

# Solutions - IGBT Platforms

## SEMISTACK Renewable Energy

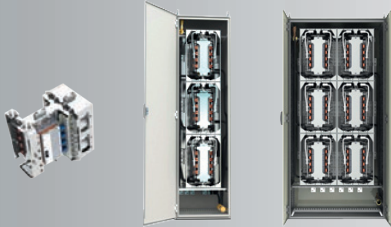


Synchronous wind generators  
Double-fed wind generators  
Solar inverters

450 kW

6 MW

## SKiiPRACK



Synchronous wind generators  
Double-fed wind generators  
High power AC drives

450 kW

5 MW

## SEMIKUBE



Solar inverters  
Pump & compressor drives

75 kW

1000 kW

## SEMIxBOX



Elevators  
Solar inverters  
Uninterruptible power supplies

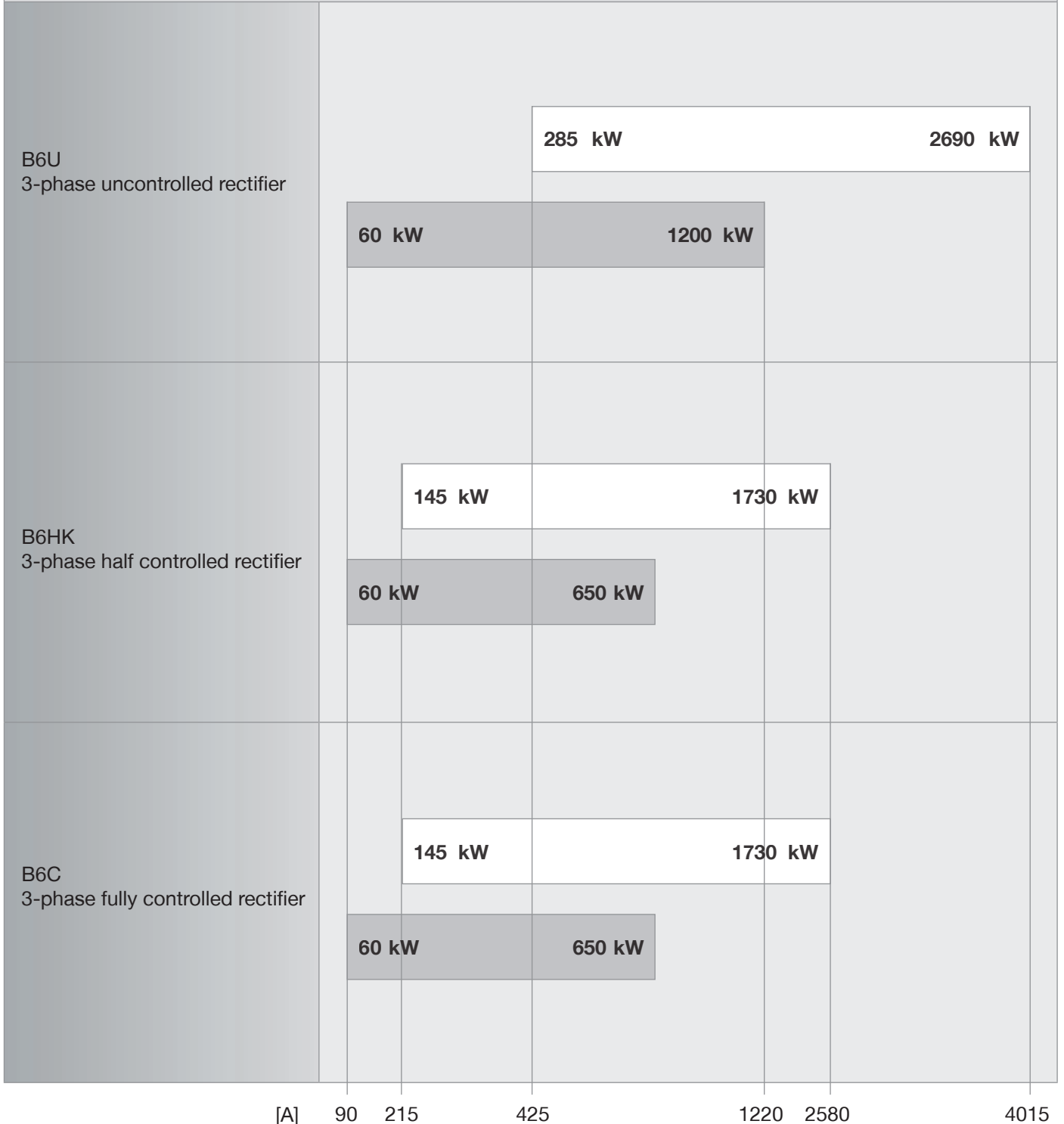
10 kW

100 kW

Power [kW] 10 75 100 450 1000 5200 6000

# Solutions - Diode / Thyristor Platforms

## SEMISTACK CLASSICS



isolated
  non isolated

# Solutions - SEMiXBOX

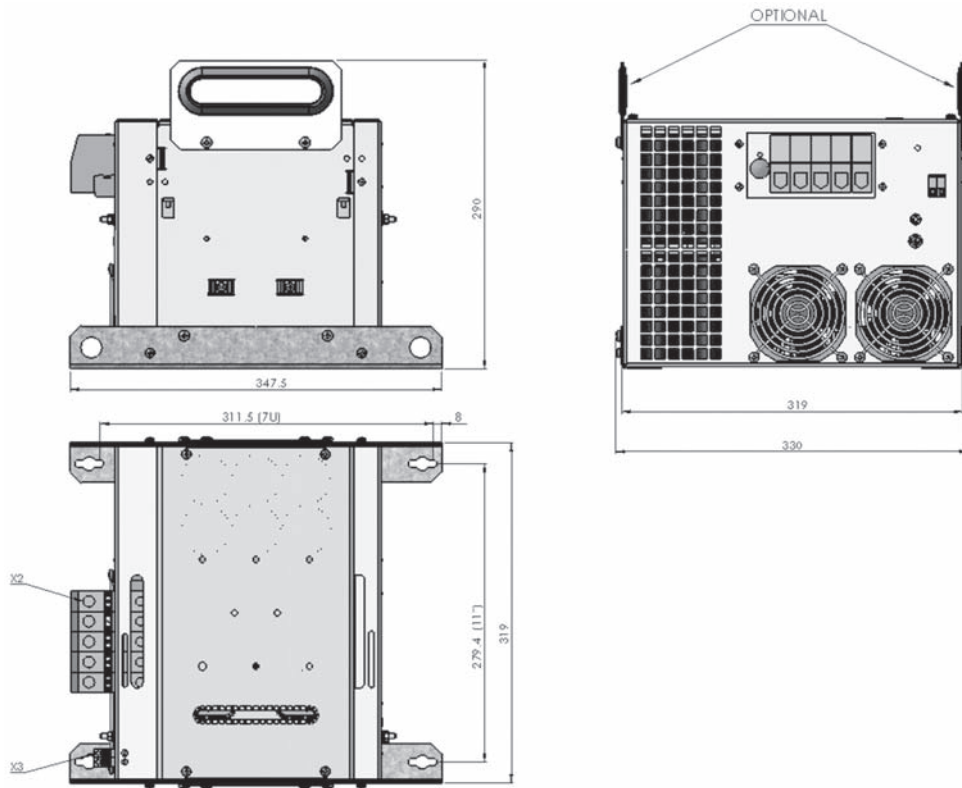
Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Isolated	Circuit
<b>Three-phase inverter</b>								
SKS 83F B6CI 58 V12 <sup>1)</sup>	500	900	83	SEMIX	Forced-air cooled	Px 17	yes	
SKS 110F B6CI 76 V12 <sup>1)</sup>	500	900	110	SEMIX	Forced-air cooled	Px 17	yes	
SKS 118F B6CI 45 V06 <sup>1)</sup>	250	450	118	SEMIX	Forced-air cooled	Px 17	yes	
SKS 150F B6CI 104 V12 <sup>1)</sup>	500	900	150	SEMIX	Forced-air cooled	Px 17	yes	
SKS 85F B6CI+B6U 59 V12 <sup>1)</sup>	500	900	85	SEMIX	Forced-air cooled	Px 17	yes	
SKS 105F B6CI+B6U 72 V12 <sup>1)</sup>	500	900	105	SEMIX	Forced-air cooled	Px 17	yes	
SKS 78F B6CI+B6HK 54 V12 <sup>1)</sup>	500	900	78	SEMIX	Forced-air cooled	Px 17	yes	
SKS 100F B6CI+B6HK 69 V12 <sup>1)</sup>	500	900	100	SEMIX	Forced-air cooled	Px 17	yes	
SKS 80F B6CI+E1CIF+B6U 55 V12 <sup>1)</sup>	500	900	80	SEMIX	Forced-air cooled	Px 17	yes	
SKS 88F (B6CI)2P 61 V12 <sup>1)</sup>	500	900	88	SEMIX	Forced-air cooled	Px 17	yes	

## Footnotes

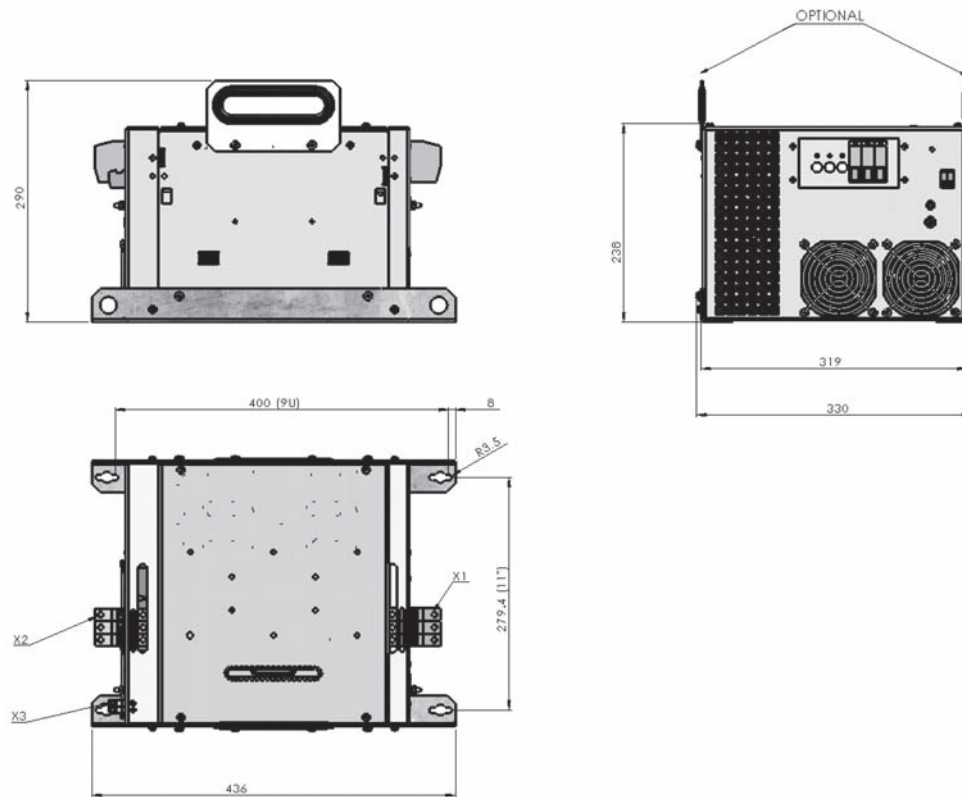
<sup>1)</sup> New

## Cases

### CELL 2



### CELL 3



Dimensions in mm

# Solutions - SEMIKUBE

Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>Three-phase inverter</b>								
IGD-1-424-P1N4-DL-FA	460	750	200	SEMITRANS	Forced-air cooled	PX 308	yes	
IGD-2-424-P1N6-DH-FA	460	750	350	SEMITRANS	Forced-air cooled	PX 308	yes	
IGD-4-424-P1F7-BL-FA	460	750	750	SEMITRANS	Forced-air cooled	PX 308	yes	
IGD-8-326-E1F12-BH-FA	460	750	1230	SEMITRANS	Forced-air cooled	PX 308	yes	
IGD-8-424-P1F9-BH-FA	460	750	1470	SEMITRANS	Forced-air cooled	PX 308	yes	
IGD-8-426-E1F12-BH-FA	460	750	1470	SEMITRANS	Forced-air cooled	PX 308	yes	
<b>Three-phase rectifier and inverter</b>								
IGDD6-1-326-D1616-E1N6-DL-FA	460	750	150	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	
IGDD6-1-426-D1616-E1N6-DL-FA	460	750	180	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	
IGDD6-2-326-D1616-E1F12-DH-FA	460	750	280	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	
IGDD6-2-426-D1616-E1F12-DH-FA	460	750	330	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	
IGDD6-4-326-D3816-E1F12-BL-FA	460	750	570	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	
IGDD6-4-426-D3816-E1F12-BL-FA	460	750	680	SEMITRANS/ SEMIPACK	Forced-air cooled	PX 308	yes	

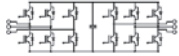
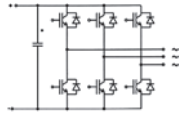
## Cases

**SEMIKUBE size range**

**Size 1**

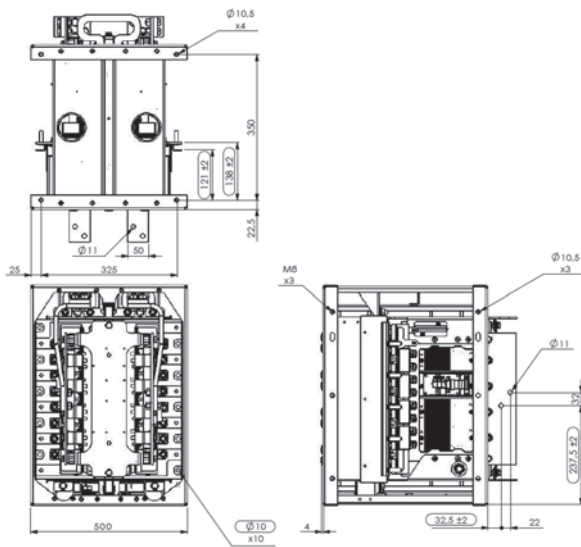
Dimensions in mm

# Solutions - SKiiPRACK

Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>4-Quadrant converter</b>								
SKS C 120 GDD 69/11 - A2A WA B1B	690	1100	1200	SKiiP 3	Water/ Glycol	-	yes	
<b>Three-phase inverter</b>								
SKS C 120 GD 69/11 - A2A WA B1B	690	1100	1200	SKiiP 3	Water/ Glycol	-	yes	

## Cases

**SKiiPRACK basic stack element, the CELL**



**3-Cell vertical integration**



Dimensions in mm

## Optimized converter for solar and wind



### Applications

The new SEMISTACK RE is a new high-power converter for use in renewable energy applications such as wind and solar power installations. SEMISTACK RE will typically be applied in synchronous and double-fed induction generators (DFIG) in wind turbines, as well as in central solar PV inverters. Up to four SEMISTACK RE converters can be connected in parallel and support applications of up to 6 MVA.

### Benefits

The SEMISTACK RE range features SKiiP 4, the latest generation of SEMIKRON's SKiiP intelligent power module family which integrates power components, driver and heat sink in a single case. SKiiP 4 modules enable to deliver an increase in power over the predecessor generation from 1.4 to 1.7 MVA. While the current carrying capacity of the smaller SEMISTACK RE solution featuring 3-bay SKiiP modules is 900 A, the bigger 4-bay SKiiP version has a current rating of between 1,000 A and 1,400 A, resulting in a power density increase of 17 % greater than in the predecessor version with combined SKiiP 3 modules.

Owing to the very low inductance planar DC busbar of the SEMISTACK RE and the internal construction of the SKiiP 4 nominal DC voltage can now be extended up to 1250 Vdc with the 1700 Vdc modules even when short circuit conditions are considered.

Signal processing on the SKiiP 4 is handled by a newly designed digital driver incorporating the standard control, monitoring and protection functions of the SKiiP 3 plus new additional functions of parameter configuration and diagnostic/fault memory. Further advantages are an improved isolation, a noise immunity inherent in digital control and the functionality and flexibility of the CANopen interface.

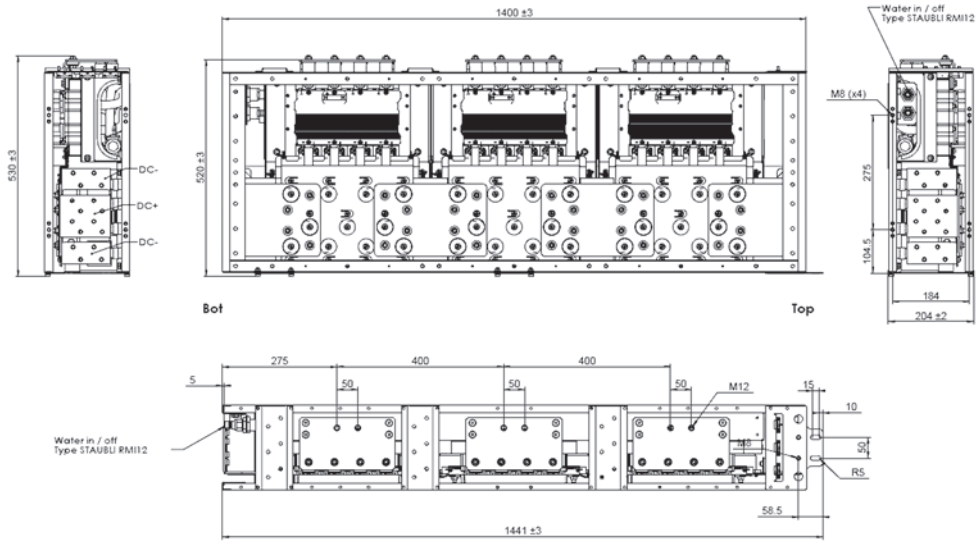
Owing to its 100 % solder free sintering process and innovative pressure contact system the thermal cycling capability of the SKiiP 4 is increased by a factor of 5. These enhancements to the SKiiP 4 are coupled with long lifetime polypropylene capacitors to ensure that the SEMISTACK RE meets the demanding requirements in today's grid connected power generation applications.

# Solutions - SEMISTACK Renewable Energy

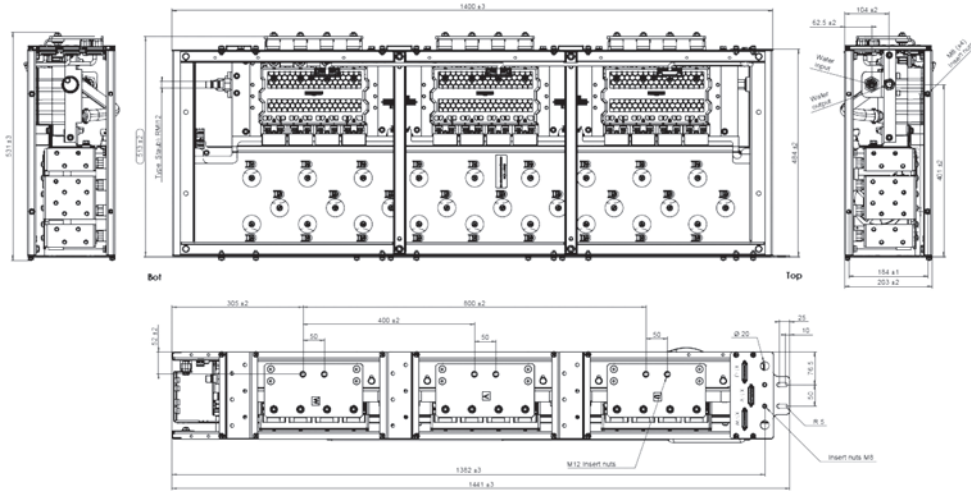
Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>Three-phase inverter</b>								
SKS B 085 GD 69/11 - WA PB	690	1100	850	SKiiP 3	Water/ Glycol	-	yes	
SKS B2 100 GD 69/11 - MA PB <sup>1)</sup>	690	1100	1000	SKiiP 3	Water/ Glycol	-	yes	
SKS B2 120 GD 69/11 - MA PB <sup>1)</sup>	690	1100	1200	SKiiP 3	Water/ Glycol	-	yes	
SKS B2 140 GD 69/12 - MA PB <sup>1)</sup>	690	1250	1400	SKiiP 4	Water/ Glycol	-	yes	

## Cases

### SKS B 085 GD 69/11 - WA PB



### SKS B2 100 GD 69/11 - MA PB, SKS B2 120 GD 69/11 - MA PB, and SKS B2 140 GD 69/12 - MA PB



Dimensions in mm

## Footnotes

<sup>1)</sup> New



Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>Three-phase fully-controlled thyristor bridge rectifier</b>								
SKS 88N B6C 60 V16	500	670	88	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 88N B6C 60 V16 SU	500	670	88	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 180F B6C 120 V16	500	670	180	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 180F B6C 120 V16 SU	500	670	180	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 215N B6C 145 V16	500	670	215	Stud devices	Natural cooled	P1/150	no	
SKS 215N B6C 145 V16 SU	500	670	215	Stud devices	Natural cooled	P1/150	no	
SKS 250F B6C 170 V16	500	670	250	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 250F B6C 170 V16 SU	500	670	250	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 355N B6C 240 V16	500	670	355	Stud devices	Natural cooled	P1/200	no	
SKS 355N B6C 240 V16 SU	500	670	355	Stud devices	Natural cooled	P1/200	no	
SKS 365F B6C 245 V16	500	670	365	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 365F B6C 245 V16 SU	500	670	365	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 570F B6C 380 V16	500	670	570	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 570F B6C 380 V16 SU	500	670	570	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 640F B6C 430 V16	500	670	640	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 640F B6C 430 V16 SU	500	670	640	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 700N B6C 470 V16	500	670	700	Presspack	Natural cooled	P11/415	no	
SKS 700N B6C 470 V16 SU	500	670	700	Presspack	Natural cooled	P11/415	no	
SKS 845N B6C 570 V16	500	670	845	Presspack	Natural cooled	U3/515	no	
SKS 845N B6C 570 V16 SU	500	670	845	Presspack	Natural cooled	U3/515	no	
SKS 970F B6C 650 V16	500	670	970	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 970F B6C 650 V16 SU	500	670	970	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 1000N B6C 670 V16	500	670	1000	Presspack	Natural cooled	U3/515	no	
SKS 1000N B6C 670 V16 SU	500	670	1000	Presspack	Natural cooled	U3/515	no	
SKS 1200F B6C 800 V16	500	670	1200	Presspack	Forced-air cooled	P17/130	no	
SKS 1200F B6C 800 V16 SU	500	670	1200	Presspack	Forced-air cooled	P17/130	no	
SKS 1500F B6C 1010 V16	500	670	1500	Presspack	Forced-air cooled	P17/130	no	
SKS 1500F B6C 1010 V16 SU	500	670	1500	Presspack	Forced-air cooled	P17/130	no	
SKS 1890F B6C 1270 V16	500	670	1890	Presspack	Forced-air cooled	P18/180	no	
SKS 1890F B6C 1270 V16 ZU	500	670	1890	Presspack	Forced-air cooled	P18/180	no	
SKS 2580F B6C 1730 V16	500	670	2580	Presspack	Forced-air cooled	N4/250	no	
SKS 2580F B6C 1730 V16 ZU	500	670	2580	Presspack	Forced-air cooled	N4/250	no	

# Solutions - CLASSICS

Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>Three-phase half-controlled bridge rectifier</b>								
SKS 88N B6HK 60 V16 <sup>1)</sup>	500	670	88	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 88N B6HK 60 V16 SU <sup>1)</sup>	500	670	88	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 180F B6HK 120 V16 <sup>1)</sup>	500	670	180	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 180F B6HK 120 V16 SU <sup>1)</sup>	500	670	180	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 215N B6HK 145 V16 <sup>1)</sup>	500	670	215	Stud devices	Natural cooled	P1/150	no	
SKS 215N B6HK 145 V16 SU <sup>1)</sup>	500	670	215	Stud devices	Natural cooled	P1/150	no	
SKS 250F B6HK 170 V16 <sup>1)</sup>	500	670	250	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 250F B6HK 170 V16 SU <sup>1)</sup>	500	670	250	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 355N B6HK 240 V16 <sup>1)</sup>	500	670	355	Stud devices	Natural cooled	P1/200	no	
SKS 355N B6HK 240 V16 SU <sup>1)</sup>	500	670	355	Stud devices	Natural cooled	P1/200	no	
SKS 365F B6HK 245 V16 <sup>1)</sup>	500	670	365	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 365F B6HK 245 V16 SU <sup>1)</sup>	500	670	365	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 570F B6HK 380 V16 <sup>1)</sup>	500	670	570	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 570F B6HK 380 V16 SU <sup>1)</sup>	500	670	570	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 640F B6HK 430 V16 <sup>1)</sup>	500	670	640	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 640F B6HK 430 V16 SU <sup>1)</sup>	500	670	640	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 700N B6HK 470 V16 <sup>1)</sup>	500	670	700	Presspack	Natural cooled	P11/415	no	
SKS 700N B6HK 470 V16 SU <sup>1)</sup>	500	670	700	Presspack	Natural cooled	P11/415	no	
SKS 845N B6HK 570 V16 <sup>1)</sup>	500	670	845	Presspack	Natural cooled	U3/515	no	
SKS 845N B6HK 570 V16 SU <sup>1)</sup>	500	670	845	Presspack	Natural cooled	U3/515	no	
SKS 970F B6HK 650 V16 <sup>1)</sup>	500	670	970	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 970F B6HK 650 V16 SU <sup>1)</sup>	500	670	970	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 1000N B6HK 670 V16 <sup>1)</sup>	500	670	1000	Presspack	Natural cooled	U3/515	no	
SKS 1000N B6HK 670 V16 SU <sup>1)</sup>	500	670	1000	Presspack	Natural cooled	U3/515	no	
SKS 1200F B6HK 800 V16 <sup>1)</sup>	500	670	1200	Presspack	Forced-air cooled	P17/130	no	
SKS 1200F B6HK 800 V16 SU <sup>1)</sup>	500	670	1200	Presspack	Forced-air cooled	P17/130	no	
SKS 1500F B6HK 1010 V16 <sup>1)</sup>	500	670	1500	Presspack	Forced-air cooled	P17/130	no	
SKS 1500F B6HK 1010 V16 SU <sup>1)</sup>	500	670	1500	Presspack	Forced-air cooled	P17/130	no	
SKS 1890F B6HK 1270 V16 <sup>1)</sup>	500	670	1890	Presspack	Forced-air cooled	P18/180	no	
SKS 1890F B6HK 1270 V16 ZU <sup>1)</sup>	500	670	1890	Presspack	Forced-air cooled	P18/180	no	
SKS 2580F B6HK 1730 V16 <sup>1)</sup>	500	670	2580	Presspack	Forced-air cooled	N4/250	no	
SKS 2580F B6HK 1730 V16 ZU <sup>1)</sup>	500	670	2580	Presspack	Forced-air cooled	N4/250	no	

Type	V <sub>AC</sub> V	V <sub>DC</sub> V	Current A	Component Family	Cooling	Heatsink profile	Iso- lated	Circuit
<b>Three-phase uncontrolled diode bridge rectifier</b>								
SKS 91N B6U 60 V16 <sup>1)</sup>	500	670	91	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 91N B6U 60 V16 SU <sup>1)</sup>	500	670	91	SEMIPACK 1	Natural cooled	P3/180	yes	
SKS 185F B6U 125 V16 <sup>1)</sup>	500	670	185	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 185F B6U 125 V16 SU <sup>1)</sup>	500	670	185	SEMIPACK 1	Forced-air cooled	P3/180	yes	
SKS 290F B6U 195 V16 <sup>1)</sup>	500	670	290	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 290F B6U 195 V16 SU <sup>1)</sup>	500	670	290	SEMIPACK 2	Forced-air cooled	P3/265	yes	
SKS 425N B6U 285 V16 <sup>1)</sup>	500	670	425	Stud devices	Natural cooled	P1/150	no	
SKS 425N B6U 285 V16 SU <sup>1)</sup>	500	670	425	Stud devices	Natural cooled	P1/150	no	
SKS 430F B6U 290 V16 <sup>1)</sup>	500	670	430	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 430F B6U 290 V16 SU <sup>1)</sup>	500	670	430	SEMIPACK 2	Forced-air cooled	P16/200	yes	
SKS 535N B6U 360 V16 <sup>1)</sup>	500	670	535	Stud devices	Natural cooled	P1/200	no	
SKS 535N B6U 360 V16 SU <sup>1)</sup>	500	670	535	Stud devices	Natural cooled	P1/200	no	
SKS 660F B6U 440 V16 <sup>1)</sup>	500	670	660	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 660F B6U 440 V16 SU <sup>1)</sup>	500	670	660	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 850F B6U 570 V16 <sup>1)</sup>	500	670	850	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 850F B6U 570 V16 SU <sup>1)</sup>	500	670	850	SEMIPACK 3	Forced-air cooled	P16/200	yes	
SKS 1185N B6U 795 V16 <sup>1)</sup>	500	670	1185	Presspack	Natural cooled	P11/415	no	
SKS 1185N B6U 795 V16 SU <sup>1)</sup>	500	670	1185	Presspack	Natural cooled	P11/415	no	
SKS 1220F B6U 820 V16 <sup>1)</sup>	500	670	1220	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 1220F B6U 820 V16 SU <sup>1)</sup>	500	670	1220	SEMIPACK 5	Forced-air cooled	P16/300	yes	
SKS 1630N B6U 1090 V16 <sup>1)</sup>	500	670	1630	Presspack	Natural cooled	U3/515	no	
SKS 1630N B6U 1090 V16 ZU <sup>1)</sup>	500	670	1630	Presspack	Natural cooled	U3/515	no	
SKS 1910N B6U 1280 V16 <sup>1)</sup>	500	670	1910	Presspack	Natural cooled	U3/515	no	
SKS 1910N B6U 1280 V16 ZU <sup>1)</sup>	500	670	1910	Presspack	Natural cooled	U3/515	no	
SKS 1950F B6U 1305 V16 <sup>1)</sup>	500	670	1950	Presspack	Forced-air cooled	P17/130	no	
SKS 1950F B6U 1305 V16 ZU <sup>1)</sup>	500	670	1950	Presspack	Forced-air cooled	P17/130	no	
SKS 2300F B6U 1540 V16 <sup>1)</sup>	500	670	2300	Presspack	Forced-air cooled	P18/180	no	
SKS 2300F B6U 1540 V16 ZU <sup>1)</sup>	500	670	2300	Presspack	Forced-air cooled	P18/180	no	
SKS 4015F B6U 2690 V16 <sup>1)</sup>	500	670	4015	Presspack	Forced-air cooled	N4/250	no	

## Footnotes

<sup>1)</sup> New