

$$F \propto S^{-1} \wedge CP \propto S^{-1}$$



Decreasing stiffness ($S \downarrow$) generally improves finish ($F \uparrow$) and coating protection ($CP \uparrow$), but reduces paint transfer ($PT \downarrow$) and control ($C \downarrow$). The challenge is to achieve a streak-free finish in water based systems without compromising paint transfer and control.



Water-Based Wood & Metal Coatings

These coatings dry much more rapidly than traditional solvent-based coatings (minutes rather than hours). Their shorter open time leaves little opportunity for the coating to self-level, leaving brush marks largely retained in the final film.

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$$F \uparrow \Rightarrow \{CP_t, S_t, PT \uparrow, C \uparrow\}$$

Natural bristle provides useful benchmarks for the historical finisher - a target stiffness (S_t) of about 230 TU and coating thickness (CP_t) of about 35 μm (single pass). However, severe streaking makes it unsuitable for modern water-based wood and metal coatings.

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Limitation of Chemically Tipped Fibers

Mechanism: High fibre count $\rightarrow$ finer paint metering $\rightarrow$ longer stroke lengths $\rightarrow$ lower coating thickness. For protection-critical coatings, low coating protection can become unacceptable. Even decorative applications require adequate coating thickness for appearance. Achieving lower stiffness requires smaller fibre diameter, introducing unacceptable splay and limiting paint transfer.



Overcoming Limitation of Continuously Tapered Fibers

Mechanism: Lower fibre count $\rightarrow$ richer paint metering $\rightarrow$ shorter stroke lengths $\rightarrow$ higher coating thickness.

Just like natural bristle, conventional continuously tapered brushes also produce unacceptable streaking. Nexstar LF Series delivers near-zero brush marks with high paint transfer ($PT \uparrow$), control ($C \uparrow$) and target coating protection (CP_t) - on an all-polyester platform.

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$$\text{Real Productivity } RP = (CV \times A) / t$$

CV (coating value) represents the value of the applied coating, combining finish (even, streak-free application), paint appearance (vividity, sheen and gloss) and protective performance (coating thickness). Real productivity (RP) is determined by the coating value (CV), the area coated (A, m^2) and the time taken (t).

Nexstar LF HyperFinish fibres redefine premium finishing by delivering enhanced coating value and productivity through near-zero brush marks with both waterborne and solvent-borne coatings.