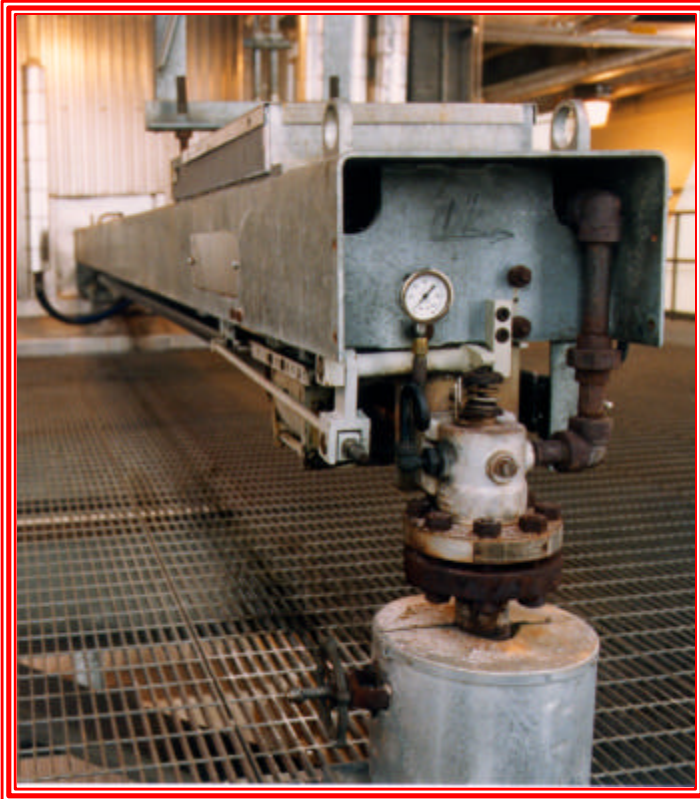




## MODEL US

## Severe Duty Utility Sootblower



### A NEW DEMAND FOR ADVANCED SOOTBLOWER TECHNOLOGY

In response to the ever increasing demands for more MW and the environmental restraints placed on Utility Companies to find cleaner ways to produce these MW's, Utilities have significantly increased their demand for improved technologies and equipment reliability. Utilities are also increasing their flexibility in coal grades and other types of fuels used. The boilers are being run longer between outages and at higher MW demand levels. All of these actions are causing a considerable increase in the demand placed on sootblowers to keep them free from fouling and pluggage. Clyde Bergemann has recognized this need and has developed the model US sever service long retractable sootblower. The model US sootblower has been designed using the same principles as those found in our popular

recovery service sootblowers. These sootblowers have proven themselves with many years of service and tens of thousands of hours of continuous use. There are installations in North America using this design sootblower with run frequencies of 48 times per 24-hour period, which have been in operation for over 12 years.

The model US is designed to meet the most demanding operational requirements and operate on a continuous bases without the need for constant maintenance. This unit also has more cleaning reserve available if extended runtime or higher MW demand is needed. As with other Clyde Bergemann models, high equipment reliability is achieved through better system design and component selection.

Over the past few years Clyde Bergemann has replaced many competitive sootblowers with the model US, in fact the US sootblower is quickly becoming the sootblower of choice for Utility Company throughout North America. The Clyde Bergemann model US Sever Duty Long Retractable Sootblower can meet your most demanding boiler cleaning needs.

### DRIVE RELIABILITY

The US uses Clyde Bergemann's well proven dual rack-and-pinion drive system with heavy-duty chain rotation. This is the safest sootblower drive system on the market - superior to chain, cable, and single rack-and-pinion drives. When compared to competitive dual rack-and-pinion sootblowers, the US "balanced" drive loads each pinion equally. The competition uses a "left" and "right" handed housing which loads the pinions in an unbalanced, unequal way, resulting in high pinion/rack wear. The US drive provides the user a higher load carrying reserve for difficult cleaning areas and/or longer boiler run times. Competitive "handed" sootblowers also require the user to carry a duplication of spare parts for each "handed" blower.





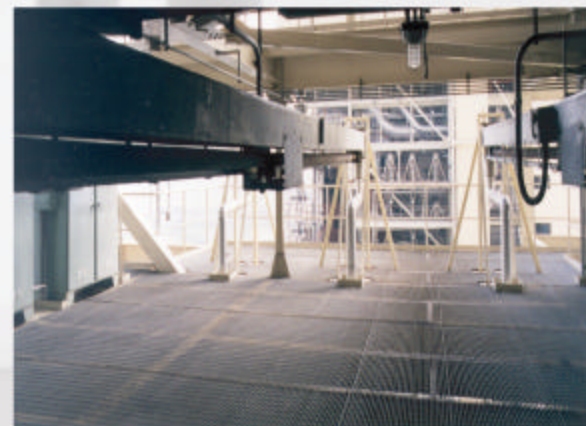
### **LUBRICATION**

The US has separate gearbox and lance hub housings. This design keeps the steam heat from the mechanical gearing allowing for cooler lubrication conditions thus extending the life of the lubricant and avoiding gearbox seal leakage. Due to the minimal lubrication losses on the US, housekeeping around the boiler is much cleaner. The hub bearings are lubricated with a synthetic high temperature grease that will not cook out or harden even under extreme temperatures.

### **PACKING LIFE**

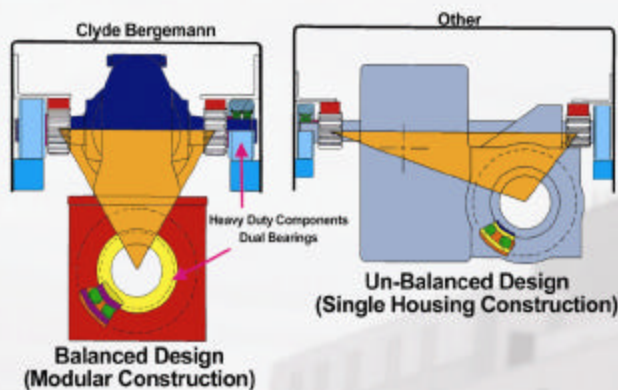
Short packing life is typically the #1 sootblower maintenance headache. The US has a much longer packing life because of the more stable four-roller drive/carriage platform and our superior packing technology. On two roller, and/or rocking drive systems, the packing is alternately crushed and released which results in rapid packing breakdown. The US uses as standard a graphite packing system with an automatic tightener (live loading).

and proximity switches are externally located to the housing for better access.

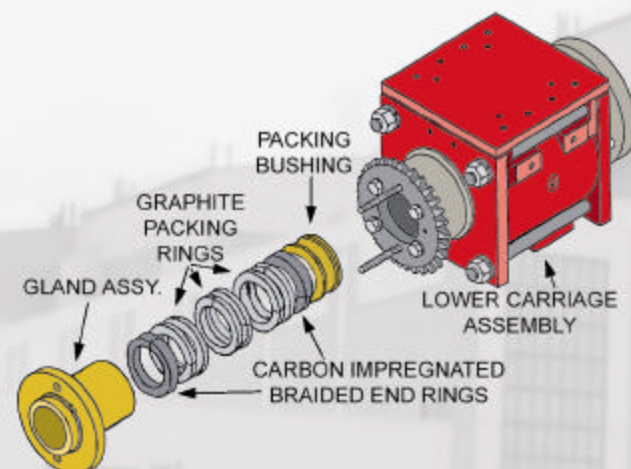


The power to the motor is supplied via a rugged "E-chain" track eliminating dragging coiled cords which can snag or fray with use. Cable life with the "E-chain technology" is 3 to 5 times longer than coil cords and eliminates the potential single phase motor failure that have occurred with coiled cords. Cable connections are made with rugged quick disconnects.

### **BALANCED DRIVE**



The dual rack-and-pinion drive has been developed using a "Balanced Design" concept. All major components such as the poppet valve, feed tube, traveling carriage and lance tube are symmetrically located on the centerline of the sootblower housing. This design also utilizes a modular component design improving maintainability, durability and service.



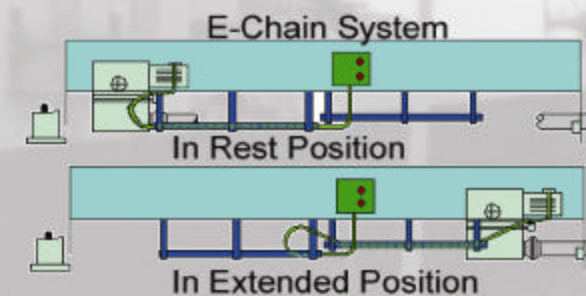
### **ACCESSABILITY**

To improve maintainability, the US provides easy access to all essential components. For example, the large top opening allows removal of the gearbox within 30 minutes, compared to several hours with competitive sootblowers. Other components such as valve operating mechanisms,

### **BLOWER STABILITY**

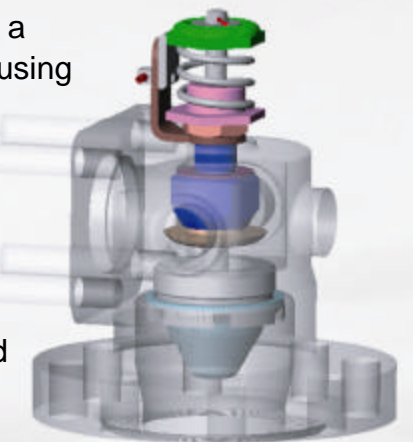
The heavy 5/16 inch thick housing is the most rugged on the market and provides the US with an extremely stable base. Heavier loads, higher speeds, and higher duty cycles can be carried on a much heavier frame. We have pioneered hot dip galvanizing as an alternative to painting to minimize the corrosion in the aggressive environment found in recovery boilers.

### **ELECTRICAL**



### **POPPET VALVE**

The poppet valve is a mechanical design using a removable seat & disc assembly for easy repair. A pressure control orifice is provided so the blowing pressure is adjusted independent from the valve opening.



The pressure adjustment is made external to the poppet valve and while the sootblower is in operation. This allows for very precise adjustments, improved safety and quick adjustment. Sootblower pressure optimization without this feature cannot easily be achieved and typically more sootblowing steam is consumed than necessary. The adjustment can also be locked after it is set to eliminate set pressure drift.



### **LANCE AND FEED TUBE DESIGN**

The feed tube is constructed using surface ground 304 SS material. This component uses an engineered end plug to connect to the poppet valve; thus, eliminating feed tube thread damage problems and improving maintainability. The lance tube is 3.5" or 4" chrome moly tubing with SS head assembly. The flange is a forged &

machined one-piece design made integral with the lance for durability and safety. Nozzles can be high impact or flush ground. The lance is indexed during travel to allow for an infinite number of cleaning helix paths improving cleaning coverage and reducing erosion.

### **MULTIPLE INDEXING**

Clyde Bergemann's proprietary indexing offsets both venturis to a different angle each time the sootblower is operated. This ensures that a different helix is followed which results in a more complete cleaning of the tube surfaces. Competitors typically clean on the same path in and out or have at best two different helixes only. The Clyde Bergemann indexing is accomplished by a clutch in the gearbox and can truly offer infinite indexing capabilities.

<b>Model US Standard Specification</b>	
<b>Drive &amp; Electrical</b>	
Motor	2.0 HP, NEMA 145TC, TEFC, Class B or F Insulation, 220/480Volt - 3Ph - 50/60Hz
Travel	up to 40 Feet (12,192 mm)
Traveling Speed	110 in/min (2800mm/min)
Helix	5 inch (125 mm)
Limit Switches	Mechanical, External Wiring
Terminal Box	NEMA 4 Epoxy Paint, Push Buttons
Wiring	External non-metallic flexible conduit, E-chain power feed to motor
<b>Poppet Valve &amp; Flow Components</b>	
Rating	ANSI 600 WC6 Cast Steel
Companion Flange	ANSI 600, 3 in., weldneck, A106, reducer to 2 in., (50mm) or 2.5 in. (65mm)
Pressure Control	External On-line
Feed Tube	2 3/4 in. (70) o.d. A269 304 SS, 26-32 Rc, ground finish
Packing	Pure Graphite with Braided End Rings, Live Loaded
Lance Tube	3.5 in. (88.9mm) o.d., A213, T11 with 310 SS nozzle and HI-PIP Venturis
Housing	5/16 in. (8 mm) thick canopy, Hot Dip Galvanized
Wallbox	Positive or Negative Pressure as needed
<b>Options</b>	
Drive/Electrical	Non standard V/Hz variable speed, additional electrical components
Poppet Valve	ANSI 900 WC6 cast steel, automatic variable pressure
Lance Tube	4 in. (102 mm), 5 in. (127 mm) CFE Venturis
Feed Tube	Armor Glide Plating
Housing	Stainless Steel or Epoxy Paint with Organic Zinc Primer

**CALL US AT 1 (800) 241-5996**

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