

# Balanced Valve Series



154  
DIN-TYPE

*Humphrey presents the **BALANCED VALVE** family, our next generation technology of balanced poppet, direct-acting solenoid valves. The versatile 3- and 4-port line up is available in three sizes, addressing a multitude of pneumatic applications.*

## MULTI-PURPOSE

See porting diagrams below. Valves work equally well through full pressure range of vacuum to 125 PSIG.

## MULTI-MEDIA

Valves perform whether media is clean, dry or lubricated air, inert gas, or when airline impurities are present.

## RELIABLE SHIFT, TIGHT SEAL

Shifting forces of the coil and return spring are optimized, seals poppet to our tight leakage specification.

## HIGH FLOW CAPACITY

Internal flow path management has been maximized. Excellent flow achieved within a reduced overall size.

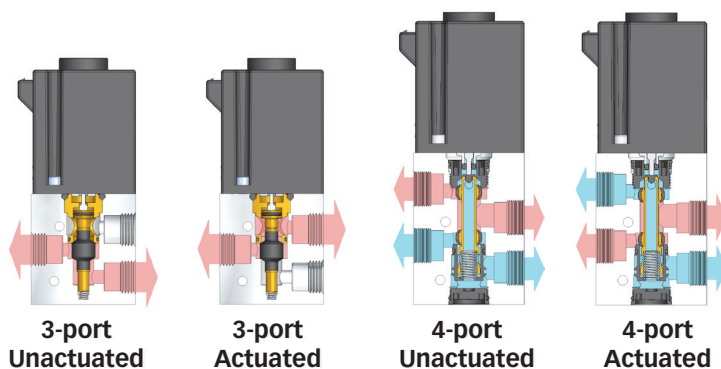
## ENVIRONMENT PROOF

Choose IP67 models for protection against moisture and dust ingress to the international standard. Media is isolated from solenoid.

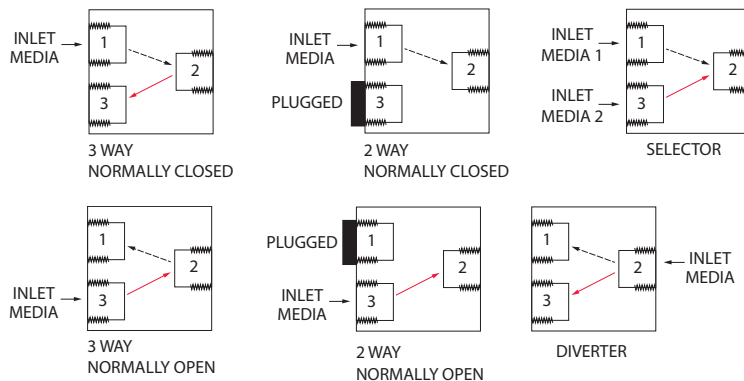
## FEATURES

- Small Size – 15mm, 19mm and 25mm width
- High Flow Capacity – from 0.15 to 1.2 Cv
- Light weight, low mass
- Versatile porting (See diagrams below.)
- Long service life
- Impervious to media conditions
- Low Leakage – maximum 4ccm @100 PSIG
- No lubrication required
- Unaffected by pressure fluctuations
- RoHS compliant materials
- IP67 Models Available

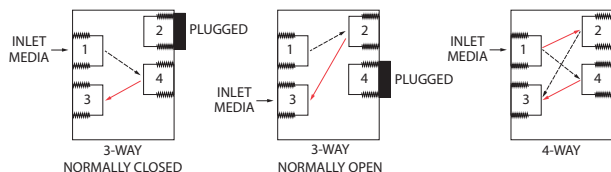
## BALANCED POPPET CONSTRUCTION



## PORTING DIAGRAMS - 3-PORT



## PORTING DIAGRAMS - 4-PORT

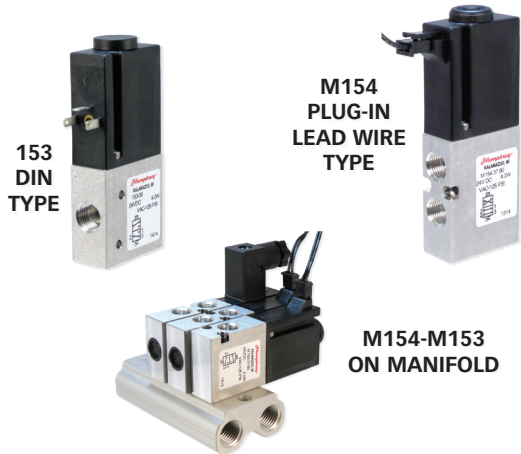


Black line indicates actuated flow path; Red line indicates unactuated flow path.

# Balanced Valve Series

- Inline or Manifold Mount
- Optional non-locking manual override
- 12VDC, 24VDC or 120VAC
- Lead wire (w/plug-in: 15mm and 19mm valves) or mini DIN electrical entry
- Environmentally protected IP67 model
- Multi-purpose function

## 153 AND 154: SMALL BALANCED VALVE



- Compact – 15mm valve width
- 1/8 PIPE ports; Metric ports optional
- Excellent flow –
  - \*3-port 153: 15 scfm @100 PSIG
  - \*4-port 154: 10 scfm @100 PSIG
- 4 watt Power Consumption

## 193 AND 194: MID-SIZE BALANCED VALVE



- Compact – 19mm valve width
- 1/4 PIPE ports; Metric ports optional
- Excellent flow –
  - \*3-port 193: 38 scfm @100 PSIG
  - \*4-port 194: 28 scfm @100 PSIG
- 6 watt Power Consumption

## 253 AND 254: LARGE BALANCED VALVE



- Compact – 25mm valve width
- 3/8 PIPE ports; Metric ports optional
- Excellent flow –
  - \*3-port 253: 72 scfm @100 PSIG
  - \*4-port 254: 68 scfm @100 PSIG
- 8 watt Power Consumption

# Balanced Valve Series Specifications

## MECHANICAL SPECIFICATIONS

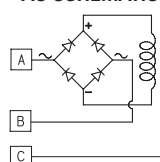
SPECIFICATIONS	153 / P153	154 / P154	193 / P193	194 / P194	253 / P253	254 / P254
Type of Operation	Direct Solenoid					
Function	Multi-Purpose					
Number of Ports	3	4	3	4	3	4
Port Size *	1/8 PIPE		1/4 PIPE		3/8 PIPE	
Override	Non-Locking Type is Optional (Not Available on IP67 Models)					
Flow @100 PSIG (Cv)	15 (0.25)	10 (0.16)	38 (0.65)	28 (0.47)	72 (1.20)	68 (1.12)
Media	Air (Dry or Lubricated), Inert Gases, Vacuum					
Pressure Range	Vacuum ~ 125 PSIG					
Ambient Temperature Range	32° ~ 125°F (0° ~ 50°C)					
Lubrication	Not required					
Filtration	40 micron, recommended					
Weight - lbs	0.2	0.22	0.4	0.44	0.7	0.8
Wetted Materials	Brass, Buna, Aluminum, SST					

\* 1/8NPSF, 1/4NPSF and 3/8 NPSF standard. Metric port models are available upon request: Rc1/8, Rc1/4 and Rc3/8; G1/8, G1/4 and G3/8. See How To Order.

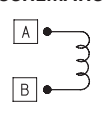
## ELECTRICAL SPECIFICATIONS

SPECIFICATIONS	153 / P153	154 / P154	193 / P193	194 / P194	253 / P253	254 / P254
Standard Voltages	12VDC, 24VDC, 120/50/60					
Electrical Entry	Plug-In w/12" Lead Wire, DIN				Lead Wire, DIN	
Electrical Entry - IP67 Valves	DIN					
Voltage Tolerance	±10% of rated voltage					
Coil Temperature Rise	93°F (34°C)					
Response Time (On/Off)	12/6 (8/35)	20/6 (20/32)	15/8 (22/44)	21/5 (21/27)	28/11 (28/44)	34/5 (34/17)
Power Consumption – DC/AC	4w / 5.2w		6w / 7.7w		8w / 9.8w	
Insulation	Class B					

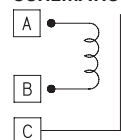
AC SCHEMATIC



DC SCHEMATIC



DC DIN SCHEMATIC



## How to Order

Order Examples: 153-37-80-24VDC; P253-39-RC-24VDC

IP67 VALVE MODEL	DIN Electrical Entry	ROTATED COIL OPTION		ALTERNATE SEAL OPTIONS		VOLTAGE CHOICES
		Std. Position	Rotate 180°	Standard NBR	Optional FKM	
P153 OR PM153	-39	(std)	-RC	(std)	-VAI	-12VDC -24VDC -120/50/60*
P154 OR PM154						
P193 OR PM193						
P194 OR PM194						
P253 OR PM253						
P254 OR PM254						

^ Metric port models available: Add prefix E (Rc threaded ports) or prefix G (G threaded ports). Ex: E153, GM194, etc.



153 PLUG-IN W/LEAD WIRE TYPE



253 DIN TYPE

M193-M194 DIN TYPE W/HS2 ON MANIFOLD

VALVE MODEL	ELECTRICAL ENTRY			OVERRIDE CHOICES		LONG LEAD LENGTH		ROTATED COIL OPTION		ALTERNATE SEAL OPTIONS		VOLTAGE CHOICES
	Plug-In w/12" Leads	24" Lead Wires	DIN Connector	No Override	Non-Locking	Std. (12") Length	72" Length	Std. Position	Rotate 180°	Standard NBR	Optional FKM	
153 OR M153	-37	Not Available	-39	(std)	-80	(std)	-LL	(std)	-RC	(std)	-VAI	-12VDC -24VDC -120/50/60*
154 OR M154												
193 OR M193												
194 OR M194												
253 OR M253	Not Available	-38					Not Available					-12VDC -24VDC 120/50/60
254 OR M254												

^ Metric port models available: Add prefix E (Rc threaded ports) or prefix G (G threaded ports). Ex: E153, GM194, etc.

\* 120/50/60 voltage available in DIN type, code 39 Electrical Entry.

# 253/254 Large Balanced Valves

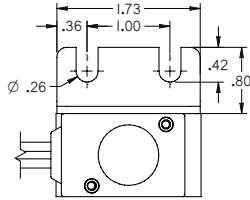
## 253 Schematic and Dimensional Drawings



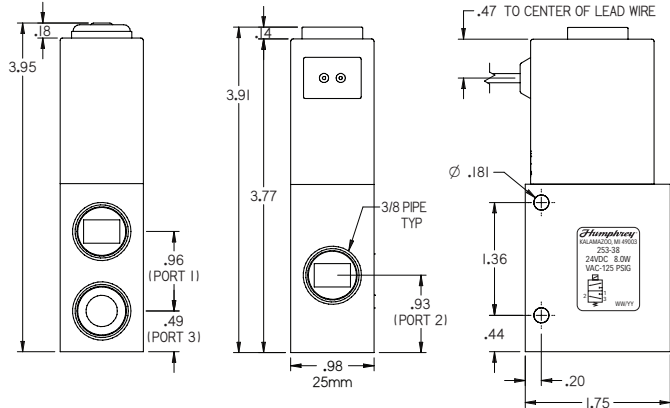
253 DIN TYPE



24" Lead Wires (18 AWG)

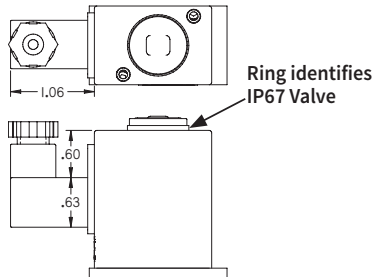


With Override (Code 80)



### DIN (-39) Electrical Entry with HS2 Connection

Available with and without IP67 Rated Valves



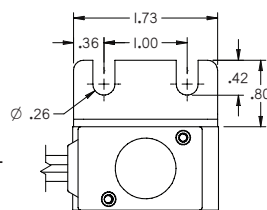
## 254 Schematic and Dimensional Drawings



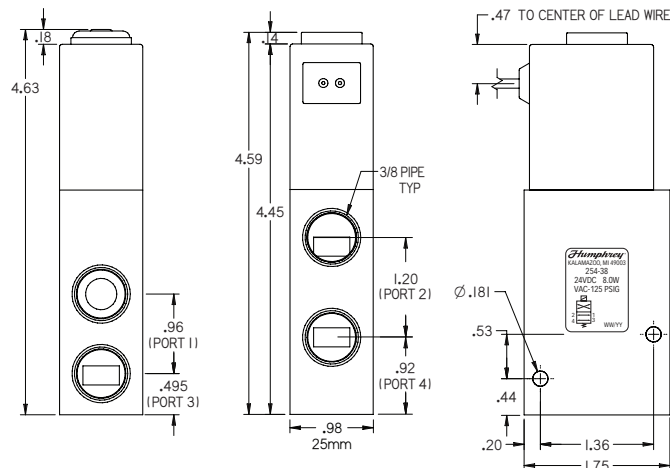
254 W/LEAD WIRES



24" Lead Wires (18 AWG)



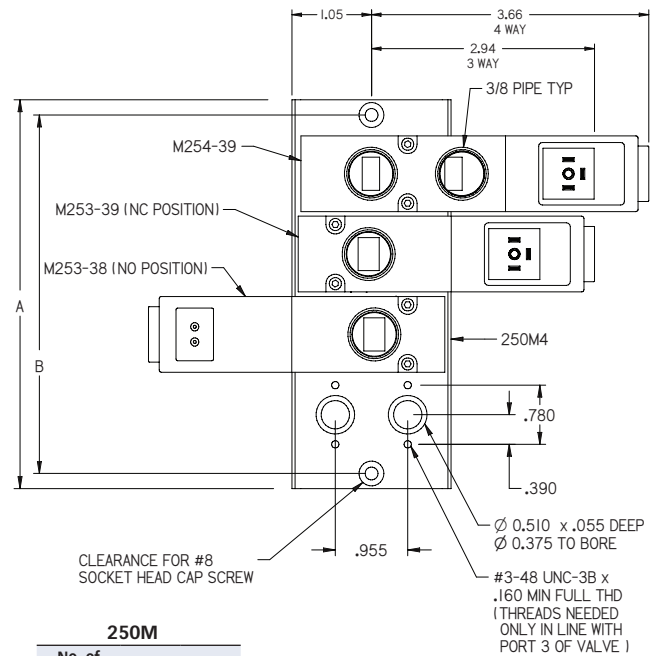
With Override (Code 80)



M253-M254 DIN TYPE W/HS2 ON MANIFOLD

## 250M Manifold Dimensional Drawings

### TOP VIEW

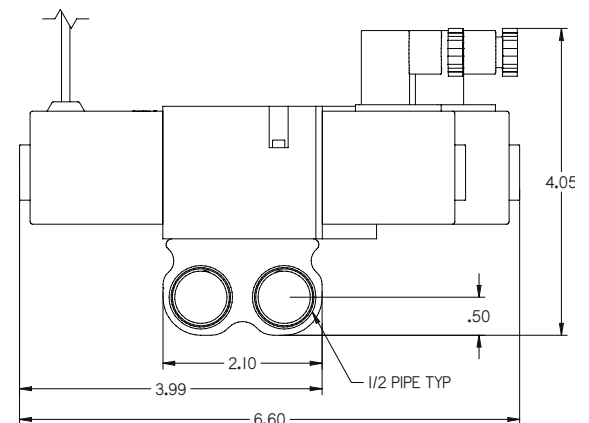


### 250M

No. of Stations	A	B
2	3.01	2.61
4	5.13	4.73
6	7.25	6.85
8	9.37	8.97

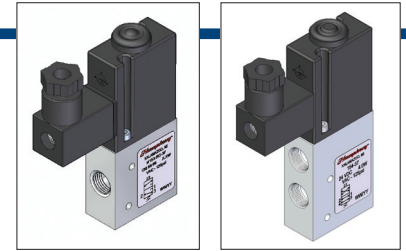
Length per valve station: 1.06

### FRONT VIEW

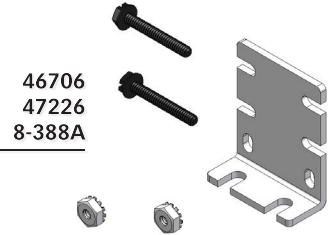


## Valve Accessories

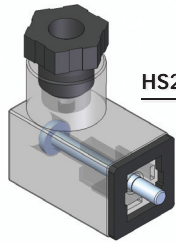
SERIES	153/154	193/194	253/254	NOTES
Description	Ordering Model Number			
Valve Mounting Bracket	46706	47226	8-388A	L-type bracket for inline valve mounting.
Pipe Plug	130-31	130-15	130-25	Plug 3-port valve for 2-way use. Plug 4-port for 3-way use.
Wire Connector with 12" lead	46669		N/A	Receptacle choices for plug-in electrical entry valves (valve option code 37).
Wire Connector with 72" lead	43200		N/A	
DIN Receptacle	HS2			Receptacle choices for DIN electrical entry valves (valve option code 39).  Connector: DIN 43650C 15mm Style Receptacle (Micro Mini 9mm)  HS2-CLL suitable for IP67 valves
12VDC DIN Receptacle w/LED	HS2-LED-12V			
24VDC DIN Receptacle w/LED	HS2-LED-24V			
120VAC DIN Receptacle w/LED	HS2-LED-120V			
DIN Receptacle w/2000mm cable	HS2-CLL			



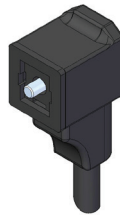
130-31  
130-15  
130-25



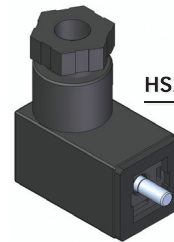
46706  
47226  
8-388A



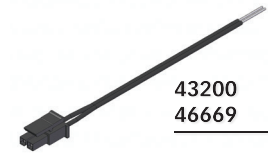
HS2-LED



HS2-CLL



HS2

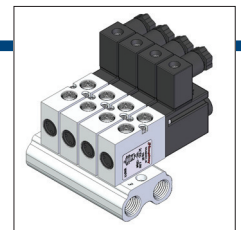
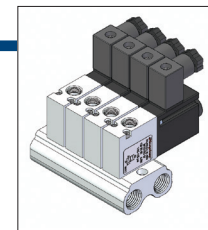


43200  
46669

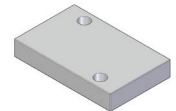
## Manifold Accessories

SERIES	150M	190M	250M	NOTES
Description	Ordering Model Number			
Pipe Plug	130-15	130-25	130-21	For manifold supply and exhaust ports.
Block-Off Plate	46720	47222	47498	Includes plate, (2) O'rings, (2) screws
Valve Mounting Kit	46672	47221	47248	Includes (2) O'rings, (2) screws (replacement).
DIN Rail Clip	DRC			(2) clips, (2) screws. Mounts manifold to 35mm DIN Rail.
Plugging Disc	46770	47224	47500	Bag of 10. Plugs 3-port valve for 2-way function. *

\* Place one disc between manifold and valve-to-manifold gasket, in exhaust path.

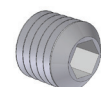


46720  
47222  
47498



DRC

46672  
47221  
47248



130-15  
130-25  
130-21

## How to Order - Manifold

MANIFOLD	15MM*	19MM*	25MM*
2 STN	150M2	190M2	250M2
4 STN	150M4	190M4	250M4
6 STN	150M6	190M6	250M6
8 STN	150M8	190M8	250M8

\* 15MM – for M153 and M154 valves  
19MM – for M193 and M194 valves  
25MM – for M253 and M254 valves

^ Metric port models available: Add prefix E (Rc threaded ports) or prefix G (G threaded ports). Ex: E153, GM194, etc.