



PRODUCT CATALOG

ROTARY BLAST HOLE CONSUMABLES





INNOVATION & PERFORMANCE

Mincon Rotacan is the only design and manufacturing company in Canada fully dedicated to Rotary Blast Hole Drill Bits, Drill Pipe, and other string components. “Innovation and Performance” are the foundation of our efforts to produce rugged, dependable, quality products, providing optimal drilling performance for our customers.

Our ability and willingness to work directly with our customers to generate customized solutions for their tough and varied drilling conditions is our competitive advantage in the open pit segment of the mining industry.

Our Industry.

Mincon Rotacan is very proud to be a recognized supplier to the Open Pit Mining Industry. As the name implies an open pit mine is one that is “open” or exposed at ground level. Common materials accessed and extracted using open pit mining methods include gold, copper, iron, coal, and diamonds to name a few. Critical components in the production process for open pit mines are drilling and blasting. Very large rotary drilling equipment is utilized to turn the drill string while applying down pressure, thereby enabling the attached rotary bit to create a hole in the rock. Mining engineers establish the number and spacing of the drilled holes required for each blast. Once an entire pattern has been drilled the equipment is relocated away from the area and the holes are loaded with explosives for blasting.

Mincon Rotacan designs, manufactures, supplies, and services, a broad range of drilling consumables specifically for open pit mining applications using innovation and performance criteria specifically tailored to each customer.

ROTARY DRILL BITS



Mincon Rotacan Advanced Performance (AP) rotary drill bits are manufactured using aircraft quality steel and premium carbide grades developed to suit the toughest application. Computerized designs using solid modeling, manufacturing processes using the latest in CNC equipment and process controlled heat treatment ensure consistent, high quality, drill bits.

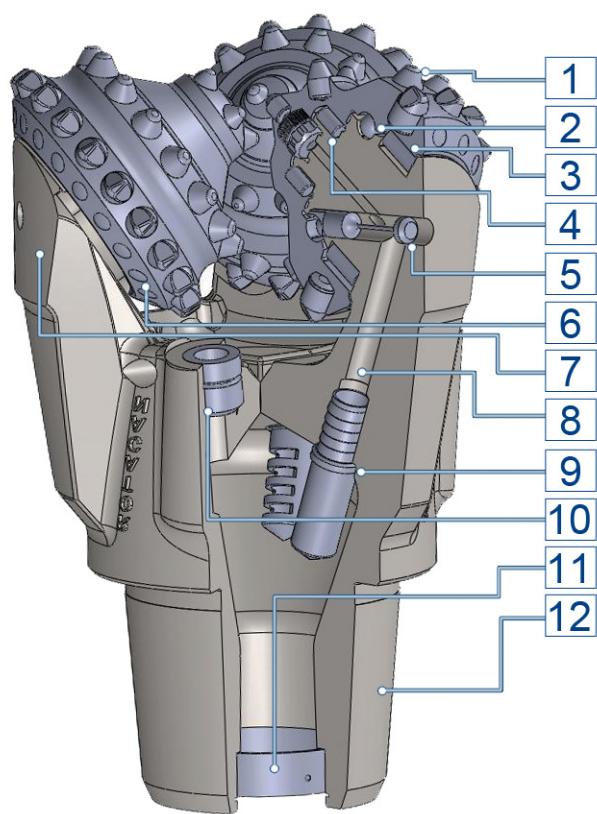
Mincon Rotacan field staff work directly with our customers to test, report, and analyze, critical performance criteria for each drilling condition. Using this data in cooperation with feedback from the driller and operations management, Rotacan engineering provides a level of customization unique in the industry. Rotacan recognizes, as all drillers do, that all rock is not created equal.

ADVANCED PERFORMANCE SERIES

Mincon Rotacan AP drill bits are available in standard and customized models in four distinct series from AP4 through AP7 to provide rock drilling capabilities ranging from coal to iron. Performance data collected from each drill and ground condition is utilized to adjust and modify critical design parameters and achieve true advanced performance for our customers.

ROCK TYPE	SOFT	MEDIUM	HARD	VERY HARD
MODEL NO.	AP4	AP5	AP6	AP7
UCS/PSI/MPA	< 12,000/83	8,000/55 - 30,000/207	15,000/103 - 44,200/305	30,000/207 - 60,000/414
BIT WEIGHT	1,000 to 5,000 lbs/inch of diameter	3,000 to 6,600 lbs/inch of diameter	4,000 to 7,000 lbs/inch of diameter	5,000 to 8,000 lbs/inch of diameter
RPM	50 to 140	50 to 120	50 to 110	50 to 80
IADC CODE	4.1 - 4.4	5.1 - 5.4	6.1 - 6.4	7.1 - 7.4
ROCK FORMATIONS EXAMPLES	Designed for soft formations including shale, siltstone, soft limestone and alluvial formations.	Designed for medium to medium hard formations including sulfide and oxide copper ores, soft iron formations, medium-hard sandstone, dolomite and limestone.	Designed for medium hard to hard abrasive formations; hard copper ores, hard sandstone, medium hard iron ore, schist, gneiss, metamorphic formations; granite and medium hard igneous rock.	Designed for hard and very abrasive formations; hard copper ores, hard iron, quartz and the hardest igneous formations.

FEATURES



Design parameters affecting bit life and penetration rates include the Cone Profile wherein the Diameter, Quantity, Geometry, Extension, Spacing, and Grade, of premium grade tungsten carbide inserts are utilized to break the rock. The variables noted are collectively referred to as the bit Cutting Structure.

A tailor made cutting structure provides our customer with the best combination of bit life and rate of penetration to yield the lowest cost per meter. In very harsh or abrasive conditions additional protection is offered by applying Hard Facing alloy material to reinforce critical wear areas of the bit. The cone surface directly behind the gauge row will have one or two rows of Carbide Gauge Inserts to prevent early erosion of the steel.

To prevent dirt and water contamination of the bearings in wet drilling conditions, an optional Backflow Valve is installed. To ensure efficient removal of the rock cuttings Nozzles are properly sized to direct adequate air to lift the cuttings out of the hole while supplying sufficient air through the Bearings and Cones to keep them cool and prevent debris from contaminating the critical bearing area.

1	Tungsten Carbide Inserts	4	End Roller	7	Shirt Tail Protection	10	Air Jet Nozzle
2	Ball Bearing	5	Ball Plug	8	Air Passage	11	Backflow Valve
3	Main Roller	6	Gage Protective Inserts	9	Water Separator	12	Threaded Pin Connection

BIT SIZES

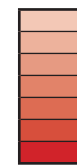
- 9 inch (229 mm)
- 9 7/8 inch (250 mm)
- 10 5/8 inch (270 mm)
- 12 1/4 inch (311 mm)
- 13 3/4 inch (350 mm)
- 15 inch (381 mm)
- 16 inch (406 mm)



ROCK UCS CHART PER AP BIT SERIES

AP BIT RANGE VS. ROCK HARDNESS	Rock UCS	AP4	AP5	AP6	AP7	Applicable Rock Type
	Lower					Claystone, Mudstone
	2000					Chalky Limestone
	4000					Soft Shale
	6000					Semi Consolidated Sandstone
	8000					Limestone Siltstone
	10000					Consolidated Sandstones
	12000					Medium Shales
	14000					Tuff, Soft Schist
	16000					Andesite, Rhyolite
	18000					Quartzite (Sand Silt)
	20000					Limestone, Marble
	22000					Monzonite, Granite
	24000					Geneiss
	26000					Diorite Diabase
	28000					Hard Shale, Slate
	30000					Limestone, Dolomite
	32000					Basalt
	34000					Tactite, Skarn
	36000					Granodiorite
	38000					Taconite
	40000					Quartzite
	42000					Senite
	44000					Gabbro
	46000					
	48000					
	50000					Banded Iron Formation
	52000					Taconite
	54000					Chert
	56000					
	58000					Quartzite
	60000					
	62000					Amphibolite
	64000					Hornfeis
	66000					Hematite Ore
	68000					"Lava" Basalt, Biwabac
	70000					Quartzite
	Higher					

Effective Drilling



Bit Life Compromised

AP	IADC Code	Bit Weight lbs/in	RPM
AP4	4.1 - 4.4	1000 - 5000	50 - 140
AP5	5.1 - 5.4	3000 - 6600	50 - 120
AP6	6.1 - 6.4	4000 - 7000	50 - 110
AP7	7.1 - 7.4	5000 - 8000	50 - 80

*Please use this chart as a guideline, as drilling conditions will vary site to site and Rock UCS (Unconfined Compressive Strength) is only one factor that contributes to "drillability" of any rock. See Below for more drilling factors and variables.

DRILLING FACTORS & VARIABLES

Rock UCS hardness is only one factor of many, that contributes to "drillability" of any rock. Other factors strongly influencing drillability are: fracture toughness, shear strength, young's modulus of elasticity, Poisson's ratio of stress vs strain, internal angle of friction. Rock variables must be considered when attempting to determine the best bit for overall life at optimum penetration rates. Other equally important factors affecting drilling performance are specific to the drilling equipment and operator. Notable items include: Driller experience and training, Compressor size and condition, Mechanical condition of the drill, pipe size and straightness, stabilizer size and condition, deck bushing size and condition, surface condition and overburden, sub surface blast fracturing, angle drilling, revolutions per minutes utilized, weight applied to bit, hole cleaning, water applied for dust control, lubrication provided for bit bearings, etc.

REFERENCE NUMBER GUIDE

Bit Diameter

Custom Series #

09000

4

000

AP Series

Bit Diameter	
9" (229MM)	09000
9 7/8" (250MM)	09875
10 5/8" (270MM)	10625
12 1/4" (311MM)	12250
13 3/4" (350MM)	13750
15" (381MM)	15000
16" (406MM)	16000

AP Series		
AP4	4	AP6
AP5	5	AP7

Custom Series Number
Custom number, specific to your designed bit.

Description	IADC	Pin Conn.	UCS/PSI/MPA	RPM	WOB (lbs)	Ref. Number
9" (229MM) AP4	4.1 - 4.4	4 1/2" API	< 12,000/83	50 - 140	9000 - 45,000	09000-4-000
9" (229MM) AP5	5.1 - 5.4	4 1/2" API	8,000/55 - 30,000/207	50 - 120	27,000 - 59,000	09000-5-000
9" (229MM) AP6	6.1 - 6.4	4 1/2" API	15,000/103 - 44,200/305	50 - 110	36,000 - 63,000	09000-6-000
9" (229MM) AP7	7.1 - 7.4	4 1/2" API	30,000/207 - 60,000/414	50 - 100	45,000 - 72,000	09000-7-000
9 7/8" (250MM) AP4	4.1 - 4.4	6 5/8" API	< 12,000/83	50 - 140	9900 - 49,000	09875-4-000
9 7/8" (250MM) AP5	5.1 - 5.4	6 5/8" API	8,000/55 - 30,000/207	50 - 120	29,000 - 65,000	98750-5-000
9 7/8" (250MM) AP6	6.1 - 6.4	6 5/8" API	15,000/103 - 44,200/305	50 - 110	39,000 - 69,000	98750-6-000
9 7/8" (250MM) AP7	7.1 - 7.4	6 5/8" API	30,000/207 - 60,000/414	50 - 100	49,000 - 79,000	98750-7-000
10 5/8" (270MM) AP4	4.1 - 4.4	6 5/8" API	< 12,000/83	50 - 140	11,000 - 53000	10625-4-000
10 5/8" (270MM) AP5	5.1 - 5.4	6 5/8" API	8,000/55 - 30,000/207	50 - 120	32,000 - 70,000	10625-5-000
10 5/8" (270MM) AP6	6.1 - 6.4	6 5/8" API	15,000/103 - 44,200/305	50 - 110	43,000 - 75,000	10625-6-000
10 5/8" (270MM) AP7	7.1 - 7.4	6 5/8" API	30,000/207 - 60,000/414	50 - 100	53,000 - 85,000	10625-7-000
12 1/4" (311MM) AP4	4.1 - 4.4	6 5/8" API	< 12,000/83	50 - 140	12,000 - 61,000	12250-4-000
12 1/4" (311MM) AP5	5.1 - 5.4	6 5/8" API	8,000/55 - 30,000/207	50 - 120	37,000 - 81,000	12250-5-000
12 1/4" (311MM) AP6	6.1 - 6.4	6 5/8" API	15,000/103 - 44,200/305	50 - 110	49,000 - 86,000	12250-6-000
12 1/4" (311MM) AP7	7.1 - 7.4	6 5/8" API	30,000/207 - 60,000/414	50 - 100	61,000 - 98,000	12250-7-000
13 3/4" (350MM) AP5	5.1 - 5.4	6 5/8" API	8,000/55 - 30,000/207	50 - 120	41,000 - 91,000	13750-5-000
13 3/4" (350MM) AP6	6.1 - 6.4	6 5/8" API	15,000/103 - 44,200/305	50 - 110	55,000 - 96,000	13750-6-000
13 3/4" (350MM) AP7	7.1 - 7.4	6 5/8" API	30,000/207 - 60,000/414	50 - 100	68,000 - 110,000	13750-7-000
15" (381MM) AP5	5.1 - 5.4	7 5/8" API	8,000/55 - 30,000/207	50 - 120	45,000 - 99,000	15000-5-000
15" (381MM) AP6	6.1 - 6.4	7 5/8" API	15,000/103 - 44,200/305	50 - 110	60,000 - 105,000	15000-6-000
15" (381MM) AP7	7.1 - 7.4	7 5/8" API	30,000/207 - 60,000/414	50 - 100	75,000 - 120,000	15000-7-000
16" (406MM) AP5	5.1 - 5.4	7 5/8" API	8,000/55 - 30,000/207	50 - 120	48,000 - 105,000	16000-5-000
16" (406MM) AP6	6.1 - 6.4	7 5/8" API	15,000/103 - 44,200/305	50 - 110	64,000 - 112,000	16000-6-000
16" (406MM) AP7	7.1 - 7.4	7 5/8" API	30,000/207 - 60,000/414	50 - 100	80,000 - 128,000	16000-7-000

NOTE: Threads are available in BECO for most sizes to suit customer specific, drill string requirements.

Approx. Bit Weight:

9" = 104lbs, 9 7/8" = 138lbs, 10 5/8" = 154lbs, 12 1/4" = 222lbs, 13 3/4" = 308lbs, 15" = 350lbs, 16" = 375lbs

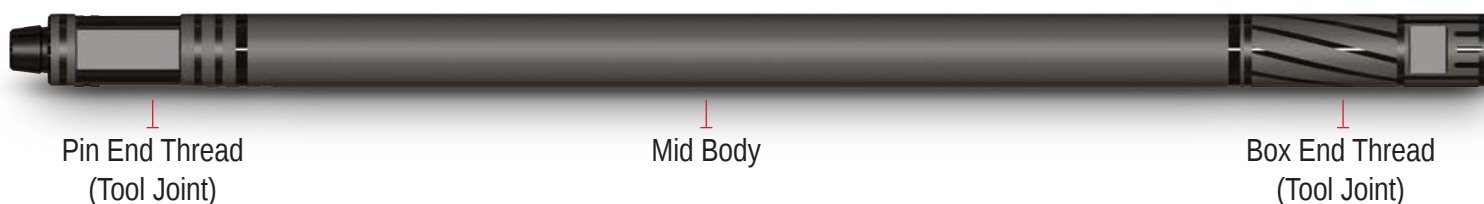
ROTARY DRILL PIPE



Rotacan Blast Hole Drill Pipe is designed and manufactured with proprietary materials and processes to withstand the heaviest pull down forces and the most abrasive of ground conditions.

We offer a full range of rotary drill pipe to meet your requirements for outside diameter (O.D.), wall thickness, length, and specific drill rig wrenching configurations.

FEATURES



Outside Diameter	Wall Thickness	Recommended connection
7"	0.750"	4 1/2" BECO
7"	1.000"	5 1/4" BECO
7 5/8"	0.750"	5 1/4" BECO
7 5/8"	1.000"	5 1/4" BECO
8 5/8"	1.000"	6" BECO
8 5/8"	1.250"	6" BECO
8 5/8"	1.500"	6" BECO
9 1/4"	1.000"	6" BECO
9 1/4"	1.250"	6" BECO
10 3/4"	1.250"	8" BECO
10 3/4"	1.500"	8" BECO
11 3/4"	1.250"	8" BECO
11 3/4"	1.500"	8" BECO

Lengths to 50 feet measured shoulder to shoulder with thread connections and wrenching details to suit your specific drilling equipment.

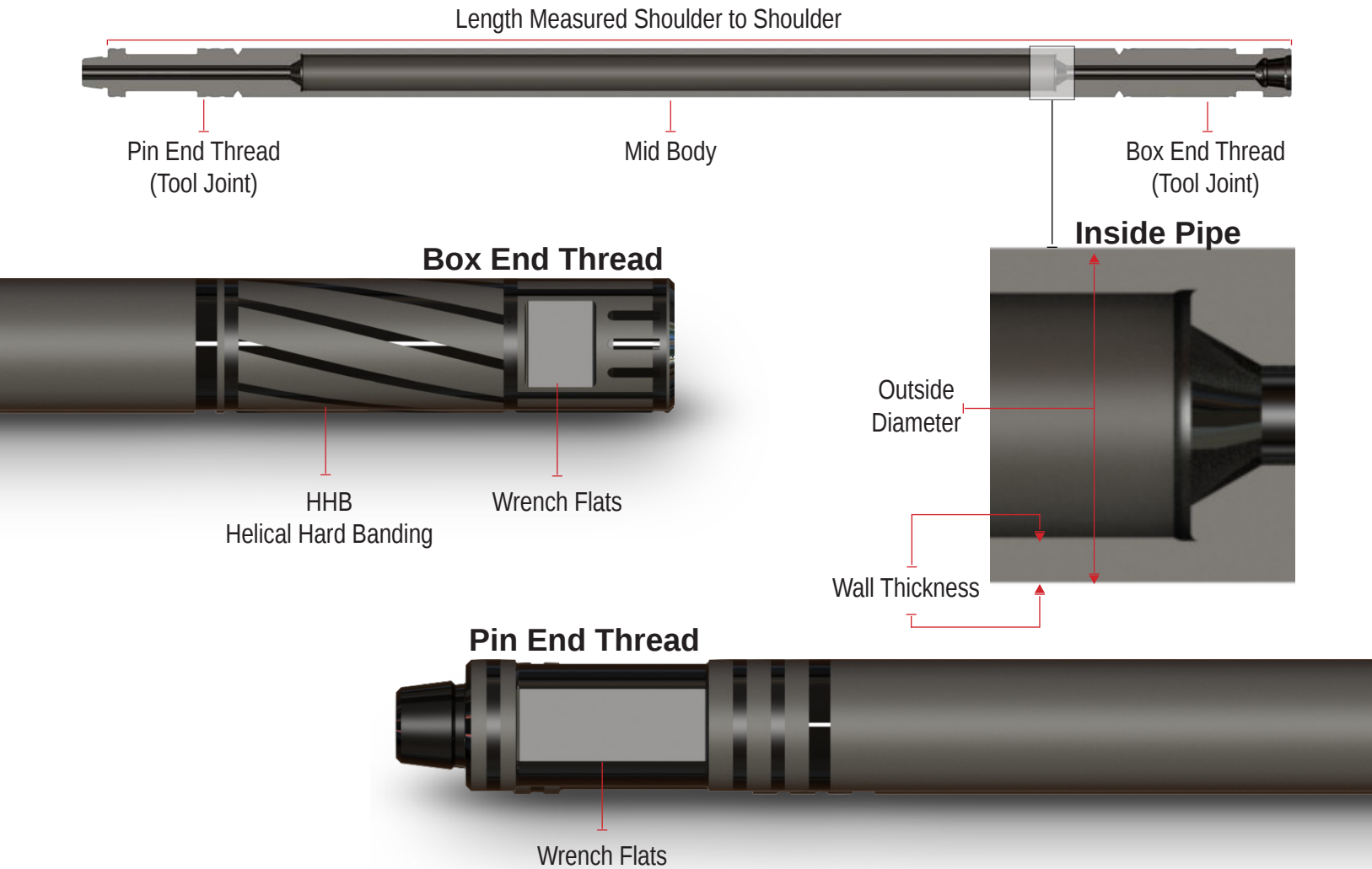
Rotacan's Helical Hard Banding (HHB) drill pipes are unique in the industry and deliver those extra meters needed to help lower drilling costs and keep drill rigs in production.

When Ordering, Please Provide the Following:

- Outside diameter (O.D.)
- Shoulder to shoulder length
- Wall thickness of tube portion
- Thread sizes (box - pin)
- Make & model of drill, (wrenching details)
- With or without helical hard band wear protection

Custom configurations available on request

DRILL PIPE RENDERING



PIPE MANUFACTURING

Rotacan drill pipe is generally comprised of a mid body drill tube and two tool joints. All drill pipe materials are certified as meeting Rotacan's stringent quality standards. Computerized machining of each component with gauging to nationally recognized standards ensures a perfect fit and torque when making up threaded joints. Drill pipes are accurately aligned, welded, and stress relieved to ensure a consistent high quality product. Each Rotacan drill pipe is fully inspected and assigned a unique serial number for full traceability of materials and workmanship.

ADAPTERS



Rotacan offers Adaptors in a wide range of sizes, lengths, wrenching, and thread configurations to suit our customer's needs. Adaptors are used in various positions within the drill string. A Bottom or Bit Sub Adaptor is used between the drill bit and drill pipe. Rotacan Bit Sub adaptors are easily recognizable with the industry unique Helical Hard Banding profile and provides extended protection for the working end of the drill pipe to which it is attached.

Other Adaptors may be located elsewhere within the drill string to accommodate changes in thread to suit the applicable drill string components.

All Rotacan adaptors are made from premium air craft quality heat treated steel and precision machined and gauged to ensure durability and long life.

WHEN ORDERING PLEASE SPECIFY:

- Outside Diameter
- Shoulder to Shoulder length required
- Type or specific application of the Adaptor required
- Inside or bore diameter
- Size of upper thread connection (BECO or API)
- Size of lower thread connection (BECO or API)
- Wrenching details where applicable and any special features

www.rotacan.com/products

As a company focused on performance and innovation, we continue to build upon our product range. Our interested customers should check the Rotacan website for the latest updates and product announcements.

NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



400-B Kirkpatrick Street
North Bay, ON Canada P1B 8G5
Tel: (705) 474-5858 / Fax: (705) 474-9595
Email: support@rotacan.com
www.rotacan.com

For information and updates, please contact us at support@rotacan.com

No part of this marketing material may be reproduced in any manner without written permission from Rotacan.

RCC-14 -002