Rittal – The System.

Faster – better – everywhere.

Large Enclosure Selector Guide

RITTAL

FRIEDHELM **LOH** GROUP

Enclosures for Every Design, Every Environment, Every Challenge

As manufacturing scales for growth, control and operation systems become integral to driving efficiency and productivity. And the backbone for mounting and protecting systems is the modest enclosure. Industrial enclosures act much like a safe or strongbox to mount and protect your electronics, process controls, power systems and other business-critical equipment. This storage and protection can be installed almost anywhere on the plant floor and is delivered in a single footprint.

Rittal understands these needs and has engineered enclosure systems that are flexible enough to expand, adapt, and integrate easily with diverse manufacturing environments. Rittal industrial enclosures are built to brave the elements and withstand the most punishing environmental conditions.

Enclosures will protect from water, dust, corrosive liquids and other contaminants. They will provide security for systems in remote locations, and climate control to moderate thermal fluctuations that will extend the life of internal components. But choosing the right enclosure for your need may be the biggest challenge you will face.

To ensure the proper level of protection, durability, flexibility and scalability, it's important to educate yourself on the following topics:

- NEMA/UL protection ratings
- Enclosure materials
- Unibody and modular designs
- Safety features, including arc flash prevention and disconnection solutions
- Enclosure accessories

This Large Enclosure Selector Guide will take you through each of these issues to help you find the right solution to meet your needs and ensure operational success for years to come.
Here are a few questions to consider as you think about the proper enclosure:

- Will I need a single enclosure or multiple enclosures?
- Is there a foreseeable need for enclosure expansion?
- Are there arc flash or other potential safety hazards to address?
- Does the enclosure need protection from standing water?
- What corrosive gas, vapor, liquid, or dust particles may be present?
- Is there exposure to any by-products of manufacturing processes?
- Is exposure to weather a concern?
- To what temperature will the enclosure will be exposed?
- What is the total weight of the components to be housed?
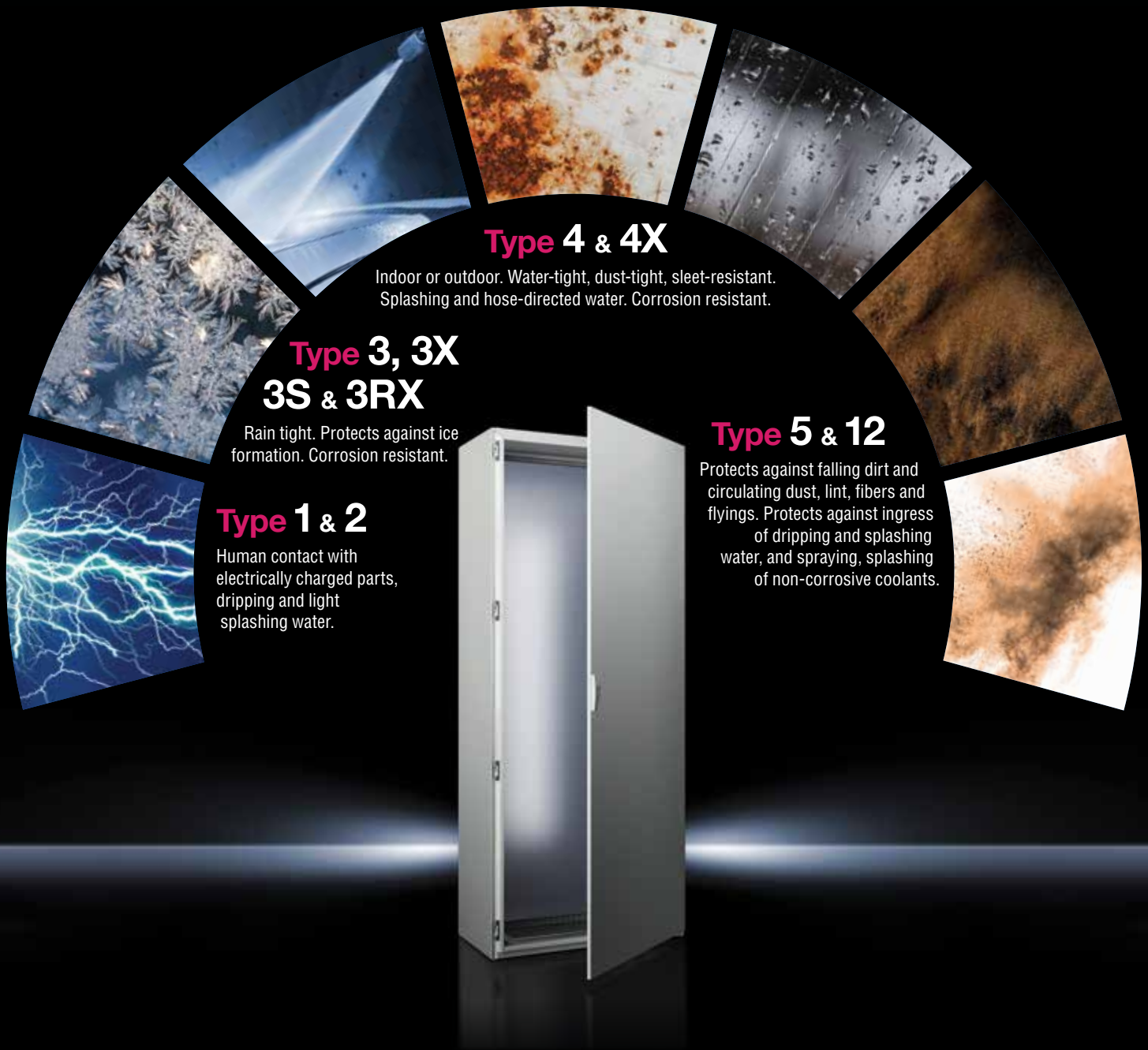- Is the enclosure location secured or accessible by many?

Built to Brave the Elements
We've got you covered

Rittal electrical enclosures are built to brave the elements and withstand the most challenging environmental conditions. We apply the highest standards to our products to ensure protection from electrical shock as well as such environmental hazards as water, dust, oil or coolant. Our products are safety rated by the top two organizations setting electrical safety standards – the National Electrical Manufacturers Association (NEMA) and UL (Underwriters Laboratories). So, when it comes to safety and security — we've got you covered.

Type 4 & 4X
Indoor or outdoor. Water-tight, dust-tight, sleet-resistant. Splashing and hose-directed water. Corrosion resistant.

Type 3, 3X 3S & 3RX
Rain tight. Protects against ice formation. Corrosion resistant.
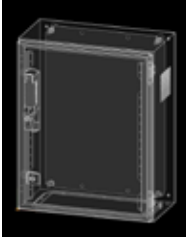
Type 5 & 12
Protects against falling dirt and circulating dust, lint, fibers and flyings. Protects against ingress of dripping and splashing water, and spraying, splashing of non-corrosive coolants.

Type 1 & 2
Human contact with electrically charged parts, dripping and light splashing water.

Online Tools to Help You Make Informed Decisions

Rittal makes it easy for you to select the right enclosure for your application with online configurators, selectors and apps. Determine what enclosure is right for you, design it, add accessories and order.

Rittal Configuration System

This updated, simple to use tool, allows for customers to create and output error-free enclosure holes and cut-outs and accessory placements. The user has the ability to digitally place holes, cut-outs, and accessories using a 3D enclosure model viewing tool. Leverage your RiCS drawing as you go straight to the primeXPRESS enclosure assembly process. With thousands of standard parts in-stock, Rittal can ship your enclosures fast with cut-outs and drilled holes completed.

www.rittal.us/contents/rittal-configuration-system/
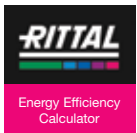
Rittal Industrial Enclosures Selector

The Rittal Industrial Enclosures Selector for iOS is an easy-to-use tool to find your next Rittal Wallmount enclosure. In addition to determining Rittal part numbers via the finder, there is an intuitive competitive cross reference tool, and a mapping feature that allows you to find the closest Rittal distributor to you quickly in both the United States or Canada.
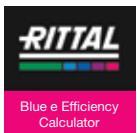
www.rittal.us/contents/mobile-apps/

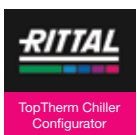# Calculators, Configurators and Apps

Rittal provides calculators, configurators and apps to assist you in making the most informed decisions regarding your Rittal products.
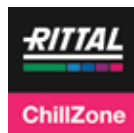
Rittal Energy Efficiency Calculator for Cooling Units (Blue e⁺). Compare your current cooling unit to the Blue e⁺ to determine your energy savings. http://bit.ly/RittalEfficiencyCalc

Blue e Efficiency Calculator
Blue e cooling units provide savings in both cost and CO_2 emissions. Enter your current system information to discover the Rittal difference. http://bit.ly/BlueEcalc

Rittal Chiller Configurator
The TopTherm chiller configurator enables you to select an economically efficient solution for process cooling. http://bit.ly/ChillerConfig

Blue e⁺ ChillZone app
Rittal created the ChillZone app, an energy savings estimator for its Blue e⁺ line of industrial enclosure cooling solutions. The app lets you easily compare annual cost savings between an existing system and Rittal Blue e⁺ products. What's more, you can even compare specific competitive products by inputting a specific product number or that product's average energy efficiency ratio (EER).
iOS: http://bit.ly/ChillZoneAppIOS
Android: http://bit.ly/ChillZoneAppAndroid

RiTherm Climate Control
Simplify the time-consuming and complicated process of calculating how much cooling your enclosure needs with this app. It also includes a rapid climate control system selection feature. Just enter temperature specs, enclosure dimensions, type of cooling solution needed and RiTherm calculates a summary of climate control equipment you'll need.
iOS: http://bit.ly/ThermAppIOS
Android: http://bit.ly/ThermAppAndroid

Carbon/Mild Steel for Everyday Protection

If you are looking for indoor enclosures that can protect against everyday threats such as dirt, dust and dripping or splashing water, carbon or mild steel is the right choice. Carbon/Mild steel enclosures are not typically used in harsh environments; however, a Type 12-rated enclosure can be used indoors in wet, non-corrosive environments.

Standard features include:

- Multi-fold single body construction for superior strength and stability with fewer welds
- Optimum surface finish with electrophoresis dip-coat primer and powder-coat paint
- Flange collar opening and seamless foamed-in-place gasket to create a tight, continuous seal
- UL Type 12 / 3R / 4 rated
- Depth-adjustable galvanized mounting panel
- Suitability for indoor/outdoor use

Stainless Steel for Your Harshest Environments

The need to protect critical equipment in corrosive environments requires a higher level of protection than painted carbon steel enclosures can provide. Stainless steel enclosures fill this void with superior strength and corrosion-resistant properties.

Stainless enclosures are built to keep out various elements in mild and extreme conditions. They can be used for indoor and outdoor applications that require protection from corrosion, chemicals, high-pressure washes, rust, and various harsh weather conditions. Common applications that require stainless steel include:

- Oil & Gas
- Mining
- Food & Beverage
- Pharmaceutical
- Pulp & Paper
- Wastewater

Standard features include:

- 30 percent more available mounting space than traditional unibody enclosures of equal dimensions
- Four-point latching system and continuous foamed-in-place gasket to provide a water- and dust-proof environmental seal
- Pad-lockable handle that provides both easy access and security
- Full functionality and expandability
- Quick-release hinges that enable easy door removal and replacement

For Flexibility, Choose an SE 8 Freestanding Enclosure

If you're looking for greater durability and customization, look to the SE 8 freestanding enclosure. A dual-access enclosure with a removeable mounting panel makes it easy to install and access. It also provides flexibility with front and rear access, and a reversible door to accommodate modifications over the lifecycle of the enclosure. The strength and interior mounting are handled by the roll-formed frame section of the enclosure; this creates improved durability and 30 percent more internal space than standard industry enclosure mounting panels. The SE 8 is available in carbon or stainless steel and single- or double-door configurations.

A variety of interchangeable accessories are available, including:

- Cable entry options
- Plinth, cable base and flex-block
- Locking system
- Comfort handle, inserts
- TS 8 interior system accessories
- Swing frames, chassis, rails and partial panels
- Lighting and grounding systems

TS 8 Delivers Modularity, Efficiency and Scalability

**TS 8 modular enclosures.
Invented here. Perfected here. Poorly copied over there.**

When you need protection for your electronic equipment—no matter the location or threat—you need the Rittal TS 8 enclosure. These bestselling enclosures are designed and built specifically to withstand the toughest environments, including oil rigs, subway tunnels and even desert substations.

Engineered for superior performance, features and benefits of the TS 8 include:

- 30 percent more available mounting space than traditional unibody enclosures
- Four-point latching system and a continuous foamed-in-place gasket create a water- and dust-proof seal
- A fold-away handle does not take up valuable door space and provides a simple way to exchange lock inserts or add padlock provisions
- A large assortment of internal accessories that allow for three-dimensional mounting on all internal surfaces
- A removable floor panel that simplifies conduit and wiring installation
- Quick-release hinges enable fast and easy door removal and replacement
- The strength of modular construction delivers a load capacity of 3,150 pounds to handle more equipment within the enclosure
- CSA, UL, cUL and seven additional global standard approvals make the TS 8 ideal for markets like shipping, oil and gas, and automotive

The TS 8 modular enclosure system provides unsurpassed flexibility, scalability, strength, and durability compared to other enclosures on the market. No matter where you need them, TS 8 enclosures will maintain a clean, consistent environment even in the most extreme conditions.

The Dangers of Arc Flash and How to Prevent It

An arc flash is the explosive release of energy triggered by a phase-to-phase or phase-to-ground short circuit. During an arc flash event, air acts as a conductor to carry electrical current, which causes an arc fault. An arc flash event is typified by extreme heat, intense light, and a violent pressure blast.

It is a potentially lethal blast can propel shrapnel, tools, and workers through the air. Workers exposed to an arc flash can sustain serious injuries typical of an explosion: severe burns, loss of vision and hearing, broken bones, and head trauma.

Arc flash is a major safety concern for any application that incorporates high current electrical equipment, and considerations for prevention during the design phase of any application should be considered from the start.

Human error is more prevalent than equipment failure as a common cause of arc flash accidents. Phase-to-phase and phase-to-ground contact can occur due to distractions when an operator is working on highly-energized equipment. Control panels, disconnects, bus switches, motor controls and starters, and switchgear are common locations that accidents can occur.

Rittal's TS 8 modular enclosure system is designed specifically for demanding industrial applications. The TS 8 can be configured to keep high-voltage and low-voltage equipment within the confines of their own respective enclosures. Rittal also offers accessories that enable workers to perform data collection, programming, and visual monitoring while keeping enclosure doors shut, eliminating exposure to arc flash hazards. These accessories include interface port and access flaps, external data pockets, fold-up keyboard shelves, dead-front kits, and viewing windows.

Flange Mount Disconnect

The TS 8 Flange Mount Disconnect Enclosure is a standard enclosure designed to accept most commercially available operator handles. Its flexible, modular design is listed UL Type 12 and allows for easy integration into any industrial system. The TS 8 Disconnect Enclosure is tailored for the specific demands of North American applications.

The TS 8 Flange Mount Disconnect Enclosure offers:

- Enhanced and simplified hardware installation
- A rigid trim door to accept a variety of high and low amperage operator handles
- Optional high amperage adapter plate, allowing future system upgrade while maintaining Type 12 rating
- Blank adapter plate option for non-disconnect conversions or conversions that need to be made to customer specific handle positions
- Easy-to-follow installation instructions for a variety of operator handle manufacturers
- Reduced-width hinged trim door design for more usable panel mounting space
- Hinged and side access behind the operator handle cutout to make mounting and connecting hardware easier
- Expandable and modular enclosure compatible with all standard TS 8 accessories

Meets and exceeds UL 508A standard.

C **UL**® US
LISTED

Keep Water Out with Hygienic Design System Enclosures

Successful Hygienic Design (HD) Wallmount enclosures help you battle the ever- present risk of contamination. Our terminal boxes and compact enclosures are key elements in your cleaning solution. There is no external cavity between the enclosure and the door. Contamination risks are minimized, reducing the excessive use of cleaning and disinfecting agents.

Roof angled forward at 30˚ to allow fluid to drain rapidly and allow for easier inspections

Seal
- Silicone profile seal between door, side panels
- Joint-free, all-around external seal – simple to replace
- Seal dyed blue to distinguish it clearly from foodstuffs
- Self-adhesive seal for the angled roof and baying frame comprising of jointed lengths and rectangular profiles

Door
- Hinges that are inside the sealing zone create an exceptionally easy-clean design
- Two locking rods in stainless steel for secure and sealed closing
- Easy-to-clean lock insert – can be exchanged for a T-handle

Design
- Integrated, non-detachable rear panel guarantees reliable hygiene and sealing in an area that is difficult to monitor
- Side panels screw-fastened from the inside
- Door and enclosure with all-round internal system punching for installation of accessories
- Door hinged on the right, may be swapped to the left
- Mounting plate from TS 8 modular enclosure system
- Rounded edge folds on the door and side panels
- A special angled roof can be manufactured upon request for combinations of two 600 or 800 mm wide enclosures

prime**XPRESS**

Rittal's fully automated primeXPRESS program can deliver high-quality enclosure modifications in a matter of days, increasing your profitability

Let Rittal modify your enclosures before you even receive them!

You can go straight to the enclosure assembly process and leverage the added time to add new jobs into your workflow. With thousands of standard parts in-stock, for virtually every application, Rittal can ship your enclosures fast with the cut-outs and drilled holes completed!
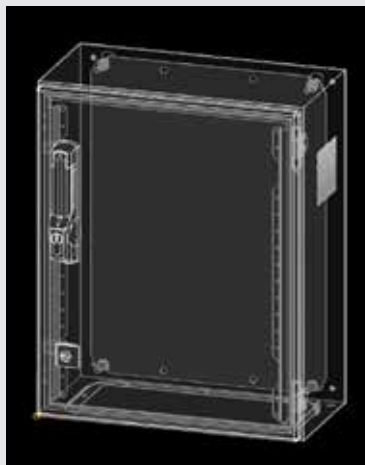

What's Included in the program:

- Wallmounts, junction boxes, and freestanding enclosures including SE8 / TS8 products in both carbon and stainless steel. Thousands of in-stock products.
- Holes, cutouts, and installation of accessories, tapped holes on mounting panels only - no PEMS or Studs.
- Baying up to 3,500 mm length, additional cost of baying hardware and FMDC interconnecting hardware will apply.
- Ready to ship in 15 days *or less*.
- Contact your Rittal distributor for program rules, pricing, and product delivery information.

Required Drawings:

- Fully dimensioned 1 to 1 scale, Rev controlled at time of order. DWG, DXF, or files from Rittal Configuration System (RICS) are acceptable for the program.
- Only drawings on Rittal cabinets are eligible for program.
- RICS can provide completed configurations and assembly instructions and is available for all wallmount products and most TS8 and SE8 options.

  Go to **https://www.rittal.us/contents/ configuration-selection-tools/.**

Contact your Rittal professional or the authorized Rittal distributor today to take advantage of the Rittal primeXPRESS program. From concept to execution, Rittal can assist with building more profitability into your business.

Accessories Customize Enclosures to Suit Design Needs

Rittal offers a full range of accessories to help customize large enclosures to meet a variety of challenges, from power to security, baying and lighting. The most popular enclosure accessories include:

VX Plinth

The VX base/plinth system suits almost any enclosure application. It combines the best of all existing Rittal base/plinth functions in one variable modular system. It delivers extra space, more user-friendly assembly, time savings and additional flexibility, despite a smaller number of parts.

LED light

Shine some light in your enclosure with the Rittal LED Compact Lighting System. It is safe, with an extra low voltage range. And it packs the newest generation of LED technology for twice the luminous flux of past lighting. A Fresnel structured optical cover spreads light coverage throughout the enclosure. With the LED system, you blend economical energy use with low maintenance.

Busbar

Use of RiLine copper busbar systems provides reliable electrical power distribution, requires less panel modification and fewer contact points, and involves less wiring work. By eliminating power distribution blocks, line-side wiring and large, parallel cable runs, busbar systems save space and time for panel builders and increase contact hazard protection.

Power management systems simplify system expansion. RiLine Busbar systems enable expansion without additional wiring. Rapidly add or change operational layouts without losing uptime. New components can be simply snapped onto the unpopulated bus system to complete a UL approved assembly.

TS Disconnect Module

Easily convert a standard single door TS8 enclosure to a fully functional disconnect enclosure.

Available in carbon steel (UL Type 12) and stainless steel (UL Type 4X).

Padlock-able handle

Rittal comfort handles easily mount to any large enclosure with minimal time, effort and tools. A padlock-able handle can be used to provide additional security. The handle supports such lock systems as semi-cylinders, lock inserts and padlocks.

Floor stand kit

Carbon or stainless steel floor stand kits ensure enclosures are not impacted by standing water, and enable easier routing of cable and power lines to the enclosure. Floor stand kits are UL and NEMA rated for any environmental challenge.

Window kit

The WK Frame Window Kit is used to monitor components mounted in the enclosure. Rittal's polycarbonate window offers advanced UV blocking technology that promotes outdoor weathering performance and resistance to color shift.

It is aesthetically appealing and fits on the usable area of Rittal's standard wallmount, free-standing TS 8/SE 8 and other enclosure panels. Rittal's WK is FTTA UL Listed and rated for UL Type 12/3R/4 for carbon steel and 12/3R/4X for stainless steel.

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ENCLOSURES ❯ POWER DISTRIBUTION ❯ CLIMATE CONTROL ❯ IT INFRASTRUCTURE ❯ SOFTWARE & SERVICES

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