

# Valves and Controls

## VALVES AND CONTROLS

Quality valves and controls ensure that liquid flows smoothly and is applied accurately, making the most efficient use of expensive chemical.

The wide range of valves and controls available from Hypro means that sprayers, from the simplest mounted machine to the more complex self propelled machines, can be controlled simply and efficiently.

In-cab remote control systems allow the sprayer operator to control all spraying functions from the safety of the driving seat.

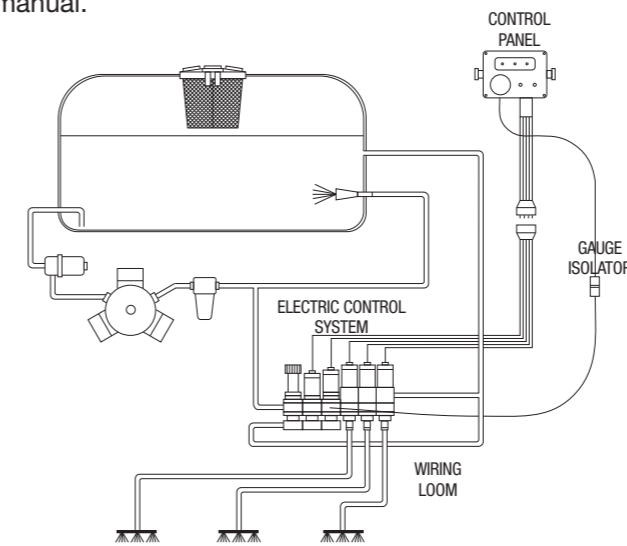
Precise control allows the operator to maintain accurate crop coverage thus minimising chemical wastage and improving yields.

Hypro offer a range of valves for a variety of applications and pricing to suit all pockets, from simple manual valves and control systems to fully integrated electric control systems featuring constant application. Hypro also offer advice and guidance on selection, installation and maintenance of your valves and control systems, with a full range of spares and componentry.



## ELECTRIC CONTROL SYSTEMS

The Lurmark range features a number of electric control systems from cost-effective solenoid systems through to the accuracy of electrovalves. All Lurmark electric control systems are modular in design for simplicity and flexibility. Installation is easy, as demonstrated by this example plumbing diagram. Furthermore each system is provided with a detailed installation and maintenance manual.



## ECONOMY ELECTRIC CONTROL KITS

For ease of installation and operation this kit has been pre-assembled in versions suitable for 3 or 5 section remote boom control. This competitively priced kit contains all the elements needed to install the system, including the main hoses and tees, together with clear assembly instructions.

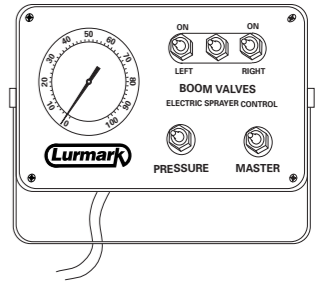


# Valves and Controls

## KIT CONTENTS

### Compact control panel:

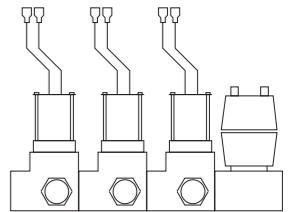
- Master on/off
- 1/2 boom section isolator switches
- Pressure compensation/adjustment switch
- Wiring loom and mounting bracket.



### 3/5 Diaphragm type solenoid valves

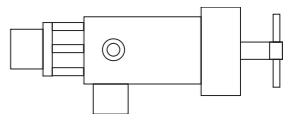
For boom section on/off (Part No. **57166610**) and a Butterfly valve (Part No. **44154110**) for pressure control.

These units are pre-assembled and fitted with metal brackets for simple mounting.



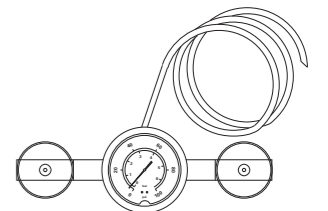
### Pressure relief valve (Part No. **44PY5010**)

For extra protection should a blockage in the system create a pressure build-up



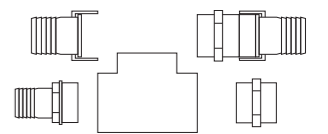
### Pressure gauge (Part No. **360Q2021**)

Pressure gauge c/w suction cup, 5m connecting pipe and appropriate fittings for gauge mounting outside gauge. If using gauge in panel please add gauge isolator Part No. **3614-14D** to order, which must be fitted to comply with health and safety regulations.



### Hosetails, tees and fittings

To ensure simple connection to existing pipework.



- 3 Section Economy Control Kit
- 5 Section Economy Control Kit

**Part No.**  
**46000001**  
**46000002**

# Valves and Controls

## 46 series electro and manual valves

These extremely versatile controls are designed specifically for crop spraying and have been developed to offer trouble free service in the most arduous field conditions.

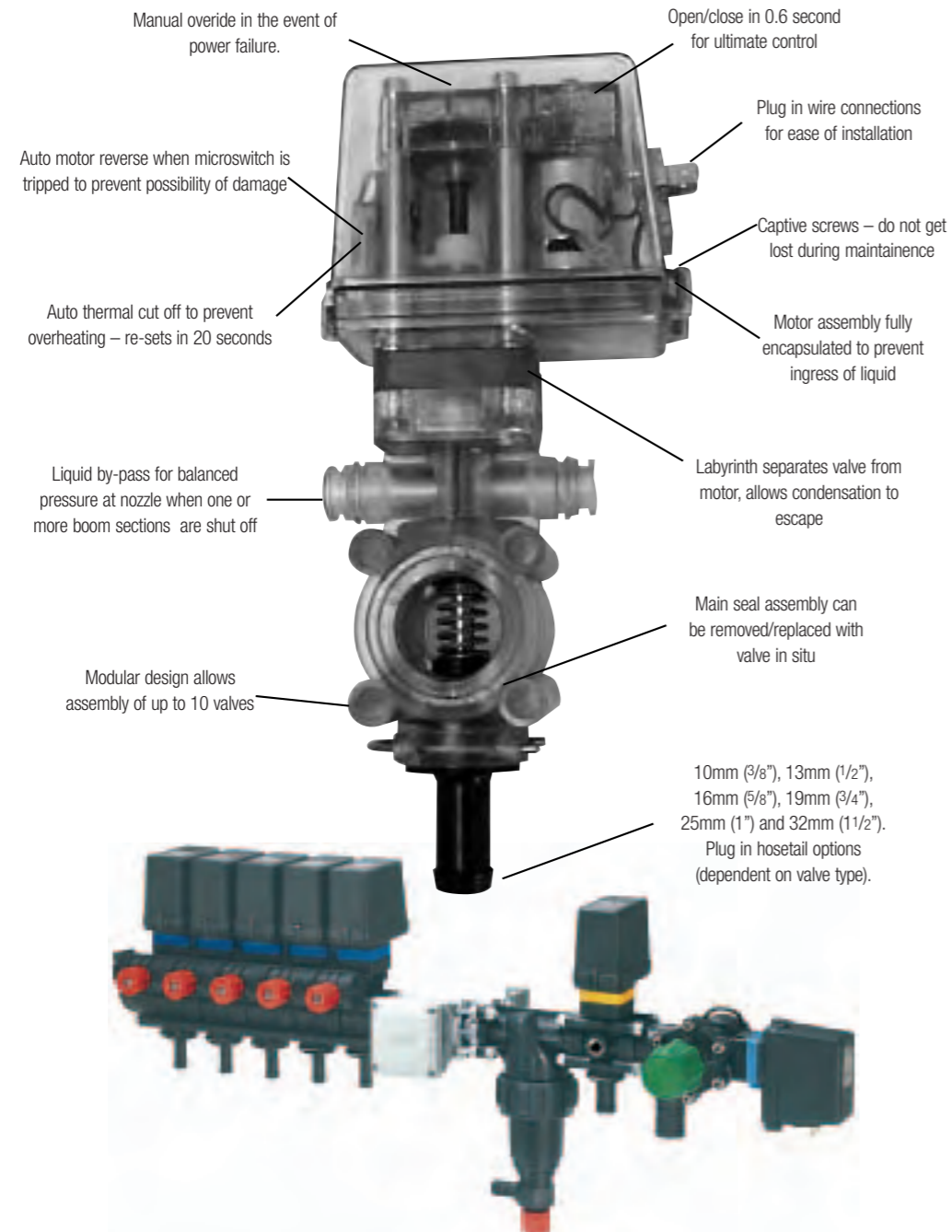
Lurmark offers these units as complete assemblies, ready to 'bolt on' or as individual components for custom built machines.

Robust and reliable, the 46/47 series valves are an ideal choice for updating older machines or integrating into new crop sprayers.

This system is completely modular so bespoke systems can be built or standard limits ordered.

- Stainless steel fasteners on electric units.
- Boom valves actuate in 0.6 seconds.
- Every valve is factory tested.

### Features of the 46 Series Boom Electrovalve



10mm (3/8"), 13mm (1/2"), 16mm (5/8"), 19mm (3/4"), 25mm (1") and 32mm (1 1/2").  
Plug in hoesetail options (dependent on valve type).

# Valves and Controls

## 46 Series Electro and Manual Valves - flows up to 180 litres/min



- 2 Boom - 120 L/min
- 3 Boom - 140 L/min
- 4 Boom - 160 L/min
- 5 Boom - 180 L/min
- All 20 Bar Max

Description	Part No.
2 Boom section c/w manual on/off regulator (no balance return)	461CLU01
3 Boom section c/w manual on/off regulator (no balance return)	46461130
4 Boom section c/w manual on/off regulator (no balance return)	46461140
5 Boom section c/w manual on/off regulator (no balance return)	46461150

- 3 Boom - 140 L/min
- 5 Boom - 180 L/min
- All 20 Bar Max

Description	Part No.
3 Boom section c/w manual on/off and regulator	464649003
4 Boom section c/w manual on/off and regulator	464649005



- 3 Boom - 140 L/min
- 5 Boom - 180 L/min
- 4 Boom - 160 L/min
- All 20 Bar Max

Description	Part No.
3 electric boom section c/w manual unloader, electric on/off and pressure regulator	464715302E0S
4 electric boom section c/w manual unloader, electric on/off and pressure regulator	464715402E0S
5 electric boom section c/w manual unloader, electric on/off and pressure regulator	464715502E0S
As 464715302E0S c/w filter	464715302E1S
As 464715402E0S c/w filter	464715402E1S
As 464715502E0S c/w filter	464715502E1S



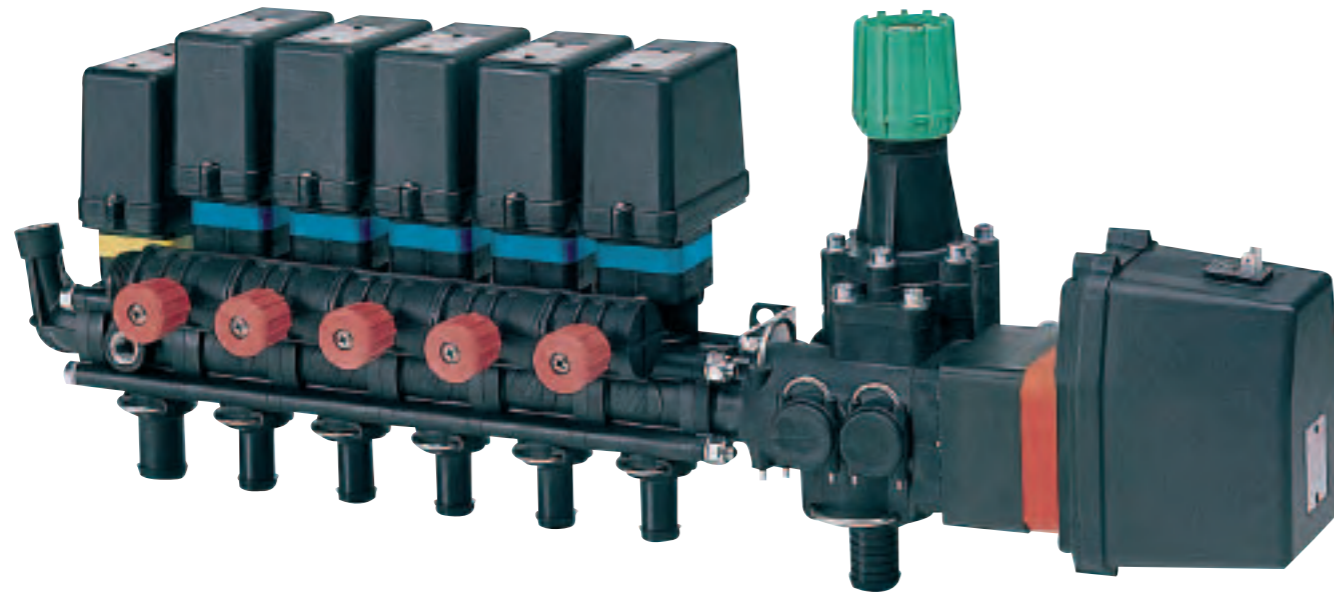
Ordering: Please specify 10mm (3/8"), 13mm (1/2"), 16mm (5/8"), 19mm (3/4") or 25mm (1") hoses tails for boom sections. For inlet and return fittings please refer to Fittings section

# Valves and Controls

## 46 Series Electro and Manual Assemblies - flows up to 280 litres/min

- Select bypass according to Pump Flow
- All 20 Bar Max

Description	Part No.
4 Boom section c/w manual unloader, electric on/off and pressure regulator	46464540S
5 Boom section c/w manual unloader, electric on/off and pressure regulator	46464550S



Ordering: Please specify 10mm (3/8"), 13mm (1/2"), 16mm (5/8"), 19mm (3/4") or 25mm (1") hoses for boom sections. and 25mm (1"), 30mm (1 1/4") or 35mm (1 1/2") for inlet  
For control panels please see page 11

# Valves and Controls

## 46 Series Electro and Manual Assemblies - flows up to 280 litres/min



- Select bypass according to Pump Flow
- All 20 Bar Max

Bypass Ø	L/min	Part No.
35mm	60	46464402.140
35mm	120	46464402.141
35mm	180	46464402.142
40mm	280	46464402.143

Description	Part No.
4 Boom section c/w manual unloader, electric on/off and pressure regulator with integral pressure filter	464645402F5S
5 Boom section c/w manual unloader, electric on/off and pressure regulator with integral pressure filter	464645502F5S

Ordering: Please specify 10mm (3/8"), 13mm (1/2"), 16mm (5/8"), 19mm (3/4") or 25mm (1") hoses for boom sections. and 25mm (1"), 30mm (1 1/4") or 35mm (1 1/2") for inlet  
For control panels please see page 11

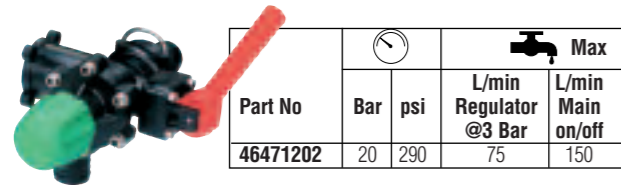
# Valves and Controls

## 46 Series Electro and Manual Assemblies - individual components (flows up to 150 L/min)

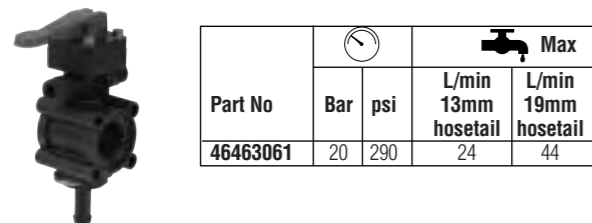
To design your own system simply use the following steps:

### MANUAL

- 1 Start with manual main control valve with pressure regulator



- 2 Select no. of section control valves required – one valve per section – specify 10, 13, 16, 19 or 25mm hosetail



- 3 Select assembly kit for number of section control valves chosen and specify end fittings a, b or d

Item	Part No	Description
A	46463011-120	Closed end fitting
B	46463011-130	Gauge elbow
C	46463011-920	2 valve assy kit
C	46463011-930	3 valve assy kit
C	46463011-940	4 valve assy kit
C	46463011-950	5 valve assy kit
C	46463011-960	6 valve assy kit
C	46463011-970	7 valve assy kit
D	46463000-040	1" BSP end fitting

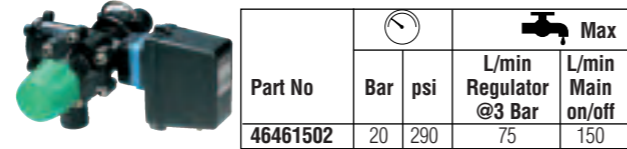
- 4 Select metered bypass manifold sections according to number of section control valves or blanks if not required

Item	Part No	Description
A	46463011-213	13mm hose fitting
A	46463011-216	16mm hose fitting
B	46463011-200	Blank fitting
C	46463011-070	Retaining clip
D	46463010-803	1" BSP manifold section c/w clip
E	46463010-802	Central manifold section c/w clip
F	46463010-801	Closed manifold section c/w clip

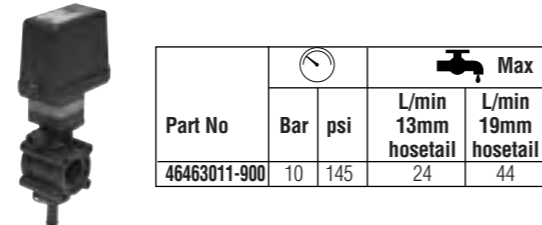
Note: Hypro offer a custom build service – Please contact factory

### ELECTRIC

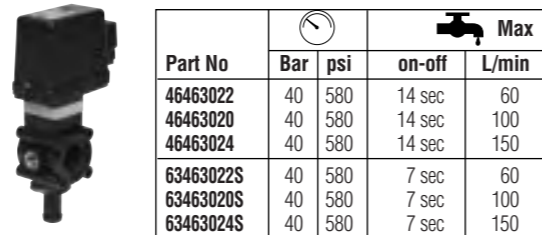
- 1 Start with electric main control unit with manual unloader 0.6 sec on/off



- 2 Select no. of section control valves required – one valve per section – specify 10, 13, 16, 19 or 25mm hosetail 0.6 sec on/off



- 3 Select electric proportional pressure regulating valve 14 secs on – off



- 4 Select assembly kit for number of section control valves chosen and specify end fittings a, b or d

Item	Part No	Description
A	46463011-120	Closed end fitting
B	46463011-130	Gauge elbow
C	46463900-920	2 valve assy kit
C	46463900-930	3 valve assy kit
C	46463900-940	4 valve assy kit
C	46463900-950	5 valve assy kit
C	46463900-960	6 valve assy kit
C	46463900-970	7 valve assy kit
C	46463900-980	8 valve assy kit
C	46463900-990	9 valve assy kit
C	46463900-9100	10 valve assy kit
D	46463000-040	1" BSP end fitting

- 5 Select metered bypass manifold sections according to number of boom valves or blanks if not required

Item	Part No	Description
A	46463011-213	13mm hose fitting
A	46463011-216	16mm hose fitting
B	46463011-200	Blank fitting
C	46463011-070	Retaining clip
D	46463010-803	1" BSP manifold section c/w clip
E	46463010-802	Central manifold section c/w clip
F	46463010-801	Closed manifold section c/w clip

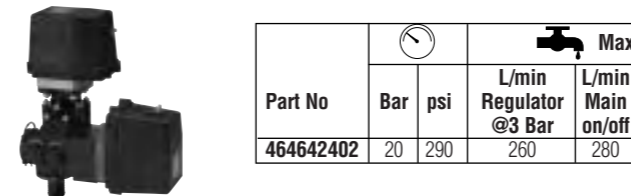
# Valves and Controls

## 46 Series Electro and Manual Valves - individual components (flows up to 260 L/min)

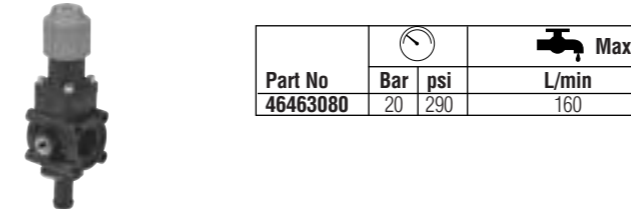
To design your own system simply use the following steps:

### ELECTRIC

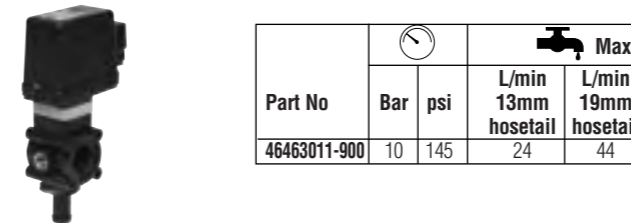
- 1 Start with electric main on/off and regulator – 2 sec main on/off, 20 sec regulator



- 2 Select manual unloader valve – 1 per assembly



- 3 Select no. of section control valves required – one per section – specify 10, 13, 16, 19 or 25mm hosetails 0.6 sec on/off



- 4 Select assembly kit for number of section control valves chosen and specify end fittings a, b or d

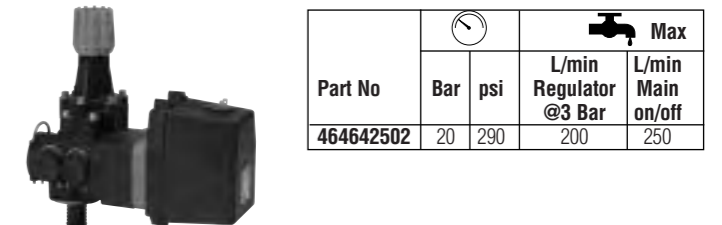
Item	Part No	Description
A	46463011-120	Closed end fitting
B	46463011-130	Gauge elbow
C	46463900-920	2 valve assy kit
C	46463900-930	3 valve assy kit
C	46463900-940	4 valve assy kit
C	46463900-950	5 valve assy kit
C	46463900-960	6 valve assy kit
C	46463900-970	7 valve assy kit
C	46463900-980	8 valve assy kit
C	46463900-990	9 valve assy kit
C	46463900-9100	10 valve assy kit
D	46464400-029	Flanged fitting

- 5 Select metered bypass manifold sections according to number of boom valves or blanks if not required

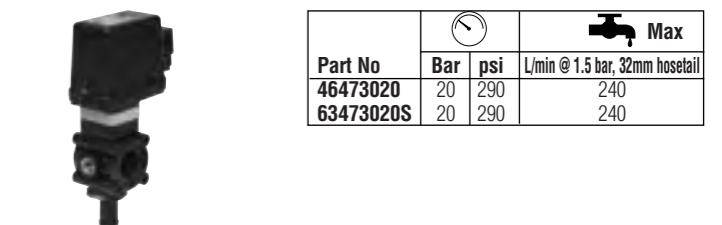
Item	Part No	Description
A	46463011-213	13mm hose fitting
A	46463011-216	16mm hose fitting
B	46463011-200	Blank fitting
C	46463011-070	Retaining clip
D	46463010-803	1" BSP manifold section c/w clip
E	46463010-802	Central manifold section c/w clip
F	46463010-801	Closed manifold section c/w clip

### ELECTRIC HIGH FLOW VALVES

- 1 Start with electric main on/off and manual unloader – 2 sec main on/off.



- 2 Select no. of boom section control valves required – one valve per section – specify 19mm, 25mm or 32mm hosetails – 0.6 sec on/off



- 3 Select assembly kit for number of section control valves chosen and specify end fittings a, b or d

Item	Part No	Description
A	46473011-120	Closed end fitting
B	46473011-130	Gauge elbow
C	46463900-920	2 valve assy kit
C	46463900-930	3 valve assy kit
C	46463900-940	4 valve assy kit
C	46463900-950	5 valve assy kit
C	46463900-960	6 valve assy kit
C	46463900-970	7 valve assy kit
C	46463900-980	8 valve assy kit
C	46463900-990	9 valve assy kit
C	46463900-9100	10 valve assy kit
D	46464400-028	Flanged fitting

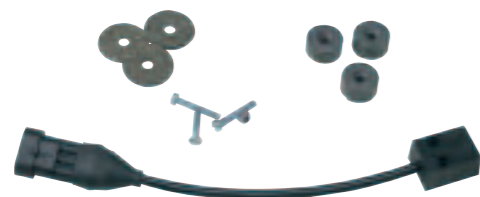
- 4 Select metered bypass manifold assembly according to number of boom valves or blanks if not required

Item	Part No	Description
A	46473010-820	2 valve manifold
A	46473010-830	3 valve manifold
A	46473010-840	4 valve manifold
A	46473010-850	5 valve manifold
A	46473010-860	6 valve manifold
A	46473010-870	7 valve manifold
B	46473011-200	Blank fittings c/w clip
C	46473011-225	25mm hose fitting c/w clip

Note: Hypro offer a custom build service Please contact factory

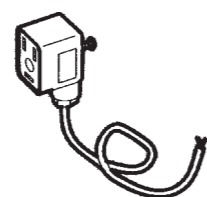
# Valves and Controls - Accessories

## 46 Series Electro and Manual Valves - accessories



**Part No**  
63467100-100  
63467100-081

**Description**  
Speed sensor kit  
Sensor only



**Part No**  
464652900-140

**Description**  
Spare cable for electrovalve (1.3 mtr)



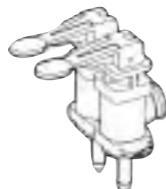
**Part No**  
36466352

**Description**  
Gauge Isolator Kit  
Prevents chemicals from gaining passage into cab.  
Suits all Hypro Control Panels c/w 5 metre tube.



**Part No**  
63467100-086

**Description**  
Inductive speed sensor.  
Eliminates the need for magnets  
Max. measuring distance: 7mm  
5 metre long cable



**Part No**  
46464402-150

**Description**  
Auxiliary tap kit for high flow electrovalve



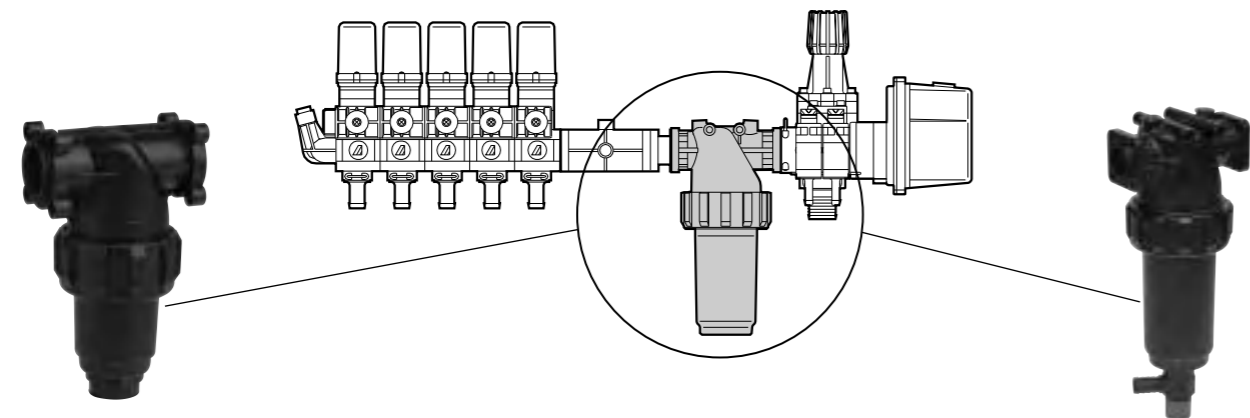
**Part No**  
46466112-200

**Description**  
Pressure Transducer  
0.20 bar (0 - 290 psi)



**Part No**  
46466111

**Description**  
Power cable quick release plug and socket



**Part No**  
203224013

**Description**  
Flanged filter to suit 46 series electrovalve  
150L/min max flow, 20 bar (290 psi) max pressure, 50 mesh element

**2032240135**  
Flanged filter to suit 46 series electrovalve,  
150 L/min max flow, 20 bar (290 psi) max pressure, 30 mesh element

**Part No**  
20326113

**Description**  
Flanged filter to suit 46 series electrovalve, 210 L/min max flow, 20 bar (290 psi) max pressure, 50 mesh element

**2032620135**  
Flanged filter to suit 46 series electrovalve, 210 L/min max flow, 20 bar (290 psi) max pressure, 80 mesh element

**203262113**  
Flanged filter to suit 46 series electrovalve, 210 L/min max flow, 20 bar (290 psi) max pressure, 50 mesh element – self cleaning

**2032621135**  
Flanged filter to suit 46 series electrovalve, 210 L/min max flow, 20 bar (290 psi) max pressure, 80 mesh element – self cleaning

# Control Panels

A comprehensive range of control panels that come with all wiring and the following features:

- Large switches fitted with rubber protectors
- High brightness LED's
- Self resetting safety fuses
- Waterproof seals
- All boxes are rested



**Part No**  
4646615100

**Description**  
Single on/off switch control panel  
4 metres output cable



**Part No**  
464662532

**Description**  
Control panel c/w main on/off, regulator and 3 x boom switches (no gauge).  
2 metres input and total of 8 metres output cable.



**Part No**  
4646615200

**Description**  
2 x on/off switch control panel  
4 metres output cable



**Part No**  
46466530P100

**Description**  
Control panel c/w main on/off, regulator, 3 x boom switches and 0 - 10 bar gauge in completely separate compartment to wiring.



**Part No**  
4646615030

**Description**  
Main on/off and pressure regulator control panel  
4 metres output cable

**46466550P100**  
Control panel c/w main on/off, regulator, 5 x boom switches and 0 - 10 bar gauge in completely separate compartment to wiring.

**Note:** Pressure gauges must be isolated from chemical if panel is fitted inside tractor/sprayer cab

# Orion Electromagnetic Flow Meter

Electromagnetic flow meters measure the volume flow of electrically conductive liquids. The liquid passes through a magnetic field and the voltage created is picked up by two electrodes. The voltage is directly proportional to the mean flow velocity and therefore the faster the flow, the greater the voltage signal. The signal is amplified and concentrated into a frequency pulse (e.g. for the 2" version, 100 pulses for every litre passing through the meter).

- No impellers or other moving parts means no clogging and longer life.
- Performance less sensitive to fluid density or viscosity means no re-programming and greater accuracy.
- Will not measure air in the liquid meaning greater accuracy.
- Flow tolerance of  $\pm 0.5\%$  e.g. only a 3 litre error on a 600 litre fill.
- Maximum power consumption of only 300mA during continuous use.
- Manufactured in polypropylene, stainless steel and glass reinforced nylon for strength and durability.
- Digital models can be upgraded to become 'batch' meters by adding a pump stop relay set.
- Users can key in required liquid volume and the Orion sends a signal to a pump or valve to switch off when the desired quantity is reached.



Flanged Version

Part Number	Flow L/min	Max Press (bar)	Pulse/L
464621AA1000	1-20	40	3000
464621AA3000	5-100	40	600
464621AA4000	10-200	40	300



Threaded Version

Part Number	Size	Flow L/min	Max Press (bar)	Pulse/L
464621AA43434	1"	10-200	40	300
464622AA51616	1½"	20-400	20	150
464622AA61717	2"	30-600	20	100

### Connection Cables (required by all models)

Part Number	Description
4621AA10000_100	3 metre for flanged/threaded versions
4622BA50000-100	3 metre for digital version



Digital Version

Part Number	Size	Flow L/min	Max Press (bar)	Pulse/L
464622BA51616	1½"	20-400	20	150
464622BA61717	2"	30-600	20	100

### 'Pump Stop' Relay Set

Part Number	Description
4622BA50000-200	3 metre extension cable
	3 metre feed cable
	2 metre cable to pump/switch

# Ball Valves

## Ball Valves

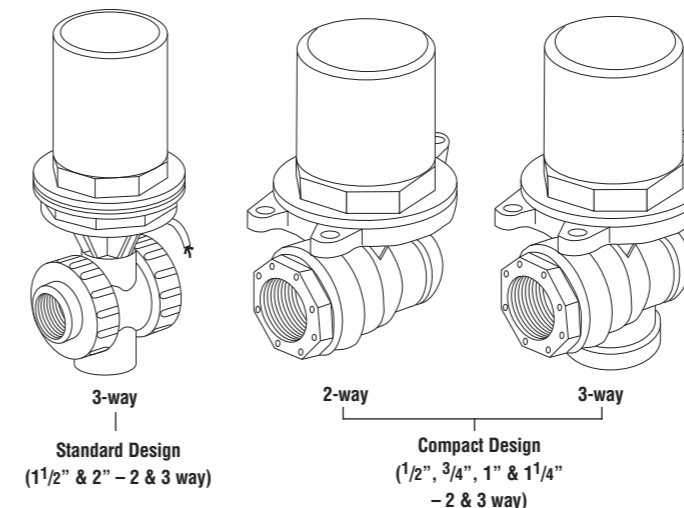
Commonly used for a wide variety of agricultural and industrial applications, Hypro offer a wide range of ball valves, both manual and electric. The Hypro range of valves are constructed from glass reinforced polypropylene for strength, durability and excellent resistance to agrochemicals and many industrial chemicals. All Hypro valves are "full-bore" providing minimum flow restriction and minimum pressure loss.



## MAINTENANCE

Good maintenance practice will help to prevent down time and prolong ball valve life:

- After spraying, flush all hoses and spray lines with clean water, to remove any chemical residue
- Regularly wash the outside of the valves with a hose or pressure washer
- Regularly check valves for free movement
- At least once a year check valve balls and seats for "scoring" and wear. Also examine the 'O' ring seals.



## Economy Manual Ball Valves

- Competitively priced quality valves.



THREADED CONNECTION	PART NOs		MAXIMUM PRESSURE BAR (PSI)
	2-Way	3-Way	
½" BSP(F)	56454132	56454232	16 (240)
¾" BSP(F)	56454133	56454233	16 (240)
1" BSP(F)	56454134	56454234	16 (240)
1¼" BSP(F)	56454135	56454235	10 (150)
1½" BSP(F)	56454136	56454236	10 (150)
2" BSP(F)	56454137	56454237	10 (150)

## Electrically Actuated Ball Valves

- 12V electrically actuated ball valves with other voltages available on request
- ½", ¾", 1" & 1¼" in compact design
- Optional st/steel balls for ½", ¾", 1" & 1¼" sizes.

THREADED CONNECTION	PART NOs		MAXIMUM PRESSURE BAR (PSI)
	2-Way	3-Way	
½" BSP(F)	54CA2000	54CA3000	20 (300)
¾" BSP(F)	54CA2001	54CA3001	20 (300)
1" BSP(F)	54CA2002	54CA3002	10 (150)
1¼" BSP(F)	54CA2003	54CA3003	10 (150)
1½" BSP(F)	543-04AE	543004AE	10 (150)
2" BSP(F)	543-05AE	543005AE	10 (150)

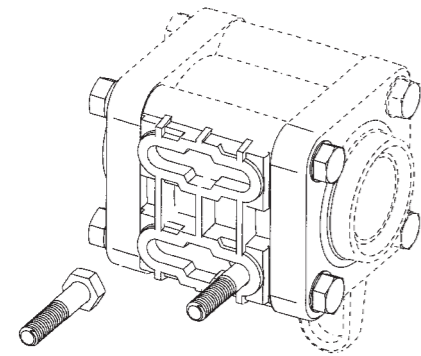
# Ball Valves

## Heavy Duty Bolted Ball Valves

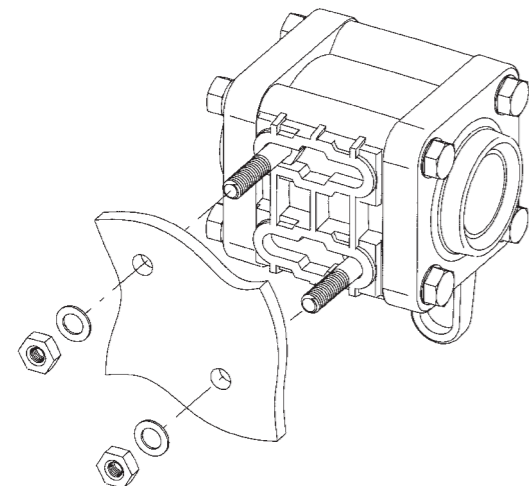
- Patented fixing system
- Glass reinforced
- EPDM O Rings (Viton on request)
- PTFE Seals
- Stainless Steel Bolts
- Stainless Steel Ball on request, standard on 5 way



THREADED CONNECTION	PART NOS		MAXIMUM PRESSURE BAR (PSI)
	2-Way	3-Way	
1" BSP(F)	56453004A44	56453024A44	16 (240)
1 1/4" BSP(F)	56453004A55	56453024A55	16 (240)
1 1/2" BSP(F)	56453005A66	56453024A66	10 (150)
2" BSP(F)	56453006A77	56453024A77	10 (150)
2 1/2" BSP(F)	56453007A88	56453024A88	8 (116)
3" BSP(F)	56453007A99	56453024A99	8 (116)



Patented Fixing System



THREADED CONNECTION	PART NOS		MAXIMUM PRESSURE BAR (PSI)
	5-Way		
2" BSP(F)	56453257A77		6 (87)
2 1/2" BSP(F)	56453257A88		6 (87)

# Butterfly Valves

## Spare Components 3/4" Butterfly Valve

	Qty	Part No.
1 Motor Assy.	1	58000159
2 Butterfly Valve	1	58000160
3 Screw 4-40 x 5/16"	1	58000161
4 Valve Body	1	58000162
5 'O' Ring (Viton)	1	58000163
6 Screw No. 4 x 3/8"	4	58000164

## Spare Components 1" Butterfly Valve

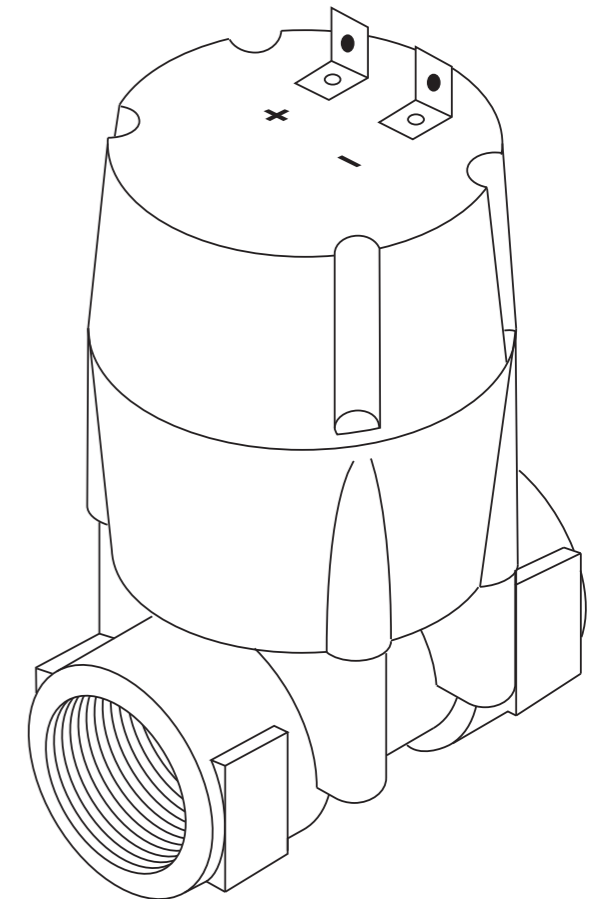
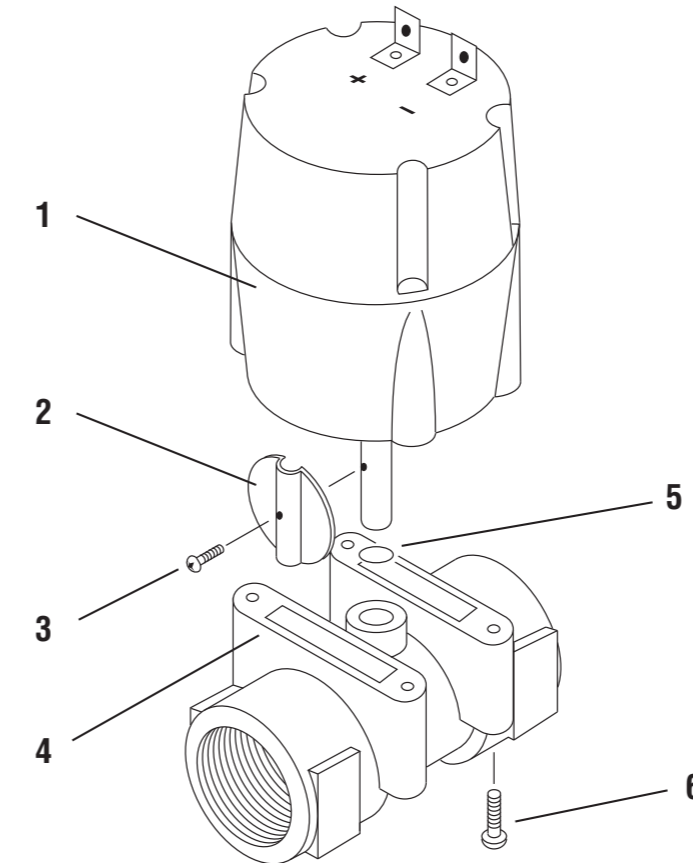
	Qty	Part No.
1 Motor Assy.	1	58000165
2 Butterfly Valve	1	58000166
3 Screw 4-40 x 5/16"	1	58000161
4 Valve Body	1	58000168
5 'O' Ring (Viton)	1	58000163
6 Screw No. 4 x 3/8"	4	58000164

Commonly used for the remote control of pressure, these nylon valves rotate at 1 rpm and stop in any position. When used with diaphragm (positive displacement) pumps, an unloader valve must be used. Use table below to match valve to pump size.

Do not restrict pipework from valve on return to tank.

Maximum operating pressure 10 bar (150 psi)

Butterfly Valves (12V dc)	Part No.
3/4" BSPT(F)	44156034
1" BSPT(F)	44154110



		FLOWRATES	
		L/min at 3 bar	gpm at 45 psi
3/4" Butterfly Valve	Fully Open	214	47
	Open 45°	92	20
	Fully Closed	6	1
1" Butterfly Valve	Fully Open	465	102
	Open 45°	242	53
	Fully Closed	15	3

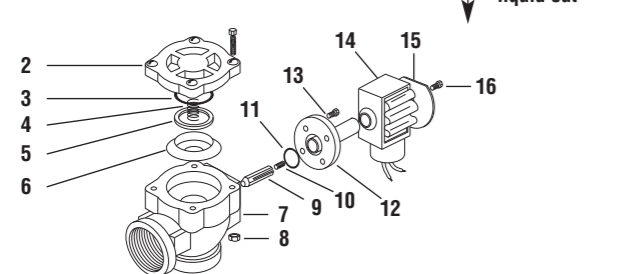
# Solenoid Valves

12V dc economy solenoid valves. These valves are spring closed and electrically opened for safety. They offer a simple, trouble-free method of remote on/off control for individual boom sections. Response times are 0.2 secs on and 0.5 secs off. Maximum operating pressure 10 bar. Not recommended for use with suspension liquids.

## 3/4" NP(F) Solenoid Valve

- Manufactured from nylon with Teflon diaphragms.

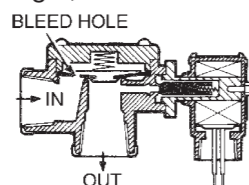
Part No. 57DSV034



## Spare Components

	Part No.
2 Valve Cover with 'O' Ring	58000102
* 3 Valve Cover with 'O' Ring Viton	58000103
4 Diaphragm Coil Spring S/Steel	58000104
* 5 Spacer PTFE (for use with 6 only)	58000105
* 6 Diaphragm Assembly Teflon	58000106
6 Diaphragm Assembly Viton	58000107
7 Valve Body (Glass-filled Nylon)	58000108
8 Nut for Valve Cover Screw (4 required)	58000109
9 Solenoid Plunger Assembly with Spring S/Steel and Teflon Pilot Seat	58000110
10 Plunger Kick-off Spring S/Steel	58000111
11 Enclosing Tube 'O' Ring	58000112
12 Solenoid Enclosing Tube S/Steel	58000113
13 Enclosing Tube Screw (4 required)	58000114
14 Solenoid Coil Assembly	58000115
15 Name Plate	58000116
16 Solenoid End Cap Screw	58000117
* Items in Winter Repair Kit	58000118

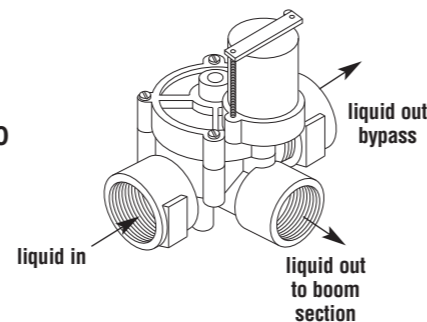
NB. When replacing the diaphragm, ensure that the bleed hole is clear and that it aligns over the centre of the inlet port as shown. Do not use lubricating oil on the diaphragm.



## 1" NPT(F) Solenoid Valve

- Manufactured in glass reinforced polypropylene with Viton diaphragms
- 3 port solenoids ideal for ganging into an assembly, as per economy electric control kits.
- 1.1 amp current draw

Part No. 57166610



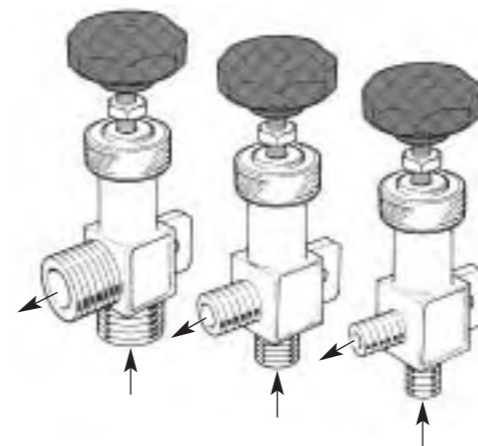
## Spare Components

	Part No.
1 Body	58000150
2 Top	58000151
3 Diaphragm Assy. Viton	58000152
4 Coil	58000153
5 O-Ring	65VBS010
6 Screw	58000170
7 O-Ring	65VBS012
8 Plunger	58000157
9 Plunger Spring	58000172
10 Spring	58000156
11 Screw	58000155

PROBLEM	CAUSE
Coil burnout	<ul style="list-style-type: none"> <li>Over voltage</li> </ul>
Failure to open	<ul style="list-style-type: none"> <li>No power or low voltage</li> <li>Open circuit or burned out coil</li> <li>Pressure differential too high (above 75 psi)</li> <li>Solenoid plunger movement impaired by dirt or damaged enclosing tube</li> </ul>
Failure to close	<ul style="list-style-type: none"> <li>Coil still energised</li> <li>Valve installed backwards</li> <li>Dirt on solenoid plunger seat</li> <li>Dirt on main port seat or in diaphragm bleed hole</li> </ul>

## 1/4", 1/2" and 3/4" Pressure Regulating Valves

- Manufactured from polypropylene
- Bottom inlet/side discharge
- Full range of spares available
- Standard versions rated to 20 bar maximum
- Flow rates as per table below.

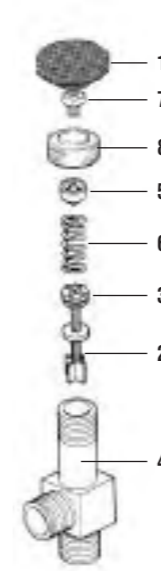


- 1/4" NPT(M), 20 bar
- 1/2" NPT(M), 20 bar
- 3/4" NPT(M), 10 bar
- 3/4" NPT(M), 20 bar

Part No. 430Q2430  
430Q2431  
430Q2432  
430Q2433

## Spare Components 1/4" to 3/4" Valves

	Part No.
1 Screw Sub Assembly	430Q2435
2 Plunger	430Q2439
3 'O' Ring	65-BS016
4 Body 1/4"	430Q2443
4 Body 1/2"	430Q2444
4 Body 3/4"	430Q2445
5 Seat	430Q2446
6 Spring 1/4", 1/2" and 3/4" (10 and 20 bar)	430Q2452
6 Spring 1/4", 1/2" and 3/4" (10 and 20 bar)	430Q2455
7 Locknut	430Q2467
8 Regulator Nut	430Q2436

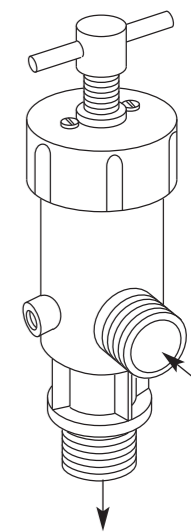


# Regulating Valves

## Large Pressure Regulating Valve

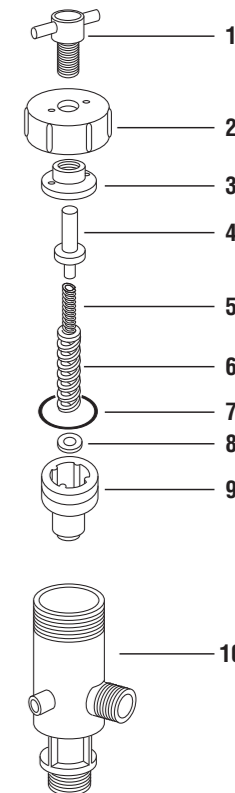
- Manufactured in glass reinforced polypropylene for extra strength
- 1" BSP(M) side inlet with 1 1/4" BSP(M) bottom discharge
- 1/8" BSP(F) tapping for pressure gauge
- Maximum operating pressure 8 bar (120 psi)
- Flow rates as per table below

Part No. 44PY5010



## Spare Components Large Pressure Regulating Valve

	Part No.
1 Handle	44531315
2 Cap	44531302
3 Bush	44531313
4 Spring Guide	44531306
5 Inner Spring	44531305
6 Outer Spring	44531304
7 'O' Ring	65-BS326
8 1/4" S/Steel Washer	43-PW14
9 Plunger	44531303
10 Body	44531301

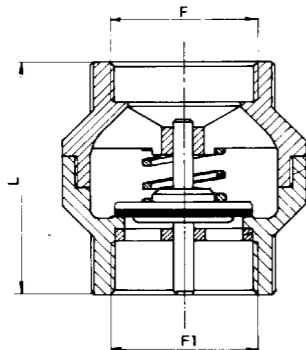
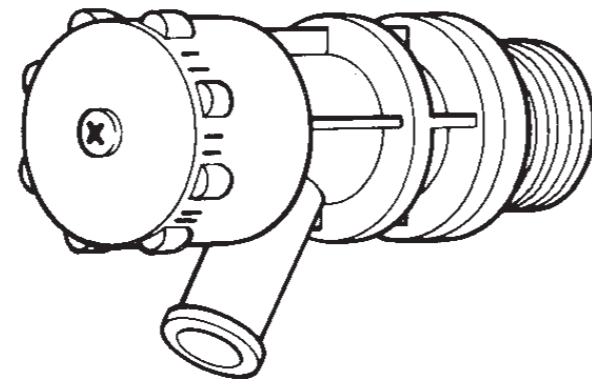


PART NO.	MAXIMUM FLOW RATES - L/min (gpm) AT						
	1 bar	2 bar	3 bar	4 bar	5 bar	6 bar	7 bar
430Q2430	15 (3)	20 (4)	25 (6)	29 (6)	32 (7)	35 (8)	39 (9)
430Q2431	72 (16)	95 (21)	113 (25)	125 (28)	136 (30)	148 (33)	155 (34)
430Q2432	104 (23)	130 (29)	156 (34)	178 (39)	192 (42)	207 (46)	220 (48)
430Q2433	104 (23)	130 (29)	156 (34)	178 (39)	192 (42)	207 (46)	220 (48)
43PY5010	147 (32)	325 (69)	400 (88)	453 (100)	500 (110)	-	-

## Drain Taps / Bib Taps

- Ideal for emptying residual liquid from tanks.

	Part No.
1/2" BSP(M) Regulating Bib Tap with 1" OD hosetail. (Light duty)	56100903
3/4" BSP(M) Regulating Bib Tap with 3/4" OD hosetail. (Heavy duty)	56100908
1" BSP Regulating Stop Tap with 1" OD hosetail	56100907
3/4" BSP(M) Drain Tap with 3/4" OD hosetail	56ART-14



## Check Valve

- All Polypropylene construction
- 3 psi cracking pressure
- For vacuum and low pressure applications only
- Maximum 35 psi

Part No.	F	F1	L
0800A297	1/2" F	1/2" F	2.4"
0800A300	1 1/4" F	1 1/4" F	2.9"
0800A301	1 1/2" F	1 1/4" F	3.3"
08504015	1 1/2" F	1 1/2" F	3.5"
0800A302	2" M	2" F	3.3"

## Polypropylene Knife Gate Valve

- For suction only

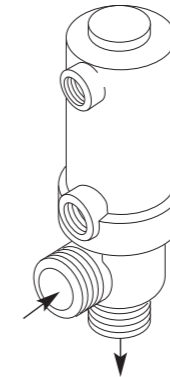


Part No.	Size
2300A100	1 1/4" X 1 1/4"
2300A101	1 1/2" X 1 1/2"
2300A102	2F X 2F

Used for the control of liquid flow where compressed air is available.

## Standard Flow Pneumatic Valves

- Improved design
- Main body manufactured from polypropylene
- 3/4" BSP(M) inlet/outlet
- Air operating pressure 5.5 to 8 bar (80 to 120 psi)
- Flow capacity 150 L/min (33 gpm) at 3 bar (43.5 psi).

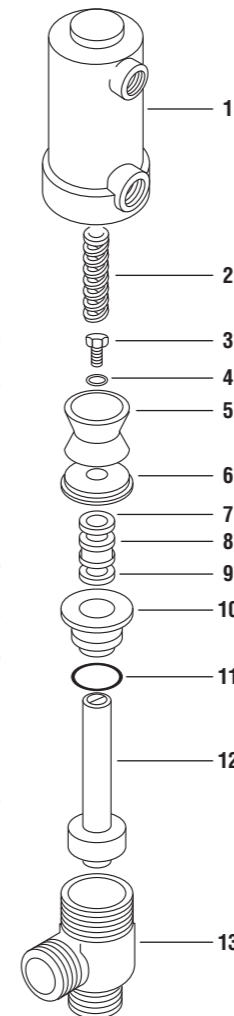


Air Open/Spring Close  
Air Open/Air Close

Part No.  
43PNS-34  
43PN- -34

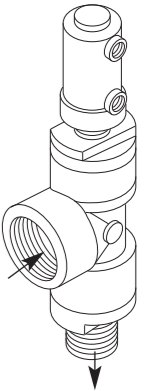
## Spare Components Standard Flow Pneumatic Valves

	Part No.
1 Valve Cap	430Q1952
2 Compression Spring	430Q1107
3 1/4" BSF S/Steel Screw	43--2138
4 1/4" S/Steel Washer	43--SW14
* 5 Piston Head	43--3237
* 6 Valve Guide End Cap	430Q2167
* 7/9 'H' Lip Seal	43--4010
* 8 Valve Guide Bush	430Q2169
* 10 Valve Guide	430Q2168
* 11 'O' Ring	65-BS119
12 S/Steel Valve	430Q2171
13 Valve Body	430Q1951
* = Items in Repair Kit	43KIT034



## High Flow Pneumatic Valves

- Improved design
- Main body manufactured from polypropylene
- 1 1/2" BSP(F) inlet, 1 1/4" BSP(M) outlet
- Air operating pressure 5.5 to 8 bar (80 to 120 psi)
- Flow capacity 500 L/min (110 gpm) at 3 bar (43.5 psi).

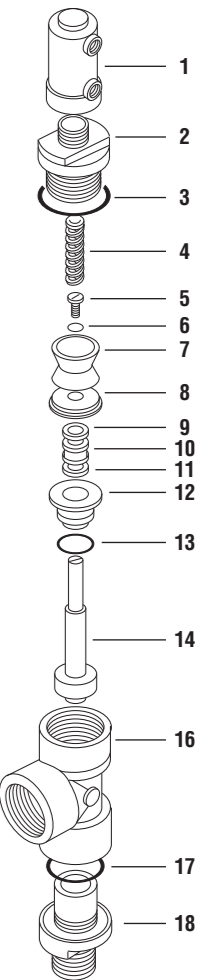


Air Open/Spring Close  
Air Open/Air Close

Part No.  
43PNS-112  
43PN-112

## Spare Components High Flow Pneumatic Valves

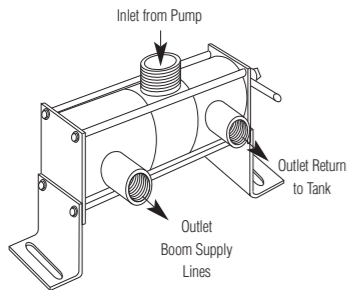
	Part No.
1 Valve Cap	430Q1952
2 End Cap	430Q2175
3/17 'O' Ring	65-BS226
4 Compression Spring	430Q1107
5 1/4" BSF x 3/8" S/Steel Screw	43--2138
6 1/4" Shake Proof Washer	43--SW14
7 Piston Head	43--3237
* 8 Valve Guide End Cap	430Q2167
* 9/11 'H' Lip Seal	43--4010
* 10 Valve Guide Bush	430Q2169
* 12 Valve Guide	430Q2168
* 13 'O' Ring	65-BS119
14 S/Steel Valve	430Q2177
16 Tee Piece	430Q2176
18 Valve Seat	430Q2178
* = Items in Repair Kit	43KIT112



The introduction of this cost effective valve means that automatic constant application is now a possibility for all sprayer operators, even when tractor speeds vary.

### The simple effective constant application valve

The FlowMaster valve offers a simple, effective method of maintaining constant application rates, when working in any one gear. FlowMaster also automatically maintains constant spraying pressure regardless of individual boom sections being closed and opened.



FlowMaster takes pressurised liquid from the pump and accurately proportions the flow of liquid between the boom supply lines and return to tank. In doing so the liquid application rate is controlled in proportion to forward speed, working in any one gear.

### With piston or diaphragm (positive) displacement pumps

The application rate will remain within  $\pm 5\%$  of the desired rate when speeds vary by  $\pm 2$  km/h from the target speed. When using FlowMaster and operating at a forward speed of 8 km/h, you can work from 6 to 10 km/h and apply chemical within an accuracy of  $\pm 5\%$ . FlowMaster also gives automatic, accurate balanced boom section shut-off.

### With centrifugal pumps

Again, FlowMaster provides accurate balanced boom section shut-off. Depending on the linearity of the flow curve FlowMaster also offers constant application for many centrifugal pumps. Further information is available upon request.

- Cost effective constant application device at variable forward speed
- Highly efficient pressure regulator when operating at constant forward speeds
- Balances boom section shut-off
- Simplifies plumbing and boom section control valve requirements
- Manufactured in stainless steel with EPDM seals
- Rated to 145 PSI (10 BAR) with flow rates up to 230 L/min
- Available in manual or electrically actuated versions
- Simple to set up and use.

FlowMaster - Manual  
FlowMaster - Electrically Actuated

Part No.  
**430Q1980**  
**430Q1995**

## Flowmaster - Installation

This example installation demonstrates the simplicity of installing the FlowMaster.



A minimum liquid flow must be maintained through the boom supply outlet of FlowMaster at all times.

To ensure this, a tank agitator is supplied with a range of restricting orifices. The correct orifice must be fitted to the agitator depending on the sprayer pump output:

The only other controls needed with FlowMaster are simple on/off boom section valves and pressure gauge(s).

PUMP OUTPUT UP TO	ORIFICE TO USE
100 L/min	Flow A
150 L/min	Flow B
230 L/min	Flow C

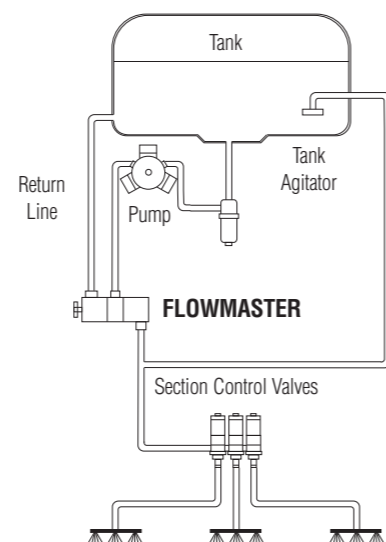
## Flowmaster - Installation Kits

For simplicity Lurmark offer standard FlowMaster installation kits containing the key components to modify your sprayer:

Kit No: **43KIT013** - 3 Section Control  
**43KIT015** - 5 Section Control

### Features:

- Electrically actuated FlowMaster
- 3/5 section electrovalve boom section control
- Control panel for boom section on/off, main on/off and pressure adjustment
- Control panel wiring loom
- Pressure gauge c/w suction cup and 5m connecting pipe.



## 6" case pressure gauges

6" Case:  $\frac{3}{8}$ " Connection: 0-11 bar (160psi)  
+/- 1% degree accuracy for test purposes

Part No  
**366010100**

Hypro offer a range of pressure gauges for most common applications.

- 2½" and 4" gauge sizes as standard
- Available in graduations from 0-2 bar (30 psi) up to 0-11 bar (160 psi)
- Standard gauges unfilled, glycerine gauges provide "smooth" pressure reading
- Standard gauges bottom entry, back entry (B/E) gauges available



## 2½" case pressure gauges

- 2½" Case:  $\frac{1}{4}$ " Connection: 0-2 bar (30psi)
- 2½" Case:  $\frac{1}{4}$ " Connection: 0-4 bar (60psi)
- 2½" Case:  $\frac{1}{4}$ " Connection: 0-7 bar (100psi)
- 2½" Case:  $\frac{1}{4}$ " Connection: 0-11 bar (160psi)
- 2½" Glycerine Filled:  $\frac{1}{4}$ " Connection: 0-2 bar (30 psi)
- 2½" Glycerine Filled:  $\frac{1}{4}$ " Connection: 0-4 bar (60 psi)
- 2½" Glycerine Filled:  $\frac{1}{4}$ " Connection: 0-7 bar (100 psi)
- 2½" Glycerine Filled:  $\frac{1}{4}$ " Connection: 0-11 bar (160 psi)
- 2½" Case:  $\frac{1}{4}$ " B/E Connection: 0-2 bar (30 psi)
- 2½" Case:  $\frac{1}{4}$ " B/E Connection: 0-4 bar (60 psi)
- 2½" Case:  $\frac{1}{4}$ " B/E Connection: 0-7 bar (100 psi)
- 2½" Case:  $\frac{1}{4}$ " B/E Connection: 0-11 bar (160 psi)

Part No  
**360-030S**  
**360-060S**  
**360-100S**  
**360-160S**  
**360-030G**  
**360-060G**  
**360-100G**  
**360-160G**  
**36EB030S**  
**36EB060S**  
**36EB100G**  
**36EB160G**

## 4" case pressure gauges

- 4" Case:  $\frac{3}{8}$ " Connection: 0-7 bar (100psi)
- 4" Case:  $\frac{3}{8}$ " Connection: 0-11 bar (160psi)
- 4" Glycerine Filled:  $\frac{3}{8}$ " Connection: 0-7 bar (100psi)
- 4" Glycerine Filled:  $\frac{3}{8}$ " Connection: 0-7 bar (100psi), all stainless steel
- 4" Glycerine Filled:  $\frac{3}{8}$ " Connection: 0-11 bar (160psi)

Part No  
**364-100S**  
**364-160S**  
**364-100G**  
**364S100G**  
**364-160G**



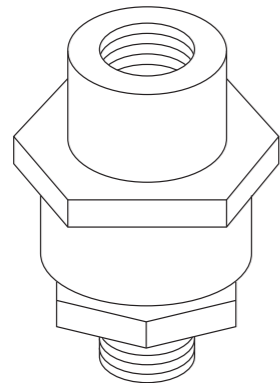
# Pressure Gauge Accessories

## Pressure Gauge Isolators

According to health and safety regulations, if the pressure gauge inside the cab is being used it must be isolated from the chemical. Pressure gauge isolators simply act as a "barrier" ensuring that an inert fluid passes into the cab (for example glycerine). Also offers a degree of frost protection.

### Economy gauge isolator

Moulded from polypropylene with EPDM diaphragm.

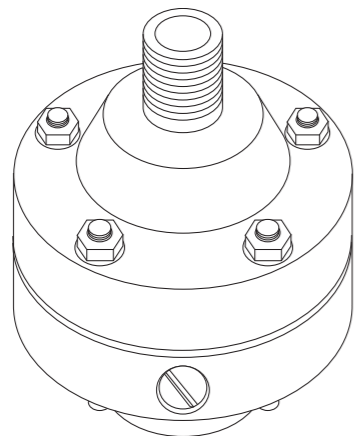


1/4" BSP(M) x 1/4" BSP(F)  
1/2" BSP(M) x 1/2" BSP(F)  
3/4" BSP(M) x 1" BSP(F)

Part No.  
**3614-14D**  
**3612-14D**  
**3634-14D**

### Heavy Duty Gauge Isolator

Made from PVC with EPDM diaphragm.



1/4" BSP(M) x 1/4" BSP(F)  
1/2" BSP(M) (1/4" BSP(F)) x 1/4" BSP(F)  
3/4" BSP(M) x 1/4" BSP(F)

Part No.  
**362Q2350**  
**364Q2350**  
**365Q2350**

## Pressure Gauge Accessories

6mm OD Semi-Rigid Polythene Pipe, 1 metre	<b>51PT0D06</b>
10mm OD Semi-Rigid Polythene Pipe, 1 metre	<b>51PT0D10</b>
1/8" BSP(F) x 6mm OD Quick Connect Straight Fitting	<b>3631140610</b>
1/4" BSP(F) x 6mm OD Quick Connect Straight Fitting	<b>3631140613</b>
3/8" BSP(F) x 10mm OD Quick Connect Straight Fitting	<b>3631141017</b>
1/8" BSP(M) x 6mm OD Quick Connect Straight Fitting	<b>3631010610</b>
1/4" BSP(M) x 6mm OD Quick Connect Straight Fitting	<b>3631010613</b>
3/8" BSP(M) x 10mm OD Quick Connect Straight Fitting	<b>3631011017</b>
1/8" BSP(M) x 1/4" BSP(F) Adaptor	<b>3618-14A</b>
1/4" BSP(M) x 3/8" BSP(F) Adaptor	<b>3614-38A</b>
Gauge c/w Suction Pad for fitting outside of Cab	<b>360Q2021</b>

## Pressure Gauges - Operating Hints

Pressure gauges are sensitive instruments which are easily damaged. The following hints should help to keep yours operating efficiently.

1. Protect from frost. If water is allowed to freeze in the sprayer lines, it will damage the lines and probably ruin the pressure gauge.
2. Avoid excessive pressure surge: When the main on/off valve is closed, many sprayer systems divert the total liquid flow through the pressure regulating valve back to the tank. This causes a degree of pressure surge - depending on the size of your pump and the capacity of your pressure regulator, if your pressure gauge needle goes round and off the scale, it will almost certainly strain the bordon tube and the needle will not return to zero.
3. If the needle does not return to zero at zero pressure, the pressure gauge should be replaced.
4. Always use a gauge with adequate pressure range, and a pressure regulating valve with ample capacity.
5. Larger gauges are preferable as they are easier to read.
6. Glycerine filled pressure gauges are definitely advantageous. The glycerine provides some internal protection and dampens the needle against pulsations from piston or diaphragm pumps.
7. For liquid fertiliser application, a gauge completely manufactured from stainless steel is ideal.

# Row Marker

## ROW MARKER KIT

The Hypro row marker kit features all the components needed for marking bouts or rows where tramlines are not in use.

The row marker simply uses a low concentration, inert foaming agent to form a foam "blob" at the end of the boom, which drops to the ground at a controllable frequency.

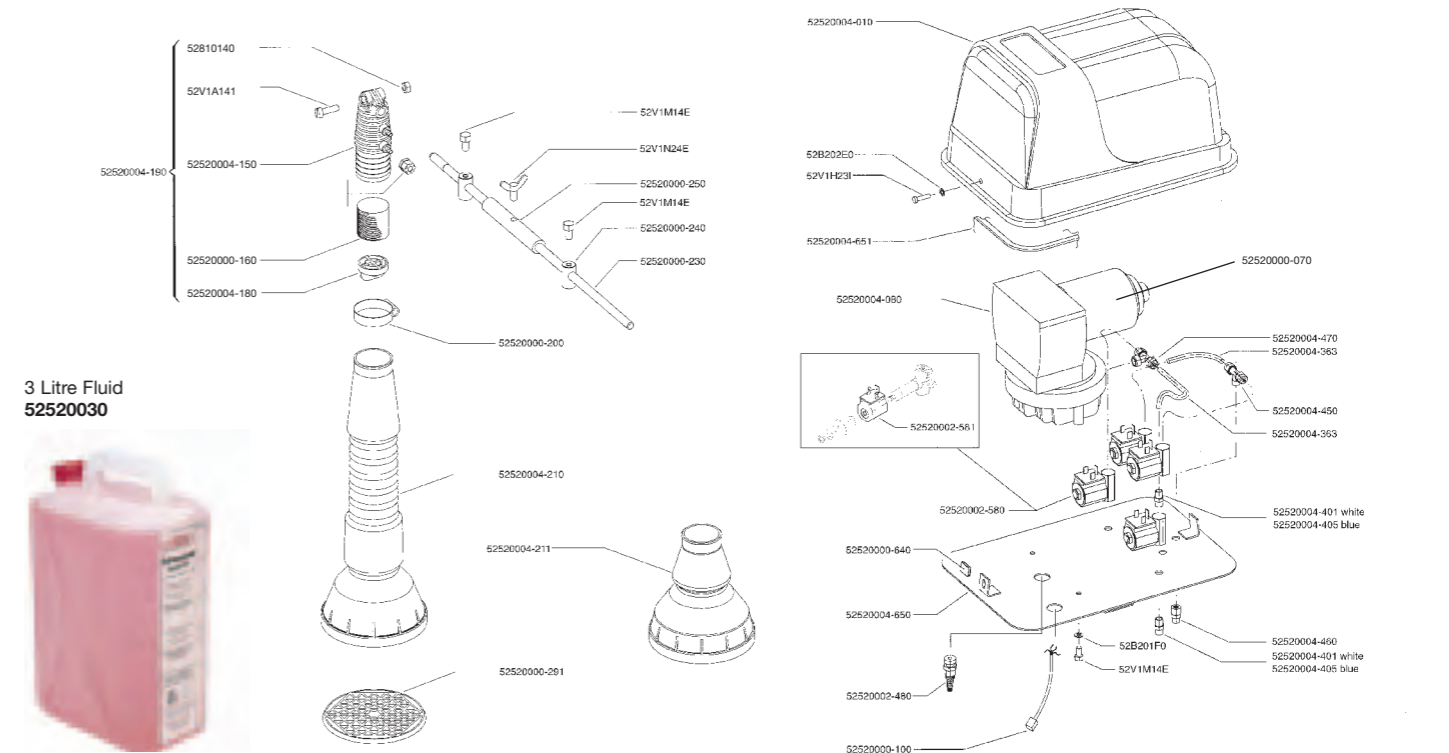
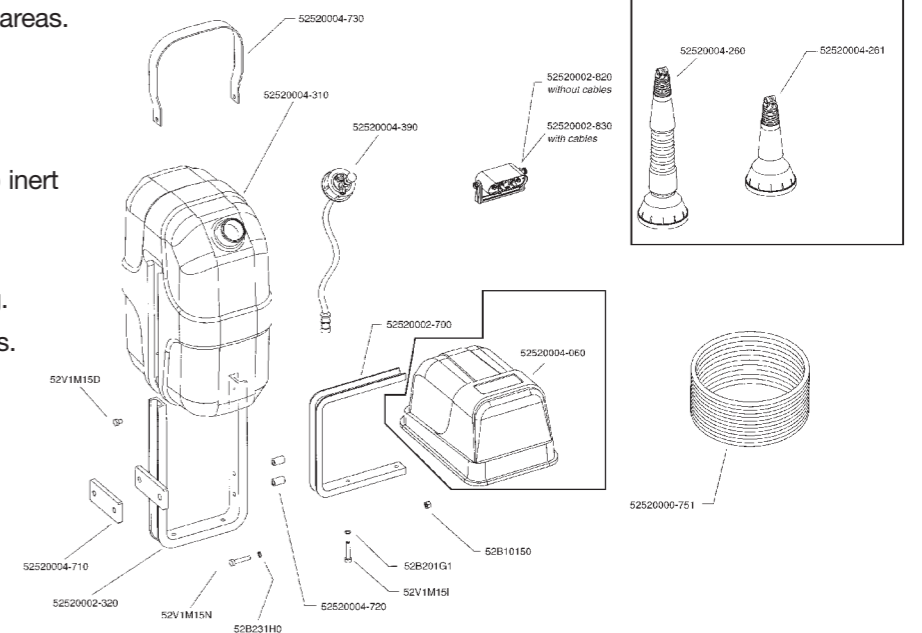
- Contains all components needed for installation, including compressor, foaming agent container, control panel, wiring looms, pipework and diffusers (as per photograph)
- Version to fit sprayers or other equipment up to 24m wide.
- Helps avoiding burnt crops or untreated areas.
- Avoids wasting product.
- Can fit any crop sprayers and seeding machines.
- Makes use of low-concentrations (2-3%) inert foaming agent.
- Electropneumatically operated.
- New thermoformed polystyrene covering.
- Foam spreader is available in two heights.
- Power supply 12 Vdc 6 A.
- 5 Gallon tank.

Row Marker Kit -  
Sprayers up to 24m  
(long blobber)

Part No **52520002-24**

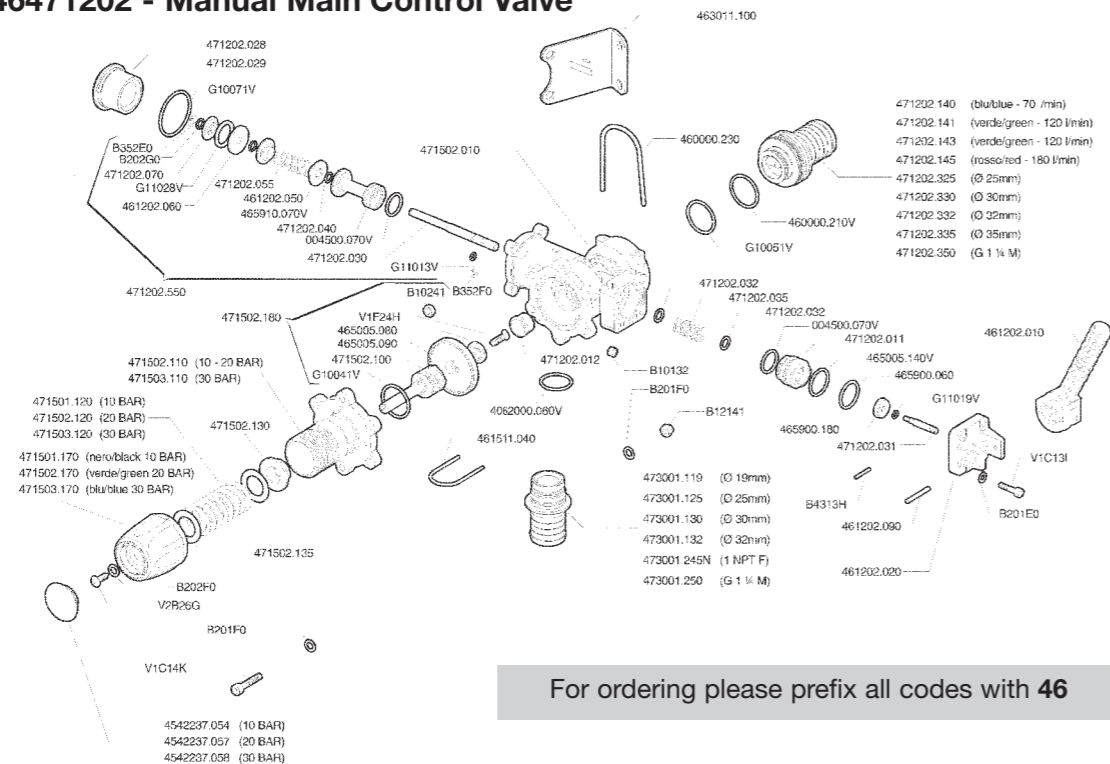
Row Marker Kit -  
Sprayers up to 24m  
(short blobber)

Part No **525200041**



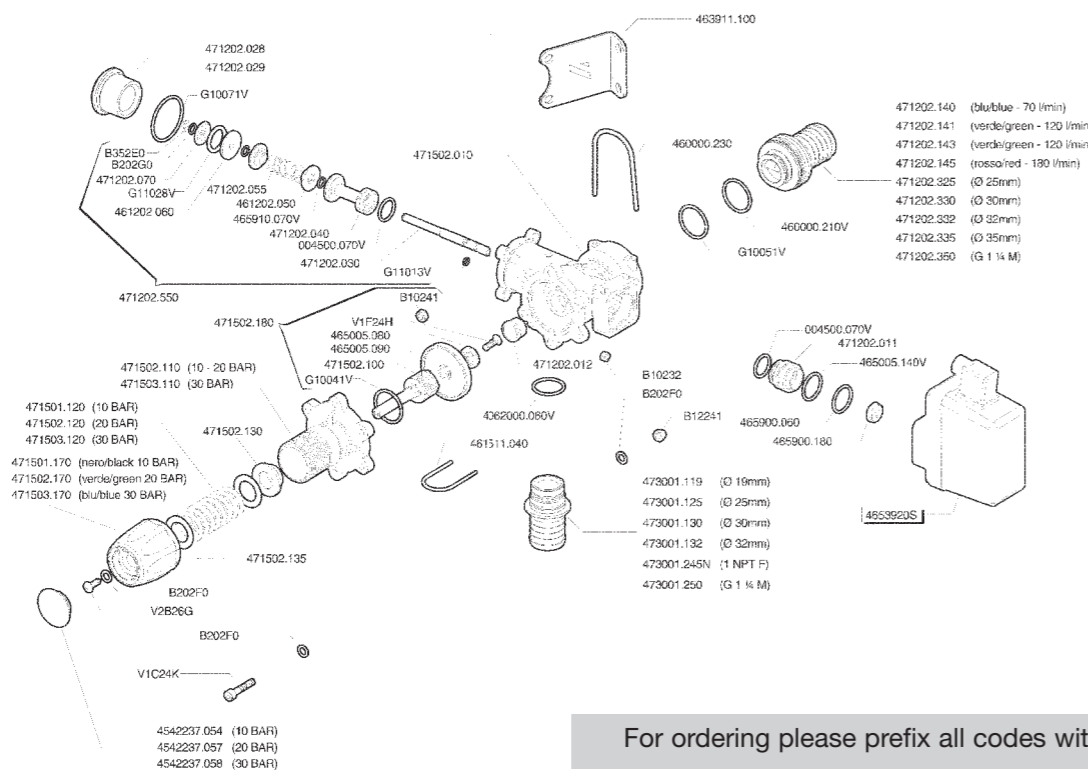
## 46 Series Electro and Manual Valves

### Spares: 46471202 - Manual Main Control Valve



For ordering please prefix all codes with 46

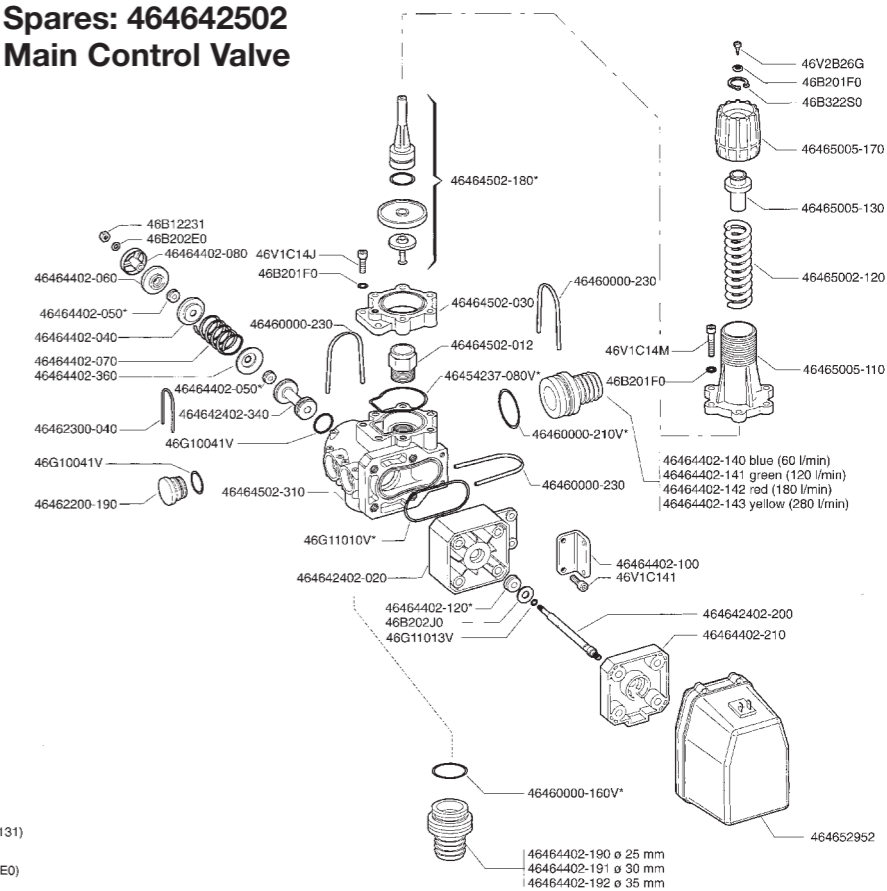
### Spares: 46471502 - Electric Main Control Valve



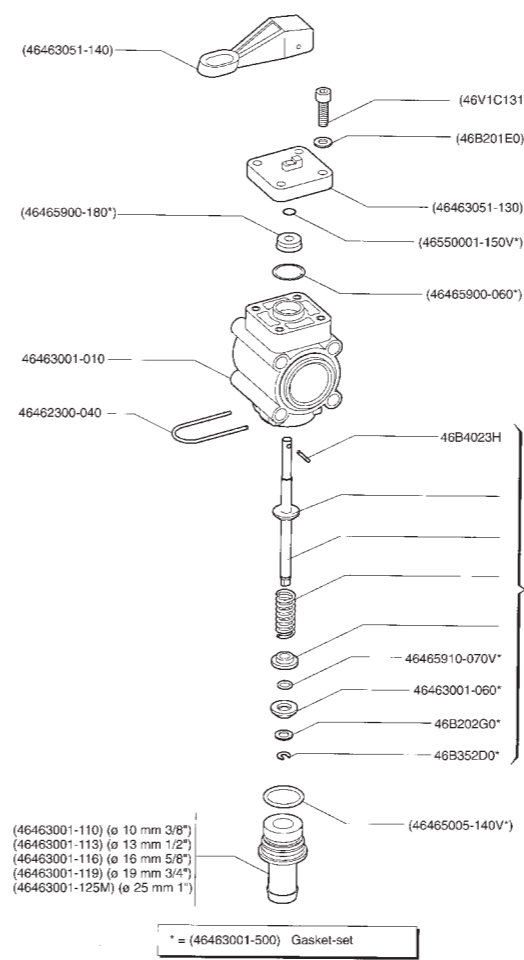
For ordering please prefix all codes with 46

## 46 Series Electro and Manual Valves

### Spares: 464642502 Main Control Valve



\* = 46464502-500 Gasket-set

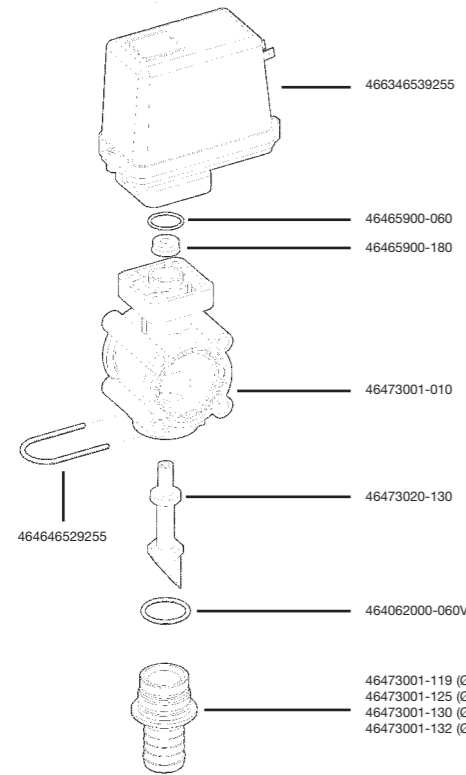


### Spares: 46463051 & 46463061 Manual Valves

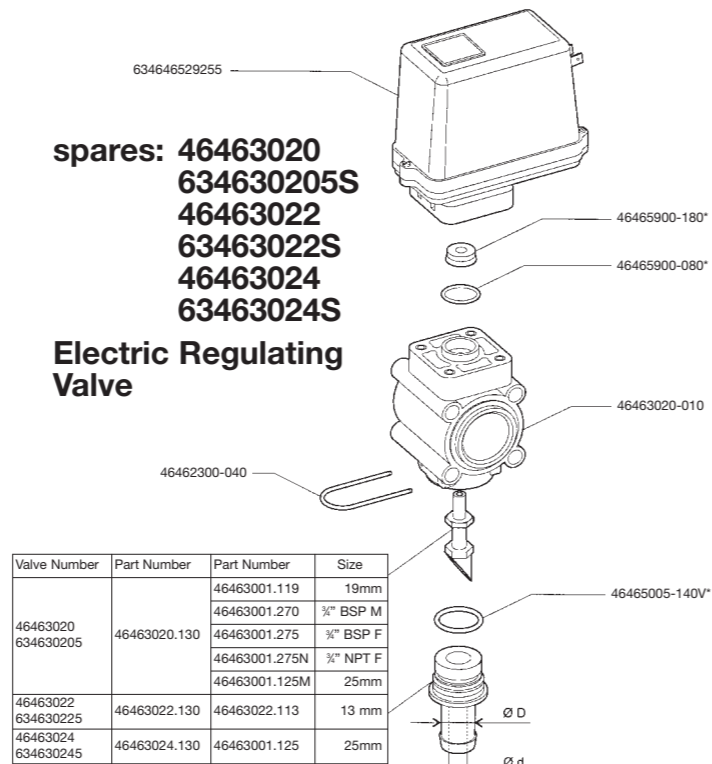
(Part no's in brackets are common to both types)

## 46 Series Electro and Manual Valves

**Spares: 46473020  
46473020S  
Electric Regulating Valve**

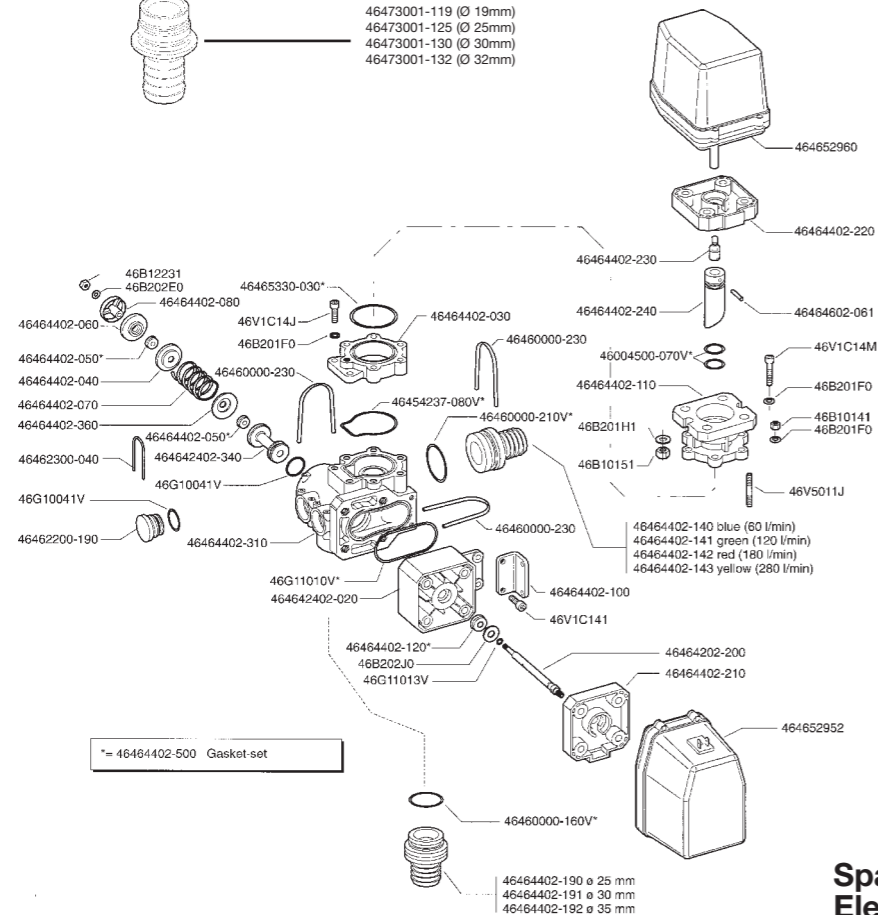


**spares: 46463020  
634630205S  
46463022  
63463022S  
46463024  
63463024S  
Electric Regulating Valve**



Valve Number	Part Number	Part Number	Size
46463020 634630205	46463020.130	46463001.119	19mm
		46463001.270	3/8" BSP M
		46463001.275	3/8" BSP F
		46463001.275N	3/8" NPT F
46463022 63463022S	46463022.130	46463022.113	13 mm
46463024 63463024S	46463024.130	46463001.125	25mm

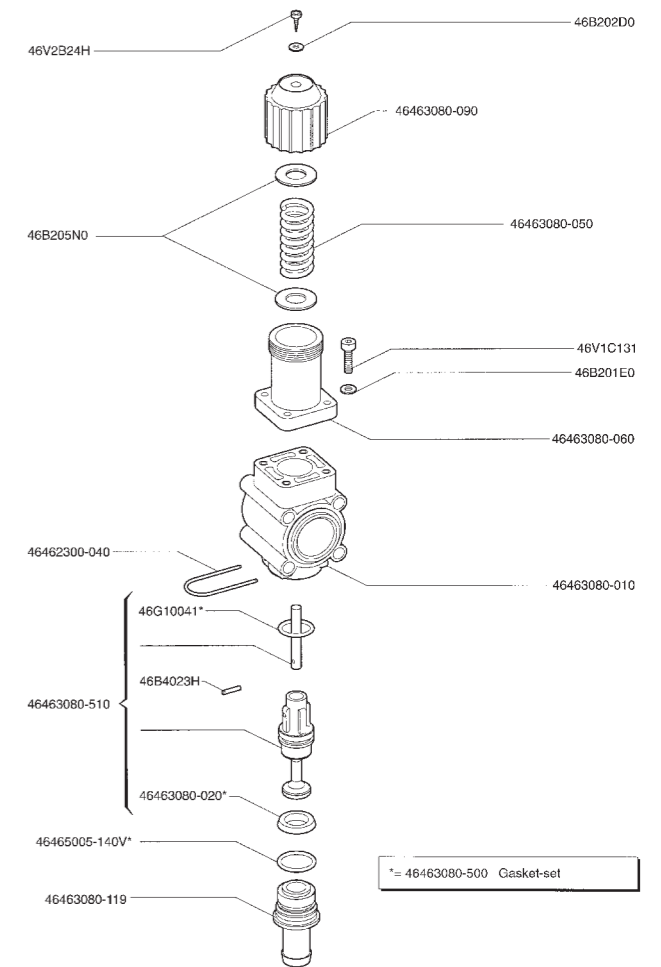
\* = 46463020-500 Gasket-set



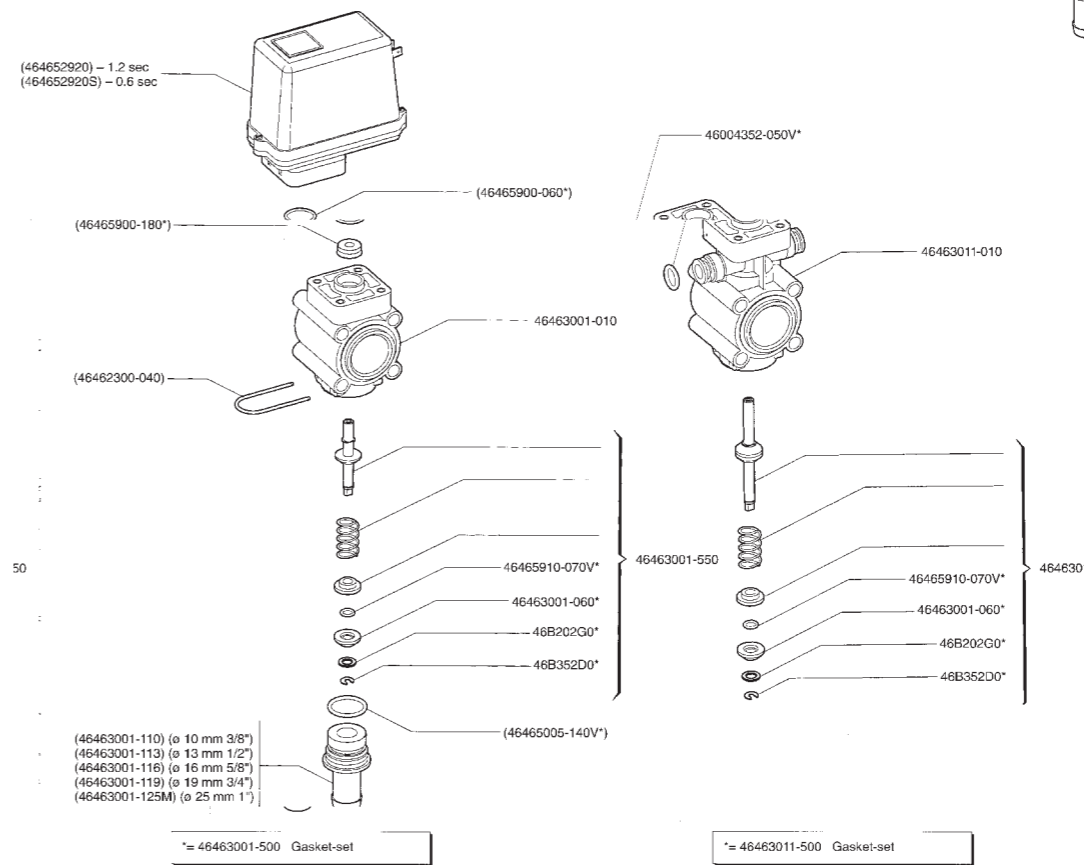
\* = 46464402-500 Gasket-set

**Spares: 464642402  
Electric Main Control Valve**

**Spares: 46463080  
Manual Unloader Valve**



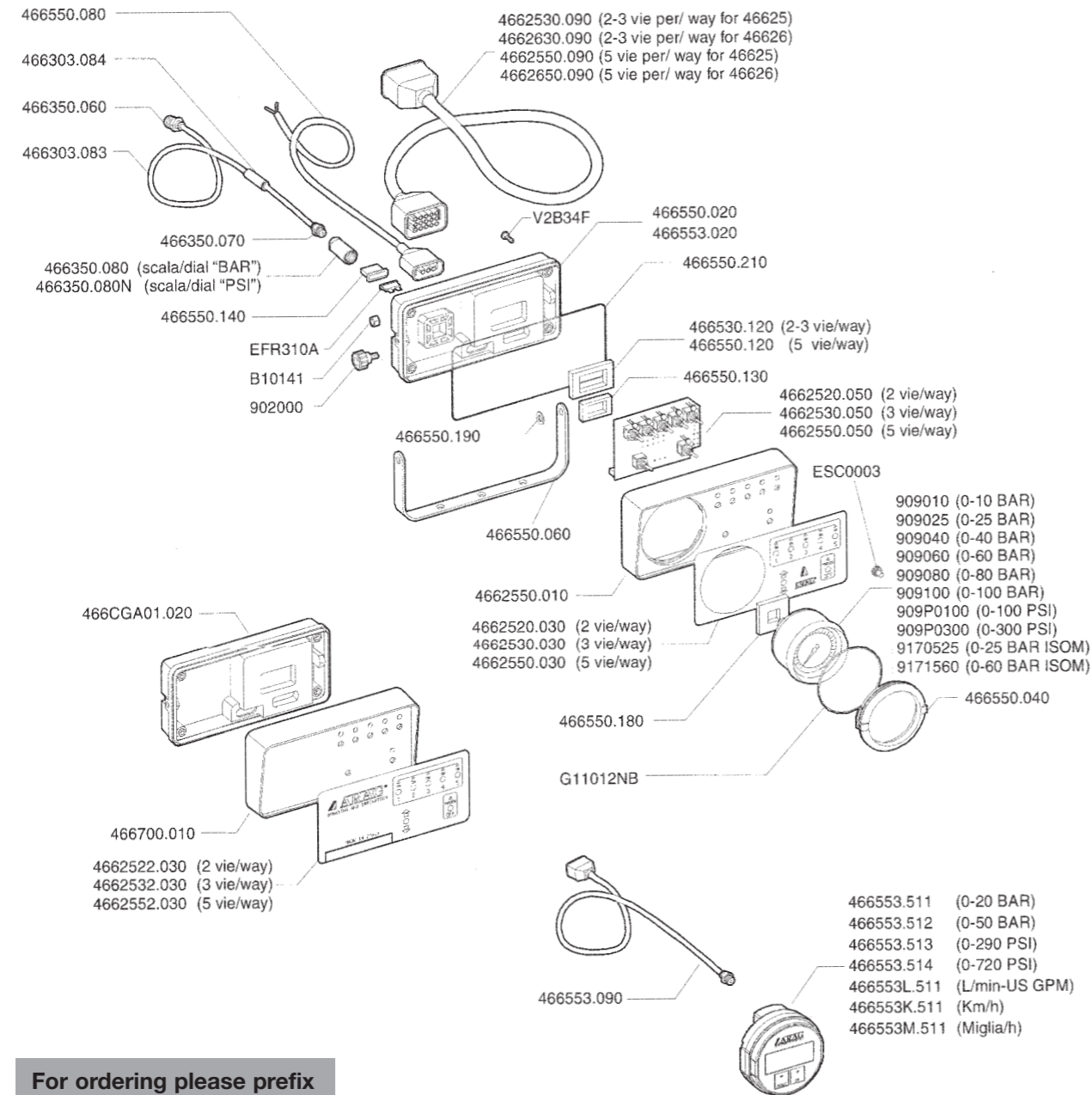
**Spares: 46463001 & 46463011-900  
Electric Boom Valves**  
(Part no's in brackets are common to both types)



# Spare Parts

Spares: 464662532  
46466552  
46466530P100  
46466550P100

## Control Panels



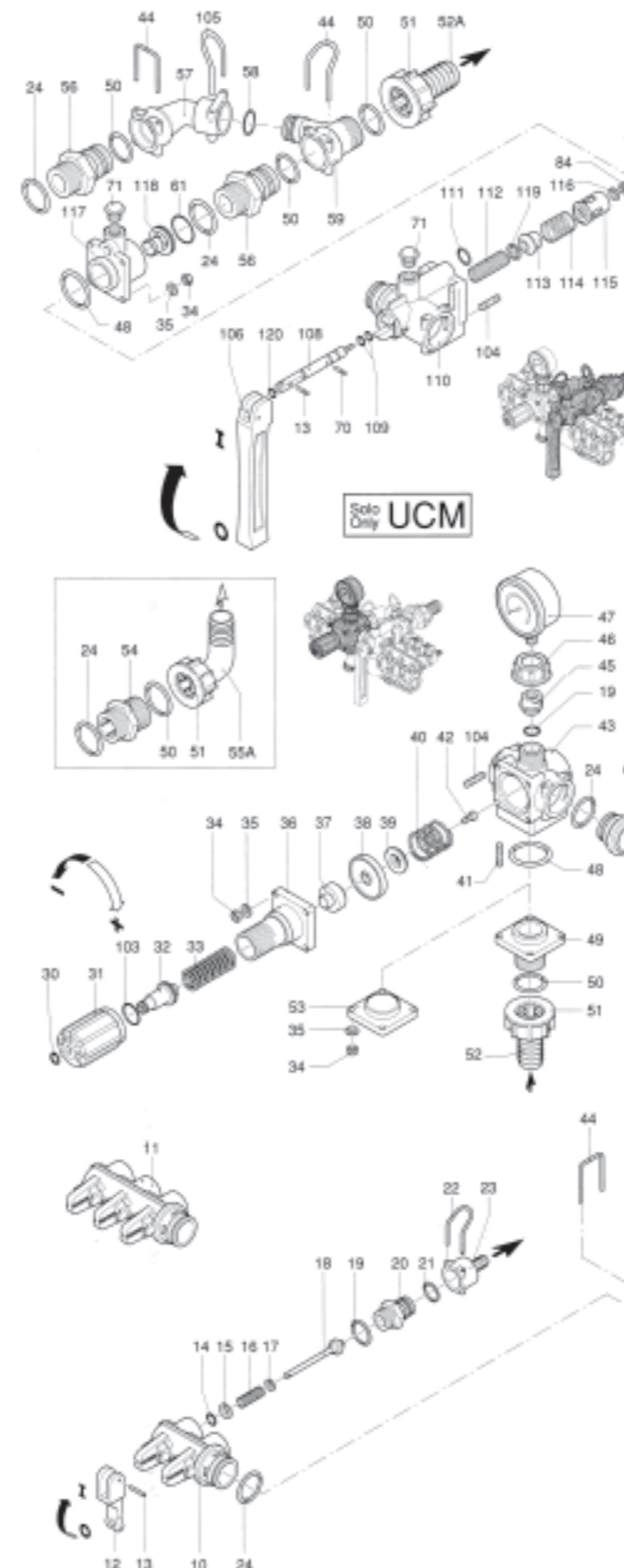
For ordering please prefix all parts with 46

Part No.	4662520-220	4662520-230	4662530-220	4662550-220	5662550-220	4662550-230
Ways	2	2	3	3	5	5
Mt.	3	5	3	5	3	5
Feet	10	16.5	10	16.5	10	16.5

# Spare Parts

Spares: 46UCM02V  
46UCM03V  
46UCM05

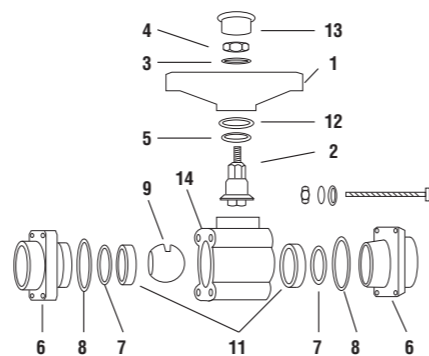
## UCM Control Units



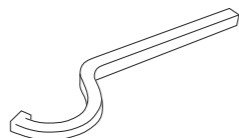
Pos	Part No.	Description
1	1547	Left 2-way valve
	1548	Left 3-way valve
2	1571	Right 2-way valve
	1572	Right 3-way valve
10	47394850	2-way valve body
11	47394860	3-way valve body
12	47394690	Red valve lever
13	47390330	Pin
14	47390341	'O' Ring
15	47390312	Washer
16	47390300	Spring
17	47390313	Washer
18	47390323	Complete valve rod
20	47392600	Threaded adaptor
	47392604	Plug
21	47640070	'O' Ring
22	47392580	Fork
23	47392870	Hose Tail
	47392590	Hose Tail
	47392620	Hose Tail
24	47390291	'O' Ring
30	47480550	Circlip
31	47394790	Adjustment knob
32	47394770	Spring pin
33	471040830	Spring
35	47550331	Washer
36	47394780	Upper body
37	47394751	Piston
38	47394740	Diaphragm
39	47394720	Valve
40	47394730	Spring
42	47680700	Bolt
43	47394700	Regulating valve body
44	47395530	Fork
45	47394800	Pressure gauge attachment
46	47550450	Ring nut
47	4739240	Pressure gauge
49	47394810	Flange
52	47550210	Hose Tail
53	47394840	Flange
54	47550340	Threaded adaptor
56	47395000	Manifold nipples
57	47395520	Body manifold
58	47390060	'O' Ring
59	47395020	Body manifold
60	47394870	Plug
61	47770260	'O' Ring
70	47392120	Pin
71	47880581	Plug
84	47395390	Nut
103	47770130	'O' Ring
104	47392330	Stud
105	47850730	Fork
106	471660560	Control Lever
108	471660020	Complete valve rod
109	47480561	'O' Ring
110	471660010	Main valve
111	471660230	'O' Ring
112	471660541	Spring
113	471660050	Feed rod valve
114	471660090	Spring
115	471660080	Guide
116	47393790	Washer
117	471660060	Flange
118	471660100	Red seat
	471660110	Orange seat
	471660120	Blue seat
119	471660140	Washer
120	471660551	'O' Ring

## Spare Components - 1" and 3/4" Valves

Pos	Part No.	Description	Pos	Part No.	Description
1	58000001	Handle 2-way	9	58000014	Ball 1/2" & 3/4" 2-way
1	58000002	Handle 3-way	10	58000016	Ball 1/2" & 3/4" 3-way
2	58000003	Spindle	11	58000017	Seats 1/2" & 3/4" 2 & 3-way
3	58000004	Washer	12	58000018	Spindle 'O' Ring EPDM
4	58000005	Nut	12	58000019	Spindle 'O' Ring Viton
5	58000006	Spindle Washer	13	58000020	Handle Cap
6	58000007	1/2" BSP (F) Socket	14	581003-01A	Body 1/2" & 3/4" 2-way
6	58000008	3/4" BSP (F) Socket	14	582003-00A	Body 1/2" 3-way
7	58000009	Seat 'O' Ring EPDM	14	58000182	Body 3/4" 3-way
7	58000010	Seat 'O' Ring Viton			
8	65-BS221	Body 'O' Ring EPDM			



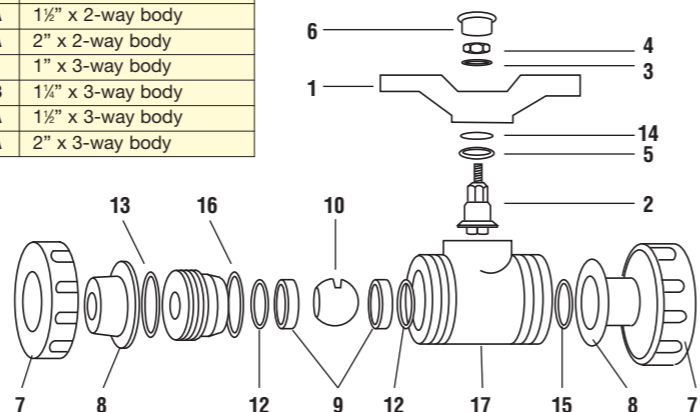
## Spare Components - Spanner (for body nut)



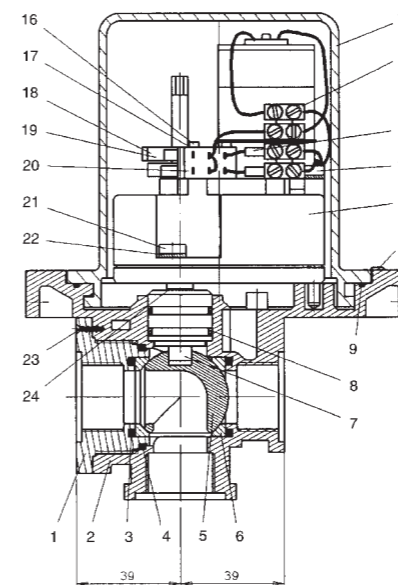
Part No.	Description
58SPAN01	1" and 1 1/4"
58SPAN02	1 1/2"
58SPAN03	2"

## Spare Components - 1" and 2" Valves

Pos	Part No.	Description	Pos	Part No.	Description
1	58000021	Handle 2-way	13	58000061	End 'O' Ring 1 1/2" EPDM
1	58000022	Handle 3-way	13	58000062	End 'O' Ring 1 1/2" Viton
2	58000023	Spindle 1" & 1 1/4"	13	58000063	End 'O' Ring 2" EPDM
2	58000024	Spindle 1 1/2" & 1 1/4"	13	58000064	End 'O' Ring 2" Viton
3	58000025	Washer	14	58000065	Spindle 'O' Ring EPDM
4	58000026	Nut	14	58000066	Spindle 'O' Ring Viton
5	58000027	Spindle Washer	15	58000049	Body 'O' Ring 1" EPDM
6	58000028	Handle Cap	15	58000050	Body 'O' Ring 1" Viton
7	58000029	Body Nut 1"	15	58000051	Body 'O' Ring 1 1/4" EPDM
7	58000030	Body Nut 1 1/4"	15	58000052	Body 'O' Ring 1 1/4" Viton
7	58000031	Body Nut 1 1/2"	15	58000071	Body 'O' Ring 1 1/2" EPDM
7	58000032	Body Nut 2"	15	58000072	Body 'O' Ring 1 1/2" Viton
8	58000033	BSP Socket 1"	15	58000073	Body 'O' Ring 2" EPDM
8	58000034	BSP Socket 1 1/4"	15	58000074	Body 'O' Ring 2" Viton
8	58000035	BSP Socket 1 1/2"	16	58000075	Adj. Nut 'O' Ring 1" EPDM
8	58000036	BSP Socket 2"	16	58000076	Adj. Nut 'O' Ring 1" Viton
9	58000037	Ball Seat 1"	16	58000057	Adj. Nut 'O' Ring 1 1/4" EPDM
9	58000038	Ball Seat 1 1/4"	16	58000058	Adj. Nut 'O' Ring 1 1/4" Viton
9	58000039	Ball Seat 1 1/2"	16	58000059	Adj. Nut 'O' Ring 1 1/2" EPDM
9	58000040	Ball Seat 2"	16	58000060	Adj. Nut 'O' Ring 1 1/2" Viton
10	58000041	Ball 1" 2-way	16	58000061	Adj. Nut 'O' Ring 2" EPDM
10	58000042	Ball 1 1/4" 2-way	16	58000062	Adj. Nut 'O' Ring 2" Viton
10	58000043	Ball 1 1/2" 2-way	17	581003-02A	1" x 2-way body
10	58000044	Ball 2" 2-way	17	581003-03A	1 1/4" x 2-way body
11	58000045	Ball 1" 3-way	17	581003-04A	1 1/2" x 2-way body
11	58000046	Ball 1 1/4" 3-way	17	581003-05A	2" x 2-way body
11	58000047	Ball 1 1/2" 3-way	17	58000181	1" x 3-way body
11	58000048	Ball 2" 3-way	17	58000183	1 1/4" x 3-way body
12	58000049	Seat 'O' Ring 1" EPDM	17	582003-04A	1 1/2" x 3-way body
12	58000050	Seat 'O' Ring 1" Viton	17	582003-04A	2" x 3-way body
12	58000051	Seat 'O' Ring 1 1/4" EPDM			
12	58000052	Seat 'O' Ring 1 1/4" Viton			
12	58000053	Seat 'O' Ring 1 1/2" EPDM			
12	58000054	Seat 'O' Ring 1 1/2" Viton			
12	58000055	Seat 'O' Ring 2" EPDM			
12	58000056	Seat 'O' Ring 2" Viton			
13	58000057	End 'O' Ring 1" EPDM			
13	58000058	End 'O' Ring 1" Viton			
13	58000059	End 'O' Ring 1 1/4" EPDM			
13	58000060	End 'O' Ring 1 1/4" Viton			

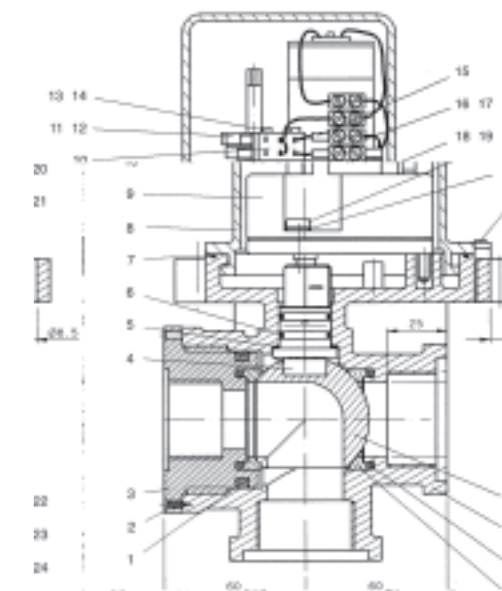


## Spare Components 1/2" and 3/4" Actuated Compact Valves



Item	Part No.	Description	8a	58000087	Viton 'O' Ring
1	58000088	1/2" Bush	9	581000-88E	'O' Ring
1a	58000089	3/4" Bush	10	582006-05R	Screw
2	582011-00A	1/2" x 2-way body	11	542012-03A	Motor/gearbox
2a	582011-01A	3/4" x 3-way body	12	582006-05U	Screw
2b	582011-10A	1/2" x 3-way body	13	582006-04Y	Diode
2c	58000184	3/4" x 3-way body	14	582006-09G	Terminal Block
3	58000123	EPDM 'O' Ring	15	58000090	Cover
3a	58000124	Viton 'O' Ring	16	582006-05H	Screw
4	58000125	EPDM 'O' Ring	17	582006-02P	Washer
4a	58000083	Viton 'O' Ring	18	5813-39G	Cam 2-way
5	58000014	2-way ball	18a	5813-39N	Cam 3-way
5a	58000016	3-way ball	19	5816-05L	Grub Screw
5b	58000121	3-way ball s/s	20	581003-39M	Microswitch
5c	58000122	2-way ball s/s	21	582006-05T	Screw
6	58000017	PTFE seat	22	582006-02E	Washer
7	58000084	Spindle	23	58000126	Screw
8	65-BS617	EPDM 'O' Ring	24	58000085	PTFE seat

## Spare Components 1" and 1 1/4" Actuated Compact Valves



Item	Part No.	Description	15	582006-09Y	Diode
1	58000132	EPDM 'O' Ring	16	582006-09P	Terminal block
2	58000126	Screw	17	582002-05S	Bolt
3	58000140	1" Screw	18	582006-05I	Bolt
3a	58000141	1 1/4" bush	19	582006-05U	Bolt
4	58000136	Spindle	20	582006-02E	Washer
5	58000137	PTFE washer	21	58000137	Bolt
6	58000138	EPDM 'O' Ring	22	58000129	2-way ball
7	581000-88E	EPDM 'O' Ring	22a	58000130	2-way ball s/s
8	58000090	Cover	22b	58000127	3-way ball
9	58012-03A	Motor/gearbox	22c	58000128	3-way ball s/s
10	581003-39M	Microswitch	23	582011-02A	1" x 2-way body
11	5816-05L	Grub switch	23a	582011-12A	1" x 3-way body
12	5813-39G	Cam 2-way	23b	582011-03A	1 1/4" x 2-way body
12a	5813-39N	Cam 3-way	23c	582011-13A	1 1/4" x 3-way body
13	582006-05M	Screw	24	58000132	EPDM 'O' Ring
14	582006-02P	Washer	25	58000131	PTFE seat

## Spare Components 5-way Ball Valve

Item	Part No.	Description
1	581003-38A	Body
2	582003-05G	Body nut
3	581003-30D	Adjusting nut
4	581000-36E	EPDM 'O' Ring
5	581003-38L	Ball
6	581000-34E	EPDM 'O' Ring
7	58100330S	PTFE seat
8	65-BS330	EPDM 'O' Ring
9	581000-34E	EPDM 'O' Ring
10	581003-05F	L/H bush
11	581000-34E	EPDM 'O' Ring
12	582006-01P	Screw
13	582006-06R	Washer
14	581003-30T	PTFE washer
15	58000135	Viton 'O' Ring
16	581003-30C	Handle
17	582006-01E	Grub screw
18	581003-30B	Head
19	581000-45E	EPDM 'O' Ring

