

INTERPROVINCIAL CORROSION CONTROL COMPANY LTD.

Leaders in the Cathodic Protection Industry ... since 1957



PRODUCT INFORMATION: DC-Decoupler™

Product:

Rustrol® DC-Decoupler™ Model: DCD

End User:

- Oil and Gas Transmission Pipelines
- Refinery and Petrochemical Industries
- Electrical Utilities
- Tank Farm/Oil Depot Facilities



Background:

The Rustrol® DC-Decoupler™ Model: DCD is an enhanced development to the Rustrol® Product Line. The DC-Decoupler™'s unique features are based on the proven Rustrol® technology utilizing solid-state design and superior test proven, quality components throughout the construction. The DC-Decoupler™ Model: DCD is typically utilized within applications of light/moderate (*ie. non-continuous*) exposure of AC mitigation. The standard DCD Product Line provides an economical engineered solution in a compact, lightweight, ready to mount assembly.

Applications:

The Rustrol® DC-Decoupler™ Model: DCD device is designed to protect personnel and equipment from electrical disturbances. The DC-Decoupler™ device blocks DC current associated with cathodically protected structures, (*ie. Pipelines, On-Grade or Buried Storage Tanks, etc.*) and provides an effective and continuous conductive path to the Utilities Grounding/Earthing Network for all other forms of Electrical Exposures, such as:

- Lightning/Surge Currents
- AC Fault Currents
- AC Induced Voltages
- Over-Voltage Protection

The Rustrol® DC-Decoupler™ Model: DCD is capable of reducing the potential difference across Isolating Flange Assemblies and/or Monolithic Isolating Joints to well below the industry accepted criteria (*ie. <10 volts AC rms*).

The Rustrol® DC-Decoupler™ Model: DCD is versatile and can be used in numerous applications, including coupling the primary structure (*ie. pipes, valves, pumps, etc.*) in series through the DC-Decoupler™ to Gradient Control Systems.

Typical Applications include:



- Pipeline AC Mitigation/AC Discharger
- Isolating Joint Protection
- Decoupling from the Gradient Control Systems

Advantages:

- Product Certification—ATEX/IECEX, QPS, KCS
- Rustrol®, an Industry Leader for Safe DC Isolation
- Fail-Safe Design; Grounding Criteria Assured
- Compact; Ready to Mount Design
- Maintenance-Free Performance
- Eliminate "Step & Touch" Potential Risk
- Maintains coating Stress Voltages within Acceptable Limits
- No additional Mounting Accessories required for Installation
- No Structure Compromise Required for Installation (*ie. Flange Drilling*)



Rustrol® DC-Decoupler™ Model: DCD, Operating Characteristics

	Rustrol® DC-Decoupler™ Model: DCD-02.5			Rustrol® DC-Decoupler™ Model: DCD-06.3			Rustrol® DC-Decoupler™ Model: DCD-07.0			Rustrol® DC-Decoupler™ Model: DCD-10.0										
AC Fault Current Ratings	<i>rms</i>	50 Hz	60 Hz	<i>rms</i>	50 Hz	60 Hz	<i>rms</i>	50 Hz	60 Hz	<i>rms</i>	50 Hz	60 Hz								
	1 cycle	2.3 kA	2.5 kA	1 cycle	5.8 kA	6.3 kA	1 cycle	6.5 kA	7.0 kA	1 cycle	9.2 kA	10 kA								
	3 cycles	1.7	1.8	3 cycles	5.0	5.4	3 cycles	5.0	5.4	3 cycles	8.0	8.7								
	10 cycles	1.5	1.6	10 cycles	4.1	4.4	10 cycles	4.2	4.5	10 cycles	5.7	6.2								
	30 cycles	1.3	1.4	30 cycles	2.2	2.4	30 cycles	3.7	4.0	30 cycles	5.0	5.4								
	<table border="0" style="width: 100%;"> <tr> <td style="width: 25%;">DC Leakage Current</td> <td>≤ 7.5 mA</td> <td style="width: 25%;">DC Leakage Current</td> <td>≤ 7.5 mA</td> <td style="width: 25%;">DC Leakage Current</td> <td>≤ 7.5 mA</td> <td style="width: 25%;">DC Leakage Current</td> <td>≤ 7.5 mA</td> </tr> </table>													DC Leakage Current	≤ 7.5 mA	DC Leakage Current	≤ 7.5 mA	DC Leakage Current	≤ 7.5 mA	DC Leakage Current
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Fail-Safe Design	Yes			Yes			Yes			Yes										
Connection Terminals	Standard - Flange Mount Assembly (<i>FMA</i>) Distinctive Design: Compact, Lightweight Ready to Install Optional - Optional Terminal (<i>OT</i>), Dual Terminal Post (<i>DT</i>) Bottom Side of Enclosure, Internal Terminal (<i>IT</i>)																			
Certifications	ATEX and IECEx KCS CE Mark QPS	 		II 3D Ex nA IIC T6 Gc (-20°C ≤ Ta ≤ +50°C) II 3D Ex tc IIIB T60°C Dc (-20°C ≤ Ta ≤ +50°C) Class I, Div. 2, Groups A, B, C and D, T6 Class I, Zone 2, AEx nA, IIC T6 Gc Ex nA IIC T6 Gc -20°C ≤ Ta ≤ +50°C				Class II, Div. 2, Group G, T60°C Zone 22 AEx tc IIIB T60°C Dc Ex tc IIIB T60°C Dc												

Model: DCD Selection Guide

Rustrol® DC-Decoupler™ - Model: DCD

Standard assembly is installed in a performance test rated moulded Non-Metallic enclosure, suitable for indoor/outdoor applications (IP67 Certified; Equivalent to NEMA 4, 4X, 6P), complete with access cover and cable termination fittings.

AC Fault Current Exposure - 1 cycle @ 60 Hz rms: (1 cycle @ 50 Hz rms, Refer to Drawing DCD-00)

- | | |
|---|----------------------------------|
| <input checked="" type="checkbox"/> 02.5 kA | <input type="checkbox"/> 07.0 kA |
| <input type="checkbox"/> 06.3 kA | <input type="checkbox"/> 10.0 kA |

(Refer to Drawing No. DCD-00 for Detailed Specifications @ 1, 3, 10 & 30 cycle @ 50 or 60 Hz rms: visit web site)

Surge/Lightning Protection:

Standard assembly, peak surge current rating

- Primary @ • 100kA @ 4/10 µs • 75kA @ 8/20 µs • 50kA @ 10/350 µs

(Optional Lightning (OL) • 150kA @ 4/10µs • 100kA @ 8/20µs • 100kA @ 10/350µs)

DC Voltage Threshold

Standard assembly @ -3.0/+1.0 volts DC

Optional Voltage Threshold Settings Available (i.e. -6/+6, -4/+4, -4/+2, -6/+1 volts DC or other)

Mitigation of Induced AC-Steady State (@ 50 or 60 Hz rms)

Selection range 0-100 Amperes, as specified by the customer.

- 0 amp (no AC Mitigation)
- 12 amps 24 amps 36 amps 48 amps 75 amps 100 amps

(Intermittent Non-Continuous Exposure for AC Mitigation)

Optional (As Specified by the Customer):

- ATEX/IECEx Certified
- QPS Certified
- KCS Certified
- Cable Termination - Standard - FMA
- Optional - OT, DT or IT

DCD – 02.5 – SL – 03 – A48 – specify

(Typical Ordering Code)

- Optional Lightning - OL
- Submersible Enclosure (NEMA 6P/IP68 certified)
- Free-Standing Fibreglass Pedestal Mount
- Special finishes

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