FRIGA-BOHN®

FC NEOSTAR

Axial fan dry cooler
Industrial range

WG

FCR NEOSTAR
FIR NEOSTAR

FC NEOSTAR
FI NEOSTAR

20 - 1200 kW

To best meet the needs of your application, **4 versions** are available:

- **FC Neostar**: combines **compactness** and **high efficiency**.
- **FI Neostar**: guarantees **low pressure drop** and an **extended power range** up to 1,200 kW.
- **FCR** and **FIR Neostar** ("forced draft" versions): offer an installation with a **low noise level** and allow the use of **EC motor(s) in high temperature applications**.

Coil reduces clogging and allows for efficient maintenance to ensure **long-lasting performance**.

Adaptability: more than 5,300 possible models to suit your project.

VENTILATION

The FC/FI NEOSTAR range is equipped with motor fans:

Standard motor: 400V/3/50Hz with external rotor, two-speed (triangle and star connection).

"High Temperature" motor: 400V/3/50Hz, two-speed (triangle and star connection).

EC motor: electronically commutated motor fans enabling speed variation and reducing your installation's energy consumption.

The motor fans are wired as standard and connected in the factory, as follows:
- 1 to 3 electrical boxes for L models (in-line motors),
- 2 to 8 electrical boxes for P models (parallel motors).

We can deliver them unwired on request.

Special voltage ventilation (FC/FI NEOSTAR):
- **M60** : Motor fans Ø 910 mm, 400V/3/60Hz, IP54, version 06P
- **M26** : Motor fans Ø 910 mm, 230V/3/60Hz, IP54, version 06P

OPTIONS	
M26	Motor fans 230 V/3/60 Hz. CONTACT US
IRP	Rotary proximity switch(es).
SCU	Without factory wiring (specify when ordering).

AC MOTORS

M60	Motor fans 400 V/3/60 Hz. CONTACT US
MTH	Wiring on front terminal block of protection thermostats. Recommended for high starting frequencies (more than 30 starts per hour) or use of variable speed drives.

NEW!

FCR Neostar and FIR Neostar

To best meet your needs, the FC and FI Neostar are now available in "forced draft" versions.

The **FCR Neostar** and **FIR Neostar** versions enable:

A reduced noise level.

The use of EC motors in high temperature applications, allowing speed variation and reducing your installation's energy consumption.

All FC / FI Neostar models and options are available for the "forced draft" **FCR** and **FIR** versions.

Options specific to the **FCR** and **FIR** versions:

OPTIONS	
RAB	Feet lowered by 300 mm KIT TO INSTALL (ground clearance 700 mm).
RE3	Feet raised by 1,340 mm KIT TO INSTALL (ground clearance 1,500 mm).
RE4	Feet raised by 1,840 mm KIT TO INSTALL (ground clearance 2,000 mm).
GPB	Coil protection grille.

CASING

Robust, made of white pre-painted galvanized sheet steel.

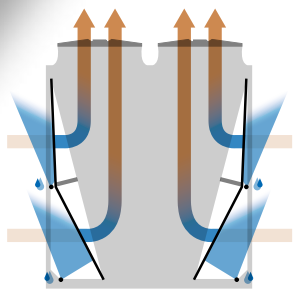
The units are delivered flat, screwed onto a wooden base with feet to be installed.

OPTIONS	
RAL	Special colour polyester paint.
REH	Feet raised by 240 mm KIT TO INSTALL (ground clearance 800 mm).
RE2	Feet raised by 840 mm KIT TO INSTALL (ground clearance 1,400 mm).
RE3	Feet raised by 1,340 mm KIT TO INSTALL (ground clearance 1,900 mm).
RE4	Feet raised by 1,840 mm KIT TO INSTALL (ground clearance 2,400 mm).
ECB	Wooden crate packaging.

Select your coil treatment to extend your unit cooler's lifespan! Contact us.

COILS

Aluminium fins with 1.9 mm (FC Neostar) or 2.12 mm (FI Neostar) spacing.
Combined with staggered copper tubes, the coils are very efficient and compact.
Manifolds with air vent and drain plug
Flange connection PN16.



AAS

OPTIONS	
VEX	Expansion tank.
VID	Fully drainable special circuits.
HT / BT	HV / LV superimposed circuits.
WAS	Adiabatic water spray system
AAS	Advanced adiabatic water spray system. CONTACT US

PRODUCT ADVANTAGES

The long-lasting performance of the FC/FI Neostar is ensured by coils with:
- louvreless fins, limiting clogging and allowing efficient cleaning,
- double HV/LV circuits in the same block, which avoids the usual fouling between 2 blocks and also makes cleaning easier.
Easy and inexpensive installation.
Maintenance is reduced as a result of the direct-coupled motor fans.
Low maintenance costs.
An optimized selection of different models to choose from (noise level, energy consumption, size, type of regulation, etc.).
Louvreless fins, limiting clogging and allowing efficient cleaning to ensure long-lasting performance.

TECHNICAL DETAILS OF OPTIONS ON AC MOTORS

AC MOTOR possible options			
WIRING AND BOX	Power	Standard (BAB) :	**Power wiring on terminals** (no protection option integrated into this option).
		SCU	**Without motor wiring** (note that no regulation is possible with this option).
	Protection	CMP	**Motor protection box IP54**, including one circuit breaker per motor, a fault summary and a main switch. Possibility of floor mounting support kit (MSK).
		MSK	Floor support for cabinets above H = 800 x W = 1,000
REGULATION	**Advanced control** by variation	RT3 (including CMP) Variable frequency drive	**An IP54 ventilated control cabinet** with a variable frequency drive including its circuit breaker protection. A temperature sensor to manage a circuit (wired but not mounted on the unit).

TECHNICAL DETAILS OF OPTIONS ON EC MOTORS

EC MOTOR possible options			
WIRING AND BOX	Power	Standard (CSB) :	**Power wiring on terminals.** The power, fault, bus and control wiring is carried out.
		SCM	**Without motor wiring.**
		CCE	**Power wiring in IP54 box and protection by stage included (in L for each fan and in P for 2 fans).** The bus wiring is done.
REGULATION	Simple	SE1 (1)	**Direct control of the motors by customer 0-10 V signal:** one or two circuits possible.
	Advanced control	CE1 (2)	**Automatic speed control by temperature (setpoint to be adjusted via PLC by customer) / 1 circuit:** one temperature sensor and only one circuit possible.
		CE2 (2)	**Automatic speed control by temperature (setpoint to be adjusted via PLC by customer) / 2 circuits:** 2 temperature sensors and 2 separate circuits possible (contact us in case of multiple circuits).
		CE3 (2)	**Automatic speed control by temperature (setpoint to be adjusted via PLC by customer) / signal comparison:** 2 temperature sensors and signal comparison (contact us in case of multiple circuits).
ADDITIONAL FUNCTIONS		VMA	**Maximum speed setting** (configuration done on each fan, via a computer). Only with standard or **CCE**.
		MJN	**Possibility of setting a maximum night speed** (clock by signal 0/10). Only with **CE1 / CE2 / CE3**

(1) *Default option if no customer choice.*
(2) *CCE mandatory option*

FI(A)H(B) PU(C) 06(D)D(E) L(F)04(G) D5(H)

(A) **FC** = Fin spacing 1.9 mm - **FI** = Fin spacing 2.12 mm
(B) **H** = "High Temperature" motor (only for **PU** and **SN** version)
R = "Reverse" motor (forced draft)
(C) **PN** = Power Normal - **PE** = Power Extra - **PU** = Power Ultra
SN = Silence Normal - **SE** = Silence Extra - **SU** = Silence Ultra
(D) Number of poles
(E) **D** = triangle coupling - **Y** = star coupling
(F) Fan arrangement: **L** = in-line fans - **P** = parallel fans
(G) Number of fans
(H) Type of module

Since the performance of FC NEOSTAR varies considerably depending on the operating conditions, it is therefore not possible for us to present a selection method in this document. For more information, please consult our software.

		FC / FI NEOSTAR **POWER**					FC / FI NEOSTAR **SILENCE**						
		PN	**PU**	**H PU**	**PE** EC **motor**	**PA** EC **motor**	**SN**	**SE**	**SU**	**H SN**	**SE** EC **motor**	**SU** EC **motor**	**SA** EC **motor**
Diameter		Ø 800	Ø 950	Ø 910	Ø 960	Ø 860	Ø 800	Ø 800	Ø 800	Ø 910	Ø 800	Ø 800	Ø 800
Poles		06P	06P	06P	EC	EC	08P	12P	12P	08P	EC	EC	EC
400V/3/50Hz		3	3	3	3	3	3	3	3	3	3	3	3
Triangle (**D**)	**rpm**	830	870	890	380/960	250/1200	640	440	-	650	250/1020	250/730	250/950
	W max.	1600	1920	1950	2990	3500	820	330	-	880	2400	790	1850
	A max.	3,50	3,80	4,20	4,90	5,30	2,00	0,86	-	2,00	3,80	1,40	3
	dB(A)	80	87	82	57/90	57/90	71	68	-	75	49/88	49/78	48/84
Star (**Y**)	**rpm**	800	640	730	-	-	460	-	330	480	-	-	-
	W max.	1210	1170	1300	-	-	440	-	190	500	-	-	-
	A max.	1,55	2,20	2,30	-	-	0,90	-	0,39	1,05	-	-	-
	dB(A)	70	81	78	-	-	64	-	61	68	-	-	-

GENERAL

The freezing point of the refrigerant must always be at least 5K below the minimum winter ambient temperature of the installation site.

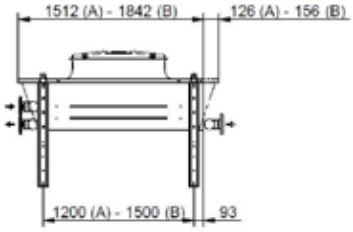
RISK OF FROST

A standard dry cooler cannot be completely drained by simply opening the bleed holes.
Always perform leak tests with the final refrigerant.
For application with water (without antifreeze), and if the ambient temperature can drop below 0 °C, the dry cooler must be properly designed to allow complete draining of the unit (VID option).

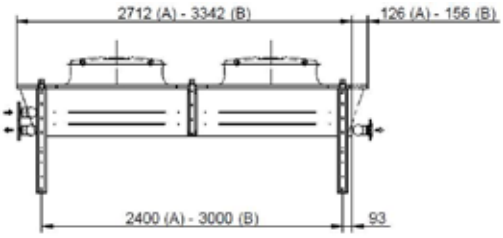
RECOMMENDATIONS

Installation according to best industry practice without forgetting:
- Bleeds and drains
- Expansion tank(s) (VEX option)
- Flexible sleeves
- Protection against vibrations
- Percentage of antifreeze sufficient
- Electrical protection of motors

Connection to a totally closed water loop, eliminating any risk of corrosion by oxygenation.
If used with non-ferrous metal water supply lines, protect against corrosion.



(A) … L01 A… / P02 A…
(B) … L01 B… / … P02 B…



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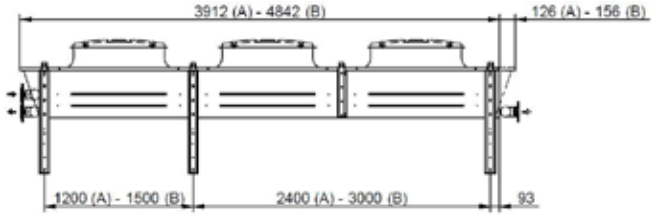
(B) … L02 B… / … P04 B…



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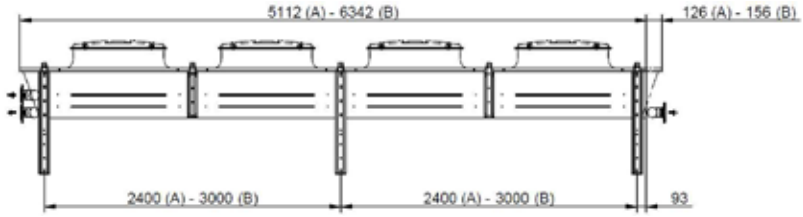

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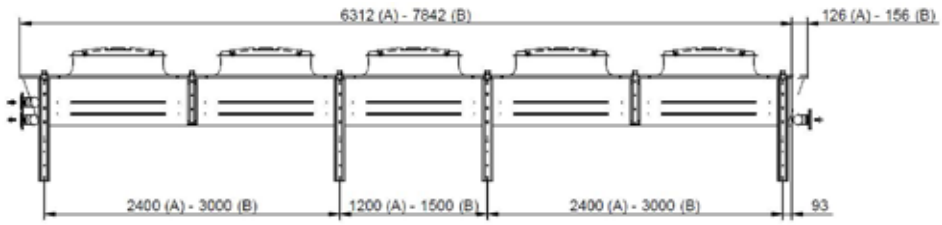

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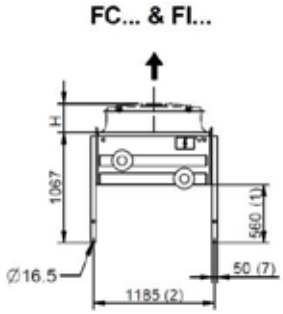
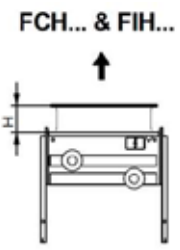
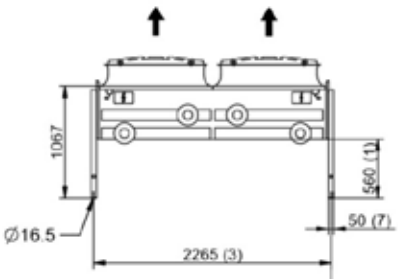
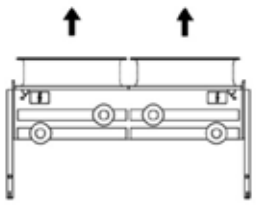
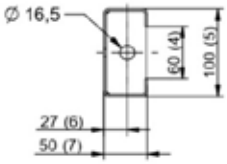




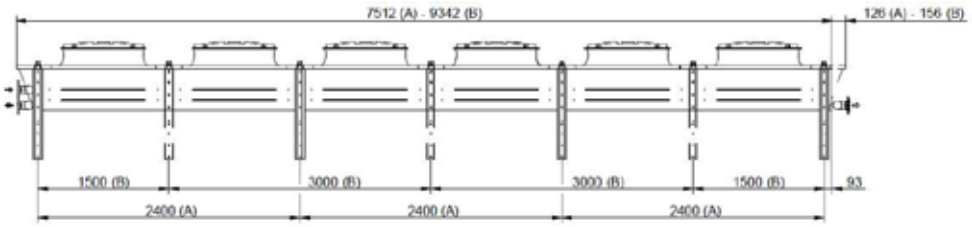






OPTIONS OPTIONEN OPCIONES Дополнительные	(1)	(2)	(3)	(4)	(5)	(6)	(7)
REH	800	1185	2265	60	100	27	50
RE2	1400	1205	2285	90	130	37	70
RE3	1900	1205	2285	90	130	37	70
RE4	2400	1205	2285	90	130	37	80

Type	H
PM04D/04Y	380
PU06D/06Y	350
PN06D/06Y	340
SN08D/08Y	330
SE12D/SU12Y	330
HPU06D/06Y	380
HSN08D/08Y	380
SAEC	330
SUEC	240
PE EC	370



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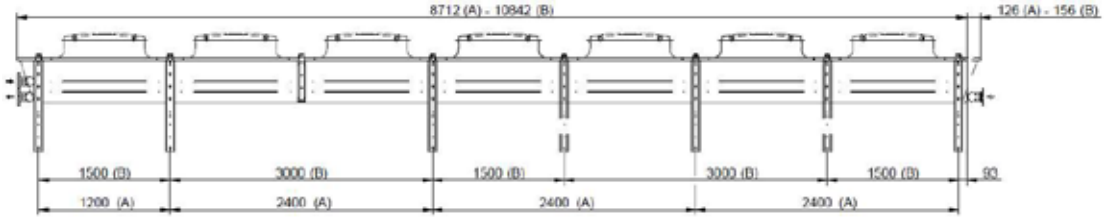
(B) … P12 B…



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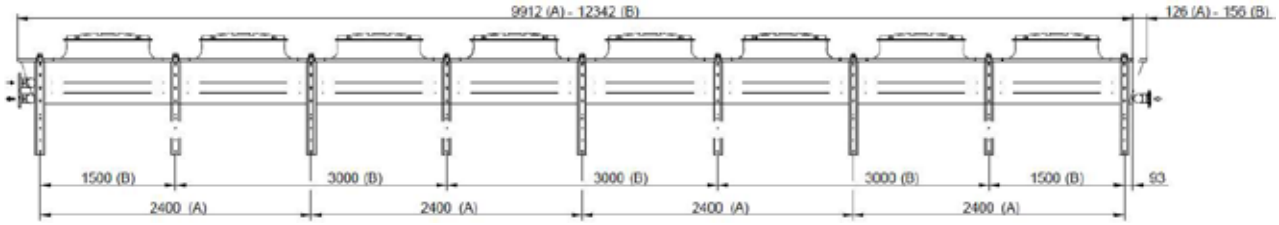

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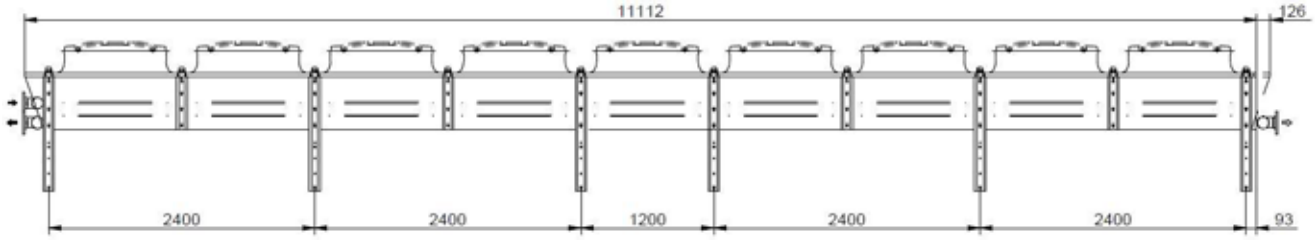

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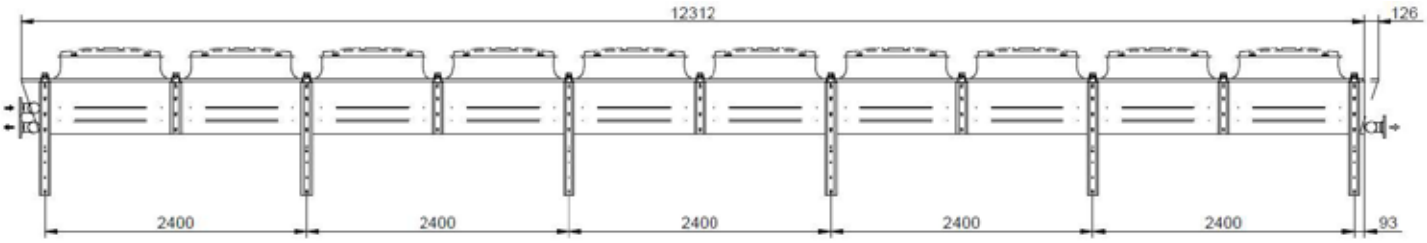

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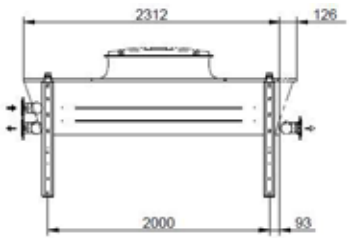

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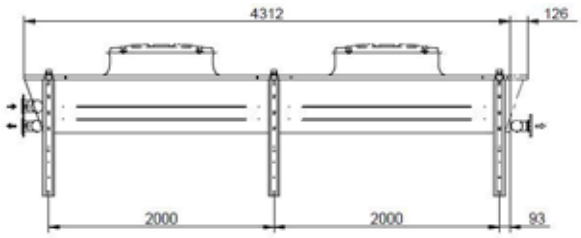

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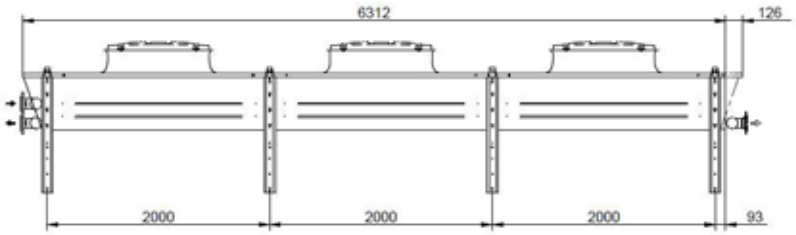

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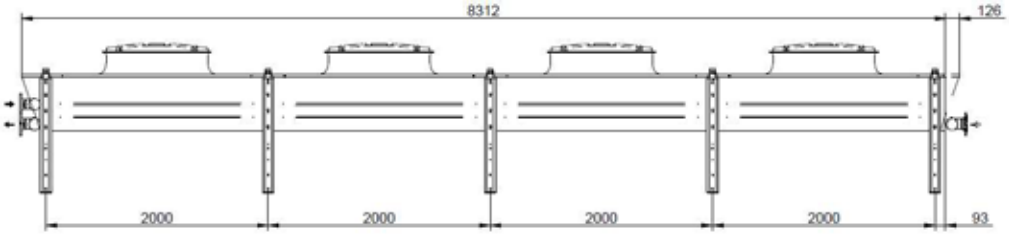

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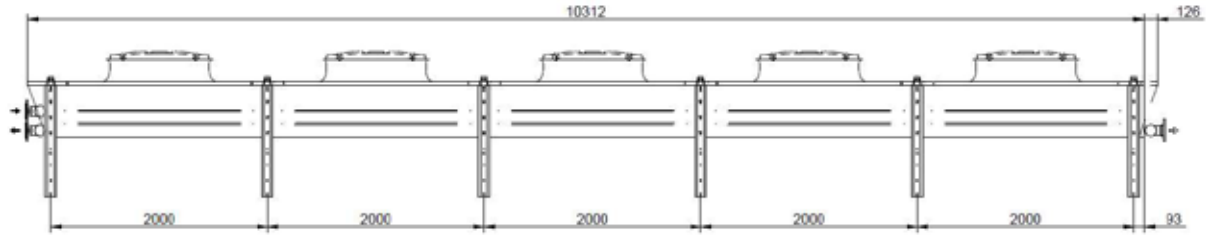
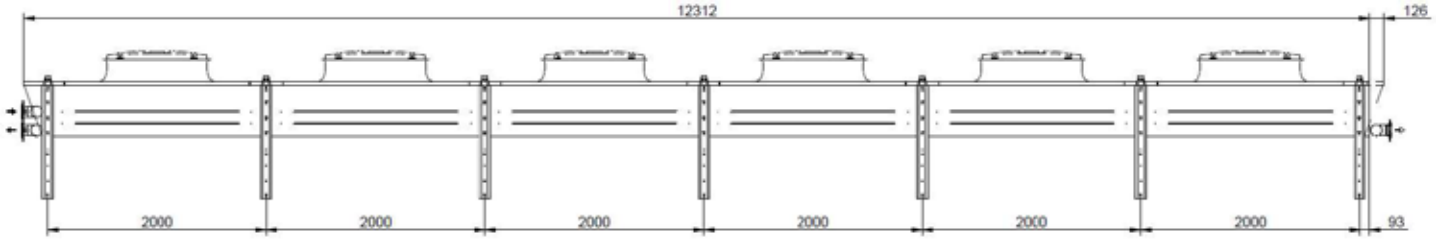


… P10 D…



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