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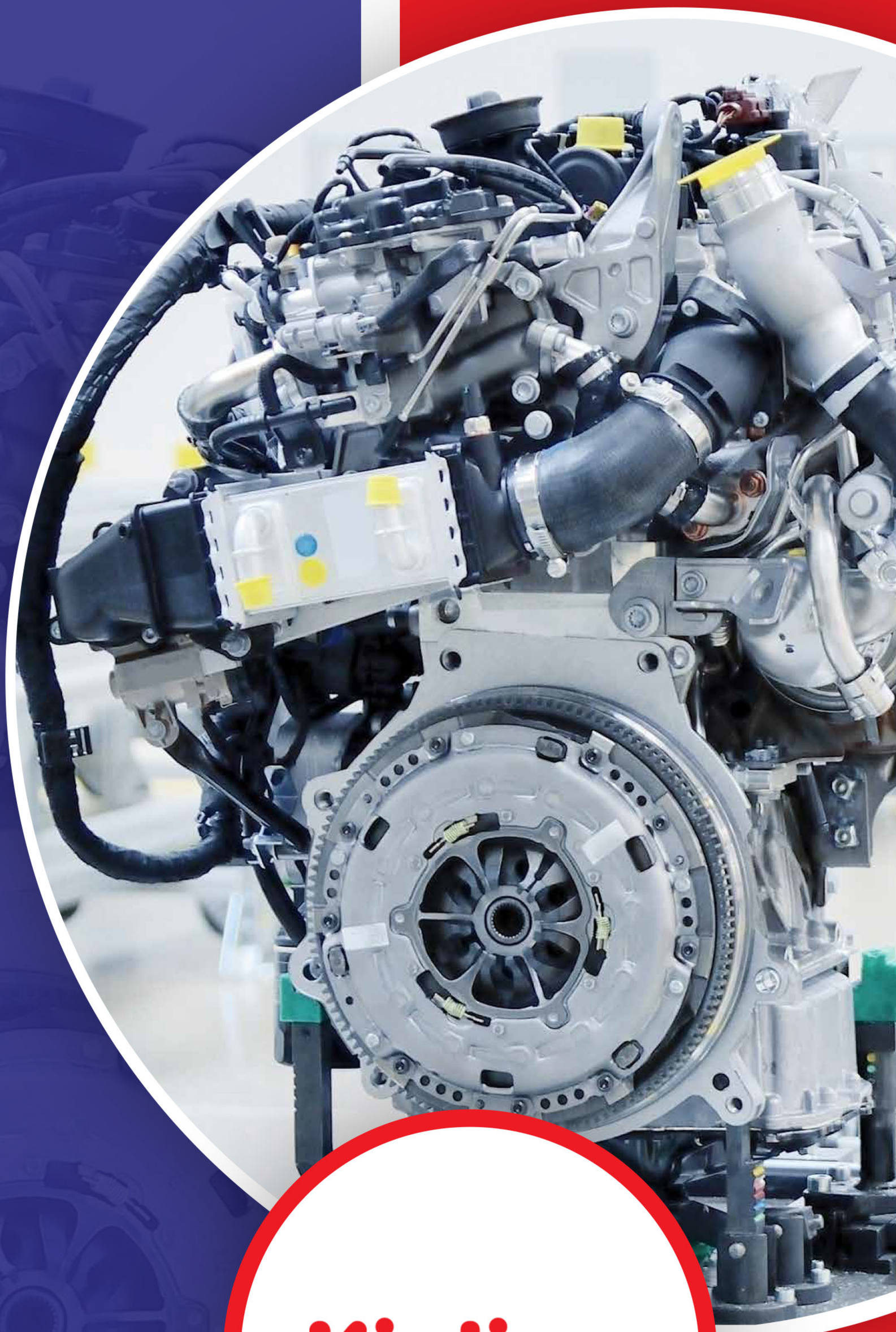
ÇÖZÜMÜN İLK ADI



Kisling

MOTOR İMALATI UYGULAMLARI

Kurumsal & Ürünler
havasis.com.tr

Sipariş & Danışma Hattı
0549 449 3535

Teklif & Ürün Bilgi
info@havasis.com.tr

Kalibrasyon & Bakım Onarım Merkezi
servisdestek@kalibo.com.tr

havasis Kisling

Kisling offers a wide range of adhesive technologies for magnet bonding, securing & sealing of housings as well as encapsulants for E-Motors, power electronics, high-voltage batteries and charging stations

Our products are characterized by various temperature resistances, viscosities, curing times, thermal conductivity as well as flexibilities.

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Excellence in Adhesive, Sealant and Encapsulant Manufacturing

YOUR BENEFITS

+ Process consulting and on-site support
+ Customised product development
+ Label free products
+ CMR free products
+ Odorless acrylates
+ Direct supply

OUR MARKETS

+ Lightweight / Composites
+ E-Mobility / Electric Motors
+ Electronics
+ Fluid Technology
+ Bus, Truck & Rail (BTR)/ Automotive
+ Loudspeaker
+ Maintenance, Repair & Overhaul (MRO)

OUR PRODUCT RANGE

+ Adhesives and sealants:
  (Meth)Acrylate structural adhesives
  Epoxy structural adhesives
  Anaerobic adhesives
  Cyanoacrylate instant adhesives
  Silicones
+ Encapsulants:
  Polyurethane
  Epoxy

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Adhesives and Encapsulants for E-Mobility

BONDING +
SEALING +
ENCAPSULATION

Kisling

MEMBER OF THE WÜRTH GROUP

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BONDING + SEALING + ENCAPSULATION
E-MOBILITY

Application Areas, Key Products & Success Stories

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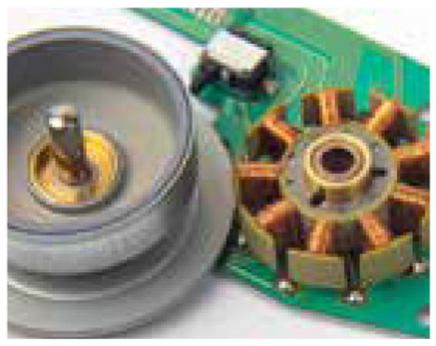
Application Areas & Key Products

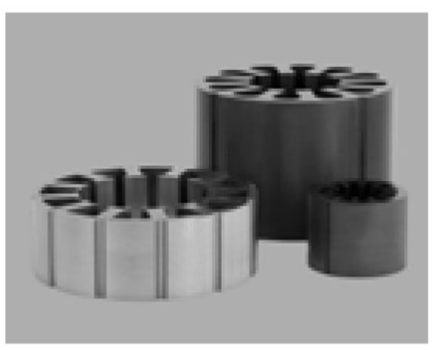
Adhesives



Bonding of permanent magnets

Securing of bolts and nuts motor housing assembling

Bonding of sheet metal packages, commutators and bearings



Bonding of electrical steel laminations

ANAEROBIC

4451
fast curing, high strength, NSF certified

4453
fast curing, temp. resistant, high strength, DVGW & NSF certific.

4920
Activator(solvent free)

ACRYLATE

1039 + 1090
no-mix, medium viscosity, very fast curing, impact resistant

1320
fast curing, high strength, low odour

1810
non-sag, high impact resistance, low odour, good bonding to metal, ferrite, glass, ceramic

EPOXY

7440
black, pasty, high tempera-tureresistance

DUAL CURING

2453
dual-cure, low viscosity, temperature resistand, high strenght

Encapsulants

Electrical Motor

Power Electronics

High-Voltage Batteries

Charging Stations

POLYURETHANE
CMR-FREEVERSIONSAVAILABLE

8503 + 8901
Thermal conductivity of 1.5 W/mK, low-viscosity, UL94-V0, medium hard-ness

8513 + 8973
Thermal conductivity of 2.6 W/mK, self-levelling, UL94-V0

8519 + 8973
Thermal conductivity of 3.5 W/mK, self-levelling, UL94-V0

GAPFILLER

8791 + 8991
1:1 mixing ratio, good flowability, 1.0 W/mK

8792 + 8992
1:1 mixing ratio, Bridges gaps, 2.0 W/mK

8793 + 8993
1:1 mixing ratio, easy to apply, 3,0W/mK

EPOXY

7500 + 7920
Thermal conductivity of 1.2 W/mK, self-levelling, good chemical resistance, cold curing

1K PASTE
CMR-FREE

8702
Thixotropic, non-drying, 2.0 W/mK, silicone-free

8704
High temperature resistan-ce, silicone-free, 3.5 W/mK

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Success Stories & Customer Benefits

Project: **Bonding of pocket magnet**

Product: **2453**

Benefit: Fixture time saving of 66 % due to very fast UV curing

Project: **Magnet bonding retarder**

Product: **1039 + 1090**

Benefit: First handling strength already after 30 seconds

Project: **Permanent magnet in motor housing**

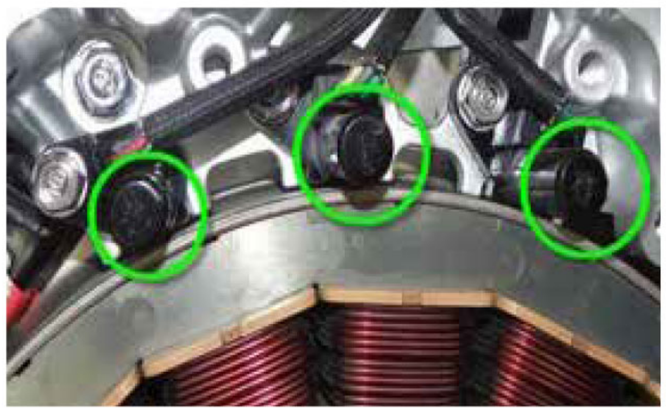
Product: **7440**

Benefit: Gap filling of 5 mm due to large magnets

Projekt: **Stator Encapsulation (Industrial Motor)**

Produkt: **7500 + 7920**

Nutzen: Increase of e-motor efficiency due to lower peak temperatures



Projekt: **Encapsulation of Rotor Positioning Sensor**

Produkt: **8500 + 8973**

Nutzen: Very good flow properties and low density despite high thermal conductivity

Projekt: **Battery casting of Accumulaor Machine**

Produkt: **8605 + 8973**

Nutzen: Improved thermal management during operation and charging phase

KISLING

+ Manufacturer of adhesives, sealants & encapsulants
+ >70 employees worldwide
+ >40 distributors in more than 25 countries
+ Revenue 2024: 25 Mio. CHF
+ >200 products, Swiss made

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BONDING +
SEALING +
ENCAPSULATION

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Next generation of adhesive bonded laminated cores

ADVANTAGES OF ADHESIVE STACKING TECHNIQUE

+ Enhanced geometrical and electromagnetic properties
+ Improved stacking factor due to thin adhesive layer
+ Reduced electrical losses
+ Reduction of eddy currents
+ Integration in punching process possible

CUSTOMER BENEFITS

+ Freely accessible technology for every producer of laminated cores – easy in-house realisation
+ Low investment due to possible integration of adhesive application unit into already existing production lines
+ Adhesive stacking technique meets the increasing requirements for the production of high-efficiency motors versus commonly used technologies
+ Increase of motor efficiency up to 3 %
+ Reduced scrap rate due to reliable part quality

Discover our new **Microsite E-Motor!**

www.e-motor-power.com

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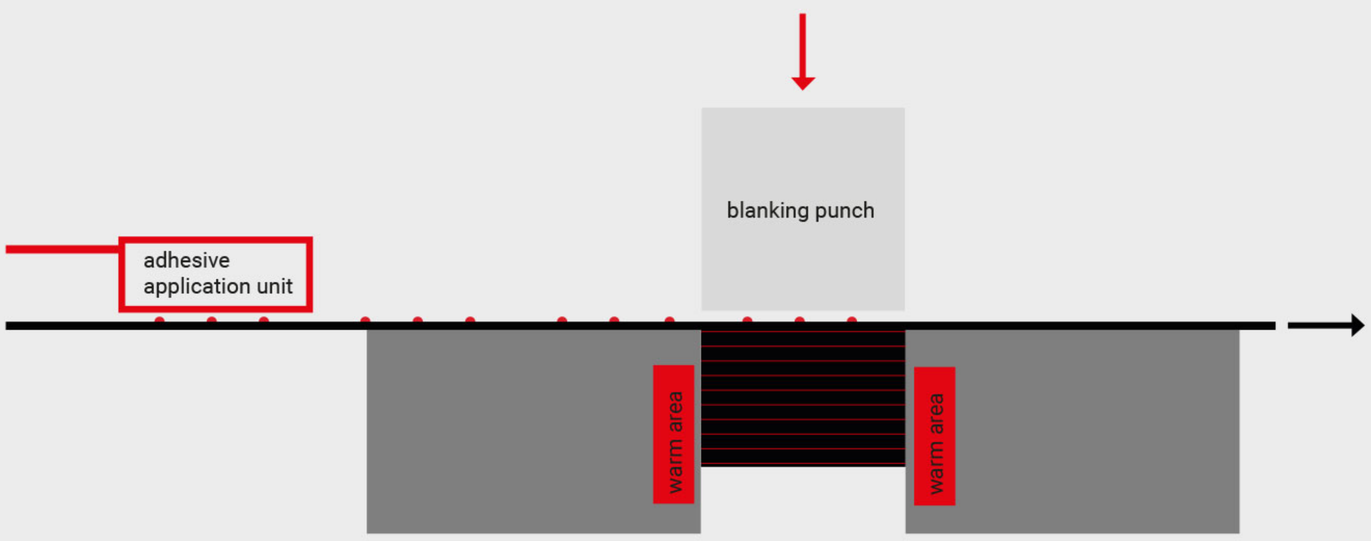
COMMONLY USED TECHNOLOGIES

Interlocking	Welding	Backlack	Adhesive Bonding
+ Since long time state of the art (well known) + Possibility of integrating stacks and packaging in the punching tool - Short circuit inevitable	+ Laser or gas-shielded metal welding - short circuits through weld seams - separate stacking and positio-ning necessary - Thermal distortion	+ No liquid chemicals in pro-duction + Already coated metal + High mechanical strength - Relative thick (4µ) layer of coating - Limited shelf life of coated metal - Slow/complex process	+ Enhanced geometrical and electromagnetic properties + Improved stacking factor due to thin adhesive layer + Reduced electrical losses + Reduction of eddy currents + Integration in punching process possible

PROCESS DESCRIPTION



1. In line, a sufficient number of tiny adhesive drops is applied to the coated steel strip.
2. Metal strip feeding to the blanking punch.
3. The metal laminations are punched out.
4. The growing stack is held by a choke system and passes through a moderately heated area.
5. After a short period of time the complete stack leaves the tool sufficiently bonded.

ADHESIVE PROPERTIES

Description	Specifications		
The low to medium viscosity products 2206 and 2124 are specially developed for reliable bonding of electrically insulated stator or rotor laminations into stacks. They are easy to dispense automatically. Curing can take place in a short time by increasing the temperature during the stamping process. 2124 can also be used in combination with the special solvent-based activators 2900 or 2901 to achieve fast curing at room temperature. The self-levelling, capillary flowing 2206 can only be cured thermally (≥ 100°C). Both adhesives lead to high-strength, slightly tough-elastic bonds that are also resistant to hot ATF oils.	**Productname**	2124	2206
	Chemical Base	Modified urethane acrylate	Modified urethane acrylate
	Color	Light Yellow	Light Yellow
	Viscosity at 25°C	300 – 500 mPa•s	55 – 85 mPa•s
	Tensile shear strengt according to DIN EN 1465 on steel	> 13 N/mm²	> 13 N/mm²
	Compression shear strength according to DIN EN ISO 10123 on steel	> 21 N/mm²	> 21 N/mm²
	Temperature range	-55°C to +175°C	-55°C to +175°C

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EMA Endüstriyel Metal Atölyesi

Airsis pressure pipeline

kalibo

DEPRAG

alkitronic

DUROFIX

AIMCO

Kisling

BAHCO

Nilfisk

3M

BOSCH

vacuuMac

OSAKA

ÇÖZÜMÜN İLK ADI

Mersinli 2823/1 No: 2/130 Konak / İzmir

Sipariş & Danışma Hattı

0549 449 3535

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pahaliyaalma.com

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