

Colt modular data centres

What's included?

Colt's modular data centre are now available in multiple sizes, power densities and tier configurations. Our standard design – the Colt 500 Series; includes the following features:

Component	Colt's modular data centre standard features:
Power	Power density: 1,625W/m ² Total power: 827 kW per 509m ² technical space Incoming power: Dual 100% rated from site supplies Phase: Single phase AC Bus-bars: 24 in N+N (12A & 12B) configuration – each supporting a maximum of 67.7 kW of technical load Transformers: 2 x 2mVA UPS: Static 24 x 80kVA with 10 minutes autonomy on each pair of bus-bars Generators: 4 x 825 kVA (Standby rated) Consumption: Metered at transformer and component level Monitoring: Power monitoring system for all out-going breakers and cabinet power tap offs Lighting: Energy-efficient PIR lighting system throughout
Size	Internal dimensions: 38.6m x 16.2m = 625m ² internal data hall (including end corridors if configured) Technical space: 38.6m x 13.2m = 509m ² Typical cabinet capacity: 204 (17 cabinets x 12 rows) @ 800mm x 1,200mm 264 (22 cabinets x 12 rows) @ 600mm x 1,200mm Maximum cabinet height: 47u
Design Resilience	System availability: 99.999% (power); 99.9% (cooling) TIA Tier level: Tier III <ul style="list-style-type: none"> ▪ Transformers: N+N ▪ Low Voltage Switchgear: N+N ▪ Generators: N+N (fully automatic) ▪ UPS: N+N (10 minute battery autonomy for each sub-module) ▪ Cooling: N+1 Generator fuel: 72 hours at full capacity
Cooling	Technology: Direct and indirect fresh air cooling with DX (Direct Expansion) backup; automatic air contamination detection and switch to recirculation and DX; Intelligent DFU self-management Data room: Hot aisle / cold aisle configuration with cold aisle containment Capacity: 829 kW per 509 m ² Air-input: Fresh-air grilles & louvers in external shell building Cooling exhaust: Via exhaust trunking and roof cowls Humidity: N+1 Vapac humidity control system Cooling resilience: Resilient power supplies to DFUs; UPS-backed DFU fans; Conformance: Temperature / humidity bandwidths conform to current applicable ASHRAE ¹ standards.
Design operation parameters	Design target PUE: 1.21 at full load ² Temperature: 18-27°C within sensor tolerance Humidity threshold: 20% to 80% Relative Humidity in line with ASHRAE TC 9.9 thermal guidelines
Hall Construction	Configuration: Single story build constructed from 12 sub-modules installed on rigid grillage sub-structure. M&E: Dedicated mechanical and electrical plant for each data hall (and module) housed externally to data hall. Floor tiles: Raised floor with heavy duty grade floor tiles; 600 x 600mm 626 Standard; 264 access grilles; 264 cooling grilles; 286 Large (780mmx600mm); 150 Half (300mm x 600mm); 24 Large half (780mm x 300mm) Loading: 12.5kN/m ² (UDL) and 4.5kN/m ² (PL) BMS: Honeywell Hawk Building Management System with remote access and text message alerts Cabling: Open sub floor for unrestricted data cable routing Access: Access serviced by 3m wide corridors; Air-locked entrances to data halls; debox room for storage and equipment staging; 3 Tonne goods lift.
Fire control	Smoke detection: High speed, laser very early smoke detection (VESDA) Alarm: Fully monitored automation detection and alarming 1 st Stage detection: HSSD Aspiration Detection (VESDA) above & below floor 2 nd & 3 rd Stage: Addressable analogue system with double knock condition to initiate gas release Gas suppression: Constant pressure pro-inert system in technical space Fire rating: In excess of 60 minutes; beam smoke detection on roof of modules
Connectivity	Cable routing: Alternative entries through sub-floor Comms trunking: 4 entry points per data hall
Security	Entry: Card access system with air-lock doors at main and goods entrances CCTV: IR varifocal, super-high resolution, vandal resistant cameras monitor on entry / exit points into data hall
Monitoring	Building Management System providing: <ul style="list-style-type: none"> ▪ Power monitoring of all infrastructure from HV down to cabinet level ▪ Temperature and humidity monitoring in all aisles ▪ Monitoring of all critical plant ▪ Water detection on roof of modules

¹ American Society of Heating, Refrigerating and Air-Conditioning Engineers

² PUE as defined by the Colt design authority document DAPS-004 and based on standard PUE calculation methodology proposed by the Greed Grid

Colt's modular-manufacturing approach allows it to deliver top-quality, "off-the-shelf", built-to-last, data centres in a variety of configurations and locations in a very short space of time – typically as little as four months. The following sets out a range of standard options which can be provided to suit your particular requirements.

Component	Optional Configurations																								
Power	Power density: 750W/m ² ; 1,500W/m ² ; 1,625W/m ² ; 3,000W/m ² Total power: 382kW; 763kW; 827 kW; 1,527 kW per 509 /m ² technical space Current: AC or DC; Single or 3 phase AC Tap-offs: Variety of busbar tap-off options Generators: Prime or standby rated generators; 4 or 2 set configurations																								
Size	Technical space: 127 m ² ; 254m ² ; 377m ² ; 509m ² ; 1018m ² (double-stack); and multiples thereof.																								
Design Resilience & Operation Parameters	Variety of tier options: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Tier II</th> <th>Tier III</th> <th>Tier IV</th> </tr> </thead> <tbody> <tr> <td>Transformers</td> <td>N</td> <td>N+N</td> <td>N+N</td> </tr> <tr> <td>Switchgear</td> <td>N</td> <td>N+N</td> <td>N+N</td> </tr> <tr> <td>Generators</td> <td>N+1</td> <td>N+N</td> <td>N+N</td> </tr> <tr> <td>UPS</td> <td>N+1</td> <td>N+N</td> <td>2(N+1)</td> </tr> <tr> <td>Cooling</td> <td>N+1</td> <td>N+1</td> <td>N+2</td> </tr> </tbody> </table> Generator rating: Prime or Standby rated Cooling: Optional exclusion of DX and DFU Fan UPS (for climates where 100% fresh air cooling can be used)		Tier II	Tier III	Tier IV	Transformers	N	N+N	N+N	Switchgear	N	N+N	N+N	Generators	N+1	N+N	N+N	UPS	N+1	N+N	2(N+1)	Cooling	N+1	N+1	N+2
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Location	<u>Customer site location:</u> Colt can deploy its modular data centre into a customer or third party location: <ul style="list-style-type: none"> ▪ Into an existing warehouse ▪ With full external cladding (no warehouse required) ▪ Into a new warehouse / shell – fully managed by Colt <u>Colt site location:</u> Colt owns highly secure, well connected, flagship data centres into which the modular data centre hall can be deployed on behalf of the customer: <ul style="list-style-type: none"> ▪ Welwyn (London 3) ▪ Les Ulis (Paris 2) 																								
Construction	Configuration: Optional provision of debox rooms; corridors, access doors and airlocks. Double stack: Double stack configuration for 1,000m ² configuration to minimise required footprint (together with staircases, lifts, fire-escapes, ladders and external gantries) Generator housing: Stacking and integrated fuel tank options to minimise footprint Climate specific: Provision of mist eliminators or rain screens for extreme climates Fire alarm connection: Linkage of modular data centre systems (e.g. fire alarms) with any existing warehouse monitors and alarms Connectivity: Provision of additional fibre entry points Fire rating: Increased fire rating (90 minutes +) available																								
Data Hall Fit-out	Floor tiles: Range of options for provision and fit out of floor tiles (800mm x 800mm; additional grilles...) Tap-offs: Dumb, monitored, 3 phase, wireless and additional alternatives. Cabling: High and low level cable routes. High level trunking and structured cabling alternatives Rack provision: Delivery of factory-fitted pre-configured and cabled racks if required. Containment & security: Additional aisle containment and blanking. Provision of security doors on aisles with range of security access methods. Additional cameras provided within aisles																								
Services	<u>Customer or Third Party site location:</u> <ul style="list-style-type: none"> ▪ Consultancy, including customer requirements analysis, CFD Modelling, Project Planning, Design ▪ Support and consultancy for customer site design & site works³ ▪ Transport of modular data centre to customer site ▪ Installation; testing; commissioning and handover ▪ Operational and technical documentation ▪ Training ▪ Warranty, annual maintenance and testing <u>Colt site location: If the modular data centre is deployed at a Colt site additional available services include:</u> <ul style="list-style-type: none"> ▪ Management of access control ▪ Remote hands services with fully qualified data-centre technicians ▪ Fault management, escalation and resolution ▪ Planned Preventative Maintenance (PPM) ▪ Connectivity options to connect to Colt network and a number of other carrier networks ▪ Monitoring & alarm management ▪ Power monitoring & reporting ▪ Other consultancy – including audit 																								

To arrange a consultation with one of our experts to discuss the most suitable configuration for your data centre requirements, please email: dcsinfo@colt.net or visit www.colt.net/dcs

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MDC Configuration: V1.4.0. Document reference: MDC Specification V0.1 October 2011.

³ Site works (such as planning permission, design, construction and preparation of the site ready to accept the modular data centre) are normally the responsibility of the customer – including the provision of 2 x 2mVA High Voltage power feeds from the utility provider and fibre connectivity as well as other civil works. Colt is able to offer consultancy and support in these activities as part of a normal overall project.