CENTER ROCK INC

DRILL FASTER
RUN HARDER
WORK SMARTER

CRI PRODUCT CATALOG

INDUSTRIES SERVED

CONSTRUCTION

Center Rock Inc. serves the global construction industry by designing, manufacturing, and distributing a complete line of air drilling tools and products including DTH hammers & bits from 3.5”-36” (89mm - 914mm) in diameter, LP® canister drills and hole-openers (conventional and reverse circulation) from 24”-144” (610mm - 3658mm), ROTO LOC® underreamer systems for casing advancement, and other support equipment such as water injection systems, oil injection systems, air manifolds, and Hydro-Jaw® breakout / make-up systems.

UTILITY

Center Rock Inc. provides state-of-the-art drilling products to support the utility industry. Our mono-hammer utility pole drill offerings range from 3.5”-24” (89mm - 610mm) and include hex connection, side inlet swivel, and all ancillary items. Additionally, only Center Rock offers Utility and HDD LP® canister style drills 18” (457mm) and larger. Multi-hammer canister style LP Drills® boast lightweight construction, low vibration and low air requirements which will ensure success in any drilling condition and are perfectly suited for mounting on any digger derrick unit.

OIL AND GAS

Since day one, Center Rock has served the Oil and Gas industry with quality DTH hammers and bits ranging from 3.5” - 36” (89mm - 914mm) and specifically designed to meet the rugged demands of deep hole drilling. With available on-site support, a consultative approach and 24/7 customer support, Center Rock is the Oil and Gas supplier of choice. From jet subs to diamond enhanced carbide bits to Hydro-Jaw® breakout / make-up systems, we have a tailored solution for any Oil and Gas drilling application.

MINING AND QUARRY

When it comes to drilling blast holes, Center Rock has a complete product portfolio of innovative tools and accessories to satisfy any surface or underground application requirement. We have DTH hammers and bits that will drill 3.5” - 36” (89mm - 914mm) blast-holes. Also available is our Mining LP® canister drill, 20” (508mm) and larger, for drilling utility/ventilation holes, burn holes, etc. These mining LPs® are perfectly suited to drill either up, down or any inclination, from vertical to horizontal, in an underground mining environment.

WATER WELL AND GEOTHERMAL

Center Rock Inc. designs and manufactures DTH hammers from 3.5” to 20” (88.9mm-508mm) and DTH button bits up to 36” (914.4mm) with various shanks, face styles, and carbide button configurations. For waterwell drillers, we offer three lines of hammers; the valveless CR line, the valved Rock Force® (RF) (both utilize QL shank bits), and the Rock Xtreme® (RX) line. The RX® offering is the newest, valved, high frequency hammer developed by Center Rock with it’s own bit shank design and no blow tube. Center Rock has also designed a unique underreamer overburden drilling system, ROTO LOC®, that drills and simultaneously advances casing.

YOUR DRILLING SOLUTION!

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CR 55 Hammer Cutaway

CENTER ROCK FORCE® HAMMER SERIES

CENTER ROCK FORCE® LINE OF DOWN-THE-HOLE HAMMERS

The Center Rock Force® line of high performance down-the-hole hammers and bits are available to suit a broad range of hole sizes and applications. All Center Rock Force® hammers feature a high efficiency and tunable valved air cycle to optimize performance on your compressor. Many models also feature a heat resistant steel valve which keeps on working even in the most demanding quarry and mining applications. Additionally, most models feature reversible casings so you can get the most footage from your hammer. For high air flow deep hole applications, accessories such as bit retrieval systems and jetted backheads are available.

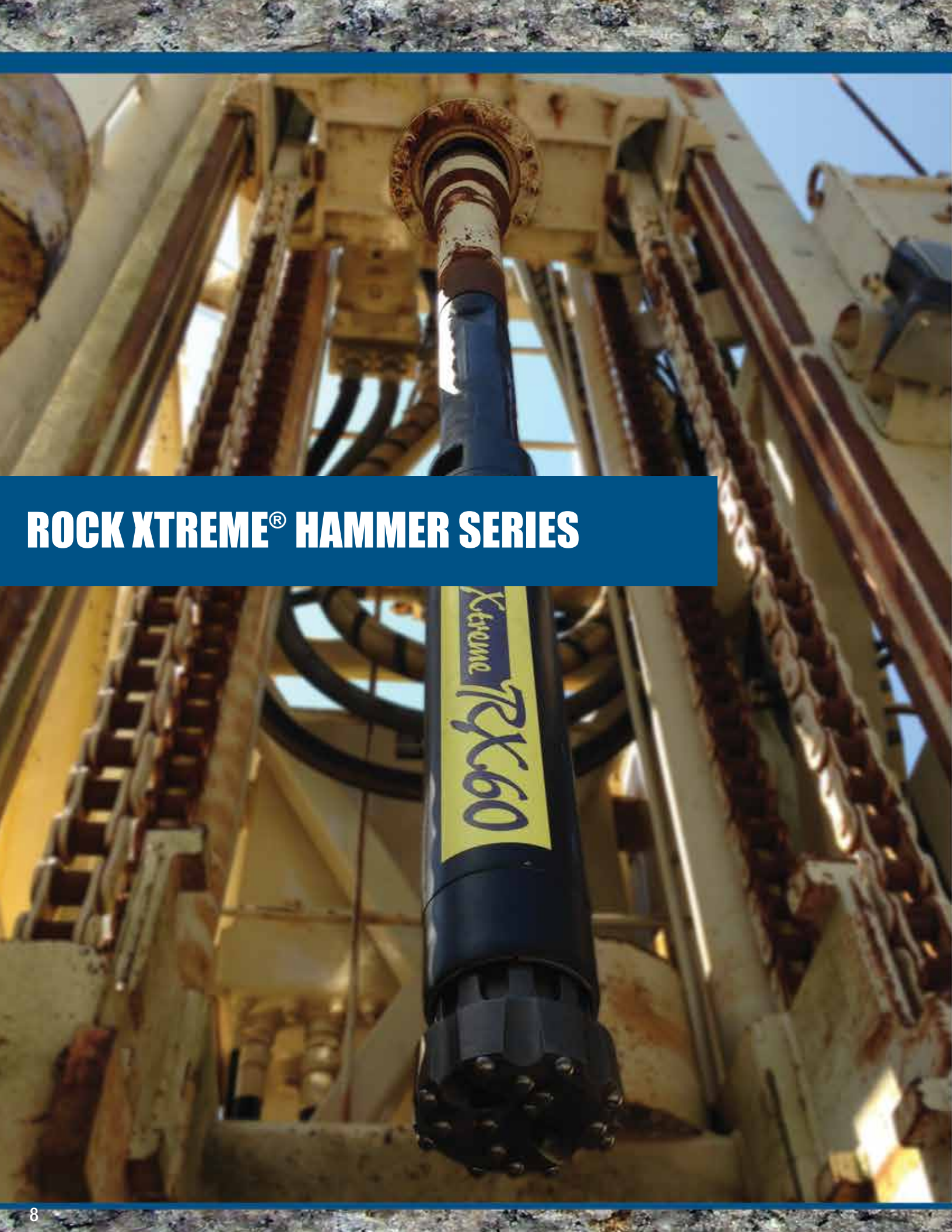
FEATURES AND BENEFITS

- Great balance of simplicity and performance.
- Robust and reliable with minimal moving parts.
- Reversible casing.
- Solid piston.
- Industry standard bit shank.

CENTER ROCK FORCE® HAMMER SPECIFICATIONS

MODEL	RF35-STD		RF40-STD		RF50-STD		RF55-STD		RF60-STD	
CPN	91002395		91001602		91001174		91000917		91001065	
DESCRIPTION	RF35 with 2-3/8 API reg pin connection		RF40 with 2-3/8 API reg pin connection		RF50 with 3-1/2 API reg pin connection		RF55 with 3-1/2 API reg pin connection & cutting backhead		RF60 with 3-1/2 API reg pin connection	
APPLICATION SUITABILITY										
Geotechnical/Foundation	✓		✓		✓				✓	
Waterwell/Geothermal	✓		✓		✓		✓		✓	
Quarry/Mining	✓		✓		✓		✓		✓	
Mineral Exploration					✓					
Oil/Gas										
AVAILABLE OPTIONS										
Bit retainer system									✓	
Jetted backhead									✓	
Deep-hole design					✓				✓	
GENERAL SPECIFICATIONS	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
Connection	2-3/8 API reg pin		2-3/8 API reg pin		3-1/2 API reg pin		3-1/2 API reg pin		3-1/2 API reg pin	
Bit Shank	DHD 3.5		CR40		QL50		QL50		QL60	
Reversible casing	NO		NO		YES		YES		YES	
Outside diameter	3.19	81.0	4.00	101.6	4.75	120.7	5.00	127.0	5.44	138.2
Length w/o bit, shoulder to shoulder	30.0	762.8	36.8	934.0	42.4	1077.7	40.1	1017.3	42.7	1083.8
Length with bit extended	33.9	861.8	40.8	1036.1	46.6	1184.4	44.6	1132.6	47.8	1214.1
Length with bit retracted	32.6	828.5	39.7	1007.1	45.4	1153.9	43.3	1100.3	46.4	1179.1
Weight w/o bit	47.7	21.7	112	50.9	145	65.9	153	69.5	186	84.5
Backhead across flats (in)	1.25 X 2.5 AF		1.5 x 3 AF		2 x 3-1/2 AF		2 x 3-1/2 AF		2-1/2 x 4 AF	
Minimum bit size	3.50	88.9	4.50	114.3	5.25	133.4	5.75	146.1	6.00	152.4
Maximum bit size	4.25	108.0	5.00	127.0	6.00	152.4	6.00	152.4	6.75	171.5
Bore	2.625	66.68	3.190	81.03	3.890	98.81	4.125	104.78	4.500	114.30
Piston weight	10.5	4.8	20.0	9.1	31.9	14.5	31.5	14.3	40.0	18.2
Stroke	4.00	101.6	4.00	101.6	4.00	101.6	4.00	101.6	4.00	101.6
Maximum pressure (psig & bar)	350.0	24.1	350.0	24.1	350.0	24.1	350.0	24.1	350.0	24.1
Maximum choke diameter	0.25	6.35	0.25	6.35	0.50	12.70	0.50	12.70	0.38	9.53
Make-up torque (ft-lb & N-m)	3000	4062	4000	5416	5000	6770	5000	6770	6000	8124
AIR CONSUMPTION										
100 PSI/ 6,9 bar (scfm & m^3/min)	142	4.0	183	5.2	202	5.7	149	4.2	305	8.6
100 psi (bpm)	1289	1289	1226	1226	1116	1116	1116	1116	1122	1122
150 psi/ 10,3 bar (scfm & m^3/min)	219	6.2	284	8.0	310	8.8	247	7.0	431	12.2
150 psi (bpm)	1509	1509	1353	1353	1266	1266	1266	1266	1301	1301
200 psi/ 13,8 bar (scfm & m^3/min)	288	8.1	386	10.9	422	11.9	360	10.2	561	15.8
200 psi (bpm)	1699	1699	1479	1479	1401	1401	1401	1401	1453	1453
250 psi/ 17,2 bar (scfm & m^3/min)	348	9.8	488	13.8	538	15.2	488	13.8	695	19.6
250 psi (bpm)	1858	1858	1606	1606	1521	1521	1521	1521	1576	1576
300 psi/ 20,7 bar (scfm & m^3 min)	400	11.3	590	16.7	658	18.6	632	17.8	832	23.5
300 psi (bpm)	1,987	1,987	1733	1733	1626	1626	1626	1626	1671	1671
350 psi/ 24,1 bar (scfm & m^3/min)	444	12.5	691	19.5	783	22.1	791	22.3	973	27.5

	RF65-STD		RF80-STD		RF88-STD		RF100-STD		RF120-STD		RF200-STD		RF200S-STD	
	91000912		91001192		91001223		91001593		91001390		91001256		91002141	
	RF65 with 3-1/2 API reg pin connection & cutting backhead		RF80 with 4-1/2 API reg pin connection		RF88 with 4-1/2 API reg pin connection		RF100 with 6-5/8 API reg pin connection		RF120 with 6-5/8 API reg pin connection		RF200 with 8-5/8 API reg pin connection and jetted backhead		RF200S with 8-5/8 API reg pin connection and jetted backhead	
	✓		✓		✓		✓		✓		✓		✓	
			✓		✓		✓		✓		✓		✓	
	✓		✓		✓									
			✓		✓		✓		✓		✓		✓	
			✓		✓		✓		✓					
			✓		✓		✓		✓		✓		✓	
			✓											
	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
	3-1/2 API reg pin		4-1/2 API reg pin		4-1/2 API reg pin		6-5/8 API Reg Pin		6-5/8 API reg pin		8-5/8 API reg pin		8-5/8 API reg pin	
	QL60		QL80		CR88		N100		QL120		QL200		QL200	
	YES		YES		YES		No		NO		YES		YES	
	5.88	149.4	7.13	181.1	7.75	196.9	9.0	228.6	11.20	284.5	15.60	396.2	15.60	396.2
	41.8	1060.7	57.2	1452.6	58.9	1496.1	59.9	1520.2	72.9	1850.6	67.2	1705.6	73.7	1872.9
	46.0	1169.4	63.7	1618.0	66.8	1697.7	69.0	1753.4	83.6	2124.5	78.5	1992.9	85.3	2166.9
	44.9	1141.5	61.9	1571.5	64.9	1649.2	67.1	1704.3	81.4	2066.5	76.2	1935.7	83.1	211.5
	219	99.5	443	201.4	518	235.5	740.0	336.4	1358	617.3	2663	1210.5	3055	1385.7
	2-1/4 x 3-1/2 AF		2-1/2 x 5-7/8 AF		2 x 6-7/16 AF		2-1/2 x 7-1/2 AF		2-1/2 x 9-1/4 AF		1" Holes		1" Holes	
	6.50	165.1	7.88	200.2	8.75	222.3	9.63	244.6	12.25	311.2	17.50	444.5	28.00	711.2
	6.75	171.5	10.00	254.0	11.00	279.4	12.25	311.2	22.00	558.8	26.00	660.4	36.00	914.4
	4.875	123.83	5.875	149.23	6.410	162.81	7.54	191.52	9.25	234.95	12.25	311.15	12.25	311.15
	45	20.5	107.2	48.7	117	53.2	178.0	80.9	304	138.2	610	277.3	610	277.3
	4.00	101.6	4.00	101.6	4.00	101.6	4.0	101.6	4.00	101.6	4.00	101.6	4.00	101.6
	350.0	24.1	350.0	24.1	350.0	24.1	350.0	24.1	350.0	24.1	250.0	17.2	250.0	17.2
	0.00	0.00	0.00	0.00	0.00	0.00	.00	.00	0.88	22.23	1.40	35.56	1.40	35.56
	6000	8124	8000	10832	9000	12186	10000	13540	12000	16248	18000	24372	18000	24372
	235	6.6	358	10.1	560	15.8	581	16.4	909	25.7	1584	44.7	1584	44.7
	1350	1350	830	830	968	968	950	950	585	585	701	701	701	701
	383	10.8	571	16.1	826	23.3	1000	28.2	1336	37.8	2470	69.8	2470	69.8
	1456	1456	947	947	1050	1050	1050	1050	695	695	807	807	807	807
	543	15.3	808	22.8	1092	30.8	1400	39.5	1811	51.2	3389	95.7	3389	95.7
	1561	1561	1063	1063	1132	1132	1150	1150	805	805	923	923	923	923
	713	20.1	1067	30.2	1358	38.4	1781	50.3	2333	65.9	4341	122.6	4341	122.6
	1667	1667	1180	1180	1215	1215	1250	1250	915	915	1049	1049	1049	1049
	894	25.3	1350	38.1	1624	45.9	2143	60.5	2903	82.0	5324	150.4	5324	150.4
	1773	1773	1297	1297	1297	1297	1350	1350	1025	1025	1185	1185	1185	1185
	1086	30.7	1656	46.8	1890	53.4	2486	70.2	3519	99.4	6340	179.1	6340	179.1



ROCK XTREME® HAMMER SERIES

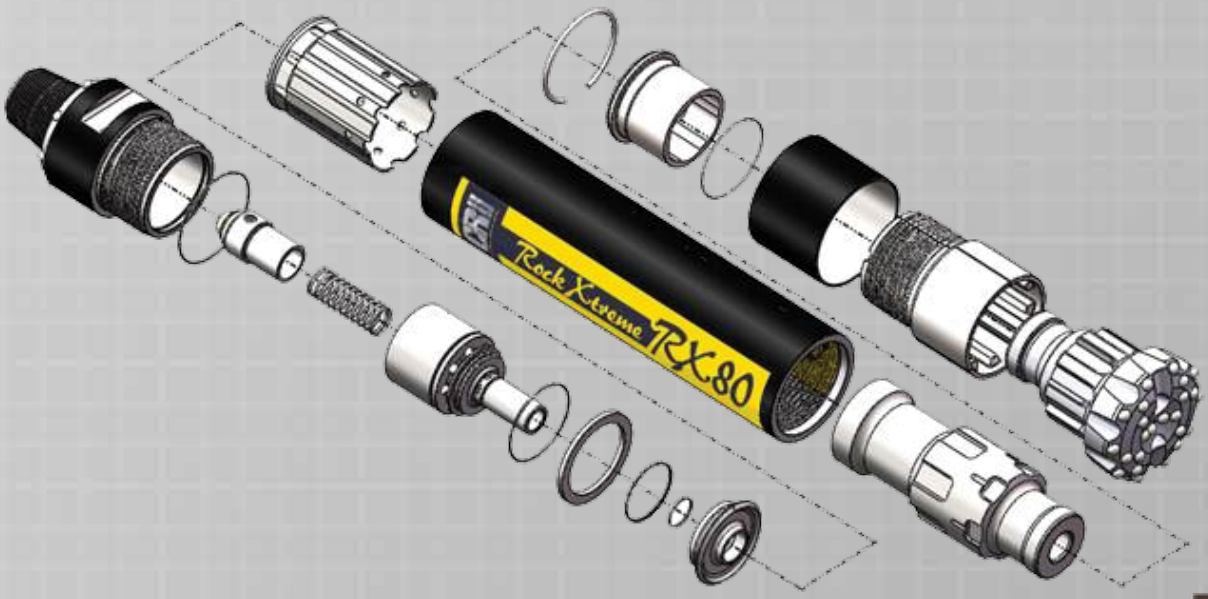
ROCK XTREME® LINE OF DOWN-THE-HOLE HAMMERS

Center Rock's Rock Xtreme® bits and hammers deliver undisputable performance and profitability in even the most challenging operating conditions.

Our bits, with 50% more actual spline area and no exhaust tube, weigh up to 60% less versus competitive offerings. That means optimum economy, reliability, and durability... and far less rig vibration during drilling, drastically reducing your downtime labor and replacement part costs!

FEATURES AND BENEFITS

- High performance valved air cycle.
- High frequency low vibration operation.
- No exhaust tube or foot valve.
- Lightweight economical bits.
- Largest shank cross section available.

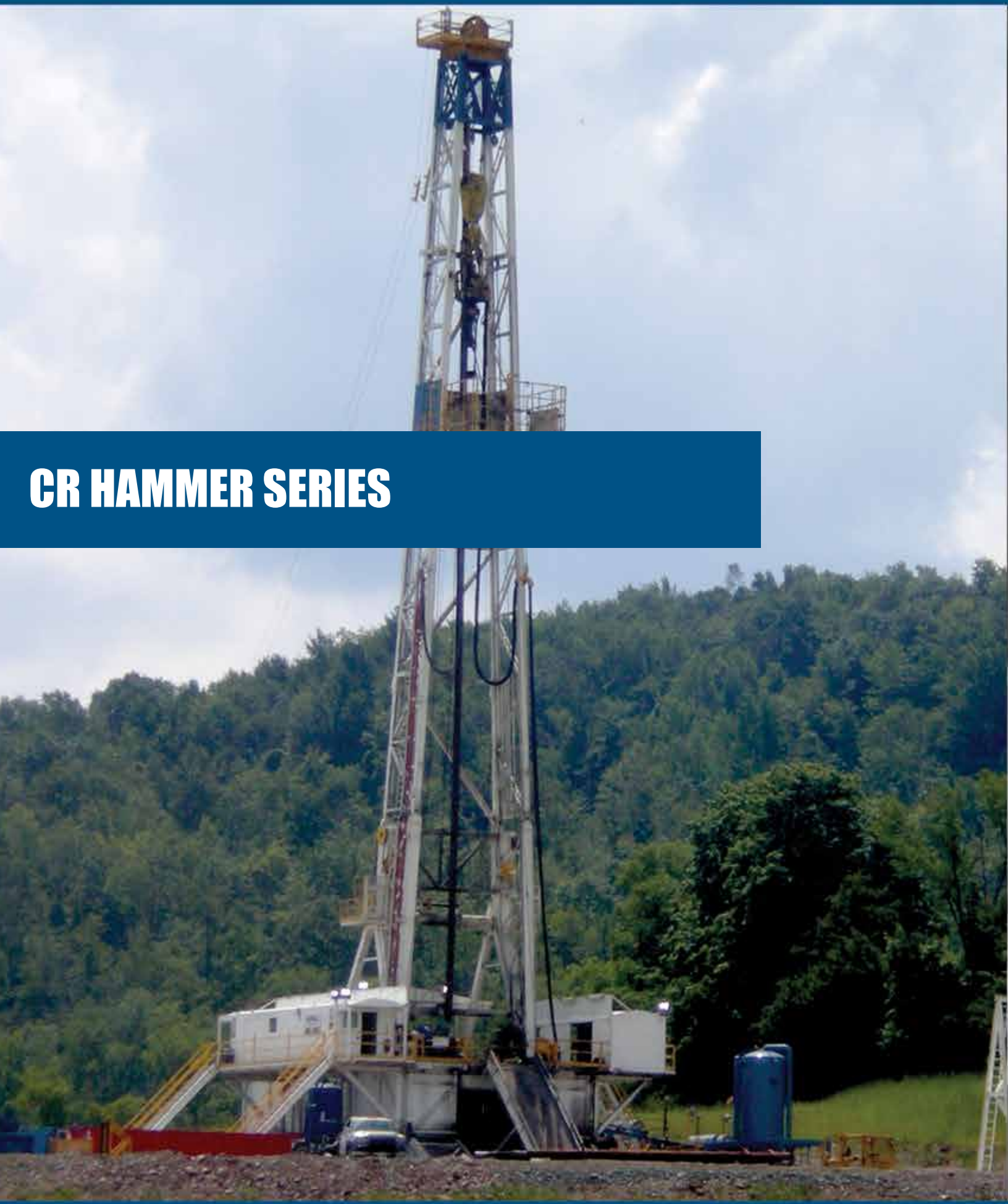


ROCK XTREME® HAMMER SPECIFICATIONS

	RCX45 - STD		RCX55 - STD		RX55 - STD	
	91002323		91001422		91001307	
	RCX45 w/4 Remet Box Connection		RCX55 w/4-1/2 Remet Box Connection		RX55 w/3-1/2 API Reg Pin Connection & Cutting Backhead	
APPLICATION SUITABILITY						
Geotechnical/Foundation						
Waterwell/Geothermal					✓	
Quarry/Mining					✓	
Mineral Exploration	✓		✓			
Oil/Gas						
AVAILABLE OPTIONS:						
Bit Retainer						
GENERAL SPECIFICATIONS:	Imperial	Metric	Imperial	Metric	Imperial	Metric
Connection	4 Remet Box		4-1/2 Remet Box		3-1/2 API Reg Pin	
Bit Shank	RCX45		RCX55		RX5	
Reversible Casing	No		No		No	
Outside Diameter	4.56	115.8	5.25	133.4	5.00	127.0
Length w/o Bit Shoulder to Shoulder	35.2	894.6	35.2	894.3	30.50	773.9
Length w/Bit Extended	38.5	977.4	38.1	968.5	34.50	877.1
Length w/Bit Retracted	37.1	942.3	36.9	938.3	33.40	847.1
Weight w/o Bit	108	49.1	132	60.0	124.00	56.4
Backhead Across Flats (in.)	1-3/4 x 3.35 AF		1-3/4 x 4-1/4 AF		1-3/4 x 4 AF	
Minimum Bit Size	4.75	120.7	5.50	139.7	5.50	139.7
Maximum Bit Size	5.50	139.7	6.00	152.4	6.00	152.4
Bore	3.960	100.58	4.500	114.3	4.125	104.78
Piston Weight	22.1	10	30	13.6	29.00	13.2
Stroke	3.25	82.6	3.25	82.6	3.25	82.6
Maximum Pressure Differential (psig & bar)	500.0	34.5	500.0	34.5	500.0	34.5
Maximum Choke Diameter	0.00	0.00	0.00	0.00	0.00	0.0
Make-up Torque (ft-lb & N-m)	4500	6093	5000	6770	5000	6770
AIR CONSUMPTION:						
100 psi/6,9 bar (scfm & m^3/min)	140	4.0	155	4.4	155	4.4
100 psi (bpm)	1350	1350	1350	1350	1116	1116
150 psi/10,3 bar (scfm & m^3/min)	231	6.5	257	7.3	257	7.3
150 psi (bpm)	1532	1532	1532	1532	1266	1266
200 psi/13,8 bar (scfm & m^3/min)	337	9.5	374	10.6	374	10.6
200 psi (bpm)	1695	1695	1695	1695	1401	1401
250 psi/17,2 bar (scfm & m^3/min)	457	12.9	508	14.3	508	14.3
250 psi (bpm)	1840	1840	1840	1840	1521	1521
300 psi/20,7 bar (scfm & m^3/min)	591	16.7	657	18.6	657	18.6
300 psi (bpm)	1967	1967	1967	1967	1626	1626
350 psi/24,1 bar (scfm & m^3/min)	739	20.9	822	23.2	822	23.2
350 psi (bpm)	2076	2076	2076	2076	1716	1716

RX60 - STD		RX65 - STD		RX70		RX80 - STD		RX120- STD	
91001245		91001205		91002722		91001332		91002560	
RX60 w/3-1/2 API Reg Pin Connection		RX65 w/3-1/2 API Reg Pin Connection & Cutting Backhead		RX70 w/4-1/2 API Reg Pin Connection		RX80 w/4-1/2 API Reg Pin Connection		RX120 w/6-5/8 API Reg Pin Connection	
✓				✓		✓		✓	
✓		✓		✓		✓		✓	
✓				✓		✓		✓	
						✓		✓	
Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
3-1/2 API Reg Pin		3-1/2 API Reg Pin		4-1/2 API Reg Pin		4-1/2 API Reg Pin		6-5/8 API Reg Pin	
RX6		RX6		RX7		RX8		RX120	
No		No		No		Yes		Yes	
5.60	142.2	5.88	149.4	6.88	174.8	7.13	181.1	11.20	284.5
30.90	784.9	30.90	784.9	34.30	872.0	35.50	900.4	46.7	1186.9
34.40	873.8	34.40	873.8	39.00	989.3	40.20	1020.6	52.5	1333.8
33.40	848.4	33.40	848.4	37.40	949.2	38.90	987.6	50.4	1280.9
153.00	69.5	173.00	78.6	264	120.0	289.00	131.4	933	424.1
2 x 4 AF		2 x 4 AF		2-1/2 x 5 AP		1-3/4 x 5-5/8 AF		2-1/4 x 10 AF	
6.13	155.7	6.50	165.1	7.88	200.2	7.88	200.2	12.25	311.2
6.75	171.5	6.75	171.5	8.88	225.6	10.00	254.0	22.00	558.8
4.625	117.48	4.625	117.48	5.64	143.18	5.875	149.23	9.50	241.30
35.00	15.9	35.00	15.9	58.1	26.4	72.60	33.0	239	108.6
3.50	88.9	3.50	88.9	3.50	88.9	3.50	88.9	3.50	88.9
350.0	24.1	350.0	24.1	350.0	24.1	350.00	24.1	350.00	24.1
0.38	9.53	0.38	9.53	0.53	13.46	0.88	22.23	0.88	22.23
6000	8124	6000	8124	7000	9478	8000	10832	12000	16248
305	8.6	305	8.6	265	7.5	358	10.1	804	22.7
1461	1461	1461	1461	1068	1068	830	830	585	585
431	12.2	431	12.2	442	12.5	571	16.1	1248	35.3
1576	1576	1576	1576	1294	1294	947	947	695	695
561	15.8	561	15.8	649	18.3	808	22.8	1680	47.5
1691	1691	1691	1691	1502	1502	1063	1063	805	805
695	19.6	695	19.6	886	25.0	1067	30.2	2100	59.3
1806	1806	1806	1806	1690	1690	1180	1180	915	915
832	23.5	832	23.5	1152	32.5	1350	38.1	2508	70.8
1921	1921	1921	1921	1860	1860	1297	1297	1025	1025
973	27.5	973	27.5	1447	40.9	1656	46.8	2904	82.0
2036	2036	2036	2036	2010	2010	1414	1414	1135	1135

CR HAMMER SERIES

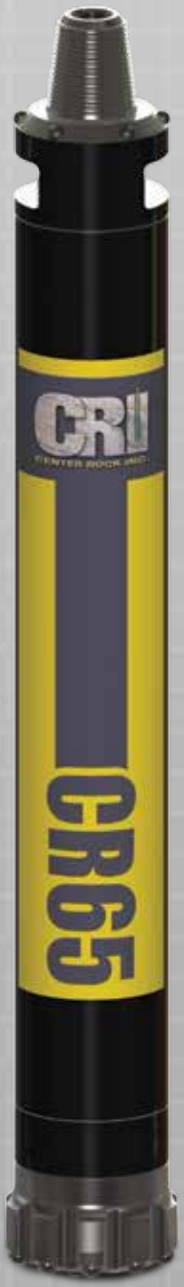


CR LINE OF DOWN-THE-HOLE HAMMERS

Center Rock's CR line of down-the-hole drills are reliable drilling workhorses that stand up to the most demanding conditions you can find. A valveless air cycle provides consistent drilling performance and reliability foot after foot and year after year. Some models are available with integrated jetted backheads as well as a bit retainer system for deep-hole drilling applications.

FEATURES AND BENEFITS

- Great balance of simplicity and performance.
- Robust and reliable with minimal moving parts.
- Reversible casing.
- Solid piston.
- Industry standard bit shank.



CR HAMMER SPECIFICATIONS

MODEL	CR50 - STD		CR55 - STD		CR60W - STD	
CPN	91000343		91000726		91000440	
DESCRIPTION	CR50 w/3-1/2 API Reg Pin Connection		CR55 w/3-1/2 API Reg Pin Connection & Cutting backhead		CR60W w/3-1/2 API Reg Pin Connection	
APPLICATION SUITABILITY:						
Geotechnical/Foundations	✓				✓	
Waterwell/Geothermal	✓		✓		✓	
Quarry/Mining	✓		✓			
Mineral Exploration	✓					
Oil/Gas						
AVAILABLE OPTIONS:						
Bit Retainer System						
Jetted Backhead					✓	
GENERAL SPECIFICATIONS:	Imperial	Metric	Imperial	Metric	Imperial	Metric
Connection	3-1/2 API Reg Pin		3-1/2 API Reg Pin		3-1/2 API Reg Pin	
Bit Shank	QL50		QL50		QL60	
Reversible Casing	Yes		Yes		Yes	
Outside Diameter	4.75	120.7	5.00	127.0	5.44	138.2
Length w/o Bit Shoulder to Shoulder	42.40	1077.7	40.10	1017.3	42.70	1083.8
Length w/Bit Extended	46.60	1184.4	44.60	1132.6	47.80	1214.1
Length w/Bit Retracted	45.40	1153.9	43.30	1100.3	46.40	1179.1
Weight w/o Bit	145	65.9	153	69.5	186	84.5
Backhead Across Flats (in.)	2 x 3-1/2 AF		2 x 3-1/2 AF		2-1/2 x 4 AF	
Minimum Bit Size	5.25	133.4	5.75	146.1	6.00	152.4
Maximum Bit Size	6.00	152.4	6.00	152.4	6.75	171.5
Bore	3.890	98.81	4.125	104.78	4.500	114.30
Piston Weight	31.90	14.5	31.50	14.3	40.00	18.2
Stroke	4.00	101.6	4.00	101.6	4.00	101.6
Maximum Pressure (psig & bar)	350.00	24.1	350.0	24.1	350.00	24.1
Maximum Choke Diameter	0.50	12.70	0.50	12.70	0.38	9.53
Make-up Torque (ft-lb & N-m)	5000	6700	5000	6770	6000	8124
AIR CONSUMPTION:						
100 psi/6,9 bar (scfm & m^3/min)	202	5.7	155	4.4	360	10.2
100 psi (bpm)	1116	1116	1116	1116	1122	1122
150 psi/10,3 bar (scfm & m^3/min)	310	8.8	257	7.3	422	11.9
150 psi (bpm)	1266	1266	1266	1266	1301	1301
200 psi/13,8 bar (scfm & m^3/min)	422	11.9	374	10.6	511	14.4
200 (bpm)	1401	1401	1401	1401	1453	1453
250 psi/17,2 bar (scfm & m^3/min)	538	15.2	508	14.3	627	17.7
250 (bpm)	1521	1521	1521	1521	1576	1576
300 psi/20,7 bar (scfm & m^3/min)	658	18.6	657	18.6	771	21.8
300 (bpm)	1626	1626	1626	1626	1671	1671
350 psi/24,1 bar (scfm & m^3/min)	783	22.1	822	23.2	941	26.6
350 (bpm)	1716	1716	1716	1716	1738	1738

CR65 - STD		CR80-STD		CR88 - STD		CR100 - STD		CR120 - STD	
91000389		91000301		91000468		91000265		91000492	
CR65 w/3-1/2 API Pin Connection & Cutting Backhead		CR80 w/4-1/2 API Reg Pin Connection		CR88 w/4-1/2 API Reg Pin Connection		CR100 w/6-5/8 API Reg Pin Connection		CR120 w/6-5/8 API Reg Pin Connection	
✓		✓		✓		✓		✓	
		✓		✓		✓		✓	
✓		✓							
		✓		✓		✓		✓	
		✓		✓		✓		✓	
✓		✓		✓		✓		✓	
Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric	Imperial	Metric
3-1/2 API Reg Pin		4-1/2 API Reg Pin		4-1/2 API Reg Pin		6-5/8 API Reg Pin		6-5/8 API Reg Pin	
QL60		QL80		CR88		N100		QL120	
Yes		Yes		Yes		No		No	
5.88	149.4	7.13	181.1	7.75	196.9	9.00	228.6	11.20	284.5
41.80	1060.7	57.20	1452.6	58.90	1496.1	59.90	1520.2	72.90	1850.6
46.00	1169.40	63.70	1618.0	66.80	1697.7	69.00	1753.4	83.60	2124.5
44.90	1141.50	61.90	1571.5	64.90	1649.2	67.10	1704.3	81.40	2066.5
219	99.5	443	201.4	518	235.5	740	336.4	1358	617.3
2-1/4 x 3-1/2 AF		2-1/2 x 5-7/8 AF		2 x 6-7/16 AF		2-1/2 x 7-1/2 AF		2-1/2 x 9-1/4 AF	
6.50	165.1	7.88	200.2	8.75	222.3	9.63	244.6	12.25	311.2
6.75	171.5	10.00	254.0	11.00	279.4	12.25	311.2	22.00	558.8
4.750	120.65	5.875	149.23	6.410	162.81	7.540	191.52	9.250	234.95
45.00	20.5	107.20	48.7	117.00	53.2	178.00	80.9	304.00	138.2
4.00	101.6	4.00	101.6	4.00	101.6	4.00	101.6	4.00	101.6
350.00	24.1	350.00	24.1	350.00	24.1	350.00	24.1	350.00	24.1
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	22.23
6000	8174	8000	10832	9000	12186	10000	13540	12000	16248
235	6.6	400	11.3	548	15.5	581	16.4	866	24.5
1350	1350	968	968	968	968	950	950	585	585
383	10.8	590	16.7	821	23.2	1000	28.2	1292	36.5
1456	1456	1050	1050	1050	1050	1050	1050	695	695
543	15.3	780	22.0	1093	30.9	1400	39.5	1715	48.5
1561	1561	1132	1132	1132	1132	1150	1150	805	805
713	20.1	970	27.4	1366	38.6	1781	50.3	2135	60.3
1667	1667	1215	1215	1215	1215	1250	1250	915	915
894	25.3	1160	32.8	1639	46.3	2143	60.5	2551	72.1
1773	1773	1297	1297	1297	1297	1350	1350	1025	1025
1086	30.7	1350	38.1	1912	54.0	2486	70.2	2964	83.7
1878	1878	1379	1379	1379	1379	1450	1450	1135	1135

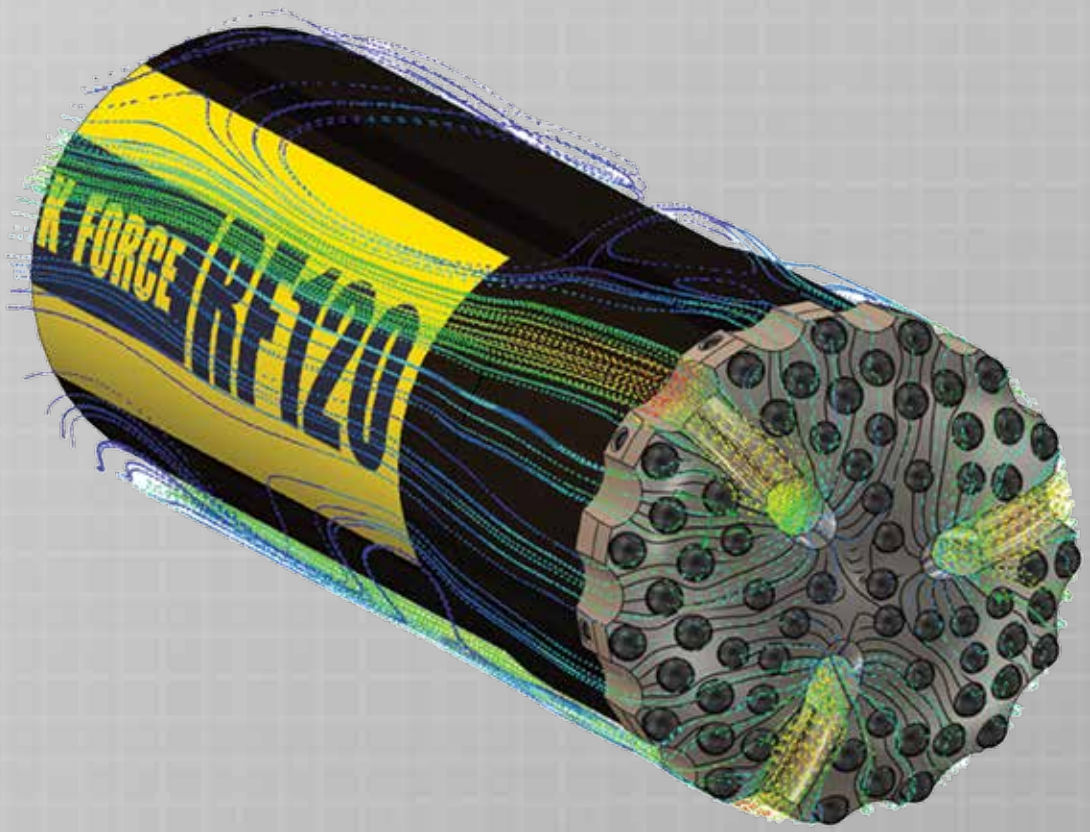
CRI BITS

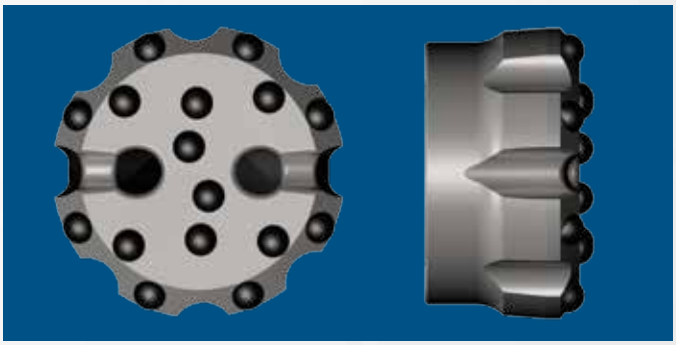
CRI LINE OF BITS

Nothing is more important to drilling success than drill bits that cut straight and fast through all types of rock. That's why we offer our customers the best value in drill bits. Center Rock has a full range of face designs, button configurations, and shank styles in many sizes up to a 26" head, to match application and rock they are drilling in.

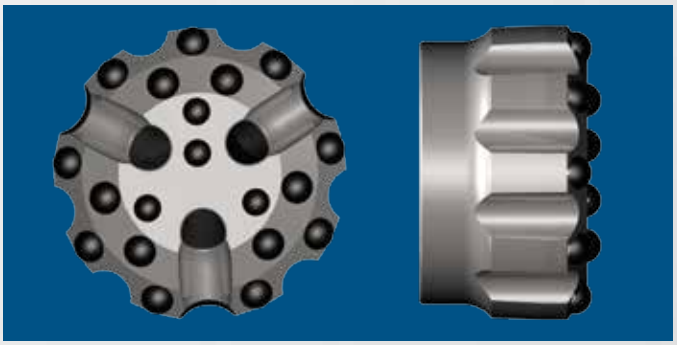
WHY CRI BITS

- Made from premium alloy steel and high quality tungsten carbide.
- Heat treated and shot peened to deliver a durable and reliable balance of strength and toughness.
- Large bit forgings are individually ultrasonically tested and screened for inclusions and flaws.
- Specially designed bits for any application. Challenge us!
- Multiple varieties of head, face, shank and inserts available.
- Advanced flow simulation used to improve chip removal and reduce noise.
- Designed and manufactured in the USA.

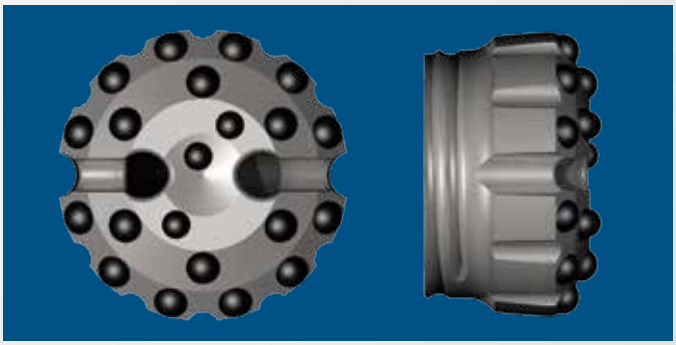




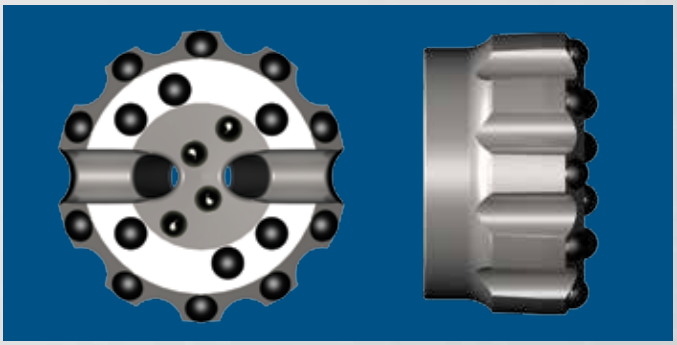
Flat Face (F) design for medium hard to hard formations, good flushing and good penetration rates.



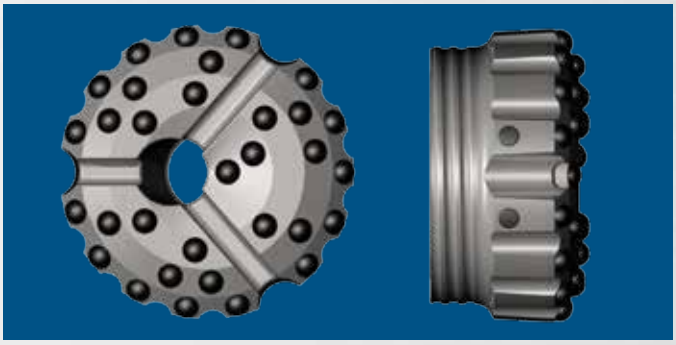
Convex (V) design with double gauge row for medium to hard and abrasive formations, good flushing and good penetration rates.



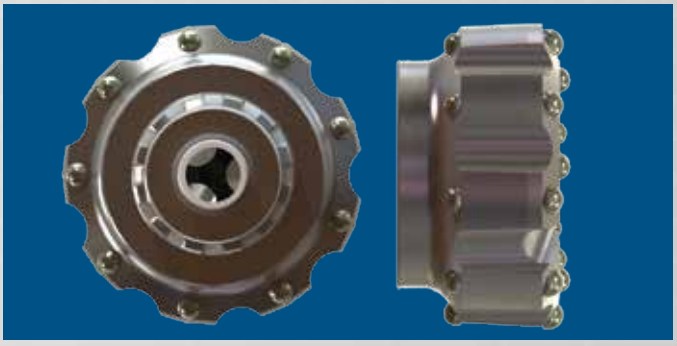
Concave/Convex (X), the best of both worlds with double gauge row and concave center for medium to hard and abrasive formations, straight holes, excellent flushing and excellent penetration rates.



The all-purpose Concave (C), for soft to medium hard formations, straight holes, excellent flushing and fast penetration rates.



Cyclops™ unique single port design maximizes bit strength and minimizes the risk of bit head splitting or chunking caused by operational and manufacturing induced fatigue stress.



Back Reamer, Designed for use in Unstable Rock Drilling Conditions where operator has to Back Ream to remove tools from hole. The back reaming inserts protect the bit body from wear and damage when grinding out of hole.

CENTER ROCK BIT OPTION																	
			Face Styles				Head Styles			Flushing Holes			Gage Carbide Size				
Shank	Min dia	Max dia	F	C	V	X	S	T	R	1	2	3	9/16"	5/8"	3/4"	7/8"	1"
CR40	4.50 in/114.3 mm	5.50 in/139.7 mm	O	O	S	O	S	O	N	N	S	N	S	O	N	N	N
QL50	5.13 in/130.3 mm	6.00 in/152.4 mm	O	S	O	O	S	O	N	O	S	N	O	S	O	N	N
RX55/RCX55	5.50 in/139.7 mm	6.00 in/152.4 mm	O	S	O	O	N/A			O	S	O	O	S	O	N	N
QL60	6.00 in/152.4 mm	8.50 in/215.9 mm	O	S	O	S	S	S	S	O	S	O	N	S	O	N	N
360	6.00 in/152.4 mm	8.50 in/215.9 mm	O	S	O	S	S	S	S	O	S	O	N	S	O	N	N
RX60	6.25 in/158.8 mm	6.75 in/171.5 mm	O	S	O	O	N/A			O	S	O	N	S	O	O	O
380	7.88 in/200.2 mm	12.00 in/304.8 mm	O	O	O	S	N	S	S	S	S	O	N	N	S	O	N
QL80	7.88 in/200.2 mm	12.00 in/304.8 mm	O	O	O	S	N	S	S	S	S	O	N	N	S	O	N
RX80	7.88 in/200.2 mm	9.88 in/251.0 mm	O	O	O	S	N/A			O	S	O	N	N	S	O	N
CR88	8.75 in/222.3 mm	12.00 in/304.8 mm	O	O	O	S	N	S	S	S	S	O	N	N	S	O	N
N100/CR100	9.63 in/244.6 mm	12.25 in/311.2 mm	O	O	O	S	N	S	S	S	N	O	N	N	S	O	N
SD10	9.63 in/244.6 mm	12.25 in/311.2 mm	O	O	O	S	N	S	S	S	N	O	N	N	S	O	N
112	11.00 in/279.4 mm	17.50 in/444.5 mm	O	O	O	S	N	S	N	S	N	O	N	N	S	O	N
SD12	11.00 in/279.4 mm	17.50 in/444.5 mm	O	O	O	S	N	S	N	S	N	O	N	N	S	O	O
QL120	12.25 in/311.2 mm	24.00 in/609.6 mm	O	O	O	S	N	S	S	S	N	O	N	N	O	S	O
QL200	17.50 in/444.5 mm	26.00 in/660.4 mm	O	O	O	S	N	S	O	S	N	O	N	N	N	O	S
N180	17.50 in/445 mm	26.00 in/660.4 mm	O	O	O	S	N	S	N	S	N	O	N	N	O	S	S

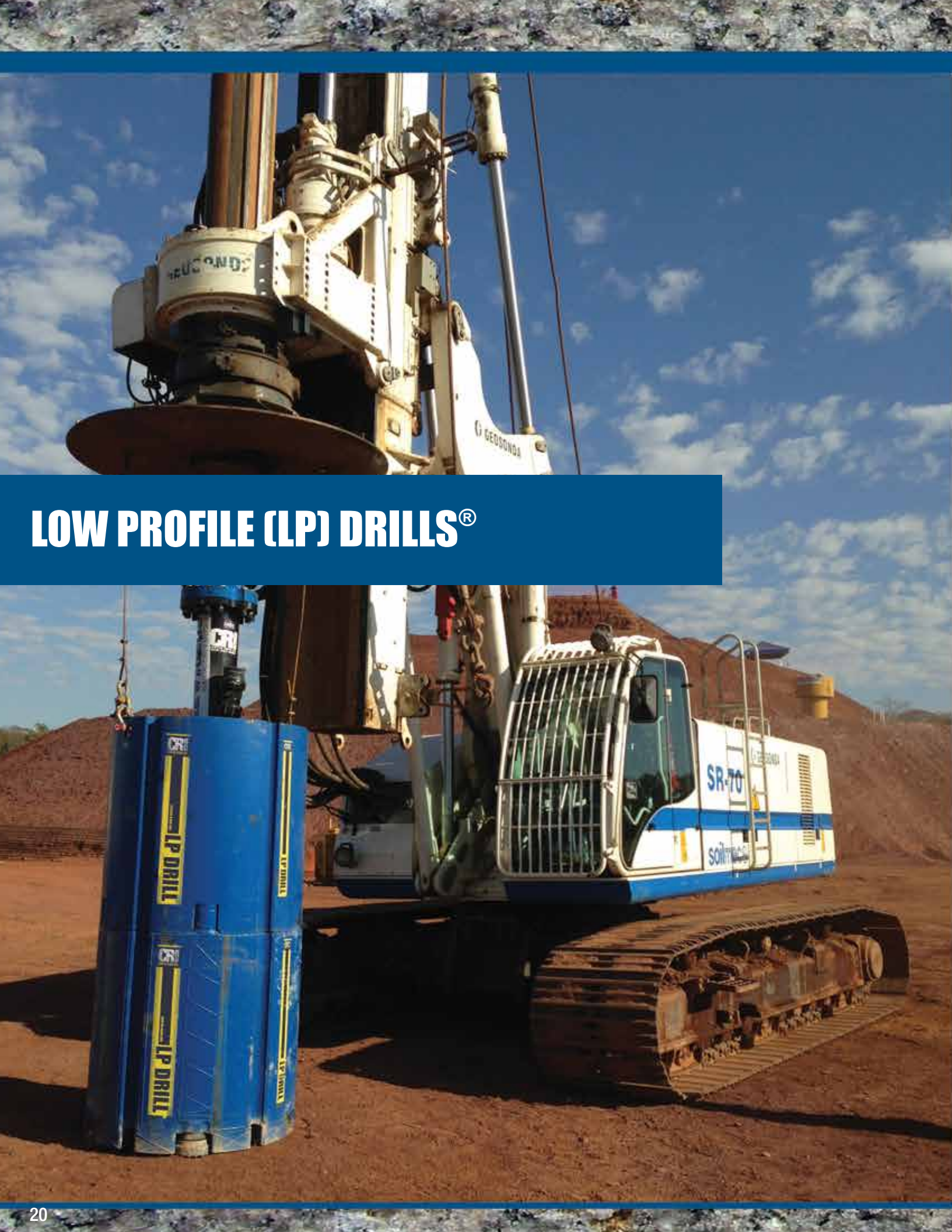
Key Code:
- S - Standard Offering
- O - Optional Offering/Custom Order (Not Stocked)
- N - Not Offered

Face Style:
- F - Flat Face
- C - Concave Face
- V - Convex Face
- X - Concave/Convex Face

Head Style:
- S - Standard Head Without Fishing Thread
- T - Fishing Thread
- R - CRI Retainer System

Flushing Holes:
- 1 - Cyclops™ Single Hole
- 2 - Two Flushing Holes
- 3 - Three Flushing Holes

Optional Carbide Grades:
- Standard (Balanced Toughness and Wear Resistance)
- Premium Grade Carbide (Increased Toughness and Wear Resistance)
- Extra Tough for Hard Rock
- Semi Ballistic (Parabolic)
- Standard Diamond
- Premium Diamond (Increased Toughness and Wear Resistance)



LOW PROFILE (LP) DRILLS®

Low Profile (LP) Drills®

Advanced engineering of Center Rock's LP Drills® provide a cost effective solution for drilling excavation requirements up to 144" (3658 mm) in diameter. Our drills have been used by some of the nation's largest building, roadway, utility and mining contractors to quickly drill holes to the exact size required by their specifications.

Key Features:

- Standard and custom-built sizes from 24" - 144" (610 mm - 3658 mm).
- Models
  - Full Face and Hole Openers
  - Direct Circulation with Calyx Basket or Can Rod Recovery
  - Reverse Circulation
  - HDD Pull Reamers
  - Utility Pole Drills
  - Raise Bore / Mining
- All canisters from 24" - 144" (610 mm - 3658 mm) utilize the exact same 6" (152 mm) class hammer.
- Bits are free to spin which helps to maintain gage of bore hole and also reduces wear on bits.
- Cost effective solution for many drilling / hard rock excavation challenges.
- Easy to perform maintenance in the field.
- Reduced bit cost as compared to large diameter hammer bits.
- Low air consumption vs. competitive offerings.
- Simply mounted to any drill rig.
- Customer support service 24/7.
- Designed and manufactured in the USA.

Common Applications:

- CONSTRUCTION
  - Pilings
  - Caissons
  - Footers
  - Utility Pole Holes
  - Curtain Walls
  - Drilled Shafts
- UNDERGROUND CONSTRUCTION TECHNOLOGY
  - Horizontal Directional Drilling
- OIL / GAS
- ACCESS AND VENTILATION SHAFTS
- MINING

How does it work?

CONVENTIONAL LP AND HOLE OPENER

Hammers fitted with button bits are positioned in a specially designed grid to ensure even cutting across the face of the hole and to promote proper flow of cuttings outward and upward into the calyx basket. For large diameter holes, a pilot shaft is drilled with a full face LP Drill (Figure A), then a larger diameter hole opener opens the pilot shaft to the required diameter up to 144" (3658 mm) (Figure B). This method allows for more efficient and faster rock drilling. Our drills have been used to cut holes up to 2,047 feet (623.9 m) deep and are designed to reach much greater depths.

REVERSE CIRCULATION (RC) LP DRILL®

Center Rock's reverse circulation LP Drills® are ideal for deep hole applications or discharge containment. We offer two styles which are capped flute recovery and center recovery. The capped flute recovery style consists of, a standard LP Drill® with larger flutes that are capped, a seal band added to the base and interchanges, along with a shroud bolted to the top. The advantage of the flute style is the canister may be converted between RC and direct circulation mode. Alternatively, the center recover style has integrated return tubes flowing through the center of the canister, along with a built-in air/cuttings interchange for a shorter top connection. Both style RC LP Drills® exhibit base recovery for full containment, can be manufactured with any pipe connection, and utilizes standard LP hammers and bits.

MODELS AND APPLICATIONS

HDD LP PULL REAMER

- 12” (305 mm) and larger in diameter
- Capable of trailing drill pipe
- Equipped with back reamers
- Side protection carbide buttons for extended wear

MINING LP DRILL

- 20” (508 mm) and larger in diameter
- Push or pull applications
- Equipped with back reamers

REVERSE CIRCULATION LP DRILL

- 24” (610 mm) and larger in diameter
- Rock cuttings pickup point is at the base of the drill (yellow arrows)
- Can simply be converted between reverse circulation and direct circulation style

UTILITY LP DRILL

- 18” (457 mm) and larger in diameter
- Hex pin connection
- Low air consumption
- Shorter length for low clearance
- Lightweight design
- No shock sub required

SPECIFICATIONS

STANDARD SIZE LP DRILL SPECIFICATIONS								
LP FULL FACE DRILLS								
SIZE		NUMBER OF HAMMERS	MINIMUM AIR REQUIRED		RECOMMENDED AIR REQUIRED		WEIGHT WITH THE CALYX	
INCHES	MM		SCFM	M^3/MIN	SCFM	M^3/MIN	LBS	KG
24	610	4	1600	45	2000	57	3250	1474
25	635	5	2000	57	2500	71	3500	1587
26	660	5	2000	57	2500	71	4000	1814
28	711	5	2000	57	2500	71	4200	1905
30	762	5	2000	57	2500	71	4700	2131
32	813	6	2400	68	3000	85	5500	2494
33	838	6	2400	68	3000	85	6000	2721
34	864	6	2400	68	3000	85	6200	2812
35.5	900	7	2800	79	3500	99	6500	2948
36	914	7	2800	79	3500	99	6800	3084
41.5	1054	7	2800	79	3500	99	8300	3764
42	1067	7	2800	79	3500	99	8500	3855
48	1219	10	4000	113	5000	142	10700	4853
53	1346	12	4800	136	6000	170	12700	5760
58	1473	13	5200	147	6500	184	14900	6758
60	1524	13	5200	147	6500	184	16500	7484
66	1676	15	6000	170	7500	212	17250	7824
72	1829	17	6800	193	8500	241	19700	8935
84	2134	19	7600	215	9500	269	23000	10432

LP Hole Openers: Sizes up to 144" (3658 mm)

* *Recommended Operating Pressure: 150-250 psi (10.3-17 .3 bars) (NOTE: With a head of water, greater air pressure may be required)*

OTHER PRODUCTS

Center Rock Inc. designs, manufactures and services high performance down-the-hole percussion drilling tools and bits for routine as well as challenging drilling projects

ROTO LOC® UNDER REAMING SYSTEMS

- Faster penetration through difficult overburden.
- Greatly reduced casing friction
- Easy to retract out of casing.
- Replaceable components change out very efficiently.
- Positive locking wings can be used to hold/pull casing back.
- Elimination of the need for cutter teeth on the starter casings.
- Drive shoe not needed when duplex drilling.
- Pilot nose face is designed to allow for straighter drilling of angled rock formations.

ROTO LOC® SPECIFICATIONS											
				DIAMETER		PILOT SHOULDER OD (in)	APPLICABLE CASING				
SYSTEM	SHANK	WINGS	WEIGHT	EXPANDED	RETRACTED		OUTSIDE DIAMETER	INSIDE DIAMETER	ID (mm)	WALL	W (mm)
RL-0513-B34	340	3	47	5.54	4.07		5.125	4.250	108.0	0.438	11.1
RL-0513-C40	CR40	3	47	5.54	4.07		5.125	4.250	108.0	0.438	11.1
RL-0550-B34	340	3	47	5.87	4.40		5.500	4.670	118.6	0.415	10.5
RL-0550-C40	CR40	3	47	5.87	4.40		5.500	4.670	118.6	0.415	10.5
RL-0600-C40	CR40	3	56	6.40	4.98		6.000	5.118	130.0	0.441	11.2
RL-0600-Q5	QL50	3	56	6.40	4.98		6.000	5.118	130.0	0.441	11.2
RL-0663-Q5	QL50	3	75	7.28	5.58		6.625	5.625	142.9	0.500	12.7
RL-0663S-Q5	QL50	3	75	7.28	5.58		6.625	6.000	142.9	0.500	12.7
RL-0663S-B35W	350W	3	75	7.28	5.58		6.625	6.000	142.9	0.500	12.7
RL-0700-Q6	QL60	3	93	7.75	5.90		7.000	6.000	152.4	0.500	12.7
RL-0700-B35W	350W	3	86	7.75	5.90	5.94	7.000	6.000	152.4	0.500	12.7
RL-0763-Q6	QL60	3	105	8.35	6.50		7.625	6.625	168.3	0.500	12.7
RL-0763-B35W	350W	3	100	8.35	6.50		7.625	6.625	168.3	0.500	12.7
RL-0863-Q6	QL60	3	154	9.33	7.54		8.625	7.625	193.7	0.500	12.7
RL-0963-Q8	QL80	3	212	10.38	8.39		9.625	8.565	217.6	0.530	13.5
RL-0963S-Q8	QL80	3	212	10.38	8.39	8.77	9.625	8.835	224.4	0.395	10.0
RL-1075-Q8	QL80	3	258	11.42	9.45		10.750	9.560	242.8	0.595	15.1
RL-1188-N10	N10	3	366	12.40	10.43		11.875	10.715	272.2	0.580	14.7
RL-1275S-N10	N10	3	478	13.41	10.90	11.63	12.750	11.750	298.5	0.500	12.7
RL-1338S-N10	N10	3	525	14.00	11.47	12.22	13.380	12.350	313.7	0.515	13.1
RL-1600S-Q12	Q12	4	970	16.93	14.37	15.06	16.000	15.250	387.4	0.375	9.5
RL-2000S-Q12	Q12	4	1269	20.87	17.93		20.000	19.000	482.6	0.500	12.7
RL-2400S-Q20	Q20	5	1269	24.882	21.89	22.81	24.000	23.000	584.2	0.500	12.7

HYDRO-JAW® BREAKOUT SYSTEMS (1200 and 2400)

The Hydro-Jaw® breakout machines use a heavy-duty chain-link jaw design to quickly breakout or make-up bits, DTH hammer joints, and other API tool connections to keep your operation running smoothly. Powered by a Honda 5.5 or 8 horsepower gasoline engine linked to a single-stage hydraulic pump, the Hydro-Jaw® is portable and easily moved around the job site. It is designed to safely operate in the horizontal or vertical position. A lifting eye and forklift slots make it easy to load and unload. Electric units are also available in 230 volt single phase and 230 or 480 volt 3 phase. Both units run quieter, with no exhaust fumes and with less vibration than the gas or diesel models. With its excellent power and adjustability, the Hydro-Jaw® is ideal for breakout / makeup in a wide range of drilling applications.

HYDRO-JAW® SPECIFICATIONS				
	HYDO-JAW® 1200		HYDRO-JAW® 2400	
	IMPERIAL	METRIC	IMPERIAL	METRIC
Standard Range	5.5 in. O.D. to 12 in. O.D.	14 cm O.D. to 30.5 cm	12 in. O.D. to 16 in. O.D.	30.5 cm O.D. to 40.6 cm
w/Optional Jaw Package	3 in. O.D. to 5.5 in. O.D.	7.6 cm O.D. to 30.5 cm	8 in. O.D. to 12 in. O.D. 16 in. O.D. - 22 in. O.D.	20.3 cm to 30.5 cm 40.64 cm to 55.9 cm
Weight	1500 lbs	680.39 kg	2400 lbs	1088.62 kg
Shipping Weight	1900 lbs	861.83 kg	2700 lbs	1224.70 kg
Length (without handle)	51 in.	129.5 cm	72 in.	182.9 cm
Length (with handle)	69 in.	175.3 cm	N/A	N/A
Height	50 in.	127.0 cm	60 in.	152.4 cm
Width	32 in.	81.3 cm	48 in.	121.9 cm
Breakout Torque	60,000 ft. lbs		175,722 ft. lbs	
Make-up Torque	50,000 ft. lbs		125,136 ft. lbs	

HAMMER HONEY® ECO

CRI's specially formulated Hammer Honey® ECO is a readily biodegradable, environmentally friendly, premium rock drill oil. CRI's Hammer Honey® ECO provides an excellent balance of tackifiers, emulsibility, and corrosion protection that makes it uniquely suited for demanding down-the-hole applications. Hammer Honey® ECO's unique extreme-pressure additives prevent steel-on-steel galling and burning of hammer parts and bits that can lead to catastrophic failure.

HAMMER HONEY® ROCK DRILL OIL

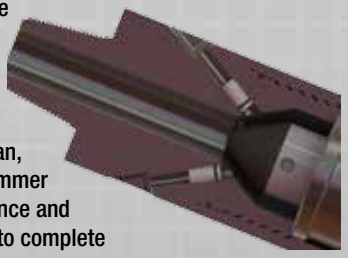
CRI Hammer Honey® is a specially formulated premium rock drill oil. Hammer Honey® provides a great balance of tackifiers, emulsibility, and corrosion protection that makes it uniquely suited to demanding down-the-hole applications. But that's not all, Hammer Honey's® unique extreme-pressure additives prevents steel-on-steel galling and burning of hammer parts and bits that can lead to catastrophic failure. CRI stands behind any CRI hammer part that fails from a frictional-induced crack when using Hammer Honey®.

OIL/CHEMICAL INJECTION SYSTEMS

The oil injection system is a self contained, air-actuated, positive displacement system. It comes equipped with either a seven gallon reservoir with sight glass infinitely variable from 0-1 GPH or a 22 gallon reservoir with sight glass infinitely variable from 0-4 GPH.

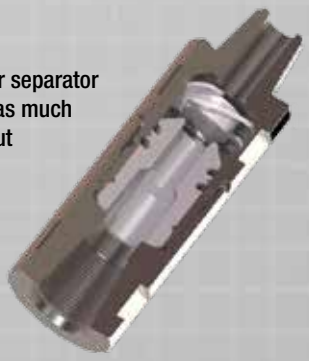
JETTED BACKHEAD

Center Rock's jetted backhead is one of the simplest and most reliable on the market. Incorporated into the existing check valve system of CRI's CR80, CR88, and CR120 hammers, the jetted backhead does not require additional check valves or over-the-hammer subs that complicate your down-hole assembly. When you need extra air to keep your holes clean, the jetted backhead will maintain hammer power while giving you the performance and flushing requirements and reliability to complete your project.



HYDRO CYCLONE

The Center Rock Hydrocyclone is a water separator that allows drilling contractors to inject as much water needed for a clean hole but without the downside of rising pressure and lost productivity. The Hydrocyclone sub separates and expels water from compressed air before it even enters the hammer.



MOBILE BIT REPAIR CENTER

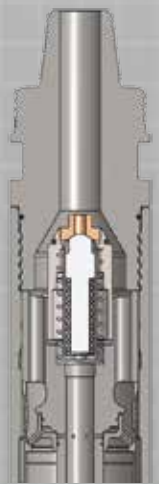
Customize a mobile bit repair center to your specific needs.

THREAD LOCKING SYSTEM

Center Rock's thread locking system integrates a non-ferrous shear ring into the backhead and chuck connections, thus ensuring that the threads do not loosen during normal drilling operations. Available on our CR-88 hammer models, the locking ring is sheared off during hammer servicing with a breakout torque of roughly 30,000 ft-lb. This safety feature ensures that the threads loosen only when you want them to, not when the tool is downhole.

PRESSURE CONTROL CHECK VALVE (PCCV)

The PCCV allows the hammer setup to be optimized for dry drilling, while also allowing air bypass to be opened as downhole pressure builds. The PCCV opening pressure and opening flow can be adjusted for desired conditions. Therefore, with the PCCV, there is no loss in performance due to bypassing air in dry conditions and no risk of excessive standpipe pressure if water is encountered. The PCCV valve gives you the ability to truly maximize your productivity from spud to TD.



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