

Technical Details of Siemens AC/DC EMU Rake

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Technical details

Catenary voltage	25 kV AC 50 Hz and 1.5 kV DC
Maximum speed	100 km/h
Nominal rating (basic unit)	1100 kW
Wheel arrangement	2' 2' + Bo'Bo' + 2' 2'
Starting effort max.	135 kN (basic unit)
Vehicle weight	113.6 t (basic unit) 31.55t – 51.2t – 30.88t
Length (basic unit)	63 metres
Drive	Integrated nose-suspended drive
Brake	Compressed-air brake / electronic brake unit
Stop brake (basic unit)	Spring-loaded brake 4 cylinder
Dynamic brake	Catenary voltage-dependent network and dynamic brake
Electric brake force max. (basic unit)	125 kN
Brake force max. (basic unit)	185 kN

Technical details

Track Gauge	1676 mm
Coach length over body	20726 mm(21521 mm over couplers)
Max. Width over body	3660 mm
Height of centre line of the Coupler	1035 mm from rail level under tare condition
Distance between buffer centers	1956 mm
Acceleration (average from 0 to 40 km/h)	0.54m/s/s
Deceleration	
Average from booked speed to 50 Kmph	0.76m/s/s
Average from 50kmph to stop	0.84m/s/s
Max Rolling stock operational Speed	100Kmph
Max. Rolling stock test speed	110 Kmph

SN	Item	Type	Rating	Make	Weight (kgs)	Qty
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1	Pantograph (AC-DC)	AM 18-B2	1.5 KV TO 25 KV	STONE INDIA (PROTO TYPE)	290	1
			1100A / 1.5 KV			
			400A / 25 KV			
		WBL 23.03	1.5 KV TO 25 KV	SCHUNK	150	1
			1100A / 1.5 KV			
			60A / 25 KV			
2	AC Surge Arrestor (Main)	POLIM S 34N	34 KV	ABB	12.6	1

3	AC-DC Supply Change Over Switch	RS 25.10	25 KVAC / 1500 V DC	SECHERON	57	1
4	AC Surge arrestor	POLIM S 32N	32 KV	ABB	12.5	1
5	DC Surge arrestor	POLIM H 2.0 SD	2 KV, 1 KA	ABB	4.5	1
6	VCB	BVAC 25.10	25 KV, 50 Hz 1=1KA	UTO Meters LT	155	1
7	Current Transformer (Input / Roof)	TYPE- 1910	75/1A, 3VA	RITZ	7	1
8	Line Voltage Transformer	GSEFBG25 .F GR.2	25 KV / 150V - 5 VA	RITZ	95	1
			1.5 KV / 150V - 5 VA			

9	Battery set	Low Maintenance	110 V / 90 AH	JUMBO	50 kg	1 set
10	Main Compressor	VV 120	6.7 KW	KBIL	158	1
11	Air handling unit	-	7300 m³ / hr	SIDWAL	100 kg	1
12	Auxiliary Converter	560333 19/1.00	115 KVA	SIEMENS	1200	1
13	Braking Resistors	BWD 73	2x3 OHMS, 1 600 KW FOR 1 SEC	HEINE	85	1

14	Earth brush (Traction Motor)	POLYRAD	520A	SCHUNK METAL	--	4
15	25 Kilo OHM Resistance	KRAH	25 KILO OHMS, 60 W	BIRKHOLZ	1.3	1
16	AC Earthling Switch	PCE VES 25.4	25 KV, 400A	PATRA & CHAND	26	1
17	HSCB (High Speed Circuit Breaker)	HSCB UR6-32S	1500 V DC	SECHERON	37	1
18	DC Earthling Switch	BTE 03.04	3 KV, 400 A	SECHERON	13	1

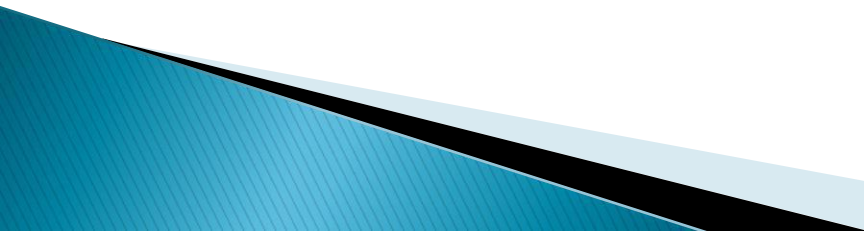
TRACTION TRANSFORMER SIEMENS AC/DC RAKES

TYPE	LOT 1250(ABB)
PRIMARY	1250KVA, 22500V, 5505A,
50Hz	
SECONDARY	2X625KVA, 2X855V, 2X731A

TRACTION CONVERTER CUBICAL

- ▶ Input voltage range in DC mode
800 V – 1800 V DC
- ▶ Nominal DC link circuit voltage traction operation
AC Mode 1800 V
DC Mode 1500 V
- ▶ Power factor in AC at different loads and line voltages approx. unity

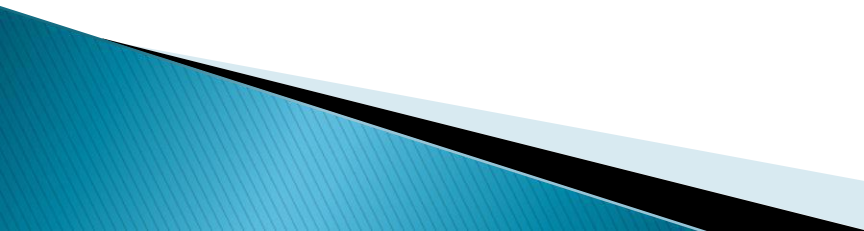
4QC CONVERTER

- ▶ Number of 4 QC per Traction Converter Cubical (TCC) – 2
 - ▶ Semiconductor – IGBT
 - ▶ Type of phase module– SIBAC® BB S P 1500 FL
 - ▶ Pulse frequency – 750 Hz
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PWM INVERTER

- ▶ Number of PWMI per TCC –
2
- ▶ Number of traction motors per PWMI –
2
- ▶ Semiconductor –
IGBT
- ▶ Type of phase module–
SIBAC® BB S P 1500 FL
- ▶ Pulse frequency– Variable, up to
800Hz

BRAKE CHOPPER

- ▶ Number per TCC 2
 - ▶ Semiconductor IGBT
 - ▶ Type of phase module
SIBAC® BB S P 1500 FL
 - ▶ Pulse frequency– 250 Hz
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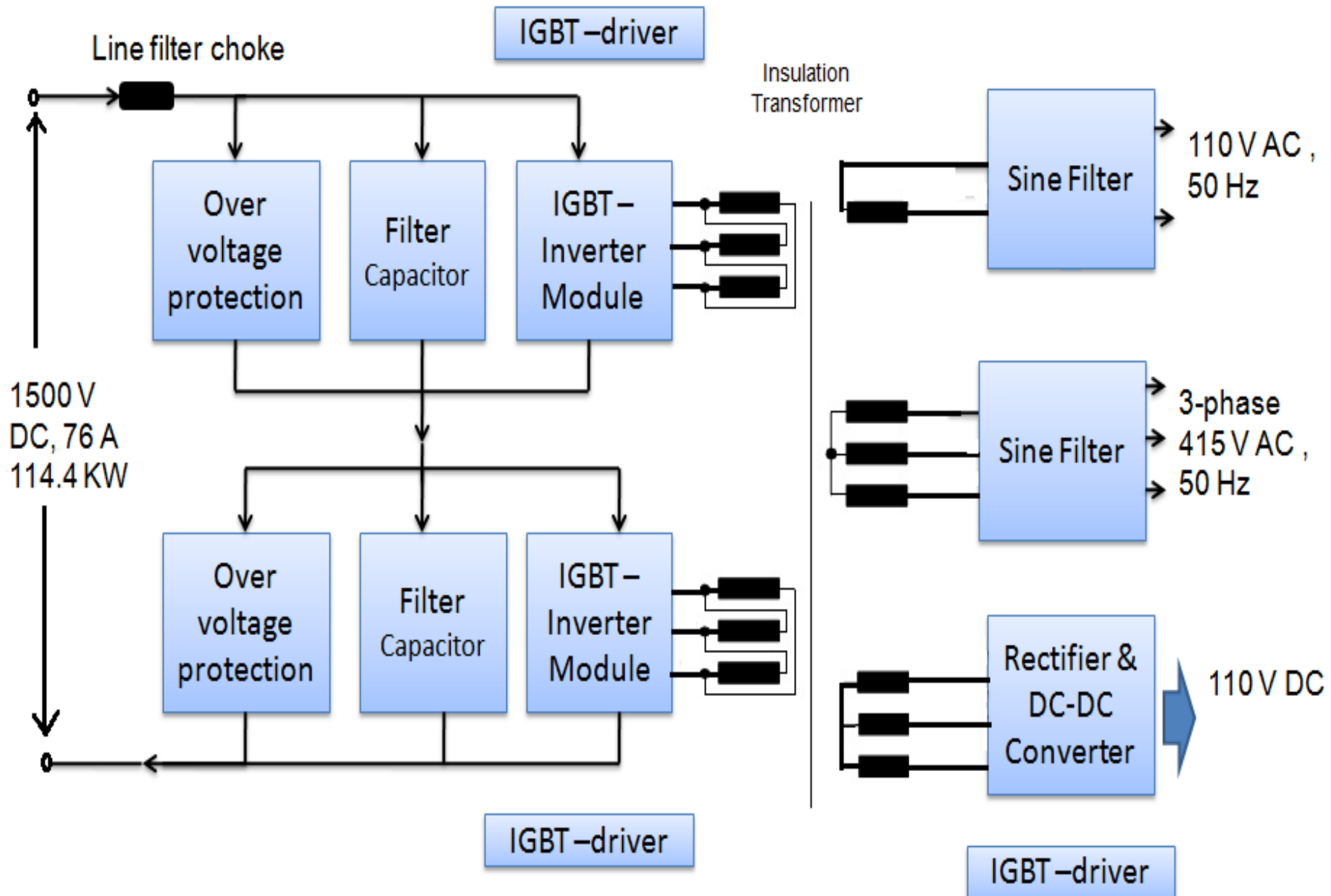
DC LINK

- ▶ **Capacity of DC link circuit** 12 mF -0 % +10 %
- ▶ **Inductance of line reactor** 6 mH -0 % to +10 %
- ▶ **Control Voltage**
- ▶ **Control voltage range** Max operating current at nominal voltage 110 V DC 77 V to 137.5 V DC, 10 Amp.
- ▶ **Auxiliary supply voltage** Continuous power demand
3AC, 415V, 50Hz 6.2kw

TRACTION MOTORS

SPECIFICATION	IEC60349-2
RATED VOLTAGE	932V
RATED CURRENT	200A
RATED POWER	240KW
RATED SPEED	2000rpm
RATED FREQUENCY	101.5Hz
THERMAL CLASS	200

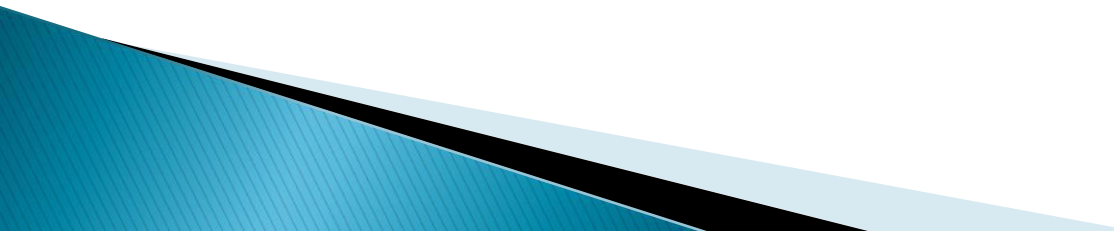
AUXILIARY CONVERTER UNIT



<p>➤ 3 AC 415 V, 50 Hz, 87 kVA</p>	<p>The 3 phase AC output supplies traction ventilation fan motors & air compressor.</p>
<p>➤ 1 110 Volt AC, 50 Hz, 20 kVA</p>	<p>The 1 phase AC output (1 AC 110 V, 50 Hz) supplies for passenger compartment fans and lighting etc</p>
<p>➤ 1 110 Volt DC, 9 kW</p>	<p>The DC output provides DC 110 V for low voltage power supply (contactors etc.) and battery charging. It is produced by the ACU's internal battery charger.</p>

COMPRESSOR

MAKE AND TYPE	KNORR'S VV120
AIR DELIVERY	920 LPM
MAX PRESSURE	10 KG/CM2
RATED SPEED	1455 RPM
SHAFT POWER	6.7 KW
MOTOR RATING	415V, 12.7A, 9.2KVA, PF .8



THANKS