



INDUSTRIAL AND ENGINEERING
— TECHNOLOGIES —

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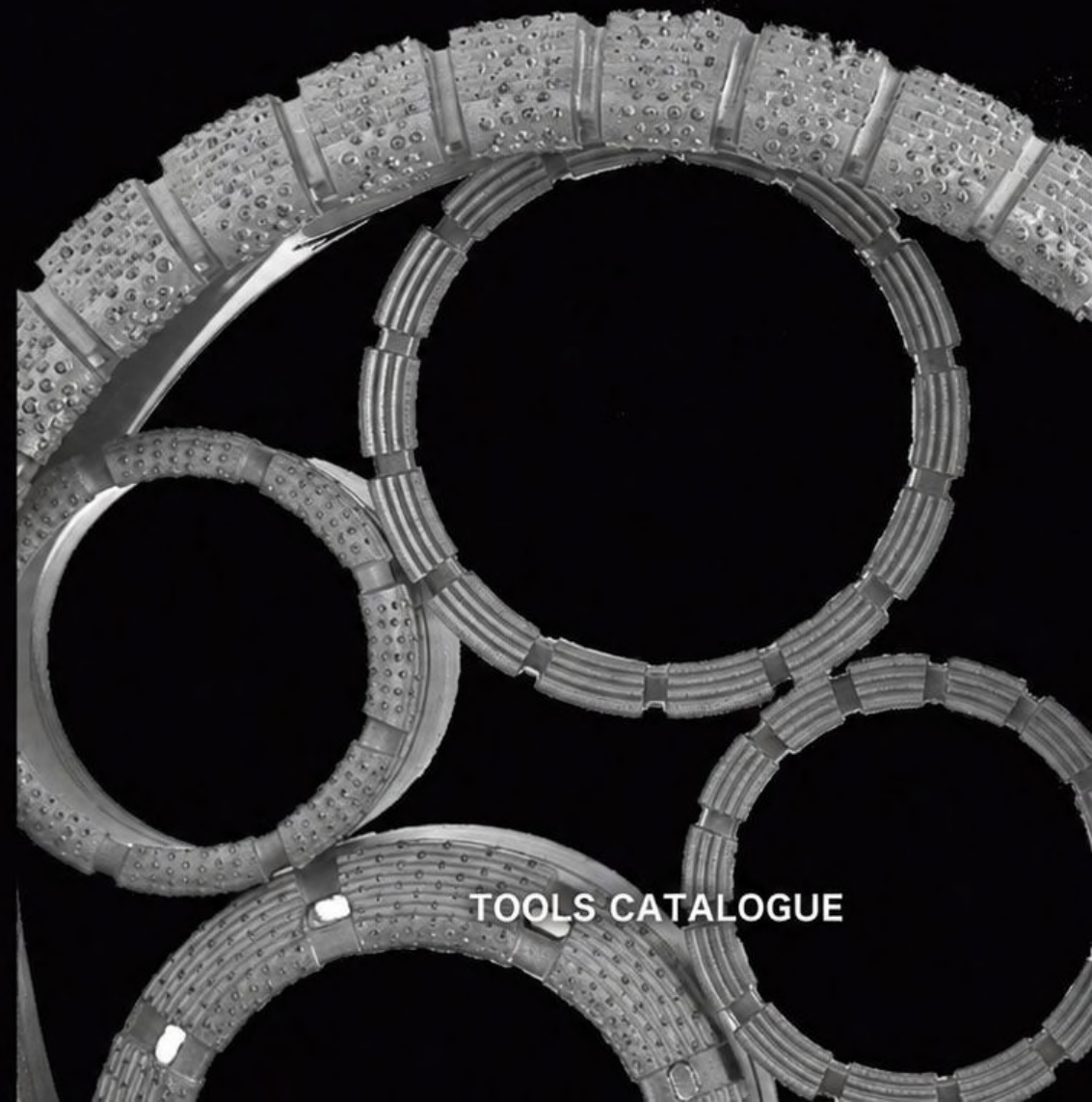
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CORE DRILLING SYSTEM



TOOLS CATALOGUE



INDUSTRIAL AND ENGINEERING TECHNOLOGIES

Industrial and Engineering Technology Co., Limited (IET) is a Hong Kong based supplier of industrial equipment, engineering solutions, drilling tools, mining products and related technologies for international markets.

We focus on providing reliable products, professional service and efficient supply solutions for customers worldwide.

Our product portfolio includes drilling equipment, drilling accessories, industrial components, mining products and customized engineering solutions.

Through cooperation with manufacturers and partners, IET delivers quality products, competitive pricing and dependable technical support.

Customer satisfaction, long-term cooperation and continuous improvement remain the foundation of our business.

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IMPREGNATED DIAMOND CORE BITS

Bits are manufactured with very small, high quality synthetic diamonds, mixed evenly through a metal alloy matrix. The matrix erodes away at the same rate as the diamonds become worn and rounded. Thus new sharp diamonds are exposed to continue cutting through the rock. In most geological formations, impregnated bits are more economical to use than other bits.

The application range of impregnated diamond bit extends from medium to ultra-hard formations.

The bit's crown is made up of a metal powder and diamond matrix that wears away during the drilling process and exposes new layers of diamonds, renewing the cutting points. The combination of diamond and proprietary matrix result in the optimal performance.

Our impregnated bits are manufactured to give optimum penetration rates and bit life, which is required to keep the cost of diamond drilling to a minimum.



SIZE

Our core bits are available in all standard drilling sizes (BW, N, BQ, HQ, PQ, NQ, HQ3, PQ3).

Also, non-standard sized bits can be produced according to requirements from clients.

CROWN HEIGHT

We offer crown depths of 6mm, 8mm, 10mm, 12mm.

The taller crown heights provide improved bit stability and reduced vibrations, enhancing bit life and performance. Unless otherwise specified, a standard 10mm impregnation depth is supplied for most of our customers.

WATERWAYS

Various waterways are available for diamond impregnated bits. Differing waterways allow for better flushing in various ground conditions and drilling systems.

MATRIX HARDNESS

For convenience of customer from different countries, our impregnated bit matrixes adopt the international standard matrix number system. Matrixes to be used on various rock conditions can be ordered according to the MATRIX SELECTION CHART.

THREADS

Standard DCDMA threads as well as thread types required by clients are available.

Matrix Selection Chart														
Matrix Selection	Rock Formation	Abrasive	Matrix Hardness Series											
			Moh's hardness	I-ET hardness	HRC50-55	HRC45-50	HRC40-45	HRC35-40	HRC30-35	HRC25-30	HRC20-25	HRC15-20	HRC10-15	HRC5-10
Soft	Mudstone, Shale, Very soft sandstone, Marl, Volcanic rock, Tuff rock	High		F-2										
		Medium												
		Low												
Medium	Limestone, Rhyolite, Andesite, Marble, Hard sandstone, Limonite, Muscovite rock, Schist	High												
		Medium												
		Low												
Medium Hard	Basalt, Gneiss, Granite, Hornfels, Pegmatite, Diabase	High												
		Medium												
		Low												
Hard	Granite, Orthoconglomerate, Quartzite, Hard slate, Rhyolite	High												
		Medium												
		Low												

**SERRATED / W PROFILE**

Standard profile for most impregnated diamond bits. It provides good drilling stability and is suitable for various formations.

**FLAT PROFILE**

For suitable for various rocks, often used impregnated casing bits, casing shoes as well as the bits with very hard matrices.

**CROSS PROFILE**

Specifically designed for ultra-hard formations, such as granite (hardness 8-9), gneiss, quartzite, siliceous limestone, cherty, etc.

**SEMI-ROUND PROFILE**

Even diamond distribution in the bit face, suitable for drilling medium-hard and hard rocks, or a little broken and loose formation.

**MULTI-STEP PROFILE**

Multi-Step impregnated bit are suitable for soft to medium hard formations and alternating hard-soft formations.

**STANDARD/CHANNEL FLUSHING (CF)**

Standard waterways are recommended for most general purpose coring operations and off great fluid circulation in a variety of conditions.

**FACE DISCHARGE**

Recommended for very soft and broken formations or when using triple-tube/NQ3 barrels Discharge waterways increase flushing characteristics to prevent waterway blockage by directing fluid through ports modeled into the face of the bit.

**TURBO**

Turbo Bit waterways provide increased flushing ability and lessen the contact area of the bit to the rock, therefore giving the bit more cutting ability with less pressure. The allows for reduced torque and increased penetration rate. Only available in IMPREGNATED DIAMOND bits.

**DEEP L.D. WATERWAYS**

Designed to maximize the waterway depth on the I.D. of the bit, which reduces the jetting or washing away of the core. The extra clearance minimizes the vacuum effect caused by the water flow past the lifter coincident application.

**TAPERED WATERWAYS**

Recommended for soft and broken formations when standard waterways may become blocked. The taper flushes cuttings to help keep the waterways clear.

**SPIRAL**

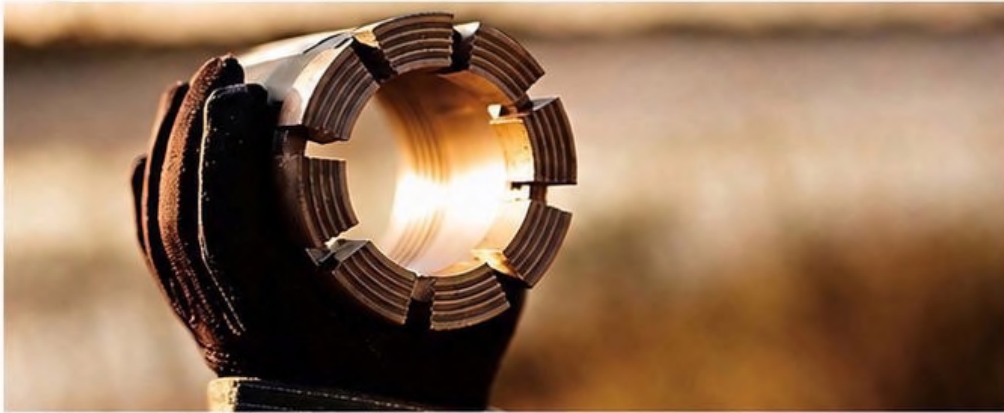
Recommended for drilling in broken formations. Specifically angled waterways allow for greater fluid ejection.

CROWN PROFILE



WATERWAY CONFIGURATIONS

Our bits are offered with multiple custom waterway configurations. Waterway selection should be determined based on the drilling conditions and adjusted appropriately to cool the bit, flush away cuttings, and maximize penetration rates.



DIAMOND BITS SPECIFICATION

Size	Bit O.D.	Hole Diameter	Bit I.D.	Core Diameter	Reaming Shell	O.D.
	INCHES	MM	INCHES	MM	INCHES	MM
AWL	1.870/1.880	47.50/47.75	1.057/1.067	26.85/27.10	1.885/1.895	47.88/48.13
LTK48	1.870/1.880	47.50/47.75	1.384/1.394	35.15/35.41	1.885/1.895	47.88/48.13
BWL	2.340/2.350	59.44/59.69	1.428/1.438	36.27/36.53	2.355/2.365	59.82/60.07
BWL3	2.340/2.350	59.44/59.69	1.315/1.325	33.40/33.65	2.355/2.365	59.82/60.07
NWL	2.960/2.970	75.18/75.44	1.870/1.880	47.50/47.75	2.975/2.985	75.57/75.82
NWL2	2.960/2.970	75.18/75.44	1.990/2.000	50.65/50.80	2.975/2.985	75.57/75.82
NWL3	2.960/2.970	75.18/75.44	1.770/1.780	44.96/45.21	2.975/2.985	75.57/75.82
NMLC	2.960/2.970	75.00/75.44	2.042/2.052	51.87/52.12	2.975/2.985	75.50/75.82
HWL	3.755/3.770	95.38/96.00	2.495/2.505	63.38/63.63	3.775/3.790	95.89/96.27
HWL3	3.755/3.770	95.38/95.57	2.401/2.411	60.99/61.24	3.775/3.790	95.89/96.27
PWL	4.795/4.815	121.80/122.30	3.340/3.350	84.84/85.09	4.820/4.835	122.43/122.81
PWL3	4.795/4.815	121.80/122.30	3.265/3.275	82.93/83.19	4.820/4.835	122.43/122.81
T2-76	2.987/2.997	75.87/76.12	2.424/2.434	61.56/61.82	2.999/3.009	76.17/76.42
T2-86	3.381/3.391	85.87/86.12	2.818/2.828	71.56/71.82	3.393/3.403	86.17/86.42
T2-101	3.970/3.982	100.84/101.14	3.290/3.300	83.56/84.00	3.984/3.994	101.19/101.44
T6-101	3.970/3.982	100.84/101.14	3.105/3.115	78.88/79.13	3.984/3.996	101.21/101.51
T6-116	4.560/4.575	115.80/116.18	3.657/3.667	92.88/93.13	4.575/4.590	116.21/116.59
T6-131	5.150/5.165	130.80/131.18	4.247/4.257	107.88/108.13	5.165/5.180	131.21/131.59
T6-146	5.740/5.755	145.80/146.18	4.837/4.847	122.88/123.13	5.757/5.772	146.23/146.61
HMLC	3.858	98.00	2.500	63.50	3.878	98.50

DRILLING GUIDELINES

System	Fluid volume		Rock hardness	Rotation		Penetration speed (in/min-cm/min)								Bit weight range	
	gpm	l/min		Speed (rpm)		200(r/in)		250(r/in)		80(r/cm)		100(r/cm)		Lb	kg
BWL	7.0-9.5	27-36	H	1000 1400		5	7	4	5.6	12.5	17.5	10	12	5000-8000	2275-3650
			M	1000 1200		5	6	4	4.8	12.5	15	10	12	3500-6000	1600-2725
			S	800 1200		4	6	3.2	4.8	10	15	8	12	2500-3500	1150-1600
NWL	9.5-12	36-45	H	1000 1200		5	6	4	4.8	12.5	15	10	12	6000-8000	2725-3650
			M	800 1200		4	6	3.2	4.8	10	15	8	12	4000-6000	1800-2725
			S	600 1000		3	5	2.4	4	7.5	12.5	6	10	2500-3500	1150-1600
HWL	12.0-14.5	45-55	H	800 1000		4	5	3.2	4	10	12.5	8	10	6000-10000	2725-4550
			M	600 1000		3	5	2.4	4	7.5	12.5	6	10	4000-8000	1800-3650
			S	600 800		3	4	2.4	3.2	7.5	10	6	8	3000-6000	1350-2725
PWL	20-30	75-110	H											6000-12000	2725-5500
			M	400 600		2	3	1.6	2.4	5	7.5	4	6	5000-10000	2275-4550
			S	300 500		1.5	2.5	1.2	2	3.75	6.25	3	5	4000-8000	1800-3650

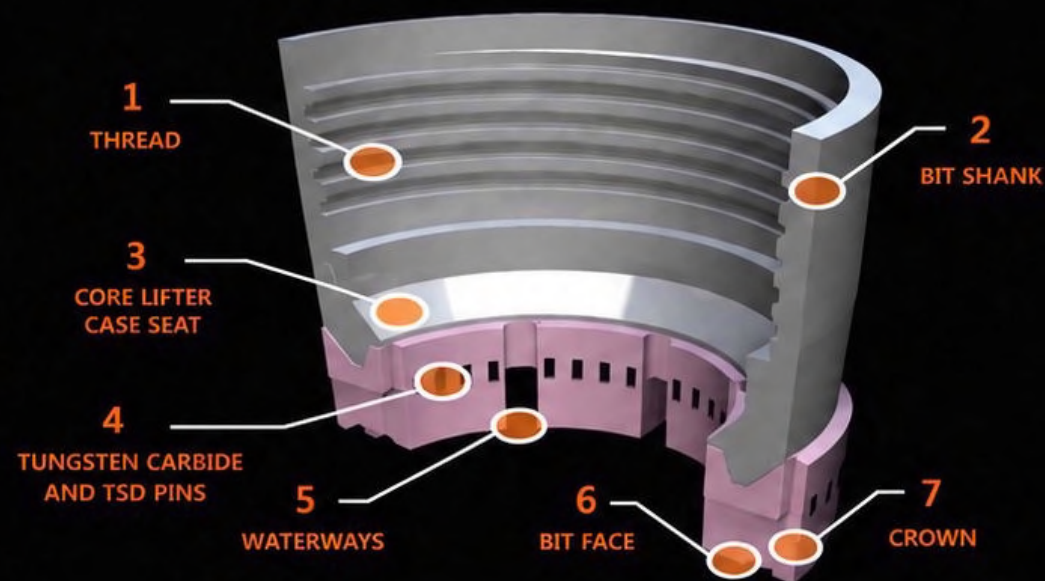
*Max peripheral speed for impregnated:5m/s and minimum:3m/s.

*Calculation of $n(\text{rpm}) = V(s) (\text{peripheral speed in m/s}) \times 60 \times 1000 / (D(\text{bit outer diameter mm}) \times \pi$

*Fluid flow, BPM, bit weight may all have to be adjusted to suit the local drilling conditions.



BITS ORDERING GUIDELINES



ORDERING GT BITS <<<

1. Size – Bits are available in all standard industry size.
2. Series – Select the series bit most appropriate for the formation.
3. Gauge – Standard and reaming shell shown in catalog. Oversized options available.

ORDERING PREMIUM BITS <<<

1. Size – Bits are available in all standard industry sizes.
2. Series – Select the series bit most appropriate for the formation
3. Gauge – Standard and reaming shell shown in catalog. Oversized option available.
4. Waterway Configuration – Standard shown in catalog unless otherwise noted. Custom options available.
5. Waterway width – Standard; Custom waterway widths available.
6. No. of Waterway – Standard for each size shown in catalog. Custom options available.
7. Crown height – Hole Product: premium series bits come standard with 14mm crown height. Customized crown heights available.

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SURFACE SET CORE BITS

Set with singular layer of natural/synthetic diamond and utilized a hard matrix compound on the bit face, our surface set diamonds can help ensure sufficient overlap to prevent premature wear of the matrix. This diamond tool is also suitable for drilling broken formation rocks which cannot be cored.

Standard Profiles for Surface Set Core bits

- Multi-steps
- Semi-round
- Face discharge (FD)
- Non-coring bits with concave profile



To choose the right surface set for the formations drilled, we need at least consider the following aspects: diamond size, diamond grade, profile design.

Diamond Size	Formation Drilled
10/20 SPC*	Soft formation
20/30 SPC	soft to medium formation
30/40 SPC	medium formation
40/60 SPC	Medium to hard formation
< 60/80 SPC	Very hard formation

- *SPC is short for Stone per Carat
- **40/60 is standard diamond size for natural diamond core bit
- ***Other sizes are available as per request





POLYCRYSTALLINE COMPACT DIAMOND (PCD) BITS

Polycrystalline Compact Diamond (PCD) Bits are constructed with a single layer of cutters mounted on the face of the bit in a predetermined pattern. These bits have a tough, wear resistant matrix body, and natural diamond gauge protection. The cutters can be rotated or replaced to maximize performance and extend the life of the bit.

POLYCRYSTALLINE COMPACT DIAMOND (PCD) BITS



REAMING SHELLS

Reaming shell is used to couple the drill bit with the core barrel. It is suitable for use on all conventional and wireline core barrel. This product is mainly designed to ream the hole to the standard diameter. It can keep the stability of the core barrel. When the old bit is replaced by the new one, reaming shell can also provide sufficient clearance for the new bit. It can also help to resist the abrasion of the core barrel.

FEATURES

- Acts as a stabilizer for drill bit.
- Be set with natural or synthetic diamond.
- Our reaming shells feature excellent quality and an advanced design.



OPTIMIZED CHOICES

Surface set reaming shells in all common DCDMA sizes are a stock item. Impregnated reaming shells and reaming shells in full hole profile are also available, but may require longer lead time.

CASING SHOES

Casing shoe is used on the leading edge of a casing tube string to advance it through the overburden layer and into the bedrock by means of rotational drilling. Depending on the range of application, the cutting media on the core bit may take the form of synthetic diamond, tungsten-carbide particles or tungsten-carbide elements.

SIZE	Outer Diameter		Inner Diameter		Unit Weight
	mm	in	mm	in	Kg
BWL	75.82	2.985	60.20	2.370	0.91
NWL	91.95	3.620	76.00	2.992	1.59
HWL	117.65	4.632	101.09	3.980	2.27
HWT	117.65	4.632	100.84	3.970	2.27
PWL	143.51	5.650	123.24	4.852	3.22

Casing shoes and Rod shoes are designed to drill in casings or rods in difficult over burden material to position the rods or casing in the drilling hole. The interior is smooth and sufficiently large enough to allow free passage of coring equipment such as bits, reaming shells, core barrels and drill rods. They are manufactured to withstand difficult drilling conditions, for example, unconsolidated overburdened or broken abrasive materials.

ROD SHOES

Rod shoe is designed to offer performance and longevity in a variety of drilling operations. Our rod shoes are available in multiple matrices and all standard sizes.

SIZE	Outer Diameter		Inner Diameter		Unit Weight
	mm	in	mm	in	Kg
BWL	60.07	2.365	45.72	1.80	0.45
NWL	75.95	2.990	60.20	2.37	0.91
HWL	96.00	3.780	77.47	3.05	1.59
PWL	120.66	4.750	101.22	3.985	2.27

WIRELINE DRILL RODS & CASINGS



WIRELINE DRILL RODS

WIRELINE DRILL RODS

Our wire line drill rods are made of strong and ductile alloy-steel pipe, material 30CrMnSiA which are whole pipe thermal processed heat treatment. Rod threads are formed using former cutters and specially hardened so that their accuracy and mechanisms reach advanced world standard.

We will make sure the compositions and specifications match the inspection report form the suppliers.



RAW MATERIALS

30CrMnSiA/XJY850

We only choose the best steel tubes in the market to manufacture our rods and pipes. Spot check will be conducted after the steel tubes delivered to company.

HEAT TREATMENT CONTROL

Entire-length or ends thermal processed will greatly improve the material strength and increase the thread wear life of the rods and casings. We conduct either tru-wall or both ends heat treatment to the tube body, ensuring superior wear resistance, strength, and toughness in the most demanding applications.

THREAD OPENING PROCESS

Accuracy of threads will determine the use effects and life time of drill rod and casings.

CNC lathes and form cutter are used in thread opening processing to minimize error made by anthropic factors.

ADDITIONAL THREAD TREATMENT

Surface of the threads will be cleaned to remove burr adhered after threads are opened. Afterwards, the tread surface will be phosphated to improve surface conditions.

SIZE AVAILABLE AS FOLLOWINGS

Wireline series: BWL, NWL, HWL, PWL

Casing , NW, HW, HWT, PW

Chinese Standard: S56, S59, S75, S95, S110, S130, S57X, S75A, S95A

TECHNICAL INFORMATION

DRILL RODS

SIZE	OD(mm)	ID(mm)	Weight	Threads Pitch	Pin Length
B-WL	55.6	46	18KGS /3m (10ft)	8.5mm	44.45mm
N-WL	69.9	60.3	24KGS /3m (10ft)	8.5mm	44.45mm
H-WL	88.9	77.8	34KGS /3m (10ft)	8.5mm	44.45mm
P-WL	114.3	101.6	53KGS/3m (10ft)	10.2mm	63 mm

CASING TUBES

SIZE	OD(mm)	ID(mm)	Weight	Pipe length (mm)	Thread length
BW	73.0	60.3	25.00	3000	60.33
NW	88.9	76.2	37.00	3000	66.68
HW	114.3	101.5	50.70	3000	73.02
PW	139.7	127	62.40	3000	82.55



THREAD PROCESS

WL-Rods and W-Casing threads are cut with CNC lathe machines with the best tools available in the market by an experienced crew. After threading, rods are induction hardened to prolong their service time.

Our drill rods are one of the few manufacturers that provide this service to their customers.



BASIC PARAMETERS

PARAMETER OF WL (SIZE B, N, H, P) DRILL RODS

Name	O.D (mm)	I.D (mm)	Thread Length	Pipe Length mm	Threads Pitch	Weight kgs
BWL	55.6	46	44.45	1500	8.5mm	9.00
				3000		18.00
NWL	69.9	60.3	44.45	1500	8.5mm	12.00
				3000		24.00
HWL	88.9	77.8	44.45	1500	8.5mm	17.00
				3000		34.00
PWL	114.3	103.2	63.5	1500	10.2mm	25.5
				3000		51.00

PERFORMANCE RATING

Name	Rated Pullback	Rated Torque	Threaded connection tightening torque Nm		Maximum torque Nm	Maximum drilling depth m
			Min	Max		
BWL	130 kN	800 Nm	405	550	450	1500
NWL	250 kN	2000 Nm	600	750	600	1500
HWL	250 kN	2000 Nm	1010	1350	1080	1200
PWL	450 kN	4000 Nm	1010	3500	2950	900

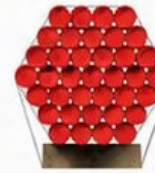
MECHANICAL PROPERTIES

Name	Tensile Strength:	Yield Strength :	Elongation (%) :	Tooth angle	Hardness
BWL	990 Mpa	870 Mpa	17%	29°	HRC28-32
NWL	983 Mpa	895 Mpa	19%	29°	HRC28-32
HWL	960 Mpa	855 Mpa	18.5%	29°	HRC28-32
PWL	1050 Mpa	930 Mpa	14.5%	29°	HRC28-32

PARAMETER OF CASING TUBE

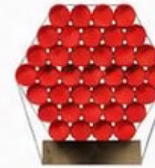
Size	OD	ID	Weight	Pipe length	Thread length
BW	73.0	60.3	8.38kg/m	1.5m 3m	63.5MM
NW	88.9	76.2	12.3kg/m	1.5m 3m	69.85MM
HW	114.3	101.5	16.9kg/m	1.5m 3m	76.2MM
PW	139.7	127	20.8kg/m	1.5m 3m	82.55MM
HWT	114.3	101.6	16.9kg/m	1.5m 3m	62.84MM
PWT	139.7	127	20.8kg/m	1.5m 3m	62.84MM

BUNDLE SPECIFICATIONS



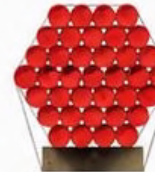
B-WL ROD BUNDLE >>>

1.5M ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):1600mm×400mm×400 mm
WEIGHT: 335 kg
3.0M/5FT ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):3200mm×400mm×400mm
WEIGHT: 670kg



N-WL ROD BUNDLE >>>

1.5M ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):1600mm×500mm×500mm
WEIGHT: 445kg
3.0M/5FT ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):3200mm×500mm×500mm
WEIGHT: 890 kg



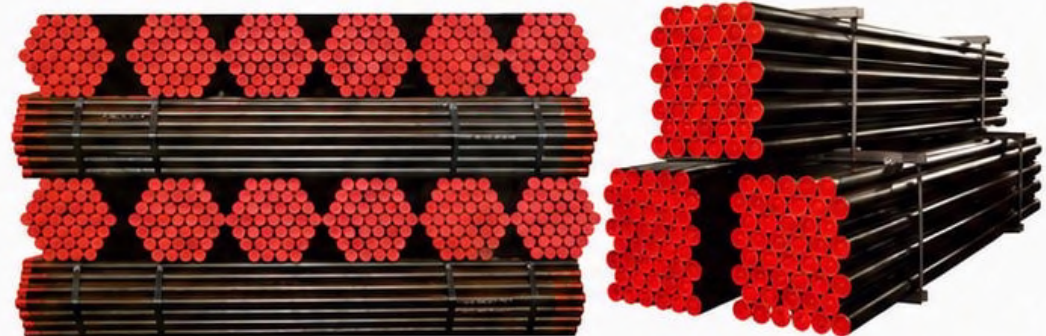
H-WL ROD BUNDLE >>>

1.5M/5FT ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):1600mm×630mm×630mm
WEIGHT: 630kg
3.0M ROD BUNDLE - 37RODS
DIMENSIONS (L - W - H):3200mm×630 mm×630 mm
WEIGHT: 1260kg



P-WL ROD BUNDLE >>>

1.5M ROD BUNDLE - 19RODS
DIMENSIONS (L - W - H):1600mm×575mm×575mm
WEIGHT: 134kg
3.0M ROD BUNDLE - 19RODS
DIMENSIONS (L - W - H):3200mm×575mm×575mm
WEIGHT: 268kg





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Wire line Core Barrels



WIRE LINE CORE BARRELS

Wire-line core drilling equipment is very commonly used for mineral exploration for deep holes because of practical usage.

Our products are manufactured by using high quality raw materials and designed according to DCDMA, wire-line standard.

We offer to clients following models of wire-line core barrel compatible with

- Wire-line Standard Drilling Equipment;
- Wire-line Double Tube Core Barrel: B, N, H, P sizes;
- Wire-line Triple Tube Core Barrel: B-3, N-3, H-3, P-3 sizes;
- Wire-line Core Barrel T2-76, T2-86, T2-101... T series;



All spare parts and conversion kits can be supplied as a kit or separate in order to reduce cost of coring system.

WIRE LINE

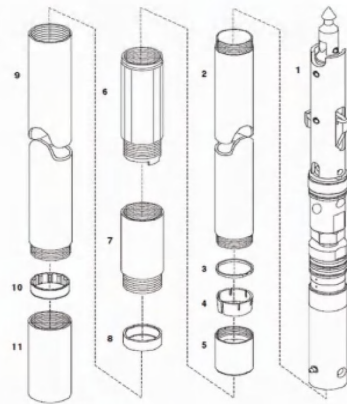
DOUBLE TUBE CORE BARREL

Wire line core barrels are used when coring to greater depths, mainly because they eliminate the need to couple and uncouple the rod string each time the core is retrieved. An overshot device is dropped on a cable and directly couples onto the inner tube assembly, allowing fast retrieval of the core after each core run. Available in DCDMA sizes B, N, H, and P.

KEY TO MAIN PARTS OF W/L CORE BARREL ASSEMBLY

Complete core barrel consists of <<<

1. Core Barrel Head Assembly
2. Inner Tube 1.5m or 3.0m
3. Stop Ring
4. Core Lifter
5. Core Lifter Case
6. Locking Coupling
7. Adapter Coupling
8. Landing Ring
9. Outer Tube 1.5m or 3.0m
10. Inner Tube Stabilizer
11. Thread Protector



Technical Data <<<

Specification	Core Barrel Type			
	B W/L	N W/L	H W/L	P W/L
Hole Diameter (mm)	59.9	75.7	96.3	122.8
Core Diameter (mm)	36.4	47.6	63.5	85.0
Kerf / Crown Thickness (mm)	11.6	13.9	16.2	18.5
Cutting Area (cm ²)	18.3	27.2	41.1	61.7
Hole Area (cm ²)	28.3	45.0	72.8	118.5
Cutting Area as % of Hole Area	64%	60%	56%	52%
Core Area (cm ²)	10.3	17.8	31.7	56.8
Recommended Drill Rod	B W/L	N W/L	H W/L	P W/L
Recommended Casing	BW	NW	HW	PW
Conversion to triple tube possible	Yes	Yes	Yes	Yes



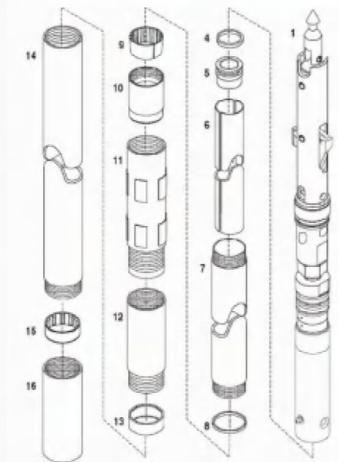
WIRE LINE TRIPLE TUBE CORE BARRELS

The double tube wireline core barrel is converted to triple tube by incorporating a split steel tube inside the inner tube. In addition, a piston and pump-out adaptor is provided for pumping out the split steel tube when it is full of rock core. The stop ring, core lifter case and core lifter also differ from the standard double tube core barrel, being slightly smaller in diameter in order to accept and retain the slightly smaller core.

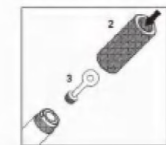
KEY TO MAIN PARTS OF W/L3 CORE BARREL ASSEMBLY

COMPLETE CORE BARREL CONSISTS OF

1. Head Assembly
2. Pump-out Adaptor
3. Piston Plug
4. O Ring
5. Core Ejection Piston
6. Split Inner Tube 1.5m or 3.0m
7. Inner Tube 1.5m or 3.0m
8. Stop Ring
9. Core Lifter
10. Core Lifter Case
11. Locking Coupling
12. Adaptor Coupling
13. Landing Ring
14. Outer Tube 1.5m or 3.0m
15. Inner Tube Stabilizer
16. Thread Protector



Core Bit and Reaming Shell are not supplied as part of the core barrel assembly, but must be chosen correctly to match the particular application and rock formation.



Specification	Wireline Triple Tube Core Barrels			
	BWL3	NWL3	HWL3	PWL3
Hole Diameter (mm)	59.9	75.7	96.3	122.8
Core Diameter (mm)	33.5	45.1	61.1	83.1
Kerf / Crown Thickness (mm)	13.05	15.1	17.35	19.45
Cutting Area (cm ²)	19.6	29.0	43.5	64.2
Hole Area (cm ²)	28.3	45.0	72.8	118.5
Cutting Area as % of Hole Area	69%	64%	60%	54%
Core Area (cm ²)	8.7	16.0	29.3	54.3
Recommended Drill Rod	BQ	NQ	HQ	PQ
Recommended Casing	BW	NW	HW	PW

T SERIES

DOUBLE TUBE CORE BARRELS

Thin wall conventional core barrels designed for coring in medium hard to very hard homogenous and slightly broken formations with water flushing or polymer. They are designed as double tube core barrels but most can be converted to triple tube by incorporating PVC core liners. Available in 6 different diameters for metric (millimeter) hole sizes between 46 - 101 mm.

FEATURES

Fast penetration

Large core relative to whole size

Good for coring in hard rock formations using impregnated bit

TECHNICAL DATA

Specification	Core Barrel Type		
	T2-76	T2-86	T2-101
Hole Diameter (mm)	76.5	86.5	101.5
Core Diameter (mm)	61.7	71.7	83.7
Kerf / Crown Thickness (mm)	7.2	7.2	8.7
Cutting Area (cm ²)	15.82	18.12	25.57
Hole Area (cm ²)	45.72	58.50	80.59
Cutting Area as % of Hole Area	35%	31%	32%
Core Area (cm ²)	29.90	40.38	55.02
Standard Thread Connection in Head*	CR50	CR50	NW
Recommended Casing	M86	M101	M116
Conversion to triple tube possible	Yes	Yes	Yes

*Cross-over sub required for drill rods not matching the thread connection in core barrel head

KEY TO MAIN PARTS OF T2 CORE BARREL ASSEMBLY

COMPLETE CORE BARREL CONSISTS OF

1. Core Barrel Head
2. Inner Tube 1.5m or 3.0m long
3. Outer Tube 1.5m or 3.0m long
4. Extension Tube
5. Core Lifter
6. Core Lifter Case

*Core Bit and Reaming Shell are not supplied as part of the core barrel assembly, but must be chosen correctly to match the particular application and rock formation.



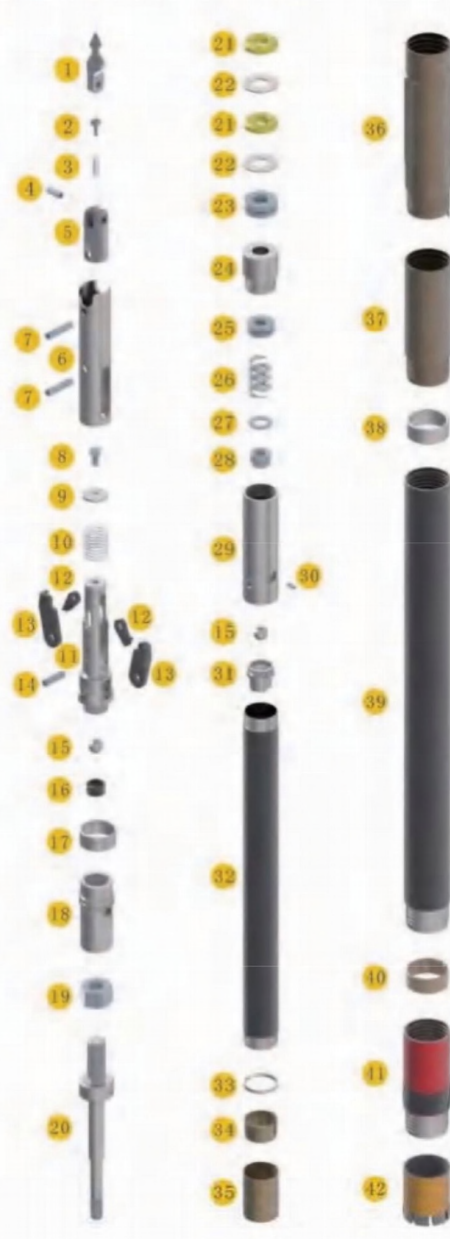
BWL CORE BARREL ASSEMBLY

Product Name	Qty	PN
Spearhead Point	1	BQ-01
Detent Plunger	1	BQ-02
Compression Spring	1	BQ-03
Spring Pin 10×28	1	BQ-04
Spearhead Base	1	BQ-05
Latch Retracting Case	1	BQ-06
Spring Pin 10×40	2	BQ-07
Bolt 3/8"-16UNC	1	BQ-08
Washer	1	BQ-09
Compression Spring	1	BQ-10
Upper Latch Body	1	BQ-11
Link	2	BQ-12
Latch	2	BQ-13
Spring Pin 10×32	1	BQ-14
Ball Φ22	1	BQ-15
Indicator Bushing	1	BQ-16
Landing Shoulder	1	BQ-17
Lower Latch Body	1	BQ-18
Hex Nut 7/8"-9UNC	1	BQ-19
Spindle	1	BQ-20
Shut-off Valve Hard	2	BQ-21
Valve Adjusting Washer	2	BQ-22
Bearing	2	BQ-23
Spindle Bearing	1	BQ-24
Compression Spring	1	BQ-25
Washer Nord-Lock 5/8"	1	BQ-26
Self-Locking Nut 5/8" -11UNC	1	BQ-27
Inner Tube Cap	1	BQ-28
Grease Fitting M6	1	BQ-29
Ball Φ19	1	BQ-30
Check Valve Body	1	BQ-31
Inner Tube A 1.5m/pc	1	BQ-32
Inner Tube B 3m/pc	1	BQ-33
Stop Ring	1	BQ-34
Core Lifter	1	BQ-35
Core Lifter Case	1	BQ-36
Locking Coupling	1	BQ-37
Adapter Coupling	1	BQ-38
Landing Ring	1	BQ-39
Outer Tube A 1.5m/pc	1	BQ-40
Outer Tube B 3m/pc	1	BQ-41
Inner Tube Stabilizer	1	BQ-42
* Reaming Shell	1	BQ-43
* Diamond Bit	1	BQ-44



NWL CORE BARREL ASSEMBLY

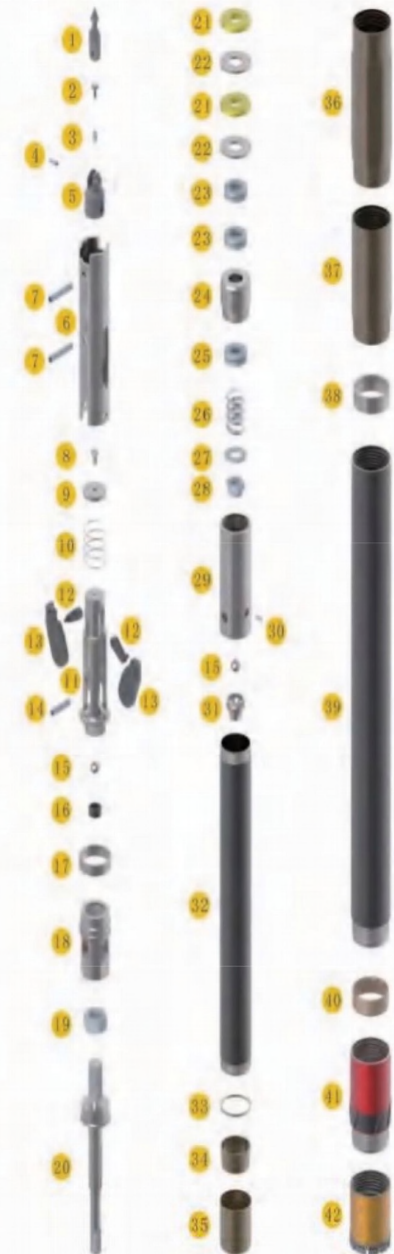
Product Name	Qty	PN
Spearhead Point	1	NQ-01
Detent Plunger	1	NQ-02
Compression Spring	1	NQ-03
Spring Pin 10×28	1	NQ-04
Spearhead Base	1	NQ-05
Latch Retracting Case	1	NQ-06
Spring Pin 12×50	2	NQ-07
Bolt 3/8" -16UNC	1	NQ-08
Washer	1	NQ-09
Compression Spring	1	NQ-10
Upper Latch Body	1	NQ-11
Link	2	NQ-12
Latch	2	NQ-13
Spring Pin 12×40	1	NQ-14
Ball Φ 22	2	NQ-15
Indicator Bushing	1	NQ-16
Landing Shoulder	1	NQ-17
Lower Latch Body	1	NQ-18
Hex Nut 11/8"-7UNC	1	NQ-19
Spindle	1	NQ-20
Shut-off Valve Hard	2	NQ-21
Valve Adjusting Washer	2	NQ-22
Bearing A	1	NQ-23
Spindle Bearing	1	NQ-24
Bearing B	1	NQ-25
Compression Spring	1	NQ-26
Washer Nord-Lock 3/4	1	NQ-27
SelfLocking Nut 3/4"-10UNC	1	NQ-28
Inner Tube Cap	1	NQ-29
Grease Fitting M6	1	NQ-30
Check Valve Body	1	NQ-31
Inner Tube A1.5m/pc	1	NQ-32
Inner Tube B 3m/pc	1	NQ-33
Stop Ring	1	NQ-34
Core Lifter	1	NQ-35
Core Lifter Case	1	NQ-36
Locking Coupling	1	NQ-37
Adapter Coupling	1	NQ-38
Landing Ring	1	NQ-39
Outer Tube A1.5m/pc	1	NQ-40
Outer Tube B 3m/pc	1	NQ-41
Inner Tube Stabilizer	1	NQ-42
*Reaming Shell	1	NQ-43
* Diamond Bit	1	NQ-44



* DIAMOND BIT AND REAMING SHELL ARE NOT INCLUDED IN CORE BARREL ASSEMBLY

HWL CORE BARREL ASSEMBLY

Product Name	Qty	PN
Spearhead Point	1	HQ-01
Detent Plunger	1	HQ-02
Compression Spring	1	HQ-03
Spring Pin 10×28	1	HQ-04
Spearhead Base	1	HQ-05
Latch Retracting Case	1	HQ-06
Spring Pin 12×70	2	HQ-07
Bolt 3/8"-16UNC	1	HQ-08
Washer	1	HQ-09
Compression Spring	1	HQ-10
Upper Latch Body	1	HQ-11
Link	2	HQ-12
Latch	2	HQ-13
Spring Pin 12×55	1	HQ-14
Ball Φ 22	2	HQ-15
Indicator Bushing	1	HQ-16
Landing Shoulder	1	HQ-17
Lower Latch Body	1	HQ-18
Hex Nut 1 1/4"-7UNC	1	HQ-19
Spindle	1	HQ-20
Shut-off Valve Hard	2	HQ-21
Valve Adjusting Washer	2	HQ-22
Bearing A	2	HQ-23
Spindle Bearing	1	HQ-24
Bearing B	1	HQ-25
Compression Spring	1	HQ-26
Washer Nord-Lock 1"	1	HQ-27
SelfLocking Nut 1"-8UNC	1	HQ-28
Inner Tube Cap	1	HQ-29
Grease Fitting M6	1	HQ-30
Check Valve Body	1	HQ-31
Inner Tube A1.5m/pc	1	HQ-32
Inner Tube B 3m/pc	1	HQ-33
Stop Ring	1	HQ-34
Core Lifter	1	HQ-35
Core Lifter Case	1	HQ-36
Locking Coupling	1	HQ-37
Adapter Coupling	1	HQ-38
Landing Ring	1	HQ-39
Outer Tube A1.5m/pc	1	HQ-40
Outer Tube B3m/pc	1	HQ-41
Inner Tube Stabilizer	1	HQ-42
*Reaming Shell	1	HQ-43
* Diamond Bit	1	HQ-44



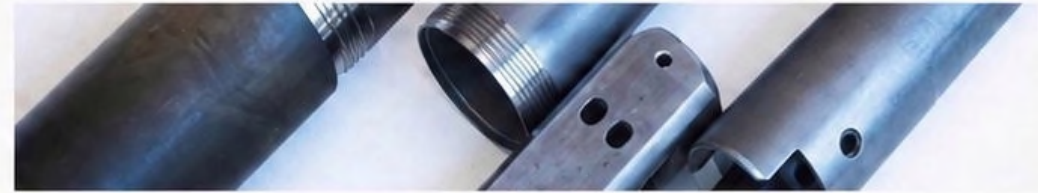
* DIAMOND BIT AND REAMING SHELL ARE NOT INCLUDED IN CORE BARREL ASSEMBLY

PWL CORE BARREL ASSEMBLY

Product Name	Qty	PN
Spearhead Point	1	PQ-01
Detent Plunger	1	PQ-02
Compression Spring	1	PQ-03
Spring Pin 10×28	1	PQ-04
Spearhead Base	1	PQ-05
Latch Retracting Case	1	PQ-06
Spring Pin 12×70	2	PQ-07
Nylok Bolt 3/8"-16UNC	1	PQ-08
Washer	1	PQ-09
Compression Spring	1	PQ-10
Upper Latch Body	1	PQ-11
Link	2	PQ-12
Latch	2	PQ-13
Spring Pin 12×55	1	PQ-14
Landing Shoulder	1	PQ-15
Ball Φ22	2	PQ-16
Indicator Bushing	1	PQ-17
Lower Latch Body	1	PQ-18
Hex Nut 11/4"-7UNC	1	PQ-19
Spindle	1	PQ-20
Valve Adjusting Washer	2	PQ-21
Shut-off Valve Hard	2	PQ-22
Tapered Shut-off Washer	1	PQ-23
Bearing	3	PQ-24
Spindle Bearing	1	PQ-25
Grease Fitting M6	1	PQ-26
Compression Spring	1	PQ-27
Washer 11/4"	1	PQ-28
Self-locking Nut 11/4"-7UNC	1	PQ-29
Copper Valve Bushing	1	PQ-30
Spring Pin 5×45	1	PQ-31
Check Valve Body	1	PQ-32
Inner Tube Cap	1	PQ-33
Inner Tube A 1.5m/pc	1	PQ-34
Inner Tube B 3m/pc	1	PQ-35
Stop Ring	1	PQ-36
Core Lifter	1	PQ-37
Core Lifter Case	1	PQ-38
Locking Coupling	1	PQ-39
Adapter Coupling	1	PQ-40
Landing Ring	1	PQ-41
Outer Tube A 1.5m/pc	1	PQ-42
Outer Tube B 3m/pc	1	PQ-43
*Reaming Shell	1	PQ-44
Inner Tube Stabilizer	1	PQ-45
*Diamond Bit	1	PQ-46



* DIAMOND BIT AND REAMING SHELL ARE NOT INCLUDED IN CORE BARREL ASSEMBLY



OVERSHOT

Overshot is a key component of wire-Line coring systems. To retrieve the core sample, the overshot is lowered into the hole on a wire cable until it comes in contact with the spearhead point on the head assembly. Positive latching fitting ngs engage securely attach, and the inner tube assembly is pulled from the hole to retrieve the core.

B/N/H/P - WL Overshot Spare Parts

Product Name	Qty	PN
Eye Bolt	1	D-01
Cable Collar	1	D-02
Bearing	1	D-03
Self-locking Nut 1/2-20UNF	1	D-04
Cable Swivel Body	1	D-05
Jar Staff	1	D-06
Jar Tube	1	D-07
Locking Sleeve	1	D-08
Hex Nut M14×2	1	D-09
Spring Base	1	D-10
Compression Spring A	1	D-11
Sleeve	1	D-12
Nylok Set Screw 3/8"-24UNF	1	D-13
Compression Spring B	1	D-14
Ball Φ9	2	D-15
Compression Spring C	1	D-16
Over-Shot Head	1	D-17
Lifting Dog	2	D-18
Pin	1	D-19
Spring Pin 6×35	1	D-20
Overshot Assembly	1	D-21





INDUSTRIAL AND ENGINEERING
TECHNOLOGIES

Drilling Accessories



CORE BARREL SPARE PARTS



CORE BARREL SPARE PARTS

Industrial and Engineering Technology Co., Limited offers a complete line of components to compliment our coring systems, including core lifters, water swivel, hoisting plug, adapter subs, circle wrenches, foot clamps, core trays, wire-line winch and much more.

We have no stock problems of spare parts and repair kits so that it always stands by and support its customers.



CORING WRENCHES

Coring wrenches, also known as full circle grip wrenches, are designed specifically for the assembly and disassembly of outer tube and inner tube components. The coring wrenches are designed to grip the tubes around the full circumference therefore minimizing pressure points that can deform the tubes or accessories.

Size Available:

Inner tube wrench: BWL, NWL, HWL, PWL.

Outer tube wrench: BWL, NWL, HWL, PWL.

Casing circle wrench: $\phi 73/89$, $\phi 89/108$, $\phi 108/127$, $\phi 127/146$, $\phi 146/168$.

Pipe wrench: 18' ' , 24' ' , 36' ' 48' ' .

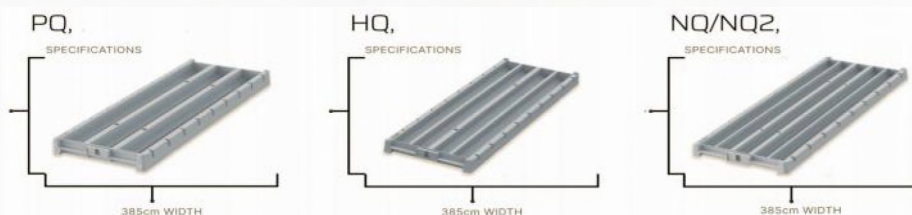


CORE TRAYS / BOXES

The plastic core tray produced could meet the requirements in cold and hot temperatures and are of- good reputation.

Size	Dimension mm	Unit Weight	Unit Volume cbm	Lattices Nos	Single Line Size	Core Sample Length	QTY FOR 20GP	QTY FOR 40GP
BQ Core Tray	1070x385x59	2.2	0.0135	6	48mm	6m	2300	5000
NQ Core Tray	1070x385x64	2.2	0.0135	5	55mm	5m	2300	5000
HQ Core Tray	1070x385x70	2.4	0.017	4	69mm	4m	1800	4000
PQ Core Tray	1070x385x93	2.8	0.02	3	92mm	3m	1550	3400
Core Tray Lid	1070x385x10	1.3	0.002	-	-	-		

Available Sizes



RECOVERY TAPS

Our recovery taps are heat treated. A recovery tap will catch the tubular object from the inside. Right hand threaded taps are inserted and pull out the complete string from the hole. If the string is stuck a left hand tap is used for unscrewing the free part of the string.



TRIPLE TUBE KITS

NQ3

Item	Qty	Code
Pump-out Adaptor	1	NQ3-01
Piston Plug	1	NQ3-02
O-Ring 43.7x3.55	1	NQ3-03
Core Ejection Piston	1	NQ3-04
Split Tube	1	NQ3-05
Inner Tube	1	NQ3-06
Stop Ring	1	NQ3-07
Core Lifter	1	NQ3-08
Core Lifter Case	1	NQ3-09

HQ3

Item	Qty	Code
Pump-out Adaptor	1	HQ3-01
Piston Plug	1	HQ3-02
O-Ring 60x3.55	1	HQ3-03
Core Ejection Piston	1	HQ3-04
Split Tube	1	HQ3-05
Inner Tube	1	HQ3-06
Stop Ring	1	HQ3-07
Core Lifter	1	HQ3-08
Core Lifter Case	1	HQ3-09

PQ3

Item	Qty	Code
Pump-out Adaptor	1	PQ3-01
Piston Plug	1	PQ3-02
O-Ring 60x3.55	1	PQ3-03
Core Ejection Piston	1	PQ3-04
Split Tube	1	PQ3-05
Inner Tube	1	PQ3-06
Stop Ring	1	PQ3-07
Core Lifter	1	PQ3-08
Core Lifter Case	1	PQ3-09



WATER SWIVEL



This water swivel is mostly applied in the geological exploration, and it is made up of high-pressure sealing ring, core tubes and spindle. The universal water swivel is a long-wearing wash tube transmitting coolant (mostly water or drilling mud) to the inner diamond core bits.

In addition, we offer a complete line of replacement parts for quick and easy field repairs, and subs to adapt to all DCDMA sized rods and casing.

Compact plus Water Swivel

Item	Qty	Code
Swivel Cap	1	15Kg-01
Adapter Sub	1	15Kg-02
O-ring f 47.5×3.55	1	15Kg-03
Upper Pressure Ring	1	15Kg-04
Felt Seal	4	15Kg-05
Down Pressure Ring	1	15Kg-06
Slotted Wear Sleeve	1	15Kg-07
Packing Cage	1	15Kg-08
Bearing 3206A-2Z	1	15Kg-09
Upper Swivel Body	1	15Kg-10
O-ring f 19×2.65	1	15Kg-11
Spindle	1	15Kg-12
Bearing 51209	1	15Kg-13
Lower Swivel Body	1	15Kg-14
Grease Fitting M6	1	15Kg-15
Felt Seal	1	15Kg-16
Compact Water Swivel 15kg	1	15Kg-17



25K Universal Water Swivel

Item	Qty	PN
Swivel Cap	1	25Kg-01
Compression Spring	1	25Kg-02
O-ring f 57×5.5	1	25Kg-03
Felt Seal	1	25Kg-04
Packing Housing	1	25Kg-05
Extension Spindle	1	25Kg-06
Spindle Nut	1	25Kg-07
Lock Washer	1	25Kg-08
Washer	1	25Kg-09
Retining Ring	1	25Kg-10
Bearing 3210	1	25Kg-11
Spindle	1	25Kg-12
Bearing 51211	1	25Kg-13
Waster Swivel Body	1	25Kg-14
Grease Fitting M6	1	25Kg-15
Adapter Sub	1	25Kg-16
25Kg Water Swivel	1	25Kg-17



HOSTING PLUG



Item	Qty	Code
Eye Bolt	1	01
Wear Sleeve	1	02
Grease Fitting M6	1	03
Hoist Plug Bearing Housing	1	04
Bearing 51305	1	05
Spindle Bearing	1	06
Washer	1	07
Self-locking Nut M24	1	08
Hoist Plug Lower Housing	1	09
Adapter Sub	1	10
Hoist Plug Assembly	1	11

DRILLING FLUIDS

GREASE FOR PROTECTION FOR THREADS

Grease for protection is applicable to drill rod thread's lubricating and air-proofing. It is especially suitable for wireline core drill rod and adapters.

1. Lubricating: This character can lessen the attrition of threads and reduce the resistance for screwing & unloading the threads.
2. Filming: This character can airproof, protect threads and prevent leaking.

POLYMERS

The polymers can be produced in powder form or liquid. Those main functions are:

- To stop the hydration of the clay.
- To increase the viscosity of the drilling mud.
- To eliminate friction tools on the whole wall.
- To stop re-formation of the clay after the passage of the tool.

BENTONITE

The use of bentonite in drilling muds has several functions:

- They cool and lubricate the cutting edge, drill rods and down the hole tools.
- The drilling fluids also helps to seal the hole wall and keep the hole at the diameter.
- Carry the cutting out of the hole.

LUBRICANT

Lubricant can reduce the torque and friction drag and bit/stabilizer balling in most water- base drilling fluids.

- Can be used in all types of water base drilling fluids
- effective lubricant for torque and drag reduction
- Will not adversely affect mud properties
- Reduces bit and stabilizer balling
- Compatible with common water-base fluid additives

PRODUCT APPLICATIONS CROSS REFERENCE		
PRODUCT NAME	OUR PRODUCTS	AMC
BENTONITE	CX-GEL	AUS-BEN
	VIS	EZEE-PAC R
	FIL	EZEE-PAC L
POLYMER	CPL	CR650 LV
	POLYXCD	XAN BORE
	SUPER POLY	EZEE-MIX/LIQU POL
LIQUID POLYMER	CHP	CR 650
POLYMER POWDER	FOAM PLUS	SUPER-FOAM
FOAMING AGENT	PLUG	AUS PULG/POLY-PLUG
SWELL POLYMER	DRILL LUBE	BIT LUBE
BIODEGRADABLE LUB		

BW SERIES MUD PUMP

It has the main features of multi-speed shaft gears, power saving, simple and compact design, light in weight and high efficiency, and durability, easy and safe in operation, maintenance and low operation costs. It works usually under the conditions of (18-25)sec.mud viscosity not more than 4% sand laden in mud, (7-10)PH-value and(0-50)°C temperature

MODEL	BW-150	BW-160/10	BW250	
TYPE	SINGLE-ACTING TRIPLEX PISTON	SINGLE-ACTING TRIPLEX PISTON	SINGLE-ACTING TRIPLEX PISTON	
STROKE(mm)	70	70	100	
LINER DIA(mm)	70	70	80	65
PUMP SPEED(min ⁻¹)	222 130 86 57 183 107 71 47	200 132 83 55	200 116 72 42	200 116 72 42
DISPLACEMENT(L/min)	150 90 58 38 125 72 47 32	160 107 67 44	250 145 90 52	166 96 60 35
PRESSURE(Mpa)	1.8 3.2 4.8 7.0 2.3 4.0 6.0 7.0	2.5 4 6.5 10	2.5 4.5 6.0 6.0	4.0 6.0 7.0 7.0
INPUT POWER(kw)	7.5	11 (electric motor) 13(diesel engine)	15	
SUCTION PIPE DIA(mm)	51	51	76	
DISCHARGE PIPE DIA(mm)	32	32	51	
MASS(kg)	516	380	500	
PUMP GROUP				
DRILLING HOLE DEPTH (m)	DIAMOND CORE DRILLING<1500	<150	DIAMOND CORE DRILLING<1500 CONVENTIONAL CORE DRILLING<1000	
DIMENSIONS(mm)	1840*795*995 (electric motor) 1925*795*1150 (diesel engine)	1400*860*950	1100*995*650	
WEIGHT(kg)	560(electric motor) 630(diesel engine)	430	650	

