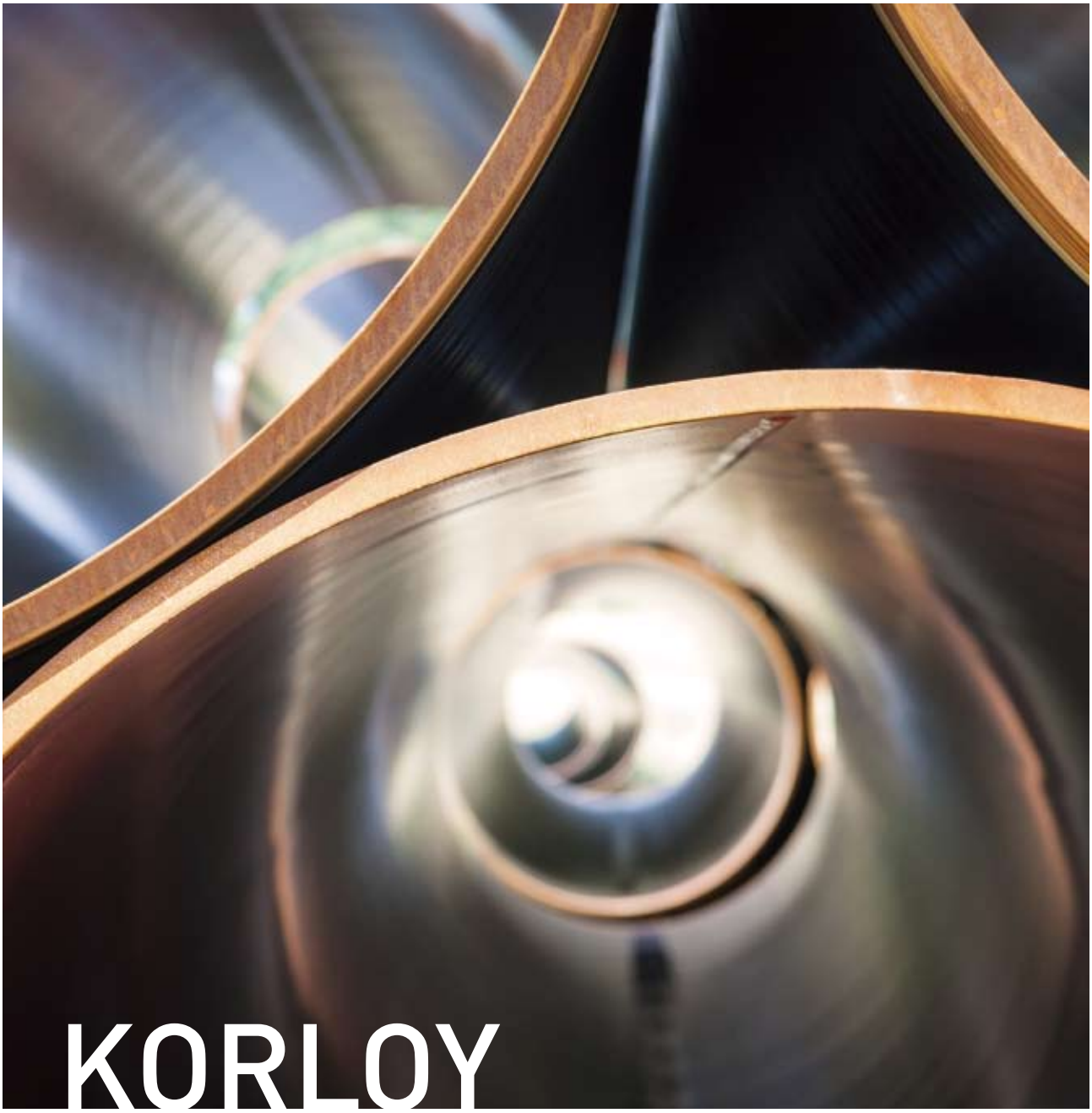


KORLOY
PIPE TOOLS

Industrial tools department

KORLOY

PIPE INDUSTRY

Pipe is classified into two major types according to the material: metallic and nonmetallic. It is used in various industries for the purpose of carrying granular material and fluid (gas, liquid).
Steel pipe needs specialized technology and know-how to process its' manufacturing which includes the bending, edge trimming, and welding.
Korloy ensures high quality products and services with the technology oriented precision cutting tools and know-how.
The industrial solutions of Korloy will provide satisfaction for our customers' various needs.

Contents

1. Introduction

Grade for pipe industry

- Recommended grade —— Page 6

2. Process

Pipe manufacturing process

- Spiral, Roll bending, ERW Line –—— Page 8 - 9

3. Guide

Application guide for each process

(Recommended grade, Examples)

1) Bead Removal —— Page 10 - 13

2) Edge Milling —— Page 14 -17

3) Long. Seam Milling —— Page 18

4) End Facing —— Page 19

4. Specification

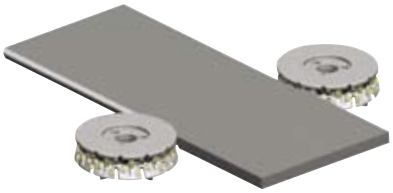
Main inserts for Pipe specification

Grade for pipe industry

RECOMMENDED GRADE

01

Recommended grade for Edge Milling



Grade	P25~P30	P35~P40(Main)	P45~P50(Sub)
Korloy Grade Line up	NC5330	**NC5340**	NC5350
Recommended cutting conditions	Under API-X60	**vc**(m/min)=70~150 **vc**(sfm)=230~492	**fz**(mm/t)=0.15~0.20 **fz**(ipt)=0.006~0.008
	Over API-X60	**vc**(m/min)=50~130 **vc**(sfm)=164~427	**fz**(mm/t)=0.15~0.20 **fz**(ipt)=0.006~0.008
Reason of Machining failure	Breakage	Thermal crack, Fracture	Plastic Deformation

02

Recommended grade for End facing (Heavy Turning)

Grade	P25~P30	P35~P40(Main)	P45~P50(Sub)
Korloy Grade Line up	NC5330	**NC5340**	NC5350
Reason of Machining failure		Thermal Crack	

03

Recommended grade for Bead Removal

Grade	P25~P30(Main)	P35~P40(Sub)
Korloy Grade Line up	**NC5330** PC5300	NC5340
Reason of Machining failure	Plastic Deformation and breakage	Plastic Deformation

04

Recommended grade for Long. seam Milling

Grade	P30	P25~P35(Main)	P35~P40(Sub)
Korloy Grade Line up	PC3600	**PC5300** **NC5340**	PC5400
Reason of Machining failure	Chipping, Wear, Fracture		

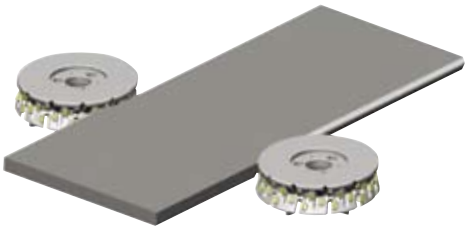
PIPE MANUFACTURING PROCESS / APPLICATION GUIDE

Pipe manufacturing process

PIPE TOOL MAIN SECTION

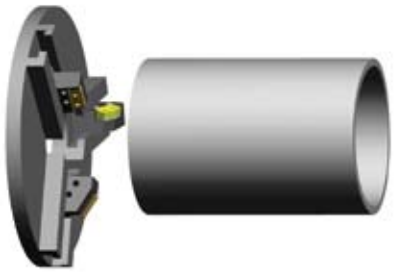
01

Edge Milling



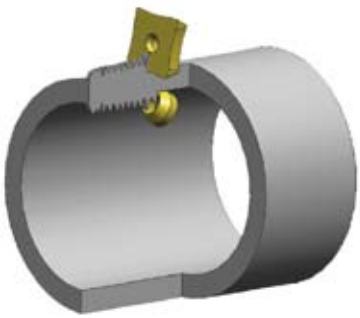
02

End Facing



03

Bead Removal



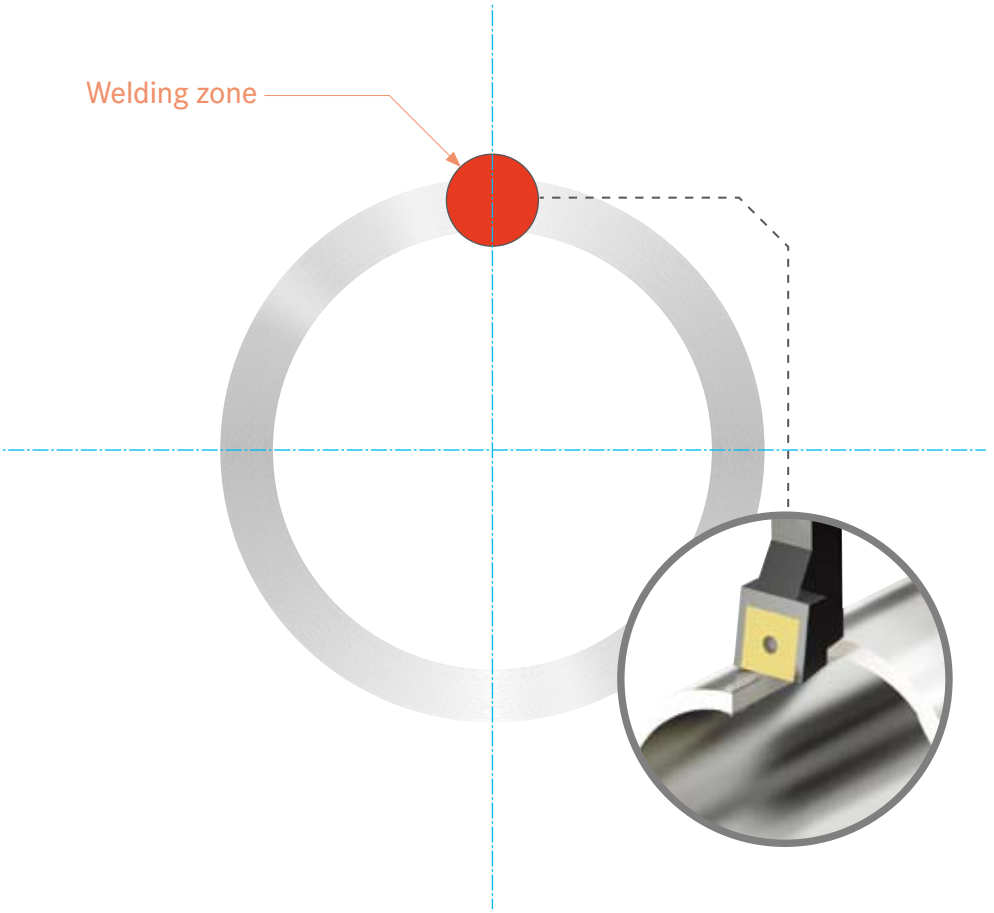
04

Long. Seam Milling

Application guide for each process

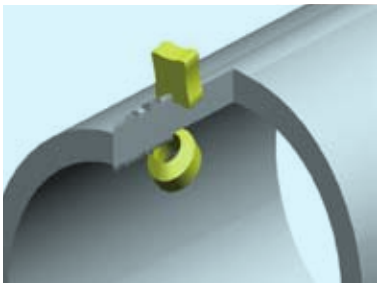
BEAD REMOVAL

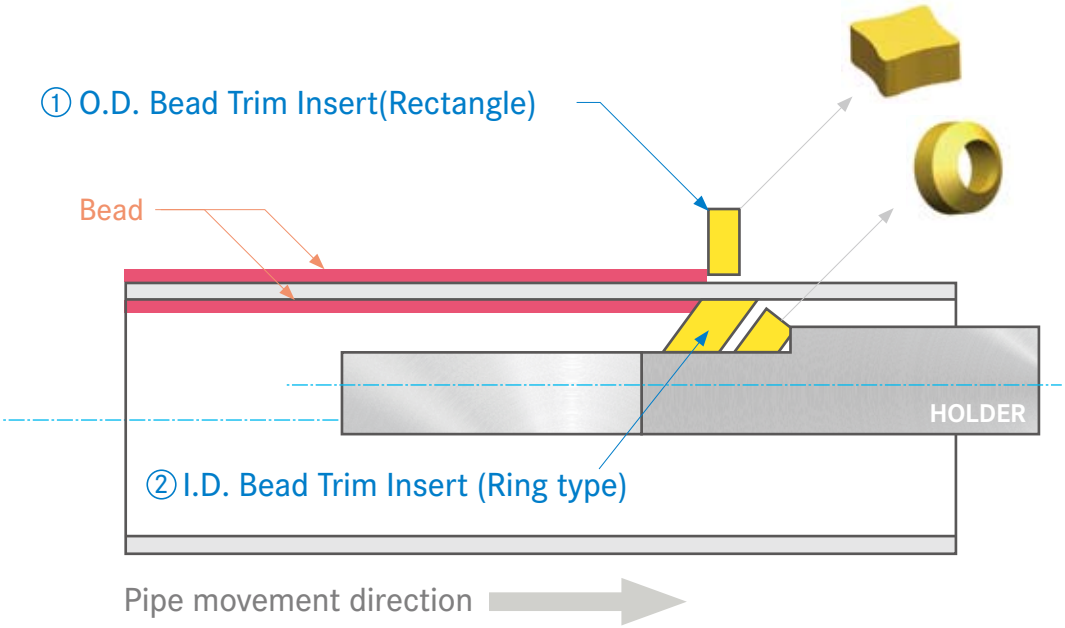
- External / Internal Bead Removal



Notice

The holder can be manufactured for external Bead trimming.
Holders of internal bead trimming are not available.




① O.D. Bead Trim Insert(Rectangle)
Bead
HOLDER
② I.D. Bead Trim Insert (Ring type)
Pipe movement direction

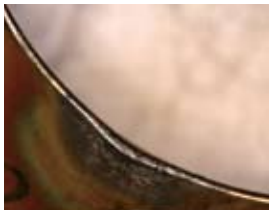
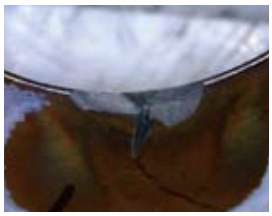
Application guide for each process

BEAD REMOVAL

Grades for internal Bead Removal

Grade	P25~P30(Main)	P35~P40(Sub)
Korloy Grade Line up	**NC5330** PC5300	NC5340
Reason of Machining failure	Damage & Breakage on the coating layer after plastic deformation	Fast plastic deformation

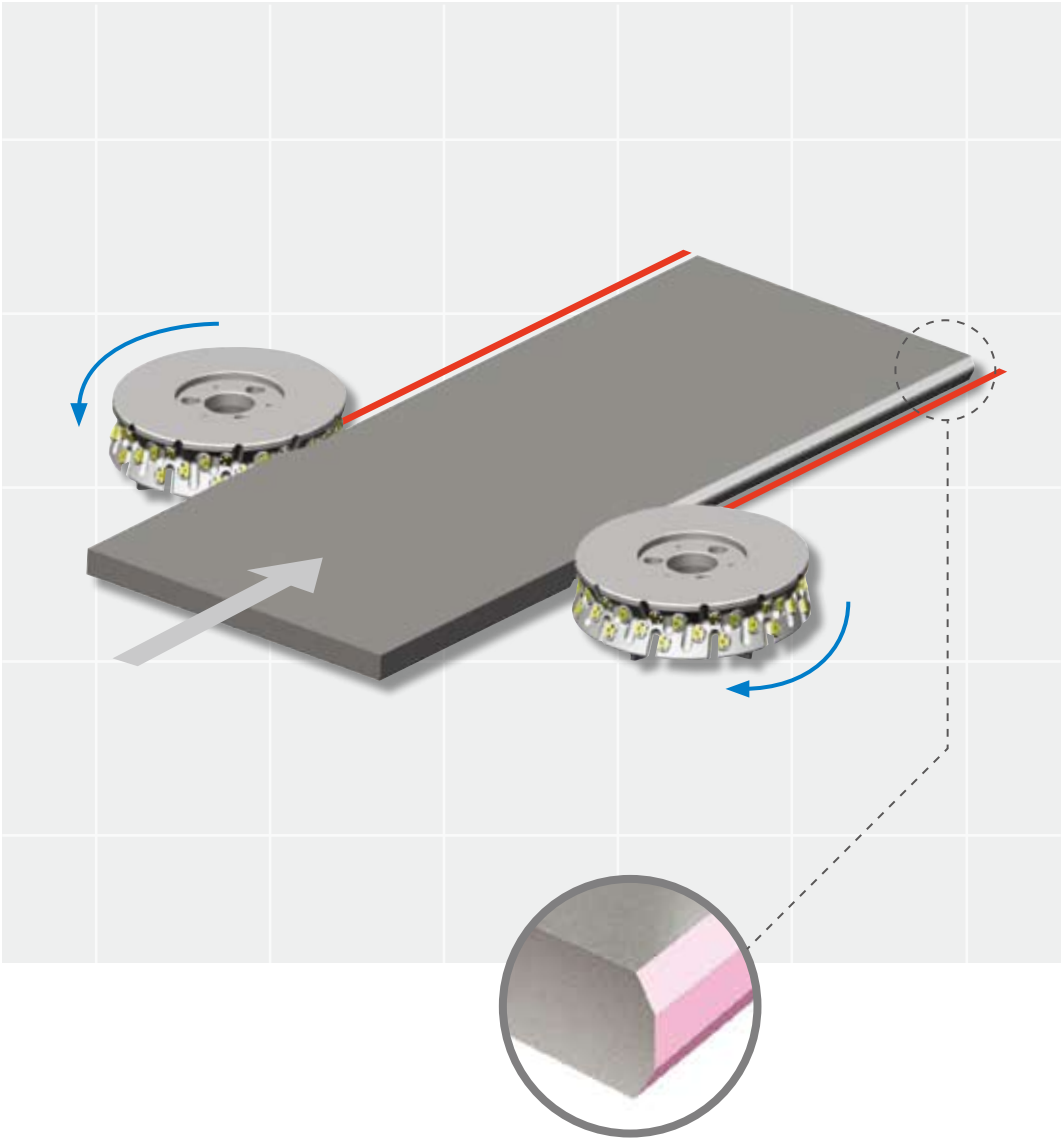
Tool Failure Type & Solution

The picture of used corner (Tool Failure Type)	Contents & Solution
Example 1 	**1. Used grade** : NC5330 **2. Failure Type** : Tool life is normal without any problem (1) Wear without damage on the coating film – A tiny deformation occurs without any problem on the coating film (2) If used continuously, it leads to serious wear because of plastic deformation
Example 2 	**1. Used grade** : NC5330 **2. Failure Type** : Breakage before causing Normal Wear-Deformation **3. Solution** (1) Prevent wear by using tougher grade - PC5300 or NC5340 (2) Increase cutting speed & feed to reduce shock power (3) Changing edge treatment(Detailed examination needed) Application guide for each process [Bead Trimming]

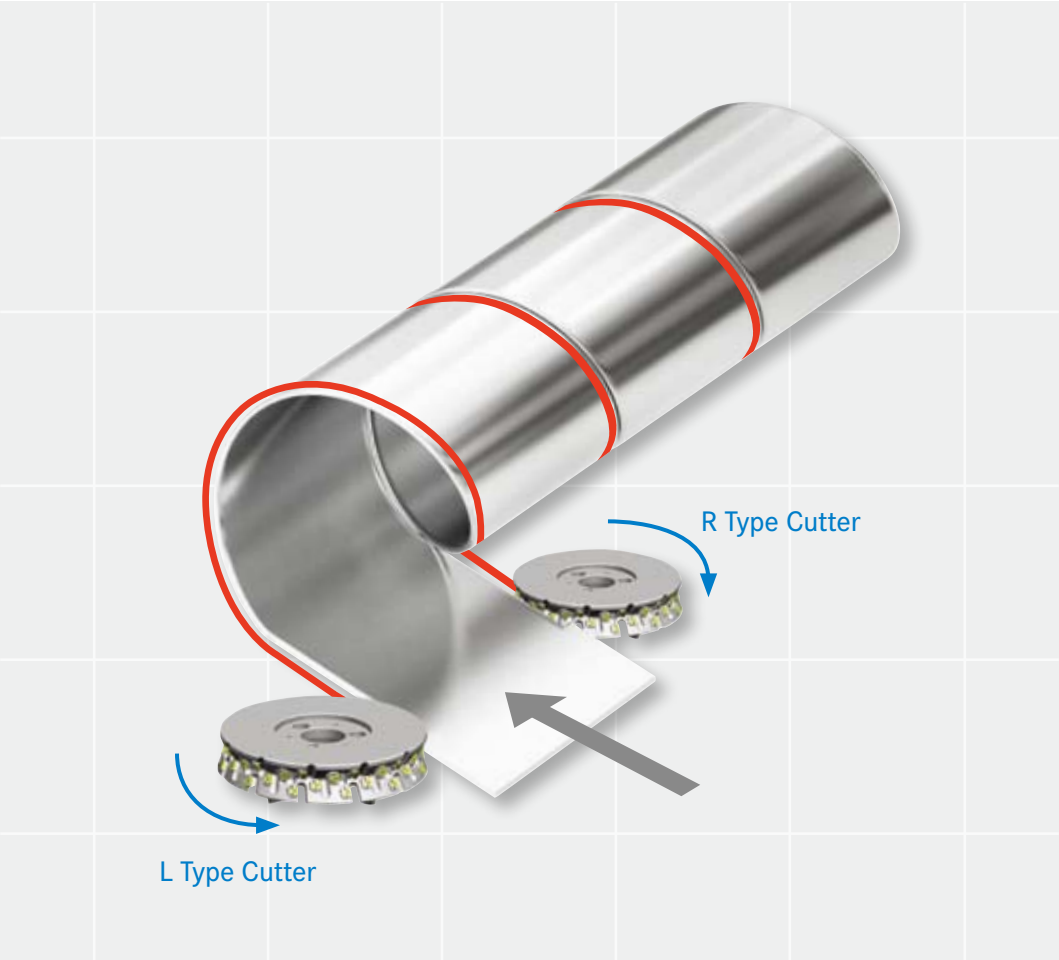
Application guide for each process

EDGE MILLING

- JCO, ERW, Roll bending Type -



- Spiral Type -



Insert range for spiral operation

SNHQ15
SNHQ19
SNC55

SPEW19
SEEW22

TPGW33
TPEW33

KES15

SOCX18

LOCX30

Application guide for each process

EDGE MILLING

Inserts applied to edge milling

Grade	P25~P30	P35~P40(Main)	P45~P50(Sub)
Korloy Grade Line up	NC5330	**NC5340**	NC5350
Recommended cutting conditions	Under API-X60	**vc**(m/min)=70~150 **vc**(sfm)=230~492	**fz**(mm/t)=0.15~0.20 **fz**(ipt)=0.006~0.008
	Over API-X60	**vc**(m/min)=50~130 **vc**(sfm)=164~427	**fz**(mm/t)=0.15~0.20 **fz**(ipt)=0.006~0.008
Reason of Machining failure	Breakage	Thermal crack, Fracture	Plastic Deformation

Tool Failure Type & Solution (Refer to right photo)

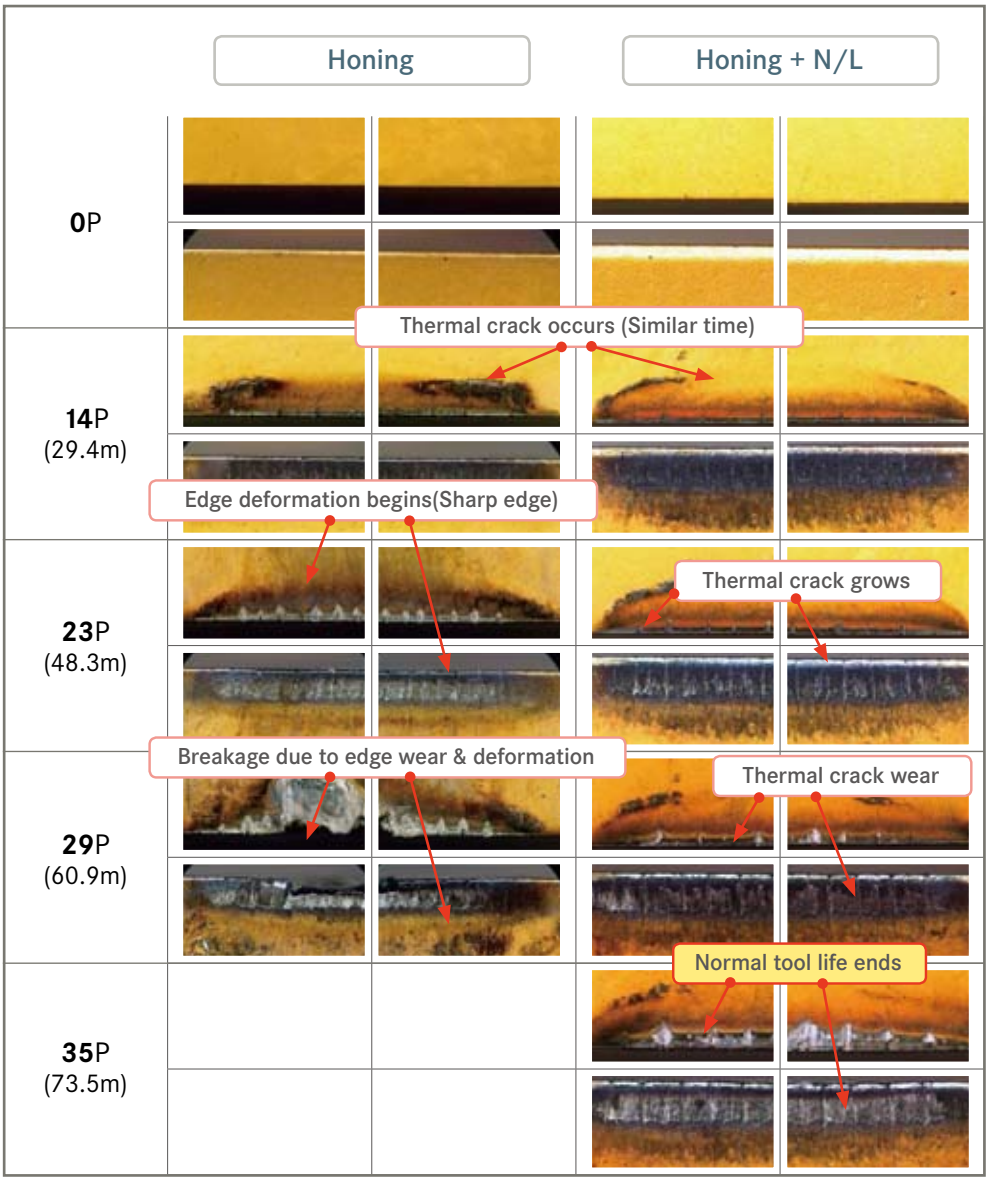
1. **In normal condition(Honing+N/L case)**

   Thermal Crack occurs → Thermal Crack grows → Wear accompanied by thermal crack → Normal tool life ends

2. **If the damage process doesn't follow above mentioned sequence , attempt second test after verification of the type of damage**

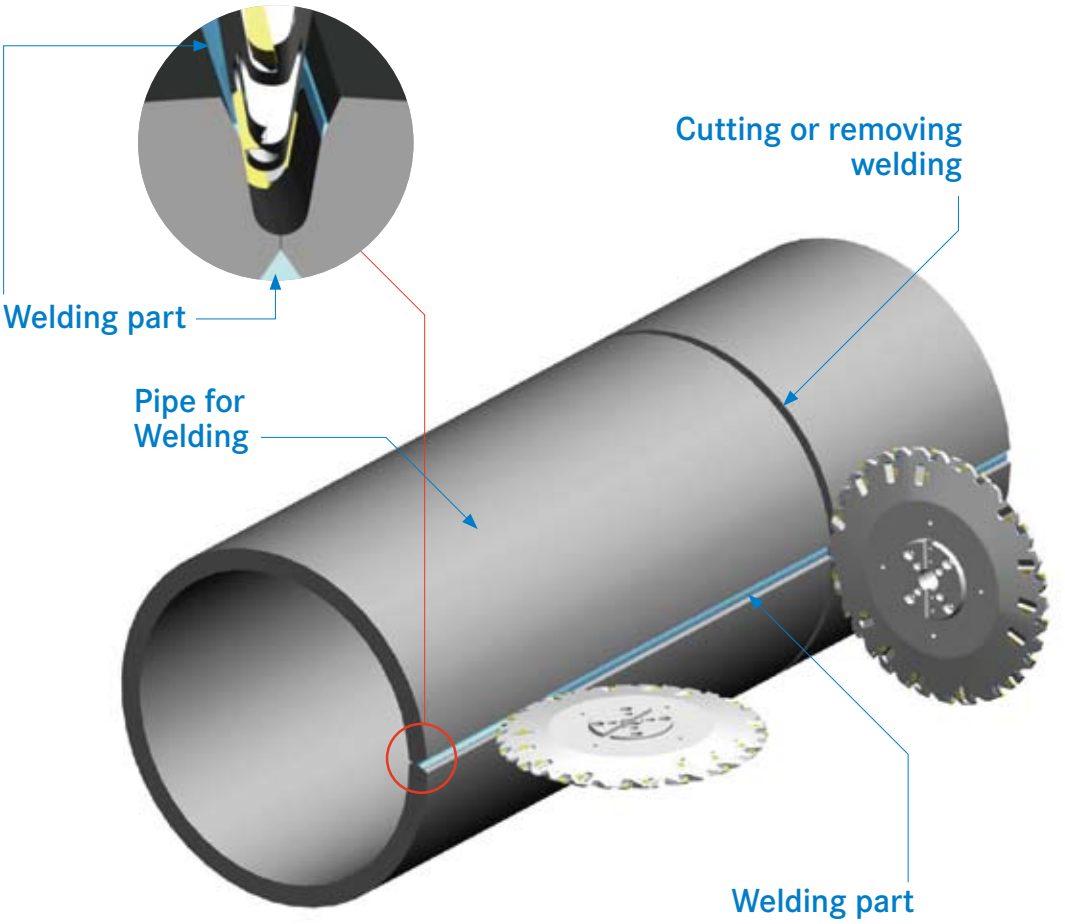
Type	Solution
Breakage before thermal crack	(1) Inspecting run-out deviation (2) Inspecting edge shape(N/L is better) (3) Apply tougher grade
Fast edge deformation after thermal crack	(1) N/L+Honing (2) Apply harder grade

Tool Failure Type & Solution

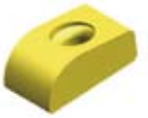


Application guide for each process

LONG. SEAM MILLING



Special

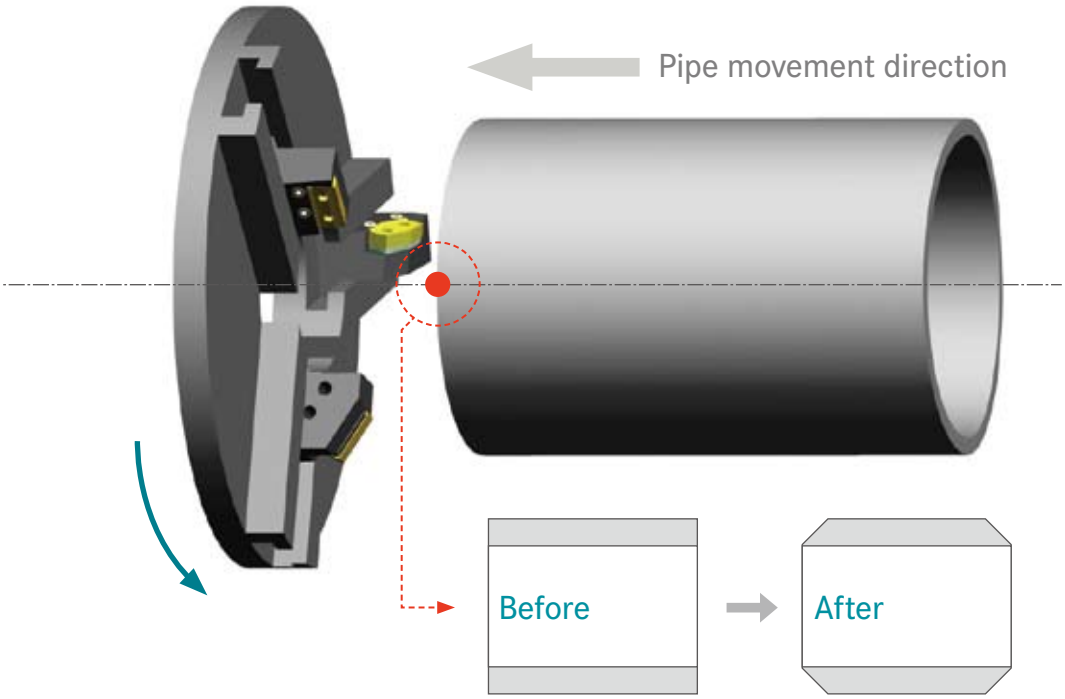


Special

Application Guide

END FACING HEAVY TURNING

Pipe after welding process



LNUX

TNMM

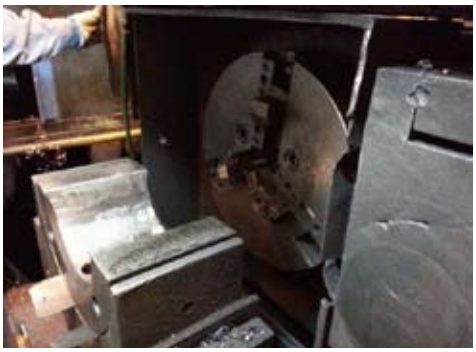
Application Guide

END FACING HEAVY TURNING

Insert grade for End-Facing

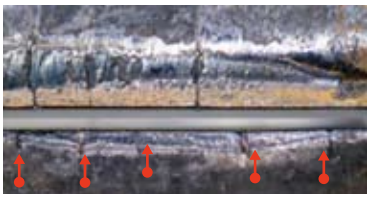
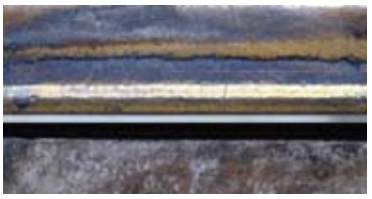
Grade	P25~P30	P35~P40(Main)	P45~P50(Sub)
Korloy Grade Line up	NC5330	**NC5340**	NC5350
Reason for tool failure	Thermal crack		
Reason of Machining failure	If there is not any chip problem, C/B with wide width is preferred		

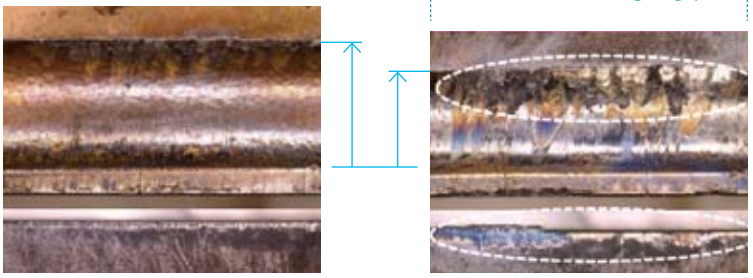
TNMG(M)-type



LNUX-type

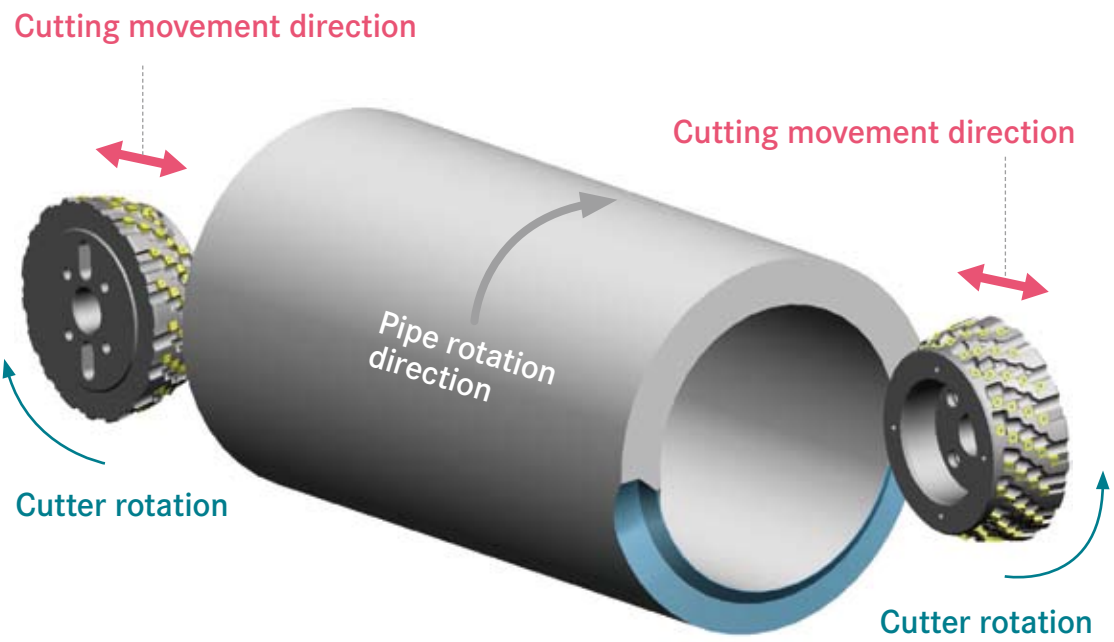
Type of damage & Solution

	P grade(Thermal crack -> End)	M grade(Normal Wear)
Picture of Corner (Damage Type)		
Contents and solutions	Thermal crack is the main type of damage to the insert. If you are planning to use steel workpieces, it is recommended to change to M grade inserts.	

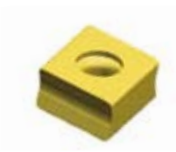
	Wide C/B width(Normal Wear)	Narrow C/B width(damage the end of cutting edge)
Picture of Corner (Damage Type)		
Contents and solutions	If the C/B width is narrow, it allows a better chip control but can also cause damage on the cutting edge. A wide C/B is preferred if you do not have chip evacuation problems.	

Application Guide

END FACING_MILLING



Special



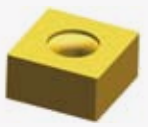
Special

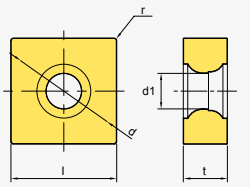
MAIN INSERTS FOR PIPE SPECIFICATION

Main inserts for Pipe specification

EDGE MILLING

SNHQ

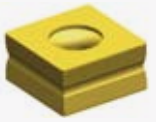


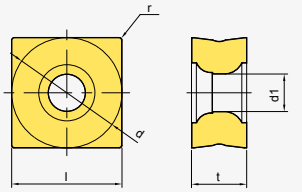


(mm)

Designation	l	d	t	d1	r
SNHQ150704S	15.875	15.875	7.94	5.8	0.4
SNHQ190704S	19.05	19.05	7.94	6.4	0.4

KES



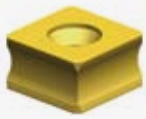


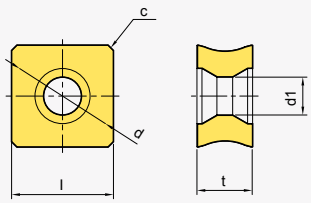
(mm)

Designation	l	d	t	d1	r
KES1507-MXR	15.875	15.875	7.94	5.8	0.6

Edge Milling

SOCX

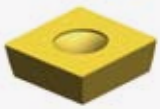


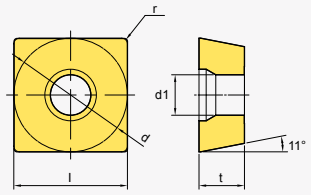


(mm)

Designation	l	d	t	d1	r
SOCX1810ZZ	18.3	18.3	10	6.9	-

SPEW

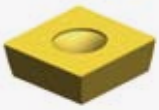


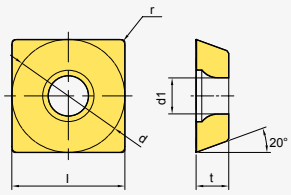


(mm)

Designation	l	d	t	d1	r
SPEW190606-BY	19	19	6.35	6.6	0.6

SEEW



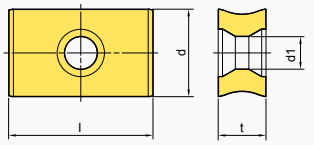


(mm)

Designation	l	d	t	d1	r
SEEW22	22	22	6.35	5.8	0.3

Edge Milling

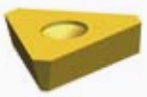
LOCX

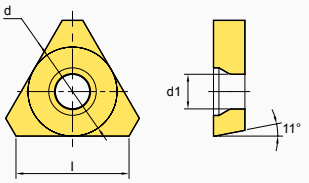


(mm)

Designation	l	d	t	d1	r
LOCX3010Z	30	18.3	10	6.8	-

TP□W

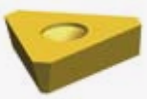


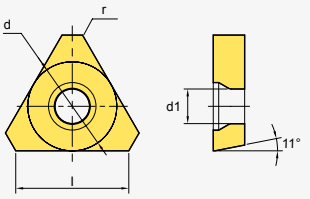


(mm)

Designation	l	d	t	d1	r
TPEW3106ZS	22.5	18	6.35	7	-
TPEW33ZZSN-VA	24	19.05	7	6.7	-
TPGW3306Z-CX	24	19.05	7	6.7	-

TP□W





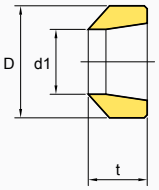
(mm)

Designation	l	d	t	d1	r
TPEW33M715S	26.7	18.953	7	6.7	1.6
TPEW33M726S	24	19.05	7	6.7	2.6

Main inserts for Pipe specification

BEAD REMOVAL INSERTS

AR (For Internal)



(mm)

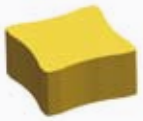
Designation	ØD	Ød1	t
AR 4.5	8	5	4.5
AR 6.5	10	6	4.5
AR 7	13	6	6
AR 8	13	7	6
AR 9	13	8	6
AR 9.5	13	8.5	6
AR 11	19	10	10
AR 12	19	11	10
AR 13	19	11.5	10
AR 14	22	12	12
AR 15	22	13	12
AR 15.5	22	13.5	12
AR 16	22	14	12
AR 17	22	15	12

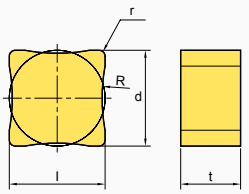
Bead removal Inserts

Designation	ØD	Ød1	t
AR 18	28	14	12
AR 19	35	17	12
AR 20	35	17.5	12
AR 21	35	18	12
AR 22	35	19	12
AR 23	35	20	12
AR 24	35	21	12
AR 25	35	22	12
AR 26	35	23	12
AR 27	35	24	12
AR 28	35	25	12
AR 30	45	27	15
AR 31	45	28	15
AR 32	45	28.5	15
AR 33	45	29	15
AR 34	45	30	15
AR 35	50	31	15
AR 36	50	32	15
AR 37	50	33	15
AR 38	50	34	15
AR 39	50	35	15
AR 40	50	36	15
AR 41	55	37	18
AR 42	55	38	18
AR 44	55	39	18
AR 46	55	40	18
AR 47	55	43	18
AR 52	65	46	20
AR 56	65	49	20

Bead removal Inserts

SNMN(For External)



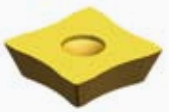


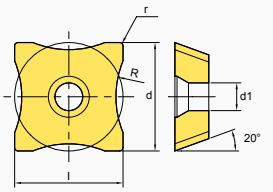
(mm)

Designation	l	d	t	r	R
SNMN1207-8R / SNU452-8R	12.7	12.7	7.94	0.8	8
SNMN1207-10R / SNU452-10R	12.7	12.7	7.94	0.8	10
SNMN1207-12R	12.7	12.7	7.94	0.8	12
SNMN1207-13R / SNU452-13R	12.7	12.7	7.94	0.8	13
SNMN1207-14R / SNU452-14R	12.7	12.7	7.94	0.8	14
SNMN1207-15R / SNU452-15R	12.7	12.7	7.94	0.8	15
SNMN1207-23R / SNU452-23R	12.7	12.7	7.94	0.8	23
SNMN1207-24R / SNU452-24R	12.7	12.7	7.94	0.8	24
SNMN1207-26R	12.7	12.7	7.94	0.8	26
SNMN1207-28R / SNU452-28R	12.7	12.7	7.94	0.8	28
SNMN1207-40R / SNU452-40R	12.7	12.7	7.94	0.8	40
SNMN1207-45R / SNU452-45R	12.7	12.7	7.94	0.8	45
SNMN1207-55R	12.7	12.7	7.94	0.8	55
SNMN1207-80R / SNU452-80R	12.7	12.7	7.94	0.8	80
SNMN1207-90R / SNU452-90R	12.7	12.7	7.94	0.8	90
SNMN1207-100R / SNU452-100R	12.7	12.7	7.94	0.8	100

Bead removal Inserts

SEGW(For External)



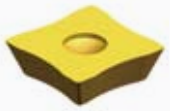


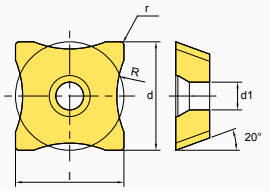
(mm)

Designation	l	d	t	r	R	d1
SEGW 8R	25.4	25.4	7.94	0.8	8	6.5
SEGW 10R	25.4	25.4	7.94	0.8	10	6.5
SEGW 12R	25.4	25.4	7.94	0.8	12	6.5
SEGW 13R	25.4	25.4	7.94	0.8	13	6.5
SEGW 14R	25.4	25.4	7.94	0.8	14	6.5
SEGW 15R	25.4	25.4	7.94	0.8	15	6.5
SEGW 16R	25.4	25.4	7.94	0.8	16	6.5
SEGW 18R	25.4	25.4	7.94	0.8	18	6.5
SEGW 20R	25.4	25.4	7.94	0.8	20	6.5
SEGW 23R	25.4	25.4	7.94	0.8	23	6.5
SEGW 25R	25.4	25.4	7.94	0.8	25	6.5
SEGW 28R	25.4	25.4	7.94	0.8	28	6.5
SEGW 30R	25.4	25.4	7.94	0.8	30	6.5
SEGW 32R	25.4	25.4	7.94	0.8	32	6.5
SEGW 35R	25.4	25.4	7.94	0.8	35	6.5
SEGW 38R	25.4	25.4	7.94	0.8	38	6.5
SEGW 40R	25.4	25.4	7.94	0.8	40	6.5
SEGW 43R	25.4	25.4	7.94	0.8	43	6.5
SEGW 45R	25.4	25.4	7.94	0.8	45	6.5
SEGW 50R	25.4	25.4	7.94	0.8	50	6.5
SEGW 55R	25.4	25.4	7.94	0.8	55	6.5
SEGW 60R	25.4	25.4	7.94	0.8	60	6.5
SEGW 70R	25.4	25.4	7.94	0.8	70	6.5
SEGW 80R	25.4	25.4	7.94	0.8	80	6.5
SEGW 100R	25.4	25.4	7.94	0.8	100	6.5

Bead removal Inserts

SEGW(For External)

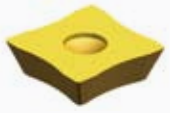


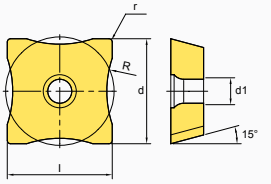


(mm)

Designation	l	d	t	r	R	d1
SEGW54-12R	15.875	15.875	6.35	0.8	12	5.6
SEGW54-16R	15.875	15.875	6.35	0.8	16	5.6
SEGW54-18R	15.875	15.875	6.35	0.8	18	5.6
SEGW54-20R	15.875	15.875	6.35	0.8	20	5.6
SEGW54-25R	15.875	15.875	6.35	0.8	25	5.6
SEGW54-60R	15.875	15.875	6.35	0.8	60	5.6
SEGW54-R15	15.875	15.875	6.35	0.8	15	5.6
SEGW54-R20	15.875	15.875	6.35	0.8	20	5.6
SEGW54-R25	15.875	15.875	6.35	0.8	25	5.6
SEGW54-R30	15.875	15.875	6.35	0.8	30	5.6
SEGW54-R40	15.875	15.875	6.35	0.8	40	5.6
SEGW54-R45	15.875	15.875	6.35	0.8	45	5.6
SEGW54-R50	15.875	15.875	6.35	0.8	50	5.6

SDMX(For External)





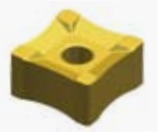
(mm)

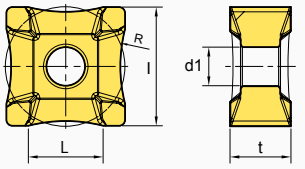
Designation	l	d	t	r	R	d1
SDMX85-R16	25.4	25.4	7.94	0.8	16	5.8
SDMX85-R25	25.4	25.4	7.94	0.8	25	5.8
SDMX85-R40	25.4	25.4	7.94	0.8	40	5.8

Bead removal Inserts

Designation	l	d	t	r	R	d1
SDMX85-R50	25.4	25.4	7.94	0.8	50	5.8
SDMX85-R60	25.4	25.4	7.94	0.8	60	5.8
SDMX85-R70	25.4	25.4	7.94	0.8	70	5.8
SDMX85-R80	25.4	25.4	7.94	0.8	80	5.8
SDMX85-R90	25.4	25.4	7.94	0.8	90	5.8
SDMX85-R100	25.4	25.4	7.94	0.8	100	5.8
SDMX85-R170	25.4	25.4	7.94	0.8	170	5.8
SDMX85-R200	25.4	25.4	7.94	0.8	200	5.8
SDMX85-R300	25.4	25.4	7.94	0.8	300	5.8

SNMG(For External)





(mm)

Designation	l	L	t	R	d1
SNMG150708-R11	15.875	10	7.94	11	5.16
SNMG150708-R13	15.875	10	7.94	13	5.16
SNMG150708-R15	15.875	10	7.94	15	5.16
SNMG150708-R18	15.875	10	7.94	18	5.16
SNMG150708-R20	15.875	10	7.94	20	5.16
SNMG150708-R22	15.875	10	7.94	22	5.16
SNMG150708-R25	15.875	10	7.94	25	5.16
SNMG150708-R30	15.875	10	7.94	30	5.16
SNMG150708-R35	15.875	10	7.94	35	5.16
SNMG150708-R40	15.875	10	7.94	40	5.16
SNMG190708-R10	19.05	12	8.35	10	8.0
SNMG190708-R12	19.05	12	8.35	12	8.0

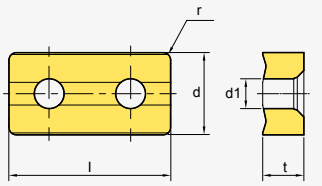
Bead removal Inserts

Designation	l	L	t	R	d1
SNMG190708-R15	19.05	12	8.35	15	8.0
SNMG190708-R18	19.05	12	8.35	18	8.0
SNMG190708-R20	19.05	12	8.35	20	8.0
SNMG190708-R25	19.05	12	8.35	25	8.0
SNMG190708-R27	19.05	12	8.35	27	8.0
SNMG190708-R30	19.05	12	8.35	30	8.0
SNMG190708-R35	19.05	12	8.35	35	8.0
SNMG190708-R40	19.05	12	8.35	40	8.0
SNMG190708-R45	19.05	12	8.35	45	8.0
SNMG190708-R55	19.05	12	8.35	55	8.0
SNMG190708-R60	19.05	12	8.35	60	8.0
SNMG190708-R80	19.05	12	8.35	80	8.0

Main inserts for Pipe specification

CHAMFER INSERTS

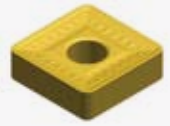
LNUX

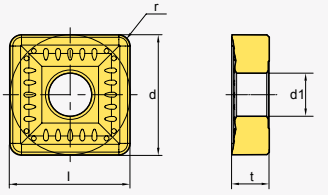


(mm)

Designation	l	d	t	d1	r
LNUX400624	40	25.4	6.35	9.2	2.4
LNUX400924	40	25.4	9.52	9.2	2.4
LNUX501224-BF	50	25.4	12.7	9.2	2.4
LNUX601224-BF1	60	25.4	12.7	9.2	2.4
LNUX701224EN	70	25.4	12.7	9.2	2.4

SNMM



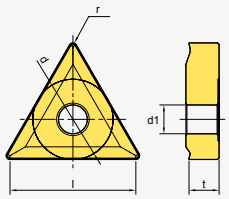


(mm)

Designation	l	d	t	d1	r
SNMM250724-GH	25.4	25.4	7.94	9.12	2.4

Chamfer Inserts

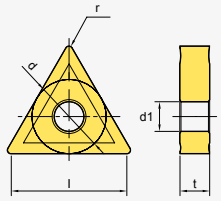
TNMM



(mm)

Designation	l	d	t	d1	r
TNMM440912Z	40	25.4	9.52	9.1	1.2
TNMM440912Z-B	40	25.4	9.52	9.1	1.2

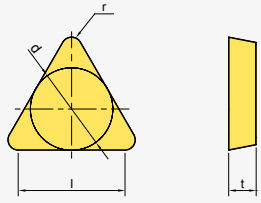
TNMG



(mm)

Designation	l	d	t	d1	r
TNMG270612KP-B25	23	15.875	6.35	6.35	1.2
TNMG330704-B25	31	19.05	7.94	7.9	0.4
TNMG330716KP-B25	27	19.05	7.94	7.9	1.6

TPUN



(mm)

Designation	l	d	t	d1	r
TPUN330624T	24.6	19.05	6.35	-	2.4

KORLOY

Head Office
Holystar B/D, 1350, Nambusunhwan-ro, Geumcheon-gu, Seoul, 08536, Korea
Tel : +82-2-522-3181 Fax : +82-2-522-3184
Web : www. korloy.com E-mail : export@korloy.com

Cheongju Factory
55, Sandan-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 28589, Korea
Tel : +82-43-262-0141 Fax : +82-43-262-0146

Jincheon Factory
54, Gwanghyewonsandan 2-gil, Gwanghyewon-myeon, Jincheon-gun, Chungcheongbuk-do, 27807, Korea
Tel : +82-43-535-0141 Fax : +82-43-535-0144

R & D Institute Cheongju
55, Sandan-ro, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, 28589, Korea
Tel : +82-43-262-0141 Fax : +82-43-262-0711

R & D Institute Seoul
Holystar B/D, 1350, Nambusunhwan-ro, Geumcheon-gu, Seoul, 08536, Korea
Tel : +82-2-522-3181 Fax : +82-2-522-3184

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
www.korloyamerica.com E-mail : sales@korloy.us

KORLOY EUROPE

Gablonzer Str. 25-27, 61440 Oberursel, Germany
Tel : +49-6171-277-83-0 Fax : +49-6171-277-83-59
www.korloyeurope.com E-mail : sales@korloyeurope.com

KORLOY INDIA

Plot NO.415, Sector 8, IMT Manesar, Gurgaon 122051, Haryana, INDIA
Tel : +91-124-4391790 Fax : +91-124-4050032
www.korloyindia.com E-mail : sales.kip@korloy.com

KORLOY BRASIL

Av. Aruana 280, conj.12, WLC, Alphaville, Barueri, CEP06460-010, SP, Brasil
Tel : +55-11-4193-3810
E-mail : vendas@korloy.com

KORLOY FACTORY QINGDAO

Ground Dongjing Road 56 District Free Trade Zone. Qingdao, China
Tel : +86-532-86959880 Fax : +86-532-86760651
E-mail : kycpjh@korloy.com

BR01-EM-01
20160901