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## 2 Nomenclature

Nomenclature for  bits

Bit diameter code	Bit series code	Main cutter code	Number of blades	Crown profile code	Additional features
2-1/4 ~ 22 inch	FM - Matrix body PDC drill bit FS - Steel body PDC drill bit FMC - Matrix PDC core bit	08 - $\Phi$ 8mm cutter 10 - $\Phi$ 10mm cutter 13 - $\Phi$ 13mm cutter 16 - $\Phi$ 16mm cutter 19 - $\Phi$ 19mm cutter 25 - $\Phi$ 25mm cutter	03 ~ 12	1 ~ 3 - Short 4 ~ 6 - Medium 7 ~ 9 - Long	C - Depth-control pad D - Double row cutters H - Heavy short gage I - Inclined gage L - Long gage S - Spiral blade T - Trimming cutter gage U - Upper drilling
Example	8 1/2 FM	19 06	5	D	
					Double row cutters Medium crown profile 6 blades $\Phi$ 19 mm cutter FLRT Matrix body PDC drill bit Bit size

Bit diameter code	Bit series code	First digit group	Second digit group	Third digit group
		Diamond type and size	Cutters density	Crown profile
2-1/4 ~ 12-1/4 inch	FN - Natural Diamond drill bit	1 ~ 12 Natural Diamond grain size(pcs/ct)	1: Thin 2: Medium dense 3: Dense	1: Flat profile 2: Short profile 3: Medium profile 4: Long profile
	FP - Thermal Stable Polycrystalline drill bit	1 ~ 3 Types of thermally-stable polycrystalline segments		
	FI - Impregnated drill bit	20 ~ 80 Mono-crystalline grain size(mesh)		
	FNC - Natural Diamond core bit	1 ~ 12 Natural Diamond grain size(pcs/ct)		1: Flat profile 2: Round profile 3: Single cone profile 4: Double cone profile
	FPC - Thermal Stable Polycrystalline core bit	1 ~ 3 Types of thermally-stable polycrystalline segments		
	FIC - Impregnated core bit	20 ~ 80 Mono-crystalline grain size(mesh)		
Example	8 1/2 FI	20 2	4	
				Long crown profile Medium dense cutters layout 20 mesh mono-crystalline grain FLRT Impregnated drill bit Bit size

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## Additional feature of PDC bit



**C** Depth-control pad enhancing the ability to drill through soft and hard interbedded formations and protect PDC cutters.



**D** Double row cutters penetration ability and wear-resistance of the bit in medium hard formation can be improved.



**H** Heavy short gage design is suitable for angle building and directional drilling.



**I** Inclined gage is forece-balanced that resulting better stability of the bit.



**L** Long gage design is dedicated to improve the stability and prevent vibration in the drilling operation.



**S** Spiral blade layout increases the cutter density and adaptive ability of the bit in hard formations are improved.



**T** Trimming cutter gage protection ehanced the wear-resistance of the bit and prolonged its service life.



**U** Upper drilling makes the PDC bit more suitable for various drilling processes to prevent sticking.

## PDC bit gage length specification

Bit size range (inch)	Standard gage (inch)	Short gage (inch)	Long gage (inch)
2 ~ 4-3/4	1 ~ 2	< 1	> 2
4-3/4 ~ 6-3/4	1.5 ~ 2.5	< 1.5	> 2.5
6-3/4 ~ 9-1/2	2 ~ 3	< 2	> 3
9-1/2 ~ 12-1/4	2.5 ~ 3.5	< 2.5	> 3.5
12-1/2 ~ 14-3/4	3 ~ 4	< 3	> 4
14-3/4 ~ 17-1/2	3.5 ~ 5.5	< 3.5	> 5.5
17-1/2 ~ 26	4.5 ~ 7	< 4.5	> 7

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### 3 Selection guide

#### Bit selection guide

IADC code	Rock formation	Rock type	FM/FS series	FN series	FP series	FI series
111 ~ 126 417	<b>Ultra Soft</b> with stick layers and low compressive strength	Gumbo Clay Marl	FS 1904 FS 1905 FM 1904 FM 1905			
116 ~ 126 417 ~ 447	<b>Soft</b> with low compressive strength and high drillability	Marl salt Anhydrite Shale Sand	FS 1905 FM 1905 FM 1906			
111 ~ 126 417 ~ 447	<b>Soft to Medium</b> with low compressive strength and homogenous layers	Shale Sand Chalk	FM 1906 FM 1605 FM 1606			
417 ~ 447	<b>Soft to Medium</b> with low compressive strength with non-homogenous layers	Shale Sandstone Limestone	FM 1605 FM 1606	FN 331 FN 411	FP 223	
437 ~ 517	<b>Medium to Hard</b> with medium compressive strength and thin abrasive layers	Shale Sandstone Limestone	FM 1606 FM 1607 FM 1306 FM 1307	FN 411 FN 223	FP 223 FP 234	
517 ~ 547	<b>Hard</b> with high compressive strength but no abrasiveness	Siltstone Limestone Dolomite	FM 1308 FM 1309 FM 1010	FN 223	FP 234 FP 334	FI 2023
547 ~ 637	<b>Hard and Dense</b> with very high compressive strength and abrasiveness	Sandstone Shale	FM 0810 FM 0812	FN 223	FP 334	FI 2023 FI 2034
647 ~ 837	<b>Ultra Hard</b> ultra hard with abrasiveness	Volcanics				FI 2034



#### API diamond bit tolerances

Bit diameter (inch)	Diameter tolerance(mm)
3-1/2 ~ 6-3/4	0 ~ 0.38
6-25/32 ~ 9	0 ~ 0.51
9-1/32 ~ 13-3/4	0 ~ 0.76
13-25/32 ~ 17-1/2	0 ~ 1.11



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## Nozzles data for diamond drill bit TFA values of standard nozzles( mm<sup>2</sup> )

Number (1/32)	Diameter (mm)	Number of nozzles								
		1	2	3	4	5	6	7	8	9
6	4.76	17.81	35.63	53.44	71.26	89.07	106.88	124.70	142.51	160.33
7	5.56	24.25	48.49	72.74	96.99	121.23	145.48	169.73	193.97	218.22
8	6.35	31.67	63.34	95.01	126.68	158.35	190.02	221.68	253.35	285.02
9	7.14	40.08	80.16	120.24	160.33	200.41	240.49	280.57	320.65	360.73
10	7.94	49.48	98.97	148.45	197.93	247.42	296.90	346.38	395.87	445.35
11	8.73	59.87	119.75	179.62	239.50	299.37	359.25	419.12	479.00	538.87
12	9.53	71.26	142.51	213.77	285.02	356.28	427.53	498.79	570.05	641.30
13	10.32	83.63	167.25	250.88	334.51	418.13	501.76	585.39	669.01	752.64
14	11.11	96.99	193.97	290.96	387.95	484.93	581.92	678.91	775.90	872.88
15	11.91	111.34	222.67	334.01	445.35	556.69	668.02	779.36	890.70	1002.03
16	12.70	126.68	253.35	380.03	506.71	633.38	760.06	886.74	1013.41	1140.09
17	13.49	143.01	286.01	429.02	572.03	715.03	858.04	1001.04	1144.05	1287.06
18	14.29	160.33	320.65	480.98	641.30	801.63	961.95	1122.28	1282.60	1442.93
19	15.08	178.63	357.27	535.90	714.54	893.17	1071.81	1250.44	1429.07	1607.71
20	15.88	197.93	395.87	593.80	791.73	989.66	1187.60	1385.53	1583.46	1781.39
21	16.67	218.22	436.44	645.66	872.88	1091.10	1309.32	1527.54	1745.77	1963.99
22	17.46	239.50	479.00	718.50	957.99	1197.49	1436.99	1676.49	1915.99	2155.49

## Bit shank thread and recommended make up torque

Bit size (in)	API regular pin (in)	Recommended make up torque (KN.m)
3 1/2 ~ 4 1/2	2 3/8 Reg	2.4 ~ 3.7
4 17/32 ~ 5	2 7/8 Reg	4.2 ~ 6.9
5 1/32 ~ 7 3/8	3 1/2 Reg	7.1 ~ 11.5
7 13/32 ~ 9 3/8	4 1/2 Reg	17.0 ~ 26.4
9 13/32 ~ 14 1/2	6 5/8 Reg	50.3 ~ 57.5
14 9/16 ~ 18 1/2	7 5/8 Reg	65.5 ~ 86.1

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BITS



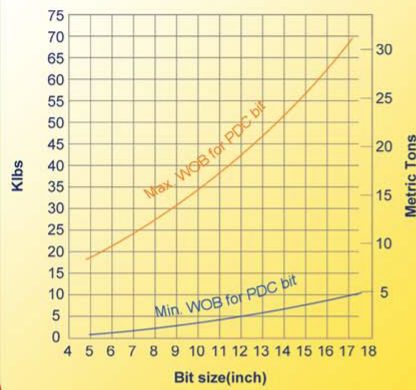


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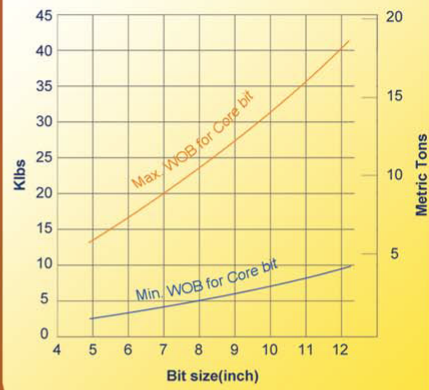


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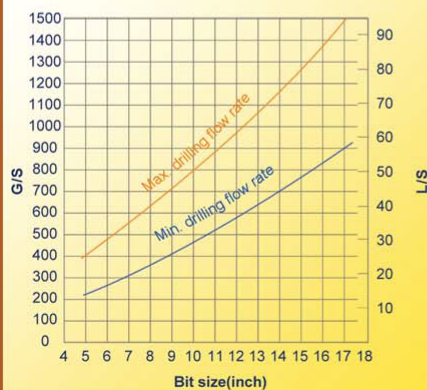
**Weight on bit-Drill bit**



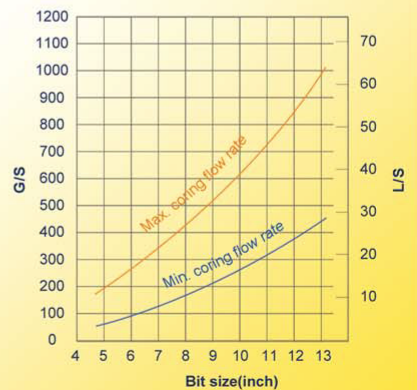
**Weight on bit-Core bit**



**Pump discharge**



**Pump discharge**



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## 4 Products presentation





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## FMseries

Matrix body PDC drill bit

### Soft to medium soft formation drilling

Products with optimized short parabolic profile is suitable for drilling soft to medium soft homogeneous formations.

### Spiral blades

Asymmetrical evolute spiral blade and optimized cutters placement enhanced the stability of the bit during drilling process.

### Hydraulic system

CFD hydraulic balance design results in better bit cleaning and cutting removal.



### Product specifications

BIT size	8-1/2 inch	9-1/2 inch	11-5/8 inch	12-1/4 inch
IADC Code	M122	M122	M122	M122
Number of blades	4	4	4	4
Number of nozzles	6	6	8	8
Total number of cutters	30	36	46	52
Primary cutter size	19mm	19mm	19mm	19mm
Standard gage length	85mm	82mm	100mm	120mm
API Reg. pin connection	4-1/2inch	6-5/8inch	6-5/8inch	6-5/8inch

### Recommended operation parameters

BIT size	8-1/2 inch	9-1/2 inch	11-5/8 inch	12-1/4 inch
Hydraulic flow rate(l/s)	25 ~ 35	25 ~ 35	44 ~ 60	44 ~ 60
Hydraulic flow rate(gpm)	390 ~ 550	390 ~ 550	690 ~ 950	690 ~ 950
Rotation speed(rpm)	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500
Weight on bit(KN)	30 ~ 100	30 ~ 100	50 ~ 160	50 ~ 160
Weight on bit(Klbs)	8 ~ 23	8 ~ 23	12 ~ 36	12 ~ 36
Maximum weight on bit(KN)	100	100	160	160
Maximum weight on bit(Klbs)	23	23	36	36

● Other types and sizes could be designed and manufactured according to specific requirements.







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## FMseries

Matrix body PDC drill bit

### ☑ Medium soft to medium formation drilling

Products with optimized bit profile is designed for drilling medium soft to medium homogeneous formations.

### ☑ Gage protection

Composite gage protection and low torque design improved the rate of penetration.

### ☑ Hydraulic system

CFD hydraulic balance design results in better bit cleaning and cutting removal.



### Product specifications

BIT size	6 inch	8-1/2 inch	9-1/2 inch	11-5/8 inch	12-1/4 inch
IADC Code	M233	M223	M223	M223	M223
Number of blades	5	5	5	5	5
Number of nozzles	5	6	6	8	8
Total number of cutters	20	27	31	42	45
Primary cutter size	13mm	16mm	16mm	19mm	19mm
Standard gage length	70mm	75mm	70mm	100mm	120mm
API Reg. pin connection	3-1/2inch	4-1/2inch	6-5/8inch	6-5/8inch	6-5/8inch

### Recommended operation parameters

BIT size	6 inch	8-1/2 inch	9-1/2 inch	11-5/8 inch	12-1/4 inch
Hydraulic flow rate(l/s)	25 ~ 35	25 ~ 35	25 ~ 35	44 ~ 60	44 ~ 60
Hydraulic flow rate(gpm)	390 ~ 550	390 ~ 550	390 ~ 550	690 ~ 950	690 ~ 950
Rotation speed(rpm)	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500
Weight on bit(KN)	30 ~ 100	30 ~ 100	30 ~ 100	50 ~ 160	50 ~ 160
Weight on bit(Kilbs)	8 ~ 23	8 ~ 23	8 ~ 23	12 ~ 36	12 ~ 36
Maximum weight on bit(KN)	100	100	100	160	160
Maximum weight on bit(Kilbs)	23	23	23	36	36

● Other types and sizes could be designed and manufactured according to specific requirements.







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## FMseries

Matrix body PDC drill bit

### Medium to medium hard formation drilling

Products with optimized profile is suitable for drilling medium to medium hard homogeneous formations with low abrasiveness.

### Cutting structure

Asymmetrical evolute blade cutters placement prevents the bit whirl. Primary and secondary cutting structure design increases impact strength of the bit.

### Hydraulic system

CFD hydraulic balance design results in better bit cleaning and cutting removal.



### Product specifications

BIT size	6-1/2 inch	8-1/2 inch	9-1/2 inch	12-1/4 inch
IADC Code	M332	M332	M332	M323
Number of blades	6	6	6	6
Number of nozzles	6	8	8	10
Total number of cutters	35	45	53	67
Primary cutter size	13mm	13mm	13mm	16mm
Standard gage length	50mm	75mm	85mm	100mm
API Reg. pin connection	3-1/2inch	4-1/2inch	6-5/8inch	6-5/8inch

### Recommended operation parameters

BIT size	6-1/2 inch	8-1/2 inch	9-1/2 inch	12-1/4 inch
Hydraulic flow rate(l/s)	25 ~ 35	25 ~ 35	25 ~ 35	44 ~ 60
Hydraulic flow rate(gpm)	390 ~ 550	390 ~ 550	390 ~ 550	690 ~ 950
Rotation speed(rpm)	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500
Weight on bit(KN)	30 ~ 100	30 ~ 100	50 ~ 160	50 ~ 160
Weight on bit(Klbs)	8 ~ 23	8 ~ 23	12 ~ 36	12 ~ 36
Maximum weight on bit(KN)	100	100	160	160
Maximum weight on bit(Klbs)	23	23	36	36

● Other types and sizes could be designed and manufactured according to specific requirements.





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## FM series

Matrix body PDC drill bit

### Medium hard to hard formation drilling

Products with optimized profile is suitable for drilling medium hard to hard formations with low abrasiveness and thin interbedded layers.

### Dense cutters layout

Spiral blades with high density of cutter and asymmetrical layout improve the bit performance in medium hard to hard formations.

### Hydraulic system

CFD hydraulic balance design results in better bit cleaning and cutting removal.



### Product specifications

BIT size	5-5/8 inch	8-1/2 inch	11-5/8 inch	12-1/4 inch
IADC Code	M433	M433	M433	M433
Number of blades	8	8	8	8
Number of nozzles	6	8	10	12
Total number of cutters	31	73	100	116
Primary cutter size	13mm	13mm	13mm	13mm
Standard gage length	50mm	75mm	100mm	100mm
API Reg. pin connection	3-1/2inch	4-1/2inch	6-5/8inch	6-5/8inch

### Recommended operation parameters

BIT size	5-5/8 inch	8-1/2 inch	11-5/8 inch	12-1/4 inch
Hydraulic flow rate(l/s)	25 ~ 35	25 ~ 35	44 ~ 60	44 ~ 60
Hydraulic flow rate(gpm)	390 ~ 550	390 ~ 550	690 ~ 950	690 ~ 950
Rotation speed(rpm)	50 ~ 500	50 ~ 500	50 ~ 500	50 ~ 500
Weight on bit(KN)	30 ~ 100	30 ~ 100	50 ~ 160	50 ~ 160
Weight on bit(Klbs)	8 ~ 23	8 ~ 23	12 ~ 36	12 ~ 36
Maximum weight on bit(KN)	100	100	160	160
Maximum weight on bit(Klbs)	23	23	36	36

● Other types and sizes could be designed and manufactured according to specific requirements.

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# BITS



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## FS series

Steel body PDC drill bit

### Soft to medium hard formation drilling

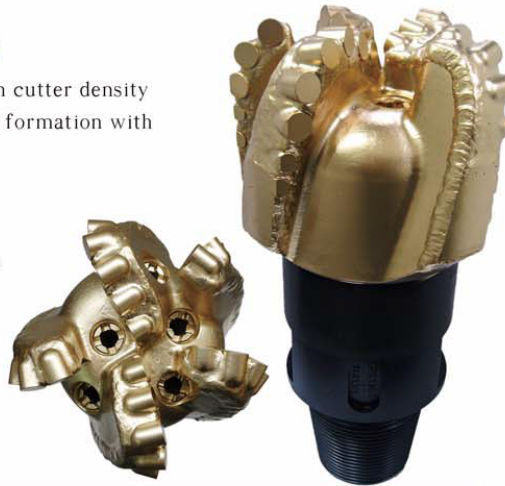
Medium short parabolic crown profile and medium cutter density helps to obtain better ROP in soft to medium hard formation with lower compressive strength and thin hard layers.

### Gauge protection

Gauge cutter improves the gage wear-resistance to prolong the service life of the bit.

### Unique backrack design

Unique backrack design helps to reduce the bit torque and increase its aggressiveness.



### Product specifications

BIT size	8-1/2 inch	12-1/4 inch	17-1/2 inch
IADC Code	S222	S222	S223
Number of blades	5	5	5
Number of nozzles	5	7	10
Total number of cutters	31	52	78
Primary cutter size	19mm	19mm	19mm
Standard gage length	2inch(51mm)	3inch(76mm)	4inch(102mm)
API Reg. pin connection	4-1/2inch	6-5/8inch	7-5/8inch

### Recommended operation parameters

BIT size	8-1/2 inch	12-1/4 inch	17-1/2 inch
Hydraulic flow rate(l/s)	22 ~ 32	38 ~ 60	60 ~ 91
Hydraulic flow rate(gpm)	350 ~ 500	550 ~ 850	950 ~ 1450
Rotation speed(rpm)	60 ~ 350	60 ~ 300	60 ~ 300
Weight on bit(KN)	14 ~ 67	18 ~ 98	18 ~ 134
Weight on bit(Klbs)	3 ~ 15	4 ~ 22	4 ~ 30
Maximum weight on bit(KN)	67	98	134
Maximum weight on bit(Klbs)	15	22	30

● Other types and sizes could be designed and manufactured according to specific requirements.

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## FMC series

Matrix body PDC core bit

### Medium to hard formation coring

Medium short parabolic profile with medium cutter density and blade-style cutter layout helps to obtain better ROP in medium hard formations with medium compressive strength and thin hard layers.

### Premium cutter and duraset gage

High performance cutters promote drilling ability in formations with intercalation. Super strong material promotes gauge wear-resistance to prolong the service life to the bit.



### Product specifications

BIT size(in)	5-7/8x2-5/8		6x2-5/8		8-1/2x4	
Primary cutter size(mm)	8	13	8	13	8	13
TFA(in <sup>2</sup> )	0.2 ~ 1.2	0.2 ~ 1.2	0.2 ~ 1.2	0.2 ~ 1.2	0.6 ~ 1.5	0.6 ~ 1.5
Gauge(in)	1-1/8	1-1/2	1-1/8	1-3/8	1-1/2	1-1/2
Core barrel(in)	4-3/4x2-5/8	4-3/4x2-5/8	4-3/4x2-5/8	4-3/4x2-5/8	6-3/4x4	6-3/4x4

### Recommended operation parameters

BIT size(in)	5-7/8x2-5/8		6x2-5/8		8-1/2x4	
Primary cutter size(mm)	8	13	8	13	8	13
Hydraulic flow rate(l/s)	6.3 ~ 16	6.3 ~ 16	6.3 ~ 16	6.3 ~ 16	11 ~ 20	11 ~ 20
Hydraulic flow rate(gpm)	100 ~ 250	100 ~ 250	100 ~ 250	100 ~ 250	180 ~ 320	180 ~ 320
Rotation speed (rpm)	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300
Weight on bit (KN)	8.8 ~ 66	8.8 ~ 66	8.8 ~ 66	8.8 ~ 66	22 ~ 80	22 ~ 80
Weight on bit (Klbs)	2 ~ 15	2 ~ 15	2 ~ 15	2 ~ 15	5 ~ 18	5 ~ 18

● Other types and sizes could be designed and manufactured according to specific requirements.

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## FP series

Thermal stable polycrystalline bit

### Medium hard to hard formation drilling

Optimized crown profile and cutters layout made the bit suitable for medium hard to hard formations with high compressive strength. Better performance can be achieved in deep intervals under high mud weight.

### Thermally-stable ballaset cutters

Synthetic thermally-stable ballaset cutters(TSP) are directly sintered into the matrix body. Premium cutters are triangular or spherical with the size of 1 stone per carat to be selected. Compared to conventional drillable formation, the thermally-stable bit can bear up to 1200°.The self-sharpening TSP can drill the medium hard to hard formations(IADC 517-737 in tricone bit), which have high compressive strength and medium abrasiveness.



### Product specifications

BIT size(in)	5-7/8	6	8-1/2	9-5/8	12-1/4
TFA(in <sup>2</sup> )	0.30 ~ 0.40	0.3 ~ 0.60	0.35 ~ 1.00	0.35 ~ 1.25	0.45 ~ 1.50
Gauge(in)	1-3/4	1-3/4	2-1/2	2-1/2	2-1/2
API connection(in)	3-1/2	3-1/2	4-1/2	6-5/8	6-5/8

### Recommended operation parameters

BIT size(in)	5-7/8	6	8-1/2	9-5/8	12-1/4
Hydraulic flow rate(l/s)	10 ~ 16	10 ~ 16	19 ~ 28	19 ~ 35	35 ~ 44
Hydraulic flow rate(gpm)	150 ~ 250	150 ~ 250	300 ~ 450	300 ~ 550	550 ~ 700
Rotation speed (rpm)	80 ~ 500	80 ~ 500	80 ~ 500	80 ~ 500	80 ~ 500
Weight on bit (KN)	23 ~ 81	23 ~ 81	45 ~ 126	45 ~ 160	45 ~ 160
Weight on bit (Klbs)	5 ~ 18	5 ~ 18	10 ~ 28	10 ~ 35	10 ~ 35

● Other types and sizes could be designed and manufactured according to the specific requirements.

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## FPC series

Thermal stable polycrystalline core bit

### Medium hard to hard formation coring

Special thermally-stable polycrystalline diamond cutter layout makes the bit competent in medium hard to hard formation coring operation.

### Multiple blade profile design

Multiple blade profile design, including round, double taper and parabolic shape, makes the bit suitable for various types of medium hard to hard formations.

### Cooling and cleaning system

Various ID flow path designs provide sufficient cooling and cleaning to the whole bit surface.



### Product specifications

BIT size	6X2-5/8 in	6X2-5/8 in	8-1/2X4 in	8-1/2X4 in	12-1/4X5-1/4 in
Type	FPC323	FPC322	FPC223	FPC322	FPC322
TFA(in <sup>2</sup> )	0.1 ~ 1.0	0.1 ~ 1.0	0.3 ~ 1.2	0.3 ~ 1.2	0.3 ~ 3.0
Gauge(in)	1	2-1/4	1-3/4	3-1/2	5
Core barrel(in)	4-3/4x2-5/8	4-3/4x2-5/8	6-3/4x4	6-3/4x4	8x5-1/4

### Recommended operation parameters

BIT size(in)	6X2-5/8 in	6X2-5/8 in	8-1/2X4 in	8-1/2X4 in	12-1/4X5-1/4 in
Type	FPC323	FPC322	FPC223	FPC322	FPC322
Hydraulic flow rate(l/s)	6.3 ~ 13	6.3 ~ 13	11 ~ 19	11 ~ 19	25 ~ 33
Hydraulic flow rate(gpm)	100 ~ 200	100 ~ 200	180 ~ 300	180 ~ 300	400 ~ 510
Rotation speed (rpm)	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300
Weight on bit (KN)	22 ~ 66	22 ~ 66	44 ~ 80	44 ~ 80	48 ~ 160
Weight on bit (Klbs)	5 ~ 15	5 ~ 15	10 ~ 18	10 ~ 18	11 ~ 35

● Other types and sizes could be designed and manufactured according to the specific requirements.

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## FN series

Natural diamond drill bit

### ■ Hard and consolidated formation drilling

Superior natural diamond grains are sintered on the erosion-resistant bit body. With urtral hard and optimized layout, natrual diamond bit can penetrate in hard and consolidated formations with medium abrasiveness and high compressive strength like the granite and quartz.

### ■ Various crown profiles

Natural diamond bits are designed with different crown profiles like parabolics, round or cone, with different diamond grain sizes and cutters layout, which can improve the cooling and cleaning of the surface and prolong service life.



### Product specifications

BIT size(in)	5-7/8	6	8-1/2	9-5/8	12-1/4
TFA(in <sup>2</sup> )	0.25 ~ 0.60	0.25 ~ 0.60	0.35 ~ 1.00	0.35 ~ 1.25	0.45 ~ 1.50
Gauge(in)	1-3/4	1-3/4	2-1/2	2-1/2	2-1/2
API connection(in)	3-1/2	3-1/2	4-1/2	6-5/8	6-5/8

### Recommended operation parameters

BIT size(in)	5-7/8	6	8-1/2	9-5/8	12-1/4
Hydraulic flow rate(l/s)	8 ~ 16	8 ~ 16	17 ~ 25	19 ~ 32	25 ~ 38
Hydraulic flow rate(gpm)	125 ~ 250	125 ~ 250	270 ~ 400	300 ~ 500	400 ~ 600
Rotation speed (rpm)	80 ~ 500	80 ~ 500	80 ~ 500	80 ~ 500	80 ~ 500
Weight on bit (KN)	23 ~ 90	23 ~ 90	45 ~ 135	50 ~ 160	68 ~ 208
Weight on bit (Klbs)	5 ~ 20	5 ~ 20	10 ~ 30	12 ~ 35	15 ~ 45

● Other types and sizes could be designed and manufactured according to the specific requirements.

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## FNC series

Natural diamond core bit

### Medium to hard formation coring

Premium natural diamond grains layout makes the bit competent in high compressive medium hard to hard formation with thin interbedded layers.

### Multiple blade profile design

Multiple blade profile design, including round, double taper and parabolic shape, makes the bit suitable for various types of medium hard to hard formations.



### Product specifications

BIT size	8-1/2X4in	Φ214.4X105mm	8-1/2X4in	Φ214.4X101mm	6X2-5/8in	5-7/8X2-5/8in
Type	FNC823	FNC823	FNC822	FNC822	FNC623	FNC623
TFA(in <sup>2</sup> )	0.15 ~ 1.5	0.15 ~ 1.5	0.15 ~ 1.5	0.15 ~ 1.5	0.1 ~ 1.0	0.1 ~ 1.0
Gauge(in)	1-1/2	1-1/2	1 1/2	1-1/2	1	1
Core barrel(in)	6-3/4x4	Chuan 8-4	6-3/4x4	Chuan 7-4	4-3/4x2-5/8	4-3/4x2-5/8

### Recommended operation parameters

BIT size(in)	8-1/2X4in	Φ214.4X105mm	8-1/2X4in	Φ214.4X101mm	6X2-5/8in	5-7/8X2-5/8in
Type	FNC823	FNC823	FNC822	FNC822	FNC623	FNC623
Hydraulic flow rate(l/s)	22 ~ 35	22 ~ 35	22 ~ 35	22 ~ 35	10 ~ 20	10 ~ 20
Hydraulic flow rate(gpm)	350 ~ 550	350 ~ 550	350 ~ 550	350 ~ 550	160 ~ 320	160 ~ 320
Rotation speed (rpm)	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300	60 ~ 300
Weight on bit (KN)	23 ~ 100	23 ~ 100	23 ~ 100	23 ~ 100	23 ~ 75	23 ~ 75
Weight on bit (Klbs)	5 ~ 23	5 ~ 23	5 ~ 23	5 ~ 23	5 ~ 18	5 ~ 18

● Other types and sizes could be designed and manufactured according to the specific requirements.

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BITS





by



# Douce Corporation KK

## FI series Impregnated drill bit

### Extremely hard and abrasive formation drilling

Shallow parabolic crown profile, heavy density impregnated segment layout is applicable to extremely hard and abrasive formation of high compressive strength.

### Impregnated segment

Self-sharpening impregnated segments with high density and large size polycrystalline diamond sintered on the matrix body increase the bit ROP and service life. This bit is recommended to be used under high ROP and high WOB.



### Product specifications

BIT size(in)	5-7/8	6	8-1/2
TFA(in <sup>2</sup> )	0.30 ~ 0.80	0.30 ~ 0.80	0.60 ~ 1.50
Gauge(in)	2-1/2 ~ 3-1/2	2-1/2 ~ 3-1/2	2 ~ 3
API connection(in)	3-1/2	3-1/2	4-1/2

### Recommended operation parameters

BIT size(in)	5-7/8	6	8-1/2
Hydraulic flow rate(l/s)	12 ~ 19	12 ~ 19	15 ~ 35
Hydraulic flow rate(gpm)	190 ~ 300	190 ~ 300	240 ~ 550
Rotation speed (rpm)	60 ~ 1000	60 ~ 1000	60 ~ 1000
Weight on bit (KN)	45 ~ 90	45 ~ 90	75 ~ 130
Weight on bit (Klbs)	10 ~ 20	10 ~ 20	17 ~ 29

● Other types and sizes could be designed and manufactured according to the specific requirements.

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BITS



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# Douce Corporation KK

## FIC series

Impregnate core bit

### ■ Ultra hard formation coring

Arc-shaped crown profile, self-sharpening impregnated segments sintered on abrasive-resistance martrix body is suitable for ultra hard formation with high absiveness such as quartz.

### ■ Radial fluid courses

Radial waterway design highly improves the cooling and cleaning for the surface.  
High rotation speed coring is recommended.



### Product specifications

BIT size(in)	5-7/8	6	8-1/2
Type	FIC2522	FIC2522	FIC2522
TFA(in <sup>2</sup> )	0.1 ~ 1.0	0.1 ~ 1.0	0.15 ~ 1.5
Gauge(in)	1 ~ 1-1/2	1 ~ 1-1/2	1-1/2 ~ 2
Core barrel(in)	4-3/4x2-5/8	4-3/4x2-5/8	6-3/4x4

### Recommended operation parameters

BIT size(in)	5-7/8	6	8-1/2
Type	FIC2522	FIC2522	FIC2522
Hydraulic flow rate(l/s)	6 ~ 13	6 ~ 13	22 ~ 32
Hydraulic flow rate(gpm)	90 ~ 200	90 ~ 200	350 ~ 550
Rotation speed (rpm)	100 ~ 500	100 ~ 500	100 ~ 500
Weight on bit (KN)	22 ~ 90	22 ~ 90	45 ~ 90
Weight on bit (Klbs)	5 ~ 20	5 ~ 20	10 ~ 20

● Other types and sizes could be designed and manufactured according to the specific requirements.

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BITS



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# Douce Corporation KK

## FSB series

Steel body bi-center bit

### Wellbore reaming operation

Special configuration and unique cutters layout make the bit applicable for reaming or drilling in plasticity formations where wellbore shrinkage happened.

### Bi-center structure

The bit comprises two parts, the front pilot cutters and the reaming cutters. The whole bit body is an integrated alloy forging processed by advanced precision numerical controlled processing equipment.



### Product specifications

Pass through (in)	4-1/2	5-7/8	6	8-1/2	9-1/2	9-7/8	10-1/2	12-1/4
Reaming size (in)	5-3/4	6-5/8	7	9-5/8	10-5/8	10-3/4	12-1/4	13-1/2
Cutter size (mm)	Φ 13	Φ 13	Φ 13	Φ 13	Φ 13	Φ 13	Φ 16	Φ 16
Gage length (in)	1-1/4	1-1/2	2	2-1/2	2-1/2	2-1/2	3	3
API Reg. pin Connection (in)	2-7/8	3-1/2	3-1/2	4-1/2	6-5/8	6-5/8	6-5/8	6-5/8
Hydraulic flow rate (l/s)	10 ~ 20	10 ~ 30	15 ~ 38	25 ~ 45	28 ~ 48	28 ~ 48	30 ~ 50	35 ~ 55
Hydraulic flow rate (gpm)	160 ~ 320	160 ~ 320	240 ~ 600	390 ~ 710	440 ~ 760	440 ~ 760	480 ~ 790	550 ~ 870
Rotation speed (rpm)	60 ~ 130	60 ~ 130	60 ~ 130	60 ~ 130	60 ~ 130	60 ~ 130	60 ~ 130	60 ~ 130
Weight on bit (kN)	9 ~ 35	25 ~ 50	25 ~ 60	30 ~ 120	35 ~ 130	35 ~ 130	40 ~ 150	45 ~ 200
Weight on bit (Klbs)	2 ~ 8	6 ~ 11	6 ~ 14	8 ~ 27	8 ~ 29	8 ~ 29	9 ~ 35	10 ~ 45

● Other types and sizes could be designed and manufactured according to the specific requirements.

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# BITS



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