

Campbell Coupling Selection Guide

From the Selection Guide below, choose an appropriate coupling based on the hose type and application working pressure.

Hose construction will affect the working pressure of a hose system. The following chart outlines the maximum working pressure of each Campbell coupling based on the type and size of hose used and identifies the Campbell catalog section in which the coupling can be found.

			MAX. SYSTEM WORKING PRESSURE (PSI @ 70°F) SEE NOTE 1											
Hose System Components			Hose Size											
Fitting/Coupling	Attachment	Hose Type ²	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	
A	Combination Nipple	Short Sleeve	Rubber	400	350	300	275	250	225	210	200	175	150	100
	Combination Nipple	Short Sleeve	Chemical	200	200	200	140	130	120	110	100	50	-	-
	Combination Nipple	Short Sleeve	PVC	150	125	100	90	85	65	60	55	40	30	20
	Suction Coupling	Short Sleeve	Rubber	-	-	-	275	250	225	210	200	175	150	100
	Suction Coupling	Short Sleeve	PVC	-	-	-	90	85	65	60	55	40	30	20
	Ball & Socket Coupling ^{3,6}	Short Sleeve	Rubber	-	-	-	-	-	300 ³	-	250 ³	225 ³	140 ³	60 ³
	Ball & Socket Coupling ^{3,6}	Short Sleeve	PVC	-	-	-	-	170 ³	-	140 ³	100 ³	80 ³	50 ³	
B	Crimpnology Nipple	Ferrule	Chem/Rubber	-	-	500	350	325	300	275	250	250	225	-
	Crimpnology Nipple	Ferrule	Soft	-	-	200	175	150	150	125	100	75	-	-
	Long Crimpnology Nipple	Long Ferrule	Rubber	-	-	-	-	1000	1000	650	600	500	-	-
	Crimpnology Flange (Steel) ⁴	Ferrule	Chem/Rubber	-	-	-	-	285	285	275	250	250	225	-
	Crimpnology Flange (SS) ⁴	Ferrule	Chem/Rubber	-	-	-	-	230	230	230	230	230	-	-
C	Campbell COBRA Cam & Groove (SS) ⁵	Ferrule	Chem/Rubber	-	-	250	-	250	250	150	150	100	-	-
	Campbell COBRA Cam & Groove (Alum) ⁵	Ferrule	Chem/Rubber	-	-	-	-	250	200	150	125	75	-	-
D	Viton Ground Joint/Air Hammer Cplg	U-Bolt Clamp	Rubber/Steam	1500	1250	1250	1250	1250	1250	800	500	500	-	-
	Male Stem and Mender	U-Bolt Clamp	Rubber/Steam	1500	1250	1250	1250	1250	1250	800	500	500	-	-
	Viton Ground Joint Coupling	Staked Ferrule	Steam	1250	1250	1250	-	-	-	-	-	-	-	-
	Viton Ground Joint/Air Hammer Cplg	Long Ferrule	Rubber	1000	1000	1000	1000	1000	1000	650	400	400	-	-
	Male Stem	Long Ferrule	Rubber	1000	1000	1000	1000	1000	1000	650	400	400	-	-
	Male Stem	Staked Ferrule	Steam	1250	1250	1250	-	-	-	-	-	-	-	-
E	UniversaLock ⁶	Ferrule	Air	300	300	300	-	-	-	-	-	-	-	-
	UniversaLock ⁶	Bolt Clamp	Air	150	150	150	-	-	-	-	-	-	-	-
	Universal ⁶	Ferrule	Air	150	150	150	-	-	-	-	-	-	-	-
	Universal ⁶	Bolt Clamp	Air	150	150	150	-	-	-	-	-	-	-	-
	Single-Lock Coupling	Ferrule	Air	300	300	300	-	-	-	-	-	-	-	-
	Double-Lock Coupling	Ferrule	Air	300	300	300	-	-	-	-	-	-	-	-
F	ChemJoint/Male Stem	Ferrule	Chemical	350	400	450	325	250	250	225	225	200	-	-
	ChemJoint/Male Stem	Ferrule	Rubber	350	400	450	425	400	350	325	300	250	-	-
	ChemJoint Weld-On and Union	None	None	-	800	800	-	650	600	-	600	-	-	-

HOSE SYSTEM PRESSURE DERATING MULTIPLIERS FOR ELEVATED TEMPERATURES (°F)*										
Hose Type	70°	90°	150°	200°	250°	300°	350°	400°	450°	500°
Steam, Hot Tar, Asphalt	1.00	0.95	0.81	0.68	0.56	0.44	0.32	0.20	0.08	N/R
PVC	1.00	0.82	0.30	N/R	N/R	N/R	N/R	N/R	N/R	N/R
All other	1.00	0.91	0.64	0.42	0.20	N/R	N/R	N/R	N/R	N/R
No hose: weld-on or union	1.00	1.00	0.97	0.95	0.92	0.89	0.86	0.84	0.81	N/R

* System temperature is affected by both the media and the environment. N/R means NOT RECOMMENDED!

- For normal fluids (not hazardous, combustible, flammable, volatile, corrosive, ammonia or LPG). Individual testing should be employed for non-normal fluids to ensure capability. Pressures shown are only valid for the fitting/coupling/attachment and hose combinations indicated and for their threaded mating parts. System working pressure does not include end pull forces. Not for plastic fittings/couplings. All hose systems must be assembled using Campbell procedures and crimp specifications. See elevated temperature derating chart above. Consult factory for reduced temperatures. **Never exceed the working pressure of the lowest rated component in the hose system.** Maximum working pressure includes the highest pressure the system will experience, such as spikes, surges, and water hammer effects. (For example: If a system consists of a hose rated to 150 PSI and the couplings are rated to 500 PSI, the system should never be used in excess of 150 PSI.)

- Hose descriptions: **Air** - any smooth bore rubber air or water hose. Includes most general purpose hose; **Chemical** - any smooth bore rubber chemical hose, including plastic lined (PTFE, UHMW, XLPE). Does not include soft tube hose; **PVC** - any smooth bore PVC or vinyl hose; **Rubber** - any smooth bore rubber hose except steam, hot tar & asphalt, chemical, and soft tube hose; **Soft** - any smooth bore rubber hose with a thick, soft tube. Usually gum rubber and some food-grade hose; **Steam** - includes hot tar and asphalt

3) Ball & Socket pressure ratings are based on 1.5 x WP.

4) Due to limitations with flanges, consult factory for temperatures other than 70°F.

5) Campbell COBRA Cam & Groove Couplings are identified by the name "Campbell" on the body, by the ferrule interlock groove, and by the part number, which includes a "C" suffix. Not for air or gas service.

6) Maximum temperature 160°F.

Hose Assemblies vs. Hose Systems

A *hose assembly* is a collection of components using attachments, such as band clamps or bolt clamps.

A *hose system* uses Campbell's integrated-designed fittings, couplings, ferrules, sleeves, or U-bolt clamps and is assembled using Campbell crimping procedures and specifications. A hose system is repeatable, measurable, and performance rated.

All Campbell pressure ratings are verified by extensive hydrostatic burst testing with hoses to ASTM D380 standards. Test results for specific hoses can be provided upon request.

The Safety Factor

The RMA requires that hose working pressures include a safety factor commensurate with their intended application. Most hoses are required to meet a 4x safety factor, except the following: Water hose rated under 150 PSI requires a 3x safety factor; Steam hose requires a 10x safety factor; and Hose conveying gas in a liquid state requires a 5x safety factor. (For example: a 150 PSI rated air hose has a 4x safety factor and must be successfully tested to a minimum of 600 PSI.)

Campbell's fitting and coupling pressure ratings match the RMA safety factor requirements with most hoses. Due to the wide variety of industrial hoses, as well as variations in design, construction, and material, we cannot guarantee that our pressure ratings meet the safety factor requirement with every hose.

If you have any questions about pressure ratings, please contact Campbell Fittings.