



Tip 91: Temperature De-Rating

#DidYouKnow The effect of elevated temperature on any hose system is significant and often overlooked. The lay line of most hoses indicate the maximum WP and the maximum temperature, it can be assumed the hose assembly will achieve both at the same time. However, hot hoses get soft and are more pliable, hampering the ability of the attachment to hold the couplings securely on the hose. Most pressure ratings are established by testing at 70F, therefore, it's important to establish a separate pressure de-rating chart for elevated temperatures.

Elevated Temperature De-Rating Chart

Hose Type	70°	90°	150°	200°	250°	300°	350°	400°	450°	500°
Steam	1.00	0.95	0.81	0.68	0.56	0.44	0.32	0.20	0.08	N/R
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
Rubber	1.00	0.91	0.64	0.42	0.20	N/R	N/R	N/R	N/R	N/R
Chemical	1.00	0.91	0.64	0.42	0.20	N/R	N/R	N/R	N/R	N/R
Air	1.00	0.91	0.64	0.42	0.20	N/R	N/R	N/R	N/R	N/R
Soft	1.00	0.91	0.64	0.42	0.20	N/R	N/R	N/R	N/R	N/R

Rubber Hose Example:

1. **Hose** – 2” Air Hose, rated to 500 psi
2. **Coupling Attachment** – Long Shank Long Ferrule rated to 600 psi
3. **Operating Temperature** – 150°F
4. **De-rating factor** – .64
5. **Hose System de-rating** – 500 psi x .64 = 320 psi*

*After the de-rating is calculated for the hose and fitting attachment, check maximum working pressure of the system. The hose system should never operate at a higher pressure than the lowest rated component. In the example above, the 500 psi rated hose is de-rated to 320 PSI. The 600 psi rated coupling at 90°(F) would have a newly calculated pressure rating of 384 psi (600 psi x .91). This means the maximum working pressure of the system would be 320 psi.

Continental recommends contacting a fitting manufacture for further information on Temperature De-Rating, proper fitting recommendation and coupling procedure.