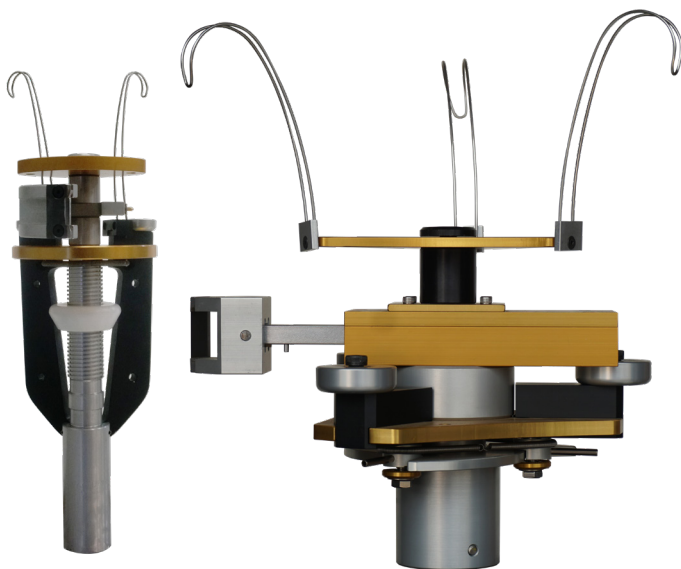




Manufacturer of the

BEAD TRIMMER™

HDPE FUSION BEAD REMOVAL TOOLING



OPERATIONS MANUAL

BT2/BT3 Series BeadTrimmer™

R&L MANUFACTURING, INC.

215 East Reserve Street
Suite 104; PMB B12
Vancouver, WA 98661

(360) 833-9194
www.RLMFG.com

BEADTRIMMER™ OPERATIONS MANUAL

BT2/BT3 Series Warranty

WARRANTY

1. Equipment Warranty. Company warrants all Equipment to be free from defects in material or workmanship under normal use and service for a period of ninety (90) days from the date of delivery. All repair covered by this warranty must be done at Company's factory, or other such warranty repair facilities of Company as designated by Company unless Company specifically directs that this service be performed at another location. Any defect corrected within ninety (90) days and found to be within this scope of the warranty will be repaired by Company and all charges for labor and material, will be borne by Company. If it is determined that either no fault exists in Company, or the damage to be repaired was caused by negligence of Distributor, its agents, employees or customers, Distributor agrees to pay all charges associated with each such repair. THIS CONSTITUTES THE SOLE WARRANTY MADE BY COMPANY EITHER EXPRESSED OR IMPLIED. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED WHICH EXTEND BEYOND THE FACE HEREOF, HEREIN, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AND DISTRIBUTOR'S REMEDIES SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF NONCONFORMING UNITS OR PARTS. THE WARRANTY AND TERMS AS EXPRESSED HEREIN SHALL NOT APPLY TO ANY CLAIMS BY ANY END USER AND/OR CONTRACTOR, AND COMPANY MAKES NO OTHER WARRANTY EXPRESSED OR IMPLIED TO SUCH USER, INCLUDING, BUT NOT LIMITED TO, ANY CLAIM FOR BACK CHARGES, DOWN TIME, OR OTHER INTERRUPTION OF WORK.

2. Misuse of Equipment. Any tampering, misuse or negligence in handling or use of Equipment renders the warranty void. Further, the warranty is void if, at any time, Distributor attempts to make any internal changes to any of the components of the Equipment; if at any time the power supplied to any part of the Equipment exceeds the rated tolerance; if any external device attached by Distributor creates conditions exceeding the tolerance of the Equipment; if any time the serial number plates is removed or defaced; or Distributor fails to follow any terms set forth within any training or operation guides provided by Company. OPERATION OF THE EQUIPMENT THAT RENDERES THIS WARRANTY VOID WILL BE DEFINED TO INCLUDE ALL OF THE POSSIBILITIES DESCRIBED IN THIS PARAGRAPH, TOGETHER ON ANY PRACTICE WHICH RESULTS IN CONDITIONS EXCEEDING THE DESIGN TOLERANCE OF THE EQUIPMENT.

3. Indemnity. The Distributor agrees to hold the Company free and harmless from any and all claims, damages, and expenses of every kind or nature whatsoever (a) arising from acts of the Distributor; (b) as a direct or indirect consequences of termination of this Agreement in accordance with its terms; or (c) arising from acts of third parties in relation to products sold to the Distributor under this Agreement, including, but not limited to execution of liens and liens and security interests by third parties with respect to any such products.

BEADTRIMMER™ OPERATIONS MANUAL

Table of Contents

BeadTrimmer™

Warranty	1
BeadTrimmer™ Overview	2
BeadTrimmer™ Head Specifications	15

BT2 Series

Features	3
Set-Up	4
Operation	5

BT3 Series

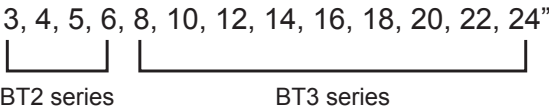
Features	9
Set-Up	10
Operation	11

Handle Package

Torque Tube Set-Up	8
Centralizing Disk	14
Coupler Support Sleeves	14

BEADTRIMMER™ OVERVIEW

The patented BeadTrimmer™ tooling is designed to remove the interior fusion bead in **High Density Polyethylene (HDPE) fused pipe only**. The BeadTrimmer™ product line offers **thirteen head sizes**, corresponding with common nominal pipe sizes (IPS).



Each BeadTrimmer™ has an adjustable cutting range to accommodate varying Interior Diameters (ID) due to Dimension Ratio (DR) and pipe wall thickness. See *BeadTrimmer™ Head Specifications* (pg. 15) for cutting ranges of BT2/BT3 series BeadTrimmer™ head sizes.

BEADTRIMMER™ BT2 FEATURES

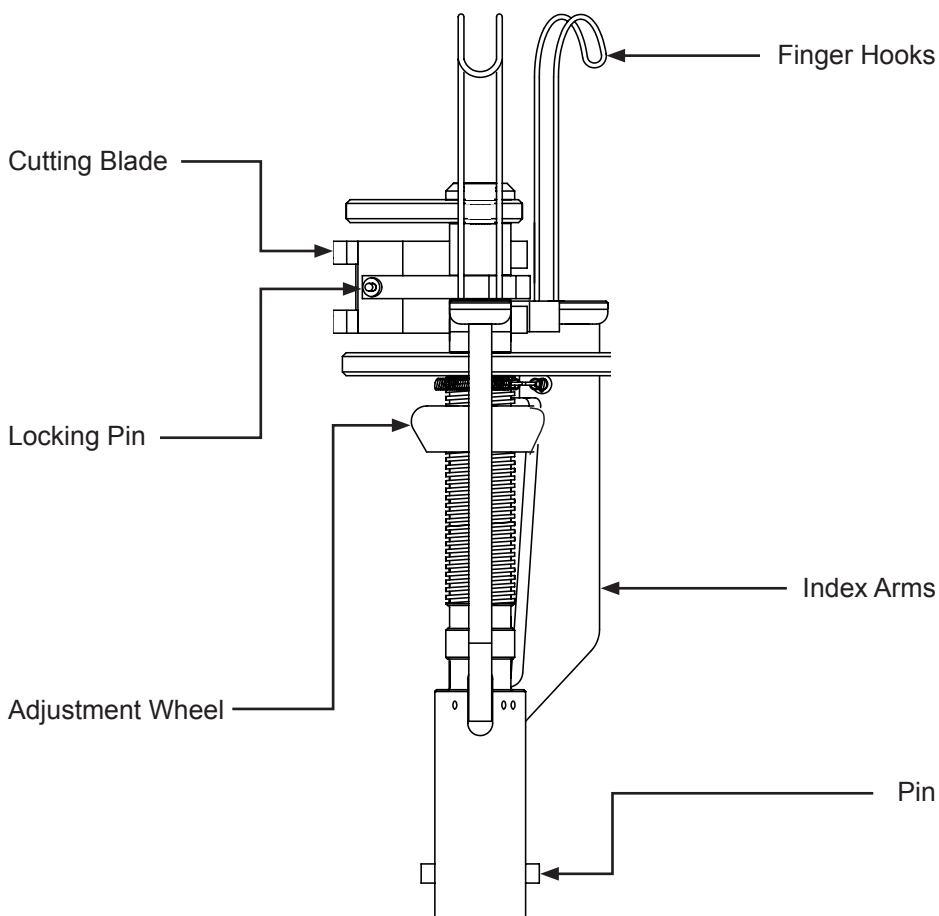
The BT2 series includes four BeadTrimmer™ head sizes:
BT2-03, BT2-04, BT2-05, BT2-06

Each BeadTrimmer™ head size is designed to remove the internal fusion bead in corresponding nominal pipe sizes:

3" (90mm), 4" (100mm), 5" (125mm), 6" (150mm) IPS.

The BT2 series BeadTrimmer™ features an Adjustment Wheel, Finger Hooks, Arms and Index Wheels, and utilizes a spring-loaded Locking Pin to engage the Cutting Blade.

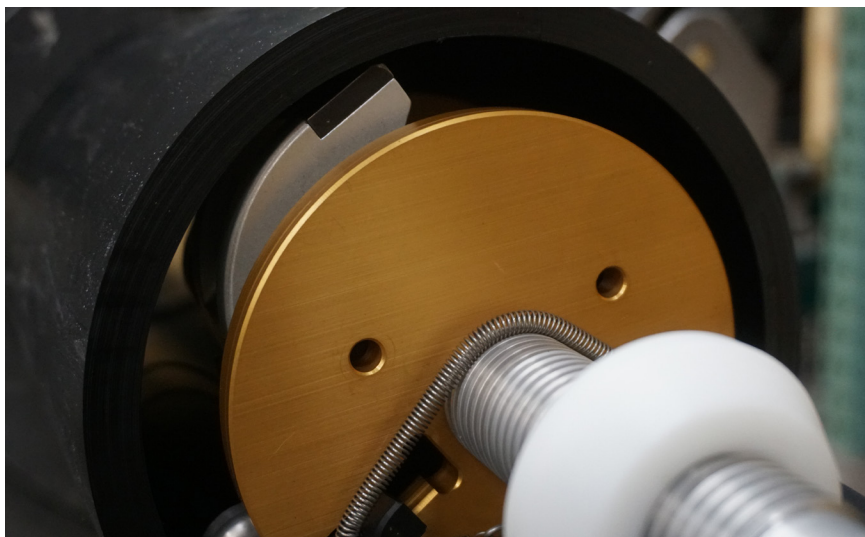
BT2 series attach to Handle Package Torque Tube with provided Pin.



BEADTRIMMER™ BT2 HEAD SET-UP

CAUTION!

Exposed blade is very sharp. Use caution when handling and operating near Cutting Blade.



STEP 1

With Cutting Blade open, place BeadTrimmer™ head inside the pipe so that Index Wheels are resting on the inside diameter pipe wall and Cutting Blade is pointed up.

STEP 2

Turn the Adjustment Wheel clockwise to increase the radius of the Arms and Index Wheels. Continue to adjust until the Cutter Blade contacts the inside diameter pipe wall.

STEP 3

Continue to adjust until Cutting Blade is compressed against the pipe wall 1/16" to 1/8" from it's full open position.

STEP 4

Hold down Cutting Blade and engage spring-loaded Locking Pin to complete set-up of BT2 Series BeadTrimmer™.

BEADTRIMMER™ BT2 OPERATION

DO NOT attempt to remove a HOT fusion bead.

Proper cooling time must be observed before removing the bead. For ease of use, it is recommended to remove the bead after the appropriate cooling period, and is still warm – though the BeadTrimmer™ is just as effective with cold beads, even in old existing systems.

BT2/BT3 series BeadTrimmer™ heads require Handle Package Torque Tubes to manually operate. Handle Package Set-Up, Centralizing Disk, and Coupler Support Sleeves on pg.8.

Proceed with operation steps after Handle Package is assembled, BeadTrimmer™ head is adjusted and Cutting Blade closed.

STEP 1

With Locking Pin engaged and Cutting Blade closed, slide BeadTrimmer™ into pipe towards bead using assembled Torque Tubes. Slide until Index Wheels contact targeted bead.

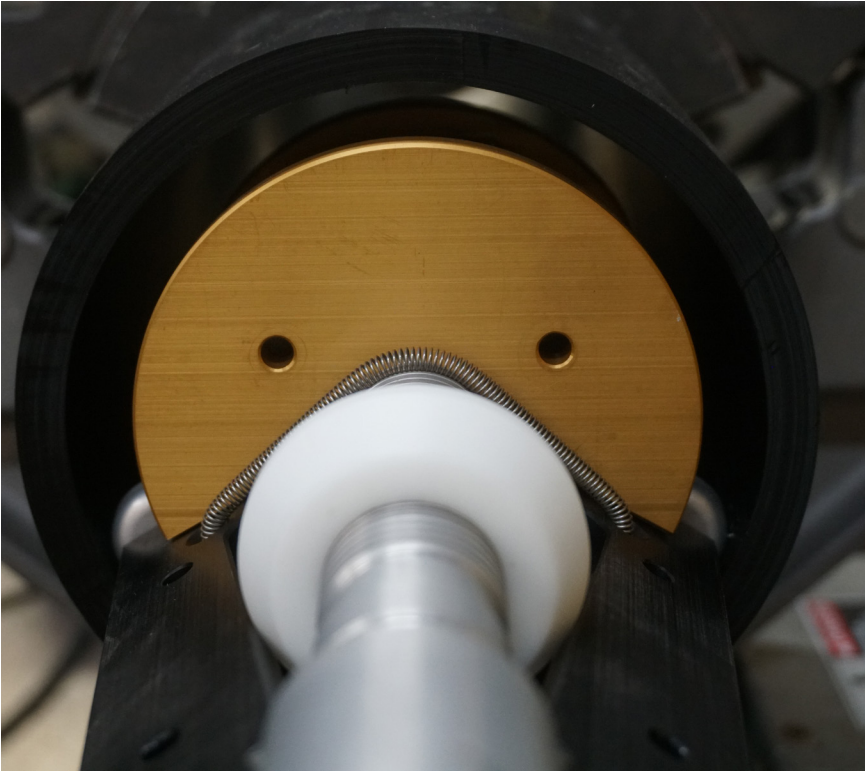


STEP 2

Using the Torque Tubes and Crosshead, rotate the BeadTrimmer™ head counterclockwise until the spring-loaded Locking Pin releases the Cutting Blade.

IMPORTANT!

DO NOT push or pull the BeadTrimmer™ head while rotating. Index Wheels should maintain light contact with target bead while operating. Misalignment or undue force will result in unsatisfactory bead removal.



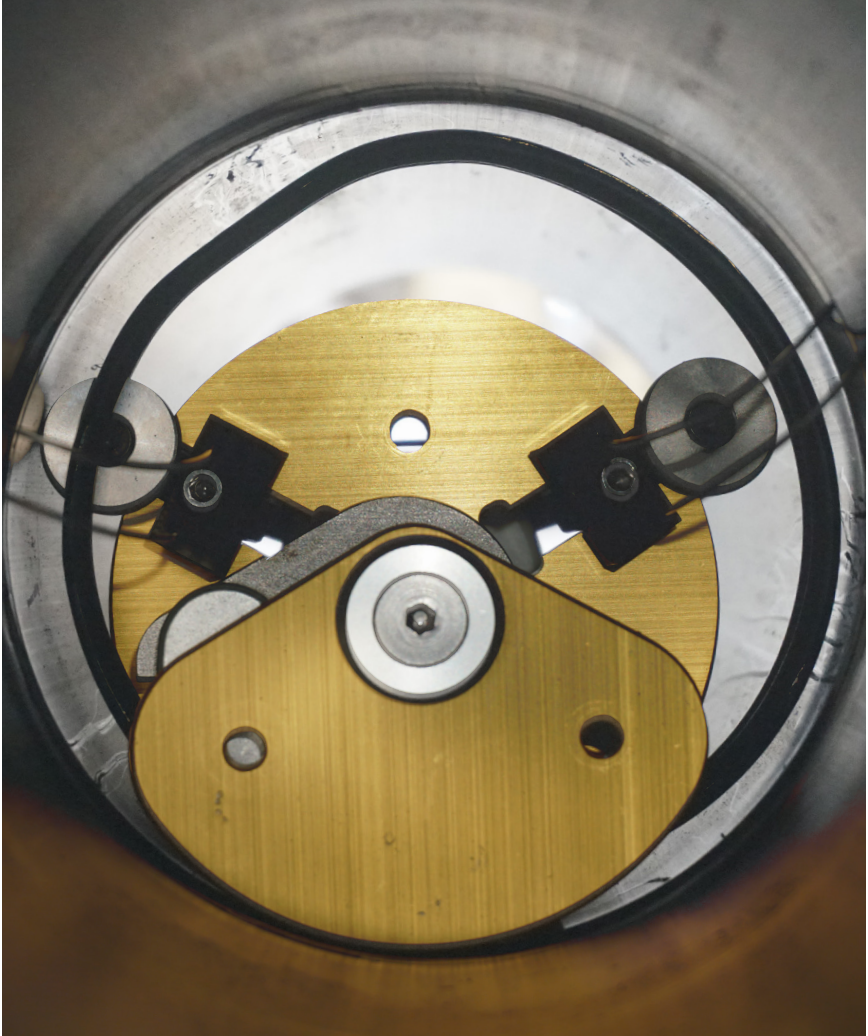
RELEASE BLADE



REMOVE BEAD

STEP 3

With Cutting Blade released, rotate BeadTrimmer™ clockwise one full revolution or until bead is completely cut from pipe wall.



STEP 4

Finger Hooks retrieve loose bead as you remove BeadTrimmer™ from pipe.

HANDLE PACKAGE SET-UP

All BeadTrimmer™ heads require a Handle Package to operate. The Standard Handle Package provides 51' (15.5m) of reach and includes:

(6) 7'9" Torque Tubes, (1) 4'6" Torque Tube, (1) 3' Torque Tube, (1) 18" Torque Tube, (7) Unions with Pins, (1) Crosshead.



STEP 1

Use Unions and Pins to connect Torque Tubes to required length. If necessary, combine Coupler Support Sleeves to strengthen connections (pg. 14).

STEP 2

Secure the Crosshead onto one end of the assembled Torque Tubes using a Wheel Screw. Slide the 18" Torque Tube into the Crosshead and tighten down with thumbscrew.

STEP 3

Using an Allen wrench, secure Centralizing Disk approximately 7' (2m) to 10' (3m) from open end of assembled Torque Tubes.

STEP 4

Secure BeadTrimmer™ head to open end of assembled Torque Tubes using a Pin or Wheel Screw.

BEADTRIMMER™ BT3 FEATURES

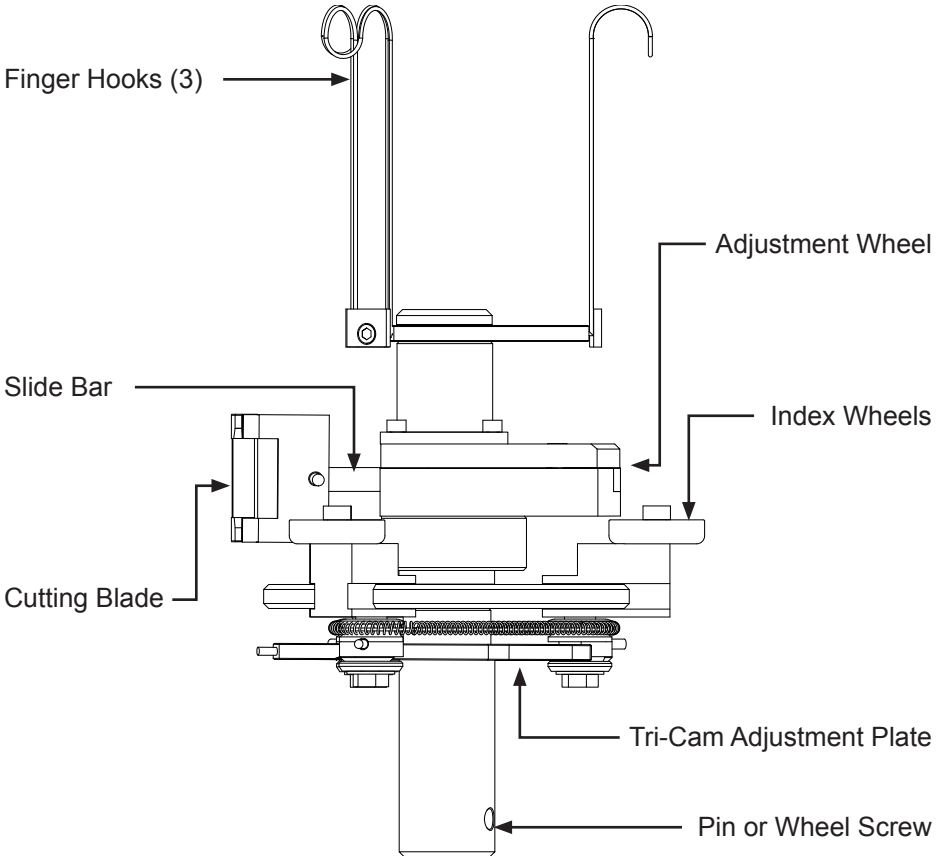
The BT3 series includes nine BeadTrimmer™ head sizes:

BT3-08, BT3-10, BT3-12, BT3-14, BT3-16, BT3-18, BT3-20, BT3-22, BT3-24

Each BeadTrimmer™ head size is designed to remove the internal fusion bead in corresponding nominal pipe sizes:

8" (200mm), 10" (250mm), 12" (300mm), 14" (350mm), 16" (400mm), 18" (460mm), 20" (510mm), 22" (560mm), 24" (610mm) IPS.

The BT3 series BeadTrimmer™ features a Tri-Cam Adjustment Plate, three Finger Hooks, three Index Wheels, and utilizes a gravity-activated release to engage Slide Bar and Cutting Blade.



BEADTRIMMER™ BT3 HEAD SET-UP

CAUTION!

Exposed blade is very sharp. Use caution when handling and operating near Cutting Blade.



STEP 1

Engage cutter by pushing the Slide Cutting Arm and Cutting Blade into the Assembly Housing until the internal Release Hook engages.

STEP 2

Place BeadTrimmer™ head inside the pipe so that two Index Wheels are resting on the inside diameter pipe wall and third Index Wheel pointed up.

STEP 3

Turn the Tri-Cam Adjustment Plate clockwise to increase the diameter of the Arms and Index Wheels. Continue to adjust until third Index Wheel is 1/8" away from inside diameter pipe wall.

STEP 4

Use 1/2" wrench on each Tri-Cam Lock (3) to lock Tri-Cam Plate and Index Wheels in position.

BEADTRIMMER™ BT3 OPERATION

DO NOT attempt to remove a HOT fusion bead.

Proper cooling time must be observed before removing the bead. For ease of use, it is recommended to remove the bead after the appropriate cooling period, and is still warm – though the BeadTrimmer™ is just as effective with cold beads, even in old existing systems.

BT2/BT3 series BeadTrimmer™ heads require Handle Package Torque Tubes to manually operate. Handle Package Set-Up, Centralizing Disk, and Coupler Support Sleeves on pg.8.

Proceed with operation steps after Handle Package is assembled, BeadTrimmer™ head is adjusted and Cutting Blade closed.

STEP 1

With Slide Bar and Cutting Blade engaged, slide BeadTrimmer™ into pipe towards bead using assembled Torque Tubes. Slide until Index Wheels contact targeted bead.

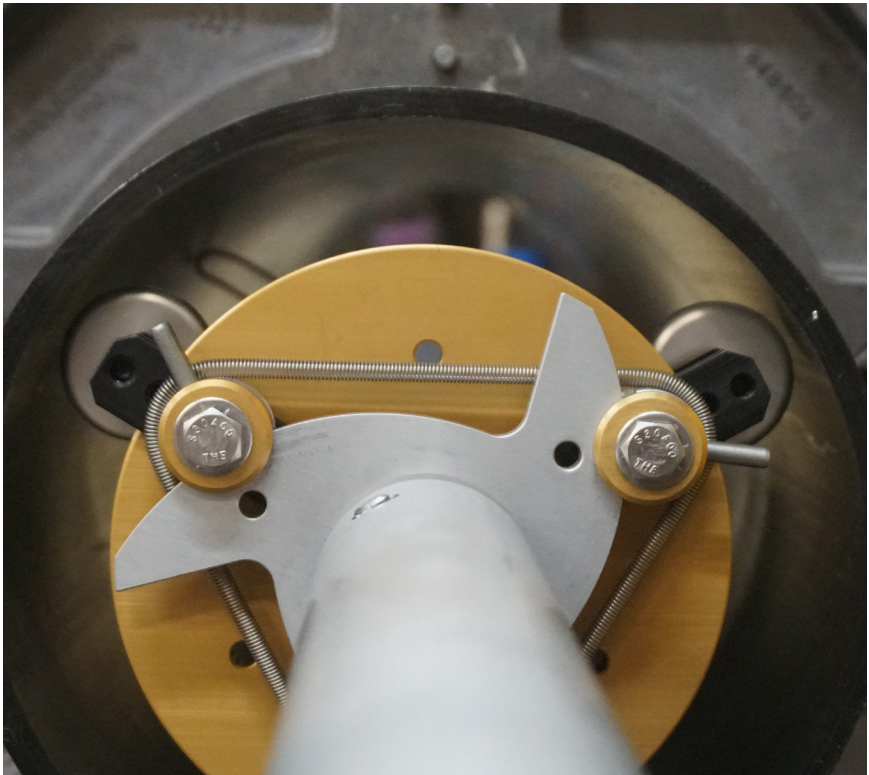


STEP 2

Using the Torque Tubes and Crosshead, rotate the BeadTrimmer™ head counterclockwise until the gravity-activated Release Hook disengages the Cutting Blade.

IMPORTANT!

DO NOT push or pull the BeadTrimmer™ head while rotating. Index Wheels should maintain light contact with target bead while operating. Misalignment or undue force will result in unsatisfactory bead removal.



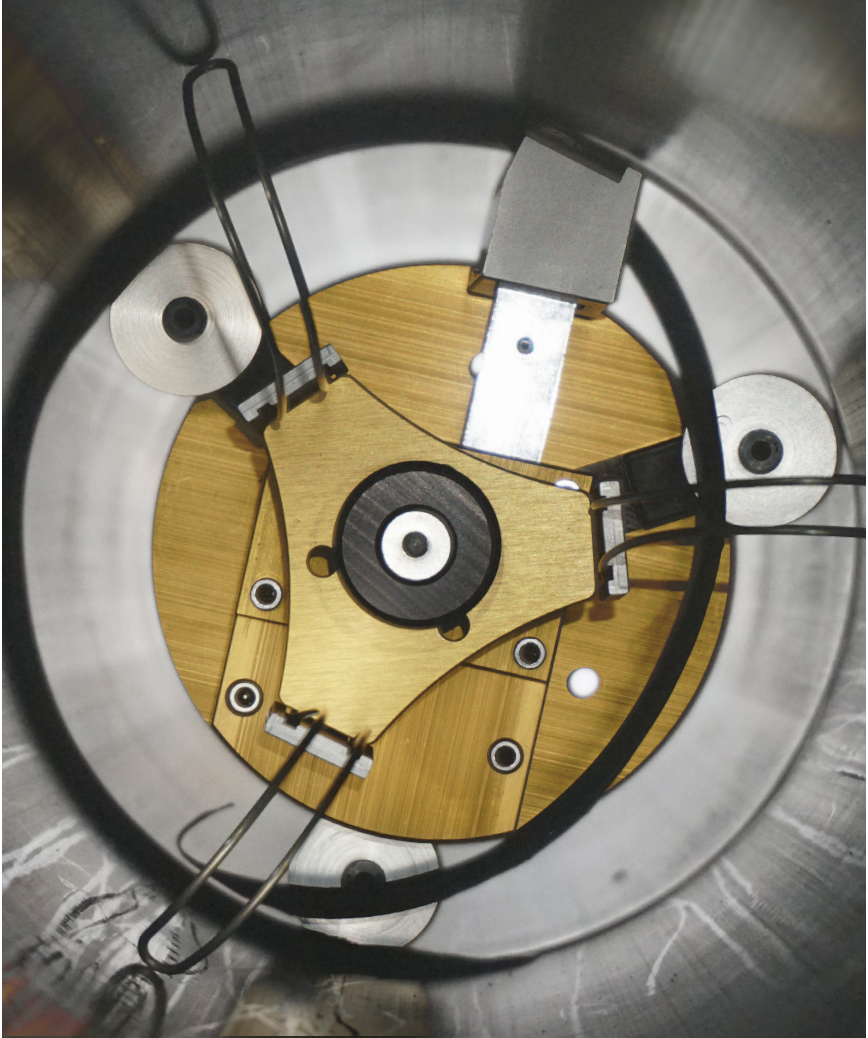
RELEASE BLADE



REMOVE BEAD

STEP 3

With Cutting Blade released, rotate BeadTrimmer™ clockwise one full revolution or until bead is completely cut from pipe wall.



STEP 4

Finger Hooks retrieve loose bead as you remove BeadTrimmer™ from pipe.

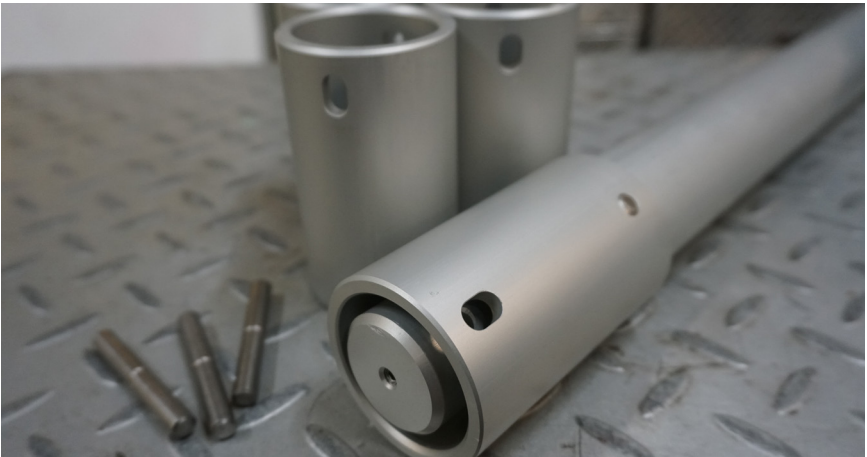
CENTRALIZING DISK

For nominal pipe sizes 6" (150mm) and larger, a Centralizing Disk should be slid over the Torque Tube, **approximately 10' (3m) from the BeadTrimmer™ head**. The Centralizing Disk properly positions the BeadTrimmer™ head and Finger Hooks with the targeted fusion bead. Centralizer Disks are not necessary for 5" (125mm) pipe or smaller.



COUPLER SUPPORT SLEEVES

Coupler Support Sleeves (with Long Pins) strengthen and protect Torque Tube connections from high torque operations. Coupler Support Sleeves are recommended when removing the bead from **14" (350mm) pipe and larger**.



BEADTRIMMER™ HEAD SPECIFICATIONS

Each BeadTrimmer™ has an adjustable cutting range to accommodate varying Interior Diameters (ID) due to Dimension Ratio (DR) and pipe wall thickness. For SDR 7, SDR 7.3, and SDR 9 pipe, please contact an R&L representative for proper head size before ordering. All head sizes require a Handle Package to operate.

BeadTrimmer™ Head Size/Pipe Index Available at WWW.RLMFG.COM

BEADTRIMMER HEAD SIZE		CUTTING RANGE		SHIPPING WEIGHT & SIZE			
PN #	NOM. PIPE SIZE	MINOR (ID)	MAJOR (ID)	LENGTH	WIDTH	HEIGHT	WEIGHT
BT2-03	3" (90mm)	2.48" (63mm)	3.28" (83mm)	18"	6"	6"	5 lbs
BT2-04	4" (100mm)	3.19" (81mm)	4.22" (107mm)	18"	6"	6"	7 lbs
BT2-05	5" (125mm)	3.94" (100mm)	5.22" (132mm)	18"	8"	8"	9 lbs
BT2-06	6" (150mm)	4.7" (119mm)	6.2" (157mm)	18"	8"	8"	12 lbs
BT3-08	8" (200mm)	6" (156mm)	8.06" (205mm)	18"	10"	10"	16 lbs
BT3-10	10" (250mm)	7.62" (194mm)	10.04" (255mm)	18"	12"	12"	24 lbs
BT3-12	12" (300mm)	9.04" (229mm)	11.92" (302mm)	18"	14"	14"	33 lbs
BT3-14	14" (350mm)	9.93" (252mm)	13.08" (332mm)	18"	14"	14"	35 lbs
BT3-16	16" (400mm)	11.35" (288mm)	14.95" (380mm)	18"	16"	16"	44 lbs
BT3-18	18" (460mm)	12.77" (324mm)	16.82" (427mm)	18"	16"	16"	48 lbs
BT3-20	20" (510mm)	14.19" (360mm)	18.69" (474mm)	20"	20"	18"	62 lbs
BT3-22	22" (560mm)	15.61" (396mm)	20.56" (522mm)	20"	20"	18"	65 lbs
BT3-24	24" (610mm)	17.03" (432mm)	22.43" (570mm)	20"	20"	18"	66 lbs