



KATANA

Expect KATANA to Cut as Katana



KATANA SCARFING TORCH & NOZZLES



ハundsカーフでのスラブ表面手入



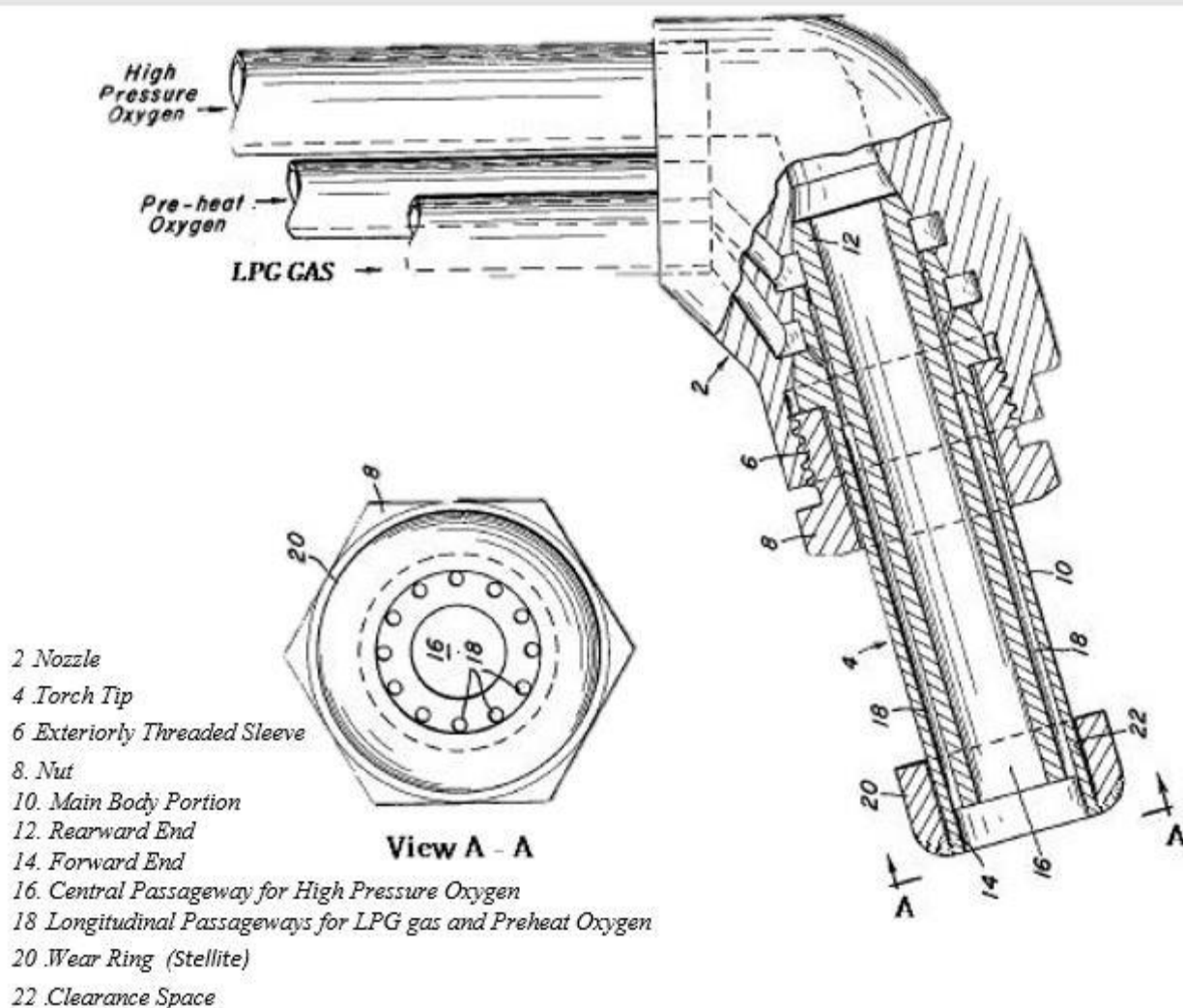
The main reason for scarfing is not to remove metal from the slab surface, but to remove the surface defects from the slab. From our experience, most of the defects are located within the first 1 to 2 mm of the surface, but frequently other defects can be found deeper in the slab.

When pouring ingots, cracks or impurities can quickly form and need to be removed. KATANA Cutting Systems provides a suitable solution with a variety of handheld torches and casting options available in different lengths and widths. Depending on the nozzle used, combinations of acetylene/oxygen or propane, methane, or coal gas with oxygen maybe utilized. The Stellite wear ring ensures a long lifespan for the nozzle. Our complete range of accessories, such as thermal protection shields and hoses, makes your work easier and complements our selection of handheld or casting torches.

- ✓ **Available lengths: 1300, 1500, 1600, and 1800 millimeters.**
- ✓ **Oxygen connection: G1/2"RH*.**
- ✓ **Fuel gas connection: G3/8"LH*.**
- ✓ **Equipped with an angled head 110°.**
- ✓ **Scarfing width: 40~60 millimeters.**
- ✓ **Features a spring lever for controlling oxygen during scarfing.**
- ✓ **Gas combinations: propane, methane, coal gas, and oxygen (PM).**
- ✓ **Brass pressed body.**
- ✓ **Stainless steel oxygen and gas regulating taps.**
- ✓ **Stainless steel pipes.**
- ✓ **Aluminum heat protection shield.**

Model	Length	Head Angle	CONNECTIONS		Nozzle Type	Connection thread
			Scarfing oxygen	Heating gas		
KSCT13	1300mm	110°	G 1/2"RH or13mm	G 3/8"LH or10mm	HFD1	M33x1.5
KSCT15	1500mm	110°	G 1/2"RH or13mm	G 3/8"LH or10mm	HFD1	M33x1.5
KSCT16	1600mm	110°	G 1/2"RH or13mm	G 3/8"LH or10mm	HFD1	M33x1.5
KSCT18	1800mm	110°	G 1/2"RH or13mm	G 3/8"LH or10mm	HFD1	M33x1.5

In the design of KATANA model tips for scarfing torches, the structural details and installation method of the torch tip within the torch nozzle are precisely outlined.



In this design, the torch tip (referenced as 4) is located within the nozzle (referenced as 2). The torch tip is constructed from a main body (referenced as 10) made of copper, which features a central passage (referenced as 16) for high-pressure oxygen flow and several longitudinal passages (referenced as 18) to direct acetylene and preheated oxygen to the front end.

New features of this design include a wear ring (referenced as 20) made of a wear-resistant material called Stellite, positioned near the front end of the body. This ring is designed with a clearance space (referenced as 22) to allow for expansion and contraction relative to the body.

Overall, this design focuses on utilizing the high thermal properties of copper and the specific flange design to enhance the efficiency and durability of the torch. These features contribute to improved torch performance and increased longevity in industrial processes.

HFD 1

Slab surface preparation with hand scarf

Scarfig processing has been used widely to remove surface defects from steel and other semi-finished as-cast products for over 70 years. Steel slabs produced from continuous casting often exhibit surface defects, including inclusions, pits and cracks. In order to obtain advanced high strength steels (AHSS) for automotive parts or other high- quality-products, these surface defects should be avoided during the casting process or removed during post-processing using the scarfig technique.

The gas fuel (such as propane C_2H_6) and oxygen leaving the torch combust into a high temperature flame, which heats the slab sufficiently to initiate the exothermic reaction of iron with available excess oxygen to form iron oxide (mainly $3Fe + 2O_2 = Fe_3O_4 + 972.4 \text{ KJ/mol}$).



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During this scarfig reaction, part of the released heat increases the temperature and melts the iron oxide products (FeO , Fe_2O_3 , Fe_3O_4), part of the heat is transported away through radiation and advection with the combustion gas and the rest is conducted into the steel slab. Most of the iron oxides are swept away by the high-speed oxygen and combustion gases as soon as they form, but some of this material remains in liquid slag form which is blown across the surface of the steel slab as an intermittent coating layer. The hot liquid slag coating layer, conducts some heat into the steel slab and provides some preheat for the continuous scarfig reaction process.

One piece solid copper drilled scarfig nozzle of nozzle mix design. This nozzle produces a wide flat gouge path. This solid copper scarfig nozzle has been fitted with a Stellite wear ring to help prolong the nozzle life. This nozzle is suitable for use every style scarfig torches.

As with all gouging or scarfig nozzles care should be exercised when forward gouging to ensure the dross is being blown forward, try not to allow the molten dross to sit on the nozzle tip face as this will cause the nozzle to burn prematurely.

It is important that the nozzle has sufficient oxygen flow to enable the dross to be blown ahead of the gouge path, high flow equipment has to be used so no restrictions are encountered, scarfing operates best with lower pressures and higher flows – it is the volume of oxygen that is important to the gouge path being achieved correctly plus of course the technique and skill of the artisan.

Should internal burning be encountered then it is important to shut off the oxygen first and then the fuel. If possible quench the nozzle and torch head in clean water then establish why the sustained backfire happened. Inspect the nozzle and torch the refit and test.

Outstanding features:

Unparalleled Build Quality: This nozzle is made of copper alloy with a Stellite wear end ring, which is designed to withstand high temperatures and pressures.

Unparalleled Performance: With the optimal internal mix of gases, this nozzle provides you with unparalleled performance in cutting and cleaning metals.

Stability and Safety: The end ring made of alloy steel of this nozzle provides more safety and stability in thermal and pressure working conditions.

High lifespan: Using quality materials and advanced manufacturing technology, this nozzle has a longer lifespan.

Nozzle Type	Scarfig width	Scarfig Depth	Connection thread	PRESSURE CUTTING (bar)			CONSUMPTION (Nm3/h)		
				Scarfig oxygen pressure	Heating oxygen pressure	Gas pressure	Scarfig oxygen flow	Heating oxygen flow	Gas flow
HFD1	40~60	2~10	M33x1.5	12	1.5~2	1~2	60~110	6~12	15~25

