



GAMAKDRIVE



GFD 112 • Ultra Compact Series



GFD 180 • Compact Series



GFD 180PF • Fan/Pump



GFD 355PF • Fan/Pump





GFD 355 • Engineering Series





Gamak Speed Controllers provide solutions

Series			GFD 112 Series	GFD 180 Series
Product Visual				
Power Supply	Rated Input Voltage	Single phase (110V)	—	—
		Single phase (200V)	200 – 240V +10%/-15%, 50/60 Hz +/-5%	200 – 240V +10%/-15%, 50/60 Hz +/-5%
		3 phase (200V)	—	—
		3 phase (400V)	380 – 480V +10%/-15%, 50/60 Hz +/-5%	380 – 480V +10%/-15%, 50/60 Hz +/-5%
Applicable motor power range			0.4 – 2.2 kW	0.2 – 15 kW (18.5 kW)
Output frequency range *1			0.5 – 400 Hz	0.1 – 400 Hz
Starting torque *2			100% or higher (Torque boost mode)	200% or higher (at 0.5 Hz) (Sensorless vector control)
Braking torque	Dynamic brake (with feedback capacitor)		20% – 50%	10% – 50%
	DC brake		Variable operating frequency, time and braking force	Variable operating frequency, time and braking force
Overload capacity* 3			150%, 60 sec.	Dual assessment: HD (Heavy duty): 150%, 60 sec. ND (Normal duty): 120%, 60 sec.
Acceleration/deceleration time			0.00 – 3,600 sec.	0.01 – 3,600 sec.
Multiple operation			Max. 8 stages	Max. 16 stages
Analog input for frequency control			0 – 10 VDC, 4 – 20 mA	0 – 10 VDC, 4 – 20 mA
Protective features			Overcurrent, overvoltage, undervoltage, overload, overheating, ground fault in start mode, input overvoltage, external fault, memory fault, CPU fault, USP fault, driver fault, output phase loss	Overcurrent, overvoltage, undervoltage, overload, braking resistor overloading, CPU fault, memory fault, external fault, USP fault, ground fault in start mode, temperature fault, internal communication fault, driver fault, thermistor fault, brake fault, safe stop, low speed overload, modbus communication fault, selection fault, encoder disconnect, overspeed, EzSQ command error, EzSQ installation error, EzSQ application error, EzSQ user error
Other features			AVR (Automatic Voltage Regulation), V/f characteristic selection, acceleration/deceleration curve selection, frequency upper/lower limit, 8-stage speed, PID control, frequency jump, external frequency input deviation start/end, jogging, fault history	Free V/f setting (7 breakpoints), PM motor control (available in higher versions of Ver.2.0), simple positioning control, easy sequence programming function (EzSQ), safe stop, password, peer-to-peer communication, frequency upper/lower limit, jump (medium) frequency, manual torque boost level/break point, energy-saving operation, analog meter adjustment, minimum deceleration time, overcurrent limiting, electronic thermal function (also available free setting), external start/end (frequency/rate), restart during momentary power interruption, automatic deceleration at power-off, auto-tuning
Ambient conditions	Ambient operating temperature *4		-10 – 50 °C	-10 – 50 °C
	Humidity		20% – 90% Relative Humidity (Non-condensing)	20% – 90% Relative Humidity (Non-condensing)
	Place of use		Indoor space and at the heights less than 1,000 meters (in corrosive gas-free or dust-free environment)	Indoor space and at the heights less than 1,000 meters (in corrosive gas-free or dust-free environment)

*1: To operate the motor above 50/60 Hz, please consult the motor manufacturer for the maximum permissible rotational speed.
 *2: May vary according to the motor combination.
 *3: These values apply when the switching frequency is 2 kHz.

*4: Drivers lose power at temperatures above 40 °C.
 *5: Valid for 90 kW and above.
 *6: Valid when one level higher power than that of the driver motor is selected.

FIGURATION

for your various applications in challenging conditions.

GFD 180PF Series



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380 – 480V +10%/-15%,
50/60 Hz +/-5%

1.5 – 18.5 kW

0.1 – 400 Hz

100% or higher
(Torque boost mode)

10% – 50%

Variable operating frequency, time and braking force

120%, 60 sec., 140%, 12 sec.

0.01 – 3,600 sec.

Max. 16 stages

0 – 10 VDC, 4 – 20 mA

Overcurrent, overvoltage, undervoltage, overload, braking resistor overload, CPU fault, memory fault, external fault, USP fault, ground fault in start mode, temperature fault, internal communication fault, driver fault, thermistor fault, brake fault, safe stop, low speed overload, modbus communication fault, selection fault, EzSQ command error, EzSQ nesting error, EzSQ execution error, EzSQ user error

Free V/f, manual/automatic torque boost, output voltage gain adjustment, AVR function, reduced voltage startup, motor data selection, motor stabilization control, reverse running protection, automatic switching frequency reduction, energy saving, PID function, non-stop operation at momentary power failure, brake control, DC injection braking, dynamic braking (BRD), frequency upper and lower limiters, jump frequencies, curve acceleration and deceleration (S, U, inverted U), 16 stage speed control, fine tuning of starting frequency, minimum deceleration time, process jogging, frequency calculation, frequency insertion, two-stage acceleration/deceleration, stop mode selection, start/end frequency, analog input filter, parameter comparison, input terminal response time, output signal delay/hold function, rotation direction restriction, stop key selection, software lock, safe stop function, scaling function, parameter restriction, password function, user parameter, initialization error, initial display selection, cooling fan control, warning, trip retry, frequency pull-in restart, frequency matching, overload restriction, overcurrent restriction, DC bus voltage AVR function

-10 – 40 °C

20% – 90% Relative Humidity (Non-condensing)

Indoor space and at the heights less than 1,000 meters
(in corrosive gas-free or dust-free environment)

GFD 355PF Series



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380 – 480V +10%/-15%,
50/60 Hz +/-5%

22 – 160 kW

0.1 – 400 Hz

150(120)% *5 or higher (at 0.5 Hz)
(Sensorless vector control)

10% – 20%

Variable operating frequency, time and braking force

120%, 60 sec., 150%, 3 sec.

0.01 – 3,600 sec.

Max. 16 stages

0 – 10 VDC, 4 – 20 mA
-10 – +10 VDC

Overcurrent protection, overvoltage protection, undervoltage protection, electronic thermal protection, temperature fault protection, momentary power interruption protection, input phase loss, braking resistor overload protection, ground fault current detection in start mode, USP fault, external fault, emergency stop fault, CT fault, communication fault, option card fault

Free V/f setting (7 breakpoints), frequency upper/lower limit, jump (medium) frequency, acceleration/deceleration according to characteristic curve, manual torque boost level/breakpoint, energy saving, analog meter adjustment, starting frequency setting, switching frequency adjustment, electronic thermal protection (with free adjustment), external start/end (frequency/rate), analog input selection, trip retry, restart after momentary power failure, various output signals, reduced voltage start, overload restriction, initial value setting, automatic deceleration at power loss (power failure), AVR function, online/offline auto-tuning

-10 – 40 °C

20% – 90% Relative Humidity (Non-condensing)

Indoor space and at the heights less than 1,000 meters
(in corrosive gas-free or dust-free environment)

GFD 355 Series



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380 – 500V +10%/-15%,
50/60 Hz +/-5%

0.75 – 132 kW (160 kW)

V/f: 0.1 – 590 Hz
SLV/PM Motor: 0.1 – 400 Hz

SLV [200% or higher (at 0.3 Hz) (75 kW or higher: 180%)]
0 Hz SLV [approximately 150% at 0 Hz (75 kW or higher:130%)]*6

10% – 20%

Variable operating frequency, time and braking force

ND (Normal duty): 150%, 60 sec., 200%, 3 sec.
LD (Light duty): 120%, 60 sec., 150%, 3 sec.
VLD (Very light duty): 110%, 60 sec., 120%, 3 sec.

0.01 – 3,600 sec.

Max. 16 stages

0 – 10 VDC, 4 – 20 mA
-10 – +10 VDC

Overcurrent, motor overload, braking resistor overload, overvoltage, memory fault, low voltage, current detector, CPU fault, external fault, USP fault, ground fault, supply overvoltage, sudden power failure, temperature detector fault, reducing cooling fan speed, temperature fault, input phase loss fault, IGBT fault, output phase loss fault, thermistor fault, brake fault, low-speed range overload fault, driver overload fault, RS485 communication fault, RTC fault

Free V/f setting (7 breakpoints), PM motor control, frequency upper/lower limit, limiter, jump frequency, acceleration/deceleration according to characteristic curve, manual torque boost, energy saving, analog output adjustment, starting frequency setting, switching frequency adjustment, electronic thermal protection (with free adjustment), drive electronic thermal protection, external start/end (frequency/rate), analog input selection, trip retry, restart after momentary power failure, various output signals, reduced voltage start, overload restriction, initial value setting, automatic deceleration at power loss (power failure), AVR function, online/offline auto-tuning, error setting of acceleration/deceleration, brake control, programmable function (EzSQ), safe stop, password, peer-to-peer communication, error limiting function, PID functions (4CH, sleep mode, soft start, and so on), multiple rating, simulation mode, gain mapping function, pulse input, cooling fan control and more

ND (Normal duty): -10 – 50 °C
LD (Light duty): -10 – 45 °C
VLD (Very light duty): -10 – 40 °C

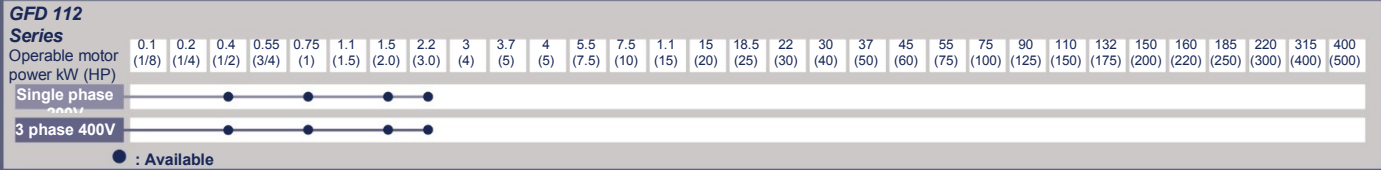
20% – 90% Relative Humidity (Non-condensing)

Indoor space and at the heights less than 1,000 meters
(in corrosive gas-free or dust-free environment)

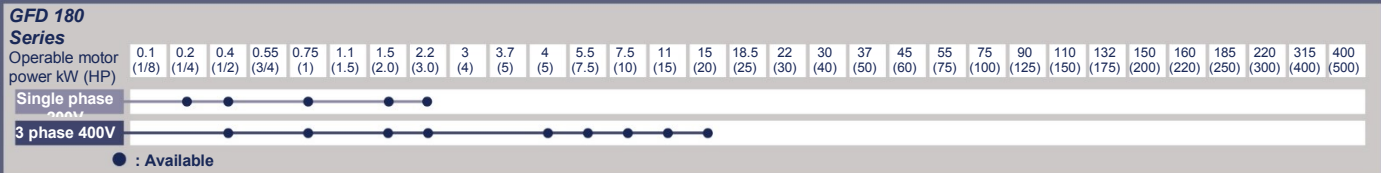


Product Comparison Function/Performance

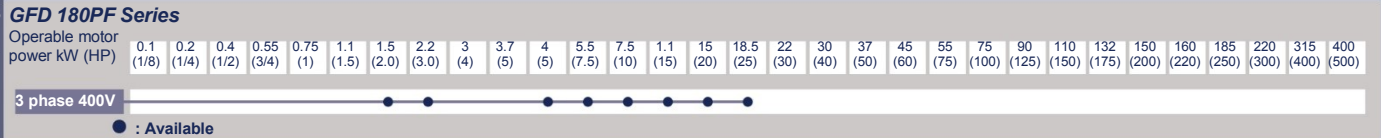
GFD 112 Ultra Compact Series



GFD 180 Compact Series



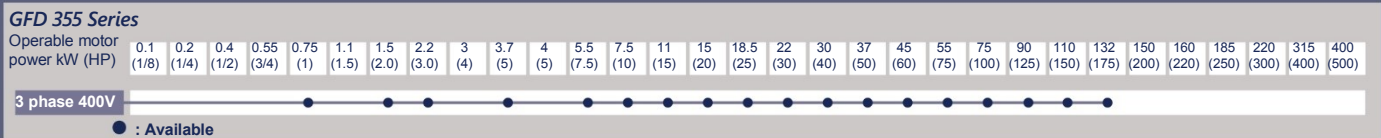
GFD 180PF Fan/Pump Drives



GFD 355PF Fan/Pump Drives



GFD 355 Engineering Series



Product Code Legend

GFD 355- 00k4 H P F 3

Series name

3: Version

F: Integrated EMC filter

N: Without Panel

P: With Panel

S: Single phase 200V

H: 3 phase 400V

Operable motor power - kW (HP)

00k1 - 0.1 (1/8)	22k0 - 22 (30)
00k2 - 0.2 (1/4)	30k0 - 30 (40)
00k4 - 0.4 (1/2)	37k0 - 37 (50)
00k5 - 0.55 (3/4)	45k0 - 45 (60)
00k7 - 0.75 (1)	55k0 - 55 (75)
01k1 - 1.1 (1.5)	75k0 - 75 (100)
01k5 - 1.5 (2)	90k0 - 90 (125)
02k2 - 2.2 (3)	110k - 110 (150)
03k0 - 3 (4)	132k - 132 (175)
03k7 - 3.7 (5)	150k - 150 (200)
04k0 - 4 (5)	160k - 160 (220)
05k5 - 5.5 (7.5)	185k - 185 (250)
07k5 - 7.5 (10)	220k - 220 (300)
11k0 - 11 (15)	315k - 315 (400)
15k0 - 15 (20)	400k - 400 (500)
18k5 - 18.5 (25)	



GFD 112 Ultra Compact Series

Economical
Drive for
Simple
Applications



Modern, Affordable, Compact and Simple FEATURES

One of the Smallest Designs in Its Category

- One of the smallest dimensions in its category
- Side-by-side assembly design to save panel space

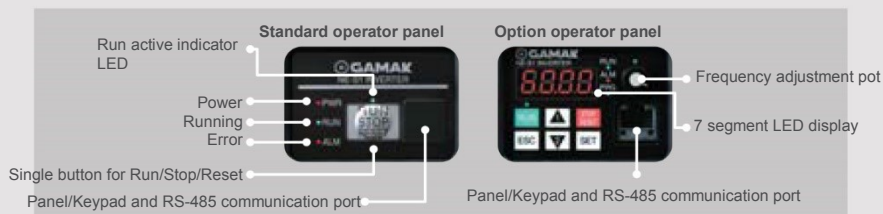
Easy-to-use

- One-touch Start/Stop/Reset
- Plug-in panel option to use all functions

Global Standards



- The logic inputs as NPN and PNP
- Wide input power voltage range (for 200V class, 200 to 240V input voltage; for 400V class, 380V to 480V)
- Standard RS-485 Modbus® RTU communication



GFD 112 Series

Operable motor power
kW (HP)

0.2 (1/4)	0.4 (1/2)	0.75 (1)	1.5 (2.0)	2.2 (3.0)	4 (5)
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Single phase 200V	SN	●	●	●	●
3 phase 400V	HN	●	●	●	●

● : Available

- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).



GFD 180 Compact Series

Conveyor/Lifting and Other Machines



FEATURES

Performance to satisfy sector requirements

- 200% or higher startup moment (under heavy duty)
- Improved speed regulation at low speeds
- Error disregard function (minimum deceleration time and overcurrent limiting function)
- Simple position control (if feedback signal is used)
- Induction and permanent magnet motor drive (available in version 2.0 and later)

Easy-to-Use

- Sequential processing feature (EzSQ) to install the program to the driver prepared using the computer interface
- Emergency Stop Function* (complies with EN 62061/IEC 61508-5-2)
- Password Function
- USB (Mini-B connector) port and RS 422 (RJ 45 connector) available as standard
- Easy connection (with spring terminal structure)
- Maintainability (with easily removable fan)
- Side-by-side mounting
- Optional potentiometer module to manually change the output frequency of the drive



Potentiometer module

Maintainability

- Long-life components (unique design for 10 years or longer operation)
- Longer operating life thank to cooling fan ON/OFF control
- Lifetime warning function
- Easy-to-install cooling fan

Environmental Compliance

- Micro peak voltage protection function
- EU RoHS compliant
- Varnished PCB use as standard **
- Standard Modbus-RTU communication supports the following networks with option modules
- Wide input power voltage range (for 200V class, 200 to 240V input voltage; for 400V class, 380V to 480V)

EtherCAT®



- Digital input/output terminals can be configured as PNP-NPN

GFD 180 Series

Operable motor power kW
(HP)

		0.1 (1/8)	0.2 (1/4)	0.4 (1/2)	0.75 (1)	1.5 (2)	2.2 (3)	3.0 (4)	3.7 (5)	4.0 (5)	5.5 (7.5)	7.5 (10)	11 (15)	15 (20)
Single phase 200V	SP		●	●	●	●	●							
3 phase 400V	HP			●	●	●	●			●	●	●	●	●

● : Available

- Modbus is a registered trademark of Modicon Inc. EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
- Company names and product classes herein are trademarks or registered trademarks.



GFD 180PF Fan/Pump Drives

HVAC, Pump, Fan and General Machine Applications



FEATURES

Special for Fan/Pump Applications

- 100% or higher starting torque (Torque boost mode)
- Improved speed regulation at low speeds
- Error disregard function (minimum deceleration time and overcurrent limiting function)
- Easy sequence pump/fan programming function (EzSQ)
- EzCOM (inter-drive communication)

Easy-to-Use

- Sequential processing feature (EzSQ) to install the program prepared by computer interface to the driver
- Emergency Stop Function* (complies with EN 62061/IEC 61508-5-2)
- Password function
- USB (Mini-B connector) port and RS 422 (RJ 45 connector) available as standard
- Easy connection (with spring terminal structure)
- Maintainability (with easily removable fan)
- Side-by-side mounting
- Optional potentiometer module to manually change the output frequency of the drive



Potentiometer module

Maintainability

- Long-life components (unique design for 10 years or longer operation)
- Longer operating life thanks to cooling fan ON/OFF control
- Lifetime warning function
- Easy-to-install cooling fan

Environmental Compliance

- Micro peak voltage protection function
- EU RoHS compliant
- Varnished PCB use as standard **
- Standard Modbus-RTU communication supports the following networks with option modules
- Wide input power voltage range (for 200V class, 200 to 240V input voltage; for 400V class, 380V to 480V)



- Digital input/output terminals can be configured as PNP-NPN

GFD 180PF Series

Operable motor power kW
(HP)

0.2 (1/4)	0.4 (1/2)	0.75 (1)	1.5 (2.0)	2.2 (3.0)	3 (4)	4 (5)	5.5 (7.5)	7.5 (10)	11 (15)	15 (20)	18.5 (25)
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3 phase 400V

HP



● : Available

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*EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.



GFD 355PF Fan/Pump Drives

HVAC, Pump, Fan and
General Machine
Applications



FEATURES

High Performance in Fan/Pump Applications

- Constant torque application to the load in high momentum required applications with sensorless vector control
- Auto-tuning function when rotating and stopping

Long-life Components and Easy-to-Use

- Long-life components (fan and DC bus capacitors designed for at least 10 years of operation)
- Service life warning function
- Easy-to-install cooling fan and DC bus capacitors (above 18.5 kW)

Universal Functions and Compact Design

- Sequential processing feature to install the program to the driver prepared using the computer interface
- Cost savings with the use of simplified and minimized equipment with fewer external components (via numerous functions)
- Built-in EMC filter
- Built-in brake chopper up to 30 kW
- Redundant error prevention with overcurrent limiting function
- Digital input/output terminals can be configured as PNP-NPN
- Wide input power voltage range (for 200V class, 200 to 240V input voltage; for 400V class, 380V to 480V)
- Standard RS-485 Modbus® RTU port
- Communication via DeviceNet™ and Profibus® with option cards

GFD 355PF Series

Operable motor power kW
(HP)

5.5 (7.5)	7.5 (10)	11 (15)	15 (20)	18.5 (25)	22 (30)	30 (40)	37 (50)	45 (60)	55 (75)	75 (100)	90 (125)	110 (150)	132 (175)	160 (220)
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3 phase 400V HPF

● : Available

- DeviceNet is a registered trademark of the Open DeviceNet Vendor Association.
- Profibus is a registered trademark of Profibus Nutzer Organization.

- Modbus is a registered trademark of Modicon Inc. (Schneider Automation International).



GFD 355 Engineering Series

Conveyor/Crane &
Fan/Pump applications
with innovative ease of
use and excellent drive
performance



FEATURES

Easy Access to All Functions

- Standard user-friendly LCD operator panel
- Easy tracking, adjusting, or revising operational data and parameters
- Standard Turkish language support
- Run in simulation mode without motor output

A High-Performance Drive for the Most Demanding Applications

- Higher starting torque at low speeds
- Operable with asynchronous and PM motors
- 590 Hz output frequency for precision applications, > 400 Hz for PM motor applications

Universal Operation for Custom Applications

- PLe, SIL3, STO safety certification offered as standard
- SS1, SLS and other safety functions being designed
- Helps space and cost savings thanks to the ease of use in numerous applications
- Gamak Drive's EzSQ sequential programming function offers easy system control, resulting in cost savings and improved performance depending on the usage

Environmental Compliance

- Micro peak voltage protection function
- Environmental Compliance through EU RoHS
- PCB use as standard **
- The Modbus® RTU protocol and RS 485 communication port are offered as standard on all models.
- The communication options enable compatibility with networks such as Ethernet (Modbus-TCP), EtherCAT®, PROFIBUS-DP, and PROFINET (soon).
- Digital input/output terminals can be configured as PNP-NPN.
- Wide input voltage range

GFD 355 Series

Operable motor power kW
(HP)

0.4 (1/2)	0.75 (1)	1.5 (2)	2.2 (3)	3.7 (5)	4.0 (5)	5.5 (7.5)	7.5 (10)	11 (15)	15 (20)	18.5 (25)	22 (30)	30 (40)	37 (50)	45 (60)	55 (75)	75 (100)	90 (125)	110 (150)	132 (175)	150 (200)	185 (250)	220 (300)	315 (400)	400 (500)
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3 phase 400V

HPF3

● : Available

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• Company and product names herein are the property of their respective trademarks or registered trademarks.

Dimension

[Unit: mm(inch)]

GFD 112-	SN	002	004	-	007	015	-	022	-			
	HN	-	-	-	004, 007	-	015	022	040			
	Width	68(2.68)	68(2.68)	68(2.68)	108(4.25)	108(4.25)	108(4.25)	108(4.25)	108(4.25)			
	Height	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)			
	Depth	76(2.99)	91(3.58)	115(4.53)	96(3.78)	107(4.21)	111(4.37)	125(4.92)	135(5.31)			

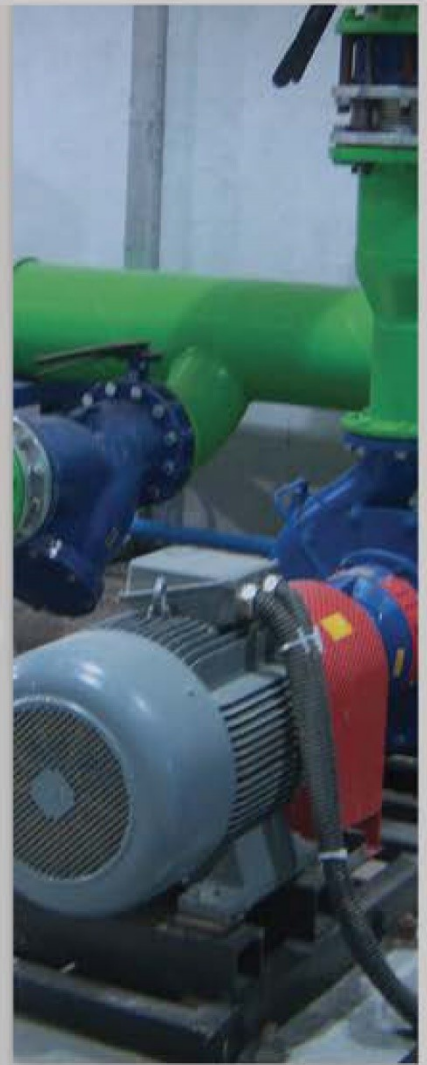
GFD 180-	SP	001, 002	004	-	-	-	007-022	-	-	-	-	
	HP	-	-	-	-	004	007-030	040	055, 075	110, 150	-	
	Width	68(2.68)	68(2.68)	68(2.68)	68(2.68)	108(4.25)	108(4.25)	140(5.51)	140(5.51)	180(7.09)	220(8.66)	
	Height	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	260(10.24)	296(11.65)	350(13.78)	
	Depth	109(4.29)	122.5(4.82)	132.5(5.22)	145.5(5.73)	143.5(5.65)	170.5(6.71)	170.5(6.71)	155(6.10)	175(6.89)	175(6.89)	

GFD180PF-	HP	-	-	-	-	00k4, 00k7	01k5-04k0	05k5	07k5, 11k0	15k0-18k5	-	
	Width	68(2.68)	68(2.68)	68(2.68)	68(2.68)	108(4.25)	108(4.25)	140(5.51)	140(5.51)	180(7.09)	220(8.66)	
	Height	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	128(5.04)	260(10.24)	296(11.65)	350(13.78)	
	Depth	109(4.29)	122.5(4.82)	132.5(5.22)	145.5(5.73)	143.5(5.65)	170.5(6.71)	170.5(6.71)	155(6.10)	175(6.89)	175(6.89)	

GFD 355PF-	HPF	-	07k5-15k0	18k5-30k0	37k0	45k0-75k0	-	90k0, 110k	132k, 160k			
	Width	150(5.91)	210(8.27)	250(9.84)	310(12.20)	390(15.35)	480(18.90)	390(15.35)	480(18.90)			
	Height	255(10.04)	260(10.24)	390(15.35)	540(21.26)	550(21.65)	700(27.56)	700(27.56)	740(29.13)			
	Depth	140(5.51)	170(6.69)	190(7.48)	195(7.68)	250(9.84)	250(9.84)	270(10.63)	270(10.63)			

GFD 355-	HPF3	00k7-03k7	05k5-11k0	15k0-22k0	30k0	37k0-55k0	-	75k0, 90k0	110k, 132k			
	Width	150(5.91)	210(8.27)	245(9.65)	300(11.81)	390(15.35)	480(18.90)	390(15.35)	480(18.90)			
	Height	255(10.04)	260(10.24)	390(15.35)	540(21.26)	550(21.65)	700(27.56)	700(27.56)	740(29.13)			
	Depth	140(5.51)	170(6.69)	190(7.48)	195(7.68)	250(9.84)	250(9.84)	270(10.63)	270(10.63)			





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