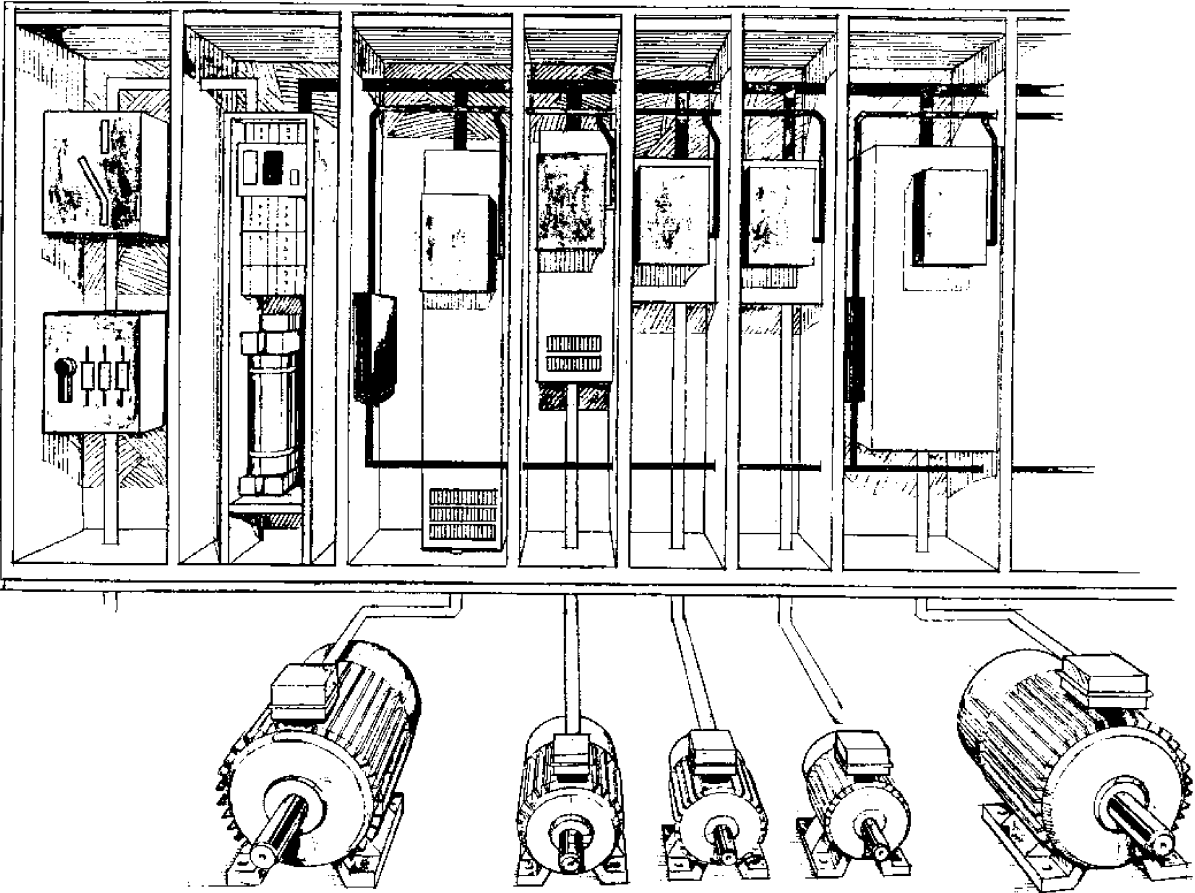


ACV 700 Frequency Converters



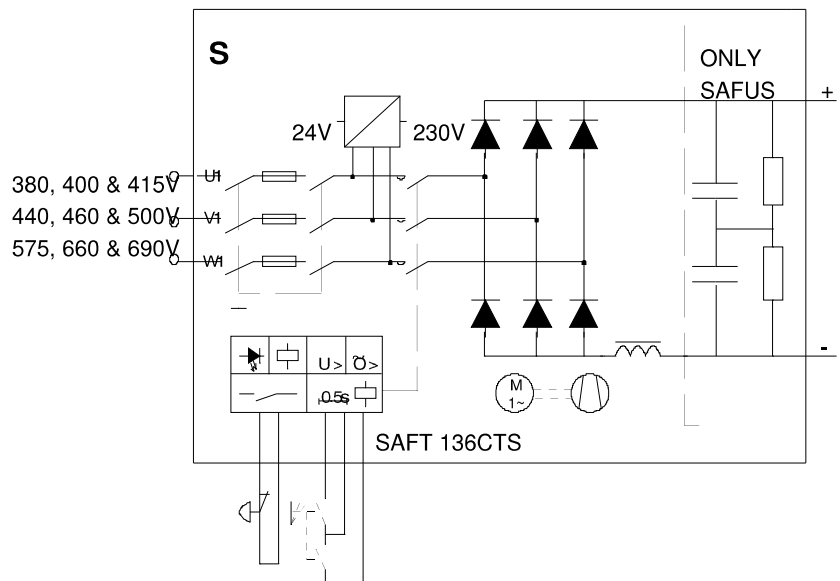


Figure 3 - 4 Block diagram of the Line Supply Unit (S).(61134085.drw)

Contactor Unit (L)

The Contactor Unit (L) includes equipment for connecting the drive to the distributing mains: disconnector, fuses, main contactor, auxiliary voltage supply, and auxiliary contactor and charging resistors. The contactor unit control and supervision card SAFT 136 CTS controls the charging and main contactor.

Type Designation	Unit Dimensions (without cubicle)				
	Power [kVA]	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
400V (380, 415V)					
SAFUL 250F415	250	445	485	1700	75
SAFUL 400F415	400	445	485	1800	100
SAFUL 630F415	630	744	500	1800	195
SAFUL 1000F415	1000	1)	1)	1)	1)
SAFUL 1600F415	1600	1)	1)	1)	1)
500V (440, 460V)					
SAFUL 315F500	315	445	485	1700	75
SAFUL 500F500	500	445	485	1800	100
SAFUL 800F500	800	744	500	1800	195
SAFUL 1250F500	1250	1)	1)	1)	1)
SAFUL 2000F500	2000	1)	1)	1)	1)
690V (575, 660V)					
SAFUL 250F660	250	445	485	1700	75
SAFUL 400F660	400	445	485	1700	75
SAFUL 630F660	630	445	485	1800	100
SAFUL 1000F660	1000	744	500	1800	195
SAFUL 1600F660	1600	1)	1)	1)	1)
SAFUL 2500F660	2500	1)	1)	1)	1)

1) Not a module

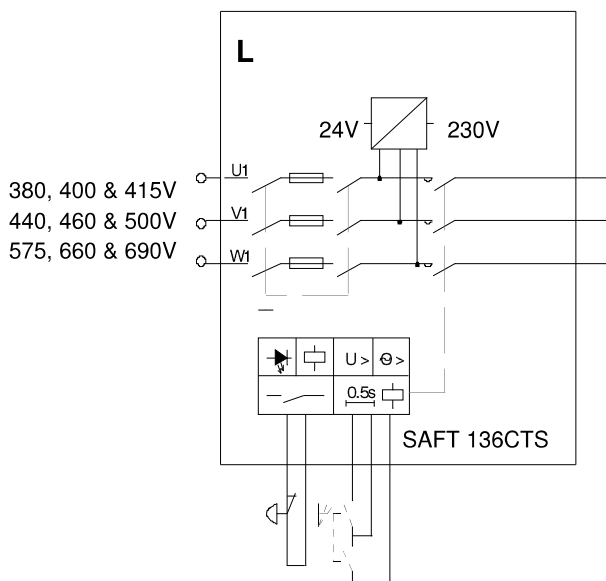


Figure 3 - 5 Block diagram of the Contactor Unit (L). (61134239.drw)

Line Converter Unit (C)

The Line Converter Unit (C) and the electrical mains form the d.c. source of the frequency converter. The d.c. source is connected to the intermediate circuit through a d.c. choke. The diode bridge is equipped with single-side cooled press-pack diodes for the 250 - 400 kVA power range. Larger units have double-side cooled press-pack diodes.

The Line Converter Units (C) can be used either in 6-pulse or 12-pulse configuration. Twelve-pulse configuration consists of a pair of 6-pulse units (supply or line converter unit) with a 30° phase difference at the input generated by means of a special transformer or by means of two separate transformers.

Six-Pulse Diode Rectifier

Type Designation	Unit Dimensions (without cubicle)				
	Power [kVA]	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
500 V (440, 460 V) 1)					
SAFUC 500F500	500	230	498	1770	112
SAFUC 800F500	800	230	498	1770	112
SAFUC 1250F500	1250	270	498	1770	135
SAFUC 2000F500	2000	400	575	1770	320
690 V (575, 660 V)					
SAFUC 250F660	250	230	583	1825	92
SAFUC 400F660	400	230	498	1770	105
SAFUC 630F660	630	270	498	1770	135
SAFUC 1000F660	1000	270	498	1770	135
SAFUC 1600F660	1600	270	498	1770	135
SAFUC 2500F660	2500	400	575	1770	340

1) 500 V units are also used in 400 V sections.

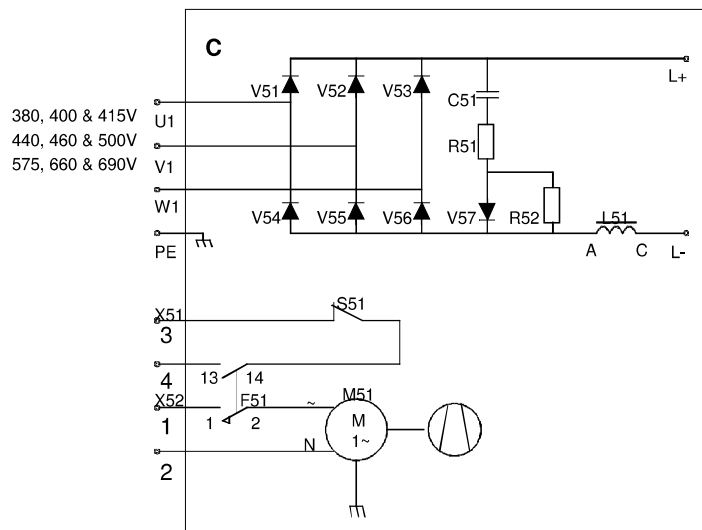


Figure 3 - 6 Block diagram of the Line Converter Unit (C) (61134247.drw).

Twelve-Pulse Diode Rectifier

Benefits of a 12-pulse Line Converter Unit compared to a 6-pulse Line Converter Unit:

- Reduced harmonics, e.g. the fifth and seventh harmonics are not present.
- Compared to the 6-pulse, the power output is doubled by using the same diodes in a 12-pulse connection.

Type Designation (rectifier id)	Rectifier Power [kVA]	Width [mm]	Unit Dimensions (without cubicle)		
			Depth [mm]	Height [mm]	Weight [kg]
400 V (380, 415 V)					
2xACV 709S-0063-3	2x63	2x290	380	1030	2x62
2xACV 709S-0100-3	2x100	2x290	380	1030	2x84
2xACV 709S-0160-3	2x160	2x340	485	1515	2x125
500 V (440, 460 V)					
2xACV 709S-0080-5	2x80	2x290	380	1030	2x62
2xACV 709S-0125-5	2x125	2x290	380	1030	2x84
2xSAFUC 500F500	2x500	2x230	498	1770	2x112
2xSAFUC 800F500	2x800	2x230	498	1770	2x112
2xSAFUC 1250F500	2x1250	2x270	498	1770	2x135
690 V (575, 660 V)					
2xSAFUC 250F660	2x250	2x230	583	1825	2x92
2xSAFUC 400F660	2x400	2x230	498	1770	2x105
2xSAFUC 630F660	2x630	2x270	498	1770	2x135
2xSAFUC 1000F660	2x1000	2x270	498	1770	2x135
2xSAFUC 1600F660	2x1600	2x270	498	1770	2x135

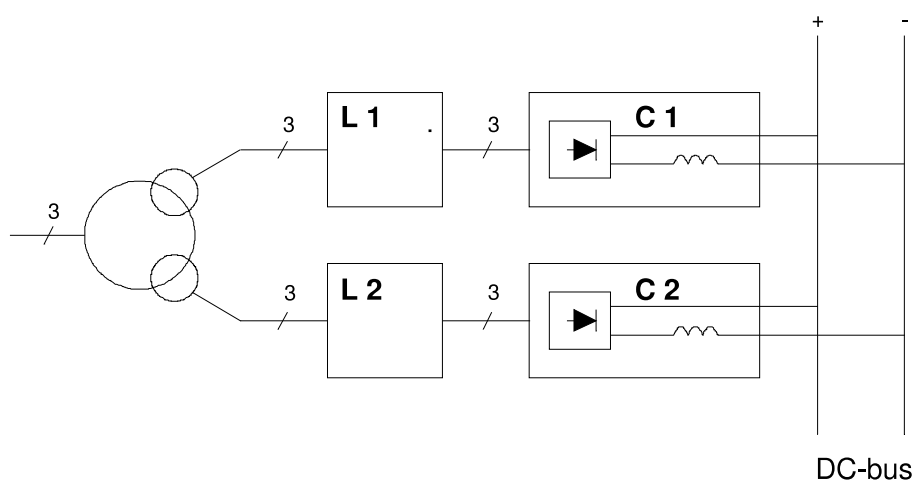


Figure 3 - 7 Block diagram of the 12-pulse Line Converter Unit (61135537.drw).

Thyristor Braking Unit (X)

The Thyristor Braking Unit (X) includes two anti-parallel 6-pulse thyristor bridges with control circuits. Modules up to 800 kVA at 500 V and 1000 kVA at 690 V include a d.c. choke. The larger SAFUX units are to be equipped with SAFUM DC-Choke Unit (M). The Thyristor Braking Unit is used to implement regenerative braking and it then replaces the Line Converter Unit (C).

Type Designation	Power [kVA]	Unit Dimensions (without cubicle)			
		Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
500 V (440,460 V) 2)					
SAFUX 315F500	315	400	492	1770	160
SAFUX 500F500	500	400	492	1770	160
SAFUX 800F500	800	400	492	1770	175
SAFUX 2000F/A500	2000	1)	1)	1)	1)
690 V (575, 660 V)					
SAFUX 400F660	400	400	492	1770	160
SAFUX 630F660	630	400	492	1770	190
SAFUX 1000F660	1000	400	492	1770	190
SAFUX 2500F/A660	2500	1)	1)	1)	1)

1) Not supplied as a module

2) 500 V units are also used in 400 V sections

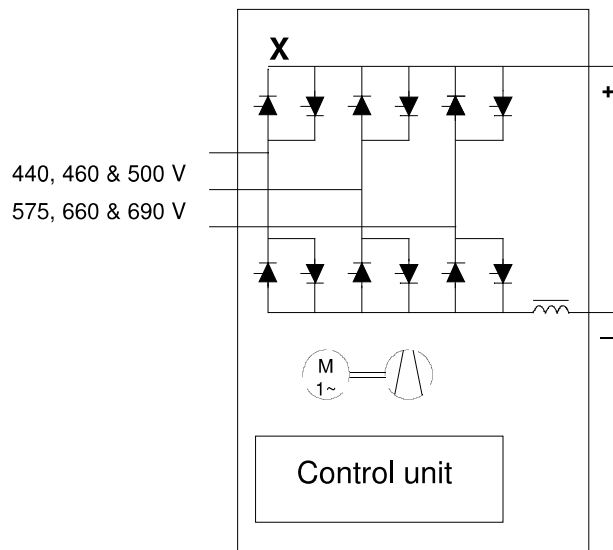


Figure 3 - 8 Block diagram of the Thyristor Braking Unit (X) (61135758.drw).

DC-Choke Unit (M)

Type Designation	Unit Dimensions (without cubicle)			
	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
690 V (575, 660V) 1)				
SAFUM 2000F660	400	575	1750	290
SAFUM2500F660	400	575	1750	310

1) 690 V units are also used in 400 V and 500 V sections

Capacitor Bank Unit (B)

The Capacitor Bank Unit (B) includes 3.3 mF/350V or 4.7 mF/350V electrolytic capacitors connected in series and in parallel, balancing resistors and a supervision card SAFT 132 CBS. At ratings over 400 kVA, capacitors have specific fuses. The Capacitor Bank Unit (B) is designed to smooth the d.c. voltage after rectification and inversion of the motor voltage.

If the drive sections are of the IGBT-type (capacitors included), the capacitor bank unit is not needed in the supply section.

Type Designation	Unit Dimensions (without cubicle)			
	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
400 V (380, 415 V)				
SAFUB 250F415	240	501	1825	60
SAFUB 400F415	240	501	1825	70
SAFUB 630F415	240	501	1825	81
500 V (440, 460 V)				
SAFUB 315F500	240	501	1825	60
SAFUB 500F500	240	501	1825	70
SAFUB 800F500	240	501	1825	90
690 V (575, 660 V)				
SAFUB 250F660	240	501	1825	60
SAFUB 400F660	240	501	1825	70

SAFUB 630F660	240	501	1825	81
SAFUB 1000F660	240	501	1825	90

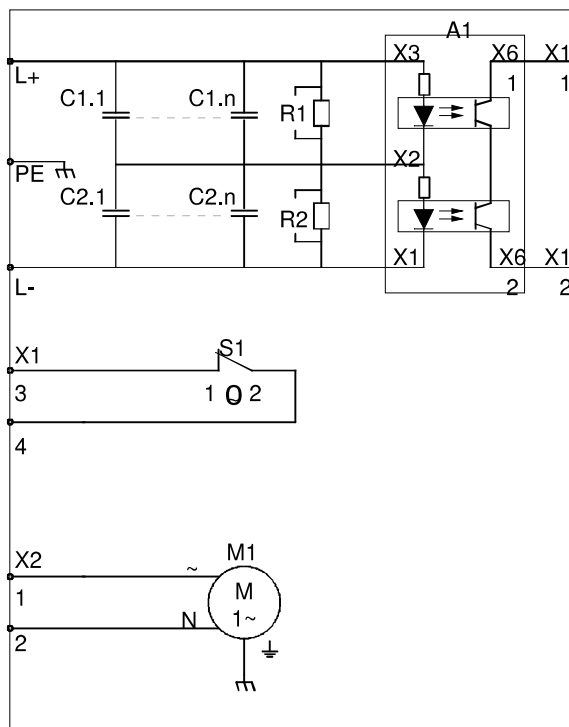


Figure 3 - 9 Block diagram of the Capacitor Bank Unit (B) (61135774.drw).

Braking Chopper Unit (K)

The Braking Chopper Unit (K) is controlled with its internal control board, SAFT 135 BCC or SAFT 195 BCC.

Type Designation	Unit Dimensions (without cubicle)				
	Power [kVA]	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
500 V (440, 460 V)					
SAFUK 80F500	80	180	270	280	6
SAFUK 125F500	125	180	270	280	6
SAFUK 200F500	200	180	270	280	6
690 V (575, 660 V)					
SAFUK 100F660	100	180	270	280	6
SAFUK 160F660	160	180	270	280	6
SAFUK 250F660	250	180	270	280	6

Braking Resistor Unit (R)

Type Designation	Unit Dimensions (without cubicle)				
	Power [kW]	Width [mm]	Depth [mm]	Height [mm]	Weight [kg]
400 V (380,415 V)					

Supply Sections

SAFUR 63F380	63	300	345	600	5
SAFUR 100F380	100	300	345	600	5
SAFUR 160F380	160	300	345	1320	10
500V (440, 460 V)					
SAFUR 80F500	80	300	345	600	5
SAFUR 125F500	125	300	345	1320	10
SAFUR 200F500	200	300	345	1320	10