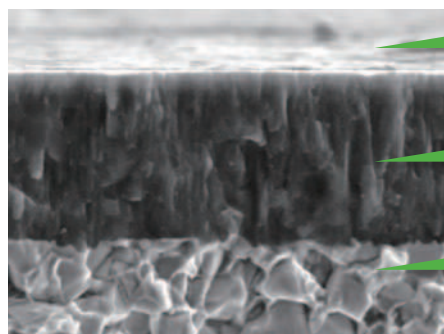


COATING TECHNOLOGY

VQ VQ Coating



Smoothed surface "ZERO-μ Surface"

Newly developed (Al, Cr)N group coating

Super-fine-particle, super-hard base material



ZERO-μ Surface

ZERO-μ Surface

With the unique ZERO-μ Surface, the cutting edge retains its sharpness. While previous technologies often resulted in diminished sharpness, the ZERO-μ Surface achieves both smoothness and sharpness, as well as longer tool life.

SMART MIRACLE coating



VF IMPACT MIRACLE Coating

Faster cutting speeds and longer tool life for high hardness materials and heat resistant alloys.

In comparison with conventional coatings, single-phase nano crystal coating technology offers higher coating hardness and heat resistance.

When machining hardened steels IMPACT MIRACLE coating offers a lower coefficient of friction and helps prevent abnormal damage such as chipping.



IMPACT

FEATURES OF IMPACT MIRACLE COATING

	IMPACT MIRACLE Single phase nano coating (Al,Ti,Si)N	(Al,Ti,Si)N	(Al,Ti)N
Hardness (HV)	3700	3200	2800
Oxidation Temperature (°C)	1300	1100	840
Adhesion (N) ¹⁾	100	80	80
Wear Coefficient ²⁾ (800°C)	0.48	0.53	0.58

1) Adhesion : Measured by critical load scratch test.

2) Coefficient of friction : Measured by ball-on-disk method.
(Counter gear : W.-nr. 1.2379(D2) 60HRC)