

The manufacturer
may use the mark:



Reports:

HAW 09/02-33 R008 V1 R1
Assessment Report

HAW 09/02-33C R001 V1
R1 FMEDA Report

Validity:

This assessment is valid for
the BL Series 1F, 2F, 3F,
2FC, 3FC, 2FN, and 3FC-IC
Floating Ball Valves.

This assessment is valid until
February 1, 2013.

Revision 1.0 January 11, 2010


exida[®]
Certification S.A.

Certificate / Certificat Zertifikat / 合格証

HAW 090233 C001

exida hereby confirms that the:

**BL Series 1F, 2F, 3F, 2FC, 3FC, 2FN,
and 3FC-IC Floating Ball Valves**

**hawa valves (india) pvt. ltd.
Navi Mumbai, Rabale - India**

Has been assessed per the relevant requirements of:

IEC 61508 Parts 1, 2

and meets requirements providing a level of integrity to:

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Device

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

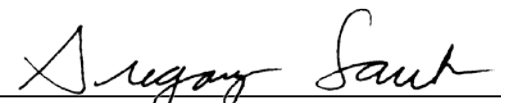
Safety Function:

The Ball Valve 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.




Product Assessor


Auditor

HAW 090233 C001

Systematic Integrity: SIL 3 Capable

Random Integrity: Type A Device

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BL Series 1F, 2F, 3F,
2FC, 3FC, 2FN, and
3FC-IC Floating Ball
Valves

hawa valves pvt. ltd.

Navi Mumbai, Rabale -
India

SIL 3 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 without "prior use" justification by end user or diverse technology redundancy in the design.

IEC 61508 Failure Rates in FIT*

Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	875	0	471
Tight Shut-Off, Clean Service	0	9	0	1337
Open on Trip, Clean Service	0	1020	0	326
Full Stroke with automated Partial Valve Stroke Test, Clean Service	0	875	166	305
Tight Shut-Off with automated Partial Valve Stroke Test, Clean Service	0	9	166	1171
Open on Trip with automated Partial Valve Stroke Test, Clean Service	145	875	166	160

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 subsystem must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

* FIT = 1 failure / 10⁹ hours



Form	Version	Date
C61508	2.10	Nov 2009