

Pressure performance - All Eaton Components

With higher pressures it is critical to know the construction materials and manufacturing method to ensure performance. When all components in a system are

Eaton supplied, for example an Eaton hose fitting is mated with an Eaton adapter or tube fitting, the combination may be used at higher pressures with confidence.

These higher ratings are noted in the chart below.

Maximum dynamic working pressure of the hose or adapter assembly is the lesser of the hose and end connector(s) used.

All Eaton pressure ratings¹

Dash Size	Inch Size	SAE 37° JIC	Male Pipe	Female Pipe ²	Male ORB ORS Adapters	Male ORB Non-ORS Adapters	Adjustable ORB ORS Adapters	Adjustable ORB Non-ORS Adapters	ORB	Male Flareless Ermeto	Code 61	Code 62	STC
-2	1/8	-	10000	6000	-	5000	-	5000	-	5000	-	-	-
-3	3/16	-	-	-	9000	5000	6000	5000	-	5000	-	-	-
-4	1/4	7000	9500	5000	9000	5000	6000	4500	9000	4500	-	-	6000
-5	5/16	7000	-	-	9000	5000	6000	4500	-	4000	-	-	-
-6	3/8	5000	8000	4000	9000	5000	6000	4000	9000	4000	-	-	5000
-8	1/2	4000	6000	4000	9000	4500	6000	4000	9000	4000	5000	6000	4250
-10	5/8	3800	-	-	9000	3500	6000	3000	9000	3000	-	-	4000
-12	3/4	5000	5000	3500	6000	3500	6000	3000	6000	3000	5000	6000	4000
-14	7/8	-	-	-	6000	3000	6000	2500	-	2500	-	-	-
-16	1	5000	4000	3000	6000	3000	5000	2500	6000	2500	5000	6000	4000
-20	1 1/4	5000	3000	2000	4000	2500	4000	2000	4500	2000	4000	6000	-
-24	1 1/2	2100	2000	1500	4000	2500	3000	2000	4000	1500	3000	6000	-
-32	2	1750	2000	1500	3000	2000	2500	1500	3000	1125	3000	6000	-

1) These ratings are based on both brazed and one piece construction, one-piece pressures could be increased. Please contact Eaton in these situations.

2) This rating is for thin walled adapters or fittings, the use of manifolds or oversized female ports would allow full rated male pressures.

Dynamic operating pressure

Dynamic operating conditions refers to cyclic pressure impulses, usually considered to be from near zero to the highest system pressure. Hydraulic standards typically represent these as square waves and expect a component to handle on the order of 200,000 to well over one million such cycles with a burst: operating safety factor of 4:1. The above charts are created with dynamic applications in mind. Most industrial and mobile hydraulic systems fit the dynamic operating pressure profile, for example hydraulic work circuits on construction equipment or on injection molding equipment.

Static operating pressure

Static operating conditions typically range from zero to operating pressure, but with far fewer cycles expected for the system life – perhaps 30,000 to 50,000 cycles and sharp pressure spikes are not expected, allowing a burst: operating safety factor of 3:1 or less. For static operating conditions, the Eaton ratings above can be safely increased by 25-30%. For example, a 3000 psi dynamic rated hose might be used in a 4000 psi static pressure application. Typical examples of static applications are water blast and hydraulic jacking.

Materials

The above tables represent performance using common low carbon steel material. Other materials and their

characteristics influence these ratings. Medium carbon steels or heat treated materials can support higher working pressures. Conversely non-ferrous materials such as aluminum or brass will have reduced capability – as much as 50%, or less, pressure handling capability. It is important to consider material properties in designing a system to ensure pressure rating compatibility of all materials.

Design & application

Eaton's Fluid Conveyance engineering and support teams have many decades of experience in designing, manufacturing and servicing hydraulic and other fluid conveyance systems globally. Eaton's product line is designed as a comprehensive collection of hose, fittings,

connectors, couplings and accessories that allow a system designer to select components to complete a fluid power system or a service technician to replace a component with confidence. The individual product specifications, the above pressure ratings and other technical information are intended as supporting guidelines for system design and service needs and are not to be construed as a guarantee of performance of the system or of individual Eaton components. Eaton provides comprehensive technical support so please call with questions about pressure needs not covered by these charts or for specific application support.