60-409-2026-IT
Certificate Number

Dati Fabbricante		**Manufacturer identification**
Sede Legale / Unità Operativa **Head Office / Plant**	I.B.C. Praha spol. s.r.o. Karlštejnská 9, 252 25 Jinočany, Czech Republic	
Dati Prodotto		**Product identification**
Tipologia / Type:	GATE VALVES - FORGED AND CAST DESIGNS	
Descrizione / Description	I.B.C. GATE VALVES S38 / C09 2 - CLEAN NATURAL GAS S38 FORGED: NPS 1/2-2, PN 16-160 | S38 CAST: NPS 1/2-40, PN 16-160 C09 2 FORGED: NPS 1/4-2, CLASS 150-2500 | C09 2 CAST: NPS 2-40, CLASS 150-2500 Close-on-trip tight-isolation safety function	
Denominazione **Denomination**	**Marchio / Trademark:**	I.B.C. Praha spol. s.r.o.
	Modelli / Models:	S38 FORGED / S38 CAST / C09 2 FORGED / C09 2 CAST
Norma di riferimento **Reference standard**	**Prova / Test**	**Risultato / *Result***
IEC 61508-1:2010 IEC 61508-2:2010	Functional Safety Product Capability assessment of Type A mechanical final elements in low-demand mode. Component FMEDA, SFF, PFDavg and PFH assessed against IEC 61508 quantitative ranges for 1oo1 (HFT=0) and two-gate-valve series 1oo2 success architecture (HFT=1).	*Satisfactory** *SIL 2: 1oo1 / HFT=0* *SIL 3: 1oo2 / HFT=1*
IEC 61511-1:2016 + A1:2017	Application of the FMEDA results to process-industry SIF verification, proof testing and illustrative LOPA. Capability is conditional on the stated service, diagnostic, proof-test, architecture and common-cause assumptions. Complete SIF and systematic-capability verification remain required.	*Applicable** *Subject to stated assumptions*
Laboratorio di prova: **Test location:**	TC2 Global Register - documentary engineering assessment based on I.B.C. technical documentation and publicly available gate-valve reliability literature (published exida study referencing OREDA field data and ISO 14224/OREDA taxonomy). No licensed OREDA numerical records were reproduced.	
Risultato dell'esame: **Examination result:**	This Functional Safety Product Capability Certificate is based on review of the S38/C09 2 catalogues, S38 IOM manual, drawings V460-158-V7 to V12, component FMEDA and calculation workbook. The assessed gate-valve bodies demonstrate random-hardware capability up to SIL 2 as a single Type A final element (1oo1, HFT=0), and up to SIL 3 when two independently actuated gate valves are installed in series and either valve can achieve the required safe isolation (1oo2 success logic, HFT=1).	
Parametri di Esame: **Examination parameters:**	Clean, dry natural gas; normally open / close on trip; low-demand mode; monthly automated PST with verified position and thrust/torque signature; enhanced full proof test <= 36 months including differential-pressure seat-leakage verification; PTC 90%; mission time 10 years; MTTR 24 h; beta <= 5%. Generic failure rates are engineering estimates derived from public gate-valve reliability literature and conservative size/pressure factors. Valid only within the listed product envelopes. Scope excludes actuator, solenoid, sensors, logic solver, utilities and complete-SIF verification.	
Data di Emissione: **Issue Date:**	06/08/2026	
Data di Scadenza: **Expiring Date:**	05/08/2029	
Test Report No.:	IBC_Gate_Valves_S38_C092_FMEDA_LOPA_Report Rev. 0 - Functional Safety Product Capability Assessment - 05/08/2026	
Allegati / Annexes:	IBC_Gate_Valves_S38_C092_FMEDA_Calculations.xlsx; I.B.C. S38/C09 2 catalogues; S38 IOM manual; drawings V460-158-V7 to V460-158-V12; public reliability references and limitations listed in the FMEDA report.	

Date	Expiring Date	Issued by	Approved by
06-08-2026	05-08-2029	Antonio Borraccino	Gianluca Borraccino

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SUMMARY OF RANDOM-HARDWARE PRODUCT CAPABILITY - T-60-409-2026-IT				
Model	**Size / pressure scope**	**Base λD / SFF**	**PFDavg 1oo1 / HFT=0**	**PFDavg 1oo2 / HFT=1**
S38 FORGED	NPS 1/2-2 | PN 16-160	500 FIT | 71.68%	3.881E-3 | SIL 2	2.076E-4 SIL 3 | PFH 3.164E-8/h | RRF 4,816
S38 CAST	NPS 1/2-40 | PN 16-160	570 FIT | 70.47%	5.649E-3 | SIL 2	3.113E-4 SIL 3 | PFH 4.428E-8/h | RRF 3,213
C09 2 FORGED C09 2 CAST	NPS 1/4-2 | CL 150-2500 NPS 2-40 | CL 150-2500	540 FIT | 73.03% 620 FIT | 70.20%	4.204E-3 | SIL 2 6.744E-3 | SIL 2	F: 2.261E-4 | SIL 3 | RRF 4,422 C: 3.783E-4 | SIL 3 | RRF 2,644
** Functional Safety Product Capability Certificate based on a documentary engineering assessment and generic publicly available reliability literature. It is not an accredited IEC 61508 product certification and does not establish Systematic Capability SC3. SIL 2 applies to one valve (1oo1/HFT=0); SIL 3 applies only to two independent gate valves in series (1oo2/HFT=1) under the stated service, testing, beta and proof-test assumptions. Complete SIF verification remains required.*				

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