

# ES2000 Series Oil / Water Separators

Efficient on-site treatment of oily  
compressor condensate



## The Problem with Compressed Air Condensate

Discharging oil contaminated condensate from compressed air systems into the sewer system without prior treatment is not only harmful to the environment, it is usually illegal.

Contaminated water can easily find its way back to the natural water courses and degrade clean water supplies.

A system of sewage purification using millions of bacteria and other tiny organisms which occur naturally is used to convert organic matter into carbon dioxide, water and nitrogen compounds.

Oil contamination can seriously effect the efficient operation of sewage purification by obstructing oxygen transfer to the bacteria essential for sludge digestion. Due to the serious effects oil can create, very low industrial discharge limits are permitted and rigid legislation exists in most countries to protect the environment against contamination.

## The Solution

After the oily condensate has been removed from the compressed air system it cannot be discharged directly to the foul sewer without the oil content being reduced to within legal disposal limits.

The simple, economical and environmental solution is a Parker ES2000 series oil/water separator.

ES2000 Series Oil/water separators are installed as part of the purification system and simply reduce the oil concentration in the collected condensate. By reducing the oil concentration in water to a permitted level, this allows the larger volume of clean water, up to 99.9% of the total condensate, to be discharged safely into the foul sewer. This leaves the relatively small amount of concentrated oil to be disposed of legitimately and economically.



## Advantages

- Help to protect and maintain the environment
- Efficiently separate oil and water on-site and return up to 99.9% of the condensate to foul sewers
- Meet trade effluent discharge regulations
- Rapid payback over conventional disposal methods
- Simple to install, operate and maintain
- Helps to achieve ISO14001 Certification



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## Separator Performance

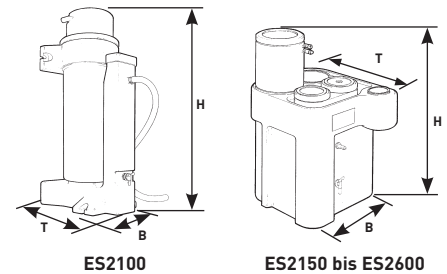
Separator Models	Separator Type	Residual Oil in Water Content (Outlet)	Service Period
ES2100 ~ ES2600	Static	Each Separator model is sizeable to deliver a residual oil in water level of: <20mg/L <10mg/L <5mg/L	When oil in water levels exceed allowed levels

## Technical Data

Model	ES2100	ES2150	ES2200	ES2300	ES2400	ES2500	ES2600
<b>Inlet Connections</b>	1 x 1/2" 1 x 1/4"	1 x 1/2" 1 x 1/4"	1 x 1/2" 1 x 1/4"	1 x 1/2" 3 x 1/4"	1 x 1/2" 3 x 1/4"	1 x 1/2" 3 x 1/4"	1 x 1/2" 3 x 1/4"
<b>Outlet Hose Connections</b>	19mm (3/4")	25mm (1")	19mm (3/4")	25mm (1")	25mm (1")	25mm (1")	25mm (1")
<b>Settlement Tank Capacity</b>	N/A	60 litres	75 litres	125 litres	185 litres	355 litres	485 litres
	N/A	16 US G	20 US G	33 US G	49 US G	94 US G	128 US G
<b>Max. Pressure</b>	16 bar g (232 psi g)						
<b>Min/ Max Temperature</b>	°C	5 to 35	5 to 35	5 to 35	5 to 35	5 to 35	5 to 35
	°F	41 to 95	41 to 95	41 to 95	41 to 95	41 to 95	41 to 95
<b>Material (Re-cyclable)</b>	Polyethylene						

## Weights and Dimensions

Model	Height (H)		Width (W)		Depth (D)		Weight			
	mm	ins	mm	ins	mm	ins	Empty		Full	
							kg	lbs	kg	lbs
ES2100	842	33.1	250	9.8	315	12.4	6	13	24.5	154
ES2150	810	31.9	350	13.8	430	16.9	10	22	78.5	173
ES2200	805	31.7	350	13.8	450	17.7	12	26	93.5	206
ES2300	1195	47.0	500	19.7	800	31.5	27	59	159	350
ES2400	1195	47.0	650	26.6	800	31.5	36	79	217	477
ES2500	1535	60.4	700	27.6	985	38.8	70	154	400	880
ES2600	1535	60.4	1000	39.4	1010	39.8	97	214	550	1210



## Product Selection

Correct selection is critical for the operation of oil/water separators. Increased condensate flow through an oil/water separator reduces settlement time in the main tank, increases oil carryover to the carbon stage & reduces contact time with the carbon. The overall effect of incorrect sizing is poor outlet water quality, reduced carbon filter life and the potential for overflowing.

Capacities shown in this literature assume installation in two of the worlds major climatic conditions. Should the oil/water separator be installed in conditions other than those shown, please contact your local Parker outlet or approved distributor/agent for correct sizing.

### Oil types

To simplify the selection, lubricant classifications have been split into three bands depending upon their ability to separate within a static type oil/water separator.

**Band A:** Turbine Oil, Additive Free Oil

**Band B:** Mineral  
Poly alpha olefins (PAO)  
Trimethylolpropane Ester (TMP),  
Pentaerythrityl Ester (PE)

**Band C:** Diesters, Triesters,  
Polyoxyalkylene glycol (PAG)

### Inseparable using Static Separation

**Techniques:** Automatic transmission fluid (ATF)

### Drain types

The condensate should be removed from the compressed air system using a drainage method that does not cause emulsification of the condensate and is appropriate for the unit. Usual methods include :

- Level Operated Electronic Drain
- Float Drain
- Timed Solenoid Drain\*

Parker recommends the use of the ED3000 Series range of condensate drains. Manual and Thermodynamic Disc trap drains must not be used with the ES2000 Series oil/water separators.

**\*If the use of Timed Solenoid Drains is unavoidable, steps must be taken to reduce the air loss as this has an emulsifying effect on the condensate.**

### Refrigeration dryers

A refrigeration dryer installed in a compressed air system can significantly increase the condensate produced. The oil/water separator must be sized appropriately to treat the extra condensate produced. Flow capacities within this literature are shown both with and without a refrigeration dryer installed.

### Important Note:

Additives blended into the lubricants to prevent bacterial growth, rusting, corrosion, and to promote emulsification, such as detergents etc., can have an impact on the separating process. Static oil/water separators are unable to separate stable emulsions or oils that are miscible in water. Additionally, these units will not totally separate lubricants containing: Emulsifying Agents; Glycol additives; or Polyglycol based coolants.

## Climate Condition 1 - Outlet quality: <20mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 25°C (77°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 65% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 30°C (86°F)  
 Compressor Discharge Temperature: 35°C (95°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <20mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	36.9	2.2	133	78	30.8	1.9	111	66	25.6	1.5	92	54
	ES2150	58.6	3.5	211	124	50.0	3	180	106	40.6	2.4	146	86
	ES2200	90.3	5.4	325	191	76.7	4.6	276	163	62.5	3.7	225	132
	ES2300	126.7	7.6	456	268	106.4	6.4	383	225	87.5	5.3	315	185
	ES2400	253.4	15.2	912	537	212.8	12.8	766	451	175.0	10.5	630	371
	ES2500	501.4	30.1	1805	1062	425.0	25.5	1530	900	346.4	20.8	1247	734
	ES2600	997.6	59.9	3591	2114	849.2	51	3057	1800	689.5	41.4	2482	1461

Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	27.8	1.7	100	59	23.3	1.4	84	49	19.2	1.2	69	41
	ES2150	43.9	2.6	158	93	37.5	2.3	135	80	30.6	1.8	110	65
	ES2200	67.8	4.1	244	144	57.8	3.5	208	122	46.9	2.8	169	99
	ES2300	95.3	5.7	343	202	80.0	4.8	288	169	65.8	3.9	237	139
	ES2400	190.3	11.4	685	403	159.7	9.6	575	339	131.7	7.9	474	279
	ES2500	377.0	22.6	1357	798	319.2	19.2	1149	677	260.6	15.6	938	552
	ES2600	749.8	45	2699	1589	638.4	38.3	2298	1352	518.1	31.1	1865	1098

## Climate Condition 2 - Outlet quality: <20mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 35°C (95°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 85% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 40°C (104°F)  
 Compressor Discharge Temperature: 45°C (113°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <20mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	13.9	0.8	50	30	11.7	0.7	42	25	9.7	0.6	35	21
	ES2150	22.2	1.3	80	47	18.9	1.1	68	40	15.6	0.9	56	33
	ES2200	34.2	2.1	123	73	29.2	1.7	105	62	23.6	1.4	85	50
	ES2300	48.1	2.9	173	102	40.3	2.4	145	85	33.1	2	119	70
	ES2400	96.1	5.8	346	204	80.6	4.8	290	171	66.4	4	239	141
	ES2500	190.0	11.4	684	403	161.1	9.7	580	341	131.4	7.9	473	278
	ES2600	378.4	22.7	1362	801	322.0	19.3	1159	682	261.4	15.7	941	554

Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	11.4	0.7	41	24	9.4	0.6	34	20	7.8	0.5	28	17
	ES2150	17.8	1.1	64	38	15.3	0.9	55	32	12.5	0.7	45	26
	ES2200	27.5	1.7	99	59	23.6	1.4	85	50	19.2	1.1	69	40
	ES2300	38.9	2.3	140	82	32.5	2	117	69	26.7	1.6	96	57
	ES2400	77.5	4.7	279	164	65.0	3.9	234	138	53.6	3.2	193	114
	ES2500	153.3	9.2	552	325	130.0	7.8	468	275	106.1	6.4	382	225
	ES2600	305.3	18.3	1099	647	260.0	15.6	936	551	210.9	12.7	759	447

For systems using 1 or 2 stage piston/reciprocating compressors multiply compressor flow by 1.4 and select a separator from screw compressor flow rates shown, ensuring due consideration is given to oil type. For sizing at conditions other than those shown, please contact Parker for correct product selection.

## Climate Condition 1 - Outlet quality: <10mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 25°C (77°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 65% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 30°C (86°F)  
 Compressor Discharge Temperature: 35°C (95°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <10mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A Turbine, Additive Free				Band B Mineral, PAO, TMP, PE				Band C Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	20.6	1.2	74	43	17.2	1	62	36	14.2	0.9	51	30
	ES2150	32.5	2	117	69	27.8	1.7	100	59	22.5	1.4	81	48
	ES2200	50.3	3	181	106	42.5	2.6	153	90	34.7	2.1	125	73
	ES2300	70.3	4.2	253	149	59.2	3.5	213	125	48.6	2.9	175	103
	ES2400	140.8	8.4	507	298	118.1	7.1	425	250	97.2	5.8	350	206
	ES2500	278.6	16.7	1003	590	236.1	14.2	850	500	192.5	11.6	693	408
	ES2600	554.2	33.3	1995	1174	472.0	28.3	1699	1000	383.1	23	1379	812

Refrigeration Dryer Installed in System		Oil Type											
		Band A Turbine, Additive Free				Band B Mineral, PAO, TMP, PE				Band C Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	15.6	0.9	56	33	13.1	0.8	47	27	10.6	0.6	38	23
	ES2150	24.4	1.5	88	52	20.8	1.3	75	44	16.9	1	61	36
	ES2200	37.8	2.3	136	80	31.9	1.9	115	68	26.1	1.6	94	55
	ES2300	52.8	3.2	190	112	44.4	2.7	160	94	36.7	2.2	132	77
	ES2400	105.8	6.3	381	224	88.9	5.3	320	188	73.1	4.4	263	155
	ES2500	209.5	12.6	754	444	177.5	10.6	639	376	144.7	8.7	521	307
	ES2600	416.4	25	1499	883	354.8	21.3	1277	751	287.8	17.3	1036	610

## Climate Condition 2 - Outlet quality: <10mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 35°C (95°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 85% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 40°C (104°F)  
 Compressor Discharge Temperature: 45°C (113°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <10mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A Turbine, Additive Free				Band B Mineral, PAO, TMP, PE				Band C Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	7.8	0.5	28	16	6.4	0.4	23	14	5.3	0.3	19	11
	ES2150	12.2	0.7	44	26	10.6	0.6	38	22	8.6	0.5	31	18
	ES2200	18.9	1.1	68	40	16.1	1	58	34	13.1	0.8	47	28
	ES2300	26.7	1.6	96	57	22.5	1.3	81	47	18.3	1.1	66	39
	ES2400	53.3	3.2	192	113	44.7	2.7	161	95	36.9	2.2	133	78
	ES2500	105.6	6.3	380	224	89.5	5.4	322	190	73.1	4.4	263	155
	ES2600	210.0	12.6	756	445	178.9	10.7	644	379	145.3	8.7	523	308

Refrigeration Dryer Installed in System		Oil Type											
		Band A Turbine, Additive Free				Band B Mineral, PAO, TMP, PE				Band C Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	6.4	0.4	23	13	5.3	0.3	19	11	4.4	0.3	16	9
	ES2150	10.0	0.6	36	21	8.6	0.5	31	18	6.9	0.4	25	15
	ES2200	15.3	0.9	55	33	13.1	0.8	47	28	10.6	0.6	38	22
	ES2300	21.7	1.3	78	46	18.1	1.1	65	38	15.0	0.9	54	32
	ES2400	43.1	2.6	155	91	36.1	2.2	130	77	29.7	1.8	107	63
	ES2500	85.3	5.1	307	181	72.2	4.3	260	153	58.9	3.5	212	125
	ES2600	169.7	10.2	611	359	144.5	8.7	520	306	117.2	7	422	248

For systems using 1 or 2 stage piston/reciprocating compressors multiply compressor flow by 1.4 and select a separator from screw compressor flow rates shown, ensuring due consideration is given to oil type. For sizing at conditions other than those shown, please contact Parker for correct product selection.

## Climate Condition 1 - Outlet quality: <5mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 25°C (77°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 65% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 30°C (86°F)  
 Compressor Discharge Temperature: 35°C (95°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <5mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	10.3	0.6	37	22	8.6	0.5	31	18	7.2	0.4	26	15
	ES2150	16.4	1	59	34	13.9	0.8	50	29	11.4	0.7	41	24
	ES2200	25.0	1.5	90	53	21.4	1.3	77	45	17.2	1	62	37
	ES2300	35.3	2.1	127	75	29.4	1.8	106	63	24.4	1.5	88	52
	ES2400	70.3	4.2	253	149	59.2	3.5	213	125	48.6	2.9	175	103
	ES2500	139.2	8.4	501	295	118.1	7.1	425	250	96.4	5.8	347	204
	ES2600	277.2	16.6	998	587	235.9	14.2	849	500	191.4	11.5	689	406

Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	7.8	0.5	28	16	6.4	0.4	23	14	5.3	0.3	19	11
	ES2150	12.2	0.7	44	26	10.6	0.6	38	22	8.6	0.5	31	18
	ES2200	18.9	1.1	68	40	16.1	1	58	34	13.1	0.8	47	28
	ES2300	26.4	1.6	95	56	22.2	1.3	80	47	18.3	1.1	66	39
	ES2400	52.8	3.2	190	112	44.4	2.7	160	94	36.7	2.2	132	77
	ES2500	104.7	6.3	377	222	88.6	5.3	319	188	72.2	4.3	260	153
	ES2600	208.4	12.5	750	441	177.2	10.6	638	376	143.9	8.6	518	305

## Climate Condition 2 - Outlet quality: <5mg/l oil in water

### System Conditions

Ambient Temperature at Compressor Inlet: 35°C (95°F) Refrigeration Dryer Dewpoint If Fitted: 3°C  
 Relative Humidity: 85% Minimum System Temperature If Refrigeration Dryer Is Not Fitted: 40°C (104°F)  
 Compressor Discharge Temperature: 45°C (113°F) System Pressure: 7 bar g (102 psi g) Outlet quality: <5mg/l oil in water

No Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	3.9	0.2	14	8	3.3	0.2	12	7	2.8	0.2	10	6
	ES2150	6.1	0.4	22	13	5.3	0.3	19	11	4.2	0.3	15	9
	ES2200	9.4	0.6	34	20	8.1	0.5	29	17	6.7	0.4	24	14
	ES2300	13.3	0.8	48	28	11.1	0.7	40	24	9.2	0.6	33	20
	ES2400	26.7	1.6	96	57	22.5	1.3	81	47	18.3	1.1	66	39
	ES2500	52.8	3.2	190	112	44.7	2.7	161	95	36.4	2.2	131	77
	ES2600	105.0	6.3	378	223	89.5	5.4	322	190	72.5	4.4	261	154

Refrigeration Dryer Installed in System		Oil Type											
		Band A				Band B				Band C			
		Turbine, Additive Free				Mineral, PAO, TMP, PE				Diesters, Triesters, PAG			
Compressor Type	Model	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm	L/s	m³/min	m³/hr	cfm
Rotary Screw, Vane	ES2100	3.1	0.2	11	7	2.5	0.2	9	6	2.2	0.1	8	5
	ES2150	5.0	0.3	18	11	4.2	0.3	15	9	3.3	0.2	12	7
	ES2200	7.8	0.5	28	16	6.4	0.4	23	14	5.3	0.3	19	11
	ES2300	10.8	0.6	39	23	9.2	0.5	33	19	7.5	0.4	27	16
	ES2400	21.7	1.3	78	46	18.1	1.1	65	38	15.0	0.9	54	32
	ES2500	42.5	2.6	153	90	36.1	2.2	130	77	29.4	1.8	106	62
	ES2600	84.7	5.1	305	180	72.2	4.3	260	153	58.6	3.5	211	124

For systems using 1 or 2 stage piston/reciprocating compressors multiply compressor flow by 1.4 and select a separator from screw compressor flow rates shown, ensuring due consideration is given to oil type. For sizing at conditions other than those shown, please contact Parker for correct product selection.



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### US Product Information Centre

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