



PAPER & TISSUES

PROFESSIONAL BLADES MANUFACTURER

Manufacturer of Paper Industrial Blades
ZX BLADE



智造未来 · 专注创新
Intelligent Manufacturer · Innovation Driven

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Ma'anshan ZhiXin Nano Materials Co.,Ltd.

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Ma'anshan ZhiXin Nano Materials Co.,Ltd.

Welcome to ZXBlade

Driven by material science innovation, ZXBlade continuously advances smart manufacturing capabilities and R&D excellence to anticipate market evolution. We integrate technological breakthroughs into business solutions, securing sustainable leadership in the global paper industry.

Our Promise and Vision

We commit to delivering blades that transform your productivity. Our vision is a paper industry where every coat and crepe process achieves unmatched precision and sustainability. By providing tailored solutions from premium materials to advanced coatings, we enable mills to reduce downtime, extend blade life, and elevate product quality – turning operational challenges into competitive advantages.

Core Technology Excellence

ZXBlade integrates globally advanced UNIQUECOAT-HVAF hypersonic spray systems with proprietary precision grinding technology. Our breakthrough innovations include: Coating blades with tungsten carbide – the paper industry's most advanced solution for eliminating streaking defects, enhancing paper surface quality, and extending service life, dramatically reducing changeovers.

Creping blades with tungsten carbide – utilize patented surface engineering to deliver cylinder-safe operation, superior tissue quality, and 6× longer durability than conventional steel blades, establishing global technological leadership.

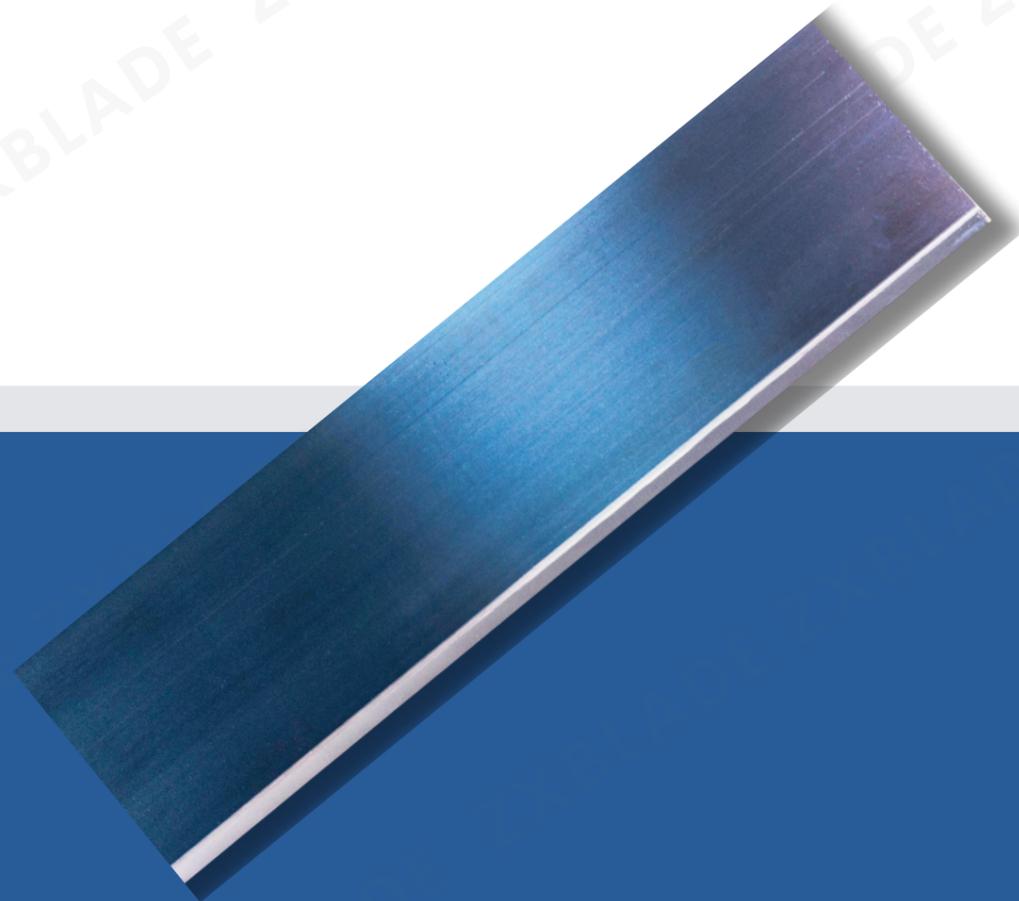
Quality Commitment

We take pride in the precision engineering and material excellence of our blades. Every ZXBlade product undergoes rigorous ISO 9001-certified validation, exceeding global paper industry standards.

Expertise and Support

Our team of knowledgeable professionals are committed to providing expert advice and assistance. Whether you're a seasoned industry professional or looking for a little insight, our experts are here to help find the right solutions for specific project needs. From technical specifications to project consultations, ZXBlade Supply are your go-to resource.

- STEEL
- CERAMIC
- TUNGSTEN CARBIDE



Features & Specifications

- *Consistently homogeneous paper quality*
- *Cost savings thanks to fewer blade changes*
- *Less broke and greater machine efficiency*
- *Adaptation to Yankee surface*
- *Customized blade design*

• OPERATING PRINCIPLE

INSTALLING POSITION

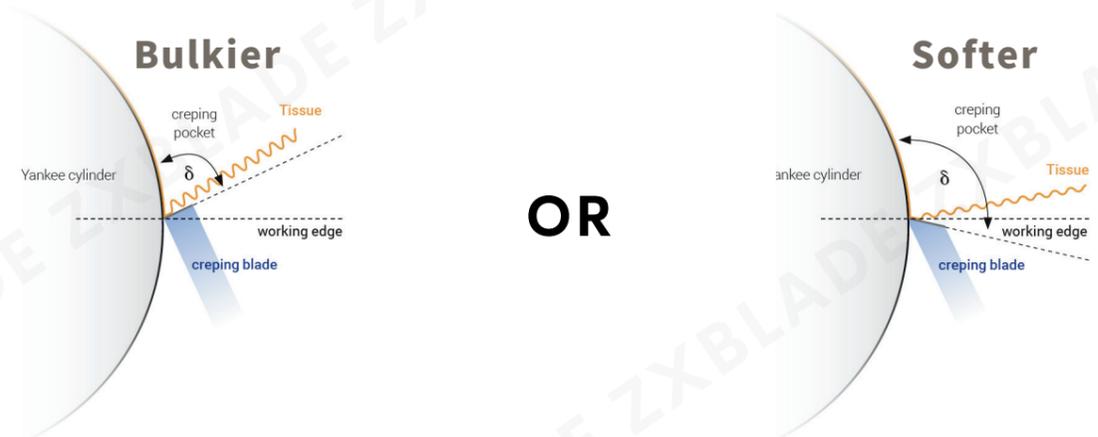
In tissue machines, three blades mount on the Yankee dryer surface. The central position houses the creping blade, pneumatically engaged against a holder assembly.

The holder angle – defined by the tangent at the blade-dryer contact point – determines the operational blade orientation on the Yankee surface.



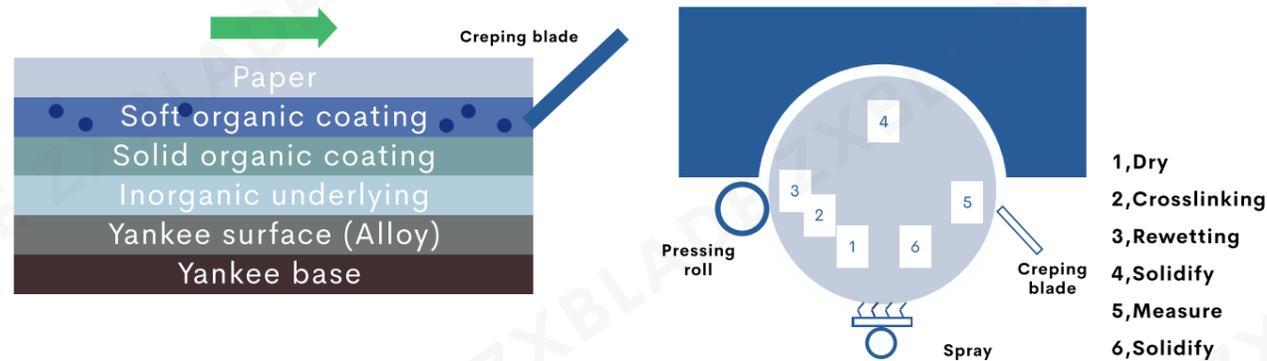
CREPING POCKET

The smaller the creping pocket the rougher and thicker the crepe. Or vice versa: the bigger the creping pocket the finer the creping quality



CHEMICAL COATING

- Micro-separation via proprietary coating, protect the surface of the Yankee dryer to avoid wear
- Keep proper bonding force, when the creping blade scrape off the paper from the dryer, to form a good creping effect.



• STEEL, CERAMIC OR TUNGSTEN CARBIDE?

Steel

Ceramic/Tungsten carbide

Short lifetime	Long lifetime
Only compromise possible	Stability and control of blade design helps to optimize blade tip
Quick wear of key blade surfaces	Low wear and so even quality over a longer time
Quick alteration of blade contact surface	Stability of blade tip geometry
High stress on Yankee due to frequent blade changes	Gentle on Yankee surface material because of fewer blade changes
Limited optimization of coating (frequent cleaning intervals)	Gentle on coating layer (blade application pressure not too high, not too stiff)
Higher risk of injury (~10 times more handling)	Reduced risk of operator's injury (less handling)

• ZXBLADE@CREPING BLADE

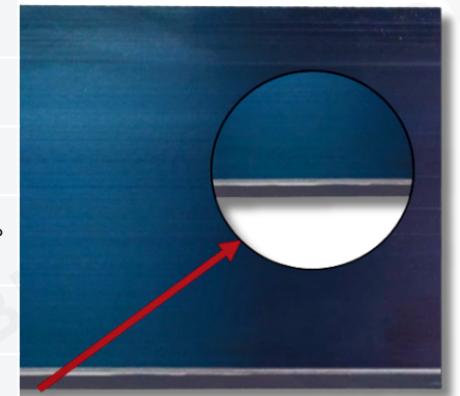
CREPING-FL

Wear-resistant coating is applied exclusively to the working face (surfaces contacting the Yankee cylinder). The blade's perimeter surfaces remain uncoated.



Base	Length	Hardness
75Cr1	After your specification	HV:1050-1150
Lay	Standard width:	Crepe Angle
Tungsten Carbide Ceramic	115/120 mm	bevelled from 75-95°
Hardness	Standard thickness:	Surface:
HRC: 48 - 55	1.2 mm	Blue polished

*other widths and thicknesses available on request

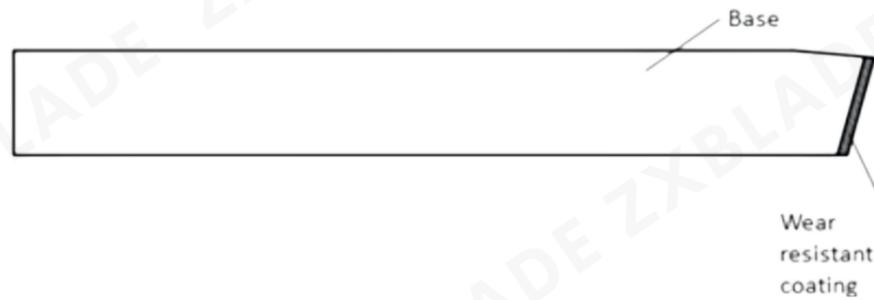


FL-CHARACTERISTICS

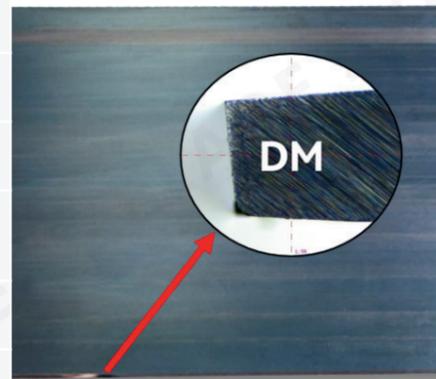
- The working surface contacting the Yankee dryer features a specialized wear-resistant coating. This hardened surface significantly outperforms the steel substrate in durability, extending the blade's operational lifespan while maintaining consistent creping performance.
- Over operational cycles, the working surface develops progressive radius curvature where it contacts the Yankee dryer, degrading tissue formation quality. This deformation eventually exceeds functional tolerances, coinciding with accelerated base material erosion at the blade ends—particularly under heavyweight grades—which alters creping geometry. Both failure paths culminate in blade retirement when established quality thresholds are breached.

CREPING-DM

The coating is located on the end face of DM creping blade, and there is no coating on the cylinder contact surface.



Base	Length	Hardness
75Cr1	After your specification	HV:1050-1150
Lay	Standard width:	Crepe Angle
Tungsten Carbide Ceramic	115/120 mm	bevelled from 75-95 °
Hardness	Standard thickness:	Surface:
HRC: 48 – 55	1.2 mm	Blue polished



*other widths and thicknesses available on request

DM-CHARACTERISTICS

- A wear-resistant coating is precision-applied to the blade's working edge. During Yankee dryer contact, differential wear rates between the coating and substrate maintain optimal edge geometry, ensuring consistent tissue quality throughout initial operation.
- The substrate comprises the primary contact material between the creping blade and Yankee dryer, with hardness values comparable to the cylinder surface.
- With higher frictional wear the linear loading force/unit area is reduced as the blade gets dull. The creping and cleaning efficiency drop as well which leads to a rougher crepe and higher bulk.

CREPING-T&TG

A precision-defined groove on blade body, the wear-resistant coating exclusively along the working edge, minimizing contact surface area with the Yankee dryer.



Base	Length	Hardness	Key features
75Cr1	After your specification	HV:1050-1150	Continuous length to individual specification
Lay	Standard width:	Crepe Angle	Hardened, tempered, straight adjusted
Tungsten Carbide Ceramic	115/120 mm	bevelled from 75-95 °	Individual angle on customer requirement
Hardness	Standard thickness:	Surface:	Straightness tolerance max.0.02 mm over 1000 mm
HRC: 48 – 55	1.2 mm	Blue polished	

*other widths and thicknesses available on request

CREPING-T&CREPING-TG

To address diverse tissue production requirements – including variations in Yankee dryer configurations and chemical coatings – we engineered two specialized creping blade series:

T Series (Softness-Optimized)

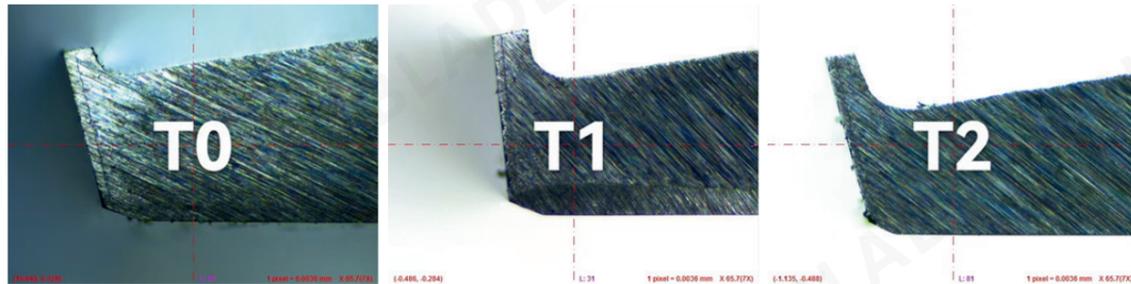
- Models: T0, T1, T2
- Primary focus: Enhanced tissue softness

TG Series (Performance-Balanced)

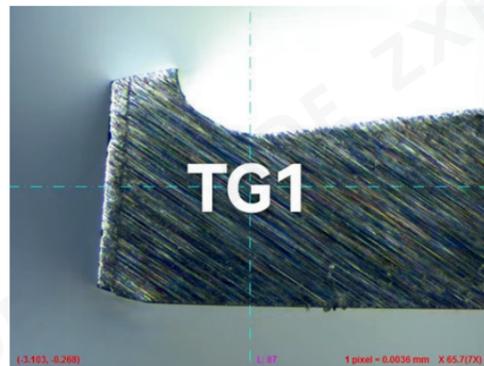
- Models: TG1, TG2
- Delivers optimal combination: Softness + Bulk

Our technical experts provide tailored blade selection recommendations through comprehensive production audits.

CREPING-T



CREPING-TG



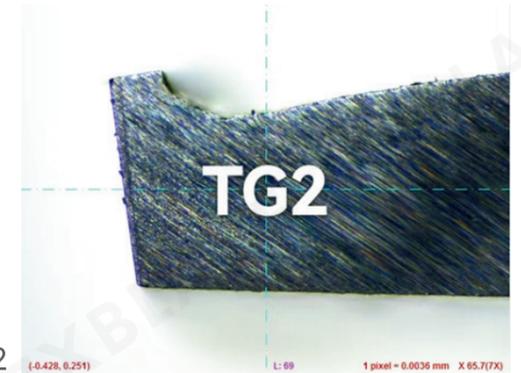
*** MARK**
The TG2 series represents our premium performance-balanced solution, delivering optimal synergy of tissue softness and bulk.

T&TG-CHARACTERISTICS

- A precision-machined groove narrows the working surface contact area. This self-stabilizing geometry maintains consistent width throughout wear cycles, ensuring stable creping parameters and uniform wrinkle formation without operational adjustments.

• Application Case

TG2 is newly developed patented product for enhancing tissue paper thickness, currently undergoing trials and promotion at multiple group clients domestically and internationally. The blade features a specialized design on its crown surface, significantly improving sheet thickness. Concurrently, enhanced sheet bulkiness contributes to increased moisture absorbency in heavyweight grades. The specific design of the TG2 blade is illustrated in the figure beside.



TG2 Performance Validation

Based on current client test results, the TG2 blade achieves 15-30% thickness enhancement versus same-angle steel blades, with more pronounced advantages over standard alloy blades. Performance variance occurs across different paper machines and operating conditions.

When maintaining identical thickness specifications, this innovation enables:

- Reduced creping ratios
- Improved operational efficiency

Additional testing on 22gsm kitchen towels demonstrates approximately 4% moisture absorbency increase. Reference client datasets:

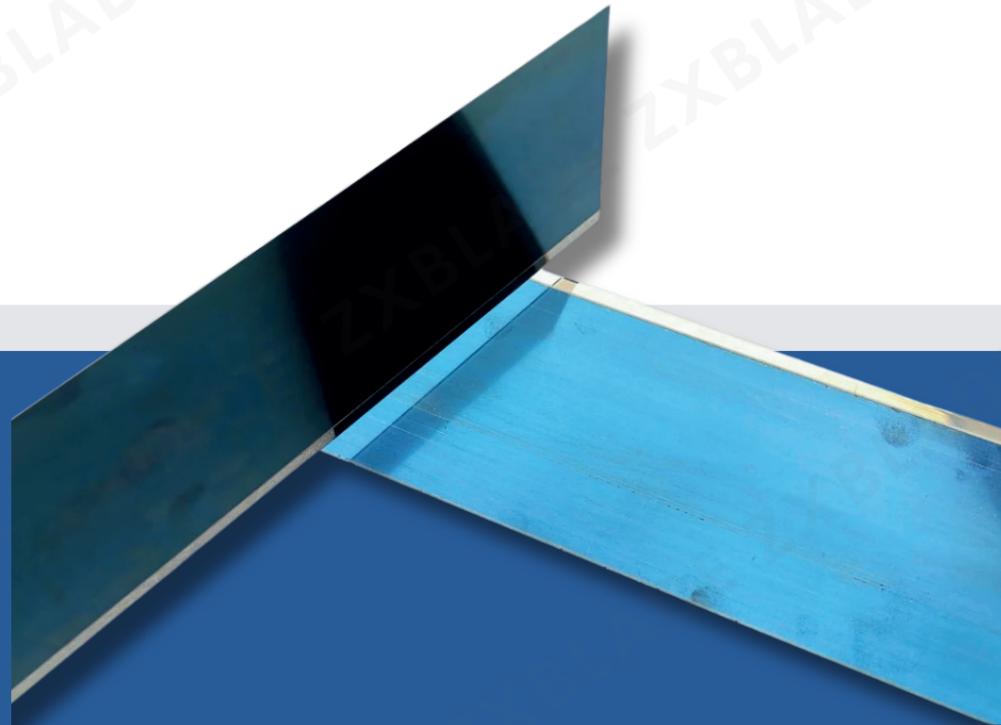
Tissue	Blade	Crepe Ratio	T(78±8)	MDT(≥180)	CDT(≥110)
10.7 gsm	90 ° Steel	18%	83	177	101
10.7 gsm	85 ° TG2	15%	80	181	111

Tissue	Blade	Crepe Ratio	T(90±8)	Power (KW)
12.4 gsm	80 ° Alloy	21.5%	83	250
12.4 gsm	85 ° TG2	17%	92	205

**Reducing the creping ratio elevates tensile strength, thereby decreasing refining power requirements and conserving energy*

Tissue	Blade	Crepe Ratio	T(mm/16plys)	Density(< 135)
13.5 gsm	85 ° Alloy	35%	2.09	135
13.5 gsm	85 ° TG2	30%	2.17	131

- STEEL
- TUNGSTEN CARBIDE



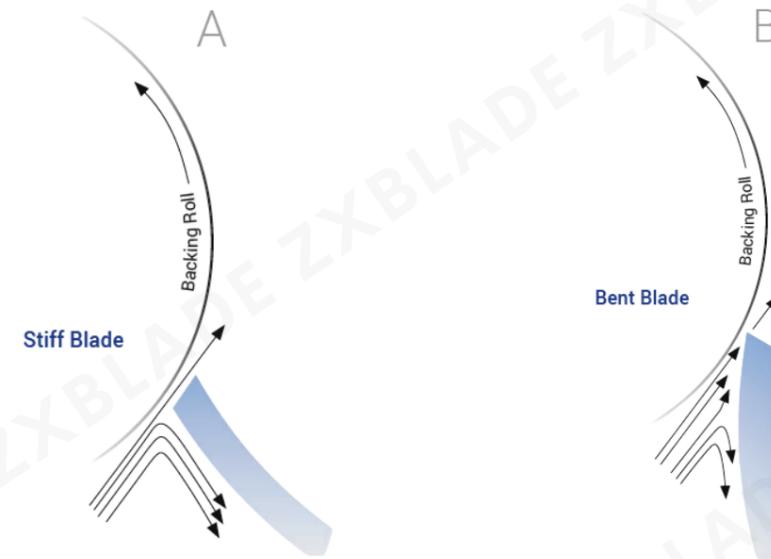
Features & Specifications

- *Longer service life and better operation performance*
- *Cost savings thanks to fewer blade changes*
- *Stable coating quality, good banner uniformity*
- *Customized blade design*

• OPERATING PRINCIPLE

STIFF BLADE AND BENT BLADE

Coating blade is a precision-engineered doctoring device that regulates functional layers (adhesives, paints, or inks) onto substrates like paper or plastic films. Classified by load-bearing mechanics: into stiff blade and bent blade.



STIFF BLADE

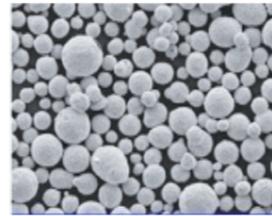
- Easier control of coat weight
- Lower coat weights possible
- Better performance at high production speeds
- Easy to adjust

BENT BLADE

- Less prone to coating failures
- More glossy and smoother surfaces possible
- High coat weights possible
- Good CD profiles

Precise coordination between the coating blade contact angle (β) and inherent blade angle (β_0) is critical for optimal doctoring. The operational sweet spot occurs when β exceeds β_0 by $2^\circ - 5^\circ$, ensuring uniform coating weight distribution and streak-free surfaces.

• STEEL OR TUNGSTEN CARBIDE?



Features	Non-coating	With-coating
Hardness(HV)	500-600	1050-1150
Coating porosity ratio (%)	0	<0.5%
Wear resistance	Low	High
Surface roughness value (Ra)	<0.10	<0.02
Corrosion resistance	Low	High
The intensity of toughness(MPa.m ^{1/2})	>20	~4.5

Steel

Steel coating blades remain a long-validated solution, offering rapid run-in adaptation to varying machine conditions and acceptable initial surface quality. However, their inherently accelerated wear progression compromises long-term coating consistency and process control stability.

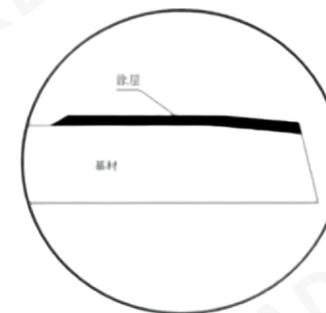
Carbide

Coating blades make use of a carbide-metallic wear resistant layer. With its low porosity this interlocking matrix exhibits a very high wear resistance allowing for a minimalisation of streaks and scratches in the application of the coating colour. Carbide coating blades in different designs are suitable for almost all applications, especially for high-solid coating colours with calcium carbonate.

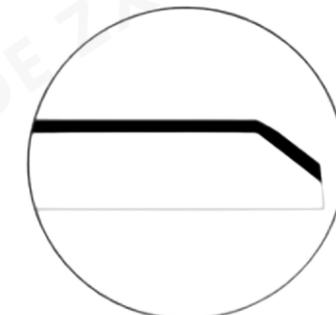
• ZXBLADE@COATING BLADE

A good coating blade is essential for the production of coated paper in order to achieve consistent and even application of the coating color. A high-quality coater blade performs at high production speeds under high shear forces with abrasive coating mediums and provides a long life and maximum productivity.

Single Angle



Double Angle



Base	Length	Hardness	Key features
SK4	After your specification	HV:1050-1150	Hardened , tempered , blue polished and straightened
Lay	Standard width:	Angle	Individual angle to customer specification
Tungsten Carbide	76.2/84/100 mm	0°,2°,4°,12°,30°,35°/25°,12°/6°,40°/30°	Straightness tolerance max.0.02 mm over 1000 mm
Hardness	Standard thickness:	Surface:	
HRC: 48 - 55	0.381/0.457/0.508mm	Blue polished	

Large Angle stiff blade is usually suitable for pre-coating;
Small Angle bent blade is usually used for surface coating.



- LOG SAW
- SLITTER
- CUTTING
- PERFORATION
- FOLDING
- FLAKER
- CHIPPER



Features & Specifications

- *Micron-Level Edge Technology: Unparalleled Sharpness & Consistency*
- *The Right Material for Every Cutting Challenge*
- *Optimized Lifespan for Maximum Productivity & Cost Savings*
- *Consistently Surpassing OEM Quality Standards*

LOG SAW BLADE

Log saw blade for cutting paper is normally designed for toilet paper, kitchen paper, paper towels, protective paper sheets for hospital beds and folded paper towels.



Part No.	Specification/mm (ODxIDxT)
LOG-610	Φ610xΦ68.26x4.76/3.8 /3.0
LOG-680	Φ680xΦ68.3x4.76/3.8
LOG-700	Φ700xΦ68.26x4.76
LOG-810	Φ810xΦ68.26x6
LOG-1000	Φ1000xΦ60x6

Material	1.2379 SKD11 SKH51 D2D D2 SUS series.
Thickness tolerance	±0.002mm
Hardness	HRC:55-63
Face Runout Tolerance	< 0.10
Diameter Runout Tolerance	<0.40
Blade Dynamic Balance	≤ 30



GRINDING WHEEL

- Less sparks
- Longer lifetime
- Less pollution for tissue

Part No.	Specification
GW-2015	100x20x15.5
GW-2020	100x20x20
GW-3015	100x30x15.5
GW-2016	100x20x16
Grit Size	80/120/160



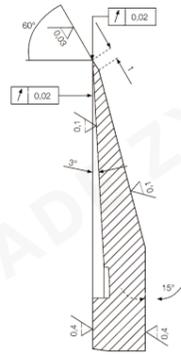
**other specification available on request*

*MARK

Each log saw blade is inspected and measured with respect to all dimensional values by the most modern automated inspection equipment available. The most critical of these values, axial and radial run-out, are engraved on each blade for customer reassurance. An Internal record is established for each log saw blade for future tracking purposes.

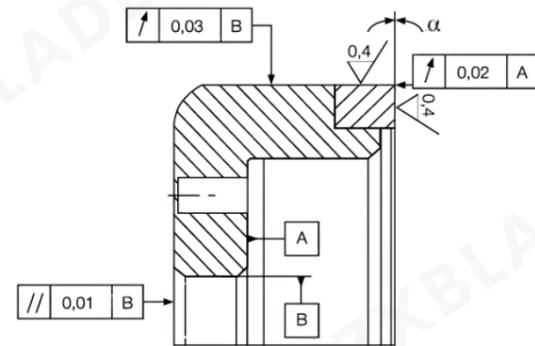
SLITTER KNIFE

• UPPER KNIFE



Part No.	Specification/mm (ODxIDxT)	Features
SLUK-1580	Φ150xΦ80x2	Preliminary bevel 30°
SLUK-1590	Φ150xΦ90x2	Main bevel 15°
SLUK-1870	Φ180xΦ70x2	Surface roughness Ra 0.03 μm/Ra 0.10 μm
SLUK-1975	Φ190xΦ75x3	Axial runout 0.01 mm
SLUK-2080	Φ200xΦ80x4	Radial runout 0.02 mm

• LOWER KNIFE

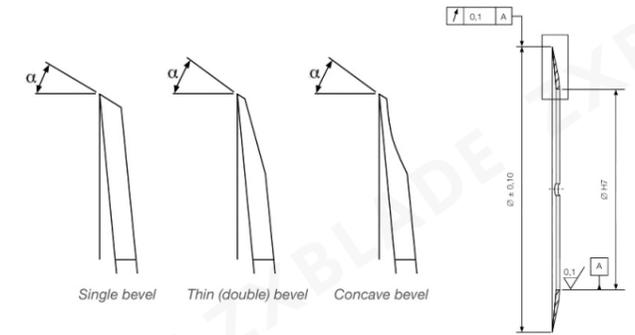


Part No.	Specification/mm (ODxIDxT)	Features
SLLK-2518	Φ255xΦ188x15	Carbide tipped
SLLKM-2018	Φ200xΦ180x55	Recess bevel 4°
SLLKM-2622	Φ260xΦ228x55	Axial runout 0.02 mm
SLLKM-3027	Φ300xΦ270x55	Radial runout 0.03 mm

*other specification available on request

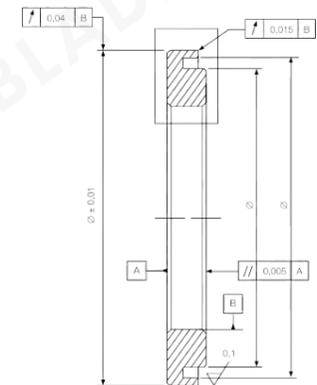
SLITTER KNIFE

• DISHED KNIFE



Part No.	Specification/mm (ODxIDxT)	Features
SLDK-1390	Φ130xΦ80x1.5	Preliminary bevel 30°
SLDK-1580	Φ150xΦ80x2.5	Main bevel 15°
SLDK-1870	Φ180xΦ70x3	Radial runout 0.02 mm
SLDK-2080	Φ200xΦ80x4	Axial runout 0.01 mm

• BOTOM BANDS



Part No.	Specification/mm (ODxIDxT)	Features
SLBK-1812	Φ180xΦ120x15	Carbide tipped
SLBK-2018	Φ200xΦ188x55	Recess bevel 4°
SLBK-2421	Φ240xΦ210x100	Axial runout 0.02 mm
SLBK-2518	Φ250xΦ188x20	Radial runout 0.03 mm

*other specification available on request

SLITTER KNIFE

• TUNGSTEN-CARBIDE KNIFE

Suitable for slitting operations including paper, thin films, gold/silver foils, aluminum/copper foils, magnetic tapes, and other similar materials.



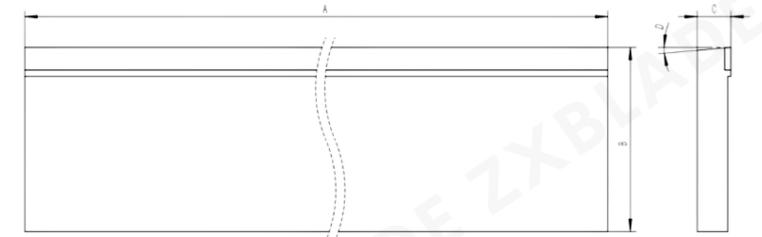
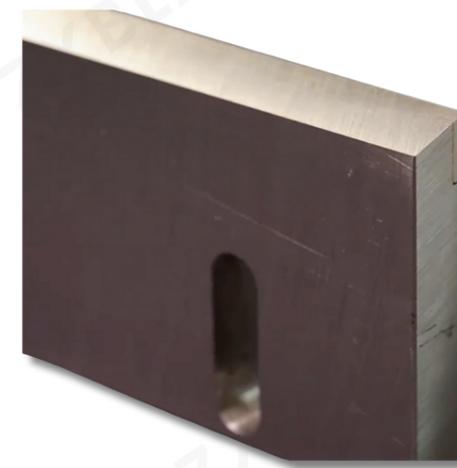
- Produced from virgin ultra-fine grain tungsten carbide powder to form preforms, which undergo proprietary treatment and are subsequently precision-machined using specialized grinding equipment.
- Sharp cutting edge with extended tool life; High precision products and minimized tool change frequency.
- High Hardness, Excellent Toughness, and Heat Resistance
- Hardness: HRC 90–93; Wear-resistant with a density of 15.5 kg/dm³.

Part No.	Outside Diameter(mm)	Inside Diameter(mm)	Thickness(mm)
TCSLK-1025	100	25.4	2
TCSLK-1825	180	25.4	2
TCSLK-2025	200	25.4	2
TCSLK-2525	250	25.4	2
TCSLK-3025	300	25.4	2
TCSLK-3525	350	25.4	2
TCSLK-4025	400	25.4	2

*other specification available on request

CUTTING KNIFE

- Cutting edges consist of high-quality brazed tungsten carbide (TCT) or welded HSS inserts.
- Engineered for exceptional wear resistance, extended service life, minimal dust generation, reduced blade change frequency, and lower overall operating costs.

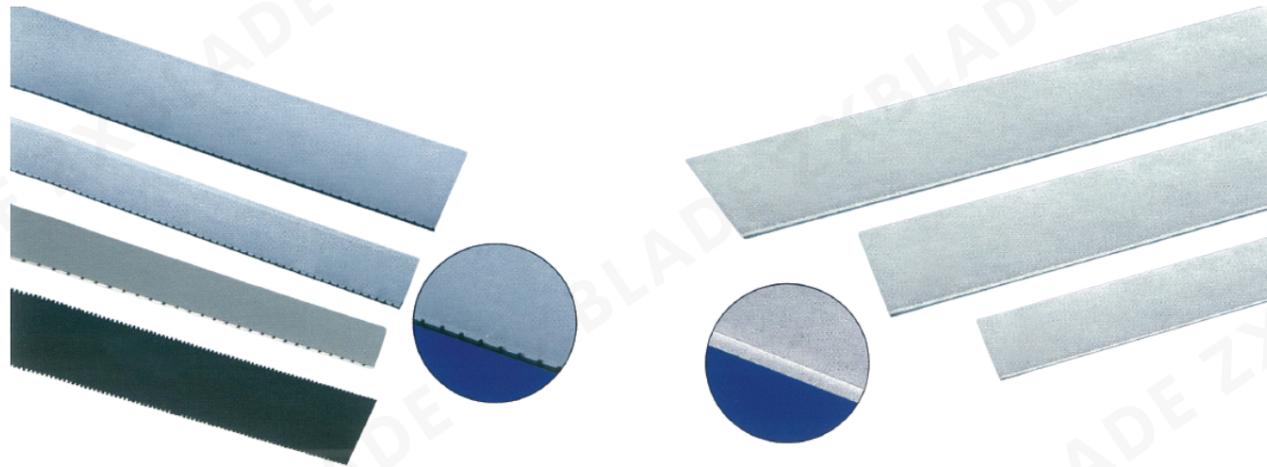


Part No.	Specification/mm (LxWxT)	Features
CUTK-805	805x95x9.7	HSS/TCT
CUTK-960	960x110x11.7	HSS/TCT
CUTK-1095	1095x115x11.7	HSS/TCT
CUTK-1390	1390x160x13.75	HSS/TCT
CUTK-2813	2800x74x13	HSS/TCT
CUTK-2817	2800x74x17	HSS/TCT
CUTK-2917	2900x90x17	HSS/TCT
CUTK-3616	3600x65x16	HSS/TCT
CUTK-3613	3600x120x13	HSS/TCT
CUTK-3915	3900x64x15	HSS/TCT

*other specification available on request

REWINDER PERFORATION & ANVIL BLADE

Precision perforation blades for toilet paper rolls. Adjustable teeth ratio optimizes tear performance for diverse product needs. Japan SKH51,SKD11,HSS,SK2,D2, LD Germany K10 bimetal and other imported materials.



- Our cutting tools offer exceptional durability: High wear/corrosion resistance with impact-resistant toughness.
- Flawless cutting performance: Eliminates frayed edges, saw marks, and thermal discoloration.
- CNC-toothed perforation blades maintain $\leq 0.01\text{mm}$ parallelism tolerance for perfectly uniform dotted lines.

Part No.	Specification/mm	Remrk	Specification/mm
PER-1	2050x50x1.5/2.5	(1:2)	2900x29.27x1.067
PER-2	2200x30x2.0	(1:3)	2900x29.27x1.3
PER-3	2200x45x2.0	(1:3)	2928x50x1.6
PER-4	2800x50x2.0	(1:4)	3700x50x1.6
PER-5	2890x30x1.1	(1:2.5)	3750x29.27x1.067
PER-6	2900x50x1.2	(1:3)	3750x29.27x1.3
PER-7	2900x50x1.2	(1:23)	2

**other specification available on request*

FOLDING BLADE

Engineered specifically for facial tissue folding machines, this system eliminates paper wrapping on the anvil roll, ensuring smooth and rapid tissue transfer at knife-edge precision. Precision-engineered from premium imported alloys including Japanese SKH51, SKH9, SKD11, and American M42.



Part No.	Upper Blade	Part No.	Lower Blade
FOLU-1250	1250x35x2	FOLL-760	760x18.5x6
FOLU-1500	1500x35x2	FOLL-1330	1330x18.5x6
FOLU-1950	1950x40x1	FOLL-1458	1458x18.5x6
FOLU-2050	2050x40x1.5	FOLL-1570	1570mmx18.5x6
FOLU-2150	2150x40x2	FOLL-2100	2100mmx18.5x6
FOLU-2870	2870x35x2.2	FOLL-2920	2920x25x5
FOLU-2890	2890x350x2.2	FOLL-2995	2995x18.5x16
FOLU-2930	2930x50x2.5	FOLL-3000	3000x18.3x12
FOLU-2995	2995x50x2.2	FOLL-3600	3600x18.5x12
FOLU-3590	3590x50x2.2	FOLL-3700	3700x18.5x16

**other specification available on request*

FLAKER KNIVE

Flaker knives are critical components in pulp production, engineered to efficiently remove bark from logs with minimal wood fiber loss. Crafted from tungsten-carbide-reinforced tool steel or high-impact alloys.



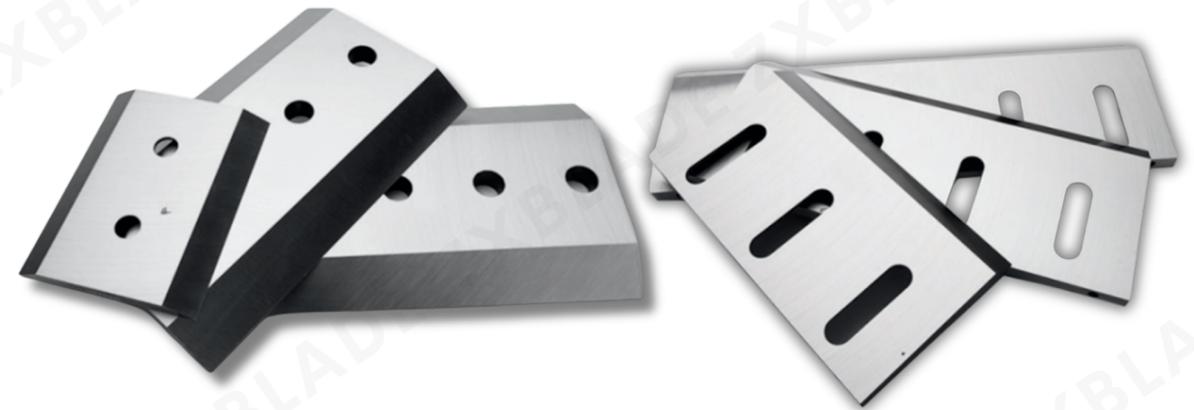
- **Material:** chipper knife steel, or high alloy tool steel, or as per customer's request.
- **Hardness:** Depending on application and alloy between 52±1HRC and 60±1 HRC
- **Machine:** flaker machine, flaker mill, ring flaker machine, knife ring flaker,...

Part No.	Length(mm)	Width(mm)	Thickness(mm)
FLK-449	449	90	5
FLK-689	689	90	4
FLK-728	728	80	5

*other specification available on request

CHIPPER KNIVE

Chipper Knives are core components in pulp preparation systems, designed to transform wood logs or slabs into uniform, high-quality chips (15-30mm) essential for efficient pulping. Precision-machined from premium tool steels (e.g., SKD11, D2) or carbide-tipped alloys



- **Edge Style:** single or double-edged.
- **Cutting Edge Angle:** as per type of machine or as requested. Normally from 25 to 45 degree.
- **Material:** chipper knife steel, or high alloy tool steel, or high speed steel or as per customer's request.
- **Hardness:** Depending on application and alloy between 52±1HRC and 60±1 HRC
- **Machine:** drum chipper machine, or Disc chipper machine, or others chipper machines.

Part No.	Length(mm)	Width(mm)	Thickness(mm)
CHIP-347	347	70	10
CHIP-460	460	150	20
CHIP-600	600	185	20
CHIP-650	650	220	20
CHIP-780	780	220	20
CHIP-850	850	220	20

*other specification available on request

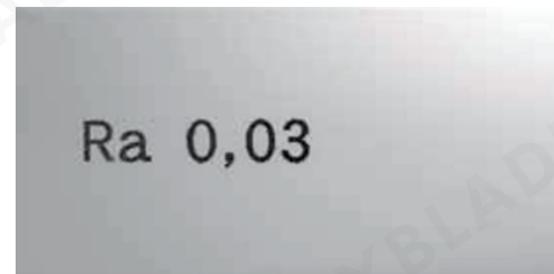
QUALITY AND MATERIAL

Steel Grade	NO.	Composition	Hardness in HRC	Approx. service life
Tool Steel	ALSI L3	1.5% Cr	59±1	1(Basic)
Chrome steel	AISI D2 AISI D6	12% Cr, 0.7% M, 1% V 12% Cr, 0.7% Tungsten	59±1	1.5
HSS	AISI M2 AISI T1	4.2% Cr, 5% Mo, 2% V, 6.5% W 4.2% Cr, 1.1% V, 18% W	62±1	2-3
PM Steel (1st)	ASP2023	4.2% Cr, 5% Mo, 3% V, 6.5% W	64±1	4-6
PM Steel (2nd)	ASP2053 CPM10V	4.2% Cr, 3.1% Mo, 8% V, 4.2% W 5.25% Cr, 1.3% Mo, 9.75% V	64±1	6-8
PM Steel (3rd)	ASP60	4.8% Cr, 2% Mo, 8% V, 10.5% W, Co:9.0	66±1	8-10
Carbide			1250 HV10	>10

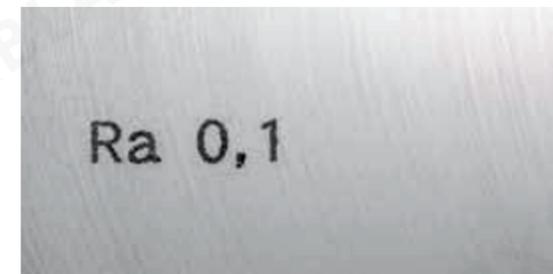
- Polished surfaces reduce paper dust and extend the lifetime of the knife.

Surface roughness

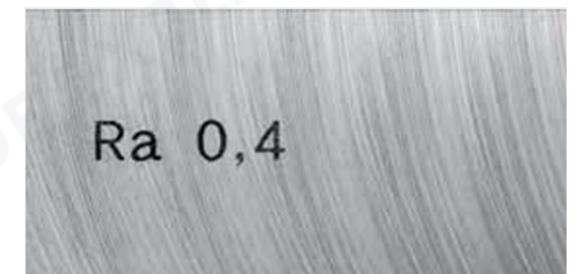
ZXBlade sheeter and circular knives are precision-engineered using advanced manufacturing systems. Our commitment to premium materials and stringent supplier partnerships ensures exceptional cutting performance and durability.



Ra 0.03 μm (micro-polished)

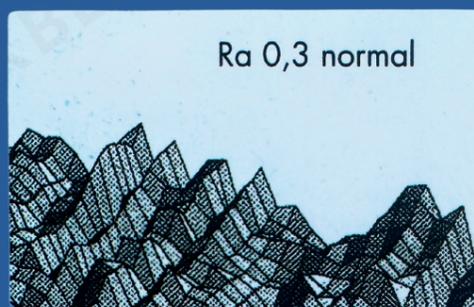


Ra 0.1 μm (polished)



Ra 0.4 μm (standard)

Typical surface with standard edge



ZXBlade surface finish and edge quality



Advantages of PM steel knives

- Better cutting quality
- Better grindability
- Homogeneous
- Solid material

MARKET NETWORK

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- Across our global operations, we unite in a singular mission: advancing innovation and technology through the expertise of our workforce.



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CERTIFICATIONS



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