

# SOTRAS



FILTERS & PRODUCTS  
FOR COMPRESSORS



# AIR-OIL SEPARATORS

During the last century compressed air became associated with many industrial applications and compressor manufacturers focused their attention on rotary screw and vane compressor whose compression systems use lubricating oil as a coolant. Hence the necessity of using air/oil separators.

Sotras designs and manufactures separators specifically for installation in rotary screw and rotary vane compressors and they are available in vertical, horizontal and spin on configurations.

Their purpose is to separate the oil droplets from the compressed air, thereby producing cleaner air and allowing the oil to be scavenged and re-circulated in the compressor.

Sotras separators are manufactured to satisfy OEM's needs in terms of:

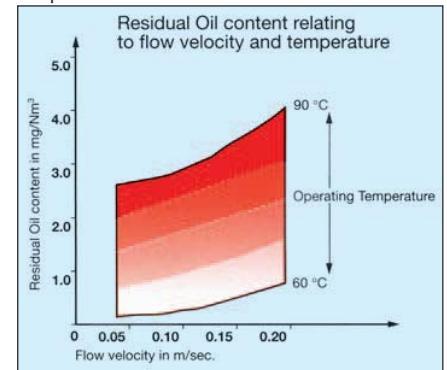
- Physical principle of air/oil separation
  - Element dimensions according to the compressor's performance and tank dimensions.
  - Oil consumption to ensure a correct functional performance
  - Use of high grade filtration and separation media to ensure the best quality of clean air needed for industrial applications.
- Additionally it is very important to highlight that Sotras separators can be used with all types of oils, whether standard, mineral based, synthetic or partially synthetic.

In order to decide which is the best separator to be used for a specific compressor, OEMs have to consider what level of separation needs to be achieved, in other words to target the minimum of parts per million of residual oil content required. Then a technical solution is needed in order to reduce the oil concentration in the air.

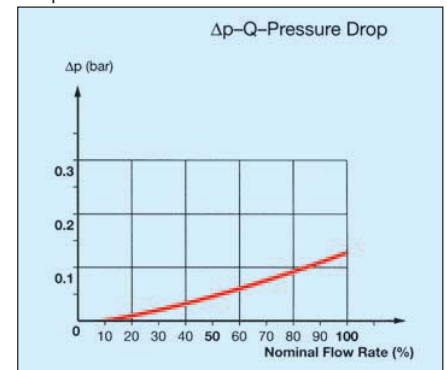
Often OEMs need to consider a pre-separation system, which will reduce the PPM and increase the life of the air/oil separator.



Graph 1



Graph 2



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## CONSTRUCTION AND SEPARATION:

Corrosive resistant materials are used in the construction of the air/ oil separators. Careful welding procedures and the use of the latest twin pack adhesive ensure that the element has high mechanical strength and can endure operating temperature up to 120°C.

Normally, the air and oil mixture passes from the outside to the inside of the separator and the coalescing effect is carried out through a multi stage separation process resulting in the recovery of the oil and producing clean air.



Type	Pressure drop at nominal flow rate (bar)	General specifications
single wrapped	0,16	low production costs, good performance and long life span
double wrapped	0,18	excellent performance on small dimensions or long life span
pleated	0,15	low pressure drop
pleated+wrapped	0,17	low pressure drop and excellent separation levels
with pre-separation fleece	0,2	for applications showing high oil percentage before separation or under particular environmental conditions
spin on	0,25	for easy maintenance and small flow rates

## PRESSURE DROP - EFFICIENCY AND PERFORMANCE

At a nominal working pressure of 7 bar, the pressure drop on a new element varies between approximately 0.15 and 0.25 bar.

At other working pressures, the pressure drop is proportional to the air velocity across the separator (graph 2)

By using our separators, the oil carryover after separation is limited to about 1 to 3 ppm. The life of the separator depends on many

factors: the designs and regular maintenance of the compressor, clean environment, working temperature, quality of the air and oil filters.

To ensure maximum separator efficiency, the joints must create a perfect seal. Experience has shown that through correct installation and also using the correct type of oil, Sotras separators can have a life expectancy of many thousands of hours.



# STANDARD SEPARATORS

The table shows some of Sotras standard separators; special types are available on request.

SOTRAS Ref.	Nominal flow rate (m3/min)	Type	Drawing	d1 (mm)	d2 (mm)	d4 (mm)	h1 (mm)	h2 (mm)
DF 5010	1	ext	6	76	M22X1,5	62	123	0
DB 2001	1,5	int	1	135	88	165	140	12
DB 2002	2	int	1	135	88	170	200	12
DF 5005	2	ext	6	96	M24X1,5	62	210	0
DF 5006	3	ext	6	136	M39X1,5	99	177	0
DB 2003	3,5	int	1	135	88	170	305	12
DB 2006	3,5	int	1	170	122	200	230	12
DB 2057	3,5	int	2	135	75	170	160	0
DF 5009	4	ext	6	108	M32X1,5	93	260	0
DB 2009	4,5	int	1	170	122	200	305	12
DB 2074	4,5	int	2	135	75	170	200	0
DB 2085	5	int	2	170	108	200	180	0
<b>DF 5004</b>	<b>5,5</b>	<b>ext</b>	<b>6</b>	<b>136</b>	<b>M39X1,5</b>	<b>99</b>	<b>303</b>	<b>0</b>
DB 2021	6,5	int	1	275	219	328	250	0
DB 2012	7	int	1	170	122	200	435	12
DB 2160	7	int	3	170	108	200	230	0
DB 2186	7	int	2	170	108	200	230	0
DB 2022	8	int	1	275	219	328	305	12
DB 2018	8,5	int	1	220	165	273	430	12
DB 2105	9	int	2	220	157	273	230	0
DB 2319	9	int	4	220	157	273	230	0
DB 2132	9,5	int	2	170	108	200	305	0
DB 2020	12	int	1	220	165	273	600	12
DB 2024	12	int	1	275	219	324	448	12
DB 2104	12	int	2	220	157	273	305	0
DB 2026	12,5	int	1	300	243	348	445	12
DB 2027	14	int	1	300	243	355	500	12
DB 2118	16	int	2	220	157	288	400	0
DB 2130	16,5	int	2	300	219	345	305	0
DB 2029	17	int	1	300	243	355	600	12
DB 2353	18	int	5	300	219	343	314	0
DB 2030	19	int	1	300	243	355	660	12
DB 2082	19,5	int	1	400	314	439	520	0
DB 2025	20	int	1	275	219	324	750	12
DB 2138	20	int	2	275	210	325	400	0
DB 2051	21,5	int	1	300	243	348	750	12
DB 2102	22	int	2	300	219	350	400	0
DB 2055	23,5	int	1	300	243	355	820	12
DB 2061	23,5	int	1	400	314	439	620	0
DB 2124	25	int	2	220	157	273	612	0
DB 2084	25,5	int	2	275	210	325	500	0
DB 2089	28	int	2	300	219	355	500	0
DB 2147	29	int	1	300	243	355	1000	12
DB 2090	34,5	int	2	300	219	355	600	0
DB 2382	39	int	5	393	304	439	510	5
DB 2167	40	int	2	300	219	355	700	0
DB 2126	43	int	2	400	314	439	600	0
DB 2129	44	int	1	475	398	740	900	19

The data is indicative and based on 7 bar working pressure

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## TYPES AND DRAWINGS

