POWER FACTOR CORRECTION AND HARMONIC FILTERING

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MV power capacitor banks

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OUTSTANDING PRODUCTS

	computer SMART III	OPTIM P&P	OPTIM HYB	OPTIM FRES / OPTIM FRE
				
	Power factor regulator	Automatic capacitor bank with Plug&Play regulator	Hybrid automatic capacitor bank, phase-by-phase compensation	Automatic capacitor banks with rejection filters (static contactor)
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Delivery time: [*] immediate
[x] working weeks
[c] consult

Table: Selection of the reactive energy compensation unit

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GUIDE OF SELECTION FOR HARMONIC OR DISTURBANCE FILTERING EQUIPMENT

Types of anomalies

Faults	Causes	Solutions	Equipments
After disconnecting the capacitors: • Overload in capacitors • Problems with electronic controls • Transformer vibrations	Resonance in the capacitor bank with the transformer as a result of existing harmonics	Resonance elimination	Detuned filter banks **OPTIM FR P&P**, OPTIM **FRE, FAR Q**
Neutral overload in lines for: • Lighting • Computers	Circulation of third harmonic (homopolar)	Blocking or correcting filter in third harmonic	• **TSA, FB3** blocking systems • **AFQ** active filters
Overheating and overload in: • Phase cables • Transformers • Motors • Automatic circuit breakers	Existence of harmonics in different ranges	Harmonic filtering	• **LCL, FAR-Q** absorption filters • AFQ Active filters
Trips in: • Earth leakage circuit • breakers	Existence of high frequency current leakages. Caused by EMI filters	Earth leakage protection and Filtering	• Reactors LR(1) • Immunized earth leakage relays (2)
Unbalanced lines + harmonics in neutral	Unequal distribution of single phase loads	Phase balancing and harmonic filtering	Active filter, multifunction

Delivery time: [*] immediate
[x] working weeks
[c] consult

Power factor regulators

computer Smart III, Power Factor regulators. Regulation, measurement and protection all in one



NEW

Type	Code	Measuring/ Power Supply	Nr. Relays	Alarm relay	Size	Earth leakage / capacitor	Comunications
computer Smart III 6	[*] R13851	100...520 V_{ac} / 100...520 V_{ac}	6	yes	144 x 144	yes	yes
computer Smart III 12	[*] R13862	100...520 V_{ac} / 100...520 V_{ac}	12	yes	144 x 144	yes	yes
computer Smart III 14	[*] R13864	100...520 V_{ac} / 150...400 V_{ac}	14	yes	144 x 144	yes	yes

computer MAX P&P, Power Factor regulators

Plug & Play



NEW

Type	Code	Power Supply	Nr. Relays	Alarm relay	Size
computer Max P&P 6	[*] R10871	400 V_{ac}	6	Yes(*)	144 x 144
computer Max P&P 12	[*] R10872	400 V_{ac}	12	Yes(*)	144 x 144
computer Max P&P 6	[*] R10871002	230 V_{ac}	6	Yes(*)	144 x 144
computer Max P&P 12	[*] R10872002	230 V_{ac}	12	Yes(*)	144 x 144
computer Max P&P 6	[*] R10871004	480 V_{ac}	6	Yes(*)	144 x 144
computer Max P&P 12	[*] R10872004	480 V_{ac}	12	Yes(*)	144 x 144

(*) Associated to the last output relay

computer one, Power factor relay 1 step, IP 00



Type	Code	Measure Voltage	Power Supply	Nr. Relays	Alarm	Size	Input signal
Computer One	[*] R13810	400 V_{ca}	230 V_{ac}	1	-	90 x 90	250 mA

MC trasnformers needed, see **Measuring current Transformers and shunts section**

computer two, Power factor regulator 2 step, IP 00



Type	Code	Measure Voltage	Power Supply	Nr. Relays	Alarm	Size	Input signal	Program
Computer two	[*] R13820	400 V_{ca}	230 V_{ac}	2	-	90 x 90	250 mA	1.1
Computer two	[*] R13821	400 V_{ca}	230 V_{ac}	2	-	90 x 90	250 mA	1.1,5
Computer two	[*] R13822	400 V_{ca}	230 V_{ac}	2	-	90 x 90	250 mA	1.2
Computer two	[*] R13823	400 V_{ca}	230 V_{ac}	2	-	90 x 90	250 mA	1.2,5

MC trasnformers needed, see **Measuring current Transformers and shunts section**

DIR2, Power factor relay 1 step. din rail



Type	Code	Power Supply	Nr. Relays	Alarm	Size	Input signal
DIR2	[*] R11211	400 $V_{a,c}$	1	-	35 x 85	250 mA

MC trasnformers needed, see **Measuring current Transformers and shunts section**

Delivery time: [*] immediate
[x] working weeks
[c] consult

FAST reactive energy REGULATORS. (Static capacitor banks)

Computer SMART III-Fast, Power factor regulators for static capacitor banks, 144x144



NEW

Tipo	Código	Measuring/ Power Supply voltage V_{ac}	No. steps	Alarm relay	Switching unit	Earth leakage, $I_{capacitor}$	Communications
computer SMART III-F6	[*] R13951	100...520	6	Yes	EMF / EMB	Yes	Yes
computer SMART III-F12	[*] R13962	100...520	12	Yes	EMF / EMB	Yes	Yes
computer SMART III-F6-12Vdc	[*] R13953	100...520	6	Yes	EMB-2PH	Yes	Yes
computer SMART III-F12-12Vdc	[*] R13964	100...520	12	Yes	EMB-2PH	Yes	Yes

computer MAX-f,Power factor regulators for static switching, 144x144

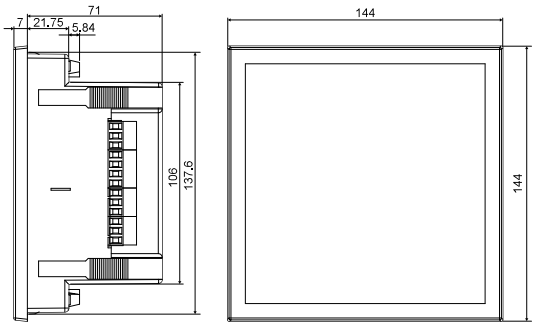


NEW

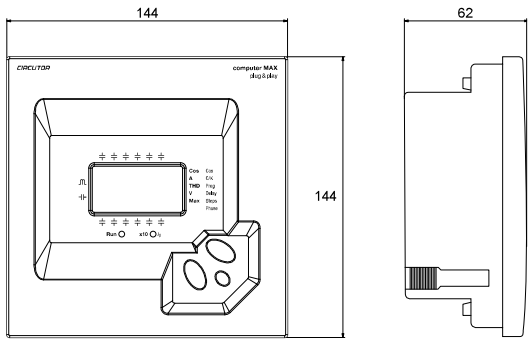
Tipo	Código	Measuring/ Power Supply voltage V_{ac}	No. steps	Alarm relay	Switching unit
computer Max 6f	[*] R10851	400	6	-	EMF / EMB
computer Max 12f	[*] R10862	400	12	-	EMF / EMB
computer Max 6f-12Vdc	[*] R10853	400	6	-	EMB-2PH
computer Max 12f-12Vdc	[*] R10864	400	12	-	EMB-2PH

DIMENSIONS

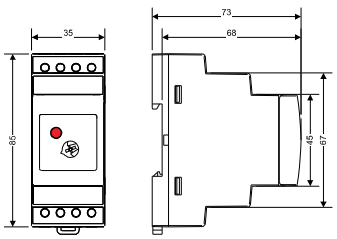
computer Smart III / computer SMART III fast



computer MAX P&P / computer MAX-f



DIR2



Delivery time: [*] immediate
[x] working weeks
[c] consult

Low voltage power capacitors

IP54 COVERS FOR CLZ-FP

No.Cover	Type	Code
1	TCLZ-FP85	[*] R29911
2	TCLZ-FP116	[*] R29917
7	TCLZ-FP100	[*] R29918

CLZ-FP-M, single-phase tubular power capacitor

230 V, 50 Hz terminal connection



Type	Code	kvar (50 Hz)		Dimensions mm (d x h)	Weight (kg)	Cover
		1x230 V	1x240 V			
CLZ-FP-M-23/2,5	[1] R205C4	2,5	2,7	85 x 245	1	1
CLZ-FP-M-23/5	[1] R205C8	5	5,4	85 x 245	1,2	1
CLZ-FP-M-23/7,5	[1] R205CM	7,5	8,2	116 x 245	1,7	2
CLZ-FP-M-23/10	[1] R205CN	10	10,9	116 x 245	2,0	2

CLZ-FP HD, three-phase tubular power capacitor (Heavy Duty range), 50 Hz

CLZ-FPT -capacitors with faston terminal / CLZ-FP - Capacitors with terminal block

***Un* = 3 x 230 V / 50 Hz**

Type	Code	220 V kvar	230 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FPT-23/1,25-HD	[c] R2H511	1,15	1,25	50	63,5 x 127	0,5	-
CLZ-FP-23/2,5-HD	[c] R2H512	2,3	2,5	50	85 x 175	0,9	1
CLZ-FP-23/5-HD	[c] R2H516	4,6	5	50	85 x 175	1,2	1
CLZ-FP-23/6,25-HD	[c] R2H517	5,7	6,25	50	85 x 245	1,5	1
CLZ-FP-23/7,5-HD	[c] R2H518	6,8	7,5	50	85 x 245	1,7	1
CLZ-FP-23/10-HD	[c] R2H51B	9,15	10	50	100 x 245	2,0	7
CLZ-FP-23/12,5-HD	[c] R2H51D	11,4	12,5	50	100 x 245	2,3	7
CLZ-FP-23/15-HD	[c] R2H51E	13,75	15	50	116 x 245	3,3	2

***Un* = 3 x 440 V / 50 Hz**



Type	Code	400 V kvar	440 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FPT-44/1,25-HD	[c] R2H541	1	1,25	50	63,5 x 98	0,4	-
CLZ-FPT-44/2,5-HD	[*] R2H542	2	2,5	50	63,5 x 127	0,5	-
CLZ-FPT-44/3-HD	[c] R2H543	2,5	3	50	63,5 x 127	0,5	-
CLZ-FPT-44/3,75-HD	[c] R2H544	3	3,75	50	63,5 x 127	0,5	-
CLZ-FPT-44/5-HD	[*] R2H546	4	5	50	65 x 175	0,5	-
CLZ-FPT-44/6,25-HD	[*] R2H547	5	6,25	50	75 x 175	0,7	-
CLZ-FP-44/7,5-HD	[*] R2H548	6,2	7,5	50	85 x 175	0,9	1
CLZ-FP-44/10-HD	[*] R2H54B	8	10	50	85 x 245	1	1
CLZ-FP-44/12,5-HD	[*] R2H54D	10	12,5	50	85 x 245	1,2	1
CLZ-FP-44/15-HD	[*] R2H54E	12,5	15	50	85 x 245	1,3	1
CLZ-FP-44/18,2-HD	[c] R2H54G	15	18,2	50	100 x 245	1,9	7
CLZ-FP-44/20-HD	[*] R2H54J	16,5	20	50	100 x 245	1,9	7
CLZ-FP-44/25-HD	[*] R2H54L	20	25	50	116 x 245	2,1	2
CLZ-FP-44/28-HD	[*] R2H54M	23	28	50	116 x 245	2,3	2
CLZ-FP-44/30-HD	[*] R2H54N	25	30	50	116 x 245	2,5	2
CLZ-FP-44/40-HD	[c] R2H54R	32	40	50	136 x 261	4,0	-
CLZ-FP-44/50-HD	[*] R2H54S	40	50	50	136 x 365	5,5	-

Delivery time: [*] immediate
[x] working weeks
[c] consult

CLZ-FP



Un = 3 x 460 V / 50 Hz

Type	Code	440 V kvar	460 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-46/6,25-HD	[*] R2H557	5,7	6, 25	50	85 x 175	0,7	1
CLZ-FP-46/12,5-HD	[*] R2H55D	11,4	12,5	50	85 x 245	1,2	1
CLZ-FP-46/15-HD	[*] R2H55E	13,7	15	50	85 x 245	1,4	1
CLZ-FP-46/19-HD	[*] R2H55H	17,4	19	50	116 x 245	1,9	7
CLZ-FP-46/25-HD	[*] R2H55L	22,9	25	50	116 x 245	2,1	2
CLZ-FP-46/30-HD	[*] R2H55N	27,4	30	50	116 x 245	3,0	2

Un = 3 x 480 V / 50 Hz

Type	Code	460 V kvar	480 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-48/2,5-HD	[c] R2H562	2,3	2,5	50	85 x 175	0,9	1
CLZ-FP-48/5-HD	[c] R2H566	4,6	5	50	85 x 175	1,1	1
CLZ-FP-48/7,5-HD	[c] R2H568	6,9	7,5	50	85 x 175	1,3	1
CLZ-FP-48/10-HD	[c] R2H56B	9,2	10	50	85 x 245	1,5	1
CLZ-FP-48/12,5-HD	[c] R2H56D	11,5	12,5	50	85 x 245	1,7	1
CLZ-FP-48/15-HD	[c] R2H56E	13,8	15	50	85 x 245	2,0	1
CLZ-FP-48/20-HD	[c] R2H56J	18,4	20	50	100 x 245	2,5	7
CLZ-FP-48/25-HD	[c] R2H56L	23	25	50	116 x 245	3,0	2
CLZ-FP-48/30-HD	[c] R2H56N	27,6	30	50	116 x 245	3,3	2
CLZ-FP-48/40-HD	[c] R2H56R	36,75	40	50	136 x 261	4,0	-

Un = 3 x 525 V / 50 Hz

Type	Code	500 V kvar	525 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-52/2,5-HD	[c] R2H572	2,3	2,5	50	85 x 175	0,7	1
CLZ-FP-52/3-HD	[c] R2H573	2,7	3	50	85 x 175	0,7	1
CLZ-FP-52/4-HD	[c] R2H575	3,6	4	50	85 x 175	0,7	1
CLZ-FP-52/5-HD	[*] R2H576	4,5	5	50	85 x 175	0,8	1
CLZ-FP-52/6,25-HD	[c] R2H577	5,7	6,25	50	85 x 175	0,8	1
CLZ-FP-52/7,5-HD	[c] R2H578	6,8	7,5	50	85 x 175	0,9	1
CLZ-FP-52/8-HD	[c] R2H579	7,25	8	50	85 x 175	1,0	1
CLZ-FP-52/10-HD	[*] R2H57B	9,1	10	50	85 x 245	1,0	1
CLZ-FP-52/12,5-HD	[*] R2H57D	11,3	12,5	50	85 x 245	1,1	1
CLZ-FP-52/15-HD	[*] R2H57E	13,6	15	50	85 x 245	1,3	1
CLZ-FP-52/20-HD	[*] R2H57J	18,15	20	50	100 x 245	1,9	7
CLZ-FP-52/25-HD	[*] R2H57L	22,7	25	50	116 x 245	2,1	2
CLZ-FP-52/30-HD	[*] R2H57N	27,2	30	50	116 x 245	2,6	2
CLZ-FP-52/40-HD	[c] R2H57R	36,3	40	50	136 x 261	3,2	-
CLZ-FP-52/50-HD	[c] R2H57S	45,4	50	50	136 x 355	5,5	-

Un = 3 x 690 V / 50 Hz

Type	Code	660 V kvar	690 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-69/2,5-HD	[c] R2H592	2,3	2,5		85 x 175	0,7	1
CLZ-FP-69/5-HD	[c] R2H596	4,6	5		85 x 175	0,8	1
CLZ-FP-69/7,5-HD	[c] R2H598	6,9	7,5		85 x 175	0,9	1
CLZ-FP-69/10-HD	[c] R2H59B	9,15	10		85 x 245	1,0	1
CLZ-FP-69/12,5-HD	[c] R2H59D	11,4	12,5		85 x 245	1,2	1
CLZ-FP-69/15-HD	[c] R2H59E	13,7	15		85 x 245	1,3	1
CLZ-FP-69/20-HD	[c] R2H59J	18,3	20		100 x 245	1,9	7
CLZ-FP-69/25-HD	[c] R2H59L	22,9	25		116 x 245	2,1	2
CLZ-FP-69/30-HD	[c] R2H59N	27,5	30		116 x 245	3,0	2
CLZ-FP-69/40-HD	[c] R2H59R	36,6	40		136 x 355	4,0	-
CLZ-FP-69/50-HD	[c] R2H59S	45,75	50		136 x 355	5,0	-

Delivery time: [*] immediate
[x] working weeks
[c] consult

CLZ-FP-HD, three-phase tubular power capacitor (Heavy Duty range), 60 Hz

CLZ-FPT -capacitors with faston terminal / CLZ-FP - Capacitors with terminal block



Un = 3 x 240 V / 60 Hz

Type	Code	230 V kvar	240 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FPT-24/2,5-60Hz-HD	[c] R2H622	2,3	2,5	60	63,5 x 127	0,5	-
CLZ-FP-24/5-60Hz-HD	[c] R2H626	4,6	5	60	85 x 175	1,1	1
CLZ-FP-24/6,25-60Hz-HD	[c] R2H627	5,75	6,25	60	85 x 175	1,2	1
CLZ-FP-24/7,5-60Hz-HD	[c] R2H628	6,9	7,5	60	85 x 245	1,3	1
CLZ-FP-24/10-60Hz-HD	[c] R2H62B	9,2	10	60	85 x 245	1,7	1
CLZ-FP-24/12,5-60Hz-HD	[c] R2H62D	11,5	12,5	60	100 x 245	3,0	1
CLZ-FP-24/15-60Hz-HD	[c] R2H62E	13,8	15	60	100 x 245	3,3	1

Un = 3 x 440 V / 60 Hz

Type	Code	400 V kvar	440 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FPT-44/1,25-60Hz-HD	[c] R2H641	1	1,25	60	63,5 x 98	0,4	-
CLZ-FPT-44/2,5-60Hz-HD	[c] R2H642	2,1	2,5	60	63,5 x 127	0,5	-
CLZ-FPT-44/3-60Hz-HD	[c] R2H643	2,5	3	60	63,5 x 127	0,5	-
CLZ-FPT-44/3,75-60Hz-HD	[c] R2H644	3,1	3,75	60	63,5 x 127	0,5	-
CLZ-FPT-44/5-60Hz-HD	[c] R2H646	4,15	5	60	63,5 x 127	0,5	-
CLZ-FP-44/6,25-60Hz-HD	[c] R2H647	5,2	6,25	60	85 x 175	0,9	1
CLZ-FP-44/7,5-60Hz-HD	[c] R2H648	6,2	7,5	60	85 x 175	1	1
CLZ-FP-44/10-60Hz-HD	[c] R2H64B	8,3	10	60	85 x 175	1,0	1
CLZ-FP-44/12,5-60Hz-HD	[c] R2H64D	10,3	12,5	60	85 x 245	1,2	1
CLZ-FP-44/15-60Hz-HD	[c] R2H64E	12,4	15	60	85 x 245	1,3	1
CLZ-FP-44/20-60Hz-HD	[c] R2H64J	16,5	20	60	85 x 245	1,9	1
CLZ-FP-44/25-60Hz-HD	[c] R2H64L	20,7	25	60	100 x 245	2,1	7
CLZ-FP-44/30-60Hz-HD	[c] R2H64N	24,8	30	60	116 x 245	3,3	2
CLZ-FP-44/40-60Hz-HD	[c] R2H64R	33,1	40	60	116 x 245	4,0	2
CLZ-FP-44/50-60Hz-HD	[c] R2H64S	41,3	50	60	136 x 261	5,5	-

Un = 3 x 480 V / 60 Hz

Type	Code	460 V kvar	480 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-48/2,5-60Hz-HD	[c] R2H662	2,3	2,5	60	85 x 175	0,8	1
CLZ-FP-48/5-60Hz-HD	[c] R2H666	4,6	5	60	85 x 175	0,8	1
CLZ-FP-48/6,25-60Hz-HD	[c] R2H667	5,75	6,25	60	85 x 175	0,9	1
CLZ-FP-48/7,5-60Hz-HD	[c] R2H668	6,9	7,5	60	85 x 175	0,9	1
CLZ-FP-48/10-60Hz-HD	[c] R2H66B	9,2	10	60	85 x 245	1,0	1
CLZ-FP-48/12,5-60Hz-HD	[c] R2H66D	11,5	12,5	60	85 x 245	1,1	1
CLZ-FP-48/15-60Hz-HD	[c] R2H66E	13,8	15	60	85 x 245	1,3	1
CLZ-FP-48/20-60Hz-HD	[c] R2H66J	18,4	20	60	100 x 245	1,9	7
CLZ-FP-48/25-60Hz-HD	[c] R2H66L	23	25	60	116 x 245	2,1	2
CLZ-FP-48/30-60Hz-HD	[c] R2H66N	27,6	30	60	116 x 245	3,3	2
CLZ-FP-48/40-60Hz-HD	[c] R2H66R	36,75	40	60	136 x 355	4,0	-
CLZ-FP-48/50-60Hz-HD	[c] R2H66S	46	50	60	136 x 355	5,5	-

Delivery time: [*] immediate
[x] working weeks
[c] consult

CLZ-FP

Un = 3 x 525 V / 60 Hz

Type	Code	480 V kvar	525 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-52/2,5-60Hz-HD	[c] R2H672	2,1	2,5	60	85 x 175	0,8	1
CLZ-FP-52/5-60Hz-HD	[c] R2H676	4,2	5	60	85 x 175	0,9	1
CLZ-FP-52/6,25-60Hz-HD	[c] R2H677	5,2	6,25	60	85 x 175	1,1	1
CLZ-FP-52/7,5-60Hz-HD	[c] R2H678	6,25	7,5	60	85 x 175	1,3	1
CLZ-FP-52/8,5-60Hz-HD	[c] R2H67A	7,1	8,5	60	85 x 175	1,4	1
CLZ-FP-52/10-60Hz-HD	[c] R2H67B	8,4	10	60	85 x 175	1,5	1
CLZ-FP-52/11,5-60Hz-HD	[c] R2H67C	9,6	11,5	60	85 x 245	1,9	1
CLZ-FP-52/12,5-60Hz-HD	[c] R2H67D	10,5	12,5	60	85 x 245	2,0	1
CLZ-FP-52/15-60Hz-HD	[c] R2H67E	12,5	15	60	85 x 245	2,2	1
CLZ-FP-52/17-60Hz-HD	[c] R2H67I	14,2	17	60	85 x 245	2,4	1
CLZ-FP-52/20-60Hz-HD	[c] R2H67J	16,7	20	60	100 x 245	2,6	7
CLZ-FP-52/22,5-60Hz-HD	[c] R2H67K	18,8	22,5	60	100 x 245	2,8	7
CLZ-FP-52/25-60Hz-HD	[c] R2H67L	20,9	25	60	100 x 245	3,0	7
CLZ-FP-52/30-60Hz-HD	[c] R2H67N	25	30	60	116 x 245	3,5	2
CLZ-FP-52/34-60Hz-HD	[c] R2H67P	28,4	34	60	116 x 245	4,0	2
CLZ-FP-52/40-60Hz-HD	[c] R2H67R	33,4	40	60	136 x 261	4,5	-

Un = 3 x 600 V / 60 Hz



Type	Code	600 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-60/2,5-60Hz-HD	[c] R2H682	2,5	60	85 x 175	0,7	1
CLZ-FP-60/5-60Hz-HD	[c] R2H686	5	60	85 x 175	0,8	1
CLZ-FP-60/6,25-60Hz-HD	[c] R2H687	6,25	60	85 x 175	0,9	1
CLZ-FP-60/7,5-60Hz-HD	[c] R2H688	7,5	60	85 x 175	1,0	1
CLZ-FP-60/10-60Hz-HD	[c] R2H68A	10	60	85 x 175	1,0	1
CLZ-FP-60/12,5-60Hz-HD	[c] R2H68B	12,5	60	85 x 245	1,2	1
CLZ-FP-60/15-60Hz-HD	[c] R2H68E	15	60	85 x 245	1,8	1
CLZ-FP-60/17,5-60Hz-HD	[c] R2H68I	17,5	60	85 x 245	1,9	1
CLZ-FP-60/20-60Hz-HD	[c] R2H68J	20	60	100 x 245	2,0	7
CLZ-FP-60/21-60Hz-HD	[c] R2H68K	21	60	100 x 245	2,1	7
CLZ-FP-60/25-60Hz-HD	[c] R2H68L	25	60	100 x 245	2,4	7
CLZ-FP-60/30-60Hz-HD	[c] R2H68N	30	60	116 x 245	3,0	2
CLZ-FP-60/34,5-60Hz-HD	[c] R2H68P	34,5	60	116 x 245	4,0	2

Un = 3 x 690 V / 60 Hz

Type	Code	660 V kvar	690 V kvar	Hz	Dimensions mm (d x h)	Weight (kg)	Cover
CLZ-FP-69/2,5-60Hz-HD	[c] R2H692	2,3	2,5		85 x 175	0,9	1
CLZ-FP-69/5-60Hz-HD	[c] R2H696	4,6	5		85 x 175	1,1	1
CLZ-FP-69/7,5-60Hz-HD	[c] R2H698	6,9	7,5		85 x 175	1,3	1
CLZ-FP-69/10-60Hz-HD	[c] R2H69B	9,15	10		85 x 245	1,7	1
CLZ-FP-69/12,5-60Hz-HD	[c] R2H69D	11,4	12,5		85 x 245	2,0	1
CLZ-FP-69/15-60Hz-HD	[c] R2H69E	13,7	15		85 x 245	2,2	1
CLZ-FP-69/20-60Hz-HD	[c] R2H69J	18,3	20		100 x 245	2,7	7
CLZ-FP-69/25-60Hz-HD	[c] R2H69L	22,9	25		116 x 245	3,0	2
CLZ-FP-69/30-60Hz-HD	[c] R2H69N	27,5	30		116 x 245	3,5	2
CLZ-FP-69/40-60Hz-HD	[c] R2H69R	36,6	40		136 x 355	4,0	-
CLZ-FP-69/50-60Hz-HD	[c] R2H69S	45,75	50		136 x 355	4,5	-

Delivery time: [*] immediate
[x] working weeks
[c] consult

CSB, Three-phase power capacitors for LV

GREATER THAN 60% INCREASE IN CAPACITOR SPAN-LIFE

230 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-23/10	[*] R2321C	10	12,5	3,3	360 x 330 x 120
CSB-23/12,5	[2] R2321D	12,5	15	3,3	360 x 330 x 120
CSB-23/15	[*] R2321E	15	17,5	3,3	360 x 330 x 120
CSB-23/20	[*] R2321F	20	25	4,2	360 x 330 x 120
CSB-23/25	[2] R2321G	25	30	5,0	360 x 330 x 120
CSB-23/30	[2] R2321H	30	35	5,0	360 x 330 x 120
CSB-23/40	[*] R2321J	40	50	7,3	360 x 520 x 120
CSB-23/50	[*] R2321K	50	60	8,2	360 x 520 x 120

400 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-40/15	[*] R2323E	15	17,5	3,3	360 x 330 x 120
CSB-40/20	[*] R2323F	20	25	3,3	360 x 330 x 120
CSB-40/25	[*] R2323G	25	30	3,3	360 x 330 x 120
CSB-40/30	[*] R2323H	30	35	4,2	360 x 330 x 120
CSB-40/40	[*] R2323J	40	50	5,0	360 x 330 x 120
CSB-40/50	[*] R2323K	50	60	5,0	360 x 330 x 120
CSB-40/60	[*] R2323L	60	70	6,6	360 x 520 x 120
CSB-40/80	[*] R2323Q	80	95	8,2	360 x 520 x 120
CSB-40/100	[*] R2323R	100	120	9,0	360 x 520 x 120

440 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-44/15	[*] R2324E	15	17,5	2,6	360 x 330 x 120
CSB-44/20	[*] R2324F	20	25	3,3	360 x 330 x 120
CSB-44/25	[2] R2324G	25	30	3,3	360 x 330 x 120
CSB-44/30	[*] R2324H	30	35	3,5	360 x 330 x 120
CSB-44/40	[*] R2324J	40	50	4,2	360 x 330 x 120
CSB-44/50	[*] R2324K	50	60	5,0	360 x 330 x 120
CSB-44/60	[*] R2324L	60	70	5,0	360 x 330 x 120
CSB-44/80	[*] R2324Q	80	95	7,3	360 x 520 x 120
CSB-44/100	[*] R2324R	100	120	8,2	360 x 520 x 120

460 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-46/15	[2] R2325E	15		3,3	360 x 330 x 120
CSB-46/20	[*] R2325F	20		3,3	360 x 330 x 120
CSB-46/25	[2] R2325G	25		4,2	360 x 330 x 120
CSB-46/30	[*] R2325H	30		4,2	360 x 330 x 120
CSB-46/40	[*] R2325J	40		5,0	360 x 330 x 120
CSB-46/50	[*] R2325K	50		6,6	360 x 520 x 120
CSB-46/60	[*] R2325L	60		7,3	360 x 520 x 120
CSB-46/80	[*] R2325Q	80		9,0	360 x 520 x 120
CSB-46/100	[*] R2325R	100		10,9	360 x 610 x 120

480 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-48/10	[c] R277AC	8	10	2,8	360 x 330 x 120
CSB-48/15	[c] R277AE	12,5	15	3,5	360 x 330 x 120
CSB-48/20	[c] R277AF	16,7	20	3,5	360 x 330 x 120
CSB-48/25	[c] R277AG	20,8	25	4,2	360 x 330 x 120
CSB-48/30	[c] R277AH	25	30	4,2	360 x 330 x 120
CSB-48/40	[c] R277AJ	33,3	40	5,0	360 x 330 x 120
CSB-48/50	[c] R277AK	41,7	50	6,8	360 x 520 x 120
CSB-48/60	[c] R277AL	50	60	7,5	360 x 520 x 120

525 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-52/10	[c] R2326C	10	12,5	2,6	360 x 330 x 120
CSB-52/15	[c] R2326E	15	17,5	3,3	360 x 330 x 120
CSB-52/20	[c] R2326F	20	25	3,3	360 x 330 x 120
CSB-52/25	[c] R2326G	25	30	4,2	360 x 330 x 120
CSB-52/30	[c] R2326H	30	35	4,2	360 x 330 x 120
CSB-52/40	[c] R2326J	40	50	5,0	360 x 330 x 120
CSB-52/50	[c] R2326K	50	60	6,6	360 x 520 x 120
CSB-52/60	[c] R2326L	60	70	7,3	360 x 520 x 120
CSB-52/70	[c] R2326M	70	85	8,2	360 x 520 x 120

690 V

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-69/10	[3] R232BC	10	12,5	2,6	360 x 330 x 120
CSB-69/15	[3] R232BE	15	17,5	3,3	360 x 330 x 120
CSB-69/20	[3] R232BF	20	25	3,3	360 x 330 x 120
CSB-69/25	[3] R232BG	25	30	3,3	360 x 330 x 120
CSB-69/30	[3] R232BH	30	35	4,2	360 x 330 x 120
CSB-69/40	[3] R232BJ	40	50	5,0	360 x 330 x 120
CSB-69/50	[3] R232BK	50	60	5,0	360 x 330 x 120
CSB-69/60	[3] R232BL	60	70	6,6	360 x 520 x 120
CSB-69/80	[3] R232BQ	80	95	8,2	360 x 520 x 120
CSB-69/100	[3] R232BR	100	-	9,0	360 x 520 x 120

1100 V (FOR LV NETWORKS)

Type	Code	kvar 50 Hz	kvar 60 Hz	wt. (kg)	Dim. (mm) (a x h x f)
CSB-110/10	[1] R2327C	10	12	3,5	360x330x120
CSB-110/20	[1] R2327F	20	24	5,0	360x330x120
CSB-110/30	[1] R2327H	30	36	5,0	360x330x120
CSB-110/40	[1] R2327J	40	48	7,5	360x520x120
CSB-110/50	[1] R2327K	50	60	9,0	360x520x120
CSB-110/60	[1] R2327L	60	72	9,0	360x520x120
CSB-110/70	[1] R2327M	70	84	10,9	360x610x120

Delivery time: [*] immediate
[x] working weeks
[c] consult

CSB Dual voltage, Power capacitors for LV

230 / 400 V					
Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CSB-2340/5	[2] R23288	5	6	3,3	360 x 330 x 120
CSB-2340/7,5	[2] R2328A	7,5	9	3,9	360 x 330 x 120
CSB-2340/10	[2] R2328C	10	12,5	3,9	360 x 330 x 120
CSB-2340/12,5	[2] R2328D	12,5	15	3,9	360 x 330 x 120
CSB-2340/15	[2] R2328E	15	17,5	4,6	360 x 330 x 120
CSB-2340/20	[2] R2328F	20	25	4,6	360 x 330 x 120
CSB-2340/25	[2] R2328G	25	30	4,6	360 x 330 x 120
CSB-2340/30	[2] R2328H	30	35	6,2	360 x 330 x 120
CSB-2340/40	[2] R2328J	40	50	8,3	360 x 520 x 120

Note: Dual voltage capacitors are used in fixed motors compensation

400 / 690 V					
Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CSB-4069/5	[2] R23298	5	6	3,3	360 x 330 x 120
CSB-4069/7,5	[2] R2329A	7,5	9	3,3	360 x 330 x 120
CSB-4069/10	[2] R2329C	10	12,5	3,9	360 x 330 x 120
CSB-4069/12,5	[2] R2329D	12,5	15	3,9	360 x 330 x 120
CSB-4069/15	[*] R2329E	15	17,5	3,9	360 x 330 x 120
CSB-4069/20	[2] R2329F	20	25	4,6	360 x 330 x 120
CSB-4069/25	[*] R2329G	25	30	4,6	360 x 330 x 120
CSB-4069/30	[*] R2329H	30	35	6,2	360 x 330 x 120
CSB-4069/40	[*] R2329J	40	50	7	360 x 330 x 120
CSB-4069/50	[*] R2329K	50	60	9,2	360 x 330 x 120
CSB-4069/60	[*] R2329L	60	70	9,9	360 x 520 x 120
CSB-4069/75	[2] R2329P	75	90	10,5	360 x 520 x 120
CSB-4069/80	[*] R2329Q	80	96	11,3	360 x 520 x 120



CFB, Power capacitors for harmonic filtering (for FR)

f resonance = 189 Hz

CFB 230 V

Type	Code	kvar 230V	Weight (kg)	Dimensions (mm) (a x h x f)	For reactor
CFB-26/6,3	[1] R2412A	5	2,6	360 x 330 x 120	RX-5-230
CFB-26/12,5	[1] R2412D	10	3,3	360 x 330 x 120	RX-10-230
CFB-26/18	[1] R2412E	15	3,3	360 x 330 x 120	RBX-15-230
CFB-26/25	[1] R2412G	20	4,2	360 x 330 x 120	RBX-20-230
CFB-26/30	[1] R2412H	25	5,0	360 x 520 x 120	RBX-25-230
CFB-26/37	[1] R2412J	30	5,0	360 x 520 x 120	RBX-30-230
CFB-26/48	[1] R2412K	40	7,3	360 x 520 x 120	RBX-40-230
CFB-26/60	[1] R2412L	50	8,2	360 x 610 x 120	RBX-50-230

CFB 460 V

Type	Code	kvar (*L-C*) 440V	400V	Weight (kg)	Dimensions (mm) (a x h x f)	For reactor
CFB-46/6	[1] R2415A	6,25	5	3,3	360 x 330 x 120	**RX-5-400 / 6-460**
CFB-46/12,5	[1] R2415D	12,5	10	3,9	360 x 330 x 120	**RX-10-400 / 12,5-460**
CFB-46/15	[1] R2415E	15	12,5	3,9	360 x 330 x 120	**RX-12,5-400 / 15-460**
CFB-46/19	[1] R2415F	18,5	15	3,9	360 x 330 x 120	**RX-15-400 / 19-460**
CFB-46/25	[1] R2415G	25	20	4,6	360 x 330 x 120	**RBX-20-400 / 25-460**
CFB-46/30	[1] R2415H	30	25	4,6	360 x 330 x 120	**RBX-25-400 / 30-460**
CFB-46/37	[1] R2415J	40	30	6,2	360 x 330 x 120	**RBX-30-400 / 37-460**
CFB-46/50	[*] R2415K	50	40	7,0	360 x 520 x 120	**RBX-40-400 / 50-460**
CFB-46/62	[*] R2415L	60	50	9,2	360 x 520 x 120	**RBX-50-400 / 62-460**
CFB-46/74	[*] R2415P	75	60	9,9	360 x 520 x 120	**RBX-60-400 / 74-460**
CFB-46/100	[*] R2415R	100	80	11,3	360 x 610 x 120	**RBX-80-400 / 100-460**

NOTICE: In order to compensate for the overvoltage effect produced by the reactor, the capacitor has been oversized to withstand a voltage of 460/260 V., which is equivalent to a 25% extra power

RX / RBX , Reactors for harmonic filtering (for FR), 50 Hz

Overvoltage factor/ Detuned frecuency 7 % / 189 Hz, **Network voltage & frequency** 400 V 50 Hz — **Voltage over capacitor at rated network voltage 430.1 Vac**

Type	code	kvar	L (mH)	CLZ Model	CFB Model	Weght (kg)	Dimensions
RX-5-400-7%	**[*] P72110**	5	7,66	CLZ-FP-46/6,25-HD	CFB-46/6	5	155 x 92 x 165
RX-6,25-400-7%	**[*] P72112**	6,25	6,12	CLZ-FP-52/10-HD	CFB-46/7,75	8	180 x 100 x 190
RX-10-400-7%	**[*] P72115**	10	3,83	CLZ-FP-46/12,5-HD	CFB-46/12,5	7,5	180 x 100 x 190
RX-12,5-400-7%	**[*] P72117**	12,5	3,06	CLZ-FP-46/15-HD	CFB-46/15	8	180 x 110 x 192
RX-15-400-7%	**[*] P72120**	15	2,55	CLZ-FP-46/19-HD	CFB-46/19	8,5	180 x 110 x 190
RBX-20-400-7%	**[*] P72125**	20	1,92	CLZ-FP-46/25-HD	CFB-46/25	14	235 x 125 x 165
RBX-25-400-7%	**[*] P72130**	25	1,53	CLZ-FP-46/30-HD	CFB-46/30	14	235 x 125 x 165
RBX-30-400-7%	**[*] P72135**	30	1,27	2 x CLZ-FP-46/19-HD	CFB-46/37	19	255 x 125 x 200
RBX-40-400-7%	**[*] P72140**	40	0,95	2 x CLZ-FP-46/25-HD	CFB-46/50	20	255 x 125 x 200
RBX-50-400-7%	**[*] P72145**	50	0,76	2 x CLZ-FP-46/30-HD	CFB-46/62	25	255 x 145 x 220
RBX-60-400-7%	**[*] P72150**	60	0,63	3 x CLZ-FP-46/25-HD	CFB-46/74	28	280 x 145 x 240
RBX-80-400-7%	**[*] P72155**	80	0,47	4 x CLZ-FP-46/25-HD	CFB-46/100	31	305 x 155 x 235

Overvoltage factor/ Detuned frecuency 14 % / 134 Hz, **Network voltage & frequency** 400 V_{ac} - 50 Hz — **Voltage over capacitor at rated network voltage:** 460.1 V_{ac}

Type	code	kvar	L (mH)	CLZ Model	CFB Model
RX-5-400-14%	**[c] P71021**	5	16,31	CLZ-FP-52/7,5-HD	CFB-52/7,5
RX-10-400-14%	**[c] P71022**	10	8,15	CLZ-FP-52/15-HD	CFB-52/15
RX-12,5-400-14%	**[c] P71023**	12,5	6,52	CLZ-FP-52/20-HD	CFB-52/19
RX-15-400-14%	**[c] P71024**	15	5,43	CLZ-FP-52/25-HD	CFB-52/23
RX-20-400-14%	**[c] P71025**	20	4,07	CLZ-FP-52/30-HD	CFB-52/30
RBX-25-400-14%	**[c] P72330**	25	3,26	CLZ-FP-52/12,5-HD + CLZ-FP-52/30-HD	CFB-52/38
RBX-30-400-14%	**[c] P72335**	30	2,71	CLZ-FP-52/25-HD + CLZ-FP-52/20-HD	CFB-52/46
RBX-40-400-14%	**[c] P72340**	40	2,03	2 x CLZ-FP-52/30-HD	CFB-52/60,5
RBX-50-400-14%	**[c] P72345**	50	1,63	3 x CLZ-FP-52/25-HD	CFB-52/76
RBX-60-400-14%	**[c] P72350**	60	1,35	3 x CLZ-FP-52/30-HD	CFB-52/91

Overvoltage factor/ Detuned frecuency 5,67 % / 210 Hz,**Network voltage & frequency** 440 V_{ac} - 50 Hz — **Voltage over capacitor at rated network voltage:** 424 V_{ac}

Type	code	kvar	L (mH)	CLZ Model	CFB Model
RX-5-440-5,67%	**[c] P72210**	5	6,11 mH	CLZ-FP-46/6,25-HD	CFB-46/6
RX-6,25-440-5,67%	**[c] P72212**	6,25	4,88 mH	CLZ-FP-52/10-HD	CFB-46/7,75
RX-10-440-5,67%	**[c] P72215**	10	3,05 mH	CLZ-FP-46/12,5-HD	CFB-46/12,5
RX-12,5-440-5,67%	**[c] P72217**	12,5	2,44 mH	CLZ-FP-46/15-HD	CFB-46/15
RX-15-440-5,67%	**[c] P72220**	15	2,04 mH	CLZ-FP-46/19-HD	CFB-46/19
RBX-20-440-5,67%	**[c] P72225**	20	1,53 mH	CLZ-FP-46/25-HD	CFB-46/25
RBX-25-440-5,67%	**[c] P72230**	25	1,22 mH	CLZ-FP-46/30-HD	CFB-46/30
RBX-30-440-5,67%	**[c] P72235**	30	1,02 mH	2 x CLZ-FP-46/19-HD	CFB-46/37
RBX-40-440-5,67%	**[c] P72240**	40	0,76 mH	2 x CLZ-FP-46/25-HD	CFB-46/50
RBX-50-440-5,67%	**[c] P72245**	50	0,61 mH	2 x CLZ-FP-46/30-HD	CFB-46/62
RBX-60-440-5,67%	**[c] P72250**	60	0,51 mH	3 x CLZ-FP-46/25-HD	CFB-46/74
RBX-80-440-5,67%	**[c] P72255**	80	0,38 mH	4 x CLZ-FP-46/25-HD	CFB-46/100

Delivery time: [*] immediate
[x] working weeks
[c] consult

RX / RBX , Reactors for harmonic filtering (for FR), 60 Hz

Overvoltage factor/ Detuned frecuency: 7 % / 227 Hz - **Network voltage & frequency:** 480 V ac - 60 Hz , **Voltage over capacitor at rated network voltage:** 516,1 V ac

Type	code	kvar	L (mH)	CLZ Model
RX-7.5-480-60Hz-7%	**[c] P721130017000**	7,5	6,12	CLZ-FP-52/8,5-60Hz-HD
RX-10-480-60Hz-7%	**[c] P721150017000**	10	4,58	CLZ-FP-52/11,5-60Hz-HD
RX-12,5-480-60Hz-7%	**[c] P721170017000**	12,5	3,66	CLZ-FP-52/15-60Hz-HD
RX-15-480-60Hz-7%	**[c] P721200017000**	15	3,06	CLZ-FP-52/17-60Hz-HD
RBX-20-480-60Hz-7%	**[c] P721250017000**	20	2,29	CLZ-FP-52/22,5-60Hz-HD
RBX-25-480-60Hz-7%	**[c] P721300017000**	25	1,83	CLZ-FP-52/30-60Hz-HD
RBX-30-480-60Hz-7%	**[c] P721350017000**	30	1,53	CLZ-FP-52/34-60Hz-HD
RBX-40-480-60Hz-7%	**[c] P721400017000**	40	1,15	2 x CLZ-FP-52/22,5-60Hz-HD
RBX-50-480-60Hz-7%	**[c] P721450017000**	50	0,92	2 x CLZ-FP-52/30 -60Hz-HD
RBX-60-480-60Hz-7%	**[c] P721500017000**	60	0,76	2 x CLZ-FP-52/34-60Hz-HD
RBX-80-480-60Hz-7%	**[c] P721550017000**	80	0,58	3 x CLZ-FP-52/30-60Hz-HD

Overvoltage factor/ Detuned frecuency: 14 % / 160 Hz - **Network voltage & frequency:** 480 V ac - 60 Hz, **Voltage over capacitor at rated network voltage:** 558,1 V ac

Type	code	kvar	L (mH)	CLZ Model
RX-12,5-480-60Hz-14%	**[c] P710230017000**	12,5	7,81	CLZ-FP-60/17,5-60Hz-HD
RX-15-480-60Hz-14%	**[c] P710240017000**	15	6,52	CLZ-FP-60/21-60Hz-HD
RX-25-480-60Hz-14%	**[c] P723300017000**	25	3,91	CLZ-FP-60/34,5-60Hz-HD
RBX-30-480-60Hz-14%	**[c] P723500017000**	30	3,26	2 x CLZ-FP-60/21-60Hz-HD
RBX-50-480-60Hz-14%	**[c] P724200017000**	50	1,95	2 x CLZ-FP-60/34,5-60Hz-HD

CFB, Power capacitors for harmonic filtering (for FR)

f resonance = 189 Hz

CFB 790 V, 50 HZ

Type	Code	kvar 690V	Weight (kg)	Dimensions (mm) (a x h x f)	For reactor
CFB-79/6	[c] R241DA	5	2,6	360 x 330 x 120	RE-5-400 / 6-460
CFB-79/12,5	[c] R241DD	10	2,6	360 x 330 x 120	RE-10-400 / 12,5-460
CFB-79/19	[c] R241DF	15	3,3	360 x 330 x 120	RE-15-400 / 19-460
CFB-79/25	[c] R241DG	20	3,3	360 x 330 x 120	RE-20-400 / 25-460
CFB-79/30	[c] R241DH	25	4,2	360 x 330 x 120	RE-25-400 / 30-460
CFB-79/37	[c] R241DI	30	4,2	360 x 330 x 120	RE-30-400 / 37-460
CFB-79/50	[c] R241DK	40	5,0	360 x 520 x 120	RE-40-400 / 50-460
CFB-79/62	[c] R241DL	50	6,6	360 x 520 x 120	RBE-50-400 / 62-460
CFB-79/74	[c] R241DP	60	7,3	360 x 520 x 120	RBE-60-400 / 74-460
CFB-79/100	[c] R241DR	80	9,0	360 x 610 x 120	RBE-80-400 / 100-460

CFB-B, Special capacitors for harmonics filters with static switching operation of the FRE series

Capacitors with 6 terminals for CPCb boards. *f* resonance = 189 Hz

CFB 460-6B V, 50 HZ

Type	Code	kvar (*L-C*) 440V	400V	Weight (kg)	Dimensions (mm) (a x h x f)	For reactor
CFB-46/6-6B	[c] R2425A	6,25	5	3,3	360 x 330 x 120	RE-5-400 / 6-460
CFB-46/12,5-6B	[c] R2425D	12,5	10	3,9	360 x 330 x 120	RE-10-400 / 12,5-460
CFB-46/19-6B	[c] R2425F	18,5	15	3,9	360 x 330 x 120	RE-15-400 / 19-460
CFB-46/25-6B	[c] R2425G	25	20	4,6	360 x 330 x 120	RE-20-400 / 25-460
CFB-46/30-6B	[c] R2425H	30	25	4,6	360 x 330 x 120	RE-25-400 / 30-460
CFB-46/37-6B	[c] R2425J	40	30	6,2	360 x 330 x 120	RE-30-400 / 37-460
CFB-46/50-6B	[c] R2425K	50	40	7,0	360 x 520 x 120	RE-40-400 / 50-460
CFB-46/62-6B	[c] R2425L	60	50	9,2	360 x 520 x 120	RBE-50-400 / 62-460
CFB-46/74-6B	[c] R2425P	75	60	9,9	360 x 520 x 120	RBE-60-400 / 74-460
CFB-46/100-6B	[c] R2425R	100	80	11,3	360 x 610 x 120	RBE-80-400 / 100-460

CFB 260-6B V, 50 HZ

Type	Code	kvar 230V	Weight (kg)	Dimensions (mm) (a x h x f)	For reactor
CFB-26/6,3-6B	[c] R2422A	5	3,2	360 x 330 x 120	RE-5-230
CFB-26/12,5-6B	[c] R2422D	10	3,9	360 x 330 x 120	RE-10-230
CFB-26/18-6B	[c] R2422E	15	4,6	360 x 330 x 120	RE-15-230
CFB-26/25-6B	[c] R2422G	20	6,2	360 x 330 x 120	RBE-20-230
CFB-26/30-6B	[c] R2422H	25	7,0	360 x 330 x 120	RBE-22-230
CFB-26/37-6B	[c] R2422J	30	6,2	360 x 330 x 120	RBE-30-230
CFB-26/48-6B	[c] R2422K	40	8,3	360 x 520 x 120	RBE-40-230

NOTICE: In order to compensate for the overvoltage effect produced by the reactor, the capacitor has been oversized to withstand a voltage of 460/260 V., which is equivalent to a 25% extra power

RE / RBE, Reactors III for detuned static filters with FRE static switching

For capacitors with 6 terminals





400 V, 50 Hz, $f_{RESONANCE}$ = 189 Hz / P= 7%

Type	Code	kvar	For Capacitor	I_n	*L* (mH)	Losses	Dimensions (mm) Lenght	Width	Height	Weight kg
RE-5-400 / 6-460	[4] P70210	5	CFB 46 / 6-6B	5 A	23,67	25 W	155	92	165	6
RE-10-400 / 12,5-460	[4] P70215	10	CFB 46 / 12,5-6B	9 A	11,27	50 W	180	102	190	8
RE-15-400 / 19-460	[4] P70220	15	CFB 46 / 19-6B	13 A	7,50	57 W	180	112	190	9,5
RE-20-400 / 25-460	[4] P70225	20	CFB 46 / 25-6B	17 A	5,68	76 W	180	122	190	11,5
RE-25-400 / 30-460	[4] P70230	25	CFB 46 / 30-6B	21 A	4,68	90 W	240	122	250	17
RE-30-400 / 37-460	[4] P70235	30	CFB 46 / 37-6B	26 A	3,84	120 W	240	132	250	20,5
RE-40-400 / 50-460	[4] P70240	40	CFB 46 / 50-6B	35 A	2,84	145 W	240	147	250	25,5
RBE-50-400 / 62-460	[4] P70245	50	CFB 46 / 62-6B	42 A	2,29	185 W	310	154	233	29
RBE-60-400 / 74-460	[4] P70250	60	CFB 46 / 74-6B	51 A	1,89	205 W	338	154	234	30
RBE-80-400 / 100-460	[4] P70255	80	CFB 46 / 100-6B	68 A	1,42	235 W	338	154	254	41

Delivery time: [*] immediate
[x] working weeks
[c] consult



CV, power capacitors (LV)

230 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CV-23/2,5	**[*] R20114**	2,5	3	3	204 x 435 x 75
CV-23/3,75	**[*] R20116**	3,75	4,5	3,5	204 x 435 x 75
CV-23/5	**[*] R20118**	5	6	3,5	204 x 435 x 75
CV-23/7,5	**[*] R2011A**	7,5	9	4	204 x 435 x 75
CV-23/10	**[*] R2011C**	10	12,5	4	204 x 435 x 75
CV-23/12,5	**[*] R2011D**	12,5	15	4,5	204 x 435 x 75
CV-23/15	**[*] R2011E**	15	17,5	4,5	204 x 435 x 75

400 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CV-40/2,5	**[*] R20134**	2,5	3	2,5	204 x 435 x 75
CV-40/5	**[*] R20138**	5	4,5	2,5	204 x 435 x 75
CV-40/7,5	**[*] R2013A**	7,5	9	3	204 x 435 x 75
CV-40/10	**[*] R2013C**	10	12,5	3	204 x 435 x 75
CV-40/12,5	**[*] R2013D**	12,5	15	3,5	204 x 435 x 75
CV-40/15	**[*] R2013E**	15	17,5	4,5	204 x 435 x 75
CV-40/20	**[*] R2013F**	20	25	4,5	204 x 435 x 75
CV-40/25	**[*] R2013G**	25	30	6,5	204 x 435 x 75

440 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CV-44/2,5	[*] R20144	2,5	3	2	204 x 435 x 75
CV-44/5	[*] R20148	5	4,5	2	204 x 435 x 75
CV-44/7,5	[*] R2014A	7,5	9	2,5	204 x 435 x 75
CV-44/10	[*] R2014C	10	12,5	2,5	204 x 435 x 75
CV-44/12,5	[*] R2014D	12,5	15	3	204 x 435 x 75
CV-44/15	[*] R2014E	15	17,5	4	204 x 435 x 75
CV-44/20	[*] R2014F	20	25	4	204 x 435 x 75
CV-44/25	[*] R2014G	25	30	6	204 x 435 x 75
CV-44/30	[*] R2014J	30	35	6,5	204 x 435 x 75

460 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CV-46/2,5	**[1] R20154**	2,5	3	1	204 x 435 x 75
CV-46/5	**[1] R20158**	5	6	1	204 x 435 x 75
CV-46/7,5	**[1] R2015A**	7,5	9	1,5	204 x 435 x 75
CV-46/10	**[1] R2015C**	10	12,5	1,5	204 x 435 x 75
CV-46/12,5	**[1] R2015D**	12,5	15	2	204 x 435 x 75
CV-46/15	**[*] R2015E**	15	17,5	3	204 x 435 x 75

CQ, THREE-PHASE LOW VOLTAGE POWER CAPACITORS

230 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CQ-23/10	**[*] R2031C**	10	12,5	4,9	360 x 520 x 75
CQ-23/12,5	**[*] R2031D**	12,5	15	4,9	360 x 520 x 75
CQ-23/15	**[*] R2031E**	15	17,5	4,9	360 x 520 x 75
CQ-23/20	**[*] R2031F**	20	25	6,4	360 x 520 x 75
CQ-23/25	**[*] R2031G**	25	30	7,9	360 x 520 x 75
CQ-23/30	**[*] R2031H**	30	35	7,9	360 x 520 x 75

400 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CQ-40/10	**[*] R2033C**	10	12,5	4	360 x 520 x 75
CQ-40/12,5	**[*] R2033D**	12,5	15	4,5	360 x 520 x 75
CQ-40/15	**[*] R2033E**	15	17,5	5	360 x 520 x 75
CQ-40/20	**[*] R2033F**	20	25	6	360 x 520 x 75
CQ-40/25	**[*] R2033G**	25	30	6	360 x 520 x 75
CQ-40/30	**[*] R2033H**	30	35	6	360 x 520 x 75
CQ-40/40	**[*] R2033J**	40	50	7	360 x 520 x 75
CQ-40/50	**[*] R2033K**	50	60	9	360 x 520 x 75

440 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CQ-44/15	**[*] R2034E**	15	17,5	4,1	360 x 520 x 75
CQ-44/20	**[*] R2034F**	20	25	4,9	360 x 520 x 75
CQ-44/25	**[*] R2034G**	25	30	4,9	360 x 520 x 75
CQ-44/30	**[*] R2034H**	30	35	4,9	360 x 520 x 75
CQ-44/40	**[*] R2034J**	40	50	6	360 x 520 x 75
CQ-44/50	**[*] R2034K**	50	60	7,9	360 x 520 x 75

460 V

Type	Code	kvar 50 Hz	kvar 60 Hz	Wt. (kg)	Dim. (mm) (a x h x f)
CQ-46/10	**[c] R2035C**	10	12,5	4,1	360 x 520 x 75
CQ-46/12,5	**[c] R2035D**	12,5	15	4,1	360 x 520 x 75
CQ-46/15	**[c] R2035E**	15	17,5	4,1	360 x 520 x 75
CQ-46/20	**[c] R2035F**	20	25	4,9	360 x 520 x 75
CQ-46/25	**[c] R2035G**	25	30	4,9	360 x 520 x 75
CQ-46/30	**[c] R2035H**	30	35	4,9	360 x 520 x 75
CQ-46/40	**[c] R2035J**	40	50	7,9	360 x 520 x 75
CQ-46/50	**[c] R2035K**	50	60	7,9	360 x 520 x 75
CQ-46/60	**[c] R2035L**	60	-	8,1	360 x 520 x 75

Delivery time: [*] immediate
[x] working weeks
[c] consult

CSB-F, Power capacitors with fuse protection



CSB-F 230 V / 50 Hz

Type	Code	kvar	Cut off power	A	Fuses (A)	Cable section (2)	Wt. kg	Dimensions (mm)
CSB-F - 5 - 230	[1] R23618	5	50 kA	13	20	6	9	140 x 381 x 280
CSB-F - 7,5 - 230	[1] R2361A	7,5	50 kA	19	35	6	9,2	140 x 381 x 280
CSB-F - 10 - 230	[1] R2361C	10	50 kA	25	50	10	9,5	140 x 381 x 280
CSB-F - 12,5 - 230	[1] R2361D	12,5	50 kA	31	63	10	9,5	140 x 381 x 280
CSB-F - 15 - 230	[1] R2361E	15	50 kA	38	80	16	11,3	140 x 381 x 280
CSB-F - 20 - 230	[1] R2361F	20	50 kA	50	100	25	11,8	140 x 381 x 280
CSB-F - 25 - 230	[1] R2361G	25	50 kA	63	125	35	10,8	140 x 381 x 280
CSB-F - 30 - 230	[1] R2361H	30	50 kA	75	160	50	10,8	140 x 381 x 280
CSB-F - 40 - 230	[1] R2361J	40	50 kA	100	160	70	14,5	140 x 571 x 280



CSB-F 440 V / 50 Hz

Type	Code	kvar		Cut off power	A	Fuses (A)	Cable section (2)	Wt. kg	Dimensions (mm)
CSB-F- 5 - 440	[1] R23958	5	4	50 kA	6,6	16	6	8	140 x 381 x 280
CSB-F- 7,5 - 440	[1] R2395A	7,5	6	50 kA	10	20	6	8	140 x 381 x 280
CSB-F- 10 - 440	[1] R2395C	10	8	50 kA	13	25	6	8	140 x 381 x 280
CSB-F- 12,5 - 440	[1] R2395D	12,5	10	50 kA	16	35	6	8,5	140 x 381 x 280
CSB-F- 15 - 440	[1] R2395E	15	12,5	50 kA	20	50	6	8,5	140 x 381 x 280
CSB-F- 20 - 440	[1] R2395F	20	17	50 kA	26	50	10	9,5	140 x 381 x 280
CSB-F- 25 - 440	[1] R2395G	25	21	50 kA	33	50	10	9,5	140 x 381 x 280
CSB-F- 30 - 440	[1] R2395H	30	25	120 kA	39	80	16	11	140 x 381 x 280
CSB-F- 37,5 - 440	[1] R2395J	37,5	31	120 kA	49	100	25	12,5	140 x 381 x 280
CSB-F- 50 - 440	[1] R2395K	50	42	120 kA	66	125	35	15	140 x 381 x 280
CSB-F- 60 - 440	[1] R2395L	60	50	120 kA	79	160	50	16	140 x 571 x 280
CSB-F- 75 - 440	[1] R2395P	75	63	120 kA	103	160	70	18	140 x 571 x 280
CSB-F- 100 - 440	[1] R2395Q	100	80	120 kA	131	160	70	18,5	140 x 571 x 280

(2) Section in mm².

CMC-B, contactor

Type	Code	Maximum operating power (kvar)				Coil voltage (V / Hz)	Dumping resistors
		220-240 V	400-440-480 V	500-550 V	660-690 V		
CMC 7.5 B	[*] R281A5	5	7,5	9	11	230 / 50-60	Included
CMC 12 B	[*] R281A6	6,7	12,5	15	18	230 / 50-60	Included
CMC 20 B	[*] R281A4	11	20	24	30	230 / 50-60	Included
CMC 32 B	[*] R281A8	14	25	30	35	230 / 50-60	Included
CMC 40 B	[*] R281A1	20	30	35	40	230 / 50-60	Included
CMC 75 B	[*] R281A9	29	50	30	70	230 / 50-60	Included
CMC 85 B	[*] R281A3	32	60	70	80	230 / 50-60	Included
CMC 150 B	[*] R281AD	45	80	100	115	230 / 50-60	Included

Delivery time: [*] immediate
[x] working weeks
[c] consult

CSB-M, power capacitors with circuit breaker protection



CSB-M 230 V / 50 Hz

Type	Code	kvar	Cut off Power	A	Automatic switch	Cable section (2)	Wt. (kg)	Dimensions (mm)
CSB-M - 5 - 230	[1] R23718	5	6 kA	13	20	6	9	140 x 381 x 280
CSB-M - 7,5 - 230	[1] R2371A	7,5	6 kA	19	35	6	9,2	140 x 381 x 280
CSB-M - 10 - 230	[1] R2371C	10	6 kA	25	50	10	9,5	140 x 381 x 280
CSB-M - 12,5 - 230	[1] R2371D	12,5	6 kA	31	63	10	9,5	140 x 381 x 280
CSB-M - 15 - 230	[1] R2371E	15	6 kA	38	80	16	11,3	140 x 381 x 280
CSB-M - 20 - 230	[1] R2371F	20	10 kA	50	100	25	11,8	140 x 381 x 280
CSB-M - 25 - 230	[1] R2371G	25	10 kA	63	125	35	10,8	140 x 381 x 280
CSB-M - 30 - 230	[1] R2371H	30	10 kA	75	160	50	10,8	140 x 381 x 280



CSB-M 440 V / 50 Hz

Type	Code	kvar 440V	kvar 400V	Cut off Power	A	Automatic switch	Cable section (2)	Wt. (kg)	Dimensions (mm)
CSB-M- 5 - 440	[1] R23948	5	4	6 kA	6,6	10	6	8	140 x 381 x 280
CSB-M- 7,5 - 440	[1] R2394A	7,5	6	6 kA	10	16	6	8	140 x 381 x 280
CSB-M- 10 - 440	[1] R2394C	10	8	6 kA	13	20	6	8	140 x 381 x 280
CSB-M- 12,5 - 440	[*] R2394D	12,5	10	6 kA	16	25	6	8,5	140 x 381 x 280
CSB-M- 15 - 440	[1] R2394E	15	12,5	6 kA	20	32	6	8,5	140 x 381 x 280
CSB-M- 20 - 440	[*] R2394F	20	17	6 kA	26	40	10	9,5	140 x 381 x 280
CSB-M- 25 - 440	[*] R2394G	25	21	6 kA	33	50	10	9,5	140 x 381 x 280
CSB-M- 30 - 440	[*] R2394H	30	25	6 kA	39	63	16	11	140 x 381 x 280
CSB-M- 37,5 - 440	[*] R2394J	37,5	31	10 kA	49	80	25	12,5	140 x 381 x 280
CSB-M- 50 - 440	[*] R2394K	50	42	10 kA	66	100	35	15	140 x 381 x 280
CSB-M- 60 - 440	[*] R2394L	60	50	10 kA	79	125	50	16	140 x 571 x 280
CSB-M- 75 - 440	[*] R2394M	75	66	10 kA	105	125	50	18	140 x 571 x 280

CSB-A, fixed capacitors with automatic protection 50 Hz



Type	Code	kvar 440V	kvar 400V	Cut off Power	A	Automatic switch	Cable section (2)	Wt. (kg)	Dimensions (mm)
CSB-A- 25 - 440	[2] R2473H	25	21	50 kA	33	63	16	15	360 x 814 x 196
CSB-A- 37,5 - 440	[2] R2473G	37,5	31	50 kA	49	80	25	11	360 x 814 x 196
CSB-A- 50 - 440	[2] R2473J	50	42	50 kA	66	100	25	16	360 x 814 x 196
CSB-A- 60 - 440	[2] R2473K	60	50	50 kA	79	125	35	20	360 x 814 x 196
CSB-A- 75 - 440	[2] R2473L	75	62	50 kA	99	160	50	21	360 x 1004 x 196
CSB-A- 100 - 440	[2] R2473M	100	83	50 kA	131	200	70	26	360 x 1004 x 196
CSB-A- 120 - 440	[2] R2473N	120	100	50 kA	158	250	95	28	360 x 1004 x 196

OPTIM FRF / FRM, Fixed capacitors with rejection reactance of p = 7%

Assembled in a metal cabinet. Floor mounted.

Type	Code	kvar 440 V	kvar 400 V	A	Weight (kg)	Cable section (2)	Dimensions (mm)
OPTIM FRF, fuse protection APR, 440 V, 50 Hz							
OPTIM FRF-25-440	[2] R5X350	25	21	33	78	10	650 x 1060 x 420
OPTIM FRF-37,5-440	[2] R5X370	37,5	31	47	82	16	650 x 1060 x 420
OPTIM FRF-50-440	[2] R5X380	50	42	66	85	25	650 x 1060 x 420
OPTIM FRF-60-440	[2] R5X390	60	50	79	90	35	650 x 1060 x 420
OPTIM FRF-75-440	[2] R5X3A0	75	62	99	96	50	650 x 1060 x 420
OPTIM FRF-100-440	[2] R5X3B0	100	83	131	110	70	650 x 1060 x 420
OPTIM FRM, automatic tripolar protection, 440 V, 50 Hz							
OPTIM FRM-25-440	[2] R5Y350	25	21	33	78	10	650 x 1060 x 420
OPTIM FRM-37,5-440	[2] R5Y370	37,5	31	47	82	16	650 x 1060 x 420
OPTIM FRM-50-440	[2] R5Y380	50	42	66	85	25	650 x 1060 x 420
OPTIM FRM-60-440	[2] R5Y390	60	50	79	90	35	650 x 1060 x 420
OPTIM FRM-75-440	[2] R5Y3A0	75	62	99	96	50	650 x 1060 x 420
OPTIM FRM-100-440	[2] R5Y3B0	100	83	131	110	70	650 x 1060 x 420



Delivery time: [*] immediate
[x] working weeks
[c] consult

CLP, Power capacitor with circuit breaker



440 V / 50 Hz

Type	Code	kvar	Cut off power	(A)	I_p	Dimensions (mm) length x height x width
CLP-44/2,5	**[2] R21574**	2,5	6 kA	3,28	20	80 x 350 x 85
CLP-44/3	**[2] R21575**	3	6 kA	3,94	20	80 x 350 x 85
CLP-44/5	**[2] R21578**	5	6 kA	6,57	20	80 x 350 x 85
CLP-44/6,25	**[2]** R21579	6,25	6 kA	8,21	20	80 x 350 x 85
CLP-44/7,5	**[2] R2157A**	7,5	6 kA	9,85	20	80 x 350 x 85

CLP-C, CLZ Capacitor with circuit breaker and contactor



Type	Code	kvar	Cut off power	(A)	I_p	Dimensions (mm) length x height x width
CLP-C-44/2,5	**[c] R22574**	2,5	6 kA	3,28	20	215 x 490 x 147
CLP-C-44/3	**[c] R22575**	3	6 kA	3,94	20	215 x 490 x 147
CLP-C-44/5	**[c] R22578**	5	6 kA	6,57	20	215 x 490 x 147
CLP-C-44/6,25	**[c] R22579**	6,25	6 kA	8,21	20	215 x 490 x 147
CLP-C-44/7,5	**[c] R2257A**	7,5	6 kA	9,85	20	215 x 490 x 147
CLP-C-44/10	**[c] R2257C**	10	6 kA	13	20	215 x 490 x 147
CLP-C-44/12,5	**[c] R2257D**	12,5	6 kA	16	20	215 x 490 x 147
CLP-C-44/15	**[c] R2257E**	15	6 kA	20	20	215 x 490 x 147
CLP-C-44/20	**[c] R2257F**	20	6 kA	26	20	215 x 490 x 147
CLP-C-44/25	**[c] R2257G**	25	6 kA	33	20	215 x 490 x 147

ACF, CSB capacitor with contactor and fuses



230 V / 50 Hz

Type	Code	kvar		Cut off power	(A)	Fuses	Cable section (mm²)	Wt. (kg)	Dimensions (mm) length x height x width
ACF-20-230	**[1] R3S141**	20		120 kA	50	125	25	17	360 x 814 x 196
ACF-25-230	**[1] R3S151**	25		120 kA	63	125	35	21	360 x 1004 x 196
ACF-30-230	**[1] R3S161**	30		120 kA	75	160	50	22	360 x 1004 x 196
ACF-40-230	**[1] R3S181**	40		120 kA	100	160	70	27	360 x 1004 x 196
440 V / 50 Hz									
ACF-12,5-440	**[1] R3S421**	12,5	10	120 kA	16	35	6	12	360 x 814 x 196
ACF-15-440	**[1] R3S431**	15	12,5	120 kA	20	35	10	13	360 x 814 x 196
ACF-20-440	**[1] R3S441**	20	17	120 kA	26	50	10	14	360 x 814 x 196
ACF-25-440	**[1] R3S451**	25	21	120 kA	33	63	10	15	360 x 814 x 196
ACF-30-440	**[1] R3S461**	30	25	120 kA	39	80	16	16	360 x 814 x 196
ACF-37,5-440	**[1] R3S481**	37,5	31	120 kA	49	80	25	17	360 x 814 x 196
ACF-50-440	**[1] R3S491**	50	42	120 kA	66	125	35	21	360 x 814 x 196
ACF-60-440	**[1] R3S4A1**	60	50	120 kA	79	160	50	22	360 x 1004 x 196
ACF-75-440	**[1] R3S4B1**	75	63	120 kA	99	160	70	24	360 x 1004 x 196
ACF-100-440	**[1] R3S4D1**	100	80	120 kA	131	160	70	29	360 x 1004 x 196

Switch and cable section for installations with U_n = 400 V. The installation company must ensure compliance with the low voltage directive at all times, in accordance with the particularities of each installation and type of cable.

Delivery time: [*] immediate
[x] working weeks
[c] consult



TABLE for selecting supplement to adjust the height of the **CSB/CFB** capacitor to a capacitor bank equipped with **CS/CF** capacitors

CS / CF capacitor To change		CSB / CFB capacitor NEW			
Capacitor height (case +terminals) (mm)	Capacitor case height (mm)	Capacitor height (case +terminals) (mm)	Capacitor case height (mm)	Supplement	Code
390	330	330	270	**SP-60**	[*] R2ZZZ1
610	550	520	460	**SP-90**	[*] R2ZZZ2
760	700	610	550	**SP-150**	[*] R2ZZZ3

ELEB, CSB coils



Type	Code	uF	Use voltage
ELEB10100PCA	**[1] R213A8**	100	230
ELEB10150PCA	**[1] R213AE**	150	230
ELEB14027PCA	**[1] R21396**	27,4	400/440/690(*)
ELEB14035PCA	**[1] R2139A**	34,5	400/440/690(*)
ELEB14055PCA	**[1] R2139D**	66,6	400/440/690(*)
ELEB14066PCA	**[1] R2139L**	69	400/440/690(*)

(*) Star connection

Type	Code	uF	Use voltage
ELEB14069PCA	**[1] R2139H**	69	400/440/690(*)
ELEB14082PCA	**[1] R2139R**	82	400/440/690(*)
ELEB18025PCA	**[1] R2137S**	25	460
ELEB18050PCA	**[1] R2137P**	50	460
ELEB20019PCA	**[1] R2138D**	19,2	480/525/550
ELEB20038PCA	**[1] R2138G**	38,4	480/525/550

(*) Star connection

ELEB

Code

R	2	X	X	X	X	0	0	X

Power Supply	Standar Without cable.(*)	0	-
	with cable	4	-

RD, fast discharging resistors



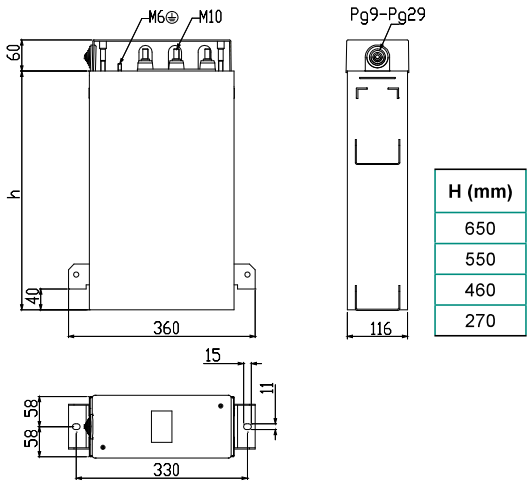
Type	Code	kvar	Resistance (Ω)	Dissipated Power (w)
RD-25	**[1] R3Z210**	1 ... 25	2 x 1 500	10
RD-60	**[*] R3Z220**	25 ... 60	2 x 1 000	10
RD-100	**[*] R3Z230**	60 ... 100	2 x 1 000	15

IR, current limiting impedances



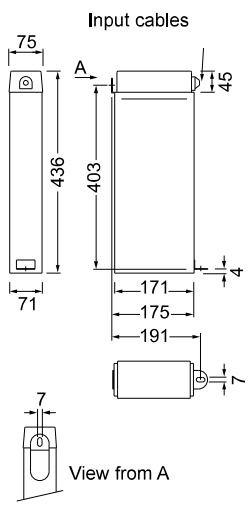
Type	Code	Cable section (mm²)
IR-6	**[*] R3Z310**	6
IR-10	**[*] R3Z320**	10
IR-25	**[*] R3Z330**	25
IR-35	**[*] R3Z340**	35
IR-50	**[*] R3Z350**	50

CSB / CFB

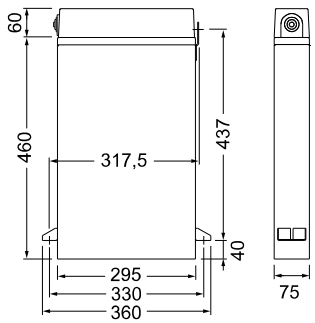


H (mm)
650
550
460
270

CV

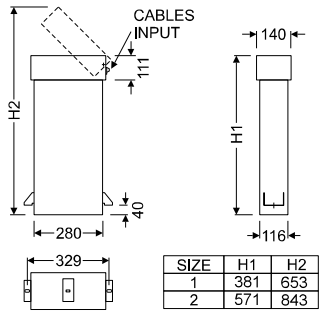


CQ



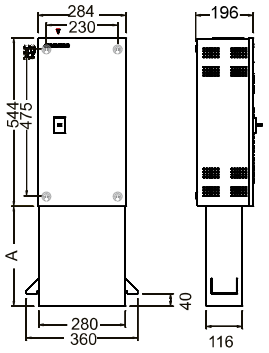
Delivery time: [*] immediate
[x] working weeks
[c] consult

CSB-F /CSB-M



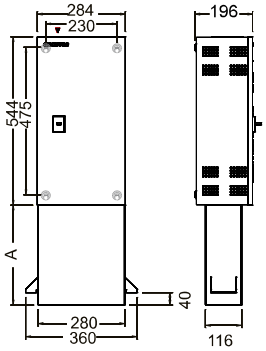
SIZE	H1	H2
1	381	653
2	571	843

CSB-A



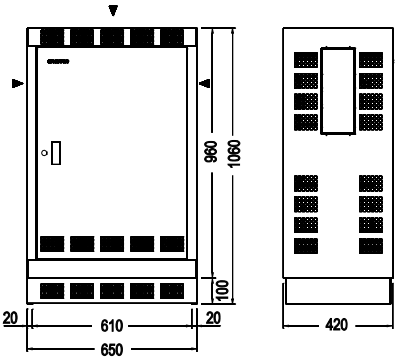
A
270
460

ACF

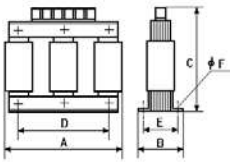


	A
ACF-40	324
ACF-60	549
ACF-80	699

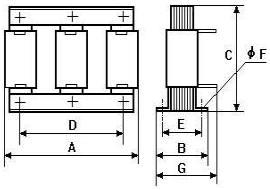
OPTIM FRF / OPTIM FRM



RX / RE



RBX / RBE



	A mm	B mm	C mm	D* mm	E* mm	F mm	G mm	kg
RX-5-400	155	90	165	75	70	7	--	5
RX-6,24-400	180	100	190	90	75	7	--	7
RX-10-400	180	100	190	90	75	7	--	7,5
RX-12,5-400	180	110	190	90	85	7	--	8
RX-15-400	180	110	190	90	85	7	--	8,5
RBX-20-400	235	125	165	150	95	9	145	14
RBX-25-400	235	125	165	150	95	9	145	14
RBX-30-400	255	125	200	160	95	9	150	19
RBX-40-400	255	125	200	160	95	9	150	20
RBX-50-400	255	145	220	160	115	9	175	25
RBX-60-400	280	145	240	180	115	9	175	28
RBX-80-400	305	155	235	180	121	11	190	31

	A mm	B mm	C mm	D* mm	E* mm	F mm	G mm	kg
RE-05-400	155	92	165	75	70	7	-	6
RE-10-400	180	102	190	90	75	7	-	8
RE-15-400	180	112	190	90	85	7	-	9,5
RE-20-400	180	122	190	90	95	7	-	11,5
RE-25-400	240	122	250	130	90	9	-	17
RE-30-400	240	132	250	130	100	9	-	20,5
RE-40-400	240	147	250	130	115	9	-	25,5
RBE-50-400	310	154	233	160	120	9	185	29
RBE-60-400	338	154	234	180	120	9	185	30
RBE-80-400	338	154	254	180	120	11	190	41

* Distance between fasteners

Delivery time: [*] immediate
[x] working weeks
[c] consult

Low voltage capacitor banks

Table: Selection of the reactive energy compensation unit

					Page
Multiple loads	Slow variations	without harmonics	OPTIM 2/ OPTIM P&P		140
		with harmonics	OPTIM FR P&P	Elimination of resonances	142
			FAR-Q	Absorption of harmonics	156
	Semi-quick variations		OPTIM HYB	compensación fase a fase redes desequilibradas	141
	Quick variations	without harmonics	EMS-C / EMK		146
		with harmonics	OPTIM FRE	Elimination of resonances	147

Table: Selection of the OPTIM

		OPTIM 1	OPTIM 2	OPTIM 3 P&P / 5 P&P	OPTIM 9 P&P / 8 P&P	OPTIM 8L / 14L / 16L
						
Rated voltage		440 V	440 V	440 V	440 V	440 V
Service voltage		400 V	400 V	400 V	400 V	400 V
Power range at rated voltage		2,5 ... 30 kvar	7,5 ... 30 kvar	OPTIM 3: 12,5 ... 62,5 kvar OPTIM 5: 55 ... 150 kvar	OPTIM 9: 165 ... 270 kvar OPTIM 8: 300 ... 480 kvar	OPTIM 8L: 450 ...800 kvar OPTIM 14L: 900 ... 1400 kvar OPTIM 16L: 1500 ... 1600 kvar
Contactor switching		•	•	•	•	•
No. Steps (maximum)		1	2	3 / 5	9 / 8	8 / 14 / 16
Enclosure	Thermoplastic IP 21	•	•	–	–	–
	Metallic IP 21	–	–	•	•	•
Installation (indoor)		•	•	•	•	•
Assembly	Wall-mounted	•	•	•	–	–
	Floor-mounted	–	–	–	o	o
Regulator	computer One	•	–	–	–	–
	computer Two	–	•	–	–	–
	computer Max P&P	–	–	•	•	•
	computer Smart III	–	–	Optional	Optional	Optional
Capacitor	Cylindrical CLZ	•	•	•	•	•
Built-in protection	General circuit breaker	•	•	OPTIM 3: General OPTIM 5: By step	–	–
	APR NH-00 Fuses	–	–	–	•	•

Table: Recommended capacitor bank power ratings - 7.5 to 105 kvar

	Recommended capacitor bank	Electrical steps
De 7,5 kvar a 17,5 kvar	OPTIM 3-P&P--17,5-440	7 x 2,5 kvar
De 17,5 kvar a 31,25 kvar	OPTIM 3-P&P-31,25-440	5 x 6,25 kvar
De 31,25 kvar a 43,75 kvar	OPTIM 3-P&P-43,75-440	7 x 6,25 kvar
De 43,75 kvar a 55 kvar	OPTIM 5-P&P-55-440	11 x 5 kvar
De 55 kvar a 70 kvar	OPTIM 5-P&P-70-440	7 x 10 kvar
De 75 kvar a 105 kvar	OPTIM 5-P&P-105-440	15 + 3 x 30 kvar









OPTIM1/1A	OPTIM2	OPTIM 3 P&P	OPTIM 5 P&P	OPTIM 9 P&P	OPTIM 8 P&P	OPTIM 8L P&P

OPTIM P&P, automatic capacitor banks, 2.5 to 1600 kvar

Type	Code	kvar 440 V	kvar 400 V	Composition	Switch (A) Optional	Cable section (mm^2)	Weight (kg)	Dimensions (mm) width x height x depth
OPTIM 1, automatic capacitor bank with reactive relay. Requires one measuring transformer - MC series 250 mA (see Measuring current Transformers)								
OPTIM 1-2,5-440	**[*] R3Q631EN00000**	2,5	2	1 x 2,5	Included	6	4	215 x 500 x 166
OPTIM 1-5-440	**[*] R3Q641EN00000**	5	4	1 x 5	Included	6	4,5	215 x 500 x 166
OPTIM 1-6,25-440	**[*] R3Q651EN00000**	6,25	5	1 x 6,25	Included	6	5	215 x 500 x 166
OPTIM 1-10-440	**[*] R3Q671EN00000**	10	8	1 x 10	Included	6	5	215 x 500 x 166
OPTIM 1-12,5-440	**[*] R3Q681EN00000**	12,5	10	1 x 12,5	Included	6	5	215 x 500 x 166
OPTIM 1-15-440	**[*] R3Q691EN00000**	15	12,5	1 x 15	Included	6	5	215 x 500 x 166
OPTIM 1A-18,2-440	**[*] R3Q6E1EN00000**	18,2	15	1 x 18,2	Included	6	6	270 x 500 x 166
OPTIM 1A-25-440	**[*] R3Q6F1EN00000**	25	20	1 x 25	Included	10	7	270 x 500 x 166
OPTIM 1A-30-440	**[*] R3Q6D1EN00000**	30	25	1 x 30	Included	10	7	270 x 500 x 166
OPTIM 2, automatic capacitor banks with regulator without display. Requires one measuring transformer - MC series 250 mA (see Measuring current Transformers)								
OPTIM 2-7,5-440	**[*] R3Q761EN00000**	7,5	6,25	2,5 + 5	Included	6	7	362 x 500 x 166
OPTIM 2-10,5-440	**[1] R3Q771EN00000**	10,5	8,5	3 + 7,5	Included	6	7	362 x 500 x 166
OPTIM 2-12,5-440	**[*] R3Q781EN00000**	12,5	10	5 + 7,5	Included	6	7	362 x 500 x 166
OPTIM 2-17,5-440	**[1] R3Q7E1EN00000**	17,5	14	5 + 12,5	Included	6	7	362 x 500 x 166
OPTIM 2-20-440	**[1] R3Q7F1EN00000**	20	16,5	7,5 + 12,5	Included	6	7	362 x 500 x 166
OPTIM 2-22,5-440	**[*] R3Q7G1EN00000**	22,5	18,5	7,5 + 15	Included	6	7	362 x 500 x 166
OPTIM 2-25-440	**[1] R3Q7H1EN00000**	25	21	10 + 15	Included	10	8	362 x 500 x 166
OPTIM 2-30-440	**[1] R3Q7J1EN00000**	30	25	15 + 15	Included	10	8	362 x 500 x 166
OPTIM 3 P&P, automatic capacitor banks with computer Max P&P regulator								
OPTIM 3 P&P-12,5-440	**[*] R3L110**	12,5	10	2,5+5+5	Included	6	30	400 x 600 x 260
OPTIM 3 P&P-17,5-440	**[*] R3L120**	17,5	14	2,5+5+10	Included	6	31	400 x 600 x 260
OPTIM 3 P&P-25-440	**[*] R3L130**	25	20	5+10+10	Included	10	32	400 x 600 x 260
OPTIM 3 P&P-31,25-440	**[*] R3L140**	31,25	26	6,25+12,5+12,5	Included	10	33	400 x 600 x 260
OPTIM 3 P&P-37,5-440	**[*] R3L150**	37,5	31,25	7,5+15+15	Included	16	35	400 x 600 x 260
OPTIM 3 P&P-43,75-440	**[*] R3L160**	43,75	36	6,25+12,5+25	Included	25	36	400 x 600 x 260
OPTIM 3 P&P-52,5-440	**[1] R3L170**	52,5	43	7,5+15+30	Included	25	38	400 x 600 x 260
OPTIM 3 P&P-62,5-440	**[1] R3L180**	62,5	51	12,5+25+25	Included	35	40	400 x 600 x 260
OPTIM 5 P&P, automatic capacitor banks with computer Max P&P regulator								
OPTIM 5 P&P-55-440	**[*] R3L210**	55	45	5+10+20+20	125	35	42	600 x 740 x 260
OPTIM 5 P&P-70-440	**[*] R3L220**	70	58	10+3x20	125	50	43	600 x 740 x 260
OPTIM 5 P&P-90-440	**[1] R3L230**	90	74	15+15+30+30	200	70	47	600 x 740 x 260
OPTIM 5 P&P-105-440	**[*] R3L240**	105	87	15+30+30+30	200	70	50	600 x 740 x 260
OPTIM 5 P&P-135-440	**[1] R3L250**	135	112	15+30+30+30+30	250	95	53	600 x 740 x 260
OPTIM 5 P&P-150-440	**[1] R3L260**	150	124	30+30+30+30+30	250	120	55	600 x 740 x 260
OPTIM 9 P&P, automatic capacitor banks with computer Max P&P regulator. Built-in power supply autotransformer								
OPTIM 9 P&P-165-440	**[*] R3L310**	165	136	15+5x30	400	120	123	700 x 1350 x 440
OPTIM 9 P&P-195-440	**[1] R3L320**	195	161	15+6x30	400	150	126	700 x 1350 x 440
OPTIM 9 P&P-225-440	**[*] R3L330**	225	186	15+7x30	400	185	129	700 x 1350 x 440
OPTIM 9 P&P-255-440	**[1] R3L340**	255	211	15+8x30	630	240	132	700 x 1350 x 440
OPTIM 9 P&P-270-440	**[1] R3L350**	270	223	9x30	630	240	134	700 x 1350 x 440
OPTIM 8 P&P, automatic capacitor banks with computer Max P&P regulator. Built-in power supply autotransformer								
OPTIM 8 P&P-300-440	**[1] R3L410**	300	248	2x30+4x60	630	2x150	235	1000 x 1750 x 440
OPTIM 8 P&P-330-440	**[1] R3L420**	330	273	30+5x60	630	2x150	240	1000 x 1750 x 440
OPTIM 8 P&P-390-440	**[1] R3L430**	390	322	30+6x60	800	2x185	250	1000 x 1750 x 440
OPTIM 8 P&P-450-440	**[1] R3L440**	450	372	30+7x60	800	2x240	260	1000 x 1750 x 440
OPTIM 8 P&P-480-440	**[1] R3L450**	480	396	8x60	1000	2x240	265	1000 x 1750 x 440

[*] Banks in stock for immediate delivery. For other configurations, please go to **www.circutor.com**
Switch and cable section for installations with U_n = 400 V. The installation company must ensure compliance with the low voltage directive at all times, in accordance with the particularities of each installation and type of cable.

Delivery time: [*] immediate
[x] working weeks
[c] consult

Type	Code	kvar 440 V	kvar 400 V	Composition	Switch (A) Optional	Cable section (mm²)	Weight (kg)	Dimensions (mm) width x height x depth
OPTIM 8L P&P, automatic capacitor banks with computer Max P&P regulator. Built-in power supply autotransformer								
OPTIM 8L P&P-550-440	**[1] R35L10**	550	454	50+5x100	1000	2x240	280	1200 x 1900 x 650
OPTIM 8L P&P-650-440	**[1] R35L20**	650	537	50+6x100	1250	3x150	315	1200 x 1900 x 650
OPTIM 8L P&P-750-440	**[1] R35L30**	750	620	50+7x100	1600	3x185	340	1200 x 1900 x 650
OPTIM 8L P&P-800-440	**[1] R35L40**	800	661	8x100	1600	3x185	350	1200 x 1900 x 650
OPTIM 14L P&P, automatic capacitor banks with computer Max P&P regulator. Built-in power supply autotransformer								
OPTIM 14L P&P-900-440	**[2] R36L10**	900	743	2X50+8x100	1250/400	3x150/185	525	2100 x 1900 x 650
OPTIM 14L P&P-950-440	**[2] R36L20**	950	785	50+9x100	1600/400	3x185/185	535	2100 x 1900 x 650
OPTIM 14L P&P-1050-440	**[2] R36L30**	1050	867	50+10x100	1600/630	3x185/240	560	2100 x 1900 x 650
OPTIM 14L P&P-1150-440	**[2] R36L40**	1150	950	50+11x100	1600/1000	3x185/2x150	585	2100 x 1900 x 650
OPTIM 14L P&P-1200-440	**[2] R36L50**	1200	991	12x100	1600/800	3x185/2x185	595	2100 x 1900 x 650
OPTIM 14L P&P-1300-440	**[2] R36L60**	1300	1074	100+6x200	1250/1250	3x185/2x240	625	2100 x 1900 x 650
OPTIM 14L P&P-1400-440	**[2] R36L70**	1400	1156	100+100+6x200	1600/1250	3x185/3x120	650	2100 x 1900 x 650
OPTIM 16L P&P, automatic capacitor banks with computer Max P&P regulator. Built-in power supply autotransformer								
OPTIM 16L P&P-1500-440	**[2] R37L30**	1500	1239	100+7x200	1600/1600	3x185/3x150	675	2400 x 1900 x 650
OPTIM 16L P&P-1600-440	**[2] R37L40**	1600	1322	100+100+7x200	1600/1600	3x185/3x185	700	2400 x 1900 x 650

[*] Banks in stock for immediate delivery. For other configurations, please go to **www.circutor.com**

Switch and cable section for installations with U_n = 400 V. The installation company must ensure compliance with the low voltage directive at all times, in accordance with the particularities of each installation and type of cable.

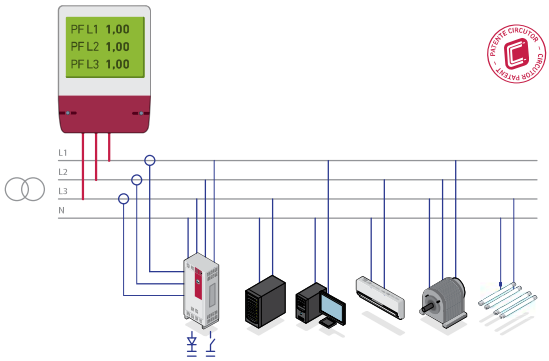
OPTIM HYB, semi-fast hybrid automatic capacitor banks with phase-by-phase compensation for unbalanced networks

OPTIM HYB



NEW

Rated voltage	3x440 V + 1 x254 V
Power range at rated voltage (50 Hz)	90 ... 540 kvar
switching	Contactor + Thiristor
No. Steps (maximum)	6 + 9
Enclosure	Metallic IP 21
Installation	Indoor
Assembly	floor-mounted
Regulator	computer HYB
Capacitor	Cilindrico CLZ
Built-in protection	circuit breaker for step



Type	Code	kvar 440 V	kvar 400 V	Composition 230 V / 50 Hz (single-phase)	Composition 400 V / 50 Hz (Three-phas)	Manual switch	Cable section (mm²)	Weight (kg)	Dimensions (mm) width x height x depth
OPTIM HYB1-90-440	**[c] R4E103**	90	75	(3 x 2 x 5)	+ (3 x 15)	Included	1 x 95	67	685 x 970 x 340
OPTIM HYB1-110-440	**[c] R4E104**	110	90	(3 x 2 x 5)	+ (4 x 15)	Included	1 x 95	71	685 x 970 x 340
OPTIM HYB2-165-440	**[c] R4E105**	165	135	(3 x 3 x 5)	+ (3 x 30)	Included	1 x 120	146	800 x 1840 x 640
OPTIM HYB2-200-440	**[c] R4E106**	200	165	(3 x 3 x 5)	+ (4 x 30)	Included	1 x 185	152	800 x 1840 x 640
OPTIM HYB2-270-440	**[c] R4E108**	270	225	(3 x 3 x 5)	+ (6 x 30)	Included	1 x 240	163	800 x 1840 x 640
OPTIM HYB2-325-440	**[c] R4E113**	325	270	(3 x 3 x 10)	+ (3 x 60)	Included	2 x 150	229	800 x 1840 x 640
OPTIM HYB3-400-440	**[c] R4E114**	400	330	(3 x 3 x 10)	+ (4 x 60)	Included	2 x 240	304	1000 x 1840 x 640
OPTIM HYB3-470-440	**[c] R4E115**	470	390	(3 x 3 x 10)	+ (5 x 60)	Included	2 x 240	325	1000 x 1840 x 640
OPTIM HYB3-540-440	**[c] R4E116**	540	450	(3 x 3 x 10)	+ (6 x 60)	Included	2 x 240	336	1000 x 1840 x 640

Delivery time: [*] immediate
[x] working weeks
[c] consult

Table: selection capacitor banks with rejection filters

		OPTIM FRM /OPTIM FRF	OPTIM FRS P&P	OPTIM FR P&P
				
Rated voltage		440 V	440 V	440 V
Service voltage		400 V	400 V	400 V
Power range at rated voltage (50 Hz)		25 ... 100 kvar	31,25 ... 120 kvar	OPTIM FR4 P&P: 150 ... 400 kvar OPTIM FR6 P&P: 400 ... 600 kvar OPTIM FR8 P&P: 600 ... 800 kvar OPTIM FR10 P&P: 800 ... 1000 kvar OPTIM FR12 P&P: 1050 ...1200 kvar
Contactor switching		–	•	•
No. Steps (maximum)		1	4	4 / 6 / 8 / 10 / 12
Enclosure	Metallic IP 21		•	•
Installation (indoor)		•	•	•
Assembly (floor-mounted)		•	•	•
Regulator	Computer Max P&P	–	•	•
	Computer Smart III	–	Optional	Optional
Capacitor	Cylindrical CLZ	•	•	•
Reactors tuned to 189 Hz (ask if you require other tuning values)		•	•	•
Built-in protection	General circuit breaker	Depending on type	•	–
	APR NH-00 Fuses	Depending on type	–	•
Autotransformer for aux. supply		-	•	•

OPTIM FRF / OPTIM FRM, Fixed capacitors with rejection reactance of p = 7 %

ASSEMBLED IN A METAL CABINET. FLOOR MOUNTED

	Type	Code	kvar (50 Hz) 440 V	kvar (50 Hz) 400 V	(A)	Weight (kg)	Cable section (mm²)	Dimensions (mm) length x height x width
	OPTIM FRF, fuse protection APR, 440 V, 50 Hz							
	**OPTIM FRF-25-440**	**[2] R5X350**	25	21	33	78	10	650 x 1060 x 420
	OPTIM FRF-37,5-440	**[2] R5X370**	37,5	31	47	82	16	650 x 1060 x 420
	OPTIM FRF-50-440	**[2] R5X380**	50	42	66	85	25	650 x 1060 x 420
	OPTIM FRF-60-440	**[2] R5X390**	60	50	79	90	35	650 x 1060 x 420
	OPTIM FRF-75-440	**[2] R5X3A0**	75	62	99	96	50	650 x 1060 x 420
	OPTIM FRF-100-440	**[2] R5X3B0**	100	83	131	110	70	650 x 1060 x 420
	OPTIM FRM, Automatic tripolar protection, 440 V, 50 Hz							
	**OPTIM FRM-25-440**	**[2] R5Y350**	25	21	33	78	10	650 x 1060 x 420
	OPTIM FRM-37,5-440	**[2] R5Y370**	37,5	31	47	82	16	650 x 1060 x 420
	OPTIM FRM-50-440	**[2] R5Y380**	50	42	66	85	25	650 x 1060 x 420
	OPTIM FRM-60-440	**[2] R5Y390**	60	50	79	90	35	650 x 1060 x 420
	OPTIM FRM-75-440	**[2] R5Y3A0**	75	62	99	96	50	650 x 1060 x 420
	OPTIM FRM-100-440	**[2] R5Y3B0**	100	83	131	110	70	650 x 1060 x 420

CFB capacitor and **RX /RBX** reactors see **Low voltage capacitor and reactors** section

Delivery time: [*] immediate
[x] working weeks
[c] consult

NEW



OPTIM FR P&P, Automatic capacitor banks with rejection filters (contactors switching)

(Optionally, main switch). $f_{RESONANCE}$ =189 HZ

Type	Code	kvar (50 Hz)		Composition	Optional Switch (A)	Cable section (mm^2)	Weight (kg)	Dimensions (mm) length x height x width
		440 V	400 V					
OPTIM FRS P&P								
OPTIM FRS-P&P-31,25-440	[2] R54R64	31,25	26	6,25 + 2 x 12,5	Incluido	10	82	800 x 1200 x 500
OPTIM FRS-P&P-43,75-440	[2] R54R74	43,75	36	6,25 + 12,5 + 25	Incluido	25	84	800 x 1200 x 500
OPTIM FRS-P&P-62,5-440	[2] R54R81	62,5	52	12,5 + 2 x 25	Incluido	35	86	800 x 1200 x 500
OPTIM FRS-P&P-90-440	[2] R54R88	90	74	2 x 15 + 2 x 30	Incluido	70	104	800 x 1200 x 500
OPTIM FRS-P&P-105-440	[2] R54R92	105	87	15 + 3 x 30	Incluido	70	121	800 x 1200 x 500
OPTIM FRS-P&P-120-440	[2] R54R95	120	99	4 x 30	Incluido	95	128	800 x 1200 x 500
OPTIM FR4 P&P								
OPTIM FR4-P&P-150-440	[2] R54S24	150	125	30 + 2 x 60	400	95	355	900 x 1900 x 650
OPTIM FR4-P&P-175-440	[2] R54S25	175	145	25 + 50 + 100	400	120	365	900 x 1900 x 650
OPTIM FR4-P&P-200-440	[2] R54S28	200	165	50 + 50 + 100	400	150	380	900 x 1900 x 650
OPTIM FR4-P&P-250-440	[2] R54S29	250	207	50 + 2 x 100	630	185	390	900 x 1900 x 650
OPTIM FR4-P&P-300-440	[2] R54S30	300	248	50 + 50 + 2 x 100	630	240	410	900 x 1900 x 650
OPTIM FR4-P&P-350-440	[2] R54S32	350	289	50 + 3 x 100	630	2x150	430	900 x 1900 x 650
OPTIM FR4-P&P-400-440	[2] R54S34	400	331	4 x 100	800	2x150	460	900 x 1900 x 650
OPTIM FR6 P&P								
OPTIM FR6-P&P-400-440	[2] R54T25	400	331	50 + 50 + 3 x 100	800	2x185	550	1200 x 1900 x 650
OPTIM FR6-P&P-450-440	[2] R54T30	450	372	50 + 4 x 100	800	2x185	587	1200 x 1900 x 650
OPTIM FR6-P&P-500-440	[2] R54T35	500	413	5 x 100	1000	2x240	621	1200 x 1900 x 650
OPTIM FR6-P&P-550-440	[2] R54T40	550	455	50 + 5 x 100	1000	2x240	658	1200 x 1900 x 650
OPTIM FR6-P&P-600-440	[2] R54T45	600	496	6 x 100	1250	2x240	685	1200 x 1900 x 650
OPTIM FR8 P&P								
OPTIM FR8-P&P-600-440	[2] R54U36	600	496	50 + 50 + 5 x 100	1250	2x240	820	1500 x 1900 x 650
OPTIM FR8-P&P-650-440	[2] R54U38	650	537	50 + 6 x 100	1250	3x150	865	1500 x 1900 x 650
OPTIM FR8-P&P-700-440	[2] R54U40	700	579	7 x 100	1250	3x150	910	1500 x 1900 x 650
OPTIM FR8-P&P-750-440	[2] R54U42	750	620	50 + 7 x 100	1600	3x185	955	1500 x 1900 x 650
OPTIM FR8-P&P-800-440	[2] R54U44	800	661	8 x 100	1600	3x185	1000	1500 x 1900 x 650
OPTIM FR10 P&P								
OPTIM FR10-P&P-800-440	[2] R54V25	800	661	8 x 100	1250 / 400	2x240/ 240	950	2100 x 1900 x 650
OPTIM FR10-P&P-850-440	[2] R54V30	850	702	50 + 8 x 100	1000 / 630	2x240/ 240	987	2100 x 1900 x 650
OPTIM FR10-P&P-900-440	[2] R54V35	900	744	9 x 100	1250 / 630	2x240/ 240	1024	2100 x 1900 x 650
OPTIM FR10-P&P-950-440	[2] R54V40	950	785	50 + 9 x 100	1000 / 800	2x240/ 2x185	1061	2100 x 1900 x 650
OPTIM FR10-P&P-1000-440	[2] R54V45	1000	826	10 x 100	1250 / 800	2x240/ 2x185	1098	2100 x 1900 x 650
OPTIM FR12 P&P								
OPTIM FR12-P&P-1050-440	[2] R54W50	1050	868	50 + 10 x 100	1250 / 800	2x240/ 2x240	1285	2400 x 1900 x 650
OPTIM FR12-P&P-1100-440	[2] R54W55	1100	909	11 x 100	1250 / 1000	2x240/ 2x240	1322	2400 x 1900 x 650
OPTIM FR12-P&P-1150-440	[2] R54W60	1150	950	50 + 11 x 100	2 X 1250	2x240/ 2x240	1359	2400 x 1900 x 650
OPTIM FR12-P&P-1200-440	[2] R54W65	1200	992	12 x 100	2 X 1250	2x240/ 2x240	1389	2400 x 1900 x 650

Switch and cable section for installations with Un= 400 V. The installation company must make sure that the low-voltage regulations are complied with at all times, in accordance with the particularities of each installation and type of cable

Delivery time: [*] immediate
[x] working weeks
[c] consult

CODIFICATION TABLE

Code	Internal code											
	R	3	X	X	X	X	0	0	X	X	X	
									↑	↑	↑	Delivery time
Options									0			-
									1			-
									2			-
									3			-
									4			-
									5			-
									6			-
									7			-
Regulator										0		-
										S		-
										T		-
										E		-
										F		-
Switch											0	-
											3	-
											4	-
											5	-
											6	-
											7	-
											8	-
											9	-
											A	-
											B	-
											C	-
											D	-
											E	-
											F	-
											G	-
											H	-
											I	-
											J	-
											K	-
											L	-
											M	-
											N	-
											O	-
											P	-
											Q	-
											R	-
											S	-
											T	-

Standard (*)
Autotransformer for aux. supply
Fan
Policarbonate
Autotransf. + Fan
Autotransf. + Policarbonate
Policarbonate + Fan
Autotransf. +Policarbonate + Fan
Standard
computer SMART III 6
computer SMART III 12
computer PLUS 8T - CDI(*2)
computer PLUS 14T - CDI(*2)
without switch
Manual switch 200 A
Manual switch 250A
Manual switch 400 A
Manual switch 630 A
Manual switch 800 A
Manual switch 1000 A
Manual switch 1600 A
Automatic switch 63 A
Automatic switch 125 A
Automatic switch 160 A
Automatic switch 250A
Automatic switch 400 A
Automatic switch 630 A
Automatic switch 800 A
Automatic switch 1000 A
Automatic switch 1250 A
Automatic switch 1600 A
Automatic switch 63 A + Earth leakage
Automatic switch 125 A + Earth leakage
Automatic switch160 A + Earth leakage
Automatic switch 250 A + Earth leakage
Automatic switch 400 A + Earth leakage
Automatic switch 630 A + Earth leakage
Automatic switch 800 A + Earth leakage
Automatic switch 1000 A + Earth leakage
Automatic switch 1250 A + Earth leakage
Automatic switch 1600 A + Earth leakage

(*2) With communications, earth leakage current and capacitor current

computer MAX Plug&Play

Series

Choose the regulator that is most suited to your needs

Performance, accuracy and technology at the best price

- Simple and intuitive installation and programming
- Test functions
- High-accuracy regulation
- Basic electrical parameter measurement
- Built-in alarms

computer *smart* III

Optional

All-in-one three-phase regulator and analyzer
A new concept in compensation

- Measures and compensates over three phases,
- Carries out the functions of a powerful power analyzer.
- Easy to use
- Serial communications
- built-in leakage control system
- Plug & Play
- AUTO-ON-OFF function
- Safety and maintenance

Delivery time: [*] immediate
[x] working weeks
[c] consult

Table: Selection of automatic capacitor banks with a static contactor

		OPTIM EMS-C	EMK
		NEW 	
Rated voltage		440 V	440 V
Power range at rated voltage (50 Hz)		18,75 ... 112,25 kvar	EMK4: 100 ... 400 kvar EMK6: 400 ... 600 kvar EMK8: 600 ... 800 kvar EMK12: 800 ... 1200 kvar
Thyristor operation		•	•
No. Steps (maximum)		8	4 / 6 / 8 / 12
Enclosure	Metallic IP 21	•	•
Installation (indoor)		•	•
Assembly	Wall-mounted	•	–
	Floor-mounted	–	•
Regulator	Computer Max Fast	•	•
	Computer Smart III Fast	–	Optional
Capacitor	Monobloc Box	•	–
	Prismatic CSB	–	•
Built-in protection	General circuit breake	•	
	APR NH-00 Fuses	–	•

NEW

OPTIM EMS-C, Automatic capacitor banks with static contactor

Type	Code	kvar 440 V	kvar 400 V	Composition	Switch (A) optional	Section cable (mm²)	Wt. (kg)	Dimensions (mm) length x height x width
OPTIM EMS-C-18,75-440	**[c] R4A300**	18,75	15,5	(6,25 + 12,5) kvar	Included(*)	1 x 6	29	545 x 710 x 220
OPTIM EMS-C-31,25-440	**[c] R4A304**	31,25	26	(6,25 + 2 x 12,5) kvar	Included(*)	1 x 16	33	545 x 710 x 220
OPTIM EMS-C-43,75-440	**[c] R4A309**	43,75	36	(6,25 + 12,5 + 25) kvar	Included(*)	1 x 25	34	545 x 710 x 220
OPTIM EMS-C-68,75-440	**[c] R4A318**	68,75	57	(6,25 + 12,5 + 2 x 25) kvar	Included(*)	1 x 50	38	545 x 710 x 220
OPTIM EMS-C-82,50-440	**[c] R4A321**	82,50	68	(7,5 + 15 + 2 x 30) kvar	Included(*)	1 x 70	39	545 x 710 x 220
OPTIM EMS-C-105-440	**[c] R4A330**	105	87	(15 + 3 x 30) kvar	Included(*)	1 x 70	40	545 x 710 x 220
OPTIM EMS-C-120-440	**[c] R4A336**	120	99	(4 x 30) kvar	Included(*)	1 x 95	41	545 x 710 x 220

Switch and cable section for installations with U_n = 400 V. The installation company must make sure that the low-voltage regulations are complied with at all times, in accordance with the particularities of each installation and type of cable

Delivery time: [*] immediate
[x] working weeks
[c] consult

EMK, Automatic capacitor banks with static contactor

Type	Code	kvar 440 V	kvar 400 V	Composition	Switch (A) optional	Section cable (mm²)	Wt. (kg)	Dimensions (mm) length x height x width
EMK4								
EMK4-100-440	[2] R47405	100	83	25 + 25 + 50	200	70	132	880 x 1805 x 575
EMK4-125-440	[2] R47410	125	103	25 + 50 + 50	250	95	137	880 x 1805 x 575
EMK4-150-440	[2] R47415	150	124	3 x 50	400	120	142	880 x 1805 x 575
EMK4-175-440	[2] R47420	175	147	25 + 50 + 100	400	150	147	880 x 1805 x 575
EMK4-200-440	[2] R47421	200	165	50 + 50 + 100	400	185	152	880 x 1805 x 575
EMK4-250-440	[2] R47422	250	207	50 + 2 x 100	630	240	157	880 x 1805 x 575
EMK4-275-440	[2] R47423	275	227	25 + 50 + 2 x 100	630	240	157	880 x 1805 x 575
EMK4-300-440	[2] R47424	300	248	50 + 50 + 2 x 100	630	2 x 120	162	880 x 1805 x 575
EMK4-350-440	[2] R47425	350	289	50 + 3 x 100	630	2 x 150	167	880 x 1805 x 575
EMK4-400-440	[2] R47426	400	331	4 x 100	800	2 x 185	172	880 x 1805 x 575
EMK6								
EMK6-400-440	[2] R47431	400	331	50 + 50 + 3 x 100	800	2 x 185	168	1180 x 1805 x 575
EMK6-450-440	[2] R47435	450	372	50 + 4 x 100	800	2 x 185	174	1180 x 1805 x 575
EMK6-500-440	[2] R47436	500	413	5 x 100	1000	2 x 240	178	1180 x 1805 x 575
EMK6-550-440	[2] R47437	550	455	50 + 5 x 100	1000	2 x 240	182	1180 x 1805 x 575
EMK6-600-440	[2] R47438	600	496	6 x 100	1250	2 x 240	186	1180 x 1805 x 575
EMK8								
EMK8-600-440	[2] R47442	600	496	50 + 50 + 5 x 100	1250	2 x 240	168	1530 x 1805 x 575
EMK8-650-440	[2] R47444	650	537	50 + 6 x 100	1250	3 x 150	179	1530 x 1805 x 575
EMK8-700-440	[2] R47448	700	579	7 x 100	1250	3 x 150	185	1530 x 1805 x 575
EMK8-750-440	[2] R47450	750	620	50 + 7 x 100	1600	3 x 185	195	1530 x 1805 x 575
EMK8-800-440	[2] R47455	800	661	8 x 100	1600	3 x 185	200	1530 x 1805 x 575
EMK12								
EMK12-800-440	[2] R47500	800	661	50 + 50 + 7 x 100	1250 / 400	2 x 240 / 240	335	2360 x 1805 x 575
EMK12-850-440	[2] R47505	850	702	50 + 8 x 100	1000 / 630	2 x 240 / 240	341	2360 x 1805 x 575
EMK12-900-440	[2] R47603	900	744	9 x 100	1250 / 630	2 x 240 / 240	347	2360 x 1805 x 575
EMK12-950-440	[2] R47604	950	785	50 + 9 x 100	1000 / 800	2 x 240 / 185	353	2360 x 1805 x 575
EMK12-1000-440	[2] R47605	1000	826	10 x 100	1250 / 800	2 x 240 / 185	359	2360 x 1805 x 575
EMK12-1050-440	[2] R47606	1050	868	50 + 10 x 100	1250 / 800	2x240 / 2x240	362	2360 x 1805 x 575
EMK12-1100-440	[2] R47607	1100	909	11 x 100	1250 / 1000	2x240 / 2x240	365	2360 x 1805 x 575
EMK12-1150-440	[2] R47608	1150	950	50 + 11 x 100	2 x 1250	2x240 / 2x240	368	2360 x 1805 x 575
EMK12-1200-440	[2] R47609	1200	992	12 x 100	2 x 1250	2x240 / 2x240	371	2360 x 1805 x 575



Switch and cable section for installations with U_n = 400 V. The installation company must make sure that the low-voltage regulations are complied with at all times, in accordance with the particularities of each installation and type of cable

Delivery time: [*] immediate
[x] working weeks
[c] consult



EMF / EMB, three-phase static switching units for 6-terminal capacitors

With fuses, Serie EMF					With terminals, Serie EMB				
Type	Code	kvar 400V	Wt. (kg)	Dimensions (mm) length x height x width	Type	Code	kvar 400V	Wt. (kg)	Dimensions (mm) length x height x width
EMF-40/400	[2] R41133	40	10,5	177 x 485 x 268	EMB-40/400	[1] R41233	40	10	177 x 485 x 268
EMF-60/400	[2] R41136	60	10,5	177 x 485 x 268	EMB-60/400	[1] R41236	60	10	177 x 485 x 268
EMF-80/400	[2] R41137	80	10,5	177 x 485 x 268	EMB-80/400	[1] R41237	80	10	177 x 485 x 268

CPC, Zero-crossing control board (for EMF / EMB modules)



Type	Code	V	Control
CPC3b	[1] R4Z111	230 / 400	Three-phase
CPC3i-4T	[1] R4Z661	230 / 400	Three-phase
CPC3i-6T	[1] R4Z664	690	Three-phase

NEW

EMB-2PH, three-phase static switching units for 3-terminal capacitors



They require an external 12 V_{dc} activation signal. With terminals

Type	Code	kvar 230 V	kvar 400 V	Wt. (kg)	Dimensions (mm) length x height x width
EMB-2PH-25-400	[1] R41321	12,5	25	5,1	200 x 220 x 200
EMB-2PH-50-400	[1] R41323	27,5	50	5,2	200 x 220 x 200
EMB-2PH-80-400	[1] R41325	45	80	5,4	200 x 220 x 200

Maximum operating voltage: 3 x 440 V_{ac} (415 V_{ac} with detuned reactors)

Accessories

cover-EMB-2PH	[1] R41329	Polycarbonate cover for EMB-2PH

Table: Selection of Static automatic capacitor banks with rejection filters

		OPTIM FRES	OPTIM FRE
		 NEW 	
Rated voltage		440 V	440 V
Service voltage		400 V	400 V
Power range at rated voltage (50 Hz)		31,25 a 120 kvar	OPTIM FRE4: 150 ... 400 kvar OPTIM FRE6: 400 ... 600 kvar OPTIM FRE8: 600 ... 800 kvar OPTIM FRE10: 800 ... 1000 kvar OPTIM FRE12: 1050 ... 1200 kvar
Thyristor operation		•	•
No. Steps (maximum)		4	4 / 6 / 8 / 10 / 12
Enclosure	Metallic IP 21	•	•
Installation (indoor)		•	•
Assembly (floor-mounted)		•	•
Regulator	Computer Max Fast	•	•
	Computer Smart Fast III	Optional	Optional
Capacitor		Cylindrical CLZ	Cylindrical CLZ
Reactors tuned to 189 Hz (please ask about other tuning values)		•	•
Built-in protection	General circuit breaker	•	–
	APR NH-00 Fuses	–	•

Delivery time: [*] immediate
[x] working weeks
[c] consult

NEW

OPTIM FRE, Automatic capacitor banks with rejection filters (static contactor)

(Optionally, main switch). $f_{RESONANCE}$ =189 HZ

Type	Code	kvar (50Hz)		Composition	Optional Switch (A)	Cable Section (mm^2)	Weight (kg)	Dimensions (mm) length x height x width
		440 V	400 V					
FRES								
OPTIM FRES-31,25-440	[2] R64R64	31,25	26	6,25 + 2 x 12,5	Included	10	82	800 x 1200 x 500
OPTIM FRES-43,75-440	[2] R64R74	43,75	36	6,25 + 12,5 + 25	Included	25	84	800 x 1200 x 500
OPTIM FRES-62,5-440	[2] R64R81	62,5	52	12,5 + 2 x 25	Included	35	86	800 x 1200 x 500
OPTIM FRES-90-440	[2] R64R88	90	74	2 x 15 + 2 x 30	Included	70	104	800 x 1200 x 500
OPTIM FRES-105-440	[2] R64R92	105	87	15 + 3 x 30	Included	70	121	800 x 1200 x 500
OPTIM FRES-120-440	[2] R64R95	120	99	4 x 30	Included	95	128	800 x 1200 x 500
FRE4								
OPTIM FRE4-150-440	[2] R64E24	150	125	25 + 25 + 50 + 50	400	95	355	900 x 1900 x 650
OPTIM FRE4-175-440	[2] R64E25	175	145	25 + 50 + 100	400	120	365	900 x 1900 x 650
OPTIM FRE4-200-440	[2] R64E28	200	165	50 + 50 + 100	400	150	380	900 x 1900 x 650
OPTIM FRE4-250-440	[2] R64E29	250	207	50 + 2 x 100	630	185	390	900 x 1900 x 650
OPTIM FRE4-300-440	[2] R64E30	300	248	50 + 50 + 2 x 100	630	240	410	900 x 1900 x 650
OPTIM FRE4-350-440	[2] R64E32	350	289	50 + 3 x 100	630	240	430	900 x 1900 x 650
OPTIM FRE4-400-440	[2] R64E34	400	331	4 x 100	800	240	460	900 x 1900 x 650
FRE6								
OPTIM FRE6-400-440	[2] R64J25	400	331	50 + 50 + 3 x 100	800	2x185	550	1200 x 1900 x 650
OPTIM FRE6-450-440	[2] R64J30	450	372	50 + 4 x 100	800	2x185	587	1200 x 1900 x 650
OPTIM FRE6-500-440	[2] R64J35	500	413	5 x 100	1000	2x240	621	1200 x 1900 x 650
OPTIM FRE6-550-440	[2] R64J40	550	455	50 + 5 x 100	1000	2x240	658	1200 x 1900 x 650
OPTIM FRE6-600-440	[2] R64J45	600	496	6 x 100	1250	2x240	685	1200 x 1900 x 650
FRE8								
OPTIM FRE8-600-440	[2] R64K36	600	496	50 + 50 + 5 x 100	1250	2x240	820	1500 x 1900 x 650
OPTIM FRE8-650-440	[2] R64K38	650	537	50 + 6 x 100	1600	3x150	865	1500 x 1900 x 650
OPTIM FRE8-700-440	[2] R64K40	700	579	7 x 100	1600	3x150	910	1500 x 1900 x 650
OPTIM FRE8-750-440	[2] R64K42	750	620	50 + 7 x 100	1600	3x185	955	1500 x 1900 x 650
OPTIM FRE8-800-440	[2] R64K44	800	661	8 x 100	1600	3x185	1000	1500 x 1900 x 650
FRE10								
OPTIM FRE10-800-440	[2] R64C25	800	661	8 x 100	1250 / 400	2x240/ 240	950	2100 x 1900 x 650
OPTIM FRE10-850-440	[2] R64C30	850	702	50 + 8 x 100	1000 / 630	2x240/ 240	987	2100 x 1900 x 650
OPTIM FRE10-900-440	[2] R64C35	900	744	9 x 100	1250 / 630	2x240/ 240	1024	2100 x 1900 x 650
OPTIM FRE10-950-440	[2] R64C40	950	785	50 + 9 x 100	1000 / 800	2x240/ 2x185	1061	2100 x 1900 x 650
OPTIM FRE10-1000-440	[2] R64C45	1000	826	10 x 100	1250 / 800	2x240/ 2x185	1098	2100 x 1900 x 650
FRE12								
OPTIM FRE12-1050-440	[2] R64L50	1050	868	50 + 10 x 100	1250 / 800	2x240/ 2x240	1285	2400 x 1900 x 650
OPTIM FRE12-1100-440	[2] R64L55	1100	909	11 x 100	1250 / 1000	2x240/ 2x240	1322	2400 x 1900 x 650
OPTIM FRE12-1150-440	[2] R64L60	1150	950	50 + 11 x 100	2 X 1250	2x240/ 2x240	1359	2400 x 1900 x 650
OPTIM FRE12-1200-440	[2] R64L65	1200	992	12 x 100	2 X 1250	2x240/ 2x240	1389	2400 x 1900 x 650

Switch and cable section for installations with *Un*= 400 V. The installation company must make sure that the low-voltage regulations are complied with at all times, in accordance with the particularities of each installation and type of cable

Delivery time: [*] immediate
[x] working weeks
[c] consult

Choose the most suitable regulator for your needs

computer *max f for EMK* computer *max f-12Vdc for EMS-C and OPTIM FRES / FRE*	computer *smart III f -12Vdc for OPTIM FRES / FRE*
Series	Optional
Performance, accuracy and technology at the best price • Simple and intuitive installation and programming • Test functions • High-accuracy regulation • Basic electrical parameter measurement • Built-in alarms	Regulation, measurement and protection within your reach • Built-in power analyzer • Plug & Play • Serial communications • AUTO-ON-OFF function • Open programming • Built-in leakage control • Safety and maintenance

CODIFICATION TABLE

EMK / OPTIM FRE

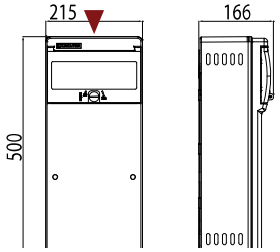
Code	Internal code											
R	**X**	**X**	**X**	**X**	**X**	**0**	**0**	**X**	**X**	**X**	Delivery time
								↑	↑	↑	
Options								Standard (*)	0		-
								Fan	2		-
								Policarbonate	3		-
								Policarbonate + Fan	6		-
Choose the most suitable regulator for your needs								Standard		0	-
								computer Smart III 6f / f-12Vdc		9	-
								computer smart III 12f / f-12Vdc		D	-
								computer PLUS 14TF-CDI (*1)		H	-
Switch								without switch			0 -
								Manual switch 200 A			3 -
								Manual switch 250A			4 -
								Manual switch 400 A			5 -
								Manual switch 630 A			6 -
								Manual switch 800 A			7 -
								Manual switch 1000 A			8 -
								Manual switch 1600 A			9 -
								Automatic switch 63 A			A -
								Automatic switch 125 A			B -
								Automatic switch 160 A			C -
								Automatic switch 250A			D -
								Automatic switch 400 A			E -
								Automatic switch 630 A			F -
								Automatic switch 800 A			G -
								Automatic switch 1000 A			H -
								Automatic switch 1250 A			I -
								Automatic switch 1600 A			J -
								Automatic switch 63 A + Earth leakage			K -
								Automatic switch 125 A + Earth leakage			L -
								Automatic switch160 A + Earth leakage			M -
								Automatic switch 250 A + Earth leakage			N -
								Automatic switch 400 A + Earth leakage			O -
								Automatic switch 630 A + Earth leakage			P -
								Automatic switch 800 A + Earth leakage			Q -
								Automatic switch 1000 A + Earth leakage			R -
								Automatic switch 1250 A + Earth leakage			S -
								Automatic switch 1600 A + Earth leakage			T -

(*1) Only in EMK series. With communications, earth leakage current and capacitor current
Accessories not available for EMS-C series

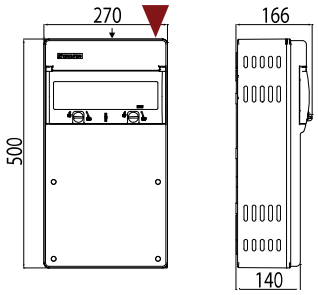
Delivery time: [*] immediate
[x] working weeks
[c] consult

Dimensions

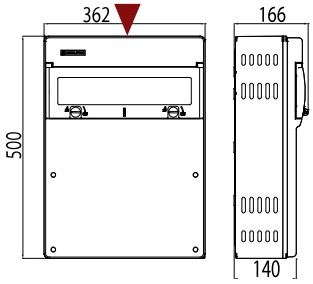
OPTIM 1



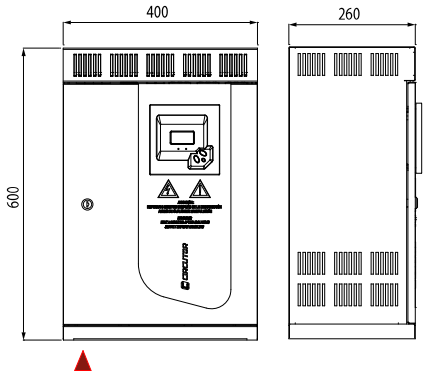
OPTIM 1A



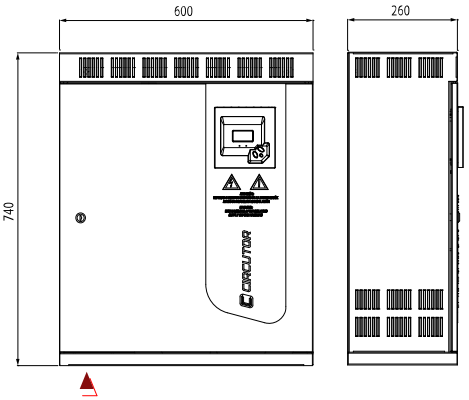
OPTIM 2



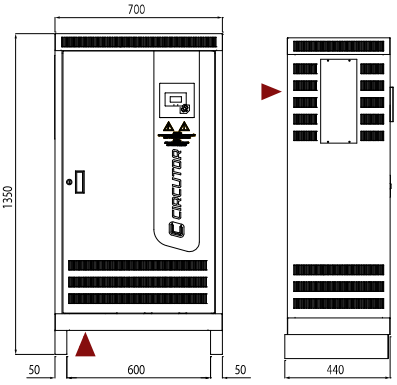
OPTIM 3 P&P



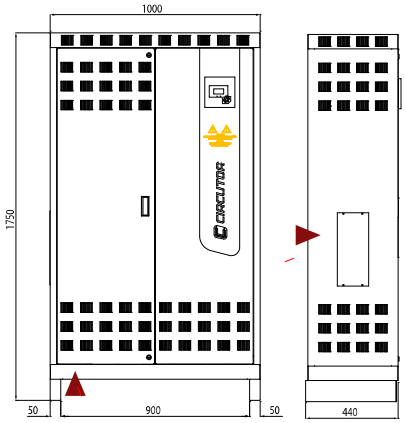
OPTIM 5 P&P



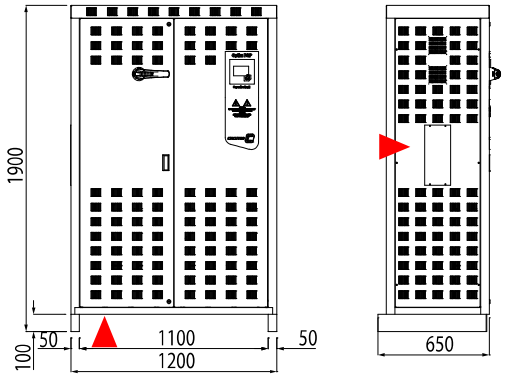
OTPIM 9 P&P



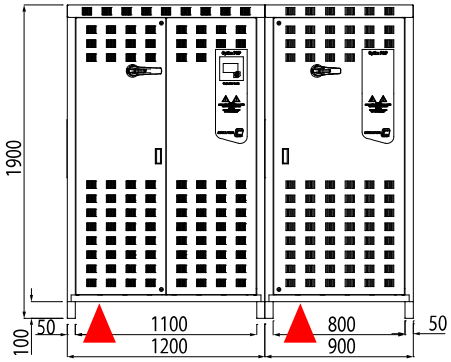
OPTIM 8



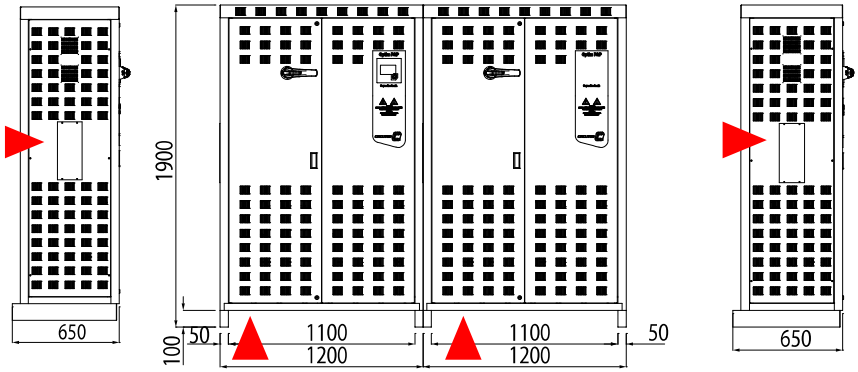
OPTIM 8L



OPTIM 14L



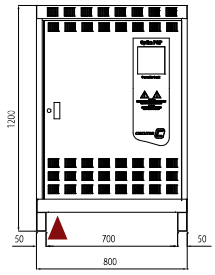
OPTIM 16L



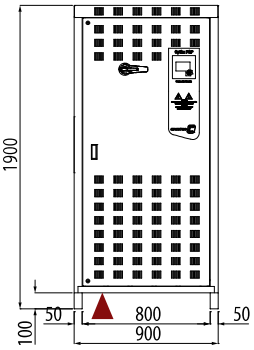
▲ Cable entry

Delivery time: [*] immediate
[x] working weeks
[c] consult

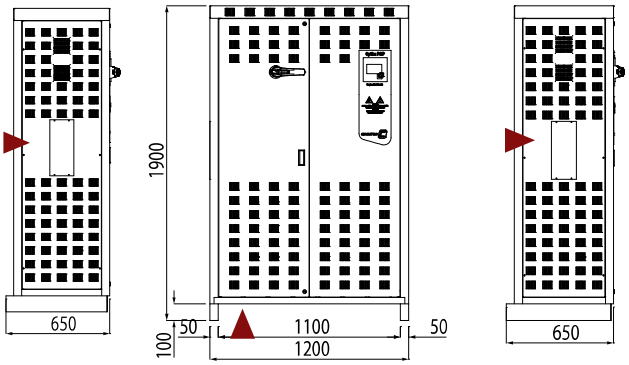
OPTIM FRS



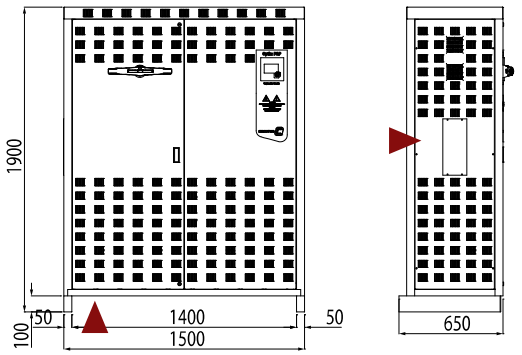
OPTIM FR4 / OPTIM FRE4



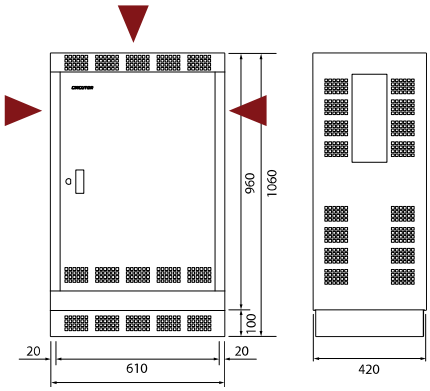
OPTIM FR6 / OPTIM FRE6



OPTIM FR8 / OPTIM FRE8



OPTIM FRF / FRM



OPTIM FR10 / OPTIM FRE10

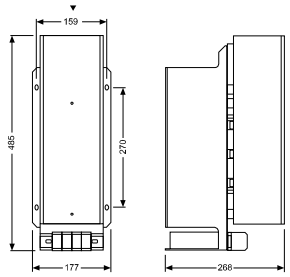
OPTIM FR10 = OPTIM FR4 + OPTIM FR6 + 100 mm

OPTIM FR12 / OPTIM FRE12

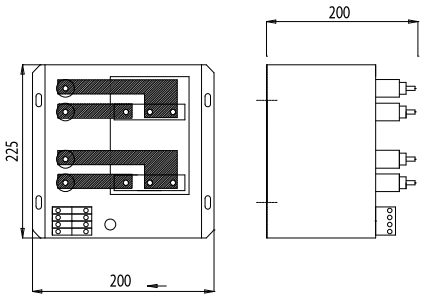
OPTIM FR12 = 2 x OPTIM FR6. + 100 mm

▲ Cable entry

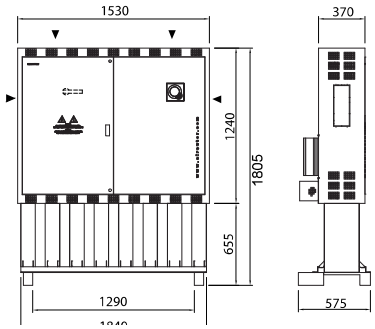
EMB / EMF



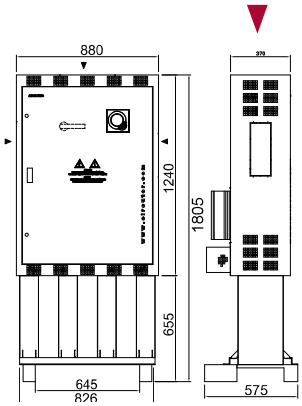
EMB-2PH



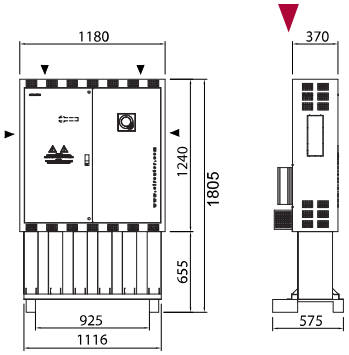
EMK8



EMK4

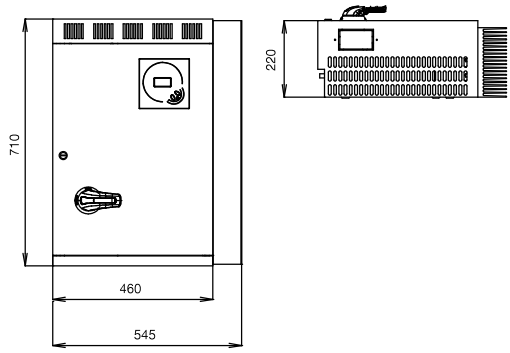


EMK6

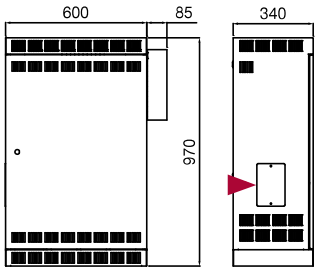


EMk12 = 2 x EMK6 + 100 mm

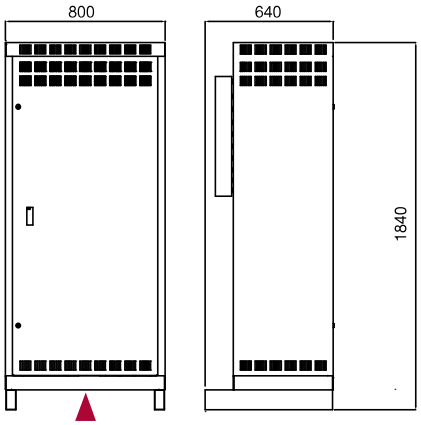
Optim EMS-C



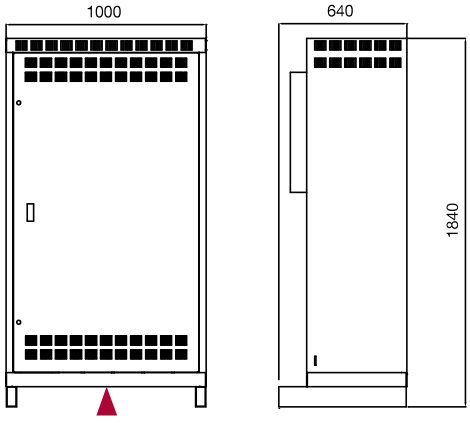
OPTIM HYB 1



OPTIM HYB 2



OPTIM HYB 3



▲ Cable entry

Delivery time: [*] immediate
[x] working weeks
[c] consult

Harmonic filters

AFQ, ACTIVE MULTI-FUNCTION filter

50 HZ - HARMONIC FILTERING, PHASE BALANCING AND REACTIVE ENERGY COMPENSATION



Type	Code	Phase current	Neutral current	Peak current	Dimensions (mm) L x H x W	Weight kg
3 wires, phase-phase voltage 400 – 440 – 480 Vac ± 15% (230 V on demand)						
AFQ-3W-25A-480	**[*] R7H772**	25	75	50	655 x 800 x 454	135
AFQ-3W-50A-480	**[*] R7H774**	50	150	100	655 x 1350 x 450	212
AFQ-3W-100A-480	**[*] R7H775**	100	300	200	655 x 1470 x 585	272
AFQ-3W-150A-480	**[*] R7H776**	150	450	300	1190 x 1900 x 720	505
AFQ-3W-200A-480	**[*] R7H777**	200	600	400	1190 x 1900 x 720	511
4 wires, phase-phase voltage 400 Vac ± 15% (230 V on demand)						
AFQ-4W-25A-400	**[*] R7H602**	25	75	50	655 x 800 x 454	135
AFQ-4W-50A-400	**[*] R7H604**	50	150	100	655 x 1350 x 450	212
AFQ-4W-100A-400	**[*] R7H605**	100	300	200	655 x 1470 x 585	272
AFQ-4W-150A-400	**[*] R7H606**	150	450	300	1190 x 1900 x 720	505
AFQ-4W-200A-400	**[*] R7H607**	200	600	400	1190 x 1900 x 720	511

For networks with high THD(V) levels contact our technical dept.

LRB, Filter reactors for power converters (network side)





TYPES FOR THREE-PHASE NETWORKS AT 380 / 415 V, 50 HZ . VOLTAGE DROP = 4%

Type	Code	Motor power kW	Motor power hp	I_n A	L mH	Losses (W)	Dimensions (mm) Lenght	Dimensions (mm) Width	Dimensions (mm) Height	Weight kg
LR 04-003	**[2] P70301**	0,75	1	2,5	14,8	6	120	60	125	1,8
LR 04-004	**[2] P70302**	1,5	2	4	7,90	8	120	60	125	1,8
LR 04-006	**[2] P70303**	2,2	3	5,5	5,90	10	120	60	125	2
LR 04-008	**[2] P70304**	3	4	7,5	4,30	12	120	60	125	2
LR 04-010	**[2] P70305**	4	5	10	3,20	15	120	70	125	2,3
LR 04-013	**[2] P70306**	5,5	7	13	2,50	18	120	70	125	2,3
LR 04-017	**[2] P70307**	7,5	10	17	1,85	25	150	75	150	3,5
LR 04-022	**[2] P70308**	11	15	22	1,47	30	150	90	152	4,6
LR 04-033	**[2] P70309**	15	20	32	0,98	45	150	90	152	5
LR 04-050	**[2] P7030B**	22	30	47	0,67	64	180	110	197	9
LR 04-066	**[2] P7030D**	30	41	64	0,49	88	180	120	197	11
LRB 04-080	**[2] P7030E**	37	50	76	0,40	110	180	135	160	13
LRB 04-115	**[2] P7030G**	55	75	110	0,28	145	237	131	195	21
LRB 04-185	**[c] P7030J**	90	122	180	0,17	230	242	154	256	32
LRB 04-200	**[c] P7030K**	110	150	200	0,15	245	245	154	256	36
LRB 04-300	**[c] P7030M**	160	220	300	0,10	355	280	164	300	48

LR, LRB

Code		Internal code			Delivery time
P 7 X X X X 0 0		**X**	**X**	**X**	
Voltage drop	Standard (4 %)	0			-
	3 %	1			consult
	2 %	2			consult
Network frequency	Standard (50 Hz)		0		-
	60 Hz		1		consult
Network connection	Standard (Three-phase)			0	-
	Single-phase			1	consult

Delivery time: [*] immediate
[x] working weeks
[c] consult

SINUS, Filter for PWM



SINUS FILTER FOR PWM (IP00)

Type	Code	*In* (A)	Switching Frequency (kHz)	Dimensions (mm) L x H x W
SINUS-10-40-00	[4] R7S002	10	10	191 x 180 x 120
SINUS-25-40-00	[4] R7S004	25	10	244 x 301 x 248
SINUS-80-40-00	[4] R7S006	80	10	290 x 422 x 360
SINUS-155-40-00	[4] R7S008	150	10	390 x 503 x 360
SINUS-270-40-00	[4] R7S00A	270	2	415 x 557 x 360

LCL, Harmonic filters for power converters



Type	Code	Load current (A) r.m.s.	Q (kvar)	Dimensions (mm) L x H x W	Cabinet
LCL 35-9A-400	[4] R73105	9	1,76	365 x 570 x 217	LCL TH
LC L35-12A-400	[4] R73106	12	2,51	365 x 570 x 217	LCL TH
LCL 35-16A-400	[4] R73107	16	3,27	365 x 570 x 217	LCL TH
LCL 35-22A-400	[4] R73108	22	4,42	460 x 930 x 230	OPTIM5
LCL 35-32A-400	[4] R73109	32	6,63	460 x 930 x 230	OPTIM5
LCL 35-40A-400	[4] R73110	40	8,29	460 x 930 x 230	OPTIM5
LCL 35-47A-400	[4] R73111	47	9,14	650 x 1060 x 420	FRF
LCL 35-54A-400	[4] R73112	54	10,8	650 x 1060 x 420	FRF
LCL 35-64A-400	[4] R73113	64	13,26	650 x 1060 x 420	FRF
LCL 35-76A-400	[4] R73114	76	14,92	650 x 1060 x 420	FRF
LCL 35-90A-400	[4] R73115	90	18,24	800 x 1900 x 650	FR4
LCL 35-110A-400	[4] R73116	110	23,21	800 x 1900 x 650	FR4
LCL 35-150A-400	[4] R73117	150	29,84	800 x 1900 x 650	FR4
LCL 35-180A-400	[4] R73118	180	36,48	800 x 1900 x 650	FR4
LCL 35-220A-400	[4] R73119	220	46,42	800 x 1900 x 650	FR4
LCL 35-260A-400	[4] R73120	260	53,06	800 x 1900 x 650	FR4
LCL 35-320A-400	[4] R73121	320	66,32	1100 x 1900 x 650	FR6
LCL 35-400A-400	[4] R73122	400	79,58	1100 x 1900 x 650	FR6
LCL 460 - 480 V / 60 Hz					
LCL 36-9A-480	[4] R732050070000	9	2,73	365 x 570 x 217	LCL TH
LCL 36-16A-480	[4] R732070070000	16	4,55	365 x 570 x 217	LCL TH
LCL 36-22A-480	[4] R732080070000	22	6,21	460 x 930 x 230	OPTIM5
LCL 36-32A-480	[4] R732090070000	32	7,59	460 x 930 x 230	OPTIM5
LCL 36-40A-480	[4] R732100070000	40	11,38	460 x 930 x 230	OPTIM5
LCL 36-47A-480	[4] R732110070000	47	15,18	650 x 1060 x 420	FRF
LCL 36-54A-480	[4] R732120070000	54	15,18	650 x 1060 x 420	FRF
LCL 36-64A-480	[4] R732130070000	64	18,97	650 x 1060 x 420	FRF
LCL 36-76A-480	[4] R732140070000	76	22,77	650 x 1060 x 420	FRF
LCL 36-90A-480	[4] R732150070000	90	26,56	800 x 1900 x 650	FR4
LCL 36-110A-480	[4] R732160070000	110	30,36	800 x 1900 x 650	FR4
LCL 36-150A-480	[4] R732170070000	150	45,53	800 x 1900 x 650	FR4
LCL 36-180A-480	[4] R732180070000	180	53,12	800 x 1900 x 650	FR4
LCL 36-220A-480	[4] R732190070000	220	60,71	800 x 1900 x 650	FR4
LCL 36-260A-480	[4] R732200070000	260	68,3	800 x 1900 x 650	FR4
LCL 36-320A-480	[4] R732210070000	320	91,07	1100 x 1900 x 650	FR6
LCL 36-400A-480	[4] R732220070000	400	121,42	1100 x 1900 x 650	FR6

- Consult for other current, frequency and/or voltage
- Option: Overcorrection kit

Delivery time: [*] immediate
[x] working weeks
[c] consult

LCL-TH, Filter for elevators



LCL-TH 400 - 415 V / 50 HZ

Type	Code	Load current (A) r.m.s.	Q (kvar)	Dimensions (mm) L x H x W
LCL-TH35-7A-400	[4] R7K104	7	1,76	365 x 570 x 217
LCL-TH35-9A-400	[4] R7K105	9	1,51	365 x 570 x 217
LCL-TH35-12A-400	[4] R7K106	12	2,51	365 x 570 x 217
LCL-TH35-16A-400	[4] R7K107	16	3,27	532 x 930 x 235
LCL-TH35-22A-400	[4] R7K108	22	4,42	532 x 930 x 235

FB3, THIRD HARMONIC BLOCKING FILTER for Single-phase system



Type	Code	/ Max (A)	Frequency (Hz)	System	Weight (kg)	Dimensions (mm)
FB3-5-06	[*] R78101	6	50 Hz	Single-phase	8	204 x 310 x 233



FB3T , THIRD HARMONIC BLOCKING FILTER for Three-phase system

Without box (IP 00)

Type	Code	Dimensions L x H x W (mm)	EUR
FB3T-5-06-00	[4] R78131	300 x 200 x 200	
FB3T-5-10-00	[4] R78132	300 x 200 x 200	
FB3T-5-16-00	[4] R78133	300 x 200 x 200	
FB3T-5-25-00	[4] R78134	370 x 280 x 300	
FB3T-5-32-00	[4] R78135	370 x 280 x 300	
FB3T-5-50-00	[4] R78136	370 x 280 x 300	
FB3T-5-63-00	[4] R78137	370 x 420 x 370	
FB3T-5-100-00	[4] R78138	370 x 420 x 370	

With box (IP 21)

Type	Code	Dimensions L x H x W (mm)	EUR
FB3T-5-06-21	[c] R78121	300 x 200 x 200	1.907,64
FB3T-5-10-21	[c] R78122	300 x 200 x 200	1.447,24
FB3T-5-16-21	[c] R78123	300 x 200 x 200	2.236,37
FB3T-5-25-21	[c] R78124	370 x 280 x 300	1.743,07
FB3T-5-32-21	[c] R78125	370 x 280 x 300	2.818,22
FB3T-5-50-21	[c] R78126	370 x 280 x 300	1.960,83
FB3T-5-63-21	[c] R78127	370 x 420 x 370	3.736,46
FB3T-5-100-21	[c] R78128	370 x 420 x 370	4.178,93

Delivery time: [*] immediate
[x] working weeks
[c] consult

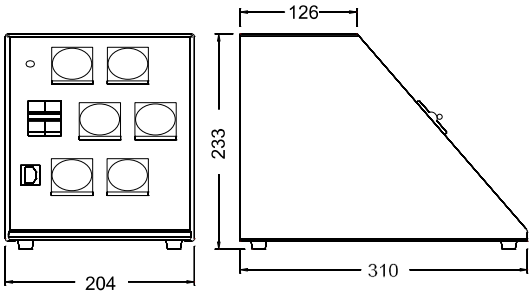
FAR-Q, Hybrid absorption filters



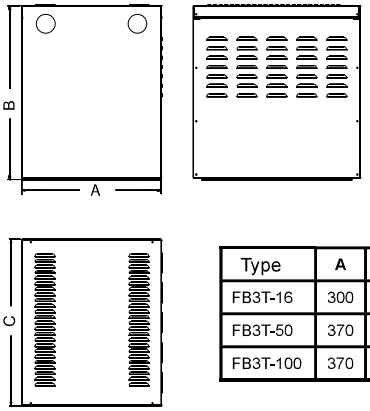
Type	Code	kvar	Composition	I_{RMS} (A)	5th (A)	Wt. (kg)	Dimensions (mm)	EUR
FAR5-Q8 400 V / 50 Hz								
FAR5-Q6-112,5-400	**[c] R7C101**	112,5	3 x 37,5	176	90	436	1100 x1900x650	28.498,05
FAR5-Q6-187,5-400	**[c] R7C103**	187,5	5 x 37,5	293	150	460	1100 x1900x650	41.108,67
FAR5-Q6-262,5-400	**[c] R7C105**	262,5	37,5 + (3 x 75)	410	210	460	1100 x1900x650	42.627,04
FAR5-Q6-337,5-400	**[c] R7C107**	337,5	37,5 + (4 x 75)	527	270	523	1100 x1900x650	52.453,98
FAR5-Q6-375-400	**[c] R7C108**	375	5 x 75	586	300	550	1100 x1900x650	55.350,86
FAR5-Q8 400 V / 50 Hz								
FAR5-Q8-412,5-400	**[c] R7C109**	412,5	37,5 + (5 x 75)	644	330	687	1500 x1900x650	65.498,60
FAR5-Q8-525-400	**[c] R7C112**	525	7 x 75	820	420	740	1500 x1900x650	78.222,42
FAR5-Q12 400 V / 50 Hz								
FAR5-Q12-562,5-400	**[c] R7C113**	562,5	37,5 + (7 x 75)	878	450	950	2200 x1900x650	88.197,35
FAR5-Q12-637,5-400	**[c] R7C115**	637,5	37,5 + (8 x 75)	996	510	1009	2200 x1900x650	97.977,85
FAR5-Q12-712,5-400	**[c] R7C117**	712,5	37,5 + (9 x 75)	1113	570	1073	2200 x1900x650	107.758,30
FAR5-Q12-750-400	**[c] R7C118**	750	10 x 75	1171	600	1100	2200 x1900x650	110.655,13

Dimensions

FB3

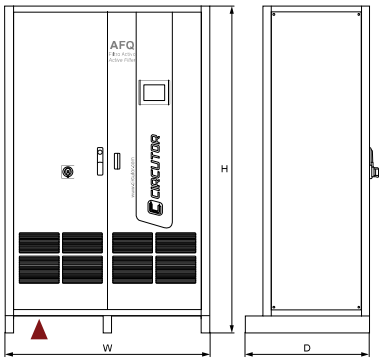


FB3T



Type	A	B	C
FB3T-16	300	200	200
FB3T-50	370	280	300
FB3T-100	370	480	370

AFQ-3W / AFQ-4W /

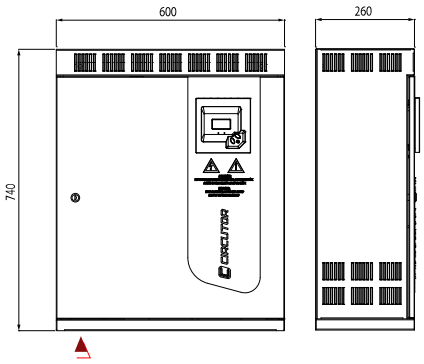


Type	Dimensions (mm) L x H x W
AFQ-3W5-25A-400 / AFQ-4W5-25A-400	655 x 800 x 454
AFQ-3W5-50A-400 / AFQ-4W5-50A-400	655 x 1350 x 450
AFQ-3W5-100A-400 / AFQ-4W5-50A-400	655 x 1470 x 585
AFQ-3W5-150A-400 / AFQ-4W5-150A-400	1190 x 1900 x 720
AFQ-3W5-200A-400 / AFQ-4W5-200A-400	1190 x 1900 x 720

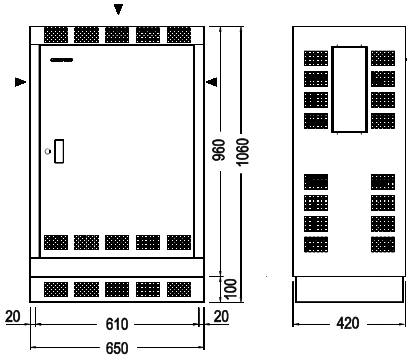
▲ Cable entry

Delivery time: [*] immediate
[x] working weeks
[c] consult

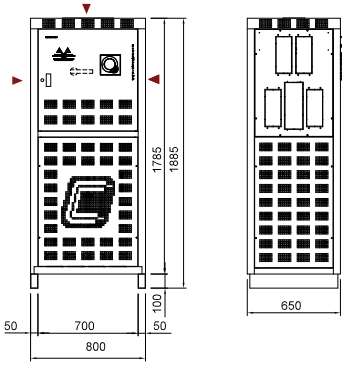
OPTIM5 P&P



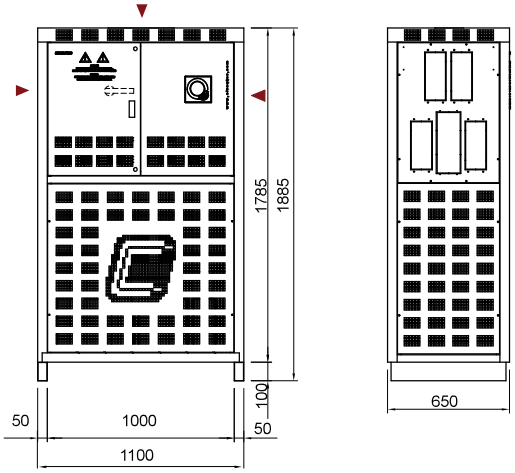
FRF



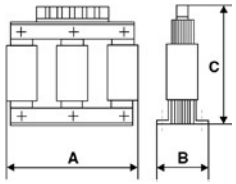
FR4



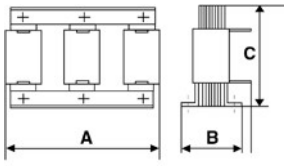
FR6



LR / LRB



Typ	A mm	B mm	C mm	kg
LR 04-003	120	60	125	1,8
LR 04-004	120	60	125	1,8
LR 04-006	120	60	125	2
LR 04-008	120	60	125	2
LR 04-010	120	70	125	2,3
LR 04-013	120	70	125	2,3
LR 04-017	150	75	150	3,5
LR 04-022	150	90	152	4,6
LR 04-033	150	90	152	5
LR 04-041	180	100	193	7,5
LR 04-050	180	110	197	9
LR 04-058	180	110	197	9,5
LR 04-066	180	120	197	11



Typ	A mm	B mm	C mm	kg
LRB 04-080	180	135	160	13
LRB 04-095	237	120	195	18
LRB 04-115	237	131	195	21
LRB 04-150	237	131	215	26
LRB 04-185	242	154	256	32
LRB 04-200	245	154	256	36
LRB 04-250	285	154	300	44
LRB 04-300	280	164	300	48

▲ Cable entry

Delivery time: [*] immediate
[x] working weeks
[c] consult

MV capacitor banks and accessories

The prices for medium-voltage capacitors are valid for orders for a minimum of **4** units of each type.

Price supplement for orders with **3** or **fewer** units (by type): **+ 10%**

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

CHV-M, Single-phase MV power capacitors (indoor and outdoor use)

Type	Code	kvar	Weight (kg)	Dimensions (mm) L x H x W
BIL 20/60 kV (50 Hz) - 3,81 kV				
CHV-M 50/3,81	**[c] R8A0500003810**	50	18,2	350 x 487 x 160
CHV-M 75/3,81	**[c] R8A0750003810**	75	18,5	350 x 487 x 160
CHV-M 100/3,81	**[c] R8A1000003810**	100	21,9	350 x 537 x 160
CHV-M 150/3,81	**[c] R8A1500003810**	150	29,1	350 x 637 x 160
CHV-M 167/3,81	**[c] R8A1670003810**	167	29,3	350 x 637 x 160
CHV-M 200/3,81	**[c] R8A2000003810**	200	33,5	350 x 697 x 160
CHV-M 250/3,81	**[c] R8A2500003810**	250	44,8	350 x 867 x 160
CHV-M 300/3,81	**[c] R8A3000003810**	300	45,8	350 x 867 x 160
CHV-M 333/3,81	**[c] R8A3330003810**	333	52,3	350 x 957 x 160
CHV-M 400/3,81	**[c] R8A4000003810**	400	55,3	350 x 927 x 175
CHV-M 500/3,81	**[c] R8A5000003810**	500	68,3	350 x 1097 x 175
CHV-M 600/3,81	**[c] R8A6000003810**	600	80,2	350 x 1247 x 175
BIL 28/75 kV (50 Hz) - 6,35 kV				
CHV-M 50/6,35 *	**[c] R8B0500006350**	50	17,9	350 x 487 x 160
CHV-M 75/6,35 *	**[c] R8B0750006350**	75	21,8	350 x 537 x 160
CHV-M 100/6,35	**[c] R8B1000006350**	100	21,8	350 x 537 x 160
CHV-M 150/6,35	**[c] R8B1500006350**	150	28,6	350 x 637 x 160
CHV-M 167/6,35	**[c] R8B1670006350**	167	29,1	350 x 637 x 160
CHV-M 200/6,35	**[c] R8B2000006350**	200	33,2	350 x 697 x 160
CHV-M 250/6,35	**[c] R8B2500006350**	250	37,8	350 x 757 x 160
CHV-M 300/6,35	**[c] R8B3000006350**	300	45,3	350 x 867 x 160
CHV-M 333/6,35	**[c] R8B3330006350**	333	49,4	350 x 857 x 175
CHV-M 400/6,35	**[c] R8B4000006350**	400	54,5	350 x 927 x 175
CHV-M 500/6,35	**[c] R8B5000006350**	500	65,6	350 x 1067 x 175
CHV-M 600/6,35	**[c] R8B6000006350**	600	79,2	350 x 1247 x 175
CHV-M 750/6,35	**[c] R8B7500006350**	750	90,4	350 x 1217 x 200
BIL 38/95 kV (50 Hz) - 9,53 kV				
CHV-M 50/9,53 *	**[c] R8C0500009530**	50	19,5	350 x 530 x 160
CHV-M 75/9,53 *	**[c] R8C0750009530**	75	20,2	350 x 530 x 160
CHV-M 100/9,53 *	**[c] R8C1000009530**	100	23,6	350 x 580 x 160
CHV-M 150/9,53	**[c] R8C1500009530**	150	31,0	350 x 680 x 160
CHV-M 167/9,53	**[c] R8C1670009530**	167	34,9	350 x 740 x 160
CHV-M 200/9,53	**[c] R8C2000009530**	200	35,4	350 x 740 x 160
CHV-M 250/9,53	**[c] R8C2500009530**	250	46,9	350 x 910 x 160
CHV-M 300/9,53	**[c] R8C3000009530**	300	48,0	350 x 910 x 160
CHV-M 333/9,53	**[c] R8C3330009530**	333	54,7	350 x 1000 x 160
CHV-M 400/9,53	**[c] R8C4000009530**	400	59,7	350 x 1000 x 175
CHV-M 500/9,53	**[c] R8C5000009530**	500	71,0	350 x 1140 x 175
CHV-M 600/9,53	**[c] R8C6000009530**	600	83,1	350 x 1290 x 175
CHV-M 750/9,53	**[c] R8C7500009530**	750	90,4	350 x 1257 x 200

Delivery time: [*] immediate
[x] working weeks
[c] consult

The prices for medium-voltage capacitors are valid for orders for a minimum of **4** units of each type.

Price supplement for orders with **3** or **fewer** units (by type): **+ 10%**

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

CHV-M, Single-phase MV power capacitors (indoor and outdoor use)

BIL 50/125 kV (50 Hz) - 12,7 kV				
Type	**Code**	**kvar**	**Weight (kg)**	**Dimensions (mm) L x H x W**
CHV-M 50/12,7 *	**[c] R8D0500012700**	50	19,7 kg	350 x 615 x 160
CHV-M 75/12,7 *	**[c] R8D0750012700**	75	23,4 kg	350 x 665 x 160
CHV-M 100/12,7 *	**[c] R8D1000012700**	100	26,8 kg	350 x 715 x 160
CHV-M 150/12,7 *	**[c] R8D1500012700**	150	31,2 kg	350 x 765 x 160
CHV-M 167/12,7 *	**[c] R8D1670012700**	167	35,1 kg	350 x 825 x 160
CHV-M 200/12,7	**[c] R8D2000012700**	200	39,2 kg	350 x 885 x 160
CHV-M 250/12,7	**[c] R8D2500012700**	250	47,0 kg	350 x 995 x 160
CHV-M 300/12,7	**[c] R8D3000012700**	300	48,1 kg	350 x 995 x 160
CHV-M 333/12,7	**[c] R8D3330012700**	333	56,9 kg	350 x 1055 x 175
CHV-M 400/12,7	**[c] R8D4000012700**	400	59,6 kg	350 x 1085 x 175
CHV-M 500/12,7	**[c] R8D5000012700**	500	70,9 kg	350 x 1225 x 175
CHV-M 600/12,7	**[c] R8D6000012700**	600	83,0 kg	350 x 1375 x 175
CHV-M 750/12,7	**[c] R8D7500012700**	750	98,8 kg	350 x 1405 x 200
BIL 70/170 kV (50 Hz) - 19,05 kV				
CHV-M 50/19,05 *	**[c] R8E0500019050**	50	23,3 kg	350 x 644 x 160
CHV-M 75/19,05 *	**[c] R8E0750019050**	75	23,6 kg	350 x 644 x 160
CHV-M 100/19,05*	**[c] R8E1000019050**	100	27,0 kg	350 x 694 x 160
CHV-M 150/19,05*	**[c] R8E1500019050**	150	35,0 kg	350 x 804 x 160
CHV-M 167/19,05*	**[c] R8E1670019050**	167	35,3 kg	350 x 804 x 160
CHV-M 200/19,05*	**[c] R8E2000019050**	200	39,4 kg	350 x 864 x 160
CHV-M 250/19,05	**[c] R8E2500019050**	250	50,8 kg	350 x 964 x 175
CHV-M 300/19,05	**[c] R8E3000019050**	300	56,5 kg	350 x 1034 x 175
CHV-M 333/19,05	**[c] R8E3330019050**	333	57,1 kg	350 x 1034 x 175
CHV-M 400/19,05	**[c] R8E4000019050**	400	64,4 kg	350 x 1134 x 175
CHV-M 500/19,05	**[c] R8E5000019050**	500	73,7 kg	350 x 1244 x 175
CHV-M 600/19,05	**[c] R8E6000019050**	600	84,1 kg	350 x 1264 x 200
CHV-M 750/19,05	**[c] R8E7500019050**	750	104,2 kg	350 x 1454 x 200

Delivery time: [*] immediate
[x] working weeks
[c] consult

The prices for medium-voltage capacitors are valid for orders for a minimum of **4** units of each type.

Price supplement for orders with **3** or **fewer** units (by type): **+ 10%**

The prices that appear in the price list correspond to capacitors with indoor/outdoor installation, with internal fuses (according to type) and frequency of 50 Hz.

CHV-T, Three-phase MV power capacitors
(indoor use, with fuses and discharge resistors, internal)

BIL 20/60 kV (50 Hz) - 3,3 kV

Type	Code	kvar	Weight (kg)	Dimensions (mm) L x H x W
CHV-T 50/3,3 *	**[c] R8K0500003300**	50	18,8	350 x 422 x 160
CHV-T 75/3,3 *	**[c] R8K0750003300**	75	22,4	350 x 472 x 160
CHV-T 100/3,3	**[c] R8K1000003300**	100	22,8	350 x 472 x 160
CHV-T 150/3,3	**[c] R8K1500003300**	150	30,0	350 x 572 x 160
CHV-T 200/3,3	**[c] R8K2000003300**	200	34,4	350 x 632 x 160
CHV-T 250/3,3	**[c] R8K2500003300**	250	45,7	350 x 802 x 160
CHV-T 300/3,3	**[c] R8K3000003300**	300	46,7	350 x 802 x 160
CHV-T 333/3,3	**[c] R8K3330003300**	333	55,6	350 x 862 x 175
CHV-T 400/3,3	**[c] R8K4000003300**	400	58,3	350 x 892 x 175
CHV-T 500/3,3	**[c] R8K5000003300**	500	69,4	350 x 1032 x 175
CHV-T 600/3,3	**[c] R8K6000003300**	600	81,2	350 x 1182 x 175
CHV-T 750/3,3	**[c] R8K7500003300**	750	97,3	350 x 1252 x 200

BIL 20/60 kV (50 Hz) - 6,6 kV

CHV-T 50/6,6 *	**[c] R8K0500006600**	50	19,2	350 x 422 x 160
CHV-T 75/6,6 *	**[c] R8K0750006600**	75	22,6	350 x 472 x 160
CHV-T 100/6,6 *	**[c] R8K1000006600**	100	23,0	350 x 472 x 160
CHV-T 150/6,6 *	**[c] R8K1500006600**	150	30,2	350 x 572 x 160
CHV-T 200/6,6	**[c] R8K2000006600**	200	38,3	350 x 692 x 160
CHV-T 250/6,6	**[c] R8K2500006600**	250	45,9	350 x 802 x 160
CHV-T 300/6,6	**[c] R8K3000006600**	300	46,9	350 x 802 x 160
CHV-T 333/6,6	**[c] R8K3330006600**	333	55,9	350 x 862 x 175
CHV-T 400/6,6	**[c] R8K4000006600**	400	58,6	350 x 892 x 175
CHV-T 500/6,6	**[c] R8K5000006600**	500	69,7	350 x 1032 x 175
CHV-T 600/6,6	**[c] R8K6000006600**	600	81,2	350 x 1182 x 175
CHV-T 750/6,6	**[c] R8K7500006600**	750	97,6	350 x 1252 x 200

BIL 28/75 kV (50 Hz) - 11 kV

CHV-T 50/11 *	**[c] R8L0500011000**	50	19,3	350 x 422 x 160
CHV-T 75/11 *	**[c] R8L0750011000**	75	22,7	350 x 472 x 160
CHV-T 100/11 *	**[c] R8L1000011000**	100	23,0	350 x 472 x 160
CHV-T 150/11 *	**[c] R8L1500011000**	150	30,1	350 x 572 x 160
CHV-T 200/11 *	**[c] R8L2000011000**	200	34,4	350 x 632 x 160
CHV-T 250/11	**[c] R8L2500011000**	250	45,7	350 x 802 x 160
CHV-T 300/11	**[c] R8L3000011000**	300	46,5	350 x 802 x 160
CHV-T 333/11	**[c] R8L3330011000**	333	53,0	350 x 892 x 175
CHV-T 400/11	**[c] R8L4000011000**	400	56,1	350 x 862 x 175
CHV-T 500/11	**[c] R8L5000011000**	500	67,0	350 x 1002 x 175
CHV-T 600/11	**[c] R8L6000011000**	600	80,7	350 x 1182 x 175
CHV-T 750/11	**[c] R8L7500011000**	750	92,1	350 x 1192 x 200

(*) without internal fuses

Delivery time: [*] immediate
[x] working weeks
[c] consult

LVC, Three-phase contactor for MV capacitors

400 A - 6,6 kV a.c.



Type	Code	Max. voltage	Max. current	Auxiliar voltage
LVC-6Z44ED	[*] R80911	6,6 kV_{ac}	3 x 400 A	220 V_{ac}
LVC-6Z44ED	[*] R809110010000	6,6 kV_{ac}	3 x 400 A	110 V_{dc}

RMV, Choke reactors for MV capacitor banks



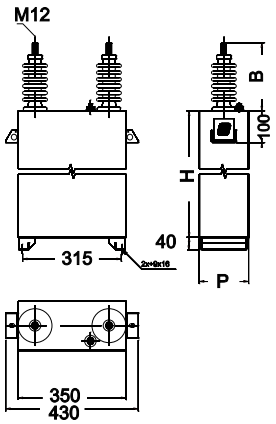
Type	Code	I (A)	L (µH)	Weight (kg)
RMV-260				
RMV - 260 - 50 - 350	[2] R80628	50	350	13
RMV - 260 - 60 - 250	[2] R80637	60	250	14
RMV - 260 - 100 - 100	[*] R80664	100	100	16
RMV - 260 - 125 - 50	[2] R80672	125	50	14
RMV - 260 - 175 - 30	[2] R80691	175	30	14
RMV-330				
RMV - 330 - 60 - 450	[2] R80739	60	450	20
RMV - 330 - 75 - 350	[2] R80748	75	350	21
RMV - 330 - 90 - 250	[2] R80757	90	250	26
RMV - 330 - 125 - 100	[2] R80774	125	100	22
RMV - 330 - 200 - 50	[2] R807A2	200	50	22
RMV - 330 - 250 - 30	[2] R807B1	250	30	23

Selection parameters for RMV reactances are:
* Maximum operating current (1,43 In)
* Required inductance in mH
* Isolating voltage kV

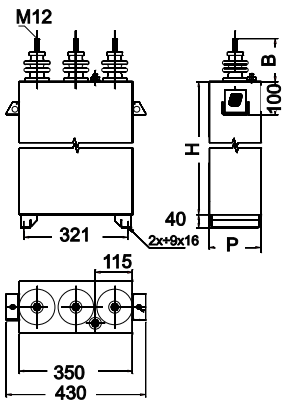
The isolating voltage is 12 kV (28/75). Other voltages on request
Thermal current is 43 In / 1 s. Other values on request
Other currents and µH please request Price.

Dimensions

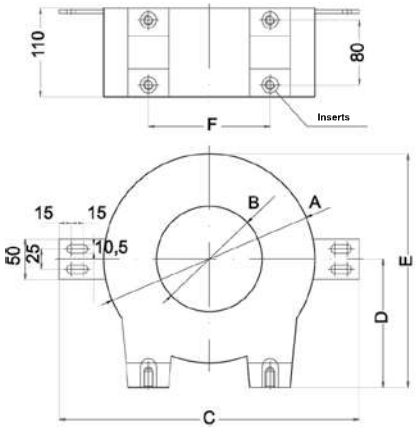
CHV-M



CHV-T



RMV



Type	A Ø mm	B Ø mm	C mm	D mm	E mm	F mm	Inserts
RMV-260	260	130	370	160	290	150	M12
RMV-330	330	150	470	190	355	210	M12/M16

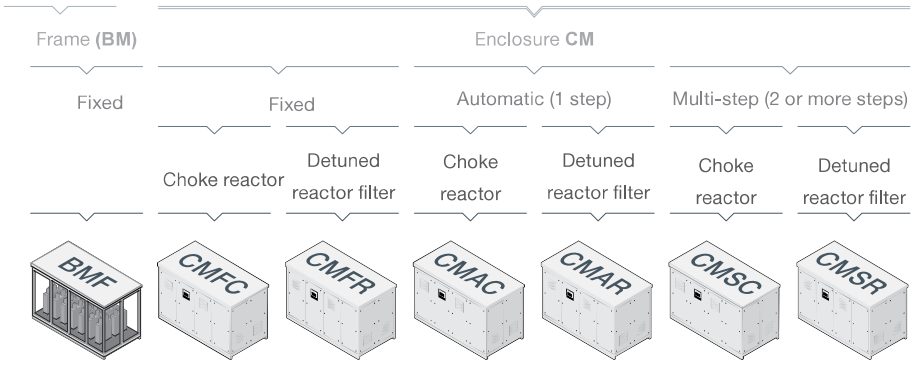
Delivery time: [*] immediate
[x] working weeks
[c] consult

MV power capacitor banks

CIRKAP. Easy to choose complete products

Selection of capacitor banks

CIRKAP capacitor banks are divided in two main groups: Capacitor banks in a **CM** frame and capacitor banks in open **BM** frames.



References for CIRKAP BM

Code										
B	M	X	X	X	X	X	X	X	X	X
Fixed (step 1)		F								
Without choke reactor			-							
With choke reactor			C							
Number of steps (1)				nº						
Rated voltage (3 figures) 3.3 kV					033					
Rated voltage (3 figures) 4.2 kV					042					
Rated voltage (3 figures) 5.5 kV					055					
Rated voltage (3 figures) 6.0 kV					060					
Rated voltage (3 figures) 6.3 kV					063					
Rated voltage (3 figures) 6.6 kV					066					
Rated voltage (3 figures) 11 kV					110					
Rated voltage (3 figures) 13.2 kV					132					
Rated voltage (3 figures) 15 kV					150					
Rated voltage (3 figures) 16.5 kV					165					
Rated voltage (3 figures) 22 kV					220					
Rated voltage (3 figures) 33 kV					330					
Nominal capacitor bank power in kvar (5 figures)										nº

References for CIRKAP CM

Code										
C	M	X	X	X	X	X	X	X	X	X
Fixed (step 1)		F								
Automatic (1 step)		A								
Multi-step		S								
Without choke reactor			-							
With choke reactor			C							
With detuned filter			R							
Number of steps (1...9)				nº						
Rated voltage (3 figures) 3.3 kV					033					
Rated voltage (3 figures) 4.2 kV					042					
Rated voltage (3 figures) 5.5 kV					055					
Rated voltage (3 figures) 6.0 kV					060					
Rated voltage (3 figures) 6.3 kV					063					
Rated voltage (3 figures) 6.6 kV					066					
Rated voltage (3 figures) 11 kV					110					
Rated voltage (3 figures) 13.2 kV					132					
Rated voltage (3 figures) 15 kV					150					
Rated voltage (3 figures) 16.5 kV					165					
Rated voltage (3 figures) 22 kV					220					
Rated voltage (3 figures) 33 kV					330					
Nominal capacitor bank power in kvar (5 figures)										nº

Delivery time: [*] immediate
[x] working weeks
[c] consult

Application examples



Water treatment installation
Automatic multi-step capacitor bank with detuned filter, model **CMSR**, 2250 kvar at 6,6 kV, 50 Hz, 5x650 kvar composition, tuned to 189 Hz (p:7%), outdoor installation and **IP**44 protection degree. Details of the step with fuse protection, vacuum contactor, filtering reactor and three-phase capacitor.



Paper industry
Automatic multi-step capacitor bank with detuned filter, model **CMSR**, 6750 kvar at 22 kV, 50 Hz, 750+4x1500 kvar composition, tuned to 189 Hz (p:7%), outdoor installation and **IP**54 protection degree. Voltage presence indicator, ON/OFF step, manual or automatic step selection, reactive energy regulator with three-phase measurement and overcurrent, short-circuit and step offset protection relays.



Road infrastructures
Automatic multi-step capacitor banks with detuned filter, model **CMAR**,100 kvar at 3.3 kV, 50 Hz, 1x100 kvar composition, indoor installation and **IP**23 protection degree, tuned to 189 Hz. Details of the structure adapted to the space available in the tunnel and corporate colour requested by the client.

Additional components of MV capacitor banks



Pressure switch
Disconnects the step/capacitor bank with the pressure generated after a serious fault inside a capacitor, in order to prevent greater damage. It enables the power circuit to be disconnected and signals the fault when the pressure reaches the maximum value.



Voltage presence indicator
A unit that lights up permanently when the power circuit is powered to provide greater safety during operations carried out on the unit.



Smoke detector
Smoke detectors are devices that warn about the possibility of internal combustion in the capacitor bank and that send a signal to activate an alarm (in the unit or at the discretion of the user), disconnecting the



Electric circuit with opening delay for doors
For units that are ordered with doors in the power modules, Circutor offers the possibility of including a solenoid electrical interlock system in order to prevent access to the capacitor bank's interior if the necessary time has not elapsed.



SVacuum off-load and/or earthing switch
The cut-off and/or earthing switch enables the unit to be visually disconnected and isolated at the capacitor bank input.



Ventilation
In the case of capacitor banks installed in environmental conditions where natural convention cooling is insufficient, an auxiliary thermostat-controlled forced air system is essential for evacuating the internal heat of the capacitor bank.



Anti-condensation heating resistors
These are used to avoid condensation due to temperature gradients during the day, under saline environmental conditions, high relative humidity and low temperatures. Heating resistors controlled by thermostat and/or hygrometer.

Step dimensions

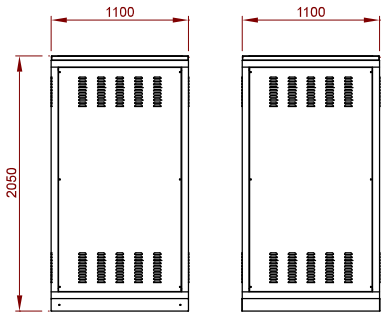
Power	7,2 kV	12 kV	24 kV	36 kV
≤250 kvar	A	A	B	C
21-500 kvar	A	A	B	C
501-750 kvar	A	B	B	C
751-1000 kvar	A, B	B	B	C
1001-1500 kvar	B	B	C	C
1501-2000 kvar	B	B	C	C
201-2500 kvar	B	B	C	C
2501-3000 kvar	B	C	C	C
3001-4000 kvar	C	C	C	C
4001-5000 kvar	C	C	C	
5001-6000 kvar	C	C	C	
6001-7000 kvar	C	C	C	

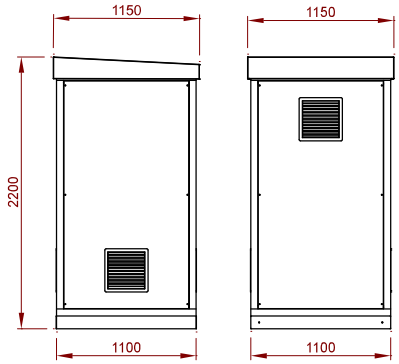
Dimensions are approximate and may differ depending on the specifications for each team

INDOOR

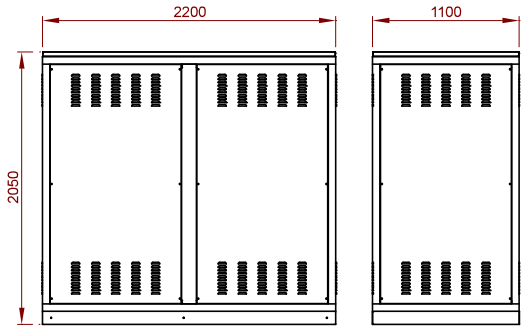
OUTDOOR

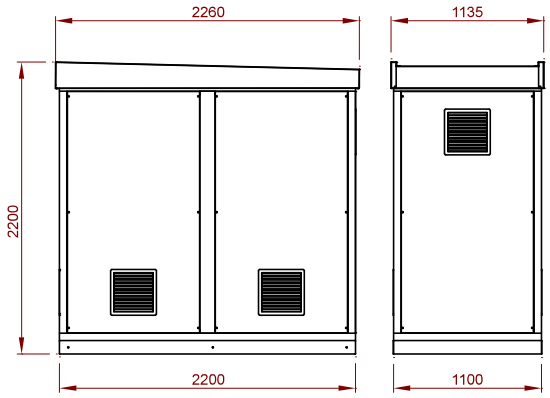
A



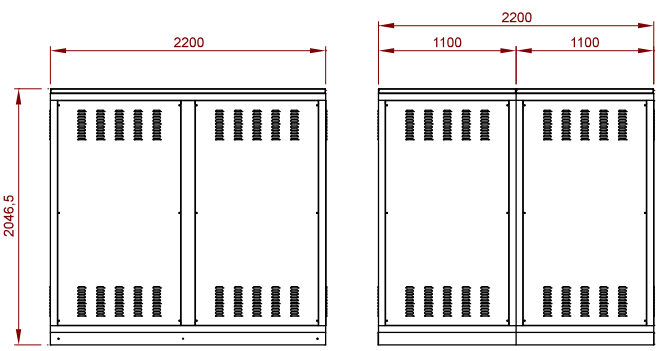


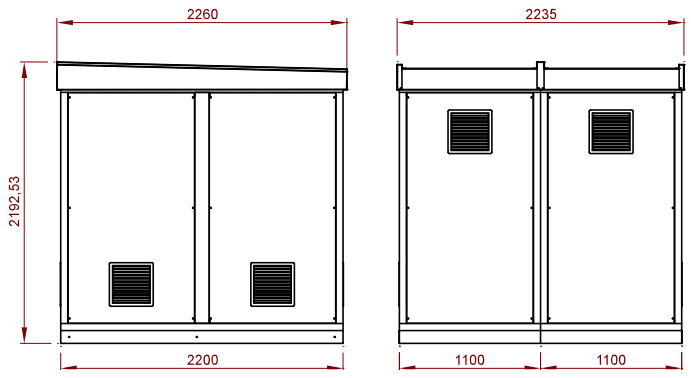
B





C





Delivery time: [*] immediate
[x] working weeks
[c] consult

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