



Flex Kraft Water-Cooled Rectifiers

Dual Output, 2 x 50A – 3000A, DC/Polarity Reversal

The sealed cabinet of the water-cooled Flex Kraft is designed for industrial applications in harsh environments.

SEALED WATER-COOLED RECTIFIER

All power modules are built-in in a sealed cabinet. The IP54 protection class allows Flex Kraft to be used under very harsh conditions.

EXTENDED SCOPE

By combining modules and stacks, Flex Kraft rectifiers for up to 120 VDC or 30 kA can be delivered. Flex Kraft is also available in one stack for single output up to 6 000A (See S 107.042).

EASY MAINTENANCE

Thanks to the modular design of Flex Kraft it is easy to access the unit for module repair or replacement.

NEW MARK II HARDWARE WITH AMAZING UPTIME

The water-cooled Flex Kraft is the first product with our upgraded hardware Mark II incorporated. The new Mark II assures excellent reliability and availability

FLEXIBLE PLACEMENT

There is no longer any need to worry about the air flow since the system is completely closed. Save power and energy by placing the Flex Kraft close to the process.

The FlexKraft rectifier is designed to give the best electrical performance as well as withstanding harsh industrial environments. The design is based on primary switching technology. The rectifiers consist of 1–10 power modules, which together with a control module form a complete unit.

PLANT CONTROL SYSTEM

Standard control interface:
 Digital Display and Keypad integrated into unit
 Modbus RTU/RS-485
 Profibus DP/RS-485

PROCESS CONTROL PARAMETERS:

Input to unit:	Output from unit:
Set current	Actual current
Set voltage	Actual voltage
On / Off	On signal
Start / Stop	Run signal
Stand by / Run	Actual Amp hours
Amp hours	Actual run time
Run time Alarm (general alarm)	
Clear counters	Alarm status (cause of alarm)
	End of process

TECHNICAL DATA

Supply voltage: 3 x 380–480 V ± 10%, 50–60 Hz
 3 x 200–240 V ± 10%, 50–60 Hz (optional)

EMC conformity: According to EN 61000-6-4, Emissions, and EN 61000-6-2, Immunity

LVD conformity: According to EN 50178

Protection class: IP 54

Power factor: ≥ 0.93 @ rated load

Efficiency: Typical 0.93 @ rated output

Ambient temp.: Max. 50°C

Cooling: Water cooling:
 Water inlet temperature: not below actual dew point, but max 35°C
 Water outlet temperature rise: 10°C
 Water pressure: 1–6 bar

Weight: Approx. 25 kg per module

Control precision: Voltage/current $\pm 1\%$

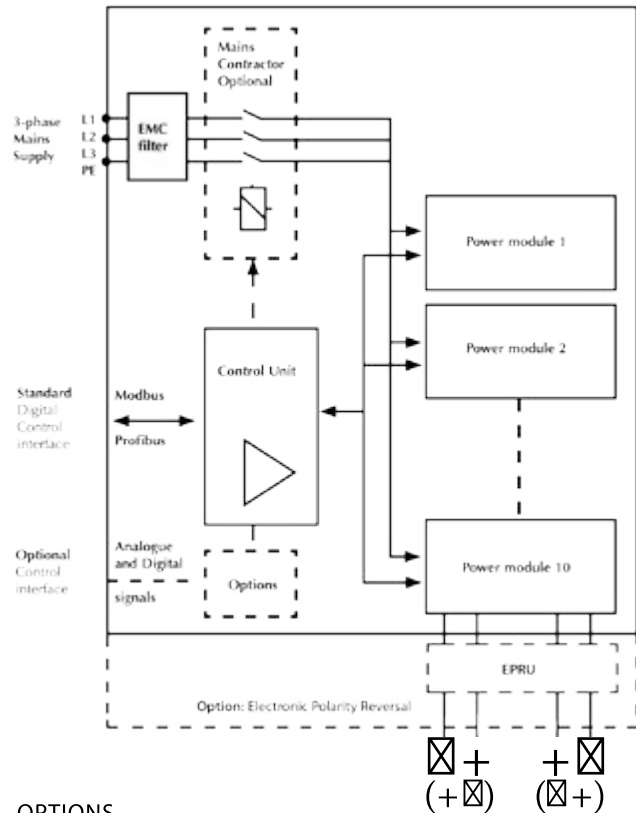
DC ripple: < 1% of rated output current at concurrent mode in the entire range of regulation

Regulation range: Stepless at constant voltage or current 0–100%

Duty ratio: Designed for continuous operation at rated load up to 1000 m altitude

Protection: Over-current
 Over-voltage
 Overtemperature
 Short circuit
 Open circuit
 Module failure

BLOCK SCHEMATIC DIAGRAM



OPTIONS

- Remote control box 'basic version' with analogue or digital instruments, potentiometers etc.
- RS-232C interface for control of one rectifier.
- Analogue/Digital I/O interface. Two control, and two status signals 0–10 VDC and two control and two status signals 24 VDC. Standard configuration: Iset, Uset, Iact and Uact: 0–10 VDC. On/Off, BLock/Run, Power On and Alarm as digital signals: 24 VDC.
- Analogue I/O interface with four inputs and four outputs galvanically isolated. Control and status signals 0/4–20 mA. Standard configuration: Iset, Uset, Iact and Uact: 4–20 mA
- Digital I/O interface with four inputs and four outputs. Control signals 24 VDC. Status signals via voltage free relay contacts; contact data 24 VDC or 24 VAC. Standard configuration: On/Off, Block/Run, Power On and Alarm.
- Raise / Lower function.
- Software for pulse plating and process sequence control.
- External reference shunt and process sequence control.
- Main Contactor.
- External reference shunt, 60 mV.
- Custom-designed rectifiers.
- Electronic Polarity reversal

OUTPUT SPECIFICATION/STANDARD RANGE

Number of power modules >>>

VA	1	2	3	4	5	6	7	8	9	10
0-12 V	2x300	2x600	2x900	2x1200	2x1500	2x1800	2x2100	2x2400	2x2700	2x3000
0-15 V	2x250	2x500	2x750	2x1000	2x1250	2x1500	2x1750	2x2000	2x2250	2x2500
Height (mm)	450	590	730	870	1010	1150	1290	1570	1710	1850
Footprint of cabinets: Width=500 mm, Depth=610 mm inclusive busbars on the rear side.*										
Volume Flow Rate, Liter Per minute										
l/min	1,5	3,0	4,5	6,0	7,5	9,5	10,5	12	13,5	15

*Depth including Polarity Reversal=910 mm

