

**ELGi**<sup>®</sup>

Always Better.

# DOWNSTREAM FILTERS

The Reliable Filtration Solution



**AiRMATE**<sup>™</sup>  
AIR ACCESSORIES

CIN: L29120TZ1960PLC000351

[www.elgi.com](http://www.elgi.com)

21 - 6475 cfm | 0.58 - 183 m<sup>3</sup>/min



Always Better.

**ELGI EQUIPMENTS LIMITED** was founded in 1960 as a reciprocating air compressor and garage equipment manufacturing company. With continuous engineering improvements, investment in R&D and infrastructure, and technology partnerships, ELGi indigenized the development of rotary screw air compressors in the 1980s. Today, ELGi is one of the global leaders in the compressed air space, with an extensive range of innovative and technologically advanced compressed air solutions. ELGi does business in over 120 + countries while directly present in 26 countries.

Over the years, ELGi has earned worldwide accolades for designing customer-centric, compressed air solutions that are sustainable and help companies achieve their productivity goals while ensuring a lower total cost of ownership. ELGi's portfolio of 400+ products range from oil-lubricated, and oil-free rotary screw, centrifugal and reciprocating compressors to dryers, filters, and downstream accessories; ELGi has state-of-the-art manufacturing facilities in India, Italy, and the USA. ELGi's products serve a wide variety of applications across industries ranging from manufacturing, food & beverage, construction, mining, pharmaceuticals, and textiles.

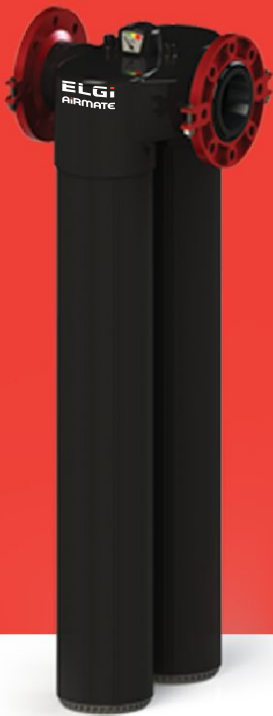
Screw Compressor elements are manufactured in-house using state-of-the-art machining centers for rotor grinding and machining castings of various sizes. ELGi's own  $\eta$ -V profile rotors ensure energy-efficient compressed air supply for all demanding applications. ELGi is one of the few companies capable of manufacturing a wide range of air ends and compressor packages in the world. ELGi's patent portfolio is a testament to the company's continuous research and innovation capability.

ELGi has also recognized the need to adopt a management philosophy that builds vertical excellence in each operating function and customer-centric horizontal excellence across the business, operations, and support functions. ELGi's commitment to quality, coupled with TQM excellence led ELGi to win the Deming Prize in 2019, becoming one of the first compressor manufacturers to do so in over 60 years.

Every ELGi product bears testament to its hallmarks of reliability and performance while meeting or exceeding industry-specific demands such as energy efficiency, cost-efficiency, ruggedness, zero oil tolerance, or air delivery precision.

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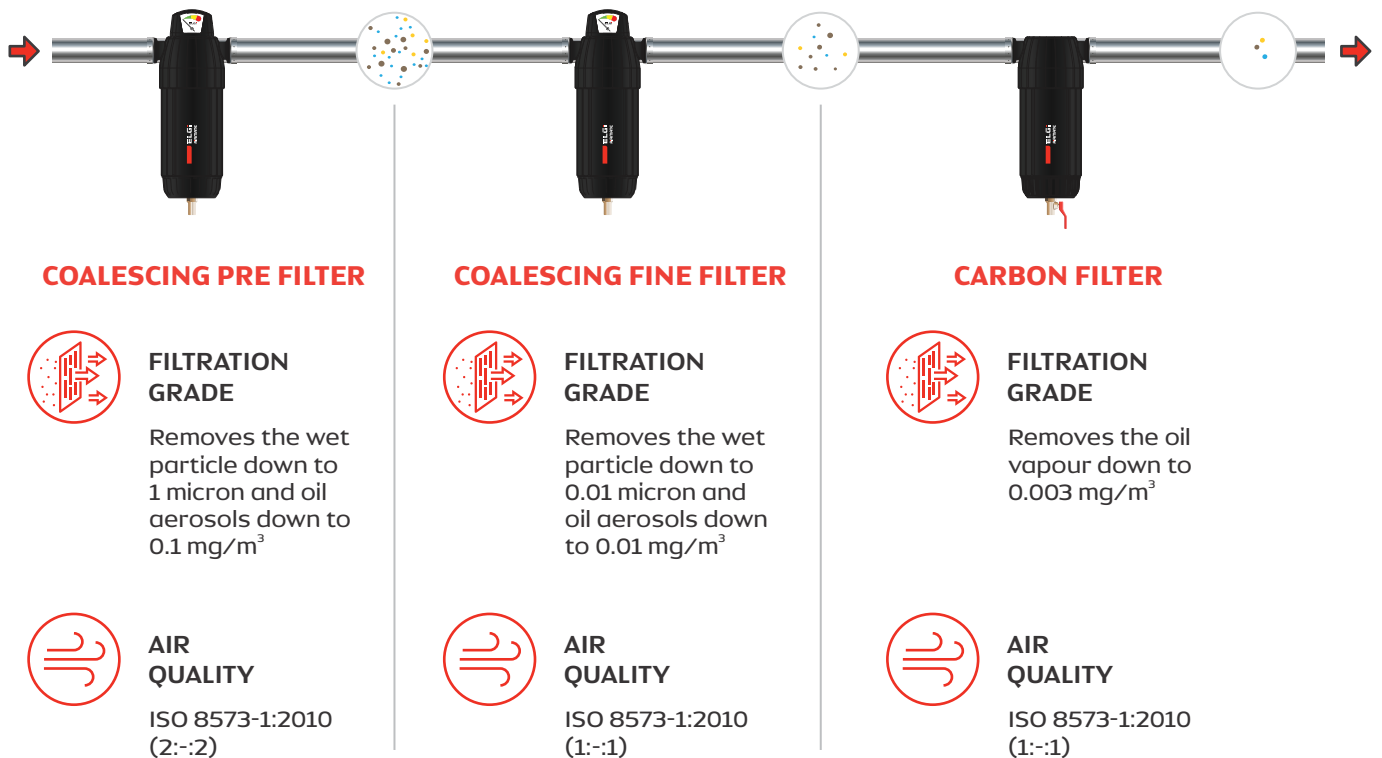
## DOWNSTREAM FILTERS: THE NEED AND ITS APPLICATION



The atmospheric air comprises moisture, particle contaminants, microorganisms, and gases. When this air gets compressed, the concentration of these elements increases by 6 to 10 times. However, when this atmospheric air gets compressed by an air compressor, other contaminants like oil and metal traces get added during the compression process. It is essential to remove these contaminants from the compressed air before being used for any application.

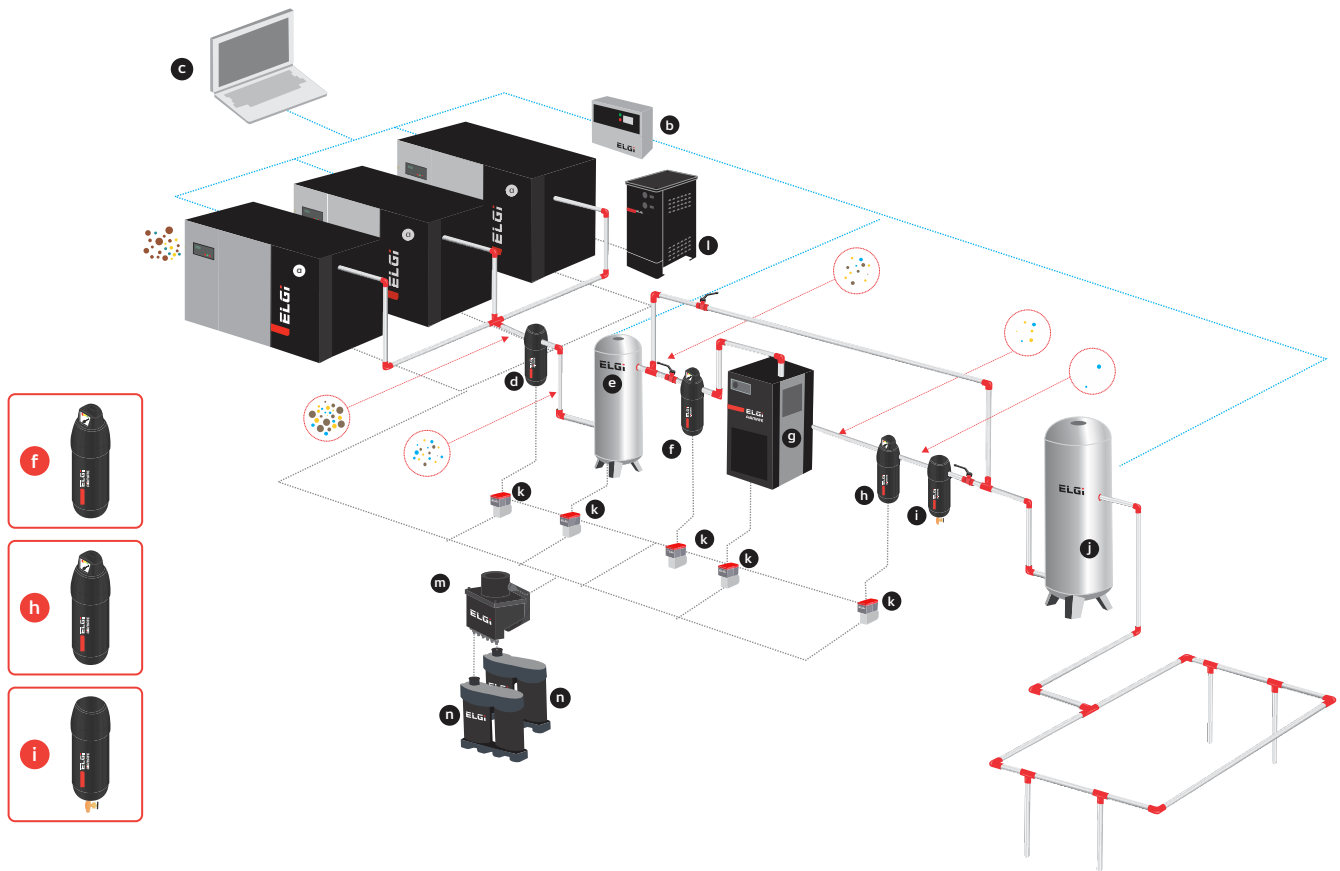
According to the International Standard, ISO 8573-1:2010, compressed air contaminants like particles, water, and oil are segregated as per purity classes. In this standard, microorganisms and other gases are not included. As a result, the air purity is indicated as [P, W, O] and is ordered as per the amount of particles, water, and oil.

### AIRMATE DOWNSTREAM FILTERS



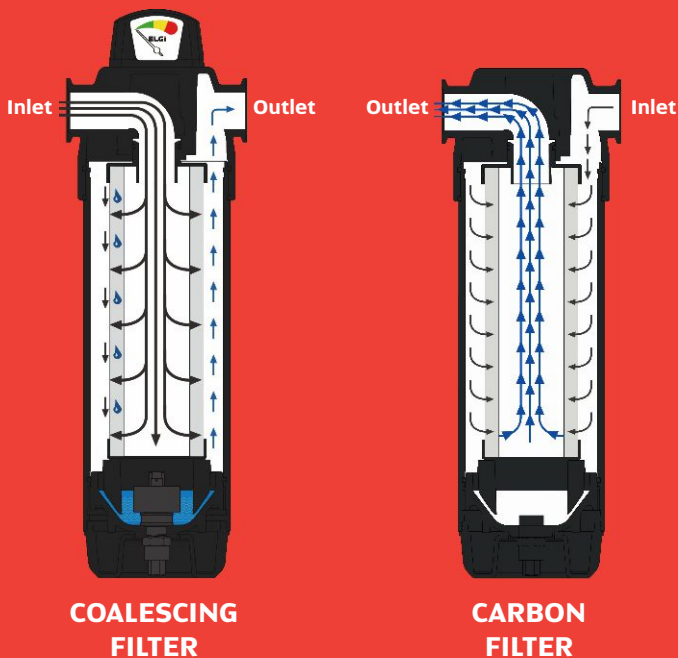
● Dust Particles ● Oil ● Moisture

## TYPICAL INSTALLATION OF COMPRESSED AIR SYSTEM



|                           |                                     |                              |                  |
|---------------------------|-------------------------------------|------------------------------|------------------|
| a. EG Series Compressor   | f. Airmate Filter - Pre Coalescing  | k. Drain Valve               | ● Dust Particles |
| b. UPTIME Manager         | g. EGRD Refrigerant Dryer           | l. Heat Recovery System      | ● Oil            |
| c. Remote-Central Control | h. Airmate Filter - Fine Coalescing | m. MAXI Distributor          | ● Moisture       |
| d. Moisture Separator     | i. Airmate Filter - Carbon          | n. EOS - Oil Water Separator |                  |
| e. Airmate Receiver wet   | j. Airmate Receiver Dry             |                              |                  |

## WORKING PRINCIPLE



1. Contaminated compressed air enters the filter through inlet port
2. Contaminated air is filtered while coming from inside to outside of filter element
3. Large droplets of condensate are collected by element and drained gravitationally
4. Collected moisture/water at the bottom of filter bowl is drained out of filter with the help of internal float drain
5. Filtered cleaner air is sent out of the filter through outlet port

Note: For Carbon filter, the flow of air is opposite i.e. inlet and outlet port would change. The contaminated air flows from outside to inside of the filter element, activated carbon absorbs the oil vapour and odor before passing the air through it

## FEATURES AND BENEFITS

### HIGH PERFORMING ELEMENT



- ⦿ High efficient micro glass nano fiber media delivers high filtration efficiency and better working temperatures
- ⦿ Durable element construction and drain layer ensures continued performance with optimal element change periods
- ⦿ Lowest pressure drop at rated capacity with next-gen elements

### ROBUST FILTER HOUSING



- ⦿ Best-in-its-class 10 years warranty for housing. Reliable and pure operation with best grade material that will not corrode and stay like new for its entire life

### DIFFERENTIAL PRESSURE GAUGE



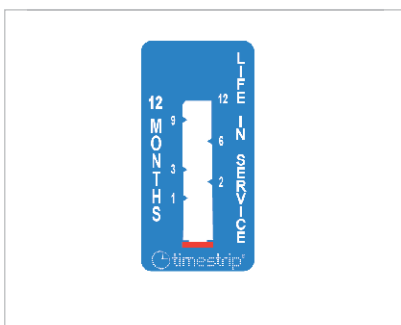
- ⦿ Three colored range on indicator helps in easy identification of filter element actual condition and planning the maintenance activity

### COMPACT AND SPACE SAVING



- ⦿ High capacity filters with dual filter housing reduces the space consumption and is compact compared to the fabricated filters

### SERVICE INDICATOR



- ⦿ Helps to alert the user for on time maintenance

### INTERNAL FLOAT DRAIN



- ⦿ Removes maximum condensate from the system with minimal air loss and saves the element from being soaked, avoiding moisture/water carryover to the downstream equipment

### SERVICEABILITY



- ⊙ Zero clearance type filters design helps in easy replacement of filter element
- ⊙ Lock indicator ensure the complete housing closure

### SAFETY AND CERTIFICATION



- ⊙ Filters are CE, AS, CRN, ASME certified and made under ISO quality standards
- ⊙ Filter elements are iuta verified for performance

## ADD-ON OPTIONS

### ZERO LOSS DRAINS



- ⊙ Only condensate is drained with external level sensing drain and there is no air loss (energy saving), both mechanical and electronic drain options available

### WALL MOUNTING KIT



- ⊙ Wall mounting kit are available to connect the filters to the wall easily.

### CLAMP

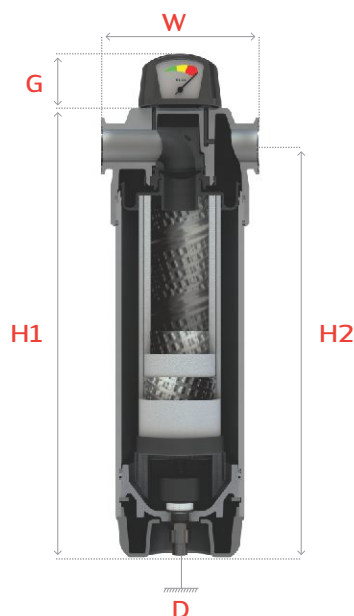


- ⊙ Connect two filters together easily without any pipes

## TECHNICAL SPECIFICATIONS

| Model<br>(P-F-C) | End<br>connections* | Flow rate<br>@7 barg<br>(100 psig) |                     | Product Dimension |       |     |       |      |      |    |      |      |       | Net Weight<br>(Dry condition) |      | Max.<br>operating<br>pressure |      |
|------------------|---------------------|------------------------------------|---------------------|-------------------|-------|-----|-------|------|------|----|------|------|-------|-------------------------------|------|-------------------------------|------|
|                  |                     |                                    |                     | H1                |       | W   |       | G    |      | D  |      | H2   |       |                               |      |                               |      |
|                  |                     | cfm                                | m <sup>3</sup> /min | mm                | inch  | mm  | inch  | mm   | inch | mm | inch | mm   | inch  | kg                            | lbs  | barg                          | psig |
| AF 0021          | 3/8"                | 21                                 | 0.59                | 214               | 8.43  | 90  | 3.54  | 36.5 | 1.44 | 19 | 0.75 | 192  | 7.56  | 1.1                           | 2.3  | 20                            | 290  |
| AF 0041          | 1/2"                | 41                                 | 1.16                | 273               | 10.75 | 128 | 5.04  | 45   | 1.77 | 32 | 1.26 | 250  | 9.82  | 2.3                           | 5.1  | 20                            | 290  |
| AF 0059          | 1/2"                | 59                                 | 1.67                | 303               | 11.91 | 128 | 5.04  | 45   | 1.77 | 32 | 1.26 | 279  | 10.98 | 2.0                           | 4.4  | 20                            | 290  |
| AF 0074          | 1/2"                | 74                                 | 2.10                | 343               | 13.50 | 128 | 5.04  | 45   | 1.77 | 32 | 1.26 | 320  | 12.58 | 2.7                           | 5.9  | 20                            | 290  |
| AF 0088          | 1"                  | 88                                 | 2.49                | 369               | 14.53 | 140 | 5.51  | 45   | 1.77 | 31 | 1.22 | 335  | 13.17 | 3.3                           | 7.3  | 20                            | 290  |
| AF 0132          | 1"                  | 132                                | 3.74                | 398               | 15.67 | 140 | 5.51  | 45   | 1.77 | 31 | 1.22 | 365  | 14.35 | 3.2                           | 7.1  | 20                            | 290  |
| AF 0177          | 1 1/4"              | 177                                | 5.01                | 474               | 18.66 | 140 | 5.51  | 45   | 1.77 | 31 | 1.22 | 433  | 17.03 | 4.8                           | 10.5 | 20                            | 290  |
| AF 0235          | 1 1/4"              | 235                                | 6.65                | 567               | 22.20 | 140 | 5.51  | 45   | 1.77 | 31 | 1.22 | 522  | 20.55 | 5.6                           | 12.3 | 20                            | 290  |
| AF 0294          | 1 1/2"              | 294                                | 8.33                | 511               | 20.12 | 151 | 5.94  | 45   | 1.77 | 25 | 0.98 | 465  | 18.29 | 5.5                           | 12.0 | 20                            | 290  |
| AF 0420          | 1 1/2"              | 420                                | 11.89               | 696               | 27.40 | 151 | 5.94  | 45   | 1.77 | 25 | 0.98 | 650  | 25.57 | 6.9                           | 15.1 | 20                            | 290  |
| AF 0520          | 1 1/2"              | 520                                | 14.72               | 851               | 33.50 | 151 | 5.94  | 45   | 1.77 | 25 | 0.98 | 805  | 31.67 | 8.0                           | 17.6 | 20                            | 290  |
| AF 0620          | 1 1/2"              | 620                                | 17.56               | 976               | 38.43 | 151 | 5.94  | 45   | 1.77 | 25 | 0.98 | 930  | 36.59 | 9.2                           | 20.2 | 20                            | 290  |
| AF 0912          | 2 1/2"              | 912                                | 25.82               | 707               | 27.83 | 240 | 9.45  | 45   | 1.77 | 25 | 0.98 | 660  | 25.96 | 15.8                          | 34.8 | 20                            | 290  |
| AF 1177          | 3"                  | 1177                               | 33.33               | 862               | 33.93 | 240 | 9.45  | 45   | 1.77 | 25 | 0.98 | 814  | 32.06 | 18.5                          | 40.7 | 20                            | 290  |
| AF 1589          | 3"                  | 1589                               | 45.00               | 987               | 38.35 | 240 | 9.45  | 45   | 1.77 | 25 | 0.98 | 939  | 36.98 | 20.6                          | 45.3 | 20                            | 290  |
| AF 2001          | DN100 / 4"          | 2001                               | 56.66               | 871               | 34.29 | 360 | 14.17 | 45   | 1.77 | 30 | 1.18 | 810  | 31.89 | 28.9                          | 63.6 | 16                            | 150  |
| AF 3178          | DN100 / 4"          | 3178                               | 89.99               | 1070              | 42.13 | 360 | 14.17 | 45   | 1.77 | 30 | 1.18 | 1009 | 39.72 | 33.8                          | 74.4 | 16                            | 150  |
| AF 6475          | DN200 / 8"          | 6475                               | 183.35              | 1579              | 62.16 | 786 | 30.94 | -    | -    | -  | -    | -    | -     | 375                           | 825  | 14                            | 203  |

- \*NPT & BSP end connections available, for flange filters ANSI/ DIN standard connections available
- Differential pressure gauge and internal float drain are standard only for pre and fine filters
- For any product selection outside standard catalogue, contact sales
- For flow rate other than 7barg(100psig), use correction factor from below table



| Specifications  | Coalescing pre                               | Coalescing fine     | Activated Carbon   |
|---|--|---------------------|--------------------|
| Filter type   | P  | F                   | C                  |
| Particle removal (micron)                                   | 1  | 0.1                 | -                  |
| Max. oil carry over (mg/m <sup>3</sup> )                    | 0.1  | 0.01                | 0.003              |
| Min. recommended temperature                                | 3°C (38°F)                                   |                     |                    |
| Max. recommended temperature                                | 80 °C (176 °F)                               |                     | 50 °C (122 °F)     |
| Initial dry pressure loss                                   | 80 mbar (1.16 psi)                           | 100 mbar (1.45 psi) | 80 mbar (1.16 psi) |
| Initial wet pressure loss                                   | 100 mbar (1.45 psi)                          | 165 mbar (2.39 psi) | -                  |
| Pressure loss for element change                            | 700 mbar (10.15 psi)                         |                     |                    |
| Recommended replacement of elements (Whichever is earliest) | 12 months or when the DP Gauge indicates red |                     | 6 months           |

- Filter type C will not remove certain gases and is not recommended for medical air application usage without using suitable medical grade filter, the air inlet temperature should be 25°C ( 77°F ) for filtration of 0.003 mg/m<sup>3</sup> quality oil in the air.
- Maximum oil carry over for Pre and Fine filter at 21°C (70°F)

## CORRECTION FACTOR

For flow rates at other pressure, apply the below correction factor

| Inlet Air Pressure - F1 | barg | 1   | 3    | 5    | 7   | 9    | 11   | 13   | 15   | 16  | 18   | 20   |
|-------------------------|------|-----|------|------|-----|------|------|------|------|-----|------|------|
|                         | psig | 15  | 44   | 73   | 100 | 131  | 160  | 189  | 218  | 232 | 261  | 290  |
| Correction factor       |      | 0.5 | 0.71 | 0.87 | 1   | 1.12 | 1.22 | 1.32 | 1.44 | 1.5 | 1.57 | 1.63 |

How to calculate filter minimum nominal capacity to meet rated condition: Actual rated capacity/F1

### EXAMPLE (1)

Inlet air flow to filter - 480 cfm

Inlet air pressure - 10 barg

Filter cfm capacity required = 480/1.17 = 410 cfm

Next model available to the above calculated cfm to be selected, i.e. AF 0420

### EXAMPLE (2)

Inlet air flow to filter - 10 m<sup>3</sup>/min

Inlet air pressure - 100 psig

Filter m<sup>3</sup>/min capacity required = 10/(1) = 10 m<sup>3</sup>/min

Next model available to the above calculated m<sup>3</sup>/min to be selected, i.e. AF 0420



**DEMING PRIZE  
2019**

ELGi is the first, globally established industrial air compressor manufacturer to have won the Deming Prize\*  
\*In over six decades

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