

High Performance  
Flat Bottom Drill

**KDZ**  
Series

New Flat Bottom Drills  
with Unique Coating Technology

Provides Long Tool Life, High Precision and  
Stable Machining



Great for a Wide Range of Drilling Applications  
Including Counterboring

Achieves High Performance Results from  
an Economical Flat Bottom Drill

New KDZ-HP Type C with Internal Coolant for  
Stainless Steel Machining

**NEW**

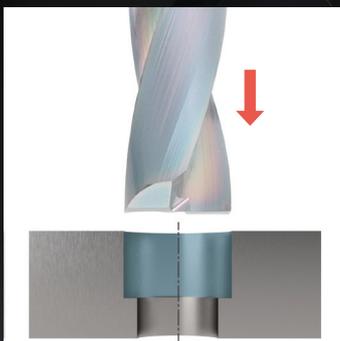


High Performance Flat Bottom Drill

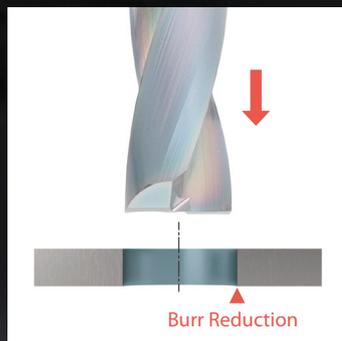
# KDZ Series

## Innovative, Cutting Edge Design

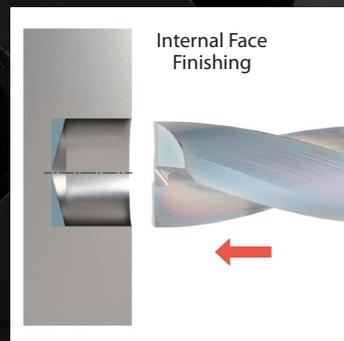
1 Excellent for drilling in many different applications



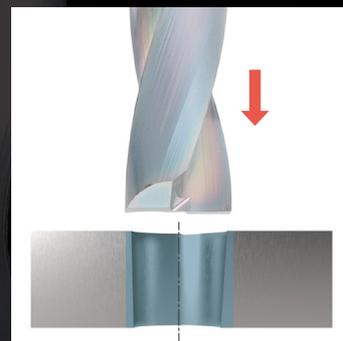
Counterboring



Plunging of Thin Plate



Turning in Automatic Lathes



Hole Expanding

## Various Styles Available

Stability-oriented

# KDZ

Standard Type

Tough Edge

Short

Total 111 Items  
Drilling Dia.  $\phi$ 1.0~ $\phi$ 12.0

Regular

Total 91 Items  
Drilling Dia.  $\phi$ 3.0~ $\phi$ 12.0

### Standard Type High Stability in Various Machining Environments

- Flat land specifications on corners
- Excellent chip evacuation with special flute shape
- Long tool life with MEGACOAT NANO EX coating technology

Sharp Edge

# KDZ-HP

High Precision Machining

Low Resistance

Short

Total 146 Items  
Drilling Dia.  $\phi$ 1.0~ $\phi$ 20.0  
Long Shank LS  
Now Available  
( $\phi$ 3.0~ $\phi$ 12.0)

**NEW**

Regular

Total 182 Items  
Drilling Dia.  $\phi$ 3.0~ $\phi$ 12.0  
Type C with Internal  
Coolant for Stainless  
Steel Machining  
Now Available  
( $\phi$ 3.0~ $\phi$ 12.0)

**NEW**

### High-precision and Stable Machining with Special Chip Thinning Shape

- Improved machining accuracy when entering the workpiece
- Long tool life with MEGACOAT NANO EX coating technology
- Stable machining accuracy even when drilling into cylindrical or curved surfaces. (KDZ-HP is recommended)

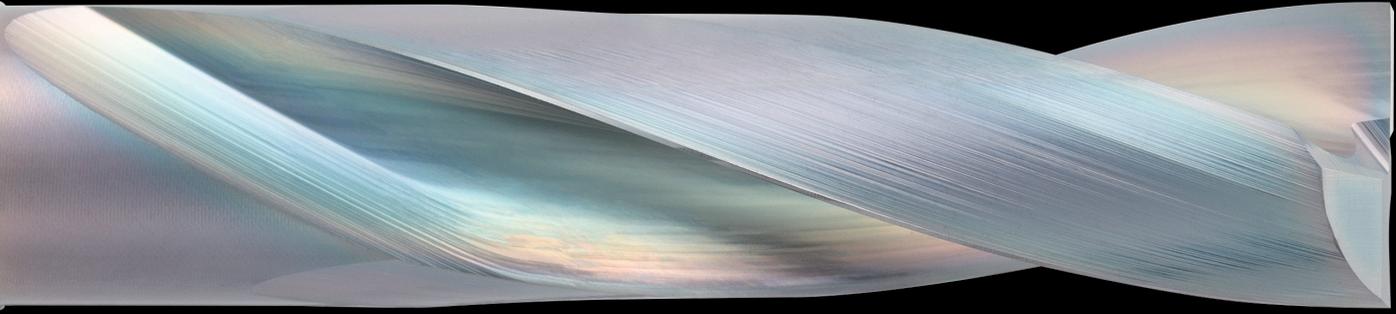


Flat bottom holes with a single tool

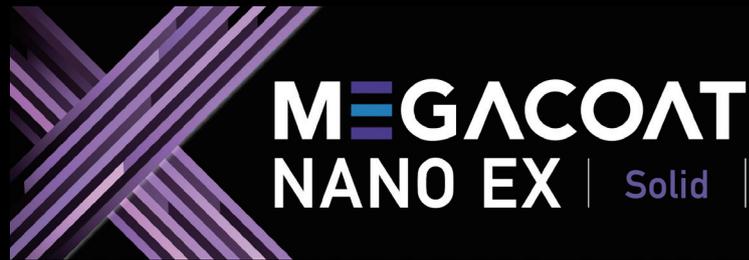
Drill a guide hole and counterbore at the same time

Flat Bottom Finishing after Drilling

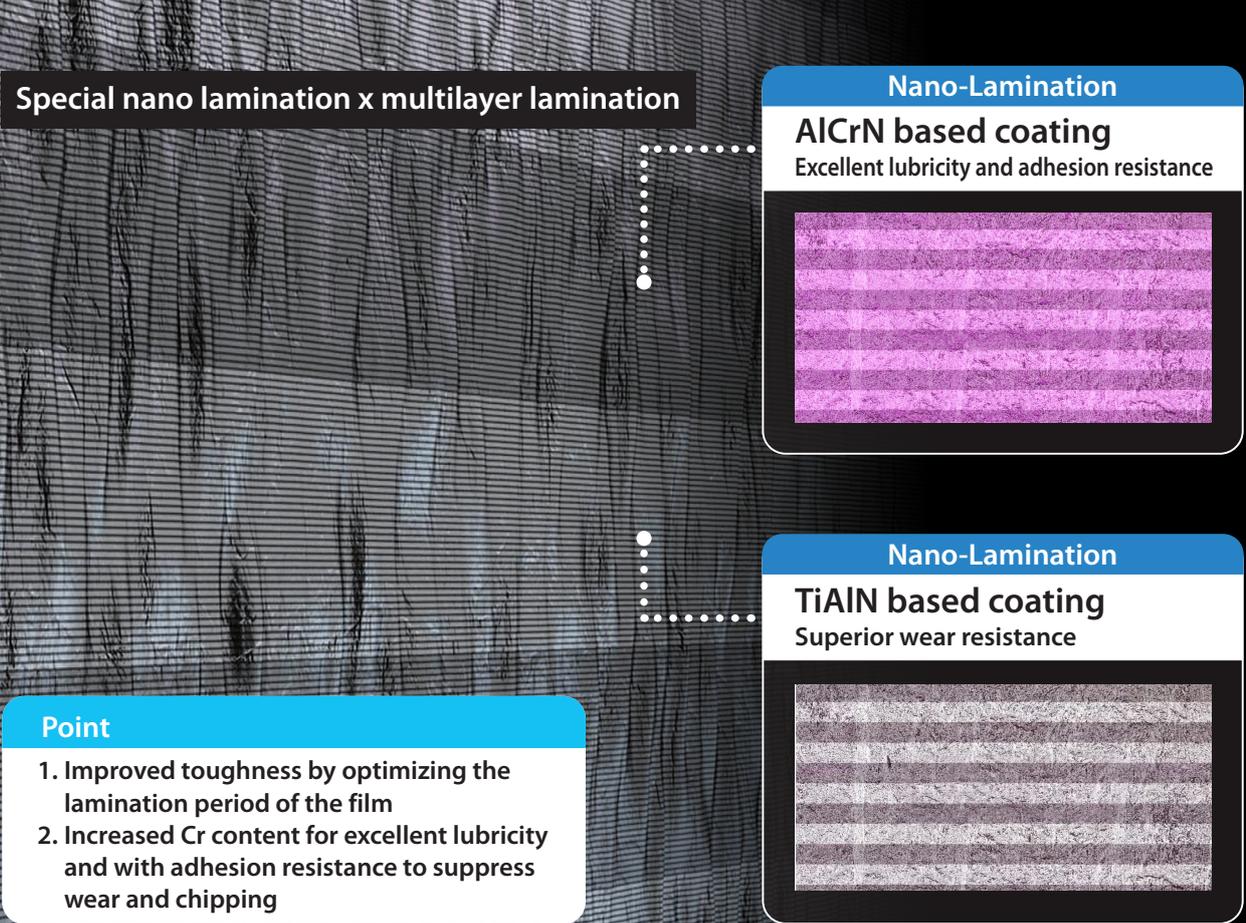
Counterboring on Slant Surface/Spotting for Secondary Process



A unique coating designed to optimize drilling performance is now available

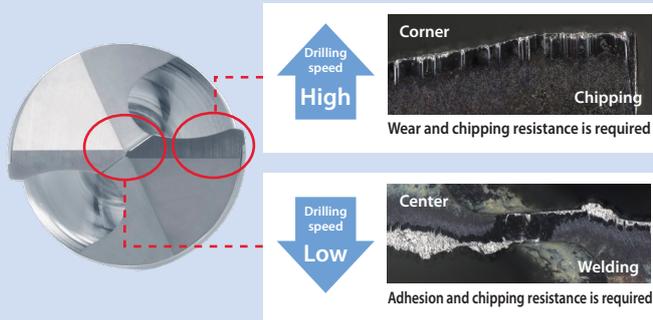


## 2 Excellent wear resistance and fracture resistance



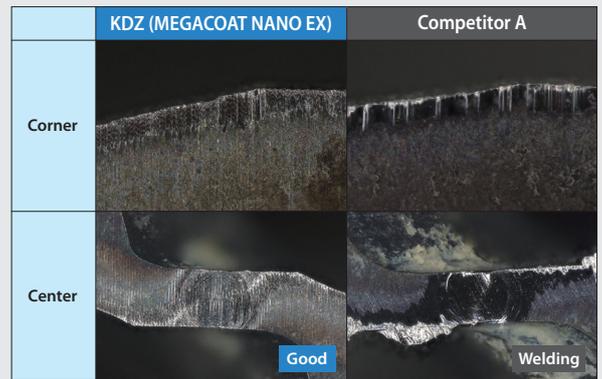
## General Drilling Challenges

Due to the difference in speed between the outside edge and the center, different edge designs are required to extend tool life



## Solution

Cutting edge conditions comparison when drilling (Internal evaluation)



Cutting Conditions:  $V_c = 80$  m/min,  $f = 0.06$  mm/rev,  
Cutting Dia.  $\phi 3$ , Drilling depth: 6 mm Wet (External Coolant) Workpiece: S50C

## KDZ with MEGACOAT NANO EX

Wear Resistance

Adhesion Resistance

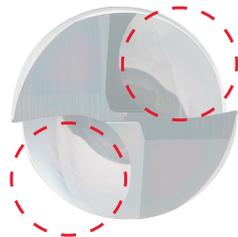
Chipping Resistance

Provides high resistance performance for precision drilling

## 3 Unique shape for excellent machining performance

### KDZ Stability-oriented

A Large Chip Pocket  
Excellent Chip Evacuation

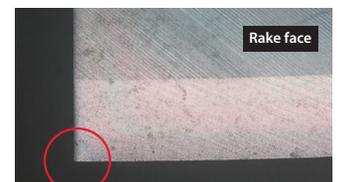
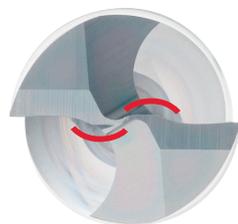


Flat land specifications to improve fracture resistance

### KDZ-HP Sharp Edge

Special design improves  
chip thinning and discharge

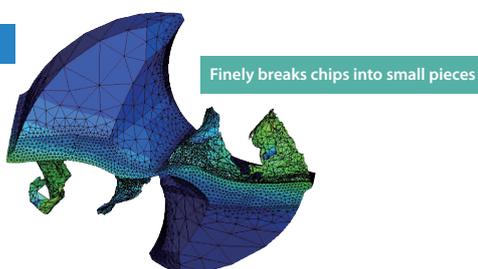
Reducing the load on the  
center of the cutting edge



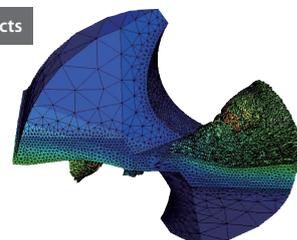
There is no land and a rake face is formed from the cutting edge  
Reduced impact forces when entering provides high-precision and stable machining ( $\sim \phi 12$ )

Chipping simulation comparison (Image) (Internal evaluation)

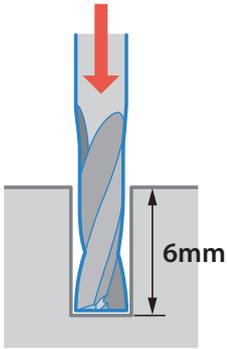
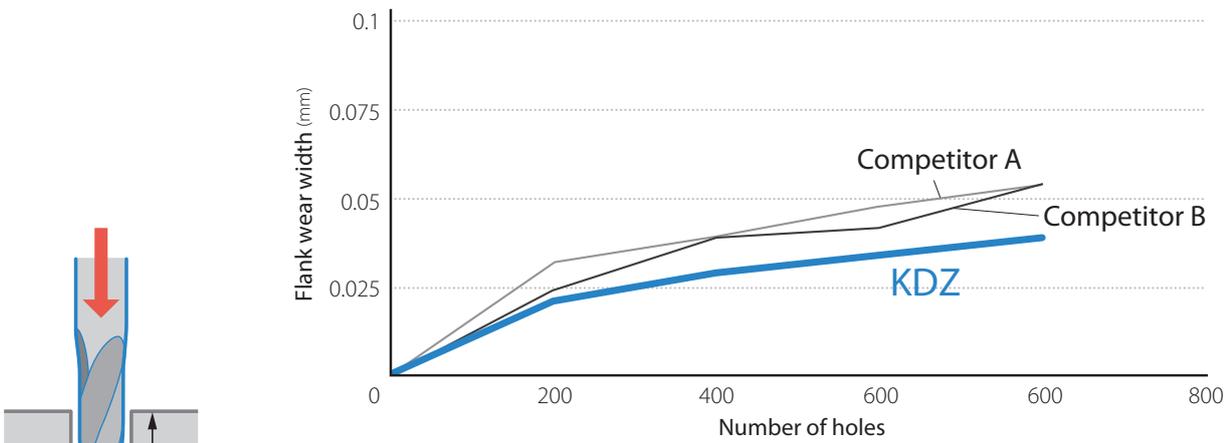
KDZ-HP



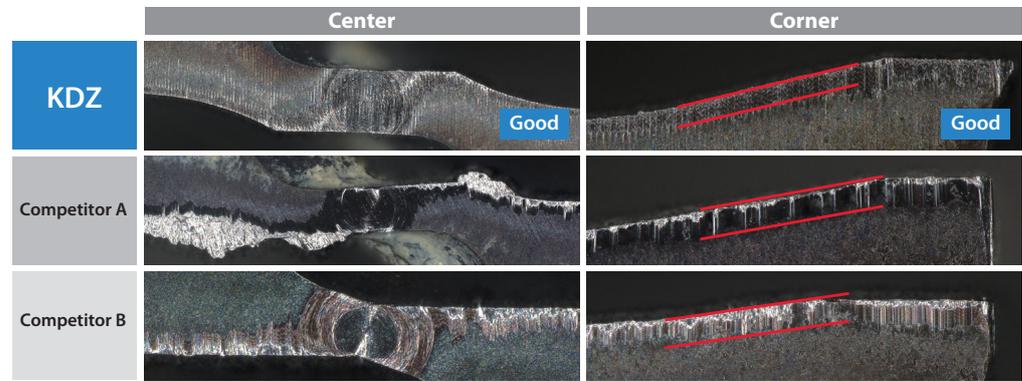
Conventional products



Wear Resistance Comparison



Edge condition



Cutting Conditions: Vc = 80 m/min, f = 0.06 mm/rev, Cutting Dia. ø3, Drilling depth: 6 mm Wet (External Coolant) Workpiece: S50C

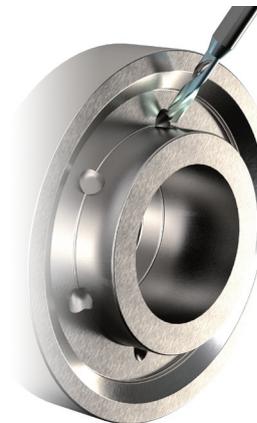
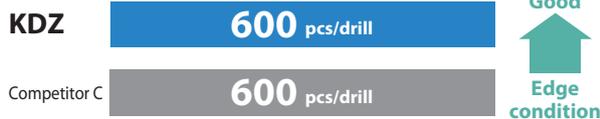
**KDZ restrains wear. Less welding and chipping**  
**Showed high wear resistance, adhesion resistance and chipping resistance**

Case Studies

Automotive Parts S25C

n = 6,000 min<sup>-1</sup> (Vc = 55 m/min)  
 Vf = 115 mm/min (f = 0.02 mm/rev)  
 Drilling depth 3 mm Wet (External coolant) KDZ0300X3.05060N

Number of Workpieces

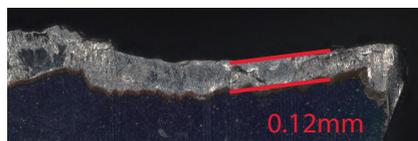


Edge condition

**KDZ**



Competitor C



KDZ provides superior wear resistance and stable machining

(User evaluation)

# 4 New KDZ-HP Type C with Internal Coolant NEW

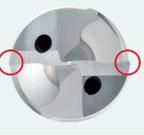
High-precision, stable machining with five advantages  
 Both sharpness and edge strength, which are difficult to achieve with conventional tools



**1 Special chip thinning design**  
 High rigidity and excellent chip control



**2 Corner: Flat land specifications**  
 Sharpness and chipping resistance



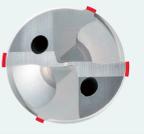
**3 Micro honing**  
 Maintains sharpness and improves wear resistance



**4 Unique flute shape**  
 Optimized chip evacuation and rigidity



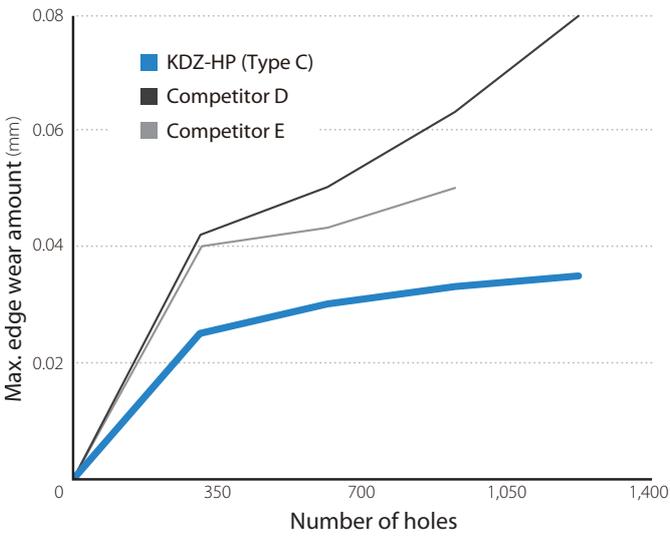
**5 Double Margin**  
 High-precision machining with guiding action



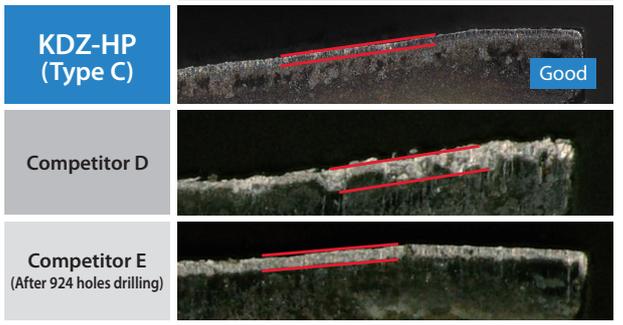
## Solution

### Excellent wear resistance in stainless steel machining

Wear resistance comparison (Internal evaluation)



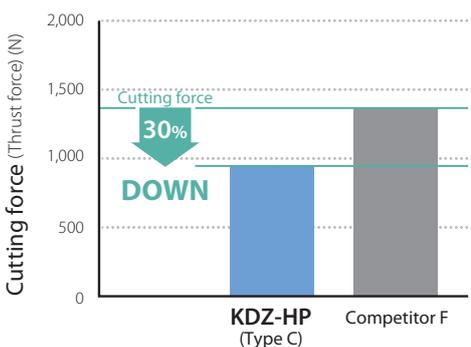
Flank wear condition (After 1,232 holes drilling)



Cutting Conditions:  $V_c = 80 \text{ m/min}$ ,  $f = 0.07 \text{ mm/rev}$ ,  $H = 12 \text{ mm}$ , Internal Coolant  
 Workpiece: SUS304

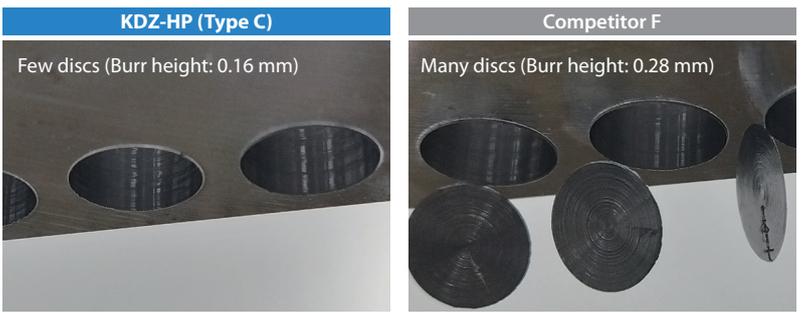
**KDZ-HP (Type C) showed less adhesion to the cutting edge**  
**Provides excellent wear resistance**

Cutting force comparison (Internal evaluation)



Cutting Conditions:  $n = 3,180 \text{ min}^{-1}$ ,  $V_f = 795 \text{ mm/min}$ , Drilling Depth 10 mm, Wet (Internal Coolant) Cutting Dia.  $\phi 10 \text{ mm}$  Workpiece: S50C

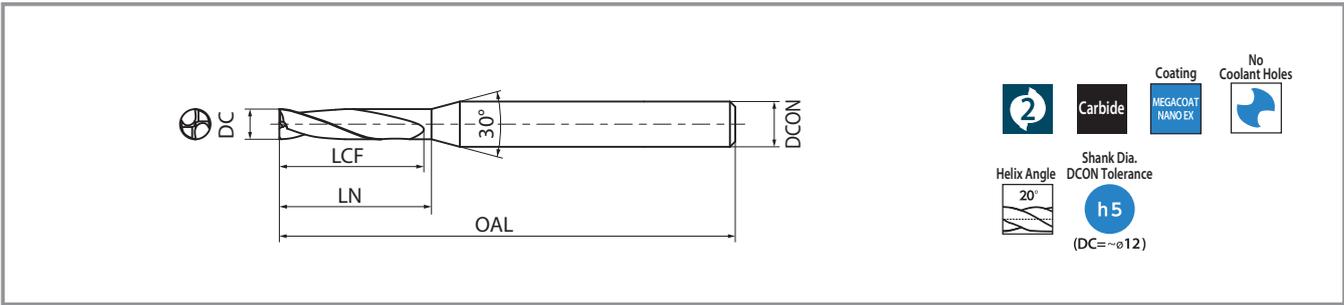
Burr Formation Comparison (Internal evaluation)



Cutting Conditions:  $n = 3,800 \text{ min}^{-1}$ ,  $V_f = 950 \text{ mm/min}$ , Drilling Depth 12 mm, Wet (Internal Coolant) Cutting Dia.  $\phi 10 \text{ mm}$  Workpiece: S50C

**KDZ-HP (Type C) is lower in cutting force. There is few remaining discs and the sharpness is good.**

# KDZ Short



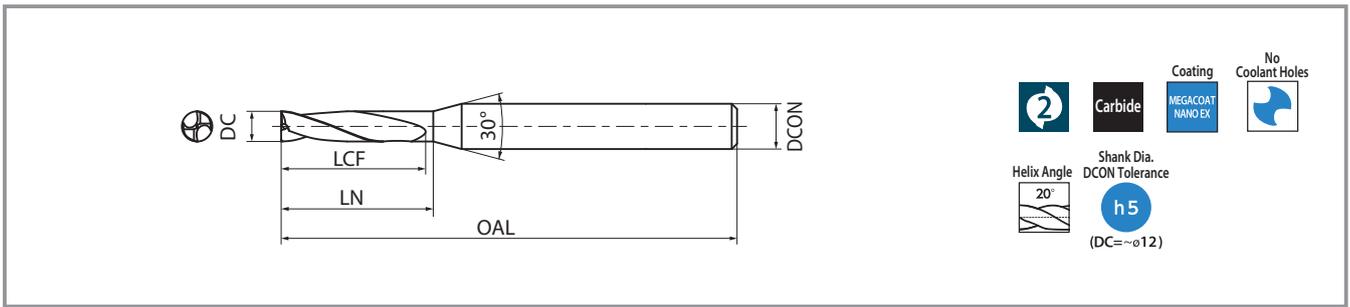
Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0100X1.5S040N	●	1.0	$0$ $-0.010$	3	4	4	50
KDZ0110X1.5S040N	●	1.1	$0$ $-0.010$	3.5	4.5	4	50
KDZ0120X1.5S040N	●	1.2					
KDZ0130X1.5S040N	●	1.3	$0$ $-0.010$	4	5	4	50
KDZ0140X1.5S040N	●	1.4	$0$ $-0.010$	4.5	5.5	4	50
KDZ0150X1.5S040N	●	1.5	$0$ $-0.010$	5	6	4	50
KDZ0160X1.5S040N	●	1.6					
KDZ0170X1.5S040N	●	1.7	$0$ $-0.010$	5.5	6.5	4	50
KDZ0180X1.5S040N	●	1.8	$0$ $-0.010$	6	7	4	50
KDZ0190X1.5S040N	●	1.9					
KDZ0200X1.5S040N	●	2.0	$0$ $-0.010$	7	8	4	50
KDZ0210X1.5S040N	●	2.1					
KDZ0220X1.5S040N	●	2.2	$0$ $-0.010$	8	9	4	50
KDZ0230X1.5S040N	●	2.3					
KDZ0240X1.5S040N	●	2.4	$0$ $-0.010$	9	10	4	50
KDZ0250X1.5S040N	●	2.5					
KDZ0260X1.5S040N	●	2.6	$0$ $-0.010$	10	11	6	60
KDZ0270X1.5S040N	●	2.7					
KDZ0280X1.5S040N	●	2.8	$0$ $-0.010$	11	12	6	60
KDZ0290X1.5S040N	●	2.9					
KDZ0300X1.5S060N	●	3.0	$0$ $-0.012$	10	11	6	60
KDZ0310X1.5S060N	●	3.1					
KDZ0320X1.5S060N	●	3.2	$0$ $-0.012$	11	12	6	60
KDZ0330X1.5S060N	●	3.3					
KDZ0340X1.5S060N	●	3.4	$0$ $-0.012$	12	13	6	60
KDZ0350X1.5S060N	●	3.5					
KDZ0360X1.5S060N	●	3.6					

Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0370X1.5S060N	●	3.7	$0$ $-0.012$	12	13	6	60
KDZ0380X1.5S060N	●	3.8					
KDZ0390X1.5S060N	●	3.9					
KDZ0400X1.5S060N	●	4.0					
KDZ0410X1.5S060N	●	4.1	$0$ $-0.012$	13	14	6	60
KDZ0420X1.5S060N	●	4.2					
KDZ0430X1.5S060N	●	4.3					
KDZ0440X1.5S060N	●	4.4	$0$ $-0.012$	14	15	6	60
KDZ0450X1.5S060N	●	4.5					
KDZ0460X1.5S060N	●	4.6	$0$ $-0.012$	15	16	6	60
KDZ0470X1.5S060N	●	4.7					
KDZ0480X1.5S060N	●	4.8	$0$ $-0.012$	16	17	6	60
KDZ0490X1.5S060N	●	4.9					
KDZ0500X1.5S060N	●	5.0					
KDZ0510X1.5S060N	●	5.1	$0$ $-0.012$	17	18	6	60
KDZ0520X1.5S060N	●	5.2					
KDZ0530X1.5S060N	●	5.3	$0$ $-0.012$	18	19	6	60
KDZ0540X1.5S060N	●	5.4					
KDZ0550X1.5S060N	●	5.5	$0$ $-0.012$	19	20	6	60
KDZ0560X1.5S060N	●	5.6					
KDZ0570X1.5S060N	●	5.7	$0$ $-0.012$	20	21	6	60
KDZ0580X1.5S060N	●	5.8					
KDZ0590X1.5S060N	●	5.9					

● - Standard Stock

The standard drilling depth is 1.5 D (1.5 x DC).

# KDZ Short



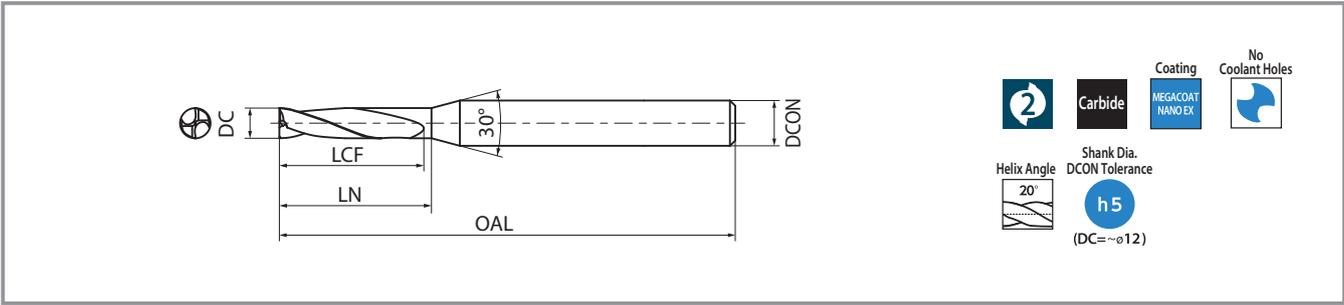
Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0600X1.5S060N	●	6.0	0 -0.012			6	60
KDZ0610X1.5S080N	●	6.1	0 -0.015	19	21	8	70
KDZ0620X1.5S080N	●	6.2					
KDZ0630X1.5S080N	●	6.3					
KDZ0640X1.5S080N	●	6.4	0 -0.015	20	22	8	70
KDZ0650X1.5S080N	●	6.5					
KDZ0660X1.5S080N	●	6.6					
KDZ0670X1.5S080N	●	6.7					
KDZ0680X1.5S080N	●	6.8	0 -0.015	21	23	8	70
KDZ0690X1.5S080N	●	6.9					
KDZ0700X1.5S080N	●	7.0					
KDZ0710X1.5S080N	●	7.1	0 -0.015	22	24	8	70
KDZ0720X1.5S080N	●	7.2					
KDZ0730X1.5S080N	●	7.3	0 -0.015	23	25	8	70
KDZ0740X1.5S080N	●	7.4					
KDZ0750X1.5S080N	●	7.5					
KDZ0760X1.5S080N	●	7.6					
KDZ0770X1.5S080N	●	7.7	0 -0.015	24	25	8	70
KDZ0780X1.5S080N	●	7.8					
KDZ0790X1.5S080N	●	7.9					
KDZ0800X1.5S080N	●	8.0	0 -0.015	25	27	8	70
KDZ0810X1.5S100N	●	8.1				10	80
KDZ0820X1.5S100N	●	8.2					
KDZ0830X1.5S100N	●	8.3	0 -0.015	26	28	10	80
KDZ0840X1.5S100N	●	8.4					
KDZ0850X1.5S100N	●	8.5					
KDZ0860X1.5S100N	●	8.6					
KDZ0870X1.5S100N	●	8.7	0 -0.015	27	29	10	80
KDZ0880X1.5S100N	●	8.8					
KDZ0890X1.5S100N	●	8.9	0 -0.015	28	30	10	80
KDZ0900X1.5S100N	●	9.0					
KDZ0910X1.5S100N	●	9.1					

The standard drilling depth is 1.5 D (1.5 x DC).

Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0920X1.5S100N	●	9.2	0 -0.015	29	31	10	80
KDZ0930X1.5S100N	●	9.3					
KDZ0940X1.5S100N	●	9.4					
KDZ0950X1.5S100N	●	9.5					
KDZ0960X1.5S100N	●	9.6	0 -0.015	30	32	10	80
KDZ0970X1.5S100N	●	9.7					
KDZ0980X1.5S100N	●	9.8					
KDZ0990X1.5S100N	●	9.9	0 -0.015	31	33	10	80
KDZ1000X1.5S100N	●	10.0					
KDZ1010X1.5S120N	●	10.1	0 -0.018			12	100
KDZ1020X1.5S120N	●	10.2	0 -0.018	32	34	12	100
KDZ1030X1.5S120N	●	10.3					
KDZ1040X1.5S120N	●	10.4					
KDZ1050X1.5S120N	●	10.5	0 -0.018	33	35	12	100
KDZ1060X1.5S120N	●	10.6					
KDZ1070X1.5S120N	●	10.7					
KDZ1080X1.5S120N	●	10.8					
KDZ1090X1.5S120N	●	10.9	0 -0.018	34	36	12	100
KDZ1100X1.5S120N	●	11.0					
KDZ1110X1.5S120N	●	11.1					
KDZ1120X1.5S120N	●	11.2	0 -0.018	35	37	12	100
KDZ1130X1.5S120N	●	11.3					
KDZ1140X1.5S120N	●	11.4					
KDZ1150X1.5S120N	●	11.5	0 -0.018	36	38	12	100
KDZ1160X1.5S120N	●	11.6					
KDZ1170X1.5S120N	●	11.7					
KDZ1180X1.5S120N	●	11.8					
KDZ1190X1.5S120N	●	11.9					
KDZ1200X1.5S120N	●	12.0					

●: Standard Stock

# KDZ Regular



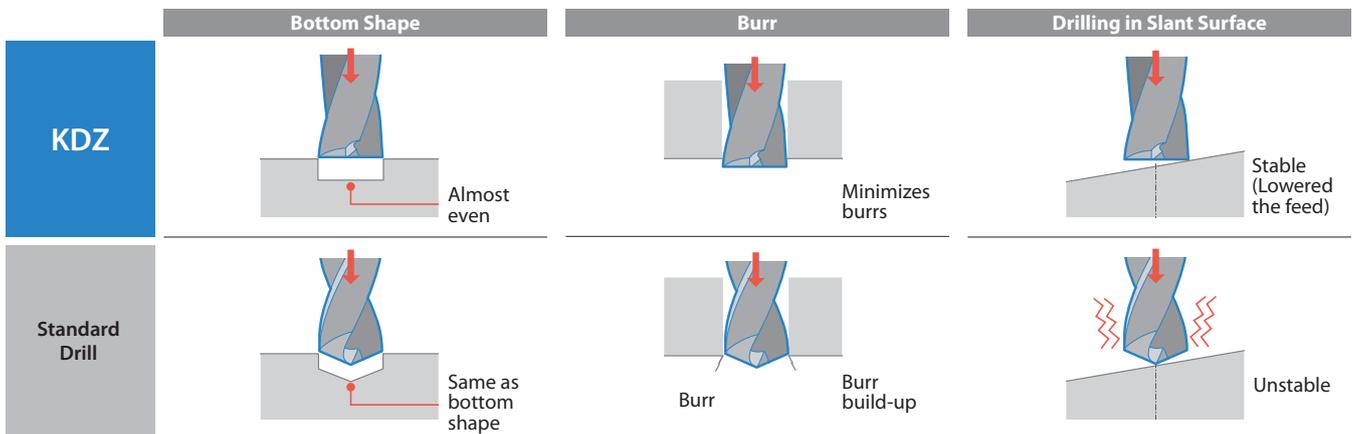
Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0300X3.0S060N	●	3.0	0 -0.010	14	15	6	60
KDZ0310X3.0S060N	●	3.1	0 -0.012				
KDZ0320X3.0S060N	●	3.2		15	16	6	60
KDZ0330X3.0S060N	●	3.3	0 -0.012				
KDZ0340X3.0S060N	●	3.4		17	18	6	60
KDZ0350X3.0S060N	●	3.5	0 -0.012				
KDZ0360X3.0S060N	●	3.6		19	20	6	60
KDZ0370X3.0S060N	●	3.7	0 -0.012				
KDZ0380X3.0S060N	●	3.8		20	21	6	60
KDZ0390X3.0S060N	●	3.9	0 -0.012				
KDZ0400X3.0S060N	●	4.0		21	22	6	60
KDZ0410X3.0S060N	●	4.1	0 -0.012				
KDZ0420X3.0S060N	●	4.2		20	21	6	60
KDZ0430X3.0S060N	●	4.3	0 -0.012				
KDZ0440X3.0S060N	●	4.4		21	22	6	60
KDZ0450X3.0S060N	●	4.5	0 -0.012				
KDZ0460X3.0S060N	●	4.6		21	22	6	60
KDZ0470X3.0S060N	●	4.7					

Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0480X3.0S060N	●	4.8	0 -0.012	21	22	6	60
KDZ0490X3.0S060N	●	4.9					
KDZ0500X3.0S060N	●	5.0	0 -0.012	23	24	6	60
KDZ0510X3.0S060N	●	5.1					
KDZ0520X3.0S060N	●	5.2	0 -0.012				
KDZ0530X3.0S060N	●	5.3		0 -0.012			
KDZ0540X3.0S060N	●	5.4	0 -0.012				
KDZ0550X3.0S060N	●	5.5		0 -0.012			
KDZ0560X3.0S060N	●	5.6	0 -0.012				
KDZ0570X3.0S060N	●	5.7		0 -0.012			
KDZ0580X3.0S060N	●	5.8	26		27	6	60
KDZ0590X3.0S060N	●	5.9		0 -0.012			
KDZ0600X3.0S060N	●	6.0	0 -0.012		28	6	60
KDZ0610X3.0S080N	●	6.1		0 -0.015			
KDZ0620X3.0S080N	●	6.2	28		29	8	70
KDZ0630X3.0S080N	●	6.3		0 -0.015			
KDZ0640X3.0S080N	●	6.4	0 -0.015				
KDZ0650X3.0S080N	●	6.5					

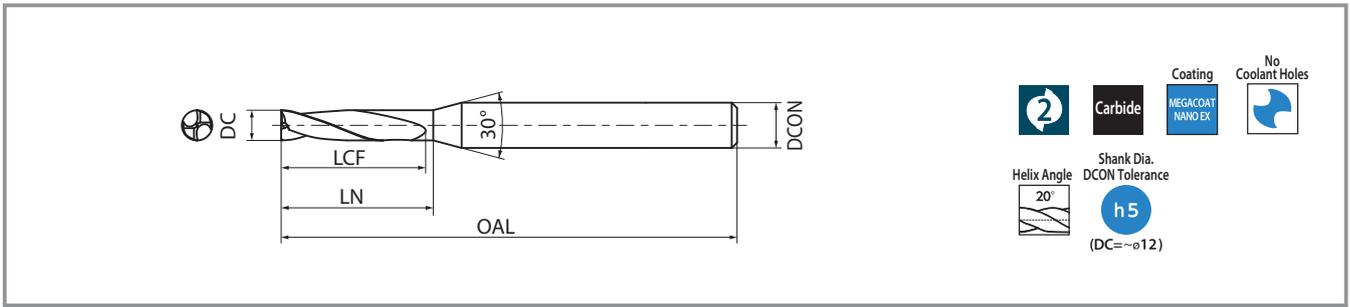
The standard drilling depth is 2.0 D (2.0 x DC).  
Pecking is recommended when drilling depth is 2D or over

● Standard Stock

## Advantages of Flat Bottom Drill



# KDZ Regular



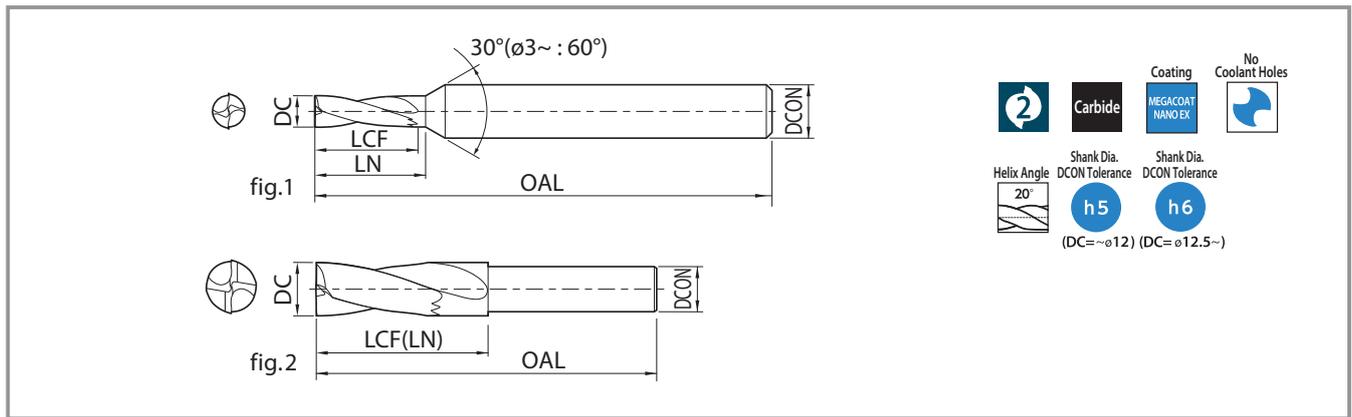
Description	Stock	Dimension (mm)										
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL					
KDZ0660X3.0S080N	●	6.6	0 -0.015	30	31	8	70					
KDZ0670X3.0S080N	●	6.7										
KDZ0680X3.0S080N	●	6.8	0 -0.015	31	32	8	70					
KDZ0690X3.0S080N	●	6.9										
KDZ0700X3.0S080N	●	7.0	0 -0.015	32	33	8	70					
KDZ0710X3.0S080N	●	7.1										
KDZ0720X3.0S080N	●	7.2										
KDZ0730X3.0S080N	●	7.3										
KDZ0740X3.0S080N	●	7.4										
KDZ0750X3.0S080N	●	7.5										
KDZ0760X3.0S080N	●	7.6	0 -0.015	34	35	8	70					
KDZ0770X3.0S080N	●	7.7										
KDZ0780X3.0S080N	●	7.8										
KDZ0790X3.0S080N	●	7.9										
KDZ0800X3.0S080N	●	8.0	0 -0.015	36	36	8	70					
KDZ0810X3.0S100N	●	8.1										
KDZ0820X3.0S100N	●	8.2			37	10	80					
KDZ0830X3.0S100N	●	8.3										
KDZ0840X3.0S100N	●	8.4			0 -0.015	38	39	10	80			
KDZ0850X3.0S100N	●	8.5										
KDZ0860X3.0S100N	●	8.6										
KDZ0870X3.0S100N	●	8.7										
KDZ0880X3.0S100N	●	8.8	0 -0.015	39						40	10	80
KDZ0890X3.0S100N	●	8.9										
KDZ0900X3.0S100N	●	9.0	0 -0.015	40	41	10	80					
KDZ0910X3.0S100N	●	9.1										
KDZ0920X3.0S100N	●	9.2										
KDZ0930X3.0S100N	●	9.3										
KDZ0940X3.0S100N	●	9.4										

Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0950X3.0S100N	●	9.5	0 -0.015	42	43	10	80
KDZ0960X3.0S100N	●	9.6					
KDZ0970X3.0S100N	●	9.7					
KDZ0980X3.0S100N	●	9.8					
KDZ0990X3.0S100N	●	9.9					
KDZ1000X3.0S100N	●	10.0					
KDZ1010X3.0S120N	●	10.1	0 -0.018	46	12	100	
KDZ1020X3.0S120N	●	10.2					0 -0.018
KDZ1030X3.0S120N	●	10.3					
KDZ1040X3.0S120N	●	10.4					
KDZ1050X3.0S120N	●	10.5					
KDZ1060X3.0S120N	●	10.6					
KDZ1070X3.0S120N	●	10.7	0 -0.018	47	48	12	
KDZ1080X3.0S120N	●	10.8					
KDZ1090X3.0S120N	●	10.9					
KDZ1100X3.0S120N	●	11.0					0 -0.018
KDZ1110X3.0S120N	●	11.1					
KDZ1120X3.0S120N	●	11.2					
KDZ1130X3.0S120N	●	11.3					
KDZ1140X3.0S120N	●	11.4					
KDZ1150X3.0S120N	●	11.5	0 -0.018	53	54	12	
KDZ1160X3.0S120N	●	11.6					
KDZ1170X3.0S120N	●	11.7					
KDZ1180X3.0S120N	●	11.8					
KDZ1190X3.0S120N	●	11.9					
KDZ1200X3.0S120N	●	12.0					0 -0.018

● : Standard Stock

The standard drilling depth is 2.0 D (2.0 x DC).  
Pecking is recommended when drilling depth is 2D or over

# KDZ-HP Short



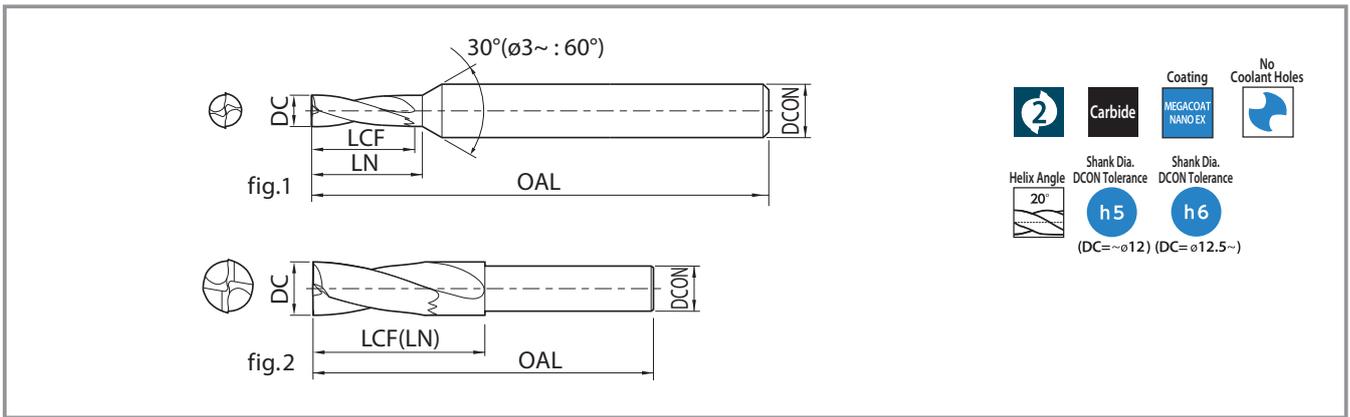
Description	Stock	Dimension (mm)						Shape
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL	
KDZ0100X1.5S040N-HP	●	1.0	<sup>0</sup> / <sub>-0.010</sub>	3.5	4.3	4	50	fig.1
KDZ0110X1.5S040N-HP	●	1.1	<sup>0</sup> / <sub>-0.010</sub>	3.9	4.7	4	50	fig.1
KDZ0120X1.5S040N-HP	●	1.2	<sup>0</sup> / <sub>-0.010</sub>	4.3	5.1	4	50	fig.1
KDZ0130X1.5S040N-HP	●	1.3	<sup>0</sup> / <sub>-0.010</sub>	4.7	5.5	4	50	fig.1
KDZ0140X1.5S040N-HP	●	1.4	<sup>0</sup> / <sub>-0.010</sub>	5.1	5.9	4	50	fig.1
KDZ0150X1.5S040N-HP	●	1.5	<sup>0</sup> / <sub>-0.010</sub>	5.5	6.3	4	50	fig.1
KDZ0160X1.5S040N-HP	●	1.6	<sup>0</sup> / <sub>-0.010</sub>	5.7	6.5	4	50	fig.1
KDZ0170X1.5S040N-HP	●	1.7	<sup>0</sup> / <sub>-0.010</sub>	5.9	6.7	4	50	fig.1
KDZ0180X1.5S040N-HP	●	1.8	<sup>0</sup> / <sub>-0.010</sub>	6.1	6.9	4	50	fig.1
KDZ0190X1.5S040N-HP	●	1.9	<sup>0</sup> / <sub>-0.010</sub>	6.3	7.1	4	50	fig.1
KDZ0200X1.5S040N-HP	●	2.0	<sup>0</sup> / <sub>-0.010</sub>	6.5	7.3	4	50	fig.1
KDZ0210X1.5S040N-HP	●	2.1	<sup>0</sup> / <sub>-0.010</sub>	6.9	7.7	4	50	fig.1
KDZ0220X1.5S040N-HP	●	2.2	<sup>0</sup> / <sub>-0.010</sub>	7.3	8.1	4	50	fig.1
KDZ0230X1.5S040N-HP	●	2.3	<sup>0</sup> / <sub>-0.010</sub>	7.7	8.5	4	50	fig.1
KDZ0240X1.5S040N-HP	●	2.4	<sup>0</sup> / <sub>-0.010</sub>	8.1	8.9	4	50	fig.1
KDZ0250X1.5S040N-HP	●	2.5	<sup>0</sup> / <sub>-0.010</sub>	8.5	9.3	4	50	fig.1
KDZ0260X1.5S040N-HP	●	2.6	<sup>0</sup> / <sub>-0.010</sub>	8.8	9.5	4	50	fig.1
KDZ0270X1.5S040N-HP	●	2.7	<sup>0</sup> / <sub>-0.010</sub>	9.1	9.8	4	50	fig.1
KDZ0280X1.5S040N-HP	●	2.8	<sup>0</sup> / <sub>-0.010</sub>	9.3	10.0	4	50	fig.1
KDZ0290X1.5S040N-HP	●	2.9	<sup>0</sup> / <sub>-0.010</sub>	9.5	10.3	4	50	fig.1
KDZ0300X1.5S060N-HP	●	3.0	<sup>0</sup> / <sub>-0.010</sub>	9	10	6	60	fig.1
KDZ0310X1.5S060N-HP	●	3.1						
KDZ0320X1.5S060N-HP	●	3.2	<sup>0</sup> / <sub>-0.012</sub>	10	11	6	60	fig.1
KDZ0330X1.5S060N-HP	●	3.3						
KDZ0340X1.5S060N-HP	●	3.4						
KDZ0350X1.5S060N-HP	●	3.5	<sup>0</sup> / <sub>-0.012</sub>	11	12	6	60	fig.1
KDZ0360X1.5S060N-HP	●	3.6						
KDZ0370X1.5S060N-HP	●	3.7						
KDZ0380X1.5S060N-HP	●	3.8						
KDZ0390X1.5S060N-HP	●	3.9	<sup>0</sup> / <sub>-0.012</sub>	12	13	6	60	fig.1
KDZ0400X1.5S060N-HP	●	4.0						
KDZ0410X1.5S060N-HP	●	4.1						
KDZ0420X1.5S060N-HP	●	4.2	<sup>0</sup> / <sub>-0.012</sub>	13	14	6	60	fig.1
KDZ0430X1.5S060N-HP	●	4.3						

Description	Stock	Dimension (mm)						Shape
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL	
KDZ0440X1.5S060N-HP	●	4.4						
KDZ0450X1.5S060N-HP	●	4.5	<sup>0</sup> / <sub>-0.012</sub>	14	15	6	60	fig.1
KDZ0460X1.5S060N-HP	●	4.6						
KDZ0470X1.5S060N-HP	●	4.7						
KDZ0480X1.5S060N-HP	●	4.8	<sup>0</sup> / <sub>-0.012</sub>	15	16	6	60	fig.1
KDZ0490X1.5S060N-HP	●	4.9						
KDZ0500X1.5S060N-HP	●	5.0						
KDZ0510X1.5S060N-HP	●	5.1	<sup>0</sup> / <sub>-0.012</sub>	16	17	6	60	fig.1
KDZ0520X1.5S060N-HP	●	5.2						
KDZ0530X1.5S060N-HP	●	5.3						
KDZ0540X1.5S060N-HP	●	5.4						
KDZ0550X1.5S060N-HP	●	5.5	<sup>0</sup> / <sub>-0.012</sub>	17	18	6	60	fig.1
KDZ0560X1.5S060N-HP	●	5.6						
KDZ0570X1.5S060N-HP	●	5.7						
KDZ0580X1.5S060N-HP	●	5.8	<sup>0</sup> / <sub>-0.012</sub>	18	19	6	60	fig.1
KDZ0590X1.5S060N-HP	●	5.9						
KDZ0600X1.5S060N-HP	●	6.0	<sup>0</sup> / <sub>-0.012</sub>	19	21	6	60	fig.1
KDZ0610X1.5S080N-HP	●	6.1	<sup>0</sup> / <sub>-0.015</sub>	19	21	8	70	fig.1
KDZ0620X1.5S080N-HP	●	6.2						
KDZ0630X1.5S080N-HP	●	6.3						
KDZ0640X1.5S080N-HP	●	6.4	<sup>0</sup> / <sub>-0.015</sub>	20	22	8	70	fig.1
KDZ0650X1.5S080N-HP	●	6.5						
KDZ0660X1.5S080N-HP	●	6.6						
KDZ0670X1.5S080N-HP	●	6.7						
KDZ0680X1.5S080N-HP	●	6.8	<sup>0</sup> / <sub>-0.015</sub>	21	23	8	70	fig.1
KDZ0690X1.5S080N-HP	●	6.9						
KDZ0700X1.5S080N-HP	●	7.0						
KDZ0710X1.5S080N-HP	●	7.1	<sup>0</sup> / <sub>-0.015</sub>	22	24	8	70	fig.1
KDZ0720X1.5S080N-HP	●	7.2						
KDZ0730X1.5S080N-HP	●	7.3						
KDZ0740X1.5S080N-HP	●	7.4	<sup>0</sup> / <sub>-0.015</sub>	23	25	8	70	fig.1
KDZ0750X1.5S080N-HP	●	7.5						

● : Standard Stock

The standard drilling depth is 1.5 D (1.5 x DC).

# KDZ-HP Short



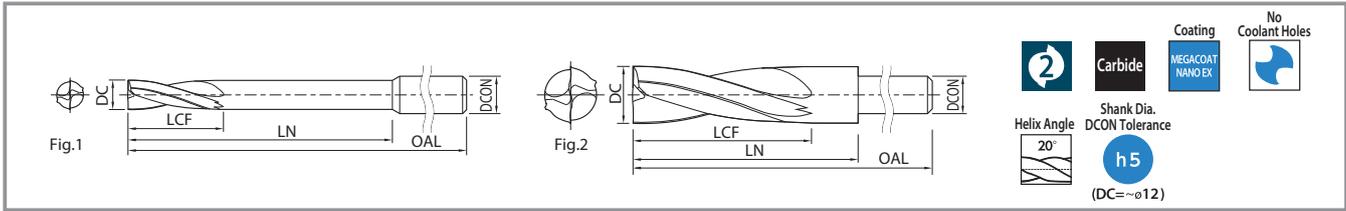
Description	Stock	Dimension (mm)						Shape
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL	
KDZ0760X1.5S080N-HP	●	7.6	0 -0.015	24	25	8	70	fig.1
KDZ0770X1.5S080N-HP	●	7.7						
KDZ0780X1.5S080N-HP	●	7.8						
KDZ0790X1.5S080N-HP	●	7.9						
KDZ0800X1.5S080N-HP	●	8.0	0 -0.015	25	27	8	70	fig.1
KDZ0810X1.5S100N-HP	●	8.1	0 -0.015	25	27	10	80	fig.1
KDZ0820X1.5S100N-HP	●	8.2						
KDZ0830X1.5S100N-HP	●	8.3	0 -0.015	26	28	10	80	fig.1
KDZ0840X1.5S100N-HP	●	8.4						
KDZ0850X1.5S100N-HP	●	8.5						
KDZ0860X1.5S100N-HP	●	8.6						
KDZ0870X1.5S100N-HP	●	8.7	0 -0.015	27	29	10	80	fig.1
KDZ0880X1.5S100N-HP	●	8.8	0 -0.015	28	30	10	80	fig.1
KDZ0890X1.5S100N-HP	●	8.9						
KDZ0900X1.5S100N-HP	●	9.0	0 -0.015	29	31	10	80	fig.1
KDZ0910X1.5S100N-HP	●	9.1						
KDZ0920X1.5S100N-HP	●	9.2						
KDZ0930X1.5S100N-HP	●	9.3						
KDZ0940X1.5S100N-HP	●	9.4	0 -0.015	30	32	10	80	fig.1
KDZ0950X1.5S100N-HP	●	9.5						
KDZ0960X1.5S100N-HP	●	9.6	0 -0.015	31	33	10	80	fig.1
KDZ0970X1.5S100N-HP	●	9.7						
KDZ0980X1.5S100N-HP	●	9.8						
KDZ0990X1.5S100N-HP	●	9.9						
KDZ1000X1.5S100N-HP	●	10.0	0 -0.018	31	33	12	100	fig.1
KDZ1010X1.5S120N-HP	●	10.1	0 -0.018	32	34	12	100	fig.1
KDZ1020X1.5S120N-HP	●	10.2						
KDZ1030X1.5S120N-HP	●	10.3	0 -0.018	33	35	12	100	fig.1
KDZ1040X1.5S120N-HP	●	10.4						
KDZ1050X1.5S120N-HP	●	10.5						
KDZ1060X1.5S120N-HP	●	10.6						
KDZ1070X1.5S120N-HP	●	10.7	0 -0.021	60	60	16	125	fig.2
KDZ1080X1.5S120N-HP	●	10.8						

The standard drilling depth is 1.5 D (1.5 x DC).

Description	Stock	Dimension (mm)						Shape						
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL							
KDZ1090X1.5S120N-HP	●	10.9	0 -0.018	34	36	12	100	fig.1						
KDZ1100X1.5S120N-HP	●	11.0												
KDZ1110X1.5S120N-HP	●	11.1	0 -0.018	35	37	12	100	fig.1						
KDZ1120X1.5S120N-HP	●	11.2												
KDZ1130X1.5S120N-HP	●	11.3												
KDZ1140X1.5S120N-HP	●	11.4												
KDZ1150X1.5S120N-HP	●	11.5	0 -0.018	36	38	12	100	fig.1						
KDZ1160X1.5S120N-HP	●	11.6												
KDZ1170X1.5S120N-HP	●	11.7												
KDZ1180X1.5S120N-HP	●	11.8												
KDZ1190X1.5S120N-HP	●	11.9	0 -0.018	37	39	12	100	fig.1						
KDZ1200X1.5S120N-HP	●	12.0												
KDZ1250X1.5S120N-HP	●	12.5							0 -0.018	41	41	12	100	fig.2
KDZ1300X1.5S120N-HP	●	13.0												
KDZ1350X1.5S120N-HP	●	13.5												
KDZ1400X1.5S120N-HP	●	14.0	0 -0.018	43	43	12	100	fig.2						
KDZ1450X1.5S120N-HP	●	14.5												
KDZ1500X1.5S120N-HP	●	15.0												
KDZ1550X1.5S120N-HP	●	15.5												
KDZ1600X1.5S160N-HP	●	16.0	0 -0.018	52	52	16	115	fig.1						
KDZ1650X1.5S160N-HP	●	16.5	0 -0.018	53	53	16	115	fig.2						
KDZ1700X1.5S160N-HP	●	17.0												
KDZ1750X1.5S160N-HP	●	17.5												
KDZ1800X1.5S160N-HP	●	18.0												
KDZ1850X1.5S160N-HP	●	18.5	0 -0.021	59	59	16	125	fig.2						
KDZ1900X1.5S160N-HP	●	19.0												
KDZ1950X1.5S160N-HP	●	19.5												
KDZ2000X1.5S200N-HP	●	20.0							0 -0.021	63	63	20	125	fig.1

●: Standard Stock

# KDZ-HP Short (Long shank)



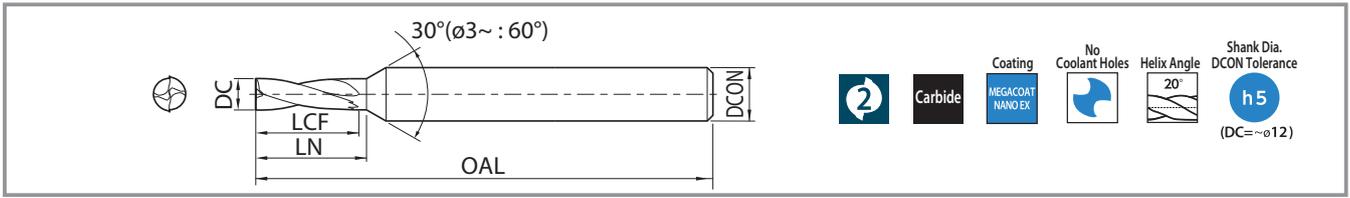
Description	Stock	Dimension (mm)						Shape
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL	
KDZ0300X1.5S060N-HPL	●	3.0	0 -0.010	9.0	30	6	100	fig.1
KDZ0310X1.5S060N-HPL	MTO	3.1	0 -0.012	10	31	6	100	fig.1
KDZ0320X1.5S060N-HPL	MTO	3.2			32			
KDZ0330X1.5S060N-HPL	MTO	3.3			33			
KDZ0340X1.5S060N-HPL	MTO	3.4	0 -0.012	11	34	6	100	fig.1
KDZ0350X1.5S060N-HPL	●	3.5			35			
KDZ0360X1.5S060N-HPL	MTO	3.6			36			
KDZ0370X1.5S060N-HPL	MTO	3.7	0 -0.012	12	37	6	100	fig.1
KDZ0380X1.5S060N-HPL	MTO	3.8			38			
KDZ0390X1.5S060N-HPL	MTO	3.9			39			
KDZ0400X1.5S060N-HPL	●	4.0	0 -0.012	13	40	6	100	fig.1
KDZ0410X1.5S060N-HPL	MTO	4.1			41			
KDZ0420X1.5S060N-HPL	MTO	4.2			42			
KDZ0430X1.5S060N-HPL	MTO	4.3	0 -0.012	14	43	6	100	fig.1
KDZ0440X1.5S060N-HPL	MTO	4.4			44			
KDZ0450X1.5S060N-HPL	●	4.5			45			
KDZ0460X1.5S060N-HPL	MTO	4.6	0 -0.012	15	46	6	100	fig.1
KDZ0470X1.5S060N-HPL	MTO	4.7			47			
KDZ0480X1.5S060N-HPL	MTO	4.8			48			
KDZ0490X1.5S060N-HPL	MTO	4.9	0 -0.012	16	49	6	110	fig.1
KDZ0500X1.5S060N-HPL	●	5.0			50			
KDZ0510X1.5S060N-HPL	MTO	5.1			51			
KDZ0520X1.5S060N-HPL	MTO	5.2	0 -0.012	17	52	6	110	fig.1
KDZ0530X1.5S060N-HPL	MTO	5.3			53			
KDZ0540X1.5S060N-HPL	MTO	5.4			54			
KDZ0550X1.5S060N-HPL	●	5.5	0 -0.012	18	55	6	110	fig.1
KDZ0560X1.5S060N-HPL	MTO	5.6			56			
KDZ0570X1.5S060N-HPL	MTO	5.7			57			
KDZ0580X1.5S060N-HPL	MTO	5.8	0 -0.012	19	58	6	110	fig.1
KDZ0590X1.5S060N-HPL	MTO	5.9			59			
KDZ0600X1.5S060N-HPL	●	6.0			60			
KDZ0610X1.5S060N-HPL	MTO	6.1	0 -0.015	20	61	6	120	fig.2
KDZ0620X1.5S060N-HPL	MTO	6.2			29			
KDZ0630X1.5S060N-HPL	MTO	6.3			0 -0.015			
KDZ0640X1.5S060N-HPL	MTO	6.4	64					
KDZ0650X1.5S060N-HPL	●	6.5	65					
KDZ0660X1.5S060N-HPL	MTO	6.6	0 -0.015	22	66	6	120	fig.2
KDZ0670X1.5S060N-HPL	MTO	6.7			67			
KDZ0680X1.5S060N-HPL	MTO	6.8			68			
KDZ0690X1.5S060N-HPL	MTO	6.9	0 -0.015	23	69	6	120	fig.2
KDZ0700X1.5S060N-HPL	●	7.0			70			
KDZ0710X1.5S060N-HPL	MTO	7.1			71			
KDZ0720X1.5S060N-HPL	MTO	7.2	0 -0.015	24	72	6	120	fig.2
KDZ0730X1.5S060N-HPL	MTO	7.3			73			
KDZ0740X1.5S060N-HPL	MTO	7.4			74			
KDZ0750X1.5S060N-HPL	●	7.5	0 -0.018	25	75	6	120	fig.2
KDZ0760X1.5S060N-HPL	MTO	7.6			76			
KDZ0770X1.5S060N-HPL	MTO	7.7			77			
KDZ0780X1.5S060N-HPL	MTO	7.8	0 -0.015	26	78	6	120	fig.2
KDZ0790X1.5S060N-HPL	MTO	7.9			79			
KDZ0800X1.5S080N-HPL	●	8.0			80			
KDZ0810X1.5S080N-HPL	MTO	8.1	0 -0.015	27	81	8	130	fig.2
KDZ0820X1.5S080N-HPL	MTO	8.2			31.5			
KDZ0830X1.5S080N-HPL	MTO	8.3			83			
KDZ0840X1.5S080N-HPL	MTO	8.4	0 -0.015	28	84	8	130	fig.2
KDZ0850X1.5S080N-HPL	●	8.5			32			
KDZ0860X1.5S080N-HPL	MTO	8.6			86			
KDZ0870X1.5S080N-HPL	MTO	8.7	0 -0.015	29	87	8	130	fig.2
KDZ0880X1.5S080N-HPL	MTO	8.8			32.5			
KDZ0890X1.5S080N-HPL	MTO	8.9			89			
KDZ0900X1.5S080N-HPL	●	9.0	0 -0.015	30	90	8	130	fig.2
KDZ0910X1.5S080N-HPL	MTO	9.1			91			
KDZ0920X1.5S080N-HPL	MTO	9.2			92			
KDZ0930X1.5S080N-HPL	MTO	9.3	0 -0.015	31	93	8	130	fig.2
KDZ0940X1.5S080N-HPL	MTO	9.4			94			
KDZ0950X1.5S080N-HPL	●	9.5			95			
KDZ0960X1.5S080N-HPL	MTO	9.6	0 -0.015	32	96	8	130	fig.2
KDZ0970X1.5S080N-HPL	MTO	9.7			97			
KDZ0980X1.5S080N-HPL	MTO	9.8			98			
KDZ0990X1.5S080N-HPL	MTO	9.9	0 -0.015	33	99	8	130	fig.2
KDZ1000X1.5S100N-HPL	●	10.0			100			
KDZ1010X1.5S100N-HPL	MTO	10.1			35.5			
KDZ1020X1.5S100N-HPL	MTO	10.2	0 -0.018	34	102	10	150	fig.2
KDZ1030X1.5S100N-HPL	MTO	10.3			36			
KDZ1040X1.5S100N-HPL	MTO	10.4			104			
KDZ1050X1.5S100N-HPL	●	10.5	0 -0.018	35	105	10	150	fig.2
KDZ1060X1.5S100N-HPL	MTO	10.6			106			
KDZ1070X1.5S100N-HPL	MTO	10.7			107			
KDZ1080X1.5S100N-HPL	MTO	10.8	0 -0.018	36	108	10	150	fig.2
KDZ1090X1.5S100N-HPL	MTO	10.9			109			
KDZ1100X1.5S100N-HPL	●	11.0			110			
KDZ1110X1.5S100N-HPL	MTO	11.1	0 -0.018	37	111	10	150	fig.2
KDZ1120X1.5S100N-HPL	MTO	11.2			112			
KDZ1130X1.5S100N-HPL	MTO	11.3			113			
KDZ1140X1.5S100N-HPL	MTO	11.4	0 -0.018	38	114	10	150	fig.2
KDZ1150X1.5S100N-HPL	●	11.5			115			
KDZ1160X1.5S100N-HPL	MTO	11.6			116			
KDZ1170X1.5S100N-HPL	MTO	11.7	0 -0.018	39	117	10	150	fig.2
KDZ1180X1.5S100N-HPL	MTO	11.8			118			
KDZ1190X1.5S100N-HPL	MTO	11.9			119			
KDZ1200X1.5S120N-HPL	●	12.0	0 -0.018	40	120	12	170	fig.1

Description	Stock	Dimension (mm)						Shape	
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL		
KDZ0760X1.5S060N-HPL	MTO	7.6	0 -0.015	24	31	6	120	fig.2	
KDZ0770X1.5S060N-HPL	MTO	7.7							
KDZ0780X1.5S060N-HPL	MTO	7.8							
KDZ0790X1.5S060N-HPL	MTO	7.9	0 -0.015	25	80	8	130	fig.1	
KDZ0800X1.5S080N-HPL	●	8.0							
KDZ0810X1.5S080N-HPL	MTO	8.1							
KDZ0820X1.5S080N-HPL	MTO	8.2	0 -0.015	26	31.5	8	130	fig.2	
KDZ0830X1.5S080N-HPL	MTO	8.3							
KDZ0840X1.5S080N-HPL	MTO	8.4							
KDZ0850X1.5S080N-HPL	●	8.5	0 -0.015	27	32	8	130	fig.2	
KDZ0860X1.5S080N-HPL	MTO	8.6							
KDZ0870X1.5S080N-HPL	MTO	8.7							
KDZ0880X1.5S080N-HPL	MTO	8.8	0 -0.015	28	32.5	8	130	fig.2	
KDZ0890X1.5S080N-HPL	MTO	8.9							
KDZ0900X1.5S080N-HPL	●	9.0							
KDZ0910X1.5S080N-HPL	MTO	9.1	0 -0.015	29	32.5	8	130	fig.2	
KDZ0920X1.5S080N-HPL	MTO	9.2							
KDZ0930X1.5S080N-HPL	MTO	9.3							
KDZ0940X1.5S080N-HPL	MTO	9.4	0 -0.015	30	33.5	8	130	fig.2	
KDZ0950X1.5S080N-HPL	●	9.5							
KDZ0960X1.5S080N-HPL	MTO	9.6							
KDZ0970X1.5S080N-HPL	MTO	9.7	0 -0.015	31	34.5	8	130	fig.2	
KDZ0980X1.5S080N-HPL	MTO	9.8							
KDZ0990X1.5S080N-HPL	MTO	9.9							
KDZ1000X1.5S100N-HPL	●	10.0	0 -0.018	32	100	10	150	fig.1	
KDZ1010X1.5S100N-HPL	MTO	10.1							35.5
KDZ1020X1.5S100N-HPL	MTO	10.2							0 -0.018
KDZ1030X1.5S100N-HPL	MTO	10.3	36						
KDZ1040X1.5S100N-HPL	MTO	10.4	0 -0.018	34	36.5	10	150	fig.2	
KDZ1050X1.5S100N-HPL	●	10.5							
KDZ1060X1.5S100N-HPL	MTO	10.6							
KDZ1070X1.5S100N-HPL	MTO	10.7	0 -0.018	35	37.5	10	150	fig.2	
KDZ1080X1.5S100N-HPL	MTO	10.8							
KDZ1090X1.5S100N-HPL	MTO	10.9							
KDZ1100X1.5S100N-HPL	●	11.0	0 -0.018	36	38.5	10	150	fig.2	
KDZ1110X1.5S100N-HPL	MTO	11.1							
KDZ1120X1.5S100N-HPL	MTO	11.2							
KDZ1130X1.5S100N-HPL	MTO	11.3	0 -0.018	37	39.5	10	150	fig.2	
KDZ1140X1.5S100N-HPL	MTO	11.4							
KDZ1150X1.5S100N-HPL	●	11.5							
KDZ1160X1.5S100N-HPL	MTO	11.6	0 -0.018	38	40.5	10	150	fig.2	
KDZ1170X1.5S100N-HPL	MTO	11.7							
KDZ1180X1.5S100N-HPL	MTO	11.8							
KDZ1190X1.5S100N-HPL	MTO	11.9	0 -0.018	39	41.5	10	150	fig.2	
KDZ1200X1.5S120N-HPL	●	12.0							42

● : Standard Stock MTO: Made to order

The standard drilling depth is 1.0 D (1.0 x DC).

# KDZ-HP Regular



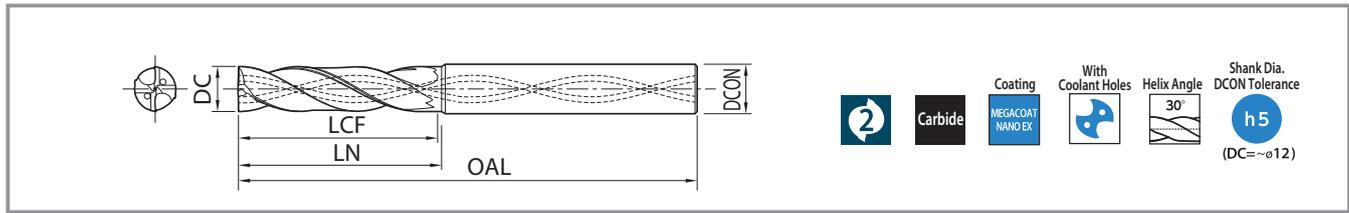
Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0300X3.0S060N-HP	●	3.0	<sup>0</sup> / <sub>-0.010</sub>	14	15	6	60
KDZ0310X3.0S060N-HP	●	3.1	<sup>0</sup> / <sub>-0.012</sub>	14	15	6	60
KDZ0320X3.0S060N-HP	●	3.2	<sup>0</sup> / <sub>-0.012</sub>	15	16	6	60
KDZ0330X3.0S060N-HP	●	3.3	<sup>0</sup> / <sub>-0.012</sub>	17	18	6	60
KDZ0340X3.0S060N-HP	●	3.4	<sup>0</sup> / <sub>-0.012</sub>	19	20	6	60
KDZ0350X3.0S060N-HP	●	3.5	<sup>0</sup> / <sub>-0.012</sub>	20	21	6	60
KDZ0360X3.0S060N-HP	●	3.6	<sup>0</sup> / <sub>-0.012</sub>	21	22	6	60
KDZ0370X3.0S060N-HP	●	3.7	<sup>0</sup> / <sub>-0.012</sub>	23	24	6	60
KDZ0380X3.0S060N-HP	●	3.8	<sup>0</sup> / <sub>-0.012</sub>	24	25	6	60
KDZ0390X3.0S060N-HP	●	3.9	<sup>0</sup> / <sub>-0.012</sub>	25	26	6	60
KDZ0400X3.0S060N-HP	●	4.0	<sup>0</sup> / <sub>-0.012</sub>	26	27	6	60
KDZ0410X3.0S060N-HP	●	4.1	<sup>0</sup> / <sub>-0.012</sub>	28	(28)	6	60
KDZ0420X3.0S060N-HP	●	4.2	<sup>0</sup> / <sub>-0.012</sub>	28	29	8	70
KDZ0430X3.0S060N-HP	●	4.3	<sup>0</sup> / <sub>-0.012</sub>	30	31	8	70
KDZ0440X3.0S060N-HP	●	4.4	<sup>0</sup> / <sub>-0.012</sub>	31	32	8	70
KDZ0450X3.0S060N-HP	●	4.5	<sup>0</sup> / <sub>-0.012</sub>	32	33	8	70
KDZ0460X3.0S060N-HP	●	4.6	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0470X3.0S060N-HP	●	4.7	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0480X3.0S060N-HP	●	4.8	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0490X3.0S060N-HP	●	4.9	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0500X3.0S060N-HP	●	5.0	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0510X3.0S060N-HP	●	5.1	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0520X3.0S060N-HP	●	5.2	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0530X3.0S060N-HP	●	5.3	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0540X3.0S060N-HP	●	5.4	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0550X3.0S060N-HP	●	5.5	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0560X3.0S060N-HP	●	5.6	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0570X3.0S060N-HP	●	5.7	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0580X3.0S060N-HP	●	5.8	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0590X3.0S060N-HP	●	5.9	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0600X3.0S060N-HP	●	6.0	<sup>0</sup> / <sub>-0.012</sub>	34	35	8	70
KDZ0610X3.0S080N-HP	●	6.1	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0620X3.0S080N-HP	●	6.2	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0630X3.0S080N-HP	●	6.3	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0640X3.0S080N-HP	●	6.4	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0650X3.0S080N-HP	●	6.5	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0660X3.0S080N-HP	●	6.6	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0670X3.0S080N-HP	●	6.7	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0680X3.0S080N-HP	●	6.8	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0690X3.0S080N-HP	●	6.9	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0700X3.0S080N-HP	●	7.0	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0710X3.0S080N-HP	●	7.1	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0720X3.0S080N-HP	●	7.2	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0730X3.0S080N-HP	●	7.3	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0740X3.0S080N-HP	●	7.4	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0750X3.0S080N-HP	●	7.5	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70

Description	Stock	Dimension (mm)					
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL
KDZ0760X3.0S080N-HP	●	7.6	<sup>0</sup> / <sub>-0.015</sub>	34	35	8	70
KDZ0770X3.0S080N-HP	●	7.7	<sup>0</sup> / <sub>-0.015</sub>	36	(36)	8	70
KDZ0780X3.0S080N-HP	●	7.8	<sup>0</sup> / <sub>-0.015</sub>	36	37	10	80
KDZ0790X3.0S080N-HP	●	7.9	<sup>0</sup> / <sub>-0.015</sub>	38	39	10	80
KDZ0800X3.0S080N-HP	●	8.0	<sup>0</sup> / <sub>-0.015</sub>	39	40	10	80
KDZ0810X3.0S100N-HP	●	8.1	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0820X3.0S100N-HP	●	8.2	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0830X3.0S100N-HP	●	8.3	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0840X3.0S100N-HP	●	8.4	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0850X3.0S100N-HP	●	8.5	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0860X3.0S100N-HP	●	8.6	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0870X3.0S100N-HP	●	8.7	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0880X3.0S100N-HP	●	8.8	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0890X3.0S100N-HP	●	8.9	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0900X3.0S100N-HP	●	9.0	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0910X3.0S100N-HP	●	9.1	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0920X3.0S100N-HP	●	9.2	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0930X3.0S100N-HP	●	9.3	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0940X3.0S100N-HP	●	9.4	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0950X3.0S100N-HP	●	9.5	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0960X3.0S100N-HP	●	9.6	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0970X3.0S100N-HP	●	9.7	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0980X3.0S100N-HP	●	9.8	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ0990X3.0S100N-HP	●	9.9	<sup>0</sup> / <sub>-0.015</sub>	42	43	10	80
KDZ1000X3.0S100N-HP	●	10.0	<sup>0</sup> / <sub>-0.015</sub>	45	(45)	10	80
KDZ1010X3.0S120N-HP	●	10.1	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1020X3.0S120N-HP	●	10.2	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1030X3.0S120N-HP	●	10.3	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1040X3.0S120N-HP	●	10.4	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1050X3.0S120N-HP	●	10.5	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1060X3.0S120N-HP	●	10.6	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1070X3.0S120N-HP	●	10.7	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1080X3.0S120N-HP	●	10.8	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1090X3.0S120N-HP	●	10.9	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1100X3.0S120N-HP	●	11.0	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1110X3.0S120N-HP	●	11.1	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1120X3.0S120N-HP	●	11.2	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1130X3.0S120N-HP	●	11.3	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1140X3.0S120N-HP	●	11.4	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1150X3.0S120N-HP	●	11.5	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1160X3.0S120N-HP	●	11.6	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1170X3.0S120N-HP	●	11.7	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1180X3.0S120N-HP	●	11.8	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1190X3.0S120N-HP	●	11.9	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100
KDZ1200X3.0S120N-HP	●	12.0	<sup>0</sup> / <sub>-0.018</sub>	47	48	12	100

●: Standard Stock

The standard drilling depth is 2.0 D (2.0 x DC).  
Pecking is recommended when drilling depth is 2D or over

# KDZ-HP Regular (with coolant hole) Type C



Description	Stock	Dimension (mm)							
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL		
KDZ0300X3.0S030C-HP	●	3.0	$0_{-0.010}$	13.5	15.5	3	68		
KDZ0310X3.0S040C-HP	●	3.1	$0_{-0.012}$	14.0	16.0	4	72		
KDZ0320X3.0S040C-HP	●	3.2		14.4	16.4				
KDZ0330X3.0S040C-HP	●	3.3		14.9	16.9				
KDZ0340X3.0S040C-HP	●	3.4		15.3	17.3				
KDZ0350X3.0S040C-HP	●	3.5		15.8	17.8				
KDZ0360X3.0S040C-HP	●	3.6		16.2	18.2				
KDZ0370X3.0S040C-HP	●	3.7	16.7	18.7	4	72			
KDZ0380X3.0S040C-HP	●	3.8	17.1	19.1					
KDZ0390X3.0S040C-HP	●	3.9	17.6	19.6					
KDZ0400X3.0S040C-HP	●	4.0	18.0	20.0					
KDZ0410X3.0S050C-HP	●	4.1	$0_{-0.012}$	18.5			20.5	5	80
KDZ0420X3.0S050C-HP	●	4.2		18.9			20.9		
KDZ0430X3.0S050C-HP	●	4.3		19.4	21.4				
KDZ0440X3.0S050C-HP	●	4.4		19.8	21.8				
KDZ0450X3.0S050C-HP	●	4.5		20.3	22.3				
KDZ0460X3.0S050C-HP	●	4.6		20.7	22.7				
KDZ0470X3.0S050C-HP	●	4.7	21.2	23.2	5	80			
KDZ0480X3.0S050C-HP	●	4.8	21.6	23.6					
KDZ0490X3.0S050C-HP	●	4.9	22.1	24.1					
KDZ0500X3.0S050C-HP	●	5.0	22.5	24.5					
KDZ0510X3.0S060C-HP	●	5.1	$0_{-0.012}$	23.0			25.0	6	82
KDZ0520X3.0S060C-HP	●	5.2		23.4			25.4		
KDZ0530X3.0S060C-HP	●	5.3		23.9	25.9				
KDZ0540X3.0S060C-HP	●	5.4		24.3	26.3				
KDZ0550X3.0S060C-HP	●	5.5		24.8	26.8				
KDZ0560X3.0S060C-HP	●	5.6		25.2	27.2				
KDZ0570X3.0S060C-HP	●	5.7	25.7	27.7	6	82			
KDZ0580X3.0S060C-HP	●	5.8	26.1	28.1					
KDZ0590X3.0S060C-HP	●	5.9	26.6	28.6					
KDZ0600X3.0S060C-HP	●	6.0	27.0	29.0					
KDZ0610X3.0S070C-HP	●	6.1	$0_{-0.015}$	27.5			29.5	7	88
KDZ0620X3.0S070C-HP	●	6.2		27.9			29.9		
KDZ0630X3.0S070C-HP	●	6.3		28.4	30.4				
KDZ0640X3.0S070C-HP	●	6.4		28.8	30.8				
KDZ0650X3.0S070C-HP	●	6.5		29.3	31.3				
KDZ0660X3.0S070C-HP	●	6.6		29.7	31.7				
KDZ0670X3.0S070C-HP	●	6.7	30.2	32.2	7	88			
KDZ0680X3.0S070C-HP	●	6.8	30.6	32.6					
KDZ0690X3.0S070C-HP	●	6.9	31.1	33.1					
KDZ0700X3.0S070C-HP	●	7.0	31.5	33.5					
KDZ0710X3.0S080C-HP	●	7.1	$0_{-0.015}$	32.0			34.0	8	94
KDZ0720X3.0S080C-HP	●	7.2		32.4			34.4		
KDZ0730X3.0S080C-HP	●	7.3		32.9	34.9				
KDZ0740X3.0S080C-HP	●	7.4		33.3	35.3				
KDZ0750X3.0S080C-HP	●	7.5		33.8	35.8				

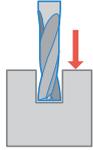
Description	Stock	Dimension (mm)							
		DC	Outside Dia. Tolerance	LCF	LN	DCON	OAL		
KDZ0760X3.0S080C-HP	●	7.6	$0_{-0.015}$	34.2	36.2	8	94		
KDZ0770X3.0S080C-HP	●	7.7		34.7	36.7				
KDZ0780X3.0S080C-HP	●	7.8		35.1	37.1				
KDZ0790X3.0S080C-HP	●	7.9		35.6	37.6				
KDZ0800X3.0S080C-HP	●	8.0		36.0	38.0				
KDZ0810X3.0S090C-HP	●	8.1		$0_{-0.015}$	36.5			38.5	9
KDZ0820X3.0S090C-HP	●	8.2	36.9		38.9				
KDZ0830X3.0S090C-HP	●	8.3	37.4		39.4				
KDZ0840X3.0S090C-HP	●	8.4	37.8		39.8				
KDZ0850X3.0S090C-HP	●	8.5	38.3		40.3				
KDZ0860X3.0S090C-HP	●	8.6	$0_{-0.015}$		38.7	40.7	9	100	
KDZ0870X3.0S090C-HP	●	8.7		39.2	41.2				
KDZ0880X3.0S090C-HP	●	8.8		39.6	41.6				
KDZ0890X3.0S090C-HP	●	8.9		40.1	42.1				
KDZ0900X3.0S090C-HP	●	9.0		40.5	42.5				
KDZ0910X3.0S100C-HP	●	9.1		$0_{-0.015}$	41.0	43.0			10
KDZ0920X3.0S100C-HP	●	9.2	41.4		43.4				
KDZ0930X3.0S100C-HP	●	9.3	41.9		43.9				
KDZ0940X3.0S100C-HP	●	9.4	42.3		44.3				
KDZ0950X3.0S100C-HP	●	9.5	42.8		44.8				
KDZ0960X3.0S100C-HP	●	9.6	43.2		45.2				
KDZ0970X3.0S100C-HP	●	9.7	43.7	45.7	10	106			
KDZ0980X3.0S100C-HP	●	9.8	44.1	46.1					
KDZ0990X3.0S100C-HP	●	9.9	44.6	46.6					
KDZ1000X3.0S100C-HP	●	10.0	45.0	47.0					
KDZ1010X3.0S110C-HP	●	10.1	$0_{-0.018}$	45.5			47.5	11	116
KDZ1020X3.0S110C-HP	●	10.2		45.9			47.9		
KDZ1030X3.0S110C-HP	●	10.3		46.4	48.4				
KDZ1040X3.0S110C-HP	●	10.4		46.8	48.8				
KDZ1050X3.0S110C-HP	●	10.5		47.3	49.3				
KDZ1060X3.0S110C-HP	●	10.6		$0_{-0.018}$	47.7	49.7	11		
KDZ1070X3.0S110C-HP	●	10.7	48.2		50.2				
KDZ1080X3.0S110C-HP	●	10.8	48.6		50.6				
KDZ1090X3.0S110C-HP	●	10.9	49.1		51.1				
KDZ1100X3.0S110C-HP	●	11.0	49.5		51.5				
KDZ1110X3.0S120C-HP	●	11.1	$0_{-0.018}$		50.0	52.0		12	122
KDZ1120X3.0S120C-HP	●	11.2		50.4	52.4				
KDZ1130X3.0S120C-HP	●	11.3		50.9	52.9				
KDZ1140X3.0S120C-HP	●	11.4		51.3	53.3				
KDZ1150X3.0S120C-HP	●	11.5		51.8	53.8				
KDZ1160X3.0S120C-HP	●	11.6		52.2	54.2				
KDZ1170X3.0S120C-HP	●	11.7	52.7	54.7	12	122			
KDZ1180X3.0S120C-HP	●	11.8	53.1	55.1					
KDZ1190X3.0S120C-HP	●	11.9	53.6	55.6					
KDZ1200X3.0S120C-HP	●	12.0	54.0	56.0					

● Standard Stock

The standard drilling depth is 2.0 D (2.0 x DC).  
Pecking is recommended when drilling depth is 2D or over

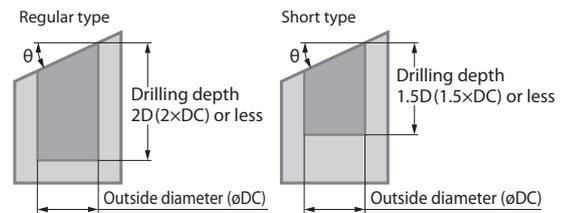
# Recommended Cutting Conditions

## KDZ

Workpiece	Application	Outside Diameter DC (mm)	ø1	ø2	ø3	ø4	ø5	ø6	ø8	ø10	ø12
Structural Steel Carbon Steel SS400, S45C	 Plunging	Spindle Revolution (min <sup>-1</sup> )	19,500	11,200	8,300	6,200	5,000	4,200	3,200	2,500	2,100
		Feed Rate (mm/min)	300	380	520	520	520	520	520	520	450
Alloy Steel SCM, SNCM		Spindle Revolution (min <sup>-1</sup> )	19,000	10,000	7,200	5,400	4,400	3,600	2,700	2,200	1,800
		Feed Rate (mm/min)	300	320	450	450	450	450	450	400	400
Pre-hardened Steel (30~45HRC)		Spindle Revolution (min <sup>-1</sup> )	16,000	8,000	3,900	2,900	2,300	1,900	1,500	1,200	1,000
		Feed Rate (mm/min)	210	210	210	210	210	210	210	190	190
Nodular Cast Iron FCD400		Spindle Revolution (min <sup>-1</sup> )	16,000	10,000	7,200	5,400	4,400	3,600	2,700	2,200	1,800
		Feed Rate (mm/min)	200	300	390	390	390	390	390	340	340
Aluminum Alloy A7075		Spindle Revolution (min <sup>-1</sup> )	20,000	20,000	17,800	13,100	10,500	8,900	6,700	5,400	4,500
		Feed Rate (mm/min)	500	850	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Aluminum Alloy Casting AC, ADC		Spindle Revolution (min <sup>-1</sup> )	20,000	20,000	13,100	10,000	8,000	6,700	5,000	4,000	3,400
		Feed Rate (mm/min)	450	750	820	820	820	820	820	820	820

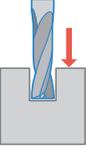
### Precautions

- This tool is specially designed for plunging and NOT recommended for traversing
  - Coolant is recommended
  - Adjust ap to suit machine rigidity and overhang length
  - Pecking is recommended when drilling depth is 2D or over
  - Use chuck and machine with the highest rigidity possible
  - Drilling stainless steel (SUS 304, SUS 316, etc.) is not recommended
  - Cutting condition modifications may be needed when cutting a slant surface, depending on the slant angle (Right Figure)
- When workpiece slant is 30° or less, reduce the feed rate below 50%  
 When workpiece slant is over 30°, lower the revolution to 70% or less and the feed rate to 30% or less



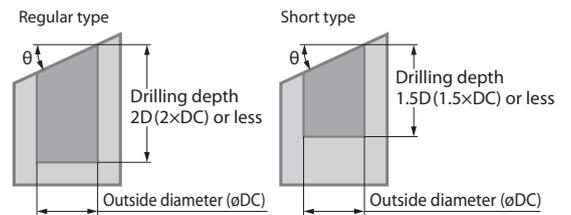
# Recommended Cutting Conditions

## KDZ-HP

Workpiece	Application	Outside Diameter DC (mm)	ø1	ø1.5	ø2	ø2.5	ø3	ø3.5	ø4	ø4.5	ø5	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20
			Structural Steel Carbon Steel SS400, S45C	 Plunging	Spindle Revolution (min <sup>-1</sup> )	20,700	13,800	11,150	9,200	9,100	7,800	6,800	6,100	5,500	4,600	3,500	2,800	2,300	1,800
Feed Rate (mm/min)	350	350	430		430	520	520	520	520	520	520	520	520	520	520	480	480	480	480
Alloy Steel SCM, SNCM	Spindle Revolution (min <sup>-1</sup> )	17,500	11,700		9,600	7,650	7,200	6,200	5,400	4,800	4,400	3,600	2,700	2,200	1,800	1,500	1,350	1,200	1,100
Feed Rate (mm/min)	290	290	380		380	450	450	450	450	450	450	450	450	450	450	420	420	420	420
Pre-hardened Steel (30~45HRC)	Spindle Revolution (min <sup>-1</sup> )	9,600	6,400		5,570	4,460	3,900	3,400	2,900	2,600	2,300	1,900	1,500	1,200	1,000	850	750	650	600
Feed Rate (mm/min)	120	120	170		170	210	210	210	210	210	210	210	210	210	210	200	200	200	200
Nodular Cast Iron FCD400	Spindle Revolution (min <sup>-1</sup> )	15,900	10,600		10,360	8,290	7,200	6,200	5,400	4,800	4,400	3,600	2,700	2,200	1,800	1,550	1,350	1,200	1,100
Feed Rate (mm/min)	220	250	390		390	390	390	390	390	390	390	390	390	390	390	360	360	360	360
Aluminum Alloy A7075	Spindle Revolution (min <sup>-1</sup> )	39,800	26,600		23,000	18,500	17,800	15,200	13,100	11,800	10,500	8,900	6,700	5,400	4,500	3,800	3,400	3,000	2,700
Feed Rate (mm/min)	900	1,000	1,270		1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Aluminum Alloy Casting AC, ADC	Spindle Revolution (min <sup>-1</sup> )	29,000	19,200		17,500	14,000	13,100	11,500	10,000	8,800	8,000	6,700	5,000	4,000	3,400	2,900	2,500	2,200	2,000
Feed Rate (mm/min)	550	550	820		820	820	820	820	820	820	820	820	820	820	820	820	820	820	820

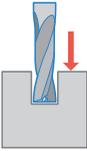
### Precautions

- This tool is specially designed for plunging and NOT recommended for traversing
- Coolant is recommended
- Adjust ap to suit machine rigidity and overhang length
- Pecking is recommended when drilling depth is 2D or over
- Use chuck and machine with the highest rigidity possible
- Drilling stainless steel (SUS 304, SUS 316, etc.) is not recommended
- Cutting condition modifications may be needed when cutting a slant surface, depending on the slant angle (Right Figure)
- When workpiece slant is 30° or less, reduce the feed rate below 50%
- When workpiece slant is over 30°, lower the revolution to 70% or less and the feed rate to 30% or less



# Recommended Cutting Conditions

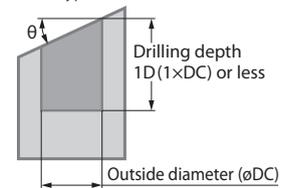
## KDZ-HP Short (Long shank)

Workpiece	Application	Outside Diameter DC (mm)	ø3	ø3.5	ø4	ø4.5	ø5	ø6	ø8	ø10	ø12
Structural Steel Carbon Steel SS400, S45C	 Plunging	Spindle Revolution (min <sup>-1</sup> )	10,600	9,100	8,000	7,100	6,400	5,300	4,000	3,200	2,700
		Feed Rate (mm/min)	830	830	830	830	830	830	830	830	830
Alloy Steel SCM, SNCM		Spindle Revolution (min <sup>-1</sup> )	9,500	8,200	7,200	6,400	5,700	4,800	3,600	2,900	2,400
		Feed Rate (mm/min)	630	630	630	630	630	630	630	630	630
Pre-hardened Steel (30~45HRC)		Spindle Revolution (min <sup>-1</sup> )	7,400	6,400	5,600	5,000	4,500	3,700	2,800	2,200	1,900
		Feed Rate (mm/min)	365	365	365	365	365	365	365	365	365
Nodular Cast Iron FCD400		Spindle Revolution (min <sup>-1</sup> )	9,600	8,200	7,200	6,400	5,700	4,800	3,600	2,900	2,400
		Feed Rate (mm/min)	475	475	475	475	475	475	475	475	475
Aluminum Alloy A7075		Spindle Revolution (min <sup>-1</sup> )	12,700	10,900	9,600	8,500	7,600	6,400	4,800	3,800	3,200
		Feed Rate (mm/min)	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050	1,050
Aluminum Alloy Casting AC, ADC		Spindle Revolution (min <sup>-1</sup> )	9,500	8,200	7,200	6,400	5,700	4,800	3,600	2,900	2,400
		Feed Rate (mm/min)	675	675	675	675	675	675	675	675	675

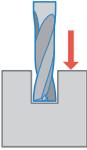
**Precautions**

- This tool is specially designed for plunging and NOT recommended for traversing
- Coolant is recommended
- Adjust ap to suit machine rigidity and overhang length
- Use chuck and machine with the highest rigidity possible
- Drilling stainless steel (SUS 304, SUS 316, etc.) is not recommended
- Cutting condition modifications may be needed when cutting a slant surface, depending on the slant angle (Right Figure)  
When workpiece slant is 30° or less, reduce the feed rate below 50%  
When workpiece slant is over 30°, lower the revolution to 70% or less and the feed rate to 30% or less

**Short type**



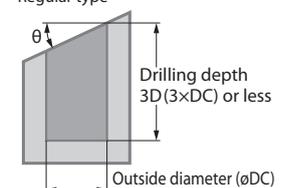
## KDZ-HP (Type C)

Workpiece	Application	Outside Diameter DC (mm)	ø3	ø4	ø5	ø6	ø8	ø10	ø12
Structural Steel Carbon Steel SS400, S45C	 Plunging	Spindle Revolution (min <sup>-1</sup> )	10,600	7,950	6,350	5,300	3,980	3,180	2,650
		Feed Rate (mm/min)	750	750	750	750	750	750	750
Alloy Steel SCM, SNCM		Spindle Revolution (min <sup>-1</sup> )	9,550	7,160	5,730	4,770	3,580	2,860	2,390
		Feed Rate (mm/min)	700	680	630	600	600	600	600
Pre-hardened Steel (30~45HRC)		Spindle Revolution (min <sup>-1</sup> )	5,300	3,980	3,180	2,650	1,990	1,590	1,330
		Feed Rate (mm/min)	300	300	300	300	300	280	280
Stainless Steel SUS304		Spindle Revolution (min <sup>-1</sup> )	7,430	5,570	5,100	4,240	3,180	2,550	2,120
		Feed Rate (mm/min)	400	400	400	500	500	500	500
Nodular Cast Iron FCD400		Spindle Revolution (min <sup>-1</sup> )	9,550	7,160	5,730	4,770	3,580	2,860	2,390
		Feed Rate (mm/min)	580	580	500	500	500	450	450
Aluminum Alloy A7075		Spindle Revolution (min <sup>-1</sup> )	18,000	13,500	10,800	9,000	6,800	5,400	4,500
		Feed Rate (mm/min)	1,270	1,270	1,270	1,270	1,270	1,270	1,270
Aluminum Alloy Casting AC, ADC	Spindle Revolution (min <sup>-1</sup> )	13,100	10,000	8,000	6,700	5,000	4,000	3,400	
	Feed Rate (mm/min)	900	900	850	850	850	850	850	

**Precautions**

- This tool is specially designed for plunging and NOT recommended for traversing
- Coolant is recommended
- Adjust ap to suit machine rigidity and overhang length
- Pecking is recommended when drilling depth is 2D or over
- Use chuck and machine with the highest rigidity possible
- Cutting condition modifications may be needed when cutting a slant surface, depending on the slant angle (Right Figure)  
When workpiece slant is 30° or less, reduce the feed rate below 50%  
When workpiece slant is over 30°, lower the revolution to 70% or less and the feed rate to 30% or less
- If there is insufficient chip evacuation at the specified drill depth, it is recommended to peck or change cutting conditions
- Pre-drilling is recommended if cutting is unstable
- Pre-drilling and pecking are recommended for stainless steel machining

**Regular type**





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