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1/14/2015

Maximum Regulator Sizing Velocities

When using the sizing program, we have changed the maximum velocities suggested for the at the outlet flange regulator of the sizing program, and have been changed to the following:

For outlet pressure less than or = 29 psi, V<= 1,312 ft. /s (400 m/s) MACH **1.29**

For outlet pressure 29 psi to 362 psi, Vmax = -14.78 * InletMin + 1,407.5 ft./s

Calculated depending on the inlet pressure

MACH 1.29 - .58

For outlet pressure 362 psi & above, V<=196 ft./s (60 m/s) **MACH .59**

There is no change in the regulator. PF just made further lab analysis tests and we came to the conclusion that, under the above indicated velocities there is no problem in the regulators operation or additional wear of components.

DOWNSTREAM PIPING

The following is the maximum recommended velocities in the downstream piping for optimum, pressure control.

VMAX = 92 FT. / SEC. IDEAL to MAX of 131 ft. / SEC. WHEN PRESSURE IS GREATER THAN 21.75 PSI

VMAX = 65 FT. / SEC. WHEN PRESSURE IS 7.5 TO 21.75 PSI

VMAX = 50 FT. / SEC. WHEN PRESSURE IS LESS THAN < 7.25 PSI

DOWNSTREAM PIPING FOR ON/OFF APPLICATIONS

DIVAL 600 / Norval regulators are classified as being fast acting type. In order to control the regulator properly an appropriately sized volume of gas is required in the downstream piping between the regulator and the burner so it can control the pressure swings caused by fast flow rate variations. The method to calculate the required volume is as follows:

V=Q/Pd(abs) * **1/500** **for Pd < 0.1 PSI**
V=Q/P(abs) * **1/1000** **for 7.25 < Pd > 72 PSI**

V= VELOCITY Q = VOLUME AT MAX. FLOW P = DOWNTREAM PRSSURE IN ABSOLUTE (+ ATMOSPHERIC PRESSURE)

LOCK UP CLASS % GAUGE

$$SZ = \frac{Q_{min,pu}}{Q_{max,pu}} \times 100$$

	Class of lock up pressure zone **SZ**
Dival 507/512	10
DIVAL 600	10
NORVAL	10
DIXI	5 for Pd< 58 PSI ; 2.5 for Pd >58 PSI
APERVAL	5 for Pd< 58 PSI ; 2.5 for Pd >58 PSI
REVAL	5 for Pd< 58 PSI ; 2.5 for Pd >58 PSI
DIVAL 160AP	10
APERFLUX	5 for Pd< 58 PSI r ; 2.5 for Pd >58 PSI
REFLUX	5 for Pd< 58 PSI ; 2.5 for Pd >58 PSI
DIXI AP	5 for Pd< 58 PSI ; 2.5 for Pd >58 PSI