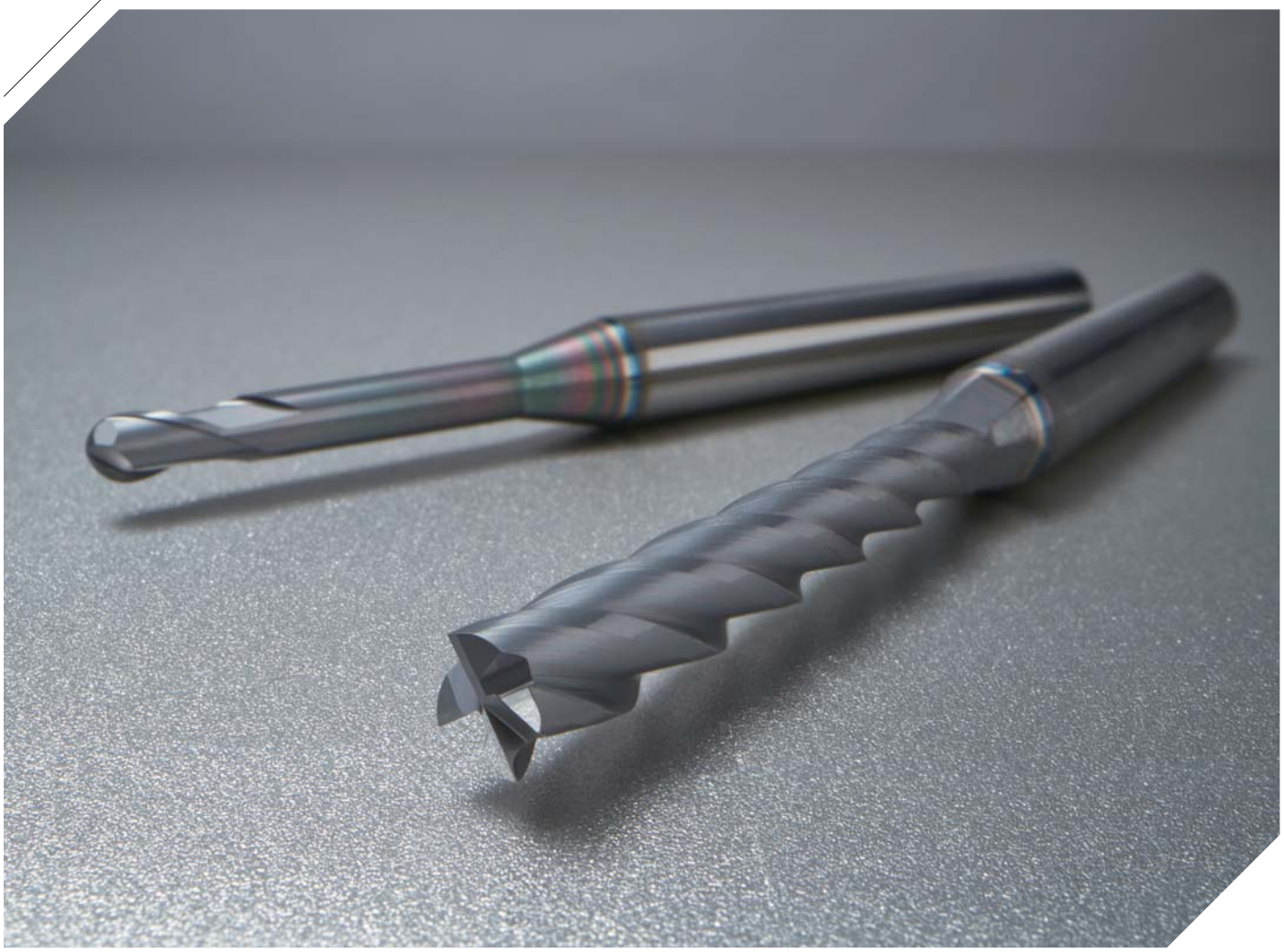
KORLOY
TECH-NEWS

U-Star Endmill

General use Endmill for medium hardness and alloy steel cutting

- Wide line-ups for cutting various and complicated shaped workpieces
- Long tool life due to new coating and optimal substrate for cutting



KORLOY

KORLOY
TECH-NEWS

General use Endmill for medium hardness and alloy steel cutting

U-Star Endmill

The U-Star Endmill is launched with various shapes and line-ups for machining medium hardness steel workpieces (HRC30~50) - especially for the complicated shaped molds.

The **U-Star Endmill** ensures high cutting quality dispersing cutting load from s-curved gash shape and reduced fracture from chipping resistance enhanced cutting edge. In addition, U-Star Endmill realizes high quality cutting with its high precision tolerance management. It has good chipping resistance as it adapted optimal substrate selection per Endmill shapes for medium hardness workpiece machining and the application of new AlCrN multi layered coating grants excellent wear resistance, enhanced anti oxidation, and excellent lubrication ensuring stable machining under high frictional heat condition.

KORLOY's U-Star Endmill will serve to achieve high productivity with its various line-ups for medium hardness workpiece cutting and high cutting performance.

» Various line-ups

- Ball/flat/radius/roughing
- Rib type (straight and taper)

» Enhanced wear resistance, Anti-oxidation and lubrication

- New AlCrN series multi layered coating

» Increased cutting performance and precision

- Dispersion of cutting load from S-curved gash shape
- h5 level shank and high precision Endmill diameter/ radius management

» Increased chipping resistance

- Optimal substrate up to Endmill shapes
- Sharp cutting edge

Code system

U	R	50	2	030	10	25	100	S3

U-Star Endmill

Type
B : Ball
SB : Staright ball
E : Flat
R : Radius
SPM : High feed
XE : Heavy cut flat
XR : Multi helix radius
TE : Taper flat
TR : Taper radius
TB : Taper ball
DR : Double radius
F : Roughing
LE : Flat (lathe)

Length/ shank type
50 : Straight
51 : Neck
52 : Long shank
53 : Lollipop
54 : Taper neck

No. of flute
2 : 2 flutes
3 : 3 flutes
4 : 4 flutes
5 : 5 flutes
6 : 6 flutes

Tool dia.
010 : Ø1.0 mm
060 : Ø6.0 mm
250 : Ø25.0 mm

Corner R
005 : 0.05 mm
010 : 0.10 mm
020 : 0.20 mm

Effective length
005 : 0.5 mm
10 : 10 mm
50 : 50 mm

Overall length
50 : 50 mm
100 : 100 mm
150 : 150 mm

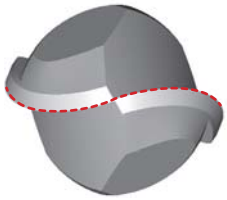
Shank dia.
S3 : Ø3 mm
S6 : Ø6 mm
S20 : Ø20 mm

Features

- Carbide Endmill for HRC30~50 medium hardness steel and die steel cutting
- Enhanced wear resistance, anti-oxidation and lubrication by applying AlCrN series coating layer
- Enhanced cutting edge strength of ball Endmill applying ultra-fine substrate (PC303W)
- Higher chipping resistance of flat Endmill applying high toughness substrate (PC315W)
- Various shaped line-ups for complicated mold machining
- Suitable for precision cutting with high precision tolerance of h5 shank, flute and radius

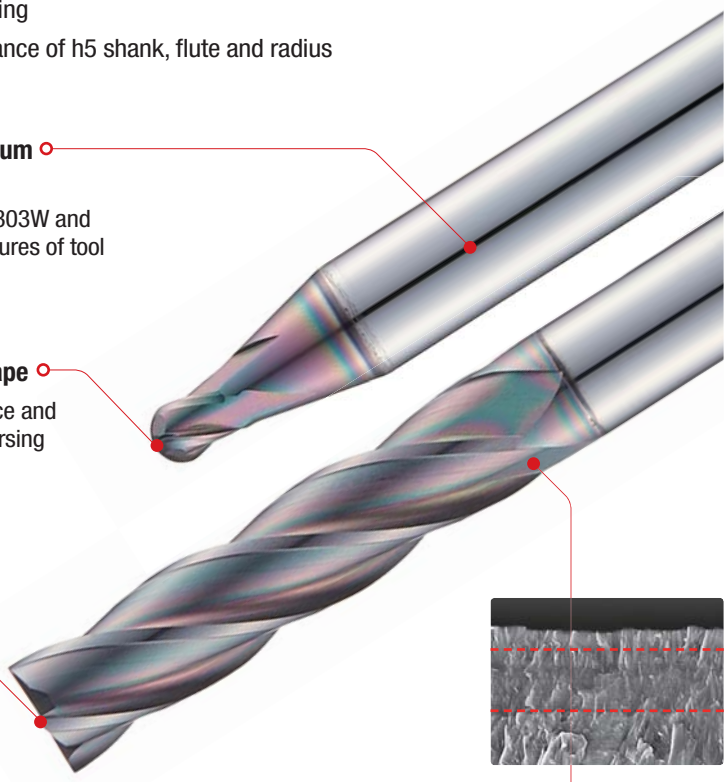
Applying substrate for medium hardness steel cutting

- Separating the substrate (PC303W and PC315W) maximizes the features of tool and ensures general use.



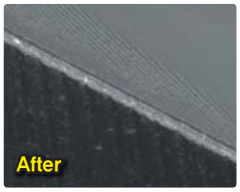
Applying S-curved gash shape

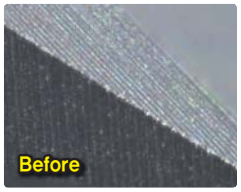
- Increased cutting performance and wear resistance due to dispersing cutting force



Edge treatment

- Enhanced chipping resistance in the beginning of cutting
- Guiding stable cutting for managing the properties of mold machining



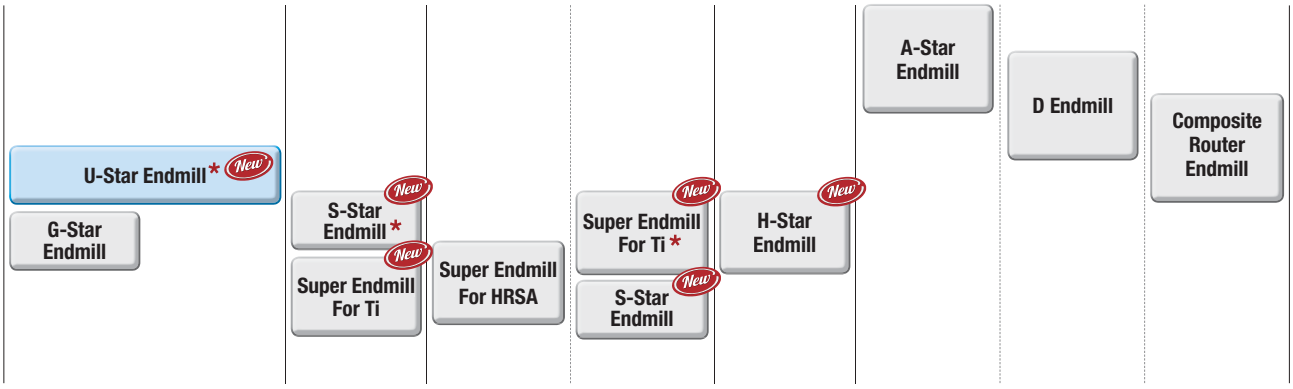


AlCrN base new coating

- Increased wear resistance and oxidation resistance by multi layer
- Enhanced lubrication with Cr containing
- Stable cutting under frictional heat

Tool selection guide

*: 1st recommendation



• Applicable workpiece

◎: Excellent ○: Good

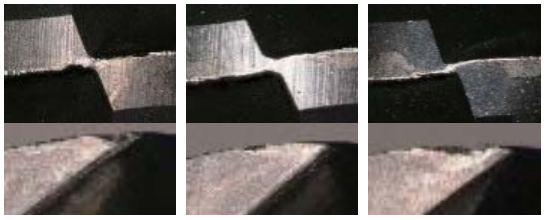
Carbon steel (~HB225)	Alloy steel (HB225~325)	Pre-hardened steel (HRC30~50)	Hardened steel		Cast iron ~FCD500	Aluminum	Stainless steel	Ti alloy	Ni alloy
			SKD61 (~HRC55)	SKD11 (HRC55~)					
○	◎	◎	○		○				

Application examples

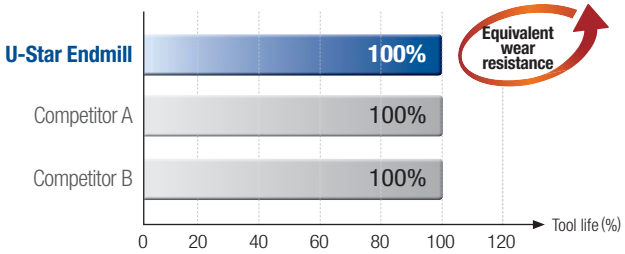
Pre-hardened steel (STAVAX)

Cutting conditions vc(m/min) = 157, fz(mm/t) = 0.17, ap(mm) = 0.18, ae(mm) = 0.3, wet

Tool UB502060 (Diameter = Ø6, PC303W)



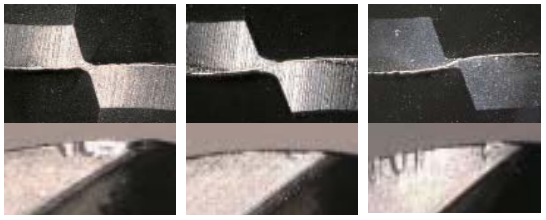
[U-Star Endmill] [Competitor A] [Competitor B]



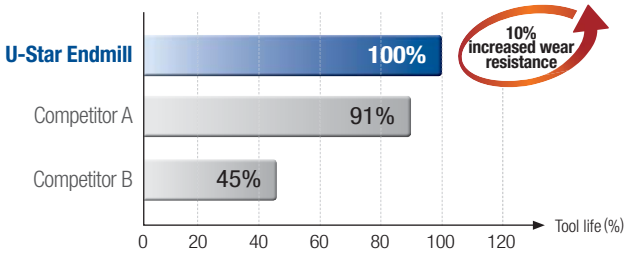
Pre-hardened steel (KP4M)

Cutting conditions vc(m/min) = 151, fz(mm/t) = 0.15, ap(mm) = 0.18, ae(mm) = 0.3, wet

Tool UB502060 (Diameter = Ø6, PC303W)



[U-Star Endmill] [Competitor A] [Competitor B]

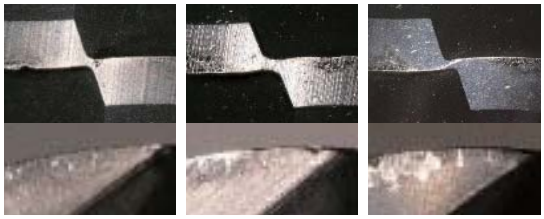


Application examples

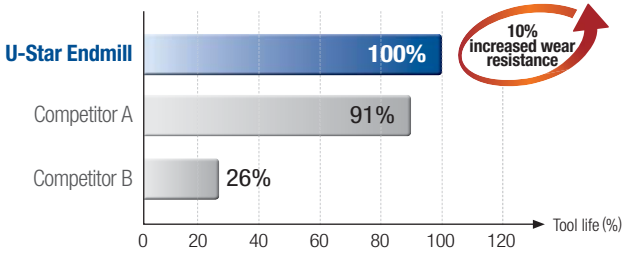
Pre-hardened steel (NAK80)

Cutting conditions vc(m/min) = 134, fz(mm/t) = 0.17, ap(mm) = 0.18, ae(mm) = 0.3, wet

Tool UB502060(Diameter = Ø6, PC303W)



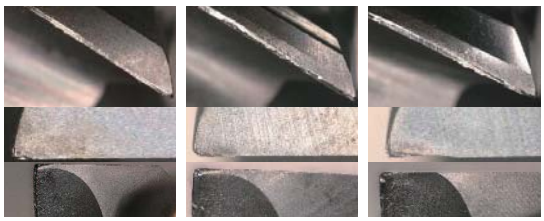
[U-Star Endmill] [Competitor A] [Competitor B]



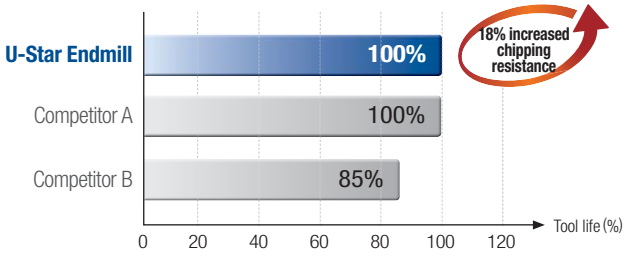
Pre-hardened steel (STAVAX)

Cutting conditions vc(m/min) = 54, fz(mm/t) = 0.03, ap(mm) = 6.0, ae(mm) = 0.3, wet

Tool UF504060(Diameter = Ø6, PC315W)



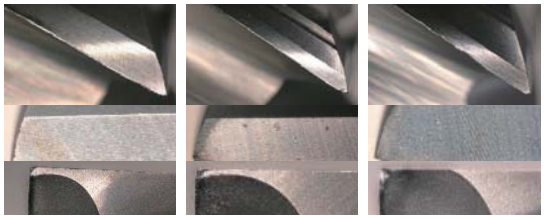
[U-Star Endmill] [Competitor A] [Competitor B]



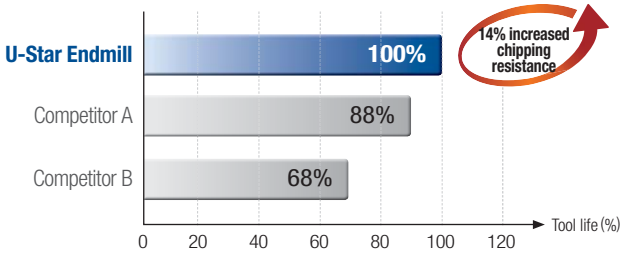
Pre-hardened steel (KP4M)

Cutting conditions vc(m/min) = 105, fz(mm/t) = 0.03, ap(mm) = 6.0, ae(mm) = 0.3, wet

Tool UF504060(Diameter = Ø6, PC315W)



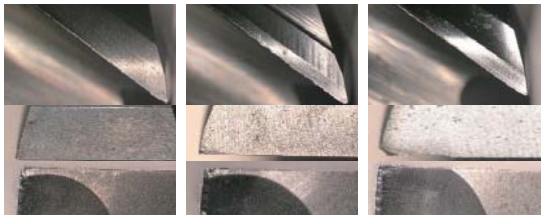
[U-Star Endmill] [Competitor A] [Competitor B]



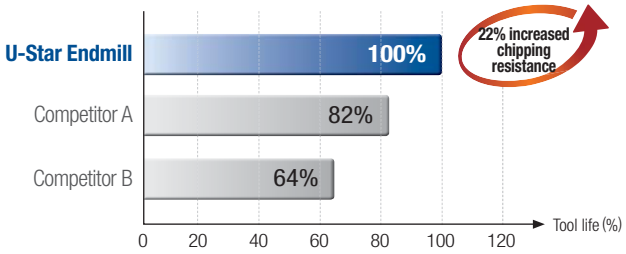
Pre-hardened steel (NAK80)

Cutting conditions vc(m/min) = 63, fz(mm/t) = 0.03, ap(mm) = 6.0, ae(mm) = 0.3, wet

Tool UF504060(Diameter = Ø6, PC315W)



[U-Star Endmill] [Competitor A] [Competitor B]



Line-up

Type	Designations	Grade	Picture	Product name	No. of flute	Size (Ø)	
						Min	Max
Flat	UE502	PC303W		2 flutes flat Endmill	2	0.1	25
	UE512	PC303W		2 flutes long neck flat Endmill	2	0.1	12
	UE522	PC303W		2 flutes flat Endmill	2	1.0	25
	UXE502	PC303W		2 flutes flat Endmill for heavy cuts	2	0.1	20
	UE504H	PC303W		4 flutes 45° helix flat Endmill	4	1.0	20
	UE514	PC303W		4 flutes long neck flat Endmill	4	1.0	12
	UE524	PC303W		4 flutes flat Endmill	4	1.0	25
	ULE504	PC303W		4 flutes autoumatic lathes flat Endmill	4	3.0	16
	UE504	PC303W		4 flutes flat Endmill	4	0.8	25
	UXE504	PC303W		4 flutes flat Endmill for heavy cuts	4	1.0	20
	UE506	PC303W		6 flutes flat Endmill	6	6.0	20
	UTE502	PC303W		2 flutes taper flat Endmill	2	0.3	10
	UTE504	PC303W		4 flutes taper flat Endmill	4	0.8	10
Radius	UR502	PC315W		2 flutes radius Endmill	2	0.2	20
	UR512	PC315W		2 flutes neck type radius Endmill	2	0.2	20
	UR542	PC315W		2 flutes taper neck radius Endmill	2	0.2	4
	UR504	PC315W		4 flutes radius Endmill	4	3.0	20
	UR544	PC315W		4 flutes taper neck radius Endmill	4	1.0	4
	UXR504	PC315W		4 flutes mutli helix radius Endmill	4	1.0	20
	UXR514	PC315W		4 flutes mutli helix neck radius Endmill	4	1.0	20
	UR506	PC315W		6 flutes radius Endmill	6	6.0	20
	UDR503	PC315W		3 flutes double radius Endmill	3	6.0	20

Line-up

Type	Designations	Grade	Picture	Product name	No. of flute	Size (Ø)	
						Min	Max
Radius	USPM4	PC315W		4 flutes radius Endmill for high feed	4	1.0	20
	UTR504	PC315W		4 flutes taper radius Endmill	4	0.8	2.5
Ball	UB502	PC303W		2 flutes ball Endmill	2	0.1	25
	UB502---P	PC303W		2 flutes high precision ball Endmill	2	0.1	12
	UB512	PC303W		2 flutes long neck ball Endmill	2	0.1	12
	UB512S6	PC303W		2 flutes long neck ball Endmill (shank 6)	2	0.5	2
	UB532	PC303W		2 flutes lollipop style ball Endmill	2	3.0	12
	UB542	PC303W		2 flutes taper neck ball Endmill	2	0.1	12
	USB502	PC303W		2 flutes straight ball Endmill	2	3.0	20
	UB503	PC303W		3 flutes ball Endmill	3	1.0	12
	UB504	PC303W		4 flutes ball Endmill	4	1.0	12
	UTB502	PC303W		2 flutes taper ball Endmill	2	0.3	2
Roughing	UF50	PC303W		3~5 flutes chamfer pitch roughing Endmill	3~5	3.0	25
	UF51	PC303W		3~5 flutes fine pitch roughing Endmill	3~5	3.0	25
	UF51---H	PC303W		3~5 flutes 45° helix fine pitch roughing Endmill	3~5	3.0	25

⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasess or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.

KORLOY

Head Office: Holystar B/D, 326, Seocho-daero, Seocho-gu, Seoul, 06633, Republic of Korea
Tel: +82-2-522-3181 Fax: +82-2-522-3184, +82-2-3474-4744 Web: www.korloy.com E-mail: sales.khq@korloy.com

KORLOY AMERICA
620 Maple Avenue, Torrance, CA 90503, USA
Tel: +1-310-782-3800 Toll Free: +1-888-711-0001 Fax: +1-310-782-3885
E-mail: sales.kai@korloy.com

KORLOY INDIA
Plot No. 415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, India
Tel: +91-124-439-1790 Fax: +91-124-405-0032
E-mail: sales.kip@korloy.com

KORLOY TURKIYE
Serifali Mahallesi, Burhan Sokak NO: 34
Dudullu OSB/Umraniye/Istanbul, 34775, Turkiye
Tel: +90-216-415-8874 E-mail: sales.ktl@korloy.com

KORLOY RUSSIA
Krasivy Dom office No. 305, Bld. 5, Novovladykinskiy proezd 8, 127106, Moscow, Russia
Tel: +7-495-280-1486 Fax: +7-495-280-1459 E-mail: sales.krc@korloy.com

KORLOY FACTORY INDIA
Plot No. 415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, India
Tel: +91-124-439-1818 Fax: +91-124-405-0032
E-mail: pro.kim@korloy.com

KORLOY EUROPE
Gablonzer Str. 25-27, 61440 Oberursel, Germany
Tel: +49-6171-27783-0 Fax: +49-6171-27783-59
E-mail: sales.keg@korloy.com

KORLOY BRASIL
Av. Aruana 280, conj.12, WLC, Alphaville, Barueri, CEP06460-010, SP, Brasil
Tel: +55-114-193-3810 Fax: +55-114-193-5837
E-mail: sales.kbl@korloy.com

KORLOY CHILE
Av. Providencia 1650, Office 1009, 7500027
Providencia-Santiago, Chile
Tel: +56-229-295-490 E-mail: sales.kcs@korloy.com

KORLOY MEXICO
Calle R. M. Clemencia Borja Taboada 522, Jurica Acueducto,
76230 Juriquilla, Qro., Mexico
Tel: +52-442-673-73-88 E-mail: sales.kml@korloy.com

PRINTED WITH SOY INK

TN106-EM-01 / 20221210