



DirectoValve® B Style Electric Motors and Valves

Shutoff/Control Motors

Boom Control motors are 22 RPM for 344B series (0.7 second shutoff valves) and 25 RPM for 346B and 356 series (0.6 second shutoff valves) for 12 VDC systems. Available with E or EC series motors with DIN or CABLE versions. E type motors work with DPDT (double pole, double throw) switch. EC type motors work with simple SPST (single pole, single throw) on/off switch and are compatible with all sprayer controls.

Current draw less than 2 amps (1.7 amps at 40 in.-lbs.).

Electrical connectors can be ordered with a standard number. See page 105 for more information.

Note: 2-way control motors can be rotated 180° to change the cable outlet direction on the valve. There is also an adapter to rotate motors 90°, contact your local representative for more information.

An internal fuse protects the valve and your electrical system, and it resets automatically by disconnecting power to the motor for 20 seconds.

Direct coupled visual indicator to verify position/operation. Yellow oval indicates 22 RPM motor. Yellow diamond indicates 25 RPM motor.

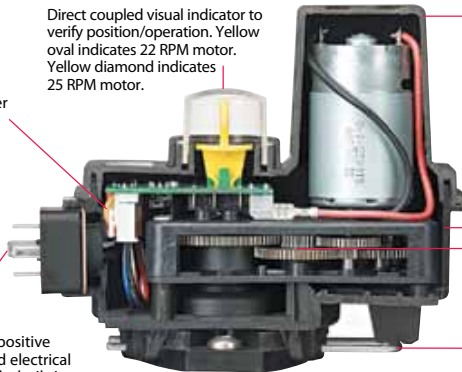
Cover fits snugly over the motor cavity to reduce air space and eliminate condensation. It's sealed and sonically welded to comply with the IP67 rating for submersion under water.

Permanent etched marking with complete motor number and date coded (year, month, day).

Double-wall construction of the gearbox increases strength and maintains permanent lubrication of the durable, all-metal gears.

Motor head assembly is easily detached by pulling a retaining pin allowing manual operation or easy replacement of the motor.

Available for either positive or negative switched electrical systems with a sturdy, built-in double sealed grommet and flat gasket that seals the DIN connector versions. Motor and DIN cables are made of polyurethane.



Regulating Motors

Choosing the proper regulating motor speed is important to maximizing the sprayer's performance. Three speeds are offered at this time: 1 RPM, 3 RPM and 6 RPM. The 1 RPM speed is used mostly in manual systems; it is too slow for automated rate control. The other two speeds are used in automated systems. The 3 RPM is the most popular and opens the valve to the maximum flow in about 6 seconds for the RL valve and about 10 seconds for the PR valves. The 6 RPM motor cuts those times in half.

DIN and Cable Electrical Connector

Both DIN and motor cables are made of polyurethane and are pressure extruded creating a round cable for improved sealing. Polyurethane has twice the strength and three times the tear and abrasion resistance of PVC. Motor cables include over-molded plugs that seal off the ends of cables and wires to prevent seepage. Conductor insulation uses familiar color coding of red, white and black.

DIN cable connectors are constructed of a special over molded elastomeric material that does not require a flat gasket to be sealed. The center screw is made of stainless steel.

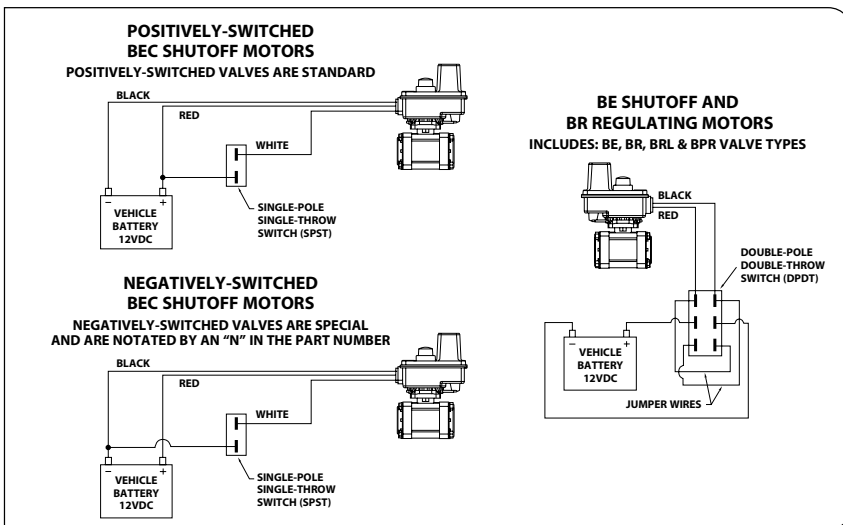
How to Order:

Example: 38082-30, 10 ft. (3 meter) DIN cable.



DIN CABLE	CABLE
38082-05	1.5' (0.5 meter) DIN cable
38082-15	5' (1.5 meter) DIN cable
38082-30	10' (3 meter) DIN cable
38082-60	20' (6 meter) DIN cable

DIN cables are ordered separately.





B Style Shutoff Motor Numbers

344B SERIES			CURRENT DRAW (AMPS)**	346B AND 356 SERIES			CURRENT DRAW (AMPS)**		CABLE LENGTH
BEC POSITIVE SWITCH MOTOR	*BEC NEGATIVE SWITCH MOTOR	BE SWITCH MOTOR	344B	BEC POSITIVE SWITCH MOTOR	*BEC NEGATIVE SWITCH MOTOR	BE SWITCH MOTOR	346B	356	
50515-22CP03	* 50515-22CN03	* 50533-22C03	1.1	50515-25CP03	* 50515-25CN03	* 50533-25C03	1.75	2.2	1.0' (0.3 meter) cable
50515-22CP05	* 50515-22CN05	50533-22C05	1.1	50515-25CP05	* 50515-25CN05	50533-25C05	1.75	2.2	1.5' (0.5 meter) cable
50515-22CP15	* 50515-22CN15	* 50533-22C15	1.1	50515-25CP15	* 50515-25CN15	* 50533-25C15	1.75	2.2	5' (1.5 meter) cable
50515-22CP60	* 50515-22CN60	* 50533-22C60	1.1	50515-25CP60	* 50515-25CN60	* 50533-25C60	1.75	2.2	20' (6 meter) cable
50515-22DP	* 50515-22DN	* 50533-22D	1.1	50515-25DP	* 50515-25DN	* 50533-25D	1.75	2.2	DIN Electrical Connector

Items marked with "*" are non-stock items.

** Current draw is a nominal rating @ 13.8 VDC and will vary dependent upon valve usage and chemicals used.

Note: DIN cables are ordered separately.

*Bypass Valve (Normally Open) BEC Motors

344B SERIES			CURRENT DRAW (AMPS)**	346B AND 356 SERIES			CURRENT DRAW (AMPS)**		CABLE LENGTH
BEC POSITIVE SWITCH MOTOR	*BEC NEGATIVE SWITCH MOTOR	BE SWITCH MOTOR	344B	BEC POSITIVE SWITCH MOTOR	*BEC NEGATIVE SWITCH MOTOR	BE SWITCH MOTOR	346B	356	
50994-22CP03	* 50994-22CN03	* 50533-22C03	1.1	50994-25CP03	* 50994-25CN03	* 50533-25C03	1.75	2.2	1.0' (0.3 meter) cable
50994-22CP05	* 50994-22CN05	50533-22C05	1.1	50994-25CP05	* 50994-25CN05	50533-25C05	1.75	2.2	1.5' (0.5 meter) cable
50994-22CP15	* 50994-22CN15	* 50533-22C15	1.1	50994-25CP15	* 50994-25CN15	* 50533-25C15	1.75	2.2	5' (1.5 meter) cable
50994-22CP60	* 50994-22CN60	* 50533-22C60	1.1	50994-25CP60	* 50994-25CN60	* 50533-25C60	1.75	2.2	20' (6 meter) cable
50994-22DP	* 50994-22DN	* 50533-22D	1.1	50994-25DP	* 50994-25DN	* 50533-25D	1.75	2.2	DIN Electrical Connector

Items marked with "*" are non-stock items.

** Current draw is a nominal rating @ 13.8 VDC and will vary dependent upon valve usage and chemicals used.

Note: DIN cables are ordered separately.

344B & 346B Regulating Motors

SPEED (RPM)	R & RL MOTOR NO.	PR MOTOR NO.	CURRENT DRAW (AMPS)**		CABLE LENGTH
			AA344B	AA346B	
1	* 50516-01C03	* 50996-01C03	0.10	0.12	1.0' (0.3 meter) cable
1	* 50516-01C05	* 50996-01C05	0.10	0.12	1.5' (0.5 meter) cable
1	* 50516-01C15	* 50996-01C15	0.10	0.12	5' (1.5 meter) cable
1	* 50516-01C60	* 50996-01C60	0.10	0.12	20' (6 meter) cable
1	* 50516-01D	* 50996-01D	0.10	0.12	DIN Electrical Connector
3	* 50516-03C03	* 50996-03C03	0.15	0.20	1.0' (0.3 meter) cable
3	* 50516-03C05	* 50996-03C05	0.15	0.20	1.5' (0.5 meter) cable
3	* 50516-03C15	* 50996-03C15	0.15	0.20	5' (1.5 meter) cable
3	* 50516-03C60	* 50996-03C60	0.15	0.20	20' (6 meter) cable
3	* 50516-03D	* 50996-03D	0.15	0.20	DIN Electrical Connector
6	* 50516-06C03	* 50996-06C03	0.43	0.50	1.0' (0.3 meter) cable
6	* 50516-06C05	* 50996-06C05	0.43	0.50	1.5' (0.5 meter) cable
6	* 50516-06C15	* 50996-06C15	0.43	0.50	5' (1.5 meter) cable
6	* 50516-06C60	* 50996-06C60	0.43	0.50	20' (6 meter) cable
6	* 50516-06D	* 50996-06D	0.43	0.50	DIN Electrical Connector

Items marked with "*" are non-stock items.

** Current draw is a nominal rating @ 13.8 VDC and will vary dependent upon valve usage and chemicals used.

Note: DIN cables are ordered separately. See page 66 for DIN cable options.



DirectoValve® Electric Regulating Valves

DirectoValve® Electric Pressure Regulating Valves

The proper regulating valve will enhance the operation of a sprayer, especially one with an automatic rate controller. While advanced electronics provide features and control, the proper regulating valve helps the system to respond quickly to input changes and functions over a wide range of application rates. Choosing the proper valve involves determining the maximum capacity required, the range of application rates and the proper motor speed.

System Capacity

A regulating valve's system requirements will depend on the application amount and the pumping capacity. Additionally, the regulating valve can be used in bypass or throttling mode. In throttling mode, the flow through the valve will be applied through the nozzles. In bypass mode, the excess flow

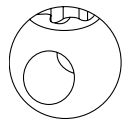
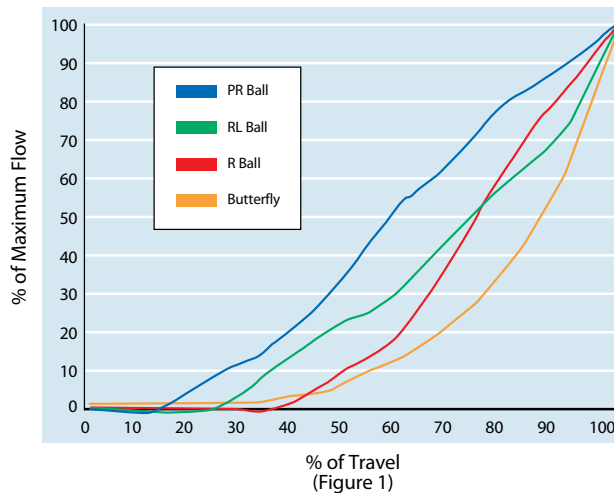
from the pump is recirculated. A valve that works well throughout the flow spectrum has the best chance to work in all situations.

Types of Regulating Valves

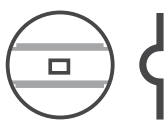
Special ball shapes make regulating valves more responsive and able to work with both high and low application rates. Most agricultural sprayers use either a

2-way ball valve or butterfly valve for regulating purposes. When considering sizing a regulating valve, the first concern is to understand the valve's flow curve to determine how efficiently the valve will regulate. Figure 1 shows typical flow curves for DirectoValve® regulating type valves. This will help to decide the type of valve to use.

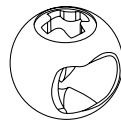
Regulating Valve Flow Curves



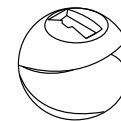
R Type Valve



Butterfly Valve



RL Valve



PR Valve

R Type and Butterfly Valves

As shown on the graph, the butterfly valve has the most non-linear flow curve for final 1/3 (30°) of travel leading to an increase of 75% in flow through the valve. The straight 2-way "R" ball curve is not quite as steep, with the flow through the valve increasing by 60% over the last 30° of travel. The "R" ball, however, has the additional disadvantage of not allowing significant flow during the first 1/3 of its rotation. Since a small change of rotation causes a significant change using these valves, trying to regulate large flows when the valve is two thirds to full open presents a challenge.

RL Valve

TeeJet Technologies has developed a special ball that allows the valve to start regulating earlier thus extending the regulating range. This special ball valve also increases flow and the linear characteristic of the valve during the first 3/4 of the valve cycle. The flow from the valve starts 10° earlier, than a regular R type ball and increases the flow of the RL ball during the first 70% of travel (Figure 1). The maximum capacity is about 10% less than an R type valve.

PR Valve

The PR valve uses a 3-way valve body and a ball with a wedge removed. The combination of this ball and a motor that rotates past the standard 90° results in a valve with an almost linear flow curve. The 2PR version has one outlet plugged. The 3PR version allows bypass flow to return to the tank.

As noted in Figure 1, the percentage of flow increases by approximately the amount of ball travel thus avoiding the rapid change seen with standard ball valves and butterfly valves.

Ball Type Regulating Valves

* Not available in stainless steel.

MODEL NUMBER	MAXIMUM PRESSURE	FLOW RATE AT A 5 PSI (0.34 bar) PRESSURE DROP	FLOW RATE AT A 10 PSI (0.69 bar) PRESSURE DROP
344BR-2	300 PSI (20 bar)	32 GPM (121 l/min)	45 GPM (170 l/min)
344BR-3	300 PSI (20 bar)	24 GPM (91 l/min)	34 GPM (129 l/min)
344BRL-2	300 PSI (20 bar)	27 GPM (102 l/min)	38 GPM (144 l/min)
* 344BPR-2	300 PSI (20 bar)	12 GPM (45 l/min)	17 GPM (64 l/min)
* 344BPR-3	300 PSI (20 bar)	12 GPM (45 l/min)	17 GPM (64 l/min)
346BR-2	150 PSI (10 bar)	100 GPM (379 l/min)	141 GPM (534 l/min)
346BR-3	150 PSI (10 bar)	64 GPM (242 l/min)	91 GPM (344 l/min)
* 346BPR-2	150 PSI (10 bar)	53 GPM (200 l/min)	75 GPM (284 l/min)
* 346BPR-3	150 PSI (10 bar)	53 GPM (200 l/min)	75 GPM (284 l/min)