



The manufacturer may use the mark:



Valid until December 1, 2018
Revision 1.1 December 18, 2015



ANSI Accredited Program
PRODUCT CERTIFICATION
#1004

Certificate / Certificat Zertifikat / 合格証

COW 1505085 C002

exida hereby confirms that the:

Series ML / Series MS Hydraulic Actuators

**Cowan Dynamics Inc.
Montreal, QC - Canada**

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFD_{AVG} and Architecture Constraints
must be verified for each application**

Safety Function:

The Actuators will move to the designed safe position per the actuator design within the specified safety time.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.



Evaluating Assessor

Certifying Assessor

**Series ML / Series MS
Hydraulic Actuators**

Certificate / Certificat / Zertifikat / 合格証

COW 1505085 C002

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

**PFD_{AVG} and Architecture Constraints
must be verified for each application**

Systematic Capability :

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2_H.

IEC 61508 Failure Rates in FIT*

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Dual Acting	0	68	0	282
Spring Return	0	269	0	257
Dual Acting with PVST	68	0	160	122
Spring Return with PVST	269	0	142	115

* FIT = 1 failure / 10⁹ hours

† PVST = Partial Valve Stroke Test of a final element Device

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: COW 15/05-085 R004 V1 R1

Safety Manual: SIL Safety Guide-Series ML, SIL Safety Guide-Series MS



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Sellersville, PA 18960

T-061, V1R7