



Danfoss *Eliminator*[®] filter drier with replaceable solid core Type DCR

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Introduction

Danfoss *Eliminator* filter driers with replaceable solid core, type DCR, are for use in liquid and/or suction lines in refrigeration, freezing and air-conditioning systems.

Besides being able to meet the demanding requirements of high working pressure levels when operating with R410A and CO₂, the new DCR programme offers flexibility with respect to different pressure versions.

The customers can thus choose between two versions, a normal pressure version and a high pressure version.


Features
DCR housings:

- DCR housings (incl. core holder) are made entirely of steel and are thus compatible with all refrigerants.
- DCR housings have undergone zinc-phosphate pre-treatment and have a corrosion-resistant powder-paint finish.
- DCR housings are helium leak tested.

Top covers for DCR housings:

- Zinc-chromated steel top covers with or without external access connection.

Inserts for DCR housings - solid cores

48 - DM - 100% molecular sieve solid core suitable for HFC refrigerants:

- Provides high moisture adsorption at low and high condensing temperatures.
- Effective protection against impurities.

48 - DC - 80% molecular sieve and 20% activated alumina solid core suitable for CFC & HCFC refrigerants and compatible with HFC refrigerants:

- Adsorbs moisture and acid in the system throughout the entire temperature range.

48 - DA - 30% molecular sieve and 70% activated alumina solid core suitable after compressor burn-out and compatible with CFC / HCFC / HFC refrigerants:

- High acid adsorption and standard water adsorption.

All solid cores have an optimised uniform grain size ensuring effective dirt removal and low pressure drop. The robust solid cores withstand pressure surge and vibration.

Inserts for DCR housings - strainer

48 - F strainer - compatible with all refrigerants:

- Retains dirt particles larger than 15 µm.
- For use direct in DCR housings.
- Utilised in the suction or liquid line.

Approvals

CE marked in accordance with the European Pressure Equipment Directive - 97/23/EC

C_UUS listed 207 and C22.2 no. 140.3

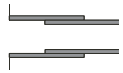
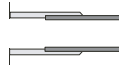
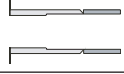
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Technical data

Type	PS / MWP	Refrigerant	Temperature range
DCR 048	35 bar / 500 psig	CFC / HCFC / HFC	-40 → +70°C / -40 → +160°F
DCR 096			
DCR 144			
DCR 192	28 bar / 400 psig		

DCR 048 HP	46 bar / 667 psig	CFC / HCFC / HFC	-40 → +70°C / -40 → +160°F
DCR 096 HP			

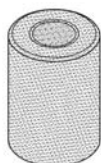
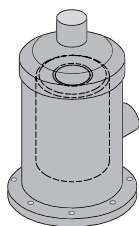
Type of connector and recommended soldering material

	Copper ODF solder connector Copper pipe
	Steel ODF solder connector Copper pipe
	Steel butt weld connector Steel pipe

Solder connector	Recommended soldering material
Copper	Sil-fos 15
Steel	Silver-flo 55 + Easy-flow flux

Capacity

48-DM



Type	Number of cores	Drying capacity [kg refrigerant] ¹⁾						Liquid capacity [kW] ²⁾		
		R134a		R404A / R507		R407C / R410A		R134a	R404A / R507	R407C / R410A
		24°C	52°C	24°C	52°C	24°C	52°C			
DCR 0485	1	82.5	78.5	135.0	74.0	83.0	71.0	79	57	88
DCR 0487								139	99	153
DCR 0489								186	133	206
DCR 04811								227	162	259
DCR 04813								227	162	259
DCR 04817								227	162	259
DCR 04821								227	162	259
DCR 0967	2	165.0	157.0	270.0	148.0	166.0	142.0	140	100	155
DCR 0969								217	155	240
DCR 09611								295	211	326
DCR 09613								358	256	396
DCR 09617								358	256	396
DCR 1449	3	247.5	235.5	405.0	222.0	249.0	213.0	226	162	250
DCR 14411								356	255	394
DCR 14413								356	255	394
DCR 14417								356	255	394
DCR 19211	4	330.0	314.0	540.0	296.0	332.0	284.0	372	266	411
DCR 19213								460	329	509
DCR 19217								460	329	509

48-DC

Type	Number of cores	Drying capacity [kg refrigerant] ¹⁾								Liquid capacity [kW] ²⁾			
		R22		R134a		R404A / R507		R407C / R410A		R22	R134a	R404A / R507	R407C / R410A
		24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DCR 0485	1	67.0	62.0	71.0	67.5	115.0	62.0	70.5	60.0	88	79	57	88
DCR 0487										153	139	99	153
DCR 0489										206	186	133	206
DCR 04811										259	227	162	259
DCR 04813										259	227	162	259
DCR 04817										259	227	162	259
DCR 04821										259	227	162	259
DCR 0967	2	134.0	124.0	142.0	135.0	230.0	124.0	141.0	120.0	155	140	100	155
DCR 0969										240	217	155	240
DCR 09611										326	295	211	326
DCR 09613										396	358	256	396
DCR 09617										396	358	256	396
DCR 1449	3	201.0	186.0	213.0	202.5	345.0	186.0	211.5	180.0	250	226	162	250
DCR 14411										394	356	255	394
DCR 14413										394	356	255	394
DCR 14417										394	356	255	394
DCR 19211	4	268.0	248.0	284.0	270.0	460.0	248.0	282.0	240.0	411	372	266	411
DCR 19213										509	460	329	509
DCR 19217										509	460	329	509
DCR 19221										509	460	329	509

¹⁾ Drying capacity is based on the following moisture contents before and after drying:
R22: From 1050 ppm W to 60 ppm W in accordance with ARI 710-86.
R134a: From 1050 ppm W to 75 ppm W. If refrigerant is to be dried to 50 ppm W, reduce the stated capacities by 15%.
R404A, R407C & R507: From 1020 ppm W to 30 ppm W.
R410A: From 1050 ppm W to 60 ppm W.
²⁾ Liquid capacity given in accordance with ARI 710-2002 evaporating temperature $t_e = -15^\circ\text{C}$,
condensing temperature $t_c = +30^\circ\text{C}$ and pressure drop across filter drier $\Delta p = 0.07$ bar.

Capacity (cont.)



48-DA

Type	Number of cores	Drying capacity [g of water] ³⁾												Acid capacity ⁴⁾ [g]
		Evaporating temperature t _e [°C]												
		-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4	
		R22			R134a			R404A / R507			R407C / R410A			
DCR 048	1	28	19	12	45	38	27	47	30	19	42	35	25	26.6
DCR 096	2	56	37	24	90	77	54	94	60	37	84	70	50	53.3
DCR 144	3	84	56	36	135	115	81	142	90	56	126	105	75	79.9
DCR 192	4	112	74	48	180	153	108	189	120	75	168	140	100	106.5

³⁾ Drying capacity is expressed during drying in:
R22: EPD = 10 ppm W, corresponding to a dew point temperature = -50°C
R134a: EPD = 50 ppm W, corresponding to a dew point temperature = -37°C
R404A: EPD = 10 ppm W, corresponding to a dew point temperature = -40°C
R407C: EPD = 10 ppm W, corresponding to a dew point temperature = -40°C
⁴⁾ Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

Recommended plant capacity in suction line - burn-out

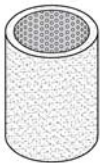


48-DA

Type	Recommended plant capacity [kW]											
	Evaporating temperature t _e [°C]											
	-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4
	R22			R134a			R404A/ R507			R407C / R410A		
	Pressure drop [Δp bar]											
	0.04	0.10	0.21	0.04	0.07	0.14	0.04	0.10	0.21	0.04	0.10	0.21
	R22			R134a			R404A/ R507			R407C / R410A		
DCR 0485	3.1	8.9	21.0	3.0	5.4	13.0	2.4	7.1	17.5	3.1	8.9	21.0
DCR 0487	5.8	16.1	37.8	5.6	9.9	23.4	4.5	12.9	31.2	5.8	16.1	37.8
DCR 0489	7.8	21.6	50.7	7.5	13.3	31.5	6.0	17.2	41.8	7.8	21.6	50.7
DCR 04811	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04813	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04817	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04821	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 0965	3.3	9.1	21.4	3.2	5.7	13.4	2.5	7.4	18.0	3.3	9.2	21.6
DCR 0967	5.8	16.2	38.1	5.6	9.9	23.6	4.5	12.9	31.4	5.8	16.2	38.1
DCR 0969	8.7	24.6	58.3	8.4	15.0	35.9	6.8	19.7	48.1	8.7	24.6	58.3
DCR 09611	11.9	33.4	79.3	11.4	20.4	48.9	9.3	26.8	65.4	11.9	33.4	79.3
DCR 09613	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 09617	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 09621	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 1445	3.5	10.0	22.8	3.4	6.0	14.0	2.7	7.7	18.9	3.5	10.0	22.8
DCR 1447	6.6	18.9	42.9	6.3	11.2	26.4	5.1	14.5	35.6	6.6	18.9	42.9
DCR 1449	8.8	25.1	57.2	8.4	15.0	35.2	6.8	19.4	47.5	8.8	25.1	57.2
DCR 14411	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14413	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14417	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14421	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 1925	4.2	11.5	27.3	4.0	7.1	16.8	3.2	9.2	22.7	4.2	11.5	27.3
DCR 1927	7.9	21.6	51.4	7.6	13.4	31.6	6.1	17.4	42.7	7.9	21.6	51.4
DCR 1929	10.6	28.9	68.9	10.2	18.0	42.1	8.2	23.3	57.2	10.6	28.9	68.9
DCR 19211	14.8	41.8	99.4	14.3	25.5	61.2	11.6	33.6	82.2	14.8	41.8	99.4
DCR 19213	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1
DCR 19217	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1
DCR 19221	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1

Data given in accordance with ARI-Standard 710-2002 for t_e = 4.4°C and t_c = 32.2°C.

Strainer mounted in suction line



48-F

Refrigerant	R22			R134a			R404A / R507			R407C / R410A		
Evaporating temperature [°C]	-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4
Pressure drop [Δp bar]	0.04	0.10	0.21	0.04	0.07	0.14	0.04	0.10	0.21	0.04	0.10	0.21
Recommended system capacity [kW]	15	47	113	15	28	69	12	38	93	15	47	113

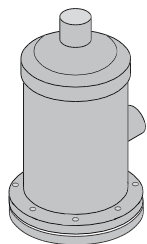
Strainer mounted in liquid line

Refrigerant	R22	R134a	R404A / R507	R407C / R410A
Recommended system capacity [kW]	390	350	260	390

Liquid capacity is given in accordance with ARI 710-2002 at:
Evaporating temperature t_e = -15°C
Condensing temperature t_c = +30°C
Pressure drop across filter drier Δp = 0.07 bar

The data given apply to DCR 04811 with 48-F core.

Ordering



Normal pressure versions

DCR housings + top cover

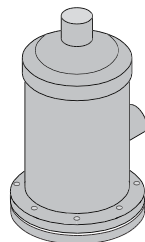
Type	Number of cores	Steel connectors			Code number	Max. working pressure (PS/MWP)
		Solder		Butt weld		
		ODF in.	ODF mm	in.		
DCR 0485	1	5/8	16	1/2	023U7050	35 bar
DCR 0487		7/8	22	3/4	023U7051	
DCR 0489			28	1	023U7052	
DCR 0489		1 1/8		1	023U7053	
DCR 04811		1 3/8	35	1 1/4	023U7054	
DCR 04813		1 5/8		1 1/2	023U7055	
DCR 04813			42	1 1/2	023U7056	
DCR 04817		2 1/8	54	2	023U7057	
DCR 04821		2 5/8		2 1/2	023U7076	
DCR 0967	2	7/8	22	3/4	023U7058	35 bar
DCR 0969			28	1	023U7059	
DCR 0969		1 1/8		1	023U7060	
DCR 09611		1 3/8	35	1 1/4	023U7061	
DCR 09613		1 5/8		1 1/2	023U7062	
DCR 09613			42	1 1/2	023U7063	
DCR 09617	2 1/8	54	2	023U7064	35 bar	
DCR 1449	3		28	1		023U7065
DCR 1449		1 1/8		1		023U7066
DCR 14411		1 3/8	35	1 1/4		023U7067
DCR 14413		1 5/8		1 1/2		023U7068
DCR 14413			42	1 1/2		023U7069
DCR 14417		2 1/8	54	2		023U7070
DCR 19211		1 3/8	35	1 1/4	023U7071	28 bar
DCR 19213	1 5/8		1 1/2	023U7072		
DCR 19213		42	1 1/2	023U7073		
DCR 19217	2 1/8	54	2	023U7074		

Type	Number of cores	Copper connectors		Code number	Max. working pressure (PS/MWP)
		Solder			
		ODF in.	ODF mm		
DCR 0485s	1	5/8	16	023U7250	35 bar
DCR 0487s		7/8	22	023U7251	
DCR 0489s			28	023U7252	
DCR 0489s		1 1/8		023U7253	
DCR 04811s		1 3/8	35	023U7254	
DCR 04813s		1 5/8		023U7255	
DCR 04813s			42	023U7256	
DCR 04817s		2 1/8	54	023U7257	
DCR 04821s		2 5/8		023U7276	
DCR 0967s	2	7/8	22	023U7258	35 bar
DCR 0969s			28	023U7259	
DCR 0969s		1 1/8		023U7260	
DCR 09611s		1 3/8	35	023U7261	
DCR 09613s		1 5/8		023U7262	
DCR 09613s			42	023U7263	
DCR 09617s	2 1/8	54	023U7264	35 bar	
DCR 09621s	2 5/8		023U7281		
DCR 1449s	3		28		023U7265
DCR 14411s		1 3/8	35		023U7267
DCR 14413s		1 5/8			023U7282
DCR 14413s			42		023U7269
DCR 14417s		2 1/8	54		023U7270
DCR 19213s	4	1 3/8		023U7272	28 bar
DCR 19213s			42	023U7273	
DCR 19217s		2 1/8	54	023U7274	

Ordering (cont.)

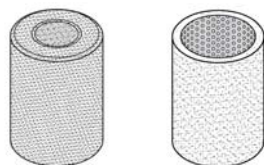
High pressure versions

DCR housings + top cover



Type	Number of cores	High-pressure steel connectors			Code no.	Max. working pressure (PS/MWP)
		Solder		Butt weld		
		ODF in.	ODF mm	in.		
DCR 0487	1	$\frac{7}{8}$	22	$\frac{3}{4}$	023U7451	46 bar
DCR 0489			28	1	023U7452	
DCR0489		$1\frac{1}{8}$		1	023U7453	
DCR 04811		$1\frac{3}{8}$	35	$1\frac{1}{4}$	023U7454	
DCR 04813		$1\frac{5}{8}$		$1\frac{1}{2}$	023U7455	
DCR 04817		$2\frac{1}{8}$	54	2	023U7457	
DCR 0967	2	$\frac{7}{8}$	22	$\frac{3}{4}$	023U7458	46 bar
DCR 0969			28	1	023U7459	
DCR 09611		$1\frac{3}{8}$	35	$1\frac{1}{4}$	023U7461	
DCR 09613		$1\frac{5}{8}$		$1\frac{1}{2}$	023U7462	
DCR 09617		$2\frac{1}{8}$	54	2	023U7464	

DCR inserts



Type	Material	Code no.		
		8 pcs.		1 piece with gasket
		with gasket	without gasket	
48-DM solid core	100% molecular sieve	023U1392	023U1393	023U1391
48-DC solid core	80% molecular sieve & 20% Al ₂ O ₃	023U4381	023U4382	023U4380
48-DA solid core	30% molecular sieve & 70% Al ₂ O ₃	023U5381	023U5382	023U5380
48-F strainer		023U1921		

Core surface

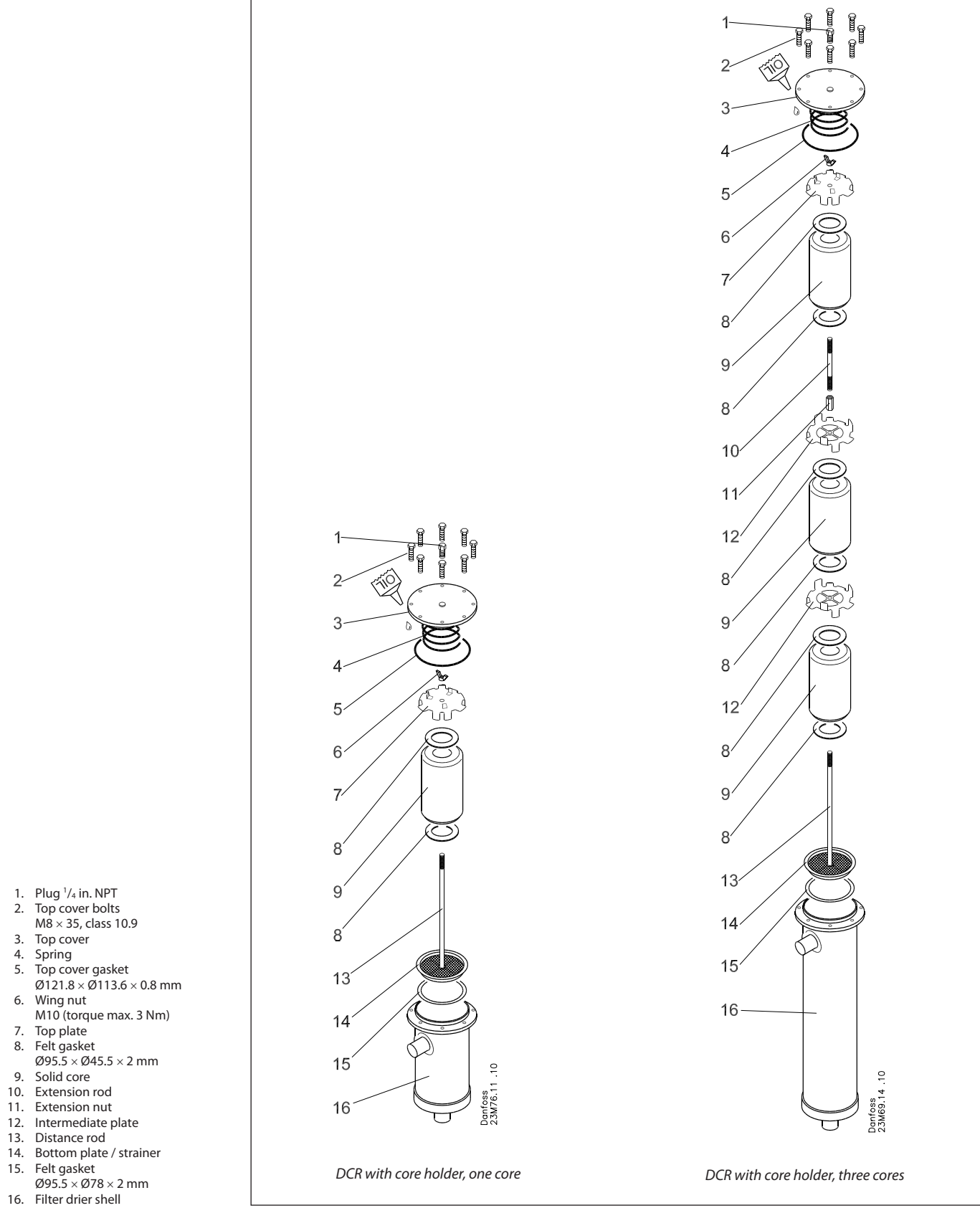
DM 048, DC 048 and DA 048	=	435 cm ²
DM 096, DC 096 and DA 096	=	870 cm ²
DM 144, DC 144 and DA 144	=	1305 cm ²
DM 192, DC 192 and DA 192	=	1740 cm ²
48-F	=	405 cm ²

Core volume

DM 048, DC 048 and DA 048	=	760 cm ³
DM 096, DC 096 and DA 096	=	1520 cm ³
DM 144, DC 144 and DA 144	=	2280 cm ³
DM 192, DC 192 and DA 192	=	3040 cm ³

Design

Example:



1. Plug 1/4 in. NPT
2. Top cover bolts
M8 x 35, class 10.9
3. Top cover
4. Spring
5. Top cover gasket
Ø121.8 x Ø113.6 x 0.8 mm
6. Wing nut
M10 (torque max. 3 Nm)
7. Top plate
8. Felt gasket
Ø95.5 x Ø45.5 x 2 mm
9. Solid core
10. Extension rod
11. Extension nut
12. Intermediate plate
13. Distance rod
14. Bottom plate / strainer
15. Felt gasket
Ø95.5 x Ø78 x 2 mm
16. Filter drier shell

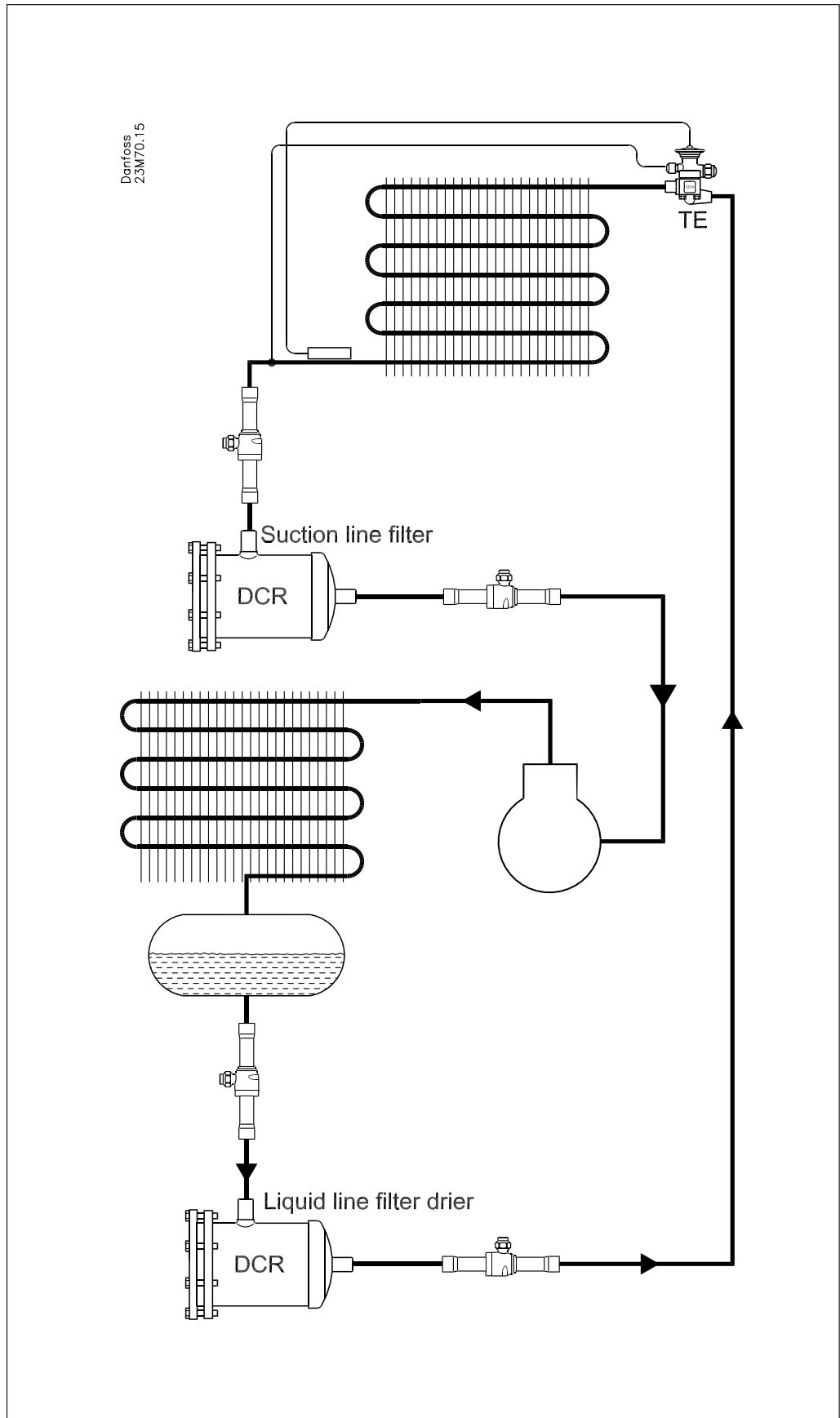
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DCR with core holder, one core

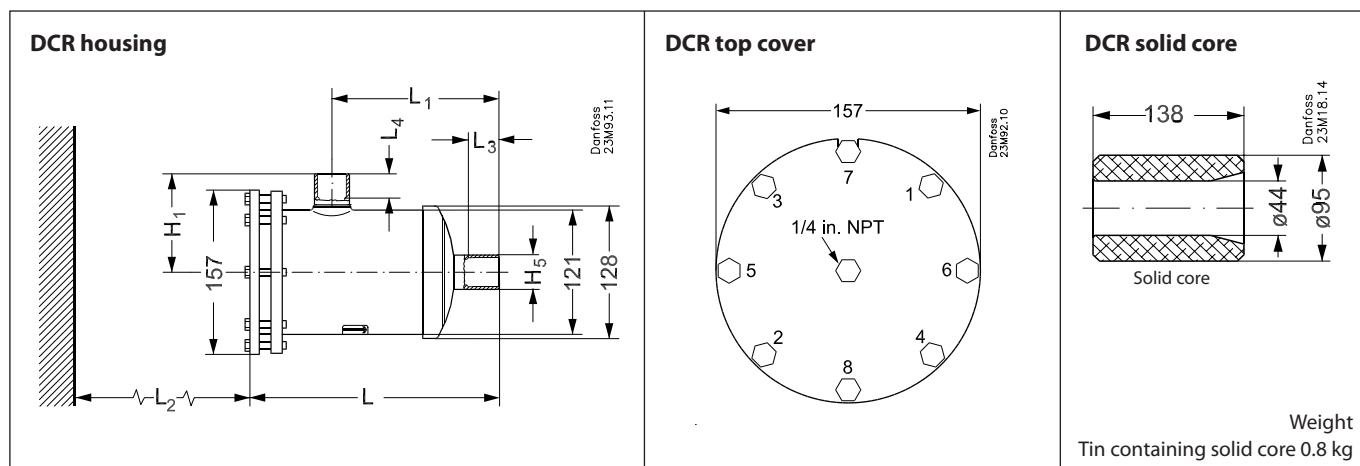
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DCR with core holder, three cores

Application



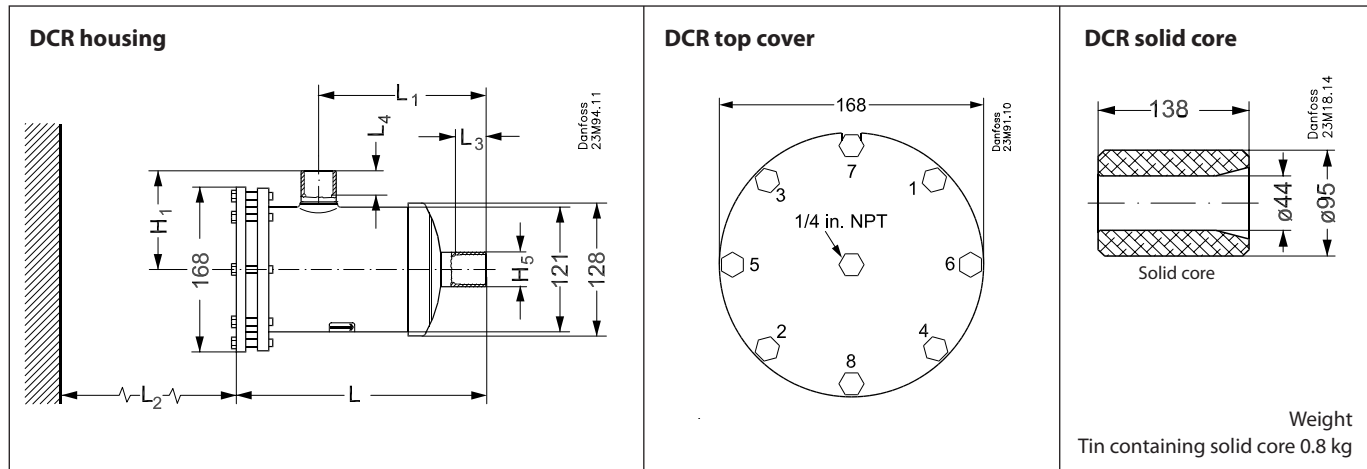
Dimensions and weights for normal-pressure version



Type	Number of cores	DCR with steel connectors							DCR with copper connectors							Weight* kg
		L mm	L ₁ mm	L ₂ mm	L ₃ mm	L ₄ mm	H ₁ mm	H ₅ mm	L mm	L ₁ mm	L ₂ mm	L ₃ mm	L ₄ mm	H ₁ mm	H ₅ mm	
DCR 0485(s)	1	245.5	165	170	12	12	96	21	262.5	182	170	12	12	113	19	5.2
DCR 0487(s)		239.5	159		17	17	90	27	262.5	181		17	17	113	25	
DCR 0489(s)		243.5	162		22	22	94	34	264.5	184		20	20	116	32	
DCR 0489(s)		243.5	162		22	22	94	34	264.5	184		20	20	116	32	
DCR 04811(s)		245.5	165		25	25	97	42	267.5	186		25	25	119	39	
DCR 04813(s)		250.5	170		29	29	103	48	268.5	188		29	29	121	46	
DCR 04813(s)		250.5	170		29	29	103	48	268.5	188		29	29	121	46	
DCR 04817(s)		256.5	176		33	33	111	60	270.5	190		34	34	125	58	
DCR 04821(s)	254.5	174	38	38	116	73	267.5	187	34	34	129	71				
DCR 0965(s)	2	384.5	304	310	12	12	96	21	401.5	321	310	12	12	113	19	6.6
DCR 0967(s)		378.5	298		17	17	90	27	401.5	320		17	17	113	25	
DCR 0969(s)		382.5	301		22	22	94	34	403.5	323		20	20	116	32	
DCR 0969(s)		382.5	301		22	22	94	34	403.5	323		20	20	116	32	
DCR 09611(s)		384.5	304		25	25	97	42	406.5	325		25	25	119	39	
DCR 09613(s)		389.5	309		29	29	103	48	407.5	327		29	29	121	46	
DCR 09613(s)		389.5	309		29	29	103	48	407.5	327		29	29	121	46	
DCR 09617(s)		395.5	315		33	33	111	60	409.5	329		34	34	125	58	
DCR 09621(s)	393.5	313	38	38	116	73	406.5	326	34	34	129	71				
DCR 1445(s)	3	526.5	446	310	12	12	96	21	543.5	463	310	12	12	113	19	7.8
DCR 1447(s)		520.5	440		17	17	90	27	543.5	462		17	17	113	25	
DCR 1449(s)		524.5	443		22	22	94	34	545.5	465		20	20	116	32	
DCR 1449(s)		524.5	443		22	22	94	34	545.5	465		20	20	116	32	
DCR 14411(s)		526.5	446		25	25	97	42	548.5	467		25	25	119	39	
DCR 14413(s)		531.5	451		29	29	103	48	549.5	469		29	29	121	46	
DCR 14413(s)		531.5	451		29	29	103	48	549.5	469		29	29	121	46	
DCR 14417(s)		537.5	457		33	33	111	60	551.5	471		34	34	125	58	
DCR 14421(s)	535.5	455	38	38	116	73	548.5	468	34	34	129	71				
DCR 1925(s)	4	666.5	586	310	12	12	96	21	683.5	603	310	12	12	113	19	9.1
DCR 1927(s)		660.5	580		17	17	90	27	683.5	602		17	17	113	25	
DCR 1929(s)		664.5	583		22	22	94	34	685.5	605		20	20	116	32	
DCR 1929(s)		664.5	583		22	22	94	34	685.5	605		20	20	116	32	
DCR 19211(s)		666.5	586		25	25	97	42	688.5	607		25	25	119	39	
DCR 19213(s)		671.5	591		29	29	103	48	689.5	609		29	29	121	46	
DCR 19213(s)		671.5	591		29	29	103	48	689.5	609		29	29	121	46	
DCR 19217(s)		677.5	597		33	33	111	60	691.5	611		34	34	125	58	
DCR 19221(s)	675.5	595	38	38	116	73	688.5	608	34	34	129	71				

* Weights stated without core. All values approximate.

Dimensions and weights for high-pressure version



Type	Number of cores	High-pressure DCR with steel connectors							Weight* kg
		L mm	L ₁ mm	L ₂ mm	L ₃ mm	L ₄ mm	H ₁ mm	H ₅ mm	
DCR 0487(s)	1	245.5	159	170	17	17	90	25	6.8
DCR 0489(s)		248.5	162		22	22	94	32	
DCR 04811		251.5	165		25	25	97	39	
DCR 04813		256.5	170		29	29	103	46	
DCR 04817		262.5	176		33	33	111	58	
DCR 0967	2	384.5	298	310	17	17	90	25	8.2
DCR 0969		387.5	301		22	22	94	32	
DCR 09611		390.5	304		25	25	97	39	
DCR 09613		395.5	309		29	29	103	46	
DCR 09617		401.5	315		33	33	111	58	

* Weights stated without core. All values approximate.