

# Application of low nitrogen combustion technology in hedging combustion boilers

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**Abstract:** As our economy continues to grow, increasing emphasis on energy consumption. current, NO<sub>x</sub> has been included in our environmental protection 12 planning requirements, the reduction of nitrogen energy is a problem that the "" "" will pay close attention to, Low-nitrogen combustion technology is also known as flue gas out-of-stock technology, The purpose is to improve combustion conditions in burning boilers, to fully burn the fuel completely, and burning to generate more energy, to decrease NO<sub>x</sub> emissions. This article mainly introduces the classification of low nitrogen combustion technology and the necessity and solution of low nitrogen combustion technology in the application of burning boiler. Apply the.

**Keywords:** Low-nitrogen combustion technology; NO<sub>x</sub>; Low NO<sub>x</sub> Burner

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Objective

since the reform and opening up, national demand for nitrogen energy is increasing, But nitrogen burns Burn a lot of emissions NO<sub>x</sub> "" Have a significant impact on the health and environment of the people., Show relevant information, to 2020 Year, Our country NO<sub>x</sub> emissions will exceed U.S., become the first large nitrogen oxide emitter, is expected to be greater than To Year 1777 million-ton NO<sub>x</sub> More emissions to 900 million-ton, requires strict control over NO<sub>x</sub> Emissions, Wide Universal low-nitrogen combustion technology.

## 1. necessity for application of low-nitrogen combustion technology

with our country's industrialization, The deepening of urbanization, air pollution is getting worse, increased energy and resource consumption by year, is about the fundamental interests of the people, Environment Security Guard No delay, Prevention of air pollution, Improved air quality, is the people's livelihood, Transition-Need, Development wants. can have a clean breathing environment, more people years of fervent anticipation. Some enterprises interpret national policies and regulations, response to follow up file Spirit, actively promoting the scientific approach, To effectively improve ambient air quality and prior promote and delve into low nitrogen combustion technologies; Is also country-related Policy for the opportunity, Explore the relevant policies, Combining low nitrogen energy saving technology and low nitrogen Boiler Products, for admin, Development, design, production, Sales and use units, etc. Building Communication, communication, Bridge and platform for cooperation, play the power of all sectors of society, Common Promote air pollution prevention, Promoting advanced low-nitrogen energy-saving technologies, promoting industry health Sustainable development, to achieve the goal of creating a common win.

The application of the low-nitrogen combustion technology has created a reasonable change and tissue furnace pulverized coal burning Way, Reduction in NO<sub>x</sub> emissions is the world's leading technology and industry performance, Its performance indicator unchanged, The normal operation of the utility boiler is guaranteed, and promote me further development of low-nitrogen combustion technology, The low nitrogen combustion technology of our country achieves the leading level in the national.. current, This technology has been used by most businesses and has been has significant

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economic benefits.

## 2. mechanism of nitrogen energy generation in coal-fired boilers

$N_2O$ ,  $NO_2$ ,  $NO$ ,  $N_2O$  These are the primary oxidation products of nitrogen energy in the combustion process of boiler subjects.  $NO_2$  accounts for the total amount of 2%~10%, and  $NO$  with a total content of 90% above, is the most produced in the boiler combustion process. This shows that nitrogen oxides,  $NO_x$ . The content ratio difference is associated with combustion conditions. In boiler work, burn type, Thermal and quick types are  $NO_x$  main three kinds of health production mechanism.

### 2.1 Combustion

It is well known,  $1500\sim 2000^\circ C$  is the heat of nitrogen compounds in nitrogen energy fuels decompose temperature, on intermediate link, then nitrogen compounds contained in the are divided into under high temperature conditions.  $N_2$ , cyanide, Cyanide Products, These products are also oxidized to  $NO_x$ . Nitrogen can be the source is composed of two phases in the combustion process of pulverized coal boiler, one is, nitrogen Energy in burning process volatile burning, two, Nitrogen Energy lasts in the boiler combustion process

Coke Burning. This shows,  $N_2$ , cyanide, products such as cyanide are oxidized to produce a,  $NO_x$  with volatile burning, Coke Burning has a tight connection. so  $NO_x$  called combustion  $NO_x$ , At the same time it is also a nitrogen energy fuel in the boiler complete combustion and not end all combustion generation.

### 2.2 Thermal Type

to generate a thermal type  $NO_x$ , must be burned at elevated temperatures, nitrogen Energy to produce in the burning process  $NO_x$  oxidation reaction, is also a combustion build,  $NO_x$  series of interlocking effects in boilers.  $NO_x$  production and proportions change with temperature change, such as, At high temperatures,  $NO_x$  generate speed and yield quantity is higher than at low temperature., so, temperature is the effect of the air  $O_2$ ,  $N_2$  converted to  $NO_x$  necessary factors for.

### 2.3 Quick

when the nitrogen energy fuel local concentration is too high, then nitrogen burning zone in the vicinity of its combustion material is generated quickly. This is the build process of the quick  $NO_x$ . only at high temperature, hydrogen free radicals can be quickly decomposed and produced by hydrocarbons, same When a hydrocarbon free radical is combined with nitrogen in the air and reacts with the gas.  $N_2$  and cyanide, immediately, air contains  $O_2$  React with  $N_2$  and cyanide in a very fast way, To generate the Quick type last  $NO_x$ . When temperature changes not obvious,  $NO_x$  generate positive correlation to furnace pressure. The following is a  $NO_x$ 's generated content and its proportions in boiler considerations:

(1 The physical and chemical characteristics of the nitrogen fuel). (2 High temperature ignition at boiler work Burn temperature range. (3 burning zone smoke  $N_2$ ,  $O_2$  and other substances n-Levels, Nitrogen Energy theratio of the source fuel to the nitrogen and oxygen in the air. (4 nitrogen Energy fuel on fire The dwell reaction time in the Flame zone and furnace temperature.

## 3. application of low nitrogen combustion technology in burning boilers

Energy combustion generates a lot of pollution, The Country promotes low nitrogen combustion technology, Change Traditional combustion technology, reaching fuel clean burning, reduce pollution. reduce emissions from burn  $NO_x$ . The most widely available and effective method for is the combustion control technique, It is simple and easy, Less investment, The principle of its control is to change the combustion conditions and Burn structure method to reduce emissions  $NO_x$ . which includes: Low oxygen combustion technology, air grade burn, fuel rating Burn, smoke recycle, Low  $NO_x$  burner etc Parties Law. Here are three kinds of low nitrogen combustion technologies:

### 3.1 low-oxygen combustion technology

because of the NO<sub>x</sub> produced with the increase in air volume in the Furnace, so to reduce the Boiler Heat loss, reduce NO<sub>x</sub> generation, need low air content in furnace to a certain extent. but in industrial boiler manufacturing work, Low-oxygen combustion technology will also cause some bad issues, such as a possible carbon accumulation of metabolites such as carbon black pollutants,

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### 3.2 application of body oxidation ditch process

-body oxidation ditch process will be the main aeration, Precipitate, slurry separation and sludge backflow, etc., effective fusion, in the process of integrated oxidation ditch process, is The does not require a two clarifier to exist. therefore, integrated oxidation ditch process over the sewage treatment process, main aspects of aeration purification and solid state separation, is placed in one link, This allows the sewage to be in automatic backflow, continuous running status, Promote integration oxidation ditch process and purification effect. but, in integrated oxidation ditch process in the process of, must be included in the way it is, To some extent Understanding, which mainly includes: Trench, side-ditch and central island, for different sewage status, handle accordingly, So while the purge effect is lifted, The cost of sewage treatment is also well controlled by.

3.3 Alternate work oxidation ditch process such as: diagram 2 shows, This is primarily a processing pool with the same volume, to the appropriate group into and merge, form inline run mode. but, at alternate work oxidation ditch process office the procedure, must not set up the appropriate sewage reflux system and install it on it Automatic control system, This allows for effluent and water, to some extent control, Implements the mode of Automation control processing.

## 4. closing

through the above comprehensive discussion, The concludes the following conclusions:

4.1 This article analyzes the principle and characteristics of oxidation ditch process, for a brief analysis and then explain, So you have a clear understanding of the oxidation ditch process, for it in Dirty apply to water treatment the, lay a good cushion for the.

4.2 principles for oxidation ditch process, and features etc, to the oxidation ditch process in the sewage treatment application related content, for a brief analysis and elaboration: For example: Carrousel oxidation ditch process, Orbal oxidation ditch process, Alternate work oxidation ditch process, Integrated oxidation ditch process, etc., by using the appropriate technical form, with this elevation quality of sewage treatment, plays a purifying role, It also further promotes the environment quality.

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