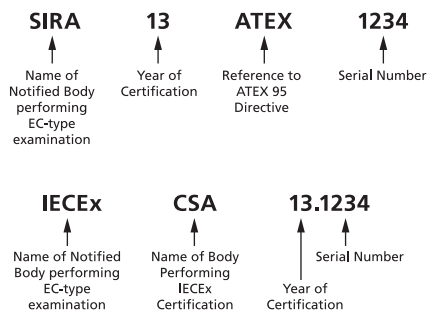


Appendix A: Equipment Certification Requirements for Hazardous Locations

ATEX & IECEx Certificate Number



Suffixes: U – component certification
X – special conditions for safe use apply

Apparatus Groups [ATEX and IECEx]

Group	Environment	Location	Typical Substance
I		Coal Mining	Methane (Fire damp)
IIA	Gases, Vapours	Surface and other locations	Acetic acid, Acetone, Ammonia, Butane, Cyclohexane, Gasoline (petrol), Kerosene, Methane (natural gas) (non-mining), Methanol (methyl alcohol), Propane, Propan-2-ol (iso-propyl alcohol), Toluene, Xylene
IIB			Di-ethyl ether, Ethylene, Methyl ethyl ketone (MEK), Propan-1-ol (n-propyl alcohol), Ethanol (ethyl alcohol)
IIC			Acetylene, Hydrogen, Carbon disulphide
IIIA	Combustible Dusts	Surface and other locations	Combustible flyings
IIIB			Non-conductive
IIIC			Conductive

Apparatus Groups (US / CAN)

Substance	Hazard Class	NEC 500	NEC 505
Acetylene	Class I Flammable Gases	Group A	IIC
Hydrogen		Group B	IIC
Ethylene		Group C	IIB
Propane		Group D	IIA
Methane (mining)		Group D	-
Combustible Metal Dusts	Class II Combustible Dusts	Group E	-
Combustible Carbonaceous Dusts		Group F	-
Combustible Dusts not in Group E or F (Flour, Grain, Wood, Plastics, Chemicals)		Group G	-
Combustible Fibers and Flyings		-	-
	Class III Fibers and Flyings	-	-

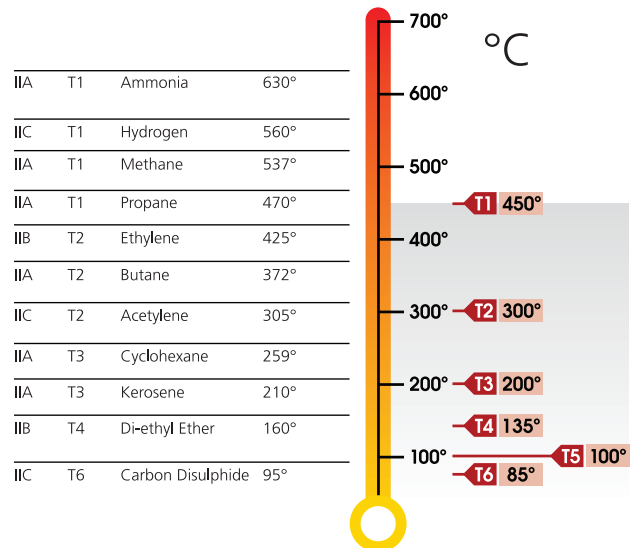
Classification of Divisions and Zones

Type of Area	NEC and CEC*	ATEX and IEC	Definitions
Continuous hazard	Division 1	Zone 0 / Zone 20 Cat 1	A place in which an explosive atmosphere is continuously present
Intermittent hazard	Division 1	Zone 1 / Zone 21 Cat 2	A place in which an explosive atmosphere is likely to occur in normal operation
Hazard under abnormal conditions	Division 2	Zone 2 / Zone 22 Cat 3	A place in which an explosive atmosphere is not likely to occur in normal operation, but may occur for short periods

* On occasion the ATEX and IEC Zones may be used in the corresponding NEC and CEC system

Temperature Classification

Classification of maximum surface temperatures for Group II Electronic Equipment (T Class).



Dusts Typical Ignition Temperatures (°C)

Dusts	Cloud	Layer
Aluminium	590 °C	>450 °C
Coal dust (lignite)	380 °C	225 °C
Flour	490 °C	340 °C
Grain dust	510 °C	300 °C
Methyl cellulose	420 °C	320 °C
Phenolic resin	530 °C	>450 °C
Polythene	420 °C	(melts) °C
PVC	700 °C	>450 °C
Soot	810 °C	570 °C
Starch	460 °C	435 °C
Sugar	490 °C	460 °C

Ingress Protection Codes

First Number (protect from solid bodies)		Second Number (protect from water)	
0	No protection	0	No protection
1	Objects > 50mm	1	Vertical drip
2	Objects > 12.5mm	2	Angled drip
3	Objects > 2.5mm	3	Spraying
4	Objects > 1.0mm	4	Splashing
5	Dust-protected	5	Jetting
6	Dust-tight	6	Powerful jetting
		7	Temporary immersion
		8	Continuous immersion

Enclosure Type Ratings (NEMA / CSA / UL)

Type	Area	Brief Definition
1	Indoor	General purpose
2	Indoor	Protection against angled dripping water
3, 3R, 3S	Indoor / Outdoor	Protection against rain, snow
4, 4X	Indoor / Outdoor	Protection against rain, snow, hose directed water
5	Indoor	Protection against angled dripping water, dust, fibers, flyings
6	Indoor / Outdoor	Protection against temporary submersion
6P	Indoor / Outdoor	Protection against prolonged submersion
12, 12K	Indoor	Protection against circulating dust, fibers, flyings
13	Indoor	Protection against circulating dust, fibers, flyings, seepage

Appendix B: Certifications



Product Type	Model Number	Cert. Type	Rating	
Electro-Pneumatic Positioner	YT-1000 / 1050	ATEX	II 2G Ex db mb IIB T5 Gb	
		IECEX	Ex db mb IIB T5 Gb	
		EAC	1Ex d mb IIB T5 Gb X IP66	
	YT-1000	INMETRO	Ex db mb IIB T5 Gb	
		FM	XP-SA/1/CD/T5 Ta=60°C; DIP/II,III/1/EFG/T5 Ta=60°C; Type 4X	
		CSA	(Class I, Zone 1) Ex dm IIB T5	
		CCC	Ex d mb IIB T5 Gb:CCC, Ex d mb IIC T6 Gb:CCC, Ex ia IIC T6 Ga:CCC	
		TIIS	Ex dmb IIB T5	
		TS	Ex db mb IIB T5 Gb X Ex dmb IIB T5/T4	
		KCs	Ex d IIC T5 IP66 Ex ia IIB T6 Gb	
		YT-1050	KCs	Ex dmb IIB T5
	Smart Positioner	YT-3300 / 3350 / 3303 / 3301 / 3400 / 3450 / 3700 / 3750	SIL	SIL2/SIL3
		YT-3300 / 3350	NEPSI	Ex ia IIC T5/T6 Gb
ATEX			Ex ia IIC T5/T6 Gb, EX ia IIIC T100°C/T85°C Db IP66	
IECEX			Ex ia IIC T5/T6 Gb, EX ia IIIC T100°C/T85°C Db IP66	
EAC			1Ex ia IIC T6...T5 Gb X / Ex ia IIIC T85°C...T100°C Db X 0Ex ia IIC T6...T5 Ga X / Ex ia IIIC T85°C...T100°C Da X IP66	
INMETRO			Ex ia IIC T6/T5 Gb Ex ia IIIC T85°C/T100°C Db IP66	
YT-3300 / 3350 / 3303 / 3301		CCOE	Ex ia IIC T5/ T6 Gb	
		FM	Class I, Div 1, Groups ABCD; Class I, Zone 0 AEx ia IIC; Class II/III, Div 1, Groups EFG; Class I, II, III, Div 2, Groups ABCDEFG; NEMA Type 4 IP66	
		CSA	Class I, Division 1/2, Groups ABC and/or D T5/T6 Class II, Division 1/2, Groups EF and/or G T100°C/T85°C; Class III Ex ia IIC T5/T6 Ga; Ex tb IIIC T100°C/T85°C Db	
YT-3300 / 3350 / 3303 / 3301		CCC	Ex ia IIC T5/T6 Gb, Ex iaD 21 T100/T85	
		KCs	Ex ia IIC T5/T6, EX iaD IIIC T100°C/T85°C	
		KCs	Ex ia IIC T5/T6, EX iaD IIIC T100°C/T85°C	
		KCs	Ex ia IIC T5/T6, EX iaD IIIC T100°C/T85°C	
		KCs	Ex ia IIC T5/T6, EX iaD IIIC T100°C/T85°C	
		ATEX	Ex db IIC T5/T6, Ex tb IIIC T85°C/T100°C	
		IECEX	Ex db IIC T5/T6, Ex tb IIIC T85°C/T100°C	
YT-3400 / 3450		FM	XP/II/ABCD/T6 Ta= -40°C to +70°C, T5 Ta= -40°C to +80°C I/1/AEx db/IIC/T6 Ta= -40°C to +70°C, T5 Ta= -40°C to +80°C DIP/II, III/1/EFG/T6 Ta= -40°C to +70°C, T5 Ta= -40°C to +80°C 21/AEx tb/IIIC/T85°C Ta= -40°C to +70°C, T100°C Ta= -40°C to +80°C; IP66	
	CSA	Ex db IIC T5 or T6; Class I, Zone 1, AEx db IIC T5 or T6; Class II, Division 1, Groups E, F and G; Ex tb IIC T85°C/T100°C; AEx tb IIIC T85°C/T100°C		
	CCC	Ex d IIC T5/T6 Gb, Ex tD A21 IP66 T85°C/T100°C		
	EAC	1Ex d IIC T6...T5 Gb X Ex tb IIIC T85°C...T100°C Db X IP66		
	NEPSI	EX d IIC T5/T6 Gb, Ex tD A21 IP66 T85°C/T100°C		
	INMETRO	Ex db IIC T5/T6 Gb IP66 Ex tb IIIC T85 °C/T100 °C Db IP66		
	ECAS	Ex db IIC T5/T6 Gb, Ex tb IIIC T100°C/T85°C Db		
	YT-3400	KCs	Ex d IIC T5/T6 IP66	
	YT-3450	KCs	Ex d IIC T5/T6, Ex tb IIIC T85°C/T100°C	
	YT-2500	EAC	1Ex ia IIC T6...T5 Gb X Ex ia IIIC T85°C...T100°C Db X IP66	
NEPSI		Ex ia IIC T5/T6 Gb Ex iaD 21 T100/T85		