

General Purpose AC/DC EMI Filter



Images are for reference only. Please see product specifications

Rated currents from 1 to 60 A

General purpose filtering performance

Optional medical versions (B type)

Optional safety versions (A type)

Optional enhanced performance versions

Optional DC optimized versions



Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Rated voltage*	250 VAC, 50/60 Hz; 250 VDC
Operating frequency	DC to 400 Hz
Rated currents	1 to 60 A @ 40°C max.
High potential test voltage	P → PE 2000 VAC for 2 sec (equiv. cap <88 nF) P → PE 2550 VDC for 2 sec (equiv. cap >88 nF) P → PE 2500 VAC for 2 sec (B types) P → N 1100 VDC for 2 sec
Temperature range (operation and storage)	-25 °C to +100 °C (25/100/21)**
Certified to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)
Flammability corresponding to	Terminal plastic for -06/-08 version: UL 94 V-0 Laces for -07 version: UL 94 VW-1 Grommet for -07 version: UL 94 V-0
Overvoltage category	II acc. IEC 60664-1
Pollution degree	2 acc. IEC 60664-1
Altitude	2000m (above derating applies)**
MTBF @ 40°C/230 V (Mil-HB-217F)	1,250,000 hours 3,200,000 hours (B types)

* maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

** for dedicated requests exceeding this specification (e.g. -40 °C or higher altitude) please contact your local Schaffner sales office

Approvals & Compliances



Features and benefits

FN 2010 filters are designed for easy and fast chassis mounting

FN 2010 B versions without capacitors to earth comply to 1MOP for ME (medical equipment) acc. IEC 60601-1

FN 2010 A versions with low capacitance to earth for safety critical applications with necessity for low leakage currents

FN 2010 filters are also available as enhanced performance and DC optimized versions. With higher attenuation in very compact housing (M, N1,N types)

All filters provide a general purpose conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior

FN 2010 filters can be used to cover a broad range of usage and they offer a good size/ampere ratio

Various terminal options allow you to select the desired connection style

Typical applications

Electrical and electronic equipment

Consumer goods

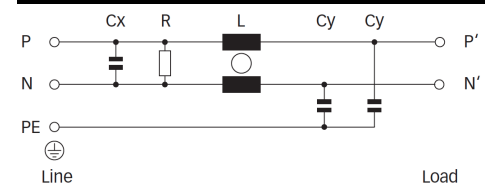
Household equipment

Medical equipment

Office automation equipment

Datacom equipment

Typical electrical schematic



Filter selection table

Filter*	Buy	Rated current @ 40°C (25°C)	Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)	Power loss @25°C/DC	Inductance*** R	Capacitance***		Resistance*** R	Input/Output connections			Weight [g]
						Cx	Cy					
		[A]	[mA]	[W]	[mH]	[μF]	[nF]	[kΩ]				
FN2010-1-..		1 (1.15)	0.66 (0.38)	0.8	12	0.1	4.7	1000	-06	-07		65
FN2010-3-..		3 (3.45)	0.66 (0.38)	1.1	2.5	0.1	4.7	1000	-06	-07		65
FN2010-6-..		6 (6.9)	0.66 (0.38)	1.7	1	0.1	4.7	1000	-06	-07		65
FN2010-10-..		10 (11.5)	0.66 (0.38)	2.5	0.8	0.1	4.7	1000	-06	-07		85
FN2010-12-..		12 (13.8)	0.66 (0.38)	3.6	0.7	0.1	4.7	1000	-06	-07		85
FN2010-16-..		16 (18.4)	0.66 (0.38)	2.5	0.7	0.1	4.7	1000	-06	-07	-08	140
FN2010-20-..		20 (23)	0.66 (0.38)	3.8	0.6	0.1	4.7	1000	-06	-07	-08	210
FN2010-30-08		30 (34.5)	0.79 (0.46)	6.3	0.7	0.47	10	1000			-08	470
FN2010-60-24		60 (69)	0.79 (0.46)	14.7	1	1.5	10	330			-24	1100
FN2010A-1-..		1 (1.15)	0.07 (0.04)	0.8	12	0.1	0.47	1000	-06	-07		65
FN2010A-3-..		3 (3.45)	0.07 (0.04)	1.1	2.5	0.1	0.47	1000	-06	-07		65
FN2010A-6-..		6 (6.9)	0.07 (0.04)	1.7	1	0.1	0.47	1000	-06	-07		65
FN2010A-10-..		10 (11.5)	0.07 (0.04)	2.5	0.8	0.1	0.47	1000	-06	-07		85
FN2010A-12-..		12 (13.8)	0.07 (0.04)	3.6	0.7	0.1	0.47	1000	-06	-07		85
FN2010A-16-..		16 (18.4)	0.07 (0.04)	2.5	0.7	0.1	0.47	1000	-06	-07	-08	140
FN2010A-20-..		20 (23)	0.07 (0.04)	3.8	0.6	0.1	0.47	1000	-06	-07	-08	210
FN2010A-30-08		30 (34.5)	0.07 (0.04)	6.3	0.7	0.47	0.47	1000			-08	470
FN2010A-60-24		60 (69)	0.07 (0.04)	14.7	1	1.5	0.47	330			-24	1100
FN2010B-1-..		1 (1.15)	0.00	0.8	12	0.1		1000	-06	-07		65
FN2010B-3-..		3 (3.45)	0.00	1.1	2.5	0.1		1000	-06	-07		65
FN2010B-6-..		6 (6.9)	0.00	1.7	1	0.1		1000	-06	-07		65
FN2010B-10-..		10 (11.5)	0.00	2.5	0.8	0.1		1000	-06	-07		85
FN2010B-12-..		12 (13.8)	0.00	3.6	0.7	0.1		1000	-06	-07		85
FN2010B-16-..		16 (18.4)	0.00	2.5	0.7	0.1		1000	-06	-07	-08	140
FN2010B-20-..		20 (23)	0.00	3.8	0.6	0.1		1000	-06	-07	-08	210
FN2010B-30-08		30 (34.5)	0.00	6.3	0.7	0.47		1000			-08	470
FN2010B-60-24		60 (69)	0.00	14.7	1	1.5		330			-24	1100
Enhanced performance												
FN2010N1-1-06		1 (1.15)	5.34 (3.08)	0.8	12	0.1	68	1000	-06			70
FN2010N1-3-06		3 (3.45)	5.34 (3.08)	1.1	2.5	0.1	68	1000	-06			70
FN2010N1-6-06		6 (6.9)	5.34 (3.08)	1.7	1	0.1	68	1000	-06			70
FN2010N1-10-06		10 (11.5)	5.34 (3.08)	2.5	0.8	0.1	68	1000	-06			85
FN2010N1-12-06		12 (13.8)	3.69 (2.13)	3.6	0.7	0.1	47	1000	-06			85
FN2010M-16-..		16 (18.4)	3.69 (2.13)	2.5	0.7	0.1	47	1000	-06		-08	140
FN2010M-20-..		20 (23)	3.69 (2.13)	3.8	0.6	0.1	47	1000	-06		-08	220
FN2010N-30-08		30 (34.5)	7.85 (4.52)	6.3	0.7	0.47	100	1000			-08	400
FN2010N-60-24		60 (69)	7.85 (4.52)	14.7	1	1.5	100	330			-24	1120

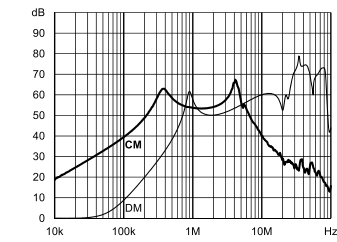
* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2010-30-08, FN 2010B-10-06). The different letters code the used Cy values in the filter type (A = 0.47nF; M = 47nF; N1 = 47nF; N = 100nF)

** Maximum leakage under usual AC operating conditions (acc. IEC 60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

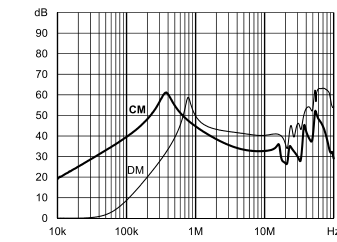
*** Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

Typical filter attenuation

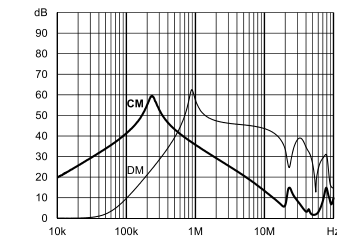
Per CISPR 17; CM=50 Ω /50 Ω sym; DM=50 Ω /50 Ω asym



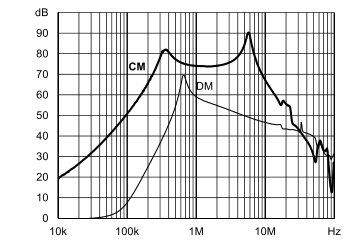
1 A: Standard type



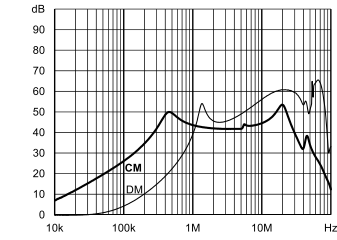
A type



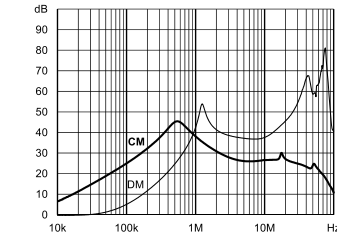
B type



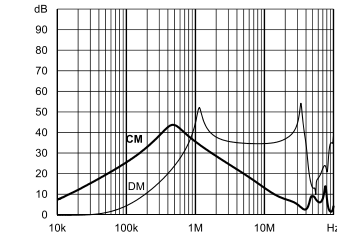
Enhanced performance



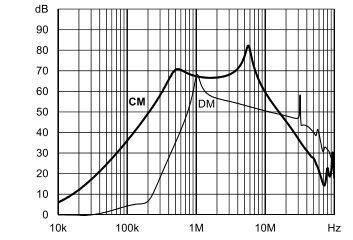
3 A: Standard type



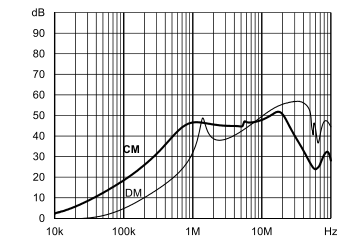
A type



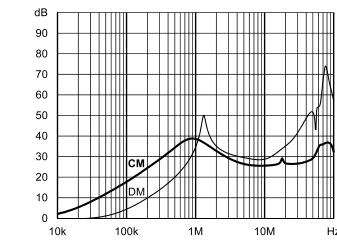
B type



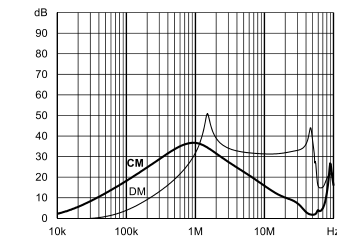
Enhanced performance



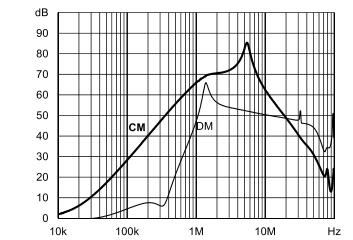
6 A: Standard type



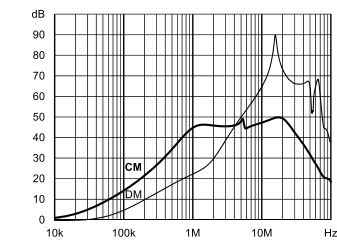
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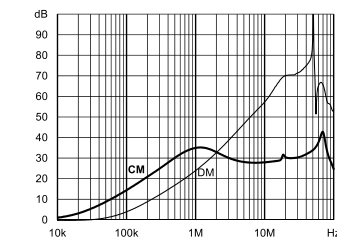
B type



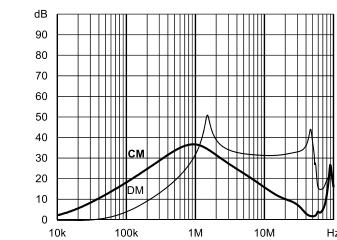
Enhanced performance



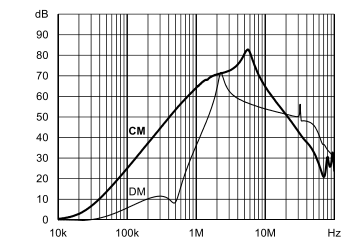
10 A: Standard type



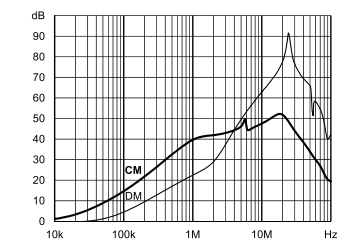
A type



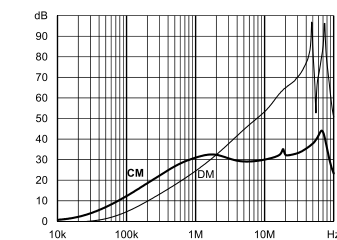
B type



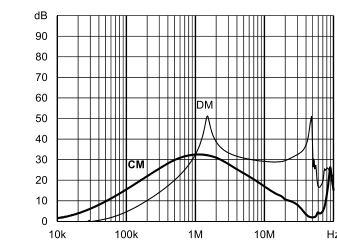
Enhanced performance



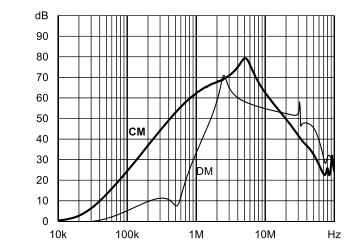
12 A: Standard type



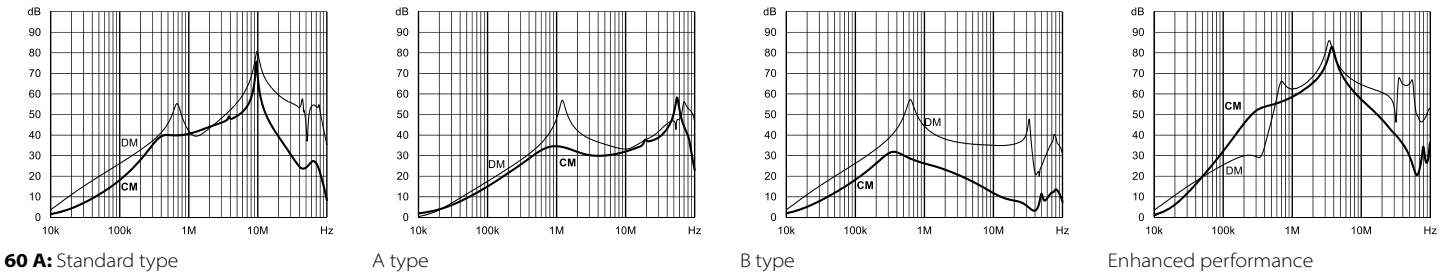
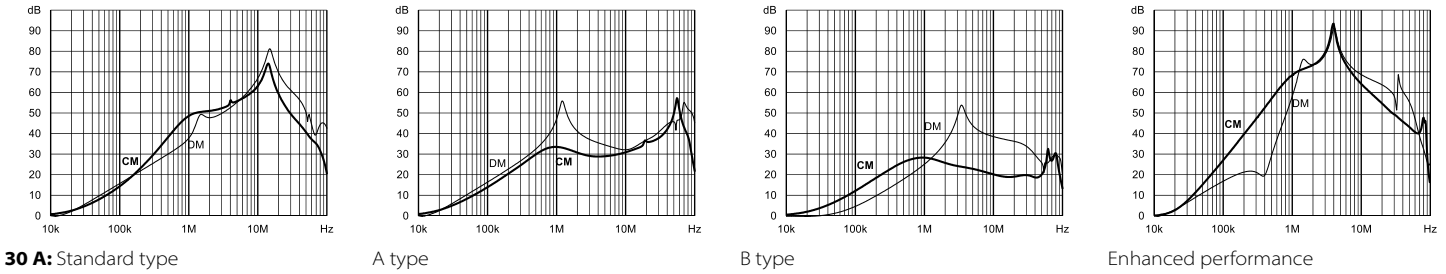
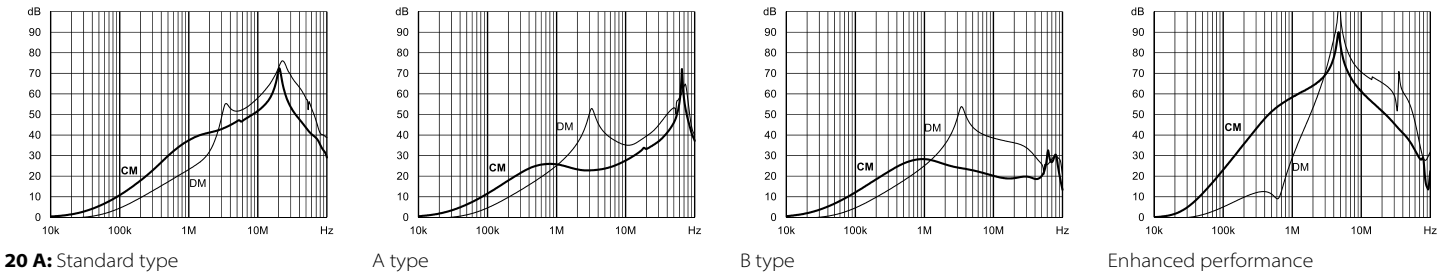
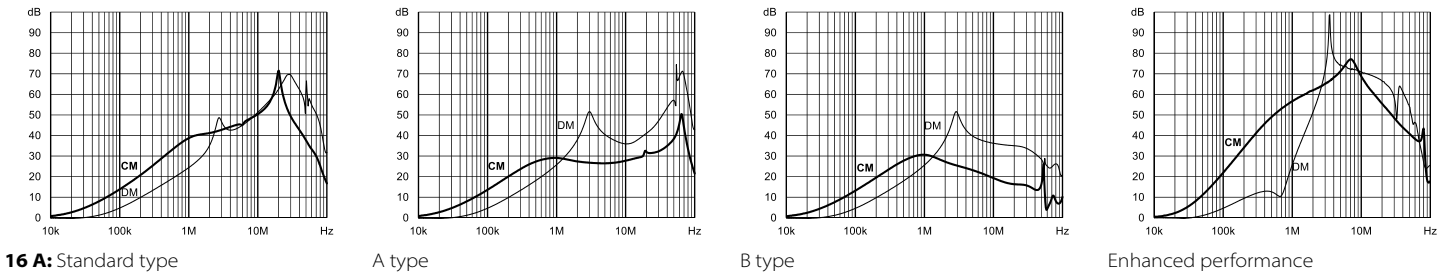
A type



B type



Enhanced performance



Product Selector

FN 2010-xy-xx-yy

06

07

08

24

1 to 60

Blank

Z

Blank

A

B

N1/N/M

Faston 6.3 × 0.8 mm (spade/soldering)

Wire leads

Studs (M4 screws)

Studs (M6 screws)

Rated current

Standard version

With surge protection

Standard version

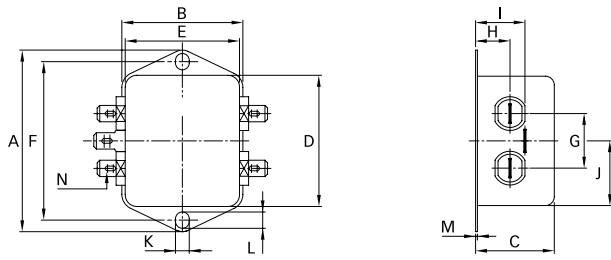
Safety version

Medical version

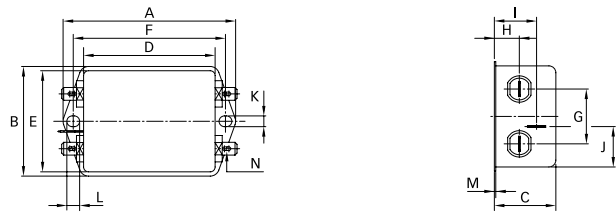
High performance version

Mechanical data

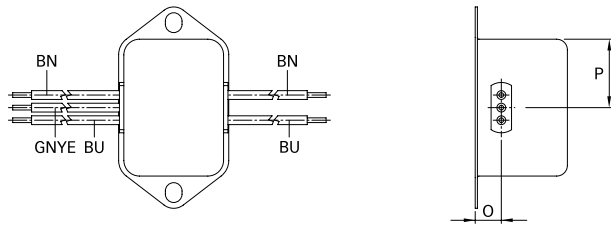
Connection style -06, 1 to 12 A types



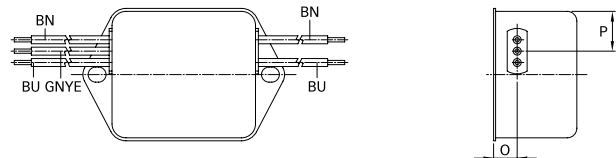
Connection style -06, 16 and 20 A types



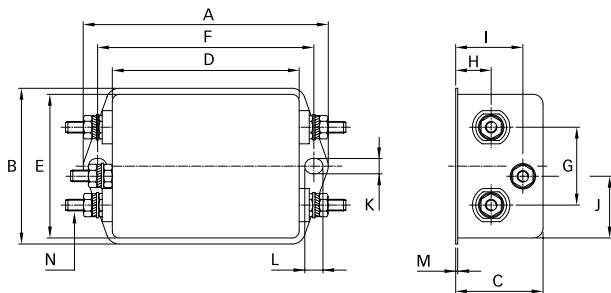
Connection style -07, 1 to 12 A types (same dimensions as style -06)



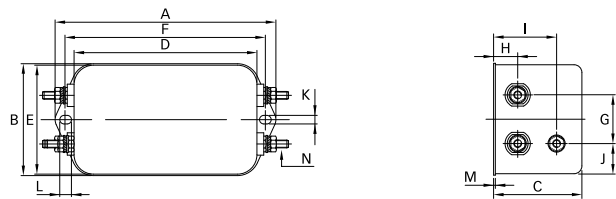
Connection style -07, 16 and 20 A types (same dimensions as style -06)



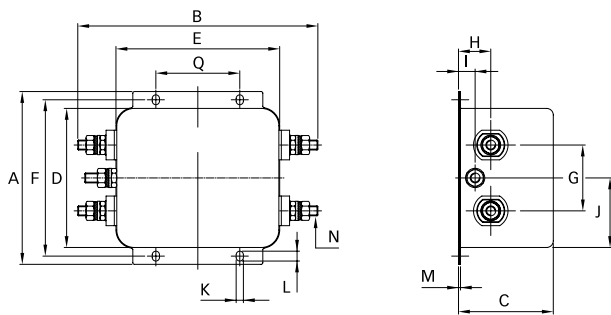
Connection style -08, 16 and 20 A types



Connection style -08, 30 A types



Connection style -24



Dimensions

	1 A	3 A	6 A	10 A	12 A	16 A	20 A	30 A	60 A	Tolerances
A	64	64	64	64	64	71	85	113.5 ±1	105 ±1	±0.5
B	35	35	35	35	35	46.6	54	57.5 ±1	145.9 ±1	±0.5
C	24.3	24.3	24.3	29.3	29.3	29.3	30.3	45.4 ±1	57.6 ±1	±0.5
D	43.5	43.5	43.5	43.5	43.5	50.5	64.8	94 ±1	84.5 ±1	±0.5
E	32.5	32.5	32.5	32.5	32.5	44.5	49.8	56	99.5	±0.5
F	54	54	54	54	54	61	75	103	95	±0.3
G	21	21	21	21	21	21	27	25	40	±0.2
H	9.3	9.3	9.3	9.3	9.3	10.8	12.3	12.4	19.6	±0.5
I	15.3	15.3	15.3	15.3	15.3	19.3	20.8	32.4	10.1	±0.5
J	21.8	21.8	21.8	21.8	21.8	20.1	19.9	15.5	42.25	±0.5
K	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.4	4.4	
L	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6	6	
M	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1	1.2	±0.3
Connection style -06										
N	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8			
Connection style -07										
O	8.3	8.3	8.3	8.3	8.3	8.3	8.3			±0.5
P	21.8	21.8	21.8	21.8	21.8	14	14.9			±0.5
AWG type wire	AWG 20	AWG 20	AWG 18	AWG 18	AWG 16	AWG 16	AWG 14			
Wire length	140	140	140	140	140	140	140			+5
Connection style -08										
N						M4	M4	M4		
Recommended torque (Nm)						1.2 - 1.3	1.2 - 1.3	1.2 - 1.3		
Earth terminal						1.5 - 1.7	1.5 - 1.7	1.5 - 1.7		
Connection style -24										
N									M6	
Q									51	±0.2
Recommended torque (Nm)									3.5 - 4	
Earth Terminal									3.5 - 4	

All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m/EN 22768-m

Please visit www.schaffner.com to find more details on filter connections.



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