

The choice of equipment (and its type of protection) is the responsibility of the manager of the site where it will be installed

ATEX motor designations and documentation in accordance with IEC 60079-0:2007

LS range	G/D	Markings				Min. IP	EC type-examination certificate number	Supplied with each motor		General manual Alice no./Doc no.
		CE + NB no.	Marking ATEX	Protection type Gas	Protection type Dust			LS EC declaration of conformity	Specific manual	
FLSD <small>(2) if "e" TB then "d" becomes "d e"</small>	Gas	0080	II M2	Ex d(2) I Mb		55	80 ≥ frame size ≥ 132: INERIS 10 ATEX 0025 X IECEx INE 10.0012 X	Q1T134	IMP297N0167 (1889 + 3522) Alice 4102601	(fr) Alice 2851790/ 3781 (en) Alice 2870637/ 3781
		0080	II 2 G	Ex d(2) IIB T4 Gb		55				
		0080	II 2 G	Ex d(2) IIB T5 Gb		55				
		0080	II 2 G	Ex d(2) IIB T6 Gb		55				
		0080	II 2 G	Ex d(2) IIC T4 Gb		55				
		0080	II 2 G	Ex d(2) IIC T5 Gb		55				
	Gas & Dust	0080	II 2 GD	Ex d(2) IIB T4 Gb	Ex tb III C T125°C Db	65	160 ≥ frame size ≥ 315: INERIS 11 ATEX 0048 X ...			
		0080	II 2 GD	Ex d(2) IIB T5 Gb	Ex tb III C T100°C Db	65				
		0080	II 2 GD	Ex d(2) IIB T6 Gb	Ex tb III C T85°C Db	65				
		0080	II 2 GD	Ex d(2) IIC T4 Gb	Ex tb III C T125°C Db	65				
(F)LSE	Gas	0080	II 2 G	Ex e IIC T3 Gb		55	INERIS 01 ATEX 0010 X	Q1T135	IMP297N0190 (1889 + 3606) Alice 4143462	(fr) Alice 4136784/ 3614 (en) Alice 4142269 (3614)
	Dust	0080	II 2 GD	Ex e IIC T3 Gb	Ex tb III C T125°C Db	65				
(F)LSN	Gas	0080	II 3 G	Ex nA IIC T3 Gc		55	INERIS 01 ATEX 3004 X	Q1T136	IMP297N0191 (1889 + 3607) Alice 4143466	(fr) Alice 3712762 (2727) (en) Alice 3712761 (2727)
	Dust	0080	II 3 GD	Ex nA IIC T3 Gc	Ex tc III C T125°C Dc	65				
(F)LSPX Zone 21 <small>(1) Varmeca 30</small>	Dust	0080	II 2 D		Ex tb III C T125°C Db	65	LSPX(1): INERIS 00 ATEX 0003 X FLSPX(1): INERIS 00 ATEX 0004 X (F)LSPXFCR(1): INERIS 03 ATEX 0012 X	Q1T129	IMP297N0179 (1889 + 3385) Alice 4022748	(F)LSPX (fr) 3917454 (3255) (en) 3984965 (3255) VARMECA 30 (fr/en) 4297067 (3776)
		0080			Ex tb III C T135°C Db	65				
		0080			Ex tb III C T145°C Db	65				
		0080			Ex tb III C T100°C to T125°C Db	65				
(F)LS Zone 22	Dust	0080	II 3 D		Ex tc III B T125°C Dc	55	Leroy-Somer self certification	Q1T130		

I: Methane - IIA: Propane - IIB: Ethylene - IIC: Hydrogen, Acetylene - IIIA: combustible particles in suspension - IIIB: non-conductive dust - IIIC: conductive dust

explosive atmospheres

Memo

Electric Motors

LERROY SOMMER

EMERSON

Industrial Automation

3700 en - 2011.10 / 9

Directive 94/9/EC Classification of equipment				
Usage	ATEX group	Category	Level of protection	If ATEX present
Firedamp mines	I	M1 Maximum mine gas content	Very high	Powered up
		M2 Below a certain value	High	Powered down
Surface industries	II	1G	Very high	Powered up
		2G ⁽¹⁾	High	
		3G	Normal	
		1D	Very high	
		2D ⁽²⁾	High	
		3D	Normal	

IEC60079-0 Classification of equipment Equipment Protection Level (EPL)				
Usage	Equipment group	EPL	Level of protection	If ATEX present
Firedamp mines	I	Ma Maximum mine gas content	Very high	Powered up
		Mb Below a certain value	High	Powered down
Explosive gas atmospheres	II A B C	Ga	Very high	Powered up
		Gb ⁽¹⁾	High	
		Gc	Reinforced	
Explosive dust atmospheres	III A B C	Da	Very high	Powered up
		Db ⁽²⁾	High	
		Dc	Reinforced	

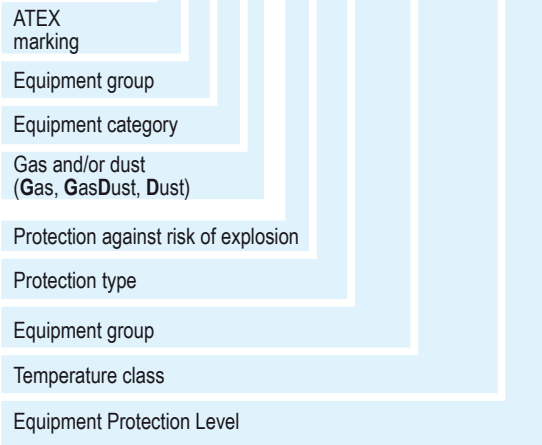
Zones
60079-10
0
1
2
20 IP6X
21 IP6X
22 IP5X

⁽¹⁾ can be installed in zone 1 and 2
⁽²⁾ can be installed in zone 21 and 22

I: Methane IIA: Propane
 IIB: Ethylene
 IIC: Hydrogen, Acetylene
 IIIA: combustible particles in suspension
 IIIB: non-conductive dust (electric resistivity >10³Ω.m)
 IIIC: conductive dust

ATEX marking: **Ex II 2 G Ex d IIB T4 Gb**
 Protection type marking: **Ex II 2 D Ex tb IIIC T125°C Db**

Motor type				
FLSD	(F)LSE	(F)LSN	(F)LSPX	(F)LS zone 22
II	II	II	II	II
2; 3	2; 3	3	2; 3	3
G, GD	G, GD	G, GD	D	D
Ex	Ex	Ex	Ex	Ex
d, de	e	nA	tb	tc
II A, B, C	II A, B, C	II A, B, C	III A, B, C	III A, B
T4, T5 T6	T3, T4	T3	T125°C	T125°C
Gb	Gb	Gc	Db	Dc



No marking: 0080 for category 3 motors (Ex n; Ex tc)

Example for FLSD motor

T°C range if other than (-20 +40) | IP 65 for Ex tb | Motor type | INERIS Notified Body no.

EC type-examination certificate number issued by a notified body

VIK if VIK certification

Cable Temp. marking = 100°C
 - if ambient temp. > 50°C or if
 - T ≥ 70°C at the cable gland or if
 - T ≥ 80°C at the point of conductor connection (60079-0 section 16.5)

OXYGEN IN AIR
GAS or COMBUSTIBLE DUST
HOT SPOT or SPARK
EXPLOSION

Types of protection

Hot spots	Motor outside: casing surface T.
	Motor inside: T. at all points
Spark	

LERROY-SOMER ranges

Gas	T1	T2	T3	T4	T5	T6
Temperature classes	450°C	300°C	200°C	135°C	100°C	85°C
Dust	T 125°C					
Temperature class	125°C					
Maximum external surface temperature (motor)	125°C					

60079-0							
Flameproof enclosure		Increased safety		Non sparking		Combustible dust	
60079-1		60079-7		60079-15		60079-31	
d		e		nA		tb tc	
Gas	G&Dust	Gas	G&Dust	Gas	G&Dust	Dust	Dust
T4 < T5 < T6	<125°C	T3 < T4	<125°C	< T3	<125°C	Non-conductive <125°C	
$\Delta T + \theta_{amb} < cl. (isol.)$		$\Delta T + \Delta T_{5s} + \theta_{amb} < T_3 \text{ et } cl. (isol.)$		$\Delta T + \theta_{amb} < T_3 \text{ et } cl. (isol.)$		$\Delta T + \theta_{amb} < cl. (isol.)$	
No spark: inside casing							
No spark: outside casing							
FLSD		(F)LSE		(F)LSN		(F)LSPX (F)LS Zone 22	
						IP6X IP5X	

* see 60079-7 annex A; VIK: ΔT7s (locked rotor 7 to 10 s)

Classification of equipment according to application zones

Marking according to ATEX 94/9/EC directive

Types of protection