

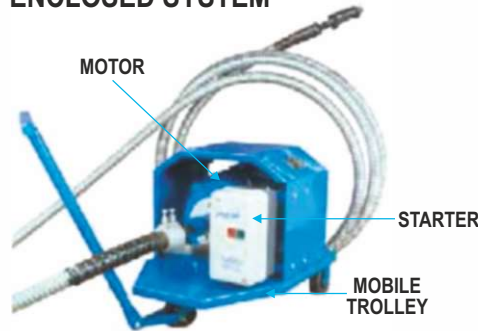
Sugar Mill Tube Cleaners

Flexible Shaft Machine (Electrically Driven)

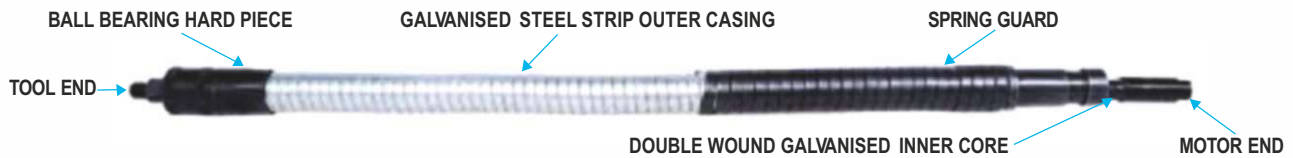
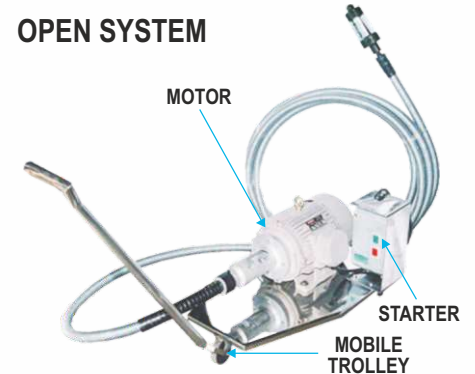
Flexible Shaft Machine is a self-contained portable unit, mounted on a 3-wheel trolley, fitted with a carrying handle. It incorporates a directly coupled, totally enclosed squirrel cage, 2800 rpm. continuously rated electric motor. Selecting the H.P. of the motor depends upon length and size of flexible shaft and nature of scaling. It is controlled by a push button starter which is provided with three thermal adjustable overload relays. Each machine is fully wired, carefully tested and is fitted with a 10-foot length of PVC Cable to main supply. Longer cable can be supplied upon request. Please consult us if your electric supply is different from listed below. Motors for alternate supplies are also available.

Model No.	Motor H. P.	Speed (RPM)	Electric Supply
TTC - 30	3.0	2800	440V
TTC - 50	5.0		3 PHASE
TTC - 75	7.5		50 Hz

ENCLOSED SYSTEM



OPEN SYSTEM



Flexible Shaft (drives): The Flexible Shaft transmits constant torque / power from the motor unit to the tool head or brush within the tube.

Inner Core is double wound in opposing layers made out of high tensile-spring steel wires and passed through stress relieving process, made to absolute-vibration free performance and continuous duty.

Outer Casing is flexible, made out of galvanized steel strip and provided with special steel anti-friction lining for the entire length.

Connections: Suitable motor connection at one end and detachable ball bearing hand piece (tool holder) with threaded spindle for tool head or brush at other end.

The size of the flexible shaft is based on internal diameter (I.D.) of the tube. The length of flexible shaft required is the addition of the length of the longest tube plus the distance between the mouth of the tube and the position of the power unit. The power unit should be located so that the flexible shaft be kept as straight as possible.

Inner Core mm (inch)		12 - 13 (½")	15 - 16 (5/8")	19 - 20 (¾")
Outer Casing mm (inch)		25 - 26 (1")	31 - 32 (1.1/4")	34 - 35 (1.3/8")
Length				
mtr.	feet	Model No.	Model No.	Model No.
7.5	25.0	TIFS-105-25	TIFS-106-25	TIFS-107-25
9.0	30.0	TIFS-105-30	TIFS-106-30	TIFS-107-30
10.0	33.0	TIFS-105-33	TIFS-106-33	TIFS-107-33
12.0	40.0	TIFS-105-40	TIFS-106-40	TIFS-107-40
15.0	50.0	TIFS-105-50	TIFS-106-50	TIFS-107-50
18.0	60.0	TIFS-105-60	TIFS-106-60	TIFS-107-60
20.0	65.0	TIFS-105-65	TIFS-106-65	TIFS-107-65
Spare Inner Core - Per mtr.		TIC-105	TIC-106	TIC-107
Spare Outer Casing - Per mtr.		TOC-105	TOC-106	TOC-107
Spare Hand Piece		THP-105	THP-106	THP-107

Sugar Mill Wire Brushes

For Sugarmill Juice Heaters, Evaporators, Boilers



“TTH” for Soot Removal from Smoke Tubes, General Cleaning



“TDS” for Removing Light Scale & Burnishing All Types of Tubes



“TWBA” Heavy Duty Brushes



“TEXP” Expanding Brush for Thin Scale, Soot or Soft Deposits.



“TMB” For General Purpose Polishing And Deburring



“TCB” Spare Brush Wheels for “MB” Brushes



“TRS” Heavy Duty Brushes For Heavy Scale Removal



“TEXS” Expanding Scrapers For Thin Scale, Soot or Soft Deposits

Size		'TTH' Turk Head Brush Model No.	'TDS' Double Spiral Brush Model No.	'TWBA' Brush Model No.	'TEXP' Expanding Brush Model No.	'TMB' Multi Purpose Brush Model No.	'TCB' Circular Wheel Brush Model No.	'TRS' Cup Shape Brush Model No.	'TEXS' Expanding Scrapers Model No.
mm	inch								
31.7	1.1/4	TTH-10	TDS-10	TWBA-10	TEXP-10	TMB-10	TCB-10	-	TEXS-10
35.0	1.3/8	TTH-11	TDS-11	TWBA-11	TEXP-11	TMB-11	TCB-11	-	TEXS-11
38.1	1.1/2	TTH-12	TDS-12	TWBA-12	TEXP-12	TMB-12	TCB-12	-	TEXS-12
41.3	1.5/8	TTH-13	TDS-13	TWBA-13	TEXP-13	TMB-13	TCB-13	-	TEXS-13
44.5	1.3/4	TTH-14	TDS-14	TWBA-14	TEXP-14	TMB-14	TCB-14	-	TEXS-14
47.6	1.7/8	TTH-15	TDS-15	TWBA-15	TEXP-15	TMB-15	TCB-15	-	TEXS-15
50.8	2	TTH-16	TDS-16	TWBA-16	TEXP-16	TMB-16	TCB-16	TRS-16	TEXS-16
54.0	2.1/8	TTH-17	TDS-17	TWBA-17	TEXP-17	TMB-17	TCB-17	TRS-17	TEXS-17
57.1	2.1/4	TTH-18	TDS-18	TWBA-18	TEXP-18	TMB-18	TCB-18	TRS-18	TEXS-18
60.3	2.3/8	TTH-19	TDS-19	TWBA-19	TEXP-19	TMB-19	TCB-19	TRS-19	TEXS-19
63.5	2.1/2	TTH-20	TDS-20	TWBA-20	TEXP-20	TMB-20	TCB-20	TRS-20	TEXS-20
66.7	2.5/8	TTH-21	TDS-21	TWBA-21	TEXP-21	TMB-21	TCB-21	TRS-21	TEXS-21
70.0	2.3/4	TTH-22	TDS-22	TWBA-22	TEXP-22	TMB-22	TCB-22	TRS-22	TEXS-22
73.0	2.7/8	TTH-23	TDS-23	TWBA-23	TEXP-23	TMB-23	TCB-23	TRS-23	TEXS-23
76.2	3	TTH-24	TDS-24	TWBA-24	TEXP-24	TMB-24	TCB-24	TRS-24	TEXS-24
79.4	3.1/8	TTH-25	TDS-25	TWBA-25	TEXP-25	TMB-25	TCB-25	TRS-25	TEXS-25
82.5	3.1/4	TTH-26	TDS-26	TWBA-26	TEXP-26	TMB-26	TCB-26	TRS-26	TEXS-26
85.7	3.3/8	TTH-27	TDS-27	TWBA-27	TEXP-27	TMB-27	TCB-27	TRS-27	TEXS-27
88.9	3.1/2	TTH-28	TDS-28	TWBA-28	TEXP-28	TMB-28	TCB-29	TRS-28	TEXS-28
92.1	3.5/8	TTH-29	TDS-29	TWBA-29	TEXP-29	TMB-29	TCB-29	TRS-29	TEXS-29
95.2	3.3/4	TTH-30	TDS-30	TWBA-30	TEXP-30	TMB-30	TCB-30	TRS-30	TEXS-30
98.4	3.7/8	TTH-31	TDS-31	TWBA-31	TEXP-31	TMB-31	TCB-31	TRS-31	TEXS-31
101.6	4	TTH-32	TDS-32	TWBA-32	TEXP-32	TMB-32	TCB-32	TRS-32	TEXS-32

Sugar Mill Cutter Heads



**SINGLE LAYER
'H' TOOL**



**TWO LAYER
'H' TOOL**



**THREE LAYER
'H' TOOL**



**CLOSE 'HZ' TOOL
(HZ-10 TO HZ-11)**



**OPEN 'HZ' TOOL
(HZ-11A TO HZ-16)**

'TH' TYPE CUTTER HEADS

for Tubes / Pipes 1.1/4" - 4" (31.7mm - 101.6mm) I.D.

These Cutter Heads are designed for cleaning straight and curved tubes as found in Boilers, Air Heaters, Economizers, etc. Cutter Heads are provided with 3 cutter wheels, one each of straight teeth, teeth cut right hand, teeth cut left hand, for quicker cleaning and prevention of scale grooving.

Model No.	Tube I.D.		Cutter Wheels Set (3)	Spare Spindle
	mm	inch	Model No.	Model No.
TH-10	31.7	1.1/4	THSRL-1	THA-1
TH-11	35.0	1.3/8	THSRL-1	THA-1
TH-12	38.1	1.1/2	THSRL-1	THA-1
TH-13	41.3	1.5/8	THSRL-2	THA-2
TH-14	44.5	1.3/4	THSRL-2	THA-2
TH-15	47.6	1.7/8	THSRL-2	THA-2
TH-16	51.0	2	THSRL-2	THA-2
TH-17	54.0	2.1/8	THSRL-2	THA-2
TH-18	57.1	2.1/4	THSRL-3	THA-3
TH-20	63.5	2.1/2	THSRL-3	THA-3
TH-22	70.0	2.3/4	THSRL-4	THA-3
TH-24	76.2	3	THSRL-4	THA-3
TH-26	82.5	3.1/4	THSRL-5	THA-3
TH-28	88.9	3.1/2	THSRL-5	THA-3
TH-30	95.2	3.3/4	THSRL-6	THA-4
TH-32	101.6	4	THSRL-6	THA-4

'THZ' TYPE CUTTER HEADS

for Tubes / Pipes 1.1/4" - 2" (31.7mm - 51.0mm) I.D.

These spring loaded, self expanding Cutter Heads are designed for rapid removal of hard and obstinate scale formations in straight tubes as found in Evaporators, Juice Heaters, etc. It consists of 3 bevel, 4 straight cutter wheels, 4 left cutter wheels and 4 right cutter wheels, fitted on 3 bridge type arms.

Model No.	Tube I.D.		Cutter Wheels Set (15)	Spare Arms
	mm	inch	Model No.	Model No.
THZ-10	31.7	1.1/4	THZSRL-1	THZA-1
THZ-10A	33.3	1.5/16	THZSRL-1	THZA-1
THZ-11	35.0	1.3/8	THZSRL-1	THZA-1
THZ-11A	36.5	1.7/16	THZSRL-1	THZA-2
THZ-12	38.1	1.1/2	THZSRL-1	THZA-2
THZ-12A	39.7	1.9/16	THZSRL-1	THZA-2
THZ-13	41.3	1.5/8	THZSRL-1	THZA-2
THZ-13A	42.9	1.11/16	THZSRL-1	THZA-2
THZ-14	44.5	1.3/4	THZSRL-2	THZA-3
THZ-14A	46.0	1.13/16	THZSRL-2	THZA-3
THZ-15	47.6	1.7/8	THZSRL-2	THZA-3
THZ-15A	49.2	1.15/16	THZSRL-2	THZA-3
THZ-16	51.0	2	THZSRL-2	THZA-3

'TTWA' Type Cutter Heads

for Tubes / Pipes 1.1/2" - 4" (38.1 mm - 101.6 mm) I.D.

These Cutter Heads produce excellent results in curved or straight tubes. Pivoted arms of Cutter Heads swing out by centrifugal force so that the cutters contact every part of the tube wall.



Model No.	Tube I.D.		Cone Cutter Set (3)	Spare Arms	Universal Joint
	mm	inch	Model No.	Model No.	Model No.
TWA-12	38.1	1.1/2	TWAL-1	TWAA-1	TWAUJ-1
TWA-14	44.5	1.3/4	TWAL-1	TWAA-1	TWAUJ-1
TWA-16	51.0	2	TWAL-1	TWAA-1	TWAUJ-1
TWA-18	57.1	2.1/4	TWAL-2	TWAA-1	TWAUJ-2
TWA-20	63.5	2.1/2	TWAL-2	TWAA-1	TWAUJ-2
TWA-22	70.0	2.3/4	TWAL-2	TWAA-1	TWAUJ-2
TWA-24	76.2	3	TWAL-3	TWAA-2	TWAUJ-2
TWA-28	88.9	3.1/2	TWAL-3	TWAA-2	TWAUJ-2
TWA-32	101.6	4	TWAL-4	TWAA-2	TWAUJ-2

'TTSA' Type Cutter Heads

for Tubes / Pipes 2" - 4" (51.0 mm - 101.6 mm) I.D.

These Cutter Heads have 3 to 5 freely pivoted arms, activated centrifugally, which swing out to give access to any part of tube wall.



Model No.	Tube I.D.		Cone & Flat Cutter Set (9)	Arms	Universal Joint
	mm	inch	Model No.	Model No.	Model No.
TSA-16	51.0	2	TSAFC-1	TSAA-1	TSAUJ-1
TSA-18	57.1	2.1/4	TSAFC-2	TSAA-2	TSAUJ-2
TSA-20	63.5	2.1/4	TSAFC-2	TSAA-2	TSAUJ-2
TSA-22	70.0	2.3/4	TSAFC-3	TSAA-2	TSAUJ-2
TSA-24	76.2	3	TSAFC-3	TSAA-2	TSAUJ-2
TSA-28	88.9	3.1/2	TSAFC-4	TSAA-2	TSAUJ-2
TSA-32	101.6	4	TSAFC-5	TSAA-3	TSAUJ-2