



OVR

Oil Vapour Removal Filter

When compressed air is required to meet ISO8573-1 Class 0 or Class 1 air quality via oil free or oil lubricated compressors the Parker domnick hunter OVR Oil Vapour Removal filter is an essential component of the compressed air treatment system.

OVR Oil Vapour Removal filters are designed to reduce oil vapour and also overcome the issues of traditional loose filled carbon towers. The loose filled beds of carbon towers offer reduced contact time due to unrestricted air channelling, meaning they are prone to movement of the carbon adsorbent during operation; resulting in degrading performance, attrition of the adsorbent material, high particulate generation and blockage of downstream filters.

Manufactured from extruded aluminium, the Parker domnick hunter OVR is smaller and lighter than equivalent carbon towers. Compact activated carbon cartridges utilise a unique filling technique to maximise packing density of the adsorbent bed. Retained to prevent movement, 100% of the activated carbon bed is then utilised during operation, guaranteeing performance, whilst the heavy attrition, dusting and blocked particulate filters associated with carbon tower designs is eliminated. The use of cartridges also provides trouble free maintenance, reducing system downtime.

Oil free plant air can be affected by many factors such as pressure, temperature, air flow, oil concentration and humidity. The OVR selection process considers all of these factors to ensure consistent outlet air quality over 12 months of continuous operation.



Benefits:

- **Air Quality Guarantee**
OVR is matched to all inlet parameters maintaining effective operation for 12 months. Correct sizing ensures seasonal variations in temperature do not affect delivered air quality
- **Suitable for use with oil lubricated and oil free compressors**
OVR provides 'Technically Oil Free Air' when used in conjunction with water separators and coalescing filters
- **Delivered air quality to ISO8573-1 Class 0 or ISO8573-1 Class 1 for total oil**
Tested in accordance with ISO8573-5 and 3rd party performance validated by Lloyds Register
- **Plant Scale or application specific oil vapour removal**
Can be installed in the compressor room for plant scale protection, at point of use to protect critical applications (or both if old, contaminated piping is in use)
- **FDA Title 21 compliant & EC1935 exempt**
Materials of construction make OVR suitable for use with applications in the food, beverage and pharmaceutical industries
- **Unique adsorbent fill technique**
Providing maximum packing density, eliminating dusting, performance degradation and blocked outlet filters
- **Modular construction**
Large capacity bed reduces the number of units required but still offers a compact and light weight design with flexible inlet / outlet connectivity
- **Simple, easy maintenance**
Servicing of OVR is easy as piping can remain in-situ, whilst use of active carbon cartridges offers quick, clean, simple maintenance

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OIL-X EVOLUTION - Plant Scale / Point of Use Oil Vapour Removal Grade OVR Filtration Performance

Filtration Grade	Filter Type	Particle Removal (inc Water & Oil Aerosols)	Max Remaining Oil Content	Filtration Efficiency	Test Method Used	Inlet Challenge Concentration	Initial Dry Differential Pressure	Initial Saturated Differential Pressure	Adsorbent Life	Precede with Grade
OVR	Oil Vapour Removal	N/A	0.003 mg/m ³ 0.003 ppm (w)	N/A	ISO8573-5	0.05mg/m ³	<350 mbar <5 psi	N/A	*12 months	AO + AA

*When corrected to match systems conditions.

Product selection Grade OVR

Stated flows are for operation at 7 barg (100 psi g), 35°C (95°F) for flows at other conditions use Correction Factors below.

Model	Pipe Size	L/s	m ³ /min	m ³ /hr	cfm	Replacement Cartridge	No. Required
OVR300H <input type="checkbox"/> XX	2	87	5.2	314	185	300OVR	1
OVR350H <input type="checkbox"/> XX	2	177	10.6	637	375	350OVR	1
OVR400H <input type="checkbox"/> XX	2	354	21.2	1274	750	400OVR	1
OVR450I <input type="checkbox"/> XX	2 1/2	531	31.9	1911	1125	450OVR	1
OVR500I <input type="checkbox"/> XX	2 1/2	708	42.5	2549	1500	500OVR	1
OVR550I <input type="checkbox"/> XX	2 1/2	885	53.1	3186	1875	550OVR	1
2 x OVR550I <input type="checkbox"/> XX	2 1/2	1770	106.2	6371	3750	550OVR	2
3 x OVR550I <input type="checkbox"/> XX	2 1/2	2655	159.3	9557	5625	550OVR	3
4 x OVR550I <input type="checkbox"/> XX	2 1/2	3540	212.4	12743	7500	550OVR	4
5 x OVR550I <input type="checkbox"/> XX	2 1/2	4424	265.5	15928	9375	550OVR	5

G = BSPP / N=NPT

Correction Factors Temperature (CFT)

Oil lubricated compressors		
°C	°F	Correction Factor
25	77	1.00
30	86	1.00
35	95	1.00
40	104	1.25
45	113	1.55
50	122	1.90

Correction Factors Temperature (CFT)

Oil free compressors		
°C	°F	Correction Factor
25	77	1.00
30	86	1.00
35	95	1.00
40	104	1.02
45	113	1.04
50	122	1.05

Correction factors Pressure (CFP)

bar g	psi g	Correction Factor
3	44	2.00
4	58	1.60
5	73	1.33
6	87	1.14
7	100	1.00
8	116	1.00
9	131	1.00
10	145	1.00
11	160	1.00
12	174	1.00
13	189	1.00
14	203	1.00
15	218	1.00
16	232	1.00

Correction Factors - Inlet Dewpoint (CFD)

CDD Dewpoint	°C	°F	Correction Factor
Dry	-70 to +3	-100 to +38	1.00
Wet	+3 and above	+38 and above	4.00

It is assumed inlet oil vapour concentration does not exceed 0.05mg/m³ at 35°C (95°F).

For applications with higher oil vapour concentrations, please contact Parker domnick hunter for accurate sizing.

Filter Selection - Grade OVR

To correctly select an OVR oil vapour removal filter, the flow rate of the OVR must be adjusted for the minimum operating pressure, maximum operational temperature and pressure dewpoint of the system.

- Obtain the minimum operating pressure, maximum inlet temperature, maximum compressed air flow rate and dewpoint of the compressed air at the inlet of the OVR.
- Select correction factor for maximum inlet temperature from the CFT table to compressor type (always round up e.g. for 37°C use 40°C correction factor).
- Select correction factor for minimum inlet pressure from the CFP table that corresponds type (always round down e.g. for 5.3 bar use 5 bar correction factor).
- Select correction factor for pressure dewpoint from the CFD table.
- Calculate minimum filtration capacity.

$$\text{Minimum filtration Capacity} = \text{Compressed Air Flow} \times \text{CFT} \times \text{CFP} \times \text{CFD}$$

- Using the minimum filtration capacity, select an OVR model from the flow rate tables above (OVR selected must have a flow rate equal to or greater than the minimum filtration capacity).

If the minimum filtration capacity exceeds the maximum values of the models shown within the tables, please contact Parker domnick hunter for advice regarding larger multi-banked units.

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