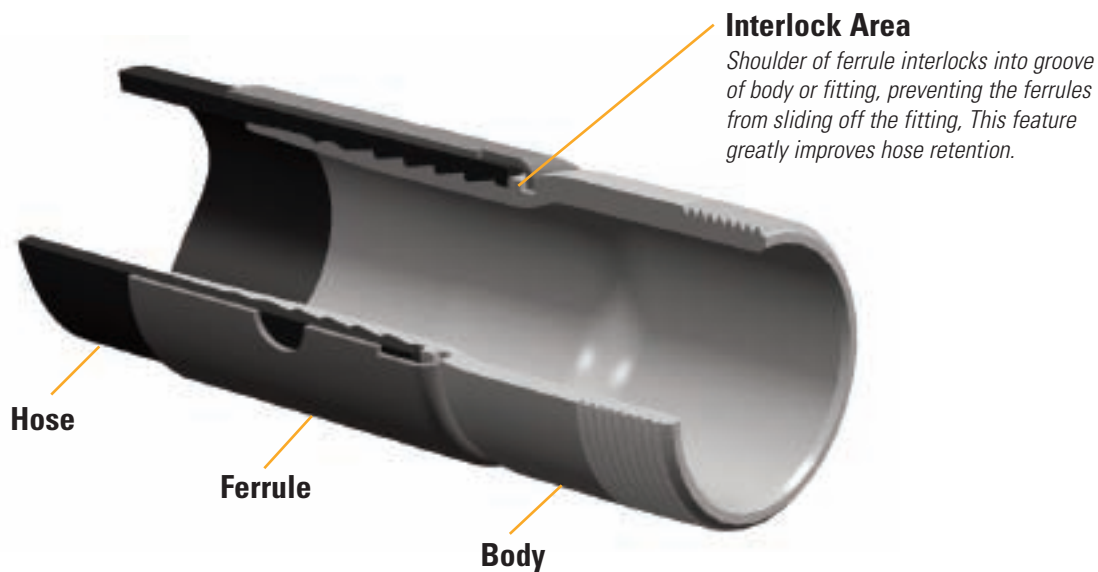# Ferrule/Sleeve Crimp Diameter Calculation

ProGrip Group of PT Coupling manufactures coupling retention systems for attaching hose to fittings either by externally crimping or internally expanding. The products range in sizes from 1/2 " 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.

Interlock Area
Shoulder of ferrule interlocks into groove of body or fitting, preventing the ferrules from sliding off the fitting, This feature greatly improves hose retention.

Hose

Ferrule

Body

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%.

From this information, the crimp diameter can be determined using the following formula:

Crimp Diameter = Hose O.D. - Hose I.D. + Shank O.D. + (2 x Ferrule Wall Thickness) + [(-Hose Comp) x (Hose O.D. - Hose I. D.) / 100]

Example: Crimp Diameter = 2.50 - 2.00 + 2.00 + (2 x .065) + [(-25) x (2.50 - 2.00) / 100] = 2.505

Hose Assembly End Crimp Diameter = _____ - _____ + _____ + (2 x _____) + [(_____) x (_____ - _____) / 100] = _____

Crimp procedures must be followed closely and safely by hose assembly personnel.

It is recommended that hydrostatic testing be done on hose assemblies to assure the above crimp diameters are sufficient for the intended application.