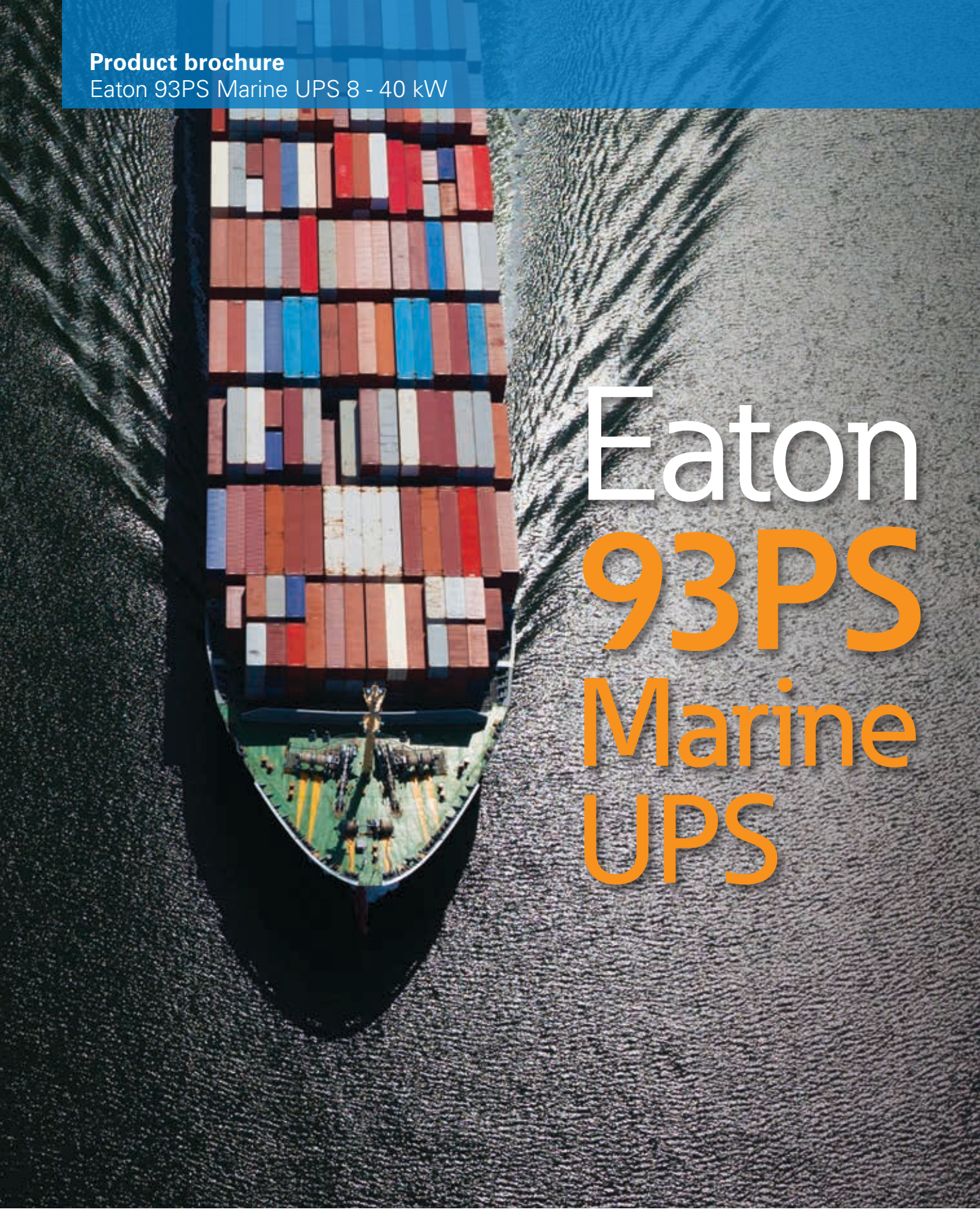


Product brochure

Eaton 93PS Marine UPS 8 - 40 kW



Eaton 93PS Marine UPS

EATON

Powering Business Worldwide

Protecting your ship, crew and cargo at sea

Protecting the major investments in a ship, its crew and cargo, as well as the company's reputation, are top priorities for any ship owner or operator. A UPS system is the insurance that keeps vital onboard systems running to deliver the ship, its crew and cargo safely to their destination.

Eaton is advancing marine UPS technology with the introduction of its **Eaton 93PS Marine 8-40 kW UPS** range, designed to fulfil three criteria:

- Easiest to deploy
- Easiest to maintain
- Most economical to operate



Over 40 years of Marine UPS Expertise

Finland has a rich maritime history and Eaton's marine industry experience stretches back over 40 years to the first introduction of UPS systems for Finnish ice-breakers, perhaps the coldest and harshest of all environments, where extreme vibrations could easily damage all but the most robust equipment. Since then, Eaton has continued to deploy thousands of marine UPS systems in ships and offshore applications around the world.

State of the art UPS

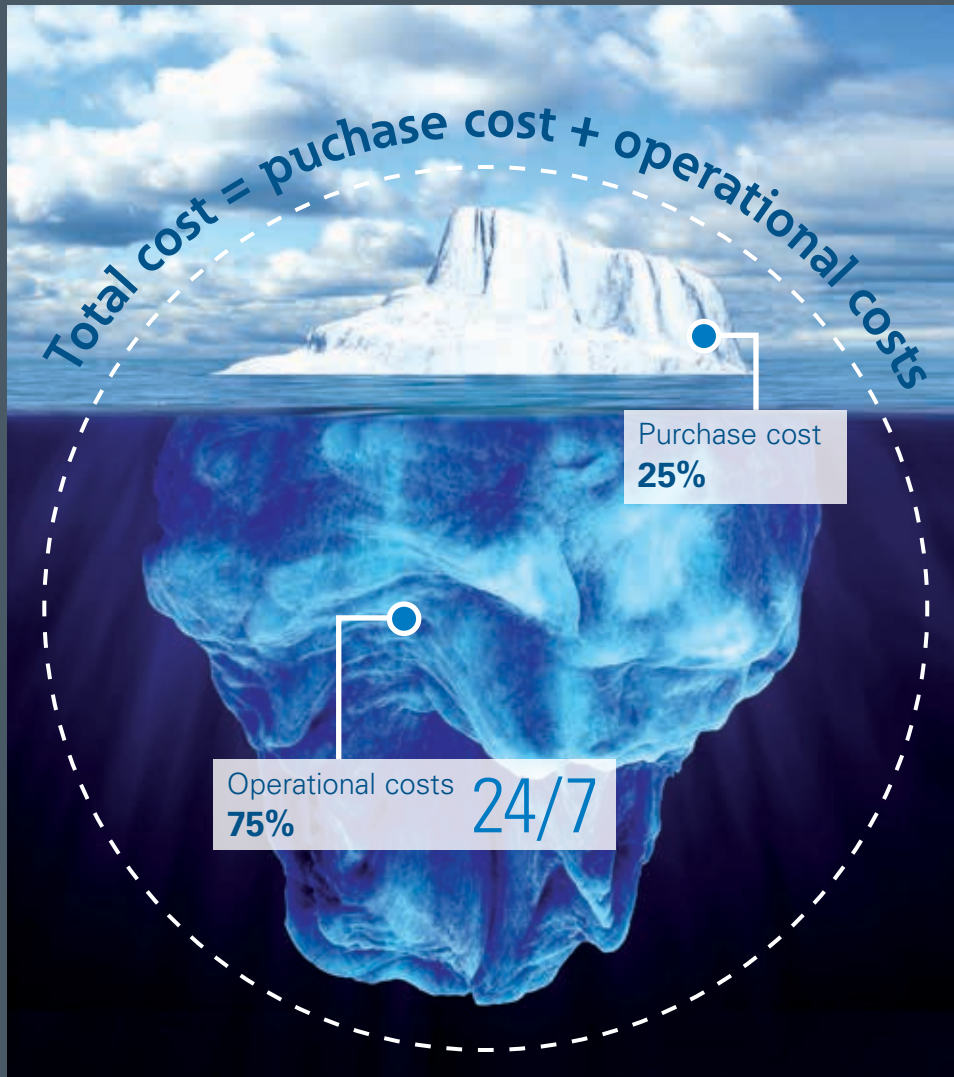
These state-of-the-art Eaton 93PS Marine 8-40 kW three-phase uninterruptible power systems (UPS) are specially engineered for shipping environments and applications, built to meet or exceed industry standards. The UPS is designed to protect critical onboard functions and processes, such as navigation, communication, bridge equipment, lighting and automation, as well as provide auxiliary power for engines and safety systems.

40 Marine
UPS 
years expertise



Focus on operating costs

The purchase cost is the most visible but not the most meaningful measure of a UPS cost. The real cost of a UPS is determined when the UPS performs its mission of keeping your critical load up and running 24/7.



- **Hot Swap** enables comprehensive servicing to be done simply and efficiently
- **Variable Module Management System (VMMS)** increases system efficiency, even when UPS levels are low, by automatically bringing modules on or offline
- **Advanced Battery Management (ABM)** increases the lifetime of the battery and automatically monitors the health of the battery system
- **Reduced footprint** by 50% due to internal transformer options
- **Easier installation** with optional factory-installed and tested internal transformers
- **Modular design** enables inherent redundancy and hardware upgrades to meet future power demands
- **3D and 2D design resources** combined with our pre sales support makes it easier to design-in the UPS
- **Lifting tool** for easier maneuvering at the shipyard



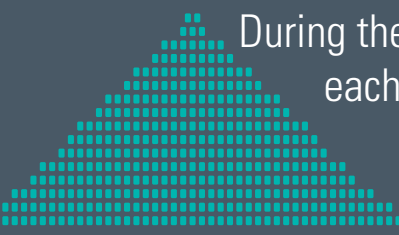


The Eaton 93PS Marine UPS range have a lifetime of over

15 years, 

24/7 operation, equal to over

130,000 hours of continuous operation.



During these 130,000 hours, each UPS can reduce a ship's carbon footprint by the equivalent of more than

400 diesel barrels per UPS.

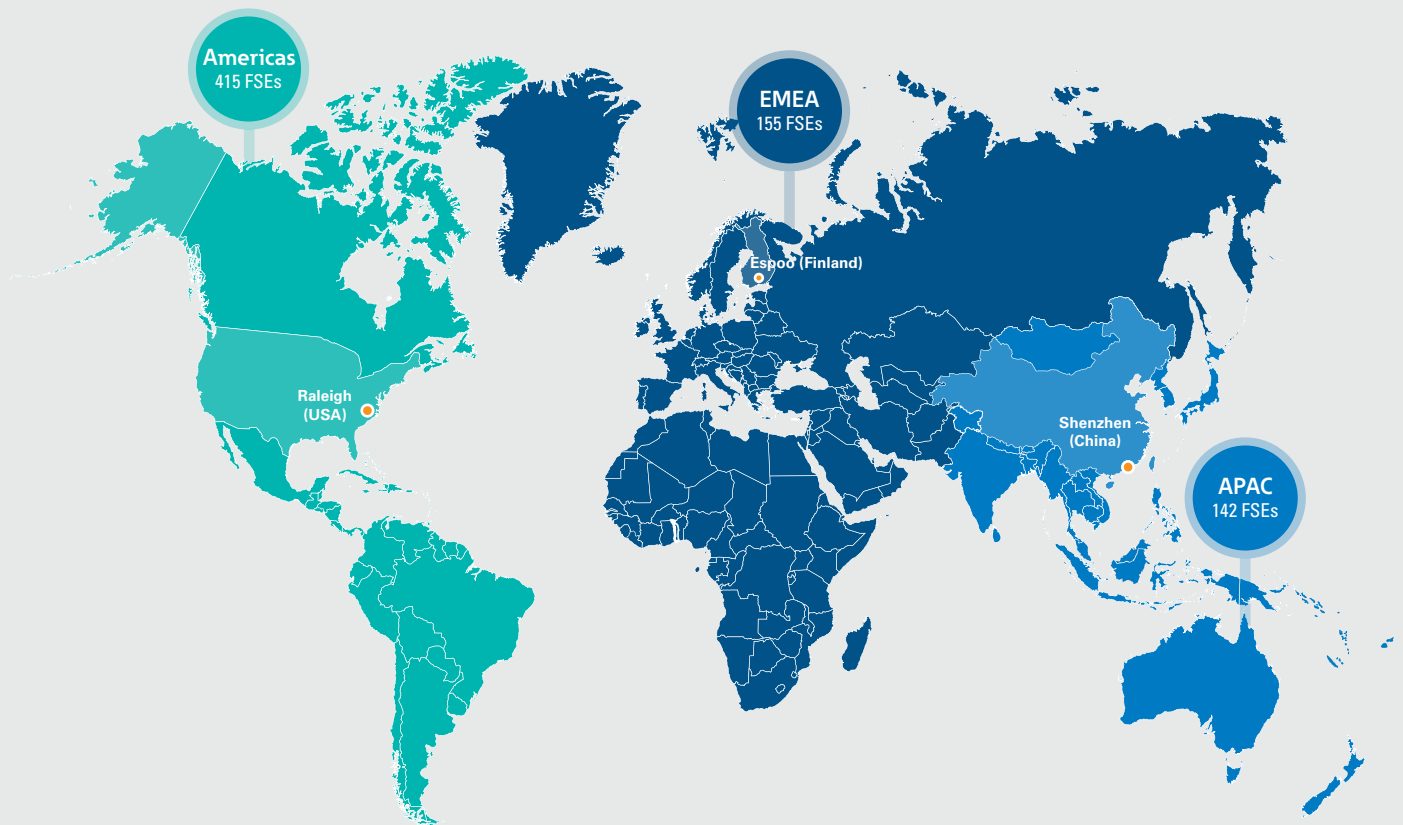
Depending on the power rating, choosing the latest UPS over a legacy product yields operation cost savings between

€10,000 to

€40,000



per unit during the product lifetime.



*The numbers do not include FSEs from authorized service partners
 **FSE = Eaton UPS Field Service Engineers

Service and serviceability

The serviceability of the Eaton 93PS Marine UPS is the result of close relationship with R&D and customer quality functions. For securing the uptime with the lowest operating cost the Eaton 93PS Marine is built maximizing Mean Time Between Critical Failure (MBTCF) and minimizing Mean Time to Repair (MTTR). The predictivity of the unit performance means less variance in the estimated total cost of ownership - the most relevant measure of UPS cost.

When you choose Eaton UPS on top of reliable and serviceable product you also have access to Eaton's global UPS service coverage with more than 1200 UPS service specialists ready to serve you and your UPS hardware. For UPS units located in remote and hard to access locations, we offer remote monitoring and event management through the optional communication options.

If you need increased autonomy over UPS service, Eaton also welcomes you to join our service training facility that covers all 3ph UPS products sold in the EMEA region to get UPS model specific service training. Together with proper training, pre-engineered spare parts kits and the Eaton 93PS Marine's design for serviceability you can gain greater autonomy over your UPS service for that extra layer of certainty.

Ask your local sales office for more information or visit eaton.com/UPSservices.

Technical specifications

General	
Output power rating (PF 1.0)	8, 10, 15, 20, 30, 40 kW
External paralleling	Up to 4 units with HotSync technology
Inherent redundancy	Up to 20 kW with HotSync technology
Efficiency in double-conversion mode	Up to 96.0%
Efficiency in Energy Saver System mode	Up to 98.8%
UPS topology	Double conversion
UPS performance classification	VFI-SS-111
Degree of ingress protection	IP23
Standard UPS color	Industrial grey; RAL 7035
Ambient service temperature range	0°C to 45°C
Maximum service altitude	1000 m (3300 ft) above sea level at 40 °C
Acoustic noise at 1 m, in 25 °C ambient temperature, without transformers	< 60 dBA in double conversion < 47 dBA in ESS
Mean Time To Repair (MTTR)	< 8 minutes (UPM) / < 15 minutes (UPS)
RoHS/WEEE compliancy	Yes

Input	
Nominal voltage rating	380 V, 400 V, 415 V
Input voltage with internal transformers	208 V - 690 V
Input frequency range	40 - 72 Hz
Input wiring	3ph+N+PE (3ph+PE with input transformer)
Input power factor	0.99
Input THDi 100% linear load	< 3%
Soft start for generators	Yes
Internal back feed protection	Yes, for rectifier and bypass lines

Output	
Output wiring	3ph+N+PE / 3ph+PE
Rated output voltage	380 V, 400 V, 415 V
Output voltage with internal transformers	208 V - 690 V
Output frequency	50 Hz / 60Hz configurable
Output UTHD	< 1.5% (100% linear load), < 3.5% (100% non-linear load)
Inverter overload capacity	10 min 102 – 110% load
	60 s 111 – 125% load
	10 s 126 – 150% load
	300 ms > 150% load

Output	
Static bypass capacity	Continuous < 125% load, 20 ms 1000% load
Short-circuit capability at rated voltage	Up to 144 A / 300 ms
Rated output power factor	1.0
Load power factor range	0.8 lagging to 0.8 leading

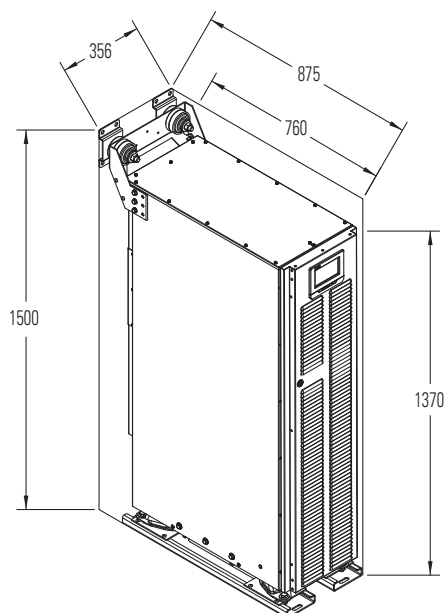
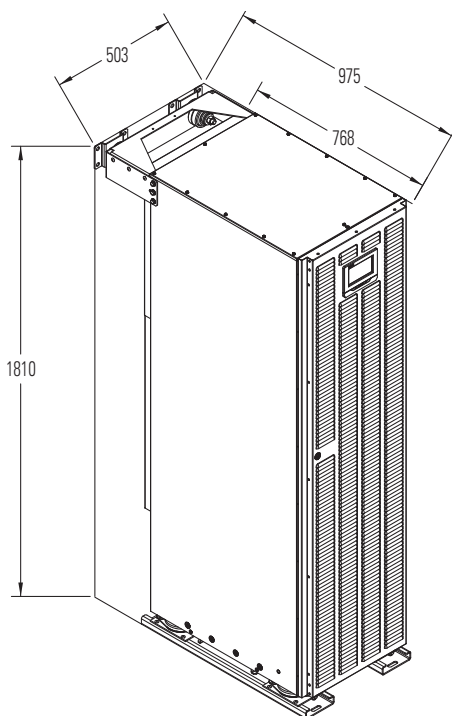
Battery	
Battery technology	VRLA, Li-Ion, NiCd, Eaton Super Capacitors
Nominal battery voltage	336 V - 480 V
Charge current limit	
Load ≤80%	Up to 50 A, configurable
Load >80%	Up to 30 A, configurable
Charging method	Eaton ABM technology or float
Boost charge function	Yes
Temperature compensation	Yes
Battery start option	Yes

Communications	
MiniSlots	2 communication bays for Web/SNMP, ModBus/Jbus & Industrial realy
Standard connectivity ports	Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs, 1 relay output and a dedicated EPO

Accessories	
Accessories for UPS	Internal transformers; Single feed kit; Earth fault monitoring; 24V Emergency Power Off (EPO); Custom system and battery voltages; Custom colors

Compliance with standards	
Safety (CB certified)	IEC 62040-1
EMC	IEC 62040-2
Performance	IEC 62040-3
RoHS	EU directive 2011/65/EU
WEEE	EU directive 2012/19/EU
Environmental Aspects - Requirements and Reporting	IEC 62040-4, EN 50581

Due to continuous product improvement programmes, specifications are subject to change without notice. For product specific specifications, contact Eaton sales representatives.





For further information on the Eaton 93PS Marine UPS range, please visit www.eaton.eu/93PSmarine
For additional information on Eaton's marine capabilities, visit us at www.eaton.eu/marine

Eaton
EMEA Headquarters
Route de la Longeraie 7
1110 Morges, Switzerland
Eaton.eu

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