



## Harmonic Filter Reactors

### Basic and Standard Harmonic Filter Reactors

- Power range: 3.13 to 200 kvar
- Voltage range: 230 V to 690 V, 50/60 Hz
- Detuning factor  $p = 5.67 \dots 14 \%$
- Low-loss design

#### // Application Recommendations

Used together with LKT type Power Factor Correction Capacitors, Harmonic Filter Reactors make it possible to install detuned versions of fixed capacitor banks and Power Factor Correction Systems. This enables switchgear manufacturers to plan and manufacture customer-specific systems.

## / Type Overview

Type series		Basic	Standard
Type		FDK / FDKT	FKD / FDR
Rated voltage		400...525 V	230...690 V
Rated stage power		6.25...200 kvar	3.13...50 kvar
Rated frequency	50 / 60 Hz	• / -	• / •
Series resonance frequency	p = 5.67 %	210 / 252 Hz	- / -
	p = 7 %	189 / 227 Hz	• / •
	p = 8 %	177 / 212 Hz	- / -
	p = 14 %	134 / 160 Hz	• / -
Temperature range		-10 ... +60 °C	
Winding material		Al	Al / Cu
Insulation class		H (180 °C)	F (155 °C)
Temperature switch	pre-assembled	only FDKT	•
	Switching temperature	130...150 °C	140 °C
	Switching capacity	6.3A / 250 V AC	2.5A / 250 V AC
Ingress protection		IP00 according to IEC 60529	
Power loss max.		10 W/kvar	6 W/kvar
Connection		Terminal strip ≤ 25 kvar Ring terminal ≥ 50 kvar	Connecting cable
Catalogue page		Page 29 ff.	Page 35 ff.

## / Series Resonance Frequency

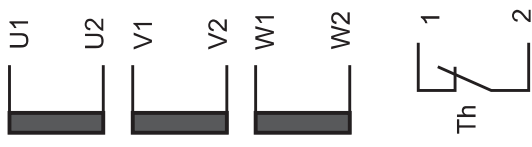
Version	Series resonance frequency (50 Hz Mains)	Detuning factor	For mains with utility audio frequency <sup>1)</sup>
P1	134 Hz	P = 14 %	≥ 166 Hz
P8	177 Hz	P = 8 %	≥ 217 Hz
P7	189 Hz	P = 7 %	≥ 228 Hz
P5	210 Hz	P = 5.67 %	≥ 270 Hz

1) Utility company specifications inconsistent with the above must be taken into account.

Please also refer to the design notes given in our manual of Power Factor Correction. Further series resonance frequencies are available on request.

## / Connection

Coil input: U1, V1, W1  
Coil output: U2, V2, W2



## / Important Note

Please only use the correct number of the appropriate power capacitors as specified in our "Selection Aid: Harmonic Filter Reactors → Capacitors" in our Technical Annex. Apart from possibly overloading the installed components, the utility company's remote control systems could also be adversely affected.



## FDK / FDKT

### Basic Harmonic Filter Reactors

- Power Range: 6.25 to 200 kvar
- Voltage range: 400 to 525 V, 50 Hz
- Detuning factor  $p = 7 \dots 14 \%$
- Low-loss design

#### // Application Recommendations

Used together with LKT type Power Factor Correction Capacitors, Harmonic Filter Reactors make it possible to install detuned versions of fixed capacitor banks and Power Factor Correction Systems. This enables switchgear manufacturers to plan and manufacture customer-specific systems.

## / Technical Data

Version: P7 (Detuning factor  $p = 7\%$ )

$I_{5\max} = 33.8\%$ ,  $I_{7\max} = 12.2\%$ , Linearity =  $1.75 \times I_N$

Article-No.	Type	Q [kvar]	$I_N$ [A]	L [mH]	C [μF]	Connection		Weight approx. [kg]
						Cable lug [mm <sup>2</sup> ]	Terminal [mm <sup>2</sup> ]	

### Basic Harmonic Filter Reactor - FDK - $V_N = 400\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02102	FDK 6,25-400-P7	6.3	9.9	6.139	3 x 38.5		10	5.5
88-02044	FDK 12,5-400-P7	12.5	19.8	3.067	3 x 77.6		10	8.0
88-02042	FDK 25-400-P7	25.0	39.7	1.533	3 x 155.2		10	17.0
88-02043	FDK 50-400-P7	50.0	79.4	0.767	3 x 310.4	M8		29.0
88-02083	FDK 75-400-P7	75.0	119.1	0.511	3 x 465.6	M8		40.0
88-02084	FDK 100-400-P7	100.0	158.9	0.384	3 x 620.8	M8		47.0

### Basic Harmonic Filter Reactor - FDK - $V_N = 415\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02088	FDK 12,5-415-P7	12.5	19.1	3.304	3 x 71.4		10	8.0
88-02089	FDK 25-415-P7	25.0	38.3	1.652	3 x 142.8		10	17.0
88-02090	FDK 50-415-P7	50.0	76.6	0.826	3 x 285.6	M8		29.0
88-02091	FDK 75-415-P7	75.0	114.8	0.521	3 x 428.4	M8		39.0
88-02191	FDK 100-415-P7	100.0	139.3	0.413	3 x 572.3	M8		48.0

### Basic Harmonic Filter Reactor - FDK - $V_N = 525\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02066	FDK 12,5-525-P7	12.5	15.1	5.228	3 x 44.7		10	9.0
88-02067	FDK 25-525-P7	25.0	30.3	2.644	3 x 89.4		10	16.0
88-02068	FDK 50-525-P7	50.0	60.5	1.322	3 x 178.8	M10		30.0
88-02069	FDK 75-525-P7	75.0	90.8	0.881	3 x 268.2	M10		43.0
88-02070	FDK 100-525-P7	100.0	121.0	0.661	3 x 357.6	M10		51.0
88-02071	FDK 150-525-P7	150.0	181.6	0.441	3 x 536.4	M10		87.0
88-02072	FDK 200-525-P7	200.0	242.1	0.330	3 x 715.2	M10		102.0

### Basic Harmonic Filter Reactor - FDKT - $V_N = 400\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02103	FDKT 6,25-400-P7	6.3	9.9	6.139	3 x 38.5		10	5.5
88-02045	FDKT 12,5-400-P7	12.5	19.8	3.067	3 x 77.6		10	8.0
88-02046	FDKT 25-400-P7	25.0	39.7	1.533	3 x 155.2		10	17.0
88-02047	FDKT 50-400-P7	50.0	79.4	0.767	3 x 310.4	M8		29.0
88-02093	FDKT 75-400-P7	75.0	119.1	0.511	3 x 465.6	M8		40.0
88-02094	FDKT 100-400-P7	100.0	158.9	0.384	3 x 620.8	M8		47.0

### Basic Harmonic Filter Reactor - FDKT - $V_N = 415\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02098	FDKT 12,5-415-P7	12.5	19.1	3.304	3 x 71.4		10	8.0
88-02099	FDKT 25-415-P7	25.0	38.3	1.652	3 x 142.8		10	17.0
88-02100	FDKT 50-415-P7	50.0	76.6	0.826	3 x 285.6	M8		29.0
88-02101	FDKT 75-415-P7	75.0	114.8	0.521	3 x 428.4	M8		39.0
88-02190	FDKT 100-415-P7	100.0	139.3	0.413	3 x 572.3	M8		48.0

### Basic Harmonic Filter Reactor - FDKT - $V_N = 525\text{ V} / 50\text{ Hz} - p = 7\%$ - $f_{res} = 189\text{ Hz}$

88-02146	FDKT 12,5-525-P7	12.5	15.1	5.228	3 x 44.7		10	9.0
88-02147	FDKT 25-525-P7	25.0	30.3	2.644	3 x 89.4		10	16.0
88-02148	FDKT 50-525-P7	50.0	60.5	1.322	3 x 178.8	M10		30.0
88-02149	FDKT 75-525-P7	75.0	90.8	0.881	3 x 268.2	M10		43.0
88-02150	FDKT 100-525-P7	100.0	121.0	0.661	3 x 357.6	M10		51.0
88-02151	FDKT 150-525-P7	150.0	181.6	0.441	3 x 536.4	M10		87.0
88-02152	FDKT 200-525-P7	200.0	242.1	0.330	3 x 715.2	M10		102.0

# Components

## Harmonic Filter Reactors



Version: P7 (Detuning factor  $p = 7\%$ )

$I_{5_{max}} = 33.8\%$ ,  $I_{7_{max}} = 12.2\%$ , Linearity =  $1.75 \times I_N$

Article-No.	Type	Dimensions [mm]							
		A	B	C	D	E	F	G	H

**Basic Harmonic Filter Reactor - FDK -  $V_N = 400\text{ V} / 50\text{ Hz} - p = 7\%$  -  $f_{res} = 189\text{ Hz}$**

88-02102	FDK 6,25-400-P7	150	93	130		106	77	6 x 15	155
88-02044	FDK 12,5-400-P7	180	112	155		120	90	10 x 13	190
88-02042	FDK 25-400-P7	225	124	177	150	175	101	10 x 13	220
88-02043	FDK 50-400-P7	283	148	215	188	200	110	11 x 20	255
88-02083	FDK 75-400-P7	309	166	268	200	224	126	11 x 20	315
88-02084	FDK 100-400-P7	315	166	302	210	224	126	11 x 20	360

**Basic Harmonic Filter Reactor - FDK -  $V_N = 415\text{ V} / 50\text{ Hz} - p = 7\%$  -  $f_{res} = 189\text{ Hz}$**

88-02088	FDK 12,5-415-P7	180	112	155		120	90	10 x 13	190
88-02089	FDK 25-415-P7	124	124	177	150	175	101	10 x 13	220
88-02090	FDK 50-415-P7	283	148	215	188	200	110	11 x 20	255
88-02091	FDK 75-415-P7	309	166	268	200	224	126	11 x 20	315
88-02191	FDK 100-415-P7	315	166	322	210	224	126	11 x 20	370

**Basic Harmonic Filter Reactor - FDK -  $V_N = 525\text{ V} / 50\text{ Hz} - p = 7\%$  -  $f_{res} = 189\text{ Hz}$**

88-02066	FDK 12,5-525-P7	180	112	156		120	90	11 x 13	190
88-02067	FDK 25-525-P7	225	125	190		175	103	11 x 20	220
88-02068	FDK 50-525-P7	283	145	260	188	200	116	11 x 20	300
88-02069	FDK 75-525-P7	283	166	300	188	224	126	11 x 20	360
88-02070	FDK 100-525-P7	283	166	362	188	224	126	11 x 20	362
88-02071	FDK 150-525-P7	390	200	380	240	310	130	11 x 20	390
88-02072	FDK 200-525-P7	414	220	400	259	334	130	11 x 20	414

**Basic Harmonic Filter Reactor - FDKT -  $V_N = 400\text{ V} / 50\text{ Hz} - p = 7\%$  -  $f_{res} = 189\text{ Hz}$**

88-02103	FDKT 6,25-400-P7	150	93	130		106	77	6 x 15	155
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88-02094	FDKT 100-400-P7	315	166	302	210	224	126	11 x 20	360

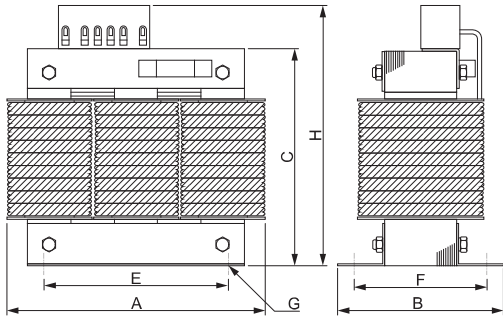
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88-02099	FDKT 25-415-P7	124	124	177	150	175	101	10 x 13	220
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88-02190	FDKT 100-415-P7	315	166	322	210	224	126	11 x 20	370

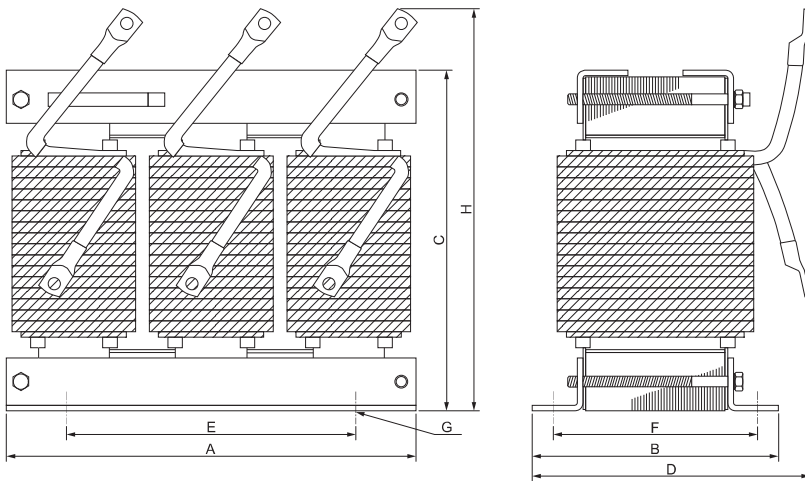
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88-02147	FDKT 25-525-P7	225	125	190		175	103	11 x 20	220
88-02148	FDKT 50-525-P7	283	145	260	188	200	116	11 x 20	300
88-02149	FDKT 75-525-P7	283	166	300	188	224	126	11 x 20	360
88-02150	FDKT 100-525-P7	283	166	362	188	224	126	11 x 20	362
88-02151	FDKT 150-525-P7	390	200	380	240	310	130	11 x 20	390
88-02152	FDKT 200-525-P7	414	220	400	259	334	130	11 x 20	414

**/ Dimensions**



6.25 - 25 kvar



50 - 200 kvar