INSTALLATION, OPERATING AND MAINTENANCE MANUAL

UNIWAT® VF701

CONCENTRIC BUTTERFLY VALVES

Contents

1. GENERAL INFORMATION ON THE MANUAL

- This Manual provides information on safely using the product, being binding for preservation, storage, handling, transport, installation, commissioning, operation, maintenance, repair and disposal, and must be thoroughly observed at any step.
- Please contact the supplier or the manufacturer in case of issues which cannot be solved by reference to this Manual.
- Any deviation from this Manual and sound engineering practice or modification on the product shall be notified to manufacturer for advice or approval.
- In addition, regional safety requirements must be always applied and observed at any step.
- All the work related to the product must be carried out, supervised and inspected by specialist personnel. It is the owner's responsibility to define areas of responsibility and competence and to ensure the proper monitoring.
- This Manual is in accordance with Directive 2014/68/EU on Pressure Equipment (PED) and Machinery Directive 2006/42/EC.
- For ATEX applications, please refer to ATEX Specific instructions.
- The manufacturer reserves the right to make technical modifications at any time.

2. NOTES ON POSSIBLE DANGERS

2.1 Significance of symbols

ATTENTION!
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Warning of general danger.

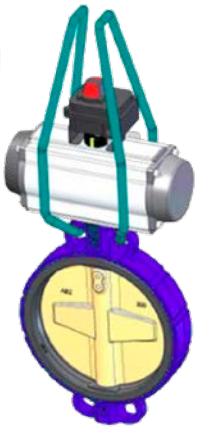
2.2 Explanatory notes on safety information

In this Manual dangers, risks and items of safety information are highlighted to attract special attention.
Information marked with the symbol above describes practices, which if fail to comply with, can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.
The rest of information not specifically emphasized in this Manual, along with Data Sheet and product marking, must also be observed and complied with for safely using the product.

3. PRESERVATION, STORAGE, HANDLING & TRANSPORT

ATTENTION!

- Protect against external force (impacts, vibrations, etc.)
- Allow only skilled personnel; suitable handling and lifting equipment must be used. See Data Sheet for weights or consult manufacturer.
- Always use suitable protection equipment, and minimize the use of human body force at any step to avoid injuries.
- During handling make sure that operating device is well attached to the valve or removed to avoid danger of detachment. Product parts such as hand levers, handwheels or actuators must not be used to take up external forces that they are not designed for: e.g. do not use them as climbing aids, or as connecting points for lifting gear, etc.
- There is a risk of body member (hand, finger, arm…) crushed against any other solid element (wall, pipe, floor, etc.) during handling. Take this into account and handle with care.
- There is a risk of body member trapped between valve body and disc during operation of the valve. Make sure no operation / supply to actuator disconnected if access to the interior of the valve.
- There is a risk of body member injury in case there is any exposed moving part between valve and actuator (special arrangements). Take appropriate measures and set warning notes when required.
- Check correct position of nameplate and handle with care to avoid personnel cuttings.



Correct handling

- Use proper packing for transportation.
- Keep storage protection before installation.
- Keep the valves with disc slightly open without coming out from the valve profile.
- The valve surface is protected by an epoxy paint. In order to prevent damage, corrosion or rust on the surface, avoid extreme temperatures (keep at 5ºC to 50ºC), avoid high environmental humidity or corrosive environment. Keep the valves away from direct sunlight, dust, flames or rain. Protect rubbers also against UV light. Do not pile up excessive weight. In case of severe bumping inspect the material for any damage and replace if necessary.

4. DESCRIPTION

4.1 General Description / Area of Application

Concentric Resilient Butterfly Valves is a rotation motion bidirectional valve, typically used to stop a fluid. It has also a certain throttling capability to regulate a fluid flowing through a section of pipe.
A flat circular plate (disc) is positioned in the centre of the pipe. The plate has a rod (shaft) through it connected to an actuator device on the outside of the valve.
Valve diagram with parts can be seen at the last page of the Manual.

4.2 Operating principles

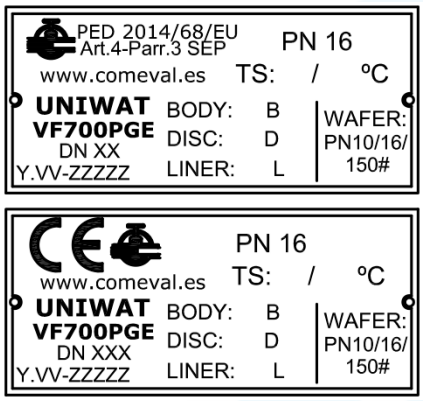
- The valve closes by turning the stem clockwise and opens anticlockwise, with a rotation of 90º. It can be operated by lever, worm gear or actuator. In case of actuator follow also its Manual.
- The lever system is lockable in different positions, with visual position indicator from 0º (valve closed, lever perpendicular to the pipe) to 90º (valve open, lever parallel to the pipe). The lever can be operated by pressing its trigger to release it from the notch plate, and must be blocked again in its plate once reached the desired position.
- The worm gear is actuated by its handwheel, closing clockwise. It has a disc on top to indicate the position from 'OPEN' to 'SHUT' / 'CLOSE'. See chapter 6 for adjustment of gear in case of need. Consult the manufacturer if a change of the actuation device is required.

4.3 Technical data - remarks

For data such as main features, duties/limits of use, dimensions, weights, etc. refer also to Data Sheet.

4.4 Marking/nameplate

Nameplate description of the valve:



Mark	Description
CE	CE-Marking
	Manufacturer logo
www.comeval.es	Website of manufacturer
UNIWAT®	Brand
VF701PGE	Valve code* (VF750PIE, VF7U0RGE...)
DN	Nominal Diameter
Y.VV	Manufacturing year (Y.19 = 2019)
ZZZZZ-N	Batch / Serial no.
PN	Nominal pressure (max. pressure in bar)

Mark	Description
TS	Min. / max. temperature
B	Body material (JL1040, JS1030…)
D	Disc material (JS1030, CF8M…)
L	Wedge lining material (EPDM, NBR…)
W	Connection (PN10, PN16, ...)
PED 2014/68/EU	Directive 2014/68/EU
SEP	Sound Engineering Practice
Tab.	Applicable tables acc. to PED 2014/68/EU Annex II

** See coding system on Data Sheet*

4.5 CE marking. Intended use acc. to PED

PS	DN ≤50	65	100	150	200	250	300-350	400-500	600-1200
2,5									
6									
10									
13									
16									

Out of scope

Low pressure steam & neutral gases of group 2**, acc. to Directive 2014/68/EU, Annex II table 7 up to category I

PS	DN ≤125	150	200	300	800	900-1200
10						
13						
16						

Out of scope

Liquids of group 1** compatible with materials of construction, acc. to Directive 2014/68/EU, Annex II table 8 up to category I

PS	DN ≤300	350-1200
10		
16		

Liquids of group 2** compatible with materials of construction, acc. to Directive 2014/68/EU, Annex II table 9 up to category I

*** Classification of fluids (group 1 or 2) acc. to Directive 2014/68/EU, Article 13*

Check valve selection, material compatibility, pressure and temperature limits and other essential parameters. Ensure proper safety devices/measures are implemented to prevent exceeding intended use of the product. Contact the manufacturer for advice in case of pressure tests exceeding the intended use. Refer to Data Sheet and consult the manufacturer for further information.

5. INSTALLATION

5.1 General remarks on installation

The following points should be taken into account in addition to the general principles governing installation work:

ATTENTION!

- Before installation, make sure previous chapters are thoroughly followed.
- Ensure safe access and working conditions for proper performance.
- Only operate the valve while observing all the safety measures.
- Remove covers or any other remaining packing/storage protection if present.
- Valves are to be installed between counterflanges.
- Lay pipelines such that damaging transverse, bending and torsional forces are avoided.
- Protect valves from dirt during construction work. The interior of the valve and the pipeline must be free of foreign particles.
- Protect the valve soft parts from heating caused by welding works at the plant during commissioning.
- Avoid mechanical damage to the seat and disc. We recommend the use of dismantling joints to ease the assembly and disassembly of valves in pipelines.
- These valves are generally bidirectional. Stem preferable position is horizontal, with the lower edge of the disc opening with the direction of the flow. This prevents deposition of slurries and contamination in the shaft sealing area. Small size valves in clean systems can be also installed with the stem in vertical position, never downwards to avoid that any leakage could damage the actuator.
- When installing the valve, there is a crushing hazard between valve and pipe system. Mind the hands to avoid it.
- Avoid gradients, excessive rotation and pipe misalignment that could cause pipe stress once installed in the pipe work. Ensure that contact faces of valve and counterflanges are in good condition and free from impurities. Counterflanges should fit smoothly. Make sure that the gap between the 2 counterflanges has enough clearance to fit the valve without damaging the rubber faces (carefully retract slightly counterflanges if necessary), but the gap shall not be larger than necessary to limit additional pipe load.
- To protect damage of the valve disc, be sure that the clearance of the adjacent counterflanges and pipe is enough for the disc in full open position. Otherwise please use extension pipe.
- Counterflanges according to EN 1092-1 PN10 and/or PN16, and/or ANSI B16.5 ASA150 welding neck type are suitable depending on valve type (see valve label). For installation between other flange types please consult us. Slip-on flanges have a larger inside diameter, requiring a perfect centering and hindering the tightness between valve and counterflanges, even affecting to stem tightness; we do not recommend this type of counterflanges.
- Tightness gaskets or grease are not required between the valve and the pipe counterflanges. The valve rubber facing is used for this purpose.
- It is very important to ensure the correct centring of the valve between the counterflanges. Once centered, tighten the union bolts slightly. Fully open the valve. Tighten the union bolts diagonally, gradually and uniformly.
- Do not exceed the maximum tightening torque values given in this table just as extreme limit:

Bolt Size	M16	M20	M24	M27	M33
Max Torque (Nm)	150	270	540	730	1250

- An excessive or irregular tightening onto the rubber facing, or tightening with the valve not correctly centered, could cause damages in the rubber leading to further leakage through the union or even through the stem.
- Tightening the valve in close position causes sleeve deformation, torque increase and leakage.
- End of line position:
- For end-of-line position use lug type or flanged butterfly valve. Do not use wafer type butterfly valves for such purpose.
- If a valve at end-of-line position has to be open under pressure, do it carefully since the fluid splashes at high velocity, and mind your hands when closing.
- Use an additional blind flange (specially in the event of dangerous fluids) and make sure that the valve is blocked in closed position during normal service.
- When the valve is operated, there is a crushing hazard between the disc and the body. Ensure the valve is not under operation in case hands are introduced inside the valve.
- ACTUATORS: If the valve requires pneumatic, electric or hydraulic actuator, separate actuator Manual shall be also followed. To avoid unnecessary stress and risk of valve break, consider the weight and the relative position of actuator to evaluate its support. Make sure that the actuator is suitable for service particular requirements, valve adaptability, function needed, adequate torque for the valve, adequate speed, need for limit switches, etc. Contact our Technical Department for advice. In case of actuator mounted, disconnect the energy supply before starting work.

5.2 Assembling additional modules

Optional accessories (limit switches, extensions, etc.) that are supplied with valves must be fitted as required for their functions as shown in the system plan.

5.3 Requirements at the place of installation

- Aggressive environmental conditions may reduce the life span of the product. Consider special construction/protective measures in such a case.
- Consider the interaction between the system and the equipment. Foresee elements to absorb vibrations, pipe dilatations, guides, anchoring and proper support according to the weight of the components.
- Leave as much distance as possible after pumps, elbows, reducers, etc. When too close, valve stem preferable position is vertical
- The system and operation protocol should be conceived in such a way to avoid high velocities and cavitation. Prevent pulsing flow or water hammers, which are very harmful for valves and the rest of the components.
- Flooding of the product is not recommended.
- Allow enough space for valve installation, operation and maintenance.
- It is recommended to install a proper sized mesh strainer upstream the valve in order to protect seating surfaces from abrasion or erosion that could lead to seat leakage.
- Planners / construction companies or the owner are responsible for positioning and installing products.

6. COMMISSIONING & OPERATION

ATTENTION!

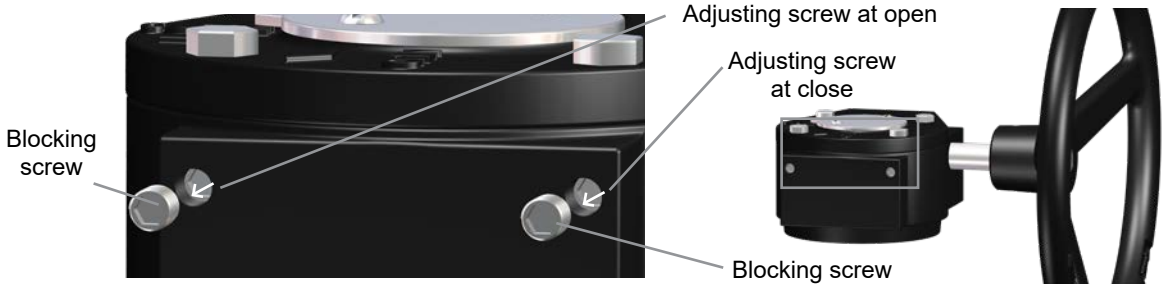
- Before commissioning the valve, check the material, pressure, temperature and other essential parameters. Always use the product within the scope of intended service and operating duties.
- Before commissioning, make sure previous chapters are thoroughly followed.
- Regional safety instructions should be adhered to.
- It is essential to flush the pipe system thoroughly to eliminate all the particles and impurities which could remain in the pipes and particularly welding residue, chips, tool remains, etc. that could damage the equipment during start- up. Ensure that during cleaning of the pipe system, any chemicals used and temperature are compatible with the valve construction.
- Temperatures above 50ºC or below 0ºC may cause personnel injuries if valves are touched.
- Leakage of media through valve stem, between counterflanges or at closing (end of pipeline) may also cause scalding, health harm, pollution, fire or damage to other parts of the installation depending on the media.
Use suitable protection equipment when approaching the valve, ensure that the corresponding warning signs are displayed on the valve or surrounding area, and/or isolate the equipment in case of danger.
- Do not pressurize if the valve does not have operating device. Butterfly valves are not self-locking.
- Before commissioning a new plant or restarting it after repairs or modification, always ensure that:
- All work has been completed correctly.
- The valve is in the correct position for its function.
- Safety devices/measures have been implemented.

- Ensure valve surface is in good condition and retouch coating protection when needed.
- Valve operation, filling, warming-up and starting-up shall be gradual so as to avoid any inadmissible stress.
- Check for tightness in valve connections and stem sealing. Retighten flange bolts crosswise and gradually if necessary until leakage elimination (never retighten with the valve fully closed!). If leakage persists, correct alignment and centring of the valve should be checked, and surfaces should be thoroughly cleaned. If contact surfaces are irreversibly damaged replace them. If valve leaks through the stem please contact the manufacturer for advice.
- Once the valve installed, make an initial opening and closing operation to check its proper operability, without additional tools.
- We recommend control operation in the range of 20º to 75º disc open angle only. Leaving the disc near to closed position can lead to premature wear
- In case of risk of media freezing inside the valve, take due measures to avoid it.

For worm gear adjustment:

ATTENTION!

- Worm gear has allen screws to adjust the end positions. For each side, there is a blocking screw on top and adjusting screw at bottom. To have access to adjusting screws, remove first the blocking screws on top of them. The one at left side is to adjust the open position. The one at right side is to adjust the closed position. By loosening the adjusting screw, you allow further turning of the valve.Valves delivered with assembled worm gear are already adjusted at factory. A bad adjustment of these screws could lead to valve wrong function.



7. CARE AND MAINTENANCE

The operator must define maintenance and maintenance-intervals to meet requirements.
- Check for body, seat and connections tightness, and valve smooth operation without additional tools.

ATTENTION!

- In the event of infrequent use, operate the valve as frequently as possible to avoid deposits of dirt and valve blocking.
- Before disassembling the valve, note chapters 3, 10 & 12.
- When using the valve as an end seal, the employers' liability insurance association specifies the use of a safety precaution such as a plug-in disc, blind flange. Before starting maintenance work on an end valve with a free stem end, you must mount a blind flange. With a medium jet that freely exists, you must secure the exit area.
- When the valve is operated, there is a crushing hazard between the disc and the seat. Ensure the valve is not under operation in case hands are introduced inside the valve.
- Only carry out maintenance work in the pipework when the valve has been secured from operation (in case of actuator, ensure it has been disconnected from the mains supply and secured from reactivation).
- Check the valve surface inside and outside and retouch coating protection when needed. If advanced corrosion or erosion is observed, double check service and valve features and replace the valve properly.
- A butterfly valve is not self-locking, so that the operating device (lever, gear or actuator) should only be disassembled after pressure release.

- Valve rubber seats are replaceable in most of UNIWAT® range. However, given the reasonably low cost of the entire valve thanks to the serial and bulk production, sometimes it is not economically wise to replace them. Should seats or stem seal are to be replaced, please get in touch with our specialised personnel for technical assistance.
After any maintenance work please refer to chapters 5 and 6 for installation / commissioning.

Recommended Spare parts:
Use only original spare parts.
Type and number of each spare part to be stored according to many factors: service level, valves quantity, etc. Spare seats, stem seals and discs can be supplied as spare parts depending on models and sizes. In many cases a good choice is to keep complete valves as spare part.

8. TROUBLESHOOTING

In the event of malfunction or faulty operating performance, check that the installation and adjustment work has been carried out and completed in accordance with this Manual.

ATTENTION!

- It is essential that the safety regulations are observed when identifying faults.

9. TROUBLESHOOTING TABLE

ATTENTION!

- Read the complete Manual before carrying out installation and repair work.
- Read chapter 6 before recommissioning.

FAULT	POSSIBLE CAUSE	CORRECTING MEASURES
No flow Not enough flow	Valve closed or partially closed	Check valve position
	Valve protections / packing not removed	Remove protections
	Pipe system or strainer clogged	Check and clean system
Atmospheric leakage through the stem	Counterflanges tightening not uniform or not sufficient, valve not properly centered or not well aligned pipe	Revise assembly and tightening, dismount and mount back properly if needed
	Stem seals or stem damaged or worn down	Revise and replace if needed
	Excessive pressure or temperature, fluid not compatible	Revise working conditions
Leakage between body and counterflanges	Counterflanges tightening not uniform or not sufficient, valve not properly centered or not well aligned pipe	Revise assembly and tightening, dismount and mount back properly if needed
	Counterflanges or rubber lining face dirty, scratched or damaged	Dismount the valve from pipeline, clean, correct damages or replace parts
	Counterflanges type is not well suitable (example: slip-on flanges)	Revise counterflanges type

FAULT	POSSIBLE CAUSE	CORRECTING MEASURES
Difficult to operate or blocked / not able to achieve full closing / not able to open	Wrong rotary movement operation	Operate rightly. Clockwise to close
	Excesssive differential pressure, high turbulences, working conditions beyond allowable limits	Check working conditions and system
	Rubber damaged, swollen, hardened or aged, not compatible fluid	Replace by correct valve
	Disc corroded or damaged by cavitation or impurities	
	Counterflanges tightening with valve disc in closed position, causing a protusion in the sealing area	Replace the seat or the valve
	Impurities trapped between disc and seat	Open and close the valve under pressure to sweep the dirt trapped Clean the system and set a strainer upstream of the valve Repair or replace the valve if needed
	Mechanical stop of the worm gear at closing not well adjusted.	Adjust it according to chaper 6
Valve body broken	Assembly bolts with counterflanges has been wrongly tightened or counterflanges are misaligned or with too much gap	Revise installation and tightening according to this Manual
	Wafer valve installed at the end of a pipeline	Replace by lug or double flange type
	Working parameters beyond allowable limits	Replace by suitable valve

Technical support always available through our website www.comeval.es or your local distributor.

10. DISMANTLING THE VALVE

ATTENTION!

The following points must be observed:
- Pressureless pipe system.
- Medium must be cool.
- Plant must be drained.
- Note chapter 3 for proper handling and lifting.
- Additionally, in case of toxic, corrosive, flammable or caustic media:
- Purge pipe system carefully.
- Use proper protection equipment to avoid health harm.
- Adopt proper actions to avoid pollution of the environment.

11. GOODS RETURN & DISPOSAL

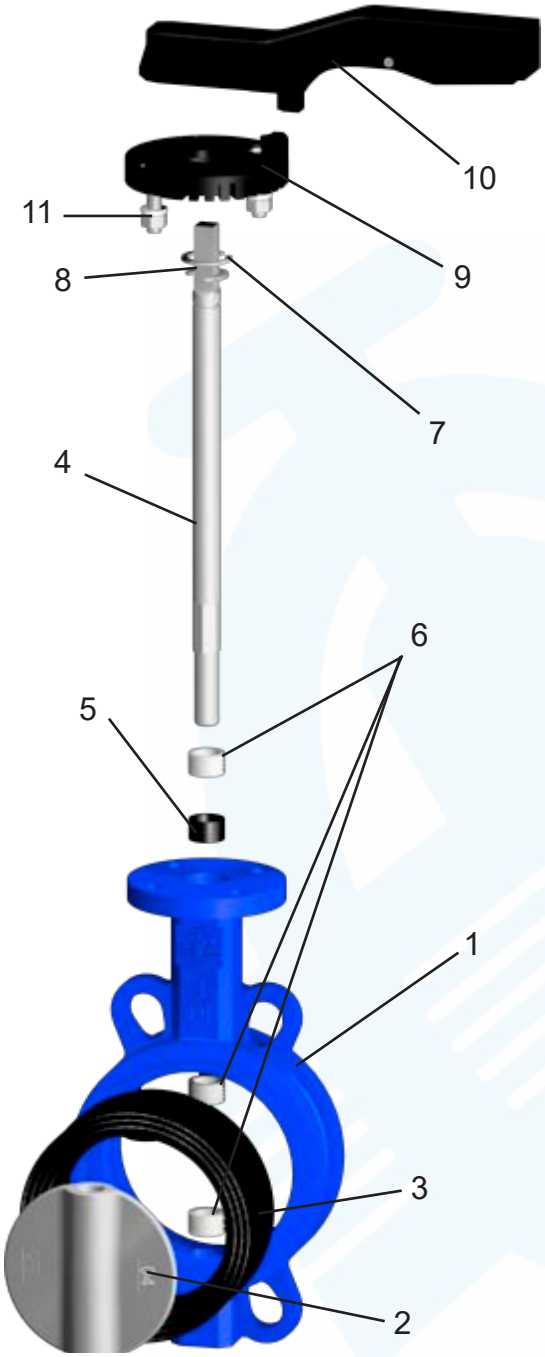
- For any returned goods, the issuing company must provide information in written on any hazards and the precaution in case of potentially polluting or harmful residues, or any mechanical damage that could present a health, safety or environmental risk, as enforced by EU Health, Safety and Environment Law, including the Safety Data Sheet of the substances identified as potentially hazardous.
- Valves are recyclable and not expected hazard to the environment, with the exception of soft parts (PTFE and rubber compounds) that should be disposed separately only by approved procedure, and no incineration is permitted.

12. WARRANTY / GUARANTEE

- The extent and period of warranty cover are specified in the “General Sales Terms” of COMEVAL VALVE SYSTEMS valid at the time of delivery or, by way of departure, in the contract of sale itself.
- We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.
- No warranty claims are accepted for any damage caused as the result of incorrect handling or disregard of this Manual, Data Sheet and relevant regulations.
- This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.
- Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.
- No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.
- The warranty shall not cover maintenance work.
- Our guarantee coverage does not cover for any commissioning, maintenance or installation of the product or external parts.
- Our guarantee does not cover products proved to have been tampered with or faulted by material wear and tear.
- The Purchaser is responsible for checking that the incoming product is received in good condition and conforms to the ordered specifications. In case of damage caused during transit it is necessary to immediately complain to the carrier within 24 hours. After this time carriers could not assume the derived costs. In case of any deviation in relation to order specifications, please contact us.

13. PARTS LIST

VF701



Nº	Part
01	Body
02	Disc
03	Liner
04	Stem
05	Sealing lip
06	Bushings
07	Washer
08	Circlip
09	Notch plate
10	Hand lever
11	Bolts and nuts

14. ANNEXES

14.1 Declaration of Conformity - DC02EN
14.2 Data Sheet - DS02

Updated documents on www.comeval.es

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