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Pentair Water

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VSD

Variable speed drive

Variable speed pressure
booster systems

Variable speed drive

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Variable speed pressure booster systems

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VARIABLE SPEED DRIVE

Easy to install, VSD manages all controls necessary for a pumping system.

VSD variable speed pumping system keeps constant delivery when pressure variations occur. The status display allows instant overview of operating characteristics.

VSD cuts your electricity usage by automatically pumping only what is required by the system.

VSD range is available in three versions:

- VSD1 Basic (max 4.5 Amp.)
- VSD1 (max 9.3 Amp.)
- VSD3 (max 13.3 Amp.)

- **ENERGY SAVING**
- **REDUCED WATER CONSUMPTION**
- **CONSTANT PRESSURE**

THE DISPLAY INDICATES

- Pump working frequency
- Instant pressure
- Absorbed power
- Alarms



SAVE MONEY

**Test: example with a 1.1 kw electro pump at 3,0 bar pressure
(continuous working)**

Flow (l/min)	Flow consumption %	Consumption (Kw) using a standard pump (instantaneous power)	Consumption (Kw) using VSD (instantaneous power)	Kw saved (instantaneous)	Kw saved within 12 months (8760 running hours)
5	20%	1,295	0,185	1,11	1.945
10	40%	1,388	0,555	0,833	2.917
20	20%	1,48	0,74	0,74	1.296
30	9%	1,573	1,11	0,463	365
40	6%	1,794	1,57	0,224	118
50	5%	1,85	1,85	0	0
Annual saving (Kw)					6.641



VSD 1 Basic is a 1X230 V single-phase device which is able to modulate the speed of a three-phase pump 3X230 V with the purpose to maintain constant pressure.

- **COMPACT SIZE**
- **HIGH RELIABILITY**
- **EXTREMELY SILENT**

Technical Features

- | | |
|-----------------------------|-------------------|
| - Max motor current | 4.5 Amp. |
| - Power supply voltage | 1X230 V |
| - Electropump voltage | 3X230 V |
| - Liquid temperature | 45° C |
| - Max operating pressure | 10 bar |
| - Pressure regulation range | 1÷9 Bar |
| - Set point | 1 |
| - Inlet | 1" 1/4 M (male) |
| - Outlet | 1" 1/2 F (female) |
| - Protection degree | IP55 |



Protection Devices

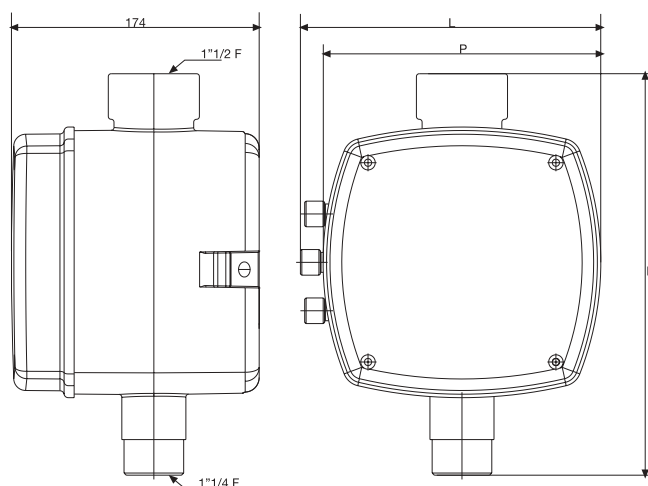
- Dry running
- Overcurrent
- Overtemperature of the electronics

Working Position



Applications

- Irrigation
- Industry
- Hotel installations
- Buildings
- Washing systems



DIMENSIONS AND WEIGHTS

Code	Model	Dimensions mm.			Weight kg.
		L	H	P	
ZB902170	VSD1Basic	22	28	18	3.4



VSD 1 is a 1X230 V single-phase device which is able to modulate the speed of a three-phase pump 3X230 V with the purpose to maintain constant pressure. VSD1 is able to control two different set points.

- **COMPACT SIZE**
- **EXTREMELY SILENT**
- **2 SET POINTS**

Technical Features

- | | |
|---|--|
| - Max motor current | 9.3 Amp. |
| - Power supply voltage | 1X230 V |
| - Electropump voltage | 3X230 V |
| - Liquid temperature | 45° C |
| - Max operating pressure | 10 bar |
| - Pressure regulation range | 1÷9 Bar |
| - Inlet | 1" 1/4 M (male) |
| - Outlet | 1" 1/2 F (female) |
| - Protection degree | IP55 |
| - Set points | 2 |
| - Output rele (free contact) | 2 (fault; pump running) |
| - Digital input | Float switch, second set point selection |
| - Connectivity | Serial interface RS 485 |
| - Cyclical changeover of pumps if used in twin-pump units | |



Protection Devices

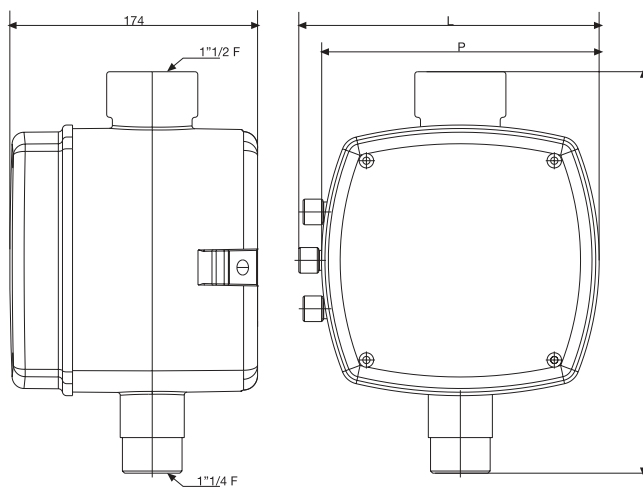
- Dry running
- Amperometric
- Overcurrent
- Overtemperature of the electronics

Working Position



Applications

- Irrigation
- Industry
- Hotel installations
- Buildings
- Washing systems



DIMENSIONS AND WEIGHTS

Code	Model	Dimensions mm.			Weight kg.
		L	H	P	
ZB902180	VSD1	22	28	18	3.8



VSD 3 is a 3X400 V three-phase device which is able to modulate the speed of a three-phase pump 3X400 V with the purpose to maintain constant pressure. VSD3 is able to control two different set points.

- **COMPACT SIZE**
- **EXTREMELY SILENT**
- **2 SET POINTS**

Technical Features

- | | |
|---|--|
| - Max motor current | 13.3 Amp. |
| - Power supply voltage | 3X400 V |
| - Electropump voltage | 3X400 V |
| - Liquid temperature | 45° C |
| - Max operating pressure | 10 bar |
| - Pressure regulation range | 1÷9 Bar |
| - Inlet | 1" 1/4 M (male) |
| - Outlet | 1" 1/2 F (female) |
| - Protection degree | IP55 |
| - Set points | 2 |
| - Output rele (free contact) | 2 (fault; pump running) |
| - Digital input | Float switch, second set point selection |
| - Connectivity | Serial interface RS 485 |
| - Cyclical changeover of pumps if used in twin-pump units | |



Protection Devices

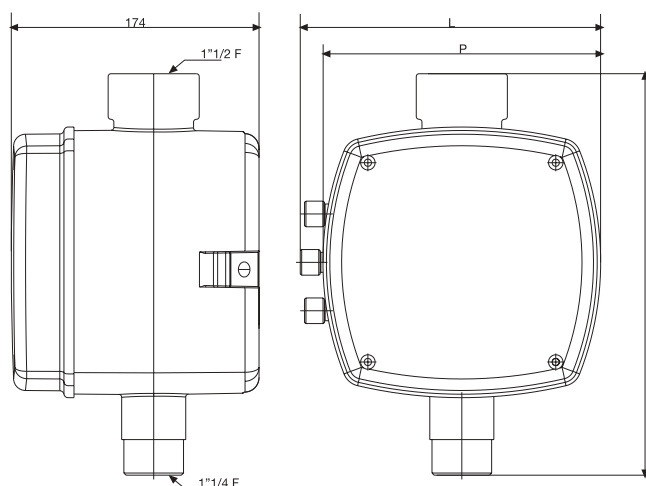
- Dry running
- Amperometric
- Overcurrent
- Overtemperature of the electronics

Working Position



Applications

- Irrigation
- Industry
- Hotel installations
- Buildings
- Washing systems



DIMENSIONS AND WEIGHTS

Code	Model	Dimensions mm.			Weight kg.
		L	H	P	
ZB902190	VSD3	22	28	18	3.6

VSD.20 - MULTINOX

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20 – MULTINOX is a booster set assembled with 2 MULTINOX multi stage centrifugal pumps and 2 **VSD1** or **VSD1 Basic** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH HYDRAULIC EFFICIENCY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed. If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point. In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD1** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply systems
- Pressure boosting
- Washing systems
- Irrigation

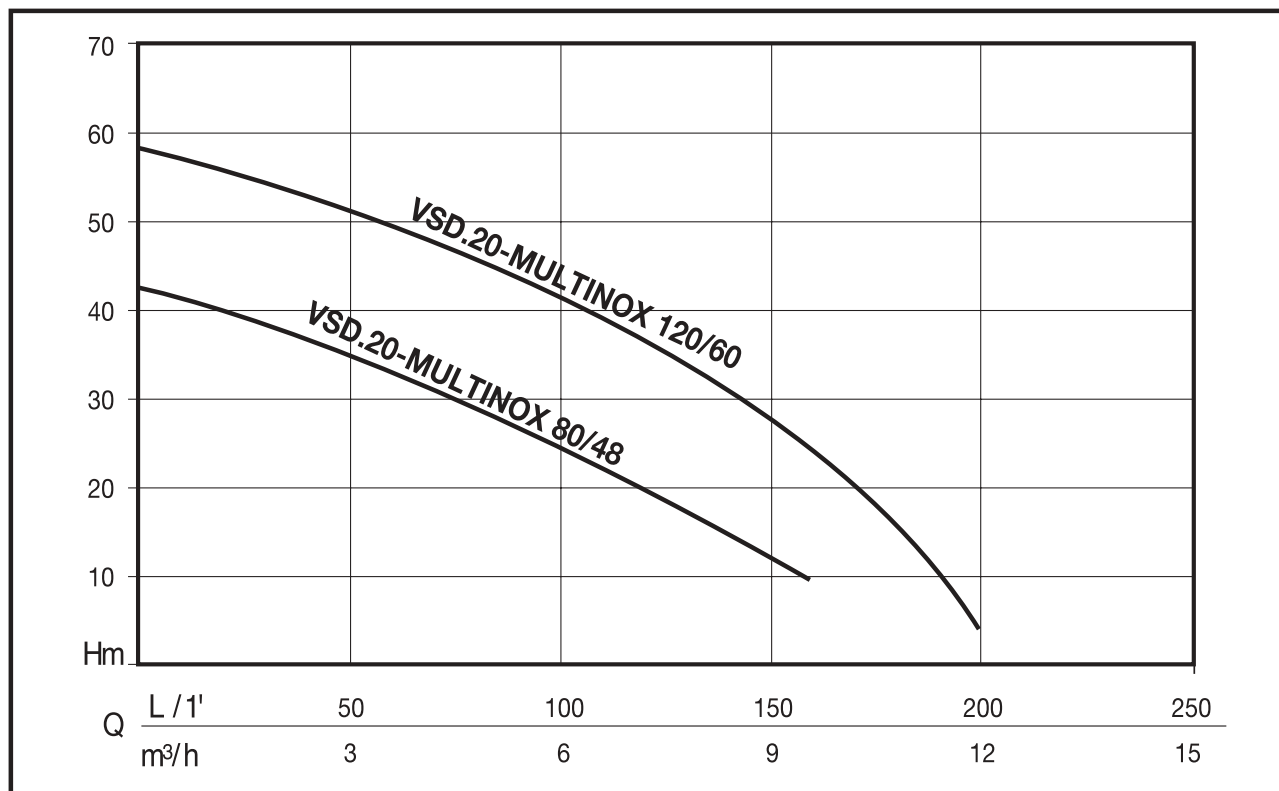
Versions available

- MULTINOX 80/48 with VSD1 Basic and VSD1
- MULTINOX 120/60 with VSD1 Basic and VSD1

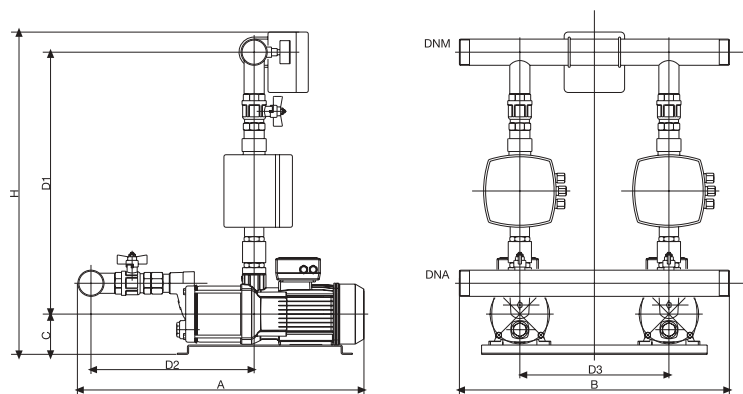
DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

TABLE OF HYDRAULIC PERFORMANCE

PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage V	Output voltage V	Amp. A	Q L/1' m³/h	40	80	120	160	200
		HP	kW					2,4	4,8	7,2	9,6	12
UI600710	VSD1 basic-20/MULTINOX 80/48	2X1,1	2x0,8	1~ 230	3~ 230	2X3,8	Discharge head in meters	37	29	20	9	
UI600700	VSD1-20/MULTINOX 80/48											
UI600720	VSD1-20/MULTINOX 120/60	2X1,7	2X1,25	1~ 230	3~ 230	2X3,5		53	46	36	25	4
UI600730	VSD1 basic-20/MULTINOX 120/60											


DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600710	VSD1 basic-20/MULTINOX 80/48	570	580	170	790	580	320	310	1" 1/2	1" 1/2	47
UI600700	VSD1-20/MULTINOX 80/48	570	580	170	790	580	320	310	1" 1/2	1" 1/2	48
UI600720	VSD1-20/MULTINOX 120/60	590	580	170	790	580	340	310	1" 1/2	1" 1/2	50
UI600730	VSD1 basic-20/MULTINOX 120/60	590	580	170	790	580	340	310	1" 1/2	1" 1/2	49

VSD.20 - MAX

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20-MAX is a booster set assembled with 2 MAX self priming multi stage centrifugal pumps and 2 **VSD1** or **VSD1 Basic** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH HYDRAULIC EFFICIENCY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed. If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point. In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD1** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply systems
- Pressure boosting
- Washing systems
- Irrigation

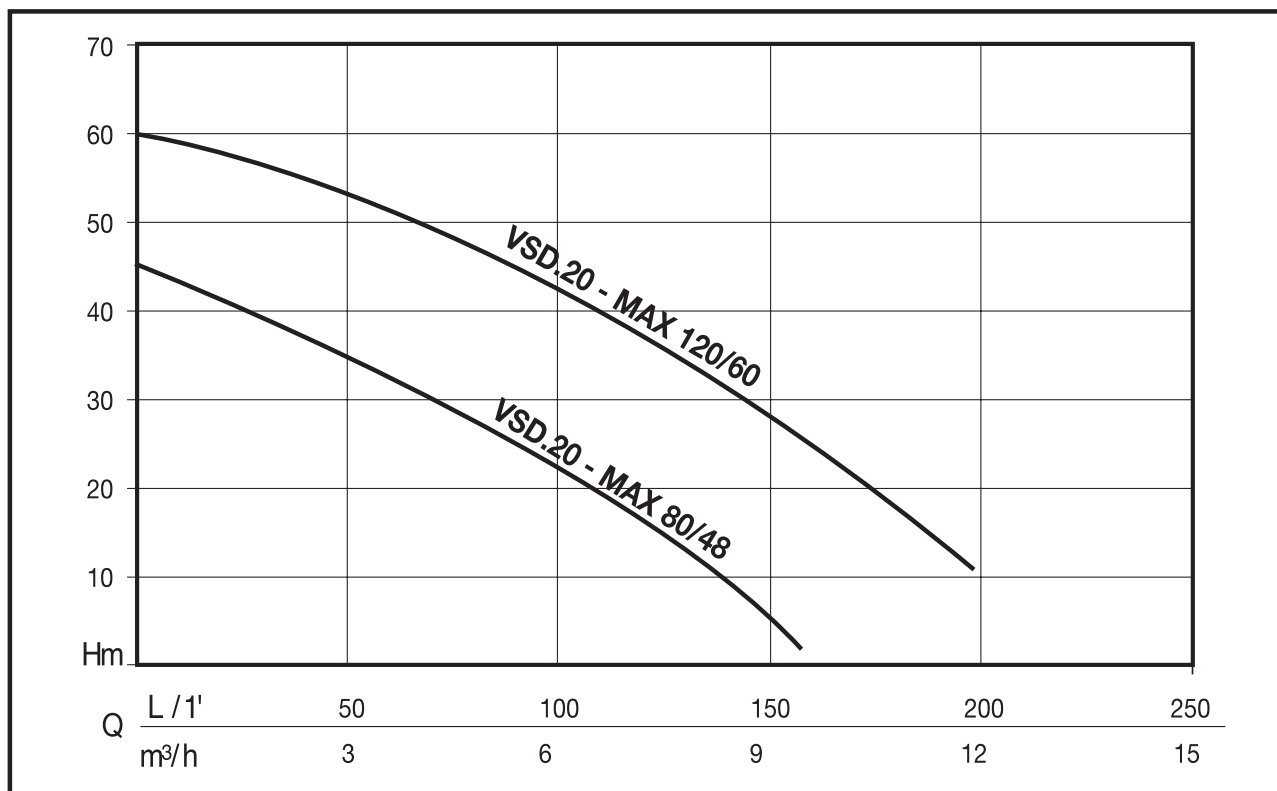
Versions available

- MAX 80/48 with VSD1 Basic and VSD1
- MAX 120/60 with VSD1 Basic and VSD1

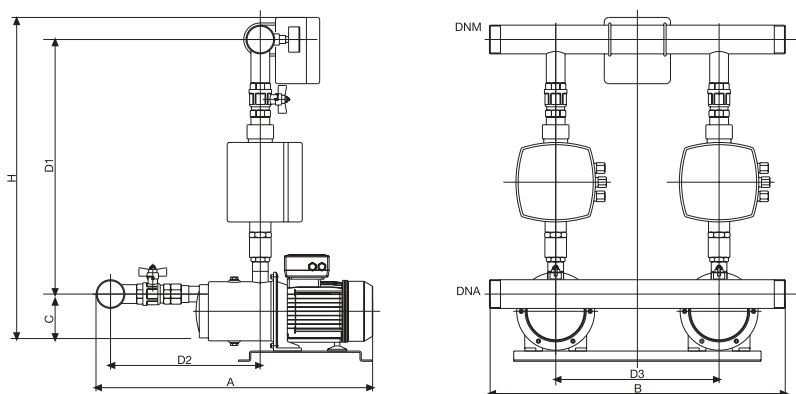
DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

TABLE OF HYDRAULIC PERFORMANCE

PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage	Output voltage	Amp.	Q L/1' m³/h	40	80	120	160	200
		HP	kW	V	V	A		2,4	4,8	7,2	9,6	12
UI600810	VSD1 basic-20/MAX 80/48	2X1,1	2x0,8	1~ 230	3~ 230	2X2,6	Discharge head in meters	36	28	17	1	
UI600800	VSD1-20/MAX 80/48											
UI600830	VSD1 basic-20/MAX 120/60	2X1,7	2X1,25	1~ 230	3~ 230	2X3,5		55	48	36	26	10
UI600820	VSD1-20/MAX 120/60											


DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600810	VSD1 basic-20/MAX 80/48	565	580	160	810	610	290	310	1" 1/2	1" 1/2	39
UI600800	VSD1-20/MAX 80/48	565	580	160	810	610	290	310	1" 1/2	1" 1/2	40
UI600830	VSD1 basic-20/MAX 120/60	585	580	160	810	610	310	310	1" 1/2	1" 1/2	44
UI600820	VSD1-20/MAX 120/60	585	580	160	810	610	310	310	1" 1/2	1" 1/2	45

VSD.20 - MULTINOX A

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20 – MULTINOX A is a booster set assembled with 2 MULTINOX A self priming multistage centrifugal pumps and 2 **VSD1** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH SUCTION CAPABILITY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed. If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point. In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD1** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply systems
- Pressure boosting
- Washing systems
- Irrigation

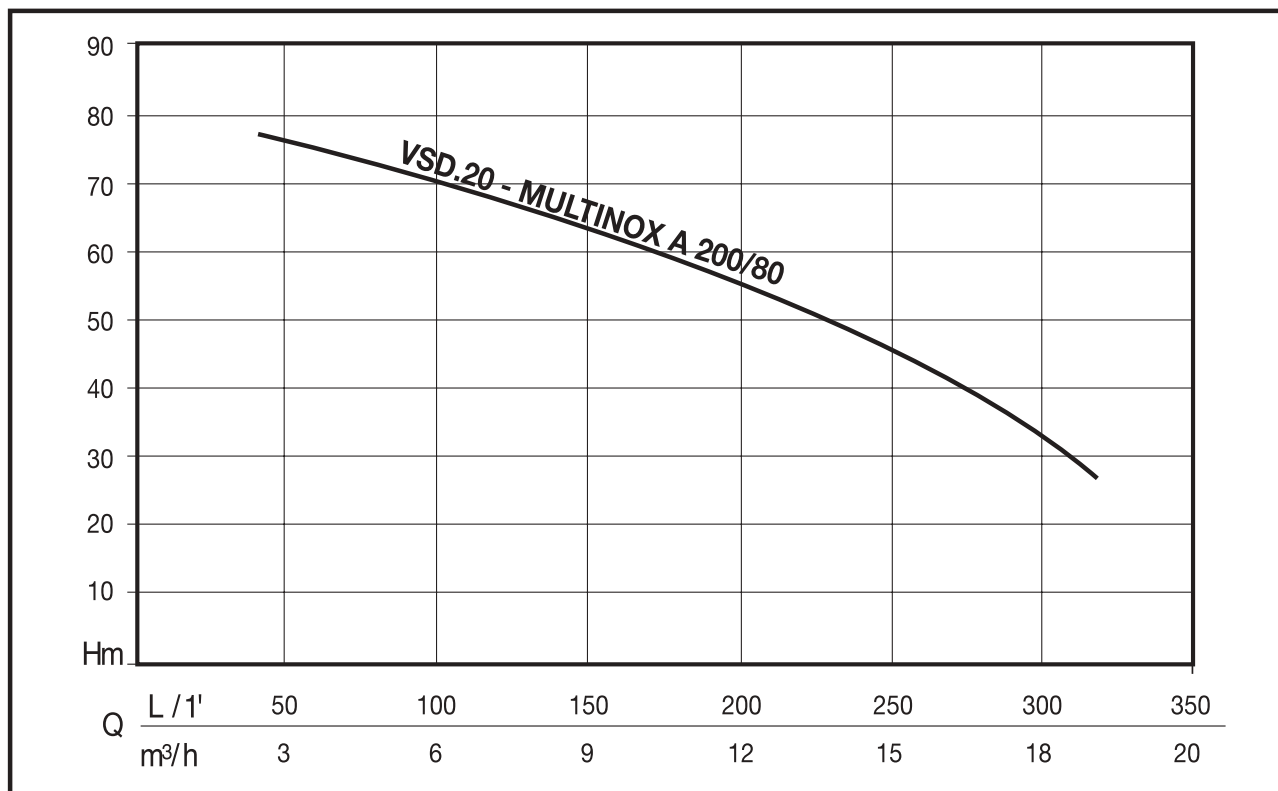
Version available

- MULTINOX A 200/80 with VSD1

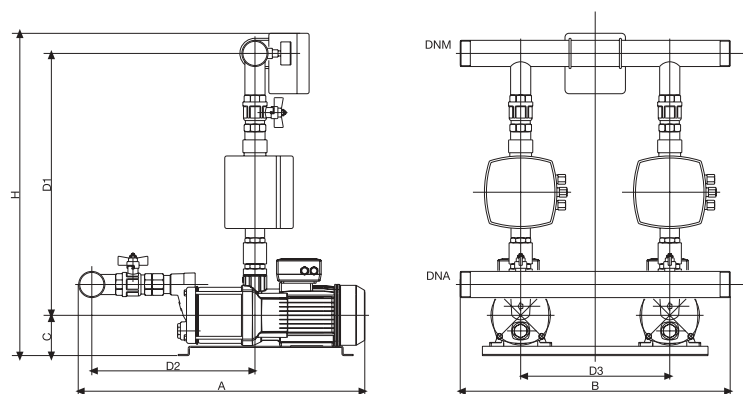
DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

TABLE OF HYDRAULIC PERFORMANCE

PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage V	Output voltage V	Amp. A	Q m³/h	L/1'	40	80	160	240	320
		HP	kW					m³/h	2,4	4,8	9,6	14,4	19,2
UI600740	VSD1-20/MULTINOX-A 200/80	2X3,5	2x2,6	1~ 230	3~ 230	2X8	Discharge head in meters	77	72	62	48	27	


DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600740	VSD1-20/MULTINOX-A 200/80	795	670	190	805	575	505	370	2"	2"	78

VSD.20 - MULTINOX VE

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20 – MULTINOX VE is a booster set assembled with 2 MULTINOX VE vertical multistage centrifugal pumps and 2 **VSD1** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH SUCTION CAPABILITY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed. If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point. In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD1** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply systems
- Pressure boosting
- Washing systems
- Irrigation

Versions available

- MULTINOX VE 200/52 with VSD1
- MULTINOX VE 200/65 with VSD1
- MULTINOX VE 200/80 with VSD1
- MULTINOX VE 200/90 with VSD1

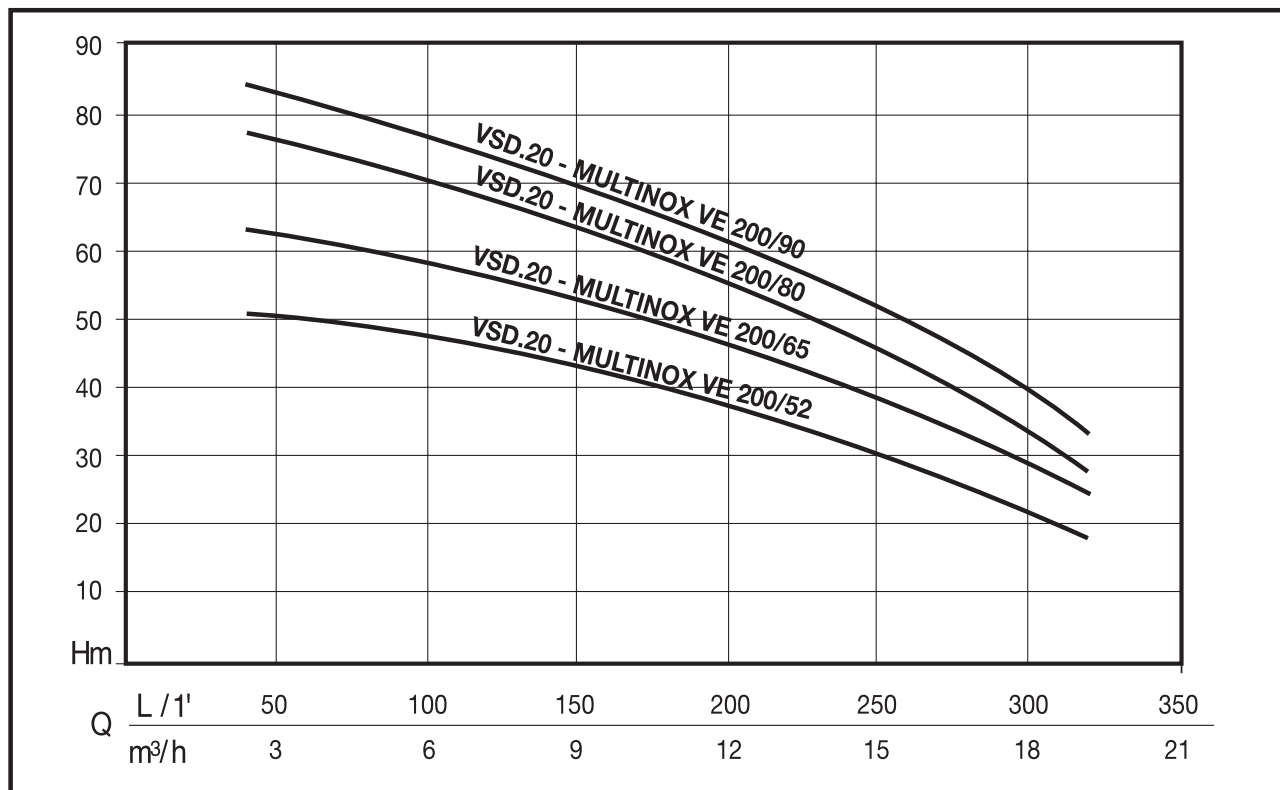
DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

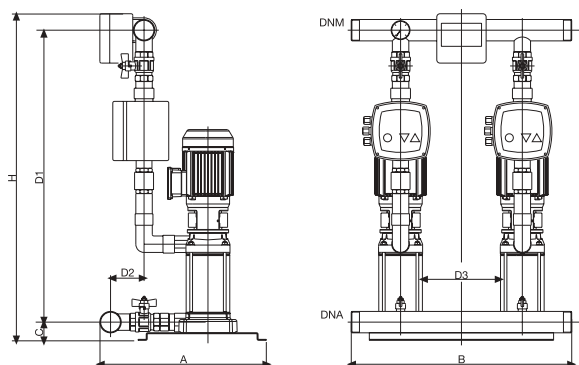


TABLE OF HYDRAULIC PERFORMANCE



PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage V	Output voltage V	Amp. A	Q L/1' m³/h	40	80	160	240	320
		HP	kW					2,4	4,8	9,6	14,4	19,2
UI600300	VSD1-20/MULTINOX -VE 200/52	2X2,5	2x1,8	1~ 230	3~ 230	2X5	Discharge head in meters	50	49	42	32	18
UI600200	VSD1-20/MULTINOX -VE 200/65	2X2,7	2x2	1~ 230	3~ 230	2X6		63	60	52	40	24
UI600100	VSD1-20/MULTINOX -VE 200/80	2X3,5	2X2,6	1~ 230	3~ 230	2X8		77	73	62	48	27
UI600000	VSD1-20/MULTINOX -VE 200/90	2X3,7	2X2,7	1~ 230	3~ 230	2X9		83	78	67	54	33



DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600300	VSD1-20/MULTINOX -VE 200/52	560	670	65	835	725	105	370	2"	2"	65
UI600200	VSD1-20/MULTINOX -VE 200/65	560	670	65	865	755	105	370	2"	2"	69
UI600100	VSD1-20/MULTINOX -VE 200/80	560	670	65	895	785	105	370	2"	2"	73
UI600000	VSD1-20/MULTINOX -VE 200/90	560	670	65	920	810	105	370	2"	2"	77

VSD.20 - DHR

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20 – DHR is a booster set assembled with 2 DHR multistage centrifugal pumps and 2 **VSD1** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH SUCTION CAPABILITY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed.

If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point.

In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD1** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply systems
- Pressure boosting
- Washing systems
- Irrigation

Version available

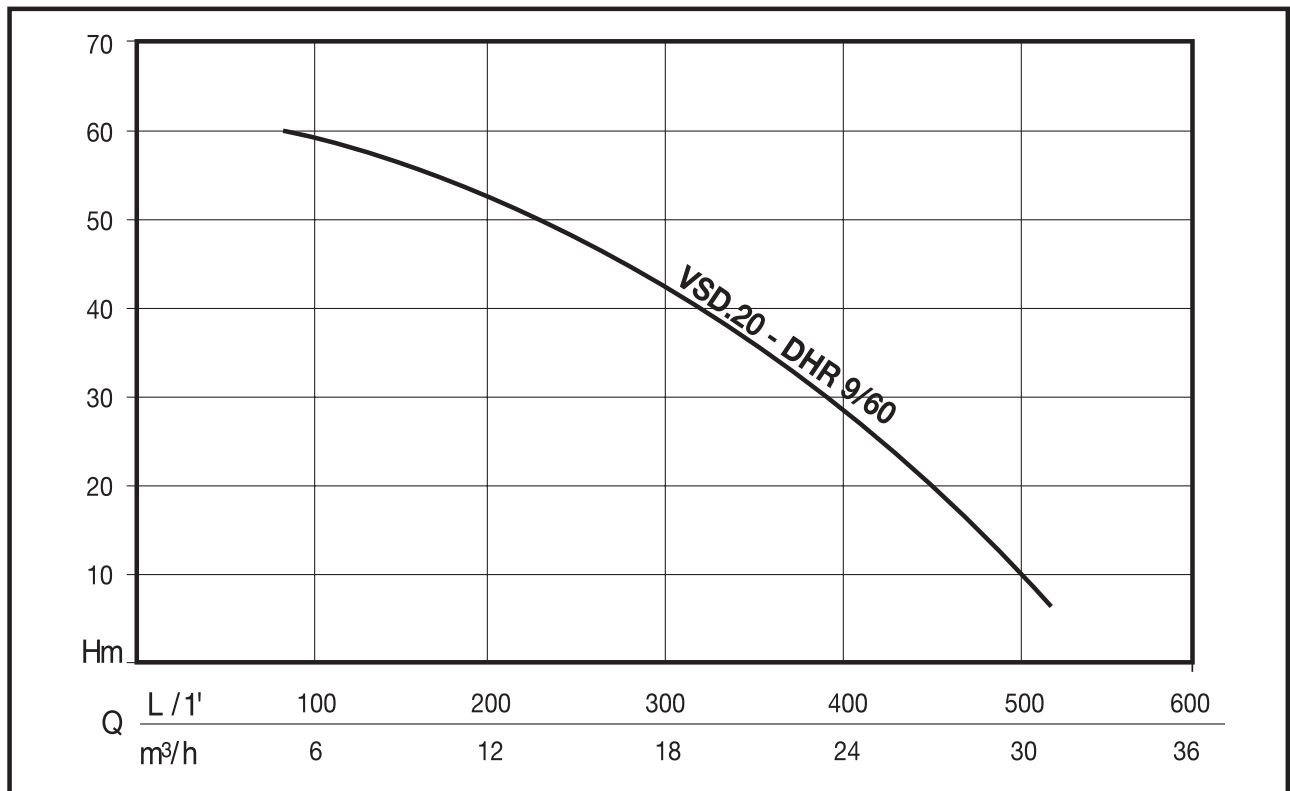
- DHR 9/60 with VSD1

DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

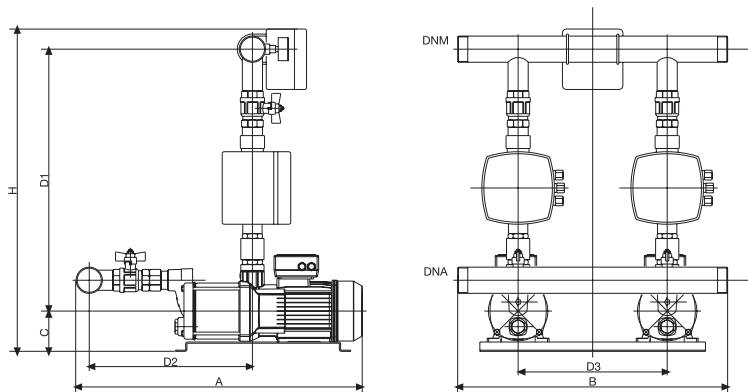
Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

TABLE OF HYDRAULIC PERFORMANCE



PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage V	Output voltage V	Amp. A	Q	L/1' m³/h	80	160	240	400	520
		HP	kW						4,8	9,6	14,4	24	31,2
UI600500	VSD1-20/DHR9-60	2X3,35	2x2,5	1~ 230	3~ 230	2X4,5	Discharge head in meters	60	55,7	49	28,8	6,1	



DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600500	VSD1-20/DHR9-60	710	670	100	800	650	405	370	2" 1/2	2"	77

VSD.20 - VLR

VARIABLE SPEED PRESSURE BOOSTER SYSTEMS

VSD.20 – VLR is a booster set assembled with 2 VLR vertical multistage centrifugal pumps and 2 **VSD3** inverters. Designed to provide variable flow at constant pressure.

- **SUITABLE FOR CONTINUOUS WORKING**
- **ENERGY SAVING**
- **HIGH HYDRAULIC EFFICIENCY**



Operation

The frequency control enables the delivery of variable flow at constant pressure by automatically reducing or increasing the motor speed according to water demand. When the maximum flow rate of the first pump is reached, the control system runs the pump at its maximum speed. If the first pump is not enough, the second inverter starts the second pump in order to maintain the desired operating pressure. The unit automatically stops when water demand is over and the system reaches the set point. In the event of a fault, the display will show the cause of the system shutdown.

Booster sets operated by **VSD3** Inverters enable the cyclical changeover of pumps.

Applications

VSD booster sets are the ideal solution in applications characterized by a need for variable flow at constant pressure:

- Water supply and transfer systems
- Pressure boosting
- High pressure washing systems
- Irrigation
- Boiler supply

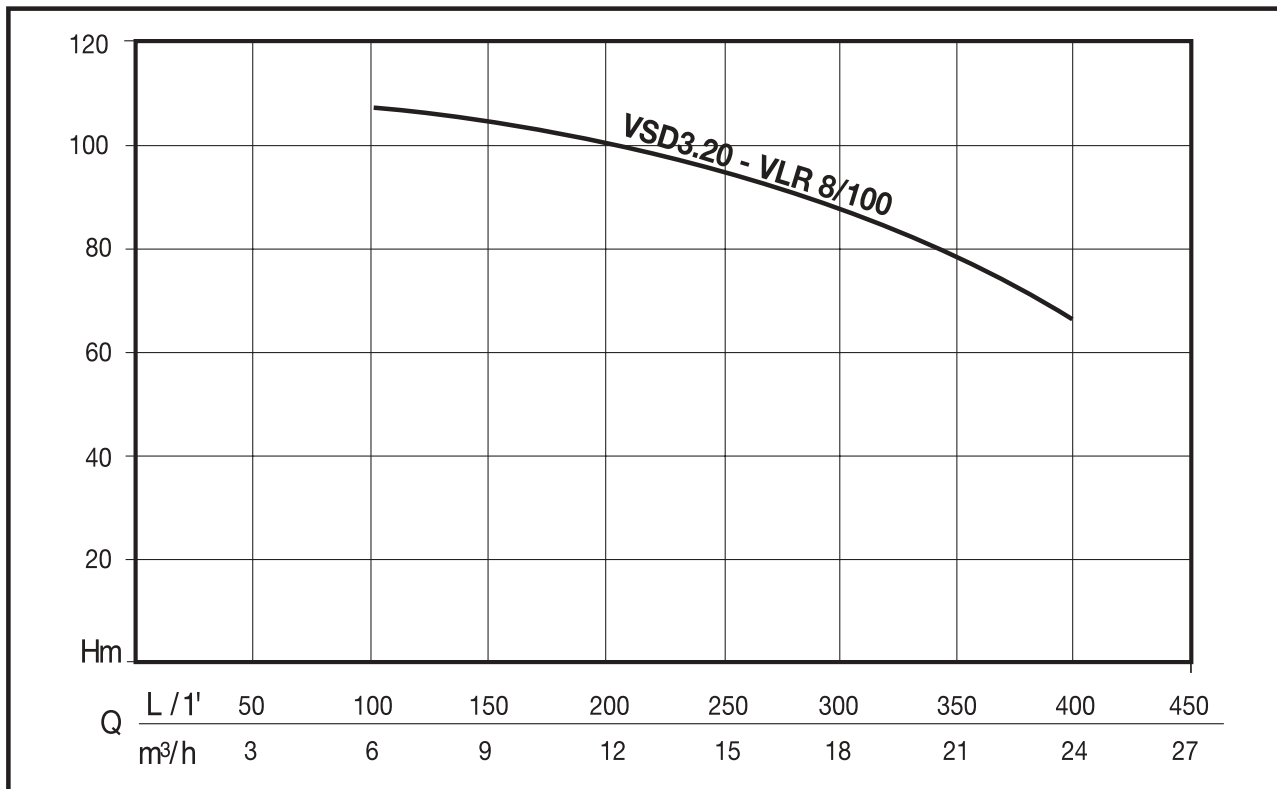
Version available

- VLR 8/100 with VSD3

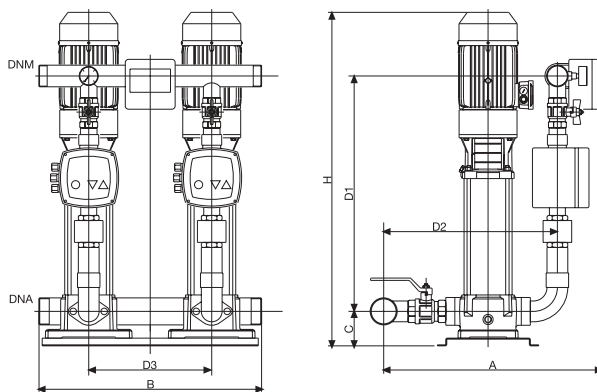
DESIGN FEATURES

Component	Material
Check valves	Brass
Ball valves	Brass
Base frame	Galvanized sheet iron
Delivery manifold	Galvanized sheet iron
Suction manifold	Galvanized sheet iron
Pressure gauge	

Protection switchboard equipped with thermo magnetic and terminal board for feeder line input

TABLE OF HYDRAULIC PERFORMANCE

PUMP PERFORMANCE

CODE	MODEL	Motor power		Supply voltage V	Output voltage V	Amp. A	Q m³/h	L/1'	100	200	300	350	400
		HP	kW					m³/h	6	12	18	21	24
UI600900	VSD3-20/VLR8/100	2X5,5	2x4	3- 400	3- 400	2X9,7	Discharge head in meters		106	100	88	76	65


DIMENSIONS AND WEIGHTS

CODE	MODEL	Dimensions							DNA	DNM	Weight kg.
		A	B	C	H	D1	D2	D3			
UI600900	VSD3-20/VLR8/100	730	670	110	940	680	540	370	2" 1/2	2"	141

ELECTROPUMPS	VSD1 Basic	VSD1	VSD3
VLR	VLR2B 30/2 to VLR2B - 110	VLR2B 30/2 to VLR2B - 220	VLR2B 30/2 to VLR2B – 260
	VLR 4 - 20 to VLR 4 - 60	VLR4 - 20 to VLR4 - 120	VLR4 - 20 to VLR4 - 160
	VLR8 - 20 to VLR8 - 30	VLR8 - 20 to VLR8 - 60	VLR8 - 20 to VLR8 - 80
		VLR16 - 30/2	VLR16 - 30/2 to VLR16 - 60
MULTINOX VE	MULTINOX-VE 200/40	WHOLE RANGE	
DHR	WHOLE RANGE		
DHI	WHOLE RANGE		
MCX	MCX 80/36 to MCX 80/60	WHOLE RANGE	
	MCX 120/36 to MCX 120/60		
	MCX 200/40		
MULTINOX	WHOLE RANGE		
MAX	WHOLE RANGE		
MULTINOX A	MXA 200/40	WHOLE RANGE	
JET	JET 600 to JET 1000	WHOLE RANGE	
CM	CM 90/22 to CM 100/36	WHOLE RANGE	
CB	CB 80/38 to CB90/44	CB 80/38 to CB120/65	CB 80/38 to CB190/76
DOMINATOR 5	WHOLE RANGE		
SCM 4 PLUS	IDR.SCM4PLUS 75/75 with MOT. EL.4”HP1T V3X230/50 IDR.SCM4PLUS 115/65 with MOT. EL.4”HP1T V3X230/50 IDR.SCM4PLUS 150/42 with MOT. EL.4”HP1T V3X230/50	IDR.SCM4PLUS 75/75 with MOT. EL.4”HP1T V3X230/50	SCM 4 PLUS 40/57 to SCM 4 PLUS 40/90
		IDR.SCM4PLUS 115/65 with MOT. EL.4”HP1T V3X230/50	SCM 4 PLUS 55/50 to SCM 4 PLUS 55/80
		IDR.SCM4PLUS 150/42 with MOT. EL.4”HP1T V3X230/50	SCM 4 PLUS 75/56 to SCM 4 PLUS 75/75
		IDR.SCM4PLUS 115/95 with MOT. EL.4”HP1,5T V3X230/50	SCM 4 PLUS 115/30 to SCM 4 PLUS 115/95
		IDR.SCM4PLUS 150/64 with MOT. EL.4”HP1,5T V3X230/50	SCM 4 PLUS 150/42 to SCM 4 PLUS150/84
		IDR.SCM4PLUS 150/84 with MOT. EL.4”HP2T V3X230/50	SCM 4 PLUS 250/53 to SCM 4 PLUS 250/100
SCM 4 HF 400			SCM 4 HF 400/30 to 400/80
SA			SA 615/4 to SA 615/6