

VENTIL[⊕]

TEST BENCH MODEL: VC40-SRV

Technical specification



Universal test bench for Pressure Relief Valves
Range: ½ - 16" / DN15 - 400 mm.



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TESTING PRESSURE RELIEF VALVES

Acting as a 'last resort', Pressure Relief Valves are installed on process equipment to release excess pressure due to faulty process operations, external fires and other hazards. Or simply said; the Pressure Relief Valve serves to protect 'life and property'. Pressure Relief Valves should be given the right treatment and be correctly tested to ensure that they will fulfil this so important role when needed.

TEST BENCH VC40-SRV

The Ventil **VC40-SRV** is an universal and versatile test bench for pressure testing and setting of Pressure Relief Valves in the range ½ - 16" / DN15 - 400 mm. Main features and unique characteristics of this test bench;

- ⊕ Gas and liquid testing of all kinds of Pressure Relief Valves with flange and thread connections, according to all common international test standards, such as; API 526, API 527, ANSI / API RP 576.
- ⊕ Design and configuration based on many years of experience in valve testing and repair.
- ⊕ Fully built in-house, only first class components are used.
- ⊕ Standard completed with the unique, fully integrated, Win 10 Ventil Computer Registration System.
- ⊕ Delivered ready for use, including all necessary safety features, globally used by numerous manufacturers, end-users and valve repairers.



Test systems		
Gas test system	0 - 300 bar / 4,350 psi.	Compressed air or Nitrogen gas
Liquid test system	0 - 300 bar / 4,350 psi.	Mixture of water with anti-corrosion inhibitor
Seat tightness test system	according to API 527	

Range and application		
VALVE SIZE		MAXIMUM GAS / LIQUID TEST PRESSURE*
Inch	mm	
½ - 4	15 - 100	300 bar / 4,350 psi
6	150	150 bar / 2,175 psi
8	200	100 bar / 1,450 psi
10	250	70 bar / 1,015 psi
12	300	45 bar / 650 psi
14	350	30 bar / 435 psi
16	400	25 bar / 360 psi

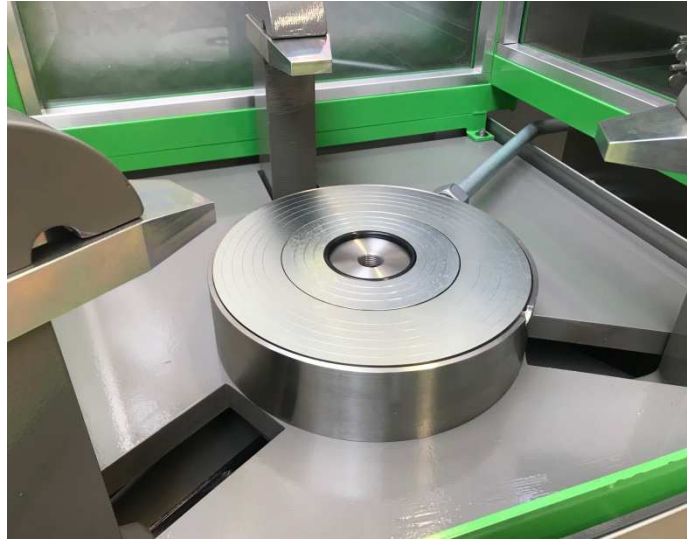
Test bench Control panel

Ergonomically designed, fully Stainless Steel Control panel with all parts and systems needed for easily and safely operating the clamping and test systems. Smart design has led to a minimum amount of operating components, allowing very easy, safe and intuitive operation and control. Just like the CRS test program, the Control panel will be completed with text plates in your native language.

3-Claw clamping system

The 40 ton strong 3-Claw clamping system enables quick and easy clamping of the complete range of valves. Pressure Relief Valves can be somewhat unstable and may need to be supported. Therefore the **VC40-SRV** clamping system works with a fixed clamping table and vertically moving claws.

After positioning of the valve on the Stainless Steel clamping table, the operator uses the hand lever to move the claws simultaneously to the center until they overlap the flange of the valve. The foot – operated switch is used to activate the hydraulic system and clamp the valve on the inlet flange.



- ⊕ 0 - 40 Metric ton, fully adjustable for all types, sizes and materials, range ½ - 16" / DN15 - 400 mm.
- ⊕ Suited for all flange types and valves with thread connections (see options for Male/Female adapters).
- ⊕ ¾" full bore test connection to the 4 liter test vessel to ensure sufficient dynamic lift reaction!
- ⊕ Exchangeable adapters for extending the range, clamping exotic types and protecting the main claws.
- ⊕ Stainless Steel test liquid reservoir / sump with filter.
- ⊕ Easy lever controlled centering system for simultaneously moving the claws from and to the center.

Easy clamping and sealing

The delivery includes a flat 'Vulcolan' rubber plate and a set of 11 pcs O-ring sealing plates (see picture above) for easy clamping of all Raised Face flanges ANSI Cl. 150 - 2500 / DIN PN2.5 - 500. The galvanized steel O-ring sealing plates are positioned and directly centered. Grooves help the operator with aligning of the valve. The O-ring plates give the highest level tightness for gas and liquid service. To enhance safety and prevent premature wear of the O-rings, the rings are stored in a bracket on the side of the control panel.

Seat leakage detection and measuring

The test bench is completed with a 'laser' bubble counter for easy and accurate testing / measuring of the gas seat leakage, according to the API 527 standard.

Included in the delivery is a spring loaded, rubber lined outlet adapter set for connecting the bubble counter to the outlet of the valve. The smart designed instrument automatically counts the bubbles and displays the leakage on the CRS screen. The found leakage is than automatically subjected to the allowable leakage, described in the applicable standard.



Safe design approach

With over 5000 test benches installed and a zero accident track record, we can conclude that we 'deliver safety'. A long, reliable, and most of all, safe working effect starts with a 'safe design approach'. During the design each part and system is subjected to a thorough risk assessments.

With the design of the **VC40-SRV** we consider the position and role of the operator and character of tests executed.

Good work - design and ergonomics helps to achieve reliable and consequent test results, while keeping the operator safe at work. The **VC40-SRV** is standard completed with;



- ⊕ Fully surrounding **safety enclosure** with 12 mm thick - bulletproof Polycarbonate screens and manually operated locking device.
- ⊕ **Kill switch** to ensure that the operator stays with the control panel while the pressure rises.
- ⊕ **Automatic safety interlock system** to prevent that the clamping force can be released while the valve is still under pressure.
- ⊕ **Flash light** on top of the control panel, automatically activated to warn personnel in the surrounding that a pressure test is in progress.

Computer Registration System

The fully integrated Windows 10 operated 'CRS', exists of a complete Win 10 PC system, a set of accurate - calibrated pressure transducers, A/D conversion unit and fully in-house developed test software.

Besides digital reading of the test data (pressure, time and leakage), the CRS system includes a variety of unique functions to help the operator with achieving accurate and reliable test results, for example; automatic verification of the found set pressure and leakage against the applicable ASME/API standards or a user defined tolerance.

- ⊕ Accurate digital reading of pressure, time and leakage.
- ⊕ Printing and automatically storing a complete test certificate, with a fully customized lay-out, showing company logo's, texts and in the preferred language.
- ⊕ CRS test program is available in a variety of languages or can be converted into your native language by using the text translation function.
- ⊕ Complete DELL PC system including fully integrated HP Deskjet color printer and industrial track ball.
- ⊕ 'Laser' bubble counter with validation function for accurate seat leakage detection/measuring.
- ⊕ Prepared for installation on your LAN network.
- ⊕ Need help, an upgrade or an additional function..? The Ventil IT service team is available for answering questions, remote access and support over internet, anytime, anywhere.



SPECIFICATION VC40-SRV

Range	½ - 16" / DN15 - 400 mm		
Test station operation	Hydraulic operated, from control panel		
Gas / air test system	300 bar / 4,350 psi		
Liquid (gas-over-liquid) test system	300 bar / 4,350 psi		
System	Accurate regulator with two SS needle valves, 4L test vessel (accumulator)		
Digital reading	CRS computer system with valve test software		
Computer hardware	Desktop PC, Windows 10 Pro, industrial trackball at control panel		
Pressure Gauge Ø160 mm / 6.2"	0 - 400 bar / 5,800 psi, cl 0.6	0 – 6,000 psi	
Digital pressure measurement	0 - 100 bar / 1,450 psi, 0.3% F.S.	0 – 1,500 psi 0.3% F.S.	
	0 - 400 bar / 5,800 psi, 0.3% F.S.	0 – 6,000 psi 0.3% F.S.	
Laser bubble counter	0 - 50 bubbles per minute (connected to CRS)		
Test procedures according to common test standards	Set Pressure testing with gas and liquid		
	Seat tightness testing according to API 527		
O-ring sealing plates	RF connection (DIN/ANSI) up to maximum pressure level 11 pcs. for ½ - 16" / DN15 - 400 mm.		
Universal, flat sealing plate	Vulcolan (rubber) for testing up to max 35 bar / 500 psi		
Clamping force (maximum)	40 Metric tons		
Height under the Claws	0 - 130 mm / 0 - 5"		
Flange outline diameter	Ø80 mm - 680 mm / 3 – 26.7"		
Clamping table diameter	Ø330 mm / 13" + Ø440 mm / 17"		
Clamping table material	Stainless Steel		
Safety features (standard)	Safety closure		
	Safety interlock embedded in the operating system		
	'Kill' switch (2-hand operation)		
	Flash light, connected to the high pressure test system(s)		
Dimensions / weight	2.6 x 1 x 2.1 meter - 1,250 kg (ca. 500 kg/m ²)		
	102 x 40 x 83 Inch - 2,450 lbs (ca. 1,100 lbs/m ²)		
Required connections	Electricity	220-240 V 50-60 Hz	110 V 60 Hz
	Utility air	7 bar / 100 psi	
	High pressure test gas	300 bar / 4,350 psi Nitrogen / Compressed air source (see options) Pressure level of the ext. source determines the maximum test pressure	
	Other requirements	Please advise, to possibly adapt to local standards / requirements	
Delivery	Ready for use		

Additional (optional) parts and systems

The Ventil **VC40-SRV** is delivered ready for use, including sealing plates, leak detection system and set of consumables. However, a variety of optional parts, systems and tools are available to increase the performance and efficiency for your specific range and application.

Please see the **VC40-SRV** options sheet with detailed description and feel free to contact us for assistance..!

OVERVIEW TEST BENCH VC40-SRV

