



Always Striving Beyond Reaching

CHENGDU ASBR TECHNOLOGY CO., LTD.
Drilling Tools Product Manual



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Tools research & development
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PRODUCT INTRODUCTION-DRILLING TOOLS

1.1 Shockwave® STD Drilling Extended Reach Tool



The Shockwave® STD Drilling Extended Reach Tool utilizes drilling fluid as its power source to generate powerful axial pulse oscillations. This significantly reduces static friction between the tool string and the drill pipe, converting it into kinetic friction, thereby effectively addressing the stick-slip issue in horizontal wells. Concurrently, this tool enhances toolface control, minimizes stick-slip phenomena, and substantially improves drilling and workover operational efficiency.

As a standard version extended reach tool, the Shockwave® STD Drilling ERT can be flexibly configured according to field requirements:

- Optional high-performance stators resistant to oil-based mud and high temperatures, suitable for extreme operating conditions;
- Rotors utilizing high-performance hard alloy spray coating technology, improving wear resistance and service life;
- Providing customized solutions based on different borehole sizes and drilling flow rate requirements:
 - ① Large flow rate ERT (8 1/2 wellbore: up to 11.1-11.9 gps; 12 1/4 wellbore: up to 18.5-19.8 gps)
 - ② All-metal ERT, suitable for ultra-high temperature, high-pressure, and other harsh conditions, ensuring excellent performance in various complex drilling environments.

PRODUCT FEATURES:

- Low activation flow rate, quickly entering operational status;
- Large amplitude design, effectively improving drill string motion;
- Ultra-strong oscillation force, significantly enhancing drilling efficiency;
- Resistant to high temperature, high pressure, and strong corrosive environments, suitable for extreme downhole conditions.

OD in	Length in	Flow Rate gps	Freq Hz	Shock Force lbf	Amp in	Press psi	Max Temp °C	Connection
3.75	133.9	1.6-5	5-14	4000-5400	0.2-0.7	350-450	165	2 7/8REG
5	145.7	3.17-4.75	10-14	5600-7900	0.2-0.7	350-450	165	NC38
6.75	155.9	5.28-9.77	10-14	7900-10300	0.2-0.7	350-450	165	NC50
8	165.0	11.9-15.85	10-14	10300-13500	0.2-0.7	350-450	165	6 5/8REG

1.2 Shockwave® LPX Drilling Extended Reach Tool



The Shockwave® LPX (Low Pressure eXtreme) Ultra-Low Pressure Drilling Extended Reach Tool is an upgraded version of the Shockwave® STD, further optimizing performance while inheriting all the advantages of the STD version, making it suitable for a wider range of well conditions.

PRODUCT FEATURES

- **Extremely Low Pressure:** Operating pressure loss is approximately 1/3 of the Shockwave® STD, significantly reducing energy consumption.
- **Extended Service Life:** Enhanced erosion resistance of key components, resulting in stronger overall durability.
- **Stable Oscillation Performance:** Shock force and amplitude remain at the same level as the Shockwave® STD, ensuring stable and reliable operational performance.
- **Enhanced Horizontal Section Reach Capability:** Two or more Shockwave® LPX tools can be deployed simultaneously downhole, significantly increasing the horizontal well section's reach capability while meeting circulation pressure requirements.

OD in	Length in	Flow Rate gps	Freq Hz	Shock Force lbf	Amp in	Press ps	Max Temp °C	Connection
3.75	224.4	1.6-5	5-14	4000-5400	0.2-0.7	117-150	165	2 7/8REG
5	228.3	3.17-4.75	10-14	5600-7900	0.2-0.7	117-150	165	NC38
6.75	236.2	5.28-9.77	10-14	7900-10300	0.2-0.7	117-150	165	NC50
8	240.1	11.9-15.85	10-14	10300-13500	0.2-0.7	117-150	165	6 5/8REG

1.3 Accumulator Stable Drilling Force Tool



The Accumulator Stable Drilling Force Tool, utilizes patented torsional vibration mitigation technology, specifically designed to manage torsional vibrations within the drill string and optimize bit loading, thereby effectively enhancing drilling stability and operational efficiency. Typically positioned above the Rotary Steerable System (RSS) or MWD/LWD, when encountering difficult-to-drill formations, it can adaptively adjust the depth of cut of PDC bits, ensuring the bit receives stable weight on bit (WOB) and torque. Simultaneously, it provides dual effects of axial and torsional shock absorption, significantly boosting the Rate of Penetration (ROP).

PRODUCT FEATURES

- **Patented Sealing System:** Incorporates a patented sealing system combined with a pressure-compensated telescoping mechanism, effectively absorbing torsional oscillations and vibrations caused by stick-slip effects and excessive bit cutting.
- **Superior Torsional Stability:** Ensures the Rotary Steerable System (RSS), MWD/LWD, positive displacement motors, and drill bits maintain relative stability downhole, improving drilling accuracy.
- **Smooth Formation Entry, Reduced Impact:** Lowers the impact of PDC bits when contacting the formation, achieving a "soft landing" and reducing early damage.
- **Optimized Drilling Process:** Effectively suppresses PDC bit bouncing, stalling, and jarring, and reduces drill string stick-slip, enhancing drilling stability.
- **Protects Key Tools, Extends Lifespan:** Optimizes the operating conditions of PDC bits, mud motors, and downhole logging tools (MWD/LWD), improving durability and reducing maintenance requirements.
- **Reduces Tripping, Improves Operational Efficiency:** Decreases BHA replacement frequency, shortens non-productive time, and saves operational costs for users.

OD in	Length in	ID in	Stroke in	Max pulling load klbs	Max dogleg	Max Temp °C	Connection
5"	186.61	1.18	7.874	337.21	24.6°/100ft	180	NC38
6 3/4"	185.83	1.96	7.874	494.58	19.7°/100ft	180	NC50
8 1/4"	204.33	2.76	7.874	719.39	13.8°/100ft	180	6 5/8 REG

1.4 High Torque/High Temperature Drilling Mud Motor

The ASBR High Torque/High Temperature Drilling Mud Motor is specifically designed for complex, difficult-to-drill formations and extreme high-temperature environments. It utilizes a high-hardness, strong wear-resistant stator rubber compound, significantly enhancing the mud motor's durability, torque output, and service life, providing reliable assurance for efficient drilling operations. It has been successfully applied in China's ultra-high temperature wells reaching 204°C, demonstrating exceptional thermal stability and reliability. It is suitable for unconventional wells, geothermal wells, and high-temperature deep wells, offering powerful dynamic support for high-temperature drilling.

PRODUCT FEATURES

- **Higher Torque Output:** Compared to conventional rubber stators, rubber hardness is increased by 20%, wear resistance by 30%, and output torque by 40%. This allows it to easily handle high-resistance well sections and improve the Rate of Penetration (ROP).
- **Ultra-Long Service Life:** Optimized material formulation and manufacturing processes result in a 35%* increase in the overall lifespan of the mud motor, reducing maintenance frequency and lowering operational costs.
- **Strong Adaptability:** Demonstrates stable performance in complex formations, long horizontal sections, and high-temperature wells, with reliability far exceeding traditional mud motors.

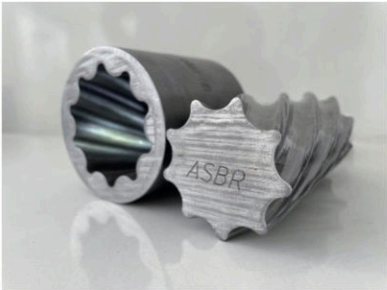
Part of drilling high torque /high temperature mud motors technical parameters

OD in	Models	Lobes	Stages	Flow Rate GPM		RPM		Power hp	Rotate Rev/Gal	Max Press psi	Max Torque ft-lb
				Min	Max	Min	Max				
3.75	AR375564.8	5/6	4.8	100	300	170	500	170	1.660	1130	1760
4.75	AR475786.4	7/8	6.4	150	300	90	190	210	0.630	1510	5720
5	AR500678.8	6/7	8.8	150	400	100	260	380	0.660	1880	7660
6.5	AR650568.2	5/6	8.2	300	600	130	260	580	0.430	1930	11760
6.5	AR650786.0	7/8	6.0	300	650	80	180	440	0.270	1410	12780
6.75	AR675568.2	5/6	8.2	300	600	130	260	580	0.430	1930	11760
6.75	AR6759108.0	9/10	8.0	300	600	80	150	490	0.256	1880	17110
8	AR800676.0	6/7	6.0	400	900	70	150	590	0.17	1410	20730
8	AR800785.9	7/8	5.9	400	900	60	140	580	0.155	1390	21870
8.25	AR825787.0	7/8	7.0	400	1000	60	160	770	0.155	1650	25210
9.63	AR962565.0	5/6	5.0	600	1300	90	170	790	0.127	1180	24290
9.63	AR962676.0	6/7	6.0	600	1300	80	170	930	0.127	1410	28630
11.25	AR1125567.2	5/6	7.2	600	1600	80	200	1380	0.128	1700	36350

* Statistics based on dyno tester data and field use data

1.5 All-Metal Mud Motor

The ASBR All-Metal Mud Motor provides a metal-to-metal power solution capable of stable operation under extreme conditions, completely overcoming the issues of short lifespan, low efficiency, and susceptibility to stalling common with conventional rubber mud motors in high-temperature, high-pressure, and highly corrosive environments. This product significantly enhances the reliability of field operations, reduces non-productive time (NPT), and offers an ideal choice for users seeking cost reduction and efficiency improvement.



PRODUCT FEATURES

- **High-Temperature Resistance:** Specifically designed for wellbore environments with temperatures of 180°C (356°F) and above, ensuring stable power output.
- **Corrosion-Resistant Design:** Suitable for harsh fluids containing acid, corrosive liquids, H₂S (hydrogen sulfide), and CO₂ (carbon dioxide), ensuring long-life operation.
- **Metal-to-Metal Seal:** Dispenses with the traditional rubber stator design, avoiding issues such as blistering, delamination, and shedding of rubber in high-temperature environments, ensuring a longer service life and higher operational efficiency.
- **Optimized Power Transmission:** Efficient energy conversion provides more robust power output while reducing mechanical wear and enhancing operational stability.

Part of all-metal mud motor technical parameters

OD in	Models	Lobes	Stages	Flow Rate GPM		RPM		Power hp	Rotate Rev/Gal	Max Press psi	Max Torque ft-lb
				Min	Max	Min	Max				
1.38	ARM1389104.5	9:10	4.5	20	50	304	759	16	15.18	1000	160
1.5	ARM15011126.2	11:12	6.2	20	40	302	604	22	15.1	1500	280
1.69	ARM1699105.3	9:10	5.3	30	70	298	695	28	9.92	1000	300
2.13	ARM213784.9	7:8	4.9	50	106	296	651	56	6.3	2000	500
2.87	ARM2879104.0	9:10	4.0	84	168	185	370	81	2.2	2000	2250
2.87	ARM28710113.0	10:11	3.0	84	168	126	252	70	1.5	2000	3300
3.13	ARM3139105.3	9:10	5.3	50	210	110	462	135	2.2	2000	1900
5	ARM5009104.8	9:10	4.8	150	450	79	238	339	0.53	2000	10000
5	ARM5009106.8	9:10	6.8	150	400	126	336	329	0.84	2000	6500
6.75	ARM6759104.4	9:10	4.4	300	900	86	257	605	0.29	2000	17000

1.6 Torsional Impactor



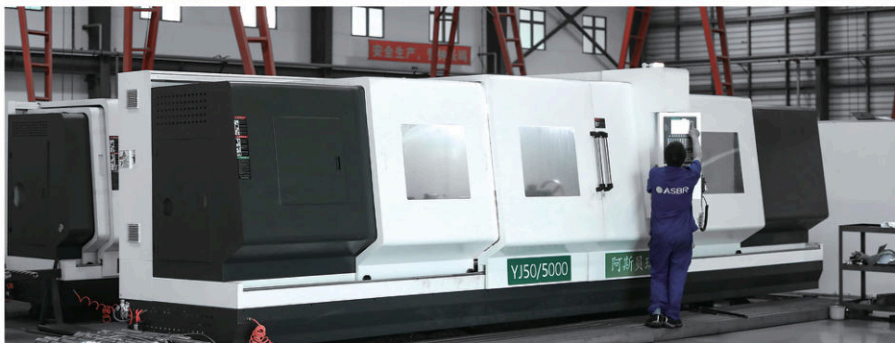
Torsional impactor: high-pressure drilling fluid converts hydraulic energy to mechanical energy – rotary valve oscillation creates torsional impacts transmitted to PDC bit. For directional/horizontal/hard formations. Compatible with PDMs, near-bit tools, drill strings. Converts constant torque to impact torque – improves ROP.

PRODUCT FEATURES

- Rotary valve generates torsional impacts – less torque buildup, no stalling, stable bit operation.
- High-frequency torque to PDC bit – better ROP, less drilling time.
- No electronics – protects bit, PDM, string from torque spikes and premature wear.
- Hydraulic drive, compact & reliable.
- Fast response, stable output.
- Cuts NPT, boosts efficiency.

OD in	Length in	Flow Rate gpm	Pressure Drop psi	Impact Frequency Hz	Torsional Impact Energy ft/lb	IPT ft/lb	RMT ft/lb	Thread Type
5	25.4	285	145-189	20-28	44-59	1032-1253	7375-8850	3 1/2 REG
6.77	24.0	555	189-247	32-40	66-89	1401-1844	11800-16050	4 1/2 REG

Note: Instantaneous Pulsed Torque (IPT), Recommended Makeup Torque(RMT)



FOR MORE INFORMATION, PLEASE VISIT ON THE WEB AT WWW.ASBRTEC.COM

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