



OPERATING INSTRUCTIONS

HY-RAM COMPACT 4 DRILLING MACHINE

Machine to be operated by trained personnel

Instructions to be read before use

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Hy-Ram Compact 4



Hy-Ram C4 Drilling Machine & Accessories

Compact, lightweight hand operated Underpressure Branch Drilling Machine for 'live' drilling into Water and Gas lines. The C4 drills through a gate valve and is supplied as standard with 2 x 'screw-on' Flanges to suit 80 and 100 NP16 Flanged Valves. Cutters are available for both metallic and plastic pipes.

Ref	Product code	Description	
	130-000065	Compact 4 Complete Kit	Ⓜ Ⓜ
Kit Includes:			
A		Compact 4 Drilling Machine	
B	310-000014	100mm Flange	
C	310-000012	80mm Flange	
D	711-000013	Ratchet Spanner	
E	643-000150	Spindle & Cutter drive	
F	045-000055	Steel Box	
G	643-000053	Ratchet Spanner Extension	
H	023-000041	1/2" Tommy Bar	
I	270-000054	Allen Key 5mm	
J	270-000053	Allen Key 3mm	
K	130-000197	10mm Pilot Drill	



Bi-Metal Holesaw

Carbide Holesaw

Pilot Drills

Coupon Retaining Pilot Drill

Description	Application	Cutter Sizes	Flange Sizes
Hy-Ram C4 Drilling Machine	Water or Gas Pipes* - Makes up to 4" Branch connections (Up to 83mm diameter hole).	70 and 83mm (standard)	80 and 100mm (standard)

* Specify which option when ordering

Holesaw Cutters & Pilot Drills

Product code	Description
117-000032	70mm Bi-Metal Holesaw Cutter
117-000033	83mm Bi-Metal Holesaw Cutter
117-000099	70mm Carbide Tipped Holesaw Cutter
117-000100	83mm Carbide Tipped Holesaw Cutter
130-000045	6mm Pilot Drill (Older Drills)
130-000197	10mm Dia. Pilot Drill - C4
130-000199	Coupon Retaining Pilot Drill - C4

Other accessories include:

PE Holesaw Cutters	
Product Code	Description
117-000258	44mm Carbide Tipped PE Holesaw Cutter
117-000259	57mm Carbide Tipped PE Holesaw Cutter
117-000260	67mm Carbide Tipped PE Holesaw Cutter
117-000237	70mm Carbide Tipped PE Holesaw Cutter
117-000238	83mm Carbide Tipped PE Holesaw Cutter



Hynam recommend that a pressure test is completed prior to the use of the compact 4 drilling machine.

This unit is design and manufactured by Hynam Engineering Co Ltd.

Hynam Engineering Co Ltd has a policy of continuous improvement in product quality and design. Hynam Engineering Co Ltd therefore reserves the right to change the specification of its models at any time, without prior notice.

Important!

This manual forms a part of the product to which it relates. It should be kept for the life of the product. Any amendments issued by Hynam Engineering Co Ltd should be incorporated in the text. The manual should be passed to any subsequent holder or user of this product.

Safety Information

The Hy-Ram Compact 4 Drilling Machine should only be used by trained and competent operators. As an operator, always ensure that you fully understand how the equipment functions and that you are fully aware of the dangers. Always wear the necessary protective clothing including adequate eye protection, hard hat, gloves, overalls, protective boots etc.



Prior to commencing work, always ensure that the drill kit is complete and fully serviceable. If in doubt replace.

The Machine operation:

1. Secure Under-pressure Tee onto pipe and ensure that it is tight. (Follow manufacturers fitting instructions with regard to torque values etc.).
2. Assemble RS Gate Valve/Gasket to the Under-pressure Tee again making sure that the Nuts/Bolts are tight. Ensure RS Valve is in the 'Shut' Position
3. Assemble Holesaw Cutter and pilot Drill onto the Drill spindle of the C6 Machine. Ensure diameter of cutter is fit for purpose for the application and ensure it will fit through RS Gate Valve with ease. (I.e. 83mm cutter through DN100 Valve.).
4. As a precaution; measure the distance from the top of the RS Gate Valve to the top of the flange and compare this with the depth required for the cutter/pilot assembly on the drill spindle. If extra clearance is required between the RS Valve and flange of the C6 use a suitable flanged Spacer - (provided). (Note! This is only normally required for Gas applications where the Valves tend to have shorter flange to flange dimensions.)
5. Open RS Gate Valve.
6. Ensure flange assembled onto the bottom of the C6 is compatible with the flange on the RS Gate Valve - change C6 flange as required.
7. Assemble C6 onto the valve using suitable Gasket and Boltset.
8. Ensure that the Drilling Machine is assembled to the Tee 'Square'. I.e. tighten bolts equally.
9. Connect Hydrostatic Test Pump to port on Drilling Machine. Bleed air back through pump. After bleeding, pressure test to approx. 1 1/2 times mains pressure. Check for leakage.
10. Disconnect Hydrostatic Test Pump.
11. Begin to Drill. Operate Ratchet Spanner and Feed Screw.
12. Apply force by rotating the handwheel clockwise to load the spring, then operate ratchet spanner. As load diminishes, again turn handwheel clockwise to reload.
13. Keep repeating this loading and ratcheting sequence until hole is drilled.
DO NOT APPLY EXCESSIVE PRESSURE WITH THE HANDWHEEL. LET THE PILOT DRILL AND CUTTER DO THE WORK! 95% OF FAILED DRILLINGS ARE DUE TO OPERATOR ERROR. EXCESSIVE PRESSURE (RESULTING IN HOLESAW DAMAGE) IS THE MOST COMMON PROBLEM.
14. Whilst drilling, periodically open the Thumb valve (where the Hydrostatic Test Pump was connected) to 'jet' water out. This has the effect of clearing the swarf. Also whilst drilling the operator must periodically 'feel' the cutter and 'back-off' to allow swarf to clear.
15. The operator should feel when drilling is complete and the cutter has broken through into the main. This can be confirmed by rotating the feedscrew a couple of turns without resistance. Once drilling is complete, retract the Feedscrew.
16. Once the operator is certain that the Cutter is fully retracted and clear/above the valve plate area' shut the valve.
17. Once the Valve is shut, operate the Thumb Valve on the Drilling Machine to relieve internal pressure. The Drilling Machine can then be removed.