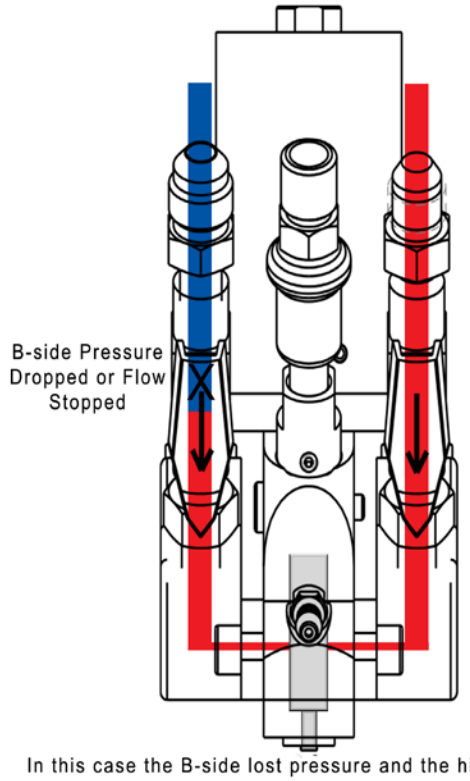
# Cross-over

Understanding material cross-over in plural component spray systems and guns.

All plural component 1/1 proportioners have the same basic function regardless of the differences in brand, drive method or type of material being sprayed.

Supply material, both A and B products, are fed to the proportioner via a supply pump system or a gravity feed set up. A pump (or gravity), supply filter, ball valve, feed hose and monitoring gauges are found in the supply system. Feed pressures are 100-300 psi depending on the set up.

The proportioner heats up and evenly pressurizes the two materials then sends them down line to the gun. In normal operation, two high pressured materials come together at the mixing chamber in the gun at even pressures. A cross-over occurs when pressure from one side of the system stops allowing the opposing component material to “cross-over” through the mixing chamber when the trigger is being pulled. The crossed material will contaminate various components with hardened material.




In this case the B-side lost pressure and the higher A-side material pressure over took/crossed over to the B-side.

Spray guns are fitted with check balls and springs generally found next to the gun filter screens. The job of the check ball, seat and spring is to stop the back flow of material when pressure is lost on one side or the other. In a cross-over situation the opposing material will cross-over into the side block and should be stopped by the check ball if everything is working properly.

If the check ball, spring and seat are not functioning or missing there is a potential for the cross-over material to be forced up the main spray hose and back to the machine. A severe cross-over can contaminate the gun,

ball valve/manifold, whip, TSU, main spray hose and even the machine depending on how bad it is.

The air inlet to the gun also contains a check ball, spring and seat. They are in place to protect the air line from contamination much like the material check balls but the cause would most likely be a seal failure in the gun instead of a cross-over caused by the loss of material pressure on either the A or B sides of the system.

Loss of material pressure on one side is generally what causes cross-overs. Common causes are; running out of material on one side, supply pump failure, loss of air pressure, feed valve closed, plugged supply screen, proportioning pump failure, blown hose, gun problems or a combination of things. They can also be very expensive depending on how far it went and the extent of the damage.

Cross-overs will happen and the check balls, springs and seats are your cross-over protection. Make sure they are in place; inspect and replace as needed to protect your system from a costly cross-over.

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