Frequency Converters 6

HVW Series

Single-phase pump connected to the water-cooled Hydrovar® frequency converter. Connected to electric pumps BG, CA, CEA, HM and e-SV™.

Specifications

Delivery: up to 5-6 m^3/h
Head: up to 40-50 metres
Power supply: single-phase 50 and 60 Hz
Power: 0.75 kW
Motor starting: variable frequency operation
Maximum operating pressure: 8 bar
Temperature of pumped liquid: 0°C to +50°C
Number of pumps: 1
Pump type: centrifugal

Materials

Pump: Stainless steel

Product applications and characteristics

Water supply

Heating and air-conditioning

Irrigation

Easy to install

Control without external pressure transducer

Compact solution

Frequency operation cooled by the pumped liquid

Protection against dry running

Overheating protection

Overvoltage and undervoltage protection

Overload protection

6

For a complete list of technical information, consult www.lowara.com

HV 2.015 - 4.110 Series

Frequency converter Hydrovar® type for single-phase and three-phase electric motor.

Specifications

Power input:
1 x 220-240 VAC -10%+15%
3 x 380-460 VAC +/- 15%
Motor output voltage:
3 x 220-240 VAC
3 x 380-460 VAC
Power output: 1.5 - 11 kW
Body: IP55
Ambient temperature range: 0-52°C
(Above 40°C with decreased power only)

Product features

Easy to install

Direct assembly on pump

Can be retrofitted on any existing pump

Overheating protection

Overvoltage and undervoltage protection

Overload protection

Pump/s stop/s when not in use

Protection against dry running

Compact design

Pressure or delivery control depending on system and customer requirements

One pressure booster unit with several pumps can be controlled without the need for addition control logic (each Hydrovar can act as master)

Variation in pump acceleration and deceleration ramps

Automatic pressure drop compensation caused by the increase in delivery

Analogue signal sent for remote pressure and frequency monitoring

Automatic pump test

All functions indicated on LCD in fourteen different languages

Modbus communication included as standard

Up to 8 pumps can be connected (multi-controller mode)

Fixed speed control mode up to 5 pumps (cascade relay mode)

Available in the Basic/Master version for Multi-controller applications and as Single version for single pump applications

For a complete list of technical information, consult www.lowara.com

HV 4.150 - 4.220 Series

Frequency converter Hydrovar® type for three-phase electric motor.

Specifications

Power input: 3 x 380-460 VAC +/- 15%
Motor output voltage: 3 x 380-460 VAC
Power output: 15 - 22 kW
Body: IP55
Ambient temperature range:
0-52°C (Above 40°C with decreased power only)

Product features

Easy to install

- Direct assembly on pump
- Can be retrofitting on existing pumps
- Overheating protection
- Overvoltage and undervoltage protection
- Overload protection
- Pump/s stop/s when not in use
- Protection against dry running
- Compact design
- Pressure or delivery control depending on system and customer requirements
- One pressure booster unit with several pumps can be controlled without the need for addition control logic
- (Each Hydrovar can act as master)
- Variation in pump acceleration and deceleration ramps
- Automatic pressure drop compensation caused by the increase in delivery
- Analogue signal sent for remote pressure and frequency monitoring
- Automatic pump test
- All functions indicated on LCD in forteen different languages
- Modbus communication included as standard
- Up to 8 pumps can be connected (multi-controller mode)
- Fixed speed control mode up to 5 pumps (cascade relay mode)

For a complete list of technical information, consult www.lowara.com

HVS 1.1 Series

Frequency converter Hydrovar® Sensorless type for single-phase and three-phase electric motor.

Specifications

Power input: 1 x 220-240 VAC +/- 15%
Motor output voltage: 3 x 220-240 VAC
Power output: 1.1kW
Body: IP55
Ambient temperature range: (over 40°C with decreased power only) 0-52°C

Product features

Sensorless control for circulation systems - no need for differential pressure sensor

Control via current input

Easy to install

Direct assembly on pump

Can be mounted on existing pumps

Overheating protection

Overvoltage and undervoltage protection

Overload protection

Compact design

Variation in pump acceleration and deceleration ramps

Automatic pressure drop compensation caused by the increase in delivery

Analogue signal sent for remote pressure and frequency monitoring

Automatic pump test

For a complete list of technical information, consult www.lowara.com

HV 3.30-3.37-3.45 wall-mounted Series

Frequency converter Hydrovar® type for three-phase electric motor.

Specifications

Power input: 3 x 380-460 VAC +/- 15%
Motor output voltage: 3 x Uin (input voltage)
Power output: 30 - 45 kW
Body: IP54
Ambient temperature range: (over 40°C with decreased power only) 0-52°C

Product features

Easy to install

Overheating protection

Overvoltage and undervoltage protection

Overload protection

Pump/s stop/s when not in use

Protection against dry running

Pressure or delivery control depending on system and customer requirements

One pressure booster unit with several pumps can be controlled without the need for addition control logic (each Hydrovar can act as master)

Variation in pump acceleration and deceleration ramps

Automatic pressure drop compensation caused by the increase in delivery.

Analogue signal sent for remote pressure and frequency monitoring

Automatic pump test

All functions indicated on LCD in seven different languages

For a complete list of technical information, consult www.lowara.com

AQUONTROLLER Series

MMW07, MMW12, MMA07 and MMA12.

230 VAC drive for single phase motors

The AQUONTROLLER is specially designed for maintaining constant pressure independent of flow for maximum comfort.
Energy savings are the result of the precise speed control.

Top quality components guarantee high reliability and a trouble-free life.
The inverter has inbuilt protection against various system and electrical faults.
Smooth operation and soft starting ensure silent running and an extended pump life.

With pipe or wall mounted versions, the quick set up means easy installation.

MMA water-cooled,
wall mounted

MMW water-cooled,
pipe mounted

For a complete list of technical information, consult www.lowara.com

Technical data

AQUONTROLLER	MMW07	MMW12	MMA07	MMA12
Part Number	109899360	109899370	109899380	109899390
Brief Description	Inverter 230V 1phase/1phase water-cooled pipe mounted up to 7A Inom	Inverter 230V 1phase/1phase water-cooled pipe mounted up to 12A Inom	Inverter 230V 1phase/1phase air-cooled wall mounted up to 7A Inom	Inverter 230V 1phase/1phase air-cooled wall mounted up to 12A Inom
Power Supply	230 VAC (170÷270 VAC)			
Frequency	50/60 Hz			
Max. Input Current	10 A	19 A	10 A	19 A
Output, Motor Supply	1~ 230 VAC			
Output Frequency	10 ÷ 50/60 Hz (resolution 0.01 Hz)			
Nominal Motor Current	7 A	12 A	7 A	12 A
Setpoint Pressure Range	1.0÷7.5 bar ± 0.2 bar			
Start/Stop Ramp	0.7 ÷ 5 sec			
Max. Overpressure	12 bar		–	
Operating Temperature	Ta: 0 ÷ +40°C			
Display	LCD 2 lines x 16 characters			
Pressure Sensor	integrated		included, 5m cable	
Flow Detection	integrated		terminal for level switch	
No Return Valve	integrated		–	
Recommended Pressure Tank	8 litres		20 litres	
Installation	pipe mounted		wall mounted	
Position	any position		vertical position	
Piping Inlet/Outlet	1¼" female		–	
Weight	3.6 kg		4.7 kg	
Dimensions (HxWxD)	375x185x165 mm		365x247x165 mm	
Protection Rating	IP65		IP20	

Integrated protections

Electrical Protection:
max. current absorbed, under- and overvoltage, short circuit between phase/ground or phase/phase, over temperature

Hydraulic Protection:
dry run, low system pressure, pressure sensor fault, warning: water losses and water hammer

Optional accessories

IMPEDANCE COIL 109891550	where motor cables are over 5m (flat cables over 20m) and up to max. 100m length, Impedance: 2x 1mH
EMC LINE FILTER 109690280	for use in harsh environments particularly sensitive to electromagnetic interference. 250 V AC/DC, 2 x 50 A

TKS Series

Single-phase pump with integrated Teknospeed variable speed device. Connected to electric pumps BG, CA, CEA, HM and SV™.

Specifications

Delivery: up to 10 m^3/h
Head: up to 75 metres
Power supply: single-phase
50 and 60 Hz
Power: 0.37 kW to 1.1 kW
Motor starting: variable frequency operation
Maximum operating pressure:
8 bar (BG, CA, CEA and HM series),
16 bar (SV series)
Temperature of pumped liquid:
0°C to +40°C
Number of pumps: 1
Pump type: horizontal and vertical

Materials

Pump: Stainless steel

Product features

Easy to install

Trouble-free servicing

Pressure transducer controlled

Constant output

Variable speed motors with consequently reduced noise

Protection against dry running

Accessories: hydro tube, connector, pressure gauge

Applications

Water supply

Heating and air-conditioning

Irrigation

Water supply for heating and washing systems

For a complete list of technical information, consult www.lowara.com

SVH Series

Multi-stage vertical centrifugal electric pumps fitted with Hydrovar®, a microprocessor-based control unit designed to manage pump performance according to system conditions and demand. A special version of e-SV™ which becomes an intelligent, variable speed system. Ideal for single pumping solution or multiple pumping systems solution (up to 8 pumps).

Specifications

Delivery: up to 160 m^3/h
Head: up to 330 m
Power supply: three-phase and single-phase 50 and 60 Hz
Power: 0.25 kW to 45 kW
Maximum operating pressure: 16, 25 or 40 bar (depending on the model and configuration)
Temperature of pumped liquid: 0°C to +80°C

Hydrovar specifications

Power input:
1 x 230 VAC ± 15%
3 x 380-460 VAC ± 15%
Motor output voltage:
3 x 220-240 VAC (Input voltage)
3 x 380-460 VAC (Input voltage)
Power output: 1.1-45 kW (up to 22 kW assembled on motor)
Power: 0.25 kW to 45 kW
Protection: IP55
Ambient temperature: 0°C to +40 (52)°C

Materials

Pump: Stainless steel (see specific eSV™ section)

Applications

Water distribution, irrigation

Heating, ventilation

Pressure boosting, cooling and chilling

Industrial washing equipment, general industry

Water treatment

Filtration systems

Auxiliary equipment
Available on request:
– Version with IE3 motor
– version with 4-pole motor
The following pages show data concerning models 1,3, 5, 10, 15 and 22SV.

Many construction versions are available, with models featuring 1 to 125 m^3/h nominal capacities.

For a complete list of technical information, consult www.lowara.com

Operating principle

The main function of the HYDROVAR® device is to control the pump to meet system demands.

HYDROVAR® performs these functions by:
1) Measuring the system pressure or flow via a transmitter mounted on the pump's delivery side.
2) Calculating the motor speed to maintain the correct flow or pressure.
3) Sending out a signal to the pump to start the motor, increase speed, decrease speed or stop.
4) In the case of multiple pump installations, HYDROVAR® will automatically provide for the cyclic changeover of the pumps' starting sequence.

In addition to these basic functions, HYDROVAR® can do things that are normally only performed by the most advanced computerised control systems, such as:

Stop the pump or pumps at zero demand.

Stop the pump or pumps in case of water failure on the suction side (protection against dry running).

Stop the pump if the required delivery exceeds the pump's capacity (protection against cavitation caused by excessive demand), or automatically switch on the next pump in a multiple series.

Protect the pump and motor from overvoltage, undervoltage, overload and earth fault.

Vary the pump speed acceleration and deceleration time.

Automatic pressure drop compensation caused by the increase in delivery.

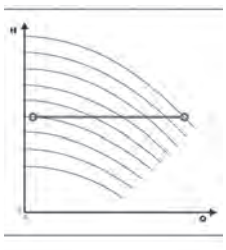
Conduct automatic test starts at set intervals.

Monitor the converter and motor operating hours.

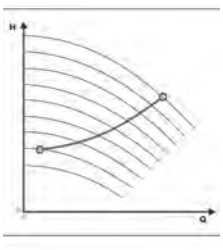
Display all functions on an LCD in different languages (Italian, English, French, German, Spanish, Portuguese, Dutch).

Send a signal to a remote control system which is proportional to the pressure and frequency.

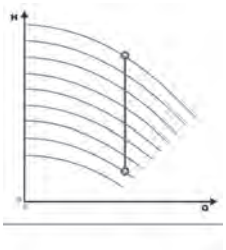
Communicate with another HYDROVAR or control system via an RS 485 interface.



Control for constant pressure



Control to match a system curve



Control for constant flow

Control according to an external signal

1, 3, 5, 10, 15, 22SVH SERIES
Hydraulic performance table at 50 Hz, 2 POLES

PUMP TYPE	RATED POWER		Q = DELIVERY													
			l/min 0	12	20	25	30	35	40	45	50	60	73	100	120	141
			m^3/h 0	0,7	1,2	1,5	1,8	2,1	2,4	2,7	3,0	3,6	4,4	6,0	7,2	8,5
	kW	HP	H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
1SV04H	0,37	0,5	23,7	23,5	22,1	20,4	17,9	14,6	10,6							
1SV07H	0,37	0,5	40,2	39,2	36,1	32,7	28,1	22,2	15,2							
1SV11H	0,55	0,75	65,1	64,5	60,4	55,5	48,5	39,5	28,5							
1SV15H	0,75	1	90,9	90,5	85,6	79,3	70,1	58,1	43,1							
1SV22H	1,1	1,5	134,6	134,1	127,4	118,1	104,4	86,1	63,5							
1SV30H	1,5	2	181,7	181,3	172,6	160,1	141,2	115,7	83,9							
1SV37H	2,2	3	225,9	224,9	216,1	201,9	179,3	148,1	108,7							
3SV04H	0,37	0,5	28,9		27,7	27,1	26,2	25,2	23,9	22,5	20,8	16,8	10,1			
3SV06H	0,55	0,75	44,4		43,4	42,6	41,6	40,2	38,6	36,6	34,3	28,5	18,5			
3SV08H	0,75	1	60,0		59,1	58,2	57,0	55,4	53,4	51,0	48,1	40,7	27,5			
3SV12H	1,1	1,5	89,6		87,8	86,4	84,5	82,1	79,1	75,5	71,1	59,9	40,1			
3SV16H	1,5	2	119,9		117,8	116,1	113,6	110,5	106,5	101,6	95,8	80,9	54,2			
3SV21H	2,2	3	159,3		156,9	154,6	151,4	147,3	142,1	135,7	128,0	108,5	73,6			
3SV25H	2,2	3	188,5		186,1	183,3	179,3	174,1	167,6	159,7	150,3	126,6	84,8			
3SV29H	3	4	219,3		216,0	212,8	208,3	202,6	195,3	186,4	175,7	148,6	100,2			
3SV33H	3	4	248,5		245,3	241,5	236,2	229,3	220,7	210,2	197,7	166,3	111,2			
5SV05H	0,75	1	38,0						36,4	36,0	35,5	34,5	32,9	28,2	23,5	17,1
5SV08H	1,1	1,5	60,1						57,6	57,0	56,2	54,6	51,8	44,1	36,2	25,8
5SV11H	1,5	2	82,8						79,3	78,4	77,5	75,2	71,4	60,7	49,9	35,6
5SV14H	2,2	3	105,7						102,0	100,9	99,6	96,6	91,7	77,8	64,0	46,3
5SV16H	2,2	3	120,5						115,9	114,6	113,1	109,6	103,9	87,8	72,1	51,8
5SV21H	3	4	157,9						152,0	150,3	148,3	143,6	136,1	114,9	94,2	67,6
5SV28H	4	5,5	211,5						204,2	201,9	199,4	193,3	183,4	155,5	128,0	92,7
5SV33H	5,5	7,5	249,2						241,0	238,4	235,5	228,4	216,9	184,2	151,9	110,3

Performances in compliance with ISO 9906 - Annex A.

1-5svh-2p50-en_b_th

PUMP TYPE	RATED POWER		Q = DELIVERY													
			l/min 0	83,34	100	133	170	183,34	233	270	330	350	400	430	460	483,33
			m^3/h 0	5,0	6,0	8,0	10,2	11,0	14,0	16,2	19,8	21,0	24,0	25,8	27,6	29,0
	kW	HP	H = TOTAL HEAD IN METRES OF COLUMN OF WATER													
10SVH04	1,5	2	47,7	44,2	43,0	39,9	34,8	32,6	21,7							
10SVH06	2,2	3	71,8	66,8	65,0	60,4	53,1	49,8	33,9							
10SVH08	3	4	95,3	88,9	86,5	80,1	70,2	65,7	44,5							
10SVH11	4	5,5	129,6	121,3	118,1	109,6	96,3	90,3	62,1							
10SVH15	5,5	7,5	179,5	167,9	163,4	151,6	132,8	124,3	83,9							
10SVH20	7,5	10	240,6	226,0	220,3	205,0	180,2	168,9	114,3							
10SVH21	11	15	253,6	241,0	235,5	220,2	195,0	183,5	127,5							
15SVH02	2,2	3	28,7			26,7	25,9	25,5	23,9	22,4	18,9	17,4	13,1			
15SVH03	3	4	43,3			40,4	39,1	38,6	36,2	33,8	28,7	26,5	20,1			
15SVH05	4	5,5	72,7			67,8	65,8	65,0	61,0	57,1	48,7	45,2	34,9			
15SVH07	5,5	7,5	101,9			94,5	91,9	90,8	85,7	80,6	69,4	64,7	50,5			
15SVH09	7,5	10	131,9			124,4	121,0	119,6	112,8	106,1	91,5	85,5	67,4			
15SVH13	11	15	191,3			179,2	174,5	172,5	163,1	153,7	133,1	124,5	98,6			
15SVH17	15	20	251,6			237,3	231,4	228,9	216,9	205,0	178,4	167,3	133,6			
22SVH01	1,1	1,5	14,7					13,5	12,7	12,0	10,4	9,7	7,7	6,3	4,7	3,4
22SVH03	3	4	45,4					42,2	40,4	38,5	34,5	32,8	27,8	24,2	20,2	16,6
22SVH04	4	5,5	60,9					56,8	54,4	51,9	46,6	44,4	37,9	33,1	27,7	23,0
22SVH05	5,5	7,5	76,0					70,9	67,9	64,9	58,3	55,6	47,4	41,4	34,7	28,8
22SVH07	7,5	10	108,5					103,1	99,4	95,7	87,2	83,7	73,1	65,3	56,5	48,8
22SVH10	11	15	155,4					148,2	143,1	137,8	125,9	120,9	105,8	94,8	82,3	71,3
22SVH14	15	20	216,6					207,7	200,9	193,7	177,4	170,4	149,4	133,9	116,1	100,6
22SVH17	18,5	25	263,5					252,8	244,7	236,0	216,2	207,8	182,3	163,6	142,0	123,2

Performances in compliance with ISO 9906 - Annex A.

10-22svh-2p50-en_b_th

33, 46, 66, 92SVH SERIES
Hydraulic performance table at 50 Hz, 2 poles

PUMP TYPE	RATED POWER		Q = DELIVERY										
			l/min 0	250	300	367	417	500	583	667	750	900	1000
			m^3/h 0	15	18	22	25	30	35	40	45	54	60
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER										
33SVH1	3	4	23,8	21,7	21,2	20	20	17,8	15,5	12,7			
33SVH2	5,5	7,5	47,8	45	44,1	43	41	39	35	29,9			
33SVH3	7,5	10	71,5	67,4	66,0	64	62	58	52,0	44,6			
33SVH4	11	15	95,9	91,1	90	87	85	80	73	63,1			
33SVH5	15	20	120,4	114,9	113	110	107	101	92	80,5			
33SVH6	15	20	145,6	139	137	133	129	121	110	96,1			
33SVH7	18,5	25	170,3	162,8	160	156	152	142	130	113,3			
46SVH1	4	5,5	27,2			24	23,5	22,5	21,4	19,9	18,2	14,3	10,8
46SVH2	7,5	10	52,6			48,5	47,7	46,1	44,2	41,7	38,7	31,4	25,1
46SVH3	11	15	80,8			74,3	73	71	68	65	60	50	40,7
46SVH4	15	20	107,3			99,8	98	96	92	87	82	68	55,9
46SVH6	22	30	161			149,9	148	144	139	132	124	104	86

Performances in compliance with ISO 9906 - Annex A.

33-46svh-2p50-en_a_th

PUMP TYPE	RATED POWER		Q = DELIVERY											
			l/min 0	500	600	700	750	900	1000	1200	1300	1417	1600	1800	2000
			m^3/h 0	30	36	42	45	54	60	72	78	85	96	108	120
	kW	HP	H = TOTAL HEAD METRES COLUMN OF WATER												
66SVH1	5,5	7,5	29,2	25,8	24,8	23,8	23,3	21,8	20,7	17,9	16,1	13,5			
66SVH2	11	15	60,4	55,7	54,4	52,8	52	49,3	47,1	42	38,9	34,7			
66SVH3	18,5	25	91,4	84,7	83	81	79	75	72	64	60	53,5			
66SVH4	22	30	121,6	112,5	110	107	105	100	96	86	79	70,8			
92SVH1	7,5	10	33,5				28,7	27,2	26,2	24,3	23,3	22,2	20,2	17,6	14,3
92SVH2	15	20	67,8				58,2	55	53	49,5	47,6	45,2	41,4	36,3	29,6
92SVH3	22	30	102,2				88,2	84	81	76	73	69	63	56	46,3

Performances in compliance with ISO 9906 - Annex A.

66-92svh-2p50-en_a_th