

Overview

Shown below are the ten most common misapplications found on industrial hose assemblies.
NOTE: Images are provided by Dixon Valve and Coupling Co.



Incorrect - Wing style (Chicago) hose coupling



Correct - Interlocking insert hose coupling

1. Using the wrong hose end for the application

Complaint: Assembly is in service for only a short time before it begins to leak.

Hose: 1" steam hose

Couplings: Claw (Chicago) style hose ends with interlocking clamps

Solution: Because of the rubber seals, claw-style hose ends are not rated for steam service. Interlocking (Boss) style couplings should be used for steam service.



Incorrect - Combination nipple with band clamp



Correct - Interlocking insert hose coupling

2. Using the wrong hose end and clamp for the application

Complaint: Coupling blows off after a short time in service.

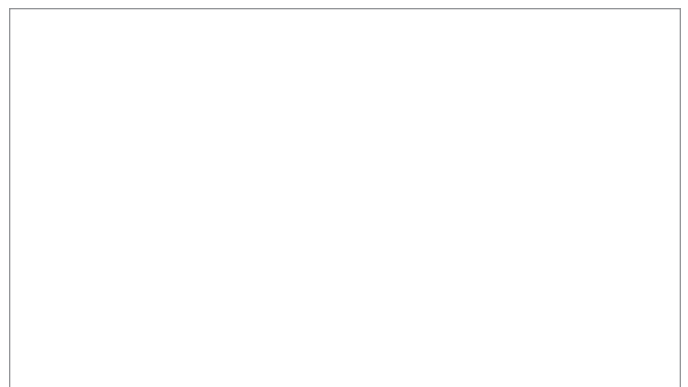
Hose: 1" steam hose

Couplings: Combination nipple with band clamp

Solution: Due to temperature fluctuations in steam service that cause rubber to expand and contract, it is necessary to use a clamp that will hold on to the insert. Interlocking (Boss) style couplings and interlocking clamps should be used for steam service.

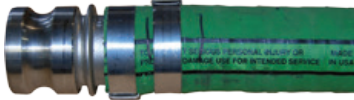


Correct - Interlocking clamp





Incorrect – Band saddles are aligned



Correct – Band saddles are spaced 180° apart

3. Band saddles are aligned

Complaint: There is a spray leak at the fitting when the line is pressurized.

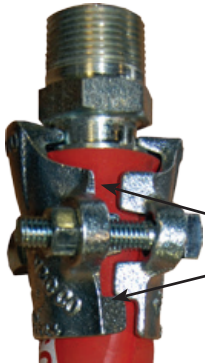
Hose: 2" chemical hose

Couplings: Cam and groove fittings with stainless steel band clamps

Solution: When band clamps are assembled, there is a potential for a pinch point between the hose and coupling, allowing fluid to escape. When installing multiple band clamps, each clamp band saddle should be rotated 180° to eliminate the possibility of fluid escaping.



Incorrect – Wing style (Chicago) hose coupling



4. Clamp life is exceeded

Complaint: There is a leak at the coupling when the valve is opened.

Hose: 1" steam hose

Couplings: Interlocking insert with interlocking clamp

Solution: Although inserts can be reused, the clamps should NOT be reused. After an interlocking clamp is first installed, the clamp deforms, conforming to the profile of the hose. The spacing between the teeth should be uniform. If the gap is uneven, leakage and assembly failure may occur.

Incorrect – Spacing between teeth should be uniform and the teeth should never touch. If the teeth are touching, a smaller clamp may be needed.



Incorrect – Band saddles are aligned



Correct – Male and female threaded connections

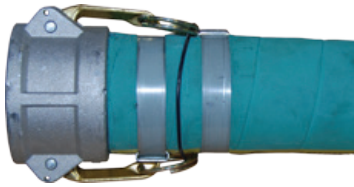
5. Wrong clamp and coupling are used

Complaint: The repair leaks as soon as the pump is turned on.

Hose: 1/2" hydraulic hose

Couplings: Hose mender with worm drive hose clamps

Solution: Due to the pressure in hydraulic applications it is necessary to use a crimp-style fitting with a threaded connection. Hydraulic systems operate at a much higher pressure rating than the recommended working pressure of worm drive hose clamps.



Incorrect – Wire holding locking arms in place



Incorrect – Wire holding locking arms in place

6. Improper securement of locking arms

Complaint: The locking arms vibrate loose when the pump is running.

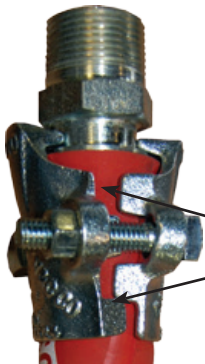
Hose: 2" tank truck hose

Couplings: Cam and groove couplings with two stainless steel band clamps

Solution: Every female cam and groove coupling comes supplied with cotter pins. These should be installed in the hole above the handle swivel to ensure handles do not vibrate open. If the assembly is frequently being opened, a cam and groove coupling with self-locking arms should be used for convenience.



Incorrect – Wing style (Chicago) hose coupling



7. Wrong clamp size is used

Complaint: After a short period of use the clamp bottoms out and begins to leak.

Hose: 1" steam hose

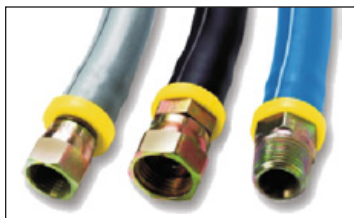
Couplings: Interlocking insert with interlocking clamp

Solution: After an interlocking clamp is first installed, the clamp deforms, conforming to the profile of the hose. Throughout the service of the assembly, the clamp needs to be re-tightened. If the teeth begin to touch, the clamp needs to be removed and replaced with a smaller one.

Incorrect – Spacing between teeth should be uniform and the teeth should never touch. If the teeth are touching, a smaller clamp may be needed.



Incorrect – Push-on hose and fittings used with worm drive hose clamps



Correct – Push-on hose fittings used with push-on hose

8. Push-on hose and fittings are used with worm drive hose clamps

Complaint: The hose leaks after a short service time, even with premium air hose.

Hose: 3/8" premium push-on air hose

Couplings: Push-on barb with worm drive hose clamp

Solution: When using push-on hose barb fittings, a hose clamp is not required. The hose clamp will actually force the barbs on the fitting to cut through the hose and cause failure. When using a matched assembly, a hose clamp is not needed. Also, a push-on hose barb should not be used with standard shop hose as it will cause the same failures.



Incorrect – Standard 3/4" pipe nipple with worm gear hose clamp



Correct – Barbs on a barb fitting will allow resistance and prevent fitting from slipping out of hose while in service.

9. The incorrect hose end is used

Complaint: The hose frequently comes off the coupler when in use.

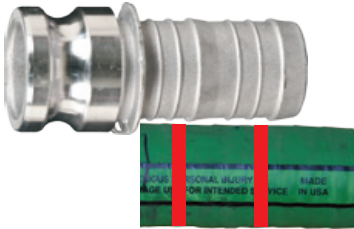
Hose: 3/4" air hose

Couplings: Standard 3/4" pipe nipple with worm gear hose clamp

Solution: Because there are no barbs on pipe nipples there is nothing for the coupling to grab the hose with. The use of a barb fitting is recommended to ensure the fitting does not come off during service.



Incorrect – Clamps are placed too far away from reference marks



Correct – Clamps should be placed directly next to the reference marks to ensure they rest at the widest point of the barb.

10. Clamps are placed on the wrong side of the barb reference mark

Complaint: The fitting starts to move after the assembly is pressurized.

Hose: 2" chemical hose

Couplings: Cam and groove coupling with two stainless steel band clamps

Solution: When laying out the reference lines on the hose, the marks should be placed even with the widest part of the barb on the fitting stem. The clamps should then be placed next to these marks. This ensures the clamps rest at the low point next to the barb and prevent the stem from coming out when the system is pressurized.