

## NOCCHI FREQUENCY CHANGER PRESSURE BOOSTERS WITH VARIABLE SPEED

SILENT OPERATION, CONSTANT PRESSURE, PIPELINES IN AISI 304, QUALITY FREQUENCY CONVERTER

These are automatic pressure booster sets for installation on the water mains with three phase electric power supply, transducer control and variable speed. The speed of the first pump that starts is modulated by the inverter linked to an electronic board via a pressure transducer, so that outlet pressure is kept constant on the unit regardless of the quantity of water collected (within the flow rate limits of the first pump). When the quantity of water collected exceeds the flow rate of the first pump,

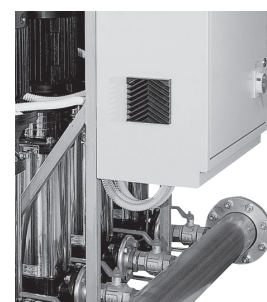
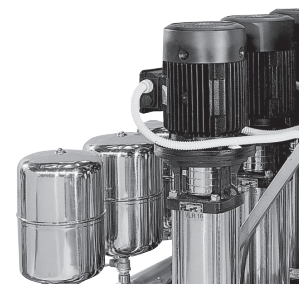
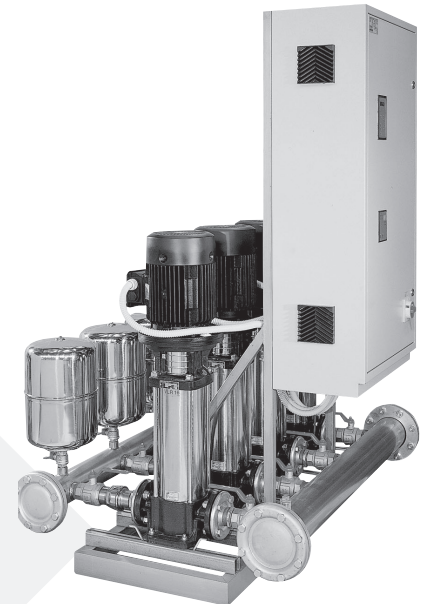
the second pump is started up at a fixed speed, while the speed of the first continues to be modulated by the inverter.

When the set water quantity has been delivered, the inverter controlled pump runs at a higher speed for a settable interval, to enable the storage of a certain amount of water under pressure, thereby prolonging the pump standby time.

NUMBER OF PUMPS		MAXIMUM FLOW RATE	
Main	Pilot	L/min	m <sup>3</sup> /h
2	-	from 100 to 1400	from 6 to 84
3	-	from 150 to 2100	from 9 to 126
4	-	from 200 to 2800	from 12 to 240

APPLICATION DATA	VLR 8			VLR 16		
	FCD20	FCD30	FCD40	FC.20	FC.30	FC.40
Maximum flow rate (m <sup>3</sup> /h)	24	36	48	42	63	84
Maximum head (m.c.a.)	103			91		

APPLICATION DATA	VLR 32		
	FC.20	FC.30	FC.40
Maximum flow rate (m <sup>3</sup> /h)	84	126	240
Maximum head (m.c.a.)	89		
Maximum operating pressure	16 bar		
Power supply voltage	400 V		
Direct pump start-up	Direct up to 7.5 kW inclusive. Star/Delta over 7.5 kW		
Operating frequency	25 - 50 Hz		
Ambient temperature	+50° C		
Electric pump protection rating	IP55 IP44 for MULTINOX-VE		
EL. panel protection rating	IP54		



# NOCCHI FREQUENCY CHANGER PRESSURE BOOSTERS WITH VARIABLE SPEED

## ELECTRIC PUMP

VLR:

- Centrifugal, multi-cell, vertical axis.

## BASE

- Galvanized steel profile

## SUCTION MANIFOLD

In AISI 304 stainless steel with:

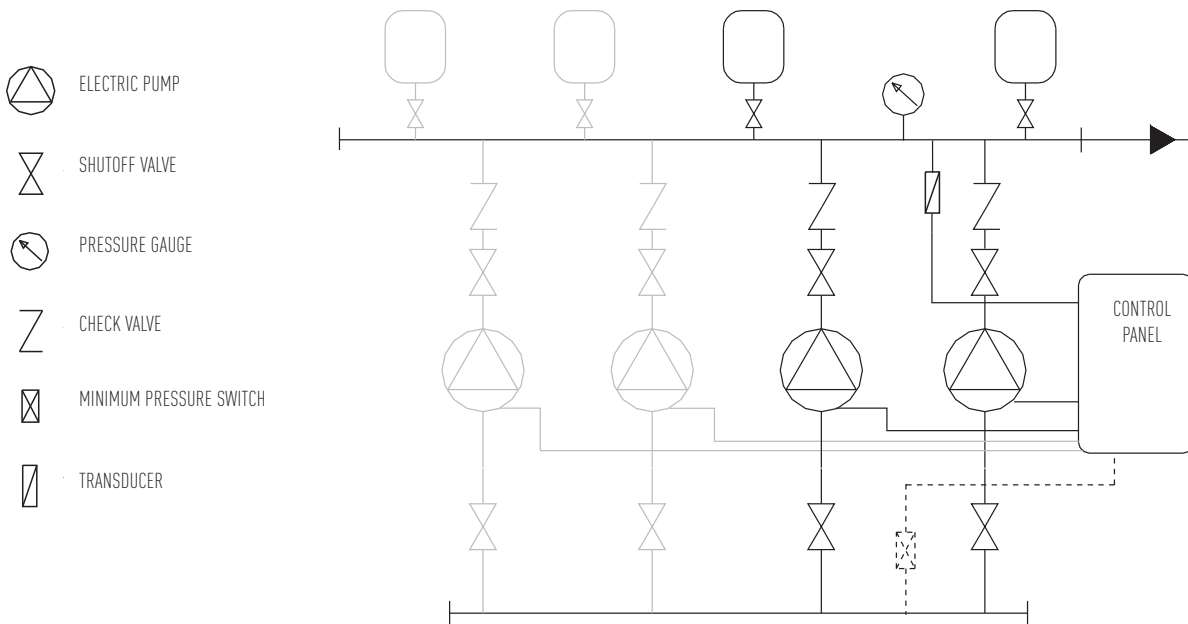
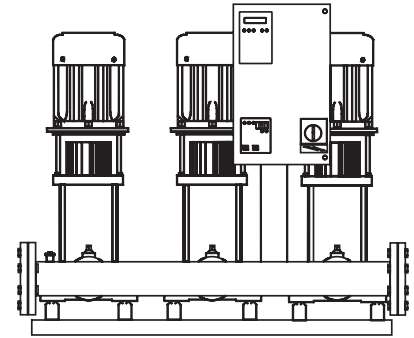
- 1 water filling hose
- 1 brass ball valve \*
- 1 check valve \*

## DELIVERY MANIFOLD

In AISI 304 stainless steel with:

- 1 pressure gauge
- 1 pressure transducer 0-5Volt - 0-10 Bar
- 1 brass ball valve \*

\* components for each electric pump installed



# NOCCHI FREQUENCY CHANGER

## PRESSURE BOOSTERS WITH VARIABLE SPEED

### CONTROL PANEL - PILOT PILOT



### ELECTRICAL PANEL

- IP 54 metal enclosure
- Main switch
- Keypad with SA electronic board.
- Fuses, contactors and thermal relay for each pump.
- Transformer with fuses for auxiliary circuit.
- M-0-T selector for each pump.
- Delta-Star starter for motors over 7.5 kW.

### ACCESSORIES

Frequency converter accessories available on request	FCD
	FCY
Float switch for protection against dry running	X
Differential pressure switch for inhibition in event of mains pressure failure	X
Electrodes for electronic level control	X
Membrane autoclaves	X

### MAIN FUNCTIONS

- Sequential inversion of pump start-up at the end of each work cycle.
- Timer, settable from 0 to 255 sec., for pump operation after opening of the pressure switch contact or when operating pressure values are reached.
- ON/OFF control of tank level for first collection or pressure in supply pipeline via a float switch or other differential pressure switch.
- Sequential control of pump start-up to prevent simultaneous activation.

### EXTERNAL CONTROL DEVICES

- ON/OFF float switch installed in the water collection tank, or
- 3 electrodes for electronic level control in first collection tank
- Inverse pressure switch inserted in water supply line (aqueduct).

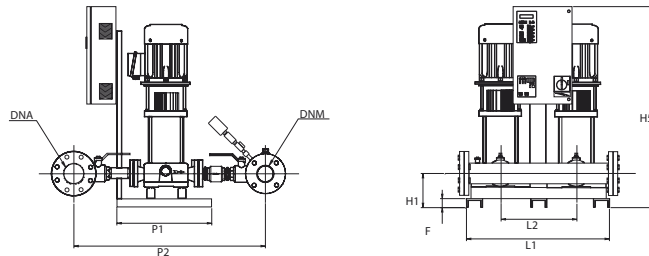
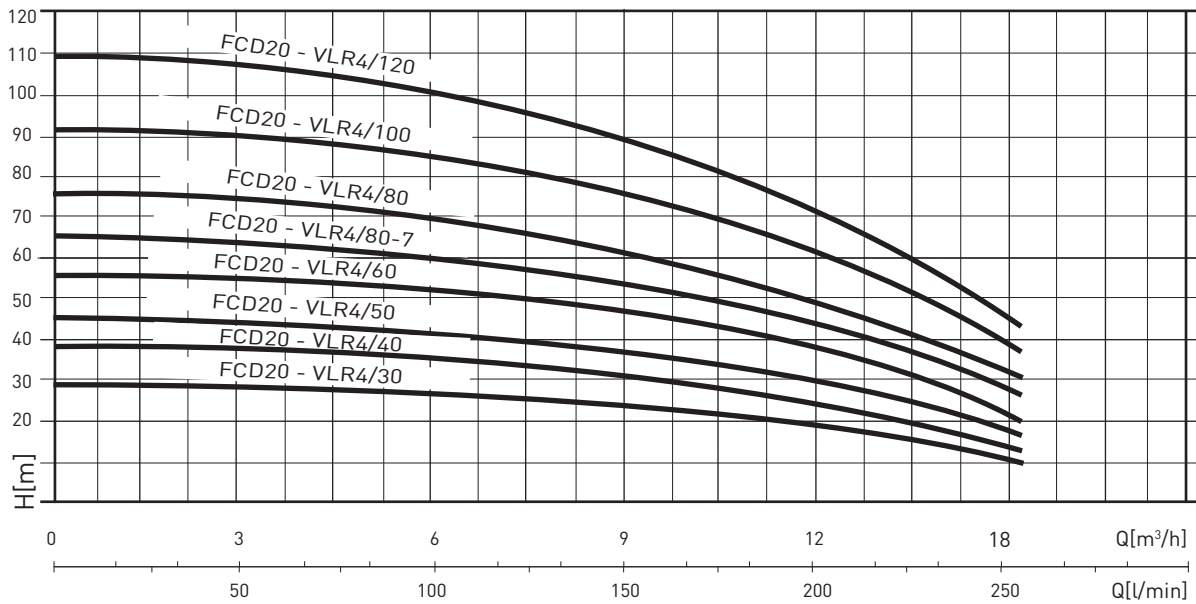
### SIGNALS AND CONTROLS

- LCD display to indicate operating parameters and for entry of configuration parameters and settings.
- Power ON indicator led.
- Indicator led to signal low water level in tank on first collection or low pressure on water supply line (aqueduct).
- Indicator led to signal trip of the overload thermal cut-out.
- Automatic/Manual mode indicator led.
- Pump running indicator led for each pump.
- Buttons for selection of automatic or manual control.
- Start-stop button for each pump when set to manual mode.
- Button to enter configuration parameters.

# NOCCHI FCD20 - VLR 4

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min m³/h	m.c.a. / m.w.c.										
			0	80	100	120	140	160	180	200	220	240	260
FCD20-VLR4/30	2x0.55	0	29	28	26.5	25	23.5	22	20.5	19	16	13	9
FCD20-VLR4/40	2x0.75	4.8	37	36	34.5	33	31	29	27	25	21.5	18	12
FCD20-VLR4/50	2x1.1	6	45	44	43	42	39.5	37	34	31	27	23	16
FCD20-VLR4/60	2x1.1	7.3	55	53	51.5	50	47	44	41	38	31.5	27	20
FCD20-VLR4/80-7	2x1.5	8.4	64	61	59.5	58	54.5	51	47.5	44	38	32	25
FCD20-VLR4/80	2x1.5	9.6	75	71	69	67	63	59	54.5	50	43.5	37	25
FCD20-VLR4/100	2x2.2	10.8	91	90	86	82	77	72	66.5	61	53.5	46	37
FCD20-VLR4/120	2x2.2	12	109	107	103	99	93	87	80	73	63.5	54	43.5

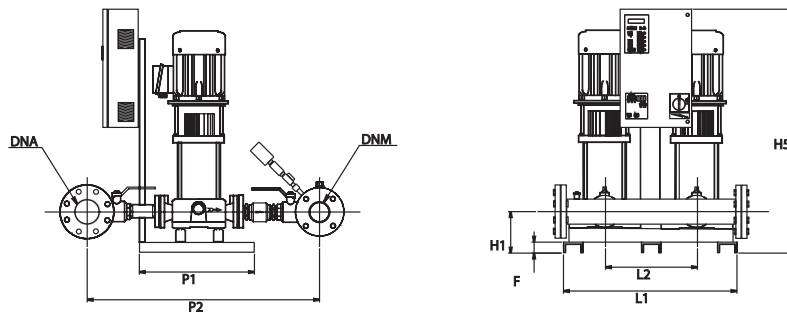
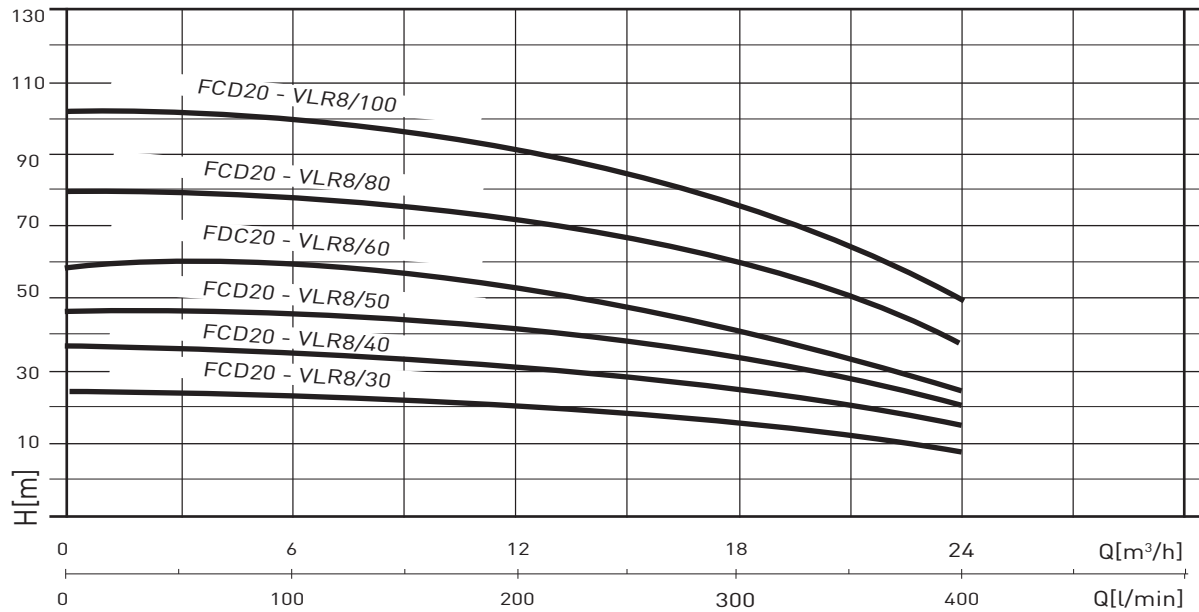
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD20-VLR4/30	680	500	620	150	1270	2"	2"	45	370	164
FCD20-VLR4/40	680	500	620	150	1270	2"	2"	45	370	170
FCD20-VLR4/50	680	500	620	150	1270	2"	2"	45	370	176
FCD20-VLR4/60	680	500	620	150	1270	2"	2"	45	370	179
FCD20-VLR4/80-7	680	500	620	150	1270	2"	2"	45	370	200
FCD20-VLR4/80	680	500	620	150	1270	2"	2"	45	370	200
FCD20-VLR4/100	680	500	620	150	1270	2"	2"	45	370	209
FCD20-VLR4/120	680	500	620	150	1270	2"	2"	45	370	212

# NOCCHI FCD20 - VLR 8

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	100	200	300	350	400
		m³/h	6	12	18	21	24
FCD20-VLR8/30	2x1.1	m.c.a. / m.w.c.	31	29	24	21	16
FCD20-VLR8/40	2x1.5		41	38	32	27	22
FCD20-VLR8/50	2x2.2		52	48	40	34	27
FCD20-VLR8/60	2x2.2		62	58	48	41	33
FCD20-VLR8/80	2x3		82	77	64	55	44
FCD20-VLR8/100	2x4		103	96	80	69	55

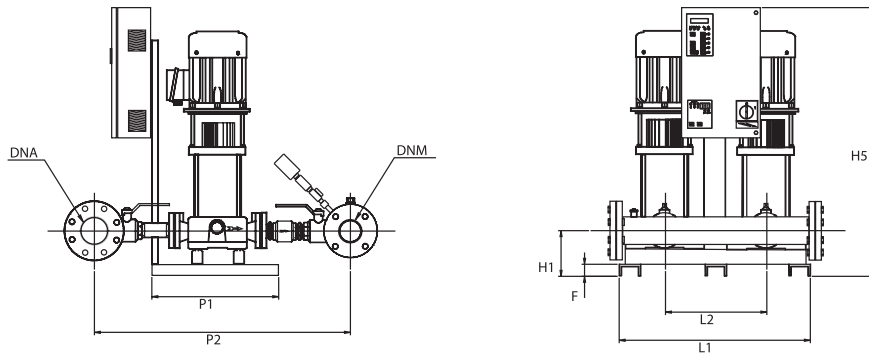
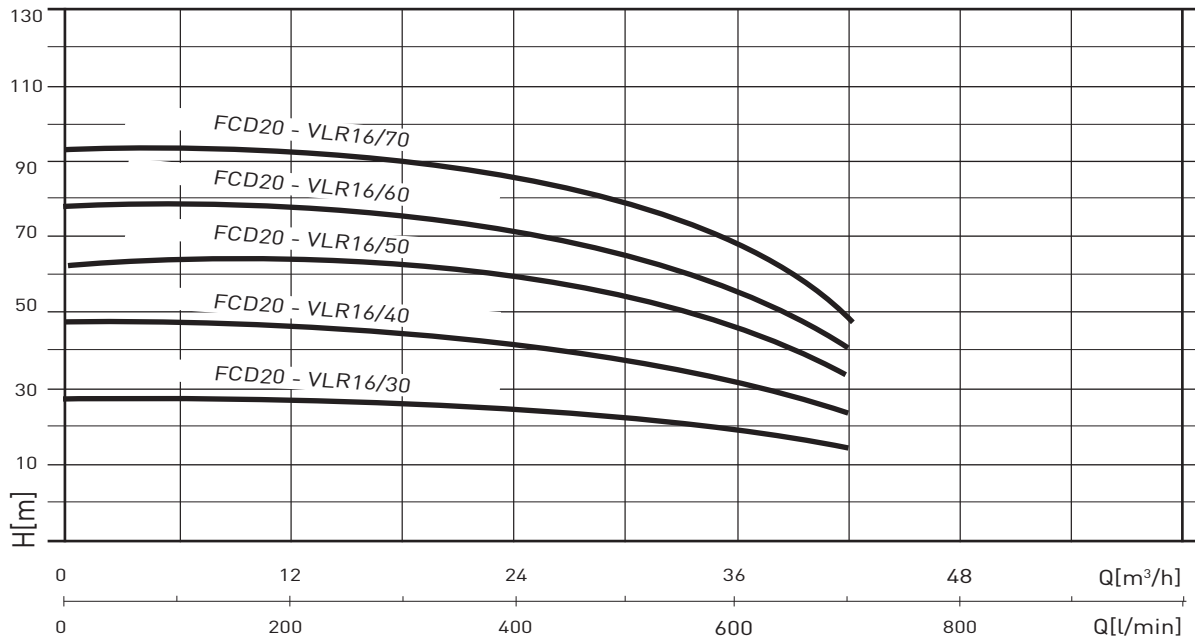
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD20-VLR8/30	680	500	720	180	1270	2"1/2	2"1/2	45	370	208
FCD20-VLR8/40	680	500	720	180	1270	2"1/2	2"1/2	45	370	224
FCD20-VLR8/50	680	500	720	180	1270	2"1/2	2"1/2	45	370	228
FCD20-VLR8/60	680	500	720	180	1270	2"1/2	2"1/2	45	370	230
FCD20-VLR8/80	680	500	720	180	1270	2"1/2	2"1/2	45	370	246
FCD20-VLR8/100	680	500	720	180	1270	2"1/2	2"1/2	45	370	248

# NOCCHI FCD20 - VLR 16

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	200	400	500	600	700
		m³ / h	12	24	30	36	42
FCD20-VLR16/30	2x3	m.c.a. / m.w.c.	39	37	34	30	24
FCD20-VLR16/40	2x4		52	49	46	40	32
FCD20-VLR16/50	2x5.5		65	62	57	51	40
FCD20-VLR16/60	2x5.5		78	74	69	61	47
FCD20-VLR16/70	2x7.5		91	86	80	71	55

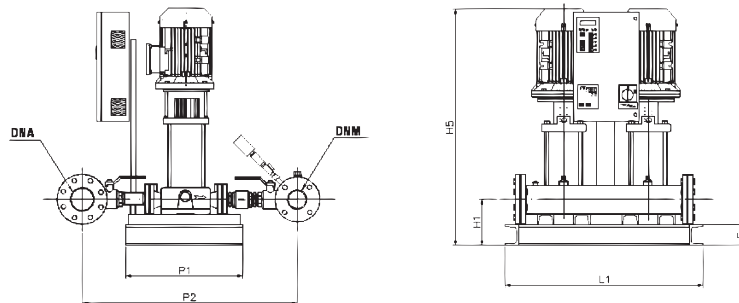
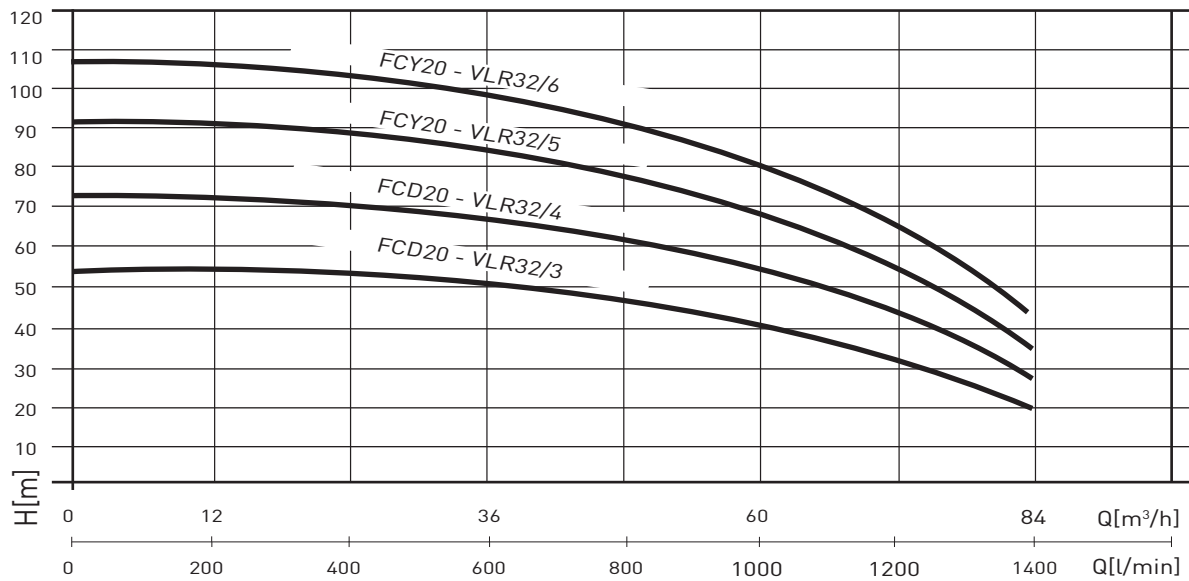
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD20-VLR16/30	730	610	860	190	1300	3"	2 1/2"	45	370	268
FCD20-VLR16/40	730	610	860	190	1300	3"	2 1/2"	45	370	272
FCD20-VLR16/50	730	610	860	190	1300	3"	2 1/2"	45	370	295
FCD20-VLR16/60	730	610	860	190	1300	3"	2 1/2"	45	370	297
FCD20-VLR16/70	730	610	860	190	1300	3"	2 1/2"	45	370	303

# NOCCHI FC.20 - VLR 32

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	400	800	1000	1200	1400
		m <sup>3</sup> / h	24	48	60	72	84
FCD20-VLR32-3	2x5.5	m.c.a. / m.w.c.	53	47	41	33	20
FCD20-VLR32-4	2x7.5		71	63	55	44	27
FCY20-VLR32-5	2x11		89	79	69	55	34
FCY20-VLR32-6	2x11		106.2	94.2	82.2	66	40.8

### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD20-VLR32-3	860	700	1060	230	1420	4"	3"	80	440	420
FCD20-VLR32-4	860	700	1060	230	1420	4"	3"	80	440	434
FCY20-VLR32-5	860	700	1060	230	1500**	4"	3"	80	440	460*
FCY20-VLR32-6	860	700	1060	230	1570**	4"	3"	80	440	534*

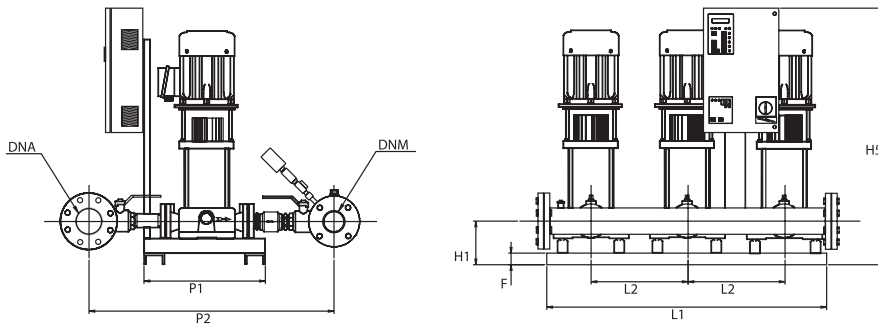
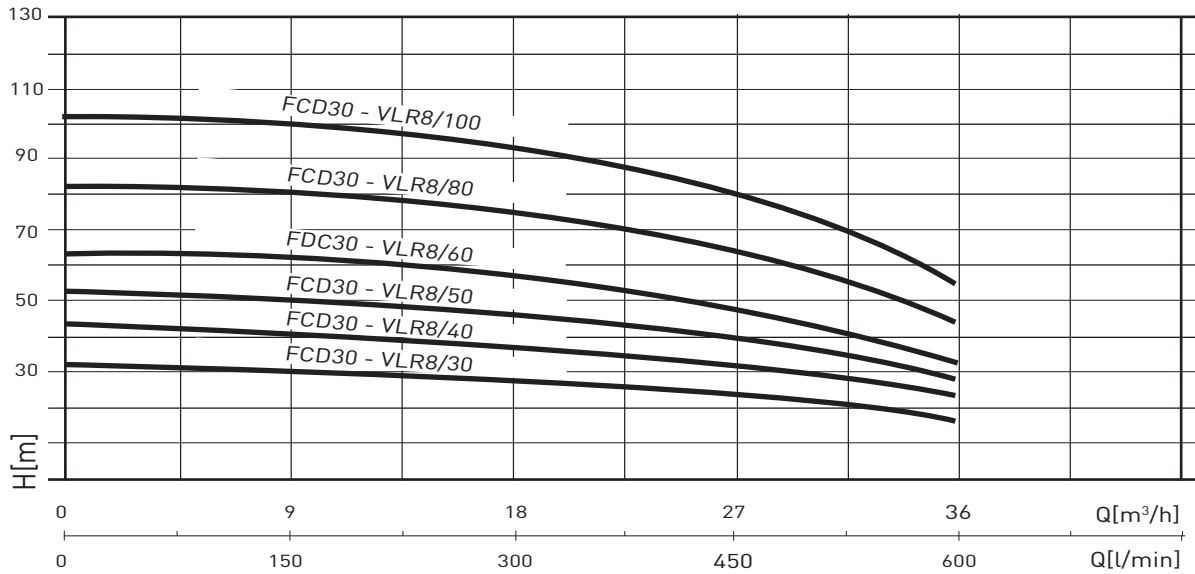
\* Weight refers to unit + electric pumps.

\*\*Height refers to electric pumps - electrical panel supplied separately with cabinet weight of 124 kg

# NOCCHI FCD30 - VLR 8

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	150	300	450	525	600
		m³ / h	9	18	27	31.5	36
FCD30-VLR8/30	3x1.1	m.c.a. / m.w.c.	31	29	24	21	16
FCD30-VLR8/40	3x1.5		41	38	32	27	22
FCD30-VLR8/50	3x2.2		52	48	40	34	27
FCD30-VLR8/60	3x2.2		62	58	48	41	33
FCD30-VLR8/80	3x3		82	77	64	55	44
FCD30-VLR8/100	3x4		103	96	80	69	55

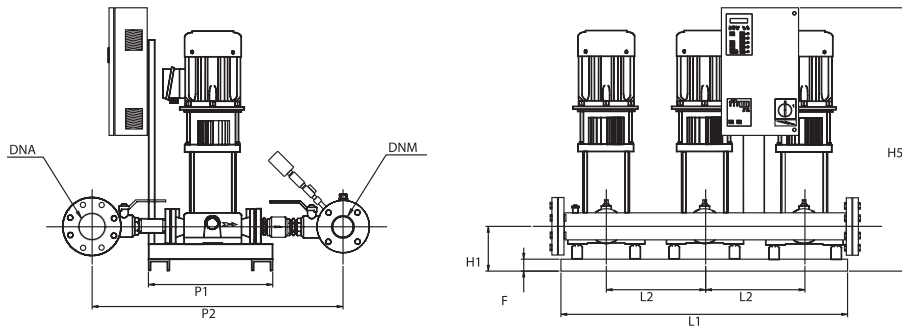
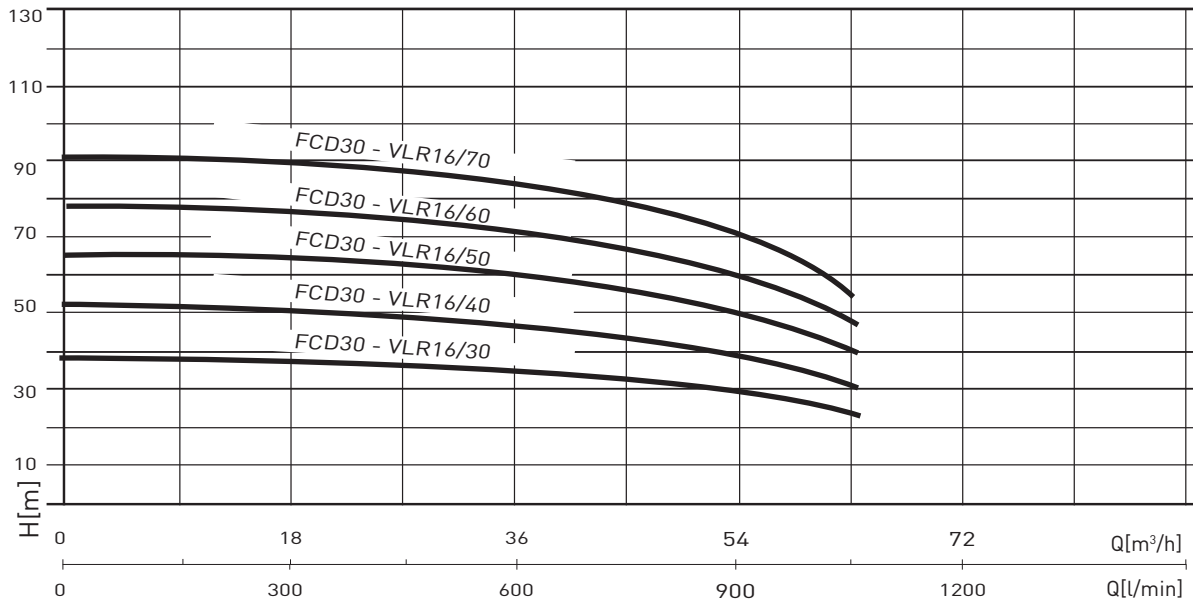
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD30-VLR8/30	1100	610	720	180	1400	3"	2 1/2"	45	370	258
FCD30-VLR8/40	1100	610	720	180	1400	3"	2 1/2"	45	370	282
FCD30-VLR8/50	1100	610	720	180	1400	3"	2 1/2"	45	370	288
FCD30-VLR8/60	1100	610	720	180	1400	3"	2 1/2"	45	370	291
FCD30-VLR8/80	1100	610	720	180	1400	3"	2 1/2"	45	370	315
FCD30-VLR8/100	1100	610	720	180	1400	3"	2 1/2"	45	370	318

# NOCCHI FCD30 - VLR 16

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	300	600	750	900	1050
		m <sup>3</sup> / h	18	36	45	54	63
FCD30-VLR16/30	3x3	m.c.a. / m.w.c.	39	37	34	30	24
FCD30-VLR16/40	3x4		52	49	46	40	32
FCD30-VLR16/50	3x5.5		65	62	57	51	40
FCD30-VLR16/60	3x5.5		78	74	69	61	47
FCD30-VLR16/70	3x7.5		91	86	80	71	55

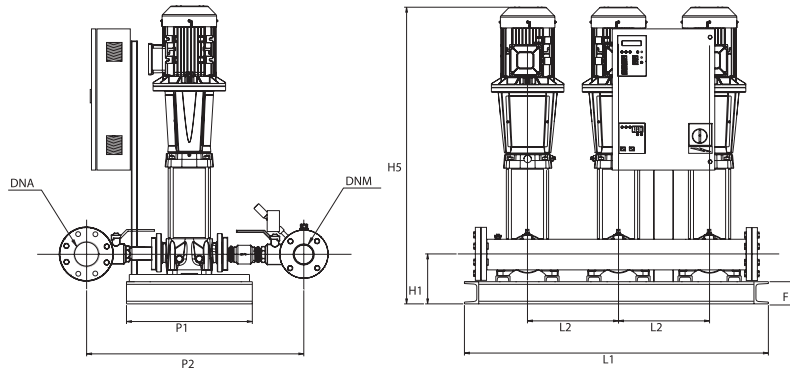
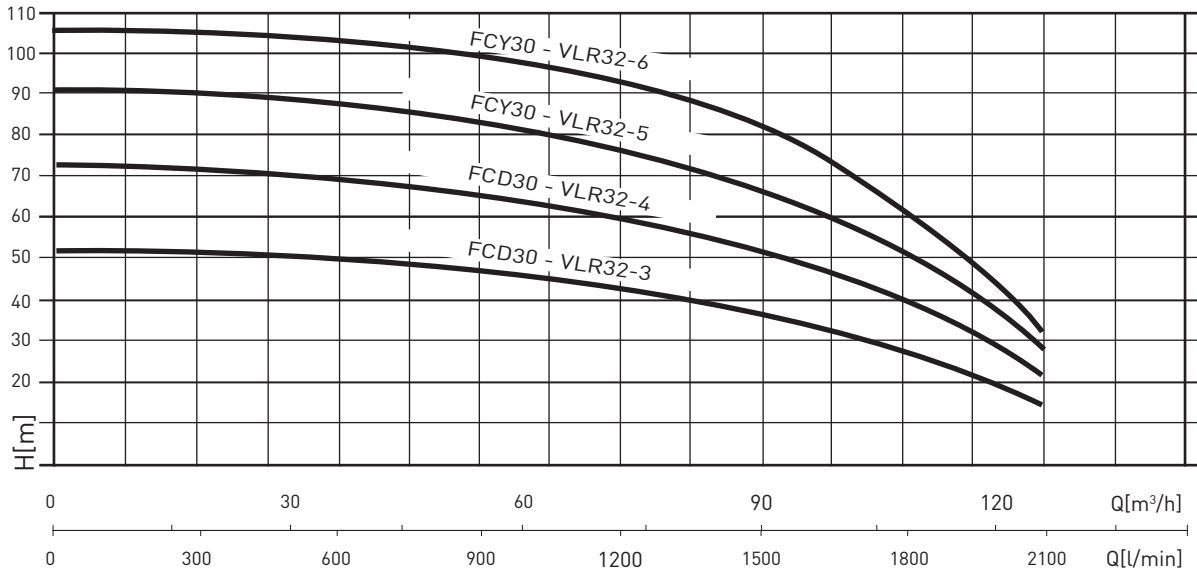
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD30-VLR16/30	1100	610	860	190	1500	4"	3"	45	370	330
FCD30-VLR16/40	1100	610	860	190	1500	4"	3"	45	370	375
FCD30-VLR16/50	1100	610	860	190	1500	4"	3"	45	370	425
FCD30-VLR16/60	1100	610	860	190	1500	4"	3"	45	370	431
FCD30-VLR16/70	1100	610	860	190	1500	4"	3"	45	370	450

# NOCCHI FC.30 - VLR 32

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	600	1200	1500	1800	2100
		m <sup>3</sup> / h	36	72	90	108	126
FCD30-VLR32-3	3x5.5	m.c.a. / m.w.c.	7	47	41	33	20
FCD30-VLR32-4	3x7.5		71	63	55	44	27
FCY30-VLR32-5	3x11		89	79	69	55	34
FCY30-VLR32-6	3x11		106	94	82	66	40.8

### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD30-VLR32-3	1300	700	1060	230	1520	5"	3"	80	440	631
FCD30-VLR32-4	1300	700	1060	230	1520	5"	3"	80	440	645
FCY30-VLR32-5	1300	700	1060	230	1500**	5"	3"	80	440	677*
FCY30-VLR32-6	1300	700	1060	230	1570**	5"	3"	80	440	797*

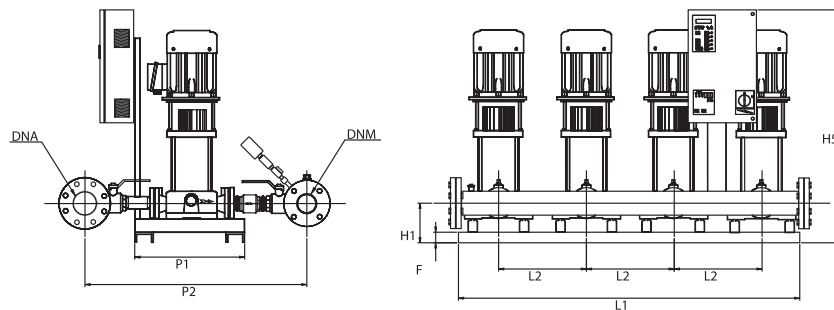
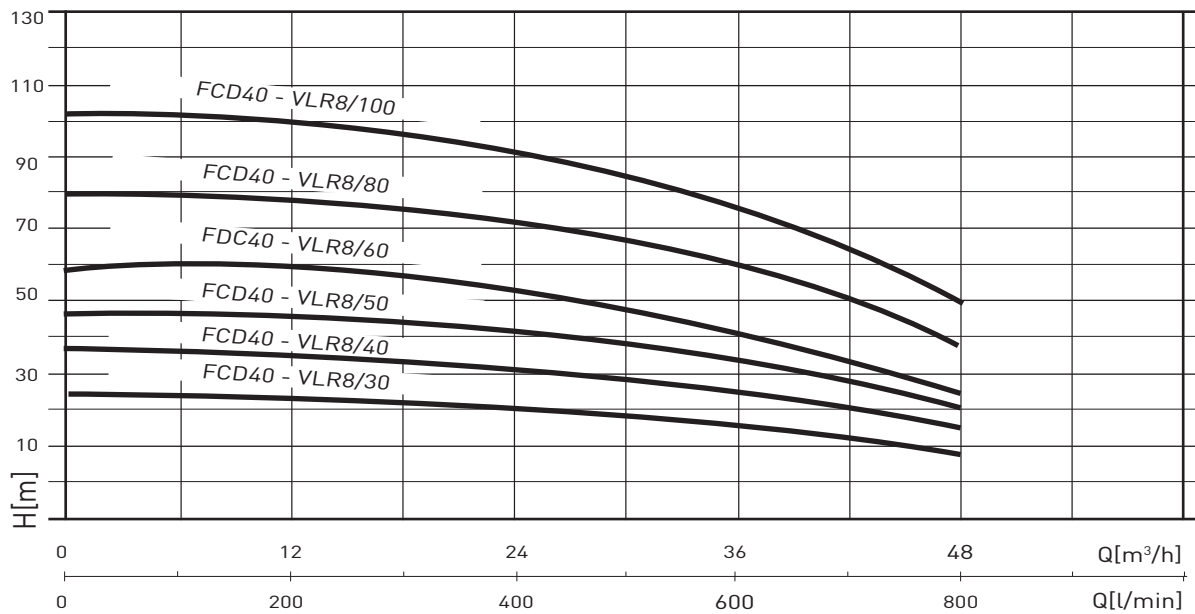
\* Weight refers to unit + electric pumps.

\*\*Height refers to electric pumps - electrical panel supplied separately with cabinet weight of 124 kg

# NOCCHI FCD40 - VLR 8

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	200	400	600	700	800
		m³ / h	12	24	36	42	48
FCD40-VLR8/30	4x1.1	m.c.a. / m.w.c.	31	29	24	21	16
FCD40-VLR8/40	4x1.5		41	38	32	27	22
FCD40-VLR8/50	4x2.2		52	48	40	34	27
FCD40-VLR8/60	4x2.2		62	58	48	41	33
FCD40-VLR8/80	4x3		82	77	64	55	44
FCD40-VLR8/100	4x4		103	96	80	69	55

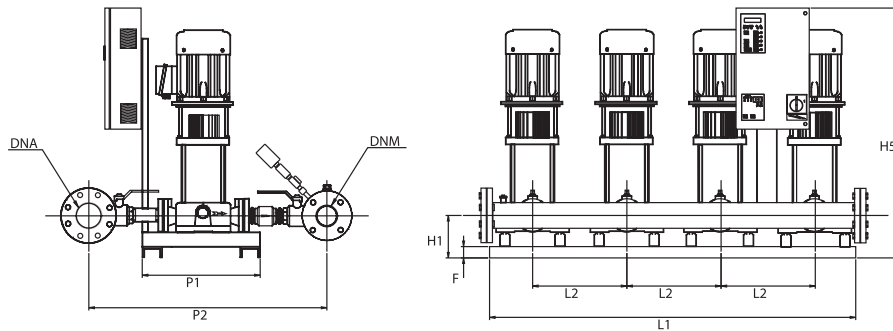
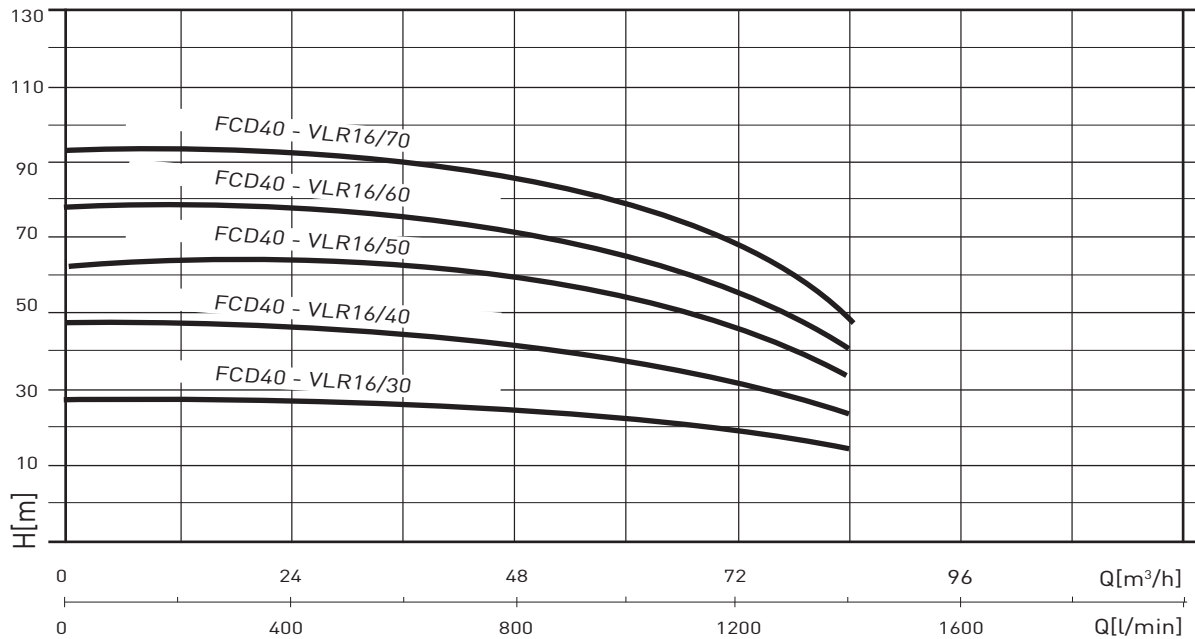
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD40-VLR8/30	1500	610	720	180	1300	3"	3"	45	370	314
FCD40-VLR8/40	1500	610	720	180	1300	3"	3"	45	370	322
FCD40-VLR8/50	1500	610	720	180	1300	3"	3"	45	370	326
FCD40-VLR8/60	1500	610	720	180	1300	3"	3"	45	370	358
FCD40-VLR8/80	1500	610	720	180	1300	3"	3"	45	370	362
FCD40-VLR8/100	1500	610	720	180	1300	3"	3"	45	370	366

# NOCCHI FCD40 - VLR 16

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	400	800	1000	1200	1400
		m <sup>3</sup> / h	24	48	60	72	84
FCD40-VLR16/30	4x3	m.c.a. / m.w.c.	39	37	34	30	24
FCD40-VLR16/40	4x4		52	49	46	40	32
FCD40-VLR16/50	4x5.5		65	62	57	51	40
FCD40-VLR16/60	4x5.5		78	74	69	61	47
FCD40-VLR16/70	4x7.5		91	86	80	71	55

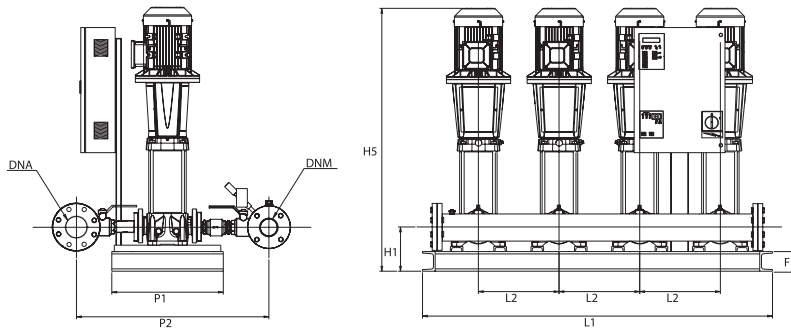
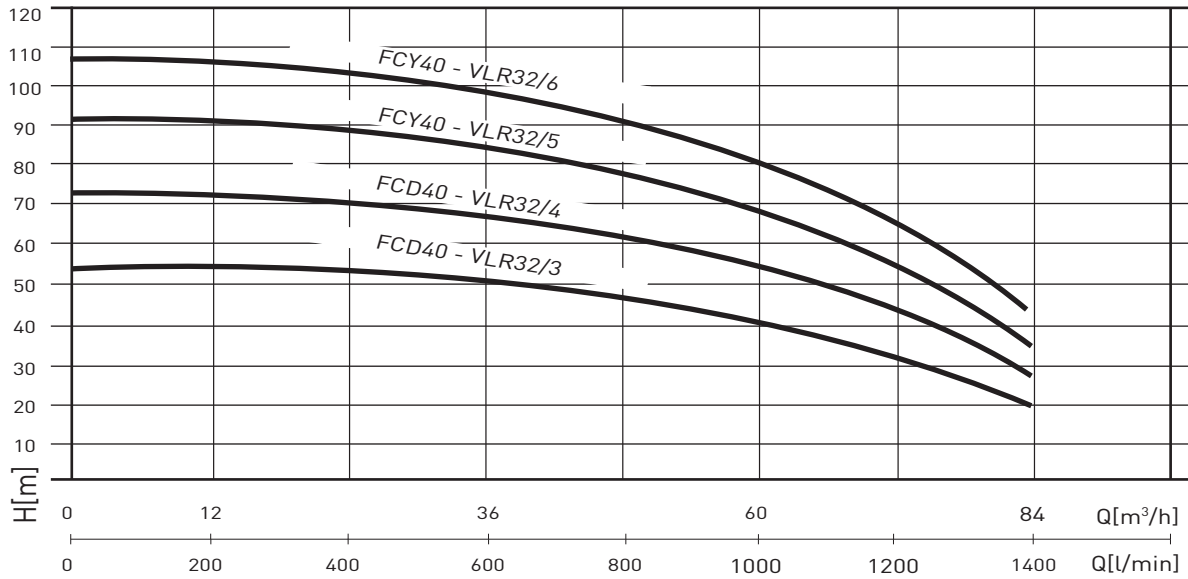
### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD40-VLR16/30	1470	610	860	190	1520	5"	4"	45	370	393
FCD40-VLR16/40	1470	610	860	190	1520	5"	4"	45	370	396
FCD40-VLR16/50	1470	610	860	190	1520	5"	4"	45	370	419
FCD40-VLR16/60	1470	610	860	190	1520	5"	4"	45	370	423
FCD40-VLR16/70	1470	610	860	190	1520	5"	4"	45	370	429

# NOCCHI FC.40 - VLR 32

## VARIABLE SPEED PRESSURE BOOSTERS

### HYDRAULIC PERFORMANCE



### PERFORMANCE TABLE

MODEL	kW	L/min	800	1600	2000	2400	2800
		m³ / h	48	96	120	192	240
FCD40-VLR32-3	4x5.5	m.c.a. / m.w.c.	53	47	41	33	20
FCD40-VLR32-4	4x7.5		71	63	55	44	27
FCY40-VLR32-5	4x11		89	79	69	55	34
FCY40-VLR32-6	4x11		106	94	82	66	40.8

### OVERALL DIMENSIONS AND WEIGHTS

MODEL	Dimensions (mm)									Weight (kg)
	L1	P1	P2	H1	H5	DNA	DNM	F	L2	
FCD40-VLR32-3	1740	700	1060	230	1520	6"	5"	80	440	628
FCD40-VLR32-4	1740	700	1060	230	1520	6"	5"	80	440	783
FCY40-VLR32-5	1740	700	1060	230	1500**	6"	5"	80	440	908*
FCY40-VLR32-6	1740	700	1060	230	1570**	6"	5"	80	440	1066*

\* Weight refers to unit + electric pumps.

\*\*Height refers to electric pumps - electrical panel supplied separately with cabinet weight of 165 kg