

# VALVES & FITTINGS

## Hamilton (HV) Plug Valves

- Wetted paths are chemically inert TEFLON® and Kel-F® materials
- Valves are for stand alone use or HVX and HVP valves can also be panel mounted
- Valve position is controlled manually via a handle attached to the valve stem
- Valve connections are via 1/4-28 UNF-2B (Unified Fine) fittings

Hamilton HV Plug Valves provide an economical and flexible method of custom-building a fluid flow control system, from a simple on/off valve to a more complex multi-valve arrangement, using a combination of loop and distribution valves. The small valve body with its chemically inert flow path is ideally suited for low pressure applications. All HV Plug Valves allow you to select and interchange a wide variety of fittings, adapters and tubing, including male and female luers, FEP tubing assemblies, and adapters which thread directly into the valve providing an endless variety of valve configurations for any flow application. Hamilton (HV) fittings and adapters are installed finger-tight (10 ounce inches) and provide a leak-tight seal tested to 100 psig.

Three body styles of valves are available HV, HVP, and HVX.



The HV valve is physically the smallest valve and constitutes a basic unit for the control of fluids or gases. It is ideal for low pressure applications; from a basic on/off flow to a four-way distribution system.

The HVP valve is essentially the same as the HV valve except the HVP can be mounted into panels allowing for custom installation into control panels or instruments.

HVX valves are physically the largest valves. A larger port internal diameter allows increased fluid flows even with moderately viscous fluids. HVX valves can be used free standing or panel-mounted using an optional locking nut, **Part # 35121**. 6- and 8-port distribution and loop valves are available only in the HVX body style.

## Hamilton Miniature Inert Valves

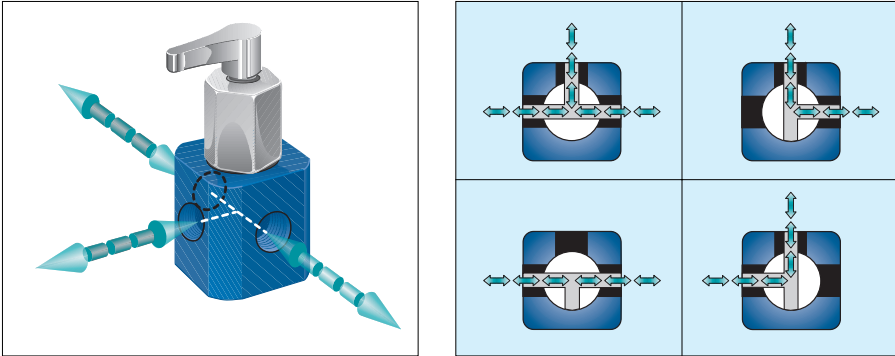
	HV	HVP	HVX
Valve Outer Body Dimension	3/4"	3/4"	1"
Port Orifice	.059"	.059"	.118"*
Panel Mounting	No	Yes	Yes
Panel Thickness	N/A	.150" (3.8 mm)	.625" (15.9 mm)

\* The port orifice for 6- and 8-way distribution HVX valves is .059".  
The port orifice for 6- and 8-way loop HVX valves is .040".

*Hamilton (HV) fittings and adapters are installed finger-tight (10 ounce inches) and provide a leak-tight seal tested to 100 psig.*

# VALVES & FITTINGS

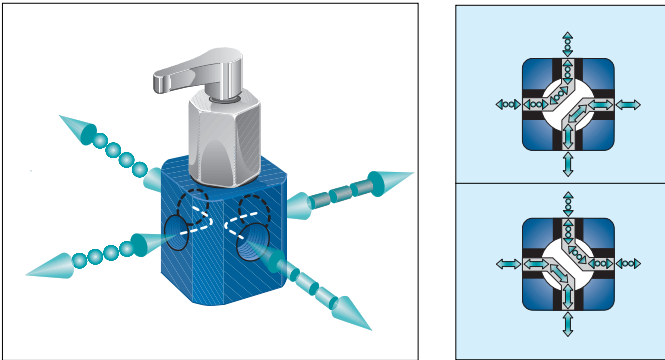
## Flow Valves



Flow valves are used to direct or redirect fluids. 2-, 3-, and 4 -port valves are available with straight through (180°), 90°, or “T” type plugs for seven different valves. All seven flow configurations are available as HV, HVP and HVX valves. The flow configuration drawings show the possible fluid flow paths for a three port flow valve with a “T” type plug.

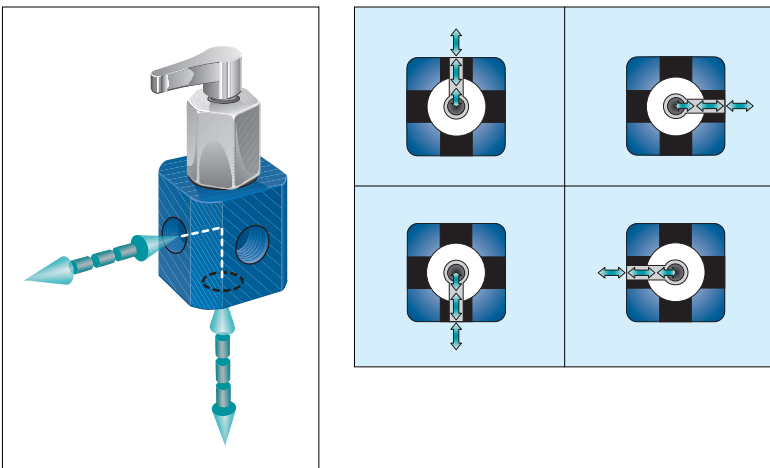
## Hamilton (HV) Plug Valves

## Loop Valves



Loop valves are used to direct and redirect fluids. 4-, 6-, or 8- port valves are available with a loop type valve plug. The 4- port valve is available in HV, HVP and HVX body styles. The 6- and 8-port valves are only available in the HVX body style. The flow configuration drawings show the possible fluid flow paths for a 4-port valve with a loop type plug.

## Distribution Valves



Distribution valves are used to direct fluid to a number of locations. 2-, 3-, 4-, 6- and 8-port valves are available with a distribution type valve plug. The 2-, 3-, and 4-port distribution valves are available in HV, HVP and HVX body styles. The 6- and 8-port valves are available only in the HVX body style. The flow configuration drawings show the possible fluid flow paths for a 4-port valve with a distribution type plug.

# VALVES & FITTINGS

## Hamilton (HV) Plug Valves

- Wetted paths are chemically inert TEFLON® and Kel-F® materials (100 psig or less)
- Valves are for stand alone use or HVX<sup>†</sup> and HVP valves can also be panel mounted
- Valve position is controlled manually via a handle attached to the valve stem
- Valve connections are via 1/4-28 UNF-2B (Unified Fine) fittings; see page 88



Flow Diagram	Valve Description	Valve Model	HV	HVP	HVX
	180° Flow Path 2-ports	1-1	<b>86725</b>	<b>86775</b>	<b>86901*</b>
	90° Flow Path 2-ports	2-2	<b>86726</b>	<b>86776</b>	<b>86902*</b>
	"T" Flow Path 3-ports	3-3	<b>86727</b>	<b>86777</b>	<b>86903*</b>
	90° Flow Path 3-ports	3-2	<b>86728</b>	<b>86778</b>	<b>86904*</b>
	Loop Flow Path 4-ports	4-4	<b>86729</b>	<b>86779</b>	<b>86905*</b>
	"T" Flow Path 4-ports	4-3	<b>86730</b>	<b>86780</b>	<b>86906*</b>
	90° Flow Path 4-ports	4-2	<b>86731</b>	<b>86781</b>	<b>86907*</b>
	180° Flow Path 4-ports	4-1	<b>86732</b>	<b>86782</b>	<b>86908*</b>

3 Note: All valves have .059"/1.5 mm diameter ports unless otherwise indicated. <sup>†</sup> HVX valves require optional locking nut, **part #35121**, for panel-mount applications. \* Valve has .118"/3 mm diameter ports.

# VALVES & FITTINGS

## Hamilton (HV) Plug Valves

**Valve Connections:**  
Use only HV fittings and adapters for leak-free connections to Hamilton valves



Flow Diagram	Valve Description	Valve Model	HV	HVP	HVX
	Distribution Flow Path 2-ports	1-5	<b>86735</b>	<b>86785</b>	<b>86910*</b>
	Distribution Flow Path 2-ports	2-5	<b>86736</b>	<b>86786</b>	<b>86911*</b>
	Distribution Flow Path 3-ports	3-5	<b>86737</b>	<b>86787</b>	<b>86912*</b>
	Distribution Flow Path 4-ports	4-5	<b>86738</b>	<b>86788</b>	<b>86913*</b>
	Distribution Flow Path 6-ports	6-5			<b>86915</b>
	Loop Flow Path 6-ports	6-6			<b>86916**</b>
	Distribution Flow Path 8-ports	8-5			<b>86918</b>
	Loop Flow Path 8-ports	8-7			<b>86919**</b>

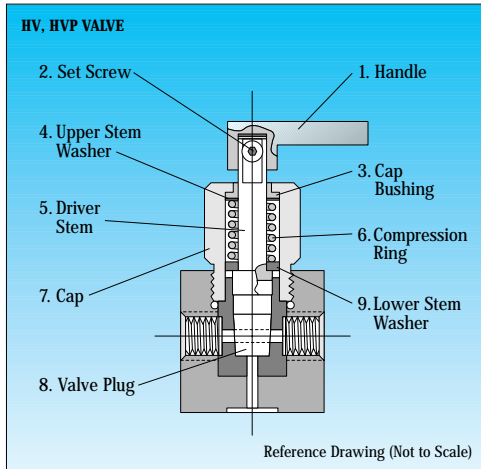
VALVES & FITTINGS

Note: All valves have .059"/1.5 mm diameter ports unless otherwise specified. \* Valve has .118"/3 mm diameter ports. \*\* Valve has .040"/1 mm diameter ports.

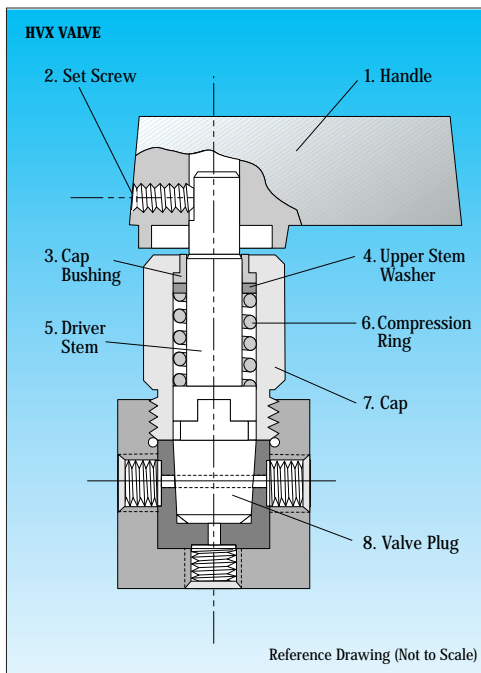
# VALVES & FITTINGS

## Hamilton (HV) Plug Valve Replacement Parts and Specifications

### HV, HVP Flow Valve



### HVX Distribution Valve



### HV Valve Replacement Parts

Model	HV	HVP	HVX
1. Handle/Decal			
180° Flow Path	35044*	35044*	30810/30836
90° Flow Path	35045*	35045*	30810/30837
"T" Flow Path	35046*	35046*	30810/30838
4-port Loop Flow Path	35047*	35047*	30810/30839
4-port Distribution Flow Path	35048*	35048*	30810/30840
6-, 8-port Distribution Flow Path			30810/30840
6-port Loop Flow Path			30810/35131
8-port Loop Flow Path			30810/35132
2. Set Screw	16535	16535	16466
3. Cap Bushing	35004	35005	35113
4. Upper Stem Washer	17874	17874	35114
5. Driver Stem	35006	35007	35111
6. Compression Spring	1676-01	1676-01	1678-01
7. Cap	35008	35009	35112
8. Valve Plug			
180°	35050	35050	35150
90°	35051	35051	35151
"T"	35052	35052	35152
4-port Loop	35001	35001	35110
4-port Distribution	35053	35053	35153
6-, 8-port Distribution			35154
6-port Loop			35129
8-port Loop			35130
9. Lower stem washer	35019	35019	
Panel mount nut		16450	35121
Hex wrench	16476	16476	16477

\* Decal not needed for these handles

### HV Valve Specifications

	HV	HVP	HVX
Dimensions	3/4" Square	3/4" Square	1" Square
Temperature Range, °C (°F)	10 - 100 (50 - 212)	10 - 100 (50 - 212)	10 - 100 (50 - 212)
Weight, Ounces	2	2	2
Maximum Pressure Rating, psig	0-100	0-100	0-100
Valve Connection Ports	1/4-28	1/4-28	1/4-28
Break Away Torque, Ounce Inches	10-15	10-15	60
Maximum Panel Thickness		.150"	.625"
Panel Hole Diameter		.438"	.750"
1. Handle	Nickel	Nickel	Black Nylon
2. Set Screw	Stainless Steel	Stainless Steel	Stainless Steel
3. Cap Bushing	Nylon	Nylon	TEFLON®
4. Upper Stem Washer	Stainless Steel	Stainless Steel	Stainless Steel
5. Drive Stem	Stainless Steel	Stainless Steel	Stainless Steel
6. Compression Spring	Zinc Plated Wire	Zinc Plated Wire	Stainless Steel
7. Cap	Aluminum	Aluminum	Aluminum
8. Valve Plug	PTFE*	PTFE*	PTFE*
O-Ring	Buna-N	Buna-N	Viton
Valve Plug Seat	CTFE**	CTFE**	CTFE**
Valve Housing	Aluminum	Aluminum	Aluminum
Lower Stem Washer	Stainless Steel	Stainless Steel	

\* PTFE (polytetrafluoroethylene) \*\* CTFE (chlorotrifluoroethylene)

# VALVES & FITTINGS

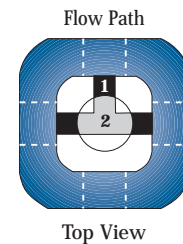
Description	HV	HVP	HVX	Model	Port I.D. In./mm	1. Port Vol. µL	2. Plug Vol. µL	3. Dist. Port Vol. µL	4. Total Vol. µL
180° Flow Path 2-ports	86725	86775		1-1	.059/1.5	2.51	8.98		14.00
			86901	1-1	.118/3.0	11.13	71.82		94.08
90° Flow Path 2-ports	86726	86776		2-2	.059/1.5	2.51	8.98		14.00
			86902	2-2	.118/3.0	11.13	71.82		94.08
"T" Flow Path 3-ports	86727	86777		3-3	.059/1.5	2.51	13.47		21.00
			86903	3-3	.118/3.0	11.13	107.73		141.12
90° Flow Path 3-ports	86728	86778		3-2	.059/1.5	2.51	8.98		16.52
			86904	3-2	.118/3.0	11.13	71.82		105.21
Loop Flow Path 4-ports	86729	86779		4-4	.059/1.5	2.51	8.98		14.00
			86905	4-4	.118/3.0	11.13	44.80		67.06
"T" Flow Path 4-ports	86730	86780		4-3	.059/1.5	2.51	13.47		23.52
			86906	4-3	.118/3.0	11.13	107.73		152.25
90° Flow Path 4-ports	86731	86781		4-2	.059/1.5	2.51	8.98		19.03
			86907	4-2	.118/3.0	11.13	71.82		116.34
180° Flow Path 4-ports	86732	86782		4-1	.059/1.5	2.51	8.98		19.03
			86908	4-1	.118/3.0	11.13	71.82		116.34
Distribution Flow Path 2-ports	86735	86785		1-5	.059/1.5	2.51	9.74	4.58	16.83
			86910	1-5	.118/3.0	11.13	75.41	22.26	108.80
Distribution Flow Path 2-ports	86736	86786		2-5	.059/1.5	2.51	9.74	4.58	16.83
			86911	2-5	.118/3.0	11.13	75.41	22.26	108.80
Distribution Flow Path 3-ports	86737	86787		3-5	.059/1.5	2.51	9.74	4.58	16.83
			86912	3-5	.118/3.0	11.13	75.41	22.26	108.80
Distribution Flow Path 4-ports	86738	86788		4-5	.059/1.5	2.51	9.74	4.58	16.83
			86913	4-5	.118/3.0	11.13	75.41	22.26	108.80
Distribution Flow Path 6-ports			86915	6-5	.059/1.5	2.78	18.85	5.57	27.20
Loop Flow Path 6-ports			86916	6-6	.040/1.0	1.24	5.00		7.47
Distribution Flow Path 8-ports			86918	8-5	.059/1.5	2.78	18.85	5.57	27.20
Loop Flow Path 8-ports			86919	8-7	.040/1.0	1.24	4.00		6.47

## Hamilton (HV) Plug Valve Volume

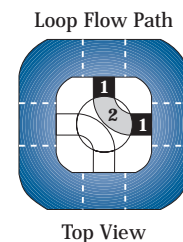
Valve volume is listed four different ways in the chart below:

1. Port Volume - This is the volume of a single port and does not include the valve plug
2. Plug Volume - This is the volume of the valve plug only and does not include the valve port volume
3. Distribution Port Volume - This is the volume of the bottom port on distribution valves
4. Total Volume - This is the total volume of one flow path through the valve

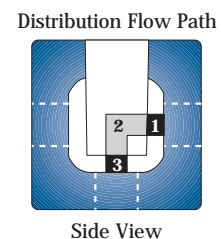
**Flow Valves** - valve volume equals two port volumes (or three for "T" valves) plus plug volume



**Loop Valves** - valve volume equals two port volumes plus one valve path plug volume



**Distribution Valves** - valve volume equals one port volume, one distribution port volume plus the plug volume








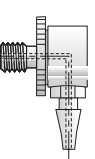


# VALVES & FITTINGS

## HV Fittings, Adapters and Tubing

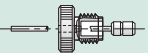
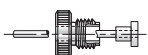

- Use with Hamilton valves; see pages 84, 85
- Use tubing assemblies to connect tubing to valves (100 psig or less)
- Use the female luer, male luer, luer lock and barbed fittings to connect syringes, equipment, or other devices to Hamilton valves

### Ordering Information

Valve Fittings Port Diameter	1/4-28 Threads		M6 Threads†	
	.059"/ 1.5 mm	.118"/ 3.0 mm	.059"/ 1.5 mm	.118"/ 3.0 mm
Female Luer 	35031	35071		
Male Luer 	35030	35070		
Male Luer Lock** 	35033	35073		
1/8" Barb 	35032*	35072		
Plug 	32802 1/pk 88802 10/pk		32852 1/pk 88852 10/pk	
Union 	32800 1/pk 88800 10/pk		88850 10/pk	
Swivel Union** 	35037			
Swivel 90° Union**/Tube Fitting 	35036			

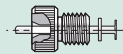

\* The bore diameter of this fitting is .089"/2.25 mm. \*\* Fitting is Kel-F and Metal  
† M6 threads are for general lab use only.

### Needle Bushings and Needles




Bushing for "RN" type Needles 	35035	
Bushing for "Hat" type Needles 	35056	
Needles Stainless Steel "Hat" type Needle gauge/length/ point style (x/2"/3), 3/pk, Use with bushing #35056 	90814 14 ga. 90816 16 ga. 90818 18 ga. 90820 20 ga. 90822 22 ga. 90824 24 ga. 90826 26 ga.	90815 15 ga. 90817 17 ga. 90819 19 ga. 90821 21 ga. 90823 23 ga. 90825 25 ga.

- Fittings and adapters are Kel-F® (CTFE) unless otherwise noted
- Some fittings, e.g. female luer, male luer, luer lock and barbed fittings, are offered in two port diameters, namely .059" and .118", for fluid flow optimization
- Hamilton (HV) fittings and adapters are installed finger tight (10 ounce inches) and provide a leak tight seal rated to 100 psig.

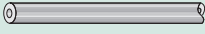

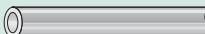
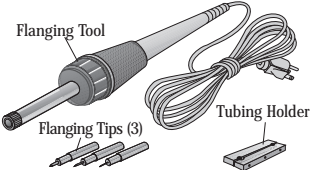
### Assembled 1/4-28 Male Tube Fittings with Flared TEFLON® FEP Tubing

One Hub Assembled with 24" of Tubing 	88986 (22 gauge) 88987 (18 gauge) 88988 (12 gauge)
Two Hubs Assembled with 12" of Tubing 	88916 (22 gauge) 88917 (18 gauge) 88918 (12 gauge)

### 1/4-28 Tube Fittings and Washers (no tubing)

Fittings and Washers 	88842 (22/18 gauge) 5/pk 88843 (12 gauge) 5/pk
Fittings 	32842 (22/18 gauge) 1/pk 32843 (12 gauge) 1/pk
Washers 	32882 (22/18 gauge) 1/pk 88882 (22/18 gauge) 10/pk 32883 (12 gauge) 1/pk 88883 (12 gauge) 10/pk

### TEFLON® FEP Tubing\*

22 gauge (.074" O.D. .028" I.D. nominal) 	88906 10'/pk 20939 over 10' (specify length)
18 gauge (.074" O.D. .042" I.D. nominal) 	88907 10'/pk 20937 over 10' (specify length)
12 gauge (.117" O.D. .085" I.D. nominal) 	88908 10'/pk 20938 over 10' (specify length)
Flanging Tool Kit 120V 	88821 Includes 1 each of the following: Flanging Tool 120V 32909 Flanging Tip 22 ga. 32905 Flanging Tip 18 ga. 32906 Flanging Tip 12 ga. 32907 Tubing Holder 32903

Unless otherwise specified, products are sold 1/pk  
\* Fittings must be added and tubing flared using the Flanging Tool Kit.  
Reference Drawings (Not to Scale)

### Valve Connections:

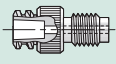
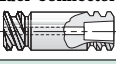

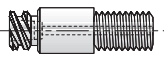

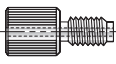
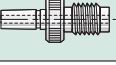

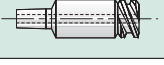



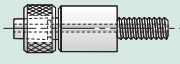
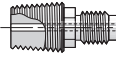
Use only HV fittings and adapters for leak-free connections to Hamilton valves

# VALVES & FITTINGS

## General Laboratory Fittings, Adapters and Tubing (Industry Standard)

- Use for assembly of low pressure (100 psig or less) gas or fluid flow systems (not recommended for direct connection to Hamilton valves)
- Fittings and adapters are Kel-F® (CTFE) unless otherwise noted




### Ordering Information

Valve Fittings	1/4-28 Threads	M6 Threads
Female Luer 	<b>32834</b>	<b>32874</b>
Female Luer/ Female Luer Connector 	<b>86505</b>	
Female Luer/ Male Luer Lock Connector** 	<b>86513</b>	
Female Luer/ Threaded Connector 	<b>86540</b> (8-32 UNC) <sup>†</sup> <b>86541</b> (10-24 UNC) <b>86542</b> (1/4-20 UNC) <b>86543</b> (5/16-18 UNC)	
Female Luer Cap 	<b>16801</b>	
Female M6/Male 1/4-28 or Female 1/4-28/Male M6 	(F) M6/(M) 1/4-28 <b>32821</b>	(F) 1/4-28/(M) M6 <b>32870</b> (1/32" bore) <b>32871</b> (1/16" bore)
Male Luer 	<b>32835</b>	<b>32875</b> <b>35074</b> (.118" bore)
Male Luer/Male Luer 	<b>86506</b>	
Male Luer/Female Luer 	<b>86507</b>	
Male Luer Lock** 	<b>32836</b>	<b>32876</b>
Male Luer Lock/Male Luer** 	<b>86512</b>	
Male Luer Lock/Male Luer Lock** 	<b>86511</b>	
Male Luer Lock/ Threaded Connector** 	<b>86530</b> (8-32 UNC) <b>86531</b> (10-24 UNC) <b>86533</b> (1/4-20 UNC) <b>86534</b> (5/16-18 UNC) <b>86536</b> (1/8-NPT) <sup>††</sup> <b>86537</b> (1/4-NPT)	
Pipe Connector/Male 1/4-28 	<b>32822</b> (1/8-NPT) <b>32823</b> (1/4-NPT)	

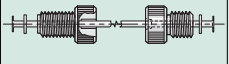
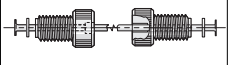
<sup>†</sup> UNC (United National Course) <sup>††</sup> NPT (National Pipe Thread)

\* LW = Light Wall, HW = Heavy Wall \*\* Fitting Kel-F and Metal Reference Drawings (Not to Scale)

- The port diameters of adapters and connectors are .059" (unless otherwise specified)
- Hamilton (HV) fittings and adapters are installed finger-tight (10 ounce inches) and provide a leak tight seal rated to 100 psig.

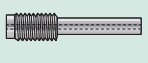
Valve Fittings	1/4-28 Threads	M6 Threads
Fittings and Washers 	<b>88806</b> (22/18 ga.) 10/pk <b>88807</b> (12 ga.) 10/pk	<b>88856</b> (1/16" O.D.) 10/pk <b>88857</b> (1/8" O.D.) 10/pk <b>32856</b> (1/16" O.D.) 1/pk <b>32857</b> (1/8" O.D.) 1/pk
Fittings 	<b>32806</b> (22/18 ga.) 1/pk <b>32807</b> (12 ga.) 1/pk	
Washers 	<b>32882</b> (22/18 ga.) 1/pk <b>88882</b> (22/18 ga.) 10pk <b>32883</b> (12 ga.) 1/pk <b>88883</b> (12 ga.) 10/pk	<b>249922</b> (22/18 ga.) 1/pk <b>249924</b> (12 ga.) 1/pk

### Assembled Male Tube Fittings with 12" Flared FEP Tubing

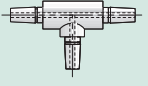
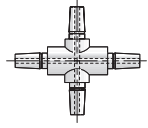
Two Hubs, IS/HV thread 	<b>88956</b> (22 ga.) <b>88957</b> (18 ga.) <b>88958</b> (12 ga.)	
Two Hubs, IS/IS thread* 	<b>88946</b> (22 ga.) <b>88947</b> (18 ga.) <b>88948</b> (12 ga.)	<b>88950LW</b> 1/16" O.D. .042" I.D.* <b>88952HW</b> 1/16" O.D. 1/32" I.D.* <b>88960LW</b> 1/8" O.D. .095" I.D.* <b>88962HW</b> 1/8" O.D. 1/16" I.D.*

\* 25 inch length

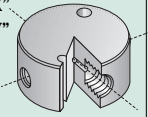
### Stainless Steel Tube Adapters

1/4-28 Male/Tube 	<b>32803</b> (1/4" O.D. Tube) <b>32804</b> (1/8" O.D. Tube) <b>32805</b> (1/16" O.D. Tube)**	<b>32855</b> (1/16" O.D. Tube)
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### 3 and 4 Way Male Luer Connectors

3 Way "T" 	<b>86516</b>	
4 Way "X" 	<b>86518</b>	

### 3 and 4 Way Threaded Junctions

3 Way "T" 4 Way "X" 3 Way "Y" 	<b>32810</b> <b>32814</b> <b>32812</b>	<b>32860</b> <b>32864</b>
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Reference Drawings (Not to Scale).

### Valve Connections:

Use only HV fittings and adapters for leak-free connections to Hamilton valves.

# VALVES & FITTINGS

## Modular Valve Positioner (MVP)

- Bi-directional valve movement and control
- Versatile serial (RS-232) or digital (TTL) communication
- Easy, “snap-in, snap-out” valve replacement automates any of 16 different Hamilton valve configurations
- Wetted paths are chemically inert TEFLON® and Kel-F® materials



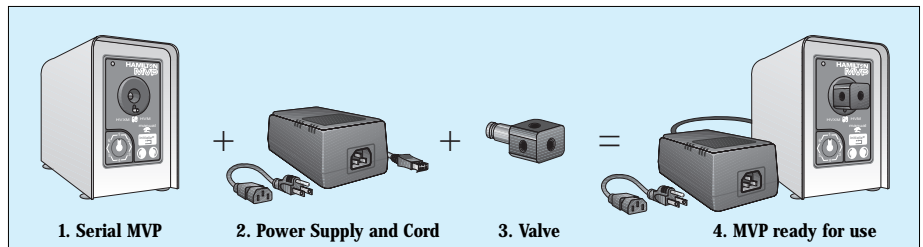
### Selection. Choose the MVP which best meets your needs.

#### To order:

1. Select an MVP, with or without cover, and with the communication method of your choice from this page.
2. Select the necessary power supply and power cord configuration for your needs from this page.
3. Choose the valve which provides the appropriate flow configuration from page 91.
4. Your MVP is ready to use. [Note: TEFLON tubing assemblies appear on page 88.]


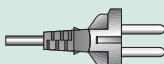
#### Example:

1. Serial MVP with cover, Part # 36798
2. 90-260VAC power supply, Part # 6500028 and North American power cord Part # 6541000
3. 4-port distribution valve, Part # 36719
4. Serial MVP with cover, 90-260VAC power supply, North American power cord, and 4-port distribution valve



Communication Methods	36798	0159698	
Serial (RS-232) Protocol 1/RNO+	<b>36798</b>	<b>0159698</b>	
Serial (RS-232) DIN Protocol/BDZ+	<b>36790</b>	<b>0159699</b>	
Digital (TTL)	<b>36789</b>		<b>0159220</b>

### Power Supplies

Power Cords	115VAC Part # 6500025	220VAC Part # 6500026	90-260VAC Part # 6500028
115V (North American) 	Supplied with power cord		<b>6541000</b>
220V (Schuko) 		<b>6541005</b>	<b>6541005</b>




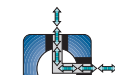
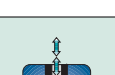





# VALVES & FITTINGS



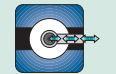







## MVP Valve Configurations

- Easy “snap-in, snap-out” valve replacement
- Wetted paths are chemically inert TEFLON® and Kel-F® materials (100 psig or less)
- Valve connections are 1/4-28 UNF-2B female fittings

### Valve Connections:

Use only HV fittings, adapters and tube assemblies for leak-free connections to Hamilton valves.

Flow Diagram	Valve Description	Valve Model		
	180° Flow Path 2-ports	1-1	<b>36650</b>	<b>36723*</b>
	90° Flow Path 2-ports	2-2	<b>36651</b>	<b>36724*</b>
	“T” Flow Path 3-ports	3-3	<b>36652</b>	<b>36799*</b>
	90° Flow Path 3-ports	3-2	<b>36653</b>	<b>36756*</b>
	Loop Flow Path 4-ports	4-4	<b>36654</b>	<b>36757*</b>
	“T” Flow Path 4-ports	4-3	<b>36718</b>	<b>36779*</b>
	90° Flow Path 4-ports	4-2	<b>36717</b>	<b>36780*</b>
	180° Flow Path 4-ports	4-1	<b>36655</b>	<b>36796*</b>

Flow Diagram	Valve Description	Valve Model		
	Distribution Flow Path 2-ports	1-5	<b>36657</b>	<b>36714*</b>
	Distribution Flow Path 2-ports	2-5	<b>36658</b>	<b>36722*</b>
	Distribution Flow Path 3-ports	3-5	<b>36659</b>	<b>36758*</b>
	Distribution Flow Path 4-ports	4-5	<b>36719</b>	<b>36759*</b>
	Distribution Flow Path 6-ports	6-5		<b>36760</b>
	Loop Flow Path 6-ports	6-6		<b>36781**</b>
	Distribution Flow Path 6-ports	8-5		<b>36766</b>
	Loop Flow Path 8-ports	8-7		<b>36782**</b>

Note: All valves have .059"/1.5 mm diameter ports unless otherwise indicated.

\* Valve has .118"/3 mm diameter ports.

\*\* Valve has .040"/1 mm diameter ports.

For valve housings constructed of alternative materials, such as Kel-F®, PEEK, or stainless steel, contact Hamilton Company.

# VALVES & FITTINGS

## Two Position Valve Switcher

- Electrically operated, 120VAC
- Provides automation of Hamilton two position plug valves (HV, HVX and HVXL)
- Valve is actuated by your choice of voltages (12VAC or DC @ 100 ma, 24VAC or DC @ 50 ma, 120VAC @ 10 ma or switch closure)
- Supplied with specified valve



## Two Position Valve Positioner

Required Signal Voltage	AC Signal Actuated Valve Switcher Part #	DC Signal Actuated Valve Switcher Part #	Compatible Valve Models*	Required Signal Voltage	AC Signal Actuated Valve Switcher Part #	DC Signal Actuated Valve Switcher Part #	Compatible Valve Models*
12V @ 100 ma	0138962 0147662 0147762 0147862	0138912 0147612 0147712 0147812	HV HVX HVXL6-6 HVXL8-7	120V @ 10 ma	0138980 0147680 0147780 0147880	Not Available	HV HVX HVXL6-6 HVXL8-7
24V @ 50 ma	0138974 0147674 0147774 0147874	0138924 0147624 0147724 0147824	HV HVX HVXL6-6 HVXL8-7	Switch Closure	0138900 0147600 0147700 0147800	Not Available	HV HVX HVXL6-6 HVXL8-7

Note: All Valve Switchers must be connected to 120VAC, 60Hz line voltage.

\* Select the valve you need from the chart below.

## Valves for Use With the Two Position Valve Switcher

- Each Valve Switcher is supplied with a valve installed
- Select the valve you need from the chart below



### Valve Porting and Position

Valve Position with Signal Voltage OFF	Valve Position with Signal Voltage ON	Valve Model			
		1-1	86725	86901	
		3-2	86728	86904	
		4-4	86729	86905	
		6-6			86916
		8-7			86919