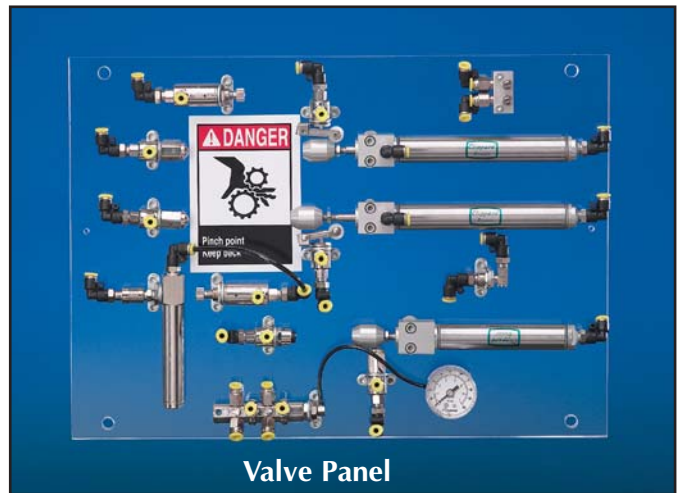


Cylinder Panel



Valve Panel

Clippard's Fluid Power Educational Kits are designed to help provide a practical understanding of the basic concepts of fluid power. They consist of many components, the same components used in industry today to provide control and work in thousands of different applications.

These kits are designed to work in conjunction with the Fluid Power Education Foundation's standard curriculum which may be downloaded at no charge at www.fpef.org.



Parts Kit

Order #EK-2 Educational Training Kit, Components Only

Includes:

- All Clippard Pneumatic components as illustrated on the following page
- Templates for use in making mounting boards for assembly of the components
- Parts in plastic storage box
- "Unit Study" Curriculum*

Order #EK-3 Educational Training Kit, Components Mounted on Acrylic Boards (as shown above)

Includes:

- All Clippard Pneumatic components as illustrated on the following page
- Parts in plastic storage box
- "Unit Study" Curriculum*

Order #CS-2690 "L" Mounting Bracket for EK-3

- For ease of use on a tabletop

Features

- Learn basic Fluid Power concepts and practice "real" applications
- Lessons may be tailored to individual expertise levels
- Design complex circuitry
- Push-Quick fittings allow for easy connections and disconnections
- Available pre-mounted on acrylic boards or by component only with mounting templates
- Boards may be wall-mounted or adapted to mount on a benchtop

* Curriculum produced by Fluid Power Education Foundation

An air supply of at least 40 psig must be provided (not to exceed 125 psig). These kits are equipped with two pressure regulators, both with a pressure range of 0 to 40 psig, but can operate with an input supply up to 125 psig.

Cylinder Kit Components

- 1 BFC-2AK, 2-Station Block Flow Control, Meter Out with Adjustable Knob
- 1 CS-2569, Pressure Gauge
- 3 CS-2570-2, Connectors
- 2 FDR-12-4, 3/4" Bore Double-Acting S/S Cylinders, 4" Stroke
- 1 FSR-12-2, 3/4" Bore Single-Acting, S/S Cylinder, 2" Stroke
- 1 MAF-1-ENP, Air Filter
- 1 MAN-12-ENP, 12-Port Manifold
- 2 MAR-1-4-ENP, Pressure Regulators, #10-32
- 6 MAV-3-ENP, Poppet Valves, #10-32
- 3 MBA-1-ENP, Ball Cam Actuators
- 1 MEV-2-ENP, Poppet Type Quick Exhaust Valve, #10-32
- 1 PC-1B-ENP, Captivated Push Button, 1/8" dia., Black
- 16 PQ-MC05N, Male Connector Push-Quick Fittings, 5/32" Tube, #10-32 Thread
- 13 PQ-ME05N, Male Elbow Push-Quick Fittings, 5/32" Tube, #10-32 Thread
- 6 PQ-ME05P, Male Elbow Push-Quick Fittings, 5/32" Tube, 1/8" NPT
- 1 SLV-3, 2-Position, 3-Way Sleeve Valve, #10-32
- 1 SP0-2-BLK, #10-32 to 1/16 ID "L" Slip-On Fitting
- 1 Miscellaneous Hose & Tubing
- 3 0107-33, Hex Nuts
- 1 0107-15-ENP, Nut
- 2 0107-18-ENP, Nuts
- 22 0026-51, Cap Screws
- 6 0026-52, Cap Screws
- 2 0026-53, Cap Screws
- 1 15027-ENP, #10-32 Bulkhead Fitting
- 1 15453, Male Coupling, #10-32
- 1 17535, Pinch Point Label
- 1 11750-2-ENP, #3-56 to 1/16" ID Hose Barb Fitting
- 6 11755-ENP, Screw Plugs, #10-32
- 19 11761-2, Buna-N Gaskets
- 11 11918-1, 90° Mounting Brackets
- 2 11925, Roller Cam Follower Actuators
- 1 CS-2568-2, Acrylic Mounting Board*

* Only included with Order No. EK-3



Valve Kit Components

- 1 BFC-2AK, 2-Station Block Flow Control, Meter Out with Adjustable Knob
- 1 CS-2569, Pressure Gauge
- 1 FV-5-ENP, Plunger-Actuated Spring Return Valve, #10-32
- 2 FV-5D-ENP, 2-Position Double Plunger Valves, #10-32
- 1 MAN-12-ENP, 12-Port Manifold
- 1 MAT-2.0-ENP, In-Line Volume Chamber
- 4 MAV-3-ENP, Poppet Valves, #10-32
- 1 MAVO-3-ENP, Normally-Open Spool Valve, #10-32
- 1 MJTV-5-ENP, 2-Position Spool Valve, Brass Toggle, 1/8" NPT
- 5 MPA-3-ENP, Single Acting, Spring Return Actuators, #10-32
- 2 MPA-5-ENP, Single-Acting, Spring Return Actuators, #10-32
- 1 MSV-1-ENP, Shuttle Valve, #10-32 Male Outlet, #10-32 Female Inlets
- 2 PC-1G-ENP, Captivated Push Buttons, 1/8" dia., Green
- 1 PC-1R-ENP, Captivated Push Button, 1/8" dia., Red
- 9 PQ-MC05N, Male Connector Push-Quick Fittings, 5/32" Tube, #10-32 Thread
- 30 PQ-ME05N, Male Elbow Push-Quick Fittings, 5/32" Tube, #10-32 Thread
- 3 PQ-ME05P, Male Elbow Push-Quick Fittings, 5/32" Tube, 1/8" NPT
- 1 PV-1-ENP, Pulse Valve, #10-32
- 1 SP0-2-BLK, #10-32 to 1/16 ID "L" Slip-On Fitting
- 1 TV-3SF-ENP, 2-Position Spool Valve, #10-32 Thread
- 1 Miscellaneous Hose & Tubing
- 1 0107-15-ENP, Nut
- 1 0107-18-ENP, Nut
- 4 0019-4, Screws
- 26 0026-51, Screws
- 1 15027-ENP, #10-32 Bulkhead Fitting
- 1 11750-2-ENP, #3-56 to 1/16" ID Hose Barb
- 31 11761-2, Buna-N Gaskets
- 15 11918-1, 90° Mounting Brackets
- 1 3822-1, Steel Clamp
- 1 CS-2567-2, Acrylic Mounting Board*

* Only included with Order No. EK-3



Length

To Convert		inch		To	millimeter		Multiply By	
		millimeter			inch		25.40	
in	mm	in	mm	in	mm	in	mm	
0.025	0.635	0.275	6.985	0.525	13.335	0.775	19.685	
0.050	1.270	0.300	7.620	0.550	13.970	0.800	20.320	
0.075	1.905	0.325	8.255	0.575	14.605	0.825	20.955	
0.100	2.540	0.350	8.890	0.600	15.240	0.850	21.590	
0.125	3.175	0.375	9.525	0.625	15.875	0.875	22.225	
0.150	3.810	0.400	10.160	0.650	16.510	0.900	22.860	
0.175	4.445	0.425	10.795	0.675	17.145	0.925	23.495	
0.200	5.080	0.450	11.430	0.700	17.780	0.950	24.130	
0.225	5.715	0.475	12.065	0.725	18.415	0.975	24.765	
0.250	6.350	0.500	12.700	0.750	19.050	1.000	25.400	

Flow

To Convert		cfm (cubic ft./min.)		To	L / min (liters/min.)		Multiply By	
		L / min (liters/min.)			cfm (cubic ft./min.)		28.317	
cfm	L / min	cfm	L / min	cfm	L / min	cfm	L / min	
0.5	14.159	5.5	155.744	10.5	297.334	16.0	453.07	
1.0	28.317	6.0	169.903	11.0	311.493	17.0	481.39	
1.5	42.476	6.5	184.062	11.5	325.652	18.0	509.71	
2.0	56.634	7.0	198.221	12.0	339.811	19.0	538.02	
2.5	70.793	7.5	212.380	12.5	353.970	20.0	566.34	
3.0	84.951	8.0	226.539	13.0	368.129	21.0	594.66	
3.5	99.110	8.5	240.698	13.5	382.288	22.0	622.97	
4.0	113.268	9.0	254.857	14.0	396.447	23.0	651.29	
4.5	127.427	9.5	269.016	14.5	410.606	24.0	679.61	
5.0	141.585	10.0	283.175	15.0	424.764	25.0	707.93	

Pressure

To Convert		psig (lbs./sq.inch)		To	bars		Multiply By	
		bars			psig (lbs./sq.inch)		0.06895	
psig	bars	psig	bar	psig	bars	psig	bars	
2.5	0.17	27.5	1.90	52.5	3.62	77.5	5.34	
5.0	0.34	30.0	2.07	55.0	3.79	80.0	5.52	
7.5	0.52	32.5	2.24	57.5	3.96	82.5	5.69	
10.0	0.69	35.0	2.41	60.0	4.14	85.0	5.86	
12.5	0.86	37.5	2.59	62.5	4.31	87.5	6.03	
15.0	1.03	40.0	2.76	65.0	4.48	90.0	6.21	
17.5	1.21	42.5	2.93	67.5	4.65	92.5	6.38	
20.0	1.38	45.0	3.10	70.0	4.83	95.0	6.55	
22.5	1.55	47.5	3.28	72.5	5.00	97.5	6.72	
25.0	1.72	50.0	3.45	75.0	5.17	100.0	6.90	



CONVERSION FACTORS

Force

To Convert		pounds (lbs.)	newtons (N)	To	pounds (lbs.)	newtons (N)	Multiply By	
							4.448	
lbs.	N	lbs.	N	lbs.	N	lbs.	N	
0.25	1.1	2.75	12.2	5.25	23.4	7.75	34.5	
0.50	2.2	3.00	13.3	5.50	24.5	8.00	35.6	
0.75	3.3	3.25	14.5	5.75	25.6	8.25	36.7	
1.00	4.4	3.50	15.6	6.00	26.7	8.50	37.8	
1.25	5.6	3.75	16.7	6.25	27.8	8.75	38.9	
1.50	6.7	4.00	17.8	6.50	28.9	9.00	40.0	
1.75	7.8	4.25	18.9	6.75	30.0	9.25	41.1	
2.00	8.9	4.50	20.0	7.00	31.1	9.50	42.3	
2.25	10.0	4.75	21.1	7.25	32.2	9.75	43.4	
2.50	11.1	5.00	22.2	7.50	33.4	10.00	44.5	

Temperature

To Convert		Fahrenheit (°F)	Celsius (°C)	To	Fahrenheit (°F)	Celsius (°C)	Multiply By	
							$(°F - 32) / 1.8$	
°F	°C	°F	°C	°F	°C	°F	°C	
5	-15.0	55	+12.8	105	+40.6	155	68.3	
10	-12.2	60	15.6	110	43.3	160	71.1	
15	-9.4	65	18.3	115	46.1	165	73.9	
20	-6.7	70	21.1	120	48.9	170	76.7	
25	-3.9	75	23.9	125	51.7	175	79.4	
30	-1.1	80	26.7	130	54.4	180	82.2	
35	+1.7	85	18.9	135	57.2	185	85.0	
40	+4.4	90	32.2	140	60.0	190	87.8	
45	+7.2	95	35.0	145	62.8	195	90.6	
50	+10.0	100	37.8	150	65.6	200	93.3	