



## Description

An Operator Monitor is set up with two regulators in series. The Upstream regulator is typically set up as a wide open monitor. The Monitor is set 20-30% above the set pressure of the downstream Operator, but it senses the pressure downstream of the operator. Under normal operating conditions the operator controls the pressure and the monitor is wide open. Should the operator not be able to regulate and close bubble tight under no flow conditions, the pressure would slowly rise to the set pressure of the monitor. At this point, the monitor would take over and begin to regulate, thus keeping the downstream piping from over-pressurizing.

## Installation Considerations

1. Pressure gauges should be installed on inlet, between the regulators, and on the outlet.
2. Sensing lines should be connected in straight unobstructed section of pipe at least 10 pipe diameters downstream from the regulators, with an additional 2-4 pipe diameters of straight pipe after the sensing line connections. If the pipe flares up after the regulators, then sensing lines should be installed in this larger diameter pipe.
3. Isolation Shutoff valves can be installed on the sensing lines but they must be FULL port and locked in the open position during normal operation to ensure they are never accidentally closed – this can cause regulator to go wide open.
4. Bleed valves can be added to the sensing lines to facilitate maintenance. They should be locked in the closed position and plugged. Bleed valves on sensing lines should only be used to remove pressure from the sensing line during maintenance not to adjust set pressure.
5. A Primary Bleed valve can be installed downstream of the set. This can be used to maintain flow while making adjustments.
6. A Token Relief Valve can be installed on the outlet side of the set to indicate monitor operation or full failure (depending on set point)
7. Relief valves should be piped at a height and location to avoid danger should a vaporizer ignite the propane vapor.
8. On Propane applications all piping up to operator should be schedule 80 because under normal operation the monitor is wide open and the piping between the two regulators sees high pressure.
9. The regulators and inlet piping should be installed such that they are above the tank liquid level to avoid the potential of liquid propane building up upstream or between the regulators.



**Note:** all adjustments should be made with gas flowing (either downstream equipment running or using the main bleed valve. If using a small bleed valve keep in mind that it may take some time to relieve the line pack).

Scope:

The purpose of this technical note is to inform customers of a currently unpublished offering in the P627/R627 product line. The option to build a unit with ductile iron housing and bonnet has been available as of July 2016. It was decided that this option would be denoted by the letter “D” in the 15th digit of the part number matrix. This option will be included in the next release of the P627/R627 literature.

Updated Matrix:

	6	2	7	X	X	X	X	X	X	X	X	X	X	1			
↑															↑	<b>Case/Body</b>	
															0	Aluminum/Iron	
↑															1	Steel/Steel	
<b>P</b>	Non Relieving														2	Aluminum/Steel	
<b>R</b>	Internal Relief Valve														6	Aluminum/LCC Steel	
																7	Steel/LCC Steel
																8	Steel/Iron
																9	Stainless/Stainless
																D	Iron/Iron



## P627/R627 Seat Material Selection Guidelines

Marsh Bellofram Engineering issues the following guidelines to clarify seat material selection in P627/R627 products. We are issuing the following guidelines to our distributors to help clarify situations when different seat material should be used.

- For high inlet pressures (> 500 PSIG) or for high flow rate/high gas velocity applications, a nylon seat is generally recommended. The nylon seat provides longer life and more durability in these applications than elastomer seat materials.
- For high outlet pressures (>150 PSIG), a nylon seat is recommended.
- For Spring Ranges 5-20 PSIG, 10-95 PSIG, and 15-40 PSIG; a nitrile seat or fluorocarbon seat must be used to ensure that the full output pressure range can be achieved for the maximum inlet pressure of each orifice size in the regulator lock up condition. This is regardless of orifice size.
- For outlet pressures as low as 15 PSIG; it is possible, in some applications, for the regulator to function in a lock up condition using a nylon seat for the full rated inlet pressure range of the orifice. This is generally the case for orifices sizes less than 3/16". Orifice sizes 1/4" and larger can be used if required, but may require a slight downstream flow through the regulator to achieve an output pressure as low as 15 PSIG.
- It is highly recommended for any application requiring the use of a nylon seat with an outlet pressure as low as 15 PSIG that the factory be contacted so that the application can be reviewed. Regulator and seat material performance will be dependent upon orifice size, inlet pressure, flow rate, and cycle rate of the application.
- The maximum inlet pressure ratings for all seat materials detailed in the Specifications Table and Flow Capacity Tables (below) must always be followed. Failure to follow these pressure limitations may result in damage to the seat material or may affect regulator performance.

		Spring Range		
		PSIG	BAR	
<b>020</b>		5 - 20	0.34 - 1.4	NOTE: Nitrile or FKM is recommended for 5-20, 15-40 and 10-95 PSIG. Nylon is recommended for pressures above 150 PSIG or low pressure 3/32" & 1/8" orifice.
<b>040</b>		15 - 40	1 - 2.8	
<b>080</b>		35 - 80	2.4 - 5.5	
<b>095</b>		10 - 95	0.7 - 6.6	
<b>150</b>		70 - 150	4.8 - 10.3	
<b>250</b>		140 - 250	9.7 - 17.2	
<b>500</b>		240 - 500	16.5 - 34.5	

		Seat Material	NOTE: Nitrile or FKM is recommended for 5-20, 15-40 and 10-95 PSIG. Nylon is recommended for pressures above 150 PSIG or low pressure 3/32" & 1/8" orifice.
<b>0</b>		Nitrile	
<b>1</b>		Nylon	
<b>2</b>		Fluorocarbon	

Maximum Inlet Body Pressure		
Nylon Seat	2000 PSIG	Steel / SS
	1000 PSIG	Ductile Iron
	1485 PSIG	Flanged Steel
Nitrile Seat	1000 PSIG	All Units
Fluorocarbon Seat	300 PSIG	All Units

