Capacities and Pressure Drop

CAPACITIES — expressed in BTU/h (m³/h) — 0.64 sp gr gas

Model	Pipe Size	Pressure Drop @ 0.3" w.c. or (.7mb)	Range of Regulations		Individual Load	
			Main Burner	M.B. and Pilot	Fixed Orifice	Ball Check Devices
RV12	1/8" x 1/8"* 3/16"Lox x 3/16"Lox	14,800 (.42) 8,800 (.25)	30,000 (.85)	25,000 (.71) 15,000 (.43)	20,000 (.56) 20,000 (.56)	—
RV20	1/4" x 1/4" 3/8" x 3/8"*	30,000 (.85)	65,000 (1.84)	50,000 (1.4)	30,000 (.85)	—
RV20C	1/4" x 1/4" 3/8" x 3/8"	30,000 (.85)	75,000 (2.11)	50,000 (1.4)	15,000 (.42)	—
CV47 RV47	3/8" x 3/8" 1/2 x 1/2"*	55,000 (1.5) 60,000 (1.7)	125,000 (3.5)	90,000 (2.5)	40,000 (1.1)	125,000 (3.5)
CV47A & C RV47A & C	3/8" x 3/8" 1/2" x 1/2"	55,000 (1.5) 60,000 (1.7)	125,000 (3.5)	125,000 (3.5)	40,000 (1.1)	125,000 (3.5)
RV48	1/2" x 1/2" 3/4" x 3/4"	130,000 (3.7) 150,000 (4.2)	230,000 (6.5) 250,000 (7.1)	230,000 (6.5) 250,000 (7.1)	40,000 (1.1)	160,000 (4.5)
RV48C	1/2" x 1/2" 3/4" x 3/4"	130,000 (3.7) 150,000 (4.2)	400,000 (11.3)	275,000 Nat (7.8) 275,000 LP (3.1)	40,000 (1.1)	160,000 (4.5)

NOTE: Minimum main burner regulation capacity for all models (except "N") is 150 btu/h (.0042 m³/h).
* Available as loxit connection.

HOW TO CALCULATE PRESSURE DROP AT VARIOUS FLOW RATES FROM CAPACITY CHART:

FORMULA: $P2 = P1 \times (Q2/Q1)^2$

P2 = Pressure drop at desired flow rate.
P1 = Known pressure drop (in this case 0.3" w.c.)

Q2 = Desired flow rate.
Q1 = Known flow rate at 0.3" w.c. (see chart)

SELECTING A REGULATOR WITH SUFFICIENT CAPACITY:

A. Check Capacity Chart insuring regulator has ample range of regulation and individual load capacities (for use with pilot) for the application.

B. Know minimum encountered inlet pressure.
MINIMUM INLET PRESSURE MINUS "P2" MUST BE GREATER THAN DESIRED OUTLET PRESSURE.
Solve for "P2" using above formula.
EXAMPLE: 1/2"NPT regulator required for main burner and pilot.
Desired maximum flow rate = 150,000 btu/h.
Maximum individual load = 150,000 btu/h.

Minimum inlet pressure = 7.0" w.c.
Required outlet pressure = 5.0" w.c.

Using the Capacity Chart shows the RV48 is the only regulator satisfying the requirements in "A".
P2 = 0.3" w.c. x $(150,000/130,000)^2$ = 0.4" w.c.
7.0" w.c. — 0.4" w.c. = 6.6" w.c.
6.6" w.c. is greater than the required Po of 5.0" w.c.

THE RV48 (non "L" fixed orifice), VENTED OR W/12A04 BALL CHECK DEVICE, IS THE CORRECT REGULATOR FOR THIS APPLICATION.