

# Certificate of Inspection

## Certificate n° KOR.100D2/OR090/23\_084/23

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Issued on 2023 June 9<sup>th</sup>

Object of Inspection	100D-100H-100DSV size range: 12.7mm to 1066.8mm (½" to 42") Valves Series
Applicant Engineering Manufacturing	IMI CRITICAL ENGINEERING KOREA 14, Dangdong, 2-ro, Munsan-eup, Paju-si, Gyeonggi-do KOREA 10816
Equipment type	MECHANICAL EQUIPMENT
System Architecture	As described in: IMI CCI drawing DRAG VALVE 100D R02 Safety Analysis Report KOR.100D2/OR090/23 AS01 v.1.0 Safety Manual_100D_rev05
Inspection Requirements	IEC 61508 Ed.2:2010 Functional safety of electrical/electronic/programmable electronic safety-related systems IEC 61511 Ed.2:2016 Functional safety – Safety instrumented systems for the process industry sector

Bureau Veritas Italia S.p.A. states that IMI CRITICAL ENGINEERING KOREA 100D -100H -100DSV Valves Series, Type "A" do comply with requirements for use up to SIL 3 level Instrumented Safety functions under the constraints as reported in Table 1, Table 2, Table 3, Table 4, Table 5, Table 6 and where constraints of the Safety Manual Safety Manual\_100D\_rev05 shall be observed.

Systematic Capability (SC): 3

Route 1H, Route 2H (low demand mode), Route 1S, Route 2S apply.

$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_{du}$ [1/h]	$\lambda_{dd}$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
1.53E-07	8.72E-08	4.36E-09	8.28E-08	6.61E-08	0	1H	3

Table 1: 100D-100H-100DSV (FTC) Safety function failure rates – Automatic online diagnostics

### Inspection Result

$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_{du}$ [1/h]	$\lambda_{dd}$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
1.53E-07	8.72E-08	2.62E-08	6.10E-08	6.61E-08	0	1H/2H (*)	2
					1		3

Table 2: 100D-100H-100DSV (FTC) Safety function failure rates – NO Automatic online diagnostics



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$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
1.53E-07	8.72E-08	6.61E-08	0	2H (*)	2
			1		3

Table 3: 100D-100H-100DSV (FTC) Safety function failure rates – NO diagnostics

$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_{du}$ [1/h]	$\lambda_{dd}$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
2.38E-07	1.68E-07	8.41E-09	1.60E-07	6.96E-08	0	1H	3

Table 4: 100D-100H-100DSV (FTO) Safety function failure rates – Automatic online diagnostics

$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_{du}$ [1/h]	$\lambda_{dd}$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
2.38E-07	1.68E-07	5.04E-08	1.18E-07	6.96E-08	0	1H/2H (*)	2
					1		3

Table 5: 100D-100H-100DSV (FTO) Safety function failure rates – NO Automatic online diagnostics

$\lambda_t$ [1/h]	$\lambda_d$ [1/h]	$\lambda_s$ [1/h]	HFT	Route	SIL
2.38E-07	1.68E-07	6.96E-08	0	2H (*)	2
			1		3

Table 6: 100D-100H-100DSV (FTO) Safety function failure rates – NO diagnostics

(\*) Type "A", low demand mode rate: SIL 2



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<b>Restrictions/ Conditions</b>	As per Safety Manual Safety Manual_100D_rev05 and Safety Assessment Report KOR.100D2/OR090/23 AS01 v.1.0 issued by Bureau Veritas Italy S.p.A.
<b>Inspection Report</b>	<p>This assessment has been performed by the evaluation of conformity of the specific documents as reported in the Safety Assessment Report KOR.100D2/OR090/23 AS01 v.1.0 issued by Bureau Veritas Italia S.p.A.. This certificate is valid for the IMI CRITICAL ENGINEERING KOREA 100D-100H-100DSV Valve Series.</p> <p>The design, ratings and operational parameters are described in the Safety Assessment Report KOR.100D2/OR090/23 AS01 v.1.0 issued by Bureau Veritas Italia S.p.A..</p>
<b>List of Evaluated Documents</b>	<p>The reference list is contained in the Safety Assessment Report KOR.100D2/OR090/23 AS01 v.1.0</p> <p>The report issued by Bureau Veritas Italia S.p.A. is an integral part of this Certificate of Inspection.</p>
<b>Validity</b>	<p>This certificate is valid until 2026 June 8<sup>th</sup> as long as the Object of Inspection and the relevant technical documentation are not modified.</p> <p>Bureau Veritas Italia S.p.A. must be informed about any modifications without delay.</p>
<b>Date of issue</b>	2023 June 9 <sup>th</sup>



**Signature**      Name: Cristian Veglia      Title: General Manager

On behalf of Bureau Veritas Italia S.p.A. – Viale Brigata Bisagno, 2 - 16129 Genova, Italy



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