

# OPERATING MANUAL MODELS: CVF-8X220 AND SVF-10X220

# PORTABLE FANS FOR HAZARDOUS LOCATIONS







Ex d IIB T6 Gb ITS 14 ATEX 17992X

IECEx ETL 14.0010X Ex d IIB T6 Gb

# AIR SYSTEMS INTERNATIONAL, INC.

829 Juniper Crescent, Chesapeake, Va, 23320 Telephone (757) 424-3967 Toll Free 1-800-866-8100 Fax No. (757) 424-5348 http://www.airsystems.com e-mail: sales@airsystems.com **CE** 

# **TECHNICAL INFORMATION, SET-UP, AND CARE**

# EXPLOSION PROOF PORTABLE FAN MODELS: CVF-8X220 AND SVF-10X220

#### **TECHNICAL**

These fans have been designed for use in hazardous locations in accordance with the ATEX Directive 94/9/EC and the applicable IECEx criteria. It is the user's responsibility to determine the suitability of these fans for use in the intended environment based on tested and approved ratings for the fans:



II 2 G c Ex d IIB T6 Gb ITS 14 ATEX 17992X

IECEx ETL 14.0010X Ex d IIB T6 Gb

These fans manufactured by Air Systems International, Inc. conform to the relevant Essential Health and Safety Requirements of the European Machinery Directives and evaluated to:

ATEX:

EN 13463-1: 2009 EN 13463-5: 2011 EN 14986: 2007

IECEx:

IEC 60079-0: 2011 IEC 60079-1: 2007

#### 89/392/EEC, 91/368/EEC, 93/44/EEC, 93/68/EECI, 94/9/EC, and 76/117/EEC

CE 0359

#### **DESCRIPTION OF FAN COMPONENTS**

Model CVF-8X220 is comprised of an explosion-proof motor, conductive polyethylene blower housing, metal finger guards, and external grounding lugs. Model SVF-10X220 contains the same components except the blower housing is made of steel. The units have been tested by Intertek and assigned ATEX and IECEx certification numbers from the ATEX notified body and IECEx certification body respectively.

#### ITS14 ATEX 17992X 1ECEx ETL 14.0010

The on/off switch is designed and built-in to each motor and a 10 meter power cable is installed with each fan. **SPECIAL CONDITION OF SAFE USE**; power cable must be outfitted with an explosion-proof plug that is approved for the hazardous location that the fan will be used in. appleton manufatures the explosion-proof plug that complies with international standards: en 60079-0, -1,7,61241-0,-1.

# **TECHNICAL INFORMATION, SET-UP, AND CARE**

#### EXPLOSION-PROOF PORTABLE FAN MODELS: CVF-8X220 AND SVF-10X220

#### **Start-Up And Installation**

Secure a grounded electrical source that delivers 220vac, 50/60hz, and at a minimum 5 amps. If the blower is going to be used in a hazardous location, make certain the proper plug is used and the electrical receptacle is design to handle the plug rated for the hazardous location and in conformance with local electrical codes. Inspect the blower to ensure all safety guards are in place and that the unit has not been damaged prior to use. Inspection and set-up should only be done by trained personnel in the proper use of this equipment. Make sure the blower intake is not located near the exhaust of a gasoline or diesel engine; this will cause the blower to pull in carbon monoxide and force it into the space that is being ventilated.

#### **OPERATION**

The blower is off when the on/off switch is fully depressed and the "power on" occurs when the switch is pulled outward from the fan housing. These fan motors are equipped with automatic thermal overload switches which may turn off the blower during operation. Once the fan motor cools, the motor will re-start automatically. If this condition occurs, disconnect the fan from the electric source and determine the reason for motor overheating. Check to make sure that: 1) the proper extension cord gauge is used 2) check the blower intake for debris that may be clogging the air inlet or causing the fan blade to not rotate. Always use conductive anti-static ducting when working in a hazard area. If using Air Systems' ducting, attach the installed ground wires to the blower for added static dissipation. If the Conductive Saddle Vent® device from Air Systems is being used, make sure the duct is secured to the black Conductive Saddle Vent® properly. The entire ventilation system should be checked above ground for conductivity prior to starting work; this can be done with an Ohm meter by touching the meter lead to the farthest end of the duct and the other meter lead to the ground lug (or ground wire) on the blower. A reading of less than 750K ohms will assure that static charges will move safely to the grounded source.

#### MAINTENANCE AND WARRANTY

Before each use, inspect the fan for proper finger guards being installed and that no debris is lodged in the blower intake. Inspect the power cord for no breaks or exposed wire. Dust can accumulate on the inside of the blower housing and fan blade. These can be blown with an air nozzle to remove excess dust. No other annual maintenance is required. All Air Systems fans and blowers are warranted for one year from the date in purchase. Contact your authorized dealer for any other repair or maintenance guestions.

### WARRANTY DISCLAIMER

Air Systems' manufactured equipment is warranted to the original user against defects in workmanship or materials under normal use for one year from the date of purchase. Any part which is determined by Air Systems to be defective in material or workmanship will be, as the exclusive remedy, repaired or replaced at Air Systems' option. This warranty does not apply to electrical systems or electronic components. Electrical parts are warranted, to the original user, for 90 days from the date of sale. During the warranty period, electrical components will be repaired or replaced at Air Systems' option.

#### NO OTHER WARRANTY, EXPRESSED OR IMPLIED, AS TO DESCRIPTION, QUALITY, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER IS GIVEN BY AIR SYSTEMS IN CONNECTION HERE-WITH. UNDER NO CIRCUMSTANCES SHALL THE SELLER BE LIABLE FOR LOSS OF PROFITS, ANY OTHER DIRECT OR INDIRECT COSTS, EXPENSES, LOSSES, OR DAMAGES ARISING OUT OF DEFECTS IN, OR FAILURE OF THE PRODUCT OR ANY PART THEREOF.

The purchaser shall be solely responsible for compliance. Although Air Systems International believes that its products, if operated and maintained as shipped from the factory and in accordance with our "operations manual", there are no implied or expressed warranties of such compliance extending beyond the limited warranty described herein. Product designs and specifications are subject to change without notice. **Rev. 2, 12/98** 

### The Saddle Vent® Ventilation System



#### WARNING: HAZARDOUS LOCATION OPERATIONS

Use an explosion-proof or intrinsically safe blower or fan, conductive ducting, and The Conductive Saddle Vent® System. Attach all grounding wires and assure a complete circuit to the blower or fan in order to remove static charges.

The Saddle Vent® is a registered trademark of Air Systems International, Inc. The Conductive Saddle Vent® is covered by U.S. and Foreign Patents

#### 5



All ventilation procedures should comply with regulations. Air quality should be tested prior to ventilating a confined space. Air quality should be tested continuously during confined space occupancy to ensure a stable atmosphere and worker safety as atmospheric conditions can change rapidly. Additional procedures and recommendations are available from federal, state, and local agencies. **DO NOT** operate these fan units in a vertical position or with the flange or guards removed.



*Note:* If volatile or explosive vapors are suspected, use Air Systems' explosion proof in-line fan, Model: SVF-10X220 or explosion proof contractors fans, Models: CVF-8X220 or CVF-12EX22.

*Note*: For confined space ventilation in non-hazardous locations, use Air Systems' confined space ventilation kit, Model SV-CUP. For hazardous locations use ventilation kit, Model SV-CUPCND along with one of the above explosion proof blowers or fans.

# **SPECIFICATIONS**

Motor Type	220 VAC, 50/60 Hz, .25 HP/.33 HP, 1.1 AMPS/2.2 AMPS, .19 kw DEMKO ATEX Certified: II 2 G Ex d IIB Gb IECEx UL 12.0034U Ex d IIB Gb INMETRO UL-BR 12.036OU Ex d IIB Gb
Outlet Size	8" Diameter (203 mm)
CVF-8X220 Flow Rates	Free Air: 823 CFM (1398 cm/hr) 15 ft. of duct with one 90° bend: 655 CFM (1113 cm/hr) 15 ft. of duct with (2) 90° bends: 552 CFM (938 cm/hr)
SVF-10X220 Flow Rates	Free Air: 1159 CFM (1969 cm/hr) 15 ft. of duct with one 90° bend: 725 CFM (1232 cm/hr) 15 ft. of duct with two 90° bends 715 CFM (1215 cm/hr)

#### STEP 1)

Explosion-proof models should be fitted with an ATEX/IECEx approved explosion-proof plug (Killark P/N ELAP15232) to meet hazardous locations specifications. The plug should not be disconnected or connected in a hazardous environment.

#### STEP 2)

Place fan in a clean fresh air environment. Note: Inspect fan for damaged or worn parts. Inspect all ducting and couplings for possible air leaks prior to fan operation.

Note: Air quality of the confined space should be tested prior to ventilation. If air quality of the confined space is unacceptable, consult a trained professional.



If explosive or volatile vapors are suspected or present, test the fan for proper grounding using an ohm meter. All static electricity must be removed from the fan and attached ducting prior to energizing the fan. Conductive ducting should be tested semi-annually to assure resistance (ohms) does not exceed 750k. If sufficient resistance is not achieved, the duct should be removed from service.

#### STEP 3)

Install duct cuff to exhaust flange and tighten cinch strap. Keep bends and kinks in ducting to a minimum to maximize air flow.

**NOTE:** The use of conductive ducting is recommended when operating in potentially explosive environments. Assure that the fan is properly grounded before operating and the ground wire in the conductive ducting is attached to the fan and Saddle Vent®, if used.

#### STEP 4)

The "ON/OFF" switch is integrated in the motor. Pull the "ON/OFF" switch knob outward to turn the fan "ON". The unit is now operational. To turn the fan "OFF," push the switch knob in toward the fan housing.

PROBLEM	POSSIBLE CAUSE	SOLUTION				
	Air intake blocked	Turn fan off and clear debris from intake.				
Excessive vibration	Possible internal damage	Turn off and inspect fan blades, shaft, and housing for debris, damage, and loose screws. Note: Never run fan for extended periods without installing duct on the exhaust flange.				
	Possible external damage	Turn fan off and inspect for loose guards, broken welds, etc.				
Circuit breaker trips	Voltage output insufficient	Test outlet with volt meter.				
Automatic thermal over- load in motor trips	Extension cord is not of sufficient gauge	Eliminate extension cord and restart or obtain extension cord of sufficient gauge				

### System Components: Model SVF-10X220



		NAME	DATE		PROOF FAN WITH		
AIR SYSTEMS INTERNATIONAL 829 JUNIPER CRESCENT	PREPARED	M. BONEY	4/1/14	RED ST	DUCTIVE HOUS VAC/50 Hz	SING	
CHESAPEAKE, VA 23320 TEL 1-800-866-8100	CHECKED	S. INTRAVATOLA	4/1/14	DATE: 03/27/13	DATE: DWG NUMBER: 03/27/13 SVF-10X220		REV: 0
FAX (757) 424-5348	APPROVED	D. ANGELICO	4/1/14	FILE: SVF-10X220		SHEET 1 OF 1	:

8

# System Components: Model SVF-10X220

SEQ. #	ITEM #	BOM QUANTITY	
1	MILF-10BR	10" STEEL BASE - RED, AXALTA, P/N RED RIVER HP II	1
2	HDWR026	RUBBER FEET FOR SVF FANS - 70 DURO SBR	4
3	FW3/16	3/16 USS FLAT WASHER ZINC COATED STEEL	4
4	FS10X050W	10-24 X 1/2 HEX WASHER, ZINC COAT STEEL	6
5	SVF-10HNDL	HANDLE, BLACK, LLDPE, EXXON P/N LL8555	1
6	SVF-FAN	AXIAL FAN, REINFORCED FIBER, WINGFAN P/N PACAS	1
7	MGDAXFAN1	FINGER GUARD, ZINC COATED STEEL	2
8	SVF-108ADP	10" TO 8" SHROUD, BLACK, LLDPE, EXXON P/N LL8555	2
9	FS1032X78T	10-32 X 7/8 TRUSS,PHILLIPS, ZINC COATED	8
10	FNM8X1ESN	M8 X 1.0 ELASTIC STOP NUT, ZINC COATED	1
11	FN1032ESN	10-32 ELASTIC STOP NUT ZINC COATED	8
12	ELA001	CABLE GLAND, 5-12mm, ALTECH P/N 5308921	1
13	ELA007	1/2 CONDUIT LOCK NUT, ZINC COATED STEEL	1
16	MTR043EX22	ATEX APPROVED MOTOR,220-230 VAC,50 HZ	1
17	HDWR068	COUPLING NUT 10-24 X 3/4 LONG, GRADE 2	1
18	FS1032X050	10-32 X .5, ROUND PHILLIPS HEAD, ZINC	4
19	FW10LOCK	#10 LOCKWASHER ZINC COATED	4
20	FS10X350TS	10-24 X 3-1/2 FULLY THREADED STEEL STUD	1
21	HDWR027	GROMMET FOR SV FANS-60 DURAMETER, SBR	1
22	HDWR070	BLACK ABS KNOB WITH 10-24 THREADS, SVF	1
23	ELA051	ALUMINUM GROUNDING LUG, 6-14 AWG (6.35mm MAX)	2
24	MBSVF10EXP	STABILIZER BRACKET FOR SVF-10EX SERIES, STEEL	1
25	FS10X075W	10-24 X 3/4 HEX WASHER, ZINC COATED	6
27	ELA039	1/4" DIAMETER SHRINK TUBING, PVC	0.25
28	DECAL045	MOTOR ROTATION DECAL, PERMANENT OUTDOOR	2
30	DECAL043	AIR SYSTEMS WORLD LOGO DECAL - 4" DIA.	1
32	ILF-G	GASKET, ROUND, 8 HOLES, FOR SVF FANS, SBR	2
35	DECAL168	SERIAL NO. DECAL,CVF-8X220,SVF-10X220	1
36	DECAL169	PERF. SPEC. DECAL, CVF-8X220, SVF-10X220	1

### System Components: Model CVF-8X220



#### ATEX AND IECEx Certified Product No Unauthorized Changes

SAFETY COMPONENT-NO SUBSTITUTION

Bluffton Motor Works electric motor model no. 1933007427, part no. MTR043EX22 supplied with 7.62 mm lapp cable. Motor approvals: ATEX DEMKO 134885U, IECEx UL 12.0034U,

INMETRO UL-Br 12.0360U

Hazardous Location Ex d IIB Gb

SPECIAL CONDITION OF SAFE USE

User specified ATEX approved plug to meet hazardous location requirement.

KILLARK part no. ELAP15232

Metal used on this fan contains steel with small or trace added elements less than 7.5% total content of magnesium, titanium, and zirconium.

Item #23, ground lug, manufacturer part no. KA6U. wire capacity 6-14 AWG. or 6.35 mm (1/4") maximum.

Nominal dimensions of unit:

419 mm (L) X 279 mm (W) X 368 mm (H)

Tip Clearance For Installed Fan, 3.00 mm (+1.0 mm/-1.5 mm)





Item no. 36, DECAL169 is located on opposite of on/off switch label manufactured by Flexcon Permanent Vinyl.

		NAME	DATE	8" EXPLOSION PROOF FAN WITH				
AIR SYSTEMS INTERNATIONAL 829 JUNIPER CRESCENT	PREPARED	M. BONEY	4/1/14	BLACK CONDUCTIVE HOUS 220-230 VAC/50 Hz			NG	
CHESAPEAKE, VA 23320 TEL 1-800-866-8100	CHECKED	S. INTRAVATOLA	4/1/14	DATE: DWG NU 10/07/13 CVF-82		MBER: X220	REV: 0	
FAX (757) 424-5348	APPROVED	D. ANGELICO	4/1/14	FILE: CVF-8X	CVF-8X220		F 1	

# System Components: Model CVF-8X220

SEQ. #	ITEM # DESCRIPTION					
1	CVF-FANCN	8" FAN, POLYPROPYLENE, POLYONE #PP-16CP/000-2HI	1			
2	CVF-MM	MOTOR MOUNT, POLYPROPYLENE, POLYONE #PP-16CP/000-2HI	1			
3	DECAL168	SERIAL NO. DECAL,CVF-8X220,SVF-10X220	1			
4	CVF8EXP-NM	CONDUCTIVE POLYETHYLENE HOUSING, ICORENE 517-C	1			
5	FS10X350TS	10-24 X 3-1/2 FULLY THREADED STEEL STUD	1			
6	HDWR070	BLACK ABS ON/OFF KNOB WITH 10-24 THREADS	1			
7	MTR043EX22	ATEX APPROVED MOTOR,220-230 VAC,50 HZ	1			
8	HDWR068	COUPLING NUT 10-24 X 3/4 LONG,GRADE 2, STEEL	1			
9	FS10X5/8TH	#10 X 5/8 TRUSS HEAD PHILLIPS SCREW, STEEL	2			
10	ELA051	ALUMINUM GROUNDING LUG, 6-14 AWG (6.35mm MAX)	2			
11	ELA007	1/2 CONDUIT LOCK NUT, ZINC COATED STEEL	1			
12	MBKCVF8EXP	MOUNTING PLATE, CVF SERIES EXP FANS, POLYETHYLENE	1			
13	ELA001	CABLE GLAND, 5-12mm, ALTECH P/N 5308921	1			
14	DECAL169	PERFORMANCE DECAL, CVF-8X220, SVF-10X220	1			
15	HDWR006	16-14 AWG. NON-INSULATED RING TERMINAL, STEEL	2			
16	ELCB033G	18 GAUGE STRANDED WIRE-GREEN	0.5			
17	CVF-RG	REAR GUARD, ZINC COATED STEEL	1			
18	FS83/4STSS	#8 X 3/4 PAN HEAD SERRATED THREAD SCREW, STEEL	9			
19	FNM8X1ESN	M8 X 1.0 ELASTIC STOP NUT, STEEL	1			
20	CVF-FG	FRONT GUARD, ZINC COATED STEEL	1			
21	CVF-POST	LATCHING POST	4			

# ACCESSORY DRAWING CONDUCTIVE CANISTER FOR CVF-8X220



# **REPLACEMENT DUCT CANISTER**

CVF-CND6	Conductive Duct Canister with 6 Ft. (183 cm.) of Conductive Duct
CVF-CND15	Conductive Duct Canister with 15 Ft. (457 cm.) of Conductive Duct
CVF-CND25	Conductive Duct Canister with 25 Ft. (762 cm.) of Conductive Duct

# **EXPLOSION PROOF PLUG FOR HAZARDOUS LOCATIONS**

ELAP15232	250 VAC/15 amp - Killark Universal
ELAP20232	250 VAC/20 amp - Killark Universal

### 13 CONDUCTIVE SADDLE VENT® VENTILATION KITS



# CVFX25K220 VENTILATION KIT WITH CVF-8X220

25' Conductive Duct Conductive Saddle Vent® Conductive Duct Canister with 6' of Conductive Duct Conductive 90° Elbow Universal Mount







6' and 15' of Conductive Duct Conductive Saddle Vent® Duct Canister Conductive 90° Elbow Universal Mount



14

# Hazardous Location & Explosive Atmospheres Guide to Equipment Certification Requirements

Productive of undex of un	Tunical ATEX and IECEx Marking								Protection Concepts	ATEX	and IE	Fxl		
Number of the state state of the state of the state of the state of the s	Typica		IU IECEX IN	narking	<u></u>				riotection concepts		Typical	Typical		Basic Concept of
Construction         Construction<	CE	(Ex	>    _	2 G	Ex	d II	СТ	4 Gb	Type of Protection	Symbol	IEC EPL	Zone(s)	IEC Standard	Protection
Image: Section with the section with section with section with the section with the section with the s	▲		4	<b>A A</b>	•	4	4	▲ ▲	Electrical Equipment for	Gases, V	apors a	nd Mists (G)		<sup>()</sup>
Control         Subsect         Subsect         Particle         Particle <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>General Requirements</td><td>÷</td><td></td><td>0,1,2</td><td>IEC 60079-0</td><td></td></t<>									General Requirements	÷		0,1,2	IEC 60079-0	
Description         Marked with the subject of th	Complies	Specific			Explosion					Op pr	Gb	1,2	IEC 60079-28	Inherently safe
Linking         Discovery         Discovery <thd< td=""><td>European</td><td>Marking Explosio</td><td>for Ca</td><td>tegory*</td><td>Protection</td><td>Protection Gas</td><td>Group Temp Class</td><td>(T1-T6) Equipment (T1-T6) Protection</td><td>Optical Radiation</td><td>Op sh On is</td><td>Ga</td><td>0,1,2</td><td>IEC 60079-28</td><td>protected by shutdown</td></thd<>	European	Marking Explosio	for Ca	tegory*	Protection	Protection Gas	Group Temp Class	(T1-T6) Equipment (T1-T6) Protection	Optical Radiation	Op sh On is	Ga	0,1,2	IEC 60079-28	protected by shutdown
Instruction         Unsplay         Unsplay         Unsplay         Instruction         Instructis afeed unity         Instruction	Directive-	Protection	n* Equipment	Environmen	t*			(EPL)		- op is				No arcs, sparks or hot
Ingress Protection Codes (EC 00729)         Atmosphere Groups (ATEX & IECEX)         Atmosphere Groups (ATEX & IECEX)         Control Metal (ATEX & IECEX)         Control Metal (ATEX & IECEX)         Control Metal (ATEX & IECEX)           Test Number (protect minick Sefery         Atmosphere Groups (ATEX & IECEX)         Control Metal (ATEX & IECEX)           Test Number (protect minick Sefery         No Potention         No Potention         No Potention         Control Metal (ATEX & IECEX)           Control Metal (Control Met	N N	lumber*	Group*					*ATEX only	Increased Safety	e	Gb	1,2	IEC 60079-7	surfaces
Hume good         d         d         12         UE Coopsis         Contain the applicable, aurich the filtement (Local to Filter)           Image so Frotection Codes UE Coopsis         Atmosphere Groups (Local to Filter)         Atmosphere Groups (Local to Filter)         Third S attract (Local to Filter)         Contain the applicable, aurich the filter         Contain the applicable, aurich the filter           I Objects Some         I No protection (Local to Filter)         No prote									Type IT (Non-sparking)	IIA	GC	2	IEC 00075-15	Enclosure IP54 or better
Trg res         Sector         Top         Top        Top         Top         T									Flame-proof	d	Gb	1,2	IEC 60079-1	Contain the explosion,
Ingress Protection Codes (IEC 60759)         Attrosphere Groups (IEC 60759)         Outer/Sam Filed         4         6         6         1.2         IE 60079-0         1         with the filed           1         Marce Sam Filed         6         6         7.2         IE 60079-0         1         IE 60079-0         IE 600079-0         IE 600079-0         IE 60079-0									Type 'n' (Enclosed Break)	nC	Gc	2	IEC 60079-15	quench the flame
Important Production         Matheway frage 4 (and body frage 4) (and body frage 4) (body frag	(In succession	Ducto at	ion Codos		Atm	acabara C	-		Quartz/Sand Filled	q	Gb	1,2	IEC 60079-5	Quench the flame
LICE Color         Color         Location         Type of the state of t	ingres	of 201	ion Codes	<b>&gt;</b>		v & IECEVI	roups			ia	Ga	0,1,2	IEC 60079-11	Limit the energy of
First Munice (protection mon value)         Group         Environment (control)         Control (control)         Partial (contro) </td <td>LIEC O</td> <td>0529]</td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Intrinsic Safety</td> <td>ic</td> <td>GC</td> <td>1,2</td> <td>IEC 60079-11</td> <td>temperatures</td>	LIEC O	0529]	_						Intrinsic Safety	ic	GC	1,2	IEC 60079-11	temperatures
Non-Protection         Non-Pro	First Num from solid	ber (protect	Second Num	nber (protect	Group	Environment	Location	Typical Substance		DX	Gb	12	IEC 60079-2	
Image: Conjunction of the Network of Section 12.5 mm         Image: Conjunction 12.5 mm         Image: Conjunctio	0 No Pro	otection	0 No prote	rtion	1		Coal	(Fire damp)	Purged / Pressurized	py	Gb	1,2	IEC 60079-2	
Image: 1         Example of Subject Su	1 Object	ts > 50mm	1 Vertical o	trin		<i>C</i>	lining	Methane	Tressurized	pz	Gc	2	IEC 60079-2	
B         Spectra         Spe	2 Object	$t_{s} > 125 mm$	2 Angled o	Irip	IIA	Vapors and	Surface	Propane, etc.	Type 'n' (Sealing & Hermetically	nC	Gc	2	IEC 60079-15	
Image:	3 Object	$t_s > 2.5 mm$	3 Spraving	in the	IIB	Mists	and Other	Ethylene	Sealed) Type 'n' (Restricted Breathing)	nP	Ge	2	IEC 60079-15	Keep the
Equipment Groups Andrew 1         Frequence for Construction 1         Fr	4 Object	ts > 1.0mm	4 Splashing	1	шс		Locations	Hydrogen,	Type in (neoticed breading)	ma	Ga	012	IEC 60079-13	nammable gas out
i         Dust.Tight         i         Ownerful jetting         III.C         Combustible and built         Combustible built         Combustible and built         Combustible built         Combustible and built         Combustible built         Combustible and built         Combustible built         Combuilt <td>5 Dust-P</td> <td>Protected</td> <td>5 letting</td> <td>,</td> <td></td> <td></td> <td></td> <td>Acetylene, etc.</td> <td>Encapsulation</td> <td>mb</td> <td>Gb</td> <td>1,2</td> <td>IEC 60079-18</td> <td></td>	5 Dust-P	Protected	5 letting	,				Acetylene, etc.	Encapsulation	mb	Gb	1,2	IEC 60079-18	
Enclose         Control         Control <t< td=""><td>6 Dust-T</td><td>Tight</td><td>6 Powerful</td><td>iettina</td><td>IIIA</td><td></td><td>Surface</td><td>Combustible</td><td></td><td>mc</td><td>Gc</td><td>2</td><td>IEC 60079-18</td><td></td></t<>	6 Dust-T	Tight	6 Powerful	iettina	IIIA		Surface	Combustible		mc	Gc	2	IEC 60079-18	
Image: Point of the important function of the important functin the important function of the important function of t	- Dast i		7 7		IIIB	Combustible	and	Non-conductive	Oil Immersion	0	Gb	1,2	IEC 60079-6	
Image: Inclusion of the production of the productin of the production of the production of the production of the p			/ Tempora	ry immersion		Dusts	Other		Electrical Equipment for	Combus	tible Du	ists (D)		
1       1			8 Continue	ous immersion	IIIC		Locations	Conductive	General Requirements	-		20,21,22	IEC 60079-0	
		g High pressure and							ta	Da	20		Standard protection	
$ \begin{array}{  c  c  c  c  c  c  c  c  c  c  c  c  c$			tempera	ture water jet		)			Enclosure	tb	Db	21	IEC 60079-31	for dusts, rugged tight
Equipment Group       Atmosphere       Equipment Protection Protection Protection Category       Required Protection Protection Category       Required Protection Protection Category       ma       Da       20       EC 60079-11       With Some relaxations of incendive parts         1 (Mines with Findeam)       M1       Methane & Dust       Very High Ma       Required Protection Deengize in exp. atm.       ma       Da       20       EC 60079-18       momentalizity safe         1 (Mines with Findeam)       M1       Methane & Dust       Very High Ma       Two faults, Remain energized and functioning       Protection by energize in exp. atm.       Protectrical Equipment       Non-Electrical Equipment       Non-Electrical Equipment       Non-Electrical Equipment       Non-Electrical Equipment       Non-Electrical Equipment       Non-Electrical Equipment       Non-Stategory										tc	Dc	22		enclosure
Equipment Groups (ATEX)       Intrase Safety       Ib Correction (b Db       Db       21 (b Dc       IEC 60079-II (b C C C 122)       If decut initiale is intrinsically safe         Equipment Group       ATEX Equipment Category       Atmosphere Equipment Category       Equipment Performance & Operation Level (EPI)       Required Protection Level (EPI)       Required Protection Level (EPI)       Protection Performance & Operation Intrinsically safe       Protection performance & Operation Db       Db       21,22 (b C 60279-II)       Protection by encapsulation of encapsulation of e										ia	Da	20		with some relaxations
Interview of the second of th									Intrinsic Safety	ib	Db	21	IEC 60079-11	if circuit inside is
$\frac{\operatorname{Equipment Group Galaxy}{\operatorname{Equipment Group Galaxy}} = \frac{\operatorname{Falsyment Friedamp}}{\operatorname{Friedamp}} + \frac{\operatorname{Atmosphere}}{\operatorname{Category}} + \frac{\operatorname{Equipment Friedamp}}{\operatorname{Mi}} + \frac{\operatorname{Atmosphere}}{\operatorname{Category}} + \frac{\operatorname{Equipment Friedamp}}{\operatorname{Equipment Gategory}} + \frac{\operatorname{Atmosphere}}{\operatorname{Mi}} + \frac{\operatorname{Equipment Friedamp}}{\operatorname{Equipment Gategory}} + \frac{\operatorname{Atmosphere}}{\operatorname{Mi}} + \frac{\operatorname{Equipment Friedamp}}{\operatorname{Equipment Friedamp}} + \frac{\operatorname{Mi}}{\operatorname{Mi}} + \frac{\operatorname{Mi}}}{+ \frac{\operatorname{Mi}}} + \frac{\operatorname{Mi}}{\operatorname{Mi}} + \operatorname$	Equip	ment Gro	oups (ATE)	x1						i.e	De			intrinsically safe
Equipment Group       Artes and protection Level (P1)       Artes and protection Level (P1)       Required Protection Level (P1)       Integration of the protection performance & Operation Level (P1)         I Mines with Friedamp)       MI       Methane & Dust       Very High Ma       Severe normal operation, severe normal operation, friedaming energized and functioning         I (All Other Areas)       1G, 1D       Gas, Vapor, Mist, Dust       Very High Ma       Severe normal operation, energize (a no, attribute)       Non-Electrical Equipment       0.1,2, 20,21,22       EC 61241-4       Protection by protection endosure         II (All Other Areas)       1G, 1D       Gas, Vapor, Mist, Dust       Very High Ma       One fault       One fault       General Requirements       -       -       0,1,2, 20,21,22       EN 13463-1       Low potential energy         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation       File endosure       fr       -       2,2,22       EN 13463-1       Low potential energy         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation       File endosure       fr       -       2,2,22       EN 13463-2       Environmation or entricin endosure         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation       Endosure </td <td>Ederb</td> <td></td> <td>ATEV</td> <td></td> <td></td> <td>Equipment</td> <td></td> <td>N 600 - 101</td> <td>Encanculation</td> <td>ma</td> <td>Da</td> <td>20</td> <td>IEC 60079-18</td> <td>Protection by</td>	Ederb		ATEV			Equipment		N 600 - 101	Encanculation	ma	Da	20	IEC 60079-18	Protection by
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Equipme	ent Group	Equipment	Atmosp	here Protection		Requi	red Protection	Encapsulation	mc Dc 22	incendive parts			
I Mines with Friedamp)M1Methane & DustVery High MaTwo faults, Remain energized and functioning Beenergized and functioning Deenergized and functioning Deenergize in exp. atm.PressurizedpDDc22IEC 61241-4pressurization of enclosureII (AII Other Areas)1G, IDGas, Vapor, Mist, DustVery High High MoNoreal operation, Deenergize in exp. atm.Non-Electrical Equipment Category-0,1,2, 20,21,22EN 13463-2EN 13463-2Relies on tight seals, closely matched jointsII (AII Other Areas)3G, 3DGas, Vapor, Mist, DustLowNormal operationFor each seals0,1,2, 20,21,22EN 13463-2Relies on tight seals, closely matched jointsII (AII Other Areas)3G, 3DGas, Vapor, Mist, DustLowNormal operationFor each seals0,1,2, 20,21,22EN 13463-2Relies on tight seals, closely matched jointsEquipment CategoryTypical Equipment Zone SuitabilityATEX Categories vs. Zones of Use*DustConstructional Safetyc-0,1,2, 20,21,22EN 13463-6FindenseII GGaSuitable for Zones 20,12Zategory 1Zone 0, 1 & 2 & Nits Wight To Zone 0, 1 & 2 Category 2Zone 1 & 2 Zone 1 & 2 Zone 2DustDust-0,1,2,<			Category			Level (EPL)	Performa	ince & Operation			Db	21,22		Protection by
Equipment Categories & Protection Levels*       ATEX Categories vs. Zone of Use of Use*       Constructional Safety       c       0,1,2, 20,21,22       EN 13463-4       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting the enclosure       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting the enclosure       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting the enclosure       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting the enclosure       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting the enclosure       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting of the enclosure       Enclosure fr       0,1,2, 20,21,22       EN 13463-5       Relies on tight seals, closely matched joints and tough enclosures to restrict the presenting of the enclosure         1G       Ga       Sutable for Zones 10,1,2 1D       Da       Sutable for Zones 12,22 2D       EN 13463-5       Enclosure is purged and pressurized to prevent matfunctions       Enclosure is purged and pressurized to prevent arising         1G       Ga       Sutable for Zones 12,22 2D       Db       Sutable for Zones 12,22 2C       Zone 0, 1 & 2 2C Category 1       Zone 0, 1 & 2 2C Category 2       Zone 1 & 2 2C Category 2       Zone 1 & 2 2C Category 3       Zone 2       Zone 22       Enclosure is purged and pressurized to prevent orderwise.         No De       Sutable for Zones 1,2 3G	I (Mines v	with	M1	Methane	& Dust	Very High Ma	Two faults	, Remain	Pressurized	pD	Dc	22	IEC 61241-4	pressurization of
I Multication i friedampi i freedampi i (All Other Areas)M2Methane & DustHigh MbDevelor formal operation, Deventige in exp. atm., Deventige in exp. atm., Deventing intervitient i	ritedamp	<i>"</i>				1.1.2.2.1.1.0.1	Energized	and functioning			50			enclosure
II (All Other Areas)       1G, 1D       Gas, Vapor, Mist, Dust       Very High       Two faults         II (All Other Areas)       2G, 2D       Gas, Vapor, Mist, Dust       High       One fault         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation         Flow Restricted Enclosure Flame-proof Enclosure       fr       -       2,22       EN 13463-3       Relies on tight seals, dosely matched joints and tough enclosures to restricted Enclosure       EN 13463-2       EN 13463-3       Relies on tight seals, dosely matched joints and tough enclosures to restricted Enclosure       EN 13463-3       Relies on tight seals, dosely matched joints and tough enclosures to restricted Enclosure         ATEX Categories & Protection Levels <sup>#</sup> ATEX Categories vs. Zones of Use <sup>#</sup> Zone of Use       Constructional Safety       c       -       0,1,2, 20,21,22       EN 13463-5       Enclosure is purged and pressurized to prevent ignition sources for matrixing script and arising script and arisens script and aristerg script and arisens script and aristerg	Firedamp	with p)	M2	Methane	& Dust	High Mb	De-energi	ze in exp. atm.	Non-Electrical Equipment					8
II (All Other areas)       2G, 2D       Gas, Vapor, Mist, Dust       High       One fault         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation         Flow Restricted Enclosure Protection Levels*       fr       -       2,2,2       EN 13463-2       Relies on tight seals, closely matched joints and notoxeres         ATEX Category       Fujipment To b       Typical Equipment Category 1       ATEX Categories vs. Zones of Use*       Constructional Safety       c       -       0,1,2, 20,21,22       EN 13463-5       Relies on tight seals, closely matched joints and notoxeres to restrict the breathing of the enclosure         1G       Ga       Suitable for Zones 0,1,2       Equipment Category 1       Zone 0, 1 & 2       Zone 20, 21, 822       EN 13463-6       Finder of the enclosure restrict the breathing of the enclosure         1G       Ga       Suitable for Zones 0,1,2       Equipment Category 1       Zone 0, 1 & 2       Zone 20, 21 & 822       Enclosure       b       -       0,1,2, 20,21,22       EN 13463-6       Finder of the enclosure engineering methods         2       G       Gb       Suitable for Zones 20,21,22       Zone 0, 1 & 2       Zone 20, 21 & 822       Purged / Pressurized       p       -       1,2, 20,21,22       EN 160079-2       Enclosure is purged and pressurized to prevent ignition sources from arising </td <td>II (All Oth</td> <td>her Areas)</td> <td>1G, 1D</td> <td>Gas, Vapor, N</td> <td>Aist, Dust</td> <td>Very High</td> <td>Two faults</td> <td></td> <td>General Requirements</td> <td></td> <td></td> <td>0,1,2,</td> <td>EN 13463-1</td> <td>Low potential energy</td>	II (All Oth	her Areas)	1G, 1D	Gas, Vapor, N	Aist, Dust	Very High	Two faults		General Requirements			0,1,2,	EN 13463-1	Low potential energy
II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation         II (All Other Areas)       3G, 3D       Gas, Vapor, Mist, Dust       Low       Normal operation         Flow Restricted Enclosure Protection Levels <sup>®</sup> ATEX Categories vs. Zones of Use <sup>®</sup> Flow Restricted Enclosure Flame-proof Enclosure       fr       -       2,22 1,2,21,22       EN 13463-2 EN 13463-5       Relies on tight seals, closely matched joints and tough enclosure so restrict the breathing of the enclosure         ATEX Categories vs. Zones of Use <sup>®</sup> ATEX Categories vs. Zones of Use <sup>®</sup> Constructional Safety       c       -       0,1,2, 20,21,22       EN 13463-5       Relies on tight seals, closely matched joints and tough enclosure         1 G       Ga       Suitable for Zones 0,1,2       Equipment Zategory       Zone of Use Gas, Vapors, XEX 94/9/EC       Dust       Dust       b       -       0,1,2, 20,21,22       EN 13463-6       Control equipment fitted to detect malfunctions         1 D       Da       Suitable for Zones 1,2       Category 1       Zone 0, 1 & 2       Zone 20, 21 & 22       EN 60079-2       Enclosure is purged and presurized to prevent arising         2 D       Db       Suitable for Zones 21,22       Note 8: Unless the explosion protection risk assessment states       Zone 21 & 22       Zone 22       Enclosure use liquid to prevent contact with explosive atmosphere	II (All Oth	her areas)	2G, 2D	Gas, Vapor, N	Aist, Dust	High	One fault		deneral nequirements			20,21,22	LIN 15105 I	2.511 potential energy
Flow Restricted Enclosurefr-2,22EN 13463-2closely matched joints and tough enclosures to restrict the breathing of the enclosureEquipment Categories & Protection Levels®ATEX Categories vs. Zones of Use®Constructional Safetyc-0,1,2, 20,21,22EN 13463-5Ignition hazards engineering methods engineering methodsATEX Category LevelsZone of Use®Zone of Use®Constructional Safetyc-0,1,2, 20,21,22EN 13463-6Ignition hazards engineering methods1 G 1 D 2 D 2 CGas Suitable for Zones 0,1,2Zone 0, 1 & 2Zone 0, 1 & 2Zone 0, 2 & 2Purged / 2 Control of Ignition Sourcesp-0,1,2, 2,2,2,22EN 13463-6Control equipment fitted to detect malfunctions2 D 3 DDotSuitable for Zones 21,22Zone 1 & 2Zone 2,2Zone 2,2Zone 2,2En 13463-8Enclosure is purged and pressurized to prevent ignition sources from arising3 D 3 DDcSuitable for Zone 2,2Note 8: unless the explosion protection risk assessment statesZone 2,2Zone 2,2Enclosure is purged and pressurized to prevent contact with explosive atmosphere3 D 3 DDcSuitable for Zone 2,2Note 8: unless the explosion protection risk assessment statesZone 2,2Zone 2,2Enclosure is purged and prevent contact with explosion arrisk assessment states	II (All Oth	her Areas)	3G, 3D	Gas, Vapor, N	Aist, Dust	Low	Normal op	eration						Relies on tight seals,
Equipment Categories & Protection Levels <sup>a</sup> ATEX Categories vs. Zones of Use and									Flow Restricted Enclosure	fr		2,22	EN 13463-2	closely matched joints
Image: Second Se									Flame-proof Enclosure	d	55	1,2,21,22	EN 13463-3	restrict the breathing of
Equipment Categories & Protection Levels®0,1,2, 20,21,22Ignition hazards eliminated by good engineering methodsATEX Categories vs. Zones of Use®ATEX Categories vs. Zones of Use®c-0,1,2, 20,21,22EN 13463-6Ignition hazards eliminated by good engineering methodsATEX fategory LevelsTypical Equipment Zone SuitabilityZone of Use®Constructional Safetyc-0,1,2, 20,21,22EN 13463-6Ignition hazards eliminated by good engineering methods1 GGaSuitable for Zones 0,1,2Category 1Zone 0, 1 & 2Zone 20, 21 & 22Dustb-0,1,2, 20,21,22EN 13463-6Control equipment malfunctions1 GGaSuitable for Zones 0,1,2Category 1Zone 0, 1 & 2Zone 20, 21 & 22Zone 20, 21 & 22Purged / Pressurizedp-1,2, 21,22EN 60079-2 EN 61241-4Enclosure is purged and pressurized to prevent ignition sources from arising2 DDbSuitable for Zones 21,22Note 8:Unless the explosion protection risk assessment statesZone 22Zone 22Enclosure uses liquid to prevent contact with explosive atmosphere3 DDcSuitable for Zone 22Note 8:Unless the explosion protection risk assessment statesk-0,1,2, 20,21,22EN 13463-8Enclosure uses liquid to prevent contact with explosive atmosphere														the enclosure
Equipment Categories & Protection Levels <sup>a</sup> ATEX Categories vs. Zones of Use of Use of Use       Constructional Safety       c       -       20,21,22       EN 13463-5       eliminated by good engineering methods engineering methods         ATEX facegory       Typical Equipment Zone Suitability       Typical Equipment Zone Suitability       Zone of Use       Control of Ignition Sources       b       -       0,1,2, 20,21,22       EN 13463-6       eliminated by good engineering methods         1 G       Ga       Suitable for Zones 0,1,2       Equipment Category 1       Zone 0, 1 & 2       Zone 0, 1 & 2       Zone 20, 21 & 22       Enclosure is purged and pressurized to prevent ignition sources from arising       Purged / Pressurized       p       -       1,2, 2, 21,22       EN 60079-2       Enclosure is purged and pressurized to prevent ignition sources from arising         2 G       Gb       Suitable for Zones 21,22       Zone 1 & 2       Zone 21 & 22       Zone 22       Zone 22       Zone 22       Enclosure uses liquid to prevent ignition sources from arising         3 D       Dc       Suitable for Zone 22       Net 8: Unless the explosion protection risk assessment states otherwise.       Enclosure uses liquid to prevent contact with explosive atmosphere	Equips											0,1,2,		Ignition hazards
ATEX Category       Typical Equipment Zone Suitability       Typical Equipment Zone Suitability       Typical Equipment Category       Zone of Use       Control of Ignition Sources       b       -       0,1,2, 20,21,22       EN 13463-6       Control of equipment fitted to detect malfunctions         1 G       Ga       Suitable for Zones 0,1,2       Equipment Category       Zone 0, 1 & 2       Zone 0, 1 & 2       Zone 20, 21 & 22       Purged / Pressurized       p       -       1,2, 21,22       EN 60079-2 EN 61241-4       Enclosure is purged and pressurized to prevent ignition sources from arising         2 D       Db       Suitable for Zones 21,22       Category 3       Zone 2       Zone 22       Zone 22       Zone 22       Enclosure is purged and pressurized to prevent ignition sources from arising         3 G       Gc       Suitable for Zone 21       Note 8:       Unless the explosion protection risk assessment states otherwise.       Zone 22       Zone 22       Enclosure uses liquid to prevent contact with explosive atmosphere	Protec	Protection Levels <sup>®</sup> ATEX Categories vs. Zones						Constructional Safety	c	-	20,21,22	EN 13463-5	eliminated by good engineering methods	
ATEX CategoryTypical Equipment Zone SuitabilityTypical Equipment Zone SuitabilityZone of UseControl of Ignition Sourcesb-0,1,2, 20,21,22EN 13463-6fitted to detect malfunctions1 GGaSuitable for Zones 0,1,2Gas, Vapors, & MistDustDust-0,1,2, 20,21,22EN 13463-6fitted to detect malfunctions1 DDaSuitable for Zones 20,21,22Zone 0, 1 & 2Zone 0, 1 & 2Zone 20, 21 & 221,2, PressurizedEN 60079-2 21,22EN 60079-2 EN 61241-4Enclosure is purged and pressurized to prevent ignition sources from arising2 DDbSuitable for Zones 21,22Category 3Zone 2Zone 22Zone 22Enclosure use liquid to prevent contact with explosive atmosphere3 DDcSuitable for Zone 22Suitable for Zone 22Suitable for Zone 22Note 8:Unless the explosion protection risk assessment states otherwise.Enclosure uses liquid to prevent contact with explosive atmosphere	TIOLCC	Fauinment	.15		UI US	e								Control equipment
Category       Levels       Category       Gas, Vapors, & Mist       Dust         1 G       Ga       Suitable for Zones 0,1,2       Category 1       Zone 0, 1 & 2       Zone 20, 21 & 22       Purged / Pressurized       p       -       1,2, 21,22       EN 60079-2 EN 61241-4       Enclosure is purged and pressurized to prevent ignition sources from arising         2 G       Gb       Suitable for Zones 1,2       Zone 1 & 2       Zone 2       Enclosure uses liquid to prevent contact with explosive atmosphere         3 D       Dc       Suitable for Zone 22       Distervise       Suitable for Zone 22       Enclosure uses liquid to prevent contact with explosive atmosphere       Enclosure uses liquid to	ATEX	Protection	Typical Equ	ipment ability	Equip	ment	Zone	of Use	Control of Ignition Sources	b	×.	0,1,2, 20.21.22	EN 13463-6	fitted to detect
I G       Ga       Suitable for Zones 0,1,2       Category 1       Zone 0, 1 & 2       Zone 20, 21 & 22       Purged / Pressurized       p       -       1,2, 21,22       EN 60079-2       Enclosure is purged and pressurized to prevent ignition sources from arising         2 G       Gb       Suitable for Zones 1,2       Category 1       Zone 0, 1 & 2       Zone 2,1 & 22       Purged / Pressurized       p       -       1,2, 21,22       EN 60079-2       Enclosure is purged and pressurized to prevent ignition sources from arising         2 D       Db       Suitable for Zones 21,22       Category 3       Zone 2       Zone 22       Zone 22       Enclosure uses liquid to prevent or contact with explosion protection risk assessment states otherwise.       Liquid Immersion       k       -       0,1,2, 20,21,22       EN 13463-8       Enclosure uses liquid to prevent contact with explosive atmosphere	category	Levels	Lone Juit		ATEX 9	4/9/EC Ga	s, Vapors, & Mist	Dust						malfunctions
1 D       Da       Suitable for Zones 20,21,22       Category 1       Control, risk assessment states otherwise.       Pressurized       p       1,2/2       EN 61241-4       pressurized to prevent arising         2 G       Gb       Suitable for Zones 1,2       Category 2       Zone 1 & 2       Zone 21 & 22       Pressurized       Pressurized       Pressurized       Pressurized       EN 61241-4       ignition sources from arising         3 G       Gc       Suitable for Zone 2       Note 8:       Unless the explosion protection risk assessment states otherwise.       Liquid Immersion       k       -       0,1,2, 20,21,22       EN 13463-8       Enclosure uses liquid to prevent contact with explosive atmosphere	1 G	1 G Ga Suitable for Zones 0,1,2		ory 1 Zor	e 0. 1 & 2	Zone 20, 21 & 22	Purged /			1,2.	EN 60079-2	Enclosure is purged and pressurized to prevent		
2 G     Gb     Suitable for Zones 1,2     Category 2     Cone r or 2	1 D Da Suitable for Zones 20,21,22		nes 20,21,22	Categ	000 2 70	ne 1 & 2	Zone 20, 21 & 22	Pressurized	p	~	21,22	EN 61241-4	ignition sources from	
2 D       Db       Suitable for Zones 21,22       Concest 2       Concest 2 <td>2 G</td> <td colspan="2">2 G Gb Suitable for Zones 1,2 Category 2 Zone 1 &amp; 2 Zone 21 &amp; 22</td> <td></td> <td></td> <td></td> <td>an an a</td> <td>and the states of the second of</td> <td>arising</td>	2 G	2 G Gb Suitable for Zones 1,2 Category 2 Zone 1 & 2 Zone 21 & 22					an a	and the states of the second of	arising					
3 G     Gc     Suitable for Zone 2     Note 6     Otherwise.       3 D     Dc     Suitable for Zone 22     Find the explosion protection risk assessment states     Liquid initiation     K     20,21,22     Find 13403-8     prevent contact with explosive atmosphere	2 D Db Suitable for Zones 21,22					Lone LL	Liquid Immersion	Ŀ		0,1,2,	EN 13462.9	Enclosure uses liquid to		
3 D Dc Suitable for Zone 22	3 G	3 G Gc Suitable for Zone 2				therwise.	protection ris	assessment states	Liquid minersion	к	1	20,21,22	EIN 13463-8	explosive atmosphere
	(3D	Dc	Suitable for Zor	ne 22										

#### 15

### **EXAMINATION CERTIFICATE**

# Intertek

1.

2.

3

4.

5.

6.

7.

# EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

 

 EC-Type Examination Certificate Number:
 ITS14ATEX17992X

 Equipment or Protective System:
 Hazardous location ventilation fans

 Manufacturer:
 Air Systems International Inc.

 Address:
 829 Juniper Crescent Chesapeake, VA 23320, USA

- This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- 8. Intertek Testing and Certification Limited, notified body number 0359 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Intertek Report 1010249591CRT-002a dated November 23 2015, 1010249591CRT-002b, -002c dated November 19, 2014, 1010249591CRT-002d, -002e, -002f dated February 3 2015 and 1010249591CRT-003a, -003b and -003c dated November 7, 2014.

- Compliance with the Essential Health and Safety Requirements has been assured by compliance with standards EN 60079-0: 2009, EN 60079-1: 2007, EN 14986: 2007, EN 13463-1: 2009 and EN 13463-5: 2011 except in respect of those requirements referred to at item 16 of the Schedule.
- 10. If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- 11. This EC Type examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12. The marking of the equipment or protective system shall include the following:-

ξ<sub>x</sub> II2Gc Ex d IIB T6 Gb

Tel: +44 (0)1372 370900 Fax: +44 (0)1372 370977

Intertek Testing & Certification Limited

 $-20^{\circ}C \le Ta \le 40^{\circ}C$ 

Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB

Richard J. Smith Certification Officer 23 November 2015

Registered No 3272281 Registered Office: Academy Place, 1-9 Brook Street, Brentwood, Essex, CM14 5NQ.

This certificate may only be reproduced in its entirely and without any change, schedule included and is subject to Intertek Testing and Certification's Conditions for Granting Certification.

Sheet 1 of 3

www.intertek.com

### AIR SYSTEMS INTERNATIONAL, INC.

829 Juniper Crescent, Chesapeake, Va, 23320 Telephone (757) 424-3967 Toll Free 1-800-866-8100 Fax No. (757) 424-5348 http://www.airsystems.com e-mail: sales@airsystems.com

TERNATIONAL