

# No-Entry Systems

Safe and Effective Vessel Cleaning

## Powerful Tools Allow You to Put Safety First

Safer and more effective - it's the **StoneAge**® winning combination. We make several tools for vessel and tank cleaning that reduce operator hazard by eliminating personnel entry into the cleaning area. Now you can clean reactors, separators, heat exchanger heads and any other process vessels without physical entry. Plus these tools are more powerful than hand-held alternatives so they do a better job of cleaning and removing deposits.

**Vessels  
&  
Tanks**



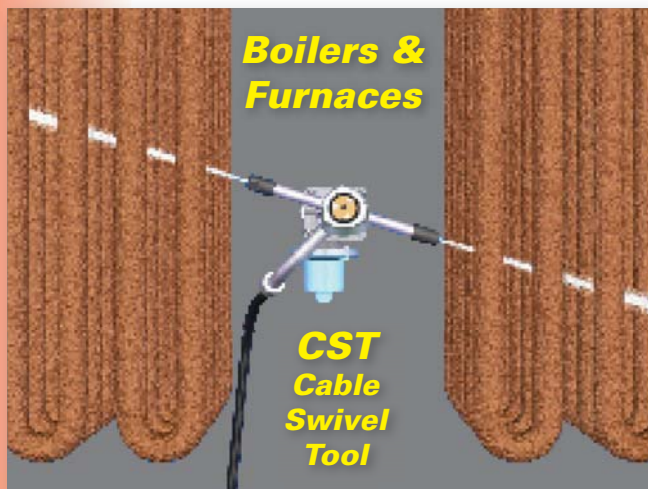
**Hurricane®  
with  
Simpleboom**

**Reactors &  
Separators**



**Hurricane®  
with SB-H  
Hoseboom**

**VESSELS & TANKS**



**Boilers &  
Furnaces**

**CST  
Cable  
Swivel  
Tool**



**Extra Large Vessels**

**SM-Air  
with  
Extension  
Arms**

# Cable Swivel Tool

**Traveling Swivel with Air-Powered Rotation**

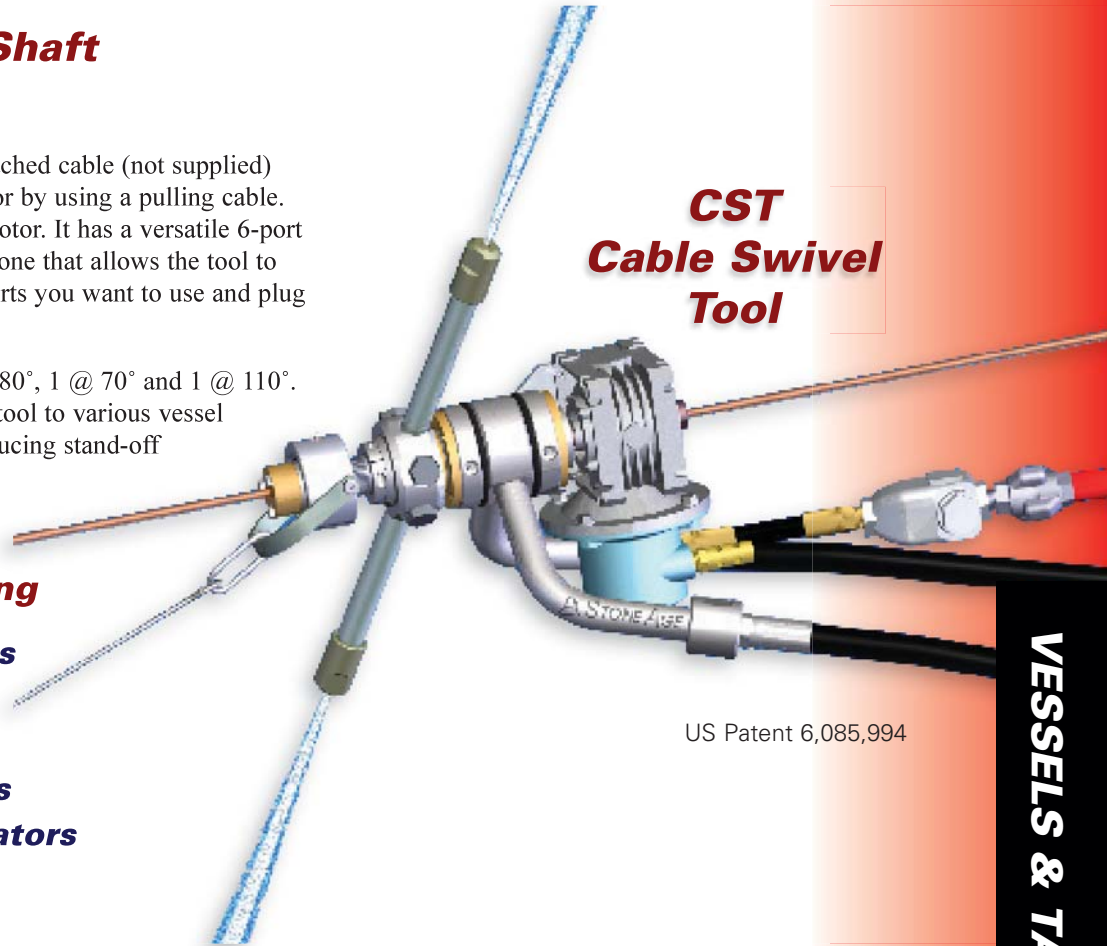


## Patented Hollow Shaft Cable Swivel Tool

The **CST** slides on a 3/8" stretched cable (not supplied) and is moved along by jet reaction or by using a pulling cable. The rotation is powered by an air motor. It has a versatile 6-port head with varying angles including one that allows the tool to travel by itself. Simply select the ports you want to use and plug the others.

The ports include 2 @ 90°, 2 @ 80°, 1 @ 70° and 1 @ 110°. Extension nipples further adapt the tool to various vessel sizes and improve jet quality by reducing stand-off distance.

**CST  
Cable Swivel  
Tool**



US Patent 6,085,994

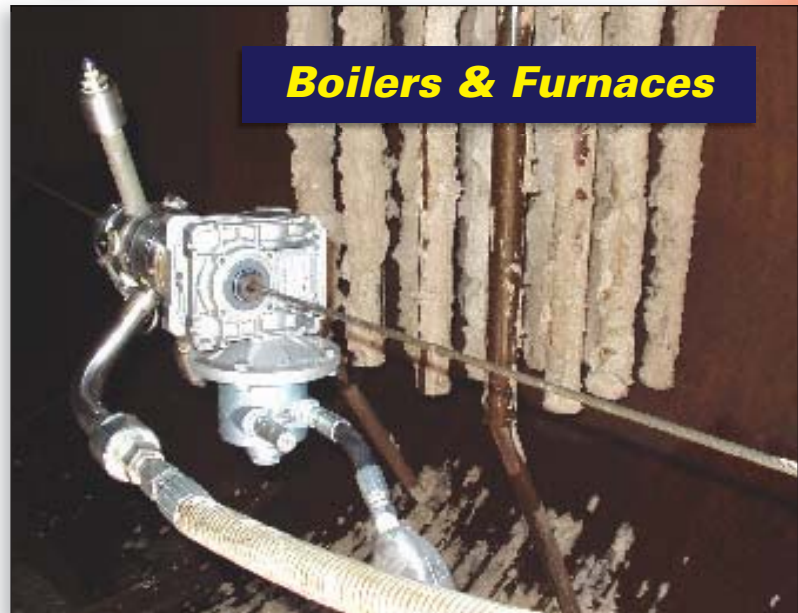
## CST No-Entry Cleaning

- **Direct fired furnaces**
- **Boilers & re-boilers**
- **Superheater & economizer sections**
- **Reformers, precipitators & cokers**

### CST Specs

MODEL	<b>CST-Air-P12</b>
Max Pressure	10k psi 700 bar
Flow Capacity	170 gpm 640 lpm
Flow Rating	5.2 Cv
Rotation	5-60 rpm
Rotation Range	360°
Inlet Ports (2)	1 npt
Outlet Ports	6 x 3/4 npt
Length	21 in. 530 mm
Weight	46 lbs 21 kg

### Boilers & Furnaces



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# Hurricane® 3D Tool



## High Flow Model for Big Vessels

**Hurricane  
3-D Nozzle  
12k psi**



US Patent 5,947,387  
and 6,059,202

## Patented 3D High Flow Cleaning

The **Hurricane®** and the **Cyclean** are 3D vessel cleaning tools. The **Hurricane®** operates at flows from 15-80 gpm at a maximum pressure of 12k psi. It is an ideal tool for large diameter vessels, especially with the use of nozzle extension arms. (See page 40.) The patented 3D action means you get total coverage with very little operator exposure.

The tool features durable stainless steel construction with high impact polyurethane protective covers. The adjustable jet offset allows re-jetting for a variety of pumps with no parts other than nozzle tips. You can hang the tool from a high pressure water hose, a pulling ring or use one of the positioners featured on the following pages.

- Remove coke, baked polymers & difficult deposits like latex
- Clean reactors, separators and heat exchanger heads
- Achieve thorough cleaning without repositioning or entry

## Operator's Manual, Setting Guide & Video

Both the **Hurricane®** and the **Cyclean** have a patented Banjo Nipple Setting mechanism to coordinate pressure, flows and coverage speed. The setting chart can be found in your operator's manual. In addition, a comprehensive step-by-step repair video is available with routine maintenance as well as overhaul procedures.

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Our sales staff can help in recommending which of our 3-D tools is best suited for your specific needs.

<b>Hurricane® Specs</b>		
Pressure	2-12k psi	140-800 bar
Flow Capacity	15-80 gpm	55-300 lpm
Flow Rating	2.5 Cv	
Power	18-560 hp	13-420 kW
Cycle Time	2-10 minutes	
Inlet Connection	3/4 npt Female	
Length	11.3 in.	290 mm
Weight	35 lbs	13.2 kg
Fits Through (Diam.)	8 in.	203 mm

<b>Hurricane® Jetting &amp; Flows</b>								
ORIFICE ID		PRESSURE - kpsi and bar						Hose I.D.
		2	4	6	8	10	12	
in.	mm	138	276	414	552	690	827	
.038	0.97							
.042	1.07							
.047	1.19							
.052	1.32							
.057	1.45							
.063	1.60			16/8.0	19/6.0	21/4.5	23/4.5	.50 in.
.069	1.78		16/9.0	19/6.0	22/5.0	25/4.0	27/3.5	
.075	1.91		18/8.0	23/6.0	26/4.0	29/3.0	32/3.0	
.082	2.08	16/9.0	22/6.0	28/4.0	32/3.0	36/2.5	39/2.0	.75 in.
.090	2.29	19/9.0	27/5.5	33/3.0	38/2.5	43/2.0	47/2.0	
.098	2.49	22/8.0	32/4.0	39/3.0	42/2.5	50/2.0	55/1.5	
.106	2.69	26/7.0	37/3.0	45/2.5	52/2.0	58/1.5	63/1.5	
.115	2.92	30/5.0	42/2.5	52/2.0	60/1.5	68/1.5	75/1.0	
.125	3.18	35/3.5	49/2.0	60/1.5	71/1.5	79/1.0		1.0 in.
.135	3.43	39/3.0	55/2.0	70/1.5	81/1.0			
.145	3.68	44/2.5	64/1.5	79/1.0				
.155	3.94	48/2.0	72/1.5					
.165	4.19	56/1.5	79/1.0					

# Cycleclean - 3D Tool

**High Pressure Model for Hard Deposits**



## Patented 3D and High Pressure

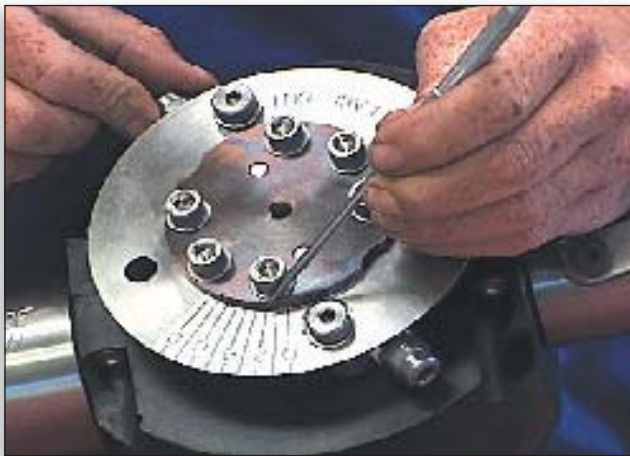
The **Cycleclean** operates at pressures up to 20k psi and flow rates from 9-45 gpm. It is an ideal tool for smaller diameter vessels with hard to remove deposits. The 3D action used in both the **Cycleclean** and the **Hurricane**® means you get total coverage with very little operator interaction.

The **Cycleclean** features durable stainless steel construction with high impact polyurethane protective covers. The adjustable jet offset allows re-jetting for a variety of pumps with no parts other than nozzle tips. You can hang the tool from a high pressure water hose, a pulling ring, or use one of the positioners featured on the following pages.



**Cycleclean  
3-D Nozzle  
20k psi**

US Patents 5,947,387  
and 6,059,202



The **Cycleclean's** angle settings adjust easily. A setting chart is located in the operator's manual.

- Remove coke, baked polymers and difficult deposits like latex
- Clean reactors, separators and heat exchanger heads
- Achieve thorough cleaning without repositioning or vessel entry

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## Cycleclean Jetting & Flows

ORIFICE ID in. mm		PRESSURE - kpsi and bar				Hose I.D.
		14 966	16 1103	18 1241	20 1380	
.038	0.97	9/8.0	10/8.0	11/7.5	11/7.5	0.5 in.
.042	1.07	11/7.5	12/7.0	12/6.5	13/6.0	
.047	1.19	13/6.0	14/5.5	15/5.0	16/5.0	
.052	1.32	16/5.5	18/5.0	19/4.5	20/4.5	
.057	1.45	19/4.0	21/4.0	22/3.5	23/3.0	
.063	1.60	24/3.5	26/3.0	27/3.0	29/2.5	
.069	1.78	28/3.0	30/2.5	32/2.5	34/2.5	
.075	1.91	32/2.5	34/2.5	37/2.5	39/2.0	0.75 in.
.082	2.08	37/2.5	40/2.5	42/2.0		
.090	2.29	42/2.0	45/2.0			

Flows in **GPM** green • Gear Settings in Black

## Cycleclean Specs

Pressure	4-20k psi	275-1400 bar
Flow Capacity	10-40 gpm	38-150 lpm
Flow Rating	0.74 Cv	
Power	23-465 hp	17-350 kW
Cycle Time	2-10 minutes	
Inlet Connection	3/4 MP Female	
Length	11.9 in.	302 mm
Weight	29 lbs	13.2 kg
Fits Thru (Diam.)	7 in.	178 mm



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# 3D Nozzle Accessories

*Nipple Extensions and Centralizer Cages*



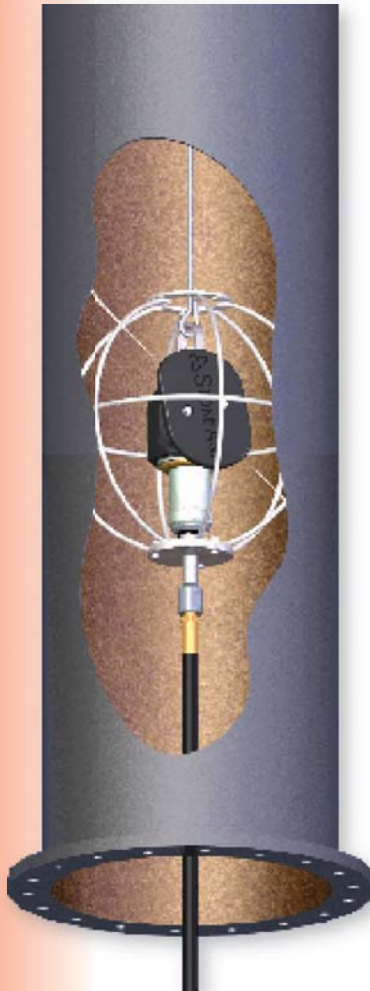
**HC 088  
Extension Kit**  
**18" or 36"  
Standard Lengths**

## **Accessories for your Hurricane®**

We offer extension kits, centralizer cages and positioning booms, all designed to get better results from your 3D cleaning tools. The **HC 088 Extension Kit** is recommended for vessels over 12 ft. in diameter.



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## **HC 100-SS Cage Centralizer 19.5" Diameter**

**HC 100-SS  
Cage  
Centralizer  
with  
Pull Ring  
in Use**



The **HC 100-SS Cage Centralizer** is for applications where debris or internal structures may interfere with the cleaning operation.

# 3-D Positioning Tools

## Simple Booms and Telebooms



### Simple Booms

**SB-1**



**SB-H**



### Teleboom



**TB-6 & TB-8**



### Telebooms

The **Teleboom** features a telescoping reach of up to 19 feet, plus it offers tilt and rotation adjustments. Both of our 3D tools can be adapted to fit our **Teleboom** models. Easy to set up and to use, it comes in two different lengths. Note the chart below.

### Simple Booms

The **Simple Boom** is an inexpensive and versatile positioner available as a rigid pipe model, the **SB-1**, or a flexible hose model, the **SB-H**. Both are shown in the diagram. The **SB 200 Conversion Kit** adapts the rigid model to accept hose.

The **SB-1** model features a rigid pipe coupling, adjustable pipe and ball locks for depth control and a 75° tilt range. The **SB-H** hose model features adjustable hose and ball locks, 45° hose elbows and an inspection hatch.

Both models include a 24" aluminum mounting plate for the vessel opening and an inspection hatch for operator visuals.

### Teleboom Specifications

MODEL	TB-6		TB-8	
Maximum Reach	13 ft	4.0 m	19 ft	5.8 m
Collapsed Length	6.5 ft	2.0 m	8.5 ft	2.6 m
Weight	120 lbs	54 kg	130 lbs	55 kg
Hose Connection	3/4 npt		3/4 npt	
Flow Capacity	100 gpm	380 lpm	100 gpm	380 lpm
Max Hose I.D.	3/4 in.	19 mm	3/4 in.	19 mm
Max Pressure	15k psi	1000 bar	15k psi	1000 bar

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# High Flow - 2D Power

**Air-Powered Rotation - Up to 300 gpm**

## SM-Air Air-Powered Rotation



## Speed Controlled Rotation

The **SM-Air** offers big flows for effective jet power over a long distance. The rotation is by air motor and operates between 10 rpm-50 rpm. It comes with a variety of head options for custom applications. We recommend **OC8 Nozzles** for high flow operations.

## Up to 300 gpm!

We have upgraded the SM-AIR gearbox to handle the most demanding waterblast applications. It works especially well for cleaning boilers, furnaces, large tanks, cyclones, cokers, economizer and superheater pendant tubes.

### SM-Air Specs

MODEL	SM-Air
Max. Pressure	10k psi 700 bar
Flow Capacity	300 gpm 1140 lpm
Flow Rating	13 Cv
Rotation	10-50 rpm
Inlet Port	1 npt
Outlet Ports	3/4 npt
Extens. Nipples	3/4 pipe
Length	25 in. 640 mm
Weight	78 lbs 35.4 kg

Extension arms are available for large tanks and vessels.

## Large Vessel Cleaner



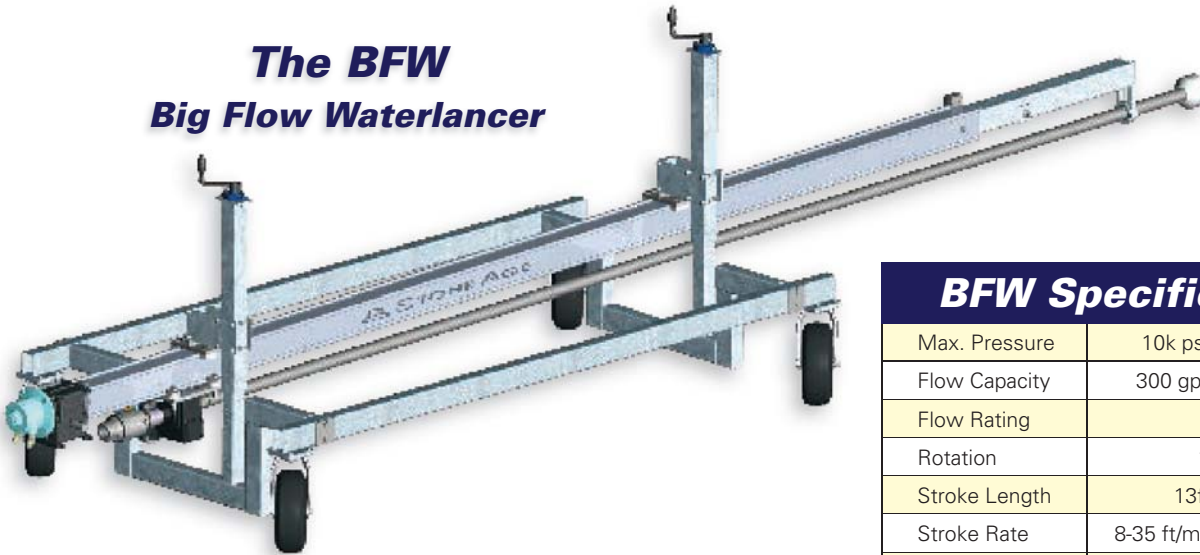
# BFW & HWB

## Big Flow Waterlancers and Storage Hose Reels

### The Big Flow Waterlancer

The **BFW** was originally designed as a boiler floor washer but contractors have found many other uses for this tool. With a 300 gpm flow capability the **BFW** can handle practically any large vessel with limited access. It's perfect for pulp plant boilers, refinery and chemical plant vessels, as well as furnace radiant sections. It comes with an adjustable cart with boom positioner and is driven by an air motor.

### The BFW Big Flow Waterlancer



For jobs where large flow is necessary to flush out systems.

### BFW Specifications

Max. Pressure	10k psi	700 bar
Flow Capacity	300 gpm	1140 lpm
Flow Rating	10.0 Cv	
Rotation	10-50 rpm	
Stroke Length	13ft	4 m
Stroke Rate	8-35 ft/min	2.4-10.7 m/min
Inlet Port	1 npt	

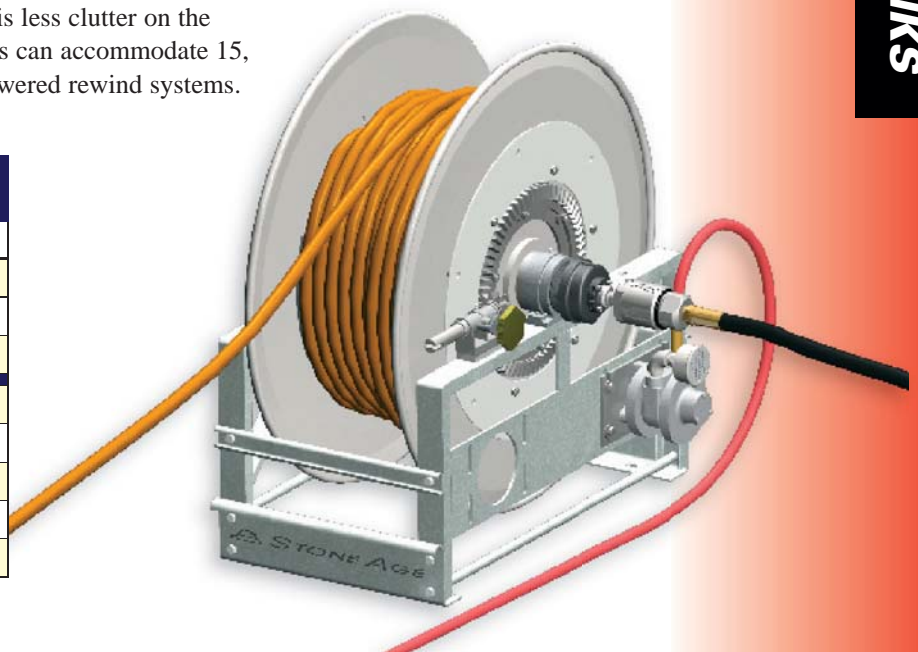
### Waterblast Hose Reels

Protect your hoses and improve safety with extra hose reels. They safely store hose, easily move from job to job, and there is less clutter on the floor to trip over. Using our **SG** swivels these reels can accommodate 15, 20, or 40k psi hoses. Choice of air or hydraulic powered rewind systems.

### HWB Specifications

Hose O.D.		Max Length	
0.8 in.	20 mm	440 ft	168 m
1.0 in.	25 mm	275 ft	122 m
1.2 in.	30 mm	167 ft	51 m
Reel Diameter		32 in.	810 mm
Reel Height		34 in.	860 mm
Reel Width		18 in.	460 mm
Hose Bend Radius		10 in.	810 mm
Weight (w/o Hose)		170 lbs	77 kg

### HWB Storage Hose Reels



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