



Certificate / Certificat Zertifikat / 合格証

PAR 1101070 C001

exida hereby confirms that the:

7000 Series Solenoid Valves

Parker Hannifin Corporation

Fluid Control Division

New Britain, CT, USA

The manufacturer
may use the mark:



Have 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

**PFH/PFD_{avg} and Architecture Constraints
must be verified for each application**

Revision 3.0 December 22, 2017
Surveillance Audit Due
January 1, 2021

Safety Function:

The Solenoid Valve will move to the designed safe position when de-energized / energized within the specified safety time.

Application Restrictions:

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



ANSI Accredited Program
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004



Evaluating Assessor

Certifying Assessor

PAR 1101070 C001

Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

PFH/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*

Solenoid			λ_{sd}	λ_{su}	λ_{dd}	λ_{du}
Valve Body	Temp Rating	Coil				
7131T	F	10W, 22W	0	385	0	67
7131T	H	10W, 22W	0	300	0	67
7132T	F	10W, 22W	0	16	0	179
7133T	F	10W, 22W	0	16	0	179
7131T w/PVST [†]	F	10W, 22W	0	385	62	5
7131T w/PVST	H	10W, 22W	0	300	62	5
7132T w/PVST	F	10W, 22W	0	16	173	6
7133T w/PVST	F	10W, 22W	0	16	173	6

* 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 PFH/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: PAR 11-01-070 R003 V4R1 (or later)

Safety Manual: IOM 7505

Series 7000 Solenoid Valves: 7131T, 7132T and 7133T.



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