



D105-T420 SERIES HYDRAULIC CRIMPERS OPERATORS MANUAL





# SAFETY PRECAUTIONS



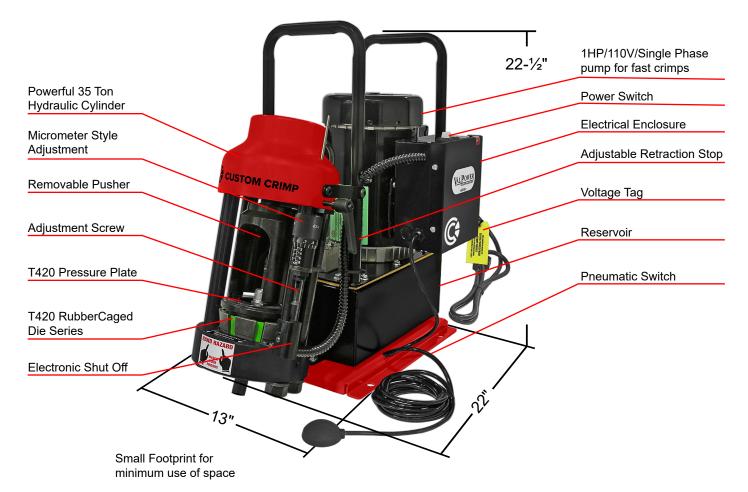
- READ INSTRUCTIONS AND IDENTIFY ALL COMPONENT PARTS BEFORE USING CRIMPER.
- D105-T420 SERIES CRIMPERS CAN PRODUCE 35 TONS OF CRIMPING FORCE.
- KEEP BOTH HANDS AWAY FROM PINCH POINTS.
- CONSULT HOSE AND FITTING MANUFACTURER FOR CORRECT MACHINE SETTINGS AND CRIMP MEASUREMENTS.
- ALWAYS WEAR EYE PROTECTION.



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## **COMPONENT PARTS & TECHNICAL DATA**



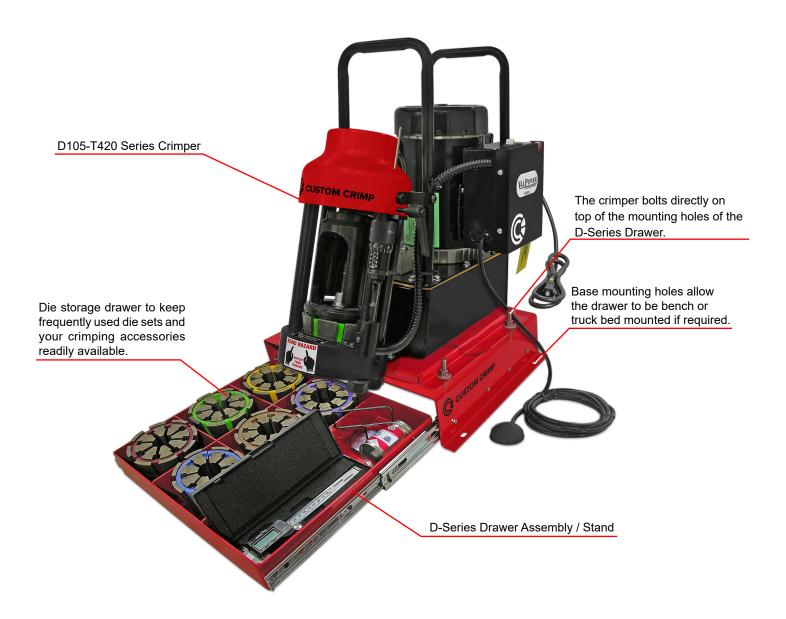


D105-T420 Technical Specifications		
Crimping force: 35 Ton		
Hydraulic hose capacity: 2 Wire = 1" 4 Spiral = 3/4"		
Crimper size: L: 22" x W: 13" x H: 22-1/2"		
Crimper weight: 124 lbs		
Power: 1HP/110V/1Phase (Standard) 2HP/220V/1Phase (Optional)		
Die series: D160-T420 Rubber Caged		
Micrometer style adjustment: T420		
Reservoir capacity: 1 US Gallon		
Oil type: ISO 46 Hydraulic Oil		

\*Crimper capacity is estimated based on typical 1-piece fitting. Actual results may vary depending on the fitting and hose manufacturer.



## D105/D165 D-SERIES DRAWER ASSEMBLY / STAND



D-Series Drawer Assembly / Stand is available for D105-T420 / D165-T420 Series Crimpers.



## **FEATURES**



T420 Micrometer "Micro-Crimp Adjuster" is fully adjustable to make precise and repeatable crimps.



Open design, two piece rubber caged die set for heavy duty environments and removable pusher allows the operator to accurately position the fitting prior to crimping.



Built-in adjustable retraction stop limits ram retraction for quick repetitive crimps.



An easily removable Coupling Stop makes repetitive crimps faster by not having to visually align the fitting before each crimp.



Automatic stop switch shuts the pump off when the crimp cycle is complete.



Easy calibration adjustment to increase or decrease crimp OD.



## **INITIAL SET UP**

## FOLLOW THESE STEPS <u>BEFORE</u> YOU USE THE CRIMPER FOR THE FIRST TIME.

• Mount the crimper on a sturdy workbench in a well-lit area. Workbench should be able to support the crimper and components weight.

Note: The D105-T420 series crimper can be mounted on the D-Series Drawer/Stand and bolted onto the workbench. (See detailed instructions included with D-Series drawer/stand).

• The crimper should be mounted close enough to the edge of the work surface so that hose will not contact the bench or work surface while crimping. There must be enough clearance for the hose to align perpendicular with the cone base, or the dies will not seat properly and the crimps will not be accurate.

• Always check oil level in the D105-T420 pump, should be 1-1/2 to 2 inches below the vent plug when the cylinder is in the retracted position and should be visible in the sight glass window of the pump reservoir.

- If oil needs to be added use ISO 46 weight hydraulic oil.
- Oil can be drained from the rear oil port of the reservoir.

• Check to be certain that the shipping plug in the pump reservoir has been replaced with the vent plug shipped with the D105-T420 crimper.

• Check electrical circuit to be certain that it matches the crimper requirements shown on the voltage tag attached to the crimper cord.

• Plug the D105-T420 crimper directly into a 110 volt, 15 amp wall outlet.

Note: The optional 220 volts / 2HP unit must be connected to a 220 volts 20 amp wall outlet.











## LUBRICATION PROCEDURE

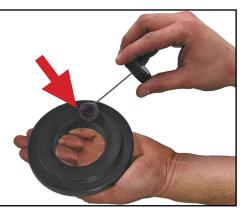
#### Grease Point # 1

Apply a thin layer of CrimpX oil (supplied with the crimper), or a molybdenum disulfide high pressure grease on the surface of the cone base. (as shown in photo # 1).





Photo # 1



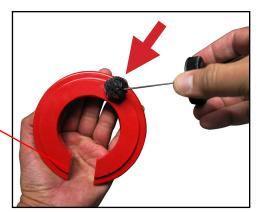


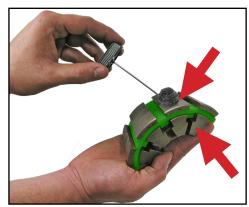
Before sliding the standard pressure plate (or the notched pressure plate) over the correct dies, apply a thin layer of CrimpX oil (supplied with the crimper), or a molybdenum disulfide high pressure grease, on the entire area that the dies come in contact with (as shown in photo # 2).

Photo # 2

**Notched Pressure Plate:** 

For use with 90 degree fitting only.





#### Photo # 3

# If Dies are sticking in the cone base: Continue to lubricate / grease as explained above, in addition to lubricating each die finger individually (as shown in photo # 3).

- Note: The die fingers must be lubricated at both positions that come in contact with the pressure plate and the cone base.
- Note: Lubrication is not required before each crimp. Typical lubrication is after 100 crimps.

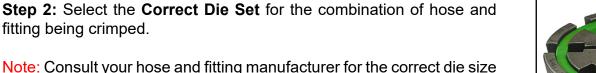


## **CRIMPING WITH STANDARD T420 PRESSURE PLATE**

Note: Follow the lubrication procedure prior to crimping procedure.

CAUTION: Failure to lubricate the die set and T420 pressure plate could result in the die seizing in the cone base.

Step 1: Make certain that the Cone Base is clean and lubricated prior to inserting the die set.



Note: Consult your hose and fitting manufacturer for the correct die size for the combination of hose and fitting being crimped.

fitting being crimped.

Note: The number etched on the OD of the die ring represents the fully closed diameter of the die set in millimeters. In addition, rubber caged die sets are color-coded for easier identification.

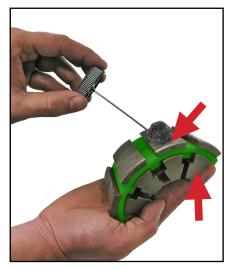
Step 3: Lubricate the contact surfaces, both the top and the outside edges of the die fingers, with CrimpX oil (supplied with the crimper), or a molybdenum disulfide high pressure grease.

Failure to lubricate the contact surfaces with the correct lubricant will cause the dies to seize in the cone base, causing damage to the die set as well as possibly damaging the crimper.











## **CRIMPING WITH STANDARD T420 PRESSURE PLATE**

Step 4: Place the Lubricated Die Set squarely in the cone base.

Note: Make sure the split of the die cages is facing the operator. (as shown).





**Step 5:** Align the fitting in the die set according to the hose and fitting manufacturer's recommendation.

Note: Compress the die set by hand to hold the hose and fitting in place.











Note: Make sure the pusher is positioned correctly as shown.





### **CRIMPING WITH STANDARD T420 PRESSURE PLATE**

**Step 8:** Set the Micro-Crimp Adjuster to the setting recommended by the hose and fitting manufacturer for the combination of hose and fitting being crimped.

NOTE: The T420 Micro-Crimp Adjuster is a direct reading micrometer. Add the setting on the micrometer to the closed diameter of the die set to obtain the finished crimp diameter.

For example: With a 23mm die set and the Micro-Crimp Adjuster set at 3.0, the finished crimp diameter would be 26.0 mm (23mm + 3.0mm).

Note: Each die set has a limited range of diameters for which a satisfactory crimp can be obtained. Always consult your hose and fitting manufacturer for the correct die set for the hose and fitting being crimped.

**Step 9:** Recheck the fitting for the correct alignment in the die set and depress the start/stop switch.

Depress and hold the Start/Stop switch, until the micrometer touched the electronic red button as shown, "count one mississippi" the automatic stop switch will shut the pump off, and the ram will return to the retracted position. Allow the pusher to return to the retracted position as well.

**Step 10:** Check the final crimp diameter with calipers to confirm that it is within manufacturer's specifications.

Note: Always consult with your hose and fitting manufacturer to obtain the must current crimp specifications.









WHEN USING THE NOTCHED T420 PRESSURE PLATE, FOR USE WITH 90 DEGREE FITTING ONLY, FOLLOW THESE PROCEDURES:

Note: Follow the lubrication procedure prior to crimping procedure.

CAUTION: Failure to lubricate the die set and pressure plate could result in the die seizing in the cone base.

**Step 1:** Make certain that the **Cone Base** is clean and lubricated prior to inserting the die set.

**Step 2:** Select the **Correct Die Set** for the combination of hose and fitting being crimped.

Note: Consult your hose and fitting manufacturer for the correct die size for the combination of hose and fitting being crimped.

Note: The number etched on the OD of the die ring represents the fully closed diameter of the die set in millimeters. In addition, die sets are rubber caged color-coded for easier identification.

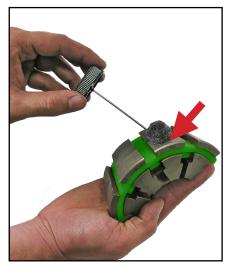
**Step 3: Lubricate the contact surfaces**, both the top and the outside edges of the die fingers, with CrimpX oil (supplied with the crimper), or a molybdenum disulfide high pressure grease.

Failure to lubricate the contact surfaces with the correct lubricant will cause the dies to seize in the cone base, causing damage to the die set as well as possibly damaging the crimper.











Step 2: Place the Lubricated Die Set squarely in the cone base.

Note: Make sure the split of the die cages is facing the operator. (as shown).



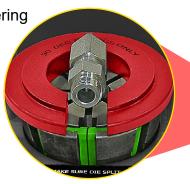


**Step 5:** Align the **90 degree fitting** in the die set according to the hose and fitting manufacturer's recommendation.

Note: Compress the die set by hand to hold the hose and fitting in place.

#### Step 6: Place the Lubricated Notched Pressure Plate over the die set.

Note: The notched pressure plate <u>MUST</u> be covering all 8 die fingers as shown.









## Step 7: CAUTION: DO NOT MISALIGN NOTCHED PRESSURE PLATE OR DAMAGE WILL OCCUR.

Note: You MUST follow these steps when crimping with the notched pressure plate.

A. Die split must face operator.

B. Notched Pressure Plate MUST to cover all 8 die fingers.

Damage can occur to the die fingers if the parts aren't aligned properly.









**Broken Die Finger** 

Step 8: After placing the notched pressure plate covering all 8 die fingers as shown, slide the **Pusher** onto the pusher retaining ring on the hydraulic cylinder.

Note: Make sure the slot in the pusher goes over the lip on the pusher retaining ring. Refer to page 11 for details if needed.

CAUTION: Damage to the pusher and retaining ring can occur if they are misaligned.

Note: Recheck that the notched pressure plate is covering all 8 die fingers.





**Step 9:** Set the **Micro-Crimp Adjuster** to the setting recommended by the hose and fitting manufacturer for the combination of hose and fitting being crimped.

NOTE: The T420 Micro-Crimp Adjuster is a direct reading micrometer. Add the setting on the micrometer to the closed diameter of the die set to obtain the finished crimp diameter.

For example: With a 23mm die set and the Micro-Crimp Adjuster set at 3.0, the finished crimp diameter would be 26.0 mm (23mm + 3.0mm).

Note: Each die set has a limited range of diameters for which a satisfactory crimp can be obtained. Always consult your hose and fitting manufacturer for the correct die set for the hose and fitting being crimped.

**Step 10:** Recheck the fitting for the correct alignment in the die set and depress the start/stop switch.

Depress and hold the Start/Stop switch, until the micrometer touched the electronic red button as shown, "count one mississippi" the automatic stop switch will shut the pump off, and the ram will return to the retracted position. Allow the pusher to return to the retracted position as well.

**Step 11:** Check the final crimp diameter with calipers to confirm that it is within manufacturer's specifications.

Note: Always consult with your hose and fitting manufacturer to obtain the must current crimp specifications.









## **CALIBRATION CHECK PROCEDURE**

#### THE CRIMPER IS CALIBRATED PRIOR TO SHIPMENT, BUT A CALIBRATION CHECK IS RECOMMENDED PRIOR TO USING THE CRIMPER FOR THE FIRST TIME.

Note: Follow the lubrication procedure prior to calibration check.

CAUTION: Failure to lubricate the die set and pressure plate could result in the die seizing in the cone base.

**Step 1:** Make certain that the **Cone Base** is clean and lubricated prior to inserting the die set.

Step 2: Place Any Lubricated Die Set squarely in the cone base.

Note: Make sure the split of the die cages is facing the operator. (as shown).







Step 3: Place the Lubricated T420 Pressure Plate over the die set.

Note: A hose and fitting are not required for a calibration check.



## **CALIBRATION CHECK PROCEDURE**

**Step 4:** Slide the **Pusher** onto the pusher retaining ring on the hydraulic cylinder.

Note: Make sure slot in pusher goes over lip on pusher retaining ring. Refer to page 12 for details if needed.

CAUTION: Damage to pusher and retaining ring can occur if misaligned.

Step 5: Set the T420 Micro-Crimp Adjuster at "0".

**Step 6:** Depress and hold the Start/Stop switch, until the Die set is completely closed and oil pressure has built up in the hydraulic cylinder.

If the ram extends, the dies are completely closed, the pump builds pressure (The sound of the pump will change) when the micrometer touched the electronic red button as shown, "count one mississippi" the automatic stop switch will shut the pump off, and the ram will return to the retracted position the crimper is correctly calibrated.









## **CALIBRATION CHECK PROCEDURE**

**Step 7:** If the above conditions are not met, the crimper requires recalibration, hold the micrometer barrel with a 5/16 inch open end wrench and rotate the stem either in or out with a 5/32 inch hex key wrench.

Note: 1/4 turn of the screw will change crimp diameter approximately 0.008".

- Rotating the stem out of the barrel decreases the time required for the pump to shut off.

• Recheck calibration.



## D105/D165 D-SERIES DRAWER ASSEMBLY / STAND



# 1

Install (2)  $3/8-16 \times 1"$  carriage bolts in front two holes (as shown in picture # 1). Use 3/8" plastic retaining washer to hold bolt into place.



Place the D105/D165 base plate over the 4 screws as shown in picture # 3. Place 3/8" flat washer, 3/8" locking washer, and then the 3/8"- 16 nut over the bolt as shown.



#2

Slide the drawer slightly out to access two rear holes (as shown in picture # 2). Install (2) 3/8-16 x 1" carriage bolts in rear two holes (as shown in picture # 2). Use 3/8" plastic retaining washer to hold bolt into place.



Tighten each nut with a 9/16" wrench or socket until the nuts are tight as shown in picture # 4.

Note: Bolt the D105/D165 D-Series drawer assembly / stand to work surface before use.



## **INCLUDED ACCESSORIES**



T420 Micrometer P/N:103085



Coupling Stop P/N:100954



Pusher P/N:100825



CRIMPX Die Lubricant Oil: 4 oz bottle with dauber cap P/N:103886



Standard T420 Pressure Plate P/N:104651



Die Removal Magnet P/N:104679



Pneumatic Pendent Switch P/N:101349





## **AVAILABLE ACCESSORIES**



Notched T420 Pressure Plate P/N:104919



CRIMPX Die Lubricant: Grease 4 oz can with brush P/N:104162



Flexible 24" Work Lamp P/N:1668-02



T420 Rubber Die Cages See page 24 for more details



Die Storage Shelf P/N:101431-Red



CustomCrimp<sup>®</sup> Notched Digital Caliper IN/MM P/N:CC-Caliper



D-Series Drawer Assembly/Stand P/N:104650-Red



## TROUBLESHOOTING

#### PROBLEM: CRIMPER WILL NOT RUN AT ALL

- The white rocker switch is also a circuit breaker. Check to see that the circuit breaker has not been tripped.
- Check the wall outlet. The crimper comes from the factory wired for a 115 volt single phase circuit. Use of extension cords or outlets with inadequate power can damage the motor. Do not run the crimper from a portable power source.
- Check the stop switch mounted to the switch bracket under the Micro-Crimp Adjuster. This is a normally closed switch and if it does not close the crimper will not operate.
  CAUTION: Do not operate the crimper with this switch jumpered as the pump will not shut off and the brackets can be damaged.
- Check the pneumatically actuated switch in the electrical box mounted on the motor. This switch controls power to the motor and is actuated with air pressure from the pendant switch bulb.

#### PROBLEM: CRIMP DIAMETER TOO LARGE

- Incorrect setting of the Micro-Crimp Adjuster. Check crimp specifications. (NOTE: All published machine settings are approximate. To correct for slight variances, the gauge settings may need to be adjusted for the specific hose, fitting and size combination).
- Incorrect die being used. Each die has a useable range of approximately 3mm (.120 in) above the closed diameter of the die. The closed diameter is the die size stamped on the die ring.
- Check crimper calibration and re-calibrate if required.
- Inadequate pump pressure. Check oil level in the pump. It should be 1-1/2 to 2 inches below the fill plug.
- Replenish with ISO Viscosity Grade 46 hydraulic oil.
- Inadequate lubrication of the dies and compression ring causing the pump to work harder than normal to reach the required diameter. Use only the crimpx oil / grease shipped with the machine or a high pressure molybdenum high pressure grease (equivalent).
- Inadequate pressure being generated by the pump. This is most likely if the crimper can crimp the smaller size hoses and not the larger hoses. When correctly adjusted, the pump should generate approximately 10,000 psi. *Do Not adjust pump to produce in excess of 10,000 psi as damage to components or personal injury may result.*
- No pressure being generated by the pump. There should be a definite change in pitch of the pump as it cycles into high pressure mode and begins to "work" harder.

#### PROBLEM: CRIMP DIAMETER TOO SMALL

- Incorrect setting of the Micro-Crimp Adjuster. Check crimp specifications. (NOTE: All published machine settings are approximate. To correct for slight variances, the gauge settings may be adjusted for the specific hose, fitting and size combination).
- Incorrect die being used (See die range under Crimp Diameter Too Large).
- Check crimp diameter and re-calibrate if necessary.

#### PROBLEM: DIES STICKING IN THE CONE BASE

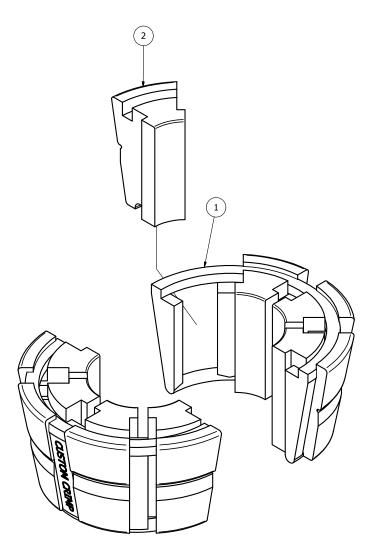
- Inadequate lubrication of the compression ring and die surfaces. Use only the crimpx oil / grease shipped with the machine or a high pressure molybdenum high pressure grease (equivalent).
- Refer to D105 Lubrication Procedure for more details.



## **COMPONENT PARTS BREAKDOWN**

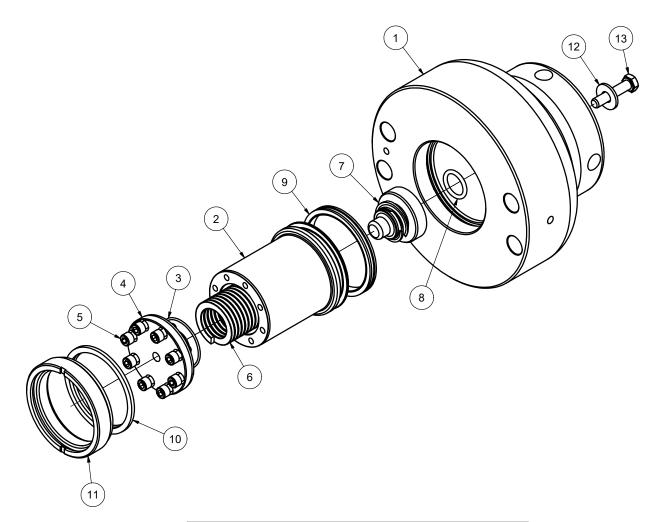
T420 SERIES DIE PARTS (AI-102254)			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	102997-XX	CUSTOM CRIMP DIE CAGE	2
2	VARIES WITH THE DIE SIZE	8 PC DIE FINGER SET	8

CUST	CUSTOM CRIMP DIE CAGE HALF T420 SERIES		
PART NUMBER	DESCRIPTION		
102997-BLACK	T420 CUSTOM CRIMP DIE CAGE HALF-BLACK		
102997-BLUE	T420 CUSTOM CRIMP DIE CAGE HALF-BLUE		
102997-BROWN	T420 CUSTOM CRIMP DIE CAGE HALF-BROWN		
102997-GREEN	T420 CUSTOM CRIMP DIE CAGE HALF-GREEN		
102997-ORANGE	T420 CUSTOM CRIMP DIE CAGE HALF-ORANGE		
102997-SILVER	T420 CUSTOM CRIMP DIE CAGE HALF-SILVER		
102997-RED	T420 CUSTOM CRIMP DIE CAGE HALF-RED		
102997-YELLOW	T420 CUSTOM CRIMP DIE CAGE HALF-YELLOW		
102997-PURPLE	T420 CUSTOM CRIMP DIE CAGE HALF-PURPLE		





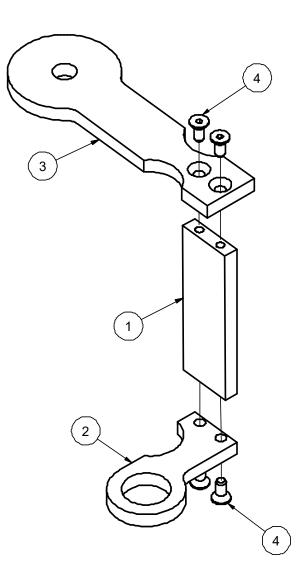
## **COMPONENT PARTS BREAKDOWN**



35 Ton Cylinder / Flange Assembly (103122)			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	102511	Cylinder Body	1
2	101515	Cylinder Piston	1
3	030D90	030 Disogrin O-Ring	1
4	100689	Cylinder Piston Cap	1
5	91251A539	1/4-20 X 5/8 SHCS	8
6	101282	Cylinder Spring	1
7	101516	Spring Plug	1
8	210D90	210 Disogrin O-Ring	1
9	TP032	T-Seal	1
10	SH959-26	Ram Wiper	1
11	101514	Cylinder Retaining Ring	1
12	90108A415	5/16 Flat Washer	1
13	92865A587	5/16-18 x 1.50 HHCS	1



## **COMPONENT PARTS BREAKDOWN**



D105 Micrometer Mount Assembly (101788)			
Item	Part Number	Description	Qty
1	100898-01	Micrometer Arm	1
2	100898-02	Micrometer Base	1
3	100898-03	Micrometer Suspension Flange	1
4	91253A189	8-32 x 1/4 HSFHS	4



## **CUSTOMCRIMP® "NO-NONSENSE" WARRANTY STATEMENT**

All Custom Crimp® Products are warranted to be free of defects in workmanship and materials for one year from the date of installation. This warranty ends when the product becomes unusable for reasons other than defects in workmanship or material.

Any Custom Crimp® Product proven to be defective in workmanship or material will be repaired or replaced at no charge. To obtain benefits of this warranty, first, contact Warranty Repair Department at Custom Machining Services at **(219) 462-6128** and then deliver via prepaid transportation the complete hydraulic product to:

#### ATTN: WARRANTY REPAIR DEPT. Custom Machining Services, Inc. 318 North Co. Rd 400 East Valparaiso IN 46383

If any product or part manufactured by Custom Crimp® is found to be defective by Custom Crimp®, at its option, Custom Crimp® will either repair or replace the defective part or product and return via ground transportation, freight prepaid.

## Custom Crimp® will not cover any incoming or outgoing freight charges for machines sold outside The United States.

This warranty does not cover any product or part which is worn out, abused, altered, used for a purpose other than for which it was intended, or used in a manner which was inconsistent with any instructions regarding its use.

Electric motors are separately warranted by their manufacturer under the conditions stated in their separate warranty.





CUSTOM CRIMP® I Custom Machining Services, Inc. 326 North 400 East Valparaiso, IN 46383



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