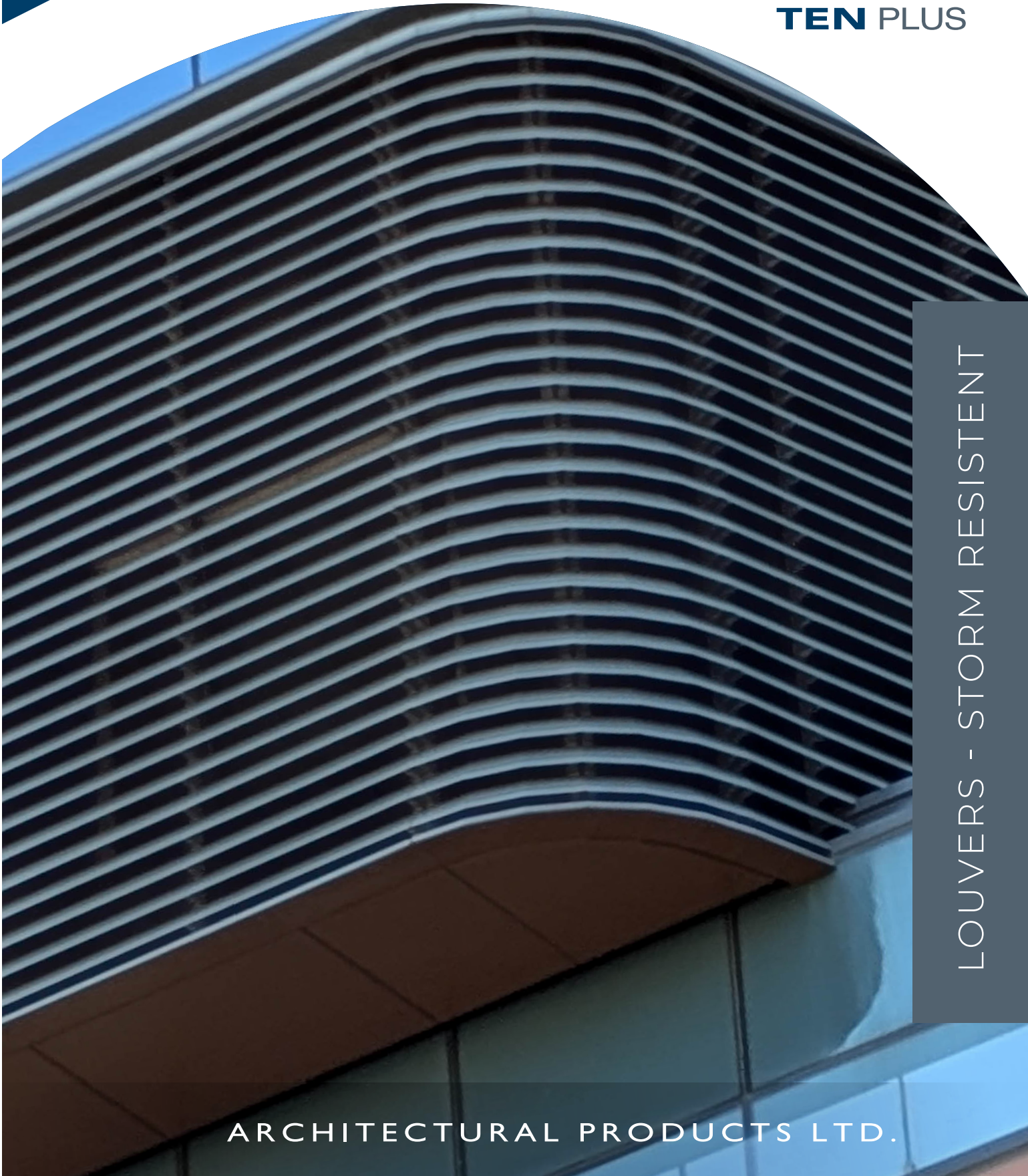


L-SR-P9455-1224

**TEN PLUS**



LOUVERS - STORM RESISTANT

ARCHITECTURAL PRODUCTS LTD.

# LOUVER SELECTING GUIDELINES

Selecting the right louver for your application is critical to achieving optimal performance, whether your priority is resistance to water penetration or minimizing static pressure drop. Our Storm Resistant Louvers offer unparalleled protection and efficiency, making them the superior choice for most applications.

## FREE AREA

The free area of a louver is the unobstructed space through which air can pass freely. This parameter, along with the total air volume, determines the air velocity through the louver. Free area velocity directly influences critical factors such as static pressure drop and water penetration, which are key to louver performance.

## SIZING LOUVERS

Follow these steps to select the ideal louver for your needs:

1. Prioritize resistance to water penetration. For applications where water ingress is a concern, we strongly recommend selecting a model from our Storm Resistant Louver line. These louvers are engineered and “wind-driven rain” tested to deliver superior performance in even the most demanding conditions.
2. Consider static pressure drop. If minimizing static pressure drop is the primary goal, explore our Conventional Louver line for models that balance airflow with performance.
3. Identify the best louver model for your application. Choose a louver that aligns with your specific aesthetic and operational needs.
4. Determine the airflow volume. Calculate the total volume of air in cubic feet per minute (CFM), or cubic meters per second or (m<sup>3</sup>/s) that will pass through the louver.
5. Define your design priorities. Establish the most important design criteria by selecting from the following:
  - Resistance to Water Penetration: If avoiding water penetration is paramount, select a louver model with a velocity below the threshold shown on the water penetration chart.
  - Static Pressure Drop: If minimizing pressure drop is critical, choose a velocity consistent with the pressure drop chart.
  - Balanced Priorities: If both water resistance and static pressure drop are equally important, opt for the lower of the two velocities.
6. Calculate the required free area. Divide the total air volume (CFM or m<sup>3</sup>/s) by the selected free area velocity (FPM or m/s) to determine the total free area needed.
7. Select the louver dimensions. Match the required free area to the dimensions on the louver’s free area chart to Finalize the overall size of the louver.

## LOUVER CATEGORIES

CONVENTIONAL LOUVERS	ACOUSTICAL LOUVERS	STORM RESISTANT LOUVERS	PENTHOUSE LOUVERS	LOUVERED SCREENS
				

Feel free to contact us for assistance on proper louver sizing.

PHONE: 905-363-2306 | TOLL FREE: 1(888) 850-3878 | EMAIL: [info@tenplus-online.com](mailto:info@tenplus-online.com)

# STORM RESISTANT BLADE LOUVER

## Model R9455



L-SR-R9455-1224

### GENERAL DESCRIPTION

Ten Plus Model R9455 – 229 mm [9"] deep, storm resistant blade louver. All framing members consist of formed aluminum profiles. Perimeter framing is designed to accommodate rope and caulk sealant applications. Assembly may include vertical mullions at 1500 [60"] centers, or no mullions for continuous line construction.

#### PERFORMANCE RATING STANDARD: AMCA STANDARD 500L

Louver type	Mullion / Continuous Line
Louver depth	9" (229 mm)
Blade angle	45°
Free area 1220 x 1220 (48"x48") Unit	7.9 sq. ft. (0.734 m <sup>2</sup> ) 49.4%
Free area velocity at beginning point of water penetration (0.01 oz / ft <sup>2</sup> )	1011 FPM (5.14 m/s)
Air volume at beginning of water penetration 1220 x 1220 (48"x48") Unit – 15 minute test duration	7987 CFM (3.77 m <sup>3</sup> /s)
Pressure drop at beginning point of water penetration	0.48 in. H <sub>2</sub> O (119.4 Pa)
Notes	Tested Without Bird Screens

### ABBREVIATED SPECIFICATION

Where indicated on drawings, supply and install 9" (229 mm) deep, storm resistant horizontal blade louver Model R9455. Submit all details to consultant for approval prior to fabrication. Head, sill, jambs and mullions shall have a minimum thickness of 0.080" (2.0 mm) 6063-T5 aluminum alloy.

Jambs and Mullions shall have integral, vertical gutters to direct water to the bottom of the exterior face of the louver and away from the building. Blades shall be 0.08" (2.0 mm) 6063-T5 aluminum alloy and include an integral vertical gutter to lead water to the sill pan. Louvers shall be supplied with a 5/8" (16 mm), flat expanded aluminum mesh in a mill finish, aluminum frame. Fasteners shall be standard zinc plated steel or stainless steel.

#### Materials Manufacturer:

Ten Plus Architectural Products Ltd.,  
5 - 2333 Millrace Court, Mississauga,  
Ontario, Canada,  
L5N 1W2;

Phone: 905-363-2306, Toll free: 1(888) 850-3878;  
Email: info@tenplus-online.com;  
URL: www.tenplus-online.com

Structural supports shall be designed and furnished by the louver manufacturer to support a wind load of 20 psf (958 Pa), unless specified otherwise. Any louver opening greater than 10' (3 m) high, will require a horizontal girt, at mid span by others.

The louver manufacturer shall submit data, on a 4' x 4' (1.2m x1.2m) unit, showing that the louver performs to the following criteria, based on tests and procedures performed in accordance with the AMCA Publication 511, and comply with the "Certified Ratings Program" licensed to bear the AMCA seal:

Free area = 7.9 sq. ft. (0.734 m<sup>2</sup>)

Free area velocity at point of beginning water penetration = 1011 FPM (5.14 m/s)

Intake pressure drop at beginning point of water penetration = 0.48 in. H<sub>2</sub>O (119.4 Pa)

Louvers shall be fabricated with mill finish aluminum and the finish shall be applied after assembly. Select the desired finish from the following:

For superior performance, a 3 coat PVDF system includes a thermal setting application of 70% fluoropolymer resin.

OR High-performance 2 coat, PVDF system including a thermal setting application of 70% fluoropolymer resin.

OR Powder coat finish system to meet AAMA 2605 requirements.

OR (Color Anodize) Ensure the aluminum finish is color anodized in accordance with Aluminum Association Finish Designation AA-M12C22A44, Class I, minimum 0.018 mm (0.7 mils) thick finish. Color to be selected by the consultant.

OR (Clear Anodize) E nsure aluminum finish is clear anodized in accordance with Aluminum Association Finish Designation AA-M12C22A41, Class I, minimum 0.018 mm (0.7 mils) thick for exterior applications and AA-12C22A31, Class I, minimum 0.01 mm (0.4 mils) thick for interior applications.

		LOUVER WIDTH				
INCHES		12	24	36	48	60
MM		305	610	914	1219	1524
MODEL R9455 FREE AREA - SQUARE FEET / SQUARE METERS						
LOUVER HEIGHT	12	0.36	0.82	1.29	1.72	2.21
	305	0.03	0.08	0.12	0.16	0.21
	24	0.79	1.81	2.83	3.78	4.86
	610	0.07	0.17	0.26	0.35	0.45
	36	1.23	2.80	4.37	5.84	7.52
	914	0.11	0.26	0.41	0.54	0.70
	48	1.66	3.79	5.91	7.90	10.17
	1219	0.15	0.35	0.55	0.73	0.94
	60	2.09	4.77	7.46	9.96	12.82
	1524	0.19	0.44	0.69	0.93	1.19
	72	2.52	5.76	9.00	12.02	15.47
	1829	0.23	0.54	0.84	1.12	1.44
	84	2.96	6.75	10.54	14.08	18.13
	2134	0.27	0.63	0.98	1.31	1.68
	96	3.39	7.74	12.08	16.14	20.78
	2438	0.31	0.72	1.12	1.50	1.93
	108	3.82	8.72	13.63	18.20	23.43
	2743	0.36	0.81	1.27	1.69	2.18
	120	4.25	9.71	15.17	20.26	26.08
	3048	0.40	0.90	1.41	1.88	2.42
132	4.69	10.70	16.71	22.32	28.74	
3353	0.44	0.99	1.55	2.07	2.67	
144	5.12	11.46	17.71	24.38	30.21	
3658	0.48	1.07	1.65	2.27	2.81	

Ten Plus Architectural Products Ltd. certifies that louver model R9455 shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies only to Air Performance, Water Penetration and Wind Driven Rain ratings. Submittal R9455 January 12, 2014.



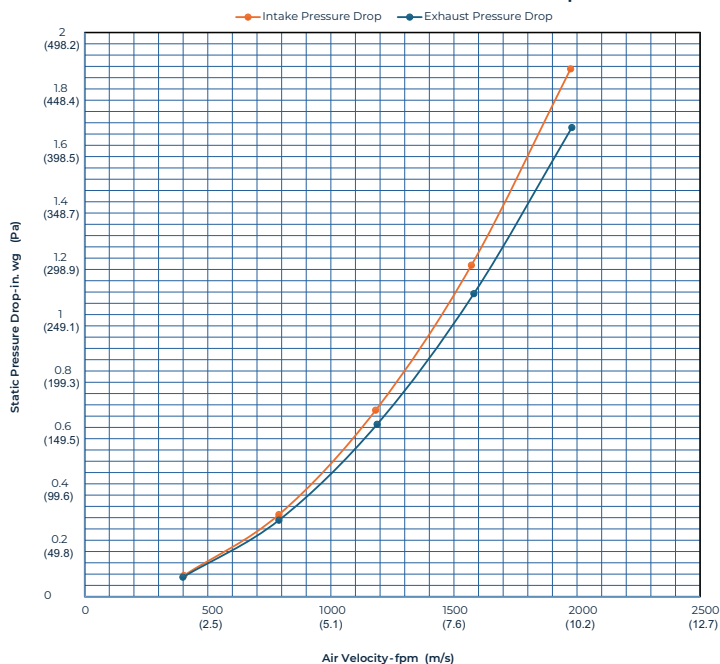
Model R9455



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Ten Plus Architectural Products Ltd. reserves the right to make design changes or to withdraw products without notice.

Model R9455 Static Pressure Drop



## WIND-DRIVEN RAIN PERFORMANCE

Discharge Loss Coefficient Class (Intake) = 3

Rainfall rate of 76 mm/hr. (3 in./hr.), with wind driven rain applied to the face of the louver at a velocity of 13 m/s (29 mph)

Core Velocity - m/s (fpm)	0 (0)	0.5 (99)	1.0 (198)	1.5 (297)	2.0 (393)	2.5 (494)	3 (590)	3.5 (692)	4.0 (792)	4.5 (885)	5.0 (982)
Free Area Velocity - m/s (fpm)	0 (0)	0.97 (192)	1.95 (383)	2.92 (575)	3.86 (761)	4.86 (956)	5.80 (1142)	6.80 (1339)	7.79 (1573)	8.70 (1713)	9.66 (1900)
Effectiveness Classification								A	B	C	D
Effectiveness Ratio								100.0%	98.4%	92.9%	79.3%

Rainfall rate of 203 mm/hr. (8 in./hr.), with wind driven rain applied to the face of the louver at a velocity of 23.3 m/s (50 mph)

Core Velocity - m/s (fpm)	0 (0)	0.5 (96)	1.0 (197)	1.5 (288)	2.0 (398)	2.5 (478)	3 (591)	3.5 (688)	4.0 (791)	4.5 (883)	5.0 (983)
Free Area Velocity - m/s (fpm)	0 (0)	0.94 (186)	1.94 (381)	2.83 (557)	3.91 (770)	4.70 (925)	5.81 (1144)	6.77 (1332)	7.78 (1531)	8.68 (1709)	9.67 (1902)
Effectiveness Classification					A	A	B	B	B	C	D
Effectiveness Ratio					100.0%	99.3%	97.6%	96.6%	95.4%	90.0%	75.2%

The louver test is based on a 1 m x 1 m (39.37" x 39.37") louver core size, at a rainfall rate of 76 mm/hr. (3 in./hr.), with wind driven rain applied to the face of the louver at a velocity of 13 m/s (29 mph), and at a rainfall rate of 203 mm/hr. (8 in./hr.), with wind driven rain applied to the face of the louver at a velocity of 23.3 m/s (50 mph). The above table shows the effectiveness against water penetration at each corresponding ventilation airflow rate.

## ACCESSORIES

Bird and insect screens	<ul style="list-style-type: none"> <li>Standard: 16 mm (5/8") flat, expanded aluminum mesh</li> <li>12 x 12 mm (1/2") inter-crimped 1.6 mm (14 ga) al. wire (optional)</li> <li>16 x 18 aluminum mesh insect screen (optional)</li> <li>Stainless steel screens available</li> </ul>
Blank-off panels	<ul style="list-style-type: none"> <li>Non-insulated sheet blank-off panels in aluminum or galvanized steel</li> <li>Insulated panels to desired thickness and R-value</li> </ul>
Sill Flashings	Formed aluminum sheet
Structural support design	Min. 960 Pa (20 psf) wind load or as otherwise specified
Finish	<ul style="list-style-type: none"> <li>Mill finish</li> <li>Three coat 70% PVDF thermal setting resin to AAMA 2605 standard</li> <li>Two coat 70% PVDF thermal setting resin to AAMA 2605 standard</li> <li>Four coat 70% PVDF thermal setting resin to AAMA 2605 standard</li> <li>Color anodic AA-M12C22A44, Class I</li> <li>Clear anodic AA-M10C22A41, Class I</li> <li>Clear anodic AA-10C22A31, Class II</li> </ul>
Options	<ul style="list-style-type: none"> <li>Flange frame</li> <li>Glazing flange</li> <li>Mitered corners</li> <li>Hinged doors and access panels</li> <li>Pipe / service penetrations</li> </ul>
Assembly Fasteners	<ul style="list-style-type: none"> <li>Stainless steel</li> </ul>



## FINISHES



### THREE COAT SYSTEM

Superior performance three coat system (primer/color coat/clear coat) including thermal setting application of 70% fluoropolymer resin minimum, PVDF with added color pigment finish exceeding or meeting AAMA 2605 requirements. Ensure fluoropolymer-baked resins form a continuous physically locked finish during the manufacturing process. Apply fluoropolymer finish after multistage chemical treatment cleaning, providing a corrosion resistant surface ready to receive primer. Acceptable Product: Duranar XL by PPG Industries or equivalent by Valspar.



### TWO COAT SYSTEM

A high-performance two coat system with a 70% fluoropolymer resin finish, meeting or exceeding AAMA 2605 requirements. Apply after multistage chemical cleaning for corrosion resistance. Acceptable Product: By PPG Industries or equivalent by Valspar.



### POWDER COAT FINISH

The powder coat system must meet AAMA 2605 requirements, with a minimum adhesion rating of 9 (ASTM D-3359), corrosion resistance of at least 5 (ASTM B-117), and gloss level of 20 (Gloss Meter). It must withstand weather, UV radiation, and chemical exposure while maintaining a smooth, even finish. Acceptable Product: by PPG Industries or equivalent by Valspar.



### COLOR ANODIZED FINISH

Ensure the aluminum finish is color anodized in accordance with Aluminum Association Finish Designation AA-MI 2C22A44, Class I, minimum 0.018 mm (0.7 mils) thick finish. Color to be selected by the consultant.



### CLEAR ANODIZED FINISH

Ensure aluminum finish is clear anodized in accordance with Aluminum Association Finish Designation AA-MI 2C22A41, Class I, minimum 0.018 mm (0.7 mils) thick for exterior applications and AA-12C22A31, Class II, minimum 0.01 mm (0.4 mils) thick for interior applications.



## TEN PLUS

TEN Plus owes its success to the simple business philosophy of providing quality products, great service, and an unwavering commitment to customer satisfaction.

We accomplish our goals by investing in people and technology. We strive to improve productivity and optimize the use of our resources through investment in state-of-the-art equipment, training and the use of innovative design principles. Rigorous quality control and workplace safety practices ensure the well-being of our employees and business partners.

Our technical representatives possess comprehensive louver knowledge and extensive field experience. Each one is capable of assisting you through the design and engineering stage, as well as overcoming the unforeseen field conditions.

We trust that this catalogue will prove to be a useful aid and resource to selecting your louvers. However, should you have any questions or unique conditions requiring greater detail, please feel free to call us for assistance. Our staff is attentive to your needs and eager to serve you. We look forward to your call.

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