



KOWOTEST
Gesellschaft für Prüfausrüstung mbH

SUPPLIERS OF EQUIPMENT FOR INSPECTION

Product Specification



KOWOVAC V
KOWOVAC Ejector

Leak Test Systems

Vacuum Test Boxes

KOWOVAC V Leak Test Units and Vacuum Boxes

Units and accessories for vacuum leak testing

Generals about vacuum leak testing with KOWOVAC V

Model V vacuum leak testing systems allow a quick and safe leak test of welding seams in tanks, pipelines, and a lot other welding structures. Also, castings can be inspected for cracks and porosity, if going through complete wall thickness. The KOWOVAC V systems use the so called “bubble testing” method and allow testing according to EN 1593 and ASTM E515 .

Leak testing with KOWOVAC V systems is taken i.e. before a hydraulic pressure test. V systems can be also used instead of a hydraulic pressure test, if this can be taken only with high expenses or if i.e. a pressure test cannot give reliable result because of too thin wall thickness.

KOWOVAC V systems and vacuum boxes are especially used for leak testing in cases where structures are accessible only from one side (tank floors) or for testing of open structures (storage tanks).

With the KOWOVAC V used method of leak testing a foaming agent is sprayed onto the test area of a welding seam or a casting part. Especially suitable for such a foaming agent is the G-FLEX leak finder or Necal-solutions – soap water should not be used for this application.

After applying the foaming agent the test area is covered with a vacuum box, fitted to the geometry of the structure, which must be tested. This vacuum box is connected with a vacuum hose to the V unit. After opening the valve - which is automatically done by pressing the box onto the test area - the volume under the vacuum box is evacuated within a few seconds. If there is a defect within the vacuum box, a foam hat is built up quickly, because of the streaming in air through this defect. Leaks can be determined with this method easily.

Detection limits of this method under practical testing conditions are between 0.0001 and 0.001 mbar l / s. For safe detection of even small defects the vacuum underneath the box must be sustained for at least 30 seconds.

KOWOVAC V Units

For fast and safe evacuation of even big vacuum boxes through a long vacuum hose in KOWOVAC V units are used vacuum pumps with especially high suction power up to 16 m³/ h.

The complete KOWOVAC V leak testing unit, the vacuum pump with all necessary aggregates, are built into a sturdy stainless-steel frame.

The oil-free (dry running) vacuum pumps are maintenance friendly, because the impellers are made from highly wear resisting special coal.

KOWOVAC V units are robust and consequently designed for mobile construction-site use.

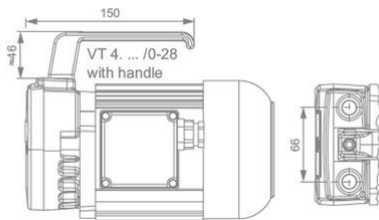
KOWOVAC V E.8 Leak Test Unit

60 70540

Economic, very light weight version for normal application, indoor only – for one operator.

Maintenance friendly, self-lubricating / oil-free vacuum pump with suction power of 8 m³/ h, built onto a stainless-steel panel with a carrying handle.

Complete with vacuum control valve, vacuum gauge, small dust-/ water separator, cable switch and power supply cable, 1,8 m long.



Suction power at 1000 mbar	8.0 m ³ / h (9.1 m ³ / h)
Pressure absolute, controllable to max.	150 mbar
Vacuum pressure	850 mbar
Electrical connection	230 V / 50 Hz (60 Hz)
Electrical power	0.35 kW (0.42 kW)
Dimensions (WxDxH)	300 x 200 x 200 mm (12.0 / 8.0 / 8.0 inches)
Weight	14 kg (31 lbs)

Illustration of vacuum pump only

KOWOVAC V 1.8 Leak Test Unit

60 70550

Standard, light weight version for normal application, outdoor – for one operator.

Maintenance friendly, self-lubricating / oil-free vacuum pump with suction power of 8 m³/ h, built into a solid, stainless steel tube frame with cable reel.

Complete with vacuum control valve, vacuum gauge, large dust-/ water separator, splash proof switch and oil-resistant power supply cable, 3 m long.



Suction power at 1000 mbar	8.0 m ³ / h (9.1 m ³ / h)
Pressure absolute, controllable to max.	150 mbar
Vacuum pressure	850 mbar
Electrical connection	230 V / 50 Hz (60 Hz)
Electrical power	0.35 kW (0.42 kW)
Dimensions (WxDxH)	370 x 310 x 320 mm (14.5 / 12.0 / 12.5 inches)
Weight	17 kg (38 lbs)

Illustration similar – smaller vacuum pump

KOWOVAC V 2.10 Leak Test Unit

60 70560

High power version for fast inspection, outdoor – for one operator.

Maintenance friendly, self-lubricating / oil-free vacuum pump with suction power of 10 m³/h, built into a solid stainless-steel tube frame with cable reel.

Complete with vacuum control valve, vacuum gauge, large dust-/ water separator, splash proof switch and oil-resistant power supply cable, 5 m long.



Suction power at 1000 mbar	10.0 m ³ /h (12.0 m ³ /h)
Pressure absolute, controllable to max.	150 mbar
Vacuum pressure	850 mbar
Electrical connection	230 V / 50 Hz (60 Hz)
Electrical power	0.37 kW (0.44 kW)
Dimensions (WxDxH)	480 x 360 x 310 mm (19.0 / 14.0 / 12.0 inches)
Weight	23 kg (50 lbs)

KOWOVAC V 2.16 Leak Test Unit

60 70570

High power version for fast inspection, outdoor – for two operators or Standard version for normal application - two operators.

Maintenance friendly, self-lubricating / oil-free vacuum pump with suction power of 16 m³/h, built into a solid stainless-steel tube frame with cable reel.

Complete with vacuum control valve, vacuum gauge, large dust-/ water separator, splash proof switch and oil-resistant power supply cable, 5 m long.



Suction power at 1000 mbar	16.0 m ³ /h (19.0 m ³ /h)
Pressure absolute, controllable to max.	150 mbar
Vacuum pressure	850 mbar
Electrical connection	230 V / 50 Hz (60 Hz)
Electrical power	0.55 kW (0.66 kW)
Dimensions (WxDxH)	480 x 360 x 310 mm (19.0 / 14.0 / 12.0 inches)
Weight	30 kg (66 lbs)

Illustration similar –larger vacuum pump

KOWOVAC Ejector Unit

For fast and safe evacuation of even big vacuum boxes through a long vacuum hose in KOWOVAC Ejector unit is used a highly efficient pneumatic ejector (Venturi principle) with especially high suction power of 12 m³ / h. The KOWOVAC Ejector is carried by the inspector with a harness at the left hip.

To the ejector runs the hose for compressed air and a vacuum hose runs down to the vacuum box.

Complete system is easily worn by the inspector and gives high mobility.

The ejector is nearly maintenance free and a large silencer reduces the noise of the out streaming compressed air at the back of the inspector.

For longer breaks between inspections compressed air can be switched off by the valve at the ejector.



Suction power at 5 bar operating pressure (compressed air from compressor)	12.9 m ³ / h (215 l/min)
Pressure absolute, max.	200 mbar
Vacuum pressure	800 mbar
Operating pressure (compressed air connection)	4 ... 6 bar
Air consumption (compressed air)	28.8 m ³ /h (480 l/min)
Dimensions (WxDxH)	280 x 80 x 110 mm (11 / 3 / 4 inches)
Weight	1.0 kg (2 lbs)
with harness and hoses	2.5 kg (5 lbs)

KOWOVAC Leak Testing System Accessories

Vacuum Hose ½"	60 70405
For connecting Vacuum Box with standard ½"-connection to KOWOVAC VSP units.	
Spiral-Vacuum Hose ½", steel in forced	60 70407
For connecting Vacuum Box with standard ½"-connection to KOWOVAC VSP units.	
Reducing Adapter ½" / 6 mm	60 70406
Necessary for connecting Vacuum Box with miniature vacuum valve (MINI type) to KOWOVAC VSP units. With short piece of hose Ø 6 mm (¼").	

G-FLEX Leak Test Solutions

G-FLEX solutions are highly recommended for leak testing with KOWOVAC systems. All G-FLEX products are tested and registered by the German DVGW according to DIN 30 657 and can be used for all test pieces and with all gases.

G-FLEX Leak Finder for all test purposes

Aerosol can, 400 ml, without CKW	60 00301
Cubitainer, 5 l	60 00303
Cubitainer, 10 l	60 00304
Applying can, with pump sprayer, 500 ml	60 25101

G-FLEX Leak Finder ice-proof for test purposes at temperatures down to -15°C

Aerosol can, 400 ml, without CKW	60 00121
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G-FLEX Leak Finder foam for special test purposes

Aerosol can, 400 ml, without CKW	60 00101
Better contrast on dark test pieces, better adhesion on vertical surfaces	

KOWOVAC Vacuum Boxes for testing 180° butt weld seams (Tank Floor)

Highly limp, flexible plastics is used for the approximately 100 mm (4 inches) wide, fracture secure inspection pane. For best sealing on nearly all surfaces the pane is edged with a gasket of a special soft rubber mixture. For evacuating the box a 360° rotatable vacuum valve with connection for the ½" vacuum hose is used. By pressing down the box onto the test piece at the handles – one handle is the vacuum valve – the valve is opened.

Vacuum boxes longer than 300 mm (12 inches) are fitted with an additional handle.

Vacuum Box MINI, butt weld seam, length 200 mm (8 inches)	60 70397
Vacuum Box MINI, butt weld seam, length 300 mm (12 inches)	60 70398
Vacuum Box MINI, butt weld seam, length 400 mm (16 inches)	60 70399
Vacuum Box, butt weld seam, length 500 mm (20 inches)	60 70401
Vacuum Box, butt weld seam, length 600 mm (24 inches)	60 70400
Vacuum Box, butt weld seam, length 750 mm (30 inches)	60 70402

Other dimensions or special types are available.



KOWOVAC Vacuum Boxes for testing lap fillet weld seams (Tank Floor)

Vacuum Box, lap fillet weld seam, for steps 3 to 9 mm, length 500 mm (20 inches)	60 70391
Vacuum Box, lap fillet weld seam, for steps 3 to 9 mm , length 600 mm (24 inches)	60 70393
Vacuum Box, lap fillet weld seam, for steps 3 to 9 mm , length 750 mm (30 inches)	60 70394
Vacuum Box, lap fillet weld seam, for steps 5 to 11 mm, length 500 mm (20 inches)	60 70387
Vacuum Box, lap fillet weld seam, for steps 5 to 11 mm , length 600 mm (24 inches)	60 70388
Vacuum Box, lap fillet weld seam, for steps 5 to 11 mm, length 750 mm (30 inches)	60 70389
Vacuum Box, lap fillet weld seam, for steps 7 to 13 mm, length 500 mm (20 inches)	60 70419
Vacuum Box, lap fillet weld seam, for steps 7 to 13 mm , length 600 mm (24 inches)	60 70421
Vacuum Box, lap fillet weld seam, for steps 7 to 13 mm, length 750 mm (30 inches)	60 70420

Other dimensions or special types are available.



KOWOVAC Vacuum Boxes for testing 90° fillet weld seams (Edges and Corners)

Highly limp, flexible plastics is used for the approximately 100 mm (4 inches) wide, fracture secure inspection pane. The pane is fitted to the geometry of the test piece. For best sealing on nearly all surfaces the pane is edged with a gasket of a special soft rubber mixture.

For evacuating the box a 360° rotatable vacuum valve with connection for the ½" vacuum hose is used.

By pressing down the box onto the test piece at the handles – one handle is the vacuum valve – the valve is opened.

Vacuum boxes longer than 300 mm (12 inches) are fitted with an additional handle.

Vacuum Box MINI, fillet weld seam, 90°, in-side, length 250 mm (10 inches)	60 70426
Vacuum Box, fillet weld seam, 90°, in-side, length 400 mm (16 inches)	60 70395
Vacuum Box, fillet weld seam, 90°, in-side, length 500 mm (20 inches)	60 70403
Vacuum Box, fillet weld seam, 90°, in-side, length 600 mm (24 inches)	60 70396
Vacuum Box, fillet weld seam, 90°, in-side, length 750 mm (30 inches)	60 70404

Inspection pane 100 mm (4 inches) wide with bent and pointed ends for testing 90° edges from in-side

Vacuum Box, fillet weld seam, 270°, out-side, length 500 mm (20 inches)	60 70410
Two inspection panes 100 mm (4 inches) wide build a roof-like structure corners for testing 90° edges from out-side	with rounded

Vacuum Box MINI, fillet weld seam corner, 3 x 90°, in-side, edge length 60 mm	60 70427
Vacuum Box, fillet weld seam corner, 3 x 90°, in-side, edge length 270 mm	60 70408

Triangular inspection pane for testing 90° corners from in-side

This vacuum box is fitted with a miniature vacuum valve. This valve is fitted with a vacuum hose connection of \varnothing 6 mm (¼") – therefore a reducing adapter (60 70406) is necessary.

Vacuum Box, fillet weld seam corner, 3 x 270°, out-side, edge length 270 mm	60 70409
Three sectoral inspection panes build a roof-like structure for testing 90° corners from out-side	

This vacuum box is fitted with a miniature vacuum valve. This valve is fitted with a vacuum hose connection of \varnothing 6 mm (¼") – therefore a reducing adapter (60 70406) is necessary.

Other dimensions or special types are available.

KOWOVAC Vacuum Boxes for testing round butt weld seams (Tubes)

Highly limp, flexible plastics is used for the approximately 100 mm (4 inches) wide, fracture secure inspection pane. The pane is fitted for the diameter of the test piece.

For best sealing on nearly all surfaces the pane is edged with a gasket of a special soft rubber mixture.

For evacuating the box a 360° rotatable vacuum valve with connection for the ½" vacuum hose is used.

By pressing down the box onto the test piece at the handles – one handle is the vacuum valve – the valve is opened.

Vacuum boxes up to Ø 150 mm are fitted with a miniature vacuum valve with the same function. This valve is fitted with a vacuum hose connection of Ø 6 mm (¼") – therefore a reducing adapter (60 70406) is necessary. Vacuum boxes longer than 300 mm (12 inches) are fitted with an additional handle.

Vacuum Box MINI, round butt weld seam, out-side, Ø 25, length 100 mm (4 inches)	60 70503
Vacuum Box MINI, round butt weld seam, out-side, Ø 32, length 110 mm (4 inches)	60 70504
Vacuum Box MINI, round butt weld seam, out-side, Ø 40, length 120 mm (5 inches)	60 70505
Vacuum Box MINI, round butt weld seam, out-side, Ø 50, length 135 mm (5 inches)	60 70506
Vacuum Box MINI, round butt weld seam, out-side, Ø 65, length 150 mm (6 inches)	60 70507
Vacuum Box MINI, round butt weld seam, out-side, Ø 80, length 170 mm (7 inches)	60 70508
Vacuum Box MINI, round butt weld seam, out-side, Ø 100, length 195 mm (8 inches)	60 70509
Vacuum Box, round butt weld seam, out-side, Ø 125, length 220 mm (9 inches)	60 70510
Vacuum Box, round butt weld seam, out-side, Ø 150, length 260 mm (10 inches)	60 70511
Vacuum Box, round butt weld seam, out-side, Ø 200, length 370 mm (15 inches)	60 70512
Vacuum Box, round butt weld seam, out-side, Ø 250, length 400 mm (16 inches)	60 70513
Vacuum Box, round butt weld seam, out-side, Ø 300, length 440 mm (17 inches)	60 70514
Vacuum Box, round butt weld seam, out-side, Ø 350, length 460 mm (18 inches)	60 70515
Vacuum Box, round butt weld seam, out-side, Ø 400, length 500 mm (20 inches)	60 70516
Vacuum Box, round butt weld seam, out-side, Ø 500, length 570 mm (23 inches)	60 70517
Vacuum Box, round butt weld seam, out-side, Ø 600, length 650 mm (26 inches)	60 70518
Vacuum Box, round butt weld seam, out-side, Ø 700, length 740 mm (29 inches)	60 70519
Vacuum Box, round butt weld seam, out-side, Ø 800, length 730 mm (29 inches)	60 70520
Vacuum Box, round butt weld seam, out-side, Ø 900, length 730 mm (29 inches)	60 70521
Vacuum Box, round butt weld seam, out-side, Ø 1000, length 730 mm (29 inches)	60 70522
Vacuum Box, round butt weld seam, out-side, Ø 1100, length 750 mm (30 inches)	60 70523
Vacuum Box, round butt weld seam, out-side, Ø 1200, length 750 mm (30 inches)	60 70524
Vacuum Box, round butt weld seam, out-side, Ø 1300, length 750 mm (30 inches)	60 70525
Vacuum Box, round butt weld seam, out-side, Ø 1400, length 750 mm (30 inches)	60 70526
Vacuum Box, round butt weld seam, out-side, Ø 1500, length 750 mm (30 inches)	60 70527
Vacuum Box, round butt weld seam, out-side, Ø 1600, length 750 mm (30 inches)	60 70528

Other dimensions or special types are available.

KOWOVAC Vacuum Boxes for testing round 90° fillet weld seams (Tank Floor /-Wall)

Highly limp, flexible plastics is used for the approximately 100 mm (4 inches) wide, fracture secure inspection pane. The pane is fitted for the diameter of the test piece.

For best sealing on nearly all surfaces the pane is edged with a gasket of a special soft rubber mixture.

For evacuating the box a 360° rotatable vacuum valve with connection for the ½" vacuum hose is used.

By pressing down the box onto the test piece at the handles – one handle is the vacuum valve – the valve is opened.

These vacuum boxes are fitted with an additional handle.

Vacuum Box, round fillet weld seam, 90°, in-side

DN 2250, Ø 2000 to 2600 mm, length 400 mm (16 inches)	60 70428
DN 2800, Ø 2600 to 3200 mm, length 400 mm (16 inches)	60 70429
DN 2800, Ø 2600 to 3200 mm, length 500 mm (20 inches)	60 70430
DN 3450, Ø 3100 to 3800 mm, length 500 mm (20 inches)	60 70432
DN 4050, Ø 3600 to 4600 mm, length 500 mm (20 inches)	60 70435
DN 4050, Ø 3600 to 4600 mm, length 600 mm (24 inches)	60 70436
DN 4900, Ø 4200 to 5800 mm, length 500 mm (20 inches)	60 70438
DN 4900, Ø 4200 to 5800 mm, length 600 mm (24 inches)	60 70439
DN 6500, Ø 5400 to 8300 mm, length 500 mm (20 inches)	60 70441
DN 6500, Ø 5400 to 8300 mm, length 600 mm (24 inches)	60 70442
DN 6500, Ø 5400 to 8300 mm, length 700 mm (28 inches)	60 70416
DN 8750, Ø 6800 to 12500 mm, length 500 mm (20 inches)	60 70444
DN 8750, Ø 6800 to 12500 mm, length 600 mm (24 inches)	60 70445
DN 8750, Ø 6800 to 12500 mm, length 700 mm (28 inches)	60 70417
DN 15000, Ø from 10000 mm, length 500 mm (20 inches)	60 70447
DN 15000, Ø from 10000 mm, length 600 mm (24 inches)	60 70448
DN 15000, Ø from 10000 mm, length 700 mm (28 inches)	60 70418

Other dimensions or special types are available.

KOWOVAC Vacuum Boxes for special testing purposes

Highly limp, flexible plastics is used for the fracture secure inspection pane. For best sealing on nearly all surfaces the pane is edged with a gasket of a special soft rubber mixture.

For evacuating the box a 360° rotatable vacuum valve with connection for the ½" vacuum hose is used.

By pressing down the box onto the test piece at the handles – one handle is the vacuum valve – the valve is opened.

These vacuum boxes are fitted with an additional handle.

Vacuum Box for castings, Ø 125 mm (5 inches)	60 70531
Vacuum Box for castings, Ø 250 mm (10 inches) fitted with an additional handle	60 70532
Vacuum Box for castings, Ø 400 mm (16 inches) fitted with an additional handle and one support for pane	60 70533
Vacuum Box for castings, 200 x 300 mm (8 / 12 inches) fitted with an additional handle and one support for pane	60 70534
Vacuum Box for castings, 400 x 400 mm (16 / 16 inches) fitted with an additional handle and two supports for pane	60 70535
Vacuum Box, high flexible, 100 x 150 mm (4 / 6 inches) Inspection pane is especially high flexible for fitting onto vaulted surfaces	60 70539

Other dimensions or special types are available.

Spare Parts for KOWOVAC V Units and Vacuum Boxes

KOWOVAC Vacuum units are manufactured for heavy duty use. Therefore spare parts usually are not necessarily to be kept in stock, unless supply cannot be organised in sufficient time.

Vacuum Gauge 0 ... -1200 mbar	60 70549
Wearing Part Set for V Vacuum Pumps for 2 to 4 years operation, consisting of coal impellers, gaskets, filter	
VSP 1TS Wearing Part Set	60 70554
VSP 2TS Wearing Part Set	60 70564
VSP 3TS Wearing Part Set	60 70584

KOWOVAC Vacuum boxes are manufactured for heavy duty use, and rubber gaskets are designed for very long life time.

Since for exchange of rubber gaskets of vacuum boxes high workmanship and experience is needed, it is highly recommended to send back vacuum boxes for repairs.

