

# Resato

HIGH PRESSURE TECHNOLOGY



## WORKSHOP TEST UNITS, TYPE HPU

For hydraulic and gas pressurization  
With ergonomic operating panel  
Robust modular design with numerous options  
Low noise level

## INTRODUCTION

Wherever high-pressure hydraulic or gas is required, a Resato workshop test unit, type HPU will provide it. By making a selection from the wide range of our air driven pumps and/or gas boosters, valves and fittings, we can build a workshop unit that is fully according to your specifications.

The Resato workshop test unit is specially designed to pressurize valves, relief valves, safety valves, hoses, piping systems, heat exchangers, completions, well head components etc. For quick testing, use a Resato high-flow low-pressure air-driven pump in combination with a Resato high-pressure low-flow air-driven pump. If you use pressurized gases as the test medium, use one of Resato's many types of single-acting, double-acting or two-stage air-driven gas boosters for pressurization. Combined systems with both air-driven pumps and gas boosters are also a possibility.

Resato pumps are standard suitable for a wide range of fluids. Examples of fluids that can be used are water, oil, water and oil emulsions, diesel, petrol, methanol, ethanol and glycol. Please contact Resato if you need resistance figures. Our gas boosters are also suitable for a wide range of gases like compressed air, nitrogen, hydrogen, argon, helium. In addition, Resato has wide experience and expertise in the use of oxygen. Resato gas boosters that are suitable for oxygen also fit in the workshop test unit.

Apart from use as a pressure testing device, the Resato workshop test unit, type HPU can also be used as a filling system and for hydroforming purposes. Wherever high pressure is needed, the Resato workshop unit will provide it, irrespective of whether fluids, gases or both have to be pressurized.

## OPERATION

The standard workshop unit is manually operated; however, it is also possible to use a process controller with touch panel, for automatic pressure cycle performance.

### Manual operation

Output pressure control is achieved by regulating the air-supply pressure with the panel mounted air regulator(s). By regulating the air-drive pressure, the output pressure of the pump or gas booster will be achieved. The pump and booster will automatically stop as soon as the outlet pressure is reached, so no energy is required to maintain pressure. The workshop test unit can be fitted with a total of two pumps and/or gas boosters. The modular design of the unit allows us to build it according to your specific requirements. In addition, a wide range of options is available.

### Automatic operation

Apart from manual operation, you can also order a unit with automatic test cycle performance. In that case a process controller will be installed in the workshop unit. The operator can control the unit from the panel mounted touch panel. The software is developed in-house by Resato, which means that automatic pressure test cycles can be designed to your specifications. Of course our automatic workshop test units are user-friendly and reliable. Service and support by modem from our premises in Roden, Holland, are a possibility.



## WHERE TO USE THE RESATO WORKSHOP UNIT

The modular design of the unit makes it easy to build the Resato workshop unit according specific customers requirements. As a result Resato units are used in a wide variety of industries:

### Oil- and gas industry

In the oil and gas industry units can be delivered for e.g.:

- Pressure testing of piping, valves, completions, BOP
- Operation of BOP, MV, SSV
- Gas testing, water testing or hydraulic testing
- Pumping and pressurization of chemicals

### Hose manufacturers and distributors

The Resato workshop units can be used for pressure testing and flushing of hoses. They can be connected to your own test compartment. Resato also delivers test compartments that can be used in combination with the workshop test unit. For example, burst test compartments, Helium test compartments and "under water" test compartments can be supplied.

- Hydraulic pressure testing of hoses
- Gas pressure testing of hoses
- Under water testing of hoses
- Helium leakage testing

### Valve manufacturers and distributors

When used in combination with existing clamping systems, the Resato workshop unit can pressurize valves and relief valves. Resato also delivers clamping systems and mounting tables which can be placed next to the Resato workshop unit.

- Hydraulic pressure testing of valves
- Gas pressure testing on valves and relief valves
- Helium leakage testing
- Body testing as well as seat and setting pressure testing

### Heat exchanger manufacturers

Not only is the Resato workshop unit suitable for pressure testing of heat exchangers, but it can also be used for hydroforming purposes.

- Hydraulic testing of heat exchangers
- Gas pressure testing of heat exchangers
- Under water leakage testing of heat exchangers
- Hydroforming of heat exchangers

### Automotive and aerospace industry

In the automotive and aerospace industry the Resato workshop units are used for testing, filling and materials improvement.

- Hydraulic and gas pressure testing of components and/or hoses
- Gas filling systems (airbag and gas bottle filling)
- Autofrettage and hydroforming
- Common rail diesel testing systems

## FEATURES

### The Resato workshop test unit is characterized by:

- Ergonomic, safe and user-friendly design
- Low noise level
- Suitable for various test mediums such as tap water, oil, an emulsion of both and many other liquids and gases
- Modular and flexible design makes it possible to build a unit to your specific requirements
- Integration in your production process is a possibility
- All main components made by Resato
- Fully traceable materials for all high pressure parts and components

## TECHNICAL SPECIFICATION

### High-pressure pumps and boosters

The Resato high pressure pumps and boosters are controlled by a maximum of 7 bar compressed air or nitrogen. Because the air drive section offers unique air-controlled reciprocating movement, the pump is very quiet and reliable. This air drive section, with low friction and almost no stick-slip, offers very accurate pressure control.

The unique construction enables quick and easy replacement of seals. For that reason the Resato high-pressure pumps and boosters have won worldwide fame for reliability in a wide range of applications.

### High-pressure valves

Reliable operation and long life cycle are combined with ergonomic design by use of air-operated or manually operated Resato high-pressure needle valves.

### High-pressure fittings

Like the high-pressure pumps, boosters and valves, the high-pressure fittings are of our own manufacture. For reasons of safety, high-pressure fittings with metallic sealing and weep hole are used from 280 bar.

### Pressure gauges

The units are provided with pressure gauges with an accuracy of at least 1,0 % FS. Depending on the unit layout, gauges of 100 or 160 mm diameter are used. The gauges are standard fitted with laminated safety glass. All high pressure gauges are supplied with calibration certificates.

### Materials

All main components such as the high-pressure valves, tubing, fittings, gauges and wetted parts of the pump are made of corrosion-resistant high tensile strength stainless steel alloys.

Resato uses only fully traceable materials for all high-pressure parts and components.



Workshop test unit HPU for relief valve testing

## OPTIONS

### Circular pressure recorder

The Resato workshop unit can be provided with an optional circular pressure recorder with mechanical clockwork. These stainless steel recorders will be panel-mounted and are available in chart sizes of 163 and 223 mm. A wide range of chart revolutions is available, for example for 1/4, 1, 4, 8, 24 hrs.

### Computer Recorder

Instead of a circular pressure recorder, the unit can also be supplied with a PC data acquisition and recording system. Test results can be shown online on your own PC. The test unit is fitted with a digital readout for test pressure instead of readout via the test gauge. The computer recorder has a pressure transducer with an accuracy of 0,5% FS. Customer and object data can be imported and saved. Certificates can be printed on your own printer and can be saved on your computer.

### Engraved and colored flow chart

If the workshop unit is made according to your specific demands, you may prefer the use of an engraved and colored operating panel for the unit. In that case, both the flow chart and the operating instructions will be engraved and colored.

### Cover for the unit

The Resato workshop unit is standard supplied with uncovered operating panel. As an option a cover (with gas springs) for the unit can be ordered to protect the operating panel.

### Stainless steel tank

The workshop unit can either be connected to the water mains, or to an external reservoir. An integrated stainless steel tank of approximately 40 liters can be used.

### Stainless steel frame

The housing of the Resato workshop unit is standard made of grey and red powder-coated steel. As an option, the housing can be manufactured in stainless steel.

### Integration on demand

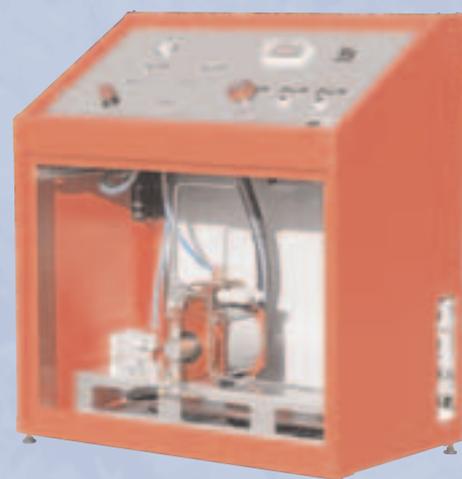
As the Resato workshop unit can be built to your specific demands, it is also possible to have us integrate the unit in your own production process.

## FAST OUTSTANDING SERVICE

Resato's forte is fast and efficient service. Fast because we manufacture most of the parts for the equipment we build. Consequently, we have all these parts in stock. Our service technicians are thoroughly trained in-house. If you decide to use a Resato test unit with computer process controller, we can offer worldwide service support by modem. This means that we can minimize down-time at your site, and at the lowest possible cost. In addition, you can count on both prompt reply to any request and speedy delivery of any spare part if a defect in Resato equipment should occur. We also offer a possibility to train your service personnel in servicing procedures for the main components of the unit.



Workshop test unit HPU for hydroforming



Workshop test unit HPU for hose testing

## EXAMPLES OF RESATO HIGH-PRESSURE COMPONENTS UP TO 14,000 BAR

Air-driven pumps and gas boosters

Hydraulically-driven pumps and gas boosters

Fittings

General-purpose valves

Check valves

Swivels

Hoses

Tubing

Pressure transducers

Rupture-disc safety devices

Quick connectors

## EXAMPLES OF RESATO HIGH-PRESSURE EQUIPMENT AND SYSTEMS

Portable pressure-test systems

Test equipment for hoses (safety) valves, fittings etc.

Computer-controlled high-pressure test equipment

Autofrettage systems

Autoclaves

Custom-made test equipment

Water-jet cutting systems

High-pressure food preservation systems

PC data acquisition and recording systems

## COMPANY PROFILE RESATO

Founded in 1985, Resato International BV is wholly specialized in the design and manufacture of high-pressure components and systems for pressures of up to 14,000 bar (200,000 psi).

At our modern manufacturing plant in Roden, The Netherlands, we have our own engineering and R&D departments as well as sophisticated production facilities. These enable us to furnish precisely the right component or system a client may need.



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