



E-Flo[®] DC

Dual Control Electric Pumps



PROVEN QUALITY. LEADING TECHNOLOGY.

Single pump Dual control.

Constant pressure when you want it. Constant flow when you need it. Pressure Mode allows you to maintain a constant fluid pressure while changing speeds to meet changing demands. This allows the circulated paint to run at slower speeds to extend the life of the paint. Flow Mode maintains constant paint velocity.

E-Flo DC circulation pumps

Graco's original 4-ball circulation pump is ideal for small to medium circulation systems. Outputs of up to 2500 cc per cycle.



Unlike competitive pumps that are linked and controlled together, Graco's lowers operate independently of each other. This allows a pump to adjust to varying pressure and flow rate demands thousands of times per second. Each pump can also run alone to keep production running if maintenance is required.

Outputs of up to 5000 cc per cycle.



E-Flo DC supply pumps

Our 2-ball supply pump is designed for applications requiring high pressure, up to 206 bar (3000 psi). Plus the minimal pulsation at changeover provides a more consistent finish.



Make the switch to making savings!

Tap into the energy savings and advanced features of Graco's electric motor. It is easier than you think to make the switch.

Save energy

5x more efficient

An electric motor means big savings when compared to similar-sized pneumatic motors – helping lower your energy bill and saving you money.

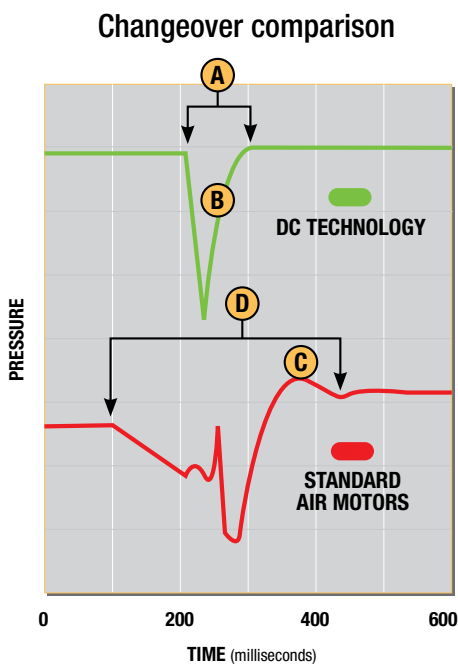
Outperform

Gain more control

The Advanced Control Module allows you to easily integrate the pump into a PLC network for even greater control and visibility.

Improve quality

Dual Control (DC) technology gives you less pulsation and smooth, rapid changeovers – for better, more consistent finishes.



- A** A less than 0.09 second changeover
- B** Quick changeover and recovery with less pulsation
- C** Pressure spike at changeover
- D** Longer changeover causing pulsation

Improve productivity

Spend less time training

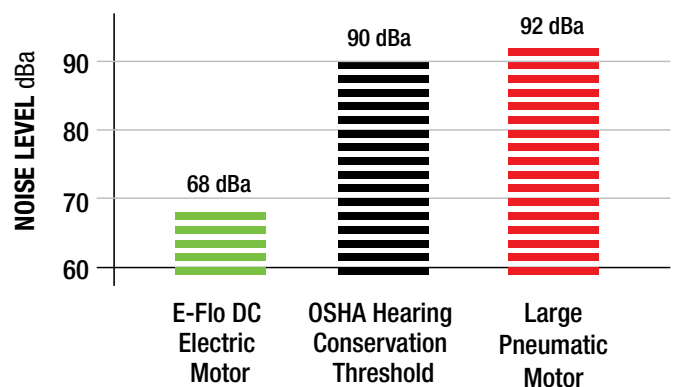
Electric pump functionality, with the simplicity of a pneumatic pump, makes it easy for anyone to operate.

Stay up and running longer

Increased reliability means you will spend less time maintaining and more time up and running.

Better working environment

A quiet electric motor means happier operators and better results. Exceeds OSHA sound regulations and over 20 dbAs quieter compared to similar-sized pneumatic motors.



Note: All pressures 100 psi

Boost your profits

Prevent material loss

Integrated runaway protection protects your pump from premature wear and prevents costly material loss

Eliminate costly rework

The electric motor eliminates icing – giving you smoother pump operation and better finished product.

Lower cost of ownership

Use less energy and spend less on maintenance costs with the field-proven reliability of Graco's 2- and 4-ball pumps.

Choose power

Select single phase 220 V or 3-phase 380-480 V input power.

Boost your bottom line with energy savings and Advanced Pump Control

Advanced motor with control module

Efficient and smart, the E-Flo DC with the Advanced Control module gives you additional control of pump performance and allows you to manage several pumps from a single module.



Control module

- Integrate the pump easily into a PLC network for better visibility and control outside of the hazardous area
- Configure different operating profiles of the pump
- Mount directly on the pump motor or remotely on a nearby wall
- Up to two pressure transducers can be added for greater control
- Connect the pneumatic BPR controller to automate an "off-production" profile for even greater energy savings
- The password protects pump settings to protect against unauthorized access

Direct PLC control

- Connect the Eflo-DC directly to a PLC via 4-20 mA signal with the fibre to the serial converter to allow basic automation without a local pump controller



Simple to install

Basic installation requires only a single-phase 220 V, 50/60 Hz power or 3-phase 380 – 480 V 50/60 Hz power

No VFDs required.

Basic motor

Operator-friendly control knobs have clear symbols making it easy to adjust pump settings. Gives you local control at the pump and runaway protection.



Choose the right pump for you!

How to select your E-Flo DC pump



Pump selections

Refer to the pump selection table on the next page to answer the following questions:

Lower size

Based on the desired pressure and flow rates, what size lower is required?

Circulation pumps: 750 cc, 1000 cc, 1500 cc, 2000 cc, 2500 cc, 3000 cc, 4000 cc, or 5000 cc

Supply pumps: 145 cc, 180 cc, 220 cc or 290 cc

Motor size & controls

What motor size and control type would you like on the motor? 1 or 2 hp, Basic or Advanced?

Lower, fittings and packings

What lower material, type of fitting and packings are required on the lower?

Mount

How would you like to mount the pump? Choose either stand mount, wall mount bracket or none.



Control module & cable

If **Basic** motor control is desired, your pump selection is complete. Refer to the pump selection table on the next page for your part number.

If the **Advanced** motor is desired, a control module and cable will be required. You can mount the controller on the pump or on a nearby wall and connect it to the pump with the appropriate CAN cable selected from the table.

Part number	Description
24P822	Control module kit (220v)
17V232	Control module kit (480v)
16P911	1 m (3 ft) CAN cable
16P912	8 m (25 ft) CAN cable
25D600	Serial to fibre kit
16M173	30 m (100 ft) fibre cable
17B160	100 m (320 ft) (room) fiber cable

High flow rate circulation pumps (2X) include the control module and the CAN cable. No additional equipment is required.

E-Flo DC circulation pump selection

Part number matrix

Electric	Circulation pumps	Lower size	Motor size, controls & approvals		Pump type/fittings	Mount
E = Electric	C=Circulation	1 = 750 cc	1 = 1 hp motor, Basic controls, ATEX/FM/IECEX	A = 1 hp motor 480 V, Basic controls, ATEX/FM/IECEX	4 = Sealed SST lower, Ultralife rod, Ultralife cylinder, Tri-Clamp fittings	0 = No stand
		2 = 1000 cc	1 = 1 hp motor, Advanced controls, ATEX/FM/IECEX	B = 1 hp motor 480V, Advanced controls, ATEX/FM/IECEX	5 = Open wet cup SST lower, Ultralife rod, Ultralife cylinder, NPT fittings	1 = Stand
		3 = 1500 cc	3 = 2 hp motor, Basic controls, ATEX/FM/IECEX	C = 2 hp motor 480 V, Basic controls, ATEX/FM/IECEX	5 = Open wet cup SST lower, Ultralife rod, Ultralife cylinder, Tri-Clamp fittings	2 = Wall mount bracket
		4 = 2000 cc	4 = 2 hp motor, Advanced controls, ATEX/FM/IECEX	D = 2 hp motor 480V, Advanced controls, ATEX/FM/IECEX		
		5 = 3000 cc	5 = 1 hp motor, Basic controls, ATEX/IECEX/TIIS/KCS	E = 1 hp motor 480V, Basic controls, ATEX/IECEX/TIIS/KCS		
		6 = 4000 cc	6 = 1 hp motor, Advanced controls, ATEX/IECEX/TIIS/KCS	F = 1 hp motor 480V, Advanced controls, ATEX/IECEX/TIIS/KCS		
		7 = 2500 cc	7 = 2 hp motor, Basic controls, ATEX/IECEX/TIIS/KCS	G = 2 hp motor 480V, Basic controls, ATEX/IECEX/TIIS/KCS		
		8 = 5000 cc	8 = 2 hp motor, Advanced controls, ATEX/IECEX/TIIS/KCS	H = 2 hp motor 480V, Advanced controls, ATEX/IECEX/TIIS/KCS		
			9 = 2 x 2 hp motor, Advanced controls, ATEX/FM/IECEX	J = 2 x 2 hp motor 480V, Advanced controls, ATEX/FM/IECEX		
			0 = 2 x 2 hp motor, Advanced controls, ATEX/IECEX/TIIS/KCS	K = 2 x 2 hp motor, Advanced controls, ATEX/IECEX/TIIS/KCS		

continued on next page

E-Flo DC circulation pump selection

Pump specifications

Model	750	1000	1500	2000	2500	5000	2000x2	3000x2	4000x2
Output per cycle	750cc	1000cc	1500cc	2000cc	2500cc	5000cc	2000cc	3000cc	4000cc
Max working pressure 220V bar (psi)	19.7 (285)	1HP: 14.5 (210) 2HP: 27.6 (380)	20.6 (285)	14.5 (210)	----	----	27.6 (380)	20.6 (285)	14.5 (210)
Max. working pressure bar (psi) 3-phase	24.5 (356)	1HP: 17.9 (260) 2HP: 32.8 (475)	24.5 (356)	17.9 (356)	14.5 (210)	14.5 (210)	32.8 (475)	24.5 (356)	17.9 (260)
Max flow @ 20 cpm lpm (gpm)	15 (4.00)	20 (5.25)	30 (8.00)	40 (10.50)	50 (13.2)	100 (26.4)	40 (10.50)	60 (15.90)	80 (21.10)

Ordering information

Motor size & controls			Voltage		Approvals	Pump type/ fittings			Mount			Output per cycle								
Motor size	Basic controls	Advanced controls	240 VAC single phase	380-480 VAC 3 phase	ATEX / FM / IECEx	Sealed stainless, Tri-Clamp	Open stainless, NPT	Open stainless, Tri-Clamp	No stand	Stand	Wall mount bracket	750 cc	1000 cc	1500 cc	2000 cc	2500 cc	3000 cc	4000 cc	5000 cc	
1 hp	•		•		•	•			•			EC1140	EC2140							
1 hp	•		•		•	•				•		EC1141	EC2141							
1 hp	•		•		•	•					•	EC1142	EC2142							
1 hp		•	•		•	•			•			EC1240	EC2240							
1 hp		•	•		•	•				•		EC1241	EC2241							
1 hp		•	•		•	•					•	EC1242	EC2242							
1 hp	•		•		•	•			•			EC1A40	EC2A40							
1 hp	•		•		•	•				•		EC1A41	EC2A41							
1 hp	•		•		•	•					•	EC1A42	EC2A42							
1 hp		•	•		•	•			•			EC1B40	EC2B40							
1 hp		•	•		•	•				•		EC1B41	EC2B41							
1 hp		•	•		•	•					•	EC1B42	EC2B42							
1 hp	•		•		•	•	•		•			EC1150	EC2150							
1 hp	•		•		•	•	•			•		EC1151	EC2151							
1 hp	•		•		•	•	•				•	EC1152	EC2152							
1 hp		•	•		•	•	•		•			EC1250	EC2250							
1 hp		•	•		•	•	•			•		EC1251	EC2251							
1 hp		•	•		•	•	•				•	EC1252	EC2252							
1 hp	•		•		•	•	•		•			EC1A50	EC2A50							
1 hp	•		•		•	•	•			•		EC1A51	EC2A51							
1 hp	•		•		•	•	•				•	EC1A52	EC2A52							
1 hp		•	•		•	•	•		•			EC1B50	EC2B50							
1 hp		•	•		•	•	•			•		EC1B51	EC2B51							
1 hp		•	•		•	•	•				•	EC1B52	EC2B52							
1 hp	•		•		•	•	•	•	•			EC1160	EC2160							
1 hp	•		•		•	•	•	•		•		EC1161	EC2161							
1 hp	•		•		•	•	•	•			•	EC1162	EC2162							
1 hp		•	•		•	•	•	•	•			EC1260	EC2260							
1 hp		•	•		•	•	•	•		•		EC1261	EC2261							
1 hp		•	•		•	•	•	•			•	EC1262	EC2262							
1 hp	•		•		•	•	•	•	•			EC1A60	EC2A60							
1 hp	•		•		•	•	•	•		•		EC1A61	EC2A61							
1 hp	•		•		•	•	•	•			•	EC1A62	EC2A62							
1 hp		•	•		•	•	•	•	•			EC1B60	EC2B60							

E-Flo DC circulation pump selection

Motor size & controls			Voltage		Approvals	Pump type/ fittings			Mount			Output per cycle								
Motor size	Basic controls	Advanced controls	240 VAC single phase	380-480 VAC 3 phase	ATEX / FM / IECEx	Sealed stainless, Tri-Clamp	Open stainless, NPT	Open stainless, Tri-Clamp	No stand	Stand	Wall mount bracket	750 cc	1000 cc	1500 cc	2000 cc	2500 cc	3000 cc	4000 cc	5000 cc	
1 hp		•		•	•			•		•		EC1B61	EC2B61							
1 hp		•		•	•			•			•	EC1B62	EC2B62							
2 hp	•		•		•	•			•				EC2340	EC3340	EC4340					
2 hp	•		•		•	•				•			EC2341	EC3341	EC4341					
2 hp	•		•		•	•					•		EC2342	EC3342	EC4342					
2 hp		•	•		•	•			•				EC2440	EC3440	EC4440					
2 hp		•	•		•	•				•			EC2441	EC3441	EC4441					
2 hp		•	•		•	•					•		EC2442	EC3442	EC4442					
2 hp	•		•		•		•		•				EC2350	EC3350	EC4350					
2 hp	•		•		•		•			•			EC2351	EC3351	EC4351					
2 hp	•		•		•		•				•		EC2352	EC3352	EC4352					
2 hp		•	•		•		•		•				EC2450	EC3450	EC4450					
2 hp		•	•		•		•			•			EC2451	EC3451	EC4451					
2 hp		•	•		•		•				•		EC2452	EC3452	EC4452					
2 hp	•		•		•			•	•				EC2360	EC3360	EC4360					
2 hp	•		•		•			•		•			EC2361	EC3361	EC4361					
2 hp	•		•		•			•			•		EC2362	EC3362	EC4362					
2 hp		•	•		•			•	•				EC2460	EC3460	EC4460					
2 hp		•	•		•			•		•			EC2461	EC3461	EC4461					
2 hp		•	•		•			•			•		EC2462	EC3462	EC4462					
2 hp	•		•	•	•	•			•				EC2C40	EC3C40	EC4C40	EC7C40				
2 hp	•		•	•	•	•				•			EC2C41	EC3C41	EC4C41	EC7C41				
2 hp	•		•	•	•	•					•		EC2C42	EC3C42	EC4C42	EC7C42				
2 hp		•	•	•	•	•			•				EC2D40	EC3D40	EC4D40	EC7D40				
2 hp		•	•	•	•	•				•			EC2D41	EC3D41	EC4D41	EC7D41				
2 hp		•	•	•	•	•					•		EC2D42	EC3D42	EC4D42	EC7D42				
2 hp	•		•	•	•		•		•				EC2C50	EC3C50	EC4C50					
2 hp	•		•	•	•		•			•			EC2C51	EC3C51	EC4C51					
2 hp	•		•	•	•		•				•		EC2C52	EC3C52	EC4C52					
2 hp		•	•	•	•		•		•				EC2D50	EC3D50	EC4D50					
2 hp		•	•	•	•		•			•			EC2D51	EC3D51	EC4D51					
2 hp		•	•	•	•		•				•		EC2D52	EC3D52	EC4D52					
2 hp	•		•	•	•			•	•				EC2C60	EC3C60	EC4C60					
2 hp	•		•	•	•			•		•			EC2C61	EC3C61	EC4C61					
2 hp	•		•	•	•			•			•		EC2C62	EC3C62	EC4C62					
2 hp		•	•	•	•			•	•				EC2D60	EC3D60	EC4D60					
2 hp		•	•	•	•			•		•			EC2D61	EC3D61	EC4D61					
2 hp		•	•	•	•			•			•		EC2D62	EC3D62	EC4D62					
2 x 2 hp		•	•		•	•				•					EC4941		EC5941	EC6941		
2 x 2 hp		•	•		•		•			•					EC4951		EC5951	EC6951		
2 x 2 hp		•	•		•		•			•					EC4961		EC5961	EC6961		
2 x 2 hp		•	•	•	•	•				•					EC4J41		EC5J41	EC6J41	EC8J41	
2 x 2 hp		•	•	•	•		•			•					EC4J51		EC5J51	EC6J51		
2 x 2 hp		•	•	•	•		•			•					EC4J61		EC5J61	EC6J61		

E-Flo DC supply pump selection

E-Flo DC supply pump selection

Part number matrix

Electric	Supply pump	Lower size	Motor size, controls & approvals		Pump type/fittings	Mount
E = Electric	S = Supply	7 = 145 cc	3 = 2 hp motor, Basic controls, ATEX/FM/IECEX	C = 2 hp motor 480 V, Basic controls, ATEX/FM/IECEX	4 = Xtreme/3 Xtreme, 2 leather	0 = No stand
		8 = 180 cc	4 = 2 hp motor, Advanced controls, ATEX/FM/IECEX	D = 2 hp motor 480V, Advanced controls, ATEX/FM/IECEX	5 = DuraFlo/4 leather, 1 PTFE	1 = Stand
		9 = 220 cc			6 = DuraFlo/4 leather, PTFE	2 = Wall Mount Bracket
		0 = 290 cc				

Pump specifications

Model	290	220	180	145
Output per cycle	290cc	220cc	180cc	145cc
Maximum working pressure bar (psi)	105 (1520)	140 (2030)	168 (2430)	210 (3040)
Output at 20 CPM lpm (gpm)	5.8 (1.53)	4.4 (1.16)	3.6 (0.95)	2.9 (0.77)
Pump manual	333389	333389	333389	333389
Motor manual	3A2526	3A2526	3A2526	3A2526
Control module manual	3A2527	3A2527	3A2527	3A2527

Ordering information

Motor controls		Voltage		Approvals	Lower material		Packings		Mount			Ratio			
Basic controls	Advanced controls	240 VAC single phase	380-480 VAC 3 phase	ATEX / FM / IECEX	DuraFlo (SST)	Xtreme (CS)	3 XTREME / 2 LEATHER	4 LEATHER / 1 PTFE	No stand	Stand	Wall mount bracket	290cc	220cc	180cc	145cc
•		•		•		•	•		•			ES0340	ES9340	ES8340	
•		•		•		•	•			•		ES0341	ES9341	ES8341	
•		•		•		•	•				•	ES0342	ES9342	ES8342	
•		•		•	•			•	•			ES0350	ES9350	ES8350	ES7360
•		•		•	•			•		•		ES0351	ES9351	ES8351	ES7361
•		•		•	•			•			•	ES0352	ES9352	ES8352	ES7362
	•	•		•	•			•	•			ES0450	ES9450	ES8450	ES7460
	•	•		•	•			•		•		ES0451	ES9451	ES8451	ES7461
	•	•		•	•			•			•	ES0452	ES9452	ES8452	ES7462
•			•	•		•	•		•			ES0C40	ES9C40	ES8C40	
•			•	•		•	•			•		ES0C41	ES9C41	ES8C41	
•			•	•		•	•				•	ES0C42	ES9C42	ES8C42	
•			•	•	•			•	•			ES0C50	ES9C50	ES8C50	ES7C60
•			•	•	•			•		•		ES0C51	ES9C51	ES8C51	ES7C61
•			•	•	•			•			•	ES0C52	ES9C52	ES8C52	ES7C62
	•		•	•	•			•	•			ES0D50	ES9D50	ES8D50	ES7D60
	•		•	•	•			•		•		ES0D51	ES9D51	ES8D51	ES7D61
	•		•	•	•			•			•	ES0D52	ES9D52	ES8D52	ES7D62

Control module accessories

Part number	Description	Comments
24R050	Pressure transducer, NPT	Up to two pressure transducers can be connected to one control module. Cable length: 1.4 m (4.5 ft)
24X089	Pressure transducer, inline Tri-clamp	Up to two pressure transducers can be connected to one control module. Cable length: 1.4 m (4.5 ft)
16V103	Transducer extension cable	For extending length of pressure transducer. Length: 2 m (6.5 ft)
24V001	Pneumatic BPR control system	For use when implementing an “off-production” or “sleep” profile with the control module
16U729	Run/Stop switch	Additional, separate switch for running and stopping the pump
16M172	15 m (50 ft) fibre optic cable	Used for communicating outside of a hazardous area
16M173	30 m (100 ft) fibre optic cable	Used for communicating outside of a hazardous area
17B160	100 m (330 ft) fibre optic cable	Used for communicating outside of a hazardous area
24R086	Fibre/serial converter	For converting a fibre optic cable to RS485/Modbus RTU serial. Located outside of the hazardous area.
15V331	Ethernet IP gateway assembly	For interfacing with a PLC network. Located outside of the hazardous area.

Motors

Part number		Description	Approvals
220V	340-480V		
EM0011	EM1011	1 hp motor, Basic controls	ATEX / FM / IECEx
EM0012	EM1012	1 hp motor, Advanced controls	ATEX / FM / IECEx
EM0013	EM1013	1 hp motor, Basic controls	ATEX / IECEx / TIIS / KCS
EM0014	EM1014	1 hp motor, Advanced controls	ATEX / IECEx / TIIS / KCS
EM0021	EM1021	2 hp motor, Basic controls	ATEX / FM / IECEx
EM0022	EM1022	2 hp motor, Advanced controls	ATEX / FM / IECEx
EM0023	EM1023	2 hp motor, Basic controls	ATEX / IECEx / TIIS / KCS
EM0024	EM1024	2 hp motor, Advanced controls	ATEX / IECEx / TIIS / KCS
EM0025*	EM1025*	2 hp motor (for "2X" E-Flo DC 2000-4000cc circulation pumps), Advanced controls	ATEX / FM / IECEx
EM0026*	EM1026*	2 hp motor (for "2X" E-Flo DC 2000-4000cc circulation pumps), Advanced controls	ATEX / IECEx / TIIS / KCS

Back pressure regulators

Part number	Description
288117	Pneumatic BPR (20 gpm, 300 psi max fluid pressure, 1-1/4 npt)
288311	Pneumatic BPR (20 gpm, 300 psi max fluid pressure, 1-1/2 npt)
288262	Pneumatic BPR (20 gpm, 300 psi max fluid pressure, 2 in Tri-Clamp)

Other accessories

Part number	Description
255143	Wall mount bracket
253692	Floor stand
24R101	Basic controls securing kit



About Graco

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company's success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco's ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

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All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Graco is certified ISO 9001.



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