



DAMPERS

Unison eTech has evolved as a plant essential material supplier with the introduction of related source technology and development of leading-edge technology.

Unison eTech has contributed to the production and customer's requirements as continuous technical development and engineering.

And, Unison eTech has performed many Boilers, HRSG and FGD projects.



Homepage

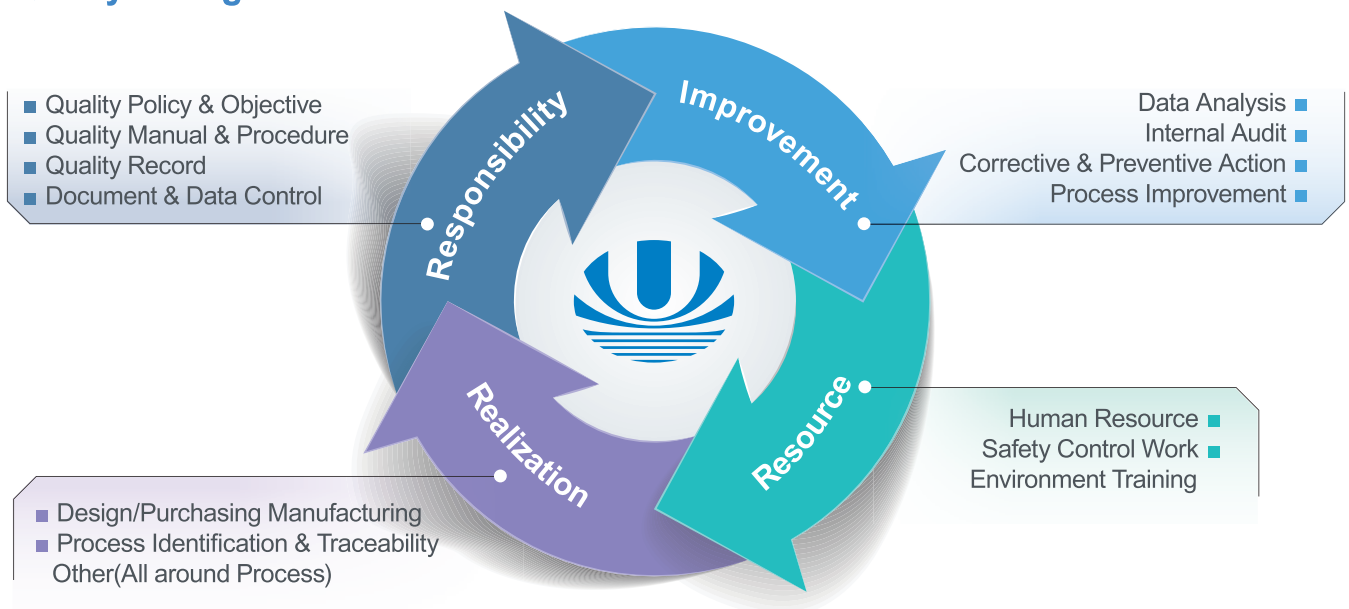


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www.unisonetech.com

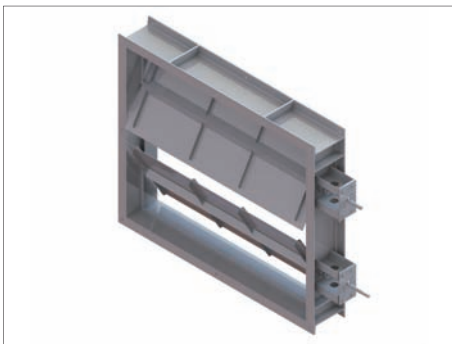


► Quality Management

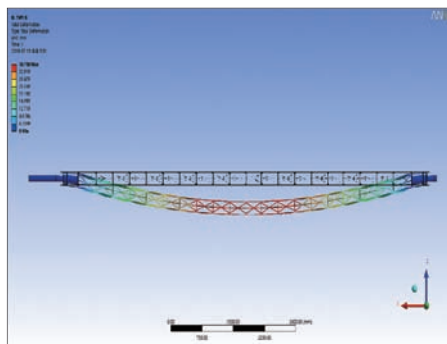


► Engineering for Damper

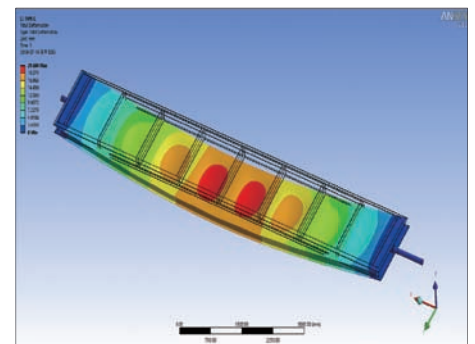
3D Modeling & Interference Check



Frame & Blade Deflection Check



Thermal Deflection



► Certificate of Patent

FGD Damper with Alloy cladding

- Title of the Invention
Damper of flue gas desulfurization device with alloy cladding
- Patentee
UNISON eTech
- Inventor
UNISON eTech

This patent certificate is for technology for the FGD damper which is corroded.

The technology provides a method for spray coating a variety of types of dampers with alloy material and has proven to create high durability and high corrosion resistance even through thin thickness.



► Equipment List

Manufacturing		
EQUIPMENT NAME	CAPACITY	Q'TY
Mixing Mill	22" x 60" 18" x 48"	2
CNC Machining Center	AJV-3580	10
CNC plane Miller	RB-2N	1
Multi Axis Drill Machine	7 Axis	2
Milling Machine	#7	3
Tapping Machine	HTM-18M	1
CNC Laser Cutting	5' x 10'	2
Overhead crane	10, 20 Ton	10

Inpection		
EQUIPMENT NAME	CAPACITY	Q'TY
PMI Tester	Master Pro	1
Fatigue Tester	2mm	1
Universal Tester	10kN	1
Compression Tester	500kN	1
Infrared Temp' Indicator	0°C ~ 400°C	1
Suface Temp'indicator	720°C	1
Ultrasonic Thickness Test	1 ~ 200mm	1
Electrical scale	500kg	1

Louver Damper

Louver Damper has short open-close time and is widely used for quick separation of gas, bypassing and adjusting in industrial and utility plants. Also, blades in louver damper are divided into several sections and require less power.

It may be applied to circular and rectangular ducts.

Due to louver damper being lightweight and compact, gas flow interference occurs less often in any location.



Control Louver



Vertical Type



Horizontal Type



Double Louver

Tandem Damper

Tandem damper is the “Zero Leakage Damper” and is used in every system.

The design of the tandem damper is more compact than double louver damper and economic.

It may perform “Zero Leakage” with seal air system and heating system.



Guillotine (Slide Gate) Damper

Guillotine damper has a higher efficiency than other dampers.

It's typically used for tight sealing. Unlike other dampers, it may be installed without interference between blade and other facilities.

Also, guillotine damper can be used as dual with other dampers.



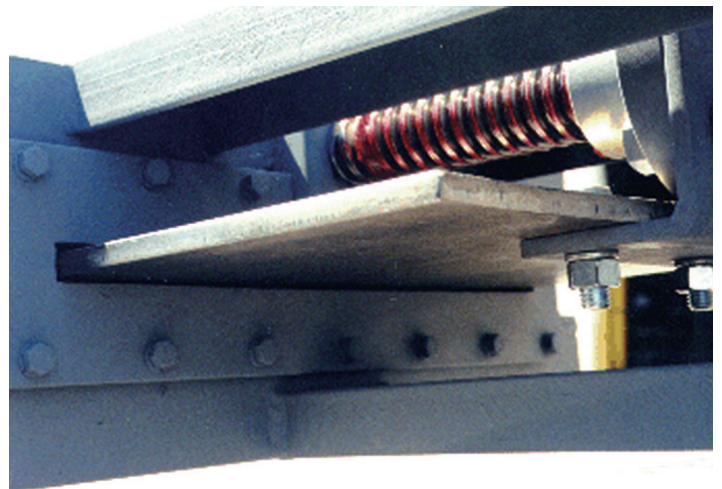
Rack & Pinion Type



Chain & Sprocket



Cylinder Type



Jack & Screw Type

Stack Rain Protection Damper

Stack damper is installed at stacks of industrial and power plants.

It is used for keeping out rain and preventing boiler cooling.



Parallel Type



Opposed Type 1



Opposed Type 2



Zero Leakage Type

Wafer(Butterfly) Damper

Wafer(butterfly) damper is a circular damper that has one blade and installed at small duct. It cannot be used for adjusting flow rate like louver damper but installation and maintenance are easy.



High Temp Type



Zero Leakage Type



Manual Gear Type

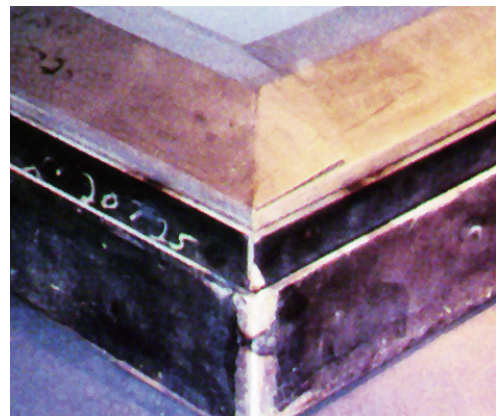
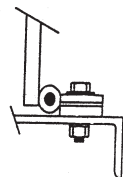
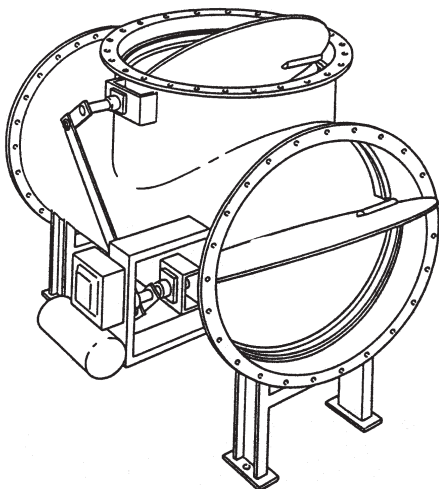
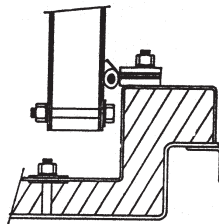
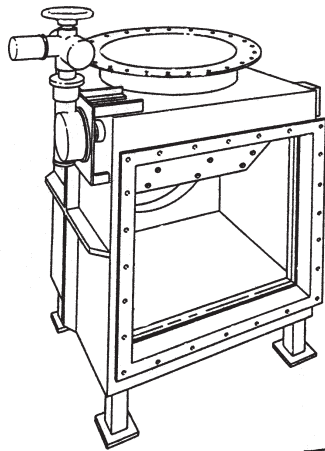


Manual Handle Type

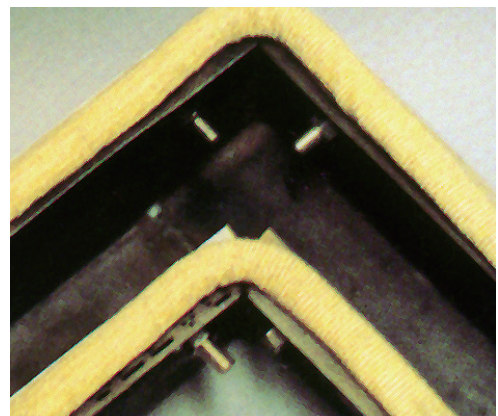
Diverter Damper

Diverter damper is used in the HRSG system. Unlike other dampers, it can be applied at ducts which allows a fast flow.

And also, it can switch gas flow into cogen & bypass mode with one blade. Therefore, it is economically better than using 2 dampers.



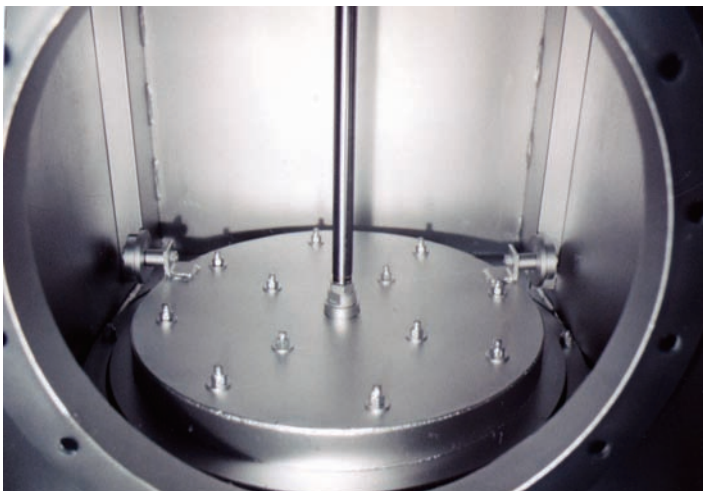
Steel Seal Plate



Tadpole Seal

Poppet Damper

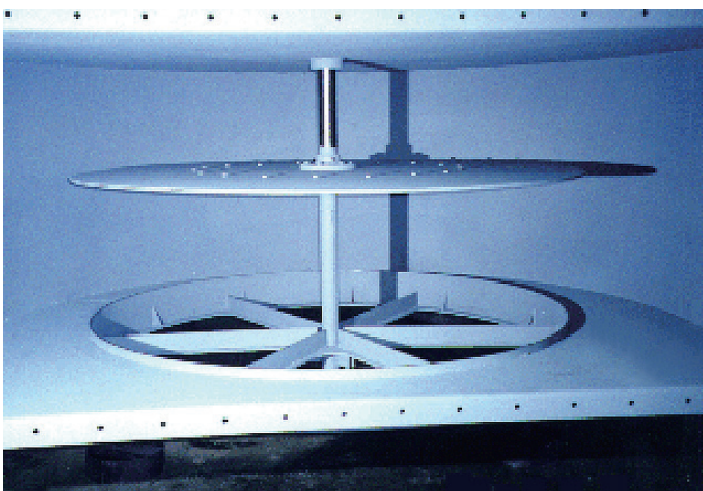
Poppet damper can be used as a valve type and sometimes utilizes operating with temperature and pressure signal as a vent damper for preventing explosion.



Poppet Blade Pan Type



Cylinder & Locking Device



Poppet Blade Disk Type



Pad Plate Type

Damper Inquiry Sheet

DAMPER INQUIRY SHEET		Rev.No	DATE	PREP'D	CHK'D	APP'D
		0				
Project :		Location :				
Item No. :		Date :				
1	Type	Louver, Tandem, Guillotine, Stack, Diverter				
2	No. Req'd / Total					
3	Delivery Date / Condition	/ Port				
4	Flow Rate (Am ³ /hr @ BMCR)					
5	Direction of Flow	Horizontal / Vertical				
6	Temperature Design / Operation (°C)	/				
7	Pressure Design / Operation (mmH ₂ O)	/				
8	Damper Size (Inside, W _{mm} X H _{mm} x D _{mm})	x x				
9	Material / Thickness(mm) - Up Stream					
10	1) Frame(Internal)	/				
11	2) Blade	/				
12	3) Shaft	/				
13	4) Seals	/				
14	Material / Thickness(mm) - Down Stream					
15	1) Frame(Internal)	/				
16	2) Blade	/				
17	3) Shaft	/				
18	4) Seals	/				
19	Ambient Leakage(m ² /hr) @ BMCR	Zero Leakage				
20	Max. Opening time(sec)					
21	Max. Closing time(sec)					
22	Damper drive					
23	1) Type of drive system	Pneumatic Cylinder / Electric /Hydrodic				
24	2) Type of media	Instrument air / Electric				
25	3) Air pressure required / supplied	kg/cm ² G				
26	4) Safety Factor (%)					
27	5) Set Position Normal / Failure (Electric) / Failure (Air)	/ /				
28	Seal Air Fan					
29	1) Total Q'ty					
30	2) Power (V / Phase / Hz)	/ /				
31	3) Safety Factor					
32	4) Distance with Damper (m)					
33	Seal Air Heater					
34	1) Type of Heater (Electric / Steam)	Electric / Steam (kg/cm ²)				
35	2) Heater Capacity (Kw / kcal/hr)					
36	3) Design temperature of seal air Suction / Discharge °C	/				
37	Accessories					
38	1) Seal Air Valve for Damper	<input type="checkbox"/> Yes <input type="checkbox"/> No				
39	2) Check Valve for Seal Air Fan	<input type="checkbox"/> Yes <input type="checkbox"/> No				
40	3) Air Receiver Tank	<input type="checkbox"/> Yes <input type="checkbox"/> No				
41	4) Instrument (PIT, TE, TT)	<input type="checkbox"/> Yes <input type="checkbox"/> No				
42						
43						

Industrial plant design

UNISON eTech



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