



User Manual, Operating Instructions and Specifications



Range of PatchMaster Multi

Mechanical Pipe Scraping tools for PE Pipe



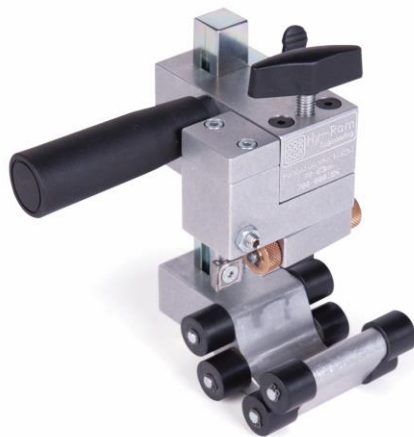
ELECTROFUSION

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User Manual, Operating Instructions and Specifications

PatchMaster Mechanical Pipe Scraping tools for PE Pipe

Description	Product code
PatchMaster Multi: 20 – 63 mm Diameter	700-000185
PatchMaster Multi: 75 – 180 mm Diameter	700-000186
PatchMaster Multi: 90 – 315 mm Diameter	700-000187





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Product description

The Hy-Ram PatchMaster Multi is a manually operated, mechanical rotary pipe Scraper. The intended use of the unit is to remove the outer oxidised surface of the polyethylene (PE80 and PE100) pipe prior to the electrofusion process.

The unit is intended for use in the mid-section of the pipe, as opposed to other tools that are intended for use at the pipe end. As such the unit is useful for scraping a 'band' around the pipe prior to the installation of an Electrofusion Top Tee.

The unit is adjusted for differing diameters by sliding the Body on the Adjustment Pillar.

There are three models cover different diameter ranges, however all work on the same principle in their operation and execution of removing the outer layer of pipe.

Description	Product code
PatchMaster Multi: 20 – 63 mm Diameter	700-000185
PatchMaster Multi: 75 – 180 mm Diameter	700-000186
PatchMaster Multi: 90 – 315 mm Diameter	700-000187

The Hy-Ram PatchMaster Multi range of scraping tools incorporate a hardened steel blade to give a controlled depth of cut over the range of pipe diameters.

The tools remove a layer in the order of 0.20 - 0.30mm thick from the outer surface of the pipe.

The tools remove a continuous strip of swarf over the insertion length of the fitting around the whole circumference of the pipe.

[The tools are not intended for use on PE pipes with removable skin. Removal of this skin should be carried out with an appropriate approved tool].

Note:

No other uses are considered appropriate for this unit.

To use this unit for other purposes could lead to the unit being used for dangerous applications that may cause injury and could result in bad practice and poor-quality workmanship.

The information contained in these instructions is to assist with the safe installation, operation and maintenance of the equipment.

This information should be made available to all persons who are required to work with or on the equipment.

In the case of any doubt with any aspect of this equipment, including the application, safe use and instructions within this document; contact Hy-Ram Engineering Co. Ltd. for clarification and advice.

Health and Safety Introduction

This document explains about the machinery and how to use and maintain it. It is intended for users and should be made available to all persons who are likely to use or work on the machinery.

There are a number of Warning, Caution and Note statements and these notify of important points:

- Warning:** Informs of hazardous conditions which may cause bodily harm
Caution: Informs of conditions which may cause damage to the equipment
Note: Explains additional or helpful information

Health and Safety Information

Warning: The PatchMaster Multi tool presents dangers from trapping parts of the body between the moving parts. Particular dangers are when mounting the tool and tightening onto the pipe.

Warning: The PatchMaster Multi tool works by being manually rotated around the pipe. This can present dangers in terms of injury to fingers/hands if there is insufficient room or clearance around the whole circumference of the pipe.

Warning:

- Prior to use:
1. Read and understand the Operating Instructions and Specifications.
 2. Ensure all component parts are present and in serviceable condition.
In particular, the cutter blade should be checked for damage or excessive wear.
(Note: the cutter blade is 4 sided and can be rotated by using a Torx T15 key)

Warning:

The PatchMaster Multi range of scraping tools incorporate a hardened steel blade to give a controlled depth of cut for a specific pipe diameters/SDR.

The cutting blade is sharp, and care must be taken when handling the tool and especially the blade [The cutting blade is 4-sided and can be easily rotated using a Torx T15 key].

Warning: Always wear appropriate Personal Protective Equipment (PPE). Operatives should wear eye protection, gloves, safety headwear and footwear when using this equipment.

Warning: The PatchMaster Multi tools remove a continuous strip of swarf around the circumference of the pipe. There is a danger of swarf causing injury to eyes.

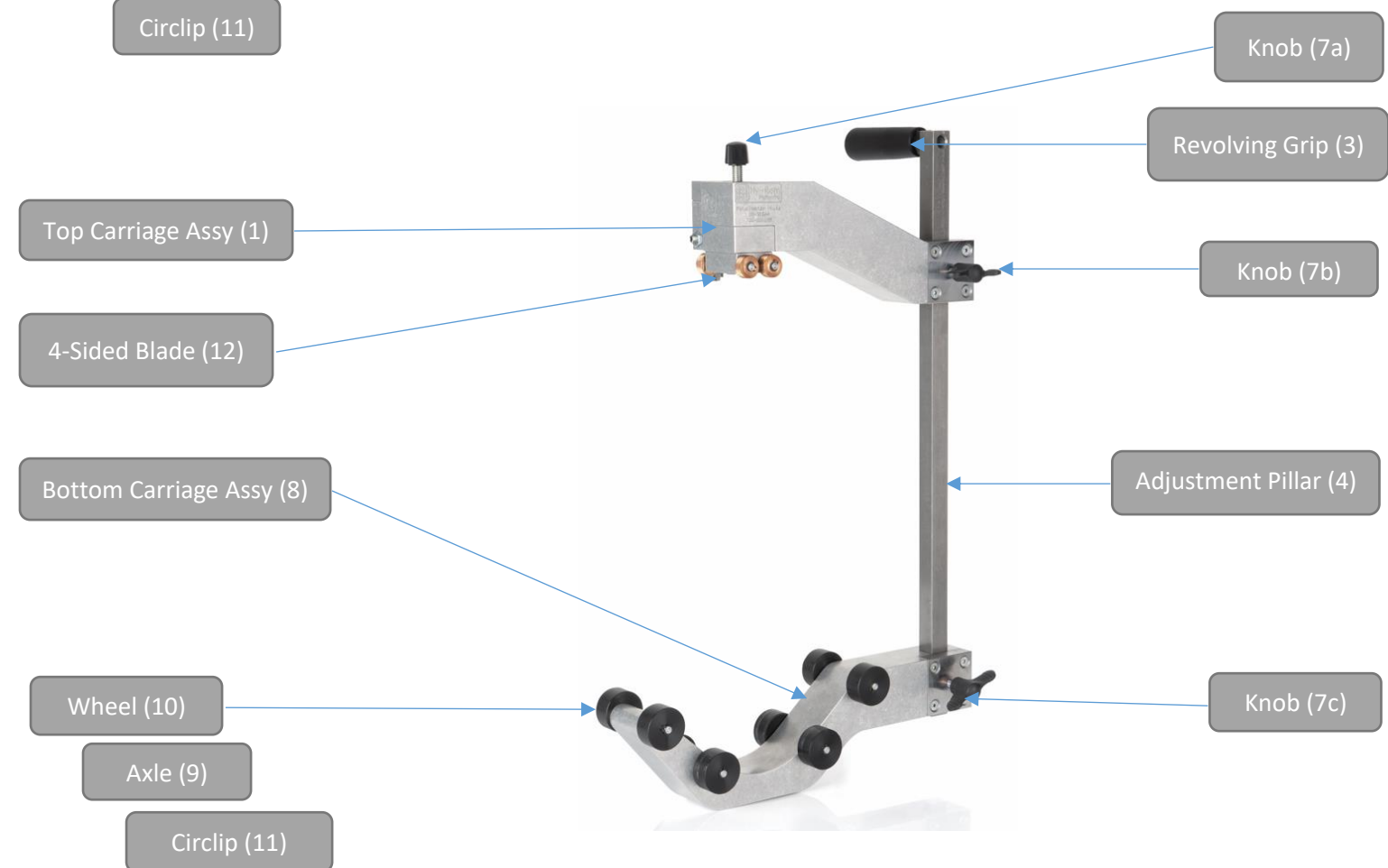
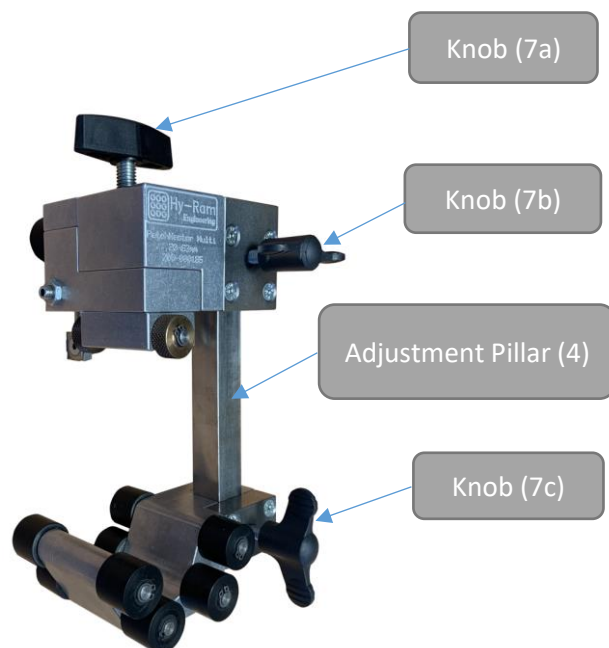
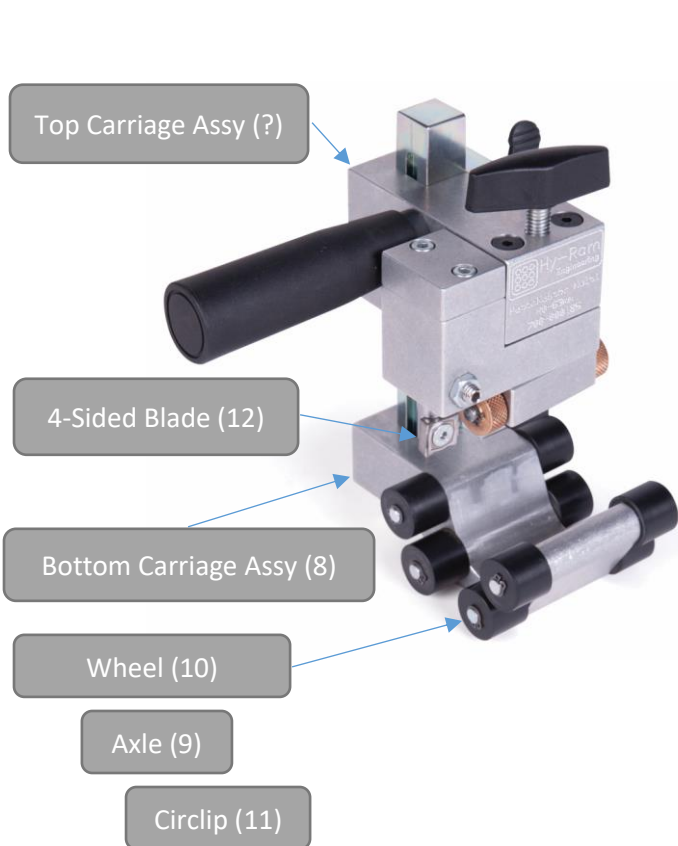
Warning: It is not envisaged that this equipment can be used by untrained operatives. Only trained operators, familiar with the industry should use this equipment.

Caution: It is the responsibility of the operator of the tool to ensure that the PE pipe is suitable for this kind of pipe preparation and that the tool will conform to the specified welding standard. In case of any doubt, contact the pipe manufacturer and/or the relevant controlling authority.

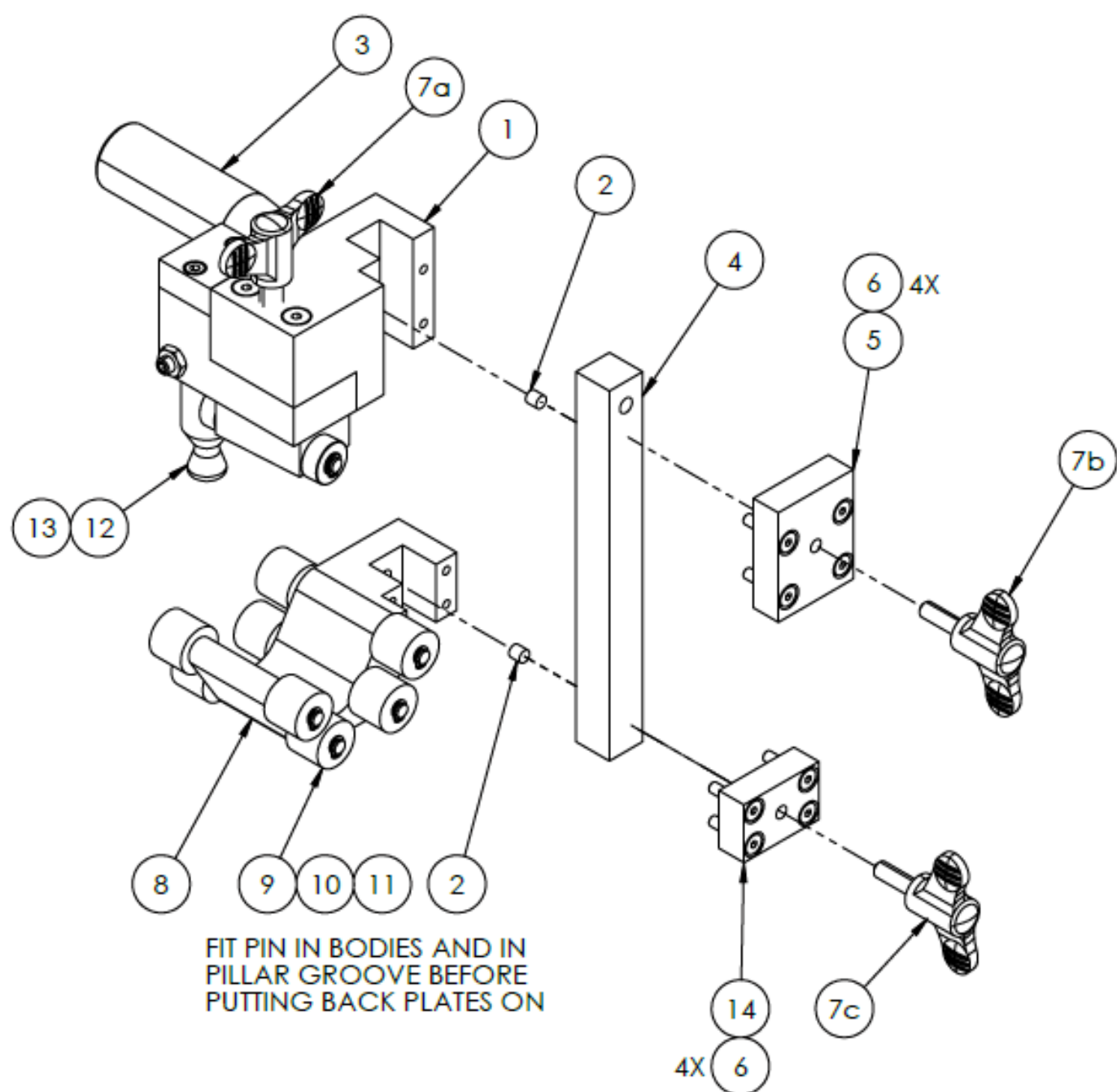
Caution: Only use the tool for the purpose of its design and on pipes within the specified diameters/SDR's.

Caution: The cutter blade spring force onto the pipe is factory set and must not be tampered with or adjusted in anyway without prior consent from Hy-Ram or an authorised dealer.

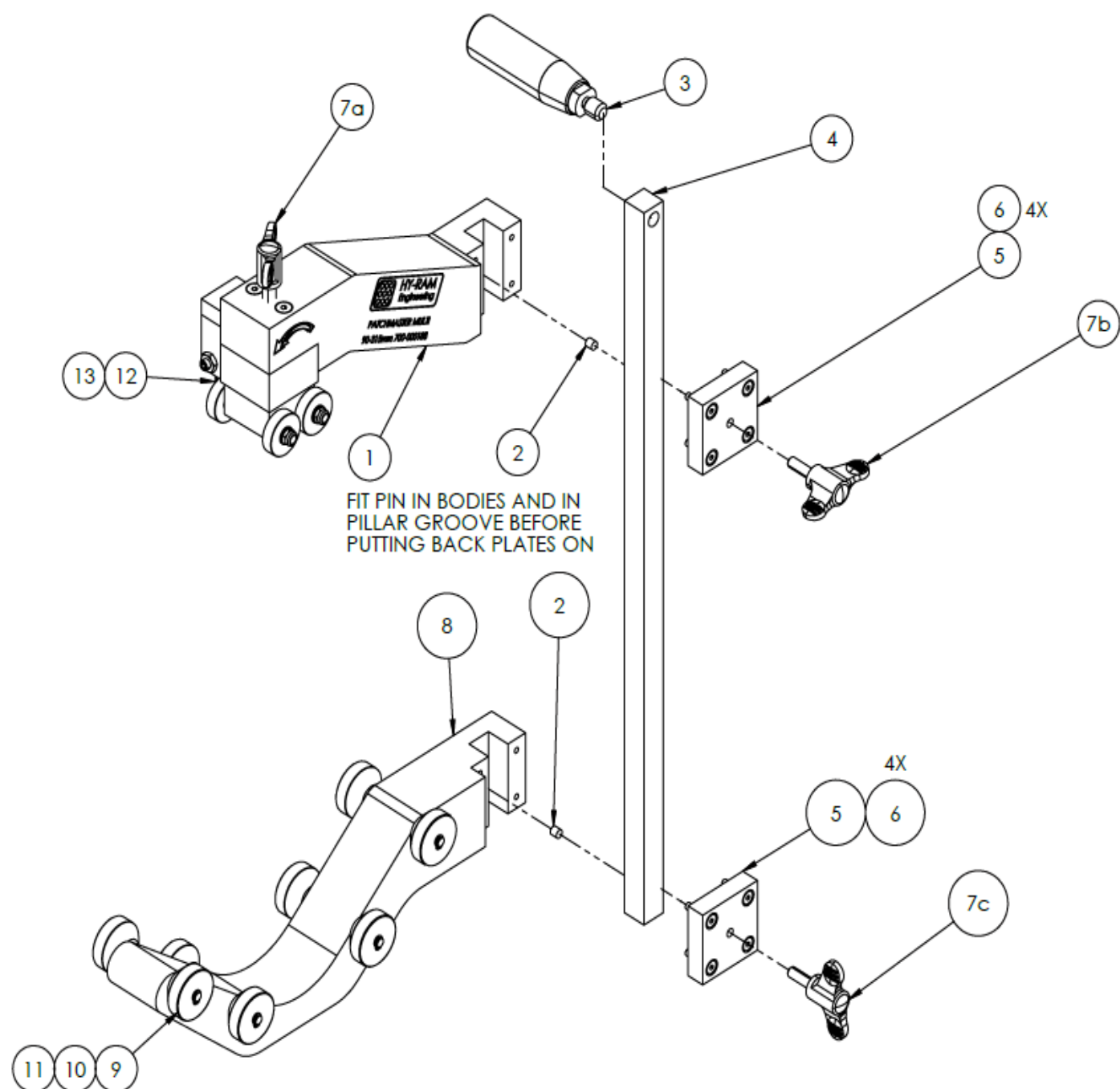
Photo Gallery



Schematic Parts drawing
Ø20-63mm PatchMaster Multi



Ø75-180mm/90-315mm PatchMaster Multi



Parts list and component part numbers

Ø20-63mm PatchMaster Multi

Item No.	Part No:	Description	Qty.
1	046-000077	TOP CARRIAGE ASSEMBLY	1
2	DOWL-5mmx5mm-SS	DOWEL PIN Ø5x5 SS	2
3	171-000157	REVOLVING GRIP	1
4	096-000030	ADJUSTMENT PILLAR	1
5	645-000381	TOP BACK PLATE	1
6	SCRW-M4x20mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x20, BZP	8
7	171-000162	FIXING KNOB	2
8	046-000073	BOTTOM CARRIAGE ASSEMBLY	1
9	014-000022	AXEL	4
10	076-000004	WHEEL	8
11	087-000024	EXTERNAL CIRCLIP	8
12	117-000291	4-SIDED BLADE	1
13	SCRW-M4x10mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x10, BZP	1
14	645-000380	BOTTOM BACK PLATE	1
15	184-000033	CARRY CASE	1

Ø75-180 PatchMaster Multi

Item No.	Part No:	Description	Qty.
1	046-000091	TOP CARRIAGE ASSEMBLY	1
2	DOWL-5mmx5mm-SS	DOWEL PIN Ø5x5 SS	2
3	171-000157	REVOLVING GRIP	1
4	096-000031	ADJUSTMENT PILLAR	1
5	645-000402	BACK PLATE	2
6	SCRW-M4x20mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x20, BZP	8
7	171-000162	FIXING KNOB	2
8	046-000090	BOTTOM CARRIAGE ASSEMBLY	1
9	014-000022	AXEL	4
10	076-000005	WHEEL	8
11	087-000024	EXTERNAL CIRCLIP	8
12	117-000291	4-SIDED BLADE	1
13	SCRW-M4x10mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x10, BZP	1
14	184-000034	CARRY CASE	1

Ø90-315mm PatchMaster Multi

Item No.	Part No:	Description	Qty.
1	046-000089	TOP CARRIAGE ASSEMBLY	1
2	DOWL-5mmx5mm-SS	DOWEL PIN Ø5x5 SS	2
3	171-000157	REVOLVING GRIP	1
4	096-000032	ADJUSTMENT PILLAR	1
5	645-000402	BACK PLATE	2
6	SCRW-M4x20mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x20, BZP	8
7	171-000162	FIXING KNOB	2
8	046-000086	BOTTOM CARRIAGE ASSEMBLY	1
9	014-000022	AXEL	4
10	076-000005	WHEEL	8
11	087-000024	EXTERNAL CIRCLIP	8
12	117-000291	4-SIDED BLADE	1
13	SCRW-M4x10mmCSKBZP	HEX SOCKET C'SUNK HEAD; M4x10, BZP	1
14	184-000034	CARRY CASE	1

Specifications

Materials:	Mild Steel – 080M40 Stainless Steel – S303 Stainless Steel – S304 Nylon – Polyamide Aluminium – 6082 T6 Brass – SAE660
Finishes:	Certain steel components are zinc plated
Marking:	Engraving

Boxed dimensions / weight:

Description	Product Code	Boxed Dimensions L x W x H mm	Weight Kg
PatchMaster Multi: 20 – 63 mm Diameter	700-000185	258 x 243 x 118	2.12
PatchMaster Multi: 75 – 180 mm Diameter	700-000186	464 x 366 x 176	5.66
PatchMaster Multi: 90 – 315 mm Diameter	700-000187	555 x 428 x 211	7.80

Typical depth of cut: 0.20 – 0.30mm

Standards: The tool is designed and manufactured to meet the requirements of:

GIS/PL2-5: 2013

Specification for Polyethylene pipes and fittings for natural gas and suitable manufactured gas.

Part 5: Electrofusion ancillary tooling.

WIS 4-32-08: 2016

Specification for the fusion jointing of polyethylene pressure pipeline systems using PE80 and PE100 materials.

DVS Technical Code 2207-1: August 2007

Welding of thermoplastics. Heated tool welding of pipes, pipeline components and sheets made of PE-HD.

BS ISO 12176-2: 2008

Plastic pipes and fittings – Equipment for fusion jointing polyethylene systems. (Note – this specification is mainly for control units)

Note: Hy-Ram Engineering Co. Ltd. operate a policy of continual improvement and therefore reserves the right to modify product specifications without notice

Operating Instructions

1. Check the pipe for any damage or abrasions that may be detrimental to the performance of the joint. If required, wash down the pipe in excess of the area to be scraped to remove traces of dirt or mud. If using wet wipes, ensure they are in compliance with the relevant specification. Ensure the area to be scraped is dry before mounting the scraper tool.
2. Check that the pipe to be scraped is within the range of the tool.
3. Using a marker pen, mark the desired final position of the ends of the fitting. (Scraping should be carried out in excess of this width).
4. Adjust the tool, using Fixing Knobs (7b and 7c); opening it wide enough in order that the Top Carriage (1) and Bottom Carriage (8) can be fitted over the centre line of the pipe.
5. Assess the clearance around the pipe and ensure that the tool (including the Adjustment Pillar) can be freely rotated. It may be necessary to adjust the relative position of the Carriages if clearance is an issue.
6. Once the clearance is optimal, lock off the Bottom Carriage (8) with Fixing Knob (7c). Then, slide down the Top Carriage (1) to touch the top of the pipe. The objective is to have all the top brass rollers (x4) and four (out of eight) of the Bottom Wheels (10) in tight contact with the pipe. Once achieved, lock off the Top Carriage (1) with Fixing Knob (7b).
7. The Blade (12) now needs to be engaged. Using Fixing Knob (7a) lower the Blade onto the pipe until 'reasonable' resistive force can be felt through the Fixing Knob (7a).
8. The tool is now ready for use. Note the direction of the arrows on the Top Carriage (1). Using the Revolving Grip (3), rotate the Scraper smoothly around the pipe in the direction of the arrow
9. A steady peel of swarf should be produced as the tool is rotated and the tool will traverse along the length of the pipe.
10. Once the desired length of scrape has been achieved dismount the scraper from the pipe; unscrew the Fixing Knob (7a) to raise and disengage the Blade (12). Then raise the Top Carriage (1) by undoing the Fixing Knob (7b). The tool can now be removed from the pipe, taking care not to touch or contaminate the scraped area.

Maintenance and storage

1. When the tool is not in use always store in the plastic storage case.
2. Ensure the tool is stored in a clean condition free of dirt and mud.
3. Ensure the Plastic Sheath is placed on the Blade when the tool is not in use.

EC DECLARATION OF CONFORMITY

We hereby declare that the following machinery complies with the essential health and safety requirements of the Machinery Directive 2006/42/EC enacted in the United Kingdom by The Supply of Machinery (Safety) Regulations 2008.

Product description: Mechanical Rotary PE pipe Scraping Tool

Make: Hy-Ram

Type: PatchMaster Multi Mechanical Pipe Scraping Tool 20-63mm, 75-180mm and 90-315mm.

Manufactured by: Hy-Ram Engineering Co Ltd.
Pelham Street
Mansfield
Nottinghamshire
NG18 2EY

This machinery has been designed and manufactured in accordance with the following transposed harmonised European standards.

The machinery complies with, or is designed and manufactured so far as is possible to comply with the relevant essential health and safety requirements, taking into account the state of threat.

Safety of Machinery

BS EN ISO 12100:2010 Safety of Machinery - General principles for design. Risk assessment and risk reduction.
and

Gas Industry Standard

GIS/PL2-5:2013: Electrofusion Ancillary Tooling

A technical construction file for this machinery is retained at the address of the manufacturer stated above.

Modifications to the equipment without prior written approval by the undersigned will render this declaration null and void.

For and on behalf of the manufacturer:

[Being a nominated person appointed by the manufacturer and employed by Hy-Ram Engineering Co Ltd].

Signature:

Name:

Position:

Date:

Signature of this Declaration of Conformity authorises the manufacturer or his authorised representative to affix the UKCA mark to the equipment.

Certificate of calibration.

- This product has been designed, manufactured, inspected, and tested in accordance with our NQA ISO 9001:2015, NQA ISO 14001:2015 and ISO 45001:2018 systems.
- This product has no calibration period and periodic safety inspections should be carried out by the operator. If in any doubt, please contact the manufacturer for further information

Decommissioning & Disposal Instructions

- If a Hy-Ram product has reached the end of its useful working life and cannot be refurbished it must be disposed of through a licensed scrap or waste disposal facility. Alternatively, a reverse engineering company could be used to strip the equipment for recycling purposes, or the product can be returned back to the manufacturer.
- Decommissioning and disposal is the responsibility of the customer. The product must be taken out of service safely and in compliance with essential Health and Safety requirements.

Warranty.

1. Extent of Warranty.

In the case that this product does not meet quality or performance expectations then Hy-Ram will replace the product to the customer's satisfaction. Hy-Ram will guarantee this product against breakage or defective workmanship for one year.

This guarantee is not valid in cases of abuse or exceptional damage beyond reasonable expectations or where incorrect use or care of the product has occurred as described in the user manual and instructions. Additionally, the guarantee is not valid in cases of unauthorised modification, misuse or any use not in accordance with the operating manual and good industry practice, operation outside the products specifications, improper site preparation or maintenance or when using with faulty pipe or fittings. Hy-Ram does not warrant the operation of any product to be uninterrupted or error free.

Any warranty or condition implied by law, shall be the replacement or parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or mis-repaired by persons other than the manufacturer or an Authorised Service Centre.

Hy-Ram Engineering Co Ltd offer a 1 year from date of despatch warranty only against defects in workmanship and materials. This limited warranty does not apply to any refurbished or reconditioned equipment and is non-transferable and subject to the conditions and limitations set forth herein. The standard Terms and Conditions of trade form part of this warranty.

Hy-Ram Engineering Co Ltd will, at its option, repair or replace (with a new or reconditioned unit of like condition).

All warranty work will be carried out by Hy-Ram Engineering Co Ltd unless otherwise agreed or by authorised Hy-Ram Engineering Co Ltd service facilities.

If replacement parts are used in making repairs, these parts may be remanufactured or contain remanufactured materials.

In returning the product for repair, the product must be delivered in its original packaging or in packaging offering a sufficient degree of protection. The product must be accompanied by written evidence of the date of purchase (see also the form at the rear of this document). Hy-Ram will not be responsible for any loss or damage incurred in connection with the return of the product.

To the extent that this warranty statement is inconsistent with the law of the locality where the customer uses the product, this warranty statement shall be deemed modified by the minimum necessary to be consistent with such local law.

To the extent allowed by local law, the remedies provided in this warranty statement are the customer's sole and exclusive remedies.

This tool has been designed for the range of pipe and fittings commercially available at the time of its design and development. Hy-Ram Engineering Co Ltd can accept no liability for the unit's ability or otherwise to work with new or different fittings that are subsequently introduced to the market.

The foregoing limited warranty is Hy-Ram Engineering's only warranty with respect to the product and Hy-Ram makes no other warranty whatsoever, written or oral, express or implied, regarding the product, including without limitation any warranty of merchantability, fitness for a particular purpose or non-infringement. In no event will Hy-Ram or its authorised dealers be liable for any loss of profits or special, consequential or incidental damages even if such damages result from negligence or other fault.

Please complete this information and keep it safely with your proof of purchase receipt. You will require it for any warranty claim.

Name and location of seller

Date of purchase:

Name and address
of purchaser:

.....

.....

Type of tool:

Serial number (if applicable):

For service and repair please contact:

Hy-Ram Engineering Co. Ltd.
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Tel: +44 (0)1623 422982

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For Sales, Hire and Repair support contact our admin team or scan the QR code for further details

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