



KURTTEKİN®



SOOT BLOWERS



**FOR
INDUSTRIAL BOILERS**

Kurttekin Ltd. Şti.

Cumhuriyet Caddesi 12/2 81570 Küçükyalı İSTANBUL - TÜRKİYE

Tel.: +90.216.3886247 Fax.: +90.216.3886248 Gsm.: +90.532.2534851

e-mail : kurttekin@kurttekin.com

web page : <http://www.kurttekin.com>

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SOOT BLOWERS

In industrial boilers, due to the accumulation of soot on the inner surfaces and on the heater pipes, reduction in coefficient of heat transfer and thus in efficiency of boiler takes place. It is necessary to clean this accumulation from time to time in order to increase the efficiency of the boiler. This cleaning can be realised in several ways while the boiler is out of operation. But to take the boiler out of operation for cleaning may lead to loss of productivity and cause economical losses.

This is why the necessity of developing systems for cleaning the accumulations, without taking the boiler out of use, arose. By the various types of Soot Blowers developed, it is possible to clean the accumulated soot without stopping the operation of the boiler.

Depending on the temperature of the media, systems where the blower pipe is continuously in the media, such as rotay soot blowers (DKÜ), systems in which, blower pipes are continuously in the media but travel axially during the operation cycle to cover a wider range of pipes, such as long retracting soot blowers (UVKÜ) or systems in which the blower pipe is outside the media and enters the media only during cleaning operation, such as in short retracting (KVKÜ) soot blowers, have been developed.

Our Company, beleiving in the necessity of soot blowers for our industry, have made studies on various types of soot blowers and developed DKÜ type, UVKÜ type and KVKÜ type soot blowers.

In order to make offers, we expect users in various industries to contact our Company.

KURTTEKİN®

OPERATION PRINCIPLES OF

KURTTEKİN DKÜ TYPE ROTARY SOOT BLOWERS

DKÜ Type Rotary Soot Blowers are applied in the relatively lower temperatured portions of Boilers, for cleaning the soot accumulated on the outer surface of the pipes, to increase the efficiency of the boiler by increasing the coefficient of heat transfer. In this type, the blower pipe is continuously in the media and spray nozzles are so arranged on the blower pipe to cover the distance between the boiler pipes. The length of blower pipe and the distance between the nozzles is arranged according to the interior design of boiler and location of boiler pipes. During operation steam or air is blown to the pipes through the nozzles on the blower pipe rotating at an angular speed of about 2.8 RPM.

System is composed of a normally closed steam or air valve, piping system to transfer the steam or air from this valve to the feeding pipe, the main drive pipe around the feeding pipe, the blower pipe coupled to the main drive pipe, the packing group and packing squeezer to avoid loss of steam, electrical motor and two staged reducer, control limit switches and other frame elements. Main drive pipe is supported within the secondary drive gearbox by ball bearings.

System can be operated at desired periods either single way (clockwise or counterclockwise) or double way (both clockwise and counterclockwise) of rotation. Blowing angle is adjusted by the cam geometry and can be altered if desired. Blowing is realised by push of the cam surface on the valve stem, and blowing is ended when the low cam surface is achieved. Blowing angle of 360° is achieved by angular location of nozzles.

Connection to the boiler is achieved by the flanged piece coupled to the secondary gear box.

KURTTEKİN®

TECHNICAL SPECIFICATIONS

T Y P E : KURTTEKİN DKÜ - 1 ROTARY SOOT BLOWER

DIMENSIONS:

Width	460 mm
Height	600 mm
Length	700 mm

ELECTRIC MOTOR:

Voltage	380 VAC , 3 Phase
Frequency	50 Hz
Power	0.25 Kw
Protection	IP 54
Rotation Speed	~ 1500 RPM

GEAR BOXES:

First stage	1:53
Second stage	1:10

STEAM VALVE:

Flange	NW80 - NP 64
Body	1.5419 (GS-22Mo4)
Seat	1.4021 (X20Cr13)
Plug	1.4122 (X35CrMo17)
Nozzle Adjustment	Possible
Air connection	Present

FEEDING PIPE:

N.D.	Ø 48,3 Sch 40
Material	1.4541 (X10CrNiTi18.9) or equivalent

VALVE OUTLET PIPE:

N.D.	Ø 60,3 Sch 40
Material	1.5415 (15Mo3) " "

MAIN DRIVE PIPE:

N.D.	Ø 76,0 Sch 40
Material	1.7335 (13CrMo44) " "

BLOWER PIPE:

N.D.	Ø 48.3x3.2
Material	1.4762 (X10CrAl24) or 60.3x4 mm 1.7335 (13CrMo44)

BLOWING PROPERTIES:

Blowing angle	360°
Blowing period	16 Sec/rev. (Adjustable)
Blowing pressure	15 Atm
Blowing rate	1.1 Kg/s
Nozzle location & Number,	location and angle depending on the distance between boiler tubes
Length of Blower Pipe	Acc. to design of Boiler

NOTE : Dimensions and properties given above are not binding, we may realise the improving changes without notice.

KURTTEKİN®

OPERATION PRINCIPLES OF KURTTEKİN KVKÜ SHORT RETRACTING SOOT BLOWERS

KVKÜ Type Soot Blowers are developed to clean the inner surfaces of the Boiler at regions of elevated temperature. Due to elevated temperature the continuous presence of the blower pipe in the media is not desired. For this reason, the blower pipe, which is retracted from the boiler besides the period of cleaning cycle, moves towards the inside of the boiler once the system is activated and after it reaches the media, it starts rotating and blowing is initiated. When nearly one revolution is completed the direction of rotation is reversed and after returning to the starting angular position the blower pipe is retracted to the original position while the blowing is stopped. With initiation of blowing after the longitudinal movement is completed the blower pipe rotates at about 2.5 RPM and before the completion of one revolution the rotation is reversed at the same speed. The amount of longitudinal movement depends on the wall thickness of the boiler. Steam or air may be used for cleaning.

The system is composed of a normally closed steam or air valve, piping to transfer air or steam to the main feed pipe, an infinite worm geared drive pipe around the feeding pipe, a cam group coupled to the drive pipe, a packing group and packing squeezer to avoid loss of steam, an electric motor and a two-staged reducer, control limit switches and other frame elements. The main drive pipe is supported within the secondary drive gearbox by ball bearings.

The larger pitched gear in the secondary gear box has a nut form on the inside in which the outside screwed drive pipe is located. During the cycle the rotation of the drive pipe is prevented, until it reaches a suitable position for blowing, by means of a roller mechanism. During this rotation restricted period, the blower pipe moves inwards towards the boiler. When the nozzles are within the boiler, the restriction on rotation is released and the blower pipe starts rotating and blowing by the effect of the push of a cam on the valve stem. This continues until a limit switch reversing the rotation is reached. Then the pipe blows and rotates in the opposite direction until it is introduced to a restriction to rotation. When the restriction to rotation is introduced, the pipe starts retracting while the cam mechanism closes the valve stopping the blowing. The retraction is stopped by a limit switch when the pipe reaches the original position. Then the cycle is completed.

KURTTEKİN®

TECHNICAL SPECIFICATIONS

T Y P E : KURTTEKİN KVKÜ - 1 SHORT RETRACTING SOOT BLOWER

DIMENSIONS:

Width 450 mm
Height 570 mm
Length 920 mm

ELECTRIC MOTOR:

Voltage 380 VAC , 3 Phase
Frequency 50 Hz
Power 0.25 Kw
Protection IP 54
Rotation Speed ~ 1500 RPM

GEAR BOXES:

First stage 1:79
Second stage 1:10

STEAM VALVE:

Flange NW80 - NP 64
Body 1.5419 (GS-22Mo4)
Seat 1.4021 (X20Cr13)
Plug 1.4122 (X35CrMo17)
Nozzle Adjustment Possible
Air connection Present

FEEDING PIPE:

N.D. Ø 48,3 Sch 40
Material 1.4541 (X10CrNiTi18.9) or equivalent

VALVE OUTLET PIPE:

N.D. Ø 60,3 Sch 40
Material 1.5415 (15Mo3) " "

SCREWED DRIVE PIPE:

N.D. Ø 76,0 Sch 40
Material 1.7335 (13CrMo44) " "

BLOWER PIPE:

N.D. Ø 60.3 SCH 40
Material 1.4832 (GS.X25CrNiSi20.14)

BLOWING PROPERTIES:

Blowing angle 360°
Blowing period 30 sec.
Blowing pressure 15 Atm
No. of Nozzle 2
Cycle period 132 sec.
Linear motion Depends on wall thickness of boiler
Linear speed 375 mm/min (may be altered acc. to wall thickness of boiler)
NOTE : Dimensions and properties given above are not binding, we may realise the improving changes without notice.

KURTTEKİN®

OPERATION PRINCIPLES OF KURTTEKİN UVKÜ TYPE LONG RETRACTING SOOT BLOWERS

UVKÜ Type Long Retracting Soot Blowers are applied, to clean the soot accumulated on outside of boiler pipes, on portions where temperature is reasonable. In regions of medium temperature, where tubes are placed at a distance, Long Retracting Soot Blowers are used to clean the tubes, by both having axial longitudinal movement and rotation of blower pipe to attain a wider range of blowing coverage.

In UVKÜ Type Soot Blowers, the blower pipe has both longitudinal movement while going towards the boiler for an unblowing period after which as the blowing starts the blower pipe continues longitudinal motion together with rotation until the end of longitudinal course where the rotation is reversed by means of a limit switch and the pipe is being retracted while rotating in the opposite direction and still blowing steam. At a specific point of retraction the valve is closed by a cam mechanism to stop blowing and the blow pipe continues being retracted until a second limit switch to stop the whole cycle is reached. So during the complete cycle some portion of the blow pipe is introduced to the media, blowing is affected and once the cleaning is finalised the pipe is retracted back to the original position to keep a considerable length out of the media.

The screwed pipe, which moves against a stationary nut on the main frame, is also equipped with provisions against loss of steam.

Since Long Retracting Soot Blowers are long in length, they must be fixed to the ground for better operation.

KURTTEKİN®

TECHNICAL SPECIFICATIONS

T Y P E : KURTTEKİN UVKÜ - 1 LONG RETRACTING SOOT BLOWER

DIMENSIONS:

Width 450 mm
Height 570 mm
Length 2050 mm

ELECTRIC MOTOR:

Voltage 380 VAC , 3 Phase
Frequency 50 Hz
Power 0.25 Kw
Protection IP 54
Rotation Speed ~ 1500 RPM

GEAR BOXES:

First stage 1:12.5
Second stage 1:10

STEAM VALVE:

Flange NW80 - NP 64
Body 1.5419 (GS-22Mo4)
Seat 1.4021 (X20Cr13)
Plug 1.4122 (X35CrMo17)
Nozzle Adjustment Possible
Air connection Present

FEEDING PIPE:

N.D. Ø 48,3 Sch 40
Material 1.4541 (X10CrNiTi18.9) or equivalent

VALVE OUTLET PIPE:

N.D. Ø 60,3 Sch 40
Material 1.5415 (15Mo3) " "

SCREWED DRIVE PIPE:

N.D. Ø 76,0 Sch 40
Material 1.7335 (13CrMo44) " "

BLOWER PIPE:

N.D. Ø 60.3 Sch 40
Material 1.4742 (X10CrAl18)/1.4713 (X10CrAl17) or 1.7335 (13CrMo44)

BLOWING PROPERTIES:

Blowing angle 360°
Blowing period 90 sec.
Opr. period 106 sec.
Blowing pressure 15 Atm
Blowing rate 1.3 Kg/s
Nozzle location Number, location and angle depending on the distance between the boiler tubes
Linear motion 650 mm
Blowing motion 570 mm

NOTE : Dimensions and properties given above are not binding, we may realise the improving changes without notice.