Pumex®

Casing System

Product Catalogue

DRILLCO®

About Us

DRILLCO® is at the forefront of innovation in the drilling industry, developing cutting-edge products and services that boost productivity, reduce downtime, and lower environmental impact.

With significant investments in R&D and partnerships with top universities, **DRILLCO®** leverages advanced simulation software to create bespoke consumables, equipment, and drilling services designed for optimal performance.

As a Chilean multinational, **DRILLCO®** specializes in providing state-of-the-art technological solutions for grounddrilling in various sectors, including mining, geothermal, quarrying, water wells, and civil engineering projects.

Our modern 5,000 m² production facility in Quilicura boasts an impressive annual output capacity of 24,000 products, ensuring we meet the growing demands of our global clientele.

Exporting 85% of our products to 35 countries across the Americas, Africa, Europe, and Oceania, Drillco has achieved an average annual growth rate of 20% over the past three years, underscoring our commitment to excellence and innovation.

¿Why DRILLCO®?

Today, with over 50 years of expertise in hard rock drilling, **DRILLCO®** stands as the leader in mining drilling, boasting a presence in more than 30 countries through its 10 international branches. The **PUMA®** BY **DRILLCO®** brand is a hallmark of quality and innovation, with **PUMA®** products in use from the Arctic Circle to Patagonia and from Siberia to the Sahara Desert.

At **DRILLCO®**, our mission is to deliver the lowest cost per meter in the market by tailoring our products to meet the unique requirements of each client.

This commitment to customization enables us to provide products specifically designed for every rock condition, ensuring a seamless user experience and helping our clients achieve their operational and economic objectives with ease.

INSERT TYPES

Dome shape tungsten insert

DRILLCO®'s dome-shaped insert is engineered to provide optimal resistance against wear and impact, making it ideal for drilling in hard and abrasive formations. Its rounded profile enhances the cutting action by distributing pressure evenly, which reduces the likelihood of fracturing the insert. This design also aids in minimizing damage to the surrounding rock, facilitating smoother drilling operations and extending the overall lifespan of the product.

Flat shape tungsten insert

DRILLCO®'s flat shape insert has a cylindrical body with a flat, level top surface.

Unlike conical or ballistic inserts, the cutting face of a flat insert is not pointed or rounded but rather flat and broad.

This design increases the protection of the surface area of the die (steel) in contact with the material being drilled.

Conical shape tungsten insert

DRILLCO®'s conical insert features a conical design that enhances its ability to penetrate hard and abrasive formations.

Its pointed tip facilitates effective rock breaking and reduces wear on the insert. The conical shape also improves the insert's stability during drilling, making it suitable for applications where directional control and efficient cutting are essential.

Ballistic tungsten insert

DRILLCO®'s ballistic shape is optimized for cutting through soft and medium hard formations, where a sharper, more focused point is required to efficiently break the rock.

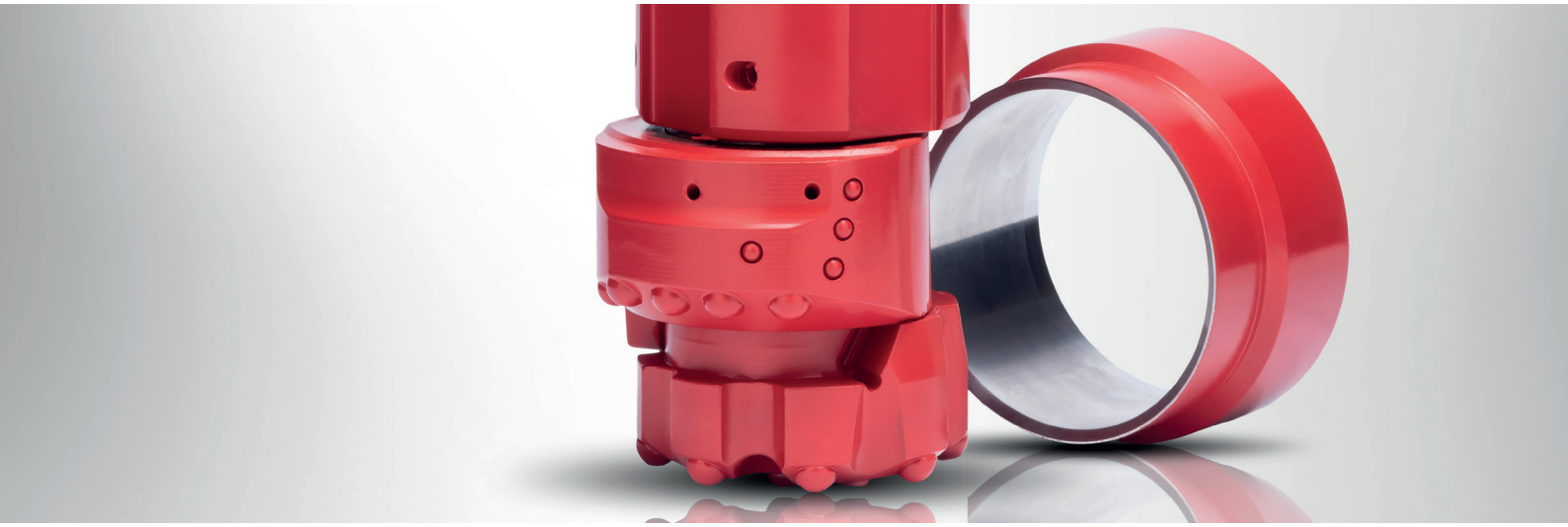
The ballistic design allows for faster drilling speeds compared to other insert shapes, as it minimizes the surface area in contact with the rock, reducing drag.

DRILLCO®

PUMEX

Efficient simultaneous drilling and casing solution.

Drilling in grounds like gravel, boulders, sands or any kind of loose or fractured overburden, becomes almost impossible under the conventional drilling methods due to the collapse of the hole and the following fill of material inside the hole.



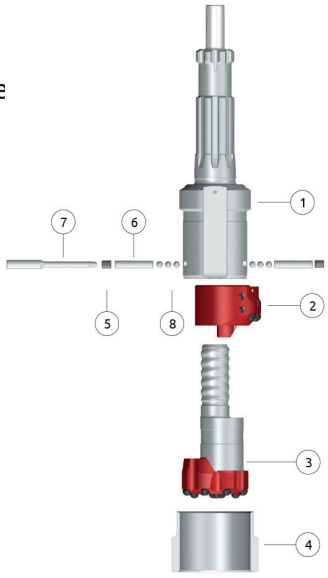
RELIABLE SYSTEM

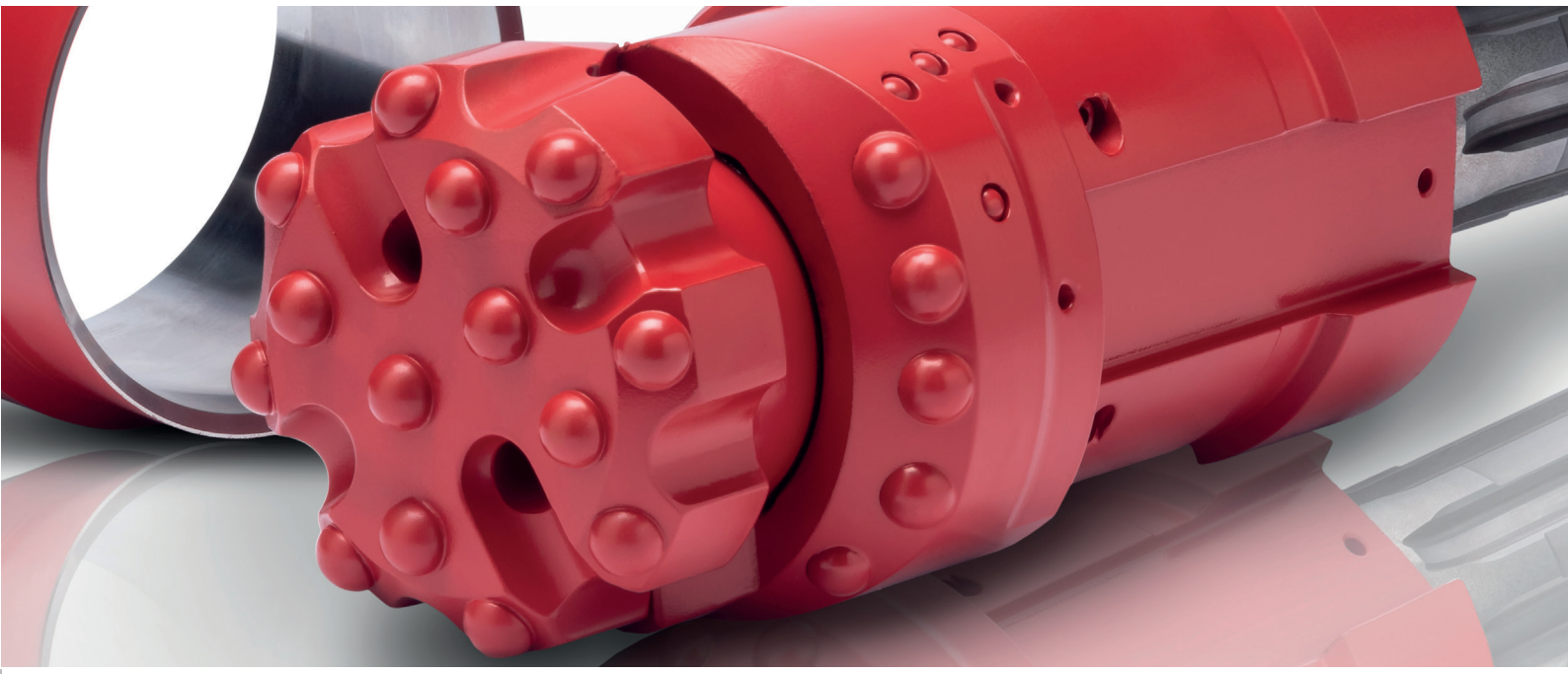
Our **PUMEX®** system

With a strong focus on safety, the PUMEX® system mitigates hazards associated with loosing materials, making it a reliable choice for any drilling operation.

SYSTEM COMPONENTS

1.- GUIDE DEVICE
2.- REAMER
3.- PILOT BIT
4.- CASING SHOE
5.- ELASTIC BOLT (CONNEX)
6.- LOCKING PIN
7.- PUNCH (Element for the assembly)
8.- LOCKING BALLS

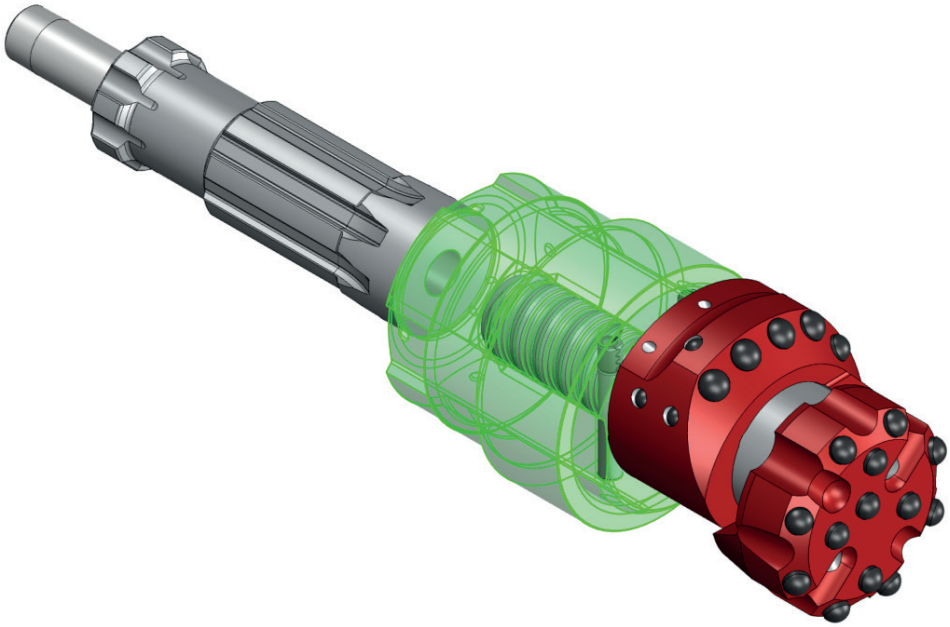


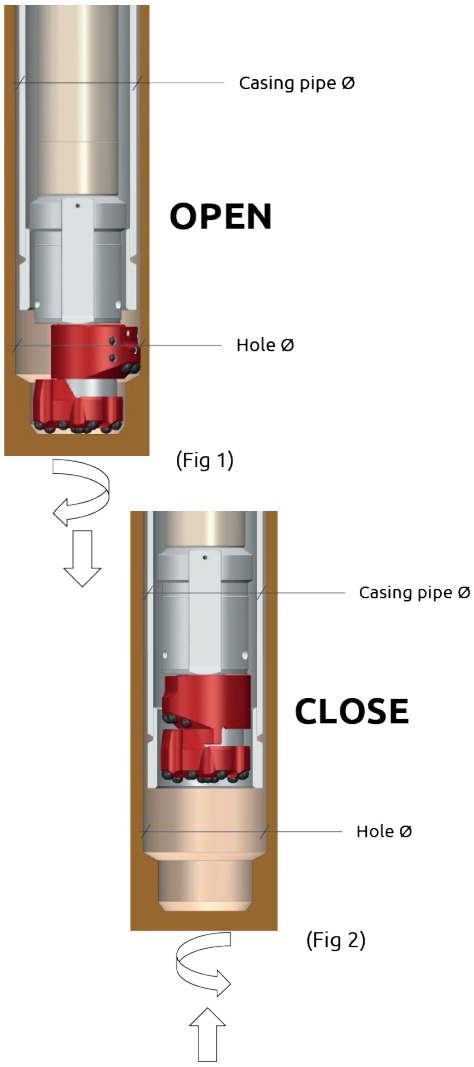


PUMEX CASING SYSTEM

Innovating safety with simultaneous drilling and casing.

The PUMEX® system permits doing, at the same time, the drilling of the hole while casing its walls, leaving an inner protection that avoids the falling down of material inside the hole and eliminates the risk of loosing drilling tools.





HOW IT WORKS

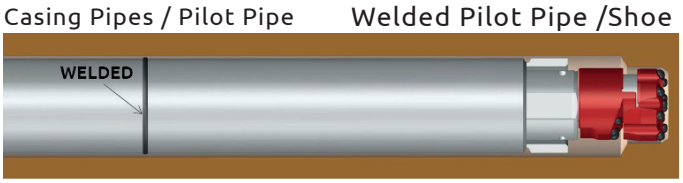
PUMEX® system functioning is based in the hole's reaming and drilling.

Pumex's objective is to have a reliable and technical system at the same time.

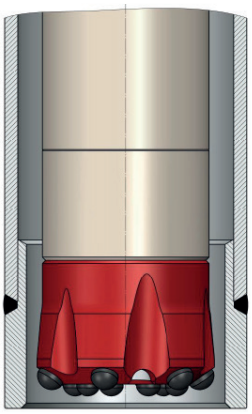
The movement of the reamer allows the well to be casing. Once this is done, it closes (reamer) and allows the complete tool to be recovered.

When the system rotates to the right, the Reamer opens describing a slightly larger diameter (see Fig.1). When the system rotates to the left, the Reamer closes to a diameter smaller than the guide. This way, the system can be taken out of the hole passing through the inside diameter of the Casing Shoe and the casing pipe (see Fig. 2).

The casing is dragged by the casing shoe, which is pushed by the guide device.



(Fig. 3)



(Fig. 4)

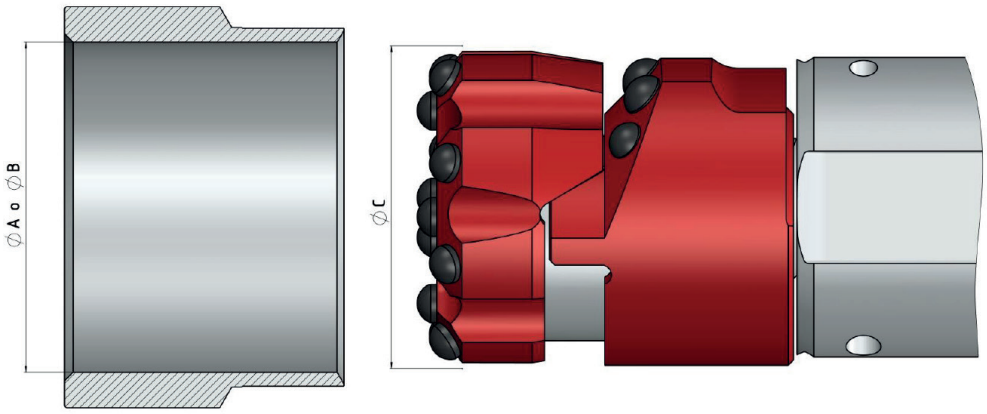
It is not necessary to rotate the casing pipes, since they are always in free movement while drilling. The Casing Shoe is attached to the pilot pipe (which differs from the rest of the casing pipes by being shorter) by a welding string. The following pipes are added as the drilling goes deeper, their union can be welded or threaded (see fig 3). After reaching the desired depth, drilling can continue with a conventional system, taking care that the bit's O.D. is smaller than the Casing's I.D. (see fig 4).

Note: If the casing pipe is to be recovered, once the drilling is over, it is recommended the pipe union to be threaded.

PUMEX® SPECIFICATIONS

PUMEX MODEL	90	115	140	165	190
WORKING PRESSURE, ROTATION VELOCITY					
Working Pressure / PSIG	200-250	200-250	200-250	200-250	200-250
Rotation Velocity / R.P.M.	20-30	20-25	15-20	15-20	10-15
Minimum Torque FT-LBS	660	1470	2200	2950	4050
Drilling Depth / FEET / METERS	230 / 70	295 / 90	295 / 90	295 / 90	295 / 90
DIMENSIONS OF SYSTEM					
Ø INNER PIPE	73mm	89mm	114.3mm	140mm	165mm
Ø REAMER	123mm (4 13/16")	152mm (6")	181mm (7 1/8")	209mm (8 7/32")	237mm (9 5/16")
CASING PIPE/ MAX. O.D. Ø	115mm (4 ½")	142mm (5 19/32")	171mm (6 11/16")	196mm (7 22/32")	222mm (8 3/4")
INNER ØCASING SHOE	93.5mm (3 11/16")	118.3mm (4 21/32")	143.4mm (5 21/32")	168.5mm (6 5/8")	192.0mm (6 9/16")
Torque minimun, Kg-m	90	200	300	400	>550
Torque minimun, Lb-ft	660	1470	2200	2950	>4050
PUMEX CASING SHOE IN SIDE DIAMETER.					
I.D. Ø before welding ØA	94.0	118.7	144.0	168.5	193.5
I.D. Ø after welding ØB	93.5	118.0	143.0	167.0	192.0
O.D.Ø system retracted ØC	93.0	117.0	141.0	166.0	190.0
THREADING THE CASING PIPE TOGETHER					
Reamed Ø	123 (4 13/16")	152 (6")	181 (7 1/8")	209 (8 7/32")	/
O.D. Ø (Pipe)	114.3	141.3	168.3	193.7	/
O.D. Ø (Raccord)	116.0	143.0	170.0	195.0	/
I.D. Ø (Pipe)	102.3	128.2	154.0	181.0	/
I.D. Ø (Raccord)	102.3	128.2	154.0	181.0	/

CASING DIAGRAM

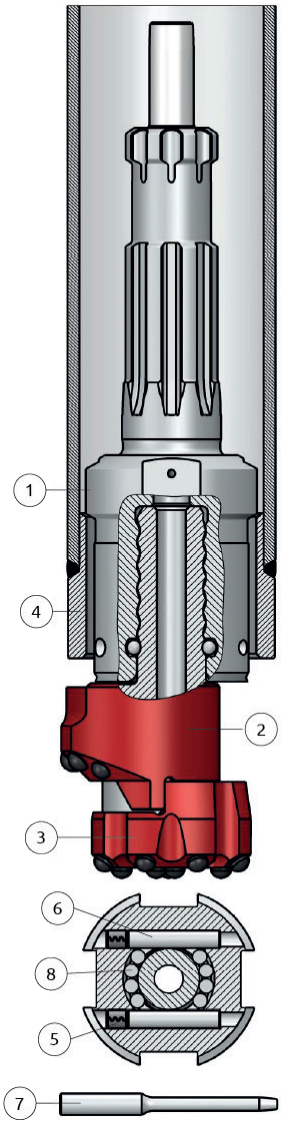


DRILLCO®

Pumex® Casing System

At Drillco®, our PUMEX® system bits are designed to optimize performance in challenging environments. Ideal for drilling through complex geological layers, these tools provide superior durability and precision, minimizing downtime and maximizing productivity. Trust Drillco® for cutting-edge drilling solutions that enhance your operations with the latest advancements in technology.

PUMEX® ASSEMBLY PART LIST



Each part is engineered to obtain MAXIMUM PERFORMANCE.

(1) Guide Device: This is the connection point between the system and the hammer. It connects to the hammer through the shank, which varies depending on the hammer model being used (DHD or SD). The Pumex guide is where the entire system connects.

(2) Reamer: The reamer's purpose is to increase the diameter of the borehole to allow casing installation within the bore being secured. It opens while drilling and closes when the casing system is removed.

(3) Pilot Bit: This bit functions like any other drill bit, connecting to the Pumex guide and working with the reamer to drill the borehole.

(4) Shoe: This part is welded to the pipe, serving to restrict part of the system so that only the bit and reamer descend, while the guide pushes the pipe to line the borehole.

(5) Elastic Pin: This pin retains the safety pin in the system. It's a small but critical component to prevent losing the bit in the borehole and should always be in good condition.

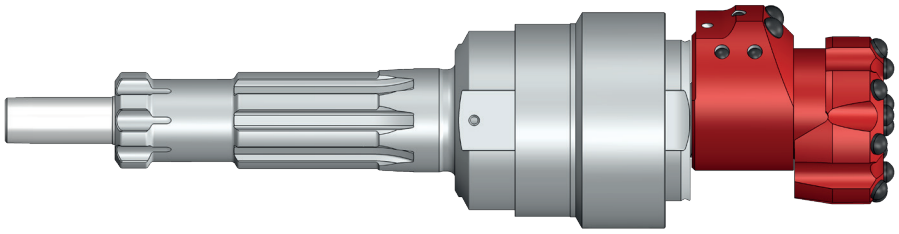
(6) Safety Pin: This pin secures the Pumex guide and the pilot bit, making it an essential part of the system.

(7) Punch Tool: This piece is a tool only and is not part of the Pumex system. It's used to insert or remove the safety pin.

(8) Retaining Spheres: These spheres play a role in securing the Pumex guide to the pilot bit.

DRILLCO®

PUMEX® 90



PUMEX® 90 GENERAL SPECS

WORKING PRESSURE, ROTATION VELOCITY	
Working Pressure / PSIG	200-250
Rotation Velocity / R.P.M.	20-30
Minimum Torque FT-LBS	660
Drilling Depth / FEET / METERS	230 / 70

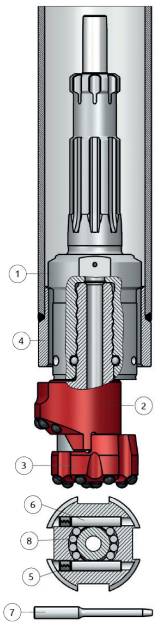
PUMEX CASING SHOE IN SIDE DIAMETER.	
I.D. Ø before welding ØA	94.0
I.D. Ø after welding ØB	93.5
O.D.Ø system retracted ØC	93.0

THREADING THE CASING PIPE TOGETHER	
Reamed Ø	123 (4 13/16")
O.D. Ø (Pipe)	114.3
O.D. Ø (Raccord)	116.0
I.D. Ø (Pipe)	102.3
I.D. Ø (Raccord)	102.3

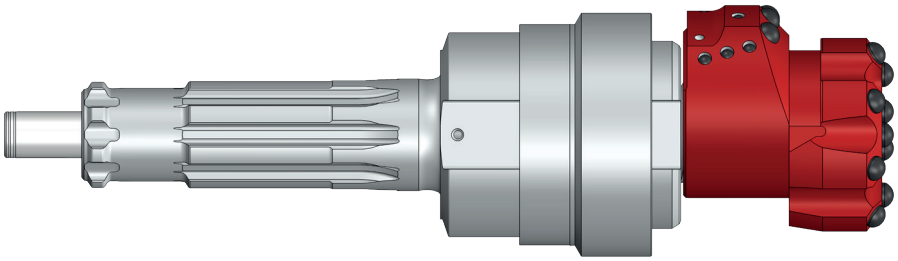
DIMENSIONS OF SYSTEM	
Ø INNER PIPE	73mm
Ø REAMER	123mm (4 13/16")
CASING PIPE/ MAX. O.D. Ø	115mm (4 ½")
INNER ØCASING SHOE	93.5mm (3 11/16")
Torque minimun, Kg-m	90
Torque minimun, Lb-ft	660

PUMEX® 90 ASSEMBLY PART LIST

Item	Code	Qty per Assembly	Description
	1801030-000001	1	Complete Assembly PUMEX 90
	1801030-000002	1	Complete Assembly PUMEX 90 (DHD-3.5)
1	1901030-010000	1	Guide Device PUMEX 90
1	1901030-010001	1	Guide Device PUMEX 90 (DHD-3.5)
2	1901030-020000	1	Reamer PUMEX 90
3	1901030-030000	1	Pilot Bit PUMEX 90
4	1901030-040000	1	Casing Shoe PUMEX 90
5	1901030-050000	2	Elastic Bolt (CONNEX) Ø10 x 12
6	1901030-060000	2	Locking Pin
7	1901030-070000	1	Punch
8	1901030-080000	8	Locking Balls Ø8



PUMEX® 115



PUMEX® 115 GENERAL SPECS

WORKING PRESSURE, ROTATION VELOCITY	
Working Pressure / PSIG	200-250
Rotation Velocity / R.P.M.	20-25
Minimum Torque FT-LBS	1470
Drilling Depth / FEET / METERS	295 / 90

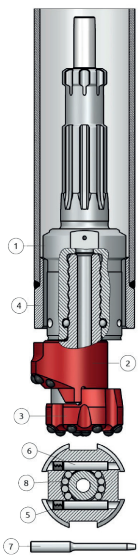
PUMEX CASING SHOE IN SIDE DIAMETER.	
I.D. Ø before welding ØA	118.7
I.D. Ø after welding ØB	118.0
O.D.Ø system retracted ØC	117.0

THREADING THE CASING PIPE TOGETHER	
Reamed Ø	152 (6")
O.D. Ø (Pipe)	141.3
O.D. Ø (Raccord)	143.0
I.D. Ø (Pipe)	128.2
I.D. Ø (Raccord)	128.2

DIMENSIONS OF SYSTEM	
Ø INNER PIPE	89mm
Ø REAMER	152mm (6")
CASING PIPE/ MAX. O.D. Ø	142mm (5 19/
INNER ØCASING SHOE	118.3mm (4 21/32")
Torque minimun, Kg-m	200
Torque minimun, Lb-ft	1470

PUMEX® 115 ASSEMBLY PART LIST

Item	Code	Qty per Assembly	Description
	1801040-000001	1	Complete Assembly PUMEX 115
	1801040-000002	1	Complete Assembly PUMEX 115 (DHD-340)
	1801040-000003	1	Complete Assembly PUMEX 115 (SD-4)
1	1901040-010000	1	Guide Device PUMEX 115
1	1901040-010001	1	Guide Device PUMEX 115 (DHD-340)
1	1901040-010002	1	Guide Device PUMEX 115 (SD-4)
2	1901040-020000	1	Reamer PUMEX 115
3	1901040-030000	1	Pilot Bit PUMEX 115
4	1901040-040000	1	Casing Shoe PUMEX 115
5	1901040-050000	2	Elastic Bolt (CONNEX) Ø10 x 15
6	1901040-060000	2	Locking Pin
8	1901040-080000	2	Locking Balls Ø9.5



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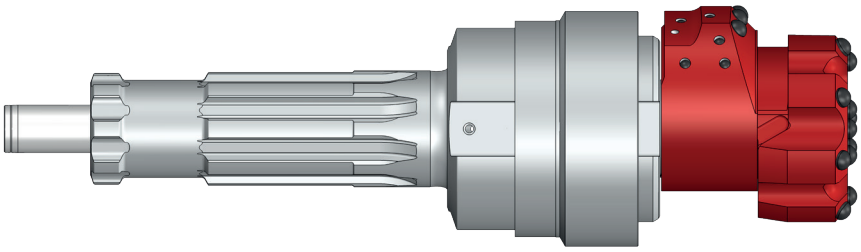
PUMEX® 140



PUMEX® 140 GENERAL SPECS

WORKING PRESSURE, ROTATION VELOCITY	
Working Pressure / PSIG	200-250
Rotation Velocity / R.P.M.	15-20
Minimum Torque FT-LBS	2200
Drilling Depth / FEET / METERS	295 / 90

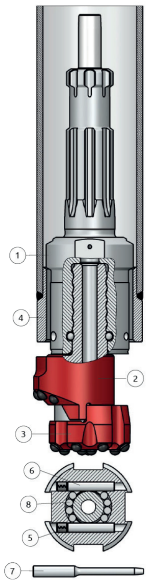
PUMEX CASING SHOE IN SIDE DIAMETER.	
I.D. Ø before welding ØA	144.0
I.D. Ø after welding ØB	143.0
O.D.Ø system retracted ØC	141.0

THREADING THE CASING PIPE TOGETHER	
Reamed Ø	181 (7 1/8")
O.D. Ø (Pipe)	168.3
O.D. Ø (Raccord)	170.0
I.D. Ø (Pipe)	154.0
I.D. Ø (Raccord)	154.0

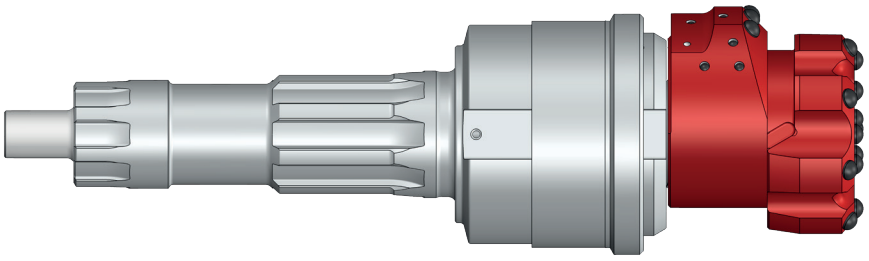
DIMENSIONS OF SYSTEM	
Ø INNER PIPE	114.3mm
Ø REAMER	181mm (7 1/8")
CASING PIPE/ MAX. O.D. Ø	171mm (6 11/16")
INNER ØCASING SHOE	143.4mm (5 21/32")
Torque minimun, Kg-m	300
Torque minimun, Lb-ft	2200

PUMEX® 140 ASSEMBLY PART LIST

Item	Code	Qty per Assembly	Description
	1801050-000001	1	Complete Assembly PUMEX 140
	1801050-000002	1	Complete Assembly PUMEX 140 (SD-5)
	1801050-000003	1	Complete Assembly PUMEX 140 (DHD-350)
1	1901050-010000	1	Guide Device PUMEX 140
1	1901050-010001	1	Guide Device PUMEX 140 (SD-5)
1	1901050-010002	1	Guide Device PUMEX 140 (DHD-350)
2	1901050-020000	1	Reamer PUMEX 140
3	1901050-030000	1	Pilot Bit PUMEX 140
4	1901050-040000	1	Casing Shoe PUMEX 140
5	1901050-050000	2	Elastic Bolt (CONNEX) Ø12 x 20
6	1901050-060000	2	Locking Pin
8	1901050-080000	12	Locking Balls Ø11



PUMEX® 165



PUMEX® 165 GENERAL SPECS

WORKING PRESSURE, ROTATION VELOCITY	
Working Pressure / PSIG	200-250
Rotation Velocity / R.P.M.	15-20
Minimum Torque FT-LBS	2950
Drilling Depth / FEET / METERS	295 / 90

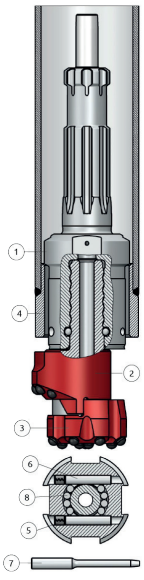
PUMEX CASING SHOE IN SIDE DIAMETER.	
I.D. Ø before welding ØA	168.5
I.D. Ø after welding ØB	167.0
O.D.Ø system retracted ØC	166.0

THREADING THE CASING PIPE TOGETHER	
Reamed Ø	209 (8 7/32")
O.D. Ø (Pipe)	193.7
O.D. Ø (Raccord)	195.0
I.D. Ø (Pipe)	181.0
I.D. Ø (Raccord)	181.0

DIMENSIONS OF SYSTEM	
Ø INNER PIPE	140mm
Ø REAMER	209mm (8 7/32")
CASING PIPE/ MAX. O.D. Ø	196mm (7 22/32")
INNER ØCASING SHOE	168.5mm (6 5/8")
Torque minimun, Kg-m	400
Torque minimun, Lb-ft	2950

PUMEX® 165 ASSEMBLY PART LIST

Item	Code	Qty per Assembly	Description
	1801060-000001	1	Complete Assembly PUMEX 165 (DHD-360)
1	1901060-010001	1	Guide Device PUMEX 165
2	1901060-020001	1	Reamer PUMEX 165
3	1901060-030001	1	Pilot Bit PUMEX 165
4	1901060-040001	1	Casing Shoe PUMEX 165
5	1901050-050000	2	Elastic Bolt (CONNEX) Ø12 x 20
6	1901060-060001	2	Locking Pin
8	1901050-080000	14	Locking Balls Ø11



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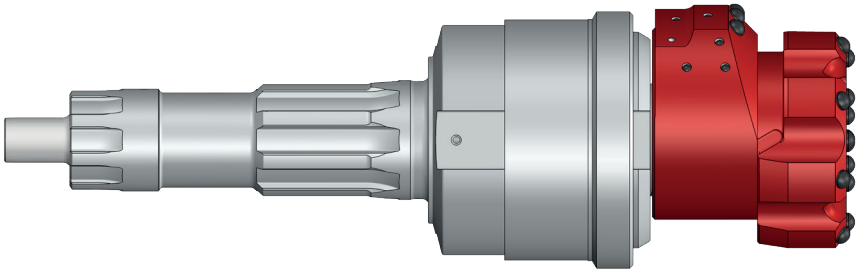
PUMEX® 190



PUMEX® 190 GENERAL SPECS

WORKING PRESSURE, ROTATION VELOCITY	
Working Pressure / PSIG	200-250
Rotation Velocity / R.P.M.	10-15
Minimum Torque FT-LBS	4050
Drilling Depth / FEET / METERS	295 / 90

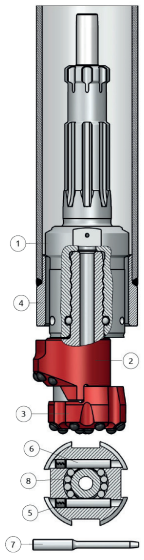
PUMEX CASING SHOE IN SIDE DIAMETER.	
I.D. Ø before welding ØA	193.5
I.D. Ø after welding ØB	192.0
O.D.Ø system retracted ØC	190.0

THREADING THE CASING PIPE TOGETHER	
Reamed Ø	/
O.D. Ø (Pipe)	/
O.D. Ø (Raccord)	/
I.D. Ø (Pipe)	/
I.D. Ø (Raccord)	/

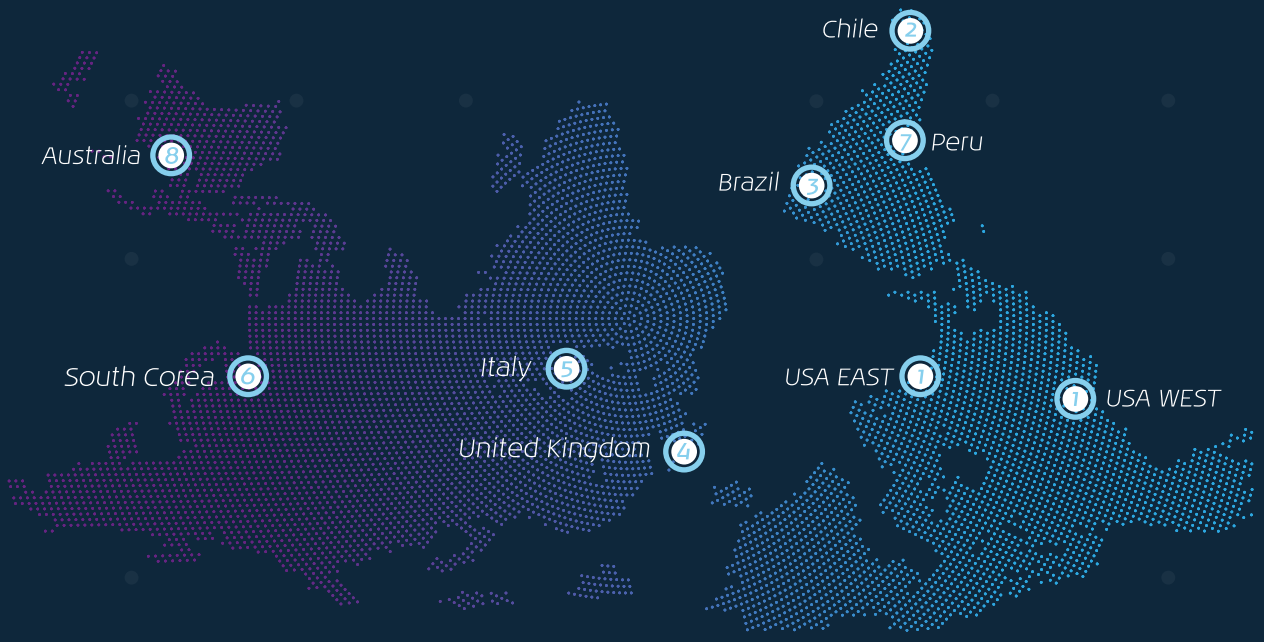
DIMENSIONS OF SYSTEM	
Ø INNER PIPE	165mm
Ø REAMER	237mm (9 5/16")
CASING PIPE/ MAX. O.D. Ø	222mm (8 3/4")
INNER ØCASING SHOE	192.0mm (6 9/16")
Torque minimun, Kg-m	>550
Torque minimun, Lb-ft	>4050

PUMEX® 190 ASSEMBLY PART LIST

Item	Code	Qty per Assembly	Description
	1801090-000001	1	Complete Assembly PUMEX 190 (DHD-360)
1	1901090-010001	1	Guide Device PUMEX 190
2	1901090-020001	1	Reamer PUMEX 190
3	1901090-030001	1	Pilot Bit PUMEX 190
4	1901090-040001	1	Casing Shoe PUMEX 190
5	1901090-050001	2	Elastic Bolt (CONNEX) Ø14 x 20
6	1901090-060001	2	Locking Pin
8	1901090-080001	14	Locking Balls Ø13



Our Products around
THE WORLD



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