the left side of the window below the test bench].

(4) Modify tolerance values by selecting a test and then modifying the values on the right-hand side.

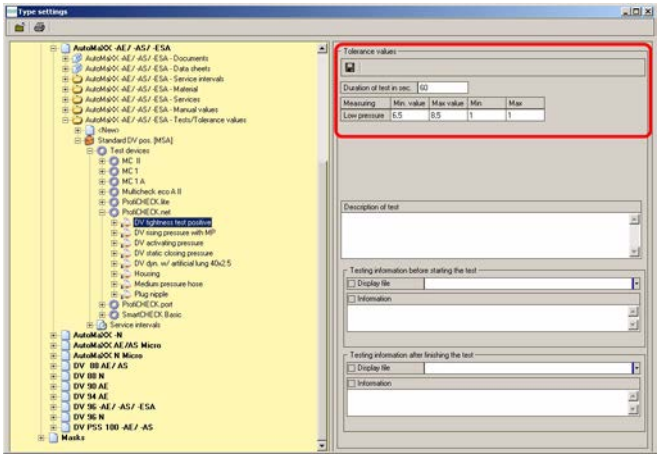


Fig. 94 Menu: Technical Services – Settings – Intervals directory

(5) Save the information by clicking on the floppy disk symbol.

Possible intervals:

- After use
- Half annually
- Annually
- Every 2 years
- Every 6 years

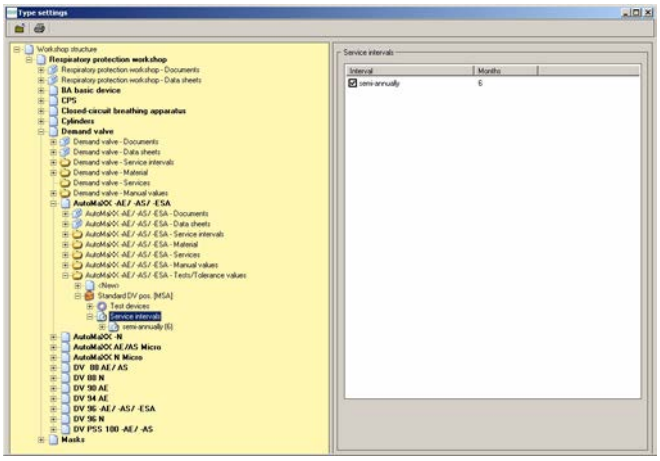


Fig. 95 Menu: Technical Services – Settings – Tolerance values

To enter new intervals: *Technical services - Settings - Service Intervals*

If a test is carried out after a certain interval at a certain date, all shorter intervals will also automatically be set to this date.

7.7 Creating New Types

Creation via Pool

The pool for respiratory protection devices is maintained by MSA. If it is required to add an additional type for implementing in the data pool, follow this instruction to enter the required device to your testing database.

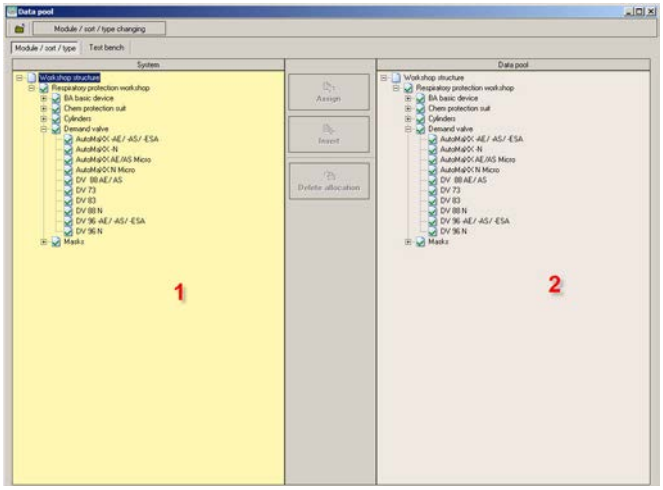


Fig. 96 Menu: System – Settings – Data Pool

After opening you see a split window with the already entered devices on the left and the available devices in the pool on the right:

To add a device model to your testing database:

(1) Select the model on the right-hand side and the device type on the left-hand side.

▷ The insert button in the middle is then activated.

After clicking on this button the device model is available on the left-hand list and you can use this device model in your device database.

(2) Check the values entered under *Settings – Type Settings* and make sure that all required tests are available and the added values are correct.

Creation without pool

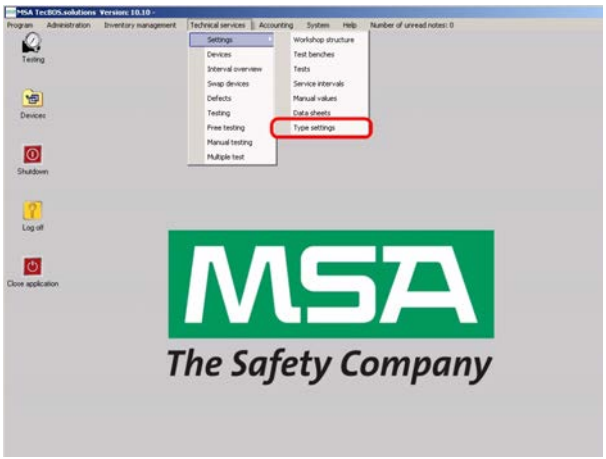


Fig. 97 Menu: Technical Services – Settings – Type Settings

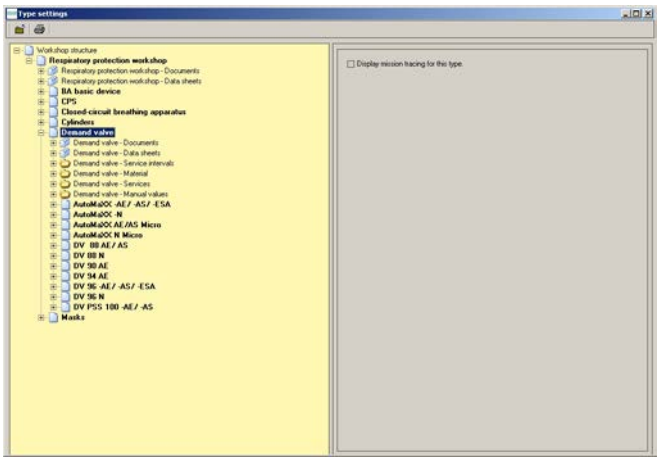


Fig. 98 Menu: Technical Services – Settings – Select device model

(1) Open the directory tree.

(2) Select a device sort.

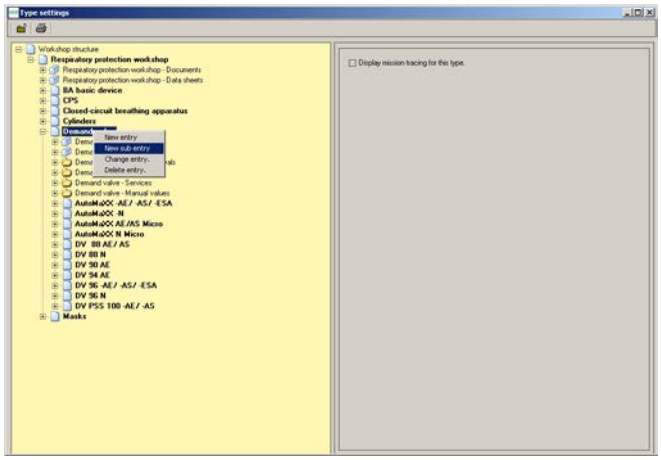


Fig. 99 Menu: Technical Services – Settings – New subentry

(3) Press the right mouse button and then go to *New sub entry*.

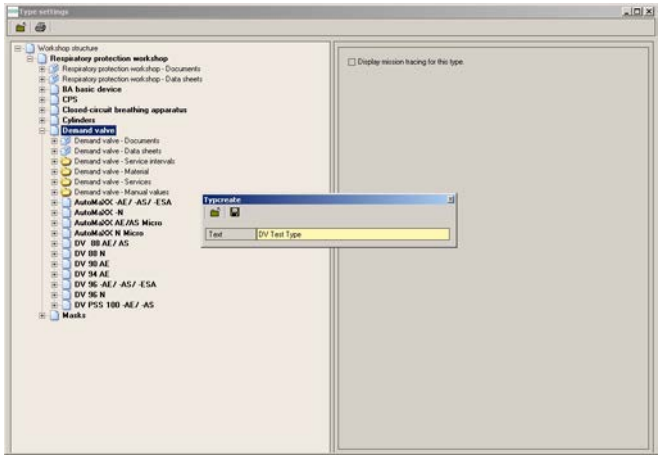


Fig. 100 Menu: Technical Services – Settings – Model designation

(4) Enter the model designation and save the entry.

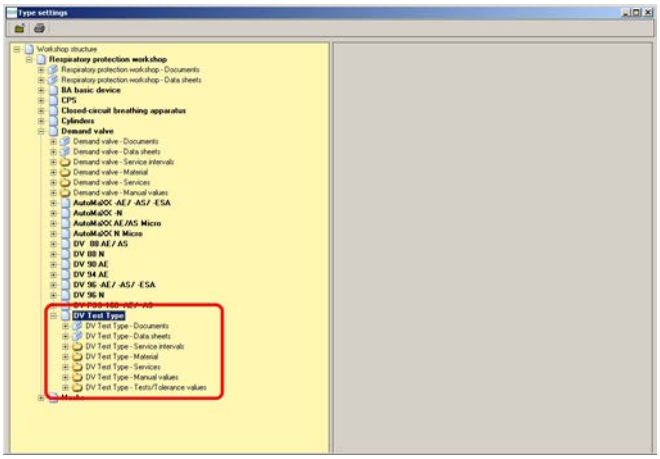


Fig. 101 Menu: Technical Services – Settings – Enter required data

(5) Enter the possibly required data

- Documents
- Services
- Material
- Manual values

as when modifying the type settings as described in chapter 7.7.

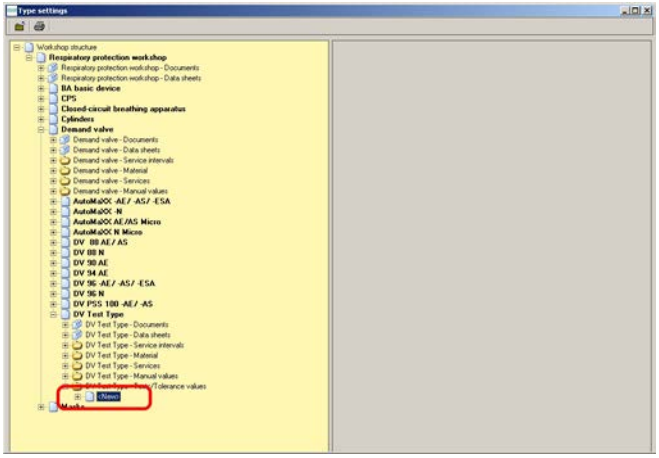


Fig. 102 Menu: Technical Services – Settings – Set values manually

All test sequences can now be set up manually.
Or:

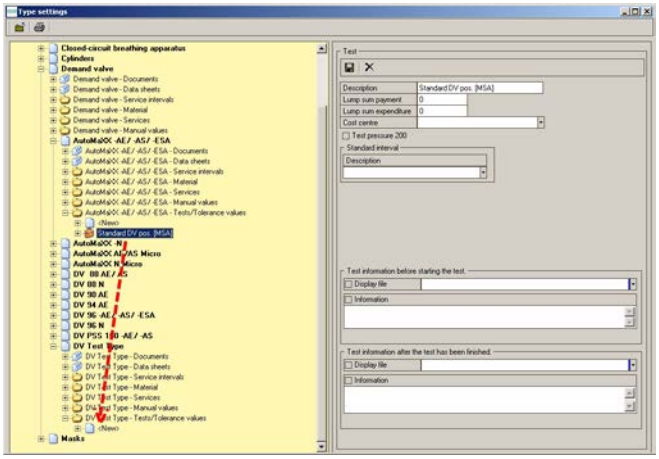


Fig. 103 Menu: Technical Services – Settings – Copy test process

- Copy the test procedure using drag and drop.

To copy a test process from another device that is tested similarly:

(1) Select a test process of a model of the same type, press and hold the left mouse button and drag the test process

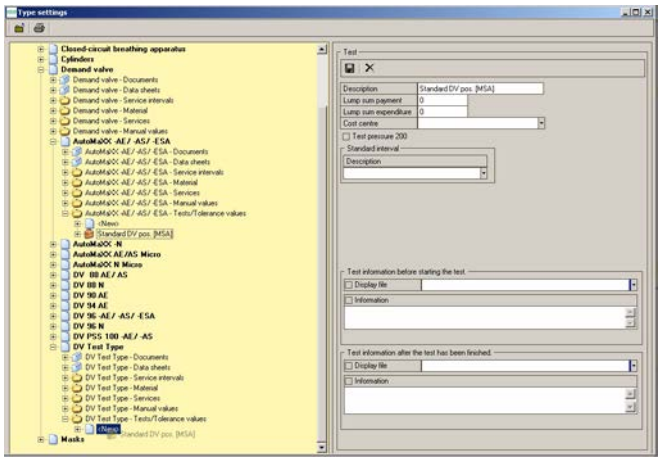


Fig. 104 Menu: Technical Services – Settings – Newly created models

to the entry "New" of the newly added types under Tests/tolerance values and release the mouse button.

Fig. 105 Menu: Technical Services – Settings – Confirm

(2) Confirm the appearing message with Yes, and the complete test procedure will be copied to the new created type.

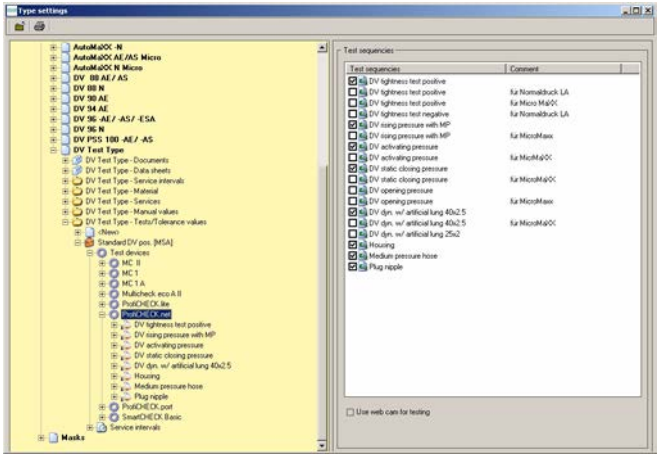


Fig. 106 Menu: Technical Services – Settings – Check test

(3) Check the individual test procedures

and

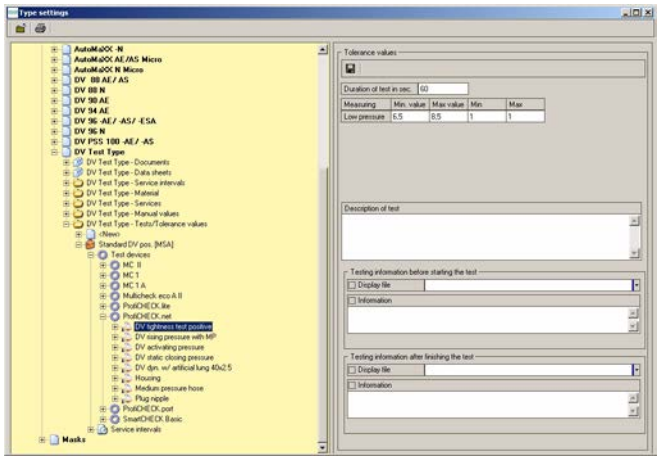


Fig. 107 Menu: Technical Services – Settings – Check tolerance values

the tolerance values connected in combination with the device test value card.

7.8 Open Saved Tests of Devices

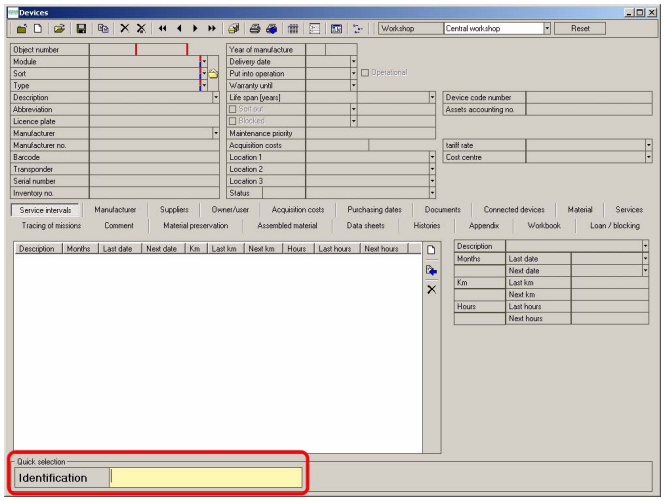


Fig. 108 Selecting device

Saved test results can be viewed.

(1) Double-click on icon *Devices* or use path Technical Services – Devices.

(2) Use the identification field to select a device [→ chapter 6.1].

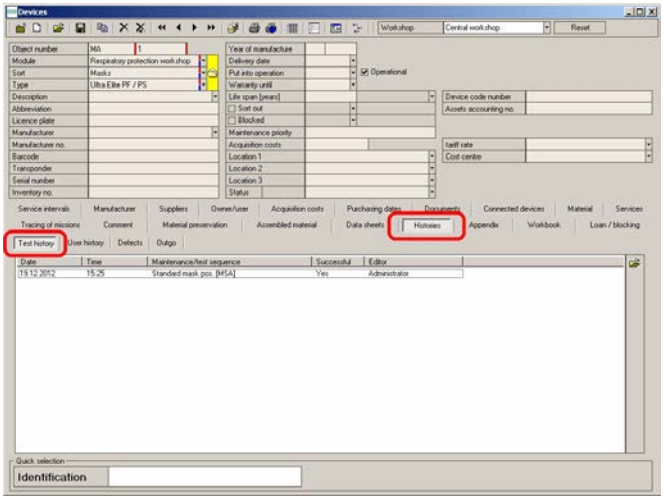


Fig. 109 Selecting test

(1) Click on *Histories*.

(2) Click on *Test history*.

(3) Double-click on the test to be retrieved.

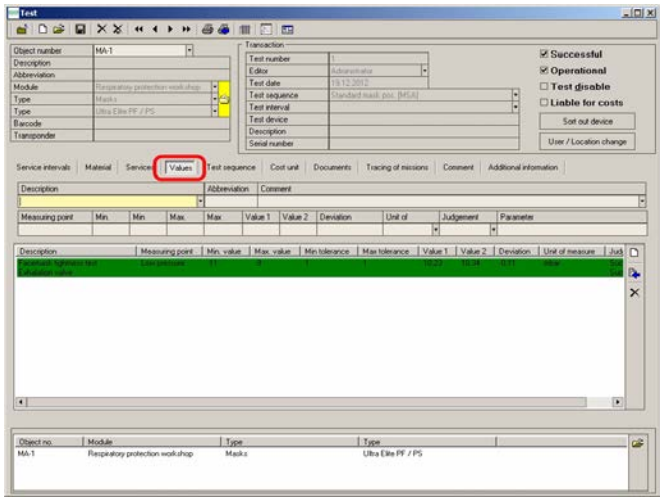


Fig. 110 Opened test

(4) Click on *Values*.

The test can now be viewed.

7.9 Print

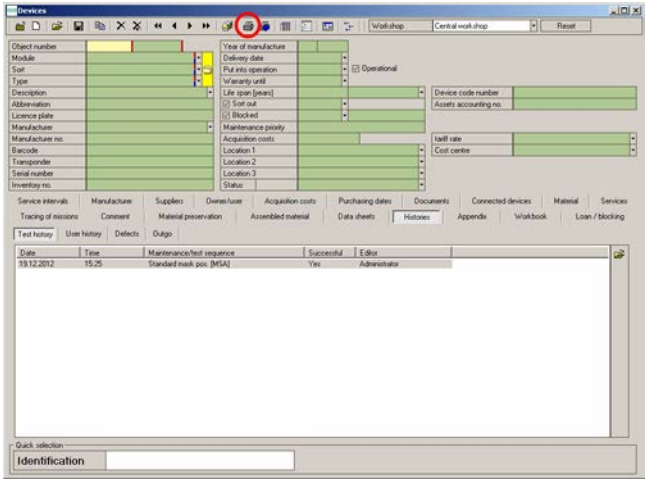


Fig. 111 Printer Symbol

There are two possibilities for printing information.

Printing various data:

(1) Click on the printer symbol.

▷ All fields turn green.

(2) Enter a search criterion in one of the green fields and then click on the printer symbol again.

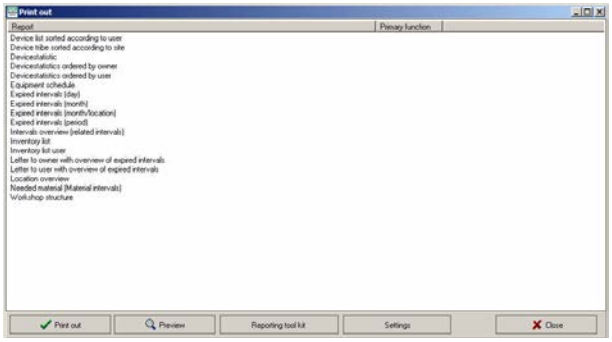


Fig. 112 Report selection

(3) Select the corresponding report from the list using the buttons at the bottom of the window.

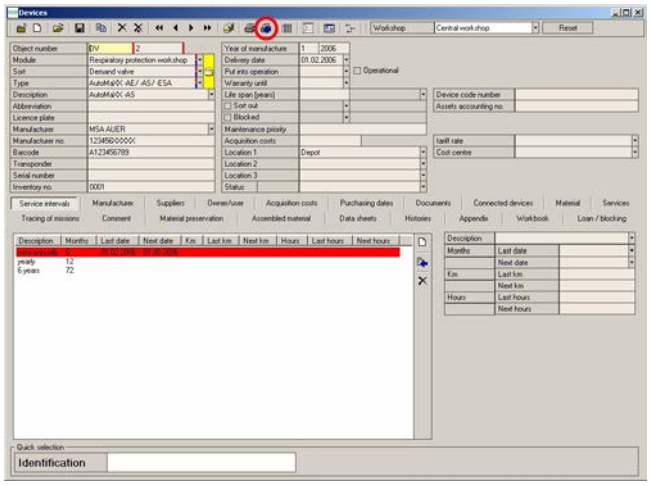


Fig. 113 Printer symbol with arrow

or, if you have already requested a data set and wish to obtain a print-out:

(4) Click once on the printer symbol with the blue arrow.

You now obtain the same list as illustrated above, to select the print out report. The selected print out will only show the information of the requested data set.

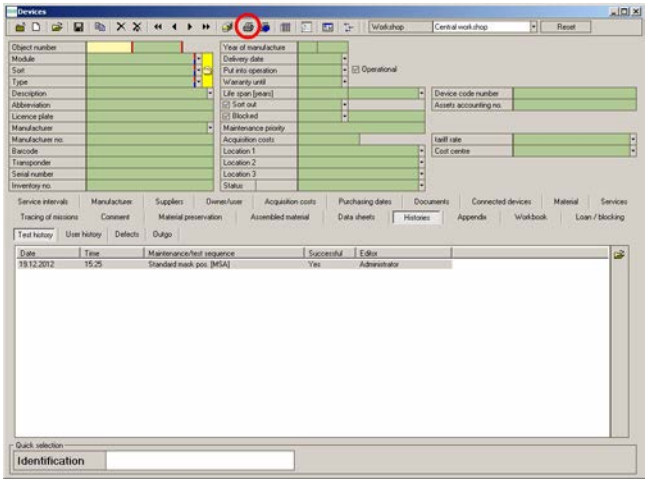


Fig. 114 Searchable fields

All reports allow a data selection, follow the same selection arguments as described to open change datasets in chapter 3.5. All fields highlighted green can be used for searching.

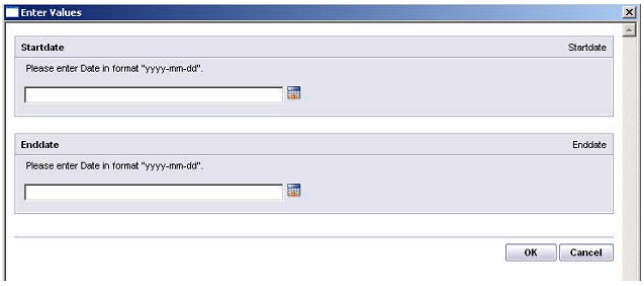


Fig. 115 Other reports

Other reports request a new input mask.

(1) Click on *Start date* and enter the desired date at Discrete Value.

(2) Do the same for *End date*.

(3) Confirm the entry with OK.

▷ The report is now printed out.

The explained printing functionality is available for all other modules that provide the two printer symbols in their symbol menu.

8 Maintenance and Cleaning

Attention!

Before carrying out maintenance work, depressurise the test bench and unplug the power cable from the electrical outlet.

8.1 Test Bench

Check the filters of the fans [→ fig. 1] every three months. The filters should only be lightly soiled.

- Replace damaged filters.

Cleaning the filters

(1) Remove the filter casings by pulling them off.

(2) Take out the fleece filters.

(3) Clean the fleece filters under running water.

(4) Let the fleece filters dry completely.

(5) Put the filters back into the casings and clip the casings to the test bench.

8.2 Test Head

In order to protect the test head from premature ageing protect test head against sun radiation with the protective hood supplied.

In case it is not in use, keep the test head covered.

When necessary, not more often than every three months, apply the provided silicone oil **sparingly** on the test head [→ chapter 10.7] and leave it on overnight [uncovered]. If necessary, remove any excess oil the next day.

Attention!

Overuse of silicone oil damages the test head.

8.3 Touch Screen

Attention!

Before cleaning the touch screen, unplug the power cable from the electrical outlet.

(1) Clean the touch screen only with the provided microfibre cloth or special screen-cleaning tissue.

(2) To clean the touch screen, lightly dampen the cloth with water. If possible, use a solution suitable for the antistatic coating.

▷ Handle the touch screen with care as surfaces can scratch and show scuff marks.

Attention!

Do not use benzene, thinner, ammonia, abrasive cleaners, or compressed air.

Avoid using detergent of any kind as some detergents leave a milky film on the surfaces.

Do not allow water or other liquids to spill on or into the test bench.

8.4 Pressure Gauge Camera

The pressure gauge camera is located behind a window. Clean this window similar to the touch screen.

8.5 High Pressure Lines

In case of damage to the high pressure lines from heat, chemicals, mechanical impact or similar that can be detected, the test bench must be taken out of service and the components concerned must be replaced without delay by an authorised service centre.

8.6 Annual Calibration

Only use a calibrated test bench. MSA recommends one annual calibration.

9 Technical Data

The technical data can vary, depending on the test bench configuration. Below three exemplary configurations are listed.

9.1 SmartCHECK - Basic Version

Measurements without test head [L x W x H]	Ca. 600 x 370 x 250 mm
Measurements with test head [L x W x H]	Ca. 600 x 370 x 470 mm
Weight test bench	Ca. 23 kg
Operating temperature range	+5 °C - +60 °C
Operating humidity range	Between 15 % and 80 %
Operating voltage range	110V - 240V AC 50/60Hz
Fuses	2 A
Air supply requirements	Breathable air [min. EN 12021 or USCGA grade D]
Medium pressure	6 - 10 bar

9.2 SmartCHECK - Modules (with Lung and Standard High Pressure)

Measurements [L x W x H]	Ca. 720 x 600 x 250 mm
Weight test bench	Ca. 46 kg
Operating temperature range	+5 °C - +60 °C
Operating humidity range	Between 15 % and 80 %
Operating voltage range	110V - 240V AC 50/60Hz
Fuses	2 A
Air supply requirements	Breathable air [min. EN 12021 or USCGA grade D]
Medium pressure	6 - 10 bar
High pressure	300 - 315 bar

9.3 SmartCHECK - Modules (with Lung and Adjustable High Pressure)

Measurements [L x W x H]	Ca. 720 x 600 x 250 mm
Weight test bench	Ca. 50 kg
Operating temperature range	+5 °C - +60 °C
Operating humidity range	Between 15 % and 80 %
Operating voltage range	110V - 240V AC 50/60Hz
Fuses	2 A
Air supply requirements	Breathable air [min. EN 12021 or USCGA grade D]
Medium pressure	6 - 10 bar
High pressure	300 - 315 bar

10 Ordering Information

10.1 Required for putting into service first-time

Description	Part No.
Shut-off valve 300 bar, SmartCHECK	10144939
High pressure supply line	10096973
Test equipment HP Hose Cylinder connection	10099265
Fitting hose 8S/8L, test equipment	10144991
Straight reduction 08L/08S, SmartCHECK	10146804
Elbow socket 08S, SmartCHECK	10146805
Power supply cable EU/CE, test equipment	10144984
Power supply cable UK, test equipment	10145003
Power supply cable US, test equipment	10145004
Power supply cable AU, test equipment	10145005
Power supply cable CN, test equipment	10144983
Gasket 5 pcs, test adaptor, SmartCHECK	10145936
High pressure supply hose, SmartCHECK	10146803
Log-on cards, starter set, SmartCHECK	10144987
TecBOS.Tech standard initial license	10126009
TecBOS.Tech Professional initial license	10126010
TecBOS.Tech Premium initial license	10126021
TecBOS.Tech standard subsequent license	10126022
TecBOS.Tech Professional subsequent license	10126023
TecBOS.Tech Premium subsequent licence	10126024
TecBOS.Tech Mobile Working	10126025

10.2 Test Adapters for Testing of Masks

Description		Part No.
Plug Screw, Thread Rd 40 [negative pressure masks with round thread]		D2055754
Plug Screw, M 45x3 [positive pressure masks with M 45 x 3 thread]		D2055755

Description		Part No.
Adapter, Plug, Mask Leak Test, LGDV 88, 96 AS [positive pressure masks with quick connect]		D5175524
Adapter, Mask Leak Test, PS-MaXX [positive pressure masks with AutoMaXX quick connect]		10035659
Ultra Elite Sealing cap [for sealing the exhalation valve of Ultra Elite masks]		D2056703
3S Test cap, assembly [for sealing the exhalation valve of the positive pressure 3 S mask]		D4074895
Exhalation Valve Closure [for sealing the exhalation valve of the negative pressure 3 S mask]		D5135039-SP
Exhalation Valve Closure 3S/CPS, Spare (for sealing the exhalation valve of the negative pressure 3 S mask)		D5135047-SP

Description	Part No.
Exhalation Valve Closure 3S/CPS, Spare [for sealing the exhalation valve of the negative pressure 3 S mask] 	D513504-SP
Exhalation Valve Closure, Advantage 3000 [for sealing the exhalation valve of Advantage 3000 masks]	10039031
Adapter, tightness tester, Advantage 1000	10017835
Mask Sealing 3S-R [with 5/16 central thread] 	10108442
Mask Sealing 3S-R-GUS [with M 8 central thread] 	10108420
Air Elite Mask Seal Plug 	10108176
BG 4 Mask Seal Plug	10108178
Adapter, DWplug, mask leaktest [positive pressure masks with Dräger quick connect]	D5175525
Adapter, ISplug, mask leaktest [positive pressure masks with Interspiro quick connect]	D5175526
Holder for MHC masks, complete	10108526

10.3 Test Adapters for Testing of Lung Governed Demand Valves

Description		Part No.
LGDV test adapter RD40, SmartCHECK		10144996
LGDV test adapter M45x3, SmartCHECK		10144998
Test Adapter LGDV 88, 96 AS, SmartCHECK		10145001
LGDV Test Adapter ESA, SmartCHECK		10145000
Test LGDV AutoMaXX AS, SmartCHECK		10145002

10.4 Test Adapters for Testing of SCBA

Description		Part No.
High Pressure Test Line SCBA SmartCHECK		10144992
SCBA test adapter 200 bar, SmartCHECK		10144993
SCBA test adapter 300 bar, SmartCHECK		10144994
Medium pressure extension line 1,5 m		D4066815
Medium pressure extension hose 0,5m		10046165
Test Adapter, AirGo Compact		10103503
BD Compact Test adapter		10029681
Test adapter-Kit MicroMaXX		10056761

10.5 Test Adapters for Testing of Chemical Protective Suits

Description	Part No.
CPS Leak Test Accessory [with safety valve] 	10108449
CPS Valve Leak Test Accessory 	10108450

10.6 Test adapters for Testing of Closed Circuit Breathing Apparatus

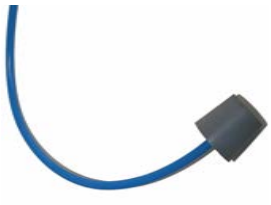
Description	Part No.
AirElite Leak Test Accessories [complete set in a case] 	10108185
AirElite Valve Leaktest Adapt [part of 10108185]	10108187
Air Elite Leak Test Adapter [connects test head with Air Elite quick connect, part of 10108185] 	10108186
BG 4 Leak Test Adapter [connects test head with BG 4 quick connect]	10108177

10.7 Accessories

Within Scope of Delivery

Description	Part No.
Microfibre cloth 40 x 40 cm SmartCHECK	10109451
Silicon oil/bottle 100 ml	10115053
Touchpen	10115112
Protective Hood for Test Head	10115131

Not Within Scope of Delivery

Description	Part No.
LP-Leaktest Access. Eye-Mouth 	10108271
Log-In card User [10 pcs] 	10115071
Log-In card Admin [5 pcs] 	10115093
Printer for Test Equipment	10045962
TFT-Monitor 17" for Test Equipment	10055641
TFT-Monitor 19" for Test Equipment	10093491-SP
Handheld bar code reader	10047444
XCVR:IR, IRDA, PC-JETEYE [jet eye RS 232]	655505
PA 37, DA 300-2 Test gauge, assembly (test gauge for 200 bar cylinders)	D4065902
Test gauge (cylinder press. - 400bar) (test gauge for 300 bar cylinders)	D4080929
Tool for push to connect Adapters	10035756
Barcode Labels for using inside [masks] or outside [SCBA or cylinders] 100 pieces 	
Barcode Labels – outside	10025420
Barcode Labels – inside	10025422
TecBOS.Tech Mod. Read/Write transponder	10115231
Tool, Valve Exchange masks and suits	D2055038

10.8 Spare Parts

Description	Part No.
Dust filter, Pkg 2pcs, spare 	10093710
Transponder antenna, spare	10088332 -SP

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