

**Introduction**

DN and DU filter driers with solid core are for use in liquid lines in refrigeration and freezing systems, A/C systems and refrigerated containers.

DN filters have a solid core composed of Molecular Sieves and activated aluminium oxide. This makes the DN filter suitable in applications where moisture and acid must be absorbed. DN is the correct choice for systems using HCFC refrigerants, but can also be used for HFC refrigerants.

DU filters have a solid insert with 100% Molecular Sieves, which are recommended for refrigerating systems using HFC refrigerants, R 134a, R 404a, etc.

DU filters have been specially designed for refrigerating and A/C systems where high water adsorption is required. DU filters do not contain aluminium oxide and can therefore be used with all types of compressors. They are therefore particularly suitable for systems using polyolester with additives.



DN and DU

**Features**
**DN**

- *Refrigerants*  
R 22, R 134a and R 404A, R 507 etc.
- *Compatible with CFC and refrigerant blends*  
containing R 124a, R 125, R 134a, R143a, R 152a, R 218, R 23 and R 32.
- *Solid core consisting of:*  
3Å molecular sieves and activated aluminium oxide for acid adsorption.

**DU**

- *Refrigerants*  
HFC refrigerants. R 134a, R 404a, R 407C, R 507, R410A, etc.
- *100% 3Å Molecular Sieves*  
Quick moisture adsorption in refrigeration system lessens the risk of acid formation. Not harmful to additives in polyolester oil.
- *High water adsorption capacity*  
Very low moisture content left in the refrigeration system. Because of their long life, these filter driers are environmentally friendly and economical in use.

**DN and DU filter driers**

- *Removes moisture in the refrigeration system quickly and effectively*
- *Optimized, uniform grain size in the solid core*
- *Insignificant pressure drop*
- *Can be installed in any position*  
provided the arrow is in flow direction.
- *Effective filtering down to 20 µm*
- *Solid core*  
High vibration resistance eliminates the risk of dust formation from desiccant wear.

- *Robust solid core*  
withstands pressure surge and vibration without releasing dust into the refrigeration system.
- *DN/DU 032s, DN/DU 032.5s and DN/DU 033s*  
specially prepared for use in units with capillary tube expansion.
- *Helium leak detection*  
All DN and DU filter driers are leak tested before being painted.
- *Surface finish, powder coating*  
High corrosion resistance. Can be used in all environments - from plant rooms to ships' refrigeration systems.

**Approvals**

- UL file no. SA 6398
- CSA certificate, no. 51840

**Pressure standard**

HP-marked in accordance with German directive TRB 521/522 on pressure vessels.

**Technical data**
**Surface and volume**

Filter	Max. working pressure PB	Solid core surface [cm <sup>2</sup> ]	Solid core volume [cm <sup>3</sup> ]	Filter drier volume [l]	DN acid capacity [g]
DN/DU 03	35 bar	60	50	0.10	0.71
DN/DU 05	35 bar	75	65	0.12	0.87
DN/DU 08	35 bar	10	100	0.17	1.36
DN/DU 16	35 bar	175	225	0.38	3.12
DN/DU 30	35 bar	330	480	0.67	6.40
DN 46	35 bar	505	705	1.05	9.52
DN 60	35 bar	660	960	1.34	12.80

**Temperature range**  
– 40 to 70°C

Capacity

Drying and liquid capacity

**DN**

Type	Drying capacity in kg refrigerant <sup>1)</sup>								Liquid capacity in kW <sup>2)</sup>			
	R 22		R 134a/R 507		R 404A		R 407C/R 410A		R 22	R 134a	R 404A R 507	R 407C R 410A
	24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DN 032	5.0	4.5	5.5	5.0	8.5	4.5	5.0	4.0	7.0	6.5	4.5	7.0
DN 032.5	5.0	4.5	5.5	5.0	8.5	4.5	5.0	4.0	15.0	13.0	10.0	15.0
DN 033	5.0	4.5	5.5	5.0	8.5	4.5	5.0	4.0	19.0	17.0	12.5	19.0
DN 052	6.0	5.5	6.5	6.0	10.5	5.5	6.5	5.5	7.5	7.0	5.0	7.5
DN 053	6.0	5.5	6.5	6.0	10.5	5.5	6.5	5.5	19.0	17.5	14.0	19.0
DN 082	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	7.5	7.0	5.0	7.5
DN 083	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	21.0	19.0	14.0	21.0
DN 084	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	28.5	26.0	19.5	28.5
DN 162	21.5	20.0	23.5	22.0	36.5	20.0	22.5	19.5	7.5	7.0	5.0	7.5
DN 163	21.5	20.0	23.5	22.0	36.5	20.0	22.5	19.5	23.5	21.5	15.5	23.5
DN 164	21.5	20.0	23.5	22.0	36.5	20.0	22.5	19.5	32.5	29.5	21.5	32.5
DN 165	21.5	20.0	23.5	22.0	36.5	20.0	22.5	19.5	47.0	42.5	30.0	47.0
DN 166	21.5	20.0	23.5	22.0	36.5	20.0	22.5	19.5	44.0	40.0	29.0	44.0
DN 303	44.0	41.0	47.0	44.0	76.5	41.0	46.5	39.5	23.0	21.0	15.0	23.0
DN 304	44.0	41.0	47.0	44.0	76.5	41.0	46.5	39.5	33.5	30.5	22.0	33.5
DN 305	44.0	41.0	47.0	44.0	76.5	41.0	46.5	39.5	49.0	44.5	32.5	49.0
DN 306	44.0	41.0	47.0	44.0	76.5	41.0	46.5	39.5	67.5	61.5	44.5	67.5
DN 307	44.0	41.0	47.0	44.0	76.5	41.0	46.5	39.5	65.0	59.0	43.0	65.0
DN 464	66.0	61.0	70.0	66.0	112.0	61.0	69.0	59.0	29.0	26.5	19.5	29.0
DN 465	66.0	61.0	70.0	66.0	112.0	61.0	69.0	59.0	40.0	36.5	27.0	40.0
DN 466	66.0	61.0	70.0	66.0	112.0	61.0	69.0	59.0	45.5	42.0	33.0	45.5
DN 467	66.0	61.0	70.0	66.0	112.0	61.0	69.0	59.0	50.0	47.0	35.0	50.0
DN 607	89.0	82.0	93.5	89.5	150.0	82.0	93.0	79.0	47.0	43.0	31.0	47.0

Drying and liquid capacity

**DU**

Type	Drying capacity in kg refrigerant <sup>1)</sup>						Liquid capacity in kW <sup>2)</sup>		
	R 134a/R 507		R 404A		R 407C/R 410A		R 134a	R 404A R 507	R 407C R 410A
	24°C	52°C	24°C	52°C	24°C	52°C			
DU 032	7.0	6.5	11.0	6.0	6.5	6.0	6.5	4.5	7.0
DU 032.5	7.0	6.5	11.0	6.0	6.5	6.0	13.0	10.0	15.0
DU 033	7.0	6.5	11.0	6.0	6.5	6.0	17.0	12.5	19.0
DU 052	8.5	8.0	13.0	7.5	8.0	7.0	7.0	5.0	7.5
DU 053	8.5	8.0	13.0	7.5	8.0	7.0	17.5	14.0	19.0
DU 082	12.5	12.0	20.0	11.5	12.5	11.0	7.0	5.0	7.5
DU 083	12.5	12.0	20.0	11.5	12.5	11.0	19.0	14.0	21.0
DU 084	12.5	12.0	20.0	11.5	12.5	11.0	26.0	19.5	28.5
DU 162	27.0	25.5	43.5	24.0	27.0	23.0	7.0	5.0	7.5
DU 163	27.0	25.5	43.5	24.0	27.0	23.0	21.5	15.5	23.5
DU 164	27.0	25.5	43.5	24.0	27.0	23.0	29.5	21.5	32.5
DU 165	27.0	25.5	43.5	24.0	27.0	23.0	42.5	30.0	47.0
DU 303	57.0	54.0	92.5	51.0	57.0	48.5	21.0	15.0	23.0
DU 304	57.0	54.0	92.5	51.0	57.0	48.5	30.5	22.0	33.5
DU 305	57.0	54.0	92.5	51.0	57.0	48.5	44.5	32.5	49.0
DU 306	57.0	54.0	92.5	51.0	57.0	48.5	61.5	44.5	67.5
DU 307	57.0	54.0	92.5	51.0	57.0	48.5	59.0	43.0	65.0

1) Drying capacity is based on following moisture content in the refrigerant before and after drying:  
R 22: From 1050 ppm W to 60 ppm W in accordance with ARI 710-86.  
R 134a: From 1050 ppm W to 75 ppm W. If drying of refrigerant to 50 ppm W is required, this can be achieved with a 15% reduction of the stated capacities.  
R 404A, R 407C og R 507: From 1020 ppm W to 30 ppm W.  
R 410A: From 1050 ppm W to 60 ppm W.  
2) Given in accordance with ARI 710-86 for  $t_e = -15^\circ\text{C}$ ,  $t_c = 30^\circ\text{C}$  and  $\Delta p = 0,07$  bar.

**Selection**

DN and DU are selected on the basis of:  
 1. Refrigerant and oil (see table).  
 2. The quantity of refrigerant in the system.  
 3. The refrigerant capacity of the system.

The refrigerant quantity is used to determine the amount of desiccant necessary to dry the refrigerant and oil.

The refrigerant capacity is used to determine the necessary pressure connection size.

Type selection is made considering the application

		DN	DU
Refrigerant	HFC	Can be used	Recommended
	HCFC	Recommended	Can be used
	CFC	Can be used	Not recommended <sup>1)</sup>
Oil	Mineral or AB	Recommended	Can be used
	Pure POE, PAG or PVE	Can be used	Recommended
	POE or PAG, with additives	Not recommended <sup>2)</sup>	Recommended

<sup>1)</sup> For CFC systems, DN filter driers are recommended. In these systems, circumstances may require the use of a filter drier with acid adsorbing properties.

<sup>2)</sup> Use of filter driers containing activated alumina are not recommended in systems with oils containing additives.

*Example*

1. **Amount of charge:**  
 7 kg R 22 at  $t_i = 24^\circ\text{C}$   
 To dry 7 kg R 22 from 1050 to 60 ppm moisture, a DN 08 is necessary.

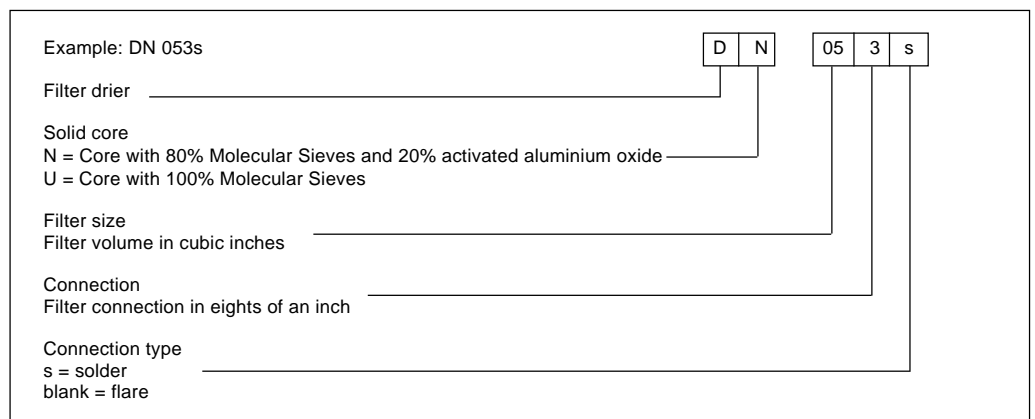
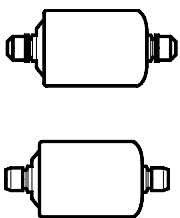
3. **Result**  
 A DN 084 or DN 084s can be used.

2. **Cooling capacity:**  
 $Q_e = 27 \text{ kW}$   
 To obtain a mass flow corresponding to 27 kW cooling effect with a DN 08 filter drier, a 12 mm connection must be chosen.  
 Larger connections can be chosen in accordance with the liquid line dimension.

If the initial moisture content is very small or a planned change of the filter drier is considered, a smaller filter drier size can be chosen.

Type	Drying capacity in kg refrigerant								Liquid capacity in kW			
	R 22		R 134a/R 507		R 404A		R407C/R 410A		R 22	R 134a	R 404A R 507	R 407C R410A
	24°C	52°C	24°C	52°C	24°C	52°C	24°C	52°C				
DN 082	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	7.5	7.0	5.0	7.5
DN 083	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	21.0	19.0	14.0	21.0
DN 084	9.5	9.0	10.0	9.5	16.0	8.5	10.0	8.5	28.5	26.0	19.5	28.5

**Type designation**



Ordering

Type	Flare				Type	ODF solder			
	Connection in.	Code no.	Connection mm	Code no.		Connection in.	Code no.	Connection mm	Code no.

**DN**

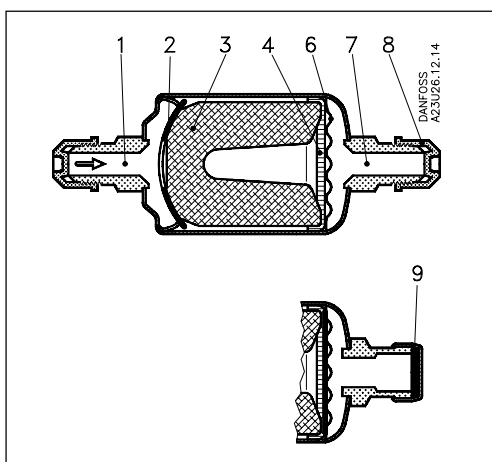
DN 032	1/4	023U4034	6	023U4034	DN 032s <sup>1)</sup>	1/4	023U4001	6	023U4000
DN 033	3/8	023U4035	10	023U4035	DN 032.5s <sup>1)</sup>	5/16	023U4002	8	023U4002
DN 052	1/4	023U4036	6	023U4036	DN 033s <sup>1)</sup>	3/8	023U4004	10	023U4003
DN 053	3/8	023U4037	10	023U4037	DN 052s	1/4	023U4006	6	023U4005
DN 082	1/4	023U4038	6	023U4038	DN 053s	3/8	023U4008	10	023U4007
DN 083	3/8	023U4039	10	023U4039	DN 082s	1/4	023U4012	6	023U4011
DN 084	1/2	023U4040	12	023U4040	DN 083s	3/8	023U4014	10	023U4013
DN 162	1/4	023U4041	6	023U4041	DN 084s	1/2	023U4016	12	023U4015
DN 163	3/8	023U4042	10	023U4042	DN 162s	1/4	023U4020	6	023U4019
DN 164	1/2	023U4043	12	023U4043	DN 163s	3/8	023U4022	10	023U4021
DN 165	5/8	023U4044	16	023U4044	DN 164s	1/2	023U4024	12	023U4023
DN 166	3/4	023U4045	18	023U4045	DN 165s	5/8	023U4025	16	023U4025
DN 303	3/8	023U4046	10	023U4046	DN 166s	3/4	023U4026	18	023U4025
DN 304	1/2	023U4047	12	023U4047	DN 303s	3/8	023U4028	10	023U4027
DN 305	5/8	023U4048	16	023U4048	DN 304s	1/2	023U4030	12	023U4029
DN 306	3/4	023U4049	18	023U4049	DN 305s	5/8	023U4031	16	023U4031
DN 464	1/2	023U4084	12	023U4084	DN 306s	3/4	023U4033	18	023U4073
DN 465	5/8	023U4085	16	023U4085	DN 307s	7/8	023U4032	22	023U4032
DN 466	3/4	023U4086	18	023U4086	DN 464s			18	023U4099
					DN 467s	7/8	023U4093	22	023U4093
					DN 607s	7/8	023U4097	22	023U4097

**DU**

DU 032	1/4	023U3552	6	023U3552	DU 032s <sup>1)</sup>	1/4	023U3501	6	023U3500
DU 033	3/8	023U3553	10	023U3553	DU 032.5s <sup>1)</sup>	5/16	023U3502	8	023U3502
DU 052	1/4	023U3556	6	023U3556	DU 033s <sup>1)</sup>	3/8	023U3504	10	023U3503
DU 053	3/8	023U3557	10	023U3557	DU 052s	1/4	023U3509	6	023U3508
DU 082	1/4	023U3560	6	023U3560	DU 053s	3/8	023U3511	10	023U3510
DU 083	3/8	023U3561	10	023U3561	DU 082s	1/4	023U3516	6	023U3515
DU 084	1/2	023U3562	12	023U3562	DU 083s	3/8	023U3518	10	023U3517
DU 162	1/4	023U3564	6	023U3564	DU 084s	1/2	023U3520	12	023U3519
DU 163	3/8	023U3565	10	023U3565	DU 162s	1/4	023U3523	6	023U3522
DU 164	1/2	023U3566	12	023U3566	DU 163s	3/8	023U3525	10	023U3524
DU 165	5/8	023U3567	16	023U3567	DU 164s	1/2	023U3527	12	023U3526
DU 303	3/8	023U3569	10	023U3569	DU 165s	5/8	023U3528	16	023U3528
DU 304	1/2	023U3570	12	023U3570	DU 303s	3/8	023U3533	10	023U3532
DU 305	5/8	023U3571	16	023U3571	DU 304s	1/2	023U3535	12	023U3534
DU 306	3/4	023U3572	18	023U3572	DU 305s	5/8	023U3536	16	023U3536
					DU 306s	3/4	023U3538	19	023U3538
					DU 307s	7/8	023U3539	22	023U3539

<sup>1)</sup> With mesh gauze for capillary tube systems

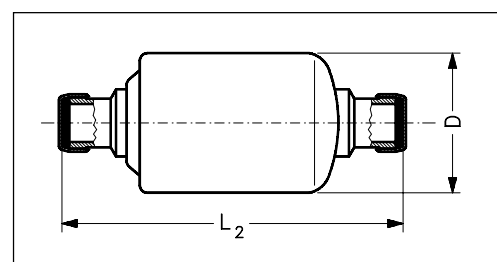
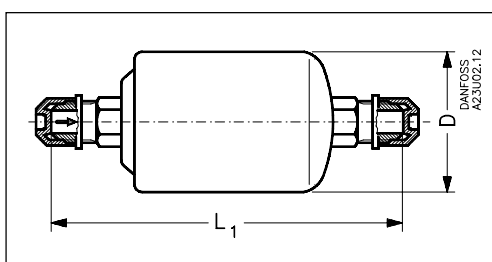
**Construction  
Function**



- 1. Inlet
- 2. Spring
- 3. Solid core
- 4. Polyester mat
- 6. Corrugated, perforated plate
- 7. Outlet
- 8. Plastic union nut
- 9. Capsule

The relatively large diameter of the filter drier means that through-flow liquid velocity is suitably low and pressure drop slight. Powder formation is eliminated since the solid core grains cannot move against each other.

**Dimensions and weights**



*Flare connection*

Type	L <sub>1</sub> mm	D mm	Weight kg
DN / DU 032	105	52	0.22
DN / DU 033	118	52	0.25
DN / DU 052	114	52	0.24
DN / DU 053	127	52	0.27
DN / DU 082	140	52	0.38
DN / DU 083	153	52	0.41
DN / DU 084	161	52	0.46
DN / DU 162	154	74	0.71
DN / DU 163	167	74	0.74
DN / DU 164	175	74	0.79
DN / DU 165	184	74	0.84
DN / DU 166	182	74	0.91
DN / DU 303	243	74	0.99
DN / DU 304	251	74	1.04
DN / DU 305	260	74	1.08
DN / DU 306	258	74	1.15
DN / DU 464	341	74	1.70
DN / DU 465	350	74	1.74
DN / DU 466	348	74	1.84

*Solder connection ODF*

Type	L <sub>2</sub> mm	D mm	Weight kg
DN / DU 032s	93	52	0.20
DN / DU 032.5s	96	52	0.21
DN / DU 033s	99	52	0.21
DN / DU 052s	102	52	0.21
DN / DU 053s	108	52	0.22
DN / DU 082s	128	52	0.36
DN / DU 083s	134	52	0.37
DN / DU 084s	138	52	0.39
DN / DU 162s	142	74	0.67
DN / DU 163s	148	74	0.68
DN / DU 164s	152	74	0.73
DN / DU 165s	160	74	0.74
DN / DU 166s	164	74	0.75
DN / DU 303s	224	74	0.96
DN / DU 304s	228	74	1.01
DN / DU 305s	236	74	1.02
DN / DU 306s	240	74	1.03
DN / DU 307s	246	74	1.04
DN / DU 467s	336	74	1.65
DN / DU 607s	411	74	1.95





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