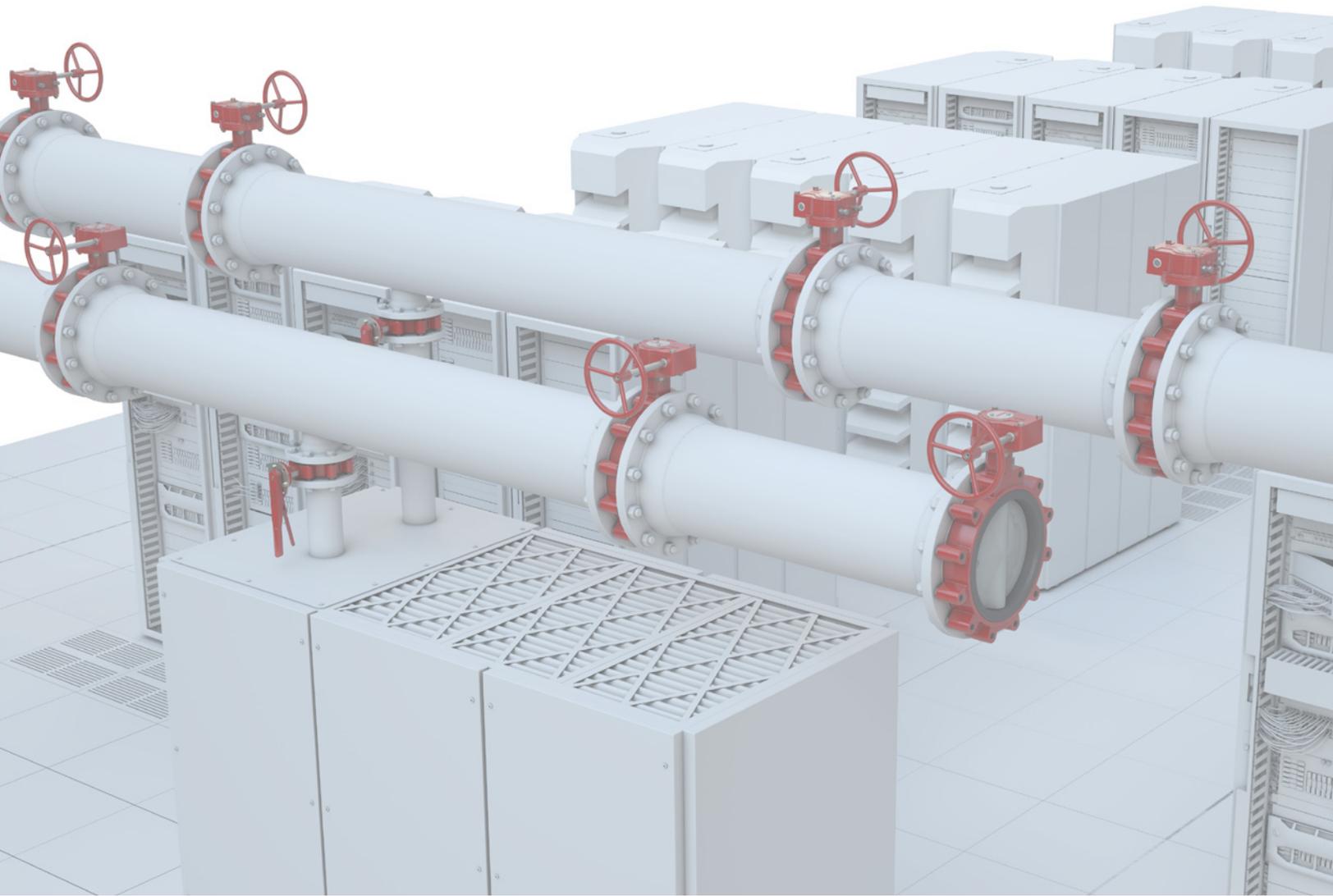

**SOLUTIONS FOR THE
DATA CENTER MARKET**



 **Bray** COMMERCIAL

BRAY.COM

YOUR HVAC FLOW CONTROL PARTNER



Source: Google.

RELIABLE SOLUTIONS FOR THE DATA CENTER MARKET

“WITH 25 YEARS OF EXPERIENCE AND AN INSTALLED BASE OF OVER 2GW OF DATA CENTER PROJECTS ACROSS THE GLOBE, BRAY HAS UNIQUE AND INNOVATIVE SOLUTIONS THAT PROVIDE DEPENDABLE AND CONTINUOUS SERVICE IN MISSION CRITICAL INFRASTRUCTURE PROJECTS, MAKING BRAY THE PARTNER OF CHOICE FOR MANY OF THE WORLDS LEADING OPERATORS AND DESIGN TEAMS.”

The global need for data storage and processing continues to accelerate – from 1 zettabyte in 2010 to a projected 60 zettabytes in 2020, driving a global electrical demand of almost 200 Twh for the Data Center industry.

From a **sustainability perspective**, Data Centers are being challenged to minimise the use of natural resources, transition to carbon neutrality and to implement the exportation of its waste heat. With up to 40% of a Data Centers power being used to cool its servers, modern systems are therefore being designed to maximise the use of “free-cooling” without the need for evaporating any water.

In such water cooled applications, Pump energy costs are a significant contributor to the total electrical load and PUE-rating of the facility. The correct selection of isolation and control valves can help reduce the overall Pump energy costs saving up to 10,000 USD per MW per year.

UPTIME OPTIMISATION

According to the Uptime Institute, one of the most common non-compliance trends of Concurrent Maintenance criteria for Tier III and Tier IV Data Centers, is the “inadequate coordination between the number and location of isolation valves in the chilled water distribution path”.

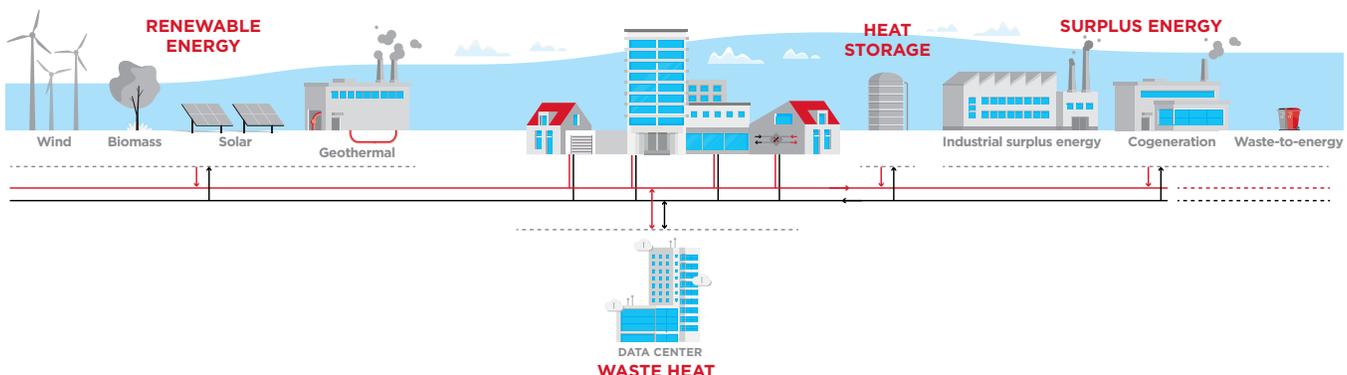
Making the right selection and usage of isolation valves, not only ensures compliance but can also facilitate a more cost-efficient system design, impacting on both Capex and Opex outlay.

Mission Critical Infrastructure relies on dependable, high performing equipment and components, where lifetime reliability and performance are essential. The choice of the materials of construction can have a direct effect on the lifetime performance and durability of control and isolation valves and therefore need to be carefully selected according to the medium being controlled, be it Chilled Water, Sea Water or Clean Water.

SECTOR INTEGRATION & SUSTAINABILITY

Heating and cooling accounts for half of the EU’s energy consumption and is currently 75% fossil-fuel based.

To succeed with the future energy transition, decarbonising our heating and cooling supply is essential. Energy efficiency and the smart integration of renewable energy through sector coupling will become more necessary, with Data Centers playing a critical role in supplying “waste” heat to the energy grid of tomorrow. End-to-End product and system solutions will facilitate sector integration and simplify the design and installation process for such projects.



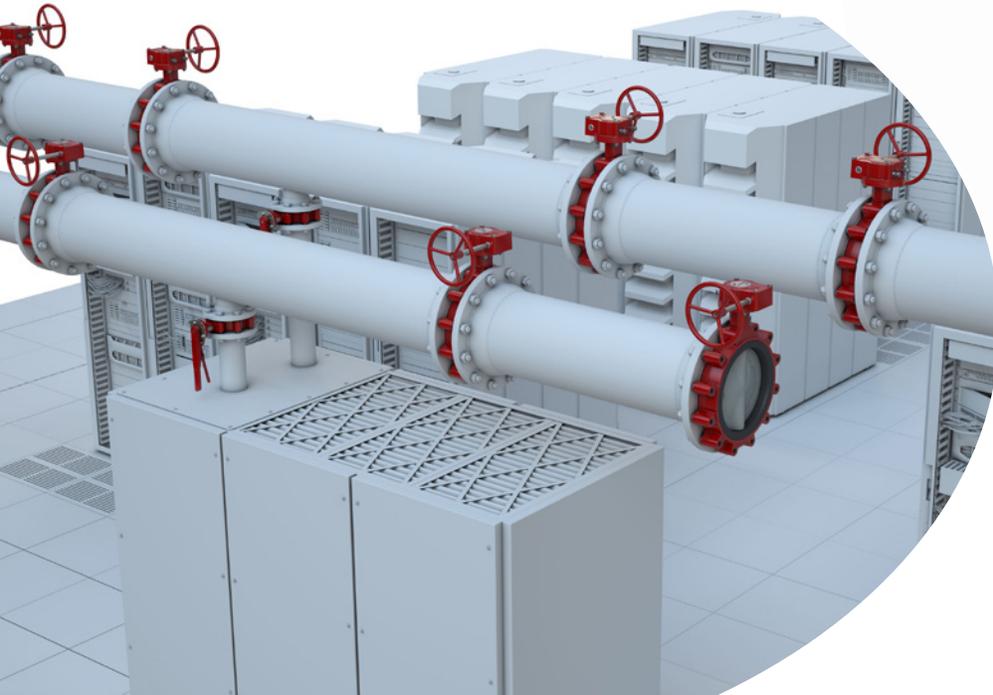
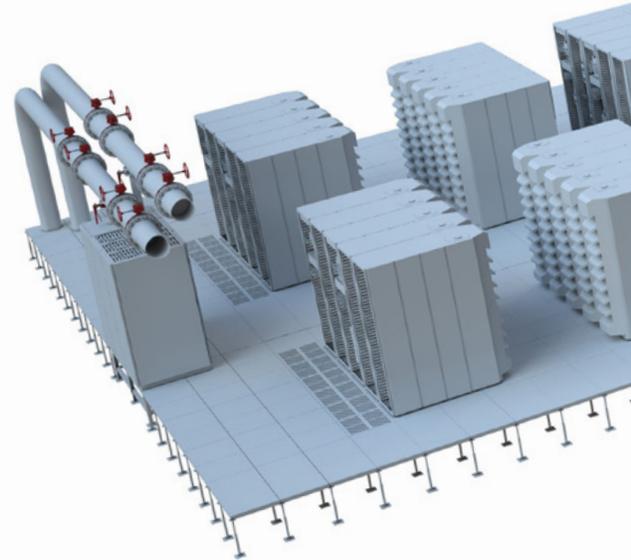
OPERATIONAL PERFORMANCE AND RELIABILITY

Application Touch Points within Mission Critical Infrastructure require dependable, high performing and energy efficient product solutions, to ensure lifetime reliability and maximum uptime.

APPLICATION TOUCH POINTS

| | |
|---------------------------------|-----------------------------|
| CRAC Units | Isolating Valves |
| | Modulating Control Valves |
| Pump Skids | Automated Staging Valves |
| | Isolating Valves |
| | Non Return Valves |
| Mechanical Cooling Units | Automated Staging Valves |
| | Isolating Valves |
| | Non Return Valves |
| Chillers | Automated Staging Valves |
| | Minimum Flow By-pass Valves |
| | Isolating Valves |
| Water Softener Plant | Isolating Valves |
| | Dump Valves |

| | |
|-------------------------------|---------------------------|
| Cooling Towers | Automated Control Valves |
| | Isolating Valves |
| On Rack Server Cooling | Modulating Control Valves |
| | Isolating Valves |
| HEX Control | Modulating Control Valves |
| | Isolating Valves |

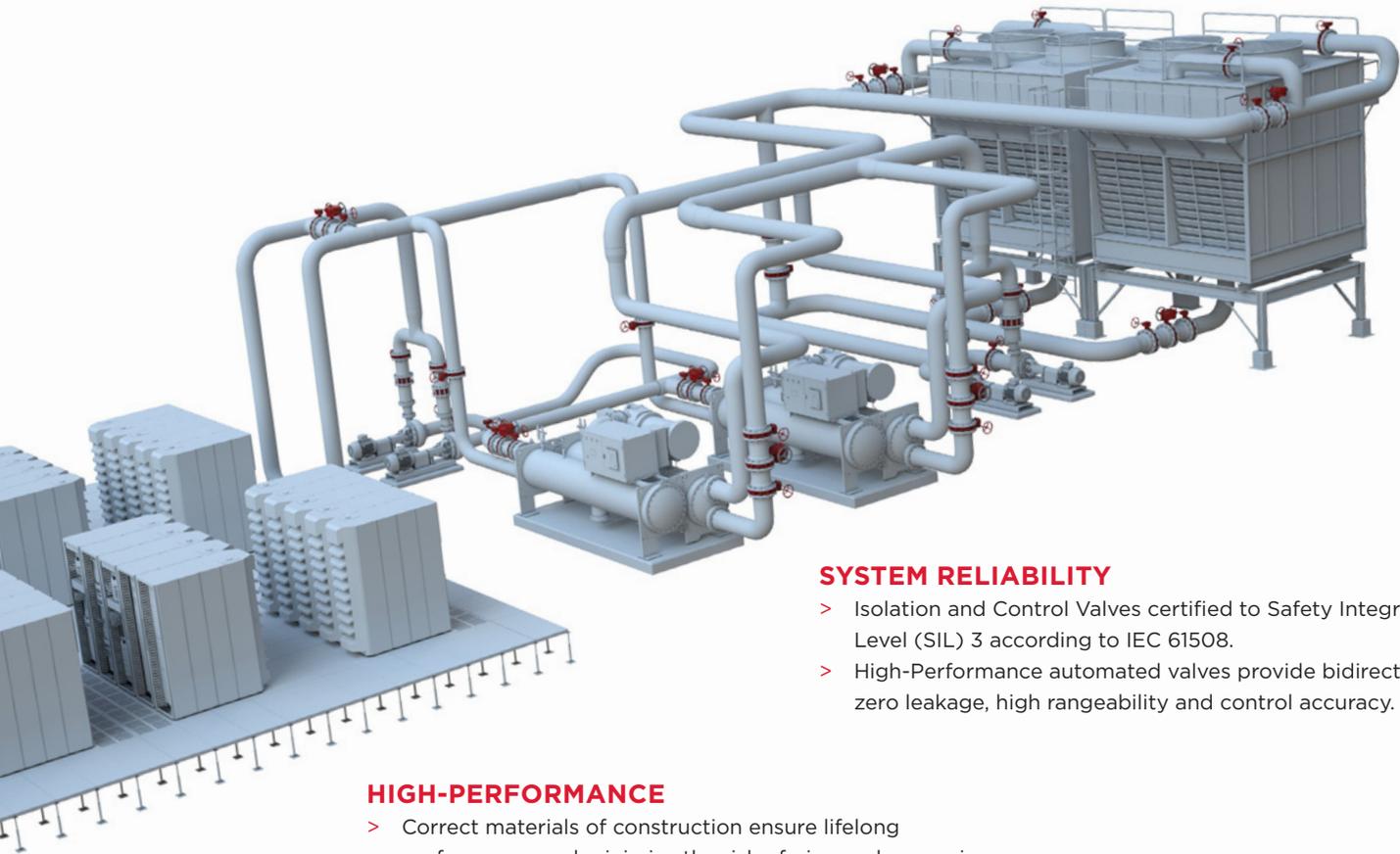


UPTIME OPTIMISATION

- > Optimum selection and usage of Isolation Valves, ensures compliance with Concurrent Maintenance criteria for Tier III and Tier IV applications.
- > High Dead-End-Service rating of Isolation Valves provides the most cost efficient design possibilities.

ENERGY EFFICIENCY

- > Isolation and Control Valves with high Kv values to minimise system pressure loss, reduce Pumping costs and improve PUE-rating.



SYSTEM RELIABILITY

- > Isolation and Control Valves certified to Safety Integrity Level (SIL) 3 according to IEC 61508.
- > High-Performance automated valves provide bidirectional zero leakage, high rangeability and control accuracy.

HIGH-PERFORMANCE

- > Correct materials of construction ensure lifelong performance and minimise the risk of pipework corrosion.

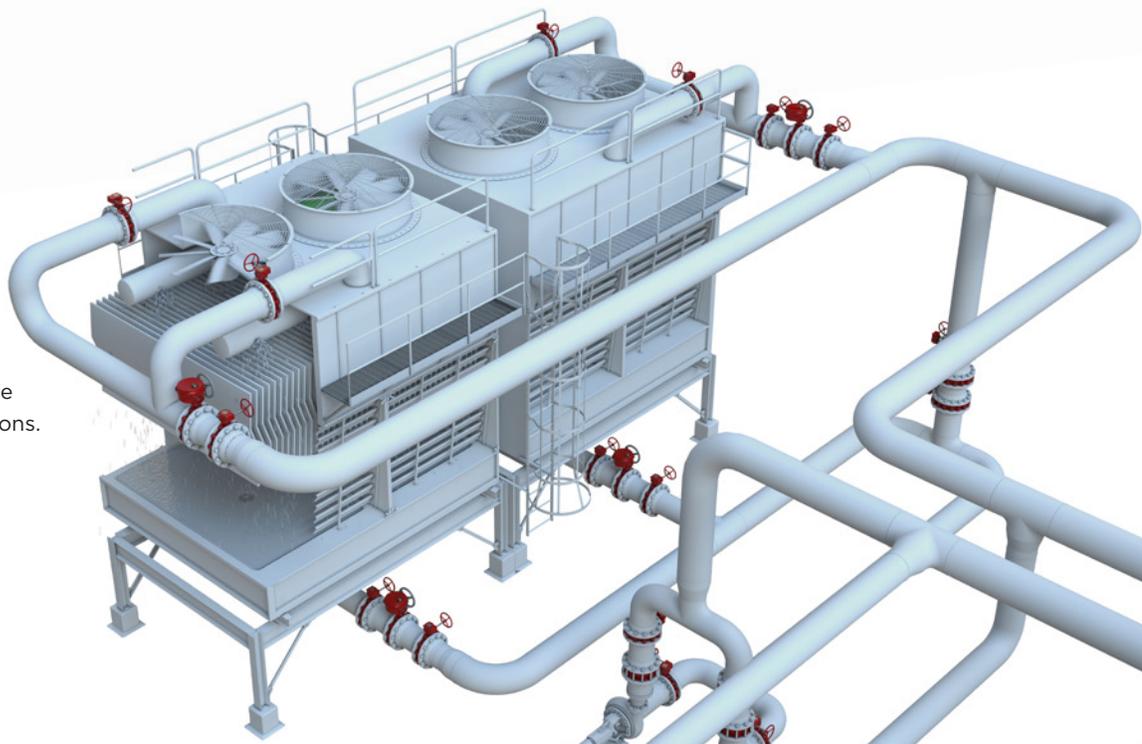
MATERIAL SELECTION

- > Ductile Iron
- > Carbon Steel
- > Stainless Steel
- > Aluminium-Bronze
- > Titanium
- > EPDM
- > BUNA
- > FKM (Viton®)
- > RPTFE

Cleaning and packaging available for all Ultra Pure Water applications.

MEDIA

- > Chilled Water (Glycol)
- > Condenser Water
- > Sea Water
- > River Water
- > Ultra Pure Water (grades E-1.1 through E-4)



OUR VALUE PROPOSITION

OUR VALUE

Bray Commercial delivers End-to-End High-Performance product solutions that address the flow control needs of Mission Critical Infrastructure, from within the Data Center environment to a District Energy network and within Commercial buildings.

With the experience of an installed base of over 2GW of projects across the globe and having Sales and Logistics Centers strategically located throughout Europe, Bray has become the partner of choice for many of the worlds leading Owners, Operators, Design Engineers and Installers.



INSTALLED BASE

Present in over 300 data center installations worldwide, Bray has significant application and domain knowledge and expertise.



GLOBAL REACH

Sales and Service facilities in over 40 countries, supporting owners, operators & consulting engineers on any project globally.



MARKET FOCUS

Experienced Technical Sales & Support and focussed product development for applications.



ENERGY EFFICIENCY

Valves with highest Kv values in their product class, ensuring low pressure loss and minimum pump operating costs.



UPTIME OPTIMISATION

Isolating valves with high dead-end-service rating to optimise system design, according to Uptime Institute & ANSI/TIA 942.



BIM MODELLING

Revit files available for key products to facilitate BIM modelling and integration.



COMPLETE PORTFOLIO

Bespoke solutions for Mission Critical Infrastructure projects with many applications touch points within the Data Center environment.



FLEXIBILITY

Global production with local distribution centers to meet the needs of short lead time supply demands.



RELIABILITY

High performance products, where quality and reliability ensure maximum uptime is achieved.

PRODUCTS FOR YOUR APPLICATION

Addressing many of the control and isolation applications within Mission Critical Infrastructure, with particular emphasis on the correct use of materials of construction, the portfolio is designed to guarantee lifetime performance. Bray's products are available in either ANSI or DIN configurations to support global design and install requirements.

Quality and reliability are guaranteed from the design through to the manufacturing process. Bray meets all relevant International Quality and Safety standards and can provide Material verification and traceability. Each and every valve is pressure and leak tested to EN 12266-1 and API 598 standards.

MANUAL BUTTERFLY VALVES



AUTOMATED BUTTERFLY VALVES



MODULATING CONTROL VALVES



CHARACTERISED CONTROL BALL VALVES



CHECK/NON-RETURN VALVES



MANUAL BALL VALVES



PRESSURE INDEPENDENT CONTROL VALVES



BRAY COMMERCIAL IS A LEADING SUPPLIER OF HIGH-PERFORMANCE PRODUCT SOLUTIONS THAT ADDRESS THE FLOW CONTROL NEEDS OF THIS CRITICAL INFRASTRUCTURE, FROM WITHIN THE DATA CENTER ENVIRONMENT TO THE DISTRICT ENERGY DISTRIBUTION NETWORK AND WITHIN COMMERCIAL BUILDINGS.

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