



## ELIMINATE WATER WASTE

WITH OUR WEAR TESTING, PAPER MACHINE  
AND CHEST CLEANING AUDIT SERVICES

**Let us help you determine the optimal nozzle replacement interval to minimize water waste caused by worn spray nozzles.**

Like any precision component, nozzles will wear over time. This wear is not always visible – especially in the early stages. However, even slight wear (10-15%) can cost thousands of dollars per month in wasted water, energy and disposal costs. In addition, you may experience quality problems since wear compromises impact pressure.

### WE OFFER A FREE NOZZLE WEAR TESTING PROGRAM FOR OUR CUSTOMERS

#### Program Details:

- Ship nozzles from various points on a single shower to us after they've been in use for several months
- Tests will be conducted in our spray labs to determine the wear rate
- Your nozzles will be returned to you along with recommendations for optimal replacement intervals

#### Example 1:

**KNOCK-OFF SHOWER – ONE SHOWER WITH 72 NOZZLES  
IN THE DRY END OF A PRESS SECTION**

##### OPERATING CONDITIONS:

Nozzle size: 2.34 gpm (8.8 l/min) at 350 psi (24.1 bar)

Operation: 60 hours per week, 48 weeks per year

##### Wasted water and wasted electricity costs

Daily water consumption due to increased capacity: **137,117 gal**

Increased annual cost of water and electricity for pump operation: **\$65,156\***

\* Assumes water cost of \$3.00 per 1000 gallons; electricity at \$0.08 KWh

Do the math for yourself. This is the increase in water and electricity for a single knock-off shower.

**You'll see how quickly \$65,156 can become \$651,560 or more.**

#### Example 2:

**DRYER SECTION SHOWER – ONE SHOWER WITH 70  
NOZZLES SPRAYING A RELEASE AGENT ON DRYER FELT**

##### OPERATING CONDITIONS:

System sprays: 5 gpm (19 l/min) of a 1:20 aqueous solution of chemical at 40 psi (2.76 bar)

Chemical consumption: .25 gpm (.95 l/min); \$0.50 per gal

Operation: Three shifts, five days per week = 120 hours per week

##### 15% nozzle wear = 15% increase in operating costs

Water expense: **\$6,135**

Chemical expense: **\$53,820**

Electricity expense: **\$3,118**

**15% wear (increase in nozzle capacity): \$63,073**

Note: Does not include water filtration and recovery costs. All costs are in USD.

**The cost to operate this one shower increases from \$54,803 to \$63,073. If you have six showers in the dry end, your costs increase by \$49,620 annually.** Be sure to take a minute and calculate the potential waste, based on the actual number of showers in your mill.



## AUDIT SERVICES

### LET US HELP YOU OPTIMIZE NOZZLE PERFORMANCE WITH A PAPER MACHINE AUDIT

Is there room for improvement in your spray operations? Why not ask for expert help to find out? Sometimes small changes can have a big impact on performance and operating costs. We offer a variety of on-site audits and testing services that can help you pinpoint spray nozzle problems and optimize spray operations.

Our complimentary services will help determine the source of the problem and include recommendations for correction and ongoing prevention.

#### Complimentary visual inspections

- Occur while machine is running
- Include visual inspection of all showers and nozzles on the machine for obvious spray problems
- Include documentation of nozzle and shower locations
- Include a written report of inspection results along with recommendations for operational enhancements, if appropriate

#### Complimentary nozzle audits

- Occur during shut-down
- Include an inspection of all nozzles on the machine; size and condition of nozzles are noted
- Include identification of nozzles that need replacement
- Can be completed in one to four hours depending on machine
- Include a written report with optimization tips, documentation on every nozzle and shower by location and maintenance recommendations

### FIND OUT HOW TO IMPROVE WORKER SAFETY AND CLEANING EFFICIENCY WITH A CHEST CLEANING AUDIT

If you are cleaning chests, headboxes, tanks or totes manually, using fill and drain methods or hiring outside contractors, take advantage of this audit service. It's an easy way to discover how to get chests cleaner using less time, water and chemicals, while improving worker safety. You may be surprised by the productivity gains and savings offered by automated chest cleaning as well as the quick payback on the equipment.

#### Complimentary chest cleaning audits

- Include visual observation of manual tank cleaning procedures; if chest cleaning nozzles are being used, nozzles will be inspected and evaluated – nozzle type, placement and position. Flow rates, operating pressures, cleaning solutions and residue will be documented
- Can be completed in a few hours, but is dependent on the number of chests being cleaned
- Include a written report with summary of all tank cleaning operations, recommendations for operational changes, estimated savings – water, chemical, wastewater, electricity and anticipated increases in production. If applicable, quotations on new equipment and payback estimates

CONTACT YOUR LOCAL SPRAY EXPERT AND TAP INTO OUR TESTING AND AUDIT SERVICES

Call 1.800.95.SPRAY or visit [spray.com](http://spray.com)



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