SHAREATE

Water Well Bit

SHAREATE TOOLS LTD.

Company Introduction

Shareate Tools Ltd., located in Suzhou Industrial Park, is specialized in the manufacturing and R&D of mining tools. It is recognized by high-tech enterprises as one of the most advanced and largest mining tool bases in China.

The company adopts advanced flexible production and manufacturing system to build a flexible production line with CNC machining center as the main body, this system contribute to a solid foundation for manufacturing first-class quality products. The company regards quality of the utmost importance; therefore, we consistently establish and improve the quality assurance system.Shareate is the only professional mining tool manufacturer that has passed the certification of API and ISO9000 quality system in China.

We continuously promote technological innovation and product research and development to the market, in the mean time, develops independent intellectual property rightsand successively carries out technical cooperation with domestic universities and scientific research institutions.

We strive to expand the domestic and international market. We are the leading Mining bites supplier in the domestic market. Internationally, our products are exported to more than ten countries and regions, such as Australia, the United States, Canada, Russia, South Africa, Chile, etc., which are favored and praised by users at home and abroad.

The company carries forward the enterprise spirit of "Passion, Pragmatism, Harmony and Achievement", adheres to the tenet of "integrity, high-end and professional", and strives to build a world brand of mining tools.

Product introduction

Water Wellbit is mainly used in water well, coalbed methane and geothermal well drilling engineering.Shareate wellbit is designed and manufactured according to the standard of oil drillingbit, combining with the technical advantages of the company's miningbit design and manufacturing. Its characteristics are long life, high drilling efficiency and low operation cost. At present, more than 13 bits with sizes ranging from 6 "to 13 3 / 4"and 80 plusinserts specifications have been developed, which can be applied to different formations from soft to very hard. Those designs are compatible with different drilling technologies such as conventional drilling and directional drilling.

Shareate has developed two series of water well bits, SHA and SHV. SHA is O-shaped rubber sealing series of sliding bearing and adapt to the needs of conventional drilling technology; SHV is composite rubber sealing series of sliding bearing, which can effectively improve the service life and reliability of rubber sealing and adapt to the needs of high-speed drilling.

The model of Shareate water well bit consists of diameter code, series code, classification number and additional feature code.

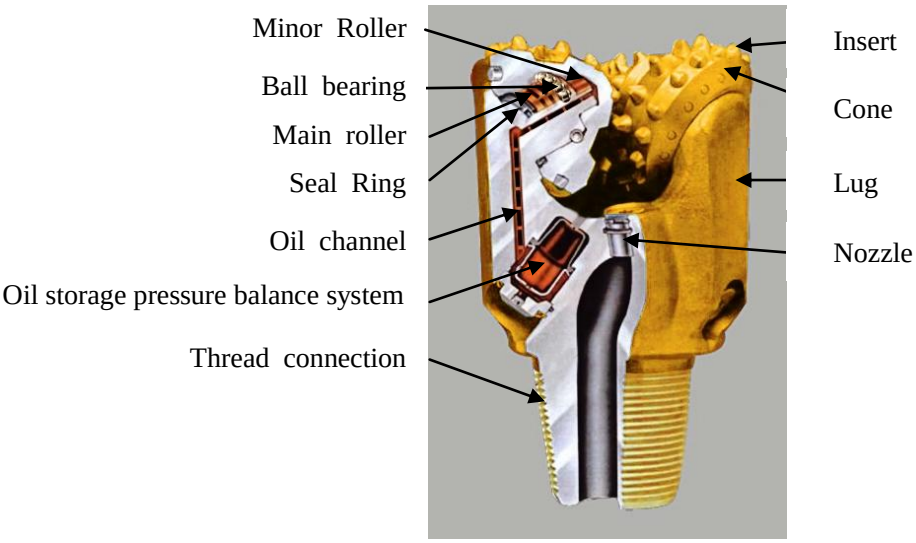
Example of naming method: 12 1 / 4 SHA 547xt

12 1 / 4 is the diameter, which means the bit diameter is 12.25 inches (311.15mm);

SHA is the series code, indicating the O-shaped rubber seal series of sliding bearing;

547 is the classification number, indicating the corresponding IADC code;

XT is the additional feature code, X indicates that the main cutting inserts is wedge-shaped, and T indicates that the trimming is strengthened to maintain the diameter.

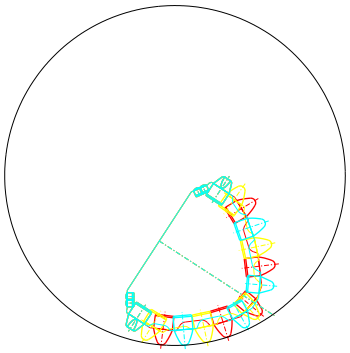


Structure of Water well Cone Bit

Product Characteristics

1. Cutting structure

ording to the ground compressive strength and drillability,specific insert type and material grade are selected to ensure the wear resistance and toughness of the carbide tooth to achieve optimal matching.



Computer simulated bottom hole impact curve design helps to arrange inserts effectively and balance the working load of drill bit inserts

2. Additional features

W feature: Shirtail Hardfacing

In abrasive formation, directional well and horizontal well, it can effectively reduce the wear of bit, improve the bit's diameter maintaining performance and extend the bit's service life.

W feature: Shirtail Hardfacing

The WC wear-resistant materialcan effectively delay the wear of the shirtail, protect the sealing structure of the sealed bit and extend the service life of the bit

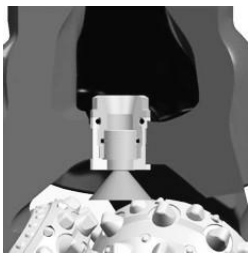
T feature: Trimmingstrengthening and maintaining diameter

The wedge-shaped teeth are inserted between the outer row teeth and the back cone teeth, which can protect the shell of the cone and trim the wellwall bulge at the same time to improve the bit's diameter maintaining ability.

F Feature: Cone auxiliary carbide protection

Auxiliary carbides are embedded between the main cutting rows and outer row, It can effectively protect the cone body of the cone to delay wear and improve the service life of the bit in the abrasive formation.

C feature : Centre nozzle port



The center nozzle avoids mud bag, eliminates the fluid retention area at the bottom of the well, accelerates the return of cuttings, and improves the mechanical penetration rate of the bit. It is suitable for soft to medium soft formation with low compressive strength and high drillability.

K feature: Hard formation cutting structure

The bit adopts unique design parameters and extended cutting tooth-top to improve the bottom hole crushing volume and bottom hole coverage of the teethand improve the penetration rate of the bit in the hard formation.

X feature: Wedge tooth

The main cutting teeth of the bit are wedge-shaped teeth, which have the characteristics of high cutting efficiency and strong crushing resistance for a specific medium soft to medium hard formation, effectively improving the penetration rate of the bit and prolonging the service life of the bit.

Y feature: Cone tooth

The main cutting teeth of the bit are conical teeth, which are suitable for drilling in hard and brittle formation and formation with gravel interlayer.

3.Application and operation parameters

Bit series	IADC code	Application	Recommended parameters	
			Drilling pressure kN/mm (bit diameters)	Rotary speed （r/min）
SHA117 SHV117	117	Very soft formation with low compressive strength and high drillability, such as soft shale, clay, salt rock, etc.	0.35~0.90	150~80
SHA127 SHV127	127	Soft formation with low compressive strength and high drillability, such as shale, clay, salt rock, soft limestone, etc.	0.35~1.00	150~70
SHA417 SHV417	417	Very soft formation with low compressive strength and high drillability, such as shale, clay, sandstone, conglomerate, etc.	0.35~0.90	140~70
SHA437 SHV437	437	Very soft formation with low compressive strength and high drillability, such as shale, clay, sandstone, conglomerate, etc.	0.35~0.95	140~60
SHA447 SHV447	447	Soft formation with low compressive strength and high drillability, such as shale, clay, salt rock, sandstone, soft limestone, gypsum, etc.	0.35~1.00	140~60
SHA517 SHV517	517	Soft formation with low compressive strength and high drillability, such as shale, clay, sandstone, soft limestone, etc.	0.35~1.05	120~50
SHA527 SHV527	527	Soft formation with low compressive strength such as shale, clay, sandstone, soft limestone, salt rock, anhydrite, etc.	0.35~1.05	120~50
SHA537 SHV537	537	Low compressive strength, medium soft, hard abrasive interlayer, such as hard shale, anhydrite, soft limestone, sandstone, etc.	0.35~1.05	110~40
SHA547 SHV547	547			
SHA617 SHV617	617	High compressive strength, medium hard, with thick hard interlayer, such as hard shale, limestone, dolomite, sandstone, etc	0.35~1.05	80~40
SHA627 SHV627	627			
SHA637 SHV637	637	High compressive strength, high abrasiveness and medium hard strata, such as limestone, dolomite, sandstone, chert, etc.	0.70~1.20	70~40
SHA647 SHV647	647			

Note: the recommended range of WOB and RPM in the table cannot be applied at the top range at the same time.

4.Bit size and recommended torque and API external thread

Bit size		API thread	recommended torque
in	mm	in	KN.M
6	152.4	**3 1/2**	9.5～12.2
6 1/8	155.6	**3 1/2**	9.5～12.2
6 1/4	158.8	**3 1/2**	9.5～12.2
6 1/2	165.1	**3 1/2**	9.5～12.2
6 5/8	168.3	**3 1/2**	9.5～12.2
6 3/4	171.5	**3 1/2**	9.5～12.2
7 1/2	190.5	**4 1/2**	16.3～21.7
7 5/8	193.7	**4 1/2**	16.3～21.7
7 7/8	200.0	**4 1/2**	16.3～21.7
8 3/8	212.7	**4 1/2**	16.3～21.7
8 1/2	215.9	**4 1/2**	16.3～21.7
8 5/8	219.1	**4 1/2**	16.3～21.7
8 3/4	222.3	**4 1/2**	16.3～21.7
9 1/2	241.3	**6 5/8**	38～43.4
9 5/8	244.5	**6 5/8**	38～43.4
9 7/8	250.8	**6 5/8**	38～43.4
10 1/2	266.7	**6 5/8**	38～43.4
10 5/8	269.9	**6 5/8**	38～43.4
11	279.4	**6 5/8**	38～43.4
11 5/8	295.3	**6 5/8**	38～43.4
12	304.8	**6 5/8**	38～43.4
12 1/4	311.2	**6 5/8**	38～43.4
12 5/16	312.7	**6 5/8**	38～43.4
12 3/8	314.3	**6 5/8**	38～43.4
12 7/16	315.9	**6 5/8**	38～43.4
12 5/8	320.7	**6 5/8**	38～43.4
13 1/8	333.4	**6 5/8**	38～43.4
13 1/2	342.9	**6 5/8**	38～43.4
13 5/8	346.1	**6 5/8**	38～43.4
13 3/4	349.3	**6 5/8**	38～43.4

5. Nozzle series

Nozzle series and model designation include three parts: nozzle type, size code and outlet diameter. Example s2-10 is as follows

S: Nozzle type, S stands for standard type

2: nozzle size code;

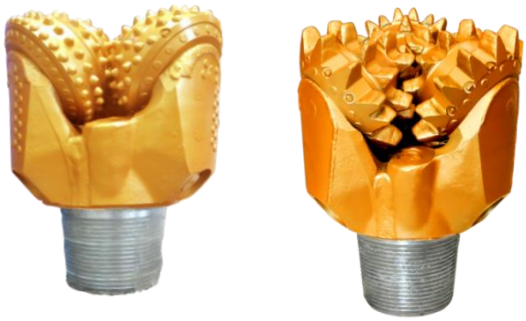
10: Nozzle outlet diameter

Nozzle shape dimension series				
Nozzle size code	Tri-cone size		Nozzle outer diameter	Nozzle assembly length
	Inch	mm	mm	mm
2	5 5/8～7 3/8	142.9～187.3	23.50	19.05
3	7 1/2～8 1/4	190.5～209.6	29.74	20.62
4	8 3/8～145/8	212.7～371.5	32.89	26.97

Nozzle outer diameter														
Nozzle outer diameter (mm)	6	7	8	9	10	11	12	13	14	16	18	20	22	24

(Note: lengthen, micro long and special nozzles can be designed and developed according to the user's requirements)

SHA Sliding bearing rubber sealing bit



Sha series bit is sealed with O-shaped rubber of sliding bearing. It can bear high bit pressure under normal rotation speed and adapt to extremely soft to medium hard formation with different cutting structures.

Structural features

1. In the form of sliding bearing, B4 wear-resistant alloy layer is overlaid on the surface of the bearing, and silver is plated on the inner hole of the tooth wheel, so as to improve the bearing capacity and anti seizing capacity.

2. The bearing O-ring is made of high saturated fluorinated nitrile rubber, which has good wear resistance and high temperature resistance; the compression ratio and section diameter of the seal ring are optimized to improve the sealing performance of the seal ring; the lip seal is adopted to improve the reliability of the seal.

3. Vacuum pumping and oil filling are adopted, and the oil storage pressure balance system can balance the internal and external pressure difference of the bearing, provide good lubrication guarantee for the bearing system at the same time.

4. The bit is made of cemented carbide inserts with high strength and toughness for oil. According to the compressive strength and drillability of different formation, the specific cutting structure, inserts shape and inserts material are selected to ensure the wear resistance and toughness of inserts can reach the optimal matching and have a high ROP. The steel bit adopts the wear-resistant wieldingmaterial independently developed and manufactured by Shareate and the wear-resistant material is fully wrapped on the tooth surface, which not only maintain the high mechanical drilling speed of the steel bit, but also improve the cutting tooth life of the bit.

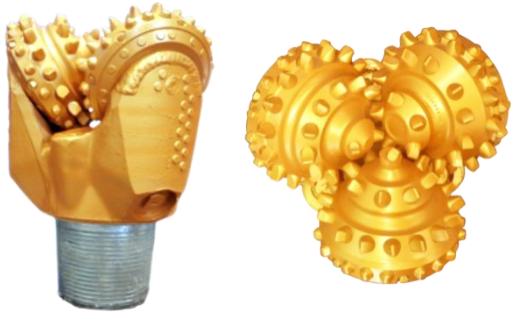
5. Additional features such as t trimming, G lug back strengthening, K wide tooth cutting structure, X wedge tooth cutting structure, Y cone insert tooth cutting structure and C center water hole can be selected to meet different drilling needs.

Existing specifications and models

Size specification	Model
6	SHA517GKT、SHA537G、SHA537GKT、SHA617G、SHA617T、SHA637GYL
6 1/2	SHA537GKT、SHA617XT
6 3/4	SHA537GT、SHA617GT
8 1/2	SHA137、SHA437GT、SHA517GKT、SHA517GKT
9 1/2	SHA127T
12 1/4	SHA127T、SHA437GT、SHA437T、SHA517GKT、SHA537、SHA537GKT、SHA547XT、SHA617、SHA617X、SHA617Y、SHA637、SHA637YT

Note: Drills of other size specification and Model from 6″to 13 3/4″are available upon cusomters' requests

SHV Sliding bearing rubber sealing bit



SHV series bits are sealed with composite rubber of sliding bearing, which can bear higher bit pressure under normal rotation speed. Compared with O-shaped rubber sealing bits, they can adapt to higher rotation speed. With different cutting structures, they can adapt to extremely soft to medium hard formation.

Structure Characteristics

1. In the form of sliding bearing, B4 wear-resistant alloy layer is overlaid on the surface of the bearing, and silver is plated on the inner hole of the tooth wheel, so as to improve the bearing capacity and anti seizing capacity.

2. The bearing composite rubber seal ring adopts the high saturated nitrile rubber with high wear resistance, which has better wear resistance and high temperature resistance; the compression ratio and section diameter of the seal ring are optimized to improve the sealing performance of the seal ring; the assembly structure of the embedded seal ring with the inner hole groove of the roller is adopted, so that the sealing of the drill bit can be kept effective even if the shirttail t is worn, and the service life of the drill bit can be prolonged.

3. Vacuum pumping and oil filling are adopted, and the oil storage pressure balance system can balance the internal and external pressure difference of the bearing, and provide good lubrication guarantee for the bearing system.

4. The bit is made of cemented carbide inserts with high strength and toughness for oil. According to the compressive strength and drillability of different formation, the specific cutting structure, inserts shape and inserts material are selected to ensure the wear resistance and toughness of inserts can reach the optimal matching and have a high ROP. The steel bit adopts the wear-resistant wieldingmaterial independently developed and manufactured by Shareate and the wear-resistant material is fully wrapped on the tooth surface, which not only maintain the high mechanical drilling speed of the steel bit, but also improve the cutting tooth life of the bit.

5. Additional features such as t trimming, G lug back strengthening, K wide tooth cutting structure, X wedge tooth cutting structure, Y cone insert tooth cutting structure and C center water hole can be selected to meet different drilling needs.

Existing specification and model

Size specification	Model
7 1/2	SHV537XT、SHV617YT
7 5/8	SHV537XT、SHV617YT
7 7/8	SHV527GYT、SHV537GKT、SHV537X、SHV617X、SHV417YT
8 1/2	SHV537、SHV537GKT、SHV617、SHV617X、SHV617XT、SHV617Y、SHV617YT、SHV637、SHV637YT
8 3/4	SHV517GKT、SHV537GKT、SHV617GYT
9 1/2	SHV437GT、SHV517、SHV517GKT、SHV537GKT、SHV537X、SHV617X、SHV637Y、SHV637YT
9 5/8	SHV637Y
9 7/8	SHV517GKT、SHV537GKT、SHV617GT、SHV637Y、SHV637YT

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