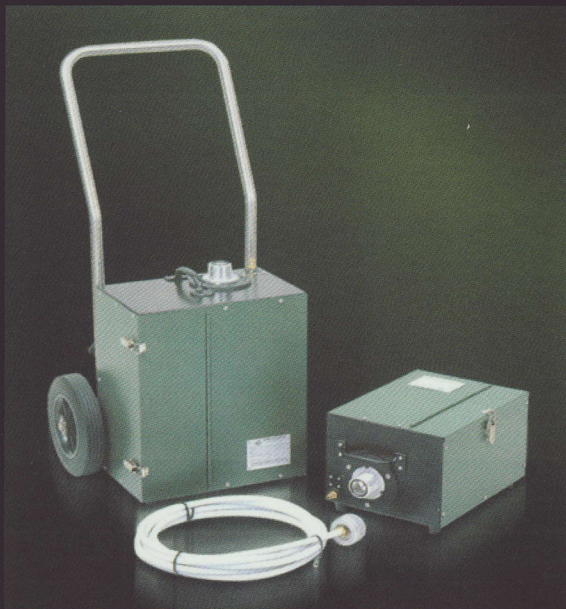


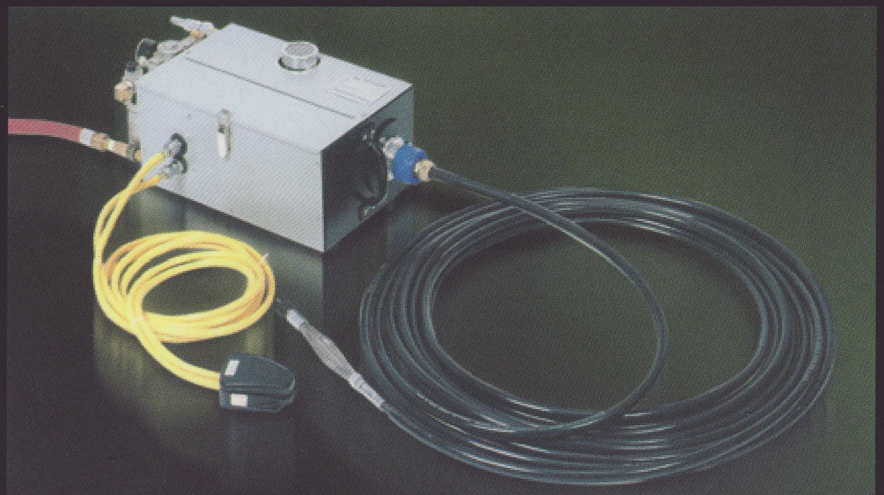
Need your tubes cleaned?



**SPECIALISED
OVERHAUL
SERVICE P/L**



**Tube & pipe cleaning
systems for chillers,
condensers,
heat exchangers, boilers
and more ...**



Air Conditioning and Industrial Tube Cleaning Machines & Accessories

History

Specialised Overhaul Service P/L was incorporated in 1980 by the managing director Graham H. Smith with 30 years experience in Marine Engineering and Steam Plant Maintenance.

Originally S.O.S. business consisted of 95% steam plant maintenance, steam turbine nozzle retrofitting and 5% sales of imported tube cleaning machinery.

We now design, manufacture and supply robust electrical driven and compressed air powered tube cleaning machines, patented water propelled tube "bullets" and the equipment to utilise them.

All our products are manufactured to a superior standard utilising high quality components and materials.

S.O.S. tube cleaning systems are in use throughout Australia and in the United States of America, the U.K., India, Philippines, Singapore, Thailand, Turkey, Saudi Arabia, South Korea and Malaysia.

We have an ongoing research and development program to develop better tube cleaning methods to suit our changing environmental standards and cost saving necessities.

Contact information

For our current price list, users list or a discussion regarding your particular tube or pipe cleaning problem contact:-

Specialised Overhaul Service P/L

15 Randall Court

Collaroy NSW 2097

Australia

Tel: (02) 9981 4010 - Fax: (02) 9982 2240

Intl Tel:+61 2 9981 4010 - Intl Fax: +61 2 9982 2240

Internet: www.sostubecleaners.com

e-mail: sos@bigpond.net.au

Or your local distributor :-



Legal News

If you are on the Internet point your web browser at the following address for the outcome of our recent legal battle with our American Competitors:-

http://www.austlii.edu.au/au/cases/cth/federal_ct/1999/286.html

ERW-2

Electric Tube Cleaning Machine

Description And Operation

The ERW-2-550 incorporates an electrical motor which drives a flexible shaft through a torque limiter.

The inner flexible steel core of the flexible shaft unit rotates at high speed inside the outer watertight nylon casing.

The on/off motion of the foot switch supplies water to the cleaning tool or brush which is attached to the flexible shaft inner core end coupling and simultaneously flushes the deposits removed by the cleaning tool.

The machine is designed so that it can be operated by one person and is fitted with 2 metres of power cable with an integral "Electresafe Switch"

The ERW-2-550 machine can be mounted on a stainless steel trolley which is sufficiently high to allow for easy manoeuvrability. Toggle screws allow for the machine to be easily demounted from the trolley.

The ERW-2-370 has been designed to be a portable machine with a total weight of 18kg.

These units are used extensively for cleaning :- Air conditioning chiller unit condenser, evaporator and small bore heat exchanger tubes.

Safety & Special features.

- Australian approved "Electresafe" Residual Current interrupter switch is integral with 2 metres of clearly visible yellow heavy duty power cable hard wired into machine.
- Intrinsically safe air pressure foot switch, requires no electricity or air supply.
- Torque Limiter, prevents a shaft in good condition from accidental failure should a cleaning tool become jammed in a tube. No lost time repairing shafts or replacing shear pins.
- Robust, Zincaneal steel construction finished with oven baked powder coat enamel.
- The machine has a large tool box compartment.
- The machine is designed for easy maintenance. Any one of the sub assemblies can be replaced in approximately ten minutes.
- All Flexible Shaft units and tools are interchangeable. The flexible shaft connection nut in unbreakable aluminium.



- The water connection is by quick coupler and any 12.7mm (½") bore water hose can be utilised.
- The trolley is manufactured from Stainless Steel, comes standard with 250mm roller bearing wheels. It also can be fitted with roller bearing stair climbing wheels for optimum manoeuvrability.

Advantages

- It is quicker, more efficient than hand rodding and is labour saving.
- Only one operator is required.
- One water box cover only needs to be removed.
- No tube damage, due to the flexible shaft and cleaning tools' ability to negotiate tube ovality caused by sagging and non linear manufacture of some condenser tube plates.
- The ease and speed of tube cleaning with the ERW-2 allows the building owner to clean condenser tubes prior to peak load periods, ensuring optimum performance and affecting maximum power saving.

Specifications

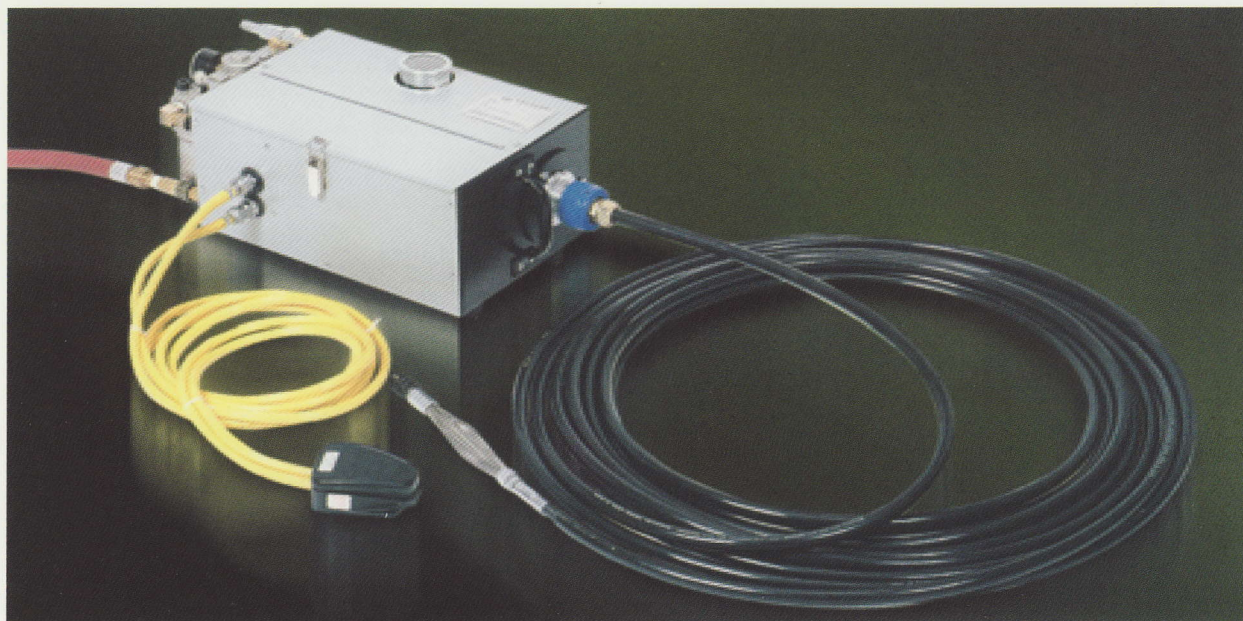
	Power Requirements	Speed	Power	Dimensions	Weight
ERW-2-370-50	240 volts, 50Hz,	1440 rpm,	370 watts	450x280x240	17.0kg
ERW-2-550-50*	240 volts, 50Hz,	1440 rpm,	550 watts	520x390x270	24.0kg
ERW-2-370-60*	220 volts, 60Hz,	1700 rpm,	370 watts	520x390x270	24.0kg
ERW-2-550-50R*	240 volts, 50Hz,	1440 rpm,	550 watts	520x390x270	24.0kg

* - torque limiter fitted. Torque limiter is factory set to prevent breakage of FS12.7-7.6 flexible shaft.

R - reversing rotation for internally enhanced tubes

ARW-1

Air Powered Tube Cleaning Machine



Description And Operation

The SOS model ARW-1 is an air powered rotary motion with simultaneous water flush tube cleaning machine suitable for cleaning tubes from 6.4mm to 400mm I.D.'s

There is a choice of two Air Motors; the 4AM delivers up to 1.3 Kilowatts (1.5 HP) and the 6AM delivers up to 3.0 Kilowatts (4.0HP). Speed may be varied 300 to 3000 rpm with a corresponding variation in torque.

This machine has a combination air filter, pressure regulator and air lubricator fitted to the air inlet side of the machine.

Filtered air at supply pressure is fed to the foot controller via quick couplers and upon operation the foot control supplies air to a pilot operated water valve and the air motor supply valve.

The air powered motor drives a flexible shaft and cleaning head which is fed through the tubes by the operator. Water is supplied to the cleaning head through the flexible shaft and the debris, removed by the cleaning tool, is washed forward.

The machine has a tool storage box for the foot control and the tube cleaning tools. Root nuts are fitted in the base so that the machine can be trolley mounted if so desired.

Safety & Special Features

- Explosion proof air motor and controls completely eliminate electrical hazards.
- All supply and control lines utilise quick couplers
- Control lines are safety yellow and give excellent performance in terms of flexibility, resilience and kink resistance. They exceed in all respects the requirements of Australian Standard AS2554-class B

- They are robust, compact and will fit through most boiler man hole doors.
- Air filter, regulator and lubricator unit is fitted to the machine as standard. Filter and lubricator have spring return drain valves.
- Filtered supply air is utilised to control the operation of the water valve and motor supply valve, thus ensuring that these valves will open when the motor is operating on its lowest torque setting (ie air pressure to motor 140kPa (20psi)).
- Air pressure regulator allows torque to be varied over full range of operating pressure.
- Full bore compression fittings and air lines ensure that maximum power is obtainable.
- The machine has a tool storage box for the foot control and the tube cleaning tools. Root nuts are fitted in the base so that the machine can be trolley mounted if so desired.
- The machine is designed so that any one item can be replaced in approximately 10 minutes.

Specifications

4AM Output power at 700 kPa (100 psi):- 1.1 kW (1.5 HP)

6AM Output power at 700 kPa (100 psi):- 3.0 kW (4 HP)

Speed variable up to :- 3000 rpm

Air supply pressure :- 400-800 kPa (58-115psi)

Air Consumption (max)	4AM	:- 32 l/s (72 CFM)
	6AM	:- 130 l/s (220 CFM)

Water supply maximum pressure :- To be less than air supply pressure

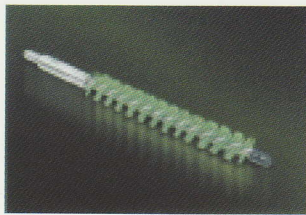
Dimensions :- 420 x 278 x 190 mm (17.2" x 11" x 7.5") (machine only)

Weight -	4AM	:- 21.0 kg (46.3lb)
	6AM	:- 27.0 kg (59.5lb)

Tube Cleaning Machine Accessories

Nylon Brushes :-

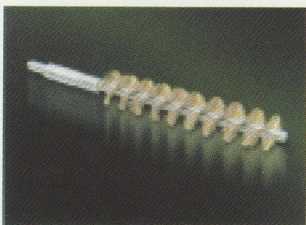
Nylon stiff bristles are used for removing algae and silt. Size should be slightly smaller or size for size with the I.D. of the tube to be cleaned.



Sizes Available : 6.4mm (1/4") to 25mm (1"). For larger sizes contact SOS P/L for price and availability.
Order Code : NB-<Brush Size>

Brass Brushes :-

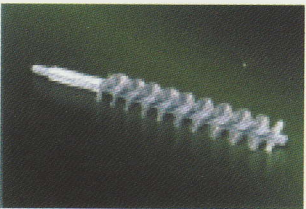
Brass stiff bristles are used for removing algae, silt and soft scale. Size should be slightly smaller or size for size with the I.D. of the tube to be cleaned.



Sizes Available : 6.4mm (1/4") to 25mm (1"). For larger sizes contact SOS P/L for price and availability.
Order Code: BB-<Brush Size>

Stainless Steel Brushes :-

Stainless Steel brushes should be used on ferrous tubes, **not** to be used on non ferrous tubes. Stiff Stainless Steel bristles are used for removing algae, silt and scale. Size should be slightly smaller or size for size with the I.D. of the tube to be cleaned.



Sizes Available : 6.4mm (1/4") to 25mm (1"). For larger sizes contact SOS P/L for price and availability.
Order Code : SS-<Brush Size>

Spin-Grit™ Brushes :-

This brush has silicone carbide impregnated nylon bristles. The brush is made oversize so the filament will lay over, resulting in increased contact with the tube surface, providing better cleaning and longer life than conventional condenser brushes. Recommended for brass tubes.

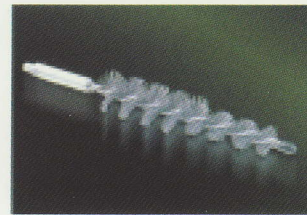


Order Code Size

SOS-SG-6.4-8 Spin Grit brush for 6.4mm (1/4") - 8mm (5/16") ID tubes
SOS-SG-9.5-14 Spin Grit brush for 9.5mm (3/8") - 14mm (9/16") ID tubes
SOS-SG-16-17.5 Spin Grit brush for 16mm (5/8") - 17.5mm (11/16") ID

Spin-Clean™ :-

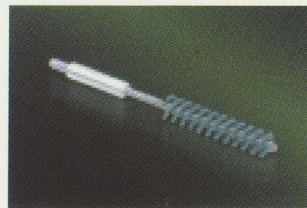
This brush has silicone carbide impregnated nylon bristles. The Tapered trim allows better cleaning for enhanced condenser tubes.. Recommended for brass enhanced tubes.



Order Code	Size
SOS-SC-12.7	Spin Clean brush for 12.7mm (1/2") I.D. tubes
SOS-SC-16	Spin Clean brush for 16mm (5/8") I.D. tubes
SOS-SC-19	Spin Clean brush for 19mm (3/4") I.D. tubes

Flex Hone Scale Removers :-

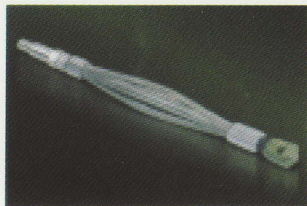
Silicon carbide (180 grit) globules on nylon bristles for removal of hard deposits. FHSR are designed to be 10% larger than the I.D of the tube to be cleaned to allow pressure to be exerted on the inner wall of the tube.



Sizes Available : 6.4mm (1/4") to 64mm (2 1/2"). For larger sizes contact SOS P/L for price and availability.
Order Code : FHSR - <Brush Size>

Bowed Wire Buffer :-

Bowed wire buffer tools have backward curved stainless steel spring grade wires and should be adjusted so that they are slightly smaller in diameter than the smallest I.D. of the tube to be cleaned.



Order Code	Size
BWB8-9.5	Bowed Wire Buffer Tool for 8.0-9.5mm ID Tubes
BWBBS8-9.5	Bowed Wire Buffer Tool Blade Sets for 8.0-9.5mm ID Tubes
BWB9.5-12.7	Bowed Wire Buffer Tool for 9.5-12.7mm ID Tubes
BWBBS9.5-12.7	Bowed Wire Buffer Tool Blade Sets for 9.5-12.7mm ID Tubes
BWB12.7-16	Bowed Wire Buffer Tool for 12.7-16.0mm ID Tubes
BWBBS12.7-16	Bowed Wire Buffer Tool Blade Sets for 12.7-16.0mm ID Tubes
BWB16-25	Bowed Wire Buffer Tool for 16.0-25.0mm ID Tubes
BWBBS16-25	Bowed Wire Buffer Tool Blade Sets for 16.0-25.0mm ID Tubes
BWB25-75	Bowed Wire Buffer Tool for 25.0 - 75.0 mm ID
BWBBDT25-75	Bowed Wire Buffer Tool for 25.0 - 75.0 mm ID c/w Drill Tip
BWB25-75DT	Bowed Wire Buffer Tool Drill Tip replacement for BWBDT25-75
BWBBS25-75	Replacement blade sets for BWB25-75 & BWBDT25-75

Other tube cleaning tools are available for speciality applications please telephone for details

Flexible Shafts



Flexible Shafts.

When choosing the flexible shaft that you require establish the tube Internal Diameter (I.D.) and the length of the tube to be cleaned. **Note** :- When ordering, each flexible shaft should only be used for its designed tube size. Using a smaller flexible shaft on a tube size larger than the documented size will result in shaft breakage.

Flexible Shaft Sizes

Part #	Shaft Size	Suitable for I.D. of Tube
FS6.4-3	6.4mm O.D. x 3m long	6.4mm (1/4") - 9.5mm (3/8")
FS6.4-5	6.4mm O.D. x 5m long	6.4mm (1/4") - 9.5mm (3/8")
FS6.4-7.6	6.4mm O.D. x 7.6m long	6.4mm (1/4") - 9.5mm (3/8")
FS9.5-7.6	9.5mm O.D. x 7.6m long	11mm (7/16") - 12.7mm (1/2")
FS12.7-7.6	12.7mm O.D. x 7.6m long	14mm (9/16") - 25mm (1")
FS12.7-11	12.7mm O.D. x 11m long	14mm (9/16") - 25mm (1")
FS12.7-15	12.7mm O.D. x 15m long	14mm (9/16") - 19mm (3/4")
FS15.9-7.6	15.9mm O.D. x 7.6m long	16mm (5/8") - 25mm (1")
FS15.9-11	15.9mm O.D. x 11m long	16mm (5/8") - 25mm (1")
FS15.9-15	15.9mm O.D. x 15m long	16mm (5/8") - 25mm (1")
FS15.9-19	15.9mm O.D. x 19m long	16mm (5/8") - 25mm (1")
FS19-8	19mm O.D. x 8m long	21mm (13/16") and up
FS19-11	19mm O.D. x 11m long	21mm (13/16") and up
FS19-15	19mm O.D. x 15m long	21mm (13/16") and up
FS19-19	19mm O.D. x 19m long	21mm (13/16") and up
FS19-22	19mm O.D. x 22m long	21mm (13/16") and up

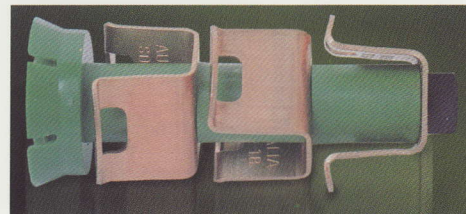
Water Propelled Tube Cleaners

Benefits of the SOS Metal Bladed Tube Cleaner.

- Overlapping blades with well rounded blade arc ends have been designed to suit internal surface of tubes and ensure that full surface of tubes comes in contact with cleaner blades.
- Can be used repetitively. They have been used for condenser cleans more than 15 times and have remained in reasonable condition.
- Plastic parts are colour coded for easy identification

Benefits of the SOS Phosphor Bronze Tube Cleaner.

- Rust free promoting longer life.
- Inexpensive. Cost is low by comparison, considering the material used.
- Robust. They will not break in normal use. They have been shot through a test rig tube over 100 times, hitting a steel plate 10 inches from the exit of the tube without breaking.
- Blades can be rumbled to remove the very sharp die punch edge, but still remain sharp enough to remove corrosion pit scabs and pips, resulting in a smooth surface and extending the life of the tube.
- Can be manufactured for use where tube inlet inserts are fitted and likewise the SOS Tube Cleaner can be manufactured to be more or less aggressive. While tubes are cleaned to maintain plant efficiency, some power plant owners require the tube oxide surface to remain intact.
- Phosphor Bronze spring grade was selected being less than half as hard as spring steel.
- The SOS PBTC was developed to satisfy the need of power plant owners of aged condensers. They require an efficient type of cleaner that would not damage the tubes, yet, clean better than rubber or plastic cleaners.
- Tests and inspections where by the Phosphor Bronze Tube Cleaner have been calibrated after each pass have shown that the spread of the blades does not alter appreciably and the minimal wear on the blade edge is such that their cleaning action remains effective over the life of the cleaner.

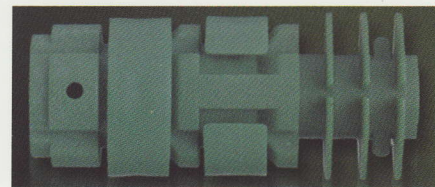


Steel Bladed Tube Cleaners

- For the removal of harder type deposits in all types of tubes.
- Particularly suitable for Titanium and Carbon Steel tubes
- The steel blades are hardened and tempered by professional heat treaters and then coated with a rust inhibitor. All other parts are non corrosive.

Plastic Tube Cleaner (Patented)

- Complete internal circumference of the inside of the tube is presented to the self adjusting cleaning ring.
- The greater the resistance to forward motion the more outward force there is on the cleaning ring.
- For removal of marine growth, algae and sediment.
- Light for easy cartage.
- Just wash off with clean water and they are ready for storage or use again.
- Cleaning rings can be replaced for even more savings.
- Tail end removes any debris that is left in the tube.

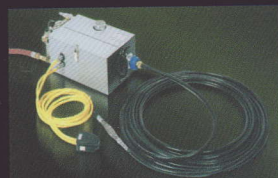


For further details on our Water Propelled Tube Cleaners and their associated equipment please request your free brochure today from Specialised Overhaul Service P/L.



Electric Tube Cleaning Machines (ERW-2)

Electrically powered the ERW-2 tube cleaning machines are ideally suited to be used to clean tubes in air conditioning chiller unit condensers, evaporator and small bore heat exchangers.



Air Powered Tube Cleaning Machines (ARW-1)

Using air to supply up to 3 Kilowatts of power the ARW-1 tube cleaning machines can be used for the most difficult tube cleaning job in tubes up to 400mm ID. The ARW-1 has been used to clean condenser, evaporator, heat exchange, and boiler tubes in the pharmaceutical industry, dairy industry, shipping, confectionary manufacture and many more.



Cleaning Brushes

With such a large variety of brushes we can supply the right tool to clean just about any tube.



Flexible Shafts

Flexible shafts can be supplied to clean tubes from 6.4mm to 400mm.



Tube Cleaners

Water propelled tube cleaners manufactured from phosphor bronze, steel or plastic are used to remove slime, algae, soft deposits and hard deposits. Our range of tube cleaners allow us to achieve the best results for a specific plants condenser conditions.



Pump System -1 for Tube Cleaners

Use of the Pump System-1 to "shoot" our tube cleaners for reliable job completion on time, every time.



Water Gun for Tube Cleaners

Every "shot" gives the best possible results.



**SPECIALISED
OVERHAUL
SERVICE P/L**

For Additional Information Contact:

Specialised Overhaul Service P/L A.C.N. 001 766 409

15 Randall Court, Collaroy Beach NSW 2097, Australia

Tel:(02) 9981 4010 Int: ++61 2 9981 4010 Fax:(02) 9982 2240 Int: ++61 2 9982 2240