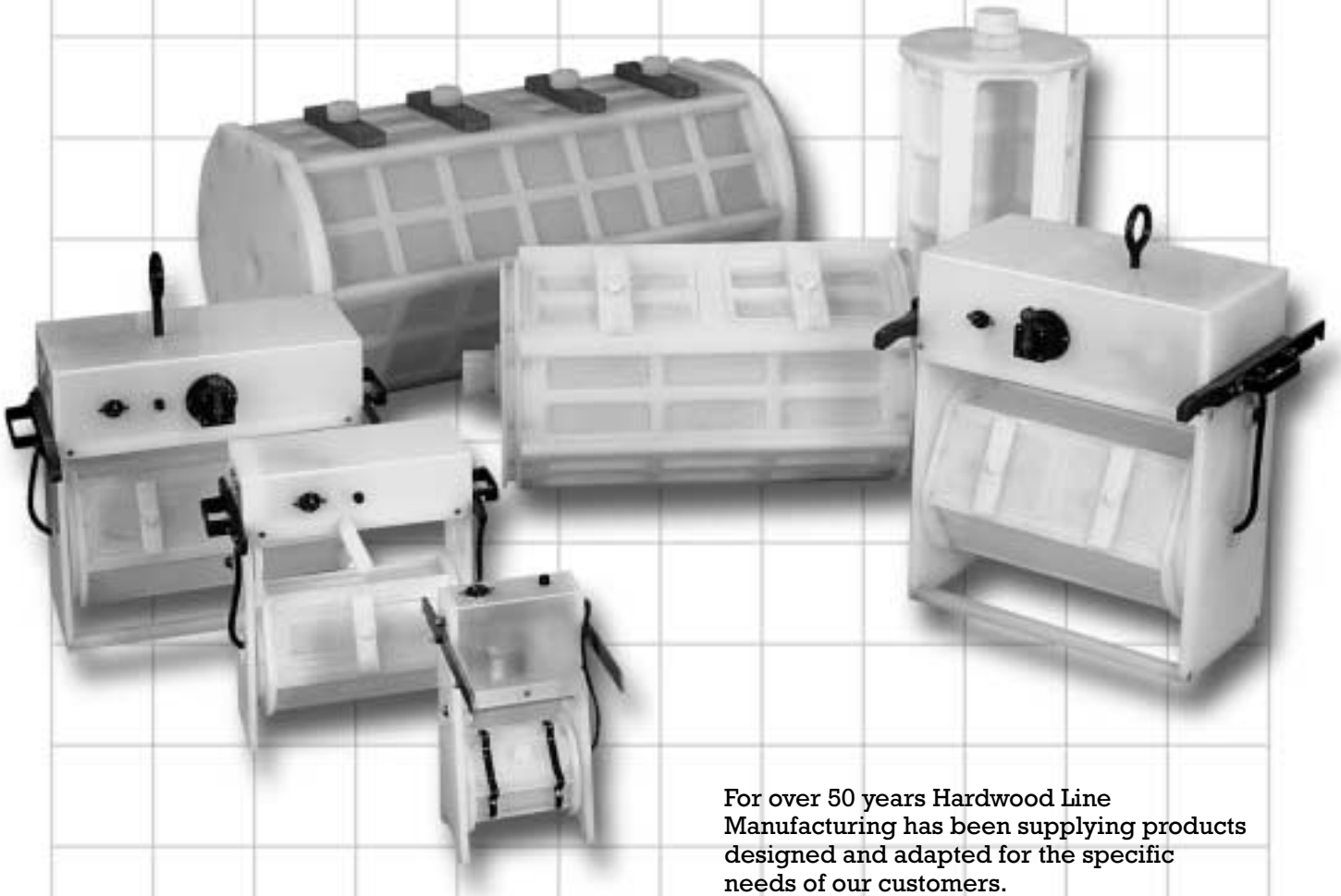
Plating Barrels

CUSTOM MANUFACTURED PORTABLE AND PRODUCTION POLY BARRELS



For over 50 years Hardwood Line Manufacturing has been supplying products designed and adapted for the specific needs of our customers.

Our comprehensive barrel line allows you the flexibility to put together the combination of cylinder style, construction method and superstructure configuration that best suits your application.

Call us and we will be happy to assist you in your selections.

Hardwood Line
MANUFACTURING COMPANY

SUPERSTRUCTURE CONFIGURATIONS

All Hardwood large capacity barrel superstructures feature plastisol coated steel and one piece noncorrosive hangerarms with S.S. support brackets.

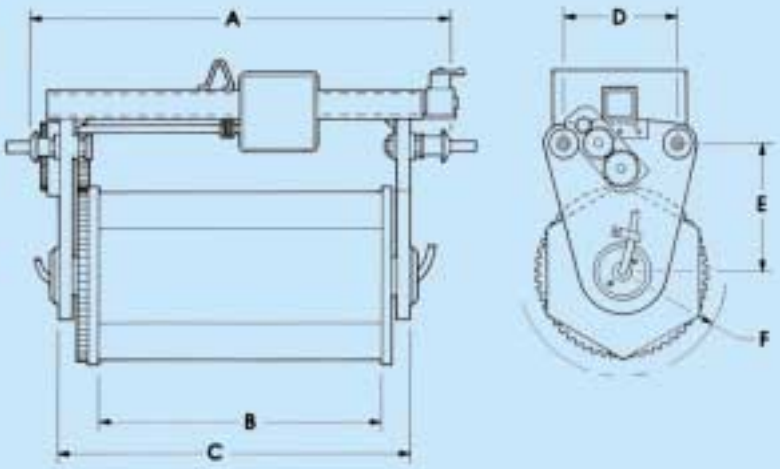
Available on request are adaptable idler gears, horns, inverted V-Blocks and special contact systems.

Lettered dimensions on superstructures are only given for reference to assist you when ordering.

OVERHEAD MOTOR CONTROL (OMC)

The OMC, used primarily in manual systems, eliminates the expense of motors at every station.

The 1/3 HP 110V/230V/460V reversible switch motor operates at 5 RPM. Other motor packages available upon request.

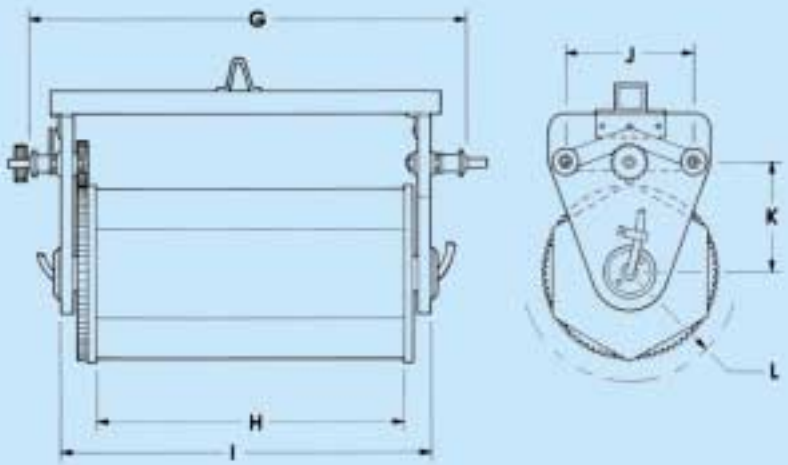


AC or DC variable speed and air drive motors are also available (See Page 11).

The OMC is available in any cylinder style (Standard Hex, Vortex, Paddle Wheel).

GEAR DRIVEN SIDE DRIVE (GDSD)

The economic GDSD superstructures utilize large, rugged and durable poly gears. It can be adapted with pickups for an automatic system.



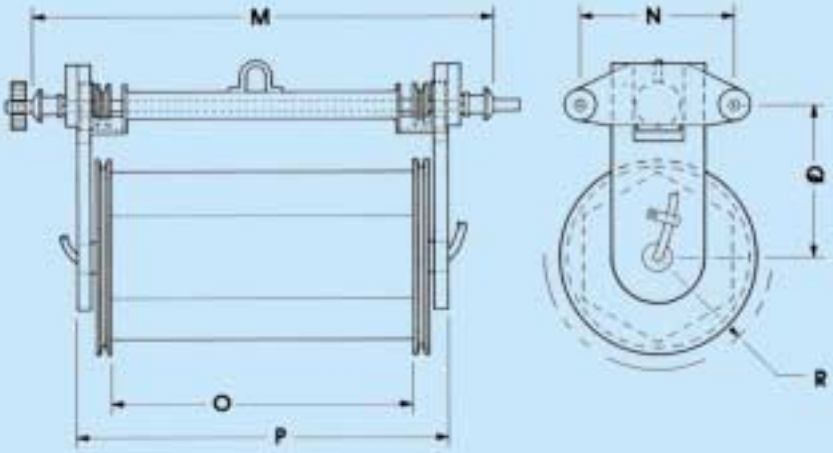
A Standard Hex, Vortex or Paddle Wheel cylinder can be ordered with the GDSD.

BELT DRIVEN SIDE DRIVE (BDSD)

The BDSD features a floating hub system that self adjusts belt tension. Deep set 1-1/2'' thick belt heads prevent belt jumping.

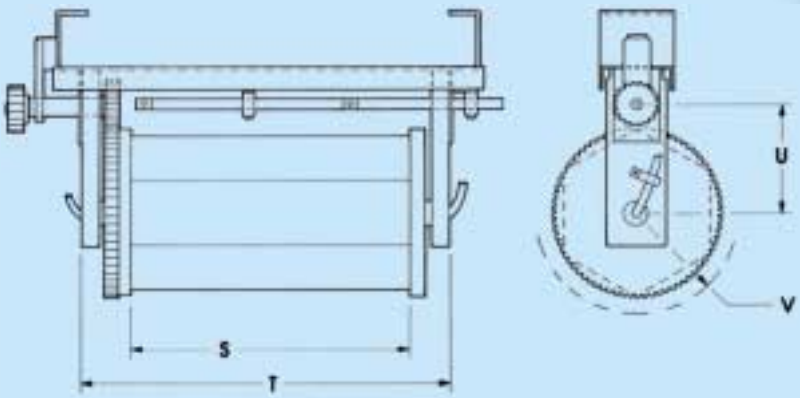
Belt replacement is easily accomplished by simply lifting the cylinder.

Automatic pickups can be added to the BDSD. It is available with either a Standard Hex or Vortex cylinder.



AUTOMATIC SIDE DRIVE (ASD)

The ASD can be used to retrofit existing automatic systems. It can be ordered with any cylinder style (Standard Hex, Vortex, Paddle Wheel, or SprayThru™)



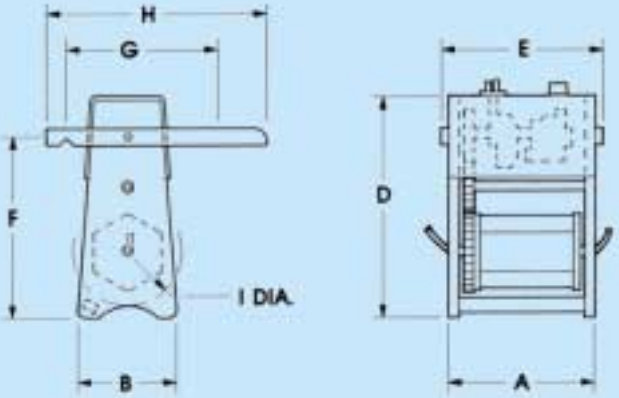
PORTABLE BARRELS

Hardwood offers a full line of portable barrels in three adaptable basic models. All portable barrels can be fitted with any cylinder style (Standard Hex, Vortex, Paddle Wheel, or SprayThru™).

AC or DC Variable speed or air drive motors are available for most models.

4x6 - 5x6

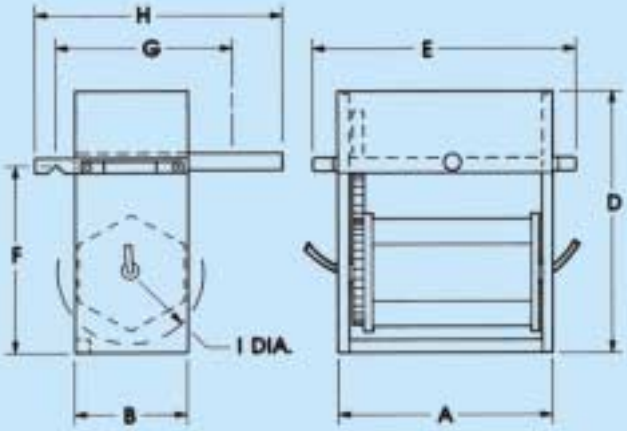
(Air drive not available for these models.)



4x6

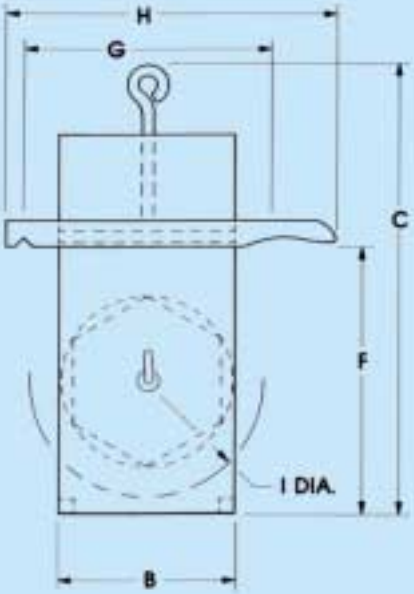
6x12

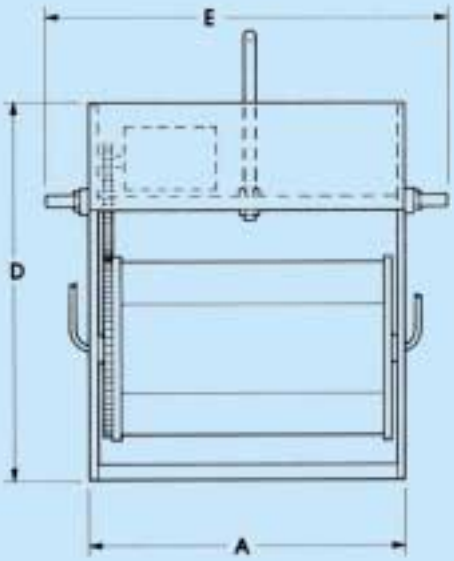
6x12



8x18

8x12 - 8x18 - 10x18 - 10x24 - 12x24





10x18

PORTABLE BARREL SPECIFICATIONS

BARREL SIZE	A		B		C		D		E		F		G		H		I*	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
4 x 6	8	203	6	152			15-3/4	400	10	254	13-1/2	343	10	254	13-1/2	343	7-1/4	184
5 x 6	9	229	6-1/4	159			19	483	13	330	15-1/4	387	11	279	14-1/2	368	8-1/2	216
6 x 12	14-1/4	362	6-1/4	159			19	483	18-1/2	470	15-1/4	387	11	279	14-1/2	368	10	254
8 x 12	15	381	10-1/2	267	27	686	20-1/2	520	20	508	14-1/2	368	14-1/2	368	18-1/2	470	11-1/2	292
8 x 18	21	533	10-1/2	267	27	686	20-1/2	520	26	660	14-1/2	368	14-1/2	368	18-1/2	470	11-1/2	292
10 x 18	22	559	12	305	31	787	26-1/4	667	28	711	20-1/2	521	18-1/2	470	21-1/2	546	15	380
10 x 24	28	711	12	305	31	787	26-1/4	667	34	864	20-1/2	521	18-1/2	470	21-1/2	546	15	380
12 x 24	28-1/2	723	12	305	32	813	27	686	34	864	21-1/4	540	22	559	26	660	17	430

See Page 6 for Cylinder Specifications

*I = Swing Clearance

CYLINDER CONSTRUCTION FEATURES

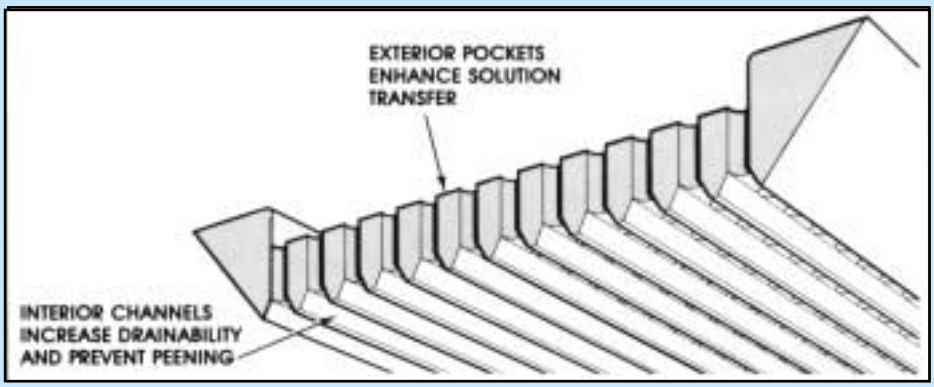
CYLINDER MACHINING

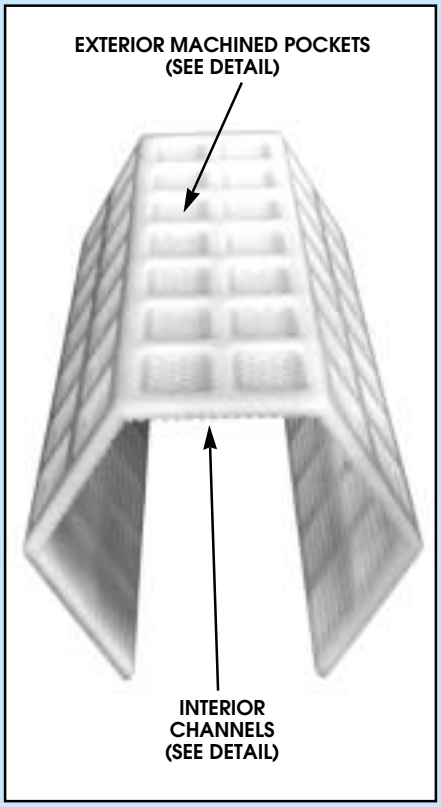
All Hardwood large capacity cylinders are machined and perforated for maximum performance.

Exterior machined pockets produce a structural ribwork that adds strength. The pockets also reduce wall thickness thereby enhancing solution transfer and enabling a more efficient current distribution.

Interior "channels" funnel solution to the perforations increasing drainability. The "channels" also prevent holes from peening shut, eliminate the adhesion of flat parts, and aid in the tumbling of parts, resulting in improved coverage and fewer rejects.

Straight through or angled perforations are available from .073" to .500". A 30% open area is standard (larger percentages on request).



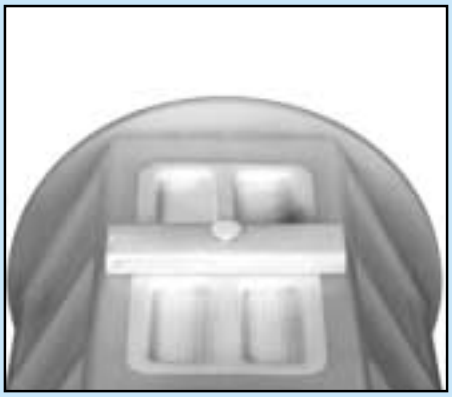


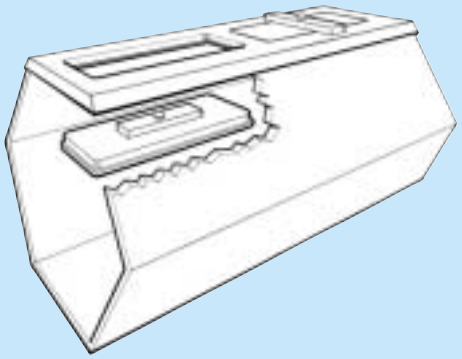
CYLINDER CONSTRUCTION FEATURES (cont'd)

I/O DOOR

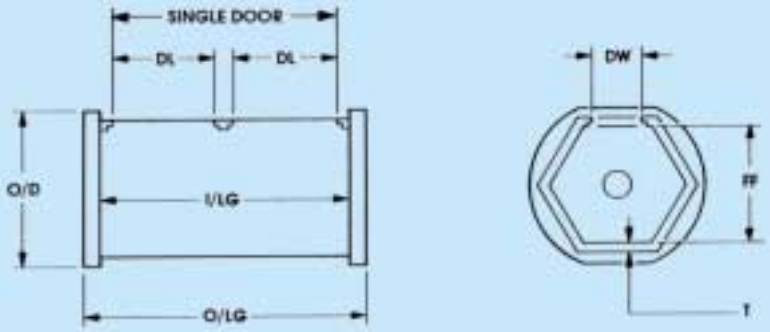
Standard on most* Hardwood cylinders, the double lip, patented Inside/Out (I/O) doors reduce rejects while minimizing warpage and clamp fatigue. The weight of the interior load actually serves to tighten the door fit. PP cross bars with Inconel X springs provide a tight door seal. Underside locking pin ensures proper cross bar orientation. Depending on cylinder size and application, the I/O door is available as either a single or double door.

*Bung clamps are standard on 4x6 and 5x6 models.





CYLINDER SPECIFICATIONS

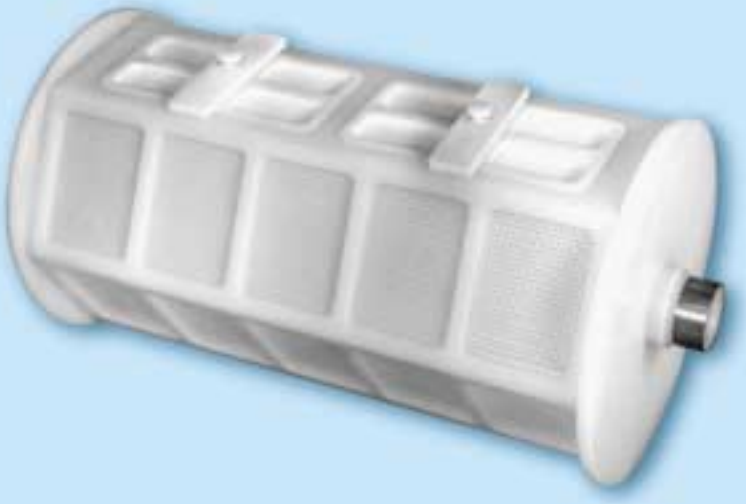


BARREL SIZE	INSIDE FLAT TO FLAT (FF)		INSIDE LENGTH (I/LG)		OVERALL LENGTH (O/LG)		THICKNESS (T)		VOLUME		OUTSIDE DIAMETER (O/D)		RECOMMENDED LOAD 176°F/80°C		DOOR LENGTH (DL) OPENING		DOOR WIDTH (DW) OPENING		DOORS (SINGLE OR DOUBLE)
	IN	MM	IN	MM	IN	MM	IN	MM	CU. FT.	LTR.	IN	MM	LBS.	KG.	IN	MM	IN	MM	
4 x 6	4	102	5-1/2	140	6-5/8	168	5/16	8	.04	1.13	6-1/8	155	7	3	5	127	1-7/8	47	S
5 x 6	5	127	6	152	7	178	5/16	8	.08	2.26	7	178	9	4	5-1/8	130	2-1/2	63	S
6 x 12	6	152	11-1/2	292	12-1/2	318	5/16	8	.21	5.9	8-3/4	222	25	11	10-3/8	263	3	76	S
8 x 12	8	203	12	305	13	330	5/16	8	.38	10.8	11-1/4	286	35	16	10-3/4	273	3-1/2	89	S
8 x 18	8	203	18	457	19	483	5/16	8	.58	16.4	11-1/4	286	40	18	16-3/4	425	3-1/2	89	S
10 x 18	10	254	18	457	19	483	5/16	8	.90	25.5	13-1/4	336	60	27	16-3/4	425	4-3/4	120	S
12 X 24	12	305	24	610	25-1/2	648	3/8	9.5	1.73	48.9	17-1/2	444	150	70	10-3/4	273	5-7/8	149	D/S
14 x 30	14	356	30	762	32	813	1	25.4	2.95	83.5	20-1/2	521	300	135	29*	736*	7-1/2	190	D/S
14 x 36	14	356	36	914	38	965	1	25.4	3.54	100	20-1/2	521	360	165	35*	889*	7-1/2	190	D/S
16 x 30	16	406	30	762	32	813	1	25.4	3.85	109	21-1/2	546	360	165	29*	736*	7-1/2	190	D/S
16 x 36	16	406	36	914	38	965	1	25.4	4.62	131	21-1/2	546	430	195	35*	889*	7-1/2	190	D/S
18 x 36	18	457	36	914	38	965	1	25.4	5.85	165	23-1/2	597	480	215	16-1/4	413	8-1/2	216	D
20 x 48	20	508	45-1/2	1156	48-1/2	1232	1	25.4	9.12	258	26-1/2	673	600	270	20-1/4	514	10	254	D
20 x 60	20	508	57-1/2	1460	60-1/2	1537	1-1/4	31.7	11.53	326	26-1/2	673	710	320	26-1/4	667	10	254	D
24xAs Req'd.	24	610	As Req'd.		As Req'd.		1-1/4	31.7	As Req'd.		32-1/2	825			As Req'd.		As Req'd.		

*Door length shown for a single door.

CYLINDER CONSTRUCTION OPTIONS

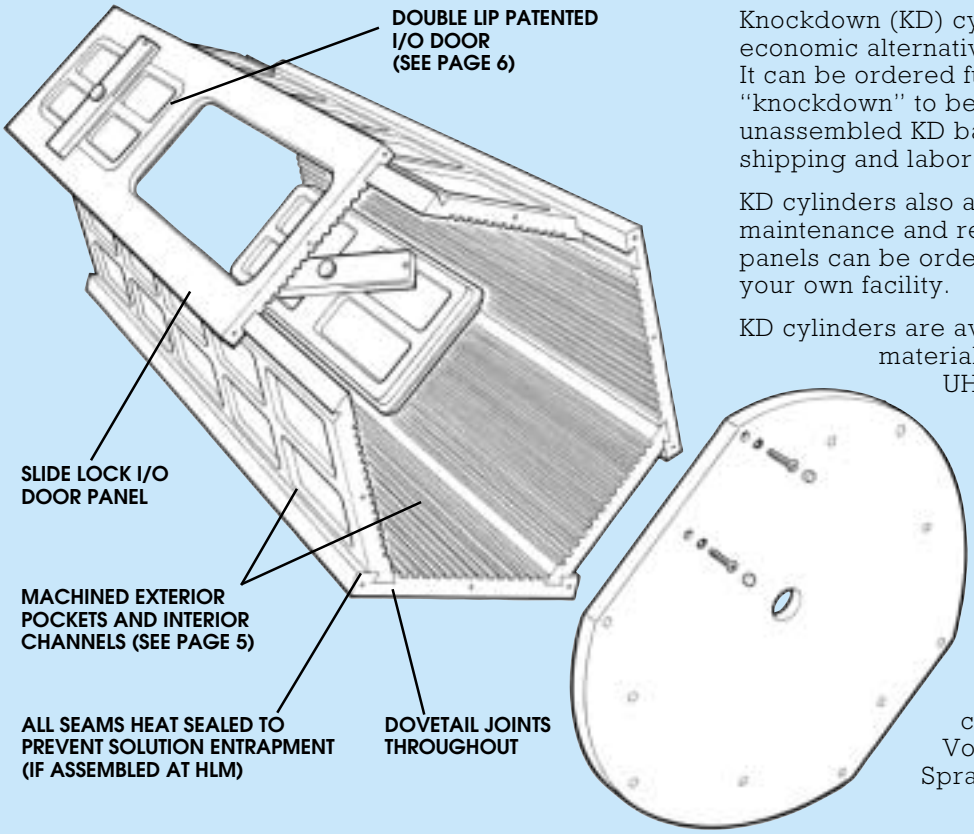
ALL FUSION WELDED (FW)



Hardwood's Fusion Welded cylinder offers the strongest barrel available and eliminates any solution entrapment. Fusion welded cylinders are available in either PP or PVDF. Cylinder shaft sleeves are made of UHMW-PE.

Shown at left is a Standard Hex cylinder featuring machined exterior pockets and internal channels.

KNOCKDOWN (KD)



Knockdown (KD) cylinder construction offers an economic alternative to the Fusion Welded cylinder. It can be ordered fully assembled or shipped "knockdown" to be assembled by the customer. An unassembled KD barrel will save you costs in both shipping and labor.

KD cylinders also allow you to perform your own maintenance and repair. Parts such as doors and panels can be ordered and replaced with ease at your own facility.

KD cylinders are available in a wide range of materials including: PP, PVDF, LUCITE, UHMW-PE and Teflon.

Dovetail joints throughout insure a tight seal. To further prevent solution entrapment, Hardwood heat seals all the seams when a KD is assembled at Hardwood Line Manufacturing. A poly heat sealing gun is available for those customers who choose to do their own assembly.

KD cylinders can be made in any cylinder style (Standard Hex, Vortex, Paddle Wheel or SprayThru™).

DOVETAIL FUSION (DF)

Dovetail /Fusion (DF) cylinders combine the strength of fusion welding with the economy of Knockdown construction. Construction is identical to the KD cylinder (shown above), with the exception of fusion welded heads. No fasteners are used in the assembly of the cylinder.

DF cylinders are ideally suited for applications involving high temperatures or harsh chemicals. It also allows for large single door configurations.

The DF is available in PP or PVDF.

CYLINDER STYLES

STANDARD HEX

Hardwood's Standard Hex cylinder is available as either a fusion welded or KD unit. All Standard Hex cylinders feature I/O doors (Page 6) and are machined for performance (Page 5).

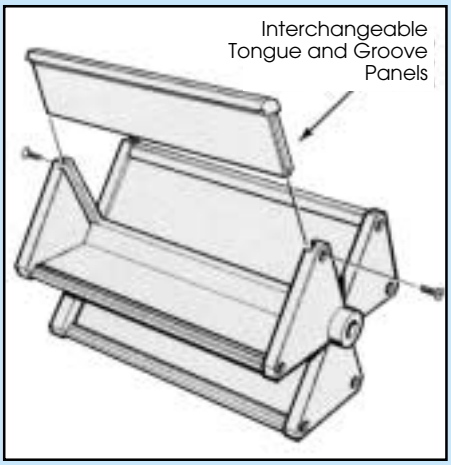
PADDLE WHEEL™

The Paddle Wheel Plating Barrel allows you to plate parts that would normally be rack plated.

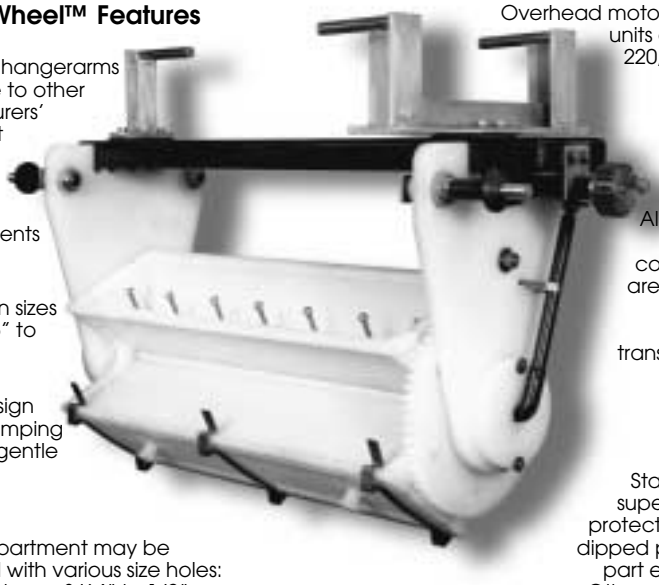
Perforations on all three sides of each compartment combined with the basic Paddle Wheel configuration create a "churning" effect that results in better solution transfer on every revolution of the barrel.

Three separate compartments allows for the running of small batch lots simultaneously. This also enables the plater to run parts such as long rods, that previously tangled, distorted and lacked coverage, when run in a conventional production barrel.

The Paddle Wheel Plating Barrel is available in both large capacity and portable models. Please call or write for our Paddle Wheel brochure.



Paddle Wheel™ Features



"Cylinder" hangerarms adaptable to other manufacturers' equipment

Three (3) individual compartments

Available in sizes from 4" X 6" to 16" x 36"

Unique design creates pumping action for gentle agitation

Each compartment may be perforated with various size holes:
Polypropylene: 3/64" to 1/2"
Laser Perforations: .010",.020",.030"

Overhead motor controlled units available in 220/1P, 220/3P, 110/1P, Air driven or D.C.

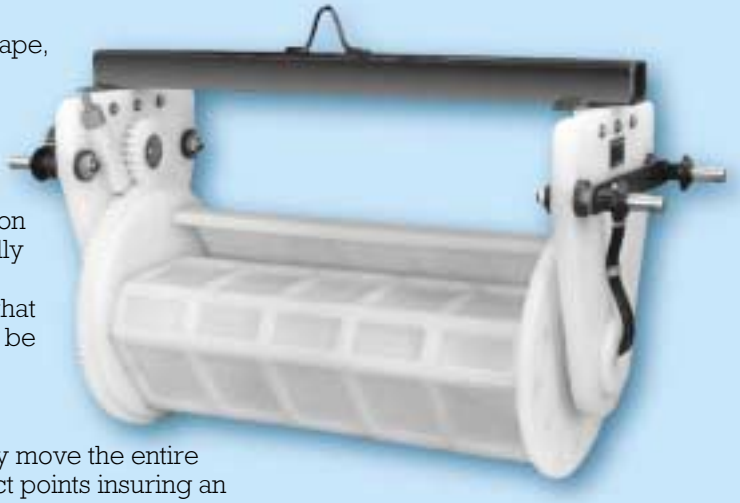
All three sides of each compartment are perforated for better solution transfer through workload.

Standard steel superstructure is protected with hot dipped plastisol or 2 part epoxy paint. Other coatings are available on request.

Patent No. 474946
Paddle Wheel Plating Barrel
is an exclusive trademark of
Hardwood Line Manufacturing Company.

CYLINDER STYLES (cont'd)

VORTEX™



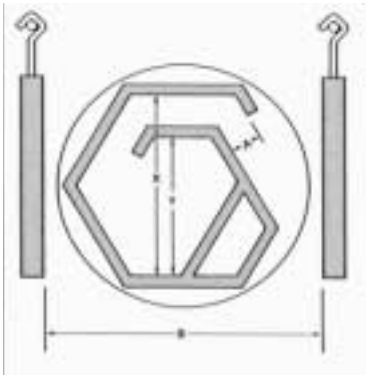
Due to its unique shape, the Vortex doorless plating barrel automatically loads and unloads parts simply by reversing its direction of rotation. It is ideally suited for runs that involve small parts that allow themselves to be funneled into the cylinder opening. Internal ramps and deflectors constantly move the entire load over the contact points insuring an even current distribution which results in more uniform plating.

By eliminating the barrel's doors, Hardwood has eliminated the problems usually associated with door maintenance, such as warpage, part entrapment and clamp replacement.

The Vortex, available in both large capacity and portable models, can be retrofitted to any superstructure configuration.

For more information please call or write for our Vortex brochure.

CYLINDER DIMENSIONS



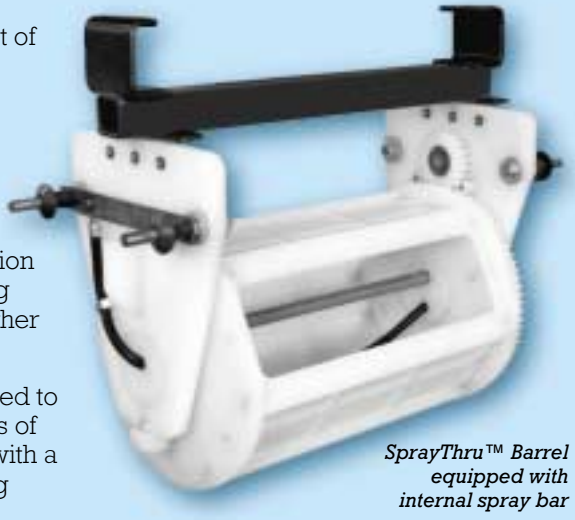
"X" VORTEX SIZE	ACCESS OPENING "A"	SWING CLEARANCE "B"	PLATING AREA "S"
4	3/4	7	3
6	1	10	4-3/4
8	1	13	6-3/4
10	1-1/2	15	8-1/8
14	3	22	10
16	3	24	12
18	3	26	14
20	3	28	16

SprayThru™

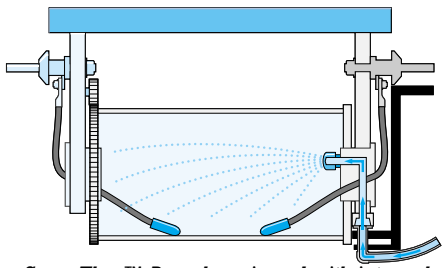
The SrayThru™ barrel is the heart of Hardwood Line's high efficiency SprayThru™ plating and rinsing systems.

The SprayThru™ barrel allows solution to be sprayed directly inside the barrel. This provides a higher level of concentrated solution next to the parts during the plating cycle, thereby yielding faster, higher quality plating.

The SprayThru™ barrel is designed to be used throughout all the stations of your plating line. When coupled with a RinseMaster™ counterflow rinsing system, it provides the quality equivalent of a seven station counterflow rinse in a single space saving station.



SprayThru™ Barrel equipped with internal spray bar

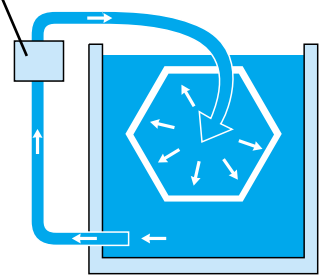


SprayThru™ Barrel equipped with internal spray nozzle

SprayThru™ systems not only increase plating and rinsing quality and efficiency, but also greatly reduce water consumption while minimizing pollution.

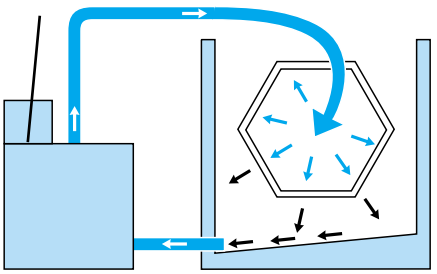
Please call for our SprayThru™ Systems brochure.

Solution Recirculating Pump



Fresh solution is constantly pumped to the barrel interior throughout the plating cycle.

RinseMaster®



The RinseMaster® delivers seven progressively cleaner sprays to the load, discarding only the first dragout "heavy" rinse.

RinseMaster® is a registered trademark of Poly Products Corporation.

SPECIAL APPLICATION BARRELS

LaserPerf ™

The micro-precision of a laser perforation, the durability of solid polypropylene combined with field replaceable "windows" make Hardwood Line's new LaserPerf™ Plating Barrel the most efficient, economic and adaptable plating barrel available today.

Advantages:

- ❑ **Polypropylene resists cracking**
- ❑ **Economic KD Construction**
- ❑ **Field Replaceable Windows**
- ❑ **Stretched Hex provides better solution transfer**
- ❑ **Efficient Duplex Laser Slot Pattern**
- ❑ **I/O Door™ (Inside/Out)**

Standard Sizes:

4 x 6*	(100mm x 150mm)
6 x 12	(150mm x 300mm)
8 x 12	(200mm x 300mm)
8 x 18	(200mm x 460mm)
10 x 18	(250mm x 460mm)

*4x6 features clamp type doors.

All LaserPerf™ barrels are available for use in SprayThru™ systems.

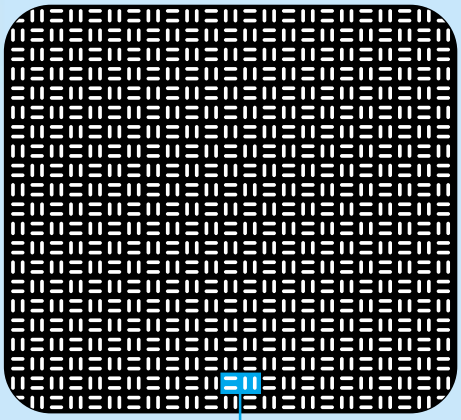
Please call or write for more information.

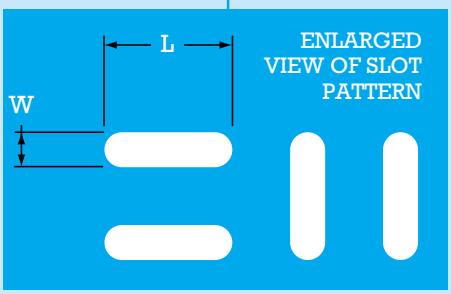
SLOT SIZES

Width (W) in. (mm)	Length (L) in. (mm)	Slots/ Sq. In.
.010 (.254)	.053 (1.346)	295
.020 (.508)	.073 (1.854)	175
.030 (.762)	.093 (2.362)	125

Duplex Slot Pattern

Window with .020 slots shown actual size





CaPP System

The Hardwood Captured Parts Plating System has been designed for the electroless, nickel or gold "Barrel" plating of small delicate parts, such as ceramic chips, that previously could only be rack plated. The CaPP System, fully compatible with existing barrel systems, combines the parts protection of rack plating with the production capabilities of a barrel. It offers increased solution distribution, smaller space requirements, fewer lost parts, easier load and unload operations and an up to 1,000% increase in overall production, over rack plating.

Please call or write for our CaPP System brochure.

Custom Engineered Barrels

Hardwood has the capability to design and manufacture a barrel to suit your particular requirements.

Please call or write to allow us to assist you in designing a barrel for your own applications.

The tandem barrel shown at the right was specifically designed to provide double capacity runs in an automatic system without the need for either a longer tank line or an additional hoist.

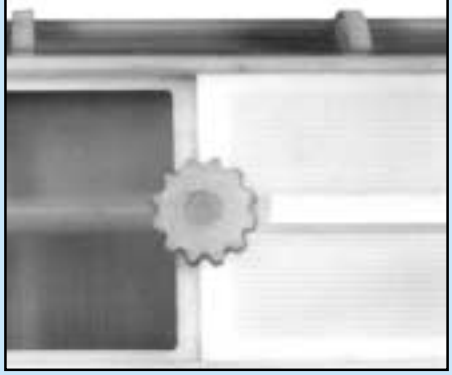
ACCESSORIES

DOOR FASTENERS

The I/O door is standard on all Hardwood barrels (See Page 6). If you should desire another door fastener arrangement Hardwood offers two others.

The "Center Turn Screw" is available for large capacity barrels only. The "Bung Clamp" is available for all sizes.

CENTER TURN SCREW



BUNG CLAMP

MOTORS

Hardwood stocks both a variable speed motor in either AC or DC and an air drive motor.

The variable speed DC motor is a low voltage unit with a preset rheostat that allows individual plating stations to operate at different RPMs. This unit is available for an overhead or a side drive barrel.

The variable speed AC motor allows for adjustments of cylinder speed from 0 to 20 RPMs and is available as a 110V or 220V unit.

AIR DRIVE

D.C. VARIABLE DRIVE

A.C. VARIABLE DRIVE

REPAIRS & SERVICE

Hardwood Line has the capability to repair, retrofit, and/or recondition all major manufacturers' equipment.

We can replace cylinders, bearings, gears and recondition or replace superstructures.

We stock a full line of replacement parts:

- ❑ **Motors, drives, switches**
- ❑ **Cylinders**
- ❑ **Danglers**
- ❑ **Superstructures**
- ❑ **Saddles**
- ❑ **Tank Repair Kits**

OTHER PRODUCTS BY HARDWOOD LINE

TANKS

Hardwood manufactures a full line of tanks with a complete complement of accessories to suit your particular applications.

Call or write for our Tank brochure.

METAL BARRELS

Hardwood manufactures a full line of metal barrels. All are engineered to withstand heavy load requirements, high temperatures and acidic/caustic solutions.

Call or write for our Metal Barrel brochure.

COMPLETE TURNKEY AUTOMATIC SYSTEMS

Hardwood offers complete manual or automatic turnkey systems. We can either automate your existing system or develop a new one specifically designed for your applications.

Shown at right is a PC driven, multi-tasking, automatic SprayThru™ system. Random load, dynamic control scheduling and an in-line que station enables both rack and barrel plating in a single line. The system also features an in-line air drying station, Rinsemaster™ and Solo Rinsing stations.

Hardwood Line also manufactures ventilation systems designed for existing fume scrubbers, or new installations.

Please call or write for more information

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