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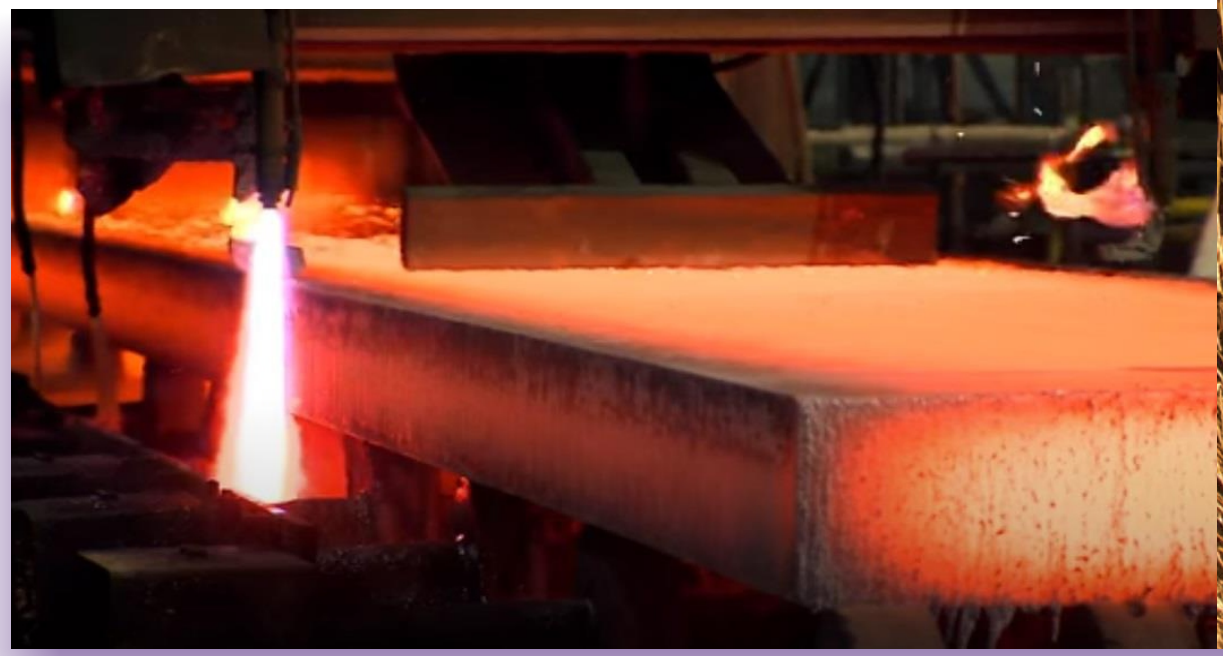
KATANA HEAVY DUTY STD NOZZLES



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KATANA STD Series Nozzle

Katana STD nozzles are suitable for different environment , to meet the different requirements of customers, can be used for continuous casting billet and slab cutting, emergency torches, etc.

depending on the gas mixing process They are designed in two main types INSIDE MIXING and OUT MIXING

Main deference in these two types is the gases used in process are mixed inside or outside the nozzle.

Working Principle: typically, a mixture of oxygen and a fuel gas used to rapidly heat and oxidize the material being cut. then high-velocity jet of gas melts and removes the metal, resulting in a clean cut.

Materials: Common materials include special grade cooper alloy designed for high-temperature applications.

Design: These nozzles are designed to optimize the gas flow and achieve the desired cutting performance.

Applications: STD cutting nozzles are primarily used in the steel industry for cutting steel slabs, billets, and other steel products. They are employed in various processes such as steel fabrication, manufacturing of steel structures, and metal recycling.

Advantages: High cutting precision, intricate shapes and precise dimensions, High cutting speed, clean cuts

Safety Considerations: according to cone shaped design of nozzle seating it has more reliability.

Environmental Impact: In the design of STD nozzles, it has been tried to minimize the adverse effects of the environment by optimizing the consumption of harmful gases and also by minimizing the waste.

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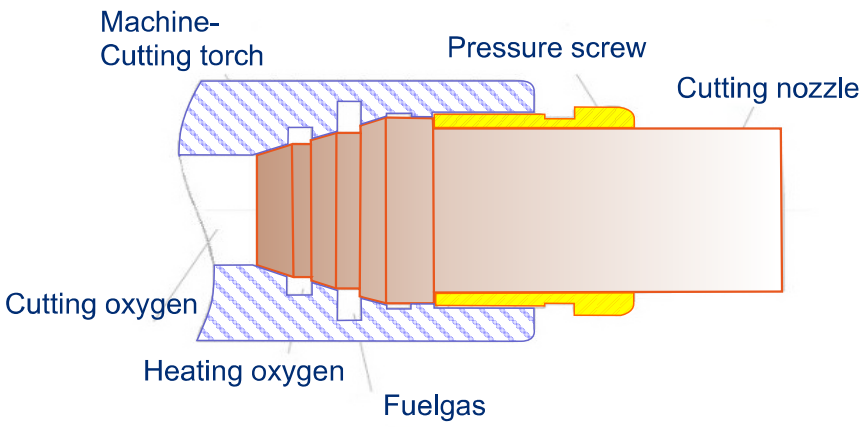
KATANA STD Series Nozzle



NOZZLE TYPES AND PART NUMBERS

INSIDE MIXING TYPE

STD-1-40 for cutting up to 400 mm
STD-1-60 foe cutting up to 600 mm

OUT MIXING TYPE

STD-1-CT30 for cutting up to 300 mm
STD-1-CT45 for cutting up to 450 mm
STD-1-CT60 for cutting up to 600 mm

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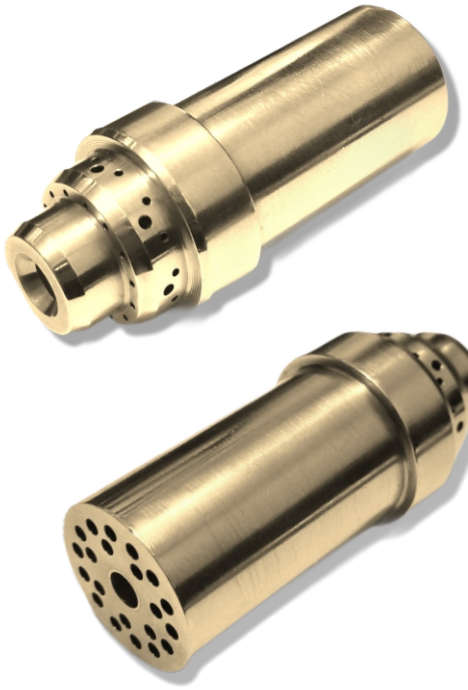

KATANA STD Series Nozzle

Maximum safety due to cone shaped sealing design.

High cutting speed through special design.

Special design to less Oxygen and fuel gas consumption.

can be work on hot and cold steel slab and billets.

Long life through by large nozzle distance (up to 175 mm) and easy maintenance.

minimum cutting Kerf and Higher productivity due to less material pert.

designed to work with both propane and methane gas (LNG Natural gas).

heavy-duty cutting nozzles for the steel industry.

STD-1-40 Cut up to 400 mm					
FUEL	Pressure		Consumption		Kerf
	Natural Gas	Propane Gas	Natural gas	Propane Gas	
	Bar	Bar	Nm^3/h	Nm^3/h	
Cutting Oxygen	10	10	50	50	6-7 mm
Heating Oxygen	1	1	12.5	10	
Fuel Gas	0.3-0.5	0.3	17	4.5	

STD-1-60 Cut up to 600 mm					
FUEL	Pressure		Consumption		Kerf
	Natural Gas	Propane Gas	Natural gas	Propane Gas	
	Bar	Bar	Nm^3/h	Nm^3/h	
Cutting Oxygen	10	10	100	100	8-10 mm
Heating Oxygen	0.3-0.7	0.9-1.5	4-11	13-17	
Fuel Gas	0.2-0.3	0.2-0.4	6-9	6-12	

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MAIN CHARACTERISTICS	
CUTTING THICKNESS RANGE	50 - 600 mm
Oxygen pressure range	10 bar
Gas pressure range	0.3 - 0.4 bar
Cutting kerf	6 - 10 mm
Noise level(1.5m distance)	> 90 dB

STD-1-CT30 Cut up to 300 mm					
FUEL	Pressure		Consumption		Kerf
	Natural Gas	Propane Gas	Natural gas	Propane Gas	6-7 mm
	Bar	Bar	Nm^3/h	Nm^3/h	
Cutting Oxygen	10	10	50	50	
Heating Oxygen	0.5	0.6	3	4	
Fuel Gas	0.4	0.3	10	4	

STD-1-CT45 Cut up to 450 mm					
FUEL	Pressure		Consumption		Kerf
	Natural Gas	Propane Gas	Natural gas	Propane Gas	8-10 mm
	Bar	Bar	Nm^3/h	Nm^3/h	
Cutting Oxygen	10	10	70	70	
Heating Oxygen	0.5	0.6	3	4	
Fuel Gas	0.4	0.3	12	5	

STD-1-CT60 Cut up to 600 mm					
FUEL	Pressure		Consumption		Kerf
	Natural Gas	Propane Gas	Natural gas	Propane Gas	8-10 mm
	Bar	Bar	Nm^3/h	Nm^3/h	
Cutting Oxygen	10	10	100	100	
Heating Oxygen	0.5	0.6	3	4	
Fuel Gas	0.4	0.3	15	6	

ACCIDENT PREVENTION - SAFETY REGULATIONS

The use is required to observe strictly the regulations that exist both in his country and within his company with regard to the operation of machinery and the use of oxygen, fuel gas, compressed air, water and electricity.
The following remarks represent a summary of the safety regulations. It is stressed that the user is obliged to
comply with all relevant regulations in their entirety.

Oxygen

Oxygen is an odourless, tasteless, colourless gas that is heavier than air; it lowers the ignition temperature
and promotes combustion.
All components that come into contact with oxygen must be kept free from oil and grease. (Examples: pipes, hoses, fittings, hand cutting torches, cutting nozzles, tools, rags, clothing, hands).

Fuel gases

Fuel gases are poisonous and flammable. Mixtures with air or oxygen are explosive.
Personnel
Persons who operate or maintain cutting equipment must be fully trained and experienced in handling oxygen
and fuel gases.
Instruction
Employees are to be instructed of the hazards and safety regulations. Instructions must be repeated periodically.
Eye protection
Suitable types of eye protection with protective lenses that comply with safety standard specifications, e.g.
goggles or face shields, must be worn to protect against sparks, heat, visible and invisible radiation.
Maintenance and repairs
All responsible persons and departments must be informed before carrying out maintenance and repair work.

Unauthorized persons

Unauthorized persons are not permitted in the vicinity of the cutting area, the torch cutting machine, its
controls or the operator’s cabin.
Idle times
During periods when the hand cutting torch is not in operation or work is interrupted temporarily the main fuel
gas and oxygen valves must be closed.
Noise protection
Due to the economic performance heavy duty hand cutting torches have a noise level of more than 90 db(A)
up to 110 db(A), according to use. At the operator’s position the necessary measures must be taken, and
protection must be provided by the user. These are so-called secondary measures.

START - UP

Before start-up of the hand cutting torch the complete plant must be checked under presumption of the relevant accident prevention regulations. **Start-up of the torch is only allowed under strict observation of these regulations.** Special regard must be given to leak-proofness of all armatures and connections.

CAUTION: EXPLOSION HAZARD!

During switch-on of the pilot flame an explosive mixture of fuel gas and air is streaming out from the nozzle. Pilot torch must be ignited immediately!

Basically the hand cutting torch must be switched on respectively switched off in following sequences:

Switch on:	Switch off:
1. Heating oxygen	1. Cutting oxygen
2. Fuel gas	2. Fuel gas
3. Cutting oxygen	3. Heating oxygen

For safe operation of the torch it is absolutely necessary to install flashback arrestors for fuel gas, heating oxygen an ignition fuel gas at the flexible hose line outlets.

MAINTENANCE

Regular, thorough maintenance (e.g. at the beginning of a shift) - related to the frequency of plant using - is necessary in order to ensure long service life and high cutting performance.

Damaged cutting nozzles are useless; cutting performance will be lost and cutting quality worsens considerably.

Cleaning of the block cutting nozzle

a) Mechanical cleaning

- Cleaning of nozzle faces:

Minor contaminations at nozzle faces and in direct vicinity of heating bores and of the cutting oxygen channel can be removed by a soft brass brush

- Cleaning the bore holes:

Free the bore holes form dirt by pushing the corresponding cleaning drill gently inside. If the bore holes are burred in any way, remove the burring with a fine emery cloth. Do not chamfer the edges under any circumstances!

Spray cutting nozzles with silicone spray in order to prevent adhesion of slag.

b) Mechanical machining

If the cutting nozzle face is damaged, it is advisable to machine the surface on a lathe. The nozzle can be shortened several times **up to a maximum length of 3 mm**.
Check the three-face cone sealing of the cutting nozzle and the torch head. If damages have been caused, replace cutting nozzle and/or machine cutting torch.

Spray cutting nozzles with silicone spray in order to prevent adhesion of slag.

Further mechanical machining may **not** be carried out by the user.

c) Important hint for the use of cutting nozzles with cone seals

When exchanging the cutting nozzle, in particular on use of new nozzles, firmly tighten the set screw before start-up of the torch, in order to make sure that the sealing faces of the cutting nozzle adapt to the sealing faces of the torch head.

In case of extreme heat at the cutting nozzle and the torch head and subsequent cooling down it may cause the cutting nozzle loosen in the torch head and becomes leaky. **Therefore, firmly re-tighten the set screw after first heat loading.** For this use also a spanner at the torch head as counter measure.

Inspecting the cutting nozzle

Flame shape:

The heating flame of the post mixing cutting nozzle must burn in the form of a well defined, concentrated jet. It must not stray to any side.

The single flames of the block mixing cutting nozzle must take the form of a well defined, uniform, elongated cone and must not flatter or emerge at an angle from the bore holes.

The cutting jet must appear as a distinct, well defined jet within the flame shape.

Checking the torch connections for leak-proofness

Check the torch connections for leaks at regular intervals (approx. every 4 weeks), using a leak detection agent.

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WARNING

ご使用に関してのご注意

機器の接続と確認

始業前点検として、ご使用開始前に必ず検知液などでガス漏れのない事を確認してください。
同様に器具の各接続部分に対し、検知液などでガス漏れ点検を行ってからご使用ください。
変形やキ ズの無い、正常な切断火口を正しく取付けてご使用ください。
使用条件にあった圧力の設定を行ってください。
万一不具合のある場合は使用を止め、メーカ指定業者に修理をご依頼ください。
•火口の清掃には専用の掃除針をご使用ください。
•安全にご使用いただくために、下記の事項を必ず お守りください。
火口当り部のキズ、及び先端部のノズル、カバーに芯ぶれのない事を確認の上ご使用ください。
出口孔（予熱酸素孔、切断酸素孔など）が、スパッター等により塞がれていない事をご確認の上ご使用ください。

Notes on use

Connecting and checking equipment

As a pre-start inspection, make sure that there is no gas leak with the detection liquid before starting use.
In the same way, check the gas leak for each connecting part of the instrument with a detection liquid before use. Use a normal cutting crater with no deformation or scratches. Set the pressure suitable for the operating conditions.
If there is a problem, stop using the product and request repair by a manufacturer specified.
● Use a special cleaning needle to clean the crater.
● For safe use, be sure to observe the following items.
Check that there are no flaws in the crater area and that there is no cover in the nozzle and cover at the tip.
Check that the outlet holes (preheated oxygen holes, cutting oxygen holes, etc.) are not blocked by spatter.