YORK®
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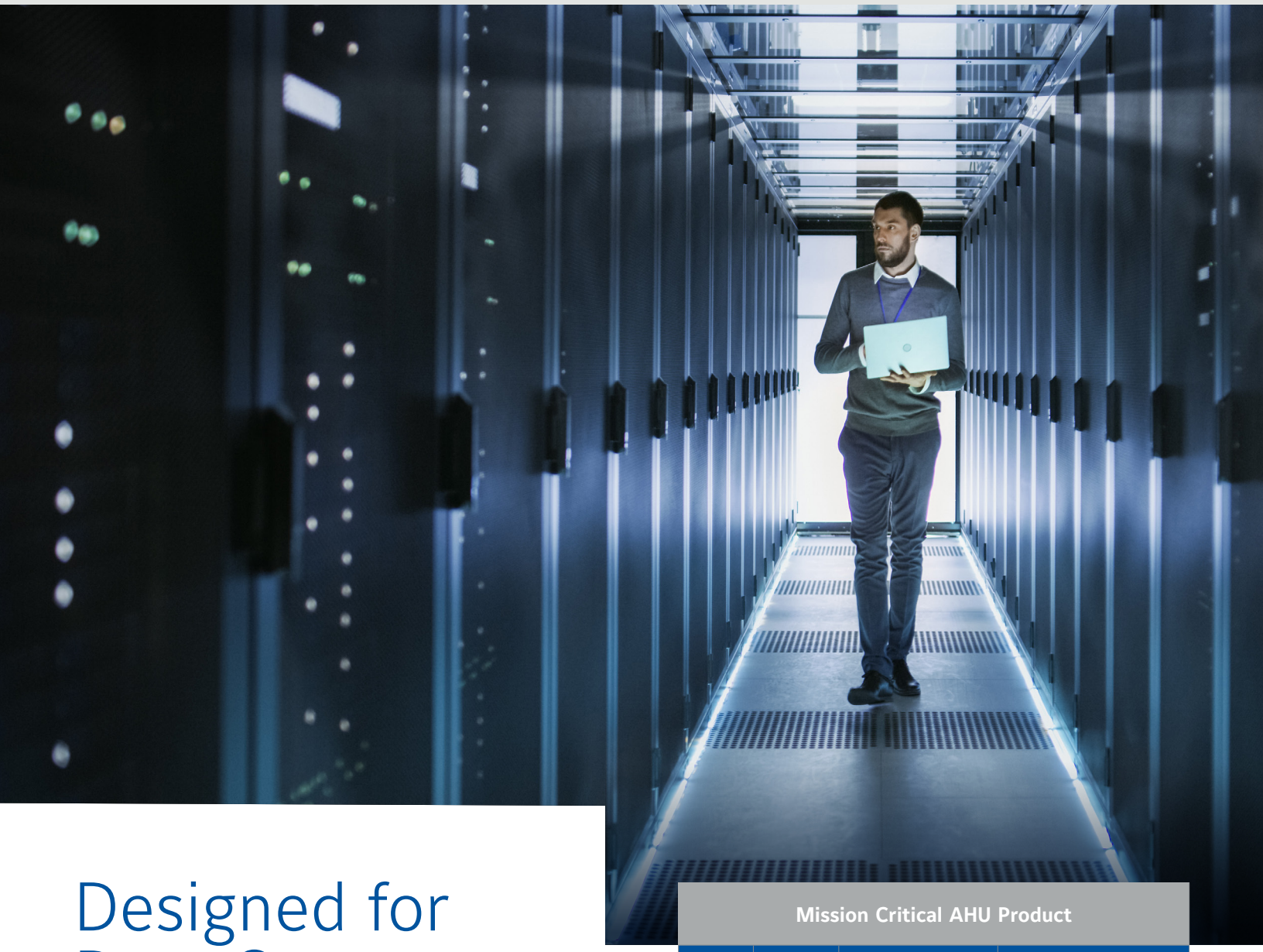
Proven to Perform

YORK® Mission Critical DEC Unit for Data Center Cooling

Johnson Controls



Designed for Data Centers

YORK® Mission Critical Direct Evaporative Cooling (DEC) Air Handling Units (AHUs) from Johnson Controls are specifically designed for data centers. Offered in two sizes (250 kW and 500 kW) and in two styles (perimeter and rooftop), YORK® Mission Critical AHUs maximize cooling capacity per square foot. In fact, the YORK® Mission Critical Air Handling 500 kW perimeter unit (the MCP500) yields an ultra-efficient pPUE of less than 1.1.* Optional direct expansion (DX) or chilled water cooling (CWC) coils allow for installation in diverse geographic locations while maintaining a low initial investment. And unlike typical DEC AHUs, YORK® Mission Critical Air Handling Units are designed to meet phased data center expansion strategies, feature high media efficiency and are backed by proven YORK® product platforms.

Mission Critical AHU Product

Size (kW)	Style	Primary Cooling	Secondary Cooling Optional
250	Perimeter	Direct Evaporative	Direct Expansion (DX)
			Chilled Water Coil (CWC)
			None
	Rooftop	Direct Evaporative	Direct Expansion (DX)
			Chilled Water Coil (CWC)
			None
500	Perimeter	Direct Evaporative	Direct Expansion (DX)
			Chilled Water Coil (CWC)
			None
	Rooftop	Direct Evaporative	Direct Expansion (DX)
			Chilled Water Coil (CWC)
			None

Unparalleled Uptime

When your reputation is at stake, count on efficient, reliable air handling solutions from YORK® to lower costs and maximize uptime. With expert service and original equipment manufacturer parts available from Johnson Controls – the largest HVAC service and preventive maintenance organization in the world – you can be confident your data center will be running cool, year after year. Our team brings a rich legacy of factory-trained HVAC service technicians and engineers to maintain data center critical needs. We employ strategically placed manufacturing facilities to ensure a continuity of production, supply and quality excellence no matter where in North America your data center is located.

Maximum Flexibility

Flexible. Scalable. Sustainable. YORK® Mission Critical AHUs help overcome unique application challenges by offering low weight and compact size in both rooftop and perimeter units. Optional CWC or DX coils offer additional cooling capabilities and increase geographic applicability, while 250 kW and 500 kW sizing offers scalable expandability. YORK® Mission Critical AHUs have the features your data center needs for maximum uptime, efficiency and expandability.

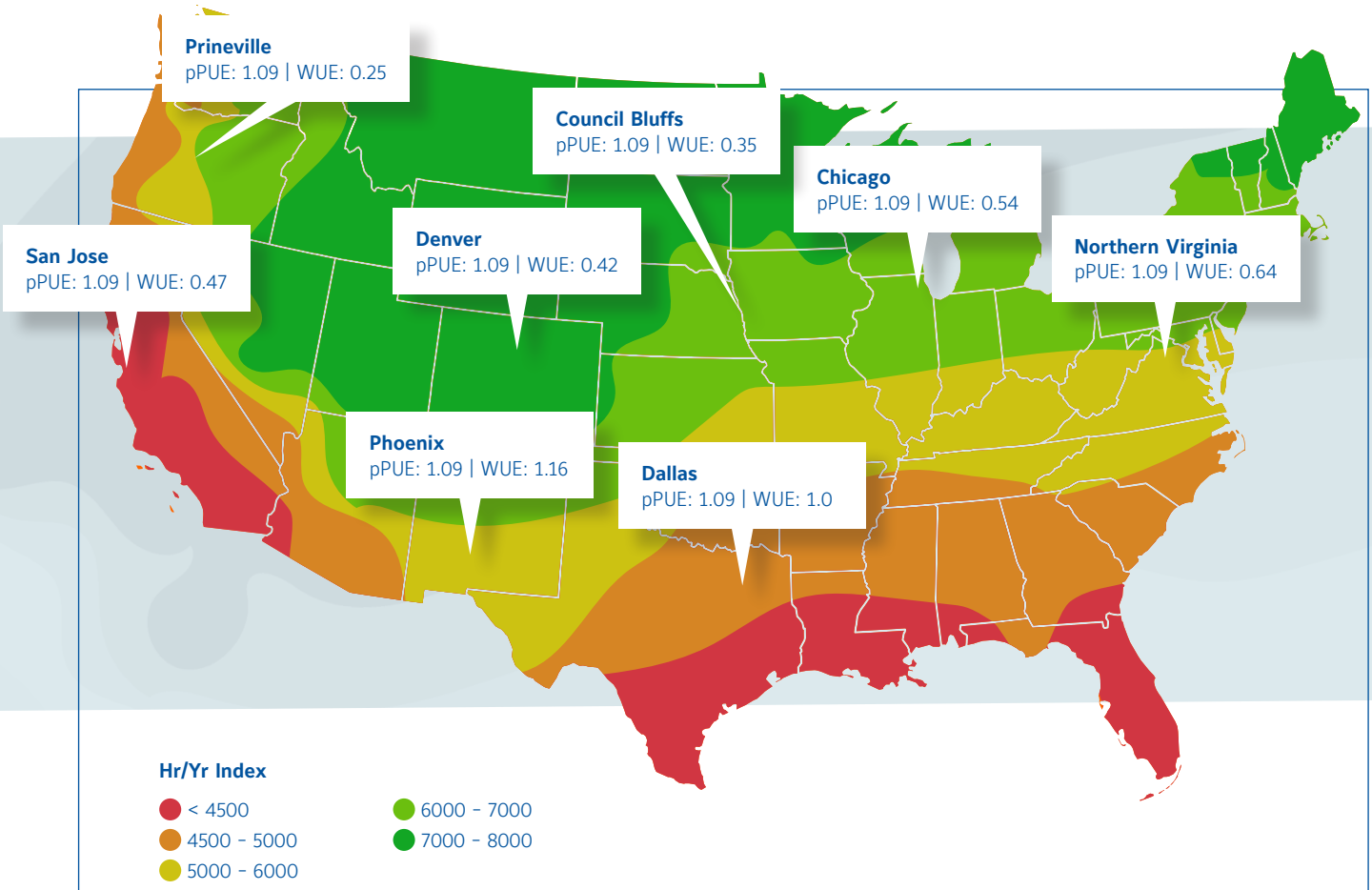
Better Performance in Every Size*

Customer Value	Market Leader	YORK® Mission Critical AHUs
Cooling Capacity (kW / sq. ft.)	1.64	2.14
Media Efficiency	88.5%	+90%
Reliability	N+1 Fan No Pump Redundancy	N+1 Fan 5 Pumps
Footprint (sq. ft.)	315	233
Size (kW)	515	500

*Compared to the market leader at 25° Δ T

Ultimate Efficiency

Partial Power Usage Effectiveness (pPUE) helps quantify a clearly defined boundary of Power Usage Effectiveness (PUE) within a data center. This typically includes measuring the pPUE of a DEC AHU, chiller or transformer. When power consumption is the primary design criteria, the YORK® Mission Critical AHU provides an ultra-efficient pPUE of less than 1.1.* This coupled with an industry-leading DEC efficiency of 90.2% makes YORK® the clear design choice.



Water Usage Effectiveness (WUE) or l/kW, defines the total annual water consumption in liters in relation to the total annual power consumption of the IT components.

Partial Power Usage Effectiveness (pPUE), defines a certain portion of the overall PUE of a data center within a clearly defined boundary, in this case, AHU equipment.

*Calculated based on Northern Virginia for the 500 kW unit

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Cost-effective design using world-class components

Feature	Benefit
Compact footprint	Reduced weight and size
High media efficiency	Extended Free Cooling Hours; Reduced pPUE
Optional CWC or DX coil	Supplemental cooling for diverse geographic locations
Front-loading filters	Ease of installation and maintenance
N+1 fan redundancy	Fulfill mission critical data center demands
Built on tested and proven YORK® product platform	Trusted performance and value from a proven market leader
Strategically located manufacturing facilities	Multiple manufacturing locations in North America provide highly flexible capacity
Rooftop and perimeter styles	Increases data center white space
250 kW and 500 kW size options	Supports phased data center expansion strategies
Intelligent factory configured controls	Plug-and-play: Only simple configuration settings on-site required – no field programming
Commissioning via smart device	Less time to start up and reduced cost
Staged control	Optimizes water utilization
Mobile Access Portal	Configuration and management via Wi-Fi®
Optional Smart building hub	Remote connectivity and notification, 24/7

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Easier Control

With the PEAK™ control system from YORK®, system setup is faster and easier. PEAK™ provides a simple user experience with configurable, tool-less controllers to yield a truly plug-and-play HVAC control system. This removes the need for field programming and reduces startup and install time – all of which bring YORK® Mission Critical AHUs online faster and at reduced cost.

Preconfigured, intelligent default values for control parameters at the factory for true plug-and-play functionality

Reduced complexity via only simple configuration of settings on-site

No field programming required, simplifying the installation process

Commissioning via smart device can reduce time and cost

Embedded fault detection diagnostics assist in resolving mechanical and control issues

Remote connectivity and notification help reduce downtime and time between alert and maintenance

Intelligent, climate-controlled panel saves money by adjusting throughout the day based on changing weather and temperature conditions

Security is enhanced through controlled Wi-Fi® access via Mobile Access Portal (MAP)

The Power of Partnership

From the thermostat on the wall to the air handler on the roof, Johnson Controls provides a comprehensive, single point of responsibility for mission critical facilities. This total-solution approach delivers increased building efficiency and proven reliability across HVAC, building management, fire, security and building optimization systems. YORK® Mission Critical Air Handling Units are another integrated solution designed and engineered to exceed critical cooling requirements – and it's one more reason having the right partner makes all the difference.

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PERMANENT MAGNET ECM FANS FOR AIR HANDLING UNITS

PERMANENT MAGNET EFFICIENCY FOR THE COST OF INDUCTION MOTORS

More Efficient, Faster Installation and Reduced Downtime

The future of air movement has arrived, and YORK® is leading the way. YORK® has teamed up with the leading European maker of ECM fans to provide outstanding wire-to-air efficiency while reducing air handling unit length and installation time. We are the first to provide permanent magnet ECM motors with both integral fans and variable speed drives (VSD) as a standard offering across all our lines – from the most basic air handling unit to complex, fully custom systems. And we do it without charging a premium over traditional induction motors with variable frequency drives.

Ideal for almost any application, ECM fans are sweeping the industry. These ECM-based solutions allow our systems to be more compact, with faster installation that doesn't require any on-site programming. Just connect the power, hook up the control signal and the system is ready to go – there's not even a keypad! And as with all our air handlers, Metasys® controls can be mounted at the factory to provide a unit ready to go as soon as it hits the ground. With complete VSD redundancy, maintenance-free sealed bearings and a lightweight fan wheel and motor for easy service, AHU downtime is also significantly reduced. Count on YORK® to deliver the most integrated, most reliable and most flexible ECM solutions.

The configurations that can be selected in YORKworks® selection software include:

- Single fan, dual fans and fan arrays
- Horizontal and vertical inlets
- 230V and 460V 3-phase
- Sizes from 10" to 36"

From the Leader in AHU Research and Performance

YORK® is the industry-leader in fan performance and acoustic testing, and is home to the largest air handling unit sound and air performance test facility in the world. Every fan we offer is fully tested in our AMCA-accredited laboratories per AMCA 210 and AMCA 300 to confirm bare fan air and sound performance. We then test the fans again in air handler cabinets in both single-fan and fan array arrangements per the methods of AHRI 430 to correct for cabinet and system effect, ensuring you get real fan and motor performance data. YORK® is also the only company that provides sound data for all configurations of ECM fans in every model of our Solution Air Handlers per AHRI 260, the only standard recognized in the industry for accurate prediction of sound pressure.

Better quality

Every YORK® solution comes with features that make your system last longer – and provide a better value. Our fan wheels are welded aluminum, not plastic. Every fan and motor is balanced at the factory to ensure minimal vibration (with spring isolation available for very sensitive projects). We rejected fan designs that sacrifice efficiency by blocking the inlet with the motor to save space – our motor does not block any part of the fan inlet. And we offer the best warranty in the industry, with a full year of coverage on both parts and labor.

Easier specification

YORK® ECM fans are easy to specify. Designers no longer have to take responsibility to ensure that separately specified motors, fans and VFDs will work together. Our integrated systems are already optimized for the highest efficiency and motor life. And the compact design and patent-pending method of servicing all fans from the inlet side reduces the air handler unit length, making it even easier to fit into tight mechanical rooms.

Faster installation

With YORK®, fast and easy installation comes standard. YORK® provides ECM fans with the same industry-leading delivery speed provided for every YORK® air handler. All power and signal wiring for the fan converge at a single point on the exterior of the unit with individual motor protection and disconnects. As soon as the power and control signal are connected, the unit is ready to go!

Industry-leading experience

YORK® has engineered systems to meet some of the industry's most challenging requirements. Our acoustics and application engineers design units to critical specifications that include acoustic performance, airflow and power use. It's this depth of experience that makes YORK® your single source for ECM fan technology in any air handling application.

From standard systems through fully custom solutions, we understand all aspects of air handling fan and motor technology and can help you navigate every aspect of specifying, installation and service. We provide a single point of contact, offer pre-packaged electrical and control components to make setup easier and offer an array of features and services many of our competitors do not. It's why we're proud to say YORK® delivers industry-leading performance and expert service with every air handler we build.

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ACOUSTIWEIR™

ACOUSTIC TECHNOLOGY FOR AIR HANDLING UNITS

Noise reduction without compromise

Sound generated by an air handling unit can have a direct impact on any indoor environment, and is of particular concern for healthcare, education, performing arts and professional office spaces. That's why we engineer industry-leading acoustic performance into every YORK® air handling unit we build.

One of the most significant advances to come from our world-class Acoustics Lab is Acoustiweir™, a technology exclusively engineered by YORK® to reduce sound levels while maintaining a compact unit footprint. Acoustiweir™ is a groundbreaking improvement in air handling sound reduction.

Acoustic silencing, without the silencer

Traditional noise reduction systems often rely on a series of baffles or silencers inside the air handler to reduce sound levels. Systems that require sound reduction with smaller footprints and higher efficiency levels are good candidates for more advanced technologies like those found in our Acoustiweir™ solution.

Compact dimensions for more applications

Silencers found in competing air handlers must be applied over large areas for maximum effectiveness. Acoustiweir™ technology can provide sound attenuation comparable to a 2-3' silencer in only a 4-6" space, providing quiet operation in a more compact system.

Groundbreaking reduction in pressure loss

Silencers used in typical sound attenuation systems affect both sound *and* air, creating turbulence in the air stream that causes the system to work harder and become less efficient. Acoustiweir™ is different. A result of proprietary engineering research at the YORK® Acoustics Lab, Acoustiweir™ is uniquely able to diminish overall system noise with remarkably little change in air pressure.

Superior sound attenuation

Perforated panels and baskets are another common, inexpensive noise reduction solution. These methods are space-efficient and don't contribute significantly to system pressure loss, but are less effective than Acoustiweir™ in minimizing sound levels in the critical 63-250 Hz range, where low-frequency rumble can cause significant discomfort.

Vertical/Side Duct Discharge Sound Reduction (Insertion Loss) Value (dB)

OCTAVE	63	125	250	500	1000	2000	4000	8000
DB REDUCTION	0	2	8	8	7	9	10	9

- Typical results for unit airflow between 10,000 – 50,000 CFM
- Negligible pressure drop

Horizontal Duct Discharge Sound Reduction (Insertion Loss) Value (dB)

OCTAVE	63	125	250	500	1000	2000	4000	8000
DB REDUCTION	0	1	7	6	5	4	4	4

- Typical results for unit airflow between 10,000 – 50,000 CFM
- Low pressure drop ~ 0.10 in s.p.

A YORK® engineered, trademarked technology

Acoustiweir™ from YORK® has been engineered to enable a quieter, more compact and more efficient air handling system. Discover how the leader in air handling acoustics engineers technology to improve your environment – and your bottom line.

From the leader in AHU acoustics research

Acoustiweir™ technology is a direct result of the groundbreaking air handling research conducted at the YORK® Acoustics Lab, which is part of the Grantley Technology Center in York, Pennsylvania. Backed by parent company Johnson Controls, the YORK® Acoustics Lab is the largest air handling unit sound test facility in the world, and is one of the leading research, development and testing sites for the entire commercial HVAC equipment industry.

World-class testing facilities

Featuring a 105,000 cu. ft. reverberation room and state-of-the-art equipment capable of capturing frequencies from 25 Hertz all the way up to 10,000 Hertz, the YORK® Acoustics Lab is so advanced it's the only facility of its kind to test airflow and sound simultaneously. In addition, test results from the YORK® Acoustics Lab are backed by world-class accreditation, including unit airflow in accordance with ANSI 210 up to 100,000 CFM, accreditation for fan testing to AMCA 210 and 300, and the use of a reverberation room that is qualified according to AMCA 300 and AHRI 220 specifications. AHRI Standard 260 testing in the AMCA certified YORK® Acoustics Lab also allows us to certify an entire class of air handlers without individual unit testing.

Industry-leading acoustics experience

With over 75 years of combined HVAC acoustic design experience, the YORK® Acoustics Lab team has engineered solutions for some of the industry's most challenging requirements. Our acoustics and application engineers design units to meet critical sound requirements that include acoustic performance evaluation, airflow and power use.

A growing body of research is validating the importance of acoustics in nearly every facet of our daily lives. That's why we develop advanced acoustic technologies like Acoustiweir™. And that's why YORK® engineers industry-leading acoustic performance into every air handler we build.

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