



MILLER
CUTTING-EDGE
STEEL

martin  miller®
by voestalpine

MARTIN MILLER FLATBED STEEL RULES

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MARTIN MILLER ROTARY STEEL RULES

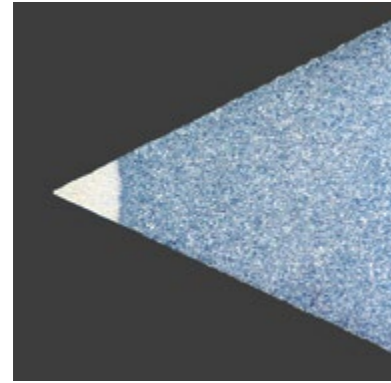
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“YOUR BUSINESS MAY BE TOUGH.
**BUT OUR CUTTING EDGE
IS EVEN TOUGHER.”**

Plasma technology: Martin Miller's secret. A few seconds at a temperature of approximately 10,000°C ensures a precise hardening process, without affecting the body hardness like other methods do. The result: extreme edge hardness for exceptional rule lifetime. **Martin Miller steel rules**

CUTTING RULES HP / HP+ / MM

Edge-hardened Cutting Rules



HP plasma hardened

HP – Properties

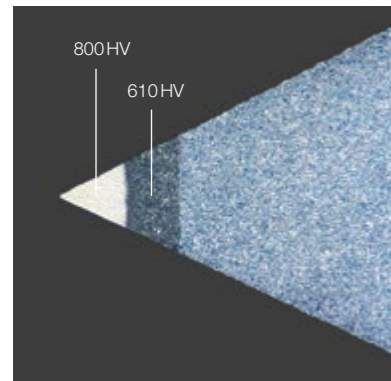
- Edge-hardened by special plasma hardening process
- Highest possible lifetime of the die, due to high cutting edge hardness of ~ 700HV
- HP technology is unique to Martin Miller cutting rules

HP – Application

- For recurring production runs with high number of cuts
- Dust reduction in the cutting process
- Optimized for tight bends

Special execution

Vikingflex HF cutting rules on request



HP+

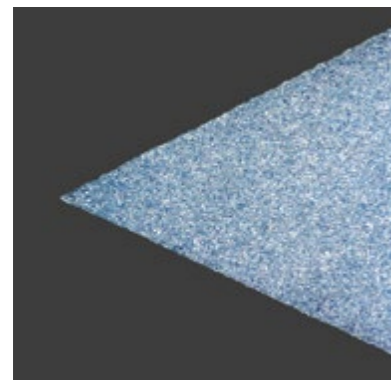
HP+ – Properties

- Unique dual edge hardening process
- Multi layer combines HF and Plasma hardening technology with ~ 800HV on tip and deep edge hardened zone
- Extended lifetime of cutting tool

HP+ – Application

- Processing on automatic bending machines still possible
- Carton, duplex board, rigid and thick materials, gaskets, stiff plastic, compounds

Through-hardened Cutting Rules



MM through hardened

MM – Properties

- Same hardness of body and cutting edge
- Reasonable bendability due to decarburisation

MM – Application

- Small to medium size runs/number of cuts
- Good bending properties
- All purpose rule (carton, corrugated)
- Best choice for abrasive material compositions (sandpaper, grinding discs, ...)

CUTTING RULES HP / HP+ / MM

Dimensions

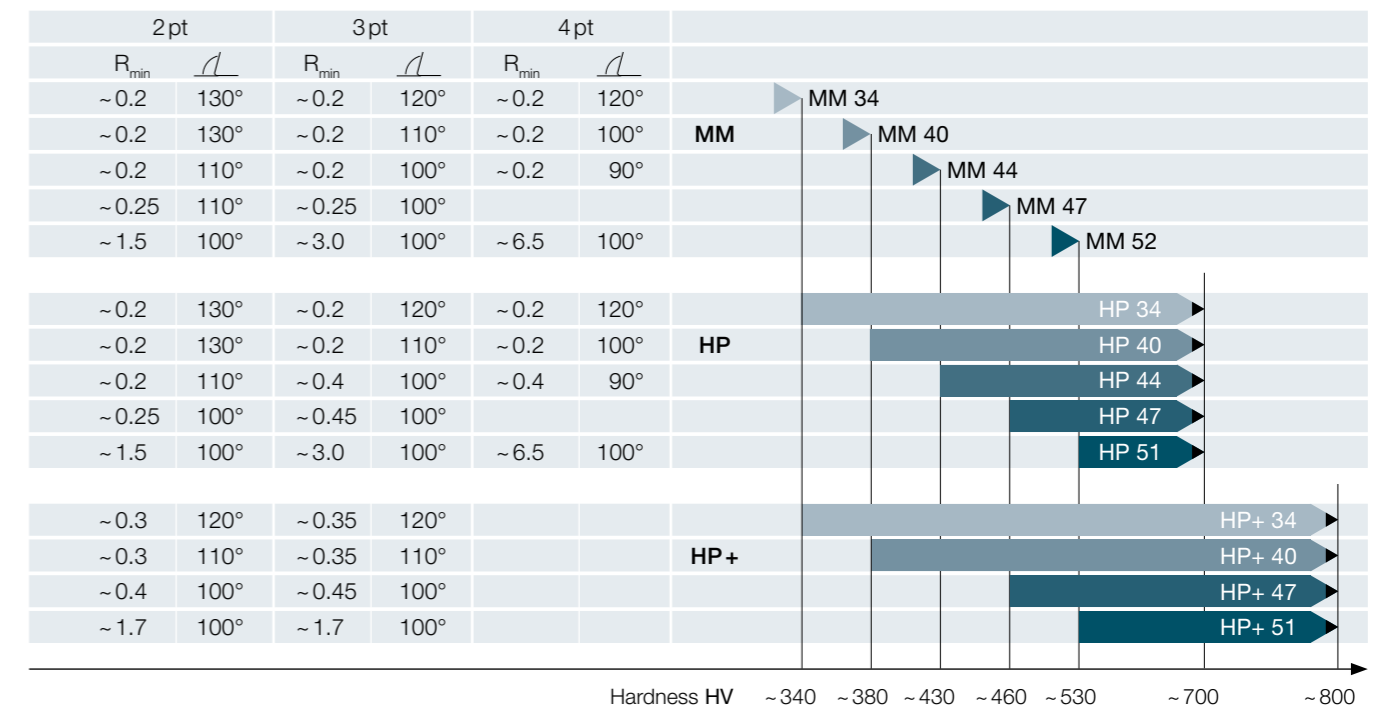
Rule Thickness

1.3pt/0.45 mm · 1.5pt/0.53 mm · 2pt/0.71 mm · 3pt/1.05 mm · 4pt/1.42 mm · 6pt/2.13 mm

Rule Height

8mm · 9.5mm · 10mm · 12–100mm

Bendability / Hardness Scale



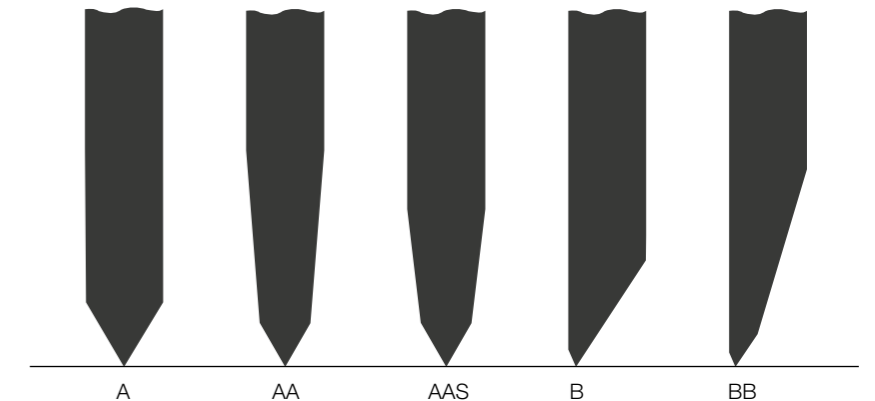
Cutting Bevel

Bevels

- A – Center bevel
- AA – Long center bevel
- AAS – Special long center bevel
- B – Side bevel
- BB – Long side bevel

Standard angle of the bevel: 54°
(for all bevel-types)

Other possible angles of the bevel:
30° / 35° / 42° / 60° / 75° (A-bevel only)



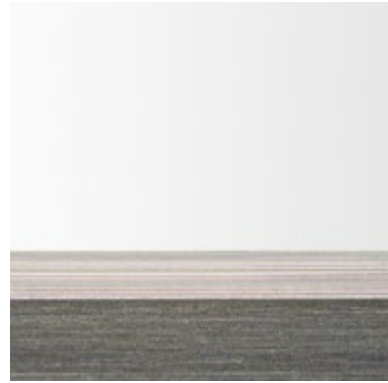
“OUR RESPONSE TO A CHANGING
WORLD:

FLEXIBLE ACTIONS AND THINKING OUTSIDE OF THE BOX”

It is not only a question of what we do but also how we do it: With passion and high performance engineering we provide our customers with today's and tomorrow's leading technologies. Take for example our SUPRA Z rule: An extremely sharp, precision-ground cutting edge with homogeneous, super-smooth bevel surface guarantees an outstandingly clean and burr-free cutting performance. **Martin Miller steel rules**

CUTTING RULES

Bevel Finish



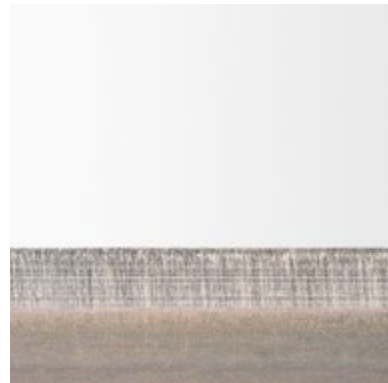
Shaved bevel – standard

Martin Miller cutting rules have a shaved bevel surface as standard which offers a very high degree of accuracy and edge straightness as well as excellent bending properties.



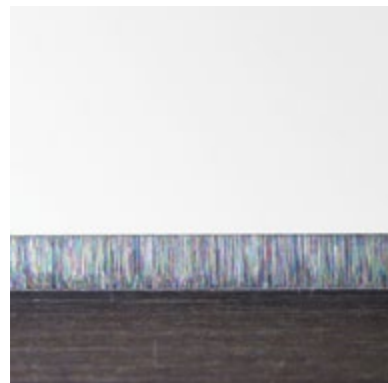
EXTRASHARP ES – base level ground

This rule finish provides very good cutting results because of the micro-teeth on the bevel. For materials like plastics, rubber and laminates the ground execution has proven its highest efficiency. With sharpness and low friction ES reduces formation of dust and angel hair. In comparison with standard shaved bevel, such cutting rules have a slightly reduced bendability.



REFLEXION R – special surface

Due to our advanced manufacturing technology we are able to offer a very smooth bevel structure, which greatly improves the bendability compared to cutting rules with a ES ground cutting edge. The rounded transition area between the bevel and the body also provides a better workability on all rule processing tools and in die cutting. Reflexion is suitable for synthetic material as well as for paper boards.



EZ FINE GROUND – advanced level ground

EZ fine ground represents an ideal compromise suitable for both price conscious purchasers and innovative production departments. Furthermore, in combination with our HP+ hardening technology this bevel finish is perfectly suitable for die-cutting of abrasive board or other materials that are difficult to cut.

SUPRA Z ultra-fine ground bevel

SUPRA Z



SUPRA Z. One of the latest developments by Martin Miller sets new standards regarding precision, sharpness and surface quality of the bevel.

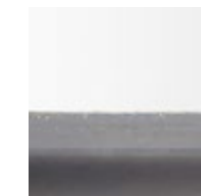
Ideally this rule should be used for:

- Plastic materials (e.g. PVC, PP, PET, PP..)
- Blister and foil
- Laminated or coated carton boards
- Labels
- High calliper carton

Especially in the field of label cutting sharpness, highest precision and tightest tolerances are required. When cutting plastic packaging materials, extraordinary sharp rules are requested, which reduce cutting pressure and permit smooth cutting. Our cutting rule SUPRA Z meets all these requirements. Therefore it is the best choice for your perfect cutting result.



View on SUPRA Z cutting edge under electron microscope, 30-times magnified.



60-times magnified

Execution	Vikingflex 34	Vikingflex 40	Vikingflex 47
Body hardness	~ 340HV	~ 380HV	~460 HV
Edge hardness	~ 610HV	~ 680HV	~ 720HV
Cutting bevel	A, AA	A, AA, B, BB	A, AA
Bevel finish	fine ground	fine ground	fine ground
Bevel angle	42°	30° / 42° / 54°	42°

SUPRA Z. Plastic Cutting Rule

	Vikingflex 34	Vikingflex 40	Vikingflex 47
Thickness	2 pt / 0.71 mm	2 pt / 0.71 mm	2 pt / 0.71 mm
		3 pt / 1.05 mm	3 pt / 1.05 mm
		4pt / 1.42 mm	
Height	23.60mm / 23.80mm	23.30–50.00mm	23.30–50.00mm
	0.929"/0.937"	0.917"– 1.968"	0.917"– 1.968"

SUPRA Z. Label Cutting Rule

	Vikingflex 34	Vikingflex 40	Vikingflex 47
Thickness	1.3 pt / 0.45 mm	1.3 pt / 0.45 mm	1.3 pt / 0.45 mm
		1.5 pt / 0.53 mm	
		2pt / 0.71 mm	
Height	8 mm / 12 mm	8 mm / 9.5mm / 12mm	8 mm / 9.5 mm / 12 mm
	0.314"/0.472"	0.314"/0.374"/0.472"	0.314"/0.374"/0.472"

STAINLESS

STAINLESS-CUT EZ



STAINLESS-CUT EZ

Always on the safe side. With EZ' clean cut and corrosion resistance. Stainless cutting rules are suitable for all applications where the highest hygienic standards apply, in particular in the food, healthcare and pharmaceutical industries.

Ideally this rule should be used for:

- Medical care products e.g. adhesive band aids, bandages, tissue
- Die-cutting jobs in conformity with highest hygienic food industry standards



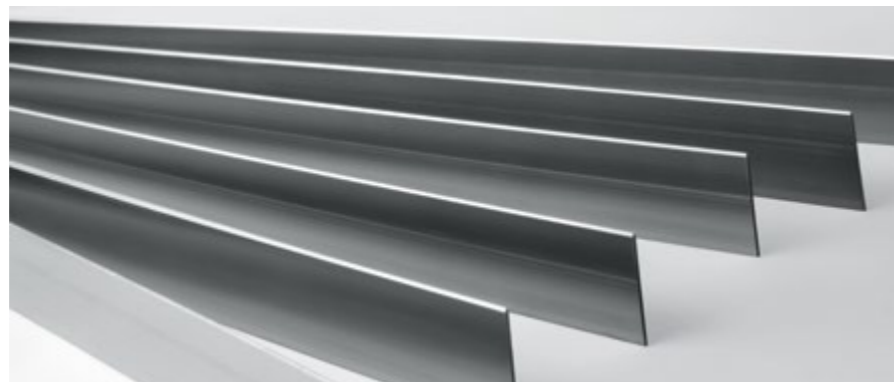
Execution Stainless	
Body hardness	~ 440HV
Edge hardness	~ 440HV
Cutting bevel	A/AA
Bevel finish	fine ground EZ
Bevel angle	54°
Surface color	silver
Thickness	2pt/0.71 mm, 3pt/1.05 mm
Height	23.80 mm x 2pt – 23.80 mm x 3pt – 38.10 mm x 3pt 0.937" – 1.500"
Other heights up to 100mm can be manufactured on request.	

BENEFITS

- Clean cut = no dust
- Corrosion-resistant, wet cleaning before use possible.

FEATURES

- Silver color rule surface
- Sharp cutting edge
- Fine ground bevel



CUTTING EDGE FINISH – OPTIONS

Molykote / Tinit



Molykote Mo

Based on a special coating process a thin Molykote film covers the cutting bevel and fills the small pores, providing a smooth edge surface.

BENEFITS

- Best suitability for self-adhesive materials
- Low dust risk
- Minimized friction between bevel and die-cut material



Tinit Ti

The ~ 2,400HV hard Tinit-coating on the hardened cutting bevel with a thickness of only ~ 0.002mm is one of our latest innovations. Processing and bending properties remain the same as with standard cutting rules.

BENEFITS

- Increased efficiency and cutting quality during the converting process
- Reduced "sticky" effect on the cutting bevel
- Dust reduction and increased rule life

Execution	HP40
Cutting bevel	A
Bevel finish	shaved with Ti coating
Bevel angle	54°
Surface color	silver
Thickness	2pt/0.71 mm, 3pt/1.05 mm
Height	23.80 mm 0.937"
Delivery form CW wound coils	



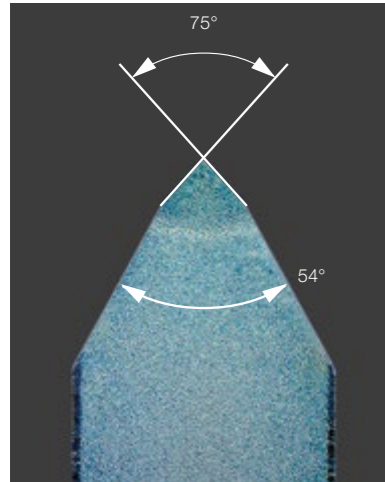
“OTHER MANUFACTURERS MAY
BEND.

**BUT WE ARE IN THE
RIGHT POSITION TO
MEET OUR PROMISES.”**

Martin Miller is a reliable and stable partner for successful customers. And stability in every situation is what our customers expect from our cutting rules. Need an example? Our MICROTOP rule combines three advantages in one product: It offers the stability of a big cutting angle (75°), it works with the cutting pressure and cutting process of a proven standard 54° rule and it features the unique Martin Miller plasma hardening technology. **Martin Miller steel rules**

MICROTOP / MICROTOP Z

The Cutting Rule with more Power



Martin Miller's MICROTOP combines the properties of the unique HP plasma hardening technology with the advantages of higher bevel strength and improved rule stability. The comprehensive strength of the MICROTOP rule is far higher compared to a rule with standard A-bevel. With the same edge hardness, the rule stays in shape longer due to the higher pressure resistance achieved through the unique bevel design.

- BENEFITS**
- Special bevel geometry
 - Reduction of make-ready time
 - Longer rule lifetime
 - Improved pressure distribution
 - Other bevel angle available upon request

HP 34/40 MICROTOP

Execution	HP 34/HP 40
Cutting bevel	A, AA
Bevel finish	shaved
Bevel angle	42°/75° or 54°/75°
Thickness	2pt/0.71 mm, 3pt/1.05 mm
Height	23.30–60.00 mm 0.917–2.362"
Bendability	130°/R ~0.20 mm (for 2pt) 120°/R ~0.20 mm (for 3pt)

MICROTOP Z

This rule is a combination of the advantages of the very stable MICROTOP and the ultra-fine ground bevel finish of SUPRA Z.

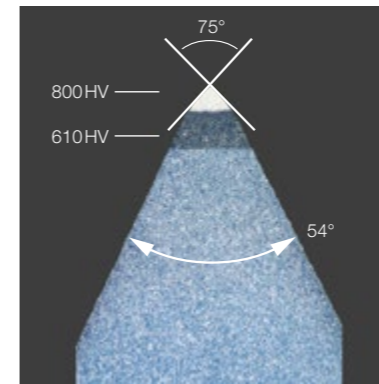


Execution	VIKINGFLEX 34/40
Cutting bevel	A, AA
Bevel finish	ultra-fine ground Z
Bevel angle	42°/60° or 54°/65°
Height	23.60 mm or 23.80 mm 0.929" or 0.937"

HP+ 34/40 MICROTOP

The Cutting rule for the most challenging applications

HP+ 34/40 MICROTOP



Martin Miller's HP+ MICROTOP performs best with long-run jobs which also might require narrow angle bending e.g. cigarette boxes or food trays. Due to the special dual edge hardening process this new cutting rule offers highest cutting edge hardness combined with advanced pressure distribution. In spite of its bevel hardness it can still be processed troublefree on automatic bending equipment.

- Ideally this rule should be used for:
- Carton (e.g. cigarette boxes, food trays...)
 - Corrugated board
 - Duplex board
 - Kraft cardboard

Execution	HP+ 34 MICROTOP	HP+ 40 MICROTOP
Body hardness	~340HV	~380HV
Edge hardness		
HP Plasma on tip	~800HV	~800HV
HF hardened zone	~610HV	~610HV
Edge hardening depth	~0.2 mm / ~.008"	~0.2 mm / ~.008"
Cutting bevel	A, AA	A, AA
Bevel finish	shaved	shaved
Bevel angle	42°/75° or 54°/75°	54°/75°
Thickness	2pt/0.71 mm, 3pt/1.05 mm	2pt/0.71 mm, 3pt/1.05 mm
Height	23.80 mm 0.937"	23.80 mm 0.937"
Bendability	120°/R ~0.30 mm (for 2pt) 120°/R ~0.35 mm (for 3pt)	110°/R ~0.30 mm (for 2pt) 110°/R ~0.35 mm (for 3pt)



PRECISION CUTTING RULES

Recommendations



4ec-bend:

The most important benefits of 4ec-bend cutting rules are tight thickness tolerances, extraordinary straightness as well as accurate flatness. Consequently easy processing on modern automatic cutting/bending machinery is guaranteed. This again will bring you closer to your target of an economic and efficient die shop.

Another aspect is to guarantee tightest specifications concerning mechanical and metallurgical parameters, in order to optimise consistent rule bending properties for fewer rule calibration actions on your auto bending equipment.

Application Recommendation

Material	Application	Rule grade	Bevel type	Bevel execution	Coating optional
Standard carton	folding carton	HP 34/40 MM 44	A	shaved	TiN
Laminated coated carton	perfume luxury boxes	HP 34/40 HP+ 40 Vikingflex 40/47	A	Reflexion EZ SUPRA Z	-
Recycled carton	folding carton	HP+ 40	A	42° EZ	-
Corrugated board	displays	HP 34/40 MM 44	A/AA	shaved MICROTOP	MoS2
High calliper carton	puzzles	HP 44 Vikingflex 34/40	AA	shaved MICROTOP Z	-
Plastics materials (PVC, PE, PET, PP...)	films, foils blister, labels	HF 40 Vikingflex 34/40/47	A/AA	shaved SUPRA Z MICROTOP Z	-
Stiff materials	gaskets	HP 51 HP+ 47/51	AA BB	shaved	-
Abrasive materials	sandpaper	MM 44/47/52	A/AA	shaved	-
Hard materials	kraft cardboard duplex board	HP+ 34/40 Vikingflex 40	A/AA	MICROTOP MICROTOP Z	-

CREASING RULES

Product Range



Execution

Standard hardened and tempered creasing rule
 HW hardness is achieved through modern cold-rolling technology, non-tempered

General

Only creasing rules with an exact profile geometry and best height tolerances can achieve an excellent creasing result. Also in combination with challenging materials higher speeds are possible on cutting presses as well as folder-gluer machines.

Standard Creasing Rules

Execution	HW	Standard
Hardness	min. 270HV	~ 370HV (≤3 pt)
Profile		R, RD
Thickness	1.5 pt / 0.53mm – 6 pt / 2.13mm	
Height	20.30 – 24.40mm	
	0.800" – 0.960"	



Tapered Creasing Rules

Execution	Standard
Hardness	~ 370HV
Profile	RR
Thickness	2/1 pt, 2/1.5 pt
Height	20.30 – 24.40mm
	0.800" – 0.960"



Microtrack R/K

Execution	Standard
Hardness	~ 370HV (3 pt), ~ 340HV (4 pt)
Profile	R/K
Thickness	3 pt, 4 pt
Height	21.00 – 23.30mm
	0.827" – 0.917"

STRIPPING & WAVE EDGE RULES

VOESTALPINE SPECIAL RULES



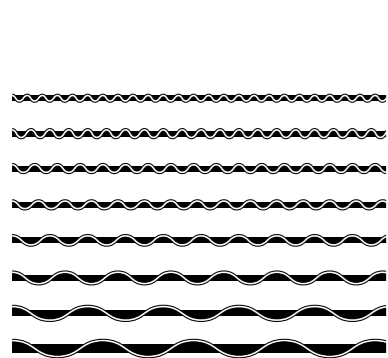
Stripping Rules

Execution	HW	MM 34	Viking 40
Hardness	min. 270HV	~340HV	~380HV
Bevel	GK (cut edges), FT (shaved), Needle Point (with teeth), waved		
Thickness	3 pt / 1.05 mm		
Height	45 mm, 50 mm, 55 mm, 65 mm 1.772", 1.969", 2.165", 2.559"		
Spacing	waved: 6:2 mm · 6:2.5 mm · 6:3 mm · 8:3 mm · 10:4.5 mm · 12:6 mm		
Needle Point	spacing: 5 mm · 6 mm	tooth depth: 0.5 mm · 1 mm	
Special	Bevel A-W, angle 42°, execution MM 44 tooth: 0.1 mm, gap: 3.18 mm, tooth depth: 0.7 mm		

Wave Edge Rules



Standard Coils or Cut-to-Length Execution	MM 40 / HP 40
Cutting bevel	A, AA
Thickness	2 pt, 3 pt (optional 4 pt)
Height	21.30–25.40 mm 0.840"–1.000"



Wave spacing	Wave width N = standard *	
	Bevel A, 2 pt, 1m length	Bevel A, 3 pt, 1m length
2.0mm	1.0mm	1.3mm
2.5mm	1.2mm	1.3mm
3.0mm	1.2mm	1.5mm
3.5mm	1.2mm	1.5mm
5.0mm	1.4mm	1.7mm
7.0mm	1.7mm	2.0mm
10.0mm	2.0mm	2.3mm
12.0mm	–	2.3mm

* Execution S = narrow, execution B = wide, available on request

Auto-Bender-Qualified Coils Execution	HP 34 / HP 40
Cutting bevel	AA
Thickness	2 pt, 3 pt
Wave width	within thickness of rule body
Wave spacing	1.5 mm, 1.7 mm, 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm

Bevel finish MICROTOP available from stock (3pt–1.7 mm, 2.0 mm, 3.5 mm)



In the future, special steel rules will be sold exclusively under the voestalpine brand. They will no longer be available under the Martin Miller product brand.

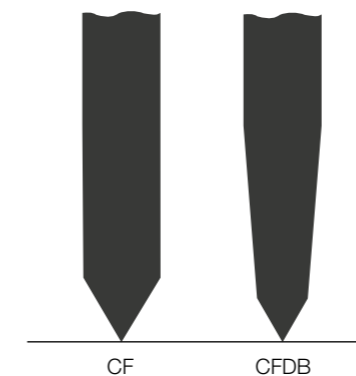
This will lead to some changes in the article description (as shown below). All product features and parameters will remain as they are.



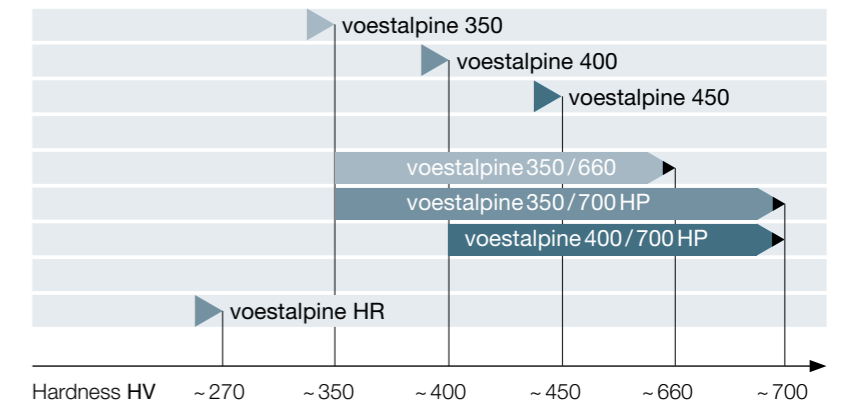
Cutting Bevel

A = CF = Center bevel
AA = CFDB = Long center bevel

Standard angle of the bevel: 54°
(for all bevel-types)



Hardness Scale



VOESTALPINE SPECIAL RULES

voestalpine Perforating Rules

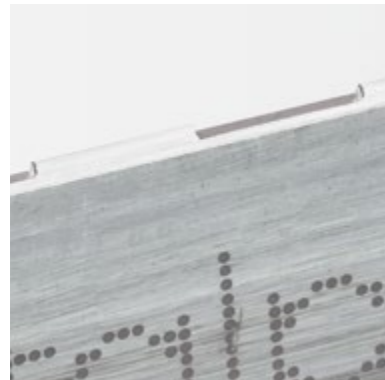


Execution	voestalpine 450	voestalpine 350/700 HP
Hardness	~ 450 HV	~ 350/700 HV
Bevel		CF (edge angle: 54°)
Thickness	2 pt/0.71 mm, 3 pt/1.05 mm, 4 pt/1.42 mm	
Height	21.30–25.40 mm	
	0.840"–1.000"	

Spacing (tooth/gap)
 All common tooth/gap-variations available (in millimeter-, point- and inch-spacings)
 Micro perforating rules (30-72 TPI) on request.

voestalpine Combination Cut/Crease Rules

Efficient Cut-Crease rules with optimized value for money – in standardized dimensions and variations with ground creasing part.



Execution	voestalpine 450	voestalpine 400/700 HP
Hardness	~ 450 HV	~ 380/700 HV
Bevel		CF/FTS (ground)
Thickness	2 pt/0.71 mm, 3 pt/1.05 mm	
Height	23.80 mm	
	0.937"	
Height creasing part	max. difference to cutting part 1.0 mm	
Spacing	(cut/crease height, tooth/gap – max. difference to cutting part 1.0 mm)	

Standard variations	5/5 mm, 6.35/6.35 mm, 10/10 mm, 12.7/12.7 mm
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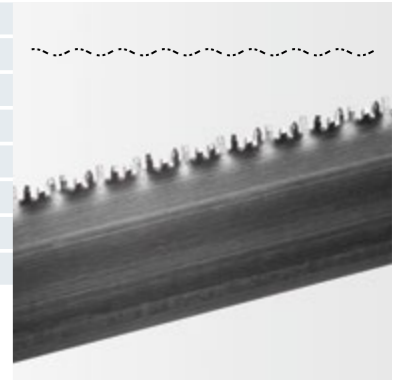
Special configuration	
Bevel	SR-CF
	For counter-cutting plates with milled creasing channels.
Creasing height	23.85 mm / 0.939"
Cutting height	23.80 mm / 0.937"

Special variations	
Bevel	CF (punched) or CF/FT (milled)
	CF/SR with rounded milled creasing part
Thickness	2 pt/0.71 mm, 3 pt/1.05 mm, 4 pt/1.42 mm
Height	21.30–25.40 mm
	0.840"–1.000"
	All common Cut/Crease-variations available (in millimeter- and inch-spacings)

VOESTALPINE SPECIAL RULES

voestalpine Glue Flap Rules

Execution	voestalpine 450	
Hardness	~ 450 HV	
Bevel	CF (edge angle: 54°)	
Thickness	2 pt/0.71 mm	
Height	22.80–23.60 mm	
	0.897"–0.929"	
Spacing	spacing (tooth/gap)	2 pt/2 pt · 1 mm/1 mm
	wave spacing	5 mm



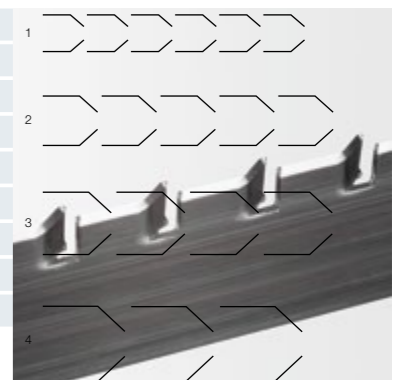
voestalpine Tear Edge Rule – used for creating hand holes and general zipper applications.

Execution	voestalpine 350/660	
Hardness	~ 350 HV / ~ 660 HV	
Bevel	CFDB/angle 30°	
Thickness	0.71 mm/2 pt, 1.05 mm/3 pt	
Height	23.80 mm	
	0.937"	
Spacing	3 mm · 4 mm · 5 mm	
	Direction left / right (separately packed)	

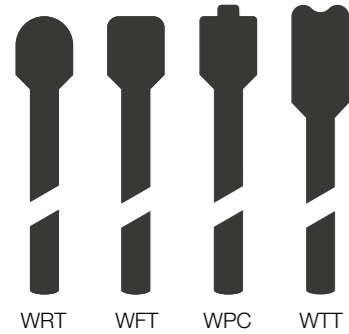


voestalpine Zipper Edge Rules

Execution	voestalpine 450	
Hardness	~ 450 HV	
Bevel	CF (edge angle: 54°)	
Thickness	2 pt/0.71 mm, 3 pt/1.05 mm	
Height	21.30–25.40 mm	
	0.840"–1.000"	
Spacing	¹⁾ 6 mm ²⁾ 8 mm ³⁾ 10 mm ⁴⁾ 12 mm	
	straight – angled part	3/5–2/5
	Direction left / right (separately packed)	



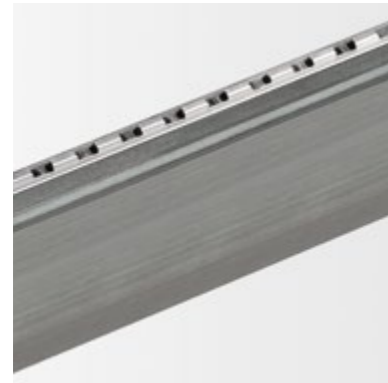
VOESTALPINE SPECIAL RULES



voestalpine Heavy Top Creasing Rules

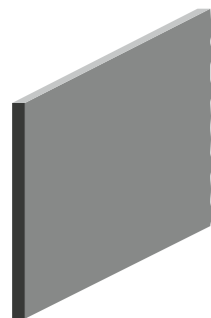
Execution	voestalpine HT 370, voestalpine HT 400
Hardness	~370HV, ~400HV (2/3pt, 3/4pt)
Profile	WRT, WFT, WPC, WTT
Thickness	2/3pt, 2/4pt, 3/4pt, 3/6pt, 3/8pt
Height	20.30–24.40mm
	0.800"–0.960"

voestalpine WPCFT – Special Creasing Rule 4/8pt



Execution	voestalpine HT 370
Hardness	~370HV
Bevel	WPC
Thickness	3/8pt, 4/8pt
Height	20.30–24.40mm
	0.800"–0.960"
Tooth	2.50mm
Gap	2.00mm

voestalpine Spacing Rules



Execution	voestalpine 400/voestalpine HR
Hardness	~380HV (≤3pt), min. 270HV (>3pt)
Profile	GK (cut edges) or FT (shaved)
Thickness	1.5pt/0.53mm–6pt/2.13mm
Height	12–20mm
	0.472"–0.787"

Standard heights for all common die boards available

VOESTALPINE SPECIAL RULES

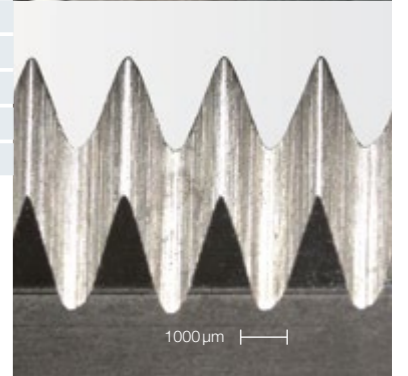


voestalpine Serrated Stainless Steel Rules – SF deep serrated 12T

Customized solutions for special food, household and healthcare applications.

Execution	voestalpine stainless
Hardness	~440HV
Bevel	SF/STE special 12T
Thickness	2pt/0.71mm · 3pt/1.05mm
Height	30.00 – 1.181" · 50.00mm – 1.969"

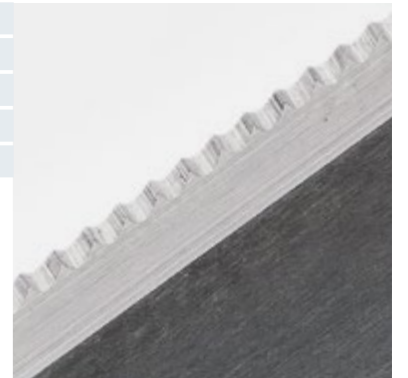
Available in coils or cut to 1m length. Other dimensions on request!



voestalpine Serrated Stainless Steel Rules – FineCut 14T

Execution	voestalpine stainless
Hardness	~440HV
Bevel	T-FC 14T
Thickness	3pt/1.05mm · 4pt/1.42mm
Height	50.80mm – 2.000" · 50.00mm – 1.969"

Available in coils. Other dimensions on request!





“AT MARTIN MILLER WE DEFINE
CORE QUALITIES LIKE THIS:

**SOFT WHERE IT IS
NEEDED – HARD WHERE
IT MATTERS!”**

Thanks to our special hardening technique every Martin Miller steel rule comes with a hard inner body and a decarburized surface zone that acts like a soft skin. This combines the advantages of high rule stability (needed for long tool life) and good and uniform bendability (needed for automatic rule processing) in one product.
Martin Miller steel rules

QUALITY CHARACTERISTICS

PACKAGING UNITS AND FORMS OF DELIVERY

Dimension Tolerances

Thickness Tolerances

Rule Thickness			Thickness Tolerance	
[pt]	[mm]	[inch]	[mm]	[inch]
1.3	0.45	0.018"	±0.015	±0.0006"
1.5	0.53	0.021"	±0.015	±0.0006"
2	0.71	0.028"	±0.015	±0.0006"
3	1.05	0.041"	±0.020	±0.0008"
4	1.42	0.056"	±0.020	±0.0008"
6	2.13	0.084"	±0.025	±0.0010"

Height Tolerances

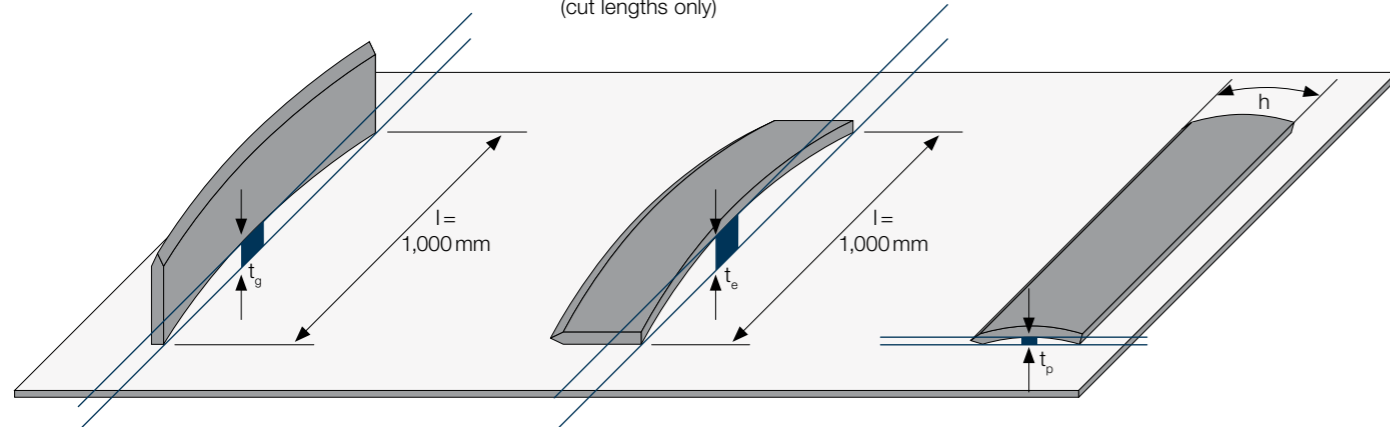
Rule Height h		Height Tolerance	
[mm]	[inch]	[mm]	[inch]
8.00–25.40	0.315"–1.000"	±0.020	±0.0008"
>25.40–50.80	>1.000"–2.000"	±0.025	±0.0010"
>50.80–76.20	>2.000"–3.000"	±0.030	±0.0012"
>76.20–100.00	>3.000"–3.937"	±0.035	±0.0014"
Height tolerances for creasing rules:			
20.30–24.40	0.800"–0.960"	+0/-0.040	+0/-0.0016"

Tolerances of Form

Straightness
tg: = max. 0.5 mm/1,000 mm rule length l

Coilset
te: = max. 5 mm/1,000 mm rule length l (cut lengths only)

Flatness
tp: = max. 1 µm/mm rule height h



All Types of Rule

M = 1 m and 1.5 m lengths
l = 762 mm (30") lengths



Rule Thickness			Packing units (in pieces) for heights of:				
[pt]	[mm]	[inch]	6.35–27 mm	>27–40 mm	>40–100 mm		
				M	l	M	l
1.3	0.45	0.018"	150				
1.5	0.53	0.021"	140				
2	0.71	0.028"	100	35	70	35	
3	1.05	0.041"	70	25	50	25	24
4	1.42	0.056"	50	17	34	17	16
6	2.13	0.084"	30	12	24	12	
8	2.84	0.056"	25				

Wave Edge and Glue Flap Rules

Rule Thickness			for Wave Spacing W of:	
[pt]	[mm]	[inch]	2 · 2.5 · 3 · 3.5 mm	5 · 7 · 10 mm
2	0.71	0.028"	100	70
3	1.05	0.041"	60	60

Zipper Rules / TearM Rules: left/right side separately packed

Rule Thickness			for Tooth Spacing A of:	
[pt]	[mm]	[inch]	6 · 8 · 10 · 12 mm	
2	0.71	0.028"	all 2 pt per side – >30 m	
3	1.05	0.041"	all 3 pt per side – >30 m	

Stripping Rules: waved

Rule Thickness			for Rule Height of:	
[pt]	[mm]	[inch]	30–40 mm	45–50 mm
3	1.05	0.041"	40	20

Form of Delivery

In lengths	rule length	1 m/762 mm (30") – Standard	1.5 m/2 m on request
In coils	coil length	2pt – 100 m · 3pt – 70 m · 4pt – 50 m · 6pt – 30 m	
	inner coil Ø	356 mm, 400 mm	
	standard inner coil dia. for high cutting rules (30–100 mm)	521 mm	
	winding direction	coil end on top right hand "6"	coil end on top left hand "ø"
	(view on bevel)	(R: clockwise)	(RU: counter-clockwise)
	rule marking	coil outside	coil inside



“NO MATTER HOW STRESSFUL
YOUR DAILY BUSINESS MIGHT BE.

**WE KNOW THAT ONLY
RELAXED ACTIONS LEAD
TO FANTASTIC RESULTS.”**

The way we treat our customers is also the way we treat our high-performance steel: stress-free! We do mechanical and thermal stress relief on all radial rotary rules after curving them to the required diameter. This technique offers important benefits: a precise inner curving diameter, a tight fit in the cutting die, and a minimised risk of cracks and material fatigue fractures. **Martin Miller steel rules**

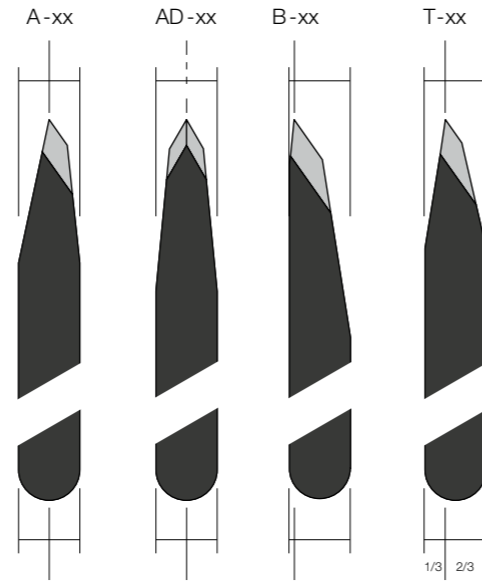
ROTARY CUTTING RULES

Types of Bevel

Specification

Execution*	MM 34	HP 34 / HF 34
Hardness body	~ 340HV	~ 340HV
Hardness edge	~ 340HV	~ 530HV
Bevel finish	ground teeth, long bevel shaved	
Thickness	3pt / 1.05mm, 4pt / 1.42mm, 6pt / 2.13mm	
Height	21.30–30.16mm	
	0.840"–1.187"	

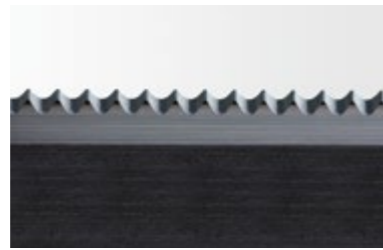
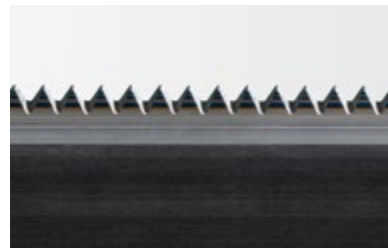
* HP 40 on request



Tooth Shape

Standard Rotary Cutting Rules

ST – Standard	RS – Round Shape	DC – Double Cut
Standard design, aggressive tooth shape	round gullet – pointed tooth	smaller gullet depth
for general use	best bendability	less wear on anvils



Profiles	TPI	Profiles	TPI	Profiles	TPI
A-ST/AD-ST	8T	A-RS/AD-RS	8T	AD-DC	8T*
A-ST/AD-ST	10T	A-RS/AD-RS	10T	AD-DC	10T
A-ST/AD-ST	12T**	A-RS/AD-RS	12T*	AD-DC	12T

* preferred stock item

** voestalpine Special Rules: AD-ST 12T = CF/STC 12tpi

SPECIAL ROTARY CUTTING RULES

FineCut 14T / BST 12T / AST 20T

FineCut 14T

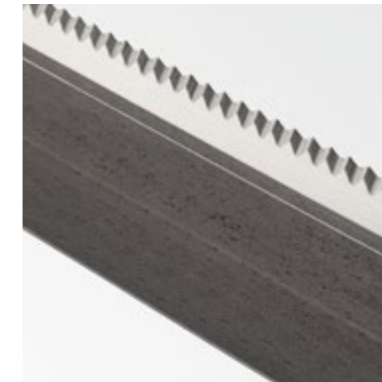
It performs with minimal penetration on many different types of materials.



Execution	MM 40	MM 44	HP 44
Hardness body	~ 380HV	~ 430HV	~ 430HV
Hardness edge	~ 380HV	~ 430HV	~ 530HV
Thickness			3pt / 1.05mm 4pt / 1.42mm
Height			23.80–50.80mm 0.937"–2.000"
Bevel			T (Asymmetric)

BST 12T

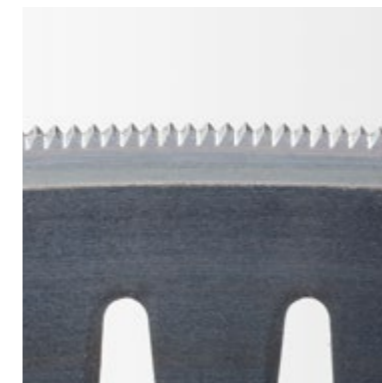
12T was the starting point in rotary diecutting and has moved more and more from side bevel to center bevel. However side bevel still has some limited applications today.



Execution	MM 34	HP 34
Hardness body	~ 340HV	~ 340HV
Hardness edge	~ 340HV	~ 530HV
Thickness	4pt / 1.42mm	
Height	23.80–26.40mm 0.937"–1.039"	
Bevel	B (Side bevel)	

AST 20T

This rule is appropriate when a clean edge appearance is required.



Execution	MM 34	HP 34
Hardness body	~ 340HV	~ 340HV
Hardness edge	~ 340HV	~ 530HV
Thickness	4pt / 1.42mm	
Height	23.80–26.40mm 0.937"–1.039"	

SPECIAL ROTARY CUTTING RULES

AHC 8 TPI / ADST 5 TPI

AHC 8 TPI

8 TPI

Especially developed for flatbed die-cutting of honeycomb board.

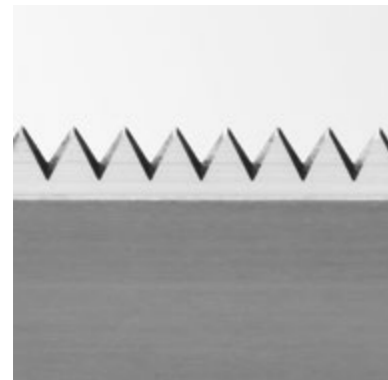


Execution	HF 44
Hardness body	~ 430 HV
Hardness edge	~ 530 HV
Thickness	3 pt / 1.05 mm, 4 pt / 1.42 mm
Height	30.00–101.60 mm
	1.181"–4.000"
Bevel	AHC

ADST 5 TPI

5 TPI

Very aggressive tooth shape, which is designed to cut heavy duty packaging materials.



Execution	MM 44	HF 44
Hardness body	~ 430 HV	~ 430 HV
Hardness edge	~ 430 HV	~ 530 HV
Thickness	4 pt / 1.42 mm	
Height	23.80–101.60 mm	
	0.937"–4.000"	
Bevel	ADST	

B-VT deep-5 TPI

5 TPI

Extremely aggressive asymmetric tooth shape, which performs in a variety of applications. B-VT deep-5 TPI is the right choice for cutting into air or a slot.



Execution	MM 34
Hardness body	~ 340 HV
Hardness edge	~ 340 HV
Thickness	4 pt / 1.42 mm
Height	101.60 mm
	4.000"
Bevel	BVT

ROTARY CREASING RULES

Rotary Creasing Rules

Specification

Execution	HW	MM34
Hardness	min. 270 HV	~ 340 HV
Profile	R	R
Thickness Body	4 pt / 1.42 mm	4 pt / 1.42 mm
Height	20.0–26.00 mm	20.0–26.00 mm
	0.790"–1.024"	0.790"–1.024"

Other heights on request

Types of Profile

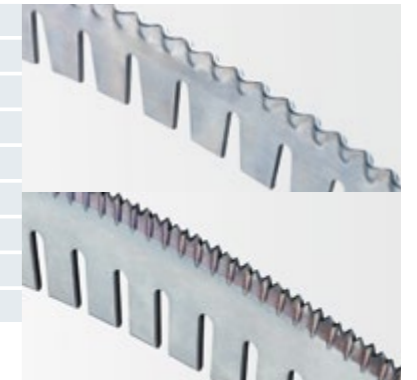


WaveM WaveM Special rotary wave cutting and creasing rule

- Cutting: For safety edge applications
- Creasing: For creasing in direction of the corrugated flute, supports better dimensional accuracy when folding the carton

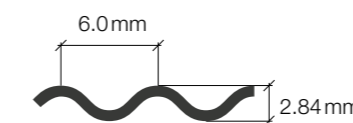
	Creasing	Cutting
Execution	HW (hard rolled)	MM 34
Hardness	~ 265 HV (850 N/mm ²)	~ 340 HV
Bevel	R (single round, waved)	AD/ST 12 tpi
Thickness	4 pt / 1.42 mm	4 pt / 1.42 mm
Height	20.00–26.00 mm	23.80–26.40 mm
	0.790"–1.024"	0.937"–1.039"
Wave spacing	6.0 mm	3.5 mm / 5.0 mm
Wave depth	2.84 mm	1.60 mm

WaveM creasing rule – 6.0mm wave spacing

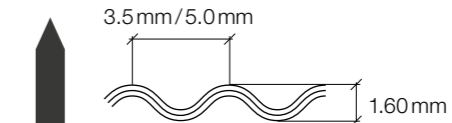


WaveM cutting rule – 3.5 mm wave spacing

Creasing



Cutting



Microtrack R/K Avoids cracking of corrugated board against flute direction

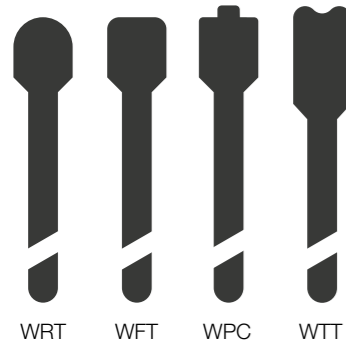
Execution	MM 34
Hardness body	~ 340 HV
Thickness	4 pt / 1.42 mm
Height	21.00–23.30 mm
	0.827"–0.917"
Delivery form	SNN / CUR / CNN



VOESTALPINE SPECIAL RULES

voestalpine Rotary Special Rules

Types of Profile



voestalpine Specification

Execution	voestalpine HT 370
Hardness	~370HT
Profile	WRT, WFT, WPC, WTT
Thickness Body	4 pt / 1.42 mm
Thickness Head	6 pt / 2.13 mm . 8 pt / 2.84 mm
Height	20.0–26.00 mm
	0.790"–1.024"

Other heights on request

WRT/E, WFT/E

Special creasing rule with grooves Avoids any damage (tearing or bursting) of the top layer during the creasing process.



Execution	voestalpine HT 370
Hardness body/head	~370HV
Thickness body/head	4 pt / 1.42 mm–8 pt / 2.84 mm
Height	20.0–26.00 mm
	0.790"–1.024"
Delivery form	SNN / CUR

WRT/14 PT, WFT/14 PT

voestalpine WRT/14 PT, WFT/14 PT Solves folding issues on thick corrugated board (five-ply, seven-ply)



Execution	voestalpine HT 350
Hardness body	~350HV
Thickness	4 pt / 1.42 mm–14 pt / 4.94 mm
Height	21.30–35.00 mm
	0.917"–1.039"
Delivery form	SNN / CUR



WRT

WFT

VOESTALPINE SPECIAL RULES

voestalpine Perforating and Cut-Crease Rules

voestalpine Perforating and Cut-Crease Rules

Execution	voestalpine 350
Hardness	~350HV
Bevel	CF (shaved standard bevel) CF/STC 12tpi** (ground teeth, long bevel shaved)
Thickness	4 pt / 1.42 mm
Height	21.30–26.70 mm
	0.840"–1.050"

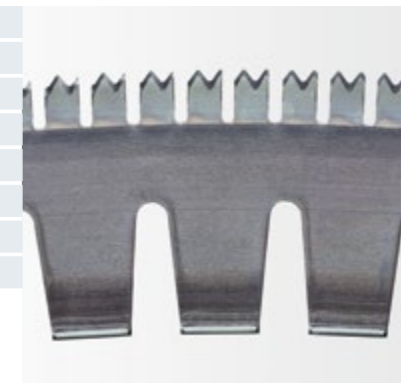
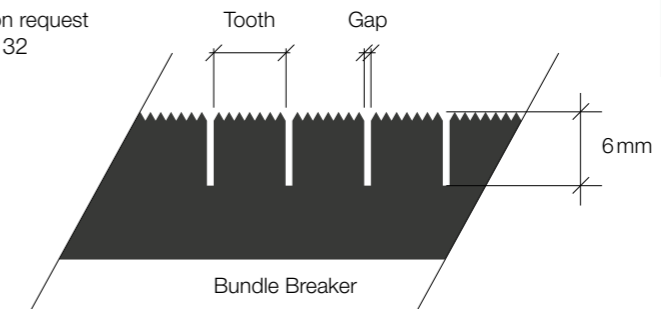
** Explanation on page 32



voestalpine Perforating Rule "Bundle Breaker" Special tooth gap combination – for nicks on rotary knives with standard serration

Execution	voestalpine 350
Hardness	~350HV
Bevel	CF/STC 12tpi**
Thickness	4 pt / 1.42 mm
Height	21.30–26.70 mm
	0.840"–1.050"
Minimum gap	1.42 mm
Back notch depth	9.50 mm

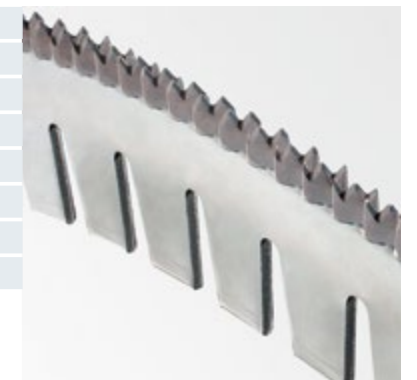
Available combinations on request
** Explanation on page 32



voestalpine Tear Edge Rule Serrated rotary zipper rule – used for creating hand holes and general zipper applications.


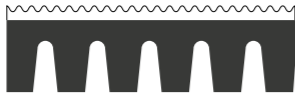


Execution	voestalpine 350
Hardness	~340HV
Bevel	CF/STC 12tpi**
Thickness	4 pt / 1.42 mm
Height	21.30 mm–26.40 mm
	0.840"–1.039"
Length of tooth	4 mm
Direction	left/right (separately packed)

Others on request.
** Explanation on page 32



HARDNESS CONVERSION

Back Executions

SNN	SN	CUR	CNN
straight, no notches	straight, with notches	curved, with notches	curved, no notches
			
Notch depth t = 12.7 mm – conical (CON), t = 12.2 mm – parallel (PAR)			
Notch distance T = 12.7 mm – conical (CON), T = 10 mm – parallel (PAR)			
Other notch depths on request.			

Form of Delivery

		SNN	SN	CUR	CNN
in lengths	rule length	1 m/762 mm (30")	1 m/762 mm (30")	–	–
in coils	coil length	3 pt–70 m · 4 pt–50 m	3 pt–70 m · 4 pt–50 m	4 pt–30.5 m	4 pt–30.5 m
	standard inner coil-Ø	400 mm	400 mm	487 mm	487 mm
	(others on request)			(174 mm–740 mm)	(270 mm–664 mm)
	winding direction	RU: coil end on top left hand "ø"		N: counter-clockwise	
	(view on bevel)	R: coil end on top right hand "6"		U: clockwise	
Due to our unique production method we achieve extremely small curving diameters: CUR = 174 mm, CNN = 270 mm					



Martin Miller Cutting Edge Steel Hardness Conversion

Vickers Hardness		Rockwell Hardness		Shore Hardness	
(HV)	(HV)	(HRC)	(HRC)	~(HS)	~(HS)
800	490	64.0	48.4	88	65
780	480	63.3	47.7	87	–
760	470	62.5	46.9	86	63
740	460	61.8	46.1	–	–
720	450	61.0	45.3	83	–
700	440	60.1	44.5	–	59
690	430	59.7	43.6	–	–
680	420	59.2	42.7	80	–
670	410	58.8	41.8	–	56
660	400	58.3	40.8	79	54
650	390	57.8	39.8	–	–
640	380	57.3	38.8	77	–
630	370	56.8	37.7	–	51
620	360	56.3	36.6	75	50
610	350	55.7	35.5	–	48
600	340	55.2	34.4	–	47
590	330	54.7	33.3	73	46
580	320	54.1	32.2	–	45
570	310	53.6	31.0	71	43
560	300	53.0	29.8	–	–
550	290	52.3	28.5	70	41
540	280	51.7	27.1	–	40
530	270	51.1	25.6	68	38
520	260	50.5	24.0	–	37
510	250	49.8	22.2	66	35
500	240	49.1	20.3	–	34

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