



SOLID DRILLING SOLUTIONS  
*YOUR PARTNER WITH A SOLUTION*

## DIAMOND BITS





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## АЛМАЗНЫЕ ПРОДУКТЫ

RIAMOND diamond products, which use synthetic or natural AAA quality diamonds, are produced in furnaces with controlled atmospheric pressure. diamond products are available in the form of polished crowns or crowns with a diamond surface fit, depending on the shape and composition.





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## Guide to choosing a bit

HARDNESS CATEGORY	TYPE OF SPECIES	DIAMOND SERIES											
		1	2	3	4	6	7	8	9	10	12-14	14-15	
2	SANDSTONE, Limestone, MUDSTONE	■	■	■									
3	DOLOMITE, PEGMATITE, SLATE		■	■	■	■	■						
4	SLATE, BURNS, BASALT, DIORITE				■	■	■	■	■	■			
6	QUARTZITE, RHYOLITE, GRANITE, ANDESITE						■	■	■	■	■	■	
7-8	TACONITE, JASPERITE, QUARTZ, SILICON									■	■	■	■

## TABLE OF DRILLING OPERATIONAL PARAMETERS

BIT SIZE	ROTATION	ДИАПАЗОН ОНД	THE CUTTING SURFACE AREA OF THE DIAMOND CROWN		BIT LOAD RANGE		BIT LOAD RANGE	
			INCH	CM	POUNDS	KN	US GALL.	L
LTK (46 MM)	1500-2500	200-250	1,099	7,09	1000-3000	4,5-13,25	2,5-3,5	9,5-13,5
JTK (48 MM)	1500-2500	200-250	1,289	8,32	1000-3000	4,5-13,25	2,5-3,5	9,5-13,5
AW34	1500-2500	200-250	1,438	9,28	1000-3000	4,5-13,25	2,5-3,5	9,5-13,5
AWL	1000-2000	200-250	1,920	12,39	2000-5000	8,9-22,25	4-5	15-16
BW44	1000-2000	200-250	1,955	12,62	2000-4000	8,9-17,75	3-4	13-17
BWL	800-1600	200-250	2,763	17,86	2000-5000	9,0-22,25	6-8	23-30
NWL	600-1400	200-250	4,214	27,19	3000-6000	13,25-26	8-10	30-38
CHD76	600-1400	200-250	4,670	30,13	3000-6000	13,25-26	8-10	30-38
HWL	400-1200	200-250	6,325	40,81	4000-8000	17,75-35	10-12	38-46
CHD101	400-1200	200-250	7,532	48,60	4000-8000	17,75-35	10-14	38-46
PWL	300-800	200-250	9,512	61,37	5000-10 000	22,45-44	18-23	68-87
CHD134	300-800	200-250	13,074	84,35	5000-10 000	22,45-44	18-23	68-87

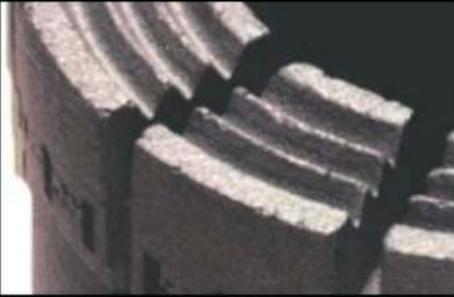
## STANDARD SIZES OF DIAMOND TOOLS

BIT SIZES	DIAMOND BITS SIZES (+/-0.005)				REAMING SHELLS SIZES (+/-0.005)	
	OUTER DIAMETER		INNER DIAMETER		OUTER DIAMETER	
	INCH	MM	INCH	MM	INCH	MM
RTW, RWG	1,175	29,8	0,735	18,7	11,172	29,800
EWD3	1,485	37,7	0,835	21,2	1,485	37,700
EWG, EW, EWL	1,485	37,7	0,845	21,5	1,485	37,700
EWT, EWK, EXT, EXK	1,485	37,7	0,905	23,0	1,485	37,700
EIW, EIWS, EIX.EIXS	1,485	37,7	0,995	25,3	1,485	37,700
TT46MM / LTK46MM	1,811	46,0	1,389	35,3	1,823	46,300
AWC/S	2,345	59,6	1,900	48,3		
ADBGM, ATW	1,875	47,6	1,193	30,3	1,890	48,000
ATK	1,875	47,6	1,201	30,5	1,890	48,000

# TABLE OF DRILLING OPERATIONAL PARAMETERS

BIT SIZES	DIAMOND BITS SIZES (+/-0.005)				REAMING SHELLS SIZES (+/-0.005)	
	OUTER DIAMETER		INNER DIAMETER		OUTER DIAMETER	
	INCH	MM	INCH	MM	INCH	MM
<b>AWT, AXT</b>	1,875	47,6	1,281	32,5	1,890	48,000
<b>AW34</b>	1,875	47,6	1,320	33,5	1,890	48,000
<b>LTK / JTK (48 MM)</b>	1,875	47,6	1,389	35,3	1,890	48,000
<b>TT56MM /LTK56MM</b>	2,205	56,0	1,783	45,3	2,217	56,300
<b>LTKG 0</b>	2,345	59,6	1,735	44,1	2,360	59,900
<b>BWL</b>	2,345	59,6	1,433	36,4	2,360	59,900
<b>BTK</b>	2,345	59,6	1,601	40,7	2,360	59,900
<b>BWD4, BWD3</b>	2,360	59,9	1,615	41,0	2,360	59,900
<b>BX, BDBGM.BTW</b>	2,345	59,6	1,654	42,0	2,360	59,900
<b>BWT, BXT</b>	2,360	59,9	1,750	44,5	2,360	59,900
<b>BW44</b>	2,360	59,9	1,755	44,6	2,360	59,900
<b>CHD76</b>	2,980	75,7	1,713	43,5	2,980	75,700
<b>NWL3, NWLTT</b>	2,965	75,3	1,775	45,1	2,980	75,700
<b>NWL</b>	2,965	75,3	1,875	47,6	2,980	75,700
<b>NW2</b>	2,965	75,3	1,995	50,7	2,980	75,700
<b>NWD4, NWC3</b>	2,980	75,7	2,060	52,3	2,980	75,700
<b>NWG, NWM, NWL</b>	2,965	75,3	2,155	54,7	2,980	75,700
<b>NDBGM, NTW</b>	2,965	75,3	2,209	56,1	2,980	75,700
<b>NX</b>	2,965	75,3	2,155	54,7	2,980	75,700
<b>HWD4, HWD3, HXBWL</b>	3,650	92,7	2,400	61,1	3,650	92,700
<b>HWL3, HWLTT</b>	3,762	95,6	2,406	61,2	3,783	96,100
<b>HWL</b>	3,762	95,6	2,500	63,5	3,783	96,100
<b>CHG101</b>	3,980	101,3	2,500	36,5	3,980	101,300
<b>PWL3, PWLTT</b>	4,805	122,1	3,270	83,1	4,828	122,600
<b>PW3</b>	4,827	122,6	3,270	83,1	4,827	122,600
<b>PWL</b>	4,865	122,1	3,345	85,0	4,825	122,600
<b>CHD134</b>	5,276	134,0	3,345	85,0	5,276	134,000

# DIAMOND PRODUCTS



## New impregnated bit



## Perfect abrasion

Abrasion to diamonds and carbides is uniform



## Burnt bit

Completely burnt matrix with flushing windows

### Reasons

- Drilling without water
- The operator forgot to turn on the water supply

### Solutions

- Increase water supply
- Check the pump for serviceability
- Check drilling pipes for leaks in the places of threaded connections
- Check the column set for serviceability



## Polishing the surface of the matrix with the displacement of diamonds

The bit does not drill and the diamonds are erased

### Reasons

- The pressure is not large enough for a given rotation speed
- Oversupply of washing
- Too hard matrix is selected

### Decisions

- Sharpen the bit
- Lower the rotation speed and increase the pressure
- Lower the water supply
- Choose a softer matrix (series above)



## Excessive exposure of diamonds

Rapid wear of the matrix and premature exposure of diamonds

### Reasons

- High pressure for a given speed
- Low water supply level
- Bit matrix is too soft

### Solutions

- To increase the rotation speed and reduce the water supply
- Choose a harder matrix (in the series below)



## Cracks in the flushing windows

Cracks in the flushing windows of the matrix on the drill bit

### Reasons

- High pressure
- Unreliable descent of the inner core pipe
- The bit is damaged by a rod holder or clip

### Solutions

- Lower the pressure if the well is "dry" to lower the pipes on a cable



### Inner diameter wear

Rapid wear of the inner diameter of the die and the crown body

#### Reasons

- The pressure is too high
- Fractured rocks
- The core remained in the well
- The matrix is too soft

#### Solutions

- Increase rotation
- Reduce pressure
- Increase flushing
- Check the inner core pipe



### Outer diameter wear

Rapid of the outer diameter of the bit body and matrix

#### Reasons

- Vibration
- The rotation speed is too high
- Lack of flushing
- The projectile is stuck in the well

#### Solutions

- Increase flushing
- Lower the rotation speed
- Check the diameter of the expander
- Add Torqueless reagent to reduce vibration



### Uniform wear of the matrix along the inner circle

The inner diameter of the matrix is worn out in the form of a concave contour inside

#### Reasons

The pressure is too high for the specified rotation  
Drilling of the remaining core in the well

High fracturing of rocks

#### Solutions

- Lower the pressure
- Increase the rotation speed
- Check the column set
- Add drilling reagents to stabilize the walls of the well in fractured rocks



### Inner diameter wear

Premature wear of the outer diameter of the matrix with a convex contour

#### Reasons

- Low water pressure
- Water loss
- Drilling a well

#### Solutions

- Increase in water pressure
- Check the pipes and the shell for tightness
- Check the diameter of the expander



### Fully burnt bit

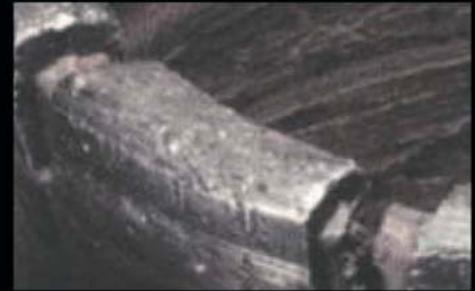
Completely burnt matrix with flushing windows

#### Reasons

Drilling without water  
The operator forgot to turn on the water supply

#### Solutions

- Increase the feed
- Check for serviceability of the pump
- Check drilling pipes for leaks in the places of threaded connections
- Check the column set for serviceability



### Cracks in the flushing windows

Cracks in the flushing windows of the matrix on the drill bit

#### Reasons

High pressure  
Unreliable descent of the inner core pipe  
The bit is damaged by a rod holder or clip

#### Solutions

- Increase water supply
- Check for serviceability of the pump
- Check drill pipes for leaks in the places of threaded connections
- Check the column set for serviceability



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