2219811.00 DEKRA Certification/IBIX SRL TRANSLATION (original language: DUTCH)

INSPECTION REPORT OUTLINING THE USE OF THE IBIX JET BLASTING SYSTEM IN ZONE 2 , GASGROUP IIA AND TEMPERATURECLASS T3.

Issued by: **Stephan Schaepman, Explosion Safety Expert DEKRA** Certification NL BV

Question:
Can the Diaber Benelux BV IBIX-type jet blasting system operate safely in a Zone II, gas group IIA and temperature class T3?

Details:
A: jet blasting system: Type IBIX, blasting medium to be used Olivine sand combined with water, hose combinations (see Appendix 3);

B: installation set-up: setting up the installation according to the manual and drawing (see Appendix 5 - overview drawing of jet blasting with the IBIX in Zone 2, gas group IIA, temperature class T3 and Appendix 6 - Manual);

C: operational conditions:

- Operating pressure adjustable from 0.2 bar to 8 bar;
- Accurate control of the quantity of blasting medium using the spray gun;
- The blasting medium can be used with a grain size to 1.8 mm;
- In this application only permitted to use Olivine sand as a blasting medium;
- Compressed air consumption: a minimum of 350 litres per minute (depending on the nozzle);
- Usable nozzles Ø up to 12 mm (cylindrical) and up to 6 mm (conical);
- Maximum tank capacity: 60 litres

D: should be maintained by manufacturer IBIX SRL or third party in accordance with specifications and manual by IBIX SRL.

Explanation:
Applicable standards:
- ISO 80079-36:2016: Explosive atmospheres - Part 36: Non-electrical equipment for use in explosive atmospheres - Basic methods and requirements (see Appendix 1 for more details) and:
- IEC/TS 60079-32-1:2013: Explosive atmospheres - Part 32-1: Guidelines for electrostatic risks (see Appendix 2 for more details).

An additional investigation is required to demonstrate that the installation is also suitable for use in Zone 2, gas group IIA, T3. The standard EN ISO 80079-36 is applied for this purpose. The results are set out in the table below.

Possible ignition source:	**Present in the installation?**	**Evidence**	**Results**
Hot surfaces	No	The environment has a temperature class of T3 (max. 200 °C). The temperaturerise measured (see appendix 4) is negligible, which means that during normal use the maximum temperature does not move above temperature class T3.	The installation does not have any hot surfaces. See Appendix 4 for measurement results.
Mechanical sparks	No	For zone 2 the installation must comply with ATEX category 3. According to table 6 of EN ISO 80079-36 the mechanically generated energy resulting from a single stroke or impact	The installation complies with EPL Gc (ATEX category 3) in this respect.

		may not exceed 250 J for non-sparking metals and may not exceed 20 J for other metals. The installation is not exposed to any such loads in the application at IBIX. Jet blasting without water should also be avoided at all times. This is to prevent potential sparking.	
Naked flame, hot gas	No	Not present in or near the installation.	-
Electrical sparks	No	User should ensure that no electrical sparks occur during the process under normal operating conditions, which could ignite a flammable mixture that may be present. The requirements set out in the manual and (local) regulations (end user) and those set out in the Hot/Cold work permit, PPE, gas detection/monitoring, earthing, etc. should also be observed.	The installation complies with EPL Gc (ATEX category 3) in this respect.
Stray currents and cathodic corrosion protection	No	No active cathodic corrosion protection is used and given the low power of the installation, stray currents have not been accounted for either.	-
Static electricity	No	A build-up of static on non-conducting components of the installation could take place. However, according to table 8 of EN ISO 80079-36 for use in IIA, EPL Gc, there is no limit on non-conducting surfaces that may be present. The (high-)pressure hoses, in particular, are important, these types (see Appendix 3), are of the type "dissipative" anti-static 1 kOhm < R < 1 MOhm (see Appendix 2, table 15 and 16), the combination of the liquid (water) and the blasting medium (sand) does not lead to potential sparking for a IIA, T3 environment (see IEC/TS 60079-32-1:2013: Explosive atmospheres - Part 32-1: Guidelines for electrostatic risks (see Appendix 2).	The installation complies with EPL Gc (ATEX category 3) in this respect.
Lightning	No	Not present in or near the installation	-
Electromagnetic radiation	No	Not present in or near the installation	-
Ionising radiation	No	Not present in or near the installation	-
High-frequency radiation	No	Not present in or near the installation	-

Ultrasonic sound	No	Not present in or near the installation	-
Adiabatic compression	No	Diaber Benelux BV must ensure that no adiabatic compression occurs during the process under normal operating conditions, which leads to temperatures that could ignite a flammable mixture that may be present.	Is guaranteed by the end user.
Chemical reactions	No	Diaber Benelux BV must ensure that no chemical reaction occurs during the process under normal operating conditions, which leads to temperatures that could ignite a flammable mixture that may be present.	Is guaranteed by the end user.

Conclusion:

- When spraying liquid or interrupting liquid jets (such as high-pressure washing) a charged mist can be created. Conductive liquids, in particular, may create a significant charge in this way and lead to a build-up of mist. Due to the high speed of the air flowing past, droplets are drawn out of the electric double-layer. Because the so-called continuous phase, in this case the fast flowing air, is not conductive, these droplets will not be able to relinquish their charge and will therefore retain it.

- The charged mist creates high electric fields reaching a maximum in the middle of the cloud. The electrical potential of the cloud depends on the charge density in the mist and the dimensions of the room.

- When this mist or haze remains enclosed in a large room, a high charge density could be created and this may present a potential risk of ignition for explosive atmospheres that are present there.

- Electrostatic charge in itself does not yet make static electricity into an potential ignition source. To do so the charge needs to accumulate to achieve the high potentials and field strengths, which are needed for a discharge.

Jet blasting in the outside air means that the mist may blow away so that no risk of ignition is posed from this. The surface being treated is well earthed, which means that no charge is able to accumulate.

In the situation involving a properly earthed jet nozzle, no charge can accumulated on this either. Using (a lot of) water, as in the case of the IBIX jet blasting system, will greatly support this situation.

End conclusions:

- Safe in an outdoor situation, provided the safety considerations that are set out in the IBIX manual are followed;
- Safe in an indoor situation, provided the safety considerations that are set out in the IBIX manual are followed assuming that water mist is not able to accumulate.

Note concerning this investigation:

- Paragraph 7.10 "Spraying liquids and tank cleaning" from the IEC/TS 60079-32-1:2013: Explosive atmospheres – Part 32-1: The guidelines for electrostatic risks are used as a reference, however this chapter outlines how to undertake high-pressure cleaning of tanks inside the tank storage;
  This investigation is also based on research already previously completed by TNO and document : REPORT VERIFICA DISPERSIONE CARICHE ELETTROSTATICHE-rev0.doc, dated 11/02/2015.

Annex 1: ISO 80079-36:2016: Explosieve atmosferen - Deel 36: Niet elektrische uitrusting voor gebruik in explosieve atmosferen - Basismethoden en eisen.

INTRODUCTION

This part of ISO/IEC 80079 addresses for the first time basic requirements and protection concepts for mechanical explosion protected equipment on an international level. Up to now, with some exceptions, only the design, manufacture, installation and operation of electrical equipment in explosive atmospheres have been addressed in ISO and IEC standards. Examples of non-electrical equipment are: couplings, pumps, gearboxes, brakes, hydraulic and pneumatic motors and any combination of devices to 6ummari a machine, fan, engine, compressor, assemblies, etc.

Although many but not all of such machines use an explosion protected electric motor for motive power the measures needed to reduce the risk of ignition in mechanical equipment as part of the machine may be different to those applied to electrical equipment.
Whereas electrical equipment working within design parameters often contains effective ignition sources such as sparking parts, this is not necessarily true for mechanical equipment which is designed to operate without break-down between predetermined maintenance operations.

Generally there are two mechanical ignition scenarios that need to be considered. These are, ignition resulting from a failure in the machine such as a bearing over-heating or ignition created by the normal functioning of the machine such as a hot brake surface.
Experience has shown that it is essential to perform a comprehensive ignition hazard assessment on the complete mechanical equipment to identify all potential ignition sources and determine if they can become effective ignition sources during the expected lifetime of the mechanical equipment. Once these ignition risks are understood and documented it is then possible to assign protective measures, depending on the required Equipment Protection Level (EPL), to 6ummariz the probability that these ignition sources will become effective.
This standard addresses mechanical equipment and assemblies intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition.

Potential ignition sources are not limited to those created by the equipment but include any ignition sources created by the operation of the equipment; for example hot surfaces when pumping hot fluids or electrostatic charging when handling plastics.
If the only source of ignition of an item comes from the external process such items are not considered to have their own source of ignition, and they are not in the scope of this part of ISO/IEC 80079.

NOTE Examples are items made from plastics (polymers) like plastic pipes and containers that can become charged due to an external process (and not by the operation of the equipment), or items that can become hot due to an external process (like a pipe). These are not considered to be "non-electrical equipment" on their own. If on the other hand such items are incorporated into non-electrical equipment, and could become an ignition source by the intended operation of the equipment, they need to be assessed together withthe equipment under consideration (for example a plastic pipe as part of a petrol dispenser could become charged due to the operation

Annex 2 : IEC/TS 60079-32-1:2013: Explosieve atmosferen – Deel 32-1: Richtlijnen voor elektrostatische risico's.

7.7 Pipes and hose assemblies for liquids

7.7.1 General

When a liquid flows in a pipe or hose assembly, charge separation produces electrostatic charges of opposite polarity on the liquid and the inner pipe wall. If the pipe is entirely conductive or dissipative and is earthed, charges cannot accumulate on the wall and the electrostatic hazards are confined to the tanks where the liquid charges may accumulate. The hazards associated with tanks are dealt with in 7.3.
If the pipe or hose assembly contains insulating materials, charge accumulation on the pipe wall becomes possible and hazards may also be associated with the pipe or hose assembly itself. Thus, the wall could be charged by liquid flow or by rubbing and metal components could be isolated and accumulate charge. The hazards associated with charge accumulation on pipes or hoses that are wholly or partly insulating are dealt with in this clause. The degree of accumulation depends on the resistivity of the pipe material, the conductivity of the liquid and the physical geometry of the system. It can reach levels that produce incendive discharges.
Ignition hazards can occur both inside the pipe, if it runs partly empty when handling a flammable low flash point liquid, and / or outside, if the surrounding atmosphere is flammable. Discharges may also puncture the walls of insulating pipes and hence cause leakage. Leakage could generate an external flammable atmosphere that could be ignited by later discharges or it could lead to a toxic hazard (e.g. if the pipe carried a toxic liquid) or environmental harm. Additional requirements for petrol forecourt pipes are specified in EN 14125.

7.7.3 Hoses and hose assemblies

7.7.3.1 General

Subclause 7.7.3 deals with hoses for chemical and mineral oil transfers. Paint hoses are dealt with in ISO 8028.

7.7.3.2 Design aims for electrostatic safety of hoses

1) Bonding equipment: Hoses are often used to electrically bond connected equipment and may also provide a second layer of protection in bonding of items such as nozzles and lances. The resistance of the hose between end couplings should not exceed a specified limit and the couplings should provide reliable electrical contact to attached equipment.
2) Preventing incendive discharges: Where flammable mixtures may be present inside or outside a hose assembly, hazardous charge accumulation should be avoided by a design that:
Avoids isolation of conductive components such as hose connectors, reinforcing helixes and in-line valves. For hoses with one helix inside and one outside it has to be ensured that both of them, especially the inner, are reliably connected to the end fittings. This is especially important for hoses with helixes chemically protected by insulating coatings.
NOTE In case of hoses made of conductive or dissipative hose material a direct contact of uncoated metallic
helixes and end fittings may not be necessary.
b) Limits accumulation on insulating surfaces by the placement of conductors or the 7ummarized7 of dissipative external and/or internal surfaces as appropriate.
c) Avoids formation of charged, isolated liquid “slugs” within the hose.
3) Avoiding hose damage: Electrostatic discharges should not damage the hose in any way that compromises performance. In particular, discharges that create pinholes through the hose wall should be prevented.
4) Preventing stray currents: It is sometimes necessary to prevent significant levels of stray

current from flowing along the hose whilst still ensuring that electrostatic charges can be dissipated. In this document, hoses designed to do this are classed as dissipative, hoses that may conduct significant stray currents are classed as conductive and those with too high a resistance to safely dissipate any electrostatic charging current are classed as insulating.
Although these definitions are somewhat different from those used to define hose grades in ISO 8031 and EN 12115 they help identifying hoses which are safe from the electrostatic point of view because the classification by resistance between end fittings in ISO 8031 does not necessarily imply electrostatic safety. These classifications for controlling hazards caused by electrostatic discharges and stray currents are 8ummarized in Table 15 and compared to the hose grades in ISO 8031 in Table 16.

Table 15 – Classification of end-to-end hose resistances for control of hazards from static electricity and stray current

Classification	End-to-end resistance R limits	Comments
Conductive	R < 1 kΩ	Controls most static electricity hazards but may need additional measures due to high resistance covers or linings. Does not limit stray currents from power system faults, cathodic protection systems or earth loops.
Dissipative	1 kΩ ≤ R < 1 MΩ	Controls most static electricity hazards but may need additional measures due to high resistance covers or linings. Limits stray currents to safe levels.
Insulating	1 MΩ ≤ R	Cannot be relied upon to control static electricity hazards. Limits stray currents to safe levels.

In meeting the above criteria for controlling ignition, different design features may be needed depending on the conductivity of the liquid, the process requirements and the sensitivity of the atmosphere to ignition.

7.7.3.3 Application of design principles for avoidance of ignition in flammable atmospheres having MIE < 0,20 mJ

7.7.3.3.1 End-to-end electrical bonding (continuity)
End-to-end electrical bonding is usually provided by reinforcing helixes, wires embedded in the hose wall, or braided metal sheaths bonded to conductive end couplings. It is important that each bonding wire or reinforcing helix is securely connected to the end couplings. Connections between bonding wires and couplings should be robust and the resistance between the end couplings should be tested periodically. The frequency and type of testing will depend on the application and should be determined in consultation with the manufacturer.

7.7.3.3.2 Elimination of electrically isolated conductive elements
Conductive hose elements typically include end fittings, hose clips (clamps), reinforcing helixes, embedded wires and braided sheaths.
End couplings: Couplings are bonded together by a conductive or dissipative (antistatic) hose element to meet the end-to-end resistance requirements.
b) Hose clips: Isolated metal hose clips should be avoided for systems carrying flammable liquids since they may be raised to a high potential due to charging currents within the hose and thus become a potential ignition source.

c) Reinforcing helixes, bonding wires and braided sheaths: In the absence of a conductive or dissipative inner lining these objects may become charged by liquid flow. The capacitance of these components is usually high, therefore they may produce significant discharge energies if isolated. Since the only provision generally made for earthing /bonding is via the end couplings it is particularly important to ensure that each such component is bonded securely to the couplings at both ends of the hose. The end-toend resistance of the hose should be checked regularly to ensure that this bonding remains intact. If there are multiple end-to-end conductors (e.g. two reinforcing helixes or two flexible bonding wires), an end-to-end continuity check does not reveal whether all conductors are properly bonded and the continuity check needs to be supplemented by careful quality control during construction and regular visual inspection for any damage that could compromise the integrity of a conductor. A hose of this type showing any sign of mechanical damage should be discarded or relegated to duties with non-flammable liquids.

7.7.3.3.3 Avoidance of incendive brush discharges from insulating surfaces
This may be done using one of the following measures:
Use a dissipative or conductive outer cover and/or inner lining bonded to the end couplings to eliminate the chargeable insulating surface(s).
b) Limit the extent of any chargeable insulating surface either by keeping the hose diameter low (see Table 3) or by limiting the gap between the turns of reinforcing helix(es) in accordance with 6.3.2. These limits may not prevent the erosion of pinholes particularly with thick and/or highly resistive (e.g. fluoropolymer) linings.

7.7.3.3.4 Avoidance of propagating brush discharges
Propagating brush discharges may occur when there is a thin layer of insulating material with a conductive backing and the breakdown voltage of the insulating layer exceeds 4 kV (see 6.3.4.2). This situation may arise if there are closely-spaced turns of a reinforcing helix that is not in direct contact with the liquid or if there is a thin wall with an external braided sheath, but it requires a large build-up of surface charge density. Usually the hose wall material is sufficiently conductive that dissipation through the wall to the reinforcing helix or sheath occurs before the charge density reaches the required level. This may, however, not be the case with fluoropolymer lined hose assemblies unless dissipative (e.g. carbon filled) fluoropolymer materials are used or the lining has a breakdown voltage that does not exceed 4 kV.
NOTE Although a breakdown voltage of less than 4 kV will prevent propagating brush discharges, it may encourage discharges that lead to pinholing.

7.7.3.3.5 Avoiding discharges from isolated masses of conductive liquid
A mass (slug) of conductive liquid could become charged as a result of flow if it is isolated from the earthed ends of the hose by vapour breaks and the hose has an insulating inner surface. A charged liquid slug could create an incendive spark as it approached an earthed end coupling. This scenario can be avoided by using a conductive or dissipative inner hose lining bonded to the end couplings or, for hoses up to about 200 mm (8 inches) in diameter, by using a hose with a thin lining (≤ 1 mm) and reinforcing helical wire having a pitch of 10 mm or less.

7.7.3.4 Practical hose classifications
Hoses should be clearly marked to prevent the use of a wrong type of hose. ISO 8031 defines six practical grades of hoses together with three subdivisions of the conductive and antistatic grades. The nomenclature and resistance limits for the hose grades, which differ from those in older editions of ISO 8031, are summarized in Table 16.
NOTE Hoses are usually supplied complete with end fittings that form a critical part of the static dissipation path For these reasons, the classification of hose grades given in ISO 8031 covers only complete assemblies with endfittings.

In ISO 8031, the resistance boundary limits given for each hose grade apply to a variety of resistance measurements as described in that document for each type. When applied to the end-to-end resistance, these limits can be used to relate each grade to the dissipation cat. given in Table 15. Table 16 includes a listing of the dissipation categories for each hose grade.

Table 16 – ISO 8031 classification of hose grades

ISO 8031 Grades			IEC 60079-32-1 static dissipation category
Grade ID	**Name/description**	**Resistance R per assembly between end fittings**[1)]	
M	Electrically bonded At least two flexible metal bonding wires with or without a metal helix.	R < 100 Ω	Conductive
-	Continuous electrically bonded Metal helix(es) connected electrically to both end fittings.	R < 100 Ω	Conductive
Ω Ω-L Ω-C Ω-CL	Conductive Incorporating conductive rubber or plastics layer(s). Conductive only on inner lining. Conductive only on outer cover. Conductive cover and lining.	R < 1 MΩ	Conductive or Dissipative
Ω Ω-L Ω-C Ω-CL	Antistatic Incorporating antistatic rubber or plastics layer(s). Antistatic only on inner lining. Antistatic only on outer cover. Antistatic cover and lining.	1 kΩ ≤ R ≤ 100 MΩ	Dissipative or Insulating
-	Insulating	100 MΩ < R	Insulating
-	Discontinuous	10 kΩ < R	Dissipative or Insulating
NOTE More details concerning grade classification and appropriate test methods for the different hose types specified in this Table are described in ISO 8031.			

.
Antistatic hoses, grade Ω, are commonly used in automotive applications and in fluoropolymer lined hoses. In these and other applications that do not produce very high levels of electrostatic charging, the 100 MΩ limit is an appropriate upper bound for the dissipative range. However, where rates of charge generation could exceed 10 µA, hoses with resistances of up to 100 MΩ may not be able to dissipate charges safely (see 7.7.3.5 c)). Other requirements in addition to end-to-end resistance are necessary to ensure the avoidance of hazardous brush discharges and propagating brush discharges, see 7.7.3.3.3 and 7.7.3.3.4. Consequently, the end-to-end resistance is not always the only criterion for hose suitability

Certain hybrid methods of hose construction provide both electrical bonding and conductive or antistatic (dissipating) liners or covers. This combination is used, for example, where equipment earthing requirements demand electrical bonding but the process requires a thick inner lining that would, if made of an insulating material, lead to internal discharges.

Annex 3: pressure hoses specifications.

35030 Cervarese S. Croce (Padova) - Italy
Via Fossona, 132
Tel. +39.049 998 73 11
Fax servizio vendite +39.049.991 50 88
Fax amministrazione +39.049.990 73 97

ivg colbachini spa

TECHNICAL ISSUE

Conformity Declaration (in acc. To ISO/IEC 17050-1)

N°: **215/2017** IBIX S.R.L.

Issued by : IVG COLBACHINI spa

Address : via Fossona, 132 – 35030 Cervarese S. Croce (PADOVA)

Declaration object: : Hose type: **ABR ORINOCO ø 10x20 mm. Yours re.: 340108075**

As delivered with our Invoice n.15085 dated 03/10/2017, the above Hoses are in accordance to the requirements as per the following documents:

Documents	*Title*	*Edition/Issue date*
Order n.0000888	**IBIX S.R.L.**	**09.05.17**
C.O. n.8239	**IVG Confirmation**	**16.05.17**

Additional information:

Application: particularly abrasion resistant softwall hose, used for the delivery of highly abrasive media such as quartz sand, cast steel shot, corundum, glass. It is manufactured with antistatic rubber compound that prevents the risks of static electricity.
Standards: abrasion loss of the tube according to ISO 4649: 70+/-5mm3.
Electrical Resistance: type Ω-L in accordance to the standard ISO 8031 (conductive lining. R≤1x10^{8}Ω), for service lengths up to 30 meters.

Branding: continuous red stripe: "ABR (LOGO FAMIGLIA) 10 BAR 150 PSI (S.F.3:1)(STRISCIA IVG ITALIA + SITO)".

Signed for and on behalf of

Cervarese S. Croce, *19/01/2018*
(Place and issue date)

Simone Capella – Product Engineer
(name and position)

Simone Capella
(Signature or equivalent mark authorized by the issuing)

35030 Cervarese S. Croce (Padova) - Italy
Via Fossona, 132
Tel. +39.049.999 78 11
Fax servizio vendite +39.049.991 50 88
Fax amministrazione +39.049.998 73 97

ivg colbachini spa

TECHNICAL ISSUE

Conformity Declaration (in acc. To ISO/IEC 17050-1)

N°: 216/2017 IBIX S.R.L.

Issued by : IVG COLBACHINI spa

Address : via Fossona, 132 – 35030 Cervarese S. Croce (PADOVA)

Declaration object: : Hose type: ABR ORINOCO HP ø 14x25 mm. Yours re.: 3403080601-1

As delivered with our Invoice n.15085 dated 03/10/2017, the above Hoses are in accordance to the requirements as per the following documents:

Documents	*Title*	*Edition/issue date*
Order n.0000888	IBIX S.R.L.	09.05.17
C.O. n.8239	IVG Confirmation	16.05.17

Additional Information:

Application: particularly abrasion resistant softwall hose, used for the delivery of highly abrasive media such as quartz sand, cast steel shot, corundum, glass. It is manufactured with antistatic rubber compound that prevents the risks of static electricity.

Standards: abrasion loss of the tube according to ISO 4649: 40+/-5mm^3. Exceeds the ISO 3861:2005.

Electrical Resistance: type Ω-L in accordance to the standard ISO 8031 (conductive lining, R≤1x10^{6}Ω), for service lengths up to 30 meters.

Branding: continuous white stripe.

Signed for and on behalf of

Cervarese S. Croce, *19/01/2018*

(Place and issue date)

Simone Capella – Product Engineer

(name and position)

Simone Capella

(Signature or equivalent mark authorized by the issuing)

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

Cap. Soc. € 10.575.000,00 - Cod. fiscale e n. Reg. Imprese PD 00957810284 - R.E.A. PD 160835 - Partita IVA (IT) 00957810284 - www.ivgspa.it
IVG Colbachini Spa con Socio Unico

35030 Cervarese S. Croce (Padova) - Italy
Via Fossona, 132
Tel. +39.049.999 73 11
Fax servizio vendite +39 049 991 50 88
Fax amministrazione +39.049.999 73 97

ivg colbachini spa

TECHNICAL ISSUE

Conformity Declaration (in acc. To ISO/IEC 17050-1)

N°: 217/2017 IBIX S.R.L.

Issued by : IVG COLBACHINI spa

Address : via Fossona, 132 – 35030 Cervarese S. Croce (PADOVA)

Declaration object: : Hose type: **ABR ORINOCO HP ø 19x33 mm. Yours re.: 50700002**

As delivered with our Invoice n.15085 dated 03/10/2017, the above Hoses are in accordance to the requirements as per the following documents:

Documents	*Title*	*Edition/Issue date*
Order n.0000888	**IBIX S.R.L.**	**09.05.17**
C.O. n.8239	**IVG Confirmation**	**16.05.17**

Additional Information:

Application: particularly abrasion resistant softwall hose, used for the delivery of highly abrasive media such as quartz sand, cast steel shot, corundum, glass. It is manufactured with antistatic rubber compound that prevents the risks of static electricity.

Standards: abrasion loss of the tube according to ISO 4649: 40+/-5mm^3. Exceeds the ISO 3831:2008.

Electrical Resistance: type Ω-L in accordance to the standard ISO 8031 (conductive lining, R≤1x10^{6}Ω), for service lengths up to 30 meters.

Branding: continuous white stripe.

Signed for and on behalf of

Cervarese S. Croce, *19/01/2018*

(Place and issue date)

Simone Capetta – Product Engineer

(name and position)

Simone Capetta

(Signature or equivalent mark authorized by the issuing)

Annex 4: Results temperature measurements/locations

Temperature measurement on test object before jet blasting is equalt to the environment temperature of 13,8 °C