STronik m

CNC

Machine working by interpolation between the cutting tool radius and spindle axis. The single point cutting tool generates the profile of the valve seat through an integrated design system, using radius and straight segments.

Versatile machine appropriate for machining any kinds of cylinder heads, chatter free and with unmatched geometrical accuracy.

Single point seat cutting machine with Z and U axes CNC digitally controlled.

U axis carriage controlled by induction motor can reach a cutting feed rate up to 300 mm/min.

2 kW permanent and 4 kW intermittent built-in spindle motor, variable speed from 0 to 2000 RPM. High machining accuracy even at low speed due to total lack of mechanical transmission.

Intake and exhaust seats can be performed simultaneously without tool holder changes.

Machining capacity from 14mm to 124mm / 0.55'' to 4.88''.

Patented lightweight workhead :
built-in spindle motor and triple air-float centering system. Minimal workhead inertia and maximal floatation for unmatched centering sensitivity.

Vacuum clamping of the work head on the machine bed.

Modern modular machine bed design for improved rigidity. Computer enhanced static and dynamic characteristics provide the latest in machining technology.

PCT Patent 2011/147770
Patent U.S.A. N° 5,769,576
European Patent N° 0833711

www.STronik.com
www.SERDI.com

SERVICE QUALITY RELIABILITY

World Class Technology

SERDI

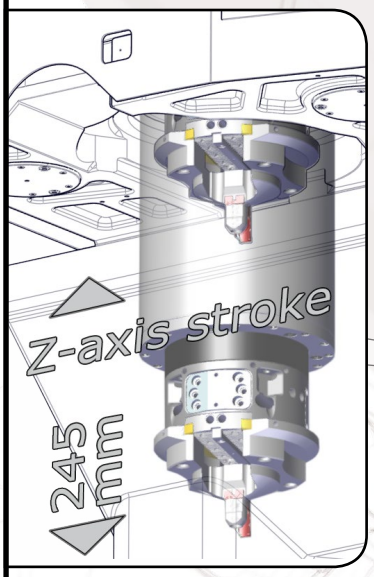
SPINDLE SPECIFICATIONS

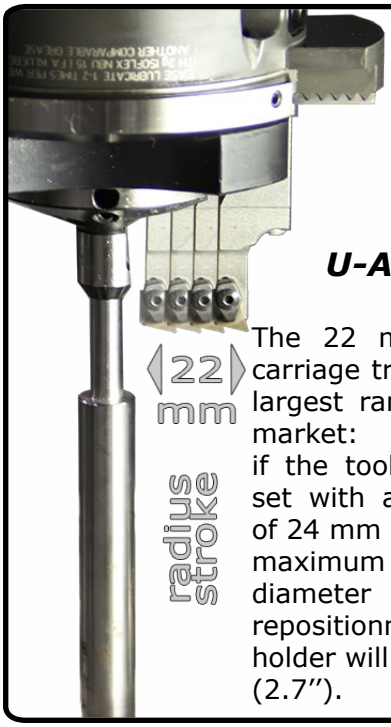
Built-in motor-spindle with maximum torque from 0 to 2000 rpm generated by a CNC spindle machine tool type with rotor «rare earth» magnets.

This spindle includes the U axis Komtronic system by Komet, powered by a induction driven brushless motor with no backlash and minimum temperature rise. The whole weight is equally divided above and below the sphere, which keeps the self-centering light and accurate.

The 245 mm (9.64'') stroke allows the combined machining of the seat and guide with lengths exceeding 100mm.

The most powerful single point spindle on the market (4 KW - 5.5 HP) allows both rough (cutting depth up to 0.5 mm) and finishing machining.



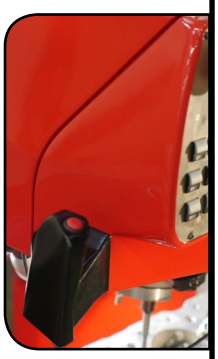


U-AXIS

The 22 mm (.86'') carriage travel is the largest range in the market:
if the tool holder is set with a diameter of 24 mm (.95''), the maximum machining diameter without repositionning the tip holder will be 68 mm (2.7'').

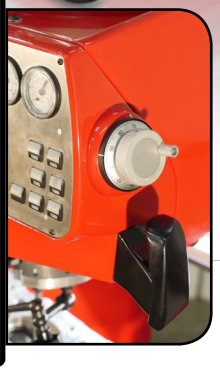
INTEGRATED VACUUM TESTER

For a fast valve sealing check before removing the cylinder head.



EFFICIENT MANUAL APPROACH

Manual Z spindle is controled by an electronic handwheel located on the head. Head displacement and spindle approach speed controled through ergonomic and sophisticated handles, no more pedal needed.

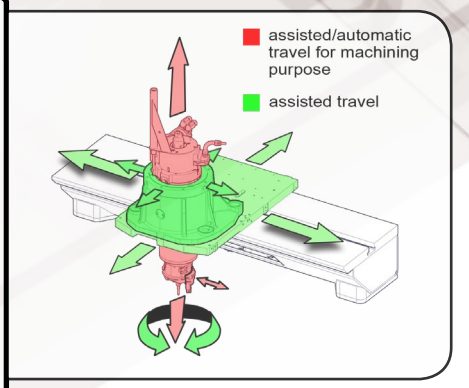


TRIPLE AIR CUSHION

Our triple air cushion and built-in motor spindle decreases dramatically the free floating parts weight during centering which improves speed and accuracy.

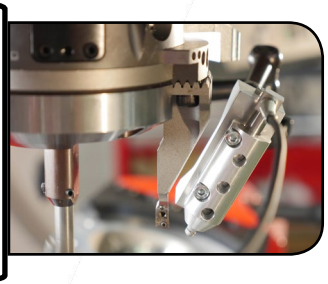
It automatically alignes each valve guide regardless of any misalignment or angular deflection.

Self leveling spindle into valve guide.



MACHINING DEPTH MEASUREMENT

Depth measurement made by an analogic LVDT (Linear Variable Distance Transformer) gauge to guarantee the same accurate machining depth on all the seats.



CONVERSATIONAL CNC

Z and U axes are digitally controled by a standard CNC Siemens 828D. Single point cutting allows to machine any profile you want.
The collaboration between Serdi and Siemens will ensure a continuous development of the product and a worldwide customer service.

OPTIONAL LOWER FRAME

The frame can be lowered to fit larger heads, in association with a longer spindle stroke (310 mm).
Optional customizable plates available as well.

SUPPORT TABLE

The two parallel bars are mounted on two manually lockable guiding rails. Accomodates any Serdi fixture.

STronik M

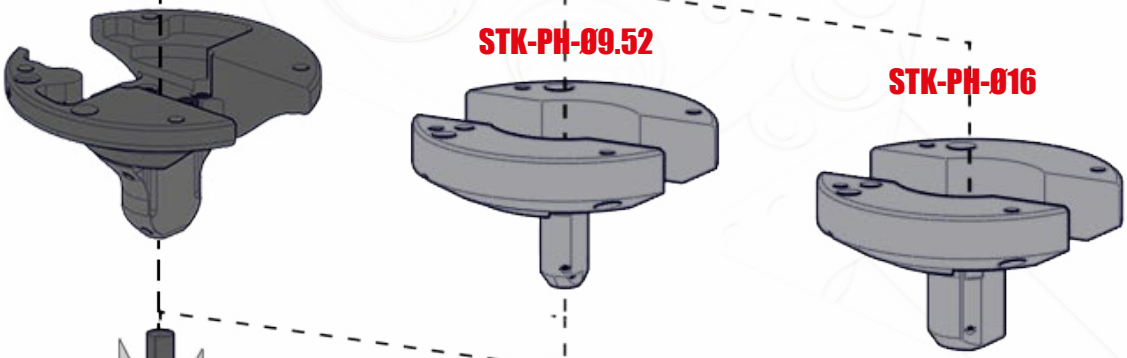
co-developed with KOMET

driven by SIEMENS

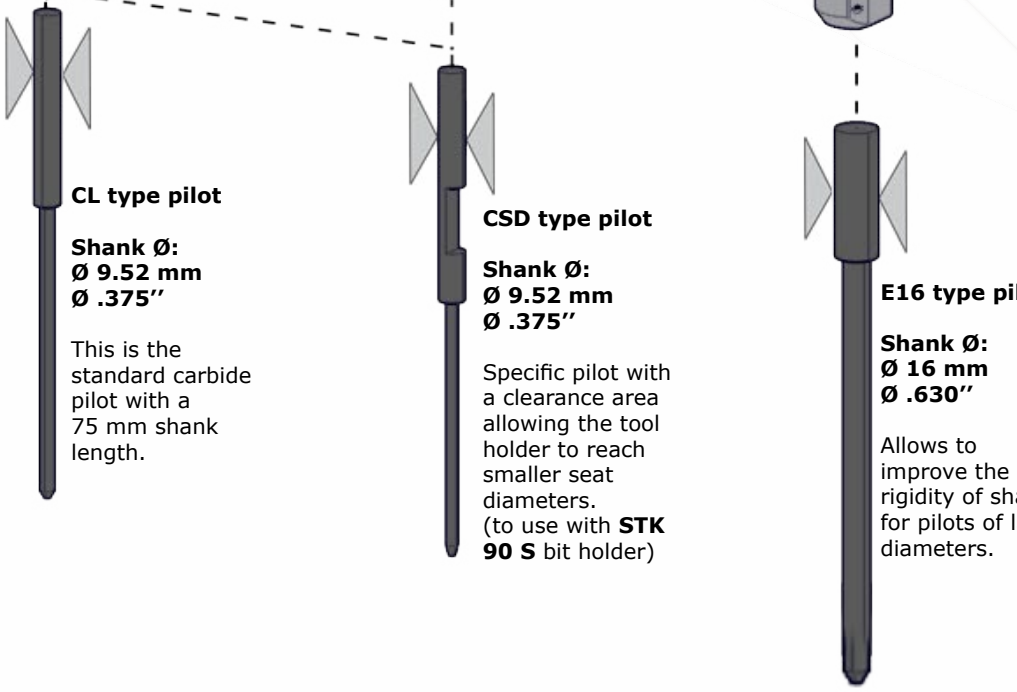
SERDI cutting system «STK» tooling range

Bit holder

Pilot holder



Pilot



CL type pilot

Shank Ø:
Ø 9.52 mm
Ø .375''

This is the standard carbide pilot with a 75 mm shank length.

CSD type pilot

Shank Ø:
Ø 9.52 mm
Ø .375''

Specific pilot with a clearance area allowing the tool holder to reach smaller seat diameters.
(to use with **STK 90 S** bit holder)

E16 type pilot

Shank Ø:
Ø 16 mm
Ø .630''

Allows to improve the rigidity of shanks for pilots of large diameters.

for STronik single point seat machining

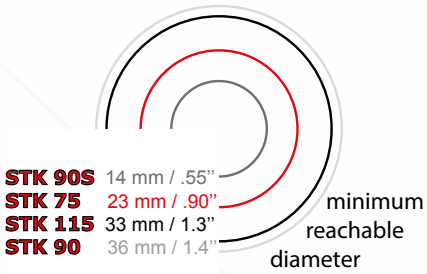
STK-75

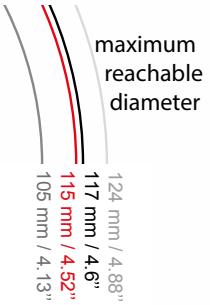
STK-115 Designed for heads with deep valve seats, such as hemispheric heads or heads with important canted valve angles.

STK-90 To machine deep valve seats

STK-90S Designed for small seat diameter (until 14 mm). To use with a CSD pilot when the diameter to machine is lower than 24 mm.

STK-75 To machine large valve seats

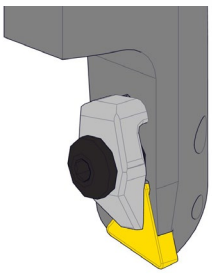




STK-HYDR PH-Ø9.52 Hydraulic clamping of standard Ø9.52 mm shank pilots. The pilot is hold in a concentric way in its bore, allowing to reach an accurate concentricity without settings.

STK-PH-Ø9.52 Allows the mounting of standard Ø9.52 mm shank pilots. The pilot is hold firmly through six setting screws, allowing to reach a very accurate concentricity.

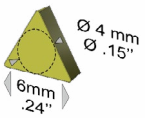
STK-PH-Ø16 Allows the mounting of Ø16 mm shank pilot for large guides. The pilot is hold firmly through six setting screws, allowing to reach a very accurate concentricity.



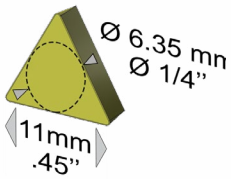
Machining is performed with a CBN bit, allowing to cut easily seats with hardness over 60 HRC.

The full face coating ensures a longer life span.

CBN 6 mm bit



CBN 11 mm bit



Once the first tip is damaged, the bit can be flipped to pursue machining.

Full face coating obliges mounting with a small clamp. If you're using or want to use different bits that the one supplied by Serdi, the bit holder owns another tapped hole allowing mounting of 6 mm bit with a central through hole.

Have a quick access from the main menu to the application that best suits your needs:

Easy & intuitive profile editor – fully conversational.
No CNC programming knowledges needed.

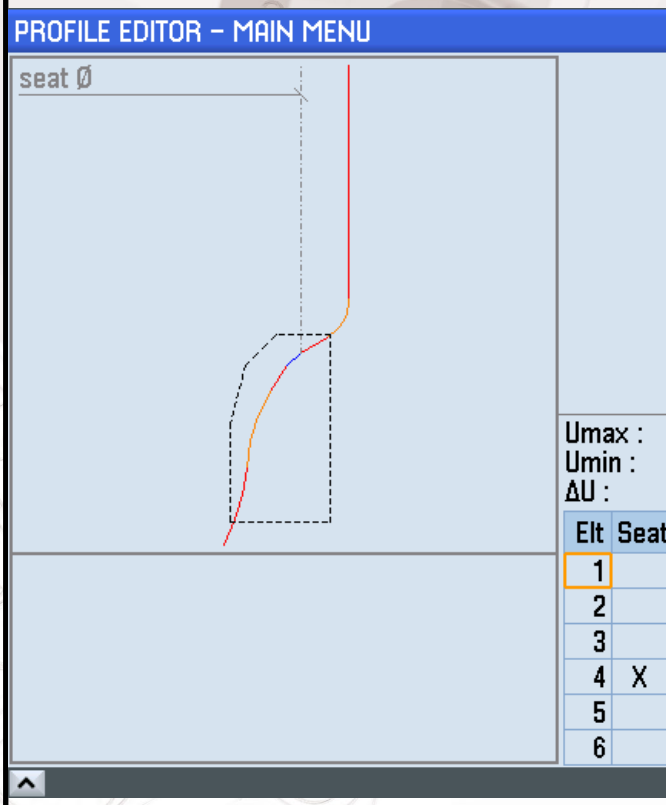
Profile editor

Interface for touching-off the seat and adjusting the LVDT probe.
Must be done when changing from one project to the other.

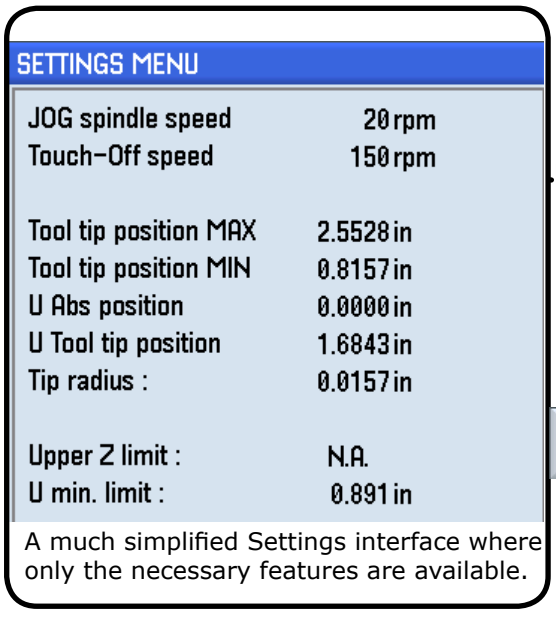
Touch-off

Settings interface

Settings

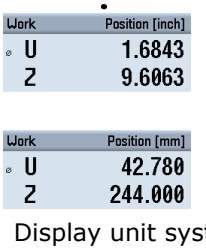


Roughing :	Contour-parall.		
Feed int. :	No	D :	0.000 in
VC.r :	393.70 ft.min	VC.f :	328.08 ft.min
F.r :	0.0079 in.rev	F.f :	0.0028 in.rev
AP.r :	0.0118 in	AP.f :	0.0039 in
Semi-finishing :	No	VC.s :	0.00 ft.min
		F.s :	0.0000 in.rev
		AP.s :	0.0000 in
SC :	0.0000 in		
Probe :	Yes		
Umax :	2.814 in	Zmax :	0.681 in
Umin :	2.156 in	Zmin :	-0.539 in
ΔU :	0.329 in	ΔZ :	1.220 in



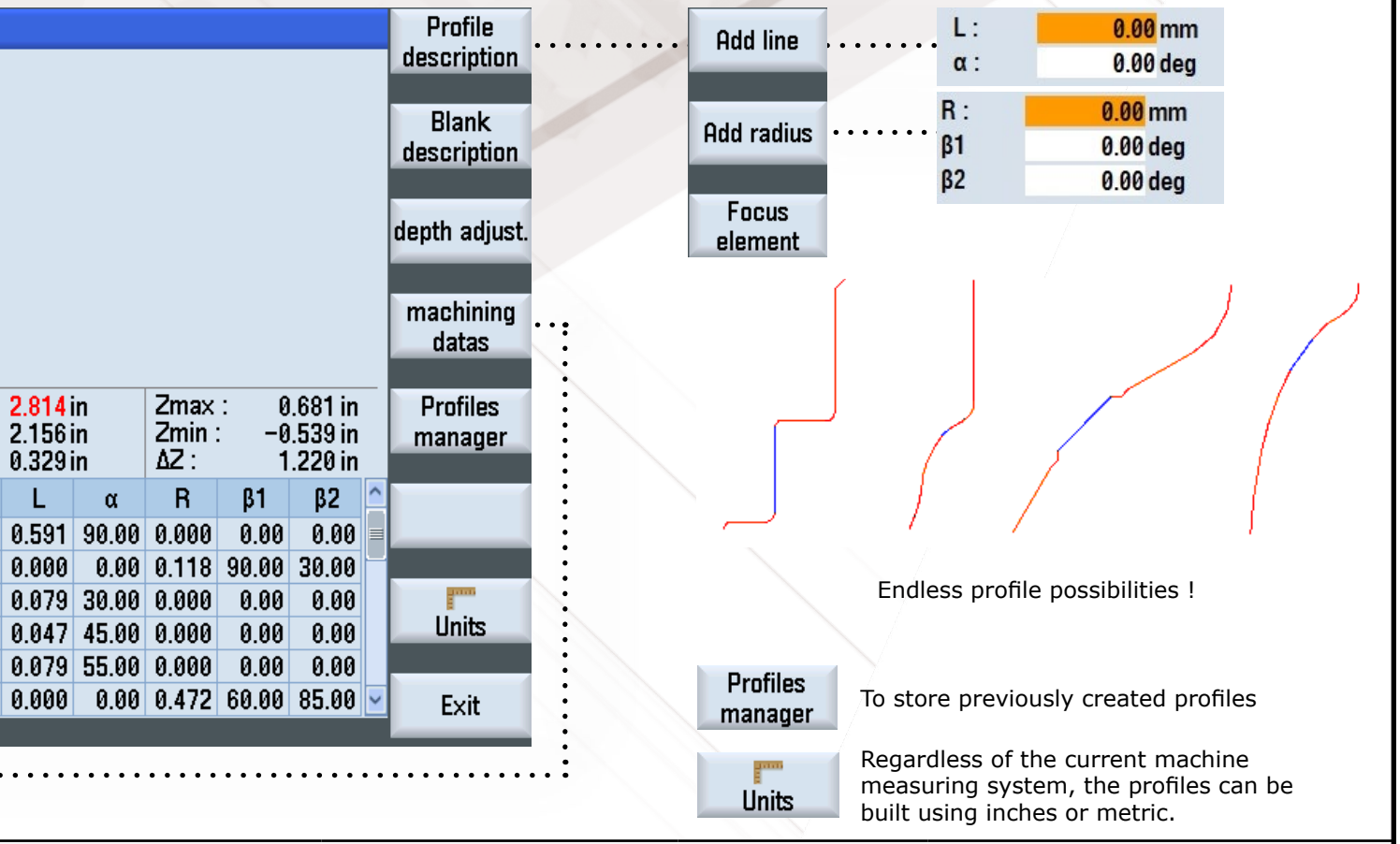
A much simplified Settings interface where only the necessary features are available.

Tool position measurement.
Shall be done whenever it was taken apart or a new insert style is used.



Display unit system switch over.
Does not affect the profiles dimensions.

Some stroke limitation can be set for both the spindle and tool carriage to ease the manual moves and prevent any collision.



Endless profile possibilities !

Profiles manager

To store previously created profiles

Units

Regardless of the current machine measuring system, the profiles can be built using inches or metric.

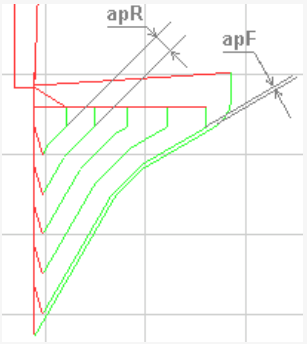
Features a chip breaking option as well as a semi-finishing option.

Constant cutting speed offer an even surface finish along the whole profile.

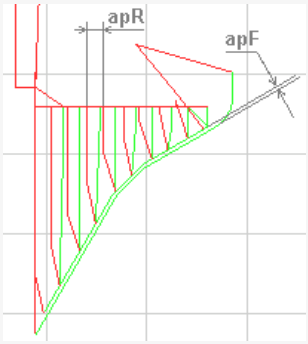
The LVDT (Linear Variable Distance Transformer) sensor can be disabled, for a "on the fly" cut.

3 roughing strategies available to match best any situation.

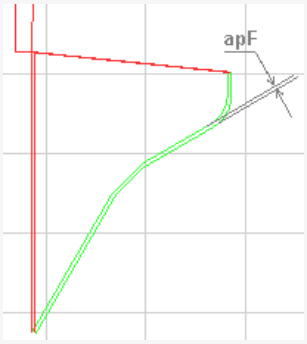
Contour-parallel



Longitudinal



Re-cut



Preview simulation function, allowing to display and vizualise the toolpath to realise in order to prevent tool collisions.

TECHNICAL FEATURES

Space requirements		
Length	mm / inch	2200/86
Width	mm / inch	1050/45.3
Height	mm / inch	2500/98.4
Max cylinder head dim. *on parallels with standard pilot*		
Length	mm / inch	unlimited
Width	mm / inch	500/19.7
Height (standard frame)	mm / inch	330/13
Height (lower frame)	mm / inch	560/22
Max cylinder head dim. *on roll over fixture with standard pilot*		
Length	mm / inch	1050/41.3
Width	mm / inch	300/11.8
Height	mm / inch	190/7.5
Parallel bars travel		
	mm/inch	210/8.26
Machining capacity Ø min - max		
	mm	14 to 124
	inch	0.55 to 4.88
Workhead travel		
Lengthwise	mm / inch	970/38.2
Crosswise	mm / inch	50/1.97
Sphere-cylinder travel	mm / inch	14/0.5
S-axis (spindle)		
Max. spindle inclination	degrees	5
Spindle motor power	KW	2 to 4
Spindle rotation speed	RPM	0 to 2000
Z-axis (vertical stroke)		
Spindle travel (standard frame)	mm / inch	245/9.64
Spindle travel (lower frame)	mm / inch	310/12.2
Machining feed	mm / min	0 to 5000
U-axis (carriage)		
Stroke (radius)	mm / inch	22/0.86
Machining feed	mm / min	0 to 300
Connections		
Power supply	6.3kVA-3x400V-N+PE-50/60 Hz	
Pneumatic supply	bar / psi	6/87
Max. air flow	l/mn -CFM	400/15
Net weight approx.	kg / lbs	1500/3307

Applications:

Marine:

Racing:

Motorcycle:

Automotive:

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