

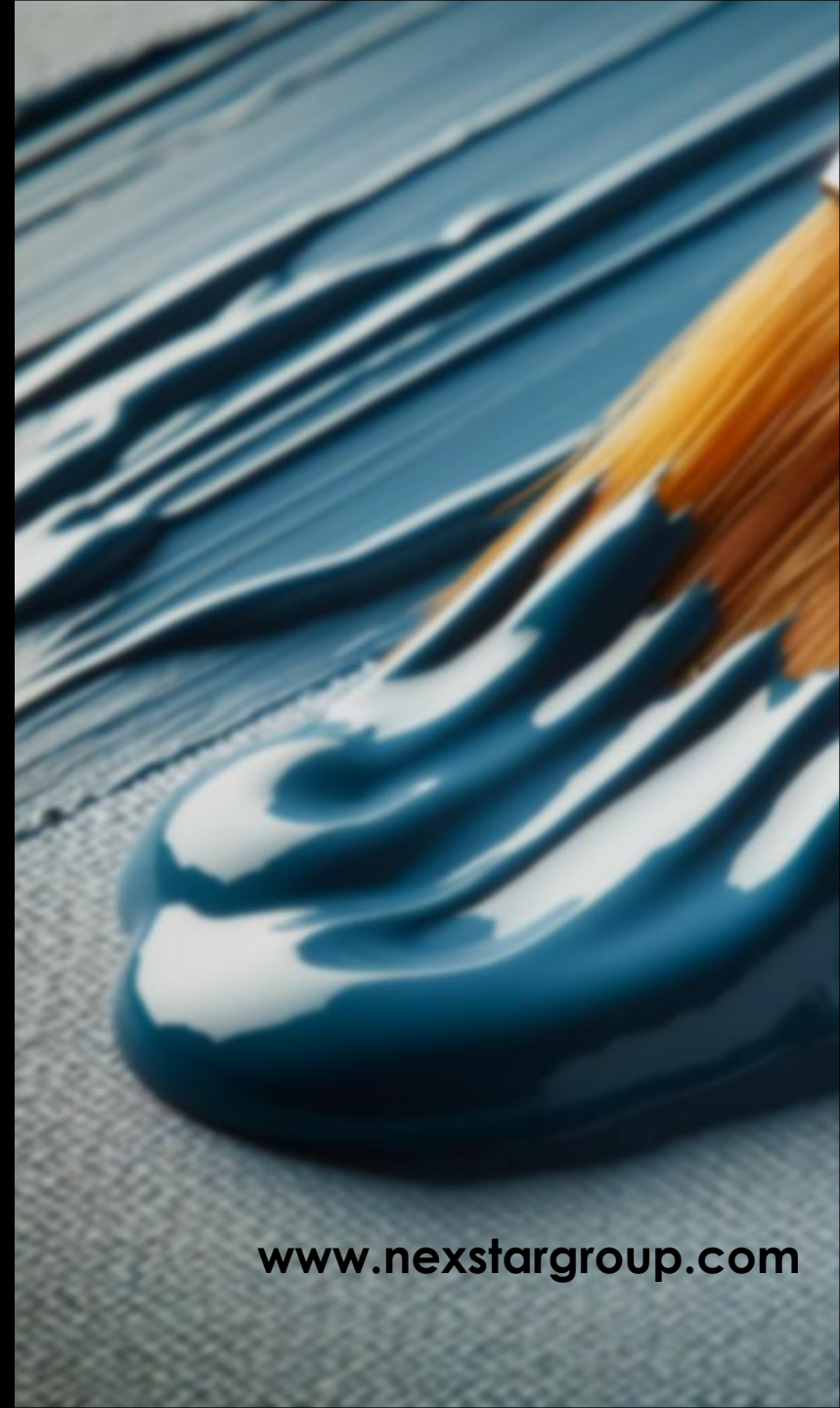
Crafting Exceptional Paintbrushes for Professionals

Stiff or extra-stiff brushes for low to ultra-high viscosity paints, providing unparalleled control without sacrificing the quality of the finish or coating thickness. Soft brushes for low and ultra-low viscosity paints for extreme finish, without sacrificing control and coating thickness.

***Negotium Facile or Negotium
Impossibile?***



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Why do people paint

People paint for a variety of reasons, including both functional and aesthetic considerations.

Protection. Painting helps protect from the elements, such as rain, wind, sunlight, temperature changes, and moisture.

Aesthetics. A fresh coat of paint significantly improves appearance.

Painting can be disruptive, but the right application tools are key to minimizing this disruption. Tools, not paint, ensure proper coating thickness (Protection) and determine the finish (Aesthetics). Additionally, a professional decorator's productivity depends on the ability of his tools.



Viscosity & DFT

(DFT is the recommendation made by paint companies so that the coating applied achieves the intended finish and protection, usually after two or more coats)

	Coating Type	Dry Film (DFT μm)	Viscosities (cPs) at 25 °C				
			I	II	III	IV	V
1	Water-based Primer	25-100	-	400	700	-	-
2	Water-based Interior Paint	25-40	-	400	700	1600	5000
3	Water-based Water-Proof Exterior Paint	25-800	-	400	700	1600	5000
4	Water-based Wood/Metal Paint	30-130	-	-	700	1600	-
5	Water-based Varnish	25-30	-	400	700	1600	-
6	Water-based Woodstain	25-30	200	400	700	-	-
7	Solvent-based Primer	25-65	-	400	700	-	-
8	Solvent-based Wood/Metal Paint	40-100	-	400	700	1600	-
9	Solvent-based Varnish	25-30	200	400	-	-	-
10	Solvent-based Woodstain	25-30	120	400	700	-	3000

During the brushing process, the paint experiences a significant shearing stress, which disrupts its structure and causes its viscosity to decrease significantly as compared to its resting state.



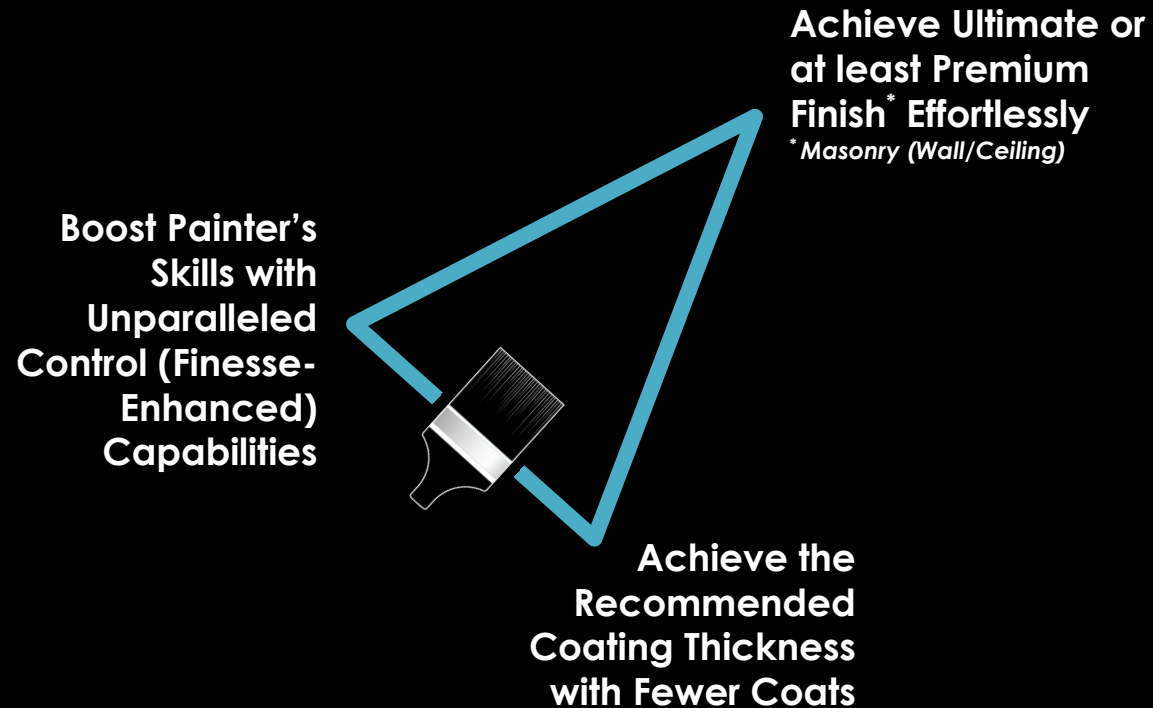
Finish



The sum of smoothness, glossiness, texture, and uniformity, among others, that contribute to the overall aesthetic quality of a painted surface. Unlike slower-drying solvent paints, water-based paints lack the natural leveling effect driven by fluid dynamics, gravity, and atmospheric pressure.



Functions of a professional paintbrush

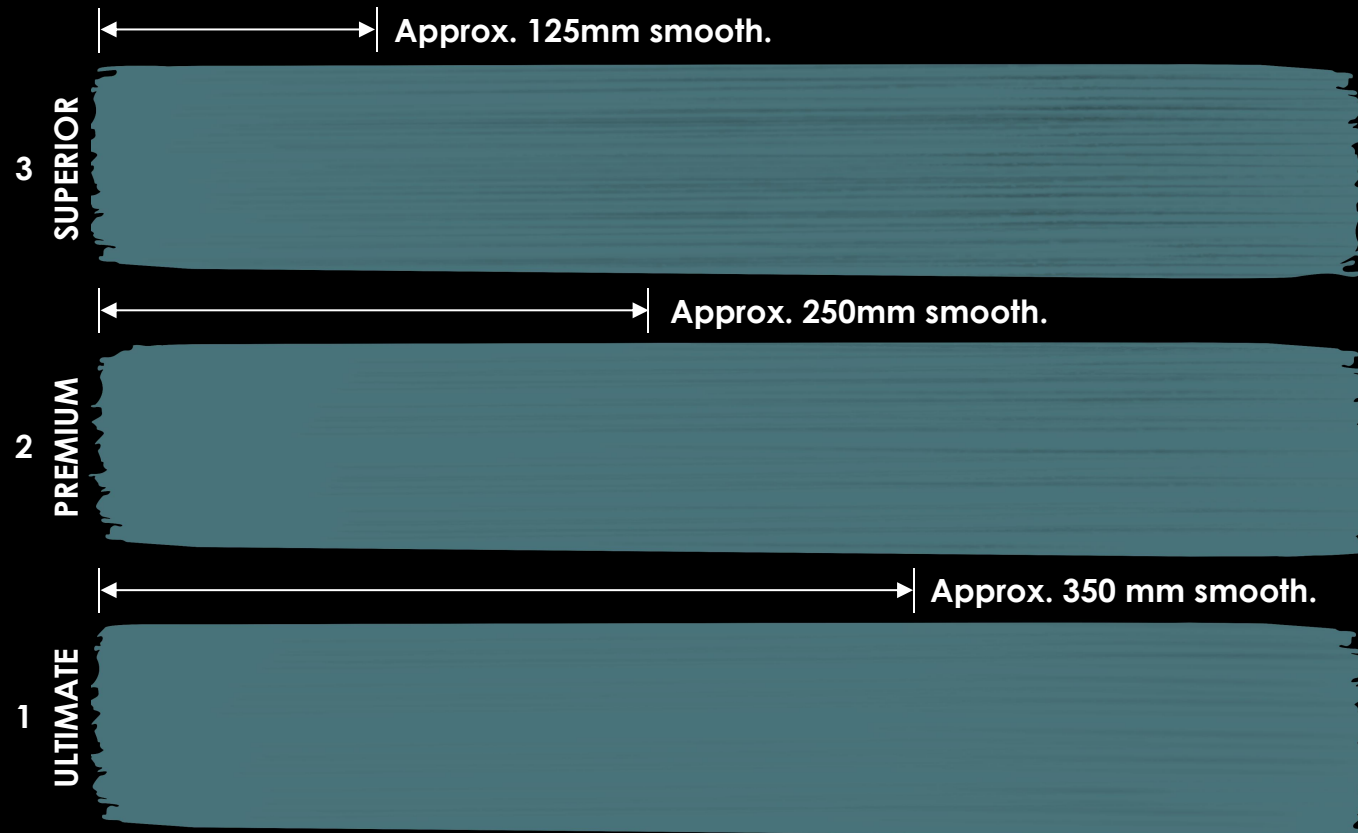


A paintbrush that enjoys comprehensive functionality not only enhances the quality but also the efficiency of painting projects. It thereby offers the potential for substantial cost savings, making it a viable investment for customers.



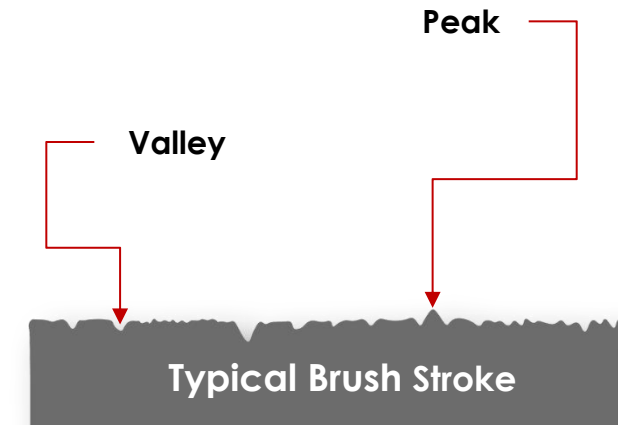
Measurement of finish is a quantitative analysis of irregularities

Grading of Paintbrush Finish



For ref, the Superior finish is obtained from a 90% tops White China bristle brush. The above are single strokes with water-based paint having a viscosity of 400 cPs@ 25°C.

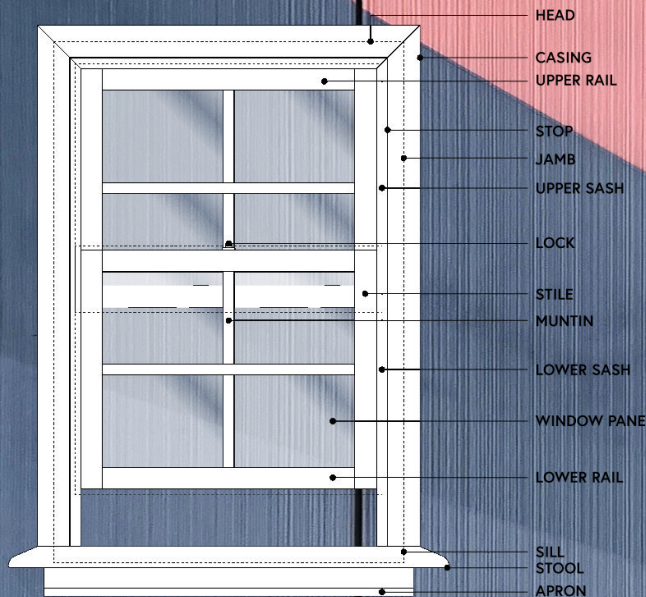
Ra: Arithmetic average of heights.
Rmax: Maximum peak-to-valley height.
Rz: Average of absolute values of the highest peaks and lowest valleys.



Quantitative Analysis of Irregularities

Control (Finesse)

Creation of neat edges where the wall meets the ceiling or trim.
Painting and detailing of windows, doors, and furniture etc.



Research indicates that following surface preparation, professional painters dedicate more than half of their time to "cutting-in and trim" while using a paintbrush in a mixed-use setting. This entails the utilization of a paintbrush for precise detailing alongside a roller for broader surface painting.



Level Chemically-Tipped Synthetic Fibers and Natural Bristles

Parameter	Level CT Fibers	Natural Bristles
1 Control (Precision Work like Cutting-In, Trim, and Detailing)	Not firm enough for precision work, particularly when dealing with dense paints. The capacity to increase diameters is limited to practical extents and is still inadequate to deal with dense paints. Moreover, this adjustment also compromises the finish. Level CT fibers also tend to splay, which limits manufacturers to using shorter fiber lengths like 51/57/64/70mm for 25-63mm wide brushes. However, professional painters often require longer lengths (64mm onwards) for improved dexterity and productivity.	Not firm enough for precision work, particularly when dealing with dense paints.
2 Coating Thickness	The slower release of paint from Level CT fibers results in a thinner application (up to 47% lower), necessitating more coats to reach the recommended Dry Film Thickness (DFT), thereby significantly decreasing productivity, and increasing application costs. Dry Film Thickness (DFT) holds particular importance within the marine and industrial coating sectors.	Do not perform well with water-based coatings, often resulting in uneven application characterized by visible thick and thin longitudinal lines along the direction of the stroke. This inconsistency in coating thickness diminishes the protective quality of the coating.
3 Finish	Difficult to achieve the highest grades of finishes (less than 3µm Rz) on finish-oriented projects (baseboards, doors, windows, furniture) and coatings (Enamels, etc.) due to the uneven application resulting from the lack of Nylon in the CT range (as an alternative or supplement) to polyester. Decreasing diameters to mitigate splaying, a common issue with polyester, exacerbates splaying, resulting in diminished control.	The rapid-drying nature of water-based paints together with the uneven application characteristic of natural bristles makes it difficult to achieve a smooth and even application.

At best, Level CT fibers are only suitable for crafting consumer-grade DIY brushes and unable to align all the parameters required by professionals for enhanced productivity.



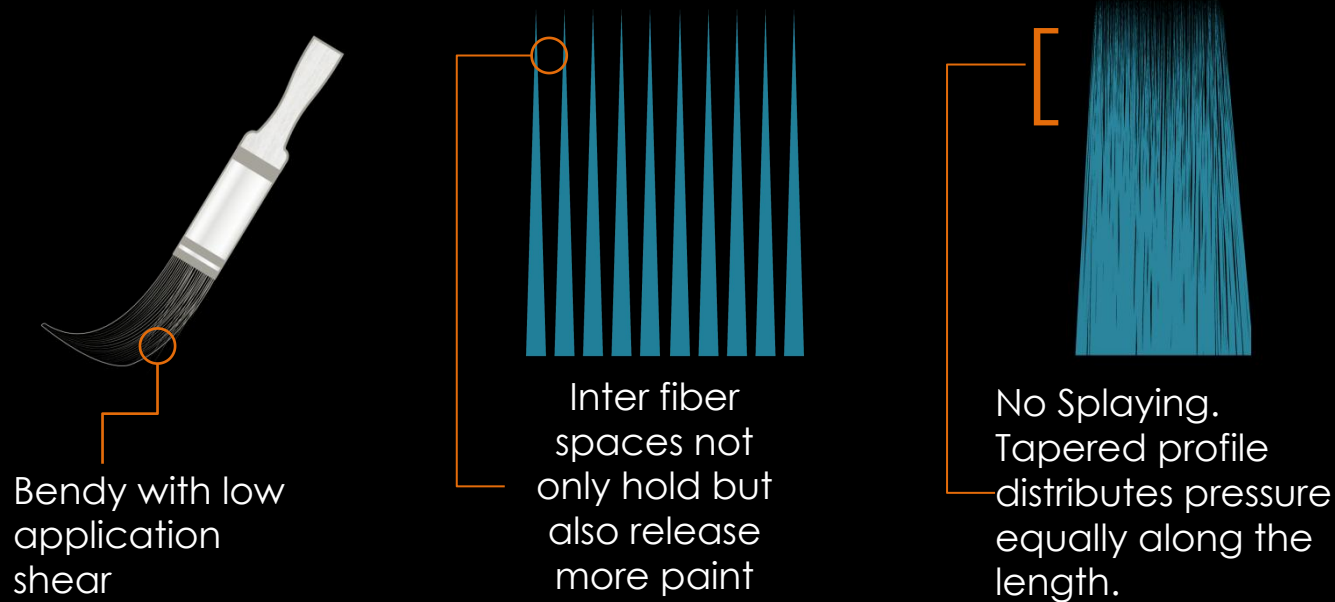
Negotium Impossibile

Designing professional-quality paintbrushes that align all specified parameters to elevate professional decorators to higher levels of productivity and craftsmanship is an exceedingly difficult task, especially if chemically tipped, level synthetic fibers are the sole raw material option.

Blending natural bristles with level CT fibers doesn't alleviate the challenges inherent in either material. Additionally, the price increases and qty. decline of natural bristle doesn't make a long-term viable option either.

Continuously Tapered Synthetic Fibers

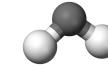
Elementa faciunt illud negotium facile (the fundamentals make it an easy task)



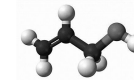
Continuously tapered fibers streamline paintbrush design, allowing for professional-grade products that align all parameters to foster lasting customer loyalty. They enable the creation of stiff or extra-stiff brushes for low to ultra-high viscosity paints, providing unparalleled control without sacrificing the quality of the finish or coating thickness as well as soft brushes for low and ultra-low viscosity paints for extreme finish, without sacrificing control and coating thickness.

NE^{STAR}

*Beyond
Fundamentals*



Wider scope for tweaking molecular arrangement for adjustment of parameters like stiffness etc.



Availability of Nylon 6.12 that would be too soft or too thick if extruded level.



Adjustment of mechanical resistance by shifting the butt/tip Intersection.



Standard taper ratios of 9/5, 12/8, 15/10 mils can be further tweaked to meet special performance objectives.



Conventionally, only solid round cross-sections are used for professional paintbrushes. Exceptions may be made for special applications or cost alignments, with preference given to Nylon 6.12.

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Continuously tapered for superior economy via productivity

Possessing distinct paint application qualities, continuously tapered fiber paintbrushes significantly enhance productivity by speeding up the process of achieving consistent and aesthetically pleasing results.

When labor costs vary from \$22 to \$25 per hour, the expense of an additional hour of work exceeds the price of a subpar brush for both professional painters and DIY enthusiasts.



Measured Parameters (Key Performance Metrics) for Your Compelling Brand Promise

We have developed a specialized paint application robot with multiple axes capable of sensing the 'feel' of paintbrushes and accurately assessing their service life through simulated real-world usage. Additionally, our advanced laboratory is equipped with state-of-the-art measurement devices capable of precisely measuring parameters for each stroke, such as finish, gloss (at various angles for different paint types), and dry film thickness (DFT), among others.



Creating Success, Together!

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