

DF-2000[®] ***TORQUE ACTIVATED*** ***CORE CHUCK***



DOUBLE E COMPANY, LLC

Excellence in Engineering

BACKGROUND

The DF-2000 is the world's best-selling shaftless core chuck. It delivers numerous cost saving and productivity increasing benefits which other chucks simply cannot match. The chuck is easy to care for and extremely dependable.

DESIGN

The DF-2000's patented torque-activated design is simple and effective. Six precision ground steel rollers are mechanically linked to travel up and down bi-directional ramps created by the back of the jaws and the hexagonal cam. This rolling action minimizes friction while causing expansion and retraction of the chuck's jaws. Consequently, the chuck can be used in the lightest to heaviest tension applications. The mechanical design eliminates the expensive plumbing associated with pneumatic or hydraulic chucks, and rotary unions are not necessary.



"Low maintenance, high reliability, and multiple core reuse...Double E chucks deliver."



DF-2000 mounted on a typical shaftless roll stand.



BENEFITS OF THE DESIGN

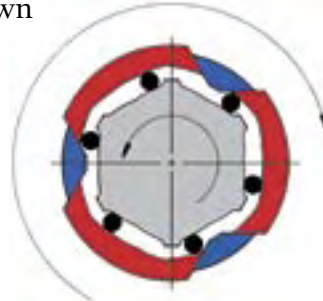
The DF-2000 automatically lifts and centers the roll.

- Roll bounce is eliminated.
- Web tension is easily controlled.
- Parts replacement is rare.
- Lubrication is unnecessary so dust does not accumulate.
- No need for maintenance, no jamming and consistent, easy removal of spent cores.

NO SIDEARM FORCE

Other chuck designs rely on pneumatic or hydraulic sidearm pressure to push gripping elements into the core wall, weakening the core. Rolls bow, core ends distort, the inner wall tears out, the material at the end of the roll becomes unusable, and the cores cannot be reused.

The DF-2000 uses torque for expansion and smooth jaws to grip the core. There is no penetration of the internal wall, so cores can be used over and over, and rolls can be run down to the last wrap.



Patented roller expansion of the DF-2000 reduces friction to assure concentric expansion and long life.



Other, less efficient, torque activated chucks slide on flattened surfaces increasing friction and wear.

ROLLING FRICTION

The DF-2000 works with a patented, low friction roller design, while competing torque-activated chucks are forced to use sliding ramps for activation. These chucks can't overcome the friction created by the roll weight to lift and center the roll. A non-centering action results, causing roll bounce and possible jamming. Serrated jaws damage cores and create dust, leading to higher maintenance and more downtime.

VERSATILITY OF DESIGN

STEP CHUCKS SAVE TIME WHEN RUNNING MULTIPLE CORE SIZES



- Ideal for applications that require multiple core sizes and where roll stand width capacity is not a concern.
- Available in any size, with the base chuck being the largest.
- Usually mounted to the roll stand with a custom flange.



**8 INCH BASE CHUCK
(CHUCK CAN BE ANY SIZE)**

Step chucks incorporate all of the features of single chucks, with the top chuck mounted on the base chuck in a “Quick Disconnect” design. This top chuck may be swapped with any other size in a few minutes, even between roll changes. If only two core sizes are being used, there is never a need to remove the top chuck.

Step chucks allow machines to run any two core sizes interchangeably. When running the larger size core, the entire chuck fits inside. When running the smaller size, the core stops at the flange between the two chucks.

WHEN ROLL STAND WIDTH CAPACITY IS LIMITED, QUICK DISCONNECT CHUCKS FACILITATE CORE SIZE CHANGES

- Quick changes among a variety of core sizes.
- All the advantages of single chucks, but specially designed to be swapped on the fly with a single center bolt.
- Ideal when roll stand width capacity is limited and changes of core sizes are frequent.
- An adapter plate is required for mounting.

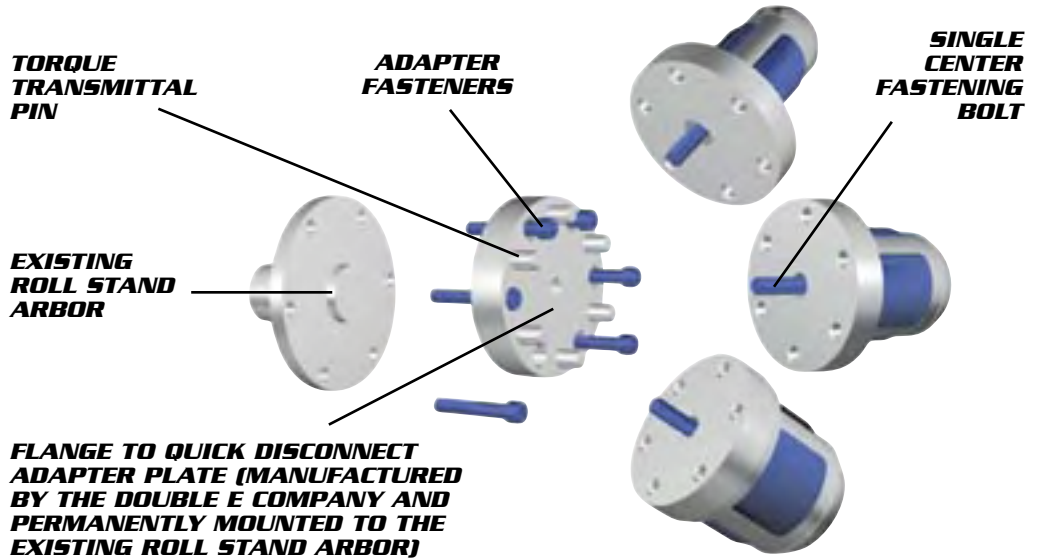
TORQUE TRANSMITTAL PIN

ADAPTER FASTENERS

SINGLE CENTER FASTENING BOLT

EXISTING ROLL STAND ARBOR

FLANGE TO QUICK DISCONNECT ADAPTER PLATE (MANUFACTURED BY THE DOUBLE E COMPANY AND PERMANENTLY MOUNTED TO THE EXISTING ROLL STAND ARBOR)



AUTOMATIC CORE EJECTION

The Double E “Core Kicker” features a core ejection device which kicks the core off the chuck as the roll stand opens.



MULTI-STEP CHUCKS

In some cases, it may even make sense to build a multi-tier step chuck to accommodate three or more different core sizes.

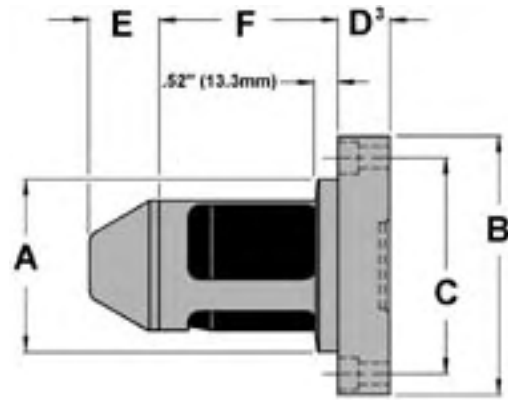
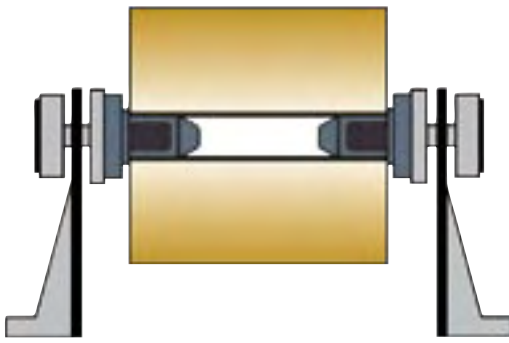


CHUCK ADAPTERS

Slide-on adapters are possible when multiple core sizes are used, quick changeovers are needed, and roll weights are not prohibitive.



DF-2000® PRODUCT SPECIFICATIONS



PRODUCT INFORMATION ON STANDARD FLANGE MOUNTED CHUCKS

The DF-2000 can be made in virtually any size. This chart only contains information on common sizes.

CORE SIZE IN. [mm]	2.80 [70.0]	3.00 [76.2]	3.00 [76.2]	3.00 [76.2]	3.94 [100.0]	3.94 [100.0]	4.72 [120.0]	4.72 [120.0]	5.00 [127.0]	5.00 [127.0]	5.90 [150.0]	5.90 [150.0]	6.00 [152.4]	6.00 [152.4]	8.00 [203.2]	10.00 [254.0]	11.81 [300.0]
CHUCK P/N TYPE	13A28 STD	13A76 SHORT	13A32 STD	13A33 EHDL	13A39 STD	13A41 EHDL	13047 STD	13048 EHDL	13005 STD	13051 EHDL	13059 STD	13065 EHDL	13060 STD	13062 EHDL	13A79 STD	13A99 STD	13030 STD
COLLAPSED DIA. IN. [mm]	2.72 [69.0]	2.98 [75.7]	2.98 [75.7]	2.98 [75.7]	3.89 [98.8]	3.89 [98.8]	4.67 [118.6]	4.67 [118.6]	4.94 [125.5]	4.94 [125.5]	5.83 [148.0]	5.83 [148.0]	5.93 [150.6]	5.93 [150.6]	7.88 [200.2]	9.84 [250.0]	11.65 [296.0]
EXPANDED DIA. IN. [mm]	2.95 [75.0]	3.27 [83.1]	3.27 [83.1]	3.27 [83.1]	4.20 [106.7]	4.20 [106.7]	4.99 [126.7]	4.99 [126.7]	5.25 [133.4]	5.25 [133.4]	6.16 [156.5]	6.16 [156.5]	6.25 [158.8]	6.25 [158.8]	8.31 [211.1]	10.41 [264.4]	12.40 [315.0]
DIAMETER "A" IN. [mm]	3.70 [94.0]	3.97 [100.8]	3.97 [100.8]	3.97 [100.8]	4.97 [126.2]	4.97 [126.2]	5.71 [145.3]	5.71 [145.3]	5.97 [151.6]	5.97 [151.6]	6.97 [177.0]	6.97 [177.0]	6.97 [177.0]	6.97 [177.0]	9.00 [228.6]	11.00 [279.4]	12.8 [325.1]
DIAMETER "B" IN. [mm]	5.59 [141.9]	5.85 [148.6]	5.85 [148.6]	5.85 [148.6]	6.87 [174.5]	6.87 [174.5]	7.80 [198.0]	7.80 [198.0]	7.97 [202.4]	7.97 [202.4]	8.00 [203.2]	8.00 [203.2]	9.00 [228.6]	8.85 [225.0]	10.87 [276.1]	12.87 [327.0]	14.87 [377.5]
DIAMETER "C" MIN. IN. [mm]	4.61 [117.1]	4.87 [123.5]	4.87 [123.5]	4.87 [123.5]	5.87 [149.0]	5.87 [149.0]	6.78 [172.0]	6.78 [172.0]	6.87 [174.5]	6.87 [174.5]	6.81 [173.0]	6.81 [173.0]	8.00 [203.2]	7.85 [199.5]	9.87 [250.5]	11.87 [301.5]	13.87 [352.5]
"D" MIN. IN. [mm]	1.00 [25.4]	1.00 [25.4]	1.00 [25.4]	1.00 [25.4]	1.06 [27.0]	1.19 [30.2]	1.06 [27.0]	1.26 [32.0]	1.06 [27.0]	1.26 [32.0]	1.13 [28.7]	1.22 [31.0]	1.13 [28.7]	1.22 [31.0]	1.19 [30.0]	1.19 [30.0]	1.06 [26.9]
"E" MIN. IN. [mm]	1.00 [25.4]	.74 [18.8]	1.00 [25.4]	1.00 [25.4]	.92 [23.5]	.92 [23.5]	.76 [19.3]	.89 [22.6]	.76 [19.3]	.89 [22.6]	.43 [10.9]	.65 [16.5]	.43 [10.9]	.65 [16.5]	.62 [15.8]	.65 [16.5]	.65 [16.5]
"F" IN. [mm]	4.00 [101.6]	2.84 [72.1]	4.11 [104.4]	5.28 [134.1]	4.11 [104.4]	5.11 [129.8]	4.11 [104.4]	5.61 [142.5]	4.11 [104.4]	5.61 [142.5]	4.11 [104.4]	5.61 [142.5]	4.11 [104.4]	5.61 [142.5]	4.11 [104.4]	4.11 [104.4]	4.11 [104.4]
MAX. TORQUE PER CHUCK INCH-LB. [NM]	3800 [420]	3800 [420]	5600 [630]	6300 [710]	8600 [980]	12000 [1400]	11300 [1300]	18000 [2000]	12000 [1400]	18000 [2000]	18000 [2000]	18000 [2000]	18000 [2000]	18000 [2000]	24000 [2700]	28800 [3300]	36000 [4100]
MAX. ROLL WT. (CURRENT) LB. [kg]	4500 [2100]	3000 [1400]	4550 [2100]	6800 [3100]	6100 [2800]	9200 [4200]	6500 [3000]	9500 [4300]	6500 [3000]	9500 [4300]	9500 [4300]	14500 [6600]	9500 [4300]	14500 [6600]	15500 [7100]	16500 [7500]	17500 [8000]
MAX. ROLL WT. (D2 STEEL) LB. [kg]	7000 [3200]	4800 [2200]	7100 [3300]	10700 [4900]	9600 [4400]	14500 [6600]	10000 [4600]	15000 [6800]	10000 [4600]	15000 [6800]	15000 [6800]	22250 [10000]	15000 [6800]	22250 [10000]	N/A	N/A	N/A

NOTES:

1. Dimensions B, C, D, E, and pilot dimensions specified by customer.
2. Tabulated minimums for dimensions B and C apply if 1/2-13 or M12 S.H.C.S. are used.
3. Minimum dimension D may vary depending on pilot dimensions.
4. Dimensions C and D may be less than tabulated minimums with "scaloped retainer" option.
5. Minimum torque to engage per chuck (INCH-LB) = Roll Weight (LB) x .2 or (NM) = Roll Weight (KG) x .05.

THE DF-2000 CORE CHUCK

**TEFLON
THRUST
WASHER**

CUSTOM MACHINED MOUNTING FLANGE

CYLINDRICALLY GROUND ROLLERS

**PRECISION MACHINED HEAT TREATED
ALLOY STEEL HEXAGONAL CAM**

ROLLER CAGE

TAPERED END CAP

**HIGH STRENGTH
SOCKET HEAD
CAP SCREW**

**SPIRAL
PIN**

**UNIQUE "SMOOTH" GRIPPING JAWS MADE
FROM TOUGH CASE-HARDENED ALLOY STEEL**

U.S. & FOREIGN PATENTS ISSUED & APPLIED FOR

FEATURE	ADVANTAGE	BENEFIT
Smooth Gripping Jaws	Interior wall of core is not damaged.	Multiple core reuse.
	Serrations are not used so dust is not created.	No maintenance or jamming, no contamination.
Torque Activation	Extreme sidearm force is not necessary.	Less core distortion and no end-of-roll waste.
		Rolls won't bow.
		Less roll stand fatigue; extended roll stand life.
Patented Roller Design	Reliable grip regardless of torque magnitude.	Run heavy and/or light rolls with any tension.
	True concentric expansion.	Roll bounce is minimized or eliminated.
	Lubrication isn't needed; dust won't accumulate.	Easier to control web tension.
	Little friction inside chuck; less wear on parts.	No jamming; chuck won't get stuck in cores.
	Wide range of expansion.	Little, if any, maintenance and longer chuck life.
Step Design	Single chuck can run various core sizes.	Run butt rolls and rolls with core inconsistencies.
Quick Disconnect Design	Interchangeable chucks mount to same plate on machines with width limitations.	Roll changes are effortless; even between sizes.
		One center bolt allows quick change to various core sizes.



DOUBLE E COMPANY, LLC

Excellence in Engineering

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DF-2000® SPECIFICATIONS

Please fax this completed sheet to (508)580-2915 for a formal quotation.

Company: _____ Date: _____
Name: _____ Title: _____
Address: _____
City/State/ZIP: _____
Telephone: _____ Fax: _____ email: _____

CORE SPECIFICATIONS:

Core Material: Steel Aluminum Plastic Fiber Steel Capped EE Composite Other: _____
Core Inside Diameter: _____ Core I. D. Tolerance \pm : _____ Number of Core Reuses: _____
Comments: _____

ROLL SPECIFICATIONS:

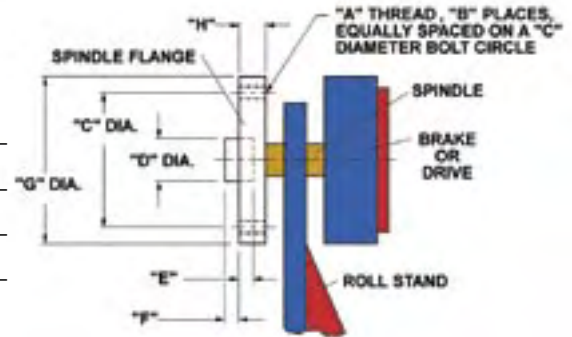
Max. Roll Weight: _____ Max. Roll Diameter: _____ Max. Roll Width: _____
Max. Tension (lb./linear in.): _____ Max Web Speed (ft./min.): _____ Web Thickness/Wt.: _____
Web Material: Board Paper Film Foil Other: _____
Min. Emer. Stopping Time: _____ Acceleration Time: _____ Deceleration Time: _____

ROLL STAND SPECIFICATIONS:

Roll Stand Manufacturer: _____ Model Number: _____ Approximate Age: _____
Max. Opening Distance between Roll-Stand Mounting Flanges: _____
Unwind Rewind Single Brake/Drive Dual Brake/Drive

SPECIFICATIONS FOR STANDARD FLANGE MOUNTED CHUCK:

"A" Thread Size: _____ "B" Places Equally Spaced: _____
"C" Diameter Bolt Circle: _____ "D" Arbor Pilot Diameter: _____
"E" Pilot Depth Female: _____ "F" Pilot Width Male: _____
"G" Spindle Flange O.D.: _____ "H" Spindle Flange Width: _____

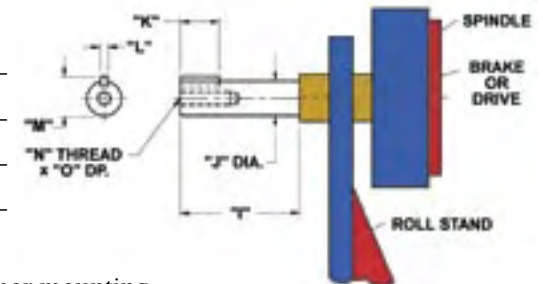


QUICK DISCONNECT MOUNTING:

Double E can provide an ADAPTER PLATE to allow your flange type arbor to accommodate Single-Center-Bolt / Dowel Pin Type "Quick Disconnect" multiple size core chucks for QUICK CHANGEOVER.

SPECIFICATIONS FOR STUB-ARBOR MOUNTING:

"I" Arbor Length: _____ "J" Arbor Diameter: _____
"K" Key Length: _____ "L" Key Width: _____
"M" Distance Between Key Top / Shaft Bottom: _____
"N" Center Thread Size: _____ "O" Center Thread Depth: _____



NOTE: Double E stub-arbor mount chucks require a CENTER TAPPED HOLE, minimum 5/8" (16mm) diameter to ensure structurally adequate and safe stub-arbor mounting. The arbor must be in good condition, with uniform diameter. This enables a close fit of the chuck onto the arbor; typically .002" (.05mm) diametral clearance to .0012" (.03mm) diametral interference. The key requires a close clearance fit. If the arbor has a shoulder, the chuck should be bored deep enough to permit clamping against the shoulder. THIS MOUNTING CONFIGURATION IS NOT RECOMMENDED IF FREQUENT CHUCK REMOVAL, TO CHANGE OVER SIZE, IS REQUIRED. An adapter plate can be made, as mentioned above, to convert the roll stand to either flange mount or quick disconnect.