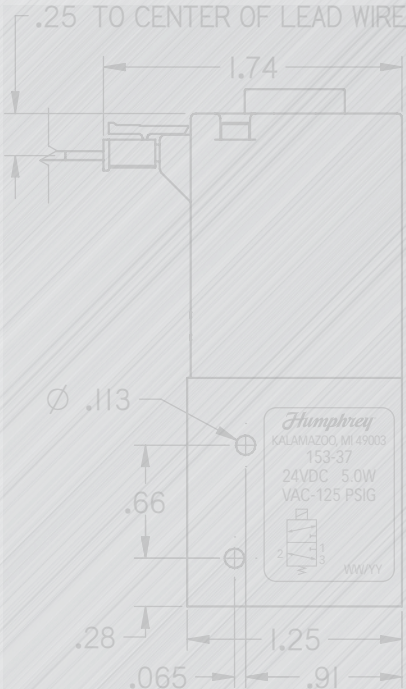
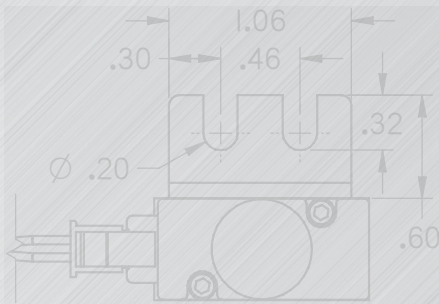


# Balanced Solenoid Valve Series

## 3- and 4-Way | Multi-Purpose, Direct-Acting



MADE IN USA

The Balanced Solenoid Valve Series are versatile direct-acting solenoid valves. Available in three sizes and for maximum utility, each valve in the line-up features multiple piping opportunities and a large working pressure range. Expect tight sealing and reliability from each valve, even in less-than-ideal conditions.



# Balanced Solenoid Valve Series

Humphrey presents the Balanced Solenoid Valve family, our latest 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, and includes IP67 rated, environmentally protected models.

## MULTI-PURPOSE

See porting diagrams. 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.



**153  
DIN-TYPE**

## FEATURES

- Small Size: 15mm, 19mm and 25mm width
- High Flow Capacity: from 0.15 to 1.2 Cv
- Low Leakage: < 4ccm @100 PSIG
- Light weight, low mass
- Multi-purpose function
- Long service life
- Impervious to media conditions
- Environmentally protected IP67 model
- No lubrication required
- Unaffected by pressure fluctuations

## OPTIONS

- Inline or Manifold Mount
- Lead wire (w/plug-in: 15mm and 19mm valves) or mini DIN electrical entry
- Optional non-locking manual override
- 12VDC, 24VDC or 120VAC
- Versatile porting (See diagrams on facing page.)

## ENVIRONMENT PROTECTION

Humphrey's certified IP67 models withstand dust ingress completely, and submersion in water to a depth of one meter over 30 minutes. IP67 models are available with DIN electrical entry and without override. Humphrey DIN connector HS2-CLL is suitable for IP67 protection as well.

The IP67 requirement is quite usable in food processing and packaging equipment makers and their end-users, as well as other moisture-laden or wash-down applications.

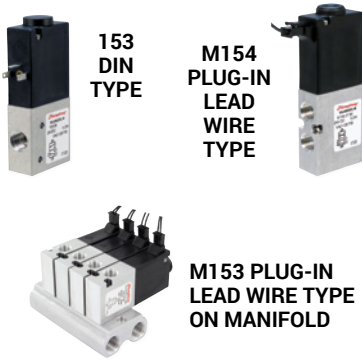
Additionally, fluorocarbon elastomers are optional for those chemical and temperature compatibility applications. Further, metric piping ports in both "G" and "Rc" threads are now available for OEMs marketing equipment internationally.



**IP67 MODELS**



**153, 154**  
**SMALL 3- & 4-WAY VALVES**



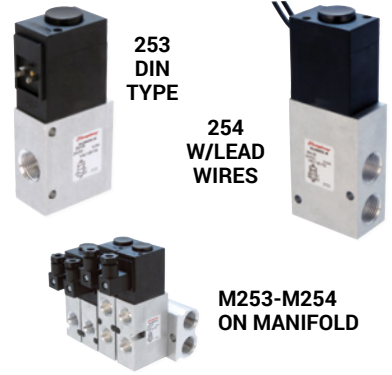
- Compact – 15mm valve width
- 1/8 PIPE ports; Metric ports optional
- Excellent flow –
  - \* 3-port 153: 15 scfm @100 PSIG
  - \* 4-port 154: 10 scfm @100 PSIG
- 5 watt Power Consumption

**193, 194**  
**MID-SIZE 3- & 4-WAY VALVES**



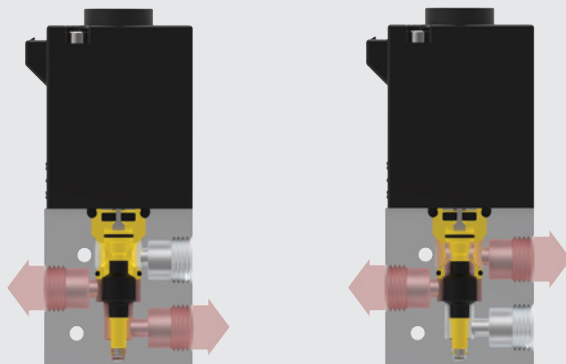
- Compact – 19mm valve width
- 1/4 PIPE ports; Metric ports optional
- Excellent flow –
  - \* 3-port 193: 38 scfm @100 PSIG
  - \* 4-port 194: 28 scfm @100 PSIG
- 6 watt Power Consumption

**253, 254**  
**LARGE 3- & 4-WAY VALVES**



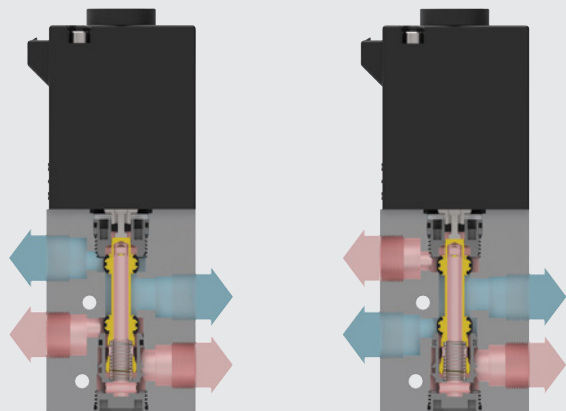
- Compact – 25mm valve width
- 3/8 PIPE ports; Metric ports optional
- Excellent flow –
  - \* 3-port 253: 72 scfm @100 PSIG
  - \* 4-port 254: 68 scfm @100 PSIG
- 8 watt Power Consumption

**BALANCED POPPET CONSTRUCTION**



**3-PORT**  
**Unactuated**

**3-PORT**  
**Actuated**

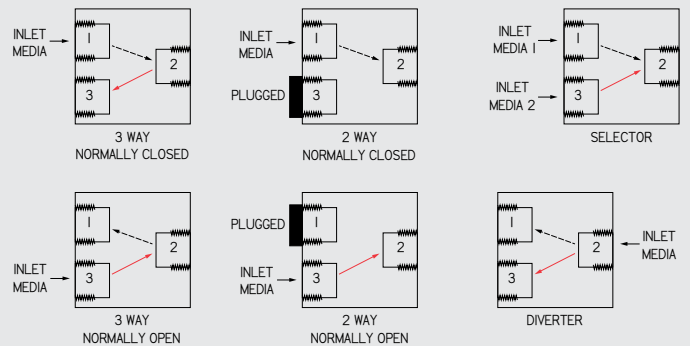


**4-PORT**  
**Unactuated**

**4-PORT**  
**Actuated**

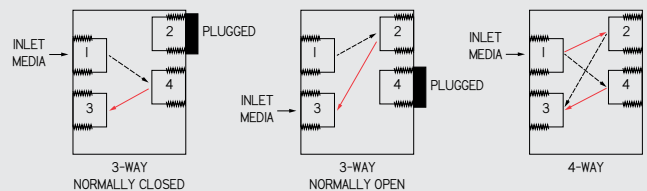
**PORTING DIAGRAMS**

**3-PORT**



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

**4-PORT**



# Specifications

SPECIFICATIONS	153 / P153	154 / P154	193 / P193	194 / P194	253 / P253	254 / P254
TYPE OF OPERATION	Direct Solenoid					
FUNCTION	Multi-Purpose					
MEDIA	Air (Dry or Lubricated), Inert Gases, Vacuum					
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)					
WETTED MATERIALS	Brass, NBR or FKM, Aluminum, SST, Acetal					
PRESSURE RANGE	Vacuum ~ 125 PSIG (8.6 BAR)					
FLOW SCFM @100 PSIG (Cv)	15 (0.25)	10 (0.16)	38 (0.65)	28 (0.47)	72 (1.20)	68 (1.12)
AMBIENT TEMPERATURE	32° to 125°F (0° to 50° C)					
LUBRICATION	Not Required					
FILTRATION	40 micron, recommended					
WEIGHT (LBS)	0.2	0.22	0.4	0.44	0.7	0.8

\* 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



**153 PLUG-IN W/LEAD WIRE TYPE**



**M154 DIN TYPE W/HS2**



**194 DIN TYPE**



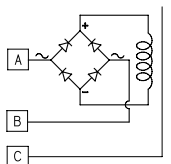
**254 W/LEAD WIRES**

ELECTRICAL 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" (300mm) Lead Wire, DIN				Lead Wire, DIN	
ELECTRICAL ENTRY - IP67 VALVES	DIN					
VOLTAGE TOLERANCE	±10% of rated voltage					
RESPONSE TIME ON/OFF ms	DC (AC)	12/6 (14/35)	20/6 (20/26)	12/8 (20/35)	15/5 (21/23)	20/8 (28/36) 34/5 (34/22)
POWER CONSUMPTION DC/AC	5w / 5.2w		6w / 7.7w		8w / 9.8w	
INSULATION	Class B					

## IP67 MODELS



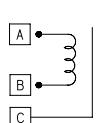
### AC SCHEMATIC



### DC SCHEMATIC



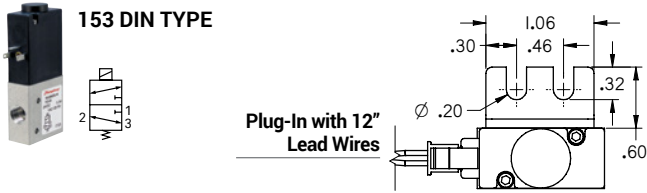
### DC DIN SCHEMATIC



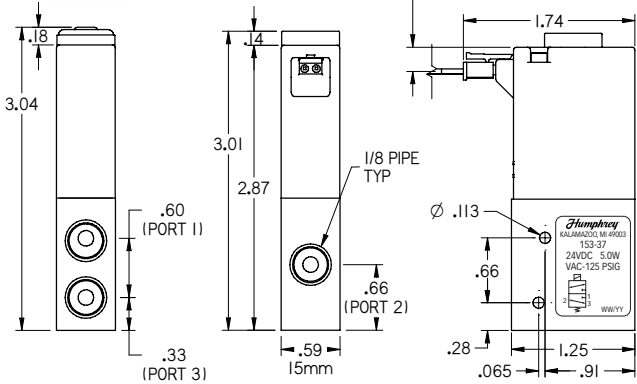
153 | SCHEMATIC, DIMENSIONAL DRAWINGS

150M | MANIFOLD DRAWINGS

153 DIN TYPE

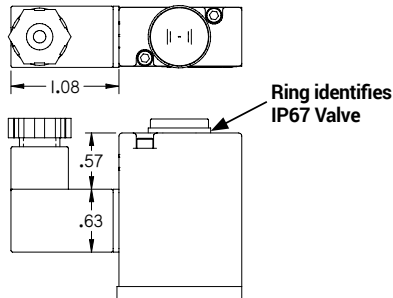


With Override (Code 80)



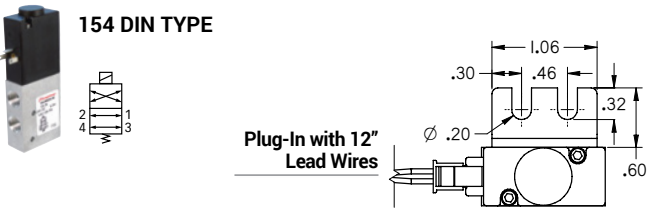
DIN (-39) Electrical Entry with HS2 Connection

Available with and without IP67 Rated Valves

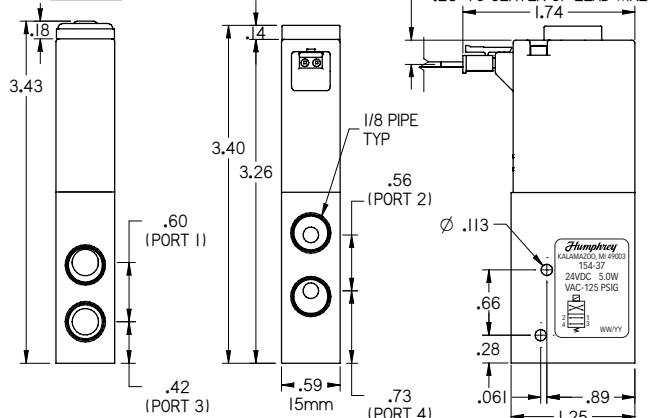


154 | SCHEMATIC, DIMENSIONAL DRAWINGS

154 DIN TYPE



With Override (Code 80)

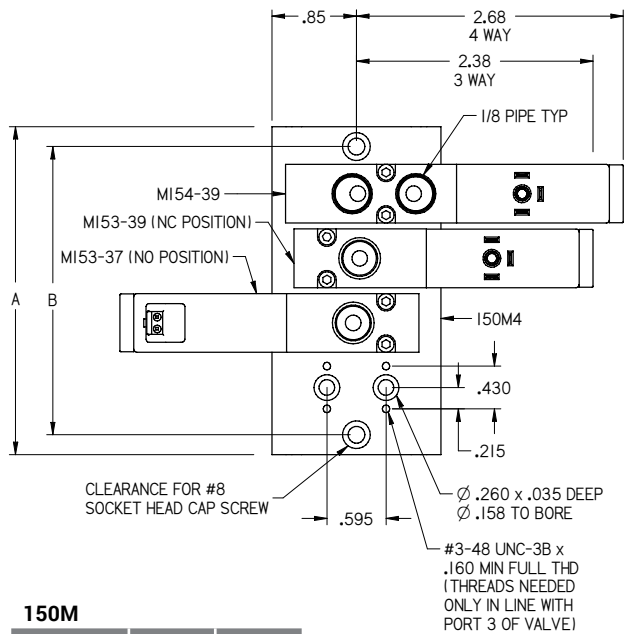


M153 PLUG-IN LEAD WIRE TYPE ON MANIFOLD



M154 DIN TYPE W/HS2 ON MANIFOLD

TOP VIEW

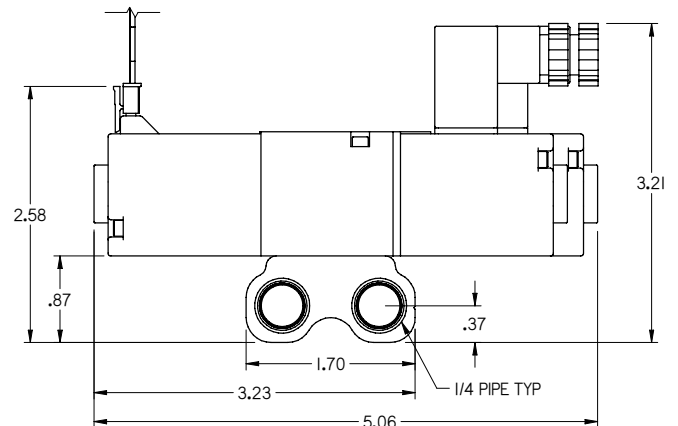


150M

STATIONS	A	B
2	2.00	1.60
4	3.30	2.90
6	4.60	4.20
8	5.90	5.50

Length per valve station: 0.65

FRONT VIEW



# 19mm | Mid-Size Balanced Valves

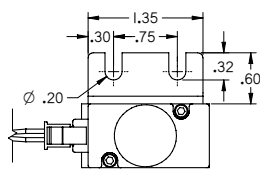
## 193 | SCHEMATIC, DIMENSIONAL DRAWINGS



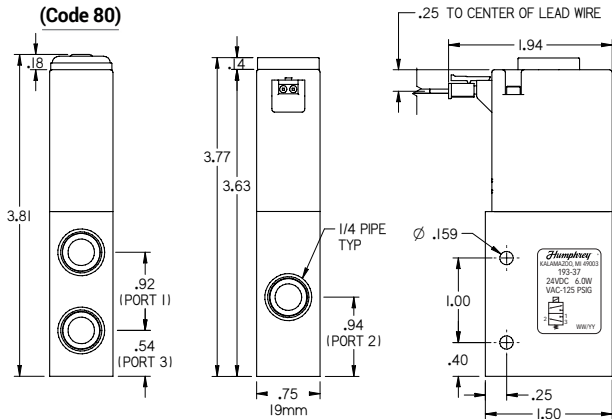
**193 PLUG-IN LEAD WIRE TYPE**



Plug-In with 12" Lead Wires

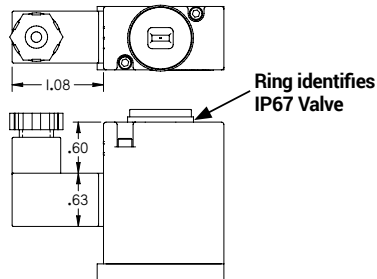


With Override (Code 80)



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

Available with and without IP67 Rated Valves



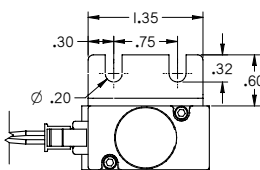
## 194 | SCHEMATIC, DIMENSIONAL DRAWINGS



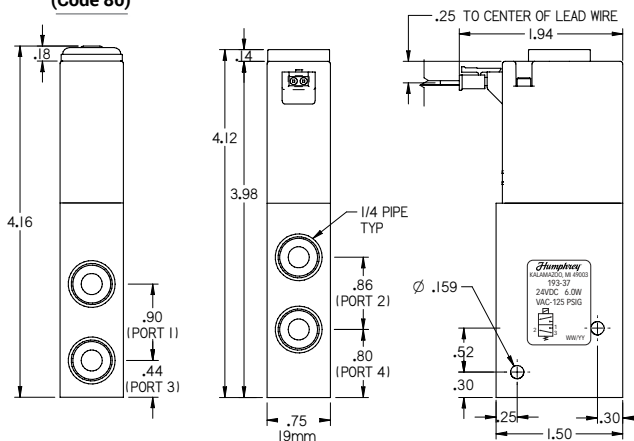
**194 DIN TYPE**



Plug-In with 12" Lead Wires



With Override (Code 80)



## 190M | MANIFOLD DRAWINGS

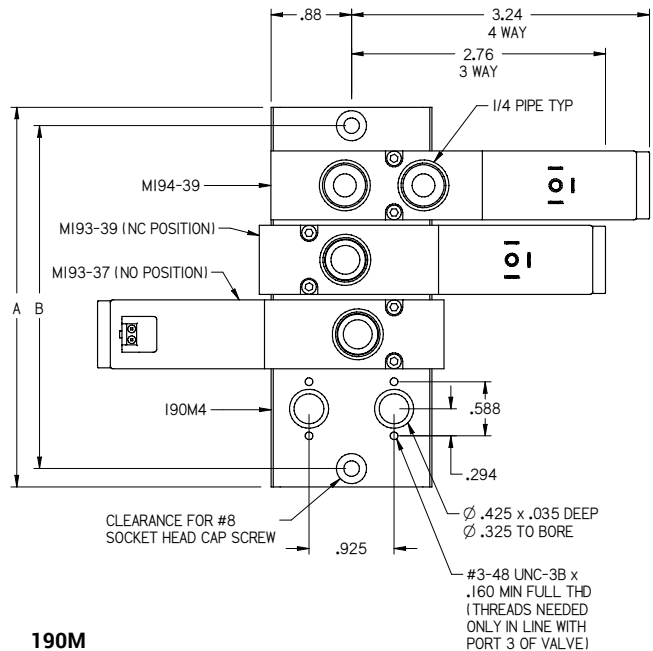


**M193 DIN TYPE ON MANIFOLD**



**M193-M194 DIN TYPE W/HS2 ON MANIFOLD**

### TOP VIEW

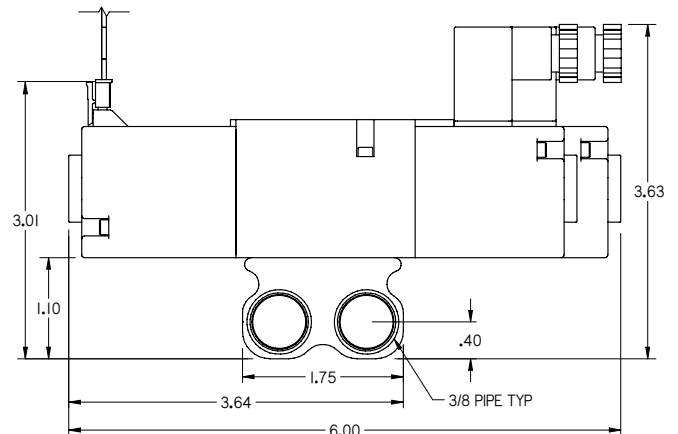


### 190M

STATIONS	A	B
2	2.51	2.11
4	4.13	3.73
6	5.75	5.35
8	7.37	6.97

Length per valve station: 0.81

### FRONT VIEW



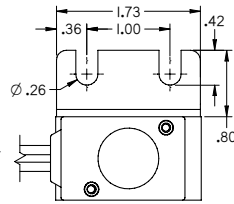
**253 | SCHEMATIC, DIMENSIONAL DRAWINGS**



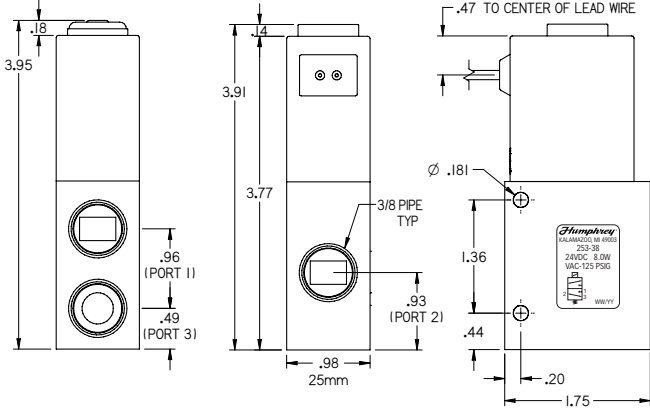
**253 DIN TYPE**



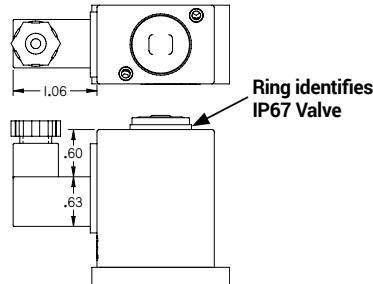
**24" Lead Wires (18 AWG)**



**With Override (Code 80)**



**DIN (-39) Electrical Entry with HS2 Connection**  
Available with and without IP67 Rated Valves



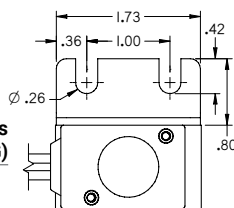
**254 | SCHEMATIC, DIMENSIONAL DRAWINGS**



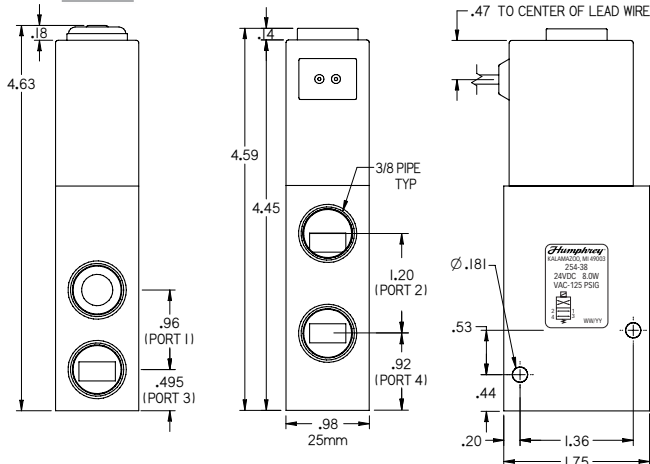
**254 W/LEAD WIRES**



**24" Lead Wires (18 AWG)**



**With Override (Code 80)**

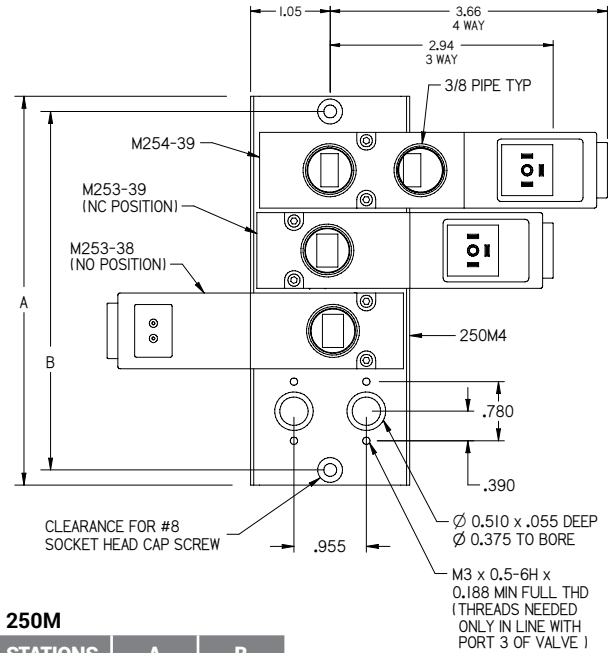


**250M | MANIFOLD DRAWINGS**



**M253-M254 DIN TYPE W/HS2 ON MANIFOLD**

**TOP VIEW**

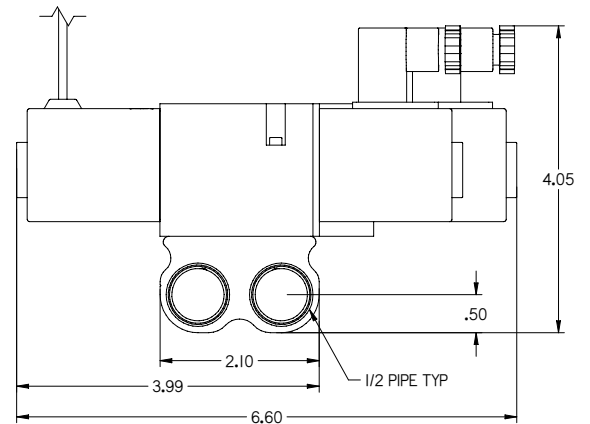


**250M**

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**



## How to Order | Balanced Solenoid Valve Series

VALVE MODEL	ELECTRICAL ENTRY			MANUAL OVERRIDE		LEAD WIRE LENGTH		COIL ROTATION		ELASTOMERS		VOLTAGE
	PLUG-IN W/12" LEADS	24" LEAD WIRES	DIN CONNECTOR	NONE	WITH	12"	72"	NONE	WITH	NBR	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.

IP67 MODEL	DIN ELECTRICAL ENTRY	COIL ROTATION		ELASTOMERS		VOLTAGE
		NONE	WITH	NBR	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.

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






^ Metric port models available: Add prefix E (Rc threaded ports) or prefix G (G threaded ports).  
Ex: E150M2, G190M6, etc.

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

### ACCESSORIES – VALVES

MODEL DESCRIPTION	SERIES PART NUMBER			NOTES
	153/154	193/194	253/254	
 MOUNTING BRACKET	46706	47226	8-388A	L-type bracket for inline valve mounting.
 PIPE PLUG	130-31	130-15	130-25	Plug 3 port for 2-way function. Plug 4-port for 3-way use.
 PLUG-IN LEAD WIRE 12"	46669		N/A	Receptacle choices for plug-in electrical entry valves (valve option code 37).
 PLUG-IN LEAD WIRE 72"	43200		N/A	
 DIN	HS2			Receptacle for DIN electrical entry valves (valve option code 39).
 DIN W/LED LIGHT	HS2LED(voltage)			Connector: DIN 43650C 15mm Style Receptacle (Micro Mini 9mm)
 IP67 DIN W/2000MM CABLE	HS2CLL			HS2-CLL suitable for IP67 valves.

### ACCESSORIES – MANIFOLDS

MODEL DESCRIPTION	SERIES PART NUMBER			NOTES
	150M	190M	250M	
 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 and (2) screws.
 VALVE MOUNTING KIT	46672	47221	47248	Includes (2) o-rings and (2) screws (replacement).
 DIN RAIL CLIP	DRC			Includes (2) clips and (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.

### ORDER EXAMPLES

153-37-80-24VDC	M194-39-LL-VAI-12VDC
P253-39-RC-24VDC	PM154-39-1205060

Certified: ISO 9001:2015

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A privately owned US company since 1901.  
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Printed in U.S.A.  
**ISBBSV23**

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