



TOR Oil Separators with integrated Reservoir

<p>TOR-Series Oil Separators:</p> <p>Compact housing for operating pressures up to 46 bar, suitable for CO₂ sub critical application. With integrated Oil Receiver Volume</p> <p>CE</p>	<p>Features:</p> <ul style="list-style-type: none"> • Oil Separator with fastening and Rotalockvalve or Adapter for the Oil connection • Standard Series with effective Oil separation • Connections suitable for brazing or welding • CE marked acc. PED 2014/68/EU • Powder painted for excellent corrosion resistance <p>Optional: Oil connection Rotalockvalve or Adapter</p>
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CE marked acc PED	2014/68/EU	Media Compatibility	See table 1, , Mineral-, Synthetic- and POE, PAG lubricants
Applied Standards	EN 378/-1/-2, EN 14276-1, EN 1593, EN 1779	Material	Housing: Steel Connection: Steel, nickel plated
Pressure Range:	max. operating pressure PS: 46 bar Testpressure PT: 50,6 bar	Temperature Range	46 bar: -10°C to 120°C

Table 1

Refrigerant	Group acc. PED 2014/68/EC	Group acc. EN378	Refrigerant	Group acc. PED 2014/68/EC	Group acc. EN378
R404A R134a R448A R449A R450A R513A R744	II	A1	R1234ze (E) R1234yf R32 R455A R454C	I	A2L
R1270 R290			I		



Technical Data

Type	Oil Volume (l)	Connection (ODF)	Rotalock Connection	Oil Connection (ODF) Rotalockvalve/Adapt.	PED Cat.			
					Fluid II	Fluid I		
TOR-16-4 TOR-22-4 TOR-28-4 TOR-35-4	4	16mm - 5/8" 22mm - 7/8" (28mm) - 1-1/8" 35mm - 1-3/8"	1"-14 UNF	3/8" -optional 10mm 1/2" optional 12mm 16mm-5/8"	II	III		
TOR-22-7 TOR-28-7 TOR-35-7 TOR-42-7	7	22mm - 7/8" (28mm) - 1-1/8" 35mm - 1-3/8" 42mm - (1-5/8")						
TOR-28-12 TOR-35-12 TOR-42-12 TOR-54-12 TOR-64-12	12	(28mm) - 1-1/8" 35mm - 1-3/8" 42mm - (1-5/8") 54mm - 2-1/8" 64mm						
TOR-35-20 TOR-42-20 TOR-54-20	20	35mm - 1-3/8" 42mm - (1-5/8") 54mm - 2-1/8"						
TOR-42-30 TOR-54-30	30	42mm - (1-5/8") 54mm - 2-1/8"						
TOR-258-50 TOR-64-50 TOR-80-50	50	2-5/8" 64mm 80mm - 3-1/8"						

Models and Capacities (Qn)

Capacity Qn (kW) Tc=30°C, Tevap=-15°C, 1K subcooling											
() PED Refrigerant group		R404A (2)	R134a (2)	R449A R448A (2)	R450A (2)	R513A (2)	R410A (2)	R744 (2) **	R1234yf R1234ze (E) (1)	R1270 (1)	R32 (1)
Type	P/N										
TOR-16-4	18010	18	16	21	15	16	25	36	14	27	30
TOR-22-4	18011	31	28	35	26	27	42	60	24	46	52
TOR-28-4	18012	38	34	43	32	33	52	74	30	56	63
TOR-35-4	18025	48	43	55	40	42	66	95	37	71	80
TOR-22-7	18013	34	31	39	28	30	47	67	27	50	57
TOR-28-7	18014	41	37	47	34	36	56	80	32	61	68
TOR-35-7	18026	51	46	58	42	44	70	100	40	75	85
TOR-42-7	18027	64	58	73	53	56	88	126	50	95	107
TOR-28-12	18015	42	38	48	35	37	58	83	33	62	70
TOR-35-12	18016	52	47	59	43	45	71	102	41	77	87
TOR-42-12	18028	66	59	75	55	57	90	129	51	98	110
TOR-54-12	18029	90	81	103	75	78	123	177	70	133	150
TOR-64-12	18030	126	113	144	105	110	173	249	98	186	210
TOR-35-20	18017	53	48	60	44	46	73	105	41	78	89
TOR-42-20	18018	67	60	76	56	58	92	132	52	99	112
TOR-54-20	18019	92	83	105	76	80	126	181	72	136	154
TOR-42-30	18020	70	63	80	58	61	96	138	55	104	117
TOR-54-30	18021	94	85	107	78	82	129	185	73	139	157
TOR-258-50	18022	141	127	161	117	123	193	277	110	209	235
TOR-64-50	18023	132	119	150	110	115	181	260	103	195	220
TOR-80-50	18024	224	202	255	186	195	307	442	175	332	374

** based on -10°C Condensing Temperature

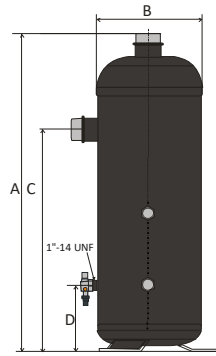


Correction factors Kt for other conditions

Hot-gas application								
R1270					R449A			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20		5	-10	-20	-35
50	0,88	0,96	1,06		0,87	0,95	1,01	1,12
40	0,89	0,96	1,04		0,87	0,95	1,00	1,10
30	0,90	0,98	1,06		0,90	0,97	1,02	1,12
R448A					R450A			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20	-35	5	-10	-20	-35
50	0,87	0,95	1,01	1,12	0,84	0,93	0,99	1,11
40	0,88	0,95	1,01	1,11	0,86	0,94	1,00	1,11
30	0,91	0,97	1,03	1,12	0,90	0,97	1,03	1,13
R513A					R1234yf			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20	-35	5	-10	-20	-35
50	0,86	0,95	1,03	1,17	0,87	0,97	1,05	1,21
40	0,83	0,95	1,01	1,13	0,87	0,95	1,02	1,16
30	0,90	0,98	1,04	1,15	0,89	0,97	1,03	1,15
R1234ze					R32			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20	-35	5	-10	-20	-35
50	0,84	0,92	0,99	1,12	0,88	0,94	0,98	1,01
40	0,86	0,94	1,00	1,10	0,89	0,95	1,00	1,05
30	0,89	0,97	1,03	1,13	0,91	0,97	1,02	1,11
R290					R410A			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20		5	-10	-20	
50	0,87	0,95	1,01		0,92	1,00	1,06	
40	0,87	0,95	1,01		0,90	0,97	1,02	
30	0,89	0,96	1,02		0,91	0,98	1,02	
R134a					R404A			
Condensing Temp. °C	Evaporating Temp. °C				Evaporating Temp. °C			
	5	-10	-20		5	-10	-20	-35
50	0,85	0,93	0,99		0,90	0,99	1,07	1,23
40	0,87	0,94	1,00		0,81	0,96	1,03	1,15
30	0,84	0,91	1,03		0,87	0,95	1,01	1,11
R744								
Condensing Temp. °C	Evaporating Temp. °C							
	0	-10	-20	-30	-40			
10	0,87	0,91	0,96	1,01	1,0628			
0		0,89	0,81	0,98	1,05			
-10		0,91	0,95	1,00	1,0576			

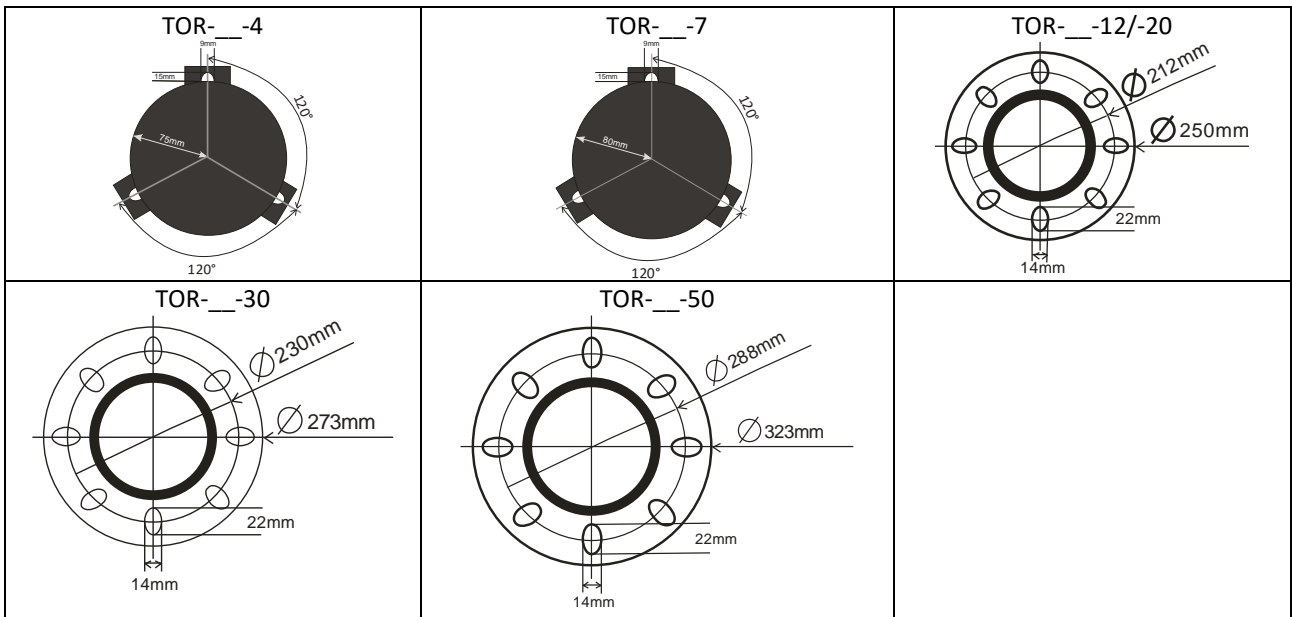
Calculation of Qn for other Conditions: $Q_o \times K_t = Q_n$

Dimensions TOR (mm)



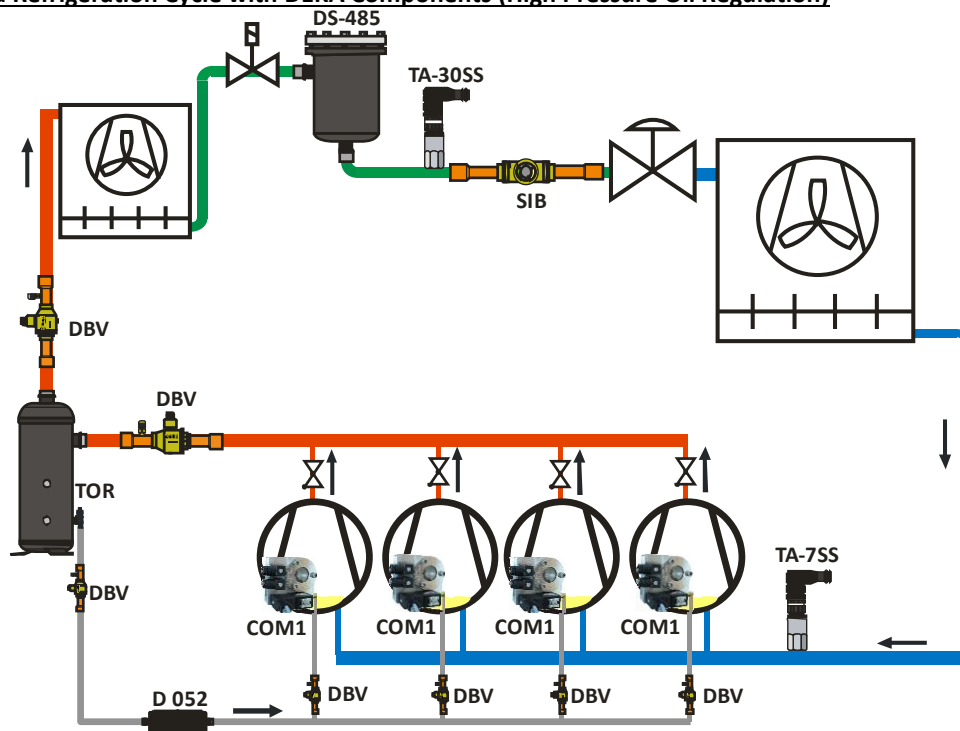
Type	Connection	A	B	C	D	Oil Volume (l)	Housing Volume (l)	Weight (kg)
TOR-16-4	16mm - 5/8"	580						
TOR-22-4	22mm - 7/8"	585	140	435	120	4	7,3	8,0
TOR-28-4	(28mm) -1-1/8"	590						
TOR-35-4	35mm - 1-3/8"	590						
TOR-22-7	22mm - 7/8"	685						
TOR-28-7	(28mm) 1-1/8"	690						
TOR-35-7	35mm - 1-3/8"	690	168	528	126	7	12,6	11,0
TOR-42-7	42mm - (1-5/8")	695						
TOR-28-12	(28mm) 1-1/8"	690						
TOR-35-12	35mm - 1-3/8"	690						
TOR-42-12	42mm - (1-5/8")	695	219	510	144	12	21,3	22,0
TOR-54-12	54mm - 2-1/8"	695						
TOR-64-12	64mm	700						
TOR-35-20	54mm - 2-1/8"	890						
TOR-42-20	42mm - (1-5/8")	895	219	700	144	20	28,3	24,0
TOR-54-20	54mm - 2-1/8"	895						
TOR-42-30	42mm - (1-5/8")	895						
TOR-54-30	54mm - 2-1/8"	895	273	680	158	30	43,4	33,0
TOR-258-50	2-5/8"	953						
TOR-64-50	64 mm	953	323	690	227	50	63,4	43,0
TOR-80-50	80 mm - 3-1/8"	954						

Installation Details



Oil connection (optional)

Oil connection	for Oil separator type	Type	PN	Connection (ODF)
Rotalockvalve (with two 7/16-UNF Service connections)	TOR-16-4 ... TOR-64-12	TRR-1-10 TRR-1-038	17011 17012	10mm 3/8"
	TOR-35-20 ... TOR-54-20	TRR-1-12 TRR-1-012	17013 17014	12mm 1/2"
	TOR-42-30 ... TOR-80-50	TRR-1-16	17015	16mm - 5/8"
Rotalock Adapter Straight	TOR-16-4 ... TOR-64-12	TAG-1-10 TAG-1-038	17016 17017	10mm 3/8"
	TOR-35-20 ... TOR-54-20	TAG-1-12 TAG-1-012	17018 17019	12mm 1/2"
	TOR-42-30 ... TOR-80-50	TAG-1-16	17020	16mm - 5/8"
Rotalock Adapter Angle	TOR-16-4 ... TOR-64-12	TAW-1-10 TAW-1-038	17021 17022	10mm 3/8"
	TOR-35-20 ... TOR-54-20	TAW-1-12 TAW-1-012	17023 17024	12mm 1/2"
	TOR-42-30 ... TOR-80-50	TAW-1-16	17025	16mm - 5/8"

Diagram of a Refrigeration Cycle with DEKA Components (High Pressure Oil Regulation)


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