

SECOM



**PRODUCT CATALOG
AC/DC CONVERTER**

SECOM DRIVE AND CONVERTER SOLUTION

REV.	DATA	DESCRIZIONE	CREATO	VERIFICATO	APPROVATO
00	23/03/17	First Issue	S.Q	A.P	A.P
01	24/04/17	Updated	S.Q	A.P	A.P
02	10/05/17	FILTER FSK UPDATED	S.Q	A.P	A.P
03	01/08/17	FILTER FSK UPDATED	S.Q	A.P	A.P
04	19/10/17	Table GR9A and overload updated	S.Q	A.L	A.P
05	05/04/18	GR00 Natural air cooling	S.Q	A.L	A.P

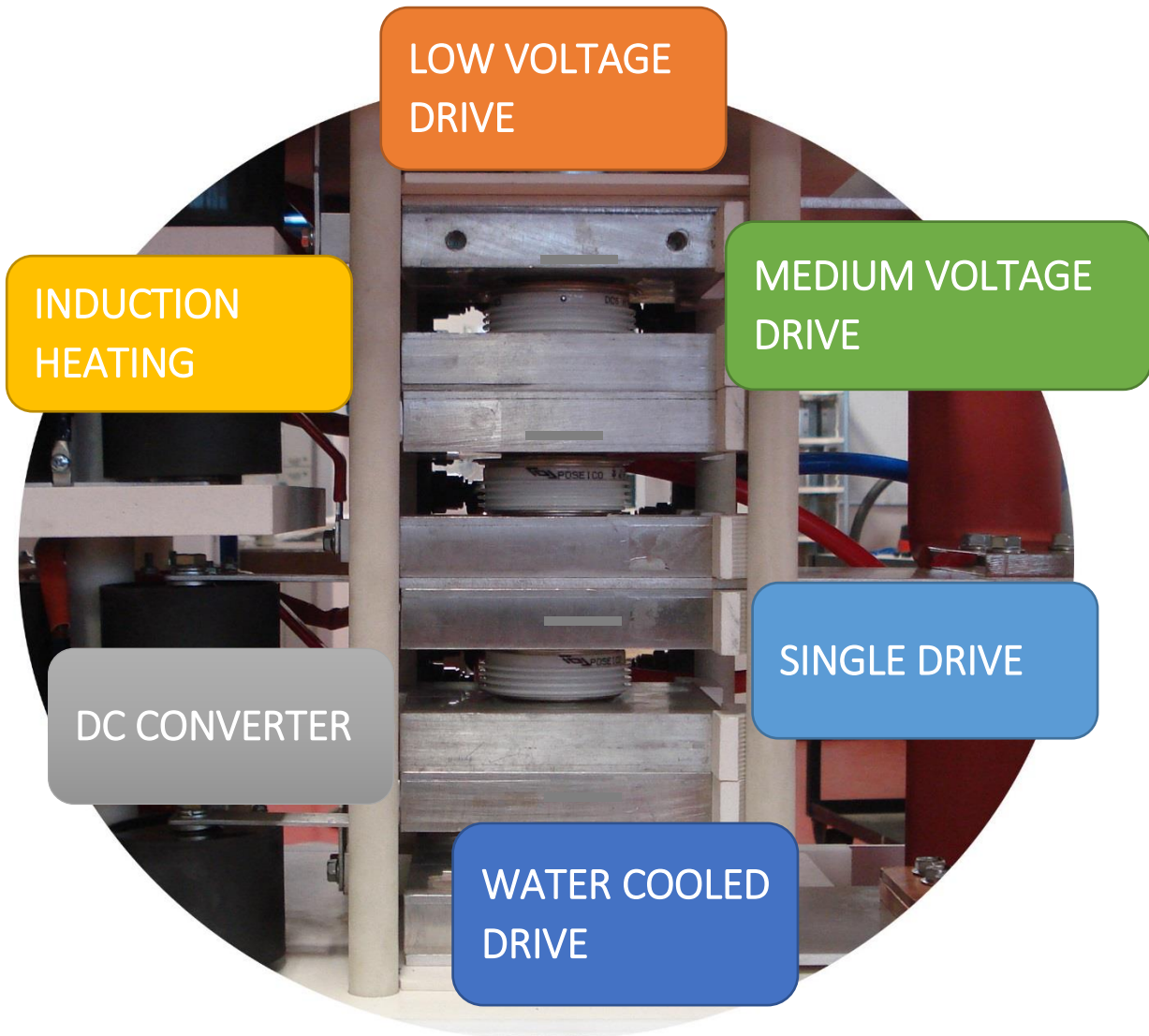
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OVERVIEW SECOM DRIVE LINE

Converter and drive for any kind of application, power and performance.



1. SECOM DRIVE COMPARISON TABLE

GR00	GR93	GR9	GR9A	GR8
				
Converter type: Diode rectifier Thyristor rectifier	Converter type: Diode rectifier Thyristor rectifier Bidirectional conv. Regenerative conv.	Converter type: Diode rectifier Thyristor rectifier Half controlled conv	Converter type: Diode rectifier Thyristor rectifier Half controlled conv	Converter type: Diode rectifier Thyristor rectifier Bidirectional conv. Half controlled conv
Voltage Range: 380÷990V	Voltage Range: 380÷990V	Voltage Range: 380÷850V	Voltage Range: 380÷850V	Voltage Range: 380÷850V
Current Range: 100 ÷ 1450 Adc	Current Range: 750 ÷ 4500 Adc	Current Range: 250 ÷ 1250 Adc	Current Range: 500 ÷ 2000 Adc	Current Range: 1500 ÷ 3000 Adc
Coolyng system: Natural Air	Coolyng system: Forced Air	Coolyng system: Forced Air	Coolyng system: Forced Air	Coolyng system: Forced Air
Dimension: Depend on size	Dimension: Depend on size	Dimension: 243*500*550mm	Dimension: 243*500*725mm	Dimension: 320*650*1400mm
Installation type: Wall Mounting	Installation type: Wall Mounting	Installation type: Wall Mounting	Installation type: Wall Mounting	Installation type: Wheeled module
GR6	GR16	GR9AW	GRW6	GRW3
				
Converter type: Diode rectifier Thyristor rectifier Bidirectional conv. Half controlled conv	Converter type: Diode rectifier Thyristor rectifier Bidirectional conv. Half controlled conv	Converter type: Diode rectifier Thyristor rectifier Half controlled conv	Converter type: Diode rectifier Thyristor rectifier	Converter type: Diode rectifier Thyristor rectifier Bidirectional conv.
Voltage Range: 380÷850V	Voltage Range: 380÷850V	Voltage Range: 380÷850V	Voltage Range: 380÷850V	Voltage Range: 380÷850V
Current Range: 2500 ÷ 5000 Adc	Current Range: 2500 ÷ 5000 Adc	Current Range: 500 ÷ 2000 Adc	Current Range: 1500 ÷ 4500 Adc	Current Range: 1000 ÷ 12000 Adc
Coolyng system: Forced Air	Coolyng system: Forced Air	Coolyng system: Water cooled	Coolyng system: Water cooled	Coolyng system: Water cooled
Dimension: 320*650*1650mm	Dimension: 320*650*1650mm	Dimension: 243*500*725mm	Dimension: 375*487*845mm	Dimension: Depend on size
Installation type: Wheeled module	Installation type: Wheeled module	Installation type: Wall Mounting	Installation type: Base Mounting	Installation type: Base Mounting

2. GR00 AC/DC CONVERTER

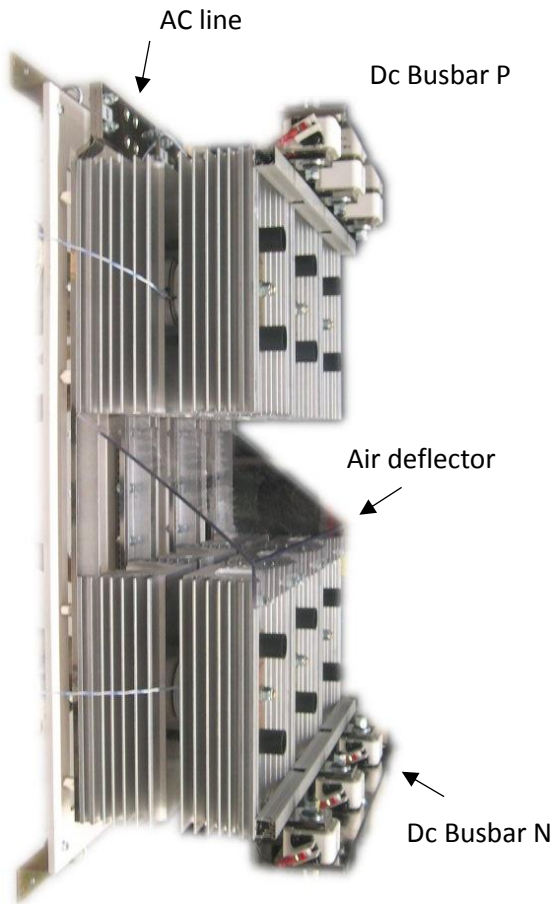
MAIN GENERAL DATA	
Converter Type	-Diode rectifier -Unidirectional DC Converter
Main supply Voltage	380 ÷ 480V, 500 ÷ 650V, 660 ÷ 750V, 850 ÷ 990
Tolerance	± 10% power supply
Nominal current	100 ÷ 1450 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Protection Degree	IP00
Diode/Thyristor Protection	RC Snubber; Fuses
Converter Protection	Overtemperature;
Cooling System	Natural air
Installation Type	Wall Mounting, in cabinet
Dimesions	Different for current size and type
Weight	Different for current size and type

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity (*)	10÷ 90 % (from 0 to 40°C)

2.1 TYPE CODING

GR	00	.	1000	.	RT	16
Model						
00: natural air cooling type						
Rated Current DC						
Type						
RT: Rectifier						
UT: Unidirectional						
Thyristor/Diode Repetitive peak voltage						

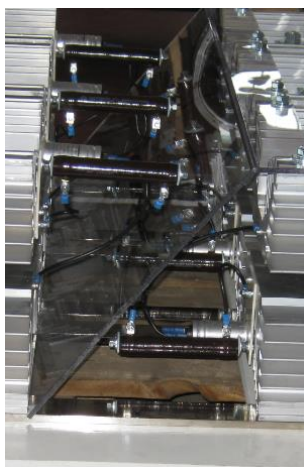
2.2 GROUND DESCRIPTION



Assembling in cabinet



RC Snubber



Fuses



2.3 THREE-PHASE RECTIFIER BRIDGE

CODE	I_{Ndc}	V_{RRM}	DIMENSION (l * h * p)	CIRCUIT
	A	V	mm	
GR00.100.RT22	100	2200	520*435*243	
GR00.200.RT22	200	2200	520*535*243	
GR00.300.RT22	300	2200	520*535*256	
GR00.450.RT22	450	2200	700*535*284	
GR00.600.RT22	600	2200	700*735*284	
GR00.800.RT22	800	2200	925*1015*458	
GR00.1000.RT22	1000	2200	925*1015*458	
GR00.1450.RT22	1450	2200	925*1015*458	
	A	V	mm	
GR00.100.RT28	100	2800	520*435*243	
GR00.200.RT28	200	2800	520*535*243	
GR00.300.RT28	300	2800	520*535*256	
GR00.450.RT28	450	2800	700*535*284	
GR00.600.RT28	600	2800	700*735*284	
GR00.800.RT28	800	2800	925*1015*458	
GR00.1000.RT28	1000	2800	925*1015*458	
GR00.1450.RT28	1450	2800	925*1015*458	

2.4 THREE-PHASE THYRISTOR BRIDGE

CODE	I_{Ndc}	V_{RRM}	DIMENSION (l * h * p)	CIRCUIT
	A	V	mm	
GR00.100.UT22	100	2200	520*435*243	
GR00.200.UT22	200	2200	520*535*243	
GR00.300.UT22	300	2200	520*535*256	
GR00.450.UT22	450	2200	700*535*284	
GR00.600.UT22	600	2200	700*735*284	
GR00.800.UT22	800	2200	925*1015*458	
GR00.1000.UT22	1000	2200	925*1015*458	
GR00.1450.UT22	1450	2200	925*1015*458	
	A	V	mm	
GR00.100.UT28	100	2800	520*435*243	
GR00.200.UT28	200	2800	520*535*243	
GR00.300.UT28	300	2800	520*535*256	
GR00.450.UT28	450	2800	700*535*284	
GR00.600.UT28	600	2800	700*735*284	
GR00.800.UT28	800	2800	925*1015*458	
GR00.1000.UT28	1000	2800	925*1015*458	
GR00.1450.UT28	1450	2800	925*1015*458	

3. GR93 AC/DC CONVERTER

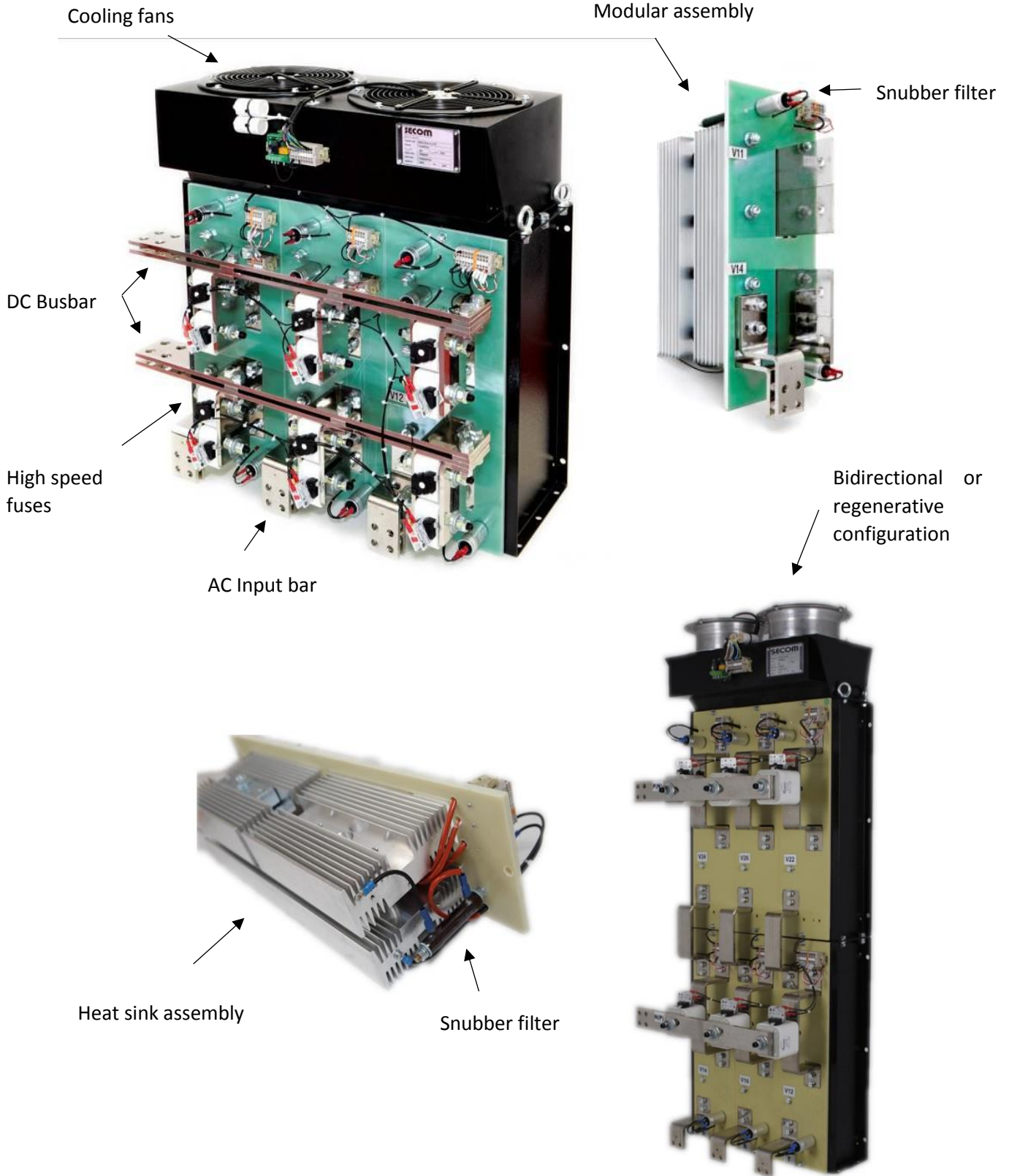
MAIN GENERAL DATA	
Converter Type	-Diode rectifier -Unidirectional DC Converter -Bidirectional DC Converter -Regenerative DC Converter
Main supply Voltage	380 ÷ 480V, 500 ÷ 650V, 660 ÷ 750V, 850 ÷ 990
Tolerance	± 10% power supply
Nominal current	750 ÷ 4500 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Protection Degree	IP00
Diode/Thyristor Protection	RC Snubber; Fuses
Converter Protection	Overtemperature; Ventilation Failure
Auxiliary Voltage	1-pahse 230Vac 50Hz or 3-phase 400 V at 50Hz
Cooling System	Forced air
Installation Type	Open Frame Module
Dimesions	Different for current size and type
Weight	Different for current size and type

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity (*)	10÷ 90 % (from 0 to 40°C)

3.1 TYPE CODING

GR	93	.	1000	.	RT	16
Model						
93: Forced air cooling type						
Rated Current DC						
Type						
RT: Rectifier						
UT: Unidirectional						
BT: Bidirectional						
DT: Regenerative						
Thyristor/Diode Repetitive peak voltage						

3.2 GR93 DESCRIPTION



3.3 THREE-PHASE DIODE RECTIFIER BRIDGE

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480Vac	A	A	A	A	mm	
GR93.1000.RT16	1000	780	1575	700	500*570*275	
GR93.1300.RT16	1300	1015	2050	910	500*570*275	
GR93.1560.RT16	1560	1215	2460	1090	500*570*275	
GR93.1700.RT16	1700	1325	2680	1190	500*760*275	
GR93.2000.RT16	2000	1560	3150	1400	500*760*275	
GR93.2200.RT16	2200	1715	3470	1540	500*760*275	
GR93.2900.RT16	2900	2260	4575	2030	500*760*275	
GR93.3200.RT16	3200	2495	5045	2240	620*764*420	
GR93.3800.RT16	3800	2920	5850	2600	712*775*395	
RATED VOLTAGE 500 ÷ 650Vac	A	A	A	A	mm	
GR93.1300.RT22	1300	1015	2050	910	500*570*275	
GR93.1560.RT22	1560	1215	2460	1090	500*570*275	
GR93.1700.RT22	1700	1325	2680	1190	500*760*275	
GR93.1900.RT22	1900	1480	2995	1330	500*760*275	
GR93.2200.RT22	2200	1715	3470	1540	500*760*275	
GR93.2500.RT22	2500	1950	3940	1750	500*760*275	
GR93.2900.RT22	2900	2260	4575	2030	500*760*275	
GR93.3200.RT22	3200	2495	5045	2240	712*775*395	
GR93.3450.RT22	3450	2690	5440	2415	712*775*395	
GR93.3800.RT22	3800	2920	5850	2600	712*775*395	
RATED VOLTAGE 660 ÷ 750Vac	A	A	A	A	mm	
GR93.1300.RT24	1300	1015	2050	910	500*570*275	
GR93.1400.RT24	1400	1090	2210	980	500*570*275	
GR93.1700.RT24	1700	1325	2680	1190	500*760*275	
GR93.1900.RT24	1900	1480	2995	1330	500*760*275	
GR93.2200.RT24	2200	1715	3470	1540	500*760*275	
GR93.2500.RT24	2500	1950	3940	1750	500*760*275	
GR93.2900.RT24	2900	2260	4575	2030	620*764*420	
GR93.3200.RT24	3200	2495	5045	2240	620*764*420	
GR93.3450.RT24	3450	2690	5440	2415	620*764*420	
GR93.3800.RT24	3800	2920	5850	2600	620*764*420	
(AC/DC) GR93 DIODE RECTIFIER - 850 ÷ 990Vac	Available on request					

3.4 THREE-PHASE THYRISTOR RECTIFIER BRIDGE

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480Vac	A	A	A	A	mm	
GR93.750.UT18	750	585	1180	525	500*570*275	
GR93.800.UT18	800	620	1260	560	500*570*275	
GR93.1000.UT18	1000	780	1575	700	500*570*275	
GR93.1100.UT18	1100	855	1735	770	500*570*275	
GR93.1200.UT18	1200	930	1890	840	500*570*275	
GR93.1450.UT18	1450	1130	2285	1015	500*760*275	
GR93.1560.UT18	1560	1215	2460	1090	500*760*275	
GR93.1700.UT18	1700	1320	2680	1190	500*760*275	
GR93.1900.UT18	1900	1480	2995	1330	500*760*275	
GR93.2200.UT18	2200	1715	3470	1540	620*764*445	
GR93.2500.UT18	2500	1950	3945	1750	620*764*445	
GR93.2900.UT18	2900	2260	4575	2030	712*775*395	
GR93.3000.UT18	3000	2340	4730	2100	784*960*415	
GR93.3300.UT18	3300	2575	5205	2310	784*960*415	
GR93.3500.UT18	3500	2730	5520	2450	784*960*415	
GR93.4000.UT18	4000	3120	6310	2800	988*1100*482	
GR93.4500.UT18	4500	3510	7095	3150	988*1100*482	
RATED VOLTAGE 500 ÷ 650Vac	A	A	A	A	mm	
GR93.750.UT22	750	585	1180	525	500*570*275	
GR93.1100.UT22	1100	855	1735	770	500*570*275	
GR93.1200.UT22	1200	930	1890	840	500*760*275	
GR93.1450.UT22	1450	1130	2285	1015	500*760*275	
GR93.1560.UT22	1560	1215	2460	1090	500*760*275	
GR93.2200.UT22	2200	1715	3470	1540	620*764*445	
GR93.2500.UT22	2500	1950	3945	1750	712*775*395	
GR93.3000.UT22	3000	2340	4730	2100	784*960*415	
GR93.3300.UT22	3300	2575	5205	2310	784*960*415	
GR93.3500.UT22	3500	2730	5520	2450	784*960*415	
GR93.4000.UT22	4000	3120	6310	2800	988*1100*482	
GR93.4500.UT22	4500	3510	7095	3150	988*1100*482	
RATED VOLTAGE 700 ÷ 800Vac	A	A	A	A	mm	
GR93.800.UT26	800	624	1260	560	500*570*275	
GR93.1200.UT26	1200	930	1890	840	500*760*275	
GR93.1450.UT26	1450	1130	2285	1015	500*760*275	
GR93.1560.UT26	1560	1215	2460	1090	500*760*275	
GR93.1850.UT26	1850	1440	2915	1295	620*764*445	
GR93.2200.UT26	2200	1715	3470	1540	620*764*445	
GR93.2500.UT26	2500	1950	3945	1750	712*775*395	
GR93.3000.UT26	3000	2340	4730	2100	784*960*415	
GR93.3300.UT26	3300	2575	5205	2310	784*960*415	
GR93.3500.UT26	3500	2730	5520	2450	784*960*415	
GR93.4000.UT26	4000	3120	6310	2800	988*1100*482	
GR93.4500.UT26	4500	3510	7095	3150	988*1100*482	
GR93 UNIDIRECTIONAL CONVERTER 850 ÷ 990Vac					Available on request	

3.5 THREE-PHASE BIDIRECTIONAL RECTIFIER BRIDGE

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT	
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm		
GR93.750.BT18	750	585	1180	525	500*760*275		
GR93.800.BT18	800	624	1260	560	500*760*275		
GR93.1000.BT18	1000	780	1575	700	500*760*275		
GR93.1200.BT18	1200	930	1890	840	500*760*275		
GR93.1450.BT18	1450	1130	2285	1015	500*1310*375		
GR93.1560.BT18	1560	1215	2460	1090	500*1310*375		
GR93.1700.BT18	1700	1320	2680	1190	500*1310*375		
GR93.1900.BT18	1900	1480	2995	1330	500*1310*375		
GR93.2000.BT18	2000	1560	3155	1400	620*1314*495		
GR93.2200.BT18	2200	1715	3470	1540	620*1314*495		
GR93.2500.BT18	2500	1950	3945	1750	620*1314*495		
GR93.2900.BT18	2900	2260	4575	2030	712*1335*495		
GR93.3000.BT18	3000	2340	4730	2100	784*1640*460		
GR93.3300.BT18	3300	2575	5205	2310	784*1640*460		
GR93.3500.BT18	3500	2730	5520	2450	784*1640*460		
GR93.4000.BT18	4000	3120	6310	2800	988*1920*543		
GR93.4500.BT.18	4500	3510	7095	3150	988*1920*543		
RATED VOLTAGE 500 ÷ 650V	A	A	A	A	mm		
GR93.800.BT22	800	624	1260	560	500*760*275		
GR93.1100.BT22	1100	855	1735	770	500*760*275		
GR93.1200.BT22	1200	930	1890	840	500*760*275		
GR93.1450.BT22	1450	1130	2285	1015	500*1310*375		
GR93.1560.BT22	1560	1215	2460	1090	500*1310*375		
GR93.1600.BT22	1600	1245	2520	1120	620*1314*495		
GR93.1850.BT22	1850	1440	2915	1295	620*1314*495		
GR93.2000.BT22	2000	1560	3155	1400	620*1314*495		
GR93.2250.BT22	2250	1755	3550	1575	620*1314*495		
GR93.2500.BT22	2500	1950	3945	1750	712*1335*495		
GR93.2900.BT22	2900	2260	4575	2030	712*1335*495		
GR93.3000.BT22	3000	2340	4730	2100	784*1640*460		
GR93.3300.BT22	3300	2575	5205	2310	784*1640*460		
GR93.3500.BT22	3500	2730	5520	2450	784*1640*460		
GR93.4000.BT22	4000	3120	6310	2800	988*1920*543		
GR93.4500.BT.22	4500	3510	7095	3150	988*1920*543		
RATED VOLTAGE 700 ÷ 850V	A	A	A	A	mm		
GR93.1200.BT.28	1200	930	1890	840	500*760*275		
GR93.1560.BT.28	1560	1215	2460	1090	500*1310*375		
GR93.2000.BT.28	2000	1560	3155	1400	620*1314*495		
GR93.2500.BT.28	2500	1950	3945	1750	712*1335*495		
GR93.3000.BT.28	3000	2340	4730	2100	784*1640*460		
GR93.3300.BT.28	3300	2575	5205	2310	784*1640*460		
GR93.4000.BT.28	4000	3120	6310	2800	988*1920*543		
GR93.4500.BT.28	4500	3510	7095	3150	988*1920*543		

3.6 THREE-PHASE REGENERATIVE RECTIFIER BRIDGE

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR93.750.DT18	750	585	1180	525	500*1310*275	
GR93.800.DT18	800	624	1260	560	500*1310*275	
GR93.1000.DT18	1000	780	1575	700	500*1310*275	
GR93.1200.DT18	1200	930	1890	840	500*1310*275	
GR93.1450.DT18	1450	1130	2285	1015	500*1310*275	
GR93.1560.DT18	1560	1215	2460	1090	500*1310*275	
GR93.1600.DT18	1600	1245	2520	1120	770*1314*445	
GR93.1850.DT18	1850	1440	2915	1295	770*1314*445	
GR93.2000.DT18	2000	1560	3155	1400	770*1314*445	
GR93.2250.DT18	2250	1755	3550	1575	770*1314*445	
GR93.2500.DT18	2500	1950	3945	1750	770*1314*445	
GR93.2900.DT18	2900	2260	4575	2030	900*1335*395	
GR93.3000.DT18	3000	2340	4730	2100	997*1640*415	
GR93.3300.DT18	3300	2575	5205	2310	997*1640*415	
GR93.3500.DT18	3500	2730	5520	2450	997*1640*415	
GR93.4000.DT18	4000	3120	6310	2800	1200*1920*494	
GR93.4500.DT18	4500	3510	7095	3150	1200*1920*494	
RATED VOLTAGE 500 ÷ 650V	A	A	A	A	mm	
GR93.800.DT22	800	624	1260	560	500*1310*275	
GR93.1050.DT22	1050	820	1655	735	500*1310*275	
GR93.1200.DT22	1200	930	1890	840	500*1310*275	
GR93.1450.DT22	1450	1130	2285	1015	500*1310*275	
GR93.1560.DT22	1560	1215	2460	1090	500*1310*275	
GR93.1600.DT22	1600	1245	2520	1120	770*1314*445	
GR93.1850.DT22	1850	1440	2915	1295	770*1314*445	
GR93.2000.DT22	2000	1560	3155	1400	770*1314*445	
GR93.2250.DT22	2250	1755	3550	1575	770*1314*445	
GR93.2500.DT22	2500	1950	3945	1750	900*1335*395	
GR93.3000.DT22	3000	2340	4730	2100	997*1640*415	
GR93.3300.DT22	3300	2575	5205	2310	997*1640*415	
GR93.3500.DT22	3500	2730	5520	2450	997*1640*415	
GR93.4000.DT22	4000	3120	6310	2800	1200*1920*494	
GR93.4500.DT22	4500	3510	7095	3150	1200*1920*494	
RATED VOLTAGE 700 ÷ 850V	A	A	A	A	mm	
GR93.1050.DT28	1050	820	1655	735	500*1310*275	
GR93.1200.DT28	1200	930	1890	840	500*1310*275	
GR93.1560.DT28	1560	1215	2460	1090	500*1310*275	
GR93.1850.DT28	1850	1440	2915	1295	770*1314*445	
GR93.2000.DT28	2000	1560	3155	1400	770*1314*445	
GR93.2500.DT28	2500	1950	3945	1750	900*1335*395	
GR93.3000.DT28	3000	2340	4730	2100	997*1640*415	
GR93.3300.DT28	3300	2575	5205	2310	997*1640*415	
GR93.4000.DT28	4000	3120	6310	2800	1200*1920*494	
GR93.4500.DT28	4500	3510	7095	3150	1200*1920*494	

4. GR8 CONVERTER

MAIN GENERAL DATA	
Converter Type	-Diode rectifier -Unidirectional DC Converter -Bidirectional DC Converter -Regenerative DC Converter
Main supply Voltage	380 ÷ 480 V, 500 ÷ 850 V
Tolerance	± 10% power supply
Nominal current	1000 ÷ 3500 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Protection Degree	IP00 / IP20
Diode/Thyristor Protection	RC Snubber; Fuses
Converter Protection	Overtemperature; Ventilation Failure
Auxiliary Voltage	3-phase 400 V at 50Hz
Cooling System	Forced air
Installation Type	Removable by wheels
Dimesions	320 x 650 x 1455 mm (W x D x H)
Weight	300 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity (*)	10÷ 90 % (from 0 to 40°C)

4.1 TYPE CODING

GR	8	.	1000	.	RT	16
Model						
8: Withdrawable module						
Rated Current DC						
Type						
RT: Rectifier						
ST: Half controlled						
UT: Unidirectional						
BT: Bidirectional						
DT: Regenerative						
Thyristor/Diode Repetitive peak voltage						

4.2 GR8 DESCRIPTION

Withdrawable Power Module



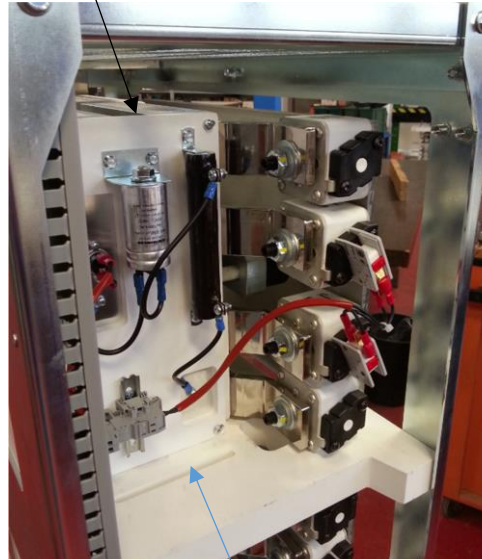
DC Busbar

AC line bar

Wheels

Snubber filter

High speed



Removable module

Cooling fan



4.3 DIODE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR8.1000.RT21	1000	780	1575	700	320*1400*650	
GR8.1500.RT21	1500	1170	2250	1000	320*1400*650	
GR8.2000.RT21	2000	1560	3150	1400	320*1400*650	
GR8.2500.RT21	2500	1950	3825	1700	320*1400*650	
GR8.3000.RT21	3000	2340	4725	2100	320*1400*650	
GR8.3500.RT21	3500	2730	5510	2450	320*1400*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR8.1000.RT25	1000	780	1575	700	320*1400*650	
GR8.1500.RT25	1500	1170	2250	1000	320*1400*650	
GR8.2000.RT25	2000	1560	3150	1400	320*1400*650	
GR8.2500.RT25	2500	1950	3825	1700	320*1400*650	
GR8.3000.RT25	3000	2340	4725	2100	320*1400*650	
GR8.3300.RT25	3300	2575	5195	2310	320*1400*650	

4.4 THYRISTOR UNIDIRECTIONAL CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR8.1000.UT18	1000	780	1575	700	320*1400*650	
GR8.1500.UT18	1500	1170	2250	1000	320*1400*650	
GR8.2000.UT22	2000	1560	3150	1400	320*1400*650	
GR8.2500.UT18	2500	1950	3825	1700	320*1400*650	
GR8.2750.UT18	2750	2145	4200	1870	320*1400*650	
GR8.3000.UT22	3000	2340	4725	2100	320*1400*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR8.1000.UT26	1000	780	1575	700	320*1400*650	
GR8.1500.UT26	1500	1170	2250	1000	320*1400*650	
GR8.2000.UT26	2000	1560	3150	1400	320*1400*650	
GR8.2500.UT28	2500	1950	3825	1700	320*1400*650	
GR8.3000.UT28	3000	2340	4725	2100	320*1400*650	

4.5 BIDIRECTIONAL CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR8.1000.BT18	1000	780	1575	700	320*1400*650	
GR8.1500.BT18	1500	1170	2250	1000	320*1400*650	
GR8.2000.BT22	2000	1560	3150	1400	320*1400*650	
GR8.2500.BT18	2500	1950	3825	1700	320*1400*650	
GR8.3000.BT18	3000	2340	4725	2100	320*1400*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR8.1000.BT26	1000	780	1575	700	320*1400*650	
GR8.1500.BT26	1500	1170	2250	1000	320*1400*650	
GR8.2000.BT26	2000	1560	3150	1400	320*1400*650	
GR8.2500.BT28	2500	1950	3825	1700	320*1400*650	
GR8.3000.BT28	3000	2340	4725	2100	320*1400*650	

4.6 REGENERATIVE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR8.1000.DT18	1000	780	1575	700	320*1400*650	
GR8.1500.DT18	1500	1170	2250	1000	320*1400*650	
GR8.2000.DT22	2000	1560	3150	1400	320*1400*650	
GR8.2500.DT18	2500	1950	3825	1700	320*1400*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR8.1000.DT26	1000	780	1575	700	320*1400*650	
GR8.1500.DT26	1500	1170	2250	1000	320*1400*650	
GR8.2000.DT26	2000	1560	3150	1400	320*1400*650	
GR8.2500.DT28	2500	1950	3825	1700	320*1400*650	

5. GR6 CONVERTER

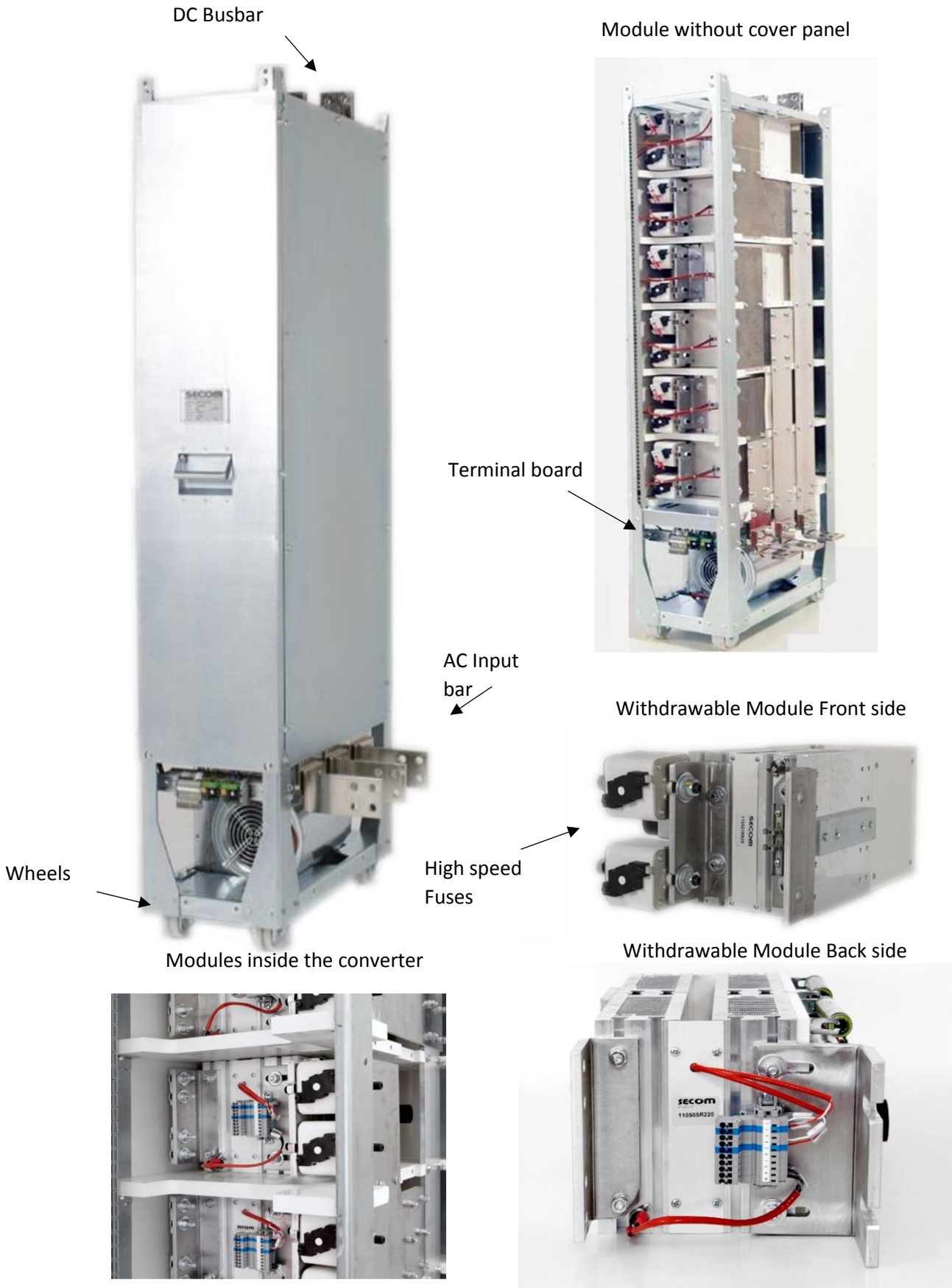
MAIN GENERAL DATA	
Converter Type	-Diode rectifier -Unidirectional DC Converter -Bidirectional DC Converter -Regenerative DC Converter
Main supply Voltage	380 ÷ 480 V, 500 ÷ 850 V
Tolerance	± 10% power supply
Nominal current	900 ÷ 6000 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Protection Degree	IP00 / IP20
Diode/Thyristor Protection	RC Snubber; Fuses
Converter Protection	Overtemperature; Ventilation Failure
Auxiliary Voltage	3-phase 400 V at 50Hz
Cooling System	Forced air
Installation Type	Removable by wheels
Dimesions	320 x 650 x 1650 mm (W x D x H) 390 x 650 x 1650 mm (W x D x H)
Weight	150 ÷ 370 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity (*)	10÷ 90 % (from 0 to 40°C)

5.1 TYPE CODING

GR	6	.	1000	.	RT	16
Model						
8: Withdrawable module						
Rated Current DC						
Type						
RT: Rectifier						
ST: Half controlled						
UT: Unidirectional						
BT: Bidirectional						
DT: Regenerative						
Thyristor/Diode Repetitive peak voltage						

5.2 GR6 DESCRIPTION



5.3 DIODE CONVERTER

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR6.1000.RT21	1000	780	1575	700	322*1770*650	
GR6.1500.RT21	1500	1170	2250	1000	322*1770*650	
GR6.2000.RT21	2000	1560	3150	1400	322*1770*650	
GR6.2500.RT21	2500	1950	3825	1700	322*1770*650	
GR6.3000.RT21	3000	2150	4275	1900	322*1770*650	
GR6.3500.RT21	3500	2730	5400	2100	322*1770*650	
GR6.4000.RT21	4000	3120	6300	2300	322*1770*650	
GR6.4500.RT21	4500	3510	7050	2600	322*1770*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR6.1000.RT25	1000	780	1575	700	322*1770*650	
GR6.1500.RT25	1500	1170	2250	1000	322*1770*650	
GR6.2000.RT25	2000	1560	3150	1400	322*1770*650	
GR6.2500.RT25	2500	1950	3825	1700	322*1770*650	
GR6.3000.RT25	3000	2150	4275	1900	322*1770*650	
GR6.3500.RT25	3500	2730	5400	2100	322*1770*650	
GR6.4000.RT25	4000	3120	6300	2300	322*1770*650	
GR6.4500.RT25	4500	3510	7050	2600	322*1770*650	

5.4 THREE-PHASE THYRISTOR RECTIFIER BRIDGE

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 10s	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR6.1000.UT18	1000	780	1575	700	322*1770*650	
GR6.1500.UT18	1500	1170	2250	1000	322*1770*650	
GR6.2000.UT22	2000	1560	3150	1400	322*1770*650	
GR6.2500.UT18	2500	1950	3825	1700	322*1770*650	
GR6.2750.UT18	2750	2150	4275	1900	322*1770*650	
GR6.3000.UT18	3000	2340	4725	2100	322*1770*650	
GR6.3500.UT22	3300	2730	5510	2450	322*1770*650	
GR6.3750.UT18	3750	2920	5850	2600	322*1770*650	
GR6.4000.UT18	4000	3120	6300	2800	322*1770*650	
GR6.5000.UT22	5000	3900	7875	3500	322*1770*650	
GR6.6000.UT18	6000	4680	9450	4200	322*1770*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR6.1000.UT26	1000	780	1575	700	322*1770*650	
GR6.1500.UT26	1500	1170	2250	1000	322*1770*650	
GR6.1750.UT26	1750	1365	2755	1225	322*1770*650	
GR6.2250.UT28	2250	1755	3540	1575	322*1770*650	
GR6.2500.UT28	2500	1950	3825	1700	322*1770*650	
GR6.3000.UT28	3000	2340	4725	2100	322*1770*650	
GR6.3500.UT28	3500	2730	5510	2450	322*1770*650	
GR6.4000.UT28	4000	3120	6300	2800	322*1770*650	
GR6.4400.UT28	4400	3430	6930	3080	322*1770*650	

5.5 BIDIRECTIONAL CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR6.900.BT20	900	702	1415	630	390*1770*650	
GR6.1000.BT18	1000	780	1575	700	390*1770*650	
GR6.1500.BT18	1500	1170	2250	1000	390*1770*650	
GR6.2000.BT22	2000	1560	3150	1400	390*1770*650	
GR6.2500.BT18	2500	1950	3825	1700	390*1770*650	
GR6.2750.BT18	2750	2150	4275	1900	390*1770*650	
GR6.3000.BT18	3000	2340	4725	2100	390*1770*650	
GR6.3500.BT22	3300	2730	5510	2450	390*1770*650	
GR6.3750.BT22	3750	2920	5850	2600	390*1770*650	
GR6.4000.BT18	4000	3120	6300	2800	390*1770*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR6.0900.BT26	900	702	1415	630	390*1770*650	
GR6.1500.BT26	1500	1170	2250	1000	390*1770*650	
GR6.1750.BT26	1750	1365	2755	1225	390*1770*650	
GR6.2250.BT28	2250	1755	3540	1575	390*1770*650	
GR6.2500.BT28	2500	1950	3825	1700	390*1770*650	
GR6.3000.BT28	3000	2340	4725	2100	390*1770*650	
GR6.3500.BT28	3500	2730	5510	2450	390*1770*650	
GR6.4000.BT28	4000	3120	6300	2800	390*1770*650	
GR6.4400.BT28	4400	3430	6930	3080	390*1770*650	

5.6 REGENERATIVE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR6.1000.DT18	1000	780	1575	700	390*1770*650	
GR6.1500.DT18	1500	1170	2250	1000	390*1770*650	
GR6.2000.DT22	2000	1560	3150	1400	390*1770*650	
GR6.2500.DT18	2500	1950	3825	1700	390*1770*650	
GR6.2750.DT18	2750	2150	4275	1900	390*1770*650	
GR6.3000.DT18	3000	2340	4725	2100	390*1770*650	
GR6.3300.DT22	3300	2575	5195	2310	390*1770*650	
GR6.3750.DT22	3750	2920	5850	2600	390*1770*650	
GR6.4000.DT18	4000	3120	6300	2800	390*1770*650	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR6.900.DT26	900	702	1415	630	390*1770*650	
GR6.1500.DT26	1500	1170	2250	1000	390*1770*650	
GR6.1750.DT26	1750	1365	2755	1225	390*1770*650	
GR6.2250.DT28	2250	1755	3540	1575	390*1770*650	
GR6.2500.DT28	2500	1950	3825	1700	390*1770*650	
GR6.3000.DT28	3000	2340	4725	2100	390*1770*650	
GR6.3500.DT28	3500	2730	5510	2450	390*1770*650	
GR6.4000.DT28	4000	3120	6300	2800	390*1770*650	
GR6.4400.DT28	4400	3430	6930	3080	390*1770*650	

6. GR9 CONVERTER

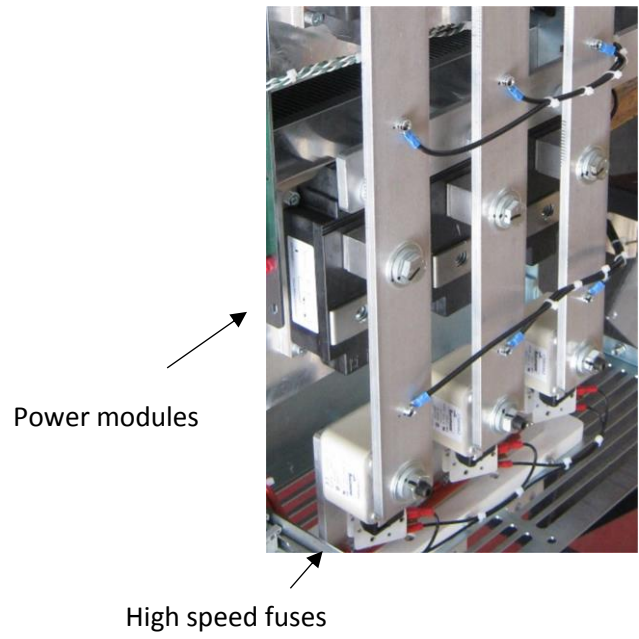
MAIN GENERAL DATA	
Converter Type	-Diode rectifier -half-controlled DC Converter -Unidirectional DC Converter
Semiconductor Type	Diode / Thyristor Module
Main supply Voltage	380 ÷ 480 V, 500 ÷ 850 V
Tolerance	± 10% power supply
Nominal current	500 ÷ 1250 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Diode/Thyristor Protection	RC Snubber; Line Fuses
Converter Protection	Overtemperature; Ventilation Failure
Auxiliary Voltage	3-phase 400 V at 50Hz
Cooling System	Forced air / Water cooled (GR9W)
Installation Type	Fixed
Dimesions	320 x 650 x 1455 mm (W x D x H)
Weight	60 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity	10÷ 90 % (from 0 to 40°C)

6.1 TYPE CODING

GR	9	.	1000	.	RT	16	.E	_	00
<p>Thyristor/Diode Type 9: module type air cooling 9W: module type water cooled</p> <p>Rated Current Rated Current DC</p> <p>Converter Type RT: Rectifier UT: Unidirectional ST: Half controlled</p> <p>Thyristor Repetitive peak voltage</p> <p>Optional control card</p> <p>Optional module case 00: without case 20: with case</p>									

6.2 GR9 DESCRIPTION



6.3 DIODE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR9.200.RT16	200	195	395	140	243*550*500	
GR9.350.RT16	350	340	680	245	243*550*500	
GR9.500.RT16	500	390	785	350	243*550*500	
GR9.750.RT16	750	585	1180	525	243*550*500	
GR9.1000.RT16	1000	780	1575	700	243*725*500	
GR9.1250.RT16	1250	975	1965	875	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR9.200.RT28	200	195	395	140	243*550*500	
GR9.350.RT28	350	340	680	245	243*550*500	
GR9.500.RT28	500	390	785	350	243*550*500	
GR9.750.RT28	750	585	1180	525	243*550*500	
GR9.1000.RT28	1000	780	1575	700	243*725*500	
GR9.1250.RT28	1250	975	1965	875	243*725*500	

6.4 3-PHASE HALF-CONTROLLED CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR9.200.ST16	200	195	395	140	243*550*500	
GR9.350.ST16	350	340	680	245	243*550*500	
GR9.500.ST16	500	390	785	350	243*550*500	
GR9.750.ST16	750	585	1180	525	243*550*500	
GR9.1000.ST16	1000	780	1575	700	243*725*500	
GR9.1250.ST16	1250	975	1965	875	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR9.200.ST28	200	195	395	140	243*550*500	
GR9.350.ST28	350	340	680	245	243*550*500	
GR9.500.ST28	500	390	785	350	243*550*500	
GR9.750.ST28	750	585	1180	525	243*550*500	
GR9.1000.ST28	1000	780	1575	700	243*725*500	
GR9.1250.ST28	1250	975	1965	875	243*725*500	

6.5 3-PHASE FULL-CONTROLLED CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GR9.500.UT16	500	390	785	350	243*550*500	
GR9.750.UT16	750	585	1180	525	243*550*500	
GR9.1000.UT16	1000	780	1575	700	243*725*500	
GR9.1250.UT16	1250	975	1965	875	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GR9.500.UT28	500	390	785	350	243*550*500	
GR9.750.UT28	750	585	1180	525	243*550*500	
GR9.1000.UT28	1000	780	1575	700	243*725*500	
GR9.1250.UT28	1250	975	1965	875	243*725*500	

7. GR9A CONVERTER

MAIN GENERAL DATA	
Converter Type	-Diode rectifier -half-controlled DC Converter -Unidirectional DC Converter
Semiconductor Type	Diode / Thyristor Capsule type
Main supply Voltage	380 ÷ 480 V, 500 ÷ 850 V
Tolerance	± 10% power supply
Nominal current	1000 ÷ 2000 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Diode/Thyristor Protection	RC Snubber; Line Fuses
Converter Protection	Overtemperature; Ventilation Failure
Auxiliary Voltage	3-phase 400 V at 50Hz
Cooling System	Forced air
Installation Type	Fixed
Dimesions	243x725x500mm (W x D x H)
Weight	60 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity	10÷ 90 % (from 0 to 40°C)

7.1 TYPE CODING

GR	9	.	1000	.	RT	16	.E	_	00
<p>Thyristor/Diode Type 9A: disk type air cooling 9AW: disk type water cooled</p> <p>Rated Current Rated Current DC</p> <p>Converter Type RT: Rectifier UT: Unidirectional ST: Half controlled</p> <p>Thyristor Repetitive peak voltage</p> <p>Optional control card</p> <p>Optional module case 00: without case 20: with case</p>									

7.2 GR9A DESCRIPTION



High speed Fuses



7.3 DIODE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 60s	I_{Ndc} IEEE444	Losses	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	W	mm	
GR9A.500.RT16	500	410	615	350	900÷1080	243*725*500	
GR9A.750.RT16	750	607	910	525	1400÷1600	243*725*500	
GR9A.1000.RT16	1000	820	1230	700	1900÷2400	243*725*500	
GR9A.1250.RT16	1250	975	1460	850	2700÷3300	243*725*500	
GR9A.1500.RT16	1500	1185	1780	1050	3600÷4300	243*725*500	
GR9A.1750.RT16	1750	1410	2115	1225	4500÷5700	243*725*500	
GR9A.2000.RT16	2000	1580	2370	1400	5400÷6900	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	A	mm	
GR9A.500.RT28	500	410	615	350	1100÷1300	243*725*500	
GR9A.750.RT28	750	607	910	525	1600÷1800	243*725*500	
GR9A.1000.R28	1000	820	1230	700	2100÷2600	243*725*500	
GR9A.1250.RT28	1250	975	1460	850	2900÷3600	243*725*500	
GR9A.1500.RT28	1500	1185	1780	1050	3900÷4600	243*725*500	
GR9A.1750.RT28	1750	1410	2115	1225	4800÷6000	243*725*500	
GR9A.2000.RT28	2000	1580	2370	1400	5700÷7200	243*725*500	

7.4 3-PHASE HALF-CONTROLLED CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 60s	I_{Ndc} IEEE444	Losses	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	W	mm	
GR9A.500.ST16	500	410	615	350	900÷1080	243*725*500	
GR9A.750.ST16	750	607	910	525	1400÷1600	243*725*500	
GR9A.1000.ST16	1000	820	1230	700	1900÷2400	243*725*500	
GR9A.1250.ST16	1250	975	1460	850	2700÷3300	243*725*500	
GR9A.1500.ST16	1500	1185	1780	1050	3600÷4300	243*725*500	
GR9A.1750.ST16	1750	1410	2115	1225	4500÷5700	243*725*500	
GR9A.2000.ST16	2000	1580	2370	1400	5400÷6900	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	A	mm	
GR9A.500.ST28	500	410	615	350	1100÷1300	243*725*500	
GR9A.750.ST28	750	607	910	525	1600÷1800	243*725*500	
GR9A.1000.R28	1000	820	1230	700	2100÷2600	243*725*500	
GR9A.1250.ST28	1250	975	1460	850	2900÷3600	243*725*500	
GR9A.1500.ST28	1500	1185	1780	1050	3900÷4600	243*725*500	
GR9A.1750.ST28	1750	1410	2115	1225	4800÷6000	243*725*500	
GR9A.2000.ST28	2000	1580	2370	1400	5700÷7200	243*725*500	

7.5 3-PHASE FULL-CONTROLLED CONVERTER

CODE	I _{Ndc}	I _{Hdc} 15min	I _{MAXdc} 60s	I _{Ndc} IEEE444	Losses	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	W	mm	
GR9A.500.UT16	500	410	615	350	900÷1080	243*725*500	
GR9A.750.UT16	750	607	910	525	1400÷1600	243*725*500	
GR9A.1000.UT16	1000	820	1230	700	1900÷2400	243*725*500	
GR9A.1250.UT16	1250	975	1460	850	2700÷3300	243*725*500	
GR9A.1500.UT16	1500	1185	1780	1050	3600÷4300	243*725*500	
GR9A.1750.UT16	1750	1410	2115	1225	4500÷5700	243*725*500	
GR9A.2000.UT16	2000	1580	2370	1400	5400÷6900	243*725*500	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	A	mm	
GR9A.500.UT28	500	410	615	350	1100÷1300	243*725*500	
GR9A.750.UT28	750	607	910	525	1600÷1800	243*725*500	
GR9A.1000.ST28	1000	820	1230	700	2100÷2600	243*725*500	
GR9A.1250.UT28	1250	975	1460	850	2900÷3600	243*725*500	
GR9A.1500.UT28	1500	1185	1780	1050	3900÷4600	243*725*500	
GR9A.1750.UT28	1750	1410	2115	1225	4800÷6000	243*725*500	
GR9A.2000.UT28	2000	1580	2370	1400	5700÷7200	243*725*500	

8. GRW6 CONVERTER

MAIN GENERAL DATA	
Converter Type	-Diode rectifier -Unidirectional DC Converter
Semiconductor Type	Diode / Thyristor Capsule type
Main supply Voltage	380 ÷ 440 V, 480 ÷ 690 V
Tolerance	± 10% power supply
Nominal current	1500 ÷ 4500 Adc
Rated Frequency	50 and 60 Hz; ± 2%
Insulation Voltage	2,5 ÷ 4 kV
Protection Degree	IP00
Diode/Thyristor Protection	RC Snubber; Fuses
Converter Protection	Overtemperature thermoswitch;
Auxiliary Voltage	-
Cooling System	Water cooled
Installation Type	Fixed
Dimesions	375x845x487mm (W x D x H)
Weight	105 kg

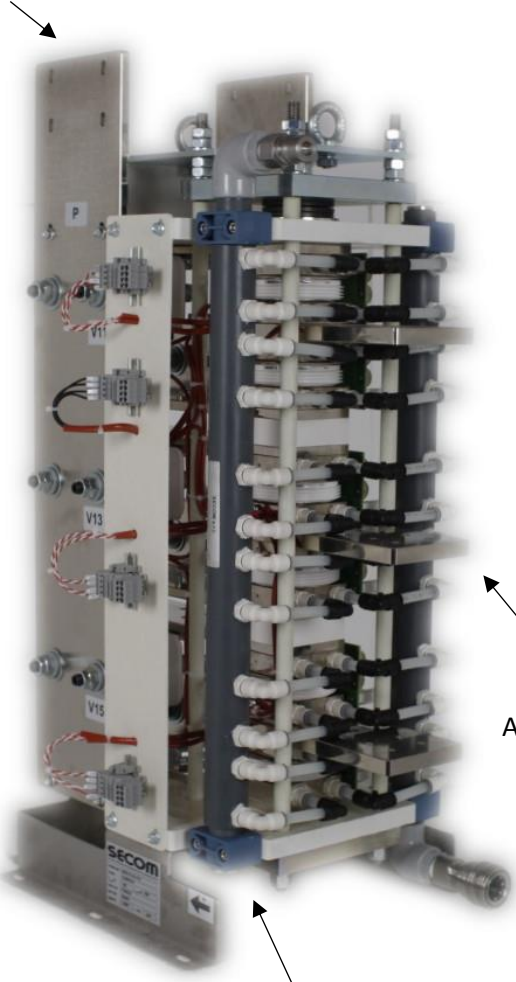
AMBIENT CONDITIONS	
Altitude	2000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +70°C
Relative humidity	10÷ 90 % (from 0 to 40°C)

8.1 TYPE CODING

GRW	6	.	1000	.	RT	16
Model						
8: Withdrawable module						
Rated Current DC						
Type						
RT: Rectifier						
UT: Unidirectional						
Thyristor/Diode Repetitive peak voltage						

8.2 GRW6 DESCRIPTION

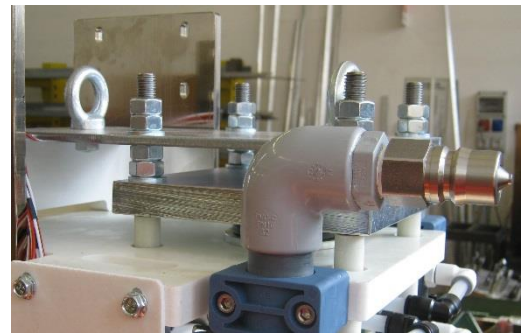
DC Busbar



Ringbolts

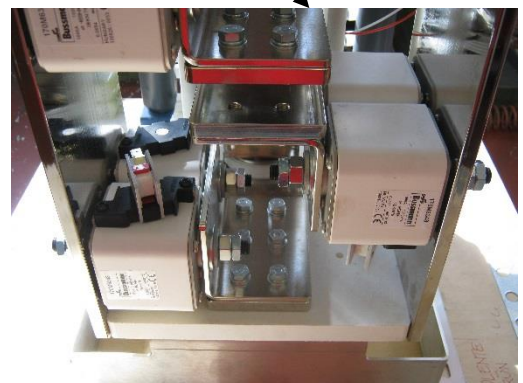


Self sealing fast disconnection valve



AC Input line

High speed



Water cooling pipes

8.3 DIODE CONVERTER

CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GRW6.1500.RT.16	1500	1170	2250	1000	375*845*487	
GRW6.2500.16	2500	1950	3825	1700	375*845*487	
GRW6.3500.RT.16	3500	2730	5510	2450	375*845*487	
GRW6.4500.RT.16	4500	3450	6930	3080	375*845*487	
RATED VOLTAGE 500 ÷ 690V	A	A	A	A	mm	
GRW6.1500.22	1500	1170	2250	1000	375*845*487	
GRW6.2500.RT.22	2500	1950	3825	1700	375*845*487	
GRW6.3500.RT.22	3500	2730	5510	2450	375*845*487	
GRW6.4500.RT.22	4500	3450	6930	3080	375*845*487	

8.4 3-PHASE FULL-CONTROLLED CONVERTER

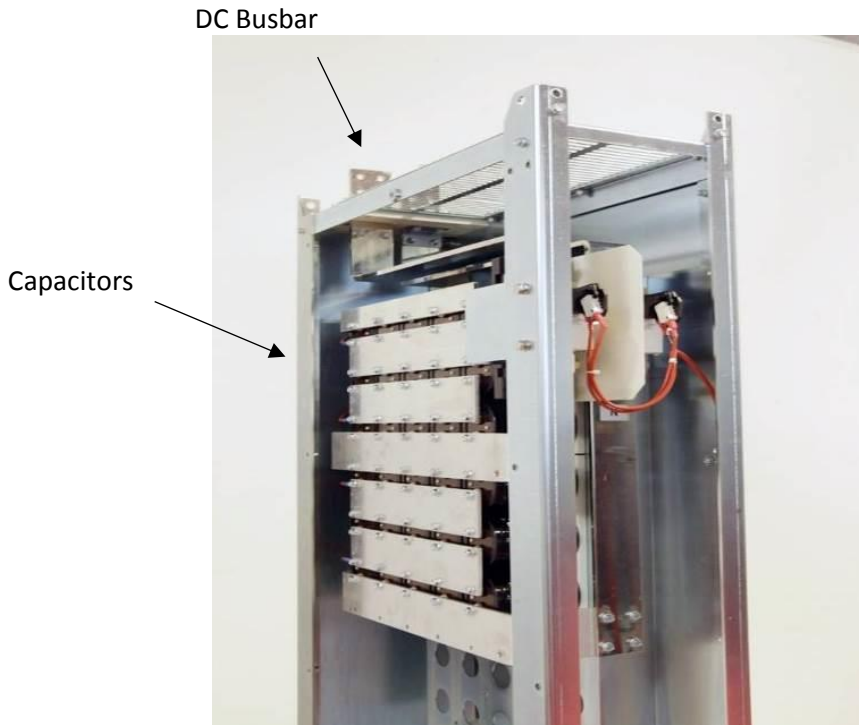
CODE	I_{Ndc}	I_{Hdc} 15min	I_{MAXdc} 10s	I_{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 480V	A	A	A	A	mm	
GRW6.1500.UT.16	1500	1170	2250	1000	375*845*487	
GRW6.2500.UT.16	2500	1950	3825	1700	375*845*487	
GRW6.3500.UT.16	3500	2730	5510	2450	375*845*487	
GRW6.4500.UT.16	4500	3450	6930	3080	375*845*487	
RATED VOLTAGE 500 ÷ 850V	A	A	A	A	mm	
GRW6.1500.UT.22	1500	1170	2250	1000	375*845*487	
GRW6.2500.UT.22	2500	1950	3825	1700	375*845*487	
GRW6.3500.UT.22	3500	2730	5510	2450	375*845*487	
GRW6.4500.UT.22	4500	3450	6930	3080	375*845*487	

9. CAPACITOR BANK GR6-C

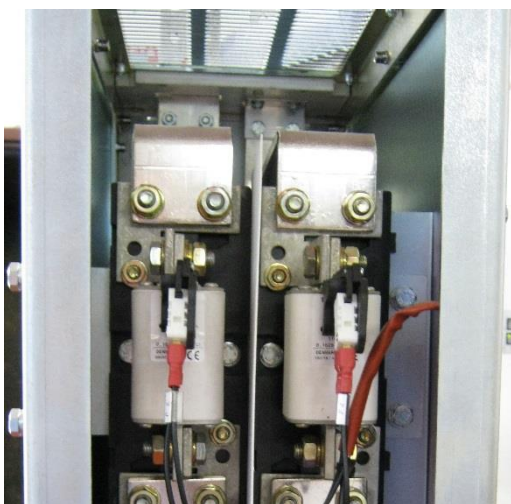
MAIN GENERAL DATA	
Main supply Voltage	400 V, 690 V
Tolerance	± 10% power supply
Capacity	7.830 ÷ 47.000 µF
Rated Frequency	50 and 60 Hz; ± 2%
Protection Degree	IP20
Cooling System	Natural air
Installation Type	Withdrawable
Dimesions	243x1726x650mm (W x D x H)
Weight	85 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity	10÷ 90 % (from 0 to 40°C)

9.1 CAPACITOR BANK GR6-C DESCRIPTION



Precharge system



DC Fuses

9.2 CAPACITOR BANK MODULE

CODE	Capacity	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 440V				
	μF	V	mm	
GR6.C.480.01	23.500	400	243*1726*650	
GR6.C.480.02	35.250	400	243*1726*650	
GR6.C.480.03	47.000	400	243*1726*650	
RATED VOLTAGE 480 ÷ 690V				
	A	A	mm	
GR6.C.690.01	7.830	690	243*1726*650	
GR6.C.690.011	12.500	690	243*1726*650	
GR6.C.690.02	15.650	690	243*1726*650	
GR6.C.690.021	18.800	690	243*1726*650	
GR6.C.690.03	23.500	690	243*1726*650	

9.3 CAPACITOR BANK MODULE WITH PRECHARGE CIRCUIT

CODE	Capacity	I _{Ndc} IEEE444	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 380 ÷ 440V				
	μF	V	mm	
GR6.C.480.01-P1	23.500	400	243*1726*650	
GR6.C.480.01-P3	23.500	400	243*1726*650	
GR6.C.480.02-P1	35.250	400	243*1726*650	
GR6.C.480.02-P3	35.250	400	243*1726*650	
GR6.C.480.03-P1	47.000	400	243*1726*650	
GR6.C.480.03-P3	47.000	400	243*1726*650	
RATED VOLTAGE 480 ÷ 690V				
	A	A	mm	
GR6.C.690.01-P1	7.830	690	243*1726*650	
GR6.C.690.01-P3	7.830	690	243*1726*650	
GR6.C.690.011-P1	12.500	690	243*1726*650	
GR6.C.690.011-P3	12.500	690	243*1726*650	
GR6.C.690.02-P1	15.650	690	243*1726*650	
GR6.C.690.02-P3	15.650	690	243*1726*650	
GR6.C.690.021-P1	18.800	690	243*1726*650	
GR6.C.690.021-P3	18.800	690	243*1726*650	
GR6.C.690.03-P1	23.500	690	243*1726*650	
GR6.C.690.03-P3	23.500	690	243*1726*650	

10. PRECHARGE SYSTEM

MAIN GENERAL DATA	
Main supply Voltage	400 V, 690 V
Tolerance	± 10% power supply
Capacity	20mF ÷ 200mF
Rated Frequency	50 and 60 Hz; ± 2%
Protection Degree	IP20
Cooling System	Natural air
Installation Type	Fixed
Dimesions	260x280x450mm (W x D x H)
Weight	20 kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity	10÷ 90 % (from 0 to 40°C)

10.1 PRECHARGE KIT

CODE	Capacity Min	Capacity Max	Resistor per phase	DIMENSION (l * h * p)	CIRCUIT	
RATED VOLTAGE - COIL 24V						
SD.PC.024-45	20	45	32	260*280*450		
SD.PC.024-85	40	85	16	260*280*450		
SD.PC.024-210	100	210	130	260*280*450		
RATED VOLTAGE - COIL 230V						
SD.PC.230-45	20	45	32	260*280*450		
SD.PC.230-85	40	85	16	260*280*450		
SD.PC.230-210	100	210	130	260*280*450		

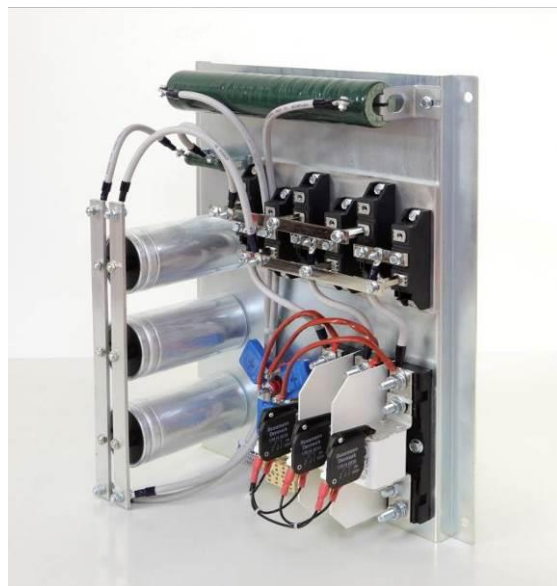
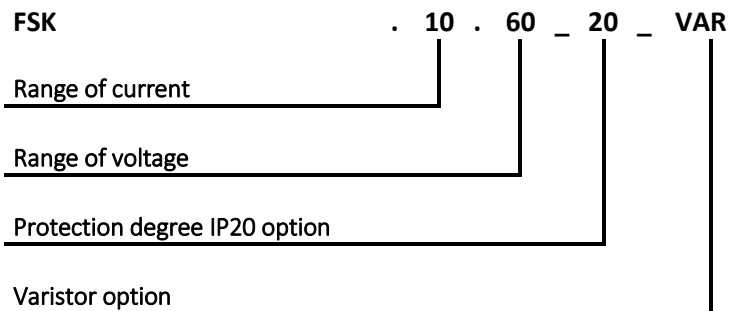
10.2 PRECHARGE KIT WITH TRANSFORMER AND RECTIFIER

CODE	Type	DIMENSION (l * h * p)	CIRCUIT
RATED VOLTAGE 400V			
GR6.PC.400.01-P1 (1ph)	1 phase	575*700*350	
GR6.PC.400.01-P3 (3ph)	3 phase	575*700*350	
RATED VOLTAGE 690V			
GR6.PC.690.01-P1 (1ph)	1 phase	575*700*350	
GR6.PC.690.01-P3 (3ph)	3 phase	575*700*350	

11.OVERVOLTAGE SUPPRESSOR FILTER FSK

MAIN GENERAL DATA	
Main supply Voltage	600V - 700 - 800V- 1000V
Tolerance	± 10% power supply
Rated current of AC/DC converter	Up to 4000A
Rated Frequency	50 and 60 Hz; ± 2%
Protection Degree	IP00 / IP20
Cooling System	Natural air
Installation Type	Fixed

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +55°C
Relative humidity	10÷ 90 % (from 0 to 40°C)



12. FILTER FSK

CODE	I _{dc}	DIMENSION (l * h * p) IP00	DIMENSION (l * h * p) IP20	CIRCUIT
RATED VOLTAGE 380-440V	A	mm		
FSK.10.04	up to 1000	375x440x120	375x440x242	
FSK.20.04	1050 ÷ 2000	375x440x120	375x440x242	
FSK.30.04	2050 ÷ 3000	375x440x120	375x440x242	
FSK.40.04	3050 ÷ 4000	375x440x120	375x440x242	
RATED VOLTAGE 460-525V	A	mm		
FSK.10.05	up to 1000	375x440x163	375x440x242	
FSK.20.05	1050 ÷ 2000	375x440x163	375x440x242	
FSK.30.05	2050 ÷ 3000	375x440x163	375x440x242	
FSK.40.05	3050 ÷ 4000	375x440x163	375x440x242	
RATED VOLTAGE 530-690V	A	mm		
FSK.10.06	up to 1000	375x440x163	375x440x242	
FSK.20.06	1050 ÷ 2000	375x440x163	375x440x242	
FSK.30.06	2050 ÷ 3000	375x440x163	375x440x242	
FSK.40.06	3050 ÷ 4000	375x440x163	375x440x242	
RATED VOLTAGE 700-800V	A	mm		
FSK.10.07	up to 1000	375x440x163	375x440x242	
FSK.20.07	1050 ÷ 2000	375x440x163	375x440x242	
FSK.30.07	2050 ÷ 3000	375x440x163	375x440x242	
FSK.40.07	3050 ÷ 4000	375x440x163	375x440x242	
RATED VOLTAGE 800-900V	A	mm		
FSK.10.08	up to 1000	375x440x163	375x440x242	
FSK.20.08	1050 ÷ 2000	375x440x163	375x440x242	
FSK.30.08	2050 ÷ 3000	375x440x163	375x440x242	
FSK.40.08	3050 ÷ 4000	375x440x163	375x440x242	
RATED VOLTAGE 900-990V	A	mm		
FSK.20.09	up to 2000	550x413x306	550x413x306	
FSK.30.09	2050 ÷ 3000	550x413x306	550x413x306	
FSK.40.09	3050 ÷ 4000	550x413x411	550x413x411	
RATED VOLTAGE 1000-1250V	A	mm		
FSK.20.10	up to 2000	550x413x411	550x413x411	
FSK.30.10	2050 ÷ 3000	550x413x411	550x413x411	
FSK.40.10	3050 ÷ 4000	550x413x516	550x413x516	

On request case IP20 and Varistor

13. BRAKING UNIT CHT

MAIN GENERAL DATA	
Type	Chopper
Main supply Voltage	530 ÷ 930Vcc
Rated Current	150÷1500A
Protection Degree	IP20
Converter Protection	OVERTEMPERATURE;
Auxiliary voltage	230V 50HZ
Cooling System	Forced air
Installation Type	Wall mounting
Dimesions	243*550/725/1398*500 (WxHxD)
Weight	35-80Kg

AMBIENT CONDITIONS	
Altitude	1000 m. a.s.l.
Climate	Temperate
Min/Max operatin temperature	0 ÷ 40°C
Storage Temperature	-40 ÷ +70°C
Relative humidity	10÷ 90 % (from 0 to 40°C)



Braking unit with internal resistor

CODE	ICTH1 _{MAX}	R _{MIN1}	DIMENSION (W * H * D)
RATED VOLTAGE 380-480V	A	Ω	mm
CHT1.250.ST16.R	7.5	90	243*550*500
CHT1.500.ST16.R	8.2	80	243*550*500
CHT1.750.ST16.R	9.5	67.5	243*550*500
CHT1.1000.ST16.R	14.5	45	243*725*500
CHT1.1250.ST16.R	18.5	35	243*725*500
RATED VOLTAGE 500 ÷ 690V	A	Ω	mm
CHT1.250.ST28.R	5.2	160	243*550*500
CHT1.500.ST28.R	6	180	243*550*500
CHT1.750.ST28.R	7.2	150	243*550*500
CHT1.1000.ST28.R	10	110	243*725*500
CHT1.1250.ST28.R	13.7	80	243*725*500

Braking unit with external resistor

CODE	ICTH1 _{MAX}	R _{MIN1}	DIMENSION (W * H * D)
RATED VOLTAGE 380-480V	A	Ω	mm
CHT1.ST16	75	8.6	243*550*500
CHT2.ST16	150	4.3	243*550*500
CHT3.ST16	225	2.9	243*550*500
CHT4.ST16	275	2.3	243*725*500
CHT5.ST16	350	1.9	243*725*500
CHT6.ST16	500	1.3	243*725*500
CHT7.ST16	750	0.85	243*1398*650
CHT8.ST16	1000	0.65	243*1398*650
CHT9.ST16	1500	0.44	243*1398*650
RATED VOLTAGE 500 ÷ 690V	A	Ω	mm
CHT1.75.ST28	75	14	243*550*500
CHT2.150.ST28	150	7	243*550*500
CHT3.225.ST28	225	4.6	243*550*500
CHT4.275.ST28	275	3.8	243*725*500
CHT5.350.ST28	350	3	243*725*500
CHT6.500.ST28	500	2.1	243*725*500
CHT7.750.ST28	750	1.4	243*1398*650
CHT8.1000.ST28	1000	1.05	243*1398*650
CHT9.1500.ST28	1500	0.7	243*1398*650

14. BRAKING RESISTOR

MAIN GENERAL DATA	
Type	Steel-grid fixed resistor unit
Rated Voltage max	On request
Maximum typical power	On request
Resistance value	To be defined based on request
Protection Degree	IP00, IP20 or IP23
Change of res.value cold/warm	10÷15%;
Protection device	Temperature switch or overload relay
Cooling system	Natural air or forced ventilation

AMBIENT CONDITIONS	
Altitude	2000 m. a.s.l.
Climate	Temperate
Min/Max operatingg temperature	-30 ÷ 40°C
Storage Temperature	-40 ÷ +80°C
Relative humidity	-10÷ 90 % (from 0 to 40°C)





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