- raadman -
Burner

raadman Igniter

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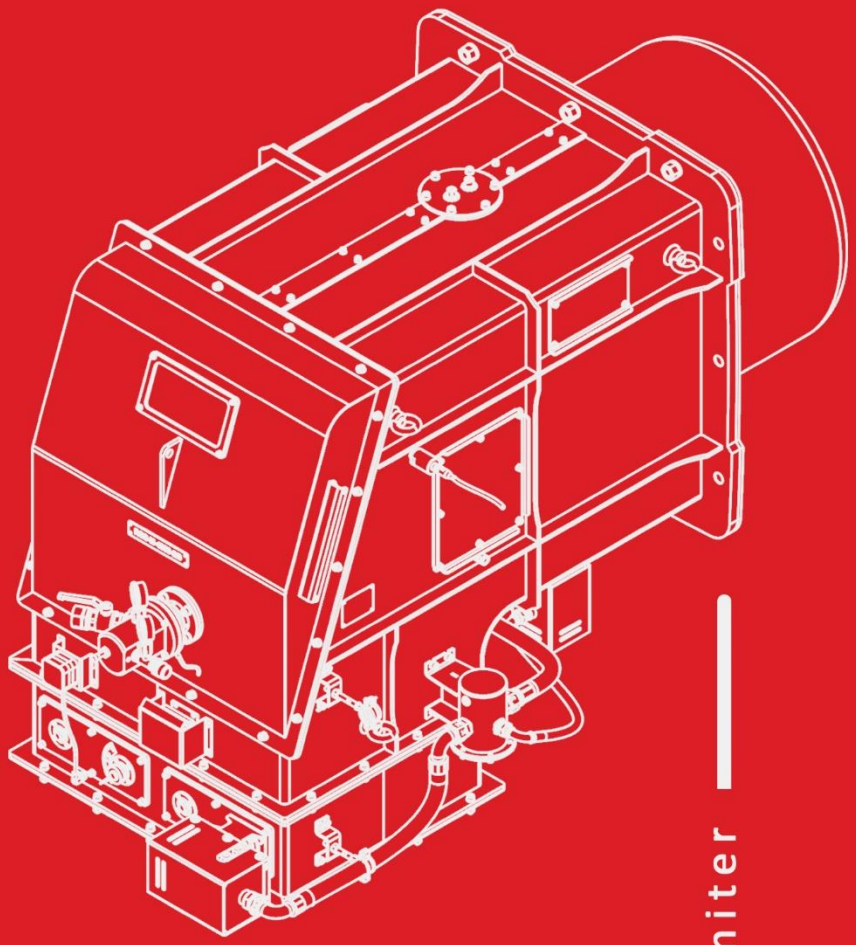
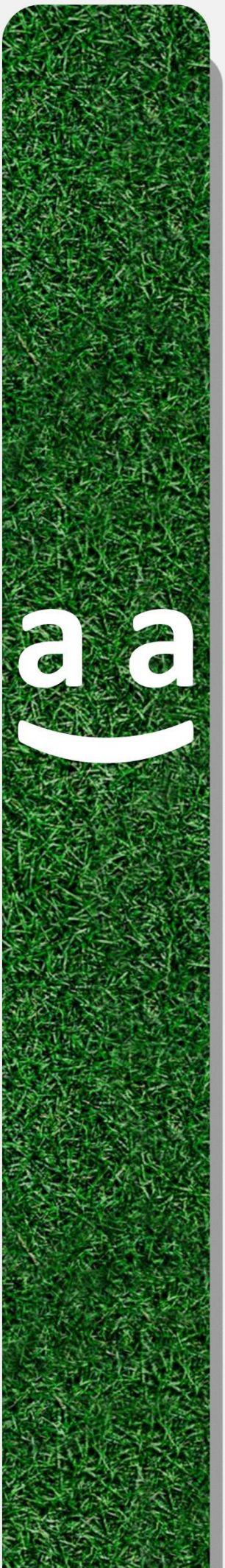
January 2025



raadman Igniter

A Powerful and Safe Ignition



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- SMILE INTO THE FUTURE

raadman Igniter (RIG series)

In all industrial and non-industrial burners, it is always necessary to consider a source of energy to safely initiate the chemical combustion process. For low-capacity applications, such as gas stoves, heating packages, and domestic water heaters, as well as small industrial burners, this energy is supplied using electric igniters. However, in high-capacity industrial burners where a large flow of fuel and air enters the combustion chamber, electric igniters cannot be used. In such cases, pilot burners are used.

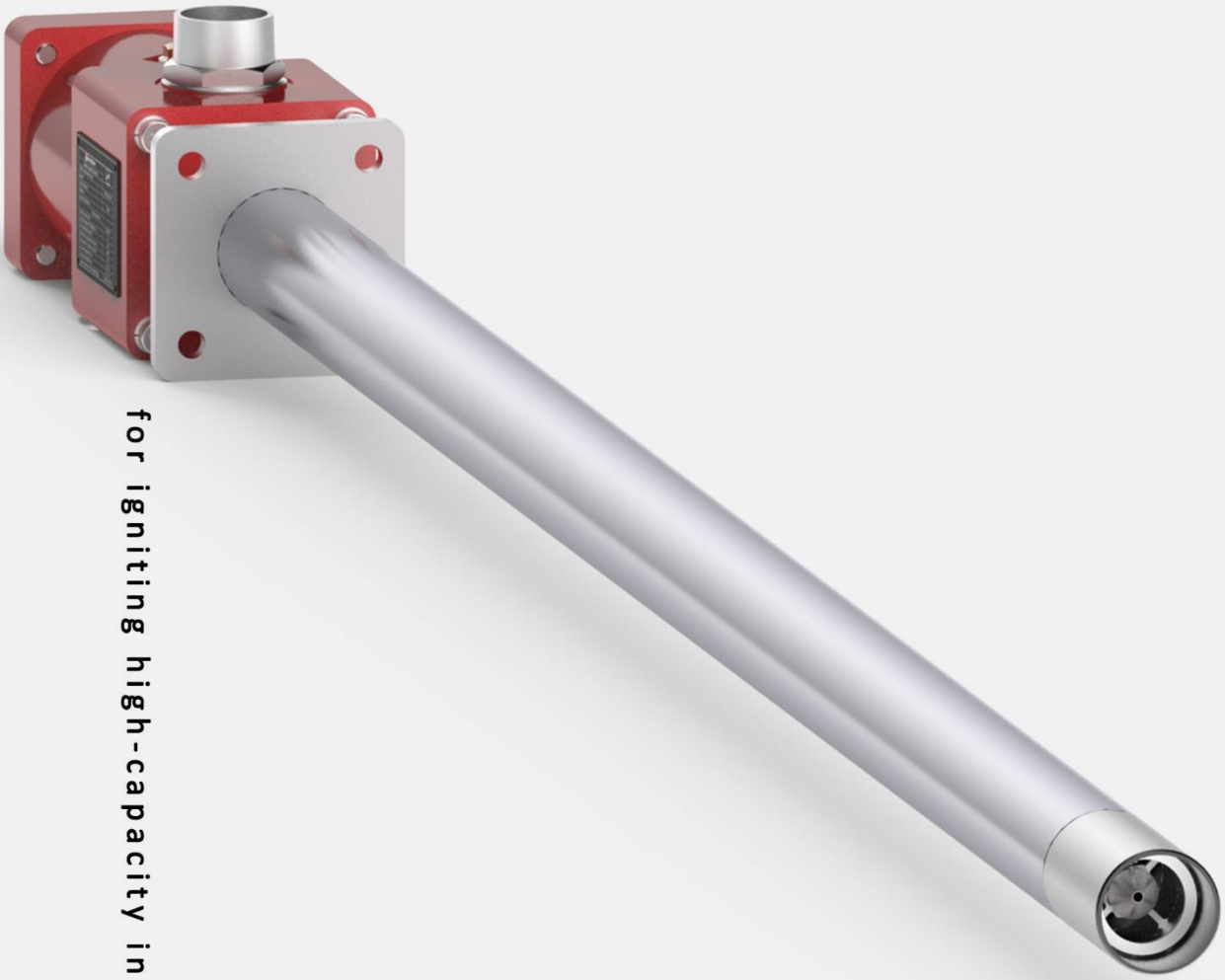
Pilot burners are burners with significantly lower capacity than the main burner and provide the heat required for the safe and reliable ignition of fuel in large burners.

raadman igniter (RIG series) is a device specifically designed to initiate the combustion process in a burner system. Its primary function is to create the initial flame or spark necessary to ignite the fuel-air mixture within the combustion chamber. Burner igniters are crucial components in various combustion systems, ensuring reliable and safe ignition.

The igniter is used in industrial ovens, thermal processing systems and heating boilers for gas, and oil fuels. It is used for the following purposes:

- Preheating the system
- Igniting the main burner
- Supporting the main burner flame

Note: The igniter is designed exclusively for the specified purpose. Any usage beyond this intended application will be considered improper.



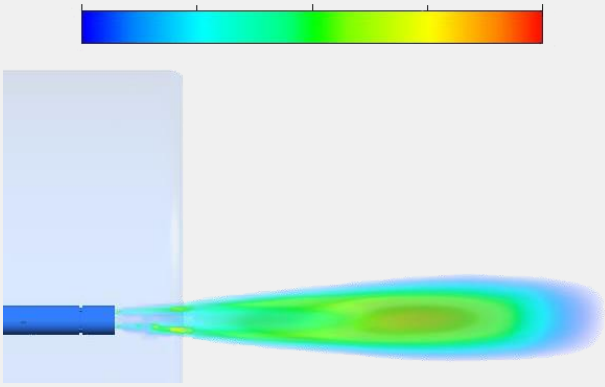
for igniting high-capacity industrial burners

CFD Experts in R&D Department

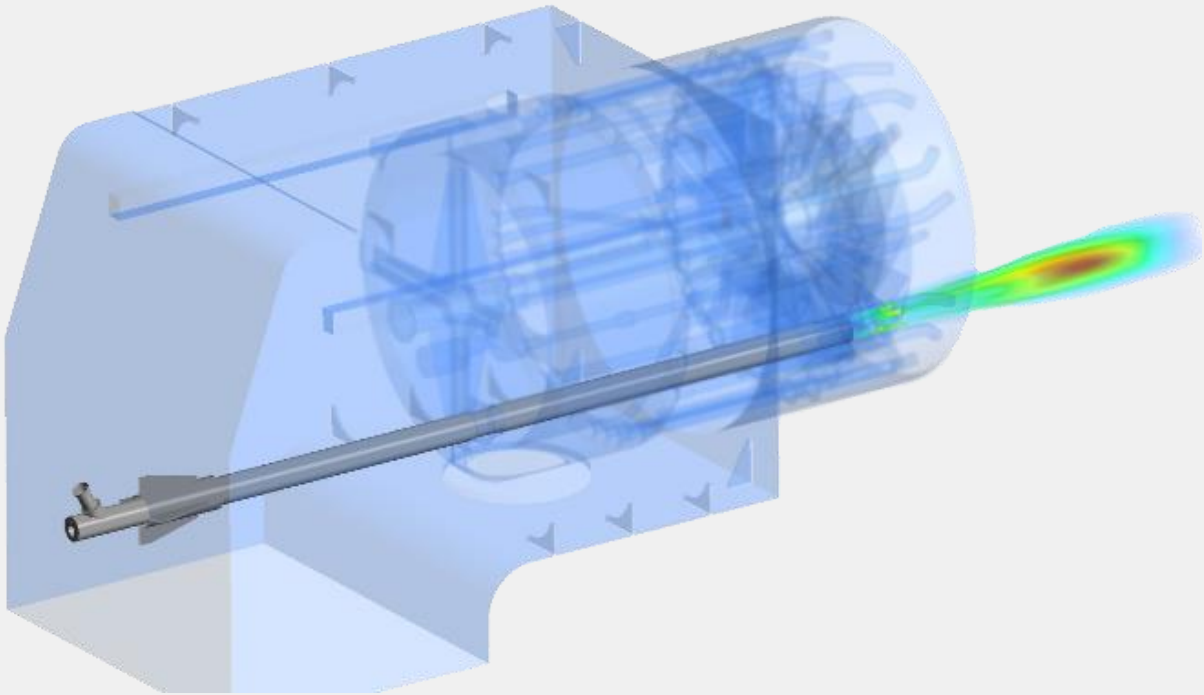
The industrial sector depends on the heat generated by burners in various combustion systems. Optimizing burner performance is critical to complying with stringent emissions requirements and to improve industrial productivity. Engineers engaged in the design and construction of advanced combustion equipment for the hydrocarbon process industries frequently employ Advanced CFD to advance new burner technology.

The science and technology of Computational Fluid Dynamics (CFD) has reached a level of maturity where performance predictions can be made with a significant degree of confidence. These predictions are derived from models covering a wide range of complex furnace, burner, and reactor geometries. While tremendous advances have been made in understanding the fundamentals of combustion, the remaining challenges are complex.

In the simulation of raadman multi-flame burners, after the initial design of the burner, combustion simulation is performed to obtain the air and gas pressure drop, the flow and temperature pattern in the burner and combustion chamber, the flame shape, and the emission rate of air pollutants. At this stage, the collision of the flames with each other can be detected and the arrangement of the burners can be changed in such a way as to prevent the flames from colliding with each other.



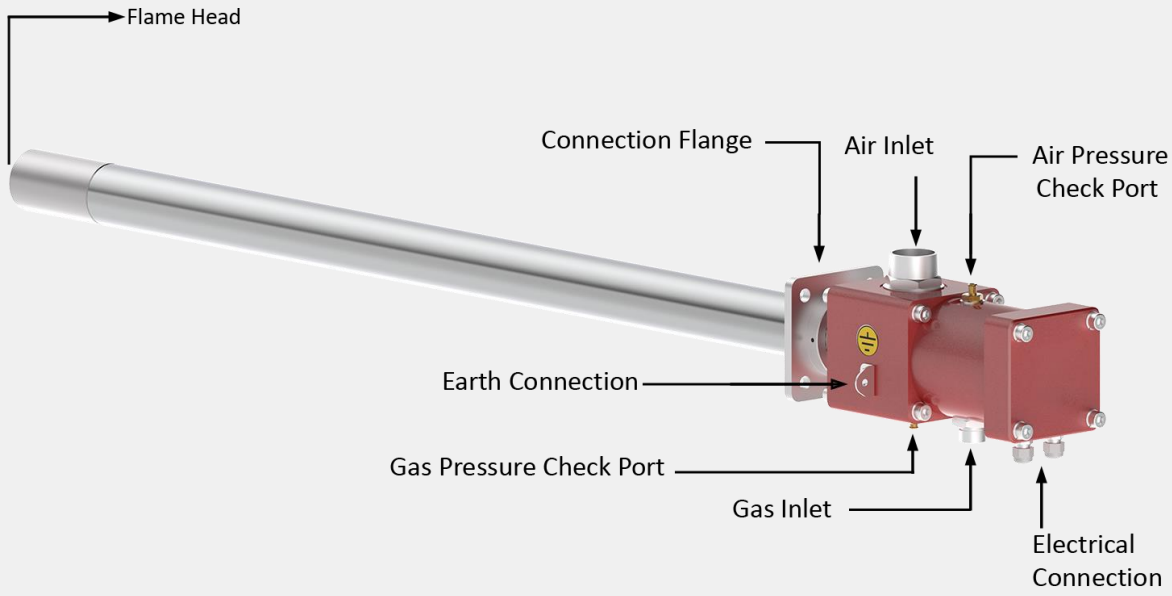
In simulation of the igniter, various designs are evaluated based on flame shape, temperature distribution in the burner head, air pressure drop, and gas pressure drop. Design weaknesses and potential issues are identified, and the burner design is modified using the gathered data to achieve the optimal version.



-raadman- 45 MW burner and RIG igniter

RIG Components

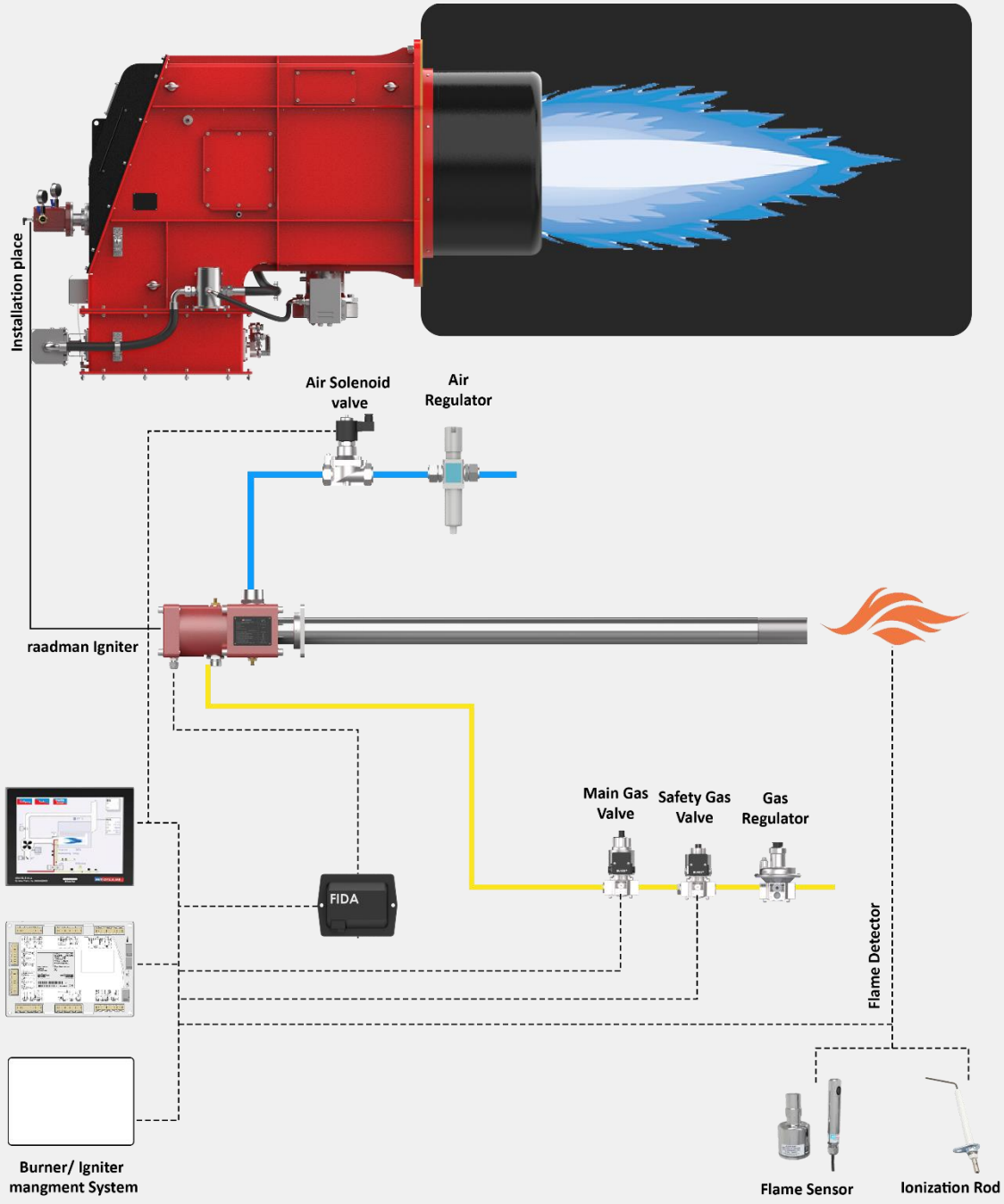
The various components of the Raadman's igniter are illustrated in the figure below. Key features of this product include the ability to measure gas and air pressure within the combustion head, convenient access to the ignition electrode for adjustments or replacement, and the flexibility to install it in the desired location, thanks to its adjustable length.



raadman igniter management system overview

Pilot burners, or igniters, are designed to ensure a highly stable flame and must be ignited prior to the operation of the main burner. To achieve this, they are equipped with a separate gas train, and in some cases, their required air supply is provided independently, either through a fan or a compressed air source. Additionally, the igniter is lit using an ignition transformer.

As a result of these factors, igniters must be controlled by a control system. This control system is responsible for monitoring and opening gas and air valves, igniting the electrode, and monitoring the flame. Typically, these parameters are managed by the burner control system, though in some cases, a separate control system is used.



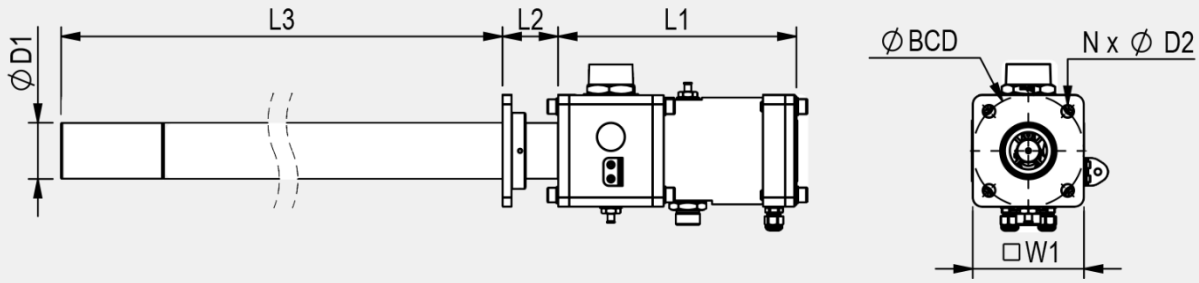
RIG range

Raadman igniters can be designed and manufactured in various ranges, and currently, the design and production of this product are based on orders. The table below provides a sample of the technical data for this product used in raadman burners.

Note: This product is specifically designed and manufactured for Raadman burners and can be customized to meet specific requirements upon request.

Technical Data	RIG-60
Heat Rated Output (kW)	Up to 500 kW
Fuel	Natural Gas (NG)
Operation Type	Electrical Modular
G20 Gas Flow Rate (m3/h)	Up to 50
Gas Line Pressure (mbar)	400
Input Gas Pipe Size	Rp 1/2
Air Line Pressure (mbar)	100
Input Air Pipe Size	Rp 1/4
Electric Power Supply	1/50/220
Total Dimension (mm)	2060 x 315 x 233
Weight (kg)	~18

General dimension: RIG series



Igniter Model	L_1	L_2	L_3	W_1	D_1	D_2	N	B.C. D
RIG-60	257	60	--	120	60	13.5	4	120

*L_2: Distance between housing and connection flange, adjustable, customer-specific

**L_3: Dimension outer tube length, customer-specific

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