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To: Field Application and Distribution

From: Norm Sellers, John Raditsas

Subject: Torque and pattern procedure for connecting MFCís

Date: 10.18.04

Purpose:

This procedure is to inform the Field of the pattern and torque values used to secure the MFCís to the three different kinds of architectures used in a K1 series modular gas panel. It is important that during reinstallation of an MFC the torgue pattern fig #2 is followed along with fig #3 and fig #4 correct fasteners and torgue specifications to avoid MFC leaks.

Authorization:

Technical Services Group

System Affected:

All MFCís connected to the K1 series modular gas panel.

Date Effective:

Immediately

Reference Documents:

SI3-0987 Rev .003

Tools:

Torque wrench with necessary screws.

Estimated Time Required:

2 min per MFC.

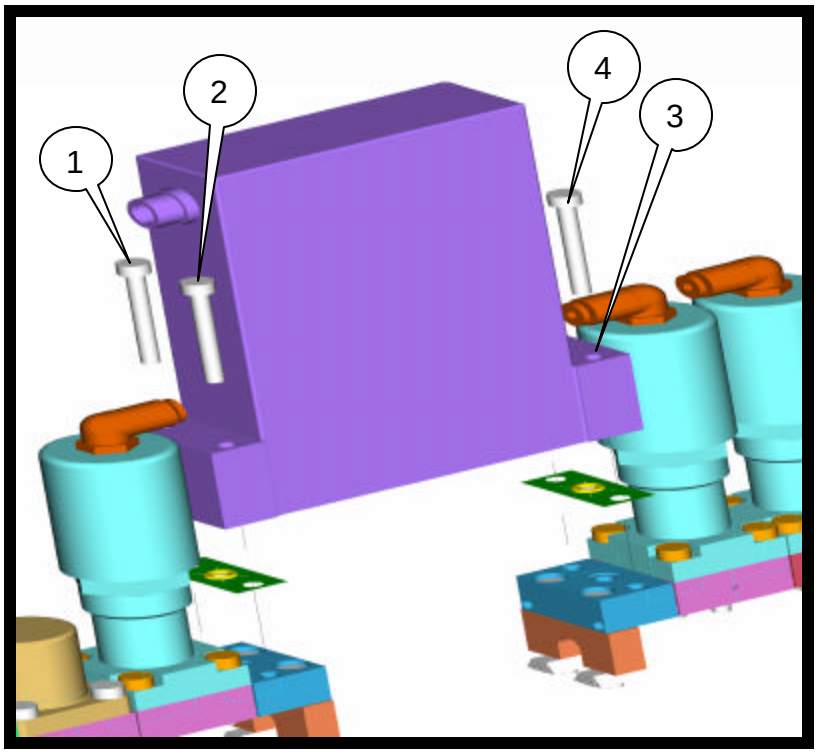


Fig #1

Typical MFC installed being installed on one of the K1 series substrates.

Notice the torque pattern and direction of tightening. See the table below.

This is the Torque square pattern that should be used when installing a MFC to one of the substrates.

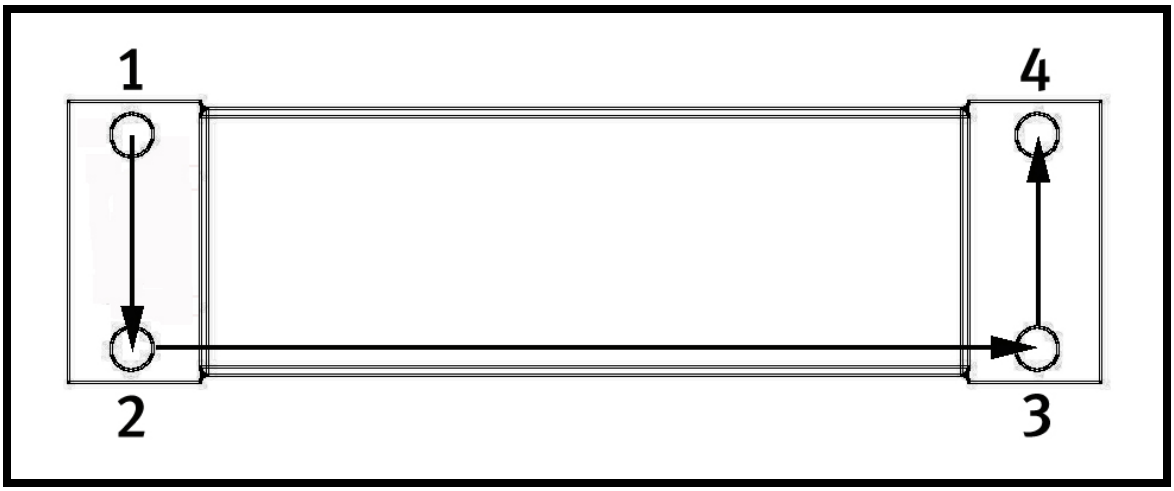


Fig #2 **TOP VIEW OF MFC**

These are the size of the fasteners use to secure the MFC's to the substrate.

K1 Series Fasteners

		Fastener Size		
Fastener ID	Connection	K1S	K1R2	K1H
#4	Unit MFC to Substrate	M4 x 34mm or M4 x 35mm	M5 x 30mm	M5 x 37mm

Fig #3

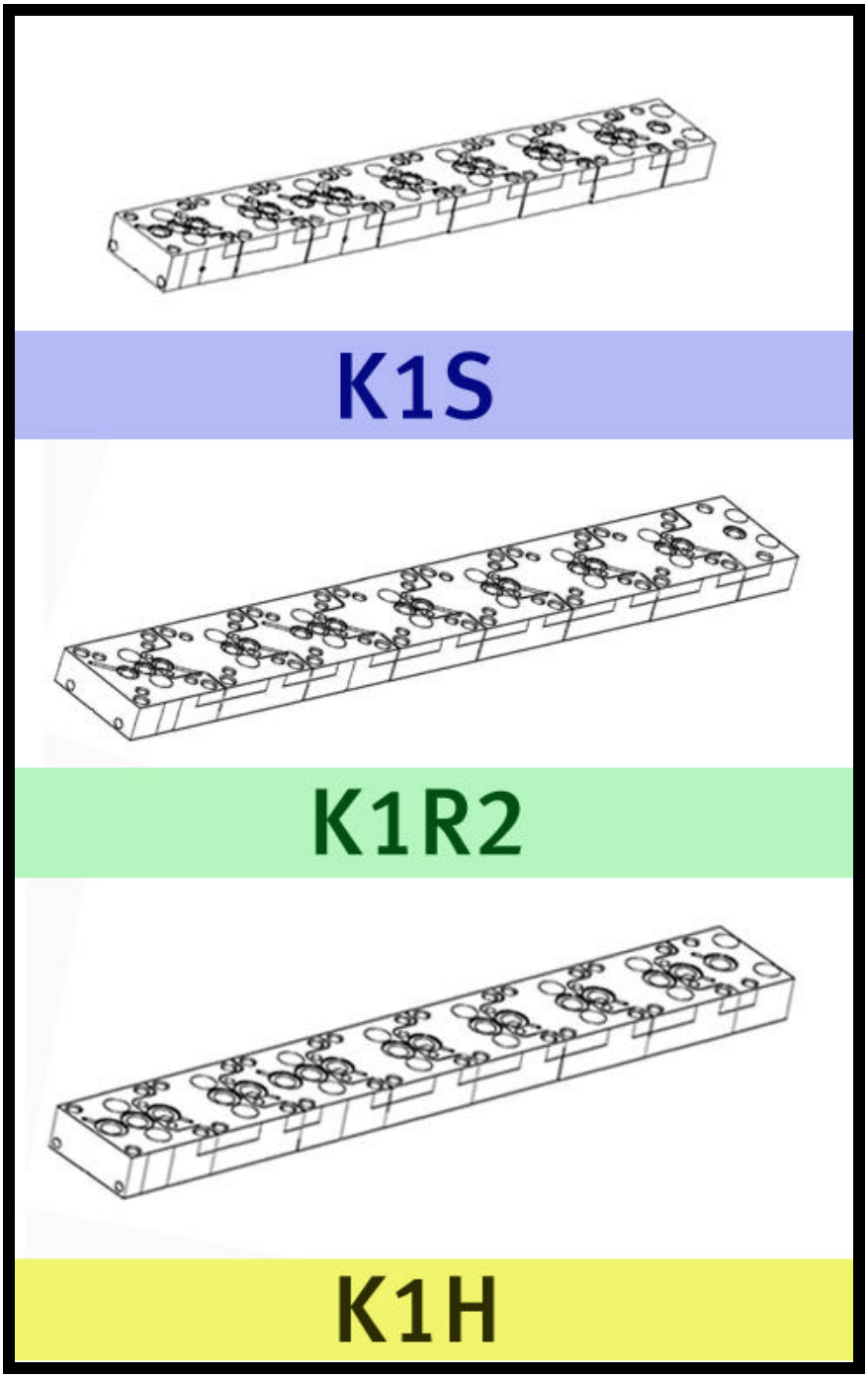
This is the Torque specification that must be followed to insure there are no leaks!

K1 Series Torque Table

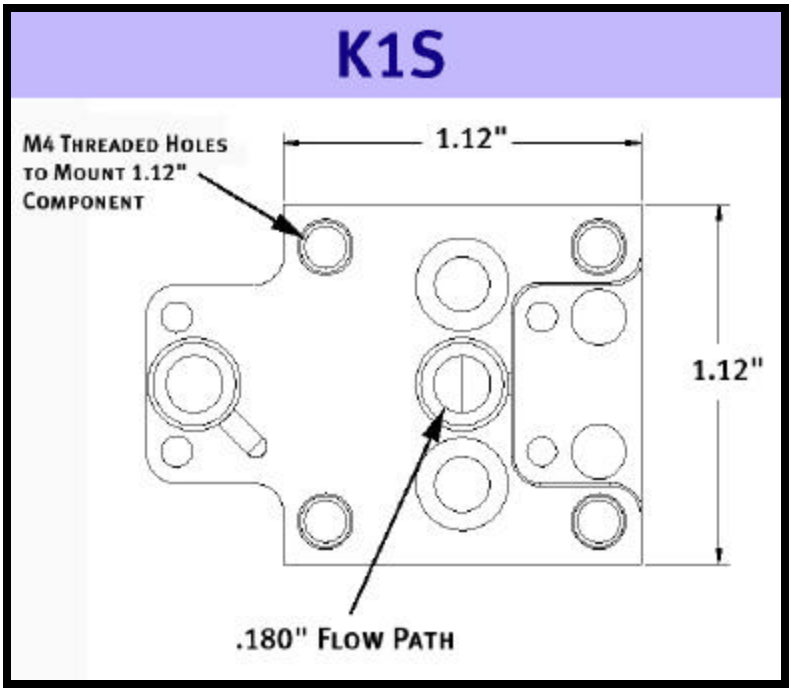
			Torque (inch-pounds)		
Fastener ID	Connection	Torque Pattern	K1S	K1R2	K1H
#4	Unit MFC to Substrate	Square Pattern. Start at 25 inch-lbs, and increase in increments of 10 inch-lbs.	45	45	65

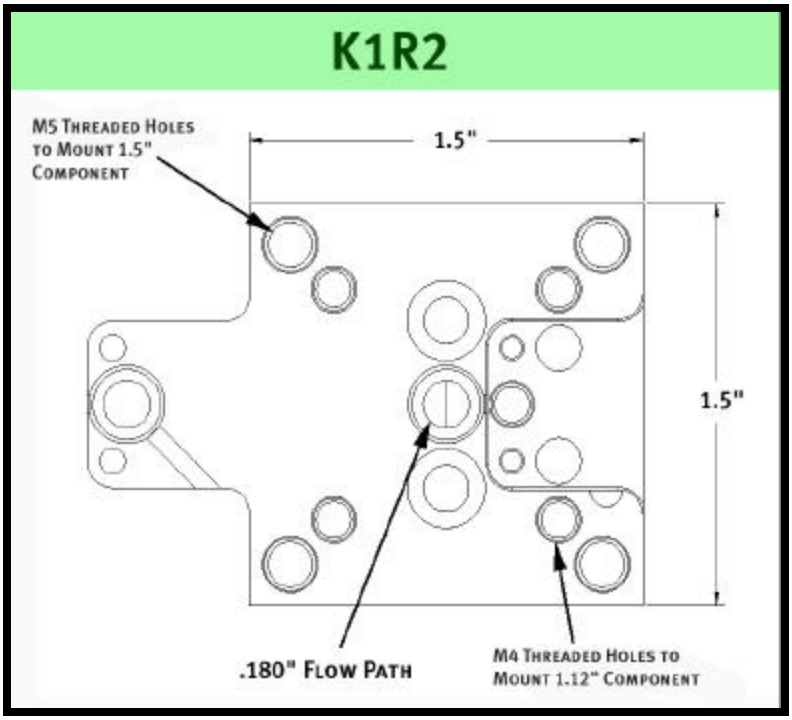
Fig #4

K1 Series: All 3 design architectures use the same concept of flow. Namely, the functionality of the flow path stays the same between the architectures. The torque pattern is extremely important when attaching the MFC's to the substrates to prevent leaks.

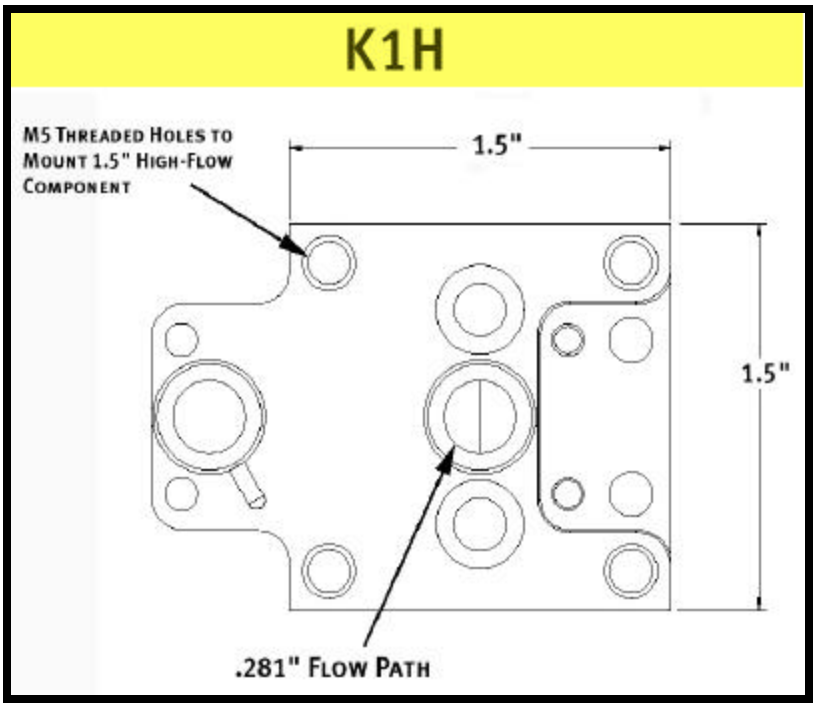


K1S: The “S” in K1S stands for “small”. K1S uses top mount components with a 1 1/8” square base. It can be used on standard applications below 50 SLM maximum flow rate.





K1R2: Designed to accommodate top mount components with a 1 1/8” square base or with a 1 ½” square base. It utilizes 2 sets of mounting holes to accept either type, based on customer request, and may use both sizes on the same panel. As with K1s, it can also be used on standard applications below 50 SLM maximum flow rate.



K1H: Designed to accommodate only high flow top mount components with a 1 ½" square base. K1H can be used for high-flow applications up to 200 slm.