BBK

POWER SYSTEMS

MODULAR SFC

MDFC SERIES

www.bbkelektromekanik.com
info@bbkelektromekanik.com
O: +90216 504 1718

Integrated and supported by BBK Electromechanics. Power conversion technology platform supplied by a global technology partner.

For Shore Power and Industrial Power Conversion Applications

BBK Electromechanics provides Marine and Industrial Static Frequency Converter (SFC) solutions in collaboration with global technology partners, enabling reliable power conversion between electrical systems operating at different voltage and frequency standards.

Each solution can be configured according to project-specific requirements and is supported by BBK's engineering, system integration, commissioning, and after-sales technical support services.

Utilizing high-frequency True Double Conversion technology, the system delivers stable and high-quality output power regardless of disturbances, voltage variations, frequency fluctuations, or power quality issues present on the incoming utility supply.

Designed for ports, marinas, shipyards, offshore facilities, defense applications, and critical industrial installations, the solution enables safe and controlled power conversion between different electrical infrastructures worldwide.

Distributed Modular Architecture

The SFC solution is built on a distributed modular architecture, providing flexibility, scalability, and high system availability.

The system consists of independent power modules operating in parallel to achieve the required output capacity. This architecture allows power capacity to be expanded in line with future project requirements while minimizing system modifications and downtime.

Key advantages include:

- High system availability
- Scalable power capacity
- Fast maintenance and serviceability
- Reduced spare parts inventory
- Enhanced fault tolerance
- Module-level replacement and maintenance
- Improved lifecycle management

The modular design also simplifies transportation, installation, and field service activities while supporting compact system footprints for high-power applications.

MODULAR SFC
MDFC SERIES

Designed for Marine Applications

The system is specifically designed to support the connection of vessels operating under different international electrical standards to shore-side power infrastructures.

The solution supports common marine voltage and frequency configurations, including:

- 400V / 50Hz
- 440V / 60Hz
- 690V / 60Hz

Galvanic isolation can be provided through isolation transformer configurations, ensuring safe electrical separation between the shore network and onboard power systems.

For shore power applications, the system contributes to the reduction of port emissions, minimizes vessel generator operation during berthing, and supports environmentally sustainable port operations.

Flexible Solution for Industrial Applications

Static Frequency Converter solutions can also be deployed in a wide range of industrial sectors, including:

- Manufacturing facilities
- Data centers
- Energy and utility plants
- Mining operations
- Oil & Gas facilities
- Railway infrastructure
- Test laboratories
- Defense industry projects
- Critical process industries

The system enables the safe integration of equipment operating at different voltage and frequency standards into existing electrical infrastructures.

Key Features

- Distributed modular architecture
- Scalable power platform
- High-frequency True Double Conversion technology
- DSP-based digital control system
- 50Hz ↔️ 60Hz frequency conversion
- Automatic input frequency sensing
- Wide input voltage tolerance
- Input Power Factor Correction (PFC)
- Low input current harmonics
- High input power factor
- Precise output voltage regulation
- Accurate output frequency control
- Operation with or without neutral
- Isolation transformer options
- Parallel operation capability
- Generator compatibility
- Intelligent fan control system
- Touchscreen human-machine interface (HMI)
- Modbus and industrial communication protocols
- Remote monitoring and management capabilities
- ECO operating mode
- Emergency Power Off (EPO)

BBK Scope of Supply and Services

- BBK Electromechanics provides comprehensive project support, including:
- System engineering
- Application-specific configuration studies
- Marine power system engineering
- Electrical design and integration
- FAT and SAT support
- Commissioning services
- Local technical service support
- Operator and maintenance training
- Lifecycle support services

Global Technology, Local Engineering and Service Support

BBK Electromechanics combines advanced power conversion technologies supplied by global technology partners with its expertise in marine applications, system integration, commissioning, and local technical support services.

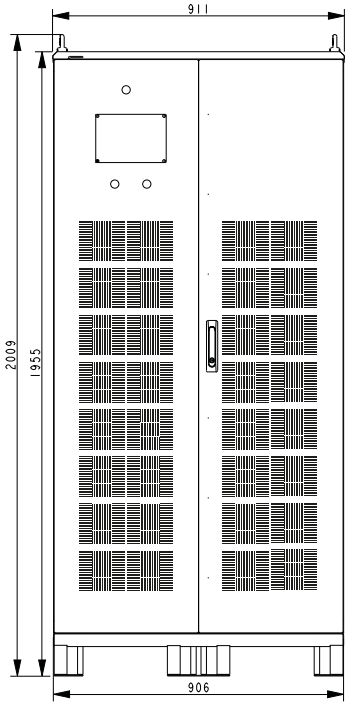
This approach enables customers to benefit from proven international technologies while receiving dedicated engineering, project execution, and long-term service support from a experienced partner.

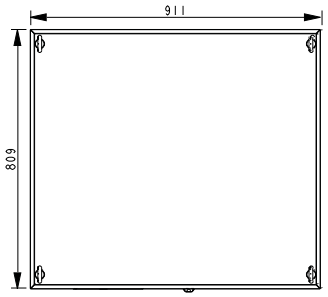
MODULAR SFC
MDFC SERIES

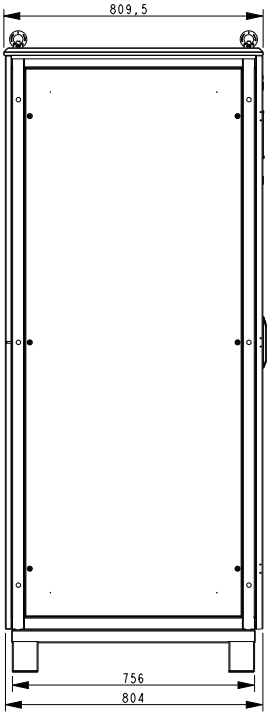
Model			MDFC0100	MDFC0300	MDFC0500
Input	Voltage		200-480VAC 3P+Pe/3W+Pe		
	Frequency		45-65 Hz		
	Input PF and THDi		PF ≥0,95 / THDi ≤%4 @full Load		
Output	Power Factor		0,9 (Optional 1,0)		
	Voltage & tolerances		208 240 380 400 415 420 440 480 *690	VAC 3P+Pe/3W+Pe *Tolerances ≤%1 Static, ≤%3 Dynamic* **with transformer*	
	Frequency		50-60 Hz %0,1		
	THDv		≤%2 @lineer load, ≤%5 @non-lineer load		
	Crest Factor		3:1		
	OverLoad		600s @%125 Loads, 60s @%150 Loads, 2s @%200		
	Efficiency		≥%94		
Frame	Total Capacity	Rectifier	x1 pcs	x3 pcs	x5 pcs
		Inverter	x1 pcs	x3 pcs	x5 pcs
	Dimensions (WxDxH)		573x748x1430	911x810x2010	1356x810x2010
Isolation Transformer			Recommended on the input or output side depending on the application.		
Standard Communication & drycontact			TCP/RTU or TCP/IP & Remote Cont. Start,Stop,EPO & Drycontact Status Run, Stand-by, Fault		

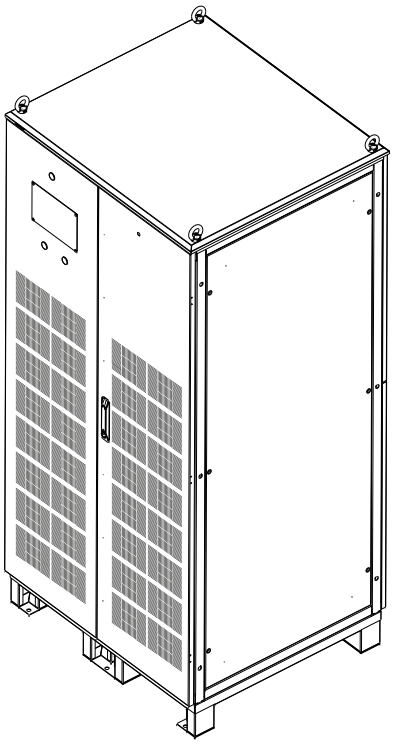
Storage temp. -20C / +50C , **Operation temp** 0C / 45 C, **Humidity** %0-%95, **Altitude** 1 ≤ 1000m, 0,92 ≤ 2000m, 0,84 ≤ 3000m, **Options Communication** SNMP and ProfilBUS, **Certification** EN62040-1 , EN62040-2 , **Performance** accordig to EN62040-3 (Options VFI-SS-111, Bureau Veritas)

MODULAR SFC
MDFC0300









MODULAR SFC
MDFC0500