



Eurovacuum Installation and operation instructions EVDR Series 404 to 440

Oil free rotary vane vacuum pump / compressor

Instruction Manual



DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



STOP

The action is not allowed. if not avoided, will result in unknowable trouble.

Instruction prior installation and operation



CAUTION



... Check if any part of the vacuum pump has been damaged during the transportation.



STOP



...Do not dispose of solid or material from suction inlet directly, shall use filter before inlet, otherwise damage to vacuum pump may occur.



DANGER



...Do not dispose of acid, alkali or inflammable gas, otherwise explosion and damage may occur.



STOP



... Do not dispose of liquid and air with high temperature.



WARNING



...Do not touch the vacuum pump to avoid burn damage; temperature may rise due to long time continuous operation.(surfaces of the pump can reach 80°C)



CAUTION



... EVDR rotary vane vacuum pumps and compressors work absolutely oil free. Do not lubricate with grease or oil under any circumstances.



CAUTION

... Locking vacuum (or pressure) of vacuum pump shall higher than full loading vacuum(pressure), do not operate over loading remarked on rating plate or rating label, to prevent motor damage, electric current over load relay, adjustable pressure relief or vacuum limitation valve shall be installed to protect motor.

Model EVDR-Dxxx has an overpressure valve which is regulated at maximal pressure. The calibration must not be changed.



CAUTION

... Model EVDR-Vxxx for vacuum applications down to an ultimate pressure of 120/150 hPa.
Model EVDR-Dxxx for max. overpressure duties up to 1000 hPa (2000 hPa abs.)



CAUTION

... The following ambient operating environment must be observed :
ambient temperature : 5 °C (41°F) ~ 45°C(113°F)

altitude of above sea level : 800 M (max.)
relative humidity : 80%(max.)



CAUTION

... Storage conditions :
dry
dust-free
low-vibration (<2.8mm/s)
ambient temp.<40°C (104°F)

operation accessories :



CAUTION

... Air filter

to the integral inlet filter when heavy dust loads are being pumped.



CAUTION

... Vacuum limitation valve

to control inlet pressure when pump is used on vacuum duties (only vacuum version)



CAUTION

... Pressure relief valve

to control outlet pressure when pump is used on pressure duties (only compressor version)



CAUTION

... Non-return valve

to protect system against ingress of air opposite pressure, should pump stop for any reason. With pipelines exceeding 5 meters length, the installation of non-return valves are recommended. When the vacuum pump is switched off while under vacuum, gas may flow back into inlet pipe. Install non-return valve or shut-off valve can to avoid this.

Installation



WARNING

... When installed outdoor, please check if any obstruction around blower suction inlet, and install shelter to avoid motor damage or electric shock due to getting wet.



CAUTION

... If inlet does not connect any pipe, a filter with larger area shall be installed at suction inlet.



CAUTION

... In order to avoid overheating of the vacuum pump, an undisturbed fresh air-flow to the pump is necessary.



CAUTION

... Distance at least 50mm shall be maintained between pump motor fan and wall to avoid over heat due to poor motor heat dissipation.



CAUTION

... Heat may be produced during operation due to friction between air, carbon vane and piping. Heat-resisted piping material shall be used over 1 m for outlet piping.



CAUTION

... Section area of pipes has to be least the same as the diameter of pump's inlet flange.



CAUTION

... The mounted pipes should cause no tension on the pump's flange. If necessary, pipe compensator should be installed.



CAUTION

... Unusual sudden diameter shrinkage, enlarge or curve design of piping shall avoided to ensure best pump air efficiency.



CAUTION

... The vacuum pump can be placed either on a horizontal surface without fixing or locked without fixing screws.



CAUTION

... Piping shall be fixed independently, the weight of piping shall not load on the flange of pump's inlet or outlet, to avoid damage occurred to flange.



WARNING

... Turn on switch for a short time (twinkling) and test run motor after wiring, make sure rotation in

compliance with arrow direction. (looking at the motor fan cover, the direction of rotation is clockwise) If wrong direction happened with three phase motor, please exchange any two lines of three wires. As for single phase motor, please contract your supplier or manufacturer.

Connection and operation



DANGER

... Make sure the voltage and frequency of power supply fits the requested electrical condition marked on pump rating plate or label, otherwise injury or motor damage may occur due to incorrect voltage.




WARNING

... Allowable voltage variance shall be within 5% of rated voltage, and frequency variance shall be within 2%.



DANGER

... Please wiring according to the wiring instruction inside the cover of terminal box, and *connect earth lines to prevent*  *electrical leakage accident.*



CAUTION

... Over-heat relay device is not available for normal pump, please install over-load switch according to the voltage marked on rating plate or rating label and choose the appropriate over-load switch.



CAUTION

... Avoid turn pump switch on and off to many times within a short time, otherwise overheat may occur to motor.



WARNING

... Inverter is not available for the pump. otherwise damage may occur to pump.

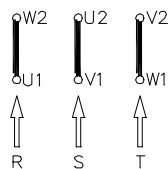
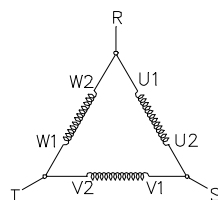


CAUTION

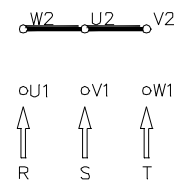
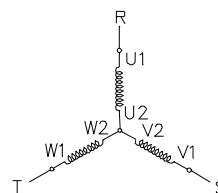
... For the tightening torques for terminal board connections (except terminal strips) and other connections, see next.

Connection Diagram

3 Phase (Double Voltage)

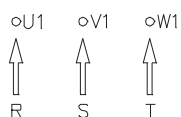
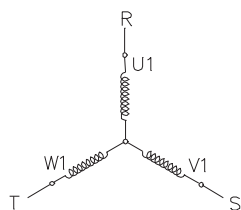


Low Volt.(Δ)

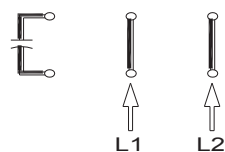


High Volt.(Y)

3 Phase (Single Voltage)



1 Phase



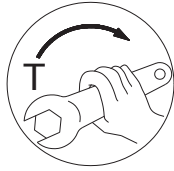
Model

Type	Max. Capacity		Max. Ultimate pressure (vacuum.)		Max. Overpressure (pressure.)		Motor output 3~ (1~)		motor speed		Noise level		Weight
	m³/ h		mbar		mbar		kW		rpm		dB(A)		kg
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	
EVDR-V404	4	4.8	150	150	-	-	0.18	0.22	2800	3100	59	61	7.5
EVDR-V408	8	9.6	150	150	-	-	0.35	0.42	2800	3100	60	61	12
EVDR-V410	10	12	150	150	-	-	0.37	0.45	1420	1700	60	62	21
EVDR-V416	16	19	150	150	-	-	0.55	0.7	1420	1700	61	64	24
EVDR-V425	25	30	120	120	-	-	0.75	0.9	1420	1700	62	67	32
EVDR-V440	40	48	120	120	-	-	1.25	1.5	1420	1700	67	72	38
EVDR-D404	4.2	4.9	-	-	1000	1000	0.18	0.22	2800	3100	58	61	75
EVDR-D408	8	9.5	-	-	1000	1000	0.35	0.42	2800	3100	58	62	12
EVDR-D410	10	12	-	-	1000	1000	0.37	0.45	1420	1700	60	62	21
EVDR-D416	16	19	-	-	1000	1000	0.55	0.7	1420	1700	62	64	24
EVDR-D425	25	30	-	-	600	600	0.75	0.9	1420	1700	62	67	32
EVDR-D425H	25	30	-	-	1000	1000	1.1	1.3	1420	1700	65	68	43
EVDR-D440	40	48	-	-	600	600	1.25	1.5	1420	1700	65	68	38
EVDR-D440H	40	48	-	-	1000	1000	1.85	2.2	1420	1700	67	70	48
Allowable tolerance 5% Reference Atmosphere : 1000mbar , +20 ℃													

Check and clean

Item	Clean	Check	Interval
Inlet filter	need	need	app. monthly
Pressure filter	need	need	app. monthly
Vanes	need	need	after 3000hr. at least once a year
Radial	need	need	app. monthly
Hood	need	need	app. monthly
Motor surface	need	need	app. monthly

Thread torques



	Tightening torques for non-electrical connections		
Thread	Kg-m	N-m	lbs-ft
M4	0.28 – 0.34	2.7 – 3.3	1.99 – 2.43
M5	0.37 – 0.45	3.6 – 4.4	2.65 – 3.25
M6	0.74 – 0.90	7.2 – 8.8	4.41 – 6.49
M8	2.20 – 2.70	21.6 – 26.4	15.93 – 19.47
M10	3.86 – 4.72	37.8 – 46.2	27.90 – 34.10
M12	6.43 – 7.85	63.0 – 77.0	46.44 – 56.76

	Tightening torques for electrical connections		
Thread	Kg-m	N-m	lbs-ft
M4	0.31	0.8 - 1.2	0.59 - 0.89
M5	0.41	1.8 - 2.5	1.33 - 1.84

	Tightening torques for metal threaded glands/unions					
Thread	Kg-m		N-m		lbs-ft	
	Min	Max	Min	Max	Min	Max
M12*1.5	0.41	0.61	4	6	2.95	4.43
M16*1.5	0.51	0.77	5	7.5	3.69	5.53
M20*1.5	0.61	0.92	6	9	4.43	6.64
M32*1.5	0.82	1.23	8	12	5.9	8.85
M40*1.5						

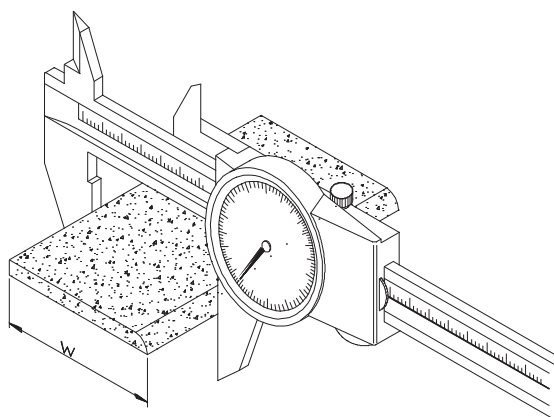
	Tightening torques for plastic threaded glands/unions					
Thread	Kg-m		N-m		lbs-ft	
	Min	Max	Min	Max	Min	Max
M12*1.5	0.21	0.36	2	3.5	1.48	2.58
M16*1.5	0.31	0.41	3	4	2.21	2.95
M20*1.5	0.41	0.51	4	5	2.95	3.69
M32*1.5	0.51	0.72	5	7	3.69	5.16
M40*1.5						

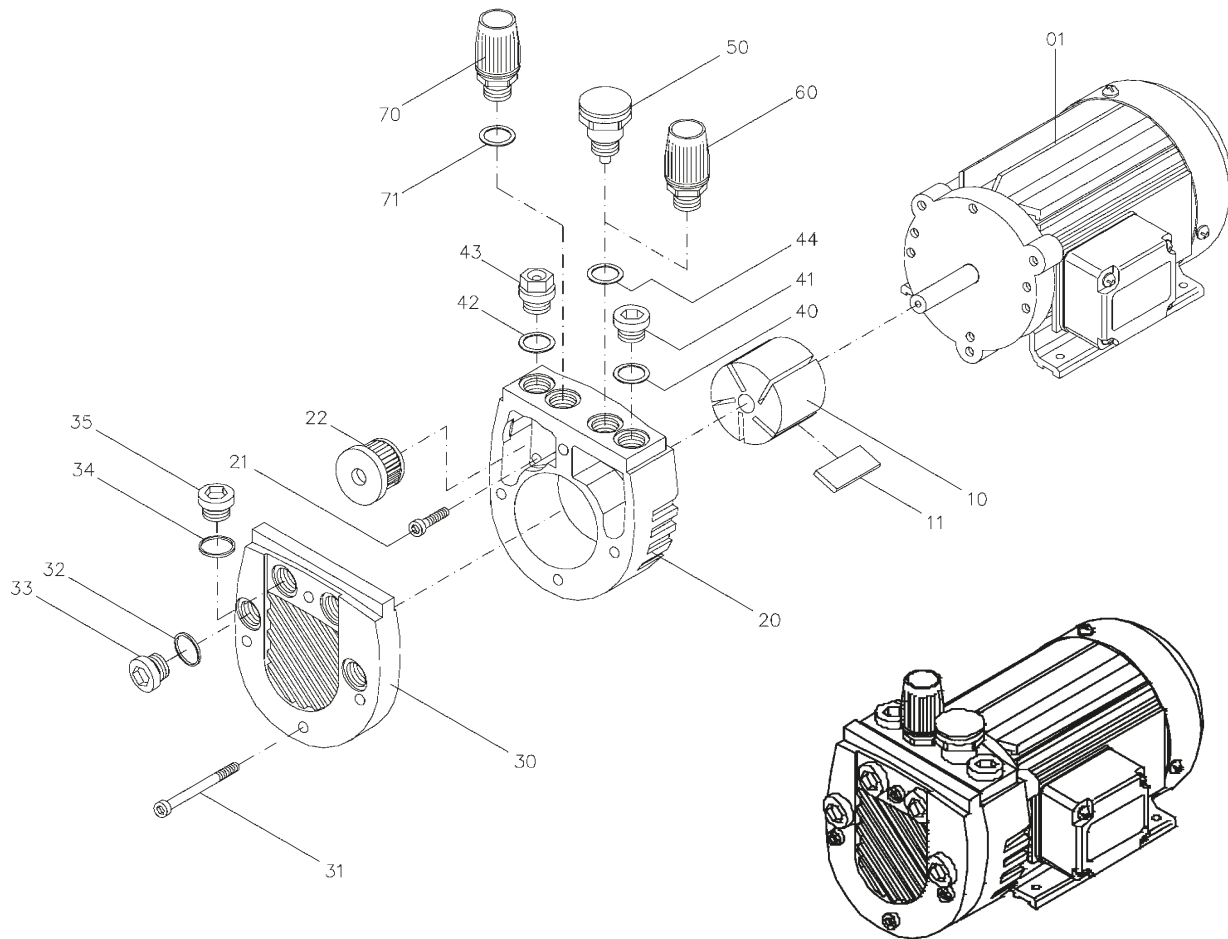
Maintenance

- ... Conveying air with higher moisture may make pump shorter service life, and moisture air shall be avoided, if not avoidable, shall inspect pump's parts periodically to prevent pump damage or injury occurred due to corrosion problem.
- ... Bearing, carbon vane and filter cotton are consumptive parts with limited life, which would be different for different ambient and operation condition, please inspect and replace periodically.
- ... The inlet filter and the outlet filter must be cleaned at regular intervals, depending on the amount of dust in the air being pumped. Blow out the filter cartridges with compressed air gun from the inside outwards.
- ... If the filter cartridges is too dirty to be cleaned, it must be replaced. The cartridges can be taken out after the removal of the filter cover.
- ... EVDR rotary vane vacuum pumps and compressors work absolutely oil free. Do not lubricate with grease or oil under any circumstances.
- ... Radial fan, hood ad motor should be inspected regularly for dirty. Soiling prevents cool air intake and may lead to overheating of the vacuum pump.
- ... The bearings are prelubricated for life and will thus not require maintenance.

... Change carbon vane

Type no.	Minimum width of carbon vane W
EVDR-V404 EVDR-D404(H)	11 mm
EVDR-V408 EVDR-D408(H)	13 mm
EVDR-V410 EVDR-D410	27 mm
EVDR-V416 EVDR-D416	27 mm
EVDR-V425 EVDR-D425(H)	33 mm
EVDR-V440 EVDR-D440(H)	33 mm





Article no.	Description	Qt.
01	Motor	1
10	Rotor	1
11	Carbon Vanes	5
20	Cylinder housing	1
21	Screw for cylinder housing	2
22 (Pressure version*2 pcs.)	Filter cartridge	1
30	Cylinder cover	1
31	Screw for cylindercover	4
32	Sealing	2
33	Screw plug	2
34	Sealing	2
35	Screw plug	2
40 (Vacuum version)	Sealing	1
41	Screw plug	1
42	Sealing	1
43 (Pressure version)	Onlet screw plug	1
44	Spring valve	1
50	Silencer valve	1
60 (Pressure version)	Pressure relief valve	1
70 (Vacuum version) *optional	Vacuum limitation valve	1
71	Sealing	1

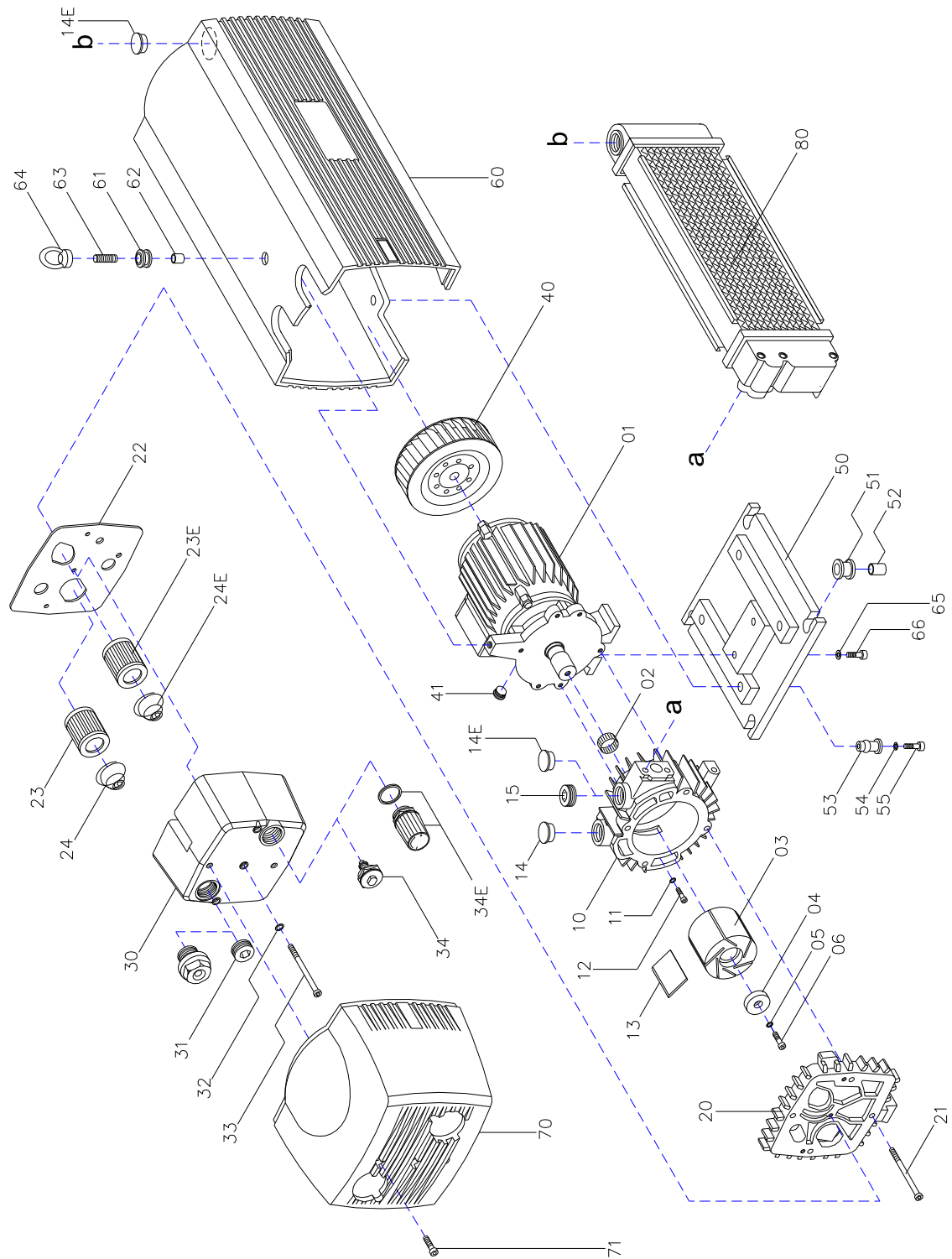
22, 43, 60..... Pressure version only
 40, 70..... Vacuum version only
 20..... Vacuum limitation valve
 is an option. KBP has a pressure
 relief valve which is set for max. pres-
 sure (of motor at full charge).
 The calibration must not be adjusted.

The drawing shows EVDR 408

Replacement of parts and extraor-
 dinary maintenance of the vacuum
 pump must be carried out by autho-
 rised dealer and by authorised person-
 nel only. If maintenance is carried out
 in another way than prescribed the
 warranty stops and the manufacturer
 will disclaim any responsibility for
 defects and personal injury related to
 unauthorized repair of the product.
 Do always order spare parts from
 your authorized dealer and remem-
 ber to state type of model, the name
 of the spare part as well as its spare
 part number.

Part numbers

Part no.	Part name	Qt.
01	Motor	1
02	Star-Tolerance ring	1
03	Rotor	1
04	Clamping disc	1
05	Spring washer	1
06	Hexagon socket head screw	1
10	Cylinder body	1
11	Lock washer	2
12	Cylinder body screw	2
13	Carbon vanes	7
14	Inlet plug	1
14E (version EVDR-D410-440)	Outlet plug	1
15	Screw plug	1
20	Cylinder cover	1
21	Cylinder cover screw	4
22	Gasket	1
23	Filter cartridge	1
23E (version EVDR-D410-D440)	Filter cartridge	1
24	Pressure spring	1
24E (version EVDR-D410-D440)	Pressure spring	1
30	Filter cover	1
31	Screw plug	1
32	Sealing ring	1
33	Filter cover screw	3
34	Silencer valve	1
34E (version EVDR-D410-D440)	Pressure relief valve	1
40	Radial fan	1
41	Plug	1
50	Base	1
51	Vibration absorber	4
52	Sleeve	4
53	Rubber element	4
54	Washer	2
55	Base screw	2
60	Hood	1
61	Rubber bushing	1
62	Space tube	1
63	Hexagon socket set screw	1
64	Ring nut	1
65	Washer	2
66	Hexagon socket base screw	2
70	Front hood	1
71	Hexagon socket hood screw	2
80 (version EVDR-D425H-D440H)	Cooler	1



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