



## Setting the Standard

For over 20 years Tubcon Industries (Parent Company Gupta Brothers Trading Company) has experience of condenser tube cleaning that set the industry standards. In addition to our exclusive line of tube cleaners and plugs. Now we have introduced new technology for cleaning with bullet shots & hydro jetting. These development will position us as one of the world leader in condenser cleaning and condenser tube repairing / replacing.

Tubcon's exclusive technology provides many advantages and results in these benefits:

- Low cost production
- Increased megawatt capacity
- Extended tube life
- Improved condenser performance
- Maximum plant efficiency
- Improvements in plant heat rate

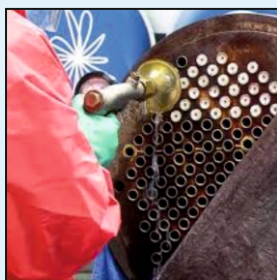
## Tubcon Equipment

Tubcon manufacture a wide variety of state-of-the-art equipment that includes tube cleaners to provide you with exceptional results. No matter how difficult your deposit problem, whether it be microbiological, manganese and iron, calcium carbonate scale or anything in between, we have the equipment on hand to satisfy your needs. We assure you an immediate return on investment.

## Tubcon Experience

Tubcon's tube cleaning personnel cleaned over 5 million tubes in the across India. Our supervisors and technicians have seen a variety of different situations and can tailor a solution to any unique issues that may be encountered at your site. Our technicians are multi disciplined and many are capable of performing tube cleaning & leak detection. With all these advantages, it is clear why Tubcon is recognized as "Absolutely the excellent" in the industry.

Call us today or a no-nonsense solution to your needs at **+91 77550 44600** and put the Tubcon advantage to work for you.



# Comparison between Tubcon Method & Other Method of Heat Exchanger Cleaner

## DISADVANTAGES OF CONVENTIONAL TECHNIQUES

**HP Jet** - Most of the Power Utilities in India Currently use High Pressure jet cleaning (400-600 Kg/cm<sup>2</sup>). In this system High Pressure Jet Lance is traversed manually through the tube length. The average time taken for cleaning a 210 MW condenser is about 15 days. This technique require utmost care for safety since very high pressure is involved. Effective cleaning by this arrangement is rather difficult to ensure because the length of the Condenser tubes is around 12 to 15 meters. The major limitations of this technique are concern for safety due to high pressure, long time taken for cleaning and ineffective cleaning leaving back uneven deposits which generally lead to early scale formation in future.

**Chemical Cleaning** : This technique is used in situations when the thickness of scale is very high and / or the deposit is very hard. However, power utilities do not prefer frequent chemical cleaning of condensers due to rather elaborate and cumbersome preparatory requirements, possibility of loss of tube metal unless extreme care is taken and relatively high cost of chemical cleaning. Since the cost of replacement of tube bundle for a 210 MW unit is around Rs. 32 million (approx.), frequent chemical cleaning is generally not a preferred option.

## NEW TECHNIQUE

The Technique involved is to use proprietary spring loaded metal scrappers which are propelled at high speed (3 to 6 m/sec) by medium pressure water guns (15 to 25 Kg/cm<sup>2</sup>). The cleaners are manufactured precisely to fit the inside diameter of the condenser tubes which results in the removal of internal deposits including Calcium Carbonate, Organic deposits, Oxides etc. Different types of cleaners are available for soft scale and hard scale and these are selected based on the type of deposits. For scale of average quality and thickness, each cleaner could be used approximately 8 to 12 times. Generally off line mechanical tube cleaning is performed during a Unit outage. However, it has been successfully used in USA for Condenser Cleaning at reduced load (While the Unit is in operation) after isolating one half of the Condenser during the weekneds or period of low grid demand,

*Knowledge is not enough it is the  
implementation which leads to real benefits.*

# Benifits of having your own Tubcon Make Pump System and Cleaning accessofies at you plant

**Cleaning the condenser during every shutdown**, or as part of a regular maintenance schedule, offers significant benefits including improved energy efficiency, extended equipment lifespan, reduced repair costs, and better cooling performance. **Key Benefits Improved Energy Efficiency:** A clean condenser tubes facilitates efficient heat transfer. When dirt, dust, and debris accumulate, they act as an insulating barrier, forcing the system to work harder to release heat. This inefficiency can increase energy consumption by 15-30%, leading to significantly higher energy bills. **Extended Equipment Lifespan:** The added strain from running with dirty tubes causes increased wear and tear on components, particularly the compressor, which is often the most expensive part to replace. Regular cleaning reduces this stress, helping the system last longer and postponing costly replacements. **Reduced Repair Costs:** Routine preventive maintenance helps identify and address minor issues before they escalate into major breakdowns. This proactive approach is significantly more cost-effective than emergency repairs. **Better Cooling Performance:** Clean coils ensure proper airflow and optimal heat exchange, allowing the system to maintain desired temperatures more effectively and consistently. **Enhanced Indoor Air Quality:** Dirty tubes can become a breeding ground for mold, bacteria, and other contaminants, which can then be circulated throughout the building. Regular cleaning helps prevent this, promoting a healthier indoor environment. **Increased System Reliability:** A well-maintained condenser is less likely to experience unexpected failures, ensuring consistent and reliable operation when you need it most. **Best Practices Frequency Depends on Environment:** While a general recommendation is annual or semi-annual cleaning, the required frequency can vary. Facilities near construction sites, heavy traffic, or coastal areas may need cleaning every few months due to accelerated debris accumulation. **Follow Manufacturer Guidelines:** Always consult the manufacturer's recommendations for specific shutdown and cleaning procedures to avoid damaging sensitive components and to maintain warranty coverage. **Safety First:** Ensure the power to the unit is completely turned off at the disconnect switch or electrical panel before starting any maintenance. **Use Proper Tools:** Use an appropriate tube cleaner with low pressure to avoid any damages to tube.

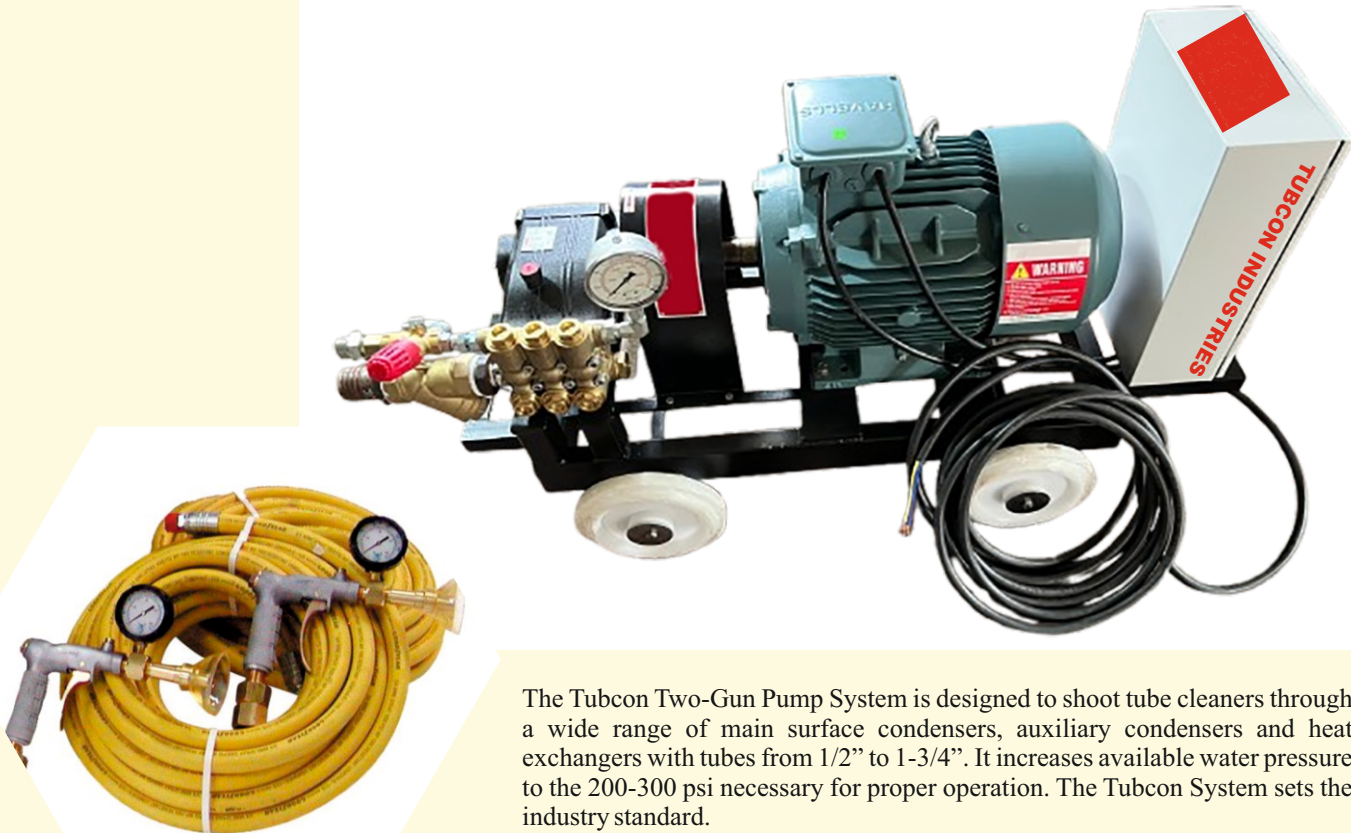
## Recent Energy Audit of Obra 'B' Thermal Power Station-UPRVUNL

Sl. No.	Description of energy efficiency, improvement measure	Category	Investment in Cr.	Verified Savings in Cr.	Verified Energy Savings		Unit	Remark
1.	Cleaning of condenser tubes of 200 MW unit #10 BTPS, Obra	27	0.03	3.87	Coal	14.23	K(MT)	Vacuum improved by 20 mmHgCl



# The Tubcon Two Gun Pump System (Model # 09JMD)

Your Single Source for Cleaning  
Condensers and Heat Exchangers



The Tubcon Two-Gun Pump System is designed to shoot tube cleaners through a wide range of main surface condensers, auxiliary condensers and heat exchangers with tubes from 1/2" to 1-3/4". It increases available water pressure to the 200-300 psi necessary for proper operation. The Tubcon System sets the industry standard.

**Flexible** - Can be used with all tube cleaning devices

**Portable** - Can be moved anywhere in the plant.

**Efficient** - Rotation of guns assures smooth operation

**Reliable** - Consistent performance day after day

## FEATURES

Positive displacement plunger pump
Portable , complete with mobile base
Includes 10 HP electric motor, 220/440 volts, 3 phase, 60 hertz, TEFC, valves, gauges and piping to operate one water Guns, alternating
Inlet piping accepts 1-1/2" inlet hose, outlet piping accepts 1" or 3/4" outlet hose



# TUBCON TUBE CLEANERS

Spring-loaded ... Durable ... Fast ... Effective

## Tubcon Water Gun

Available in bronze or lightweight aluminum with a spring-loaded fail safe valve, the Tubcon Water Gun has proven ideal for heavy duty use. The gun features quick change nozzles (available in 1/2" through 1-3/8" sizes) and powers all types and sizes of cleaners. One inch or three quarter inch swivel (360 degrees) provides greater flexibility and reduces operator fatigue.

Clear rubber splash guard prevents splash back
SAFE - Use only non compressible water pressure with a fail safe spring loaded trigger valve
Protective rubber handle grip
Few operating parts allows ease of use and repair

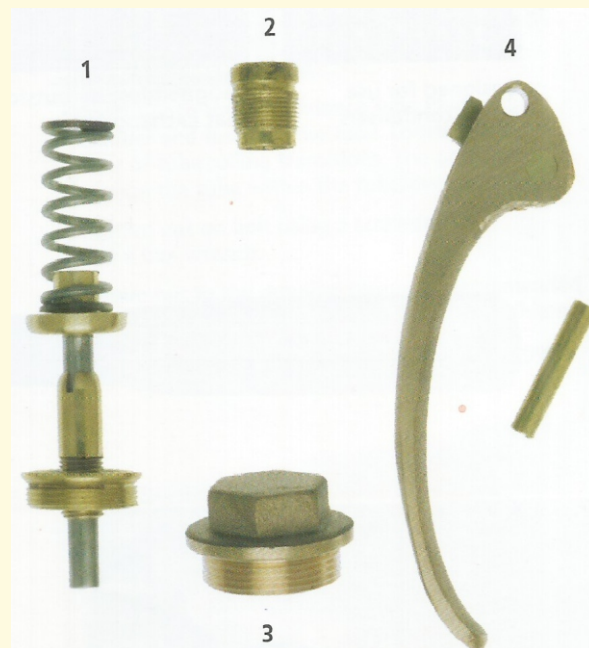


## Water Gun Repair Kit

One of the great features of the Tubcon Water Gun is its few operating parts, which makes it easy to repair. All you need is a valve stem, bushing, spring and valve seat and your're back in business!

## Tubcon Water Gun Repair Parts List

1. Gun Repair Kit includes valve stem, bushing, spring and valve seat
2. Vacuum Breaker
3. Cap
4. Trigger and Push Block Assembly



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## Stainless Steel Tube Cleaners Brush

The Tubcon SSB Stainless Steel Tube Cleaning Brush is designed for use on all types of tube materials in condensers and heat exchangers with tube size 5/8" to 1-1/4" and can also be used on tubes with metal insert. It is particularly effective on manganese, iron and silica deposits. It is also effective on all types of obstructions, macrofouling and debris. The SSB will restore the tube surface to be original heat transfer characteristics, while providing absolutely the best protection from under deposit corrosion.

### FEATURES

Safe, water powered tube cleaner
Made of stainless steel and featuring over 1000 contact points.
Provides complete I.D. surface coverage
Designed to meet tube specifications
Heads are color-coded to distinguish size and specially designed to control cleaner travel speed
Can be used for approximately 8-12 shots each



## Plastic Tube Cleaners

The Tubcon Type P Plastic Tube Cleaner is designed for removal of only the softest types of deposits such as mud, silt and microbiological fouling in condensers and heat exchangers with tube sizes 5/8" to 1-1/4". The cleaner's fins are slit horizontally and vertically which, along with a small diameter hole in the core, allows water to bypass the cleaner to lubricate and flush out deposits.

### FEATURES

Safe, water powered tube cleaner
Depending on size, five to seven low density polyethelene cleaning fins are stacked on a hollow core using unibody construction
Cleaners are slightly oversized and precisely designed to match tube inside diameter
Can be used for approximately 10 shots each



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## P4B & P3B Tube Cleaners

Phosphorus bronze tube cleaners are essential for maintaining condenser tubes in thermal power plants. They effectively remove scale and debris, ensuring optimal heat transfer efficiency.

Made from a corrosion-resistant copper-tin-phosphorus alloy. These cleaners are durable and non-sparking, making them ideal for delicate tubes. They mechanically scrape deposits while being gentle on tube surfaces.

Regular cleaning prevents blockages, reduces thermal resistance and improves plant efficiency. A cleaner condenser means lower fuel consumption and reduced operational costs.

Fouling in condenser tubes increases turbine back pressure, lowering power generation. Using phosphorus bronze tube cleaners helps maintain smooth operation and extends equipment life.

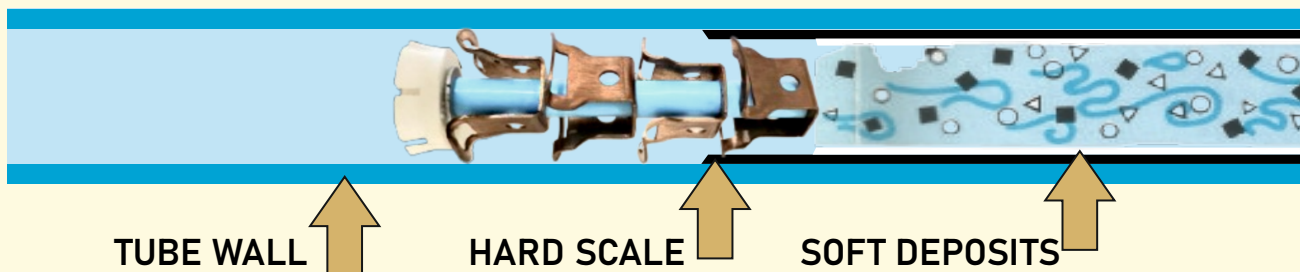
Investing in quality tube cleaners enhances thermal power plant reliability, ensuring uninterrupted electricity production and long-term sustainability.



## Advantages of Phosphorus Bronze

- **Superior Cleaning Performance** - Effectively removes scale, deposits and biofouling from condenser tubes.
- **Corrosion Resistance** - Phosphorus bronze resists rust and chemical wear, ensuring long-term durability.
- **Non-Sparking & Safe** - Suitable for use in sensitive environments without risk of sparking.
- **Tube Friendly Material** - Cleans efficiently without damaging delicate condenser tube surfaces.
- **Enhanced Heat Transfer** - Keeps tubes free from deposits, improving thermal efficiency.
- **Reduces Turbine Back Pressure** - Prevents fouling related inefficiencies in power generation.
- **Extended Equipment Lifespan** - Protects condenser tubes from damage, reducing maintenance costs.
- **High Flexibility** - Navigates bends and tube curvatures without losing cleaning effectiveness.
- **Cost Effective** - Reduces fuel consumption, maintenance and downtime in thermal power plants.
- Can be used for approximately 15-20 shots each.

### TUBCON P3B CLEANER IN ACTION



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## NBB Brush

Nylon Brush provides the advantage of extra length plus more nylon bristles for removal of most types of light deposits in 5/8" to 1-1/2" condenser and heat exchanger tubes.

### FEATURES

Safe, water powered tube cleaner
Nylon bristle brush with metallic shaft
Slightly oversized and designed to meet tube specification.
Heads are color coded to distinguish size and specially designed to control cleaner travel speed
Can be used for approximately 10-12 shots each



## SS4B Tube Cleaners

The Tubcon SS4B stainless steel tube cleaner can be used on all types of tube materials in condensers and heat exchangers with tube size 3/4" to 1-1/4". Originally developed for applications on stainless steel condenser tubing, it has also been used for applications in highly corrosive environments.

### FEATURES

Safe, water powered tube cleaner
Four stainless steel-bladed center rivet design provides overlapping tube I.D. coverage
Spring loaded and designed to meet tube specifications
Heads are color-coded to distinguish size and specifically designed to control cleaner travel speed
Can be used for approximately 10-15 shots each



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## C4S Tube Cleaners

The C4S tube cleaner is an all purpose tube cleaner for condensers and heat exchanges with tube sizes 1/2" - 1-1/4". This metal cleaner is effective on all types of deposits, including micro/macro fouling, organic types scales, corrosion and pitting by products, and all types of obstructions. It can also be used with thin wall metal inserts and coatings on tube sheets or inlet ends.

### FEATURES

Safe, water powered tube cleaner
Four metal-bladed center rivet design provides overlapping tube I.D. coverage.
Spring-loaded and designed to meet tube specifications
Heads are color-coded to distinguish size and specially designed to control cleaner travel speed
Can be used for approximately 10-15 shots each



## C6S Tube Cleaners

These two (C6S) or three (C3X) hexagon bladed tube cleaners provide six contact points per blade. They are available in 3/4", 7/8", 1" and 1-1/8" sizes. These tube cleaners are designed to remove thin tenacious deposits such as manganese, silica, iron and calcium and are also effective in removing corrosion product and other types of debris and obstructions.

### FEATURES

Safe, water powered tube cleaner
Metal hexagon blade design, available in two or three stages (blades), with six contact point per blade
Spring-loaded manufactured to tube specifications
Heads are color-coded to distinguish size and specially designed to control cleaner travel speed
Can be used for approximately 8-12 shots each

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## Expanding Tube Plugs

For temporary or permanent plugging of 5/8" to 1-1/4" condenser and heat exchanger tubes, Tubcon's expanding tube plugs are tested to withstand a wide range of pressure, temperature and vibration conditions. The larger washer on the end of the EX-3 tube plug allows the plug to fit flush with the tubesheet and not be pulled into the tube by vacuum on the unit. Type EX-4 can be placed inside the tube at exact locations, to enable leak detection tests of other tubes. Pressure ranges of these plugs varies from 240 psi to 375 psi. The EX-F plug offers a separate gripping and sealing design in one plug and seals to 500 psi.

Cylinder material is chloroprene expanding to seal tube
All are available with metal components in titanium, stainless steel, brass and bronze
Installation is quick and easy

## Fibre Tube Plugs

These plugs are easily installed for emergency and temporary plugging of condenser and heat exchanger tubes. They expand when wet to effectively seal off the tube. Tubcon Type FP one-piece plugs will not damage tube sheets and can be used in temperatures up to 230°F.

Made of vulcanized cloth fibre rod
Machined to fit specific tube sizes
Only a hammer needed for quick, easy installation

## Pin & Collar Plugs

The one piece tapered design of the Type 1 Pin Plug fits specific tube sizes. The Type 2 Pin and Collar Plug features a two-piece design with matching tapered pin and collar for a positive full length seal. Tubcon Pin and Collar Plugs seal at high temperatures and isolate leaking tubes from the system, allowing continued use of the unit without major overhaul. Tubcon Pin and Collar Plugs are also used for plugging tubesheets, where tube samples have been extracted.

Available in titanium, stainless steel, brass and bronze
Special materials available on request
Can be machined to your drawing specifications.



EX-3

EX-4

EX-F



Type FP



Type 1  
Pin Plug

Type 2  
Pin and Collar Plug

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