

# Engineered Solutions for Exhaust Emissions



*GAS COMPRESSION*

*POWER GENERATION*

*CO-GENERATION*

*FLUID PUMPING*

## Engineered to Reduce Your Total Cost of Compliance

At DCL, we apply the knowledge gained through working with thousands of power generation, gas compression and other industrial stationary engine applications to design, manufacture and support both standard and custom exhaust emissions solutions – solutions that are uniquely engineered to reduce your total cost of compliance.



### Leading emissions applications expertise

DCL offers vast experience meeting increasingly stringent emissions regulations in major air quality jurisdictions around the world. As a result of this experience, we are able to provide specialized knowledge to help you keep your engines in compliance. At DCL, we recognize that unless your emissions solution is engineered with the knowledge of the exact requirements of your engine, it can cost you headaches, downtime – and money.

We understand a wide variety of fuels and industrial engines, and how to integrate our products with them. For every new design, we consider how to optimize best for emissions, pressure drop, sound attenuation, space constraints and lifecycle cost. In our fully equipped emissions test lab we partner with leading OEM's to integrate our products with their engines.

Our comprehensive in-house capability – incorporating engineering, design, catalyst coating, manufacturing and test facilities, all under one roof – enables us to offer total control over product quality. When you choose DCL as your emissions solutions partner, you will receive superior technology that delivers predictable, reliable, trouble-free operation, so you'll never have to worry about the costs of being out of compliance.

### A history of innovation leadership

*In our state-of-the-art R&D laboratory – working in partnership with a network of research affiliates – DCL applies advanced diagnostic and analytic tools to develop new products that make compliance easier and less costly.*

*For example, we were the first to integrate brazed metallic substrates, providing the industrial engine market with catalytic elements that don't telescope or crack due to vibration, thermal expansion or flow stress. We were the first to design housings with "quick release" clamps for faster catalyst changeout. And we are currently developing a low-temperature, self-regenerating sootfilter. No wonder DCL innovations are often adopted as the industry standard.*



### CASE STORY:

#### The Compliance Challenge

One of North America's largest natural gas compression service providers leases equipment and support services to their broad customer base under long-term contract. Knowing any engine shutdowns could cost them money, they needed a reliable emissions partner who would not only supply quality engineered emissions technology, but take responsibility for all their emissions-related customer service and warranty needs.

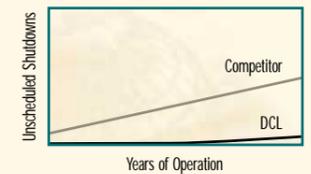
#### The DCL Solution

Initially, DCL was chosen for the quality and reliability of our products. However, when our customer learned we could provide them with innovative strategies for driving down their overall cost of compliance, developing a turnkey solution that included inventory tracking, catalyst washing and repair, as well as teaching their mechanics, operators and end-users how to use our products, they were sold.

#### Installed-Catalyst Tracking & Maintenance



#### Annual Unscheduled Shutdowns



## Standard Products for Easy Integration

The engineering innovation, manufacturing quality, long-term reliability and overall emissions performance you get with a custom DCL solution are also available in our standard products for retrofit applications.

If your needs can be met with a proven off-the-shelf solution, we offer a wide range of standardized catalytic converters, silencers, sootfilters and emissions control accessories to meet your precise compliance requirements.



ENGINE TYPE	NOx	CO	NMHC/VOCs	PM
<b>Rich Burn</b>	<ul style="list-style-type: none"> <li>3-way Catalytic Converter</li> <li>Air/Fuel Ratio Controller</li> </ul>	<ul style="list-style-type: none"> <li>3-way Catalytic Converter</li> <li>Air/Fuel Ratio Controller</li> </ul>	<ul style="list-style-type: none"> <li>3-way Catalytic Converter</li> <li>Air/Fuel Ratio Controller</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Lean Burn</b>	<ul style="list-style-type: none"> <li>SCR System</li> </ul>	<ul style="list-style-type: none"> <li>Oxidation Catalytic Converter</li> </ul>	<ul style="list-style-type: none"> <li>Oxidation Catalytic Converter</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Diesel</b>	<ul style="list-style-type: none"> <li>SCR System</li> </ul>	<ul style="list-style-type: none"> <li>Diesel Oxidation Catalytic Converter</li> <li>Sootfilter</li> </ul>	<ul style="list-style-type: none"> <li>Diesel Oxidation Catalytic Converter</li> <li>Sootfilter</li> </ul>	<ul style="list-style-type: none"> <li>Diesel Oxidation Catalytic Converter</li> <li>Sootfilter</li> </ul>

ENGINE SIZE	DCL Catalytic Converters	Catalyst Options
<b>0-700 hp</b>	<b>MINE-X®</b> <i>With optional add-on silencer</i>	<ul style="list-style-type: none"> <li>3-way</li> <li>Oxidation</li> <li>Diesel Oxidation</li> <li>SCR</li> <li>Sootfilter</li> </ul>
<b>500-2200 hp</b>	<b>QUICK LID™</b> <i>With silencer</i>	<ul style="list-style-type: none"> <li>3-way</li> <li>Oxidation</li> <li>Diesel Oxidation</li> <li>SCR</li> <li>Sootfilter</li> </ul>
<b>2000 hp and up</b>	<b>QUICK LID™ XXL</b> <i>Can be integrated into silencer</i>	<ul style="list-style-type: none"> <li>3-way</li> <li>Oxidation</li> <li>Diesel Oxidation</li> <li>SCR</li> <li>Sootfilter</li> </ul>

### Accessories

DCL offers a wide range of in-house and third-party manufactured controls and accessories for optimizing your emissions application.

Controls



Blankets



Elements



### CASE STORY:

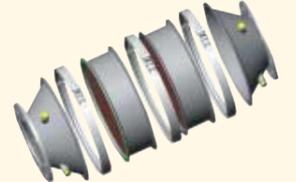
#### The Compliance Challenge

A leading integrator of distributed power generation systems for commercial and residential end-users, was looking for a solution that could be cost-effectively scaled up or down, to meet varying emissions requirements around the world – from areas with minimal regulations, to Southern California where standards are the strictest in the industry – without having to customize a solution for each application.

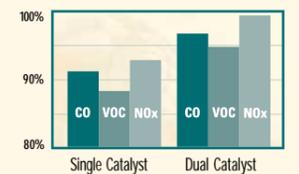
#### The DCL Solution

DCL developed a scalable, modular solution that worked across their entire engine line and could meet any regulations in the industry, custom-designing a special converter housing with a unique "center clamp", for use in either a dual or single catalyst configuration. Not only did this approach eliminate the need for ongoing custom engineering, it dramatically reduced housing changeout costs and lowered plant inventories.

Dual Catalyst Configuration



Converter Performance



## Keeping You In Compliance, Year-in Year-out

At DCL, we are committed to doing everything possible to help you achieve and maintain compliance over the long term. With a global network of highly experienced and knowledgeable support specialists, extensive in-house services, and diagnostic tools available online via the Internet, we make ongoing compliance easy. Here are some of the services we offer:



### Compliance assistance

Our experienced team of engineers and technical specialists can help with emissions permitting for new plants or engines. We can also carry out a comprehensive needs analysis for your existing equipment, and perform on-site diagnostics of your systems to test for a wide range of parameters – from emissions compliance to engine performance and fuel efficiency.



### Startup, training and support services

DCL can provide full training in the care and use of our emissions control catalysts, as well as in the overall operation and maintenance of our products. On our website at [www.dcl-inc.com](http://www.dcl-inc.com), you will find our unique catalyst modeling software, designed to make product sizing and selection easier and give you a better understanding of the maintenance cycle.



### Warranty coverage and maintenance contracts

Standard and extended warranties are available for all our products. DCL will also recommend the type and level of maintenance contract you require to ensure ongoing compliance for your application.

Our turnkey maintenance scheduling and installed inventory management service tracks each catalyst by serial number and flags "time for service". Maintenance includes visual inspection, chemical analysis and testing of your catalyst core, cleaning and washing, and the repair of foils and housings. Testing can be scheduled in conjunction with engine maintenance.



### Retrofits & Recycling

DCL can match specific housings or catalysts with those of any other manufacturer, for easy replacement of your existing emissions control equipment with our quality engineered technology.

We also offer a comprehensive catalyst recycling program. Send your catalytic elements to DCL and we will completely refurbish them, to further lower your cost of compliance.

### CASE STORY:

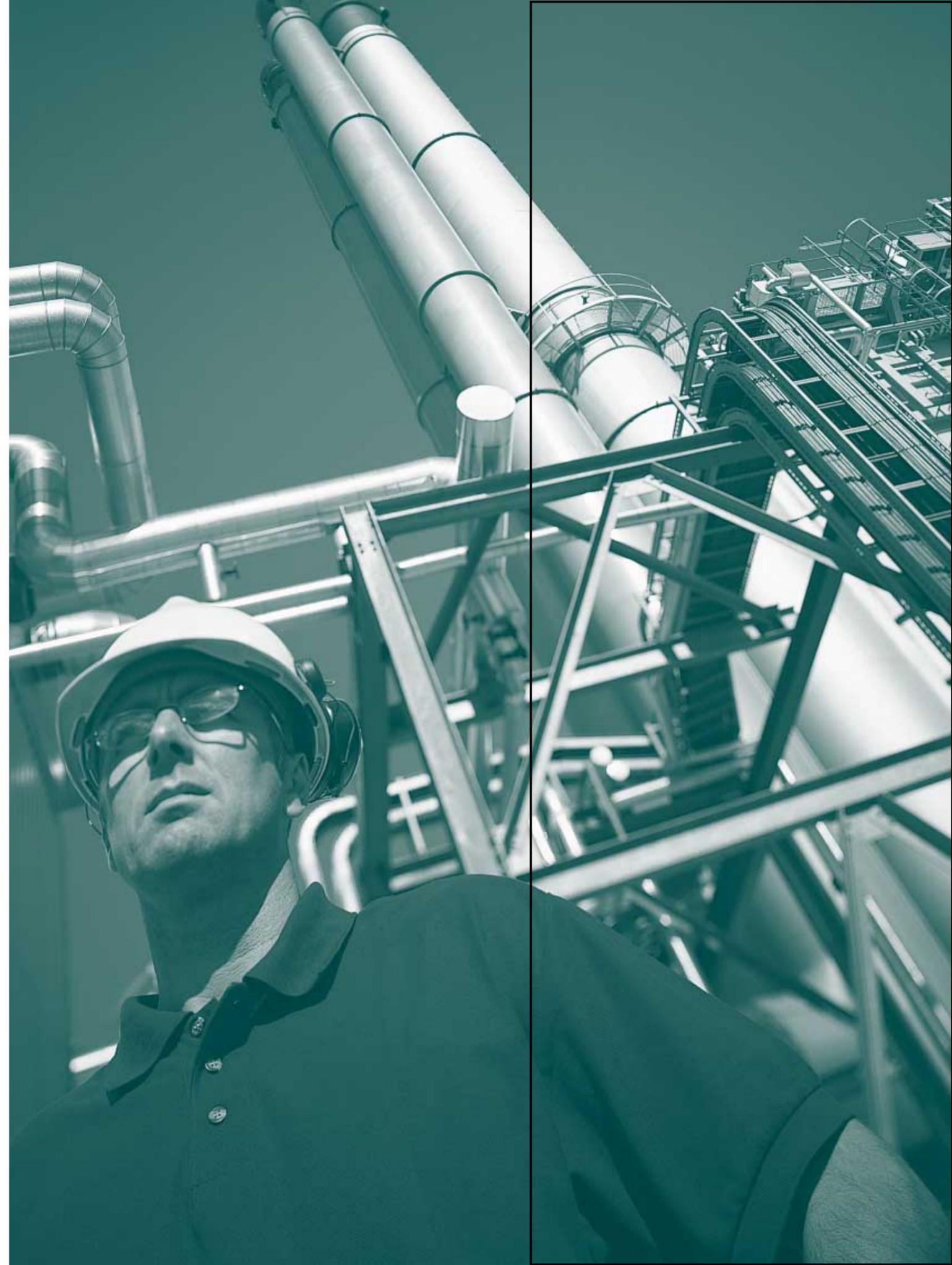
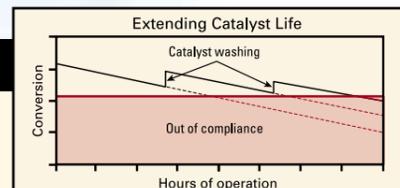


#### The Compliance Challenge

As part of the 10-year maintenance contracts they provide with their systems, a large engine packager for the European power industry must continue to meet stringent emissions requirements for their customers. At the same time, they needed to minimize the long-term costs of changing out their catalytic elements for maintenance.

#### The DCL Solution

DCL provided an innovative solution, the first of its kind in Europe. By making custom modifications to our QUICK LID™ catalytic converter, we were able to eliminate the need for the expensive housing replacements necessary with the conventional welded-flange units the customer had been using. This approach allowed us to extend the life of their catalysts with periodic catalyst washing, while reducing the total cost of their contracts by as much as 20 per cent.



## DCL International – Preserving and Improving the Quality of the Air We Breathe Worldwide

DCL International Inc. is a global leader in the engineering, manufacture and support of advanced emissions control technology for stationary and mobile industrial engines. Our products – which include oxidation and three-way catalysts, silencers, particulate filters, SCR and accessories – are used worldwide in the material handling, construction, mining, gas compression and power generation markets.

DCL's dedicated industrial focus is unique in the emissions equipment industry. To meet the specialized needs of the industrial market, we adopt an integrated approach, bringing together catalyst development, product design, manufacturing and testing all under one roof. This single-source capability enables us to provide better engineered emissions solutions that deliver outstanding performance, longer life and lower cost of ownership. Our superior product quality has made DCL the choice of customers around the world.



■ Manufacturing Facilities

■ Representatives



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