VASCO technical specifications

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VASCO		**218**	**225**	**438**	**448**	**465**	**475**	**485**
Input	**Voltage**	1 x 230 VAC +/- 15%		3 x 380 – 460 VAC +/- 15%				
				338	**348**	**365**	**375**	**385**
Input	**Voltage**			3 x 230 VAC +/- 15%				
	Frequency	48-62 Hz						
	Raccomended Circuit breaker **Type C**	40 A	63 A	40 A	50 A	80 A	80 A	100 A

	Raccomended Residual Current Device	Pulse Sensitive RCD		AC/DC sensitive RCD				
Output	**Max Voltage**	3 x Vin						
	Frequency	0 -300 Hz						
	Current	18 A	25 A	38 A	48 A	65 A	75 A	85 A
	Typical motor power [P2]	4 kW 3x230V	5.5 kW 3x230V	18.5 kW 3x400V	22 kW 3x400V	30 kW 3x400V	37 kW 3x400V	45 kW 3x400V
				9.2 kW 3x230V	11 kW 3x230V	15 kW 3x230V	18.5 kW 3x230V	22 kW 3x230V
	Overload Capacity	101 % for 10 min , 110% for 1 min						
Dimensions		260x260x180 mm		408x680x262 mm				
Ambient Conditions	**Operating Temperature**	0 - 40°C (104 °F)						
	Max Altitude	1000 m						

	Humidity	95% max, non-condensing	
Enclosure	**Material**	Die-casted Allumium, Stainless Steel AISI 304, PA, PE, PVC	Powder coated metal sheet, Stainless Steel AISI304, PA, PE, PVC
	Protection Degree	IP55, NEMA 4 (Indoor only)	IP54, NEMA 12 (Indoor only)
EMC (EN55011)	**with internal filter**	NO internal filter	Class A (industrial environment)
	with external filter	Class A (domestic environment)	
Certifications	**CE**		
Cooling	**Forced air**		
Protections	**Overvoltage, Undervoltage, Overload inverter, Motor Overcurrent, No load, Dry running, Overtemperature, Sensor alarm**		
Mounting	**Motor onboard**	Fixed on motor fan cover by 4 inox straps. VASCO is cooled by motor fan.	On motor side by motor flange fixed on motor feet.
	Wall mounted	Fixed to the wall by special supports. Fans powered and controlled by VASCO.	As standard
Display	**2 x 16 characters backlit display**		
Keypad	**start, stop, up, down, enter**		

Software	**Languages**	Italian, English, Spanish, Deutsch, French, Polish, Russian
	Parameters menù	Installer and Advanced
	Passwords **Programming protections**	Yes, 2 user changeable passwords
Multiple pumps operation	**DOL pumps cascade relay**	One inverter controlling a pump + 1 or 2 alternating starting DOL pumps
	Variable speed pumps cascade serial	Up to 8 inverters, each one controlling a pump, connected by RS485
	Alternance	Yes. Starting priority based on effective pump running hours.
	Slave inverter replacement	Yes. when a slave invert goes off-line another inverter can take its place.
	Master Replacement	Yes. when master inverter goes off.line, first slave inverter can take its place.
	Autorestart	Yes, settable as ON or OFF
Max motor frequency	**Yes.**	

Min motor frequency	**Yes.**	
Ramps	**acceleration**	Settable ramp from 0 to minimum motor frequency. Settable ramp minimum motor frequency to maximum motor frequency.
	deleration	Settable ramp from maximum motor frequency to minimum motor frequency. Settable ramp from minimum motor frequency to 0 Hz.
Autoadjusting max motor frequency.	**Yes. Based on max inverter current.**	
PI Control	**Yes. Direct / Inverse.**	
Setpoint control	**Digital by software or analog by 4-20 mA or 0-10 V trimmer**	
No flow stopping detection	**By software, based on minimum frequency**	
Dry running protection	**Software**	Yes, based on P.F.
	Float switch	Yes.

Analog inputs	**2 inputs 4-20 mA + 2 inputs 4-20 mA / 0-10V (settable by jumper)**	
Digital inputs	**4 inputs N.0 or N.C (settable by software)**	
Relays	**Alarm**	Yes. N.O. or N.C. 12 VDC, 250 VAC, 5 A
	Motor Run	Yes. N.O. or N.C. 12 VDC, 250 VAC, 5 A
	D.O.L. 1 pump	Yes. N.O. or N.C. 12 VDC, 250 VAC, 5 A
	D.O.L. 2 pump	Yes. N.O. or N.C. 12 VDC, 250 VAC, 5 A
Connectable sensors	**2 sensors 4-20 mA**	
Sensors voltage supply	**15 VDC**	
Auxiliary power supply	**15 VDC, max 100 mA**	
PWM	**Settable as 2.5, 4, 6, 8, 10 kHz**	
Sensors switching	**Yes, by digital input**	

Control Modes	**Constant Value**	
	Constant value with 2 values	Switchable by digital input
	Fix speed	
	Fix speed with 2 values	Switchable by digital input
	External Frequency	By 4-20 mA or 0-10 V trimmer
Sensors difference	**Yes. digitally made**	
V/f control	**V/f curve settable from linear to quadratic**	
Stand-by hours timer	**Yes**	
Running hours timer	**Yes**	
Alarms hystory	**Yes, last 5 alarms**	