CALCULATION OF PRESSURE REQUIREMENTS — PVC HOSE

It is important to be able to calculate the loss of line pressure sustained by the flow of water through PVC hose, from the pump to the applicator, in order to be able to determine the pressure requirements at the pump. Pressure loss is affected by a variety of factors: Rate of flow (GPM); restriction of fittings; diameter of the hose; relative "smoothness" of the hose tube; viscosity of the liquid; hose length. The table offered below, while approximate, is one method to calculate pressure loss. It also serves to illustrate the relationship between the *rate of flow,* the *inside diameter (ID)* of the hose and *pressure loss.*

EXAMPLE: We are using 300 feet of ½" dia. PVC hose. What pressure is required at the pump to deliver 10 GPM at 200 psi (with one set of fittings)?

Using the table below . . . we find that the pressure loss **per each fifty feet (50) is 40 psi.**

The approximate loss is . . . . .6 x 40 psi = 240 psi
We must also allow for pressure loss through the fittings. One rule of thumb is to *add* 10% to the calculated loss for *each set* of fittings in the line. So. .10% of 240 psi = 24 psi

TOTAL PRESSURE LOSS 264 psi

Add: Pressure Required at Gun 200 psi

PRESSURE REQUIRED AT PUMP 464 psi

RATE OF FLOW (IN GALLONS PER MINUTE)

PRESSURE LOSS IN PSI PER EACH 50 FEET, (WITHOUT COUPLINGS)

(Data Courtesy FMC CORPORATION)
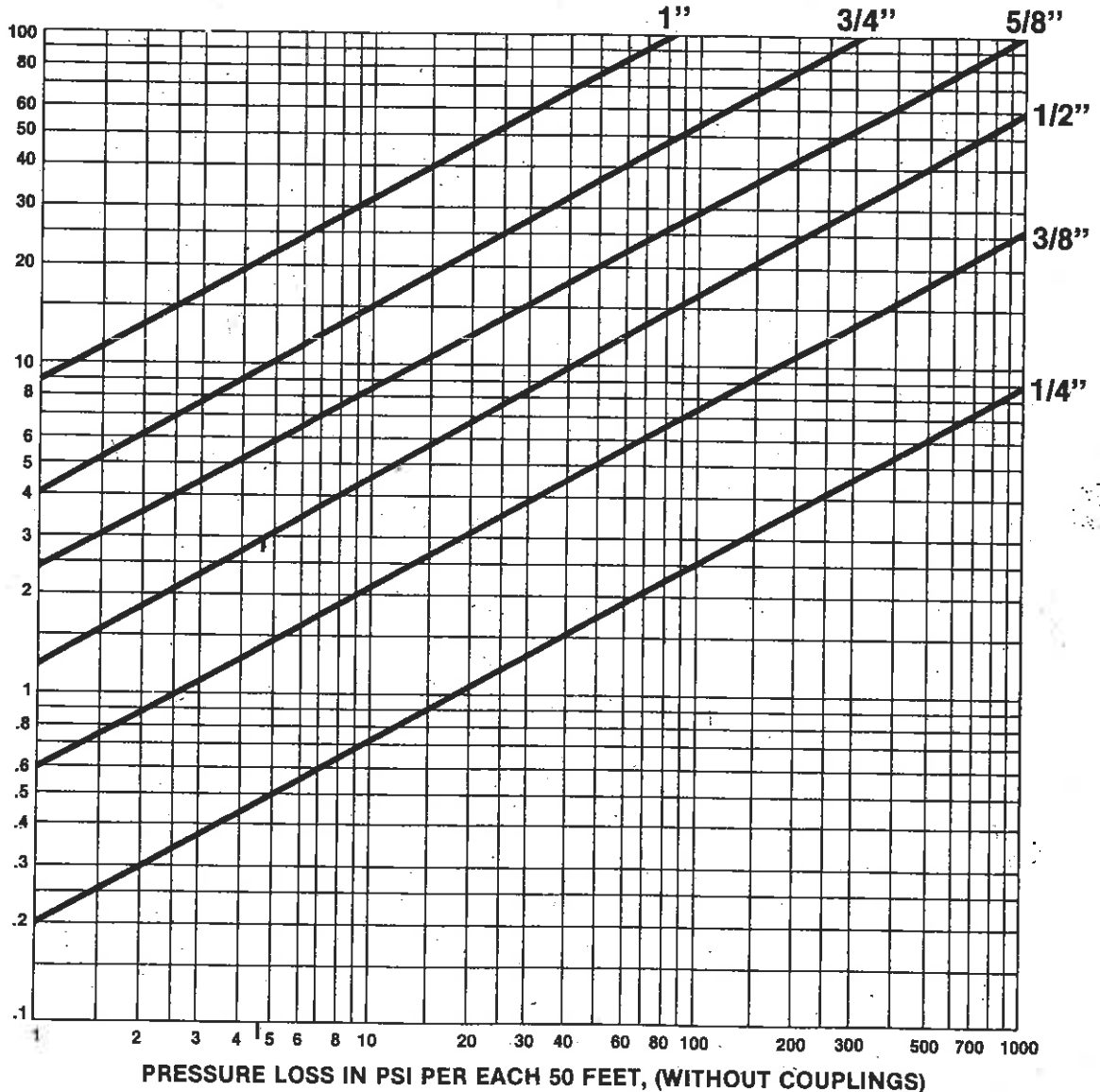
GREEN GARDE HIGH PRESSURE PVC SPRAY HOSE — BRAIDED NEON
(800 PSI WORKING PRESSURE — 3000 BURST)

Product Number	Description	Weight	Product Number	Description	Weight
BNG-24	1/4" (7.5mm) x 400 Feet	34 lbs.	BNG-44	1/2" (13mm) x 400 Feet	67 lbs.
BNG-33	3/8" (10mm) x 300 Feet	34 lbs.	BNG-46	1/2" (13mm) x 600 Feet	105 lbs.
BNG-34	3/8" (10mm) x 400 Feet	45 lbs.	BNG-54	5/8" (16mm) x 400 Feet	111 lbs.
BNG-36	3/8" (10mm) x 600 Feet	68 lbs.	BNG-63	3/4" (19mm) x 300 Feet	99 lbs.
BNG-43	1/2" (13mm) x 300 Feet	51 lbs.	BNG-64	3/4" (19mm) x 400 Feet	125 lbs.

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