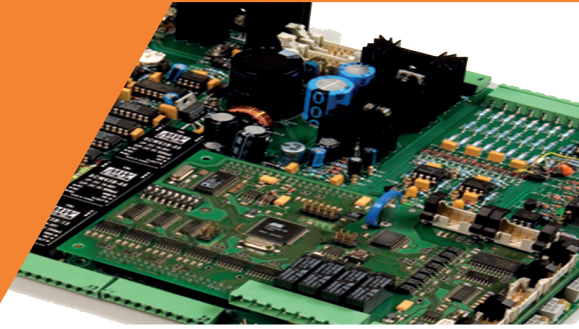


# TTC Wärtsilä JOVYREC GRP

## PRODUCT LEAFLET



Rectifiers of the type TTC Wärtsilä JOVYREC GRP dispose of an active power factor correction optimising the power consumption and enhancing the power factor of the systems by nearly 1. An extremely low harmonic distortion is the result of the state-of-the-art IGBT technology. With their outstanding control dynamics as well as with their low residual ripple the rectifiers of the type TTC Wärtsilä JOVYREC GRP are ideally suited as supply rectifier, load rectifier or as DC UPS systems.

### DC POWER SUPPLY IN BEST QUALITY

The rectifiers of the type series TTC Wärtsilä JOVYREC GRP are ideally suited as power supply for power plants, offshore plants, chemical plants, refineries, transformer stations or for hospitals. These new generation rectifiers are based on IGBT technology, of which the main feature is a three-phase input with sinusoidal current consumption. Cost savings as well as material savings for the user are associated with this technology in contrast to traditional thyristor-driven rectifier power supply. By active power factor correction (PFC) the power consumption is significantly optimised. The systems' power factor of these product series is almost „1“.

### EXTREMELY LOW HARMONIC DISTORTION

A big advantage in comparison to conventional thyristor technology is the significantly lower harmonic distortion, by which the cable cross-section as well as the protection can be optimised. Furthermore, the rectifier systems can be designed in a more compact way when using the technology with IGBT rectifier than by use of traditional technologies. Due to the optimised control dynamics the DC power supply is applicable as load rectifier as well as supply rectifier. Together with a battery and an inverter the DC power supply can be developed to a complete UPS system or BSV system.

### PFC RECTIFIER MULTITALENT

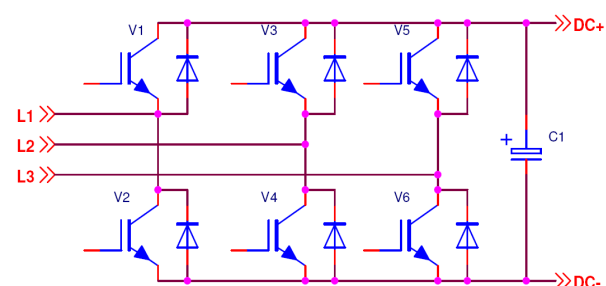
The PFC rectifier is available as supply rectifier, load rectifier or as uninterruptible DC power supply with battery. In

general the rectifiers of this type are used for output voltages of 110V, 220V and 440VDC. They are equipped with an additional input transformer for galvanic separation and they are based on RITTAL control cabinet technology.

An operational panel and display panel enable simple handling and configuring of the rectifier system. For monitoring of the systems a RS-232 interface is available allowing optionally the connection with a MODBUS or PROFIBUS adapter.

The power factor correction is implemented as three-phase boost converter with IGBT bridge circuit and therefore suitable for three-phase voltage systems.

Fig.1 Power factor control by IGBT bridge connection



**TECHNICAL DATA** (220 VDC / 125 A as an example)

Input voltage	3x400V ±10% further voltages on request
Input frequency	50 / 60 Hz ±5%
Nominal input current (at EL 2,25V/Z)	3 x 49 A
THDI at nominal load	≤ 5 %
Power factor at nominal load	≥ 0,99
Nominal output voltage	220 VDC further voltages on request
Nominal output current	125 A higher currents on request
Switching frequency	approx.. 6/10 kHz
Voltage regulation - static	≤ ±0,5%
Voltage regulation - dynamic	≤ ±10% (load step 10-90-10%)
Current regulation	≤ ±1 %
Ripple	≤ 2 %
Efficiency (at nominal load)	95%
Ambient temperature	0° up to +40°C
Humidity	10 - 90% no condensation
Noise level	< 59 dB(A)
Colour	RAL 7035
Dimensions W x H x D	800 x 1970 x 600 mm
Weight	ca. 600 kg
Protection class	IP 20

**OPTIONAL AVAILABLE**

- additional panel for mains voltage, mains current and mains frequency
- Relay card for max 6 announcements
- Temperature-controlled charging voltage with sensor
- Battery symmetry control (for one battery string)
- Deep discharge protection (battery)
- Counter cell, single stage
- Counter cell, two stages
- DC-earth fault monitoring
- MODBUS adapter (connection via RS-232 interface)

**SPECIAL FEATURES**

- Standard signalling relay (accumulative faults, DC-undervoltage and battery operation for uninterruptible DC supply)
- Power compensation
- Charging automation with selection of characteristic curves EL, SL, AL (IU, IUU, IUU/I, IUU/T, IUU/I/T)
- Charging voltage control (via battery temperature setting at panel)
- Parallel operation n+1 in order to increase total power: up to max. 3 devices
- Manual switch-over to emergency operation
- RS232 interface

- **DC POWER SUPPLY IN HIGHEST QUALITY**
- **POWER FACTOR CORRECTION**
- **IGBT TECHNOLOGY**
- **OUTSTANDING EFFICIENCY**
- **EXTREMELY LOW HARMONIC DISTORTION**
- **APPLICABLE AS SUPPLY RECTIFIER, LOAD RECTIFIER OR ALSO AS AN UNINTERRUPTIBLE POWER SUPPLY SYSTEM**

Fig.2 PFC rectifier type Wärtsilä JOVYREC GRP

