

# Early Return Run Cleaning is the Key to Effective Forming Fabric Conditioning

By Roy Jones

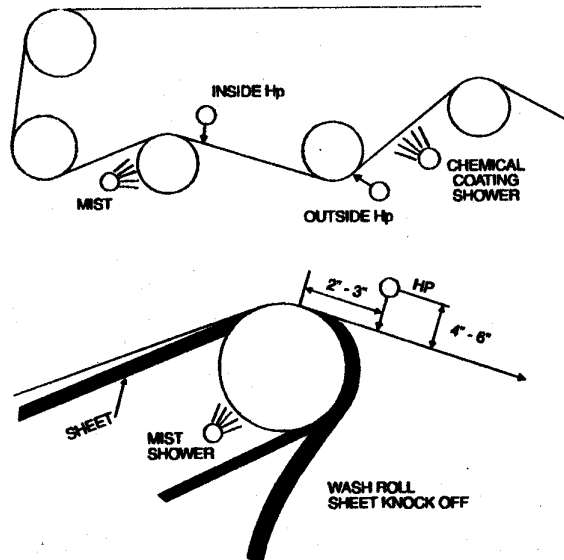
**H**igh pressure cleaning of forming fabrics is best done as early as possible on the return run before contamination can be pressed into the fabric by return rolls or retransferred from fabric to roll to fabric. Optimum cleaning locations and shower details are discussed.

## Type of Showers

Modern cleaning showers have the approximately 40/1000" nozzles mounted on double overlap oscillation (4"-6" centers on 8"-12" oscillation stroke). The distance from the fabric surface is 4"-6" for maximum impact. A critical element is a modern oscillator, preferably electro-mechanical, with a variable stroke. The ultimate is to have this adjustable, to move one nozzle diameter every fabric revolution.

Preferably, machines should be equipped with both an inside and an outside high pressure cleaning shower.

## CASE 1: Wash Roll Knockoff – First Return Roll Outside



**Detail 1:** HP shower perpendicular to the fabric run, 2"-3" after the fabric leaves the roll.

Note that the preferred knockoff technique of allowing the sheet to pass over the wash roll and be doctored off by the doctor in the 6 o'clock position is shown in this illustration. The low volume mist shower on the ingoing side of the wash roll ensures the sheet sticks to the roll surface.

Any contamination knocked through the fabric by the high pressure shower in this location will be transferred to the wash roll and removed by the doctor. Many installations exist where the inside high pressure shower is located on the ingoing side of an outside roll. This is very ineffective since contamination debris that is pushed to and remains in the sheet side fabric surface is re-squashed back into fabric with the following roll.

However, if only one shower is available, an inside shower is preferable for single-layer fabrics while an outside shower is more effective for multi-layers. This is especially true for the non-straight-through draining type of fabric where penetration of an inside shower to the contaminated sheet side surface is not effective. Outside showers work better in chiseling the contaminants from the surface and are the only effective cleaning shower for non-straight-through draining, zero projected open area, multi-layer fabrics.

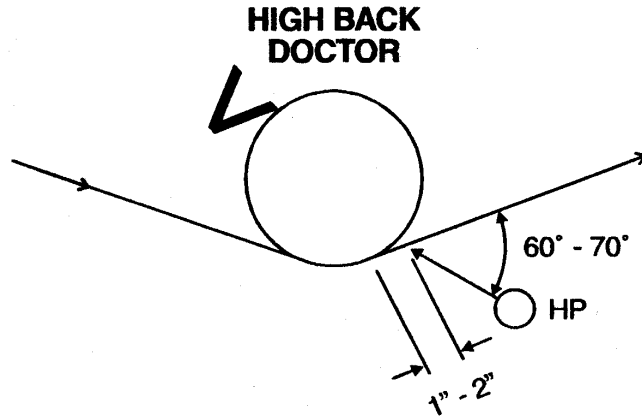
## Location of Showers

The key to effective continuous cleaning of fabrics is to clean as early as possible on the return run before sheet side contaminants are transferred and accumulated on return rolls.

A suggested ideal arrangement is outlined below for machines with different return roll configurations.

Operating pressure off the high pressure shower can be 600 psi or higher since the larger bottom yarn can resist this abrasive force. Some machines have used up to 1000 psi if it becomes a question of cleaning the fabric or removing it because of contamination.

Detail 2:



Detail 2: HP shower 60-70 degrees into fabric run, impacting 1"-2" after the fabric leaves the roll.

Angling the high pressure shower chisels off the surface contaminants but if any are pushed through the fabric, they are transferred to the roll surface and later removed by the doctor. Conversely, an outside shower located on the ingoing side of the roll can push contamination material to a position on the fabric or roll where it is re-squashed back into the fabric in the following nip.

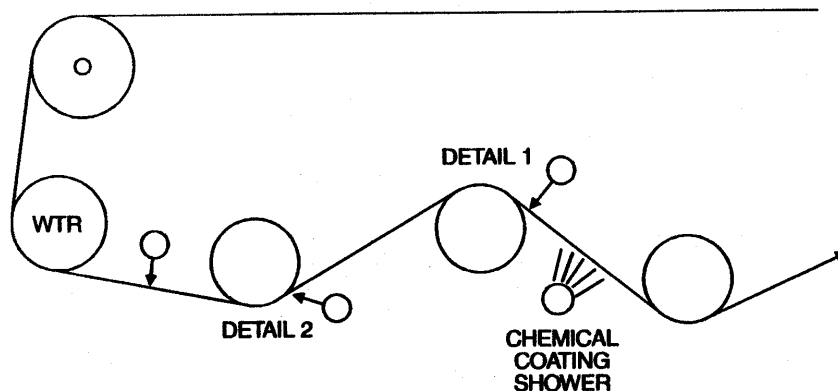
Operating pressures are normally restricted to 250-300 psi for this outside location since the smaller sheet side yarns and/or X-pick are more easily damaged by higher shower pressure.

### Chemical Coating Shower

If a chemical coating is to be applied, it should be applied as soon as possible after the high pressure showers have cleaned the fabric. This gives added anti-

contamination protection to any return rolls that follow. It should be added at a concentration recommended by suppliers but some mills have found effective protection by injecting the chemical intermittently with a timer while the shower itself is continuous.

### CASE 2: First Return Roll Inside



Case 2: If the first return roll is an inside roll, many mills have added an additional outside roll to be able to employ the wash roll doctor sheet knockoff technique. This well proven technique completely eliminates sheet knockoff problems caused by lower CFM multi-layers and CFM reduction with contamination.

However, if conventional knockoff (KO) shower or flooded nip (FN) showers are used (Reference 1), the outside shower in Detail 2 precedes the inside shower in Detail 1. The same guidelines for location and operating pressure apply. Again, if the chemical coating shower is used for continuous anti-contamination treatment, it should be applied as soon as possible after the last high pressure shower.

In summary, appreciable improvements in fabric cleaning can be made by relatively simple changes such as moving a shower from one side of a return roll to the other. Also the secret is to clean the fabric as soon as possible on the return run before contaminants have a chance to accumulate on return rolls.