河南中基机械设备有限公司
HENAN ZOOMLINE MACHINERY CO., LTD.

Tel: +86-371-65825035
Fax: +86-371-65825607
E-mail: info@zoomline.biz
Web: www.zoomline.com.cn
Factory Location: No.3 Western North Section of Road 01, Longsheng Industrial Park, Nanyang, Henan, China.
Office address: No.18, Dongfeng Road, Zhengzhou, Henan, China.

煤粉燃烧器
PULVERIZED COAL BURNER
Henan ZOOMLINE Machinery Co., Ltd. is a professional manufacturer of pulverized coal burners. The coal burner made by our company is mainly used in asphalt plant, boiler, dryer (such as brick kiln), metallurgy and other industries. Nowadays, our coal burner products have been sold to Pakistan, Thailand, Georgia, South Africa, India, Taiwan etc. Our products have got CE, ISO, EAC certification.
MFR 型旋转式煤粉燃烧器
MFR TYPE ROTARY PULVERIZED COAL BURNER

Working principle
The coal with particle size less than 20 mm is pulverized by coal pulverizer, then injected into the main burning chamber through a metal hose nozzle, and ignited by the oil gun. At the same time, the air blower blows into the main burning chamber through the circular rotary wind pathway of the rear cover. The wind rotates against the inner wall of chamber, meanwhile the high-temperature airflow is mixed with the coal powder to burn strongly, and the high-temperature flame sprays into the drying drum to heat the cold aggregate.

Features of MFR series coal burner
●Adopts new structure, change the traditional burner mechanism, exclusively using of rotary combustion burners to solve the problems of traditional burners which are easy slag-bonding and incomplete burning and etc.
●High flame temperature, energy saving and completely burning.
●Adopts the exclusive ingredients of firebrick of high performance, prolong service life.
●Continuous production, has no need to scarfing cinder everyday.
●Lower production cost, is only the 1/3 of oil burner.
●With highly automatic, convenient to control aggregate temperature, discharging aggregate through dry mixing drum.
●Port temperature measuring equipment return signal to the frequency changer of coal machine , change the aggregate temperature through frequency changer automatically control the volume of coal.
●Ignite is simple and easy, auto and manual ignition is optional. Ignition oil gun nozzle with special structure, atomization effect, kerosene combustion.

<table>
<thead>
<tr>
<th>Model</th>
<th>Coal Consumption (kg/h)</th>
<th>Power(kW)</th>
<th>Coal Pulverizer</th>
<th>Asphalt Temperature(℃)</th>
<th>Plant Capacity(tph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFR20</td>
<td>180-280</td>
<td>16.95</td>
<td>MFJ20</td>
<td>130-180</td>
<td>15-30</td>
</tr>
<tr>
<td>MFR40</td>
<td>370-560</td>
<td>31.25</td>
<td>MFJ40</td>
<td>130-180</td>
<td>25-50</td>
</tr>
<tr>
<td>MFR60</td>
<td>560-840</td>
<td>32.75</td>
<td>MFJ60</td>
<td>120-180</td>
<td>25-55</td>
</tr>
<tr>
<td>MFR80</td>
<td>720-1120</td>
<td>41.25</td>
<td>MFJ80</td>
<td>130-180</td>
<td>70-85</td>
</tr>
<tr>
<td>MFR120</td>
<td>1120-1680</td>
<td>73.75</td>
<td>MFJ120</td>
<td>130-180</td>
<td>100-125</td>
</tr>
<tr>
<td>MFR160</td>
<td>1490-2240</td>
<td>80.25</td>
<td>MFJ80+MFJ80</td>
<td>130-180</td>
<td>140-170</td>
</tr>
<tr>
<td>MFR200</td>
<td>1850-2800</td>
<td>105.25</td>
<td>MFJ120+MFJ80</td>
<td>130-180</td>
<td>160-220</td>
</tr>
<tr>
<td>MFR240</td>
<td>2240-3360</td>
<td>138.45</td>
<td>MFJ120+MFJ120</td>
<td>130-180</td>
<td>200-250</td>
</tr>
<tr>
<td>MFR320</td>
<td>2980-4480</td>
<td>194.95</td>
<td>MFJ120+MFJ120+MFJ120</td>
<td>130-180</td>
<td>280-340</td>
</tr>
<tr>
<td>MFR400</td>
<td>3730-5600</td>
<td>254.95</td>
<td>MFJ150+MFJ150+MFJ150</td>
<td>130-180</td>
<td>360-400</td>
</tr>
</tbody>
</table>
MFR-S 新型多风道煤粉燃烧器
MFR-S MULTIPLE DUCT VERSATILE COAL BURNER

Conventional pulverized coal burner used in asphalt mixing stations is always very big, short service life, high maintenance cost and many accessories. This brings many operation and maintenance problems to customer. After years of research and practice, our company adopts German most advanced “semi-open pulverized coal combustion” technology and developed new type product without any firebricks and other quick wear parts. The combustion chamber is made of import heat-resisting steel sheet and plate. The service life of the whole machine is greatly improved.

As for traditional coal burner, the coal pulverized has to grinder coal into 200mesh, it can fire completely, but our new type coal burner can make 100 mesh coal power fire completely. Without using firebricks and make 100 mesh coal power burning completely, currently only our company have this technology in China.

MFR-S coal burner composition:
Coal Storage System, Coal Conveying System, Coal Burner, Control System.

Features of MFR-S series pulverized coal burner

- Concentrated separation of combustion, reduce NOx emissions.
- Air-staged combustion, Reducing the emission of NOx.
- Flue gas recirculation, Reducing the emission of NOx.
- Secondary Air Multi-stage adjustable, the flame can be flexible adjusted, better matching the boiler.
- Good adaptability to different coal, even inferior coal.
- Compact structure, easy installation.
Main characteristics:
- Adopting most advanced German coal combustion technology, Ablation and erosion of combustion chamber walls are reduced. Occasionally, the thickness of the slag is only 1-2 mm, which has no adverse effect on the combustion effect and the whole life.
- In the combustion chamber, special structure is adopted, the wind tunnel layout is reasonable, the proportion of air distribution is appropriate, and the coal powder flame can be continuously and steadily burning in the combustion chamber.
- The door can be adjusted remotely, and the length and thickness of the flame can be adjusted in real time according to the actual condition, so as to achieve the best heating effect.
- Combustion chamber adopts imported refractory steel manufacturing, no longer use any brick or perishable materials such as refractory castable, adopted several times the service life of refractory lining of the traditional burner, daily use process require.

Multi-fuel applicability
1. Coal and Oil Dual Use--Independent combustion of coal / oil; Two kinds of fuel free to switch.
2. Coal and Gas Dual Use--Independent combustion of coal / Gas; Two kinds of fuel free to switch.

MFR-S 煤燃烧器 VS MFR 煤燃烧器:
MFR-S COAL BURNER VS MFR COAL BURNER:

<table>
<thead>
<tr>
<th>Item</th>
<th>Model (Coal consumption)</th>
<th>Outer diameter (mm)</th>
<th>Inner diameter (mm)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MFR-S1000kg</td>
<td>780</td>
<td>618</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>1-1</td>
<td>MFR-1000kg</td>
<td>1040</td>
<td>800</td>
<td>Firebrick</td>
</tr>
<tr>
<td>2</td>
<td>MFR-S2000kg</td>
<td>1376</td>
<td>1136</td>
<td>Firebrick</td>
</tr>
<tr>
<td>2-1</td>
<td>MFR-2000kg</td>
<td>1000</td>
<td>790</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>3</td>
<td>MFR-S3000kg</td>
<td>1500</td>
<td>1250</td>
<td>Firebrick</td>
</tr>
<tr>
<td>3-1</td>
<td>MFR-3000kg</td>
<td>1080</td>
<td>870</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>4</td>
<td>MFR-S4000kg</td>
<td>1550</td>
<td>1300</td>
<td>Firebrick</td>
</tr>
<tr>
<td>4-1</td>
<td>MFR-4000kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25-35% smaller diameter, more convenient installation, the use of a more extensive range.
施工方案
CONSTRUCTION PROGRAM

Coal bunker+Burner
Coal mill+Burner
Boiler+Burner

技术参数
TECHNICAL PARAMETERS

<table>
<thead>
<tr>
<th>Model</th>
<th>Coal Consumption(kg/h)</th>
<th>Power(kw)</th>
<th>Coal Pulverizer</th>
<th>Asphalt Temperature (℃)</th>
<th>Plant Capacity(tph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFR-S5000</td>
<td>370-560</td>
<td>29.75</td>
<td>MFJ40</td>
<td>130-180</td>
<td>25-50</td>
</tr>
<tr>
<td>MFR-S1000</td>
<td>720-1120</td>
<td>44.75</td>
<td>MFJ80</td>
<td>130-180</td>
<td>70-85</td>
</tr>
<tr>
<td>MFR-S1500</td>
<td>1120-1680</td>
<td>54.75</td>
<td>MFJ120</td>
<td>130-180</td>
<td>100-125</td>
</tr>
<tr>
<td>MFR-S2000</td>
<td>1490-2240</td>
<td>92.75</td>
<td>MFJ80+MFJ80</td>
<td>130-180</td>
<td>140-170</td>
</tr>
<tr>
<td>MFR-S2500</td>
<td>1850-2800</td>
<td>108.75</td>
<td>MFJ120+MFJ120</td>
<td>130-180</td>
<td>160-220</td>
</tr>
<tr>
<td>MFR-S3000</td>
<td>2240-3360</td>
<td>115.75</td>
<td>MFJ120+MFJ120</td>
<td>130-180</td>
<td>200-250</td>
</tr>
<tr>
<td>MFR-S4000</td>
<td>2980-4480</td>
<td>194.95</td>
<td>MFJ120+MFJ120+MFJ120</td>
<td>130-180</td>
<td>280-340</td>
</tr>
<tr>
<td>MFR-S5000</td>
<td>3730-5600</td>
<td>254.95</td>
<td>MFJ150+MFJ150+MFJ150</td>
<td>130-180</td>
<td>360-400</td>
</tr>
</tbody>
</table>

Supporting AMMANN 320t/h asphalt plant
Supporting SANY 320t/h asphalt plant
Supporting LINTEC 320t/h asphalt plant
Supporting ZOOMLINE 320t/h asphalt plant
Supporting Pakistan 120t/h asphalt plant
Supporting SANY 320t/h asphalt plant
Mechanism of pulverized coal burner:
The combustion characteristics of the multi-duct dense-thin swirl pulverized coal burner are: Separation of dense and thin: stable combustion effect, not easy to flame out, suitable for types of coal; Compound swirl: strengthen combustion and full burning; Wind-coated pulverized coal: anti-slagging, protecting the furnace bricks; Adjustable flame: The length and thickness of the flame can be adjusted as requirements to achieve the desired flame shape. This kind of burner is designed to achieve five effects of high efficiency, stable combustion, low pollution, anti-slagging and anti high temperature corrosion. It can overcome the defects such as unstable combustion in the chamber, less adaptation of coal, serious slagging, high pollution, vulnerability of the brick and so on.

The advantages of the multi-duct dense-thin swirl pulverized coal burner are:
1. The coal can be used instead of oil, then fuel cost is saved and operating cost is reduced greatly.
2. Due to the special structure and reasonable air duct layout in the chamber, the pulverized coal can be stably and fully burned, and no ash residue is accumulated.
3. Due to the interaction between the primary wind dense-thin swirl and the regulation of the direct wind, the combustion is not only high efficient and stable but also adaptable to various coals from low volatile to high volatile.
4. Convenient online adjustment: according to the different coal quality and the structural characteristics of boiler furnace, the flame length, diameter, strength and weakness can be randomly adjusted, and the adjustment range is large.

New type multiple duct coal burner is made up of coal burner, coal powder storage system, automatic control system and accessory. It has the following features compared with similar product.

1. Slight slag formation and easy maintenance
The burner adopted the most advanced "semi-open pulverized coal combustion" combustion form. The pulverized coal flame is fully burned under the outer duct air package, which reduces the ablation and scour of the inner wall of the combustion chamber by the flame, and the slagging on the inner wall is only 1-2mm thick.

2. Full combustion with high thermal efficiency
Special structure is adopted in the combustion chamber, and the air duct layout is reasonable. The proportion of each air duct to the air is calculated scientifically. Pulverized coal airflow forms a large reflux area in the combustion chamber, which is easy to ignite and burn stably.
3. Flame shape is adjustable and heating effect is good
The damper is controlled by an intelligent valve controller, which can be adjusted remotely according to the combustion requirements, so as to keep the ratio of wind-coal at an appropriate ratio and achieve the best combustion effect. At the same time, the flame length and thickness can also be controlled remotely to adapt to different drying cylinder combustion zone and improve heating efficiency.

4. High reliability and long service life
The combustion chamber is made of imported heat-resistant steel, no longer using any firebrick or refractory castable materials and other vulnerable materials, and the special internal air duct layout facilitates the slag formation of the combustion chamber inner wall is only 1-2mm thick, the service life of the whole machine is several times than the traditional burner with firebrick lining, almost no need for maintenance in daily use.

5. High level of automation
There are two options for the new type coal burner. Basic type: the damper and coal feeding are manually adjusted through the operation panel in the control room. Automatic type: adopt "PC+PLC" mode control, according to the setting temperature can automatically adjust the coal powder supply, air distribution and other main parameters affecting the combustion effect, so as to accurately control the asphalt mixing station discharge temperature within the range of construction specifications.

### Pulverized Coal Composition Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. $Q_{net,V,Ar}$</td>
<td>5500-6500kcal/kg</td>
</tr>
<tr>
<td>2. $M_t$</td>
<td>$\leq 7%$</td>
</tr>
<tr>
<td>3. $V_daf$</td>
<td>$\geq 30%$</td>
</tr>
<tr>
<td>4. $A_a$</td>
<td>$\leq 7%$</td>
</tr>
<tr>
<td>5. $S_t,ad$</td>
<td>$\leq 0.4%$</td>
</tr>
<tr>
<td>6. Pulverized coal particle size</td>
<td>The screening rate of mesh 200 is over 80%</td>
</tr>
</tbody>
</table>