Rittal – The System.
Faster – better – everywhere.

Minimizing Arc Flash Hazards with Modular Disconnect Enclosures
Family-owned business

Rittal - A powerful alliance with the Friedhelm Loh Group
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Project Planning
- Electric P8
- Data Portal
- RiTherm
- Configurators

3D Design
- Pro Panel
- Data Portal
- RiCAD 3D

System Technology
- Enclosures
- Power Distribution
- Climate Control
- Accessories

Mechanical Machining
- Perforex
  Enclosure & MPL Modification
- Athex
  DIN Rail Population

Mounting Panel Population
- Averex
  Wiring

Wiring & Testing
- Enclosure & MPL Modification
- DIN Rail Population

Documentation
- Electrical Schematics
- Panel Layouts
- BOMs
- Wire Lists
- Test Documentation
- Data Sheets
- Thermal Calculations

Solution Engineering/J. Davis/March 2015
What we will be covering

- Introducing the new TS 8 disconnect enclosure…

- How does NFPA 70E affect my enclosure selection?

- How can the modular disconnect enclosure minimize arc flash hazards?
Introducing the new TS 8 disconnect enclosure…
Why the redesign?

“Feedback is the breakfast of champions.”

- Too complex!
- Takes to long to assemble!
- Doesn’t fit my larger disconnect handle!
- Disconnect handle mounting surface is not strong enough!
Introducing the new TS 8 disconnect enclosure…

Safety made simple!
Introducing the new TS 8 disconnect enclosure…

New Features

- Simplified interlock hardware
  - Quicker to install (2 parts + fasteners)
  - Easier to adjust
Introducing the new TS 8 disconnect enclosure…

New Features

- Flexible, adaptor plate design
  - Universal, low amperage adaptor plate comes pre-installed
  - High amperage adaptor plate eliminates need for installer modifications
  - Blank adaptor plate allows disconnect handle to be mounted in custom vertical positions

- Compatible with most commercially available handles & operator mechanisms
Introducing the new TS 8 disconnect enclosure…

New Features

- Stronger, more rigid flange handle door/panel
  - Reduced width from 200 to 125 mm
  - Thick gauge adapter plate with fold

- Door wheel provides stability
  - Maintains proper interlock hardware alignment
  - Provides added measure of stability during shipment
How does NFPA 70E affect my enclosure selection?
A very BRIEF summary of the standard.

- Hazard identification
- Risk assessment
- Selecting appropriate PPE
- Establishing an electrically safe work condition
- Employee training

![Arc Flash Hazard](image)

**WARNING**

**Arc Flash Hazard**

**Appropriate PPE Required**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish Protection Boundary</td>
<td>18 inches</td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td>Class 0</td>
</tr>
<tr>
<td>Radiant Energy at 36 inches</td>
<td>1.08 Cal/cm²</td>
</tr>
<tr>
<td>Limited Approach Boundary</td>
<td>60 inches</td>
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<tr>
<td>Restricted Approach Boundary</td>
<td>32 inches</td>
</tr>
<tr>
<td>Prohibited Approach Boundary</td>
<td>12 inches</td>
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</tbody>
</table>

MTOSR-4520.1 Date Issued: January 2010 Study Rev: 0
Refer to NFPA 70E for minimum PPE requirements.
How does NFPA 70E affect my enclosure selection?

For enclosures: It’s all about prevention NOT resistance!

- NFPA 70E does not specify testing for enclosures resistance to arc flash energy.

- The primary cause of arc flash accidents is human error.
  - How do we prevent human error?

- The enclosure is critical in reducing or eliminating contact hazards and thus reducing or eliminating human-caused arc flash incidents.
How does NFPA 70E affect my enclosure selection?
Isolate the incoming power feed!

- Common solutions for non-modular enclosures include “box-on-box” or “box-in-box” configurations.
How does NFPA 70E affect my enclosure selection?
Isolate the incoming power feed!

- Feedback
  - Difficult to interlock with main door
  - Insufficient space in disconnect enclosure for disconnect and cables
  - Awkward shape/footprint
How can the TS 8 modular disconnect enclosure minimize arc flash hazards?

- Flexible isolation of live power
  - Standard internal divider panels
  - Position of the disconnect within the suite
  - Dimensions/width of isolation enclosure
  - Standard door interlocking hardware

- Bonus: Seamless aesthetics
Customize your isolation solution

Example

- Three levels of isolation
  - High voltage / low voltage
  - Main disconnect / high voltage + low voltage
  - Main disconnect / high voltage / low voltage
Meeting your safety and system requirements!
Meeting your safety and system requirements!
Meeting your safety and system requirements!
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Meeting your safety and system requirements!
Meeting your safety and system requirements!
Available “Ri”sources

- www.rittal.us
  - Literature
  - White papers
  - Configurators
  - RiCAD drawings/models
  - Certifications
  - Instructions
  - Videos
  - RiTherm

- Solution Engineers
  - Application-specific support
  - Conceptual drawings/renderings
  - BOM Generation
Thank you.