HYPER125/300
DTH HAMMER

HYPER 125/300 – MAINTENANCE, OPERATING AND SERVICE MANUAL

07/05/2026

Robit
www.robitgroup.com

1. Introduction

The Robit® Hyper **125/300** is a strong, robust tool of a simple and straight forward design to provide maximum performance with a minimum of maintenance.

The Hyper **125/300** Hammer is designed to operate efficiently at air pressures between 100 PSI (7 Bar) and 250 PSI (24 Bar).

The Hyper **125/300** hammer is designed as standard with a check valve arrangement which is designed to maintain the pressure inside the hammer when the air is switched off and so help prevent contaminated water from entering the hammer.

The Hyper **125/300** hammer is designed to give optimum performance with the minimum consumption of compressed air. If however, for particular deep-hole applications, the hammer is designed with a soft faced control tube, that can be drilled through to give extra flushing.

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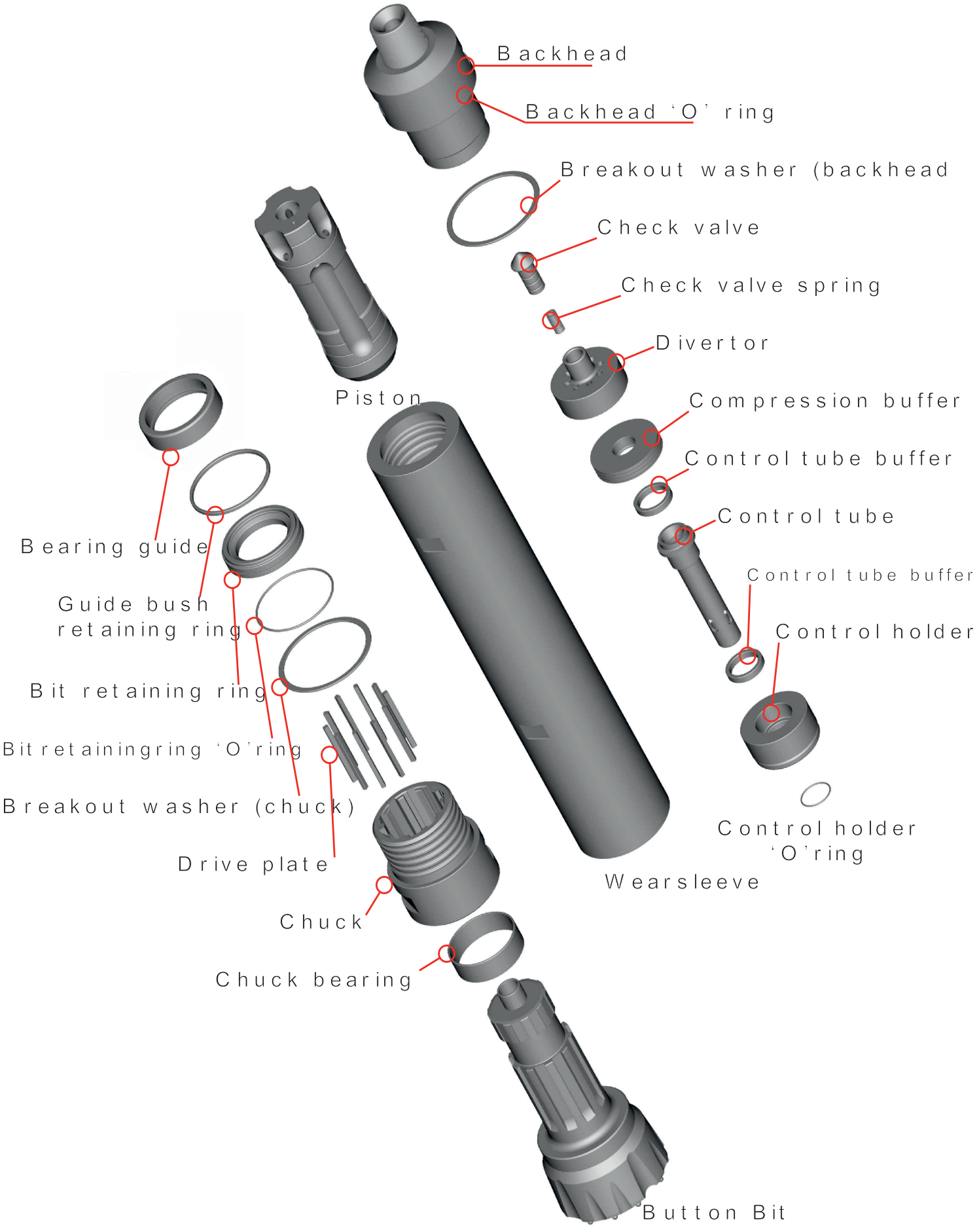
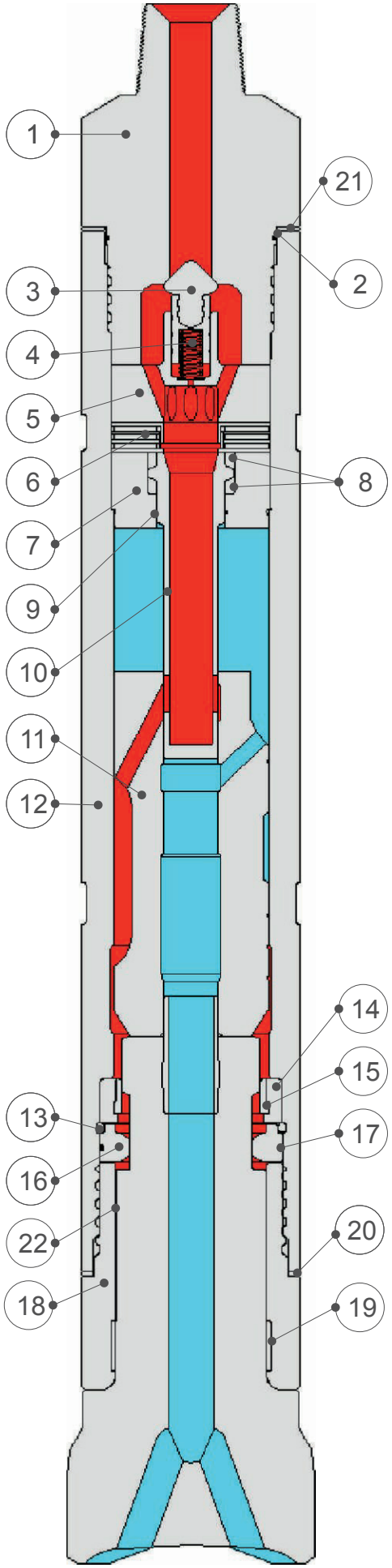
ALWAYS THINK

SAFETY FIRST!


Backhead
Backhead 'O' ring
Breakout washer (backhead
Check valve
Check valve spring
Divertor
Piston
Compression buffer
Control tube buffer
Control tube
Control tube buffer
Control holder
Bearing guide
Guide bush retaining ring
Bit retaining ring
Bit retainingring 'O'ring
Breakout washer (chuck)
Drive plate
Chuck
Chuck bearing
Wearsleeve
Control holder 'O'ring
Button Bit

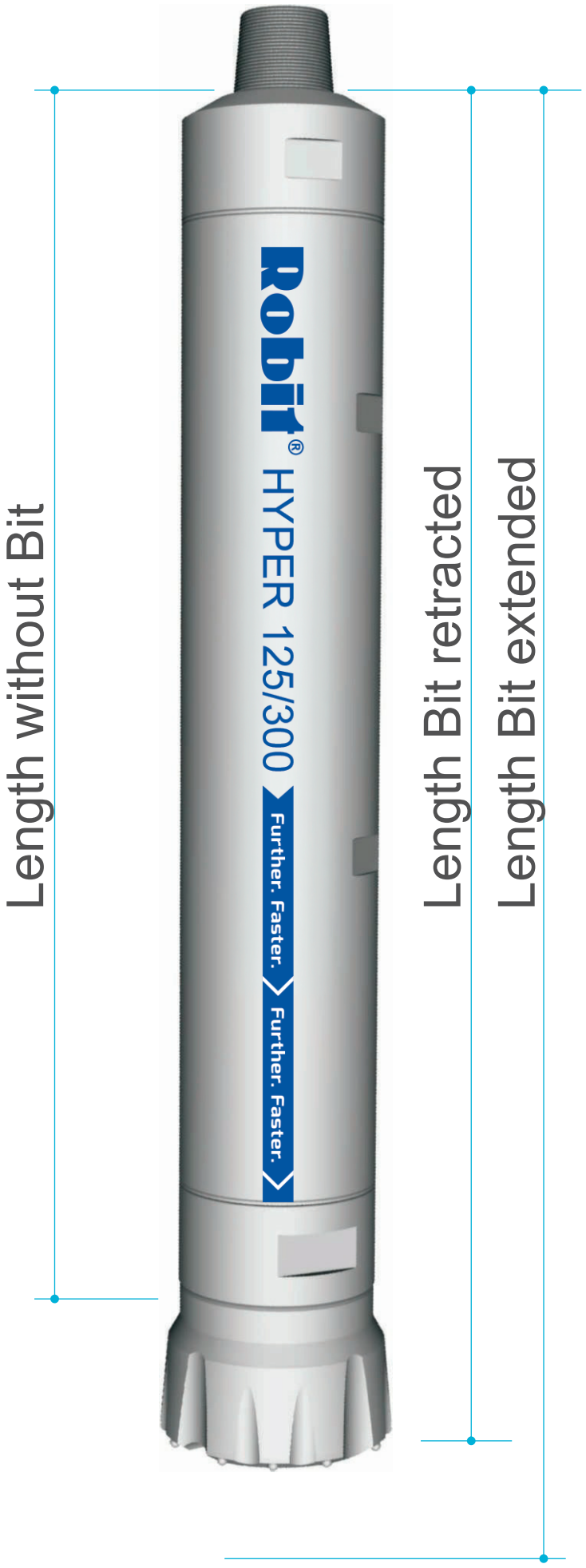
3. Hammer Parts List



COMPONENT PARTS

Ref	Description	Part Number
1	Backhead 6 5/8"Reg Pin	HSH1213880M125
2	Backhead 'O' Ring	HSH12114
3	Check Valve	HSH12108
4	Check Valve Spring	HSH12110
5	Diverter	HSH12120
6	Compression Buffer	HSH12128
7	Control Tube Holder	HSH12131
8	Control Tube Buffers (2)	HSH12129
9	Control Tube 'O' Ring	HSH12130A
10	Control Tube	HSH12130
11	Piston	HSH12103125SP
12	Wearsleeve	HSH12100125SP
13	Guide Bush Retaining Ring	HSH12132125
14	Bearing Guide Bush	HSH12186125
15	Bit Bearing	HSH12186BE
16	Bit Retainer (pair)	HSH12137050
17	Bit Retainer 'O' Ring	HSH12137AST
18	Chuck (N125 c/w drive plate slots)	HSH12135125
19	Chuck Bearing	HSH12135125BE
20	Breakout Washer (chuck)	HSH12126125
21	Breakout Washer (backhead)	HSH12125125
22	Drive Plate N125	Dp125
	Complete Hammer	**BR125HO3**
	Alternative Backhead 6 5/8"Reg Box	HSH121388F125

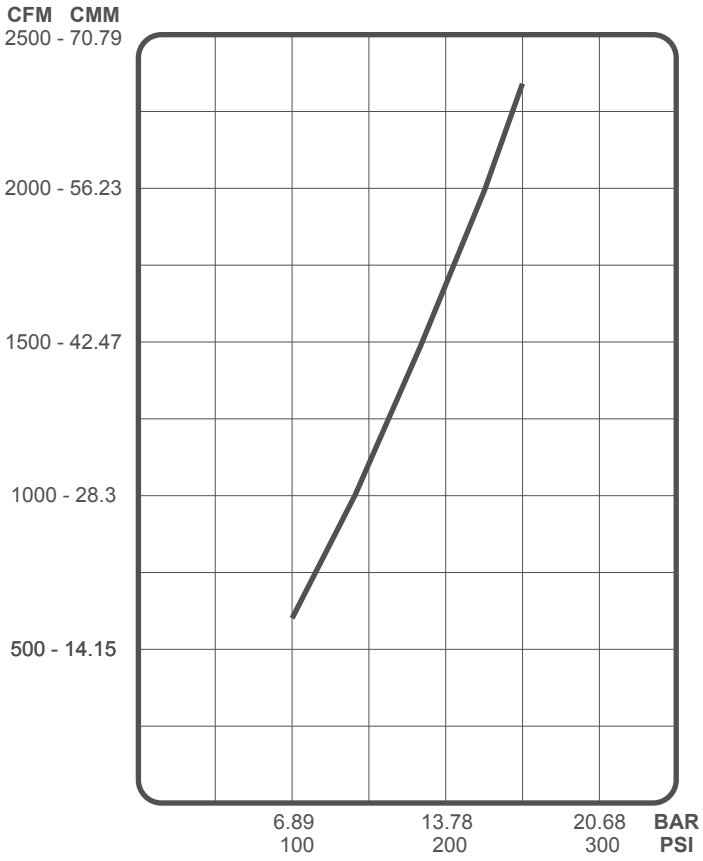
4. Hammer Specifications



Standard Backhead Connection	6 5/8" API REG PIN
Chuck Connection Configuration	N125
Length without Bit	75" 1905mm
Length Bit Extended	83.87" 2210mm
Length Bit Retracted	81.5" 2146mm
Outside Dia Hammer	12" 305mm
Outside Diameter Chuck	12" 305mm
Bore Diameter	8.5" 216mm
Piston Stroke	5" 127mm
Piston Weight	276lbs 125kg
Complete Hammer weight without bit	1584lbs 720kg

NB LENGTHS BASED ON A 445dia BUTTON BIT

5. Air Consumption



Working Pressure

Drill through this face should extra flushing be required see below

Extra flushing air for a choke in cubic feet per min

Hole Size	100 psi	150 psi	200 psi	250 psi
6mm	68	98	128	157
10mm	152	220	287	352
13mm	270	390	510	627
16mm	422	593	796	980
19mm	607	855	1147	1410

Extra flushing air for a choke in cubic metre per min

Hole Size	6.9 bar	10.3 bar	13.8 bar	17.2 bar
6mm	1.92	2.77	3.62	4.44
10mm	4.30	6.22	8.12	9.96
13mm	7.64	11.04	14.44	17.75
16mm	11.94	16.79	22.54	27.75
19mm	17.18	24.21	32.47	39.92

Total air requirements for chokes in cubic feet per min

Hole Size	100 psi	150 psi	200 psi	250 psi
blank	591	1087	1673	2338
6mm	660	1185	1801	2495
10mm	743	1307	1960	2690
13mm	861	1477	2183	2965
16mm	1013	1680	2469	3318
19mm	1198	1942	2820	3748

Total air requirements for chokes in cubic metre per min

Hole Size	6.9 bar	10.3 bar	13.8 bari	17.2 bar
blank	16.75	30.78	47.41	66.22
6mm	18.67	33.55	51.02	70.67
10mm	21.05	37.01	55.52	76.19
13mm	24.39	41.82	61.84	83.98
16mm	28.70	47.57	69.94	93.97
19mm	33.94	54.99	79.88	106.15

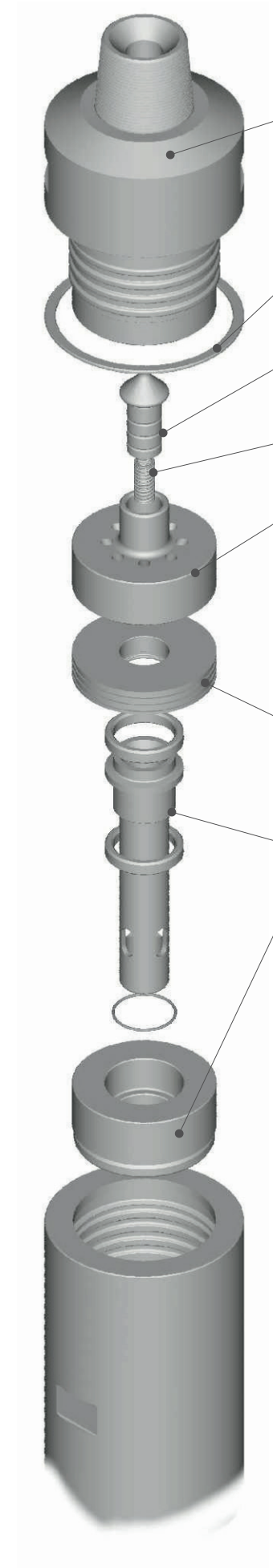
Additional Flushing

The Hyper 125/300 has a control tube with a softened face which can be easily drilled through to allow for extra flushing air should this be required. In certain drilling conditions extra flushing air may be required to overcome increasing back pressure and maintain the necessary up hole velocity to ensure efficient hole cleaning. In such conditions, a small hole can be drilled into the face of the control tube which will allow extra live air to be delivered directly to the bit face. The size of the hole will determine the extra volume of air delivered to the bit face depending on the operating pressure.

The top two tables show the extra flushing air which can be expected with the chokes drilled.

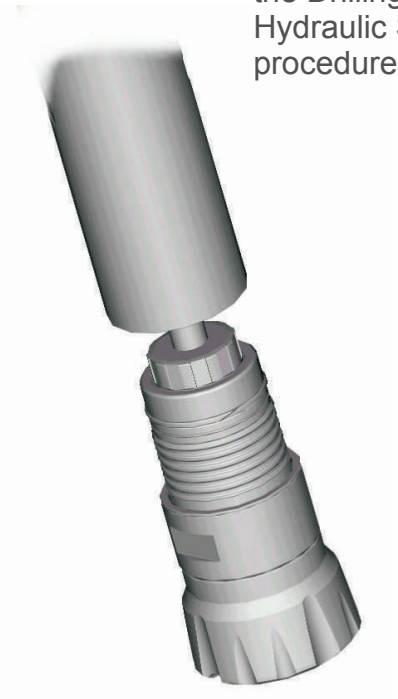
The lower two tables shows the total air required for optimum hammer performance with the chokes drilled.

6. Stripping the Hammer



NOTE:- All components must be washed clean and laid out on a dirt free surface to enable inspection to take place. The stripping procedure is explained in the following section,

Assuming both the Chuck and the Backhead threads have been loosened either on the Drilling Rig or by using a Hydraulic Splitter, the stripping procedure is as follows



Note:- On no account should the wearsleeve be impacted by a hand hammer or splitting be assisted by use of localised heat: ie. Welding/blow torch.
Should splitting prove difficult, The breakout washers can be ground out, taking care not to deface other pieces of the drill, to relieve pressure and help splitting,

1. First remove the chuck assembly. This comprises the button Bit, chuck release washer, chuck 'O' ring, bit retainer, drive plates etc. The guide bush assembly does not need stripping, but the bearing should be removed and replaced if worn.

2. With the hammer laid horizontal, unscrew the backhead and remove it from the wearsleeve. The diverter along with the check valve arrangement can now be pulled from the backhead end.

The remaining, compression buffer and control tube assembly can be removed by lifting the chuck end of the wearsleeve which will allow the piston to push the parts up to the end face, from where they can be removed by hand.

3. Lifting the chuck end of the wearsleeve again will allow the piston to slide to the end face from where it can be removed.

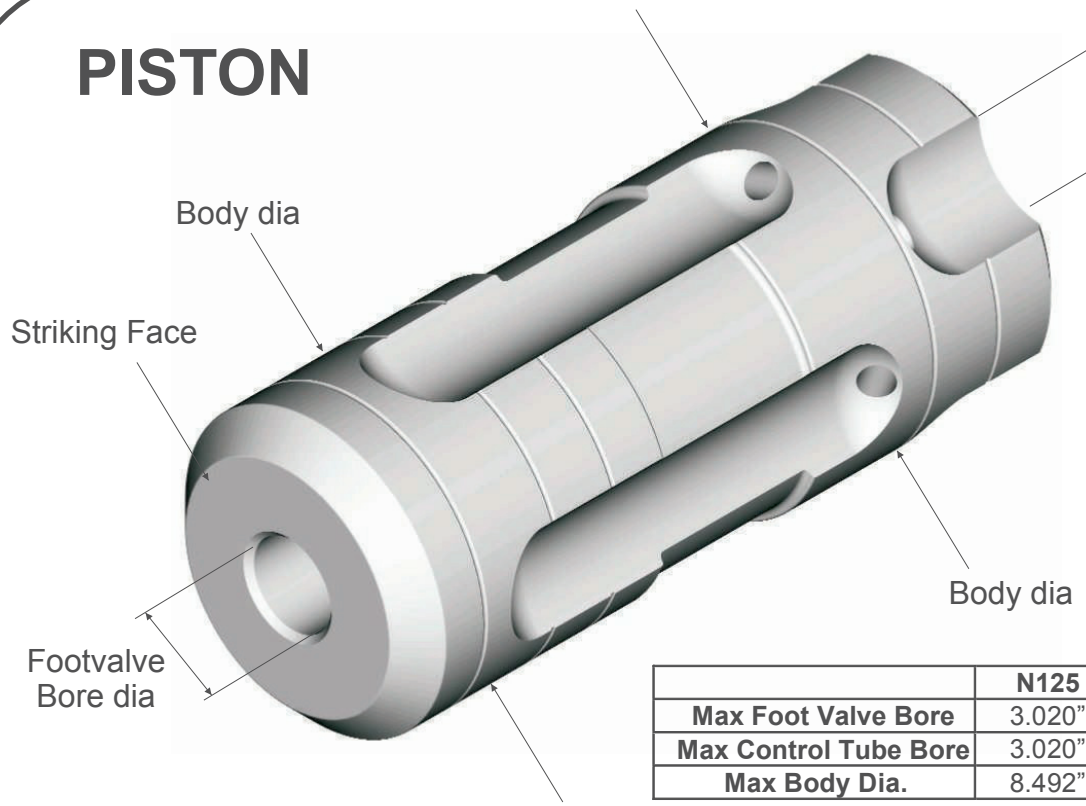
7. Checking for Wear and Damage

Premature wear to internal parts is a result of either:-

1. Insufficient or incorrect lubrication.
2. The ingress of debris in the hammer.
3. Incorrect service and storage.

The maximum wear allowance shown in this section are a guide as to when to replace parts. In certain conditions parts may need to be replaced before they reach the sizes shown.

PISTON



	N125
Max Foot Valve Bore	3.020”
Max Control Tube Bore	3.020”
Max Body Dia.	8.492”

1. There are two main areas to examine on a used piston:-

Check the body diameter for signs of pick-up and burning (both are signs of poor lubrication). Using a micrometer, measure the diameter and refer to the quoted minimum size above.

Any light ‘Pick up’ marks can be removed using emery cloth, however if there are signs of overheating and cracking, the piston should be replaced and the lubrication system examined.

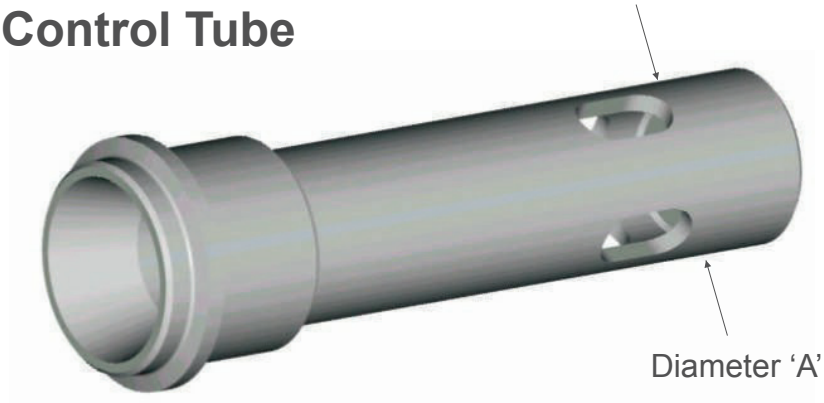
2. Secondly, using a micrometer, measure the diameter of the bore at both ends of the piston and refer to the maximum quoted sizes.

3. Examine the striking face. Distortion is acceptable proving there are no signs of cracking. Burrs and dents can be removed with an emery stone.

8. Checking for Wear and Damage

Control Tube

Control Tube
Minimum Dia
2.992” (76mm)



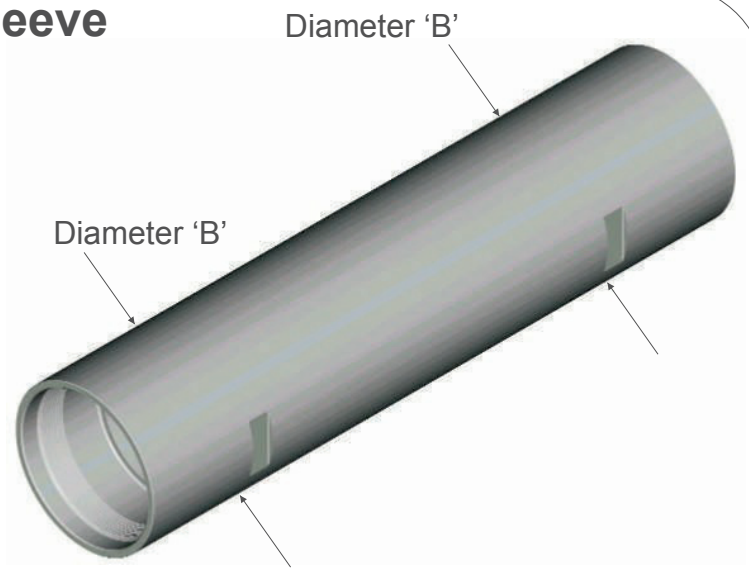
Examine the control tube diameter ‘A’, using a micrometer, check the diameter has not worn under the specified minimum.
If there are signs of pick-up they should be removed by using emery cloth.

Wearsleeve

Using either a micrometer or vernier, measure the outer diameter ‘B’ of the wearsleeve. If it is below the minimum it must be replaced. The wear rate of the wearsleeve can be slowed by replacing the chuck before the wear areas reaches the wear sleeve.

If there are signs of pick-up they should be removed by using emery cloth.

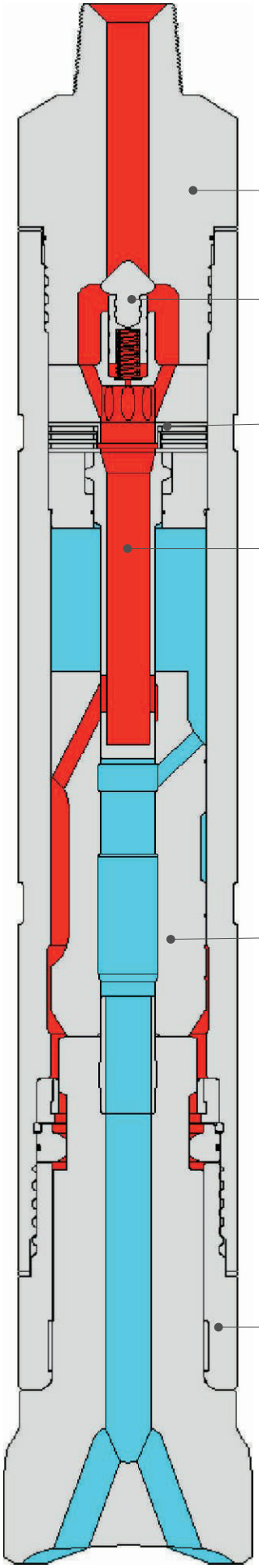
Wearsleeve
Minimum Dia
11.8” (300mm)



If a piston has broken within the wearsleeve it is imperative that the bore is honed to remove any burrs or ‘pick-up’

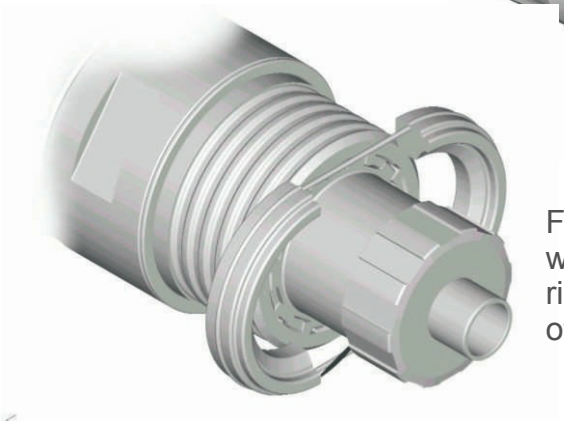
Failure to do so will result in ‘pick-up’ on the replaced piston and will lead to early failure of this component

9. Rebuilding the Hammer



Before rebuilding the hammer, check the guide bush, and bearing for any wear or damage, replace if necessary.

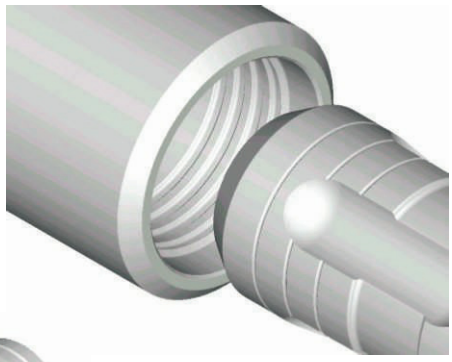
The Chuck should be placed over the bit and drive plates

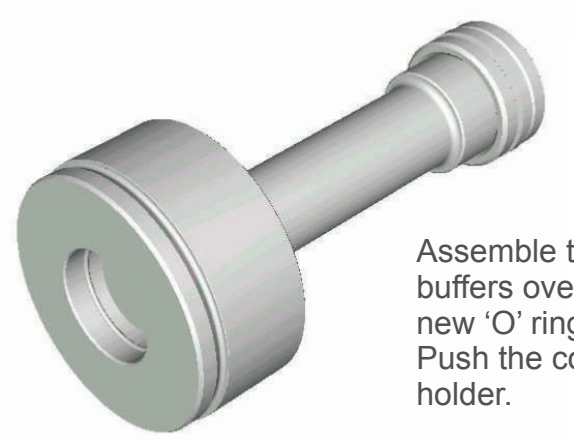


Fit the Chuck release washer and bit retaining ring, noting the orientation of the ring

Cover the threads with a copper based grease. Then Screw the Chuck fully in until there is no gap between the wearsleeve and chuck release washer.

Coat the piston with rock oil and slide it into the backend end of the wearsleeve.(Ensure the striking face enters first)

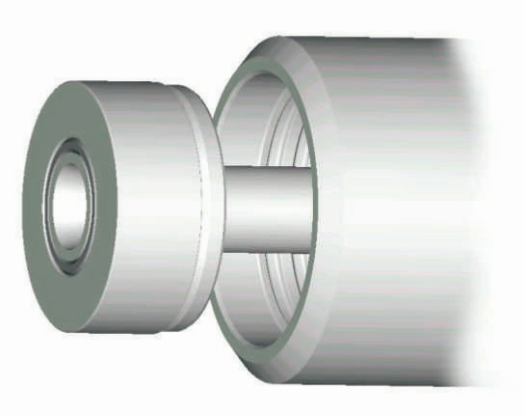


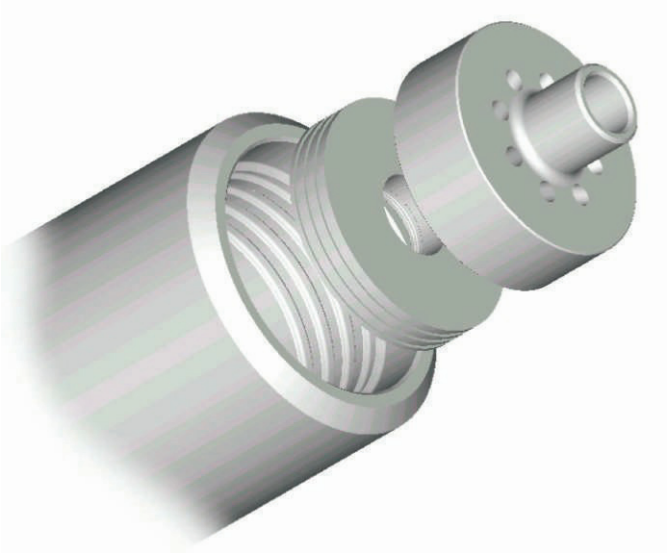


Assemble the two compression buffers over the control tube. Fit a new ‘O’ ring in the holder. Push the control tube in the holder.

10. Rebuilding the Hammer

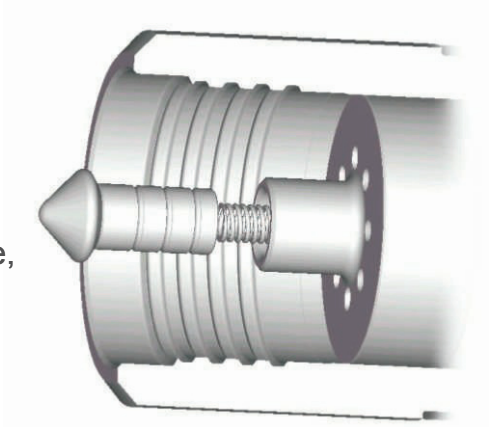
Coat the entire assembly with rock oil and slide the assembly into the backhead end of the wearsleeve until it seats.





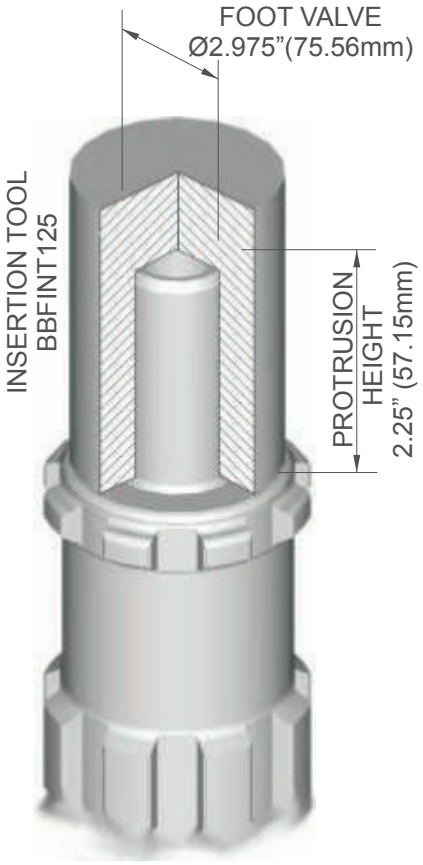
Followed by the compression ring, and the divertor..

Insert the spring into the check valve, and then slide the assembly into the hole in the divertor.



Fit a new ‘O’ ring to the backhead and coat the threads in a copper based grease. Fit the backheadbreakout washer. Screw the backhead into the wearsleeve until it is ‘hand tight’, then measure the gap between the wearsleeve face and the lock up face on the backhead. This gap should be a minimum of 2mm, if the gap is smaller the ring should be removed and replaced with a new compression ring. When the gap exceeds 2mm the backhead should be fully tightened using the appropriate backhead spanner.

11. Button Bit Details



Robit® Hyper 125/300/ hammers are designed to be used with the N125 Foot Valve.

This foot valve must be fitted or it will seriously affect the hammers performance.

To guarantee the diameter and protrusion height are correct it is recommended the correct insertion tool is used.

Using foot valves which are longer in diameter than the specified shown will result in premature failure of the foot valve. Foot valves which are much smaller than the sizes shown will reduce the performance of the hammer.

12. Lubrication

The Hyper 125 piston oscillates at 850 bpm at 150 psi (10bar). It is therefore extremely important that an adequate supply of the correct type of rock drill oil is constantly fed to the hammer whilst it is operating.
Failure to do so will quickly lead to excessive component wear and if the oil supply is cut off for any reason, the piston will quickly seize inside the wearsleeve, resulting in irreparable damage to both components.
An air line lubrication system should be installed, preferably on the drill rig. The lubricator reservoir should be of sufficient capacity to supply the required volume of rock drill oil for a full shift. With larger hammers, this may be impractical but the capacity should be sufficient for at least half a shift.
It is equally important that the lubricator system must be adjustable and have a visual check to ensure the lubricator does not run out of oil.
As a good general guide, all Robit® Hyper hammers require a third of a pint of oil per hour, per 100cfm of air through the hammer (0.07 litre per metre cubed)

Eg Hyper 125 operating at 150psi = 1087cfm = 3.62 pints per hour
10.3bar = 2.77cmm = 2.1 litre per hour

The amount of lubricating oil should be increased by 50% when drilling with water or foam.
When new drill pipes are added to the drill string, it is recommended that a half pint (a quarter of a litre) of rock drill oil is poured into the pipe to provide a good internal coating and helps prevent the hammer from running dry at any time. The grade of rock drill oil will be determined by the ambient temperature at the drilling site. If the ambient temperature is between 0 and 25 degree centigrade, then a 30 grade oil should be used. If the ambient temperature is greater than 25 degree centigrade, use a 50 grade oil.
Robit supply their own recommended rock drill oil and this is detailed below, together with other brands of suitable oils.

MAKE	MEDIUM SAE 30 ISO VG 100	HEAVY SAE 50 ISO VG 220
ROBIT	T220	T320
BP	ENGERGOL RD-E 100	ENERGOL RD-E 300
CHEVRON	ARIES 100	ARIES 320
SHELL	TORCULA 100	TORCULA 320
ESSO/EXXON	AROX EP100	AROX EP320

13. Storage

We recommend following the points listed below when removing a 'down hole hammer' from service. This will ensure trouble free operation once the hammer starts work again.

The hammer should be stripped and cleaned and free of all water/moisture as possible.
Robit® T220 or similar rock drill oil should be poured into the backhead (see chart below for quantity) allowing all parts to be coated throughout the hammer.
Both ends of the hammer should be then covered to prevent the ingress of dirt, etc.
It should be then laid horizontally in a dry environment ready for use next time.

Model	Qty in UK Pints	Qty in litres
Hyper 125	1¾	1

If this procedure is followed then apart from protecting the hammer from corrosion it will protect the parts from premature wear and of course reduce 'down time' and eventual repair costs.
However we strongly recommend that the hammer, especially if stored for any long periods of time should be stripped, cleaned, inspected and re-oiled prior use to be sure of smooth drilling.

Notes

14. Troubleshooting

INOPERATIVE DRILL	Drill bit blow holes Blocked	Unblock holes
	Dirt inside drill	Strip and clean drill
	Worn or damaged parts	Replace damaged parts
	Insufficient lubrication	Check oil level, adjust lube needle valve
	Excessive lubrication	Adjust lube valve needle
	Hanging piston	Piston stuck, polish out bores
	Insufficient air pressure	Check Compressor discharge and increase to operational pressure
SLOW PENETRATION	Insufficient air pressure	Check Compressor discharge and increase to operational pressure
	Blunt drill bit	Re-grind or change bit
	Worn drill bits	Replace worn parts
	Too much or to little lubrication	Check oil level and if necessary adjust tube needle valve
	Dirt in drill	Strip and clean
LOW RETURN AIR VELOCITY	Low air pressure	Increase air pressure
	Insufficient hole flushing air passing through hammer	Drill or increase hole size through the piston
	Drill bit exhaust holes blocked	Clean out blockage
SPASMODIC OPERATION	Failed or damaged parts	Overhaul drill
	Lack of oil	Check lubrication
	Drill bit broken	Replace bit
	Dirt in drill	Strip and clean

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