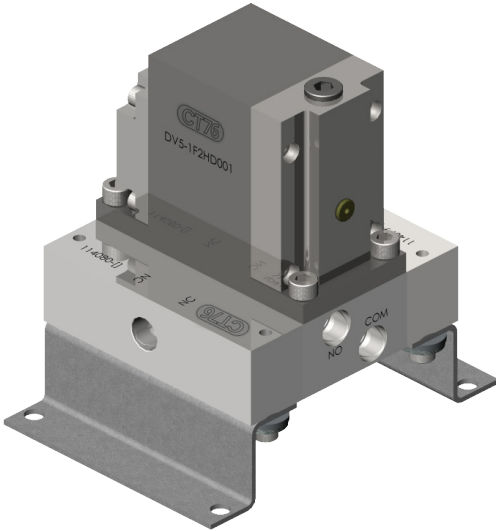




## DV5 SERIES

### 3-Way Switching Diaphragm Valves



Available as...

- Stand-alone
- Multi-stream manifold
- Surface mount modular (ANSI/ISA-76  $\mu$ MS<sup>3</sup>® sampling system)

The DV5 Series<sup>1</sup> diaphragm valve is totally free of springs, bellows, packing and lubricants in the process wetted area. Metal-to-metal seals to atmosphere ensure that there is no transport of undesirable elements into the flow stream. Elgiloy® diaphragms ensure the utmost in corrosion resistance and extended overall life span. For Elgiloy® chemical compatibility see the Technical Support section of the CT76 website at [www.76.com](http://www.76.com).

<sup>1</sup> Patent pending

#### **Features & Benefits**

- Integrated sweep loop in manifold
- 3-Way switching
- Surface mount ANSI/ISA-76 compliant\*
- Metal-to-metal seals to atmosphere to prevent leakage
- Replaceable valve seats for extended service life
- Wide choice of materials for virtually all applications
- No o-rings, springs, or lubricant in wetted flow path
- Very low internal volume (0.64 cc)
- Pneumatic actuation from top of manifold
- Pressures from vacuum (50 torr) to 500 psig (34 bar)
- Compact valve body (3" L x 2.3" H x 1.5" W)
- Interlocking pins between valve body and manifold baseplate to ensure 100% correct reassembly (not applicable for surface mount models)

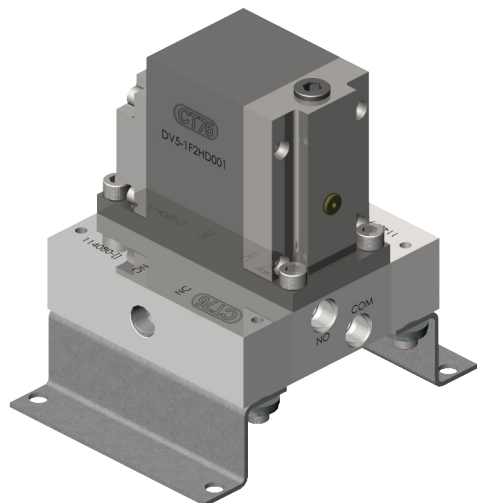
\* CT76 Base adapter plate required for non-CT76 manufactured surface mount systems-consult factory

diaphragm valves



Crane Instrumentation & Sampling

## TECHNICAL DATA



<b>BODY</b>	316L stainless steel, Monel® and Hastelloy® C-276
<b>SEATS</b>	PCTFE and PEEK™
<b>DIAPHRAGMS</b>	Elgiloy® AMS 5876
<b>ORIFICE SIZE</b>	0.110" (2.8 mm)
<b>FLOW CAPACITY</b>	0.13 Cv
<b>VALVE INTERNAL VOLUME*</b>	0.64 cc
<b>EXTERNAL LEAKAGE</b>	1 × 10 <sup>-5</sup> cc/sec helium (inboard)
<b>MIN. ACTUATION PRESSURE</b>	50 psig @ 50 psig process

\*\* Internal volume in machined passages of the valve body between mounting surface and sealing diaphragm(s).

### Operating Temperatures

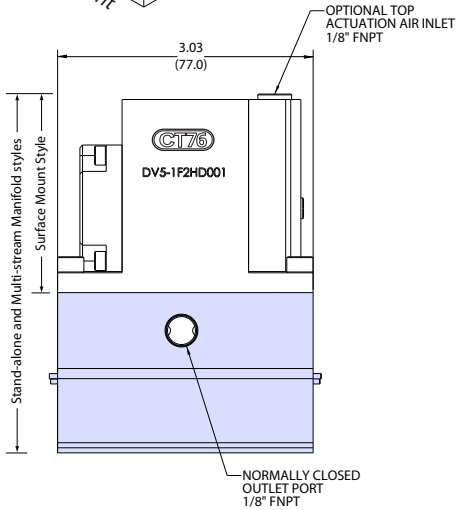
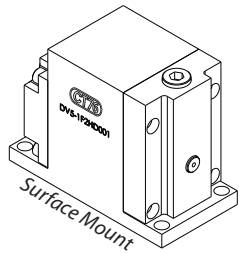
SEAT MATERIAL	TEMPERATURE	
PCTFE	-40° F to +212° F	-40° C to +100° C
PEEK™	0° F to +400° F	-18° C to +204° C

### Operating Pressures

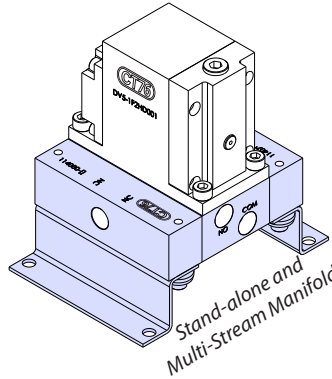
<b>OPERATING PRESSURE</b>	Vacuum (50 torr) to 500 psi (34 bar)
<b>PROOF PRESSURE</b>	2000 psig (138 barg)
<b>BURST PRESSURE</b>	8000 psig (552 barg)

## DIMENSIONS-ALL STYLES

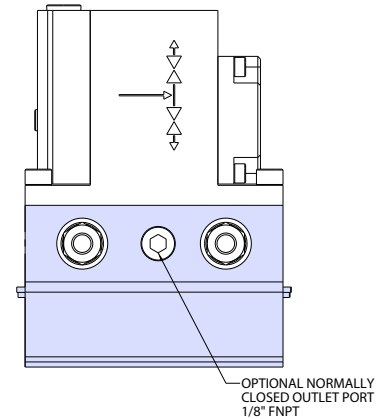
Dimensions are in inches (millimeters) for reference only and are subject to change.



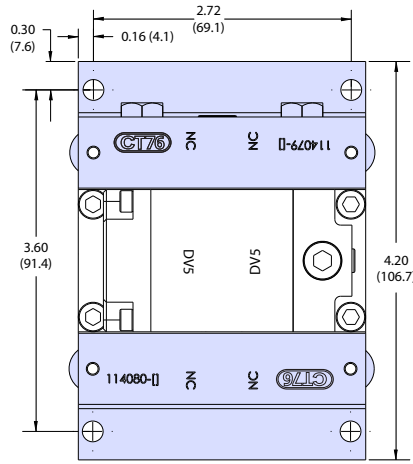
Front side view



Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.

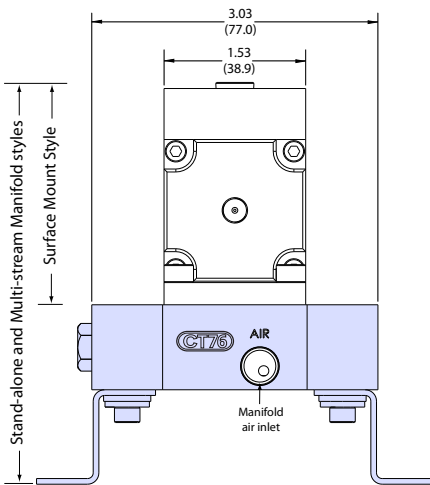


Back side view

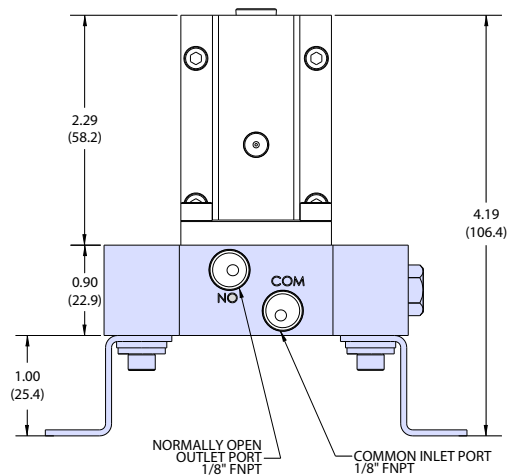


Top view

User can change from top air inlet to manifold air inlet by blocking top air inlet with 1/8" FNPT plug.



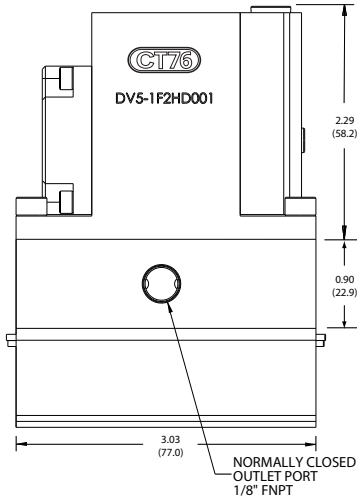
Left end view



Right end view

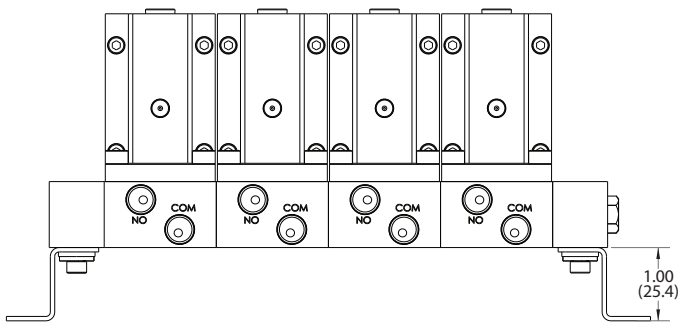
## DIMENSIONS- MULTI-STREAM MANIFOLD

Dimensions are in inches (millimeters) for reference only and are subject to change.

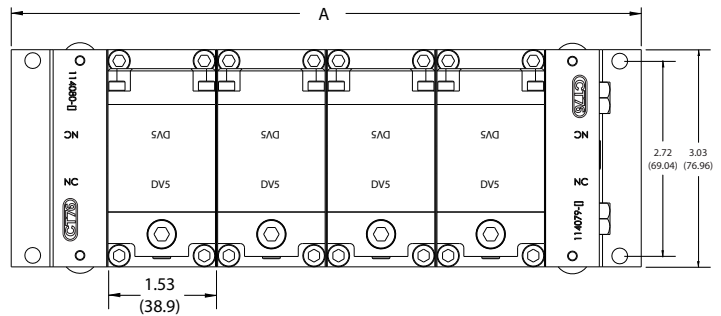


Front side view

NUMBER OF VALVES	A DIMENSION	
	INCHES	MM
1	3.60	91.4
2	5.13	134.6
3	6.66	169.2
4	8.19	208.0
5	9.72	246.9
6	11.25	285.8
7	12.78	324.6
8	14.31	363.5
9	15.84	402.3
10	17.37	441.2
11	18.90	480.1
12	20.43	518.9



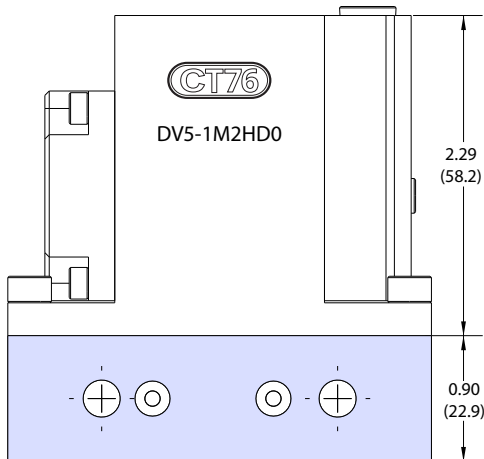
Right end view



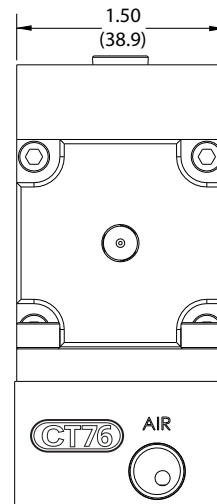
Top view

## DIMENSIONS - M2 EXPANSION MODULE

This module is a turn-key package for adding streams to the DV5. M2 Expansion Module includes one (1) surface mount valve, one (1) manifold baseplate, four (4) mounting screws, and seven (7) O-rings.

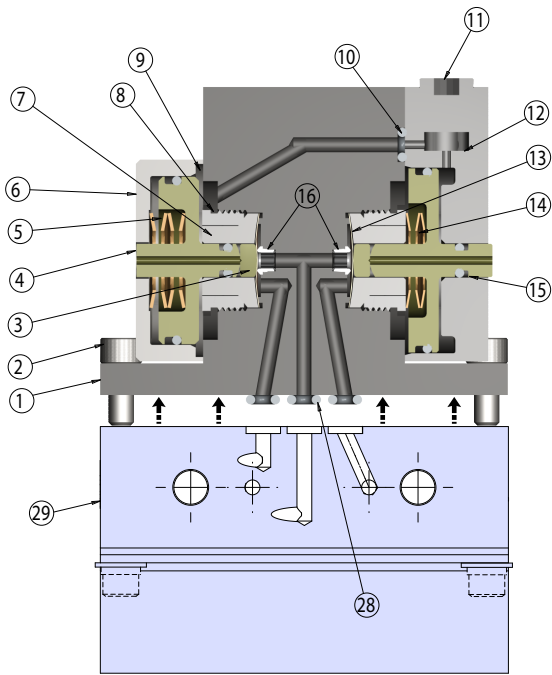


Front side view



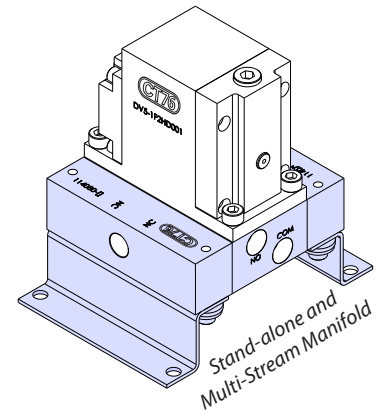
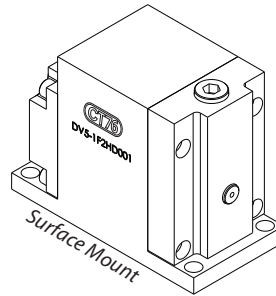
Left end view

# MATERIALS OF CONSTRUCTION-ALL STYLES



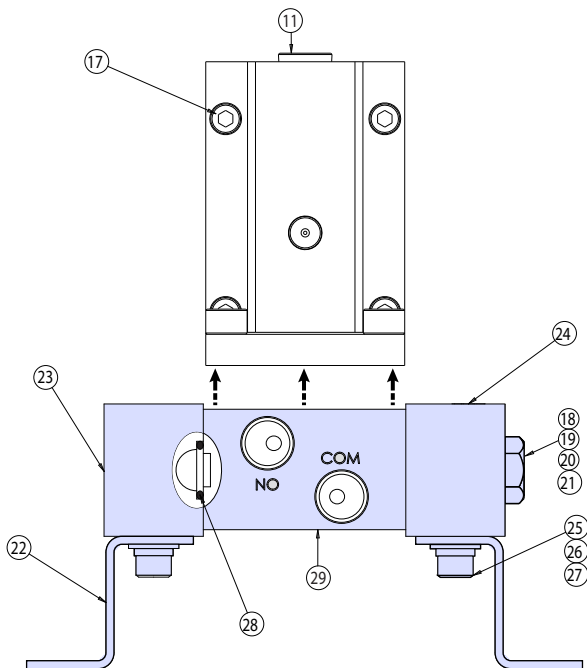
Front side view, sectioned

Shaded areas refer to parts and dimensions specific to stand-alone and Multi-stream manifold styles.



## All Styles – Valve Body

#	PART	MATERIALS
1	Body*	316L stainless steel, Monel® or Hastelloy® C-276
2	10-32 x .50 SHC screw	18-8 stainless steel
3	Thrust plug	Delrin® or PEEK™
4	N.C. piston	Delrin® or PEEK™
5	N.C. spring stack	18-8 stainless steel
6	N.C. cap	316L stainless steel
7	Compression collet	316L stainless steel
8	Retainer nut	316L stainless steel
9	O-ring	Viton®
10	O-ring	Viton®
11	Hex plug	316 stainless steel
12	N.O. Cap	316L stainless steel
13	Diaphragm*	Elgiloy®
14	N.O. spring stack	18-8 stainless steel
15	N.O. piston	Delrin® or PEEK™
16	Seat*	PCTFE or PEEK™
17	6-32 x .375 HSC Screw	18-8 Stainless steel



Right view

## Stand-Alone and Multi-Stream Manifold Styles

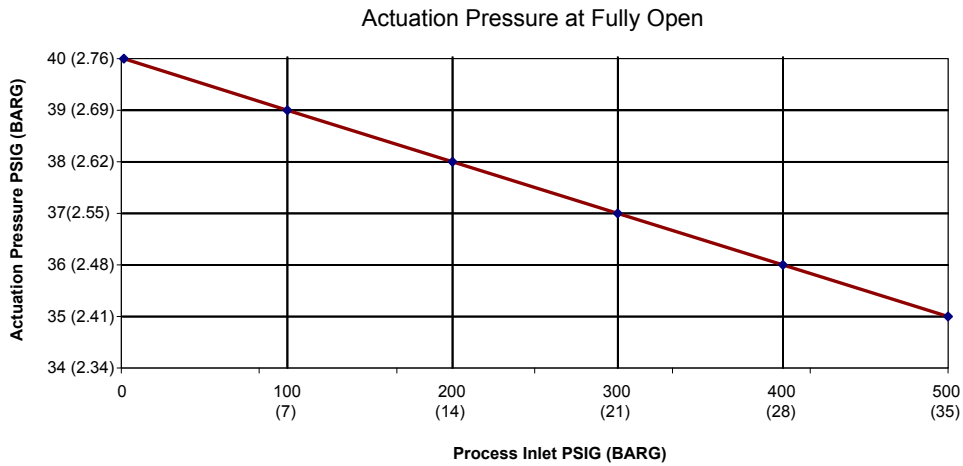
18	Threaded rod	18-8 stainless steel
19	.25" flat washer	301 stainless steel
20	.25" lock washer	18-8 stainless steel
21	Hex nut	18-8 stainless steel
22	Mounting bracket	316 stainless steel
23	Left end plate*	316L stainless steel, Monel® or Hastelloy® C-276
24	Right end plate*	316L stainless steel, Monel® or Hastelloy® C-276
25	8-32 SHCS screw	18-8 stainless steel
26	#8 flat washer	18-8 stainless steel
27	#8 lock washer	18-8 stainless steel
28	O-ring*	Viton® or Kalrez®
29	Manifold baseplate*	316L stainless steel, Monel® or Hastelloy® C-276

\* Wetted components

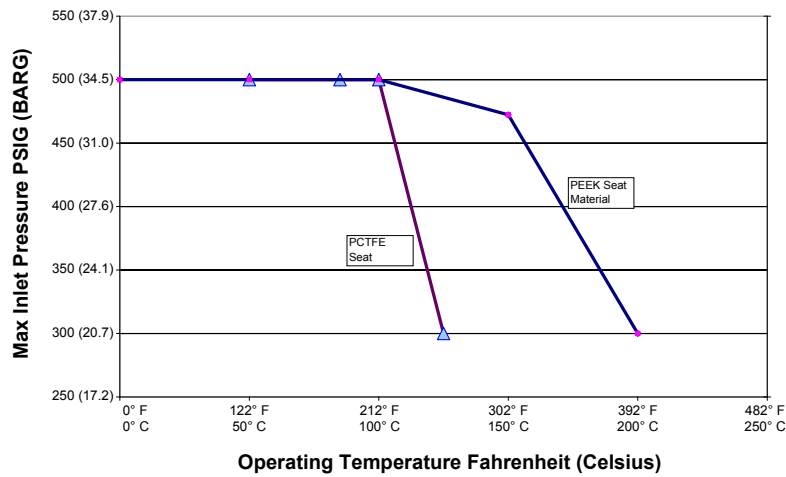
## DV5 SERIES

Dimensions are in inches (millimeters) for reference only and are subject to change.

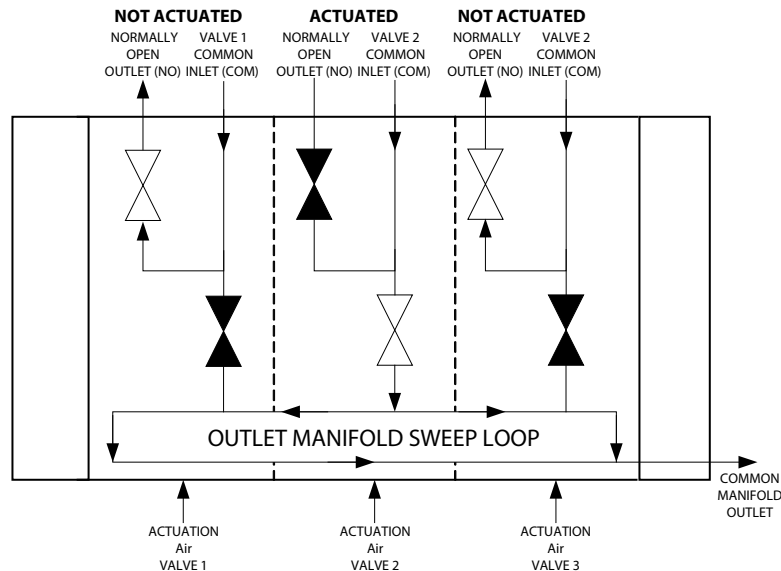
### ACTUATION PRESSURE CURVE



### PRESSURE TEMPERATURE CURVE



### TYPICAL FLOW SCHEMATIC FOR 3-VALVE STACK



## HOW TO ORDER

**STANDARD ITEMS IN BOLD.** Consult Customer Service for pricing and lead times for non-standard items. To order manifold components, see page 16.

Product Family	Material Designator	Process Connection Type	Seat Material	Process O-Ring Material	Surface Treatment	# of Streams	Description
DV5	-						3 - Way valve
	1						SST
	4						Monel
	6						Hastelloy
		00					Modular mount valve *1
		F2					1/8" FNPT process connection option
			H				Kel-F Seat
			Q				Peek Seat
				X			Surface mount valve
				D			Viton® o-rings
				K			Perfluoroelastomer (Kalrez®) o-rings
				F			PTFE o-rings *2
					0		Finish as processed
					1		Cleaned for O2
					5		Silco Steel coated
					9		Sulfinert coated
						01	1 Valve stack
						02	2 Valve stack
						03	3 Valve stack
						04	4 Valve stack
						05	5 Valve stack
						06	6 Valve stack
						07	7 Valve stack
						08	8 Valve stack
						09	9 Valve stack
						10	10 Valve stack
						11	11 Valve stack
						12	12 Valve stack

## PART NUMBER EXAMPLE CONFIGURATION

Part Number	Description
DV5-1F2HD001	3 stream DV5 stack with 1/8" FNPT process connection, Kel-F seats, and Viton process o-rings
DV5-100HX0	Surface mount DV5 valve with Kel-F seats, and Viton process o-rings
Note *1	The -100 part number designator is used to identify a surface mount valve. This valve will not contain the 1/8" FNPT connection or manifold. The only acceptable process o-ring selection for the -100 version of the DV5 valve is X.
Note *2	PTFE o-rings are available however over time they exhibit some element of cold flow under the pressure of sealing which can potentially lead to flow restrictions or envelope leakage. If PTFE o-rings are desired it is suggested by CT76 that the valves be placed on an o-ring replacement preventative maintenance program to help offset unplanned down time due to the sample valves.

# DV5 SERIES

## DV5 Manifold Parts

IMAGE	DESCRIPTION	PART NUMBER	MATERIAL
<p>NC COM NO AIR Top view</p>	Manifold baseplate with pins	CT114085-[]	-1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276
<p>Front side view</p>	Right end plate	CT114079-[]	-1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276
<p>Top view</p>	Left end plate	CT114080-[]	-1: 316L stainless steel -4: Monel® -6: Hastelloy® C-276
<p>A</p>	Threaded rod: • 2-module • 3-module • 4-module • 5-module • 6-module • 7-module • 8-module • 9-module • 10-module • 11-module • 12-module	G111609-2 (A = 4.42") G111609-3 (A = 5.92") G111609-4 (A = 7.42") G111609-5 (A = 8.92") G111609-6 (A = 10.42") G111609-7 (A = 11.92") G111609-8 (A = 13.42") G111609-9 (A = 14.92") G111609-10 (A = 16.42") G111609-11 (A = 17.92") G111609-12 (A = 19.42")	18-8 stainless steel
	Nut, 1/4"-28	G074208	18-8 stainless steel
	Flat washer	G098023	18-8 stainless steel
	Lock washer	G098014	18-8 stainless steel
	O-ring	58-006-[]	-50: Viton® -53: Kalrez®
	Mounting bracket	CT112609	316 stainless steel







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