

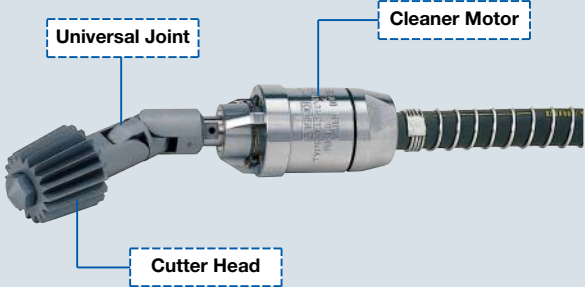
TUBE CLEANING

Tube Cleaner

Works as an automated cleaner for the tube inner surface to remove scale and compounds, which are deposited inside of the tube. Sugino provides various types of tube cleaners and attachments, depending on the type and quantity of the scale deposit.

Water driven Tube Cleaner 4000 type

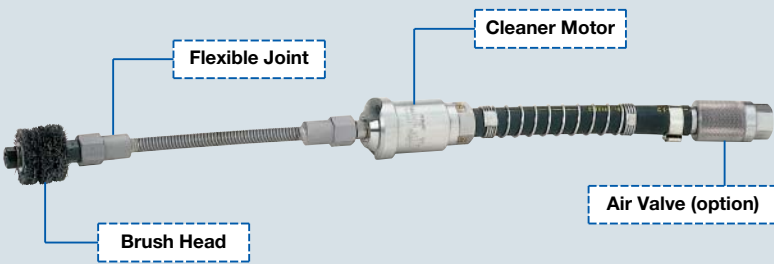
Works as a water-powered cleaner for both straight and curved-tubes. In the case of overloading, it stops the rotation to prevent damaging the tube inner surface and biting into the bending part. By pressurizing water that passes through the cleaner motor and then transferring it to the cutter head, this tool can discharge scale from the tube, and at the same time, cool the connecting head.



Application Example Scale removal from boiler tubes, coolers, heat exchangers, service pipelines.

Air driven Tube Cleaner 7000 type

Works as a compressed air-powered cleaner for both straight and curved-tubes. Because the rotation part is an air-cooled, air-driven rotary motor, this cleaner does not create heat generation after long and continuous use. In the case of overloading, it stops the rotation to prevent damaging the tube inner surface. With the efficient use of exhaust air, this tool clears away loose scale from the tube, and cools the connecting head at the same time.

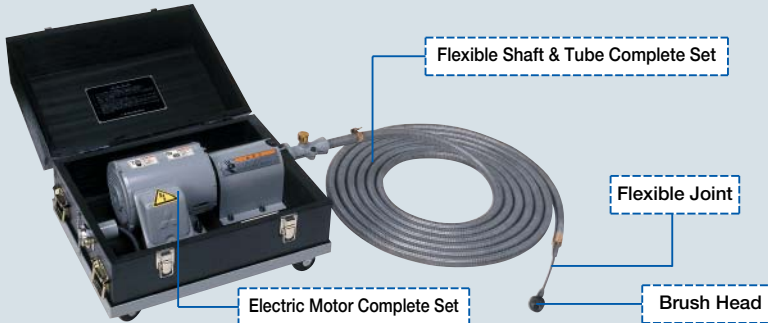


Application Example Scale removal from boilers, condensers, heat exchangers, super heaters, service pipelines.

Electrically driven EG type·EF type

Electric driven Tube Cleaner suitable for both straight and bent tubes. Because of electric type, power supply can be easily obtained. For easy transfer, this electric motor can be stored in a wheeled container.

- Flexible Shaft & Tube Complete Standard Length (selectable)
EG type : 6m/8m/10m
EF type : 10m/15m



Application Example Cleaning of boilers, air conditioning and piping for hospitals, hotels, schools, buildings, department stores.

Selection Guide

Water driven Tube Cleaner 4000 type

Water Pressure:0.8MPa

Tube I.D.	Cleaner No.	Connecting Tools		Cleaning Heads			Water Consumption	Min. Curve Radius	Hose Size
mm		Universal Joint	Flexible Joint	Drill Head	Cutter Head	Brush Head	L /min	mm	mm
32	4010	U-1010	X-1010	D-9	SP-9	B-9 BF-9	40	300	9
35	4011	U-1212	X-1212	D-10	SP-10	B-10 BF-10		320	12
38	4012			D-11	SP-11 SC-12	B-11 BF-11	50	330	
41	4013							340	
45	4014	U-1414	X-1414	D-12	SP-12 SC-14	B-12 BF-12	60	340	15
48	4015					B-13 BF-12			
51	4016	U-1614	X-1614	D-14	SP-14 SC-16	B-14 BF-14	80	360	
54	4017					B-15 BF-14			
57	4018	U-1816	X-1816	D-16	SC-18 SA-16	B-16 BE-16	100	370	19
60	4019					B-17 BE-16			
64	4020	U-2016	X-2016	D-18	SA-18	B-18 BE-18	110	390	
67	4021					B-19 BE-18			
70	4022	U-2018	X-2018	D-20	SA-22B	B-20 BE-20	150	420	25

Air driven Tube Cleaner 7000 type

Air Presssure:0.6MPa

Tube I.D. mm	Cleaner No.	Connecting Tools		Cleaning Heads			Air Consumption	Min. Curve Radius	Hose Size	Air Valve
		Universal Joint	Flexible Joint	Drill Head	Cutter Head	Brush Head	L/min (ANR)	mm	mm	
19	7006	U-77	X-77	DF-5A	S-5A	B-5A BF-5A	240	230	6	VR-2
22	7007	U-88	X-88	DF-6	S-6	B-6 BF-6	280	250		
25	7008			DF-7	S-7	B-7 BF-7	360	280		
29	7009	U-1010	X-1010	D-8	SP-8	B-8 BF-8	450	290	9	VR-3
32	7010			D-9	SP-9	B-9 BF-9	550	300		
35	7011			D-10	SP-10	B-10 BF-10	660	320		
38	7012	U-1212	X-1212	D-11	SP-11 SC-12	B-11 BF-11	780	330	12	VR-4
41	7013									
45	7014									
48	7015	U-1414	X-1414	D-12	SP-12 SC-14	B-12 BF-12	900	340	15	VR-5
51	7016	U-1614	X-1614	D-14	SP-14 SC-16	B-13 BF-12				
54	7017					B-14 BF-14				
57	7018					B-15 BF-14	1,070	360		
60	7019	U-1816	X-1816	D-16	SC-18 SA-16	B-16 BE-16	1,210	370	19	VR-6
64	7020	U-2016	X-2016	D-18	SA-18	B-17 BE-16				
67	7021					B-18 BE-18				
70	7022	U-2018	X-2018	D-20	SA-22B	B-19 BE-18	1,450	390		
						B-20 BE-20	1,710	420		

Electrically driven Tube Cleaner EG type·EF type

Tube I.D.		Cleaner No.	Connecting Tools		Cleaning Heads			Motor Complete					Flexible Shaft & Tube Complete			
Straight	Curved							Model No.	Output	No. of Poles	Voltage	Rated Current	Shaft Dia.	Tube Dia.	Min. Curve Radius	
mm			Universal Joint	Flexible Joint	Drill Head	Cutter Head	Brush Head		kW	P	V	50Hz	60Hz	mm		
17	19	EG-6N	U-77	X-77	DF-5A	S-5A	B-5A	MC-2020	1.5	2	3 phase 200	6.2	6.0	6	12	150
19	22	EG-7N	U-88	X-88	DF-6	S-6	B-6							8	16	180
22	25	EG-8N			DF-7	S-7	B-7							10	20	230
25	29	EG-9N	U-1210	X-1210	D-8	SP-8	B-8							11	22	250
29	32	EG-10N			D-9	SP-9	B-9									
32	35	EG-11N	U-1212	X-1212	D-10	SP-10	B-10									
35	38	EG-12N			D-11	SP-11	B-11									
38	45	EF-14	U-1614	X-1614	D-12	HC-12	B-12							13	26	400
45	51	EF-16			D-14	HC-14	B-14									
51	57	EF-18			D-16	HC-16	B-16									
57	64	EF-20	U-1616	X-1616	D-18	HC-18	B-18									

- Notes 1. Refer to page 14 & 15 for details of the connecting tools and cleaning heads.
2. These cleaners can not be used for the cleaning of blocked tubes.
3. For electric driven type, EG and EF type, please use with the designated voltage.
Voltage transformer must be used if the input voltage is different from above table.

Please refer to page 17 when ordering Tube Cleaner.

Connecting Tools

Attaches a cleaning head (drill Head, cutter head or brush head) to the tube cleaners .

Universal Joint

Attaches a drill head, cutter head or brush head to the water-driven or air-driven tube cleaner, or electrically driven tube cleaner.



Note : Available for various sizes depending on the type of main body to be attached.

Flexible Joint

Attaches a brush head to the tube cleaners. It has a wide range of usages, for example, it is convenient for a small bending radius tube.



Cleaning Heads

Selectable according to scale type and condition.

Cutter Head

For thin but hard scale.

S type

For small diameter tubes.



Model No.	Tube I.D.	
	Straight	Curved
	mm	
S-5A	17	19
S-6	19	22
S-7	22	25

SP type

For straight and curved tubes.



Model No.	Tube I.D.	
	Straight	Curved
	mm	
SP-8	25	29
SP-9	29	32
SP-10	32	35
SP-11	35	38
SP-12	38	45
SP-14	45	51

SC type

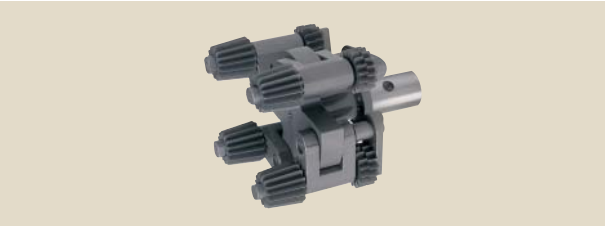
For tubes with curves of small radii. 3 freely pivoted arms activated centrifugally swing out to give cutters access to any part of tube wall.



Model No.	Tube I.D.		Cutter Head Size	
	Straight & Curved		Min.	Max.
	mm		mm	
SC-12	38	35	48	
SC-14	45	40	52	
SC-16	51	46	60	
SC-18	57	52	68	

SA type

For large diameter tubes. A large version of the SC type. 3 to 4 freely pivoted arms activated centrifugally swing out to give cutters access to any part of tube wall.



Model No.	Tube I.D.		Cutter Head Size	
	Straight	Curved	Min.	Max.
	mm		mm	
SA-16	51	57	46	64
SA-18	57	64	51	70
SA-20	64	—	56	76
SA-22B	70	70	60	83

HC type

Usually attached to the electrically driven tube cleaner for cleaning of the curve tubes of boiler. It also works for the removal of rust and film coating on ship's hull.



Model No.	Tube I.D.	
	Straight	Curved
	mm	
HC-12	38	45
HC-13	41	48
HC-14	45	51
HC-15	48	54
HC-16	51	57
HC-17	54	60

Model No.	Tube I.D.	
	Straight	Curved
	mm	
HC-18	57	64
HC-19	60	67
HC-20	64	70
HC-21	67	73
HC-22	70	76

Drill Head

For general use on hard scale and deposits.

DF type

For a small diameter tube with hard scale.



Model No.	Tube I.D.	
	Straight	Curved
	mm	
DF-5A	17	19
DF-6	19	22
DF-7	22	25

D type

For a midsize diameter tube with hard scale.



Model No.	Tube I.D.	
	Straight	Curved
	mm	
D-8	25	29
D-9	29	32
D-10	32	35
D-11	35	38
D-12	38	45

Model No.	Tube I.D.	
	Straight	Curved
	mm	
D-14	45	51
D-16	51	57
D-18	57	64
D-20	64	70
D-22	70	76

Brush Head

Goods for removing soft scale and deposits, or final finishing after use of a drill or cutter head.

B type

For polishing tube walls, removing soft deposits, or final finishing after use of a drill or cutter head.

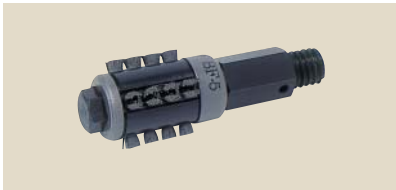


Model No.	Tube I.D.	
	Straight	Curved
	mm	
B-5A	17	19
B-6	19	22
B-6A	21	24
B-7	22	25
B-7A	24	27
B-8	25	29
B-9	29	32
B-10	32	35
B-11	35	38
B-12	38	45

Model No.	Tube I.D.	
	Straight	Curved
	mm	
B-13	41	48
B-14	45	51
B-15	48	54
B-16	51	57
B-17	54	60
B-18	57	64
B-19	60	67
B-20	64	70
B-21	67	73
B-22	70	76

BF type

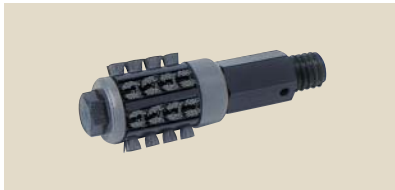
For light cleaning work or final polishing after cleaning by cutter or drill head. The wire tufts swing out centrifugally, and are replaceable.



Model No.	Tube I.D.	
	Straight Tube	
	mm	
BF-5	16	
BF-5A	17.5	
BF-6	19	
BF-7	22	
BF-8	25	
BF-9	29	
BF-10	32	
BF-11	35	
BF-12	38	
BF-14	45	

BE type

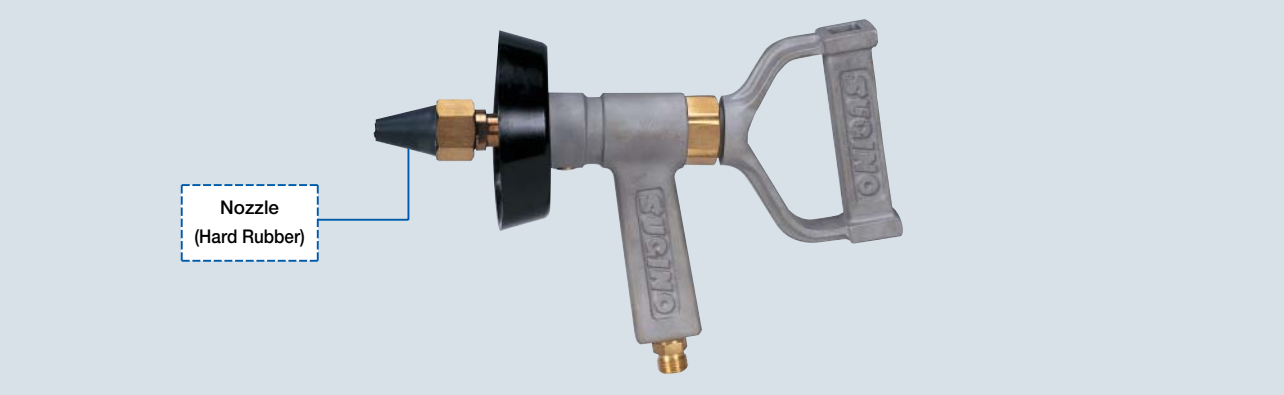
Applicable to larger tubes than the BF type, but otherwise the same.



Model No.	Tube I.D.	
	Straight Tube	
	mm	
BE-16	51	
BE-18	57	
BE-20	64	
BE-22	70	

Blow Gun Cleaner

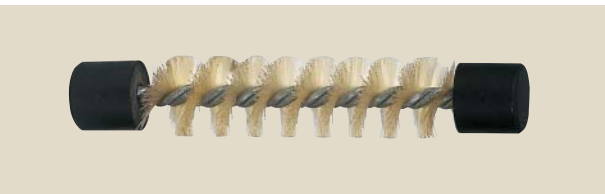
A quick and fast way of cleaning muddy deposits and light scale from tube walls of between 10 and 25mm I.D. straight tube.
Blow gun fires nylon brush or rubber plug along tubes by compressed air or water pressure of 0.4~0.5MPa.
2 types nozzles (hard rubber and copper alloy) are provided.
The simplest cleaning method for regular maintenance of tubes.



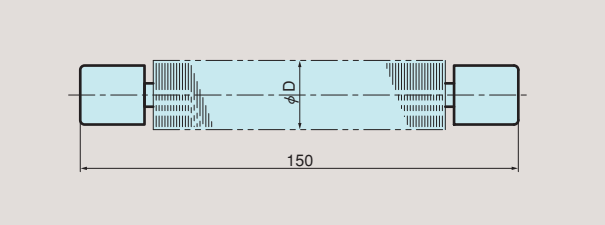
Application Example Removing muddy deposits and light scales of condensers, heat exchangers and oil coolers.

Cleaning Tools Scales can be removed instantly with nylon brush or rubber plug pushed by compressed air or water.

Nylon Brush



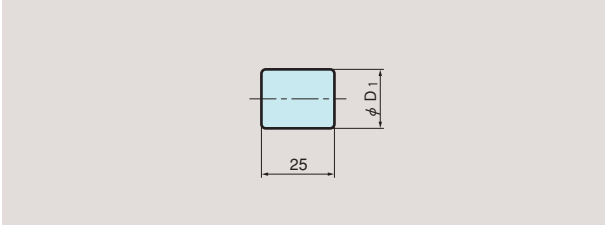
Dimensions (mm)



Rubber Plug



Dimensions (mm)



Selection Guide(mm)

Tube I.D.	Nozzle No.	Nylon Brush		Rubber Plug	
		Model No.	D	Model No.	D ₁
8.8~9.4	ID-10-20	BN-2C	9.4	P-2C	8.3
9.5~10.1		BN-3	10.1	P-3	9.0
10.2~10.9		BN-3B	10.9	P-3B	9.7
11.0~11.7		BN-3A	11.7	P-3A	10.5
11.8~12.5		BN-3C	12.5	P-3C	11.3
12.6~13.3		BN-4	13.3	P-4	12.1
13.4~14.1		BN-4B	14.1	P-4B	12.9
14.2~14.9		BN-4A	14.9	P-4A	13.7
15.0~15.7		BN-4C	15.7	P-4C	14.5

Note : These cleaners can not be used for the cleaning of blocked tubes.

Supply Air / Water Pressure:0.4 ~ 0.5MPa

Tube I.D.	Nozzle No.	Nylon Brush		Rubber Plug	
		Model No.	D	Model No.	D ₁
15.8~16.5	ID-10-20	BN-5	16.5	P-5	14.8
16.6~17.3		BN-5B	17.3	P-5B	15.6
17.4~18.1		BN-5A	18.1	P-5A	16.4
18.2~18.9		BN-5C	18.9	P-5C	17.2
19.0~20.5		BN-6	20.5	P-6	18.0
20.6~22.1	ID-16-25	BN-6A	22.1	P-6A	19.6
22.2~23.7		BN-7	23.7	P-7	21.2
23.8~25.3		BN-7A	25.3	P-7A	22.8
25.4~26.9		BN-8	26.9	P-8	24.4

Inquiry Sheet

Please provide us following information (* must be filled in)

*
Your Name

*
Company Name

Division

*
Company Address

Postal Code:

Date to reply (if desired)

*
Items you are interested in

*
Phone

Fax

E-mail Address

Please fill in the below chart for your inquiry (* must be filled in)

* Tube Size

D

t

* Tube Material

* Tube Sheet Hole Pitch and Arrangement

P1

P2

alpha degree

* Tube Sheet Thickness

T1

T2

* Tube Sheet Material

* Tube Sheet Hole Diameter

H

Tolerance

* Quantity of Tube

* Expansion Length

A1

A2

* Tube Wall Reduction Rate

%

* Tube end welded to the tube sheet

Yes / No

* (In the welding case) Did it happen before/after tube expansion?

Before / After

* Type of Lubrication used for Tube Expansion

Type:

* Tube Projection

E

Tube end shape

Round / Flat

Distance between Double Tube Sheet

C

F

Flare Angle

theta degree

Length of straight tube part

S

Curve Radius and Angle of Bent Tube Part

R

beta degree

Groove Size and Distance

l1

l2

l3

l4

h

Drawing of Expanded Area

Remarks