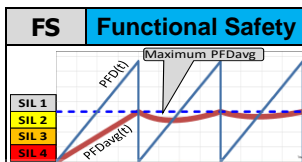


## 1. Functional Safety Abbreviations

<p>%WC</p> <p>1oo1</p> <p>1oo1D</p> <p>1oo2</p> <p>1oo2D</p> <p>1oo3</p> <p>2oo2</p> <p>2oo3</p> <p>2oo3D</p> <p>3oo3</p> <p>Beta</p> <p>BetaD</p> <p>BPCS</p> <p>CCF</p> <p>CMF</p> <p>CPU</p> <p>CRV</p> <p>DC</p> <p>DCS</p> <p>E/E/PE</p> <p>ESDV</p> <p>ESV</p> <p>Et</p> <p>EUC</p> <p>FE</p> <p>FIT</p> <p>FMEA</p> <p>FMECA</p> <p>FMEDA</p> <p>FSE</p> <p>FSM</p> <p>FSP</p> <p>FVST</p> <p>GUI</p> <p>HART</p> <p>HAZID</p>	<p>Percentage Weight Contribution on the Total PFDavg value</p> <p>One(1) out of One(1) safety channel architecture.</p> <p>One(1) out of One(1) safety channel architecture with Diagnostics.</p> <p>One(1) out of Two(2) safety channel architecture.</p> <p>One(1) out of Two(2) safety channel architecture with included additional Diagnostics among channels to verify safety channels interoperability.</p> <p>One(1) out of Three(3) safety channel architecture.</p> <p>Two(2) out of Two(2) safety channel architecture.</p> <p>Two(2) out of Three(3) safety architecture.</p> <p>Two(2) out of Three(3) safety channel architecture with included additional Diagnostics among channels to verify safety channels interoperability.</p> <p>Three(3) out of Three(3) safety channel architecture.</p> <p>(<math>\beta</math>) Common Cause Failure factor for Dangerous <u>UnDetected</u> failures</p> <p>(<math>\beta_D</math>) Common Cause Failure factor for Dangerous detected failures</p> <p>Basic Process Control System</p> <p>Common Cause Failure</p> <p>Common Mode Failure</p> <p>Central Processing Unit</p> <p>Cartridge Valve</p> <p>(or <math>CD_D</math>) Diagnostic Coverage factor for Dangerous failures</p> <p>Distributed Control System. See "PCS".</p> <p>Electrical, Electronic, Programmable Electronic safety-related system</p> <p>Emergency Shutdown Valve</p> <p>Emergency Shutdown Valve</p> <p>Proof Test Effectiveness</p> <p>Equipment Under Control</p> <p>Final safety Element</p> <p>Failure In Time (<math>1 \times 10^{-9}</math> per hour).</p> <p>Failure Modes and Effects Analysis</p> <p>Failure Modes, Effects and Criticality Analysis</p> <p>Failure Modes, Effects and Diagnostic Analysis</p> <p>Final Safety Element</p> <p>Functional Safety Management</p> <p>Functional Safety Plan</p> <p>Full Valve Stroke Test</p> <p>Graphic User Interface</p> <p>Highway Addressable Remote Transducer protocol</p> <p>Hazard Identification Study</p>
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HAZOP	Hazard and Operability Study
HFT	Hardware Fault Tolerance
HIPPS	High Integrity Pression Protection System
HIPS	High Integrity Protection System
HMI	Human Machine Interface
HPA	Hazard Process Analysis
IPF	Instrumented Protective Function
IPS	Instrumented Protective System
IS	Intrinsically Safe
K, or Kfactor	Efficiency of inter-channel comparison / automatic switch mechanism in the 1oo2D Safety Architecture. Fraction of the success of the autotest circuit in the 1oo2D system
LdDD, or $\lambda_{DD}$	Dangerous detected failure rate
LdDU, or $\lambda_{DU}$	Dangerous <u>Un</u> Detected failure rate
LdSD, or $\lambda_{SD}$	Safe detected failure rate
LdSU, or $\lambda_{SU}$	Safe <u>Un</u> Detected failure rate
MART	Maximum Allowed Response Time (see "SRT")
MRT	Mean Restoration Time
MSLS	Main Safety Loop Series
MSSDL	Maximum SIL Safety Design Limit
MSSTRDL	Maximum "Spurious Trip Rate" (STR) Safety Design Limit
MTBF	Mean Time Between Failures
MTTF	Mean Time To Failure
MTTF <sub>D</sub>	Mean Time To Dangerous Failure
MTTF <sub>s</sub>	Mean Time To Failure Spuriously
MTTF <sub>spuriously</sub>	Mean Time To Failure Spuriously
MTTR	Mean Time to Restoration
N/A	Not Applicable
NA	Not Applicable
NDE	Normally De-Energized
NE	Normally Energized
NIS	Non-Intrinsically Safe
OOS	Out Of Service
PCS	Process Control System. See "DCS".
PE	Programmable Electronic
PFDavg	Average Probability of Dangerous Failure on Demand
PHA	Process Hazard Analysis
PRV	Pressure Relief Valve
PST	Process Safety Time
PTC	Proof Test Coverage



FS	Functional Safety
SVST	Partial Valve Stroke Test
QSV	Quick Shutdown Valve
RBD	Reliability Block Diagram
RO	Restriction Orifice
RPN	Risk Priority Number
RRF	Risk Reduction Factor
SCA	Safety Channel Architecture
SFF	Safe Failure Fraction
SIF	Safety Instrumented Function
SIL	Safety Integrity Level
SIS	Safety Instrumented System
SLf	Service Life
SmPost	Smart Position Transmitter
SOV	Solenoid Valve
SPST	Single Pole Single Trough
SRS	Safety Requirements Specification
SRT	Safety Response Time
STL	Spurious Trip Level
STR	Spurious Trip Rate
STRavg	Average Spurious Trip Rate
TBDbC	To be defined by calculation case
TD	Proof test Duration
TI	Proof Test Period
XooN	X-out-of-N voting logic, or "Safety Channel Architecture" (SCA) of N inputs/Channels where "X" inputs/Channels decide the whole SCA state.
XooN(D)	Same SCA as "XooN", but additional diagnostic are included to verify safety channels interoperability.

