

HARLINGEN[®] HIGH-PERFORMANCE END MILLS

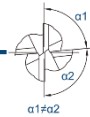


HIGH-PERFORMANCE SOLID CARBIDE END MILLS



SIDE MILLING
70%↑
Higher productivity

Stepped core
improved chip evacuation and cutting force



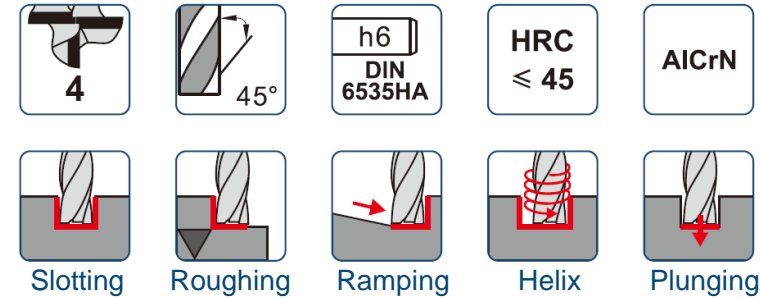
45° helix angle with unequal flute spacing for soft, quiet cut

BALZERS AICrN coating for longer tool life

HARLINGEN®
Product Inspection Report

Description	SOLID CARBIDE END MILL	Report Number	HTREM20200207-1	
Specification	4F4*4*10*50	Batch Quantity	80	
Order Number	423-03-151	Inspection Date	2020.05.11	
No.	Diagram of test	Test item	Nominal value	Measured value
1		Diameter	-0 -0.03	3.975~3.99
2		Shank diameter h6	h6	3.994~3.999
3		Mainoutlet length	+1.5 +0	10.4~10.6
4		Total length	±1	50~50.2
5		Flute angle	45°	45°
6		Runout A	≤0.02	≤0.02
7		Appearance		合格
Inspection conclusion:		PASS		
Inspector:		Quality control department:		

CENTER CUTTING



SUMMARY OF ADVANTAGES

- Better chip evacuation and cutting force.
- Higher feed rates
- Longer tool life.
- vibration-free machining
- suitable for roughing and finishing
- Increased surface finish quality
- Each batch inspected by **WALTER HELI TOOLCHECK.**

THINK CUTTING THINK HARLINGEN

DIN 6527 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
423-03-001	4.0	4	10	50	45°	5°~6°	US\$3.79	60
423-03-002	5.0	5	11	50	45°	5°~6°	US\$4.39	56
423-03-003	6.0	6	13	57	45°	5°~6°	US\$5.22	74
423-03-004	8.0	8	19	63	45°	5°~6°	US\$7.78	86
423-03-005	10.0	10	22	72	45°	5°~6°	US\$11.65	78
423-03-006	12.0	12	26	83	45°	5°~6°	US\$16.77	94
423-03-007	16.0	16	32	92	45°	5°~6°	US\$29.32	10
423-03-008	20.0	20	38	104	45°	5°~6°	US\$49.48	10

JIS STANDARD

Order No.	Size (0 ~ -0.03)	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
423-03-151	4.0	4	10	50	45°	5°~6°	US\$3.47	160
423-03-152	5.0	6	15	50	45°	5°~6°	US\$4.96	100
423-03-153	6.0	6	15	50	45°	5°~6°	US\$4.96	196
423-03-154	8.0	8	20	60	45°	5°~6°	US\$7.67	200
423-03-155	10.0	10	25	75	45°	5°~6°	US\$11.83	186
423-03-156	12.0	12	30	75	45°	5°~6°	US\$15.83	200
423-03-157	16.0	16	40	100	45°	5°~6°	US\$36.38	60
423-03-158	20.0	20	45	100	45°	5°~6°	US\$54.27	20



THINK CUTTING THINK HARLINGEN

STANDARD SOLID CARBIDE SLOT DRILLS

100% Inspected



BALZERS TiAlN coating for longer tool life

Application group	Material examples	Ideal for
P	Steel	●
M	Stainless steel	○
K	Cast iron	●
N	Aluminum	---
S	Ni / Ti alloys	---
H	Hardened steel	---

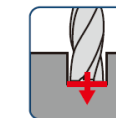
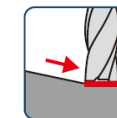
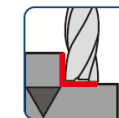
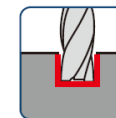
●=Optimal ○=Secondary

HARLINGEN® Product Inspection Report

Description		Report Number		
SOLID CARBIDE END MILL		HTRE/MZ02002075-5		
Specification		Batch Quantity		
2F10*10*22*72		50		
Order Number		Inspection Date		
421-01-015		2020.05.12		
No.	Diagram of test	Test item	Nominal value	Measured value
1		Diameter	e6	9.954 - 9.97
2		Shank diameter h6	h6	9.991 - 9.993
3		Maincutting length	+1.5 +0	23 - 23.3
4		Total length	±1	72.1 - 72.4
5		Flute angle	30°	30°
6		Runout A	≤0.02	≤0.02
7		Appearance		Qualified

Inspection conclusion: PASS
Inspector: [Signature] Quality control department: [Signature]

CENTER CUTTING



Slotting

Roughing

Ramping

Helix

Plunging

SUMMARY OF ADVANTAGES

- Better chip evacuation and cutting force.
- Higher feed rates
- Longer tool life.
- vibration-free machining
- suitable for roughing and finishing
- Increased surface finish quality
- Each batch inspected by WALTER HELI TOOLCHECK.

THINK CUTTING THINK HARLINGEN

DIN 6527 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
421-01-007	4.0	4	10	50	30°	8°	US\$3.22	100
421-01-009	5.0	5	11	50	30°	8°	US\$3.8	50
421-01-011	6.0	6	13	57	30°	8°	US\$4.65	84
421-01-013	8.0	8	19	63	30°	8°	US\$7.06	86
421-01-015	10.0	10	22	72	30°	8°	US\$10.74	84
421-01-016	12.0	12	26	83	30°	8°	US\$15.53	56
421-01-018	16.0	16	32	92	30°	8°	US\$27.14	20
421-01-020	20.0	20	38	104	30°	8°	US\$45.82	10

JIS STANDARD

Order No.	Size (0 ~ -0.03)	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
421-03-105	3.0	4	8	50	30°	8°	US\$3.08	0
421-03-107	4.0	4	10	50	30°	8°	US\$3.08	40
421-03-108	5.0	6	12	50	30°	8°	US\$4.51	0
421-03-109	6.0	6	12	50	30°	8°	US\$4.51	40
421-03-111	8.0	8	20	60	30°	8°	US\$7.09	40
421-03-113	10.0	10	25	75	30°	8°	US\$11.06	40
421-03-114	12.0	12	25	75	30°	8°	US\$14.87	0
421-03-115	16.0	16	35	100	30°	8°	US\$34.54	10



THINK CUTTING THINK HARLINGEN

STANDARD SOLID CARBIDE END MILLS



100% Inspected

BALZERS AICrN coating for longer tool life

Application group	Material examples	Ideal for
P	Steel	●
M	Stainless steel	○
K	Cast iron	●
N	Aluminum	---
S	Ni / Ti alloys	---
H	Hardened steel	---

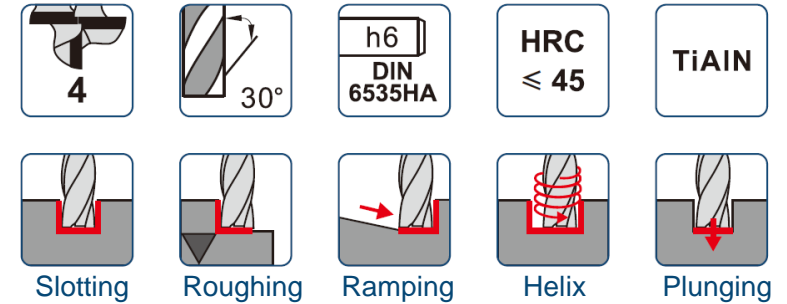
● = Optimal ○ = Secondary

HARLINGEN®
Product Inspection Report

Description: SOLID CARBIDE END MILL		Report Number: H116/M00000075-14		
Specification: 4F12*12*20*83		Batch Quantity: 80		
Order Number: 423-01-016		Inspection Date: 2020-05-12		
No.	Diagram of test	Test item	Nominal value	Measured value
1		Diameter	ø8	11.942 - 11.967
2		Shank diameter h6	h6	11.99 - 11.995
3		Maincutting length	+1.5 +0	26.7 - 27
4		Total length	±1	83.3 - 83.7
5		Flute angle	30°	30°
6		Runout A	≤0.02	≤0.02
7		Appearance		Qualified

Inspection conclusion: PASS
Inspector: [Signature]
Quality control department: [Signature]

CENTER CUTTING



SUMMARY OF ADVANTAGES

- Better chip evacuation and cutting force.
- Higher feed rates
- Longer tool life.
- vibration-free machining
- suitable for roughing and finishing
- Increased surface finish quality
- Each batch inspected by **WALTER HELI TOOLCHECK.**

THINK CUTTING THINK HARLINGEN

DIN 6527 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
423-01-007	4.0	4	10	50	30°	8°	US\$3.22	108
423-01-009	5.0	5	11	50	30°	8°	US\$3.8	34
423-01-011	6.0	6	13	57	30°	8°	US\$4.65	94
423-01-013	8.0	8	19	63	30°	8°	US\$7.06	106
423-01-015	10.0	10	22	72	30°	8°	US\$10.8	132
423-01-016	12.0	12	26	83	30°	8°	US\$15.5	84
423-01-018	16.0	16	32	92	30°	8°	US\$27.1	14
423-01-020	20.0	20	38	104	30°	8°	US\$45.8	10



JIS STANDARD

Order No.	Size (0 ~ -0.03)	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
423-03-105	3.0	4	8	50	30°	8°	US\$3.08	98
423-03-107	4.0	4	10	50	30°	8°	US\$3.08	240
423-03-108	5.0	6	15	50	30°	8°	US\$4.51	100
423-03-109	6.0	6	15	50	30°	8°	US\$4.51	340
423-03-111	8.0	8	20	60	30°	8°	US\$7.09	340
423-03-113	10.0	10	25	75	30°	8°	US\$11.1	338
423-03-114	12.0	12	30	75	30°	8°	US\$14.9	140
423-03-115	16.0	16	40	100	30°	8°	US\$34.5	0
423-03-115	20.0	20	45	100	30°	8°	US\$51.46	0

2 FLUTE HSS-Co8 END MILLS

100%
Inspected

Flute in h6 tolerance
100% inspected

Flute Hardness
HRC66~68

Roughness ≤ RA 0.4

Ground from Solid
Hardness HRC45~60

Shank
Ellipticity
100%
inspected

Crack 100%
inspected



Application group	Material examples	Ideal for
P	Steel	○
M	Stainless steel	○
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	---

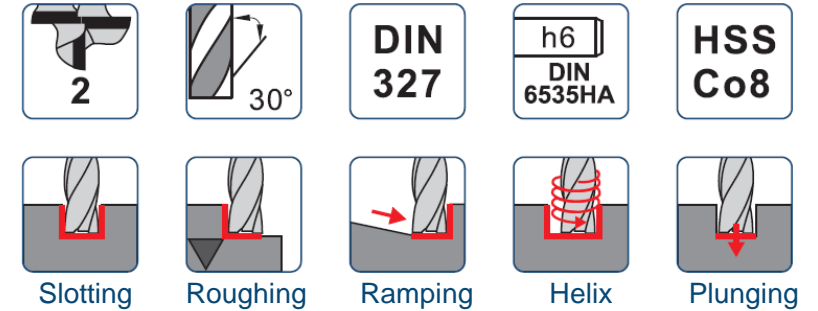
●=Optimal ○=Secondary

Product Inspection Report

No.	Diagram of test	Test item	Nominal value	Measured value
1		Diameter	±8	5.975-5.985
2		Shank diameter H6	H6	5.993-5.995
3		Manufacturing length	+1.6 +0	13.5-13.7
4		Total length	±1	56.9-57.2
5		Flute angle	45°	45°
6		Runout A	<0.02	<0.02
7		Appearance		Qualified

Inspection contractor: PESS
Inspector: Guo Hancheng
Quality control department: Jin Hongwei, Liu Yanyan

CENTER CUTTING



SUMMARY OF ADVANTAGES

- Each piece is ground by CBN grinding wheel on WALTER machine.
- Run-out control is more strict than DIN844.2 standard.
- Effective for machining high strength, heat-resistant and other difficult-to-machine materials.
- Better appearance quality and longer tool life.
- Each batch inspected by WALTER HELI TOOLCHECK

THINK CUTTING THINK HARLINGEN

2 FLUTE HSS-Co8 END MILLS

DIN 327 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
522-21-303	3.0	6	5	49	28°~ 33°	13°	US\$2.74	190
522-21-304	4.0	6	7	51	28°~ 33°	13°	US\$2.74	174
522-21-305	5.0	6	8	52	28°~ 33°	13°	US\$2.74	44
522-21-306	6.0	6	8	52	28°~ 33°	13°	US\$2.74	210
522-21-308	8.0	10	11	61	28°~ 33°	13°	US\$3.08	64
522-21-309	9.0	10	11	61	28°~ 33°	13°	US\$3.08	60
522-21-310	10.0	10	13	63	28°~ 33°	13°	US\$3.08	200
522-21-312	12.0	12	16	73	28°~ 33°	13°	US\$4.1	160
522-21-314	14.0	12	16	73	28°~ 33°	13°	US\$5.23	38
522-21-316	16.0	16	19	79	28°~ 33°	13°	US\$6.47	102
522-21-318	18.0	16	19	79	28°~ 33°	13°	US\$8.12	60
522-21-320	20.0	20	22	88	28°~ 33°	13°	US\$10	92
522-21-325	25.0	25	26	102	28°~ 33°	13°	US\$17.1	56



THINK CUTTING THINK HARLINGEN

2 FLUTE HSS-Co8 BALL END MILLS

Flute in h6 tolerance
100% inspected

Application group	Material examples	Ideal for
P	Steel	○
M	Stainless steel	○
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	---
●=Optimal ○=Secondary		

Shank Ellipticity
100% inspected

Crack 100% inspected



100% Inspected

Flute Hardness
HRC66~68

Roughness ≤ RA 0.4

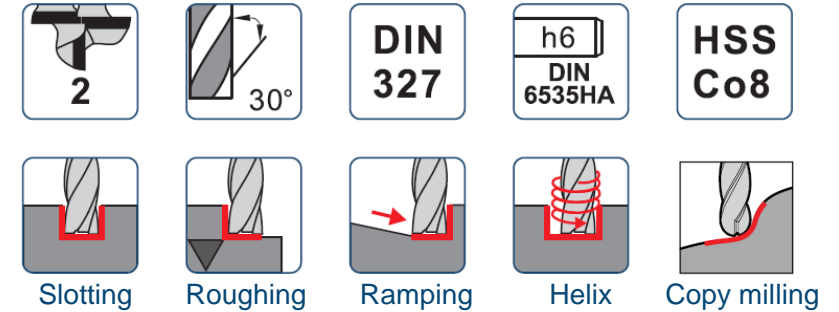
Ground from Solid
Hardness HRC45~60

Product Inspection Report

No.	Diagram of test	Test item	Nominal value	Measured value
1		Diameter	±8	5.975-5.995
2		Shank diameter h6	h6	5.993-5.995
3		Main cutting length	+1.5 +0	13.5-13.7
4		Total length	±1	56.9-57.2
5		Flute angle	45°	45°
6		Runout A	<0.02	<0.02
7		Appearance		Qualified

Inspection conclusion: PASS
Inspector: Du Jincheng Quality control department: Jilin Harlingen Liu Yanyan

CENTER CUTTING



SUMMARY OF ADVANTAGES

- Each piece is ground by CBN grinding wheel on WALTER machine.
- Run-out control is more strict than DIN844.2 standard.
- Effective for machining high strength, heat-resistant and other difficult-to-machine materials.
- Better appearance quality and longer tool life.
- Each batch inspected by **WALTER HELI TOOLCHECK**

2 FLUTE HSS-Co8 BALL END MILLS

DIN 327 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
522-23-303	3.0	6	8	52	28°~ 33°	13°	US\$3.66	22
522-23-304	4.0	6	11	55	28°~ 33°	13°	US\$3.66	22
522-23-305	5.0	6	13	57	28°~ 33°	13°	US\$3.66	22
522-23-306	6.0	6	13	57	28°~ 33°	13°	US\$3.66	60
522-23-308	8.0	10	19	69	28°~ 33°	13°	US\$4.99	40
522-23-310	10.0	10	22	72	28°~ 33°	13°	US\$4.99	56
522-23-312	12.0	12	26	83	28°~ 33°	13°	US\$6.51	60
522-23-316	16.0	16	32	92	28°~ 33°	13°	US\$10.6	62
522-23-320	20.0	20	38	104	28°~ 33°	13°	US\$16.84	40



THINK CUTTING THINK HARLINGEN

MULTIPLE FLUTE HSS-Co8 END MILLS

100%
Inspected

Flute in h6 tolerance
100% inspected

Flute Hardness
HRC66~68

Roughness \leq RA 0.4

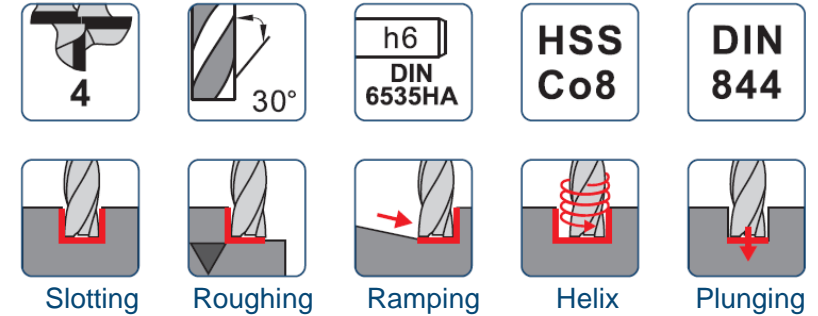
Ground from Solid
Hardness HRC45~60

Shank
Ellipticity
100%
inspected

Crack 100%
inspected



CENTER CUTTING



Application group	Material examples	Ideal for
P	Steel	○
M	Stainless steel	○
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	---

●=Optimal ○=Secondary

Product Inspection Report

Description		Report Number	
Specification		Batch Quantity	
Order Number	Inspection Date	Measured value	Measured value
1	Diameter	±0.015	5.975-5.985
2	Shank diameter H6	H6	5.993-5.995
3	Manufacturing length	+1.5 +0	13.5-13.7
4	Total length	±1	56.9-57.2
5	Flute angle	45°	45°
6	Runout A	<0.02	<0.02
7	Appearance		Qualified

Inspection conclusion: PASS
Inspector: Bai Shengchang Quality control department: Jin Hongwei, Liu Yanyang

SUMMARY OF ADVANTAGES

- Each piece is ground by CBN grinding wheel on WALTER machine.
- Run-out control is more strict than DIN844.2 standard.
- Effective for machining high strength, heat-resistant and other difficult-to-machine materials.
- Better appearance quality and longer tool life.
- Each batch inspected by WALTER HELI TOOLCHECK

DIN 844 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
522-41-303	3.0	6	8	52	28°~ 33°	13°	US\$2.93	98
522-41-304	4.0	6	11	55	28°~ 33°	13°	US\$2.93	98
522-41-305	5.0	6	13	57	28°~ 33°	13°	US\$2.93	78
522-41-306	6.0	6	13	57	28°~ 33°	13°	US\$2.93	58
522-41-308	8.0	10	19	69	28°~ 33°	13°	US\$3.32	88
522-41-309	9.0	10	19	69	28°~ 33°	13°	US\$3.32	90
522-41-310	10.0	10	22	72	28°~ 33°	13°	US\$3.32	198
522-41-312	12.0	12	26	83	28°~ 33°	13°	US\$4.43	252
522-41-314	14.0	12	26	83	28°~ 33°	13°	US\$5.66	58
522-41-316	16.0	16	32	92	28°~ 33°	13°	US\$7.08	128
522-41-318	18.0	16	32	92	28°~ 33°	13°	US\$8.85	56
522-41-320	20.0	20	38	104	28°~ 33°	13°	US\$11.03	150
522-41-322	22.0	20	38	104	28°~ 33°	13°	US\$14.13	58
522-41-325	25.0	25	45	121	28°~ 33°	13°	US\$20.15	98
522-41-328	28.0 (6F)	25	45	121	28°~ 33°	13°	US\$28.28	42
522-41-330	30.0 (6F)	25	45	121	28°~ 33°	13°	US\$32.2	20
522-41-332	32.0 (6F)	32	53	133	28°~ 33°	13°	US\$39.25	20



4 FLUTE HSS-Co8 END MILLS LONG LENGTH

Flute in h6 tolerance
100% inspected

100%
Inspected

Flute Hardness
HRC66~68

Roughness \leq RA 0.4

Ground from Solid
Hardness HRC45~60

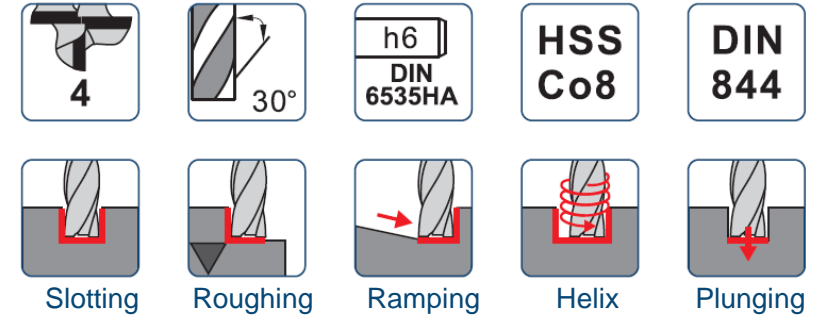
Crack 100%
inspected

Shank
Ellipticity
100%
inspected

Application group	Material examples	Ideal for
P	Steel	○
M	Stainless steel	○
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	---
●=Optimal ○=Secondary		



CENTER CUTTING



SUMMARY OF ADVANTAGES

- Each piece is ground by CBN grinding wheel on WALTER machine.
- Run-out control is more strict than DIN844.2 standard.
- Effective for machining high strength, heat-resistant and other difficult-to-machine materials.
- Better appearance quality and longer tool life.
- Each batch inspected by WALTER HELI TOOLCHECK

Product Inspection Report

Description		SOLID CARBIDE END MILL		Report Number	HT00000001
Order Number	Diagram of part	Test Item	Nominal value	Measured value	Inspection Date
1		Diameter	± 0	5.975-5.985	2020.05.07
2		Shank diameter H6	H6	5.993-5.995	
3		Main cutting length	$+1.5$ $+0$	13.5-13.7	
4		Total length	± 1	56.9-57.2	
5		Flute angle	45°	45°	
6		Runout A	< 0.02	< 0.02	
7		Appearance		Qualified	

Inspector: Liu Yanchang Quality control department: Jiu Hongwei Lu Yanyang

4 FLUTE HSS-Co8 END MILLS LONG LENGTH

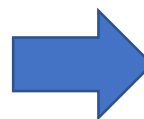
DIN 844 STANDARD

Order No.	e8 Size	h6 Shank Dia.	Length of Flute	Overall Length	Helix angle	Radial Rake angle	Price	Stock Qty
523-41-303	3.0	6	12	56	28° ~ 33°	13°	US\$3.95	20
523-41-304	4.0	6	19	63	28° ~ 33°	13°	US\$3.95	64
523-41-305	5.0	6	24	68	28° ~ 33°	13°	US\$3.95	22
523-41-306	6.0	6	24	68	28° ~ 33°	13°	US\$3.95	62
523-41-308	8.0	10	38	88	28° ~ 33°	13°	US\$4.12	20
523-41-310	10.0	10	45	95	28° ~ 33°	13°	US\$4.12	58
523-41-312	12.0	12	53	110	28° ~ 33°	13°	US\$5.48	64
523-41-314	14.0	12	53	110	28° ~ 33°	13°	US\$7.04	2
523-41-316	16.0	16	63	123	28° ~ 33°	13°	US\$8.83	64
523-41-318	18.0	16	63	123	28° ~ 33°	13°	US\$11.08	26
523-41-320	20.0	20	75	141	28° ~ 33°	13°	US\$13.91	54
523-41-325	25.0	25	90	166	28° ~ 33°	13°	US\$25.45	44



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PRODUCTION & INSPECTION



THINK HARLINGEN

PACKAGING



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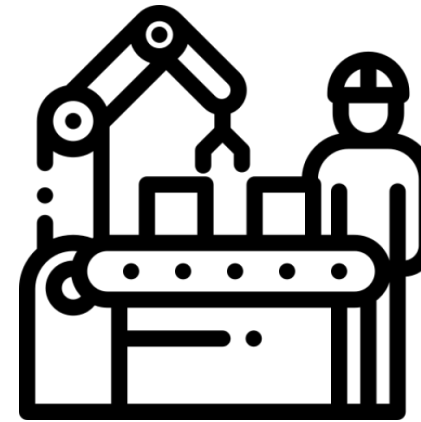
Delivery Time



Order



Design



Manufacture



Ship

100% FULLFILMENT SERVICE

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Thank You!