

PT Coupling manufactures ProGrip coupling retention systems for attaching hose to fittings, either by externally crimping or internally expanding. The products range in sizes from ½" up to 8". Standard materials available are plated carbon steel and stainless steel. Other materials are available on request. The fittings produced cover a wide range of applications including sanitary, pharmaceutical, chemical, petroleum, industrial, and fire protection. Various types

of hose shank designs are utilized to maximize the performance of the different fittings and ferrule combinations. All of the different hose shanks are available with any type of connecting end. Ends available include male and female NPT Pipe, Victaulic® style groove, butt weld, socket weld, I-Line, Pacific Coast thread, tri-clamp and flanged.

## Maximum Allowable Working Pressure Ratings for ProGrip

(Pressure in PSI)

Fitting	1.0"	1.25"	1.5"	2.0"	2.5"	3.0"	4.0"	6.0"
All Pro-Grip bodies with mechanical interlocking ferrule except as listed below	600	600	600	600	600	600	500	400
Cam & Groove	250	250	250	250	200	200	150	75
Ansi 150# Flanges	285	285	285	285	285	285	285	285

The above pressure ratings are for the fitting itself. There are several factors that determine the pressure rating of a hose assembly. Some of which are hose pressure rating, method of hose attachment, quality of hose attachment, and external fastening devices such as Tri-Clamp and I-Line clamps, flange bolts, etc. **It is up to the hose assembler and the end user to assure that all components are applied properly and meet the required working pressure of the system.**

### Ferrule/Sleeve Crimp Diameter Calculation\*\*

Following is the calculation to determine the crimp diameter required for various hoses and end fittings. The following information must be measured or determined:

	Hose Assembly End	Example
Hose O.D.	_____	2.50
Hose I.D.	_____	2.00
Fitting Hose Shank Mean O.D.	_____	2.00
Ferrule/Sleeve Wall Thickness	_____	.065
Hose Wall Compression Required (%)**	_____	25%

\*This number is usually supplied by hose manufacturer and generally is from 20-25%

\*\*See [www.ptcoupling.com](http://www.ptcoupling.com) for MS Excel spreadsheet to assist with ProGrip O.D. Calculations.

### PT Coupling & ProGrip Mean Hose Shank O.D.

¾" - .075"	3" - 3.00"
1" - 1.00	4" - 4.00"
1¼" - 1.25"	5" - 5.00"
1½" - 1.25"	6" - 6.00"
2" - 2.00"	8" - 8.00"
2½" - 2.50"	

### Recommendations for Crimping Procedure

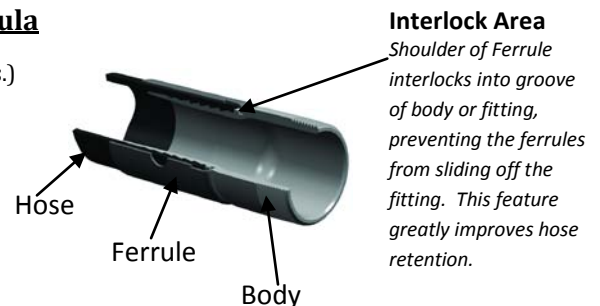
1. Squarely cut hose to desired length.
2. Remove all debris from hose I.D.
3. Bend grounding wire inside of hose with wire extending approximately ½" for conductivity if required.
4. Using a decimal based PI Tape or calipers measure the hose O.D. and input into formula.
5. Using calipers measure the hose I.D. and input into formula
6. Using calipers measure ferrule or sleeve thickness and input into formula.
7. Referring to chart below or by measuring with calipers input hose shank mean O.D. into formula.
8. Input desired hose wall compression of approximately 20% to 25% into formula to obtain crimp target diameter.
9. Slide sleeve or ferrule over hose.
10. Insert the coupling shank squarely into the hose to avoid hose damage.
11. Ferrules: slide ferrule over lock collar and make sure hose is approximately ¼" back from Ferrule inside shoulder to allow for hose expansion.
12. Sleeves: slide crimp sleeve into position and make sure the sleeve is located over shank serrations.
13. Having determined the crimp target O.D. – select proper die set and crimper setup.
14. Place hose assembly end into the die opening.
15. Jog dies making contact with the sleeve or ferrule. Verify sleeve or ferrule is properly positioned.
16. Crimp the sleeve or ferrule to target O.D.
17. Measure the crimped diameter to verify it reflects the determined target O.D.

### The crimp diameter can be determined using the following formula

$$\text{Crimp Diameter} = \text{Hose O.D.} - \text{Hose I.D.} + \text{Shank O.D.} + (2 \times \text{Ferrule Wall Thickness}) + [(- \text{Hose Comp.}) \times (\text{Hose O.D.} - \text{Hose I.D.}) / 100]$$

$$\text{Example: Crimp Diameter} = 2.50 - 2.00 + 2.00 + (2 \times .065) + [(- 25) \times (2.50 - 2.00) / 100] = 2.505$$

$$\text{Hose Assy. End Crimp Dia.} = \frac{\text{---} - \text{---} + \text{---} + (2 \times \text{---}) + [(- \text{---}) \times (\text{---} - \text{---}) / 100]}{\text{---}} = \text{---}$$



It is recommended that hydrostatic testing be done to hose assemblies to assure the above crimp diameters are sufficient for the intended application. Reference the NAHAD hose assembly guidelines for recommended testing procedures.