

UC-3000

“Ultra-Chuck®” Air-Inflated Bladder Chuck



Operation/Repair Manual



DOUBLE E COMPANY, LLC

Excellence in Engineering

<http://www.doubleusa.com>

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February 2008

Introduction

The purpose of this operation/repair manual is to help insure the long-lasting, high performance operation of Double E Company UC-3000 Bladder Core Chucks **for Core I.D.'s greater than or equal to 5 inches.**

This manual is valuable to technicians, maintenance supervisors, and parts managers. The information includes descriptions of spare parts, materials and tools, as well as instructions for operation and common repairs.

The following repair instructions are designed for skilled personnel with mechanical common sense. Therefore, descriptions of common tools and procedures are minimized.

The frequency of routine maintenance and major repair is highly variable. To minimize the requirement for repair, unnecessary chuck abuse should be avoided.

Materials, Spare Parts, Special Tools and Accessories

A. MATERIALS

1. High Strength Thread Adhesive; “Loctite No. 277” (RED) or equivalent.
2. High Performance Pipe Sealant; “Loctite No. 59321” (Teflon Paste) or equivalent.
3. Paste Wax; "Butcher's Wax, Boston Polish" or equivalent.

B. SPARE PARTS

NOTE: Refer to UC-3000 Assembly Drawings (pages 13 and 14) for general reference and part nomenclature. These drawings show 6" and 12" bladder chuck. The centermount chuck is identical to the flanged chuck, without the flange.

1. Spare Chuck(s); Will minimize down-time and allow time to order parts not in stock.
2. Valves; Double E Part No. B-12901 (Tank), Double E Part No. 999-600-0003 (Tire).

NOTE: For parts information about sizes other than 6" & 150 mm, contact Double E Customer Service at (508) 588-8099.

3. Bladders (6", 150 mm); Double E Part No. C-110146.

NOTE: X = through-shaft diameter.

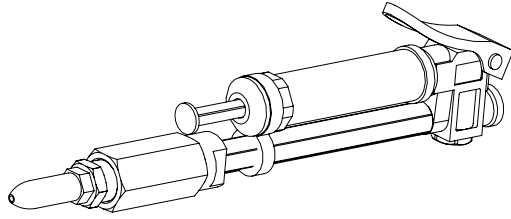
4. End Caps; (6") Double E Part No. C-111205-X, (150 mm) Double E Part No. C-111916-X.
5. Split Flange Clamp Assembly (6", 150 mm); Double E Part No. 17729-X, 111838-X if X is less than 1.96 (50 mm).
6. Flange Caps; (6") Double E Part No. C-111395, (150 mm) Double E Part No. C-111917.
7. Zinc-Plated Clamping Screws for 6" & 150 mm Chucks (M10-1.5 x 40 mm lg. HHCS); Double E Part No. 999-402-1307-Z

C. SPECIAL TOOLS

1. Bladder Removal Tool Assembly. (Base & Top Plate); Double E Part No. 75800-X
(Illustration # 3 on page 11).
2. End Cap Removal Tool Assembly. (optional); Double E Part No. C-14175-X
(Illustration #2 on page 10).

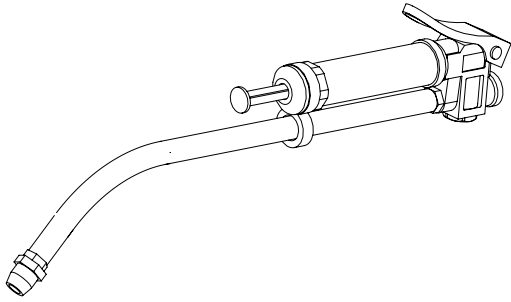
D. ACCESSORIES

1. Air-Gun Assemblies; Double E Part No. B-14157-X.



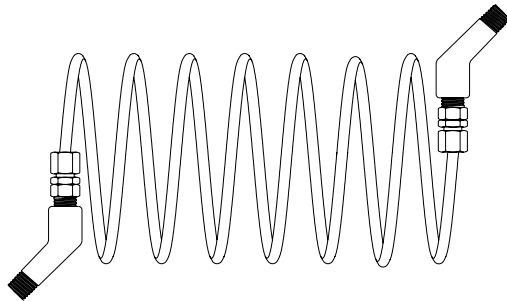
SAFETY AIR-GUN P/N 14157-2

*** STANDARD 1/4 INCH
FEMALE PIPE THREAD
ON BOTH GUNS**



**HOSE AND TIRE CHUCK
AIR-GUN P/N 14157-1**

2. Connecting Hose Assembly; Double E Part No. B-14069.



Operating Instructions

A. PRODUCT DESCRIPTION AND APPLICATION

1. The standard Double E Company Bladder Chuck (UC-3000) is a lightweight, air- expandable, through-shaft mounted core chuck. It is capable of handling unwind and rewind applications, including surface brake or surface drive.

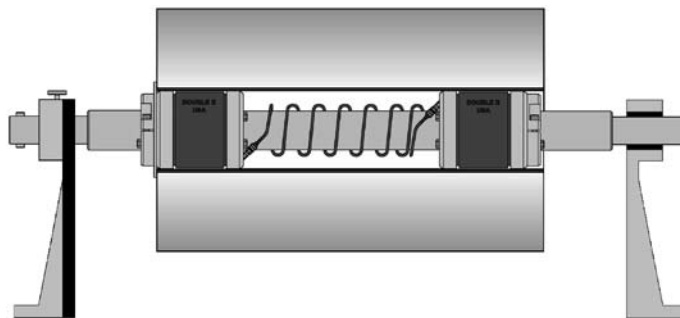
NOTE: Refer to the Specification Sheet on page 16 for dimensions and load capacities.

2. For special applications, including shaftless mounting, contact the Double E Company at **(508) 588-8099**.

B. MOUNTING ON A THROUGH-SHAFT

CAUTION: Never inflate bladder chuck(s) without a core covering the chuck(s). Serious damage may result.

1. Determine the desired configuration. Normally, two chucks per roll are used, either two centermount (flangeless) chucks or one centermount chuck with one flanged chuck.
2. Slide the core chucks onto the shaft to the desired positions (loosen clamping screws if necessary). The position of the chucks will correspond to the roll location. Typically, the chucks will be slightly recessed into the roll, so the chucks are covered but the valves remain accessible.
3. For each chuck, tighten the two socket head cap screws to achieve approximately equal space on both sides of the flange. Tighten screws with an 8 mm hex wrench at approximately 57 ft. lb. of torque.
4. Install the connecting hose (optional). Generally, both chucks are located with the valves facing outward. Carefully remove the brass plugs and install pipe fittings and hose as provided, with the hose coiled around the through-shaft. Use pipe sealant and suitable tightness to avoid leaks. Either valve may be used to inflate or deflate both chucks.
5. Both chucks can be inflated and deflated individually without the connecting hose or simultaneously with the connecting hose between the two chucks as shown in *Illustration #1* below. The connecting hose assembly, Part No. B-14069, is a standard accessory.



Flanged & Centermount UC-3000 Bladder Core Chucks
with optional connecting hose assembly

Illustration #1

C. INFLATION & DEFLATION

1. With the chuck-shaft assembly **appropriately inserted within the core**, fully inflate both chucks. Use suitable rubber tipped air gun (refer to Accessories Section, page 5) tightly pressed into the valve. Use full line pressure (**80 PSI, 5.5 BAR MIN.**) and allow chucks to fully inflate before retracting the air gun.
2. To release the chucks from the core, depress the valve and allow all air to escape.

Chuck Repair

A. DISASSEMBLY

1. Remove core chuck from through-shaft, after disconnecting the hose (if necessary).
2. Replace valve, if necessary, using pipe sealant. Test for leaks.

CAUTION: *Never inflate bladder chuck(s) without a core covering the chuck(s). Serious damage may result.*

3. Remove the clamping screws and clamping flange.



4. Remove the 3/8-16 UNC hex head cap screws (Item 9). This allows for the replacement of the split flange clamp assembly (refer to Assembly Section, page 10 for reassembly instructions) or for further disassembly of the chuck as required.



NOTE: *If the M10-1.5 threads in the split flange have been stripped, they can be repaired with thread inserts, such as “Heli-Coil”.*

5. REMOVE END CAP AND FLANGE CAP: This requires substantial force because the end caps tightly compress the bladder. This may be accomplished with the use of an end cap removal tool set. This tool engages the end cap and provides leverage for easy removal. If this tool is not available, carefully drive the end caps off by placing a piece of wood against the end cap edge and striking the wood with a hammer. This allows for the replacement of the end caps (refer to section B, page 12, for reassembly instructions) or for further disassembly of the chuck as required.



6. REMOVE BLADDER: Due to the “integral ‘O’-rings” of the bladder that provide pneumatic seals and mechanical connection, the use of special tools is highly recommended for bladder removal. These tools may be purchased from Double E or fabricated in-house. See *Illustration #3* below. The base is placed on a flat surface. Apply downward force to dislodge the bladder from the body. Bladder removal is then completed by hand.



Bladder Removal Tool



Chuck Assembly

1. Clean all parts thoroughly. The screws, the valve adapters, and their corresponding holes must be cleaned prior to assembly, in order for thread adhesive to be effective.
2. Install hex plug into body using pipe sealant (if necessary for your repair).
3. Install valve adapter using Red Loctite (number 227), or equivalent, and valve into body using pipe sealant.
4. Install the bladder onto the body. This requires no tools. The body and bladder must be clean and free of lubrication or sealant. Position the body on a secure surface with the valve facing upward. Push the bladder into place.



NOTE: *If old end and flange caps are being re-used, remove burrs and similar defects, particularly on the edge that must slide over the bladder.*

5. Mount both the flange cap and end cap onto the body assembly at the same time. This is necessary to avoid bulges and ridges in the bladder that can result from improper assembly. If caps are installed sequentially, the bladder can be seated incorrectly.



6. Coat the end cap screws with Purple Loctite (number 222) and hand tighten until snug.

7. Separate the split clamp assembly (if not done during disassembly and cleaning).



8. Hand tighten the flange retaining screw until snug.

9. Mount the half of the split clamp with the valve cutout on the chuck.

10. Coat the split clamp retaining screws with Purple Loctite and hand tighten until snug.



11. Fully tighten the end cap screws.

12. Fully tighten the flange cap and split clamp retaining screws.



13. Mount the other half of the split clamp and tighten.

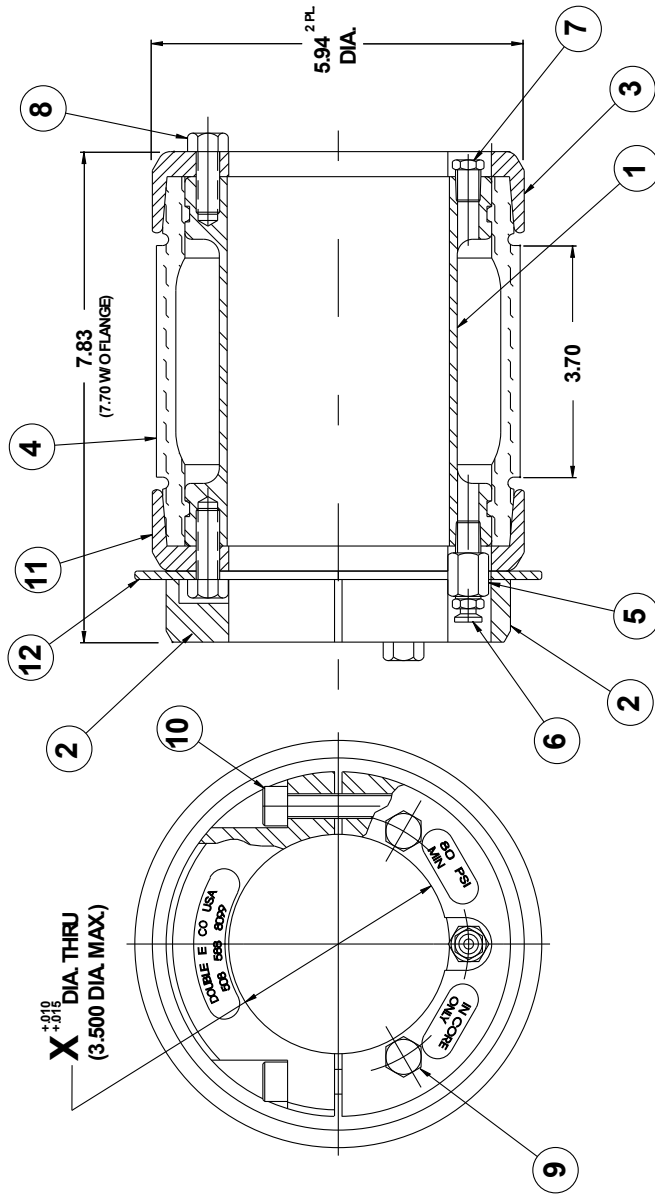


14. Test the chuck **INSIDE A CORE ONLY**. If available, substitute a properly sized metal tube and test the chuck for leaks underwater.




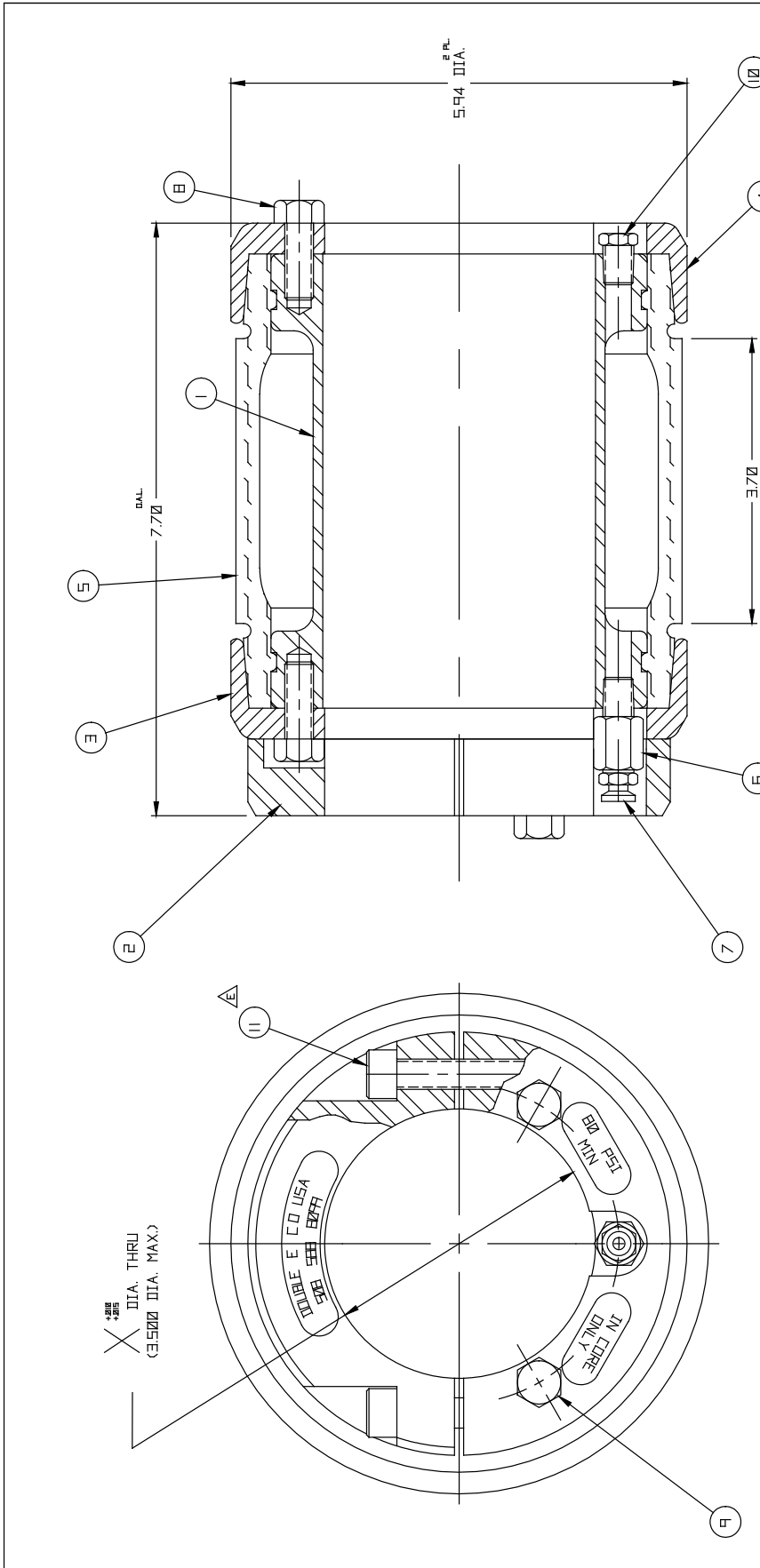
CAUTION: *Never inflate bladder chuck(s) without a core covering the chuck(s). Serious damage may result.*

Parts Diagrams



Item	Part Number	Description
1	C-111721	Body
2	17729-X [111838-X if X < 1.96]	Split Clamp Assembly
3	C-111205-X	End Cap
4	C-110146	Bladder
5	C-111836	Valve Adapter
6	12901/999-600-0003	Tank/Tire Valve
7	999-712-2102	1/8 NPT Hex Head Plug
8	999-422-0041	3/8-16 NC H.H.C.S.
9	999-422-0045	3/8-16 NC H.H.C.S.
10	999-402-1307	M10 x 40mm S.H.C.S.
11	C-111395	Flange Cap Casting
12	C-110476	Flange Ring

 DOUBLE E COMPANY, LLC. 319 Manley Street, West Bridgewater, MA 02379 USA Tel: (508)588-8099 Fax: (508)588-2915 doublee@doubleeusa.com http://www.doubleeusa.com	
Standard 6' UC-3000 Bladder Chuck (Flange)	
P/N CD-A-	Date
	Rev.

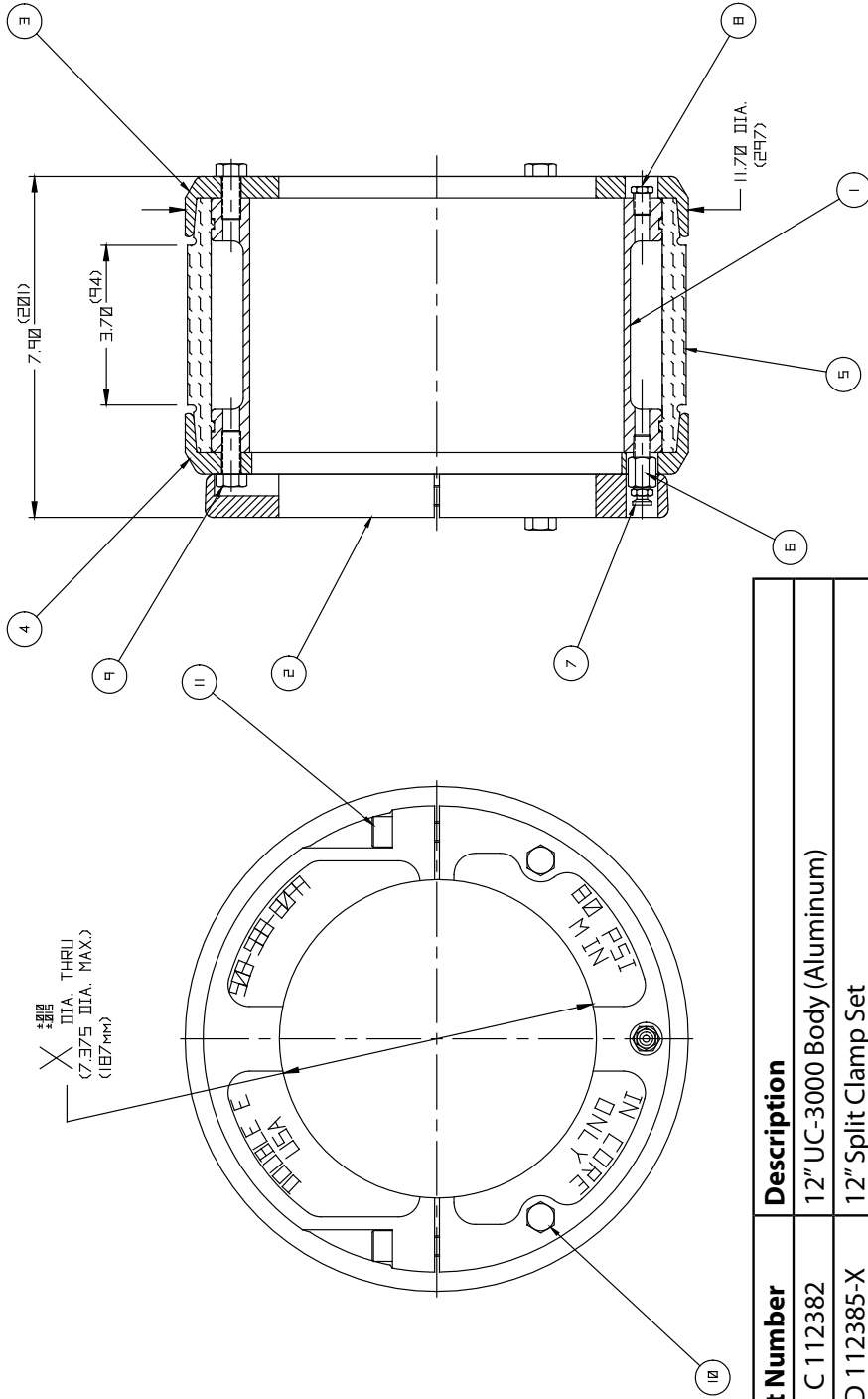


Item	Part Number	Description
1	C 111721	Body
2	17729-X [C 111838-X if X<1.96]	Split Clamp Assembly
3	C 111395	Flange Cap Casting
4	111205-X	End Cap
5	C 110146	Bladder
6	A 111836	Valve Adapter
7	B 12901/999-600-0003	Tank/Tire Valve
8	999-422-0041	3/8-16 UNC x 1.0 Lg. Hex Head Cap Screw
9	999-422-0045	3/8-16 UNC x 2.0 Lg. Hex Head Cap Screw
10	999-712-2102	1/8-27 NPT Hex Head Plug
11	999-402-1307-Z	M10x40mm Lg. S.H.C.S. Zinc

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**Standard 6" UC-3000 Bladder Chuck
(Center Mount)**

P/N CD-A- Date Rev.



DOUBLE E COMPANY, LLC.
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Standard 12" UC-3000 Bladder Chuck

P/N CD-A-

Date

Rev.

Item	Part Number	Description
1	C 112382	12" UC-3000 Body (Aluminum)
2	D 112385-X	12" Split Clamp Set
3	C 110917-X	12" End Cap
4	C 110918	12" Flange Cap
5	C 110919	300mm/12" Bladder
6	C 111836	Valve Adapter
7	B 12901	Tank Valve
8	999-712-2102	1/8-27 NPT. Hex Head Plug
9	999-422-0205	7/16-14 UNC x 1.0 LG. S.H.C.S.
10	999-422-0206	7/16-14 UNC x 2.0 LG. S.H.C.S.
11	999-402-1408-Z	M12-1.75mm LG. S.H.C.S.

Specifications

NOMINAL SIZE CHUCKS)	A OUTSIDE DIAMETER	MAXIMUM B DIAMETER	C (FLANGED) LENGTH	D (CENTER MOUNT) LENGTH	FLANGE OUTSIDE DIAMETER	TORQUE CAPACITY PER CHUCK** AT 80 PSI	TORQUE CAPACITY AT 5.5 BAR		WEIGHT FLANGED W/ MAX BORE	WEIGHT (CENTERMOUNT) W/ MAX BORE	MAX ROLL WT. (2)
							inch pounds	newton meters			
3	2.98 [76.2]	2 [50.8]	11 [281]	NOT AVAILABLE	3.98 [101.1]	600	68	5.5 [2.5]	NOT AVAILABLE	400 [180]	
4.72	4.67 [118.6]	3 [76.2]	8.08 [205.2]	7.78 [197.6]	5.2 [132.1]	4000	450	5.7 [2.59]	4.7 [2.13]	2570 [1165]	
5	4.95 [125.7]	3 [76.2]	7.83 [198.9]	7.7 [195.6]	5.5 [139.7]	4500	510	5.75 [2.61]	5.5 [2.50]	2860 [1300]	
5.91	5.86 [148.8]	3.5 [88.9]	7.83 [198.9]	7.7 [195.6]	6.5 [165.1]	5400	610	6.5 [2.95]	6 [2.72]	3000 [1360]	
6	5.94 [150.9]	3.5 [88.9]	7.83 [198.9]	7.7 [195.6]	6.5 [165.1]	5400	510	7 [3.18]	6.5 [2.95]	3000 [1360]	
8	7.92 [201.2]	4.9 [124.5]	8 [203.2]	7.7 [195.6]	8.5 [215.9]	18000	2000	15 [6.8]	14 [6.35]	4400 [2000]	
10	9.88 [251]	6.375 [162]	7.83 [198.9]	7.7 [195.6]	10.5 [266.7]	28000	3000	19.5 [8.85]	18 [8.16]	5500 [2500]	
11.81	11.63 [295.4]	7.375 [187.3]	8 [203.2]	7.9 [200.7]	12.5 [317.5]	36000	4000	24 [10.9]	22 [10]	6600 [3000]	
12	11.7 [297.2]	7.375 [187.3]	8 [203.2]	7.9 [200.7]	12.5 [317.5]	36000	4000	24 [10.9]	22 [10]	6600 [3000]	
15.75	15.59 [396]	11.375 [288.9]	7.03 [178.6]	6.9 [175.3]	16.5 [419.1]	47300	5200	35.75 [16.22]	33.75 [15.31]	6600 [3000]	
16	15.7 [398.8]	11.375 [288.9]	7.03 [178.6]	6.9 [175.3]	16.5 [419.1]	48000	5400	36 [16.3]	34 [15.4]	6600 [3000]	

* Actual Bore = customer specified nominal bore $+0.010$ inch ($+0.25$ mm).
 ** Higher air pressure (125 p.s.i. / 8.5 bar max.) provides higher torque capacity.

Non-standard chuck sizes are available on request.

Warranty & Repairs

Double E warrants the products it manufactures will be free from defects in material and workmanship for a period of one (1) year from the date of shipment. This warranty shall not apply to any goods which have been subjected to misuse, improper installation, repair, alteration, neglect, accident, abnormal conditions of operation, or use or maintenance in any manner contrary to Double E's Instructions, nor to products not manufactured by Double E. There are no express warranties other than as expressed herein, and no words or conduct of any representative of Double E shall be deemed to create any except by express written consent.

EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, DOUBLE E HEREBY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OF THE GOODS SOLD HEREUNDER AND ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, NOTWITHSTANDING ANY STATEMENTS OR OTHER WRITINGS REGARDING FITNESS, CAPACITY, OR SUITABILITY OF THE GOODS.

Double E's obligation under the express warranty are limited to repair or replacement of the affected part or parts or, at Double E's option, to refund of the purchase price. In no event shall Double E be liable for Buyer's manufacturing costs, lost profits, goodwill, or any other special, incidental or consequential damages arising out of the breach of the agreement.

This remedy shall be available only where claims for failure of goods to conform to this agreement or damage in transit (where applicable) are made in writing and received by Double E within ten (10) days after Buyer's receipt of such goods or failure of goods to conform. If not received within such period, such claims shall be deemed waived by Buyer. Buyer shall afford Double E prompt and reasonable opportunity to inspect any goods as to which a claim is made and Double E shall have the right of final determination of the cause and existence of any defect under this warranty. No material may be returned to Double E without Double E's express prior permission in the form of a return authorization number.

Correction of non-conformities, in the manner and for the period provided above, shall constitute fulfillment of all liabilities of Double E to Buyer with respect for the goods, whether based on contract, negligence, strict tort, or otherwise.

B. RETURNS

Warranty and non-warranty returns are initiated through the issuance of a return authorization (R.A.) number from an authorized Double E sales or service/support representative. This number can be obtained by calling Double E in West Bridgewater, MA at 508-588-8099.

The R.A. number should be clearly evident on the shipping label and/or invoice, and the package should be shipped freight prepaid. If questions arise or if additional information is required, please call the customer service department at the number above. Product returns should be sent to the address on the back of this manual.

Product returns should be sent to:

DOUBLE E CO LLC.

319 MANLEY STREET

W. BRIDGEWATER, MA 02379 USA



DOUBLE E COMPANY, LLC.

319 Manley Street, West Bridgewater, MA 02379 USA

Tel: (508)588-8099 Fax: (508)580-2915 doublee@doubleeusa.com

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