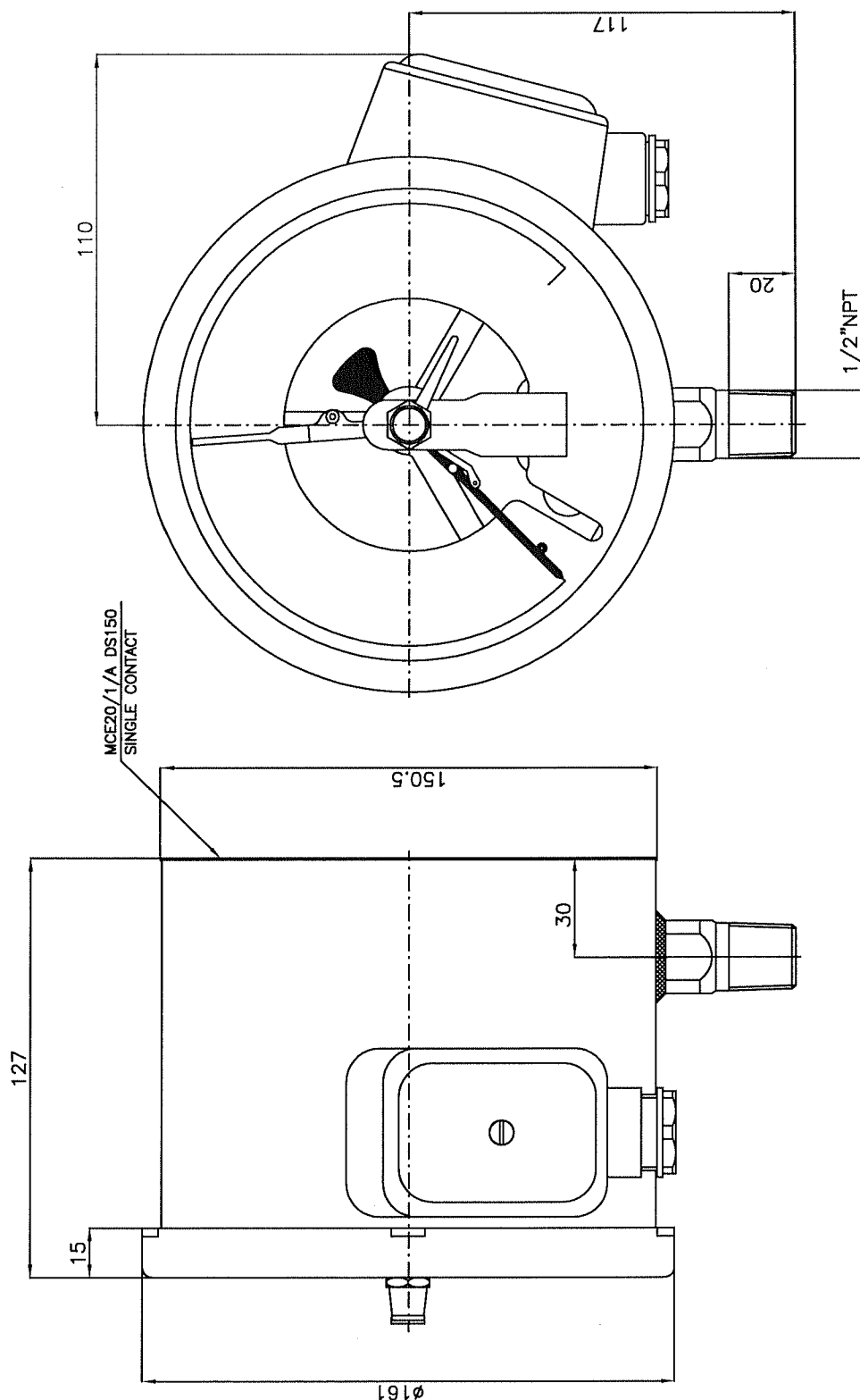


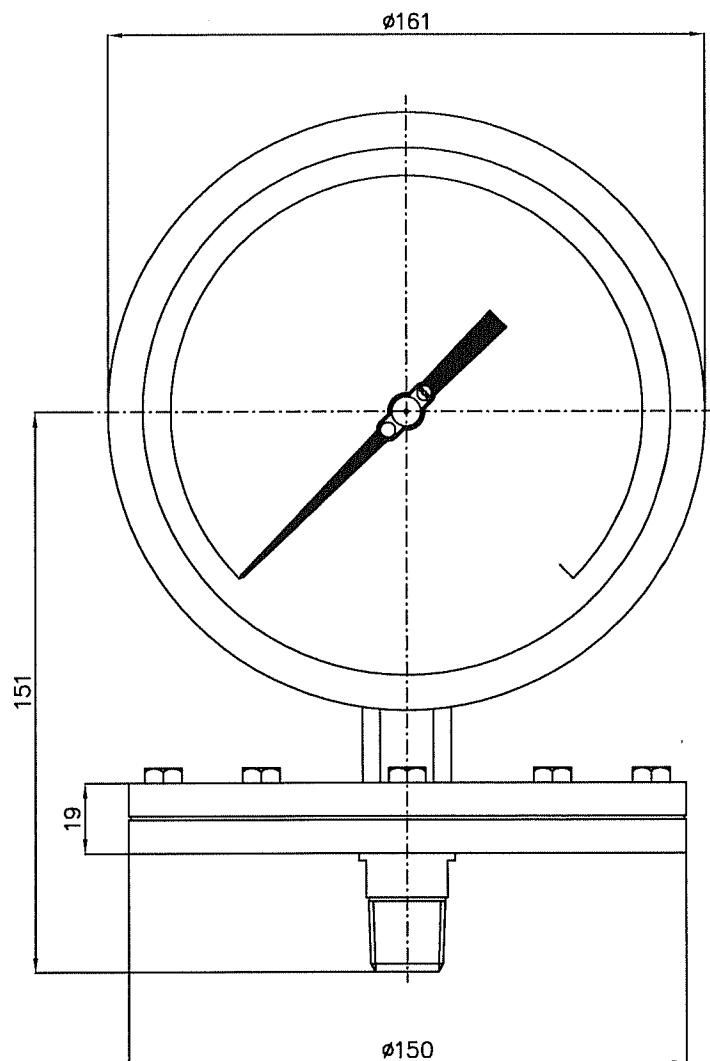
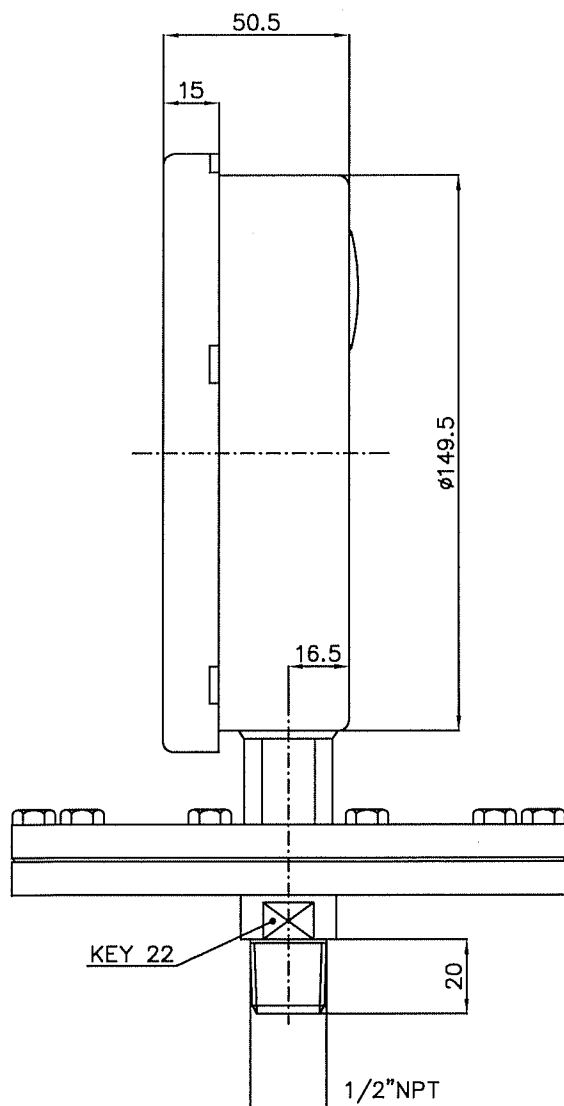
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 RANGE:0/6 BAR TAGS:PI63.1/63.6
 RANGE:0/1 BAR TAGS:PI64.6/64.7
 RANGE:0/10 BAR TAG:PI64.8

NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 1
IN	Codice - Code 01/18-2-A-G-43M-L02	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX Rev. Descrizione - Description		Dis. Drn	Coll. Inspect.
	Dimensioni - Dimensions mm		0	EMISSION	<i>Fora</i>	<i>Fanelli</i>
Modello - Model PRESSURE GAUGE TYPE MGS18/2/A DS150 1/2"NPT M - ADJUSTABLE POINTER						14/12 2010
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z			
Impianto - Plant /			Note - Notes /			



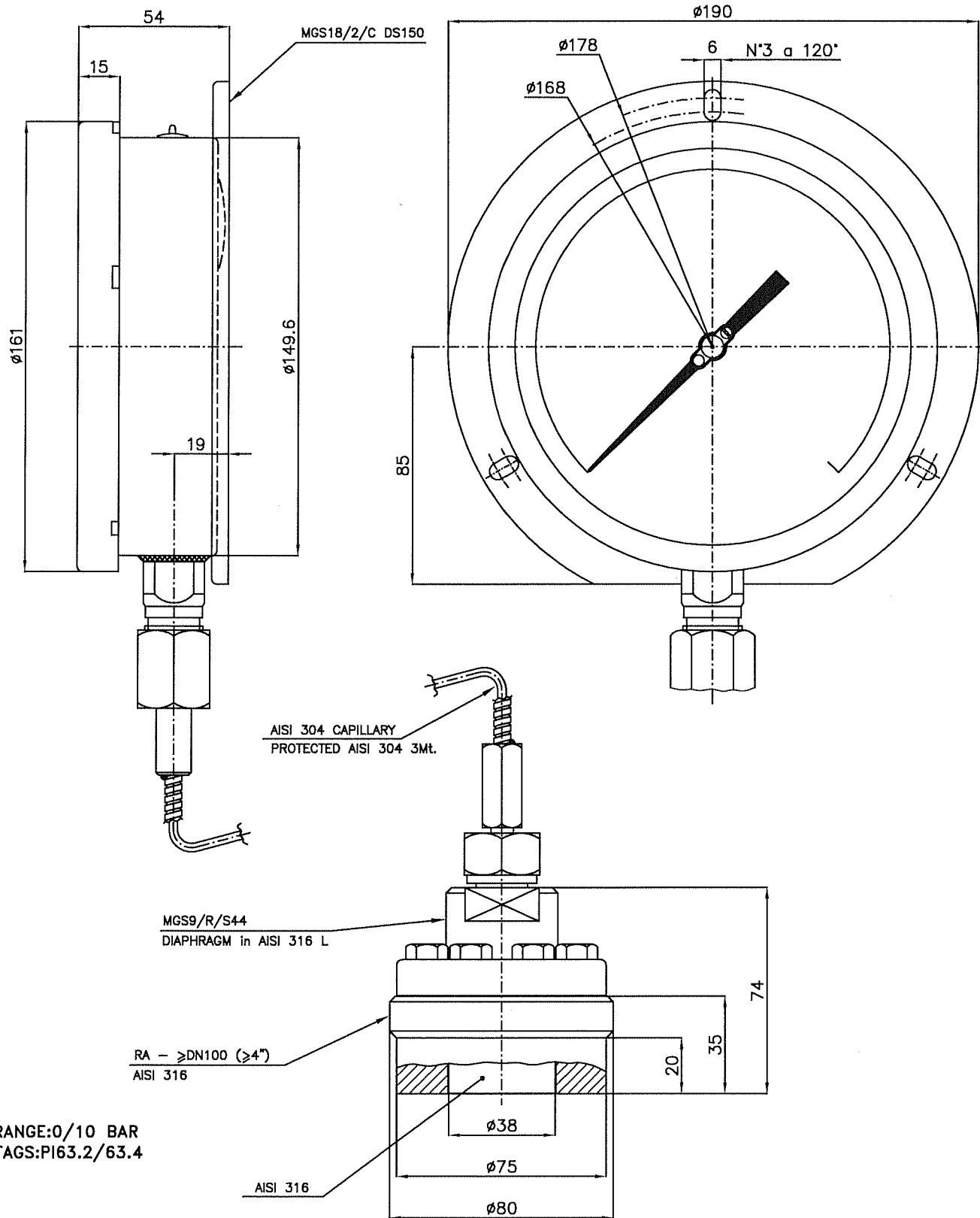
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NUOVA FIMA		DISEGNO CERTIFICATO		DWG		ANNO-YEAR		COMMESSA-JOB		PAGINA-SHEET	
INVORIO (NO) - ITALIA		CERTIFICATED DRAWING		C D		1 0		5 2 9 0		0 2	
IN	Codice - Code	Scala - Scale	INDICE DELLE REVISIONI - REVISIONS INDEX				Dis. Drn	Coll. Inspect.	Data Date		
	01/M3-1-A-G-43M-0_S +		1 : 2	Rev.	Descrizione - Description						
Dimensioni - Dimensions mm		0		EMISSION		Ced*		Yard		14/12 2010	
Modello - Model											
PRESSURE GAUGE ELECTRIC CONTACTS TYPE											
MCE20/1/A DS150 SINGLE CONTACT 1/2"NPTM											
Cliente - Purchaser				Ordine Cliente - Purchaser Order							
DESMET BALLESTRA				101963 C1E35Z							
Implanto - Plant				Note - Notes							

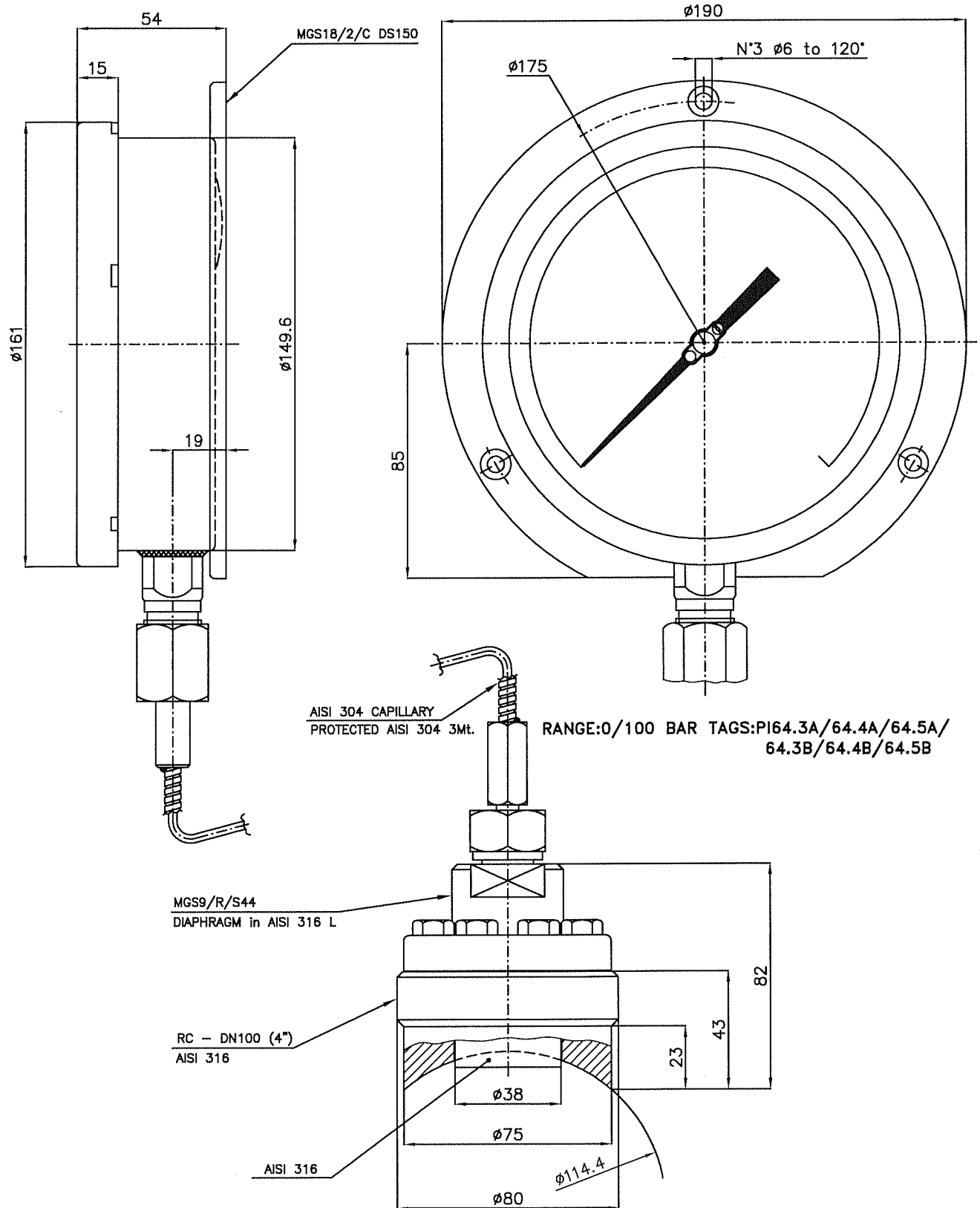


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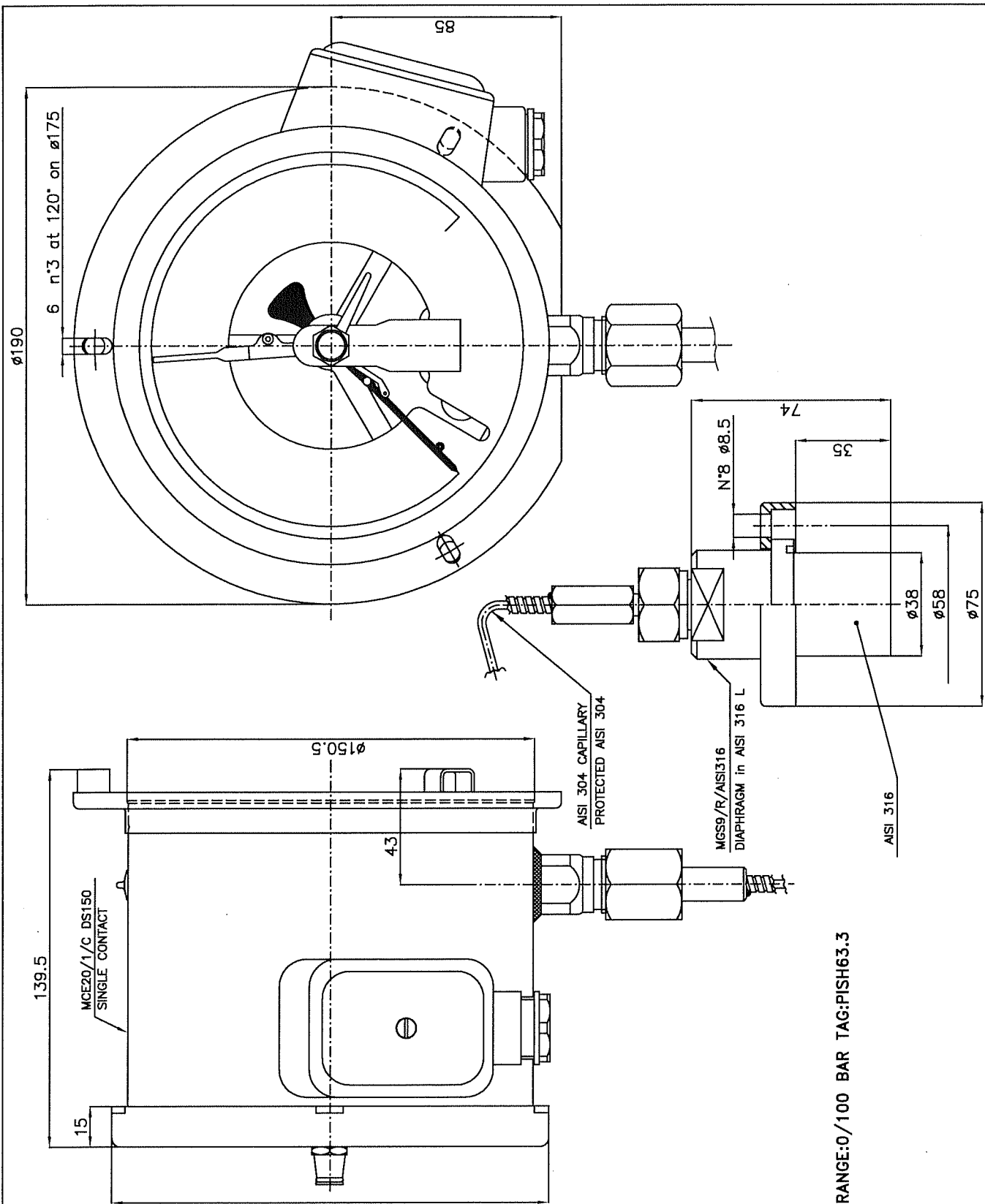
NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 3	
IN	Codice - Code 02/42-1-A-G-7-43M	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.	Data Date
	Dimensioni - Dimensions mm		Rev.	Descrizione - Description			
Modello - Model			0	EMISSION	<i>fora</i>	<i>Fanelli</i>	14/12 2010
DIAPHRAGM PRESSURE GAUGE TYPE MN12/18/A DS150 (25+400 mbar) 1/2"NPT M							
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z				
Impianto - Plant //			Note - Notes //				



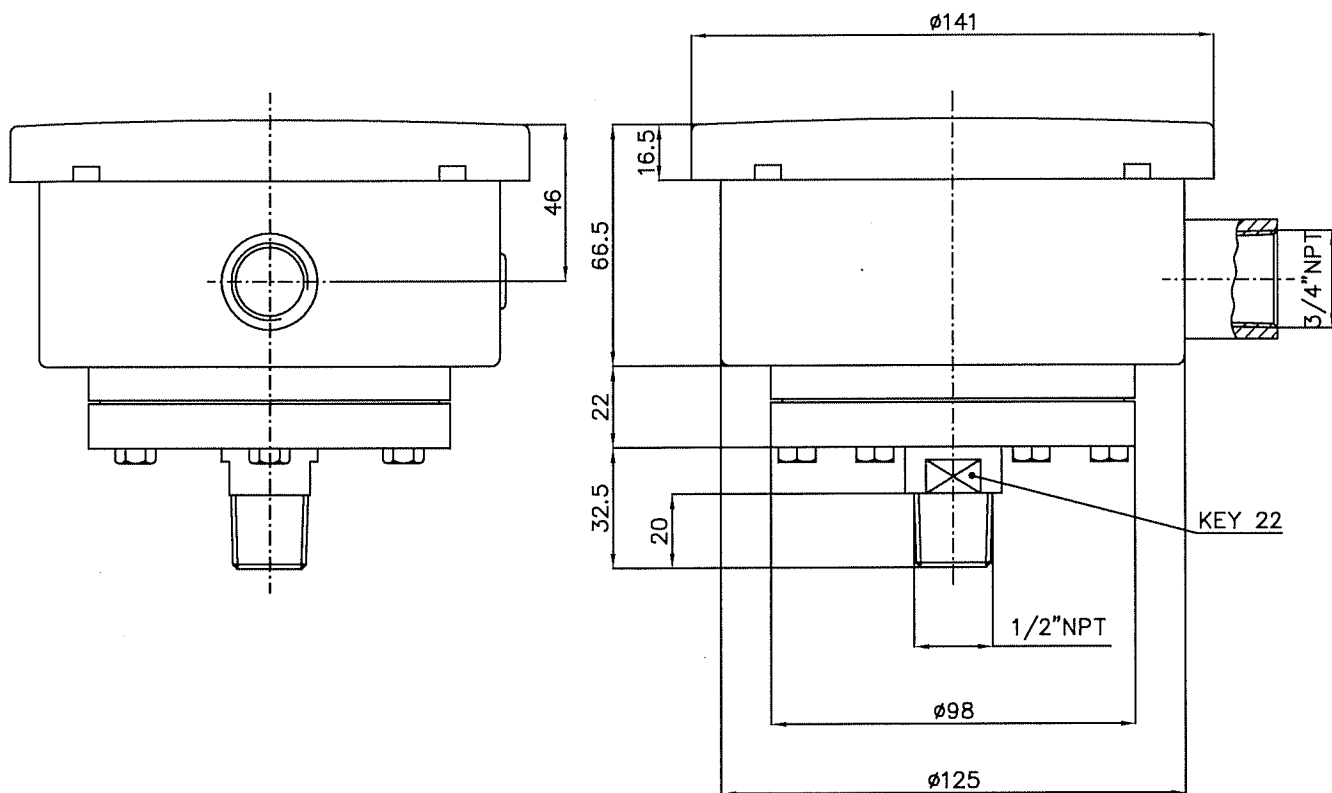
NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 4
IN Codice - Code 01/18-2-C-G-41M-L02 + 04/R00-4-4-000-41F-9 + 05/7RA-4-H00-000	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX Rev. Descrizione - Description		Dis. Drn	Coll. Inspect.	Data Date
Dimensioni - Dimensions mm		0 EMISSION	for	for	14/12 2010	
Modello - Model PRESSURE GAUGE TYPE MGS18/2/C DS150 + DIAPHRAGM SEAL TYPE MGS9/R/S44 WITH AISI 304 PROTECTED CAPILLARY + SADDLE WELDED TYPE RA ≥DN100 (4")						
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z			
Impianto - Plant /			Note - Notes /			



NUOVA FIMA		DISEGNO CERTIFICATO		DWG	ANNO-YEAR	COMMESSA-JOB	PAGINA-SHEET
INVORIO (NO) - ITALIA		CERTIFICATED DRAWING		C D	1 0	5 2 9 0	0 6
IN	Codice - Code 01/18-2-C-G-41M-L02 + 04/R00-4-4-000-41F-9 + 05/7RC-4-H00-000	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.	Data Date
Dimensioni - Dimensions mm			0 EMISSION		<i>Mora</i>	<i>Fanelli</i>	17/12 2010
Modello - Model PRESSURE GAUGE TYPE MGS18/2/C DS150 + DIAPHRAGM SEAL TYPE MGS9/R/S44 WITH AISI 304 PROTECTED CAPILLARY + SADDLE WELDED TYPE RC DN100 (4")							
Cilente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z				
Impianto - Plant /			Note - Notes /				

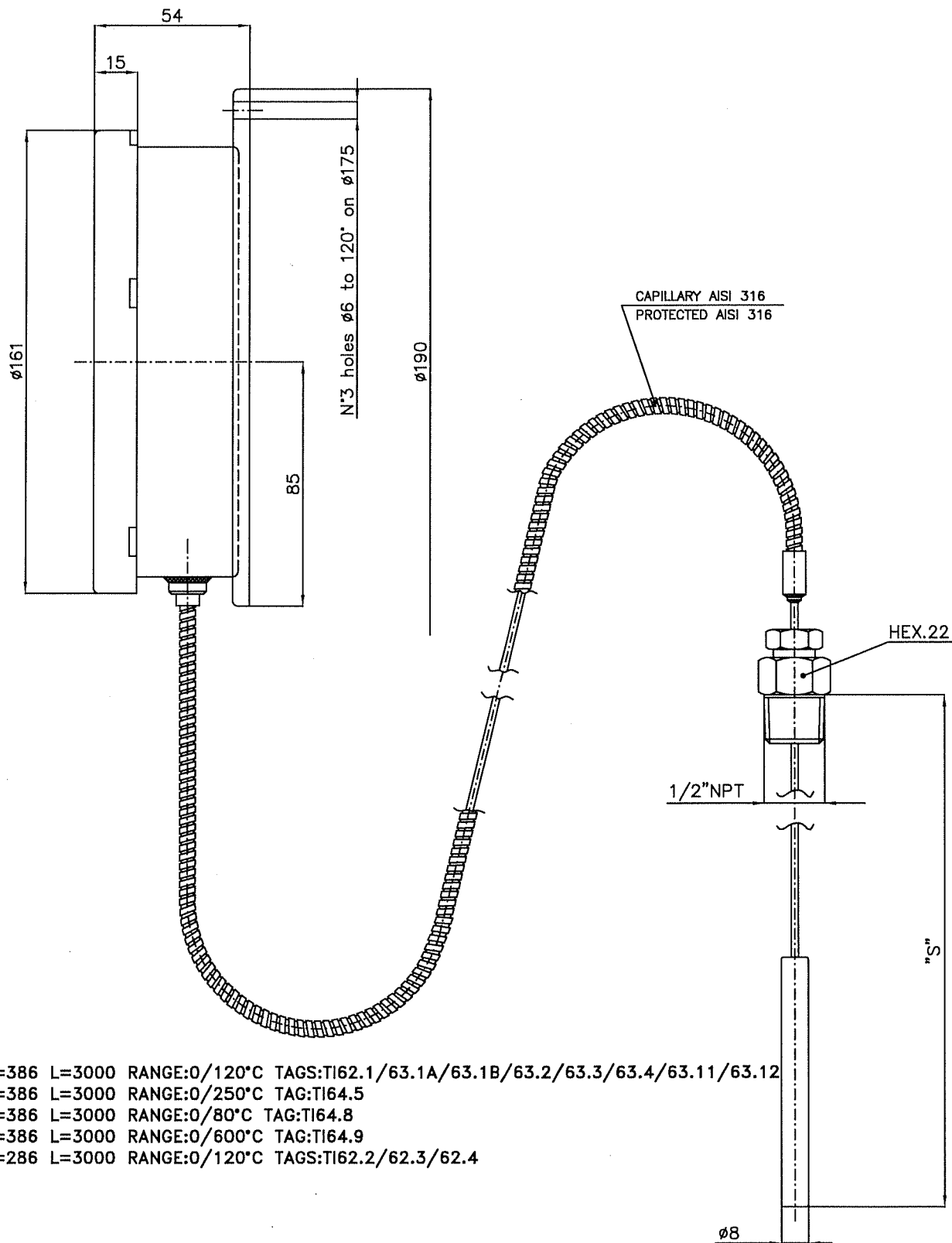


NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 7
IN Codice - Code 01/M3-1-C-G-41M-0_S + 04/R00-4-4-000-41F-9 +	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX Rev. Descrizione - Description 0 EMISSION		Dis. Drn <i>Cerchi</i>	Coll. Inspect. <i>Yanelli</i>	Data Date 17/12 2010
Dimensioni - Dimensions mm Modello - Model PRESSURE GAUGE WITH ELECTRIC CONTACTS TYPE MCE20/1/C DS150 SINGLE CONTACT + DIAPHRAGM SEAL TYPE MGS9/R/AISI316 WITH AISI 304 PROTECTED CAPILLARY						
Cliente - Purchaser DESMET BALLESTRA		Ordine Cliente - Purchaser Order 101963 C1E35Z				
Impianto - Plant //		Note - Notes //				

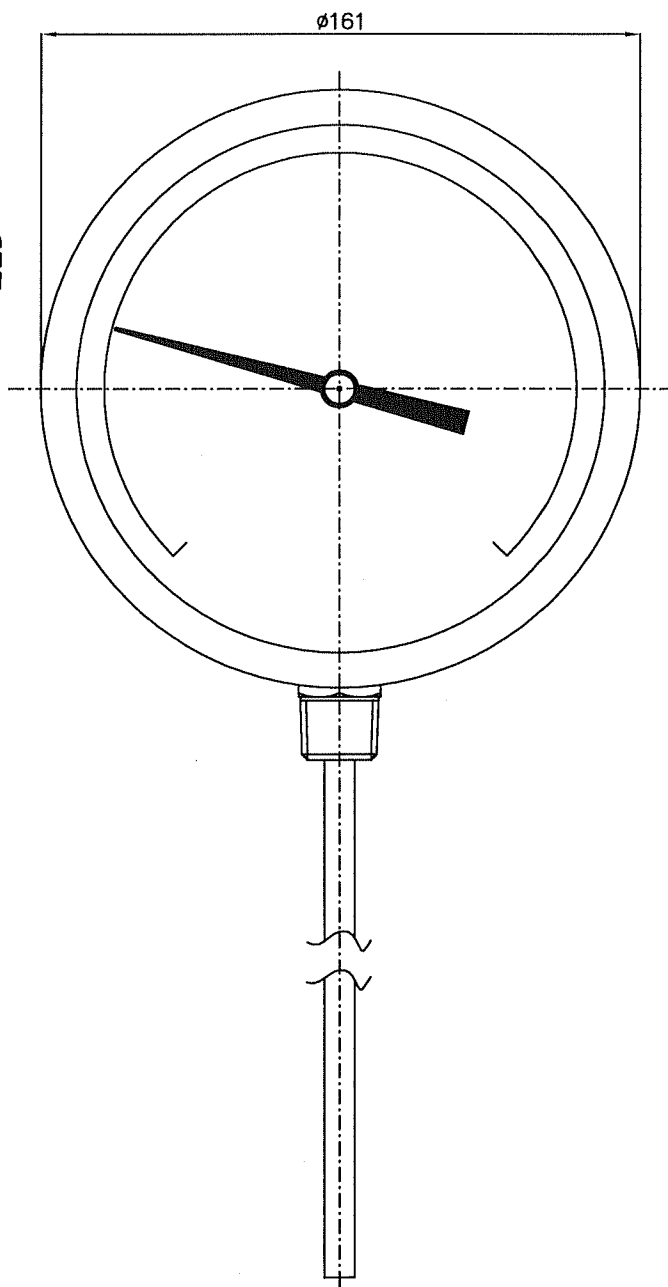
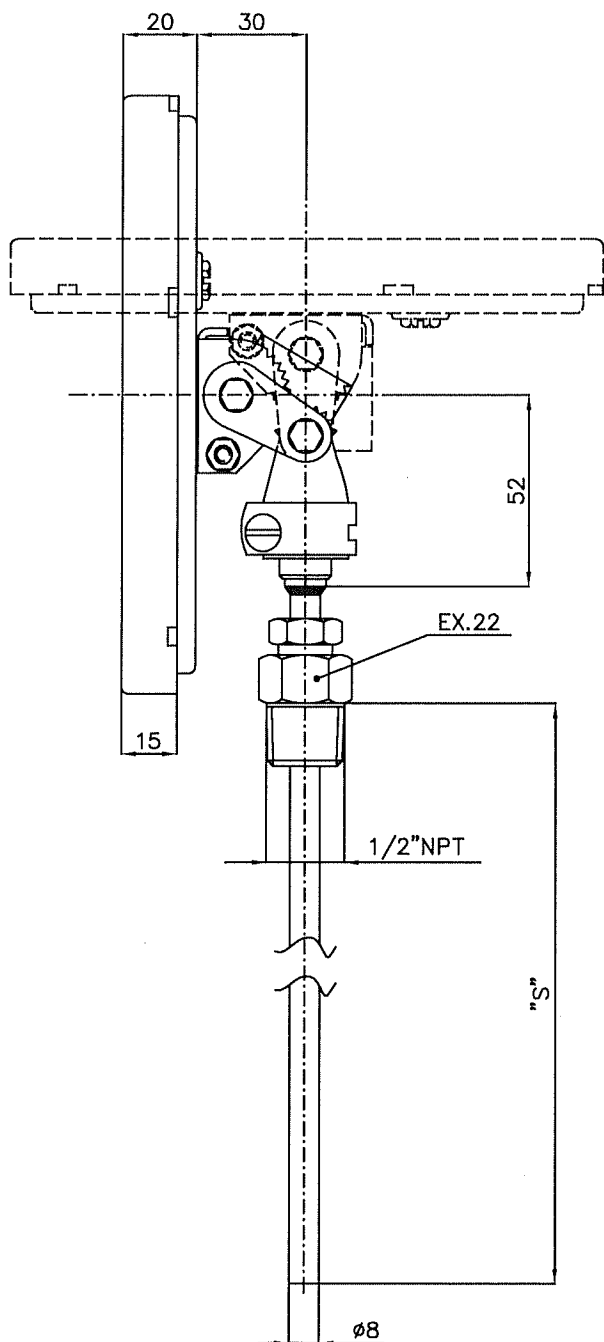


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 RANGE:0/2.5 BAR TAGS:PSH64.6/64.7

NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 8
IN	Codice - Code 03/27-+0.6-4-43M-4	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.
Dimensioni - Dimensions mm			Rev. 0	Descrizione - Description EMISSION	<i>for</i>	<i>Fant</i>
Modello - Model DIAPHRAGM PRESSURE SWITCH TYPE 3.27 (>0,6 bar) 1/2"NPT M - CABLE EXIT 3/4"NPT F						
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z			
Implanto - Plant 			Note - Notes 			

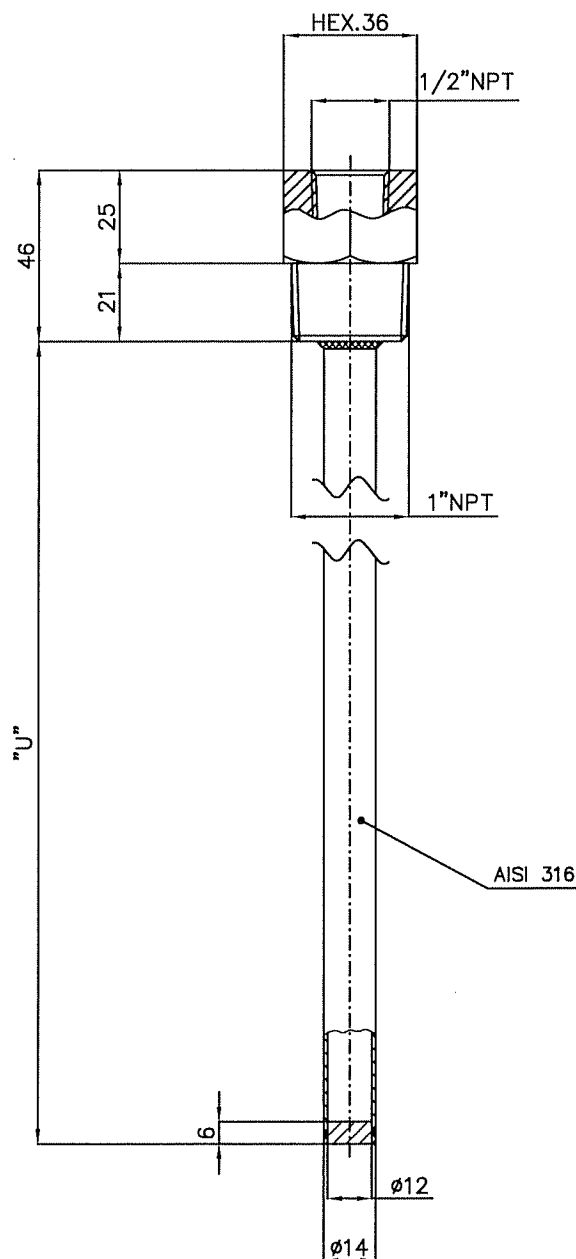


NUOVA FIMA		DISEGNO CERTIFICATO CERTIFICATED DRAWING		DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 0 9
INVORIO (NO) - ITALIA		Scala - Scale 1 : 2		INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.
IN	Codice - Code 06/TG-8-5-9-0-43M-S1-LBS-802			Rev.	Descrizione - Description		Data Date
Dimensioni - Dimensions mm				0	EMISSION	<i>fora</i>	<i>fora</i>
Modello - Model GAS THERMOMETER TYPE TG859 DS150 1/2"NPT M - BULB $\phi 8$ - FLEXIBLE EXTENSION AIS 316 PROTECTED CAPILLARY							14/12 2010
Cliente - Purchaser DESMET BALLESTRA				Ordine Cliente - Purchaser Order 101963 C1E35Z			
Impianto - Plant //				Note - Notes //			



S=136 RANGE:0/160°C TAGS:TI64.10/64.11
S=286 RANGE:0/100°C TAG:TI64.15

NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 1 0
IN	Codice - Code 06/TB-8-9-9-G-43M-S8	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.
Dimensioni - Dimensions mm			Rev.	Descrizione - Description		Data
Modello - Model BIMETALLIC THERMOMETER TYPE TB899 DS150 1/2"NPT M - BULB Ø8			0	EMISSION	<i>fora</i>	14/12 2010
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z			
Impianto - Plant			Note - Notes			



U=340 TAGS:TW62.1/63.1A/63.1B/63.2/63.3/63.4/63.11/63.12/64.5/64.8/64.9
 U=90 TAGS:TW64.10/64.11
 U=240 TAG:TW64.15/62.2/62.3/62.4

NUOVA FIMA INVORIO (NO) - ITALIA		DISEGNO CERTIFICATO CERTIFICATED DRAWING	DWG C D	ANNO-YEAR 1 0	COMMESSA-JOB 5 2 9 0	PAGINA-SHEET 1 1	
IN	Codice - Code 09/W13-4-43F-63M-120	Scala - Scale 1 : 2	INDICE DELLE REVISIONI - REVISIONS INDEX		Dis. Drn	Coll. Inspect.	Data Date
			Rev.	Descrizione - Description			
Dimensioni - Dimensions mm			0	EMISSION	<i>Fora</i>	<i>Fora</i>	14/12 2010
Modello - Model TUBE THERMOWELL TYPE W13 - BORE $\phi 12$ 1/2"NPT F - THREADED 1"NPT M (AISI 316)							
Cliente - Purchaser DESMET BALLESTRA			Ordine Cliente - Purchaser Order 101963 C1E35Z				
Implanto - Plant /			Note - Notes /				

INSTALLATION-USE-MAINTENANCE MANUAL FOR BOURDON TUBE- DIAPHRAGM- CAPSULE PRESSURE GAUGES AS PER NUOVA FIMA CATALOGUE SECTION 01-02

NF instruments are designed and constructed to comply with the safety requirements prescribed by the international regulations in force.

Under the terms of directive 97/23/EC (P.E.D.), NUOVA FIMA pressure gauges are classified into 2 categories. **PS <=200 bar** these instruments do not have to meet the essential safety requirements, but must only be designed and constructed in accordance with "Sound Engineering Practice" and are not required to bear the CE mark.

PS > 200 bar these instruments must comply with the essential safety requirements prescribed by the PED, are classified as Category I and certified according to Form A. They must bear the CE mark illustrated below.

CE

The recommendations given here are excerpted from the text of the EN837-1/2/3 and ANSI B40.1 standards, which the user must be familiar with in order to safely put the instruments into service.

Safety results from the careful selection and installation of the instrument in the pressurised system, as well as from compliance with the maintenance procedures set out by the manufacturer. The user is entirely responsible for ensuring correct installation and maintenance.

The persons charged with the selection and installation of the instrument must be able to recognise the conditions that may negatively impact on the instrument's ability to perform its function and which may lead to premature failure.

In order to correctly specify the functional and constructive characteristics of the instruments, it is recommended to consult the most up-to-date version of the catalogue data sheets, available on-line at the website <http://www.nuovafima.com>

SELECTION CRITERIA

A431 - Operating pressure range - The instrument selected should have a full scale pressure range such that the operating pressure occurs in the middle half (between 25% and 75%) of the scale. The full scale pressure of the gauge should be approximately two times the intended operating pressure. - A black triangle symbol on the scale end of the dial indicates that the operating pressure may reach 90% for pulsating pressures and 100% for static pressures.

A424 - The following applications must be considered potentially dangerous and carefully specified:

Application	Paragraph
Systems containing compressed gas	NF20
Systems containing oxygen	A4274
Systems containing hydrogen or fluids diffused with hydrogen	A4274
Systems containing corrosive fluids in a liquid or gaseous state	A4331, A4273
Pressurised systems containing explosive or flammable fluids	A4274
Systems containing pressurised steam	NF21
Systems subject to dynamic or cyclical pressures	E723, A4271
Systems in which overpressures may accidentally be applied or in which low pressure gauges may be installed on high pressure couplings	E724, A4272
Systems in which interchangeable pressure gauges may give rise to dangerous contamination	A4274
Systems containing toxic or radioactive fluids in a liquid or gaseous state	A4274
Systems which produce mechanical vibrations	A4275, A4276, E722, A4352
Systems with an operating temperature that differs from the ambient temperature	NF25

NF20 - In systems containing compressed gas, it is advisable to select an instrument equipped with an adequate safety device. In the event of unexpected failure of the measuring element, the safety device allows the compressed gas to escape outside the case, thereby preventing the instrument from fracturing. The safety patterns employed on NUOVA FIMA instruments are designated type **S1** when they consist of a release valve which opens when the pressure inside the sealed case exceeds an established safety limit, putting it in communication with the outside, and are designated type **S3** when the safety consists of an entire blow-out back and there is an added baffle wall separating the measuring element from the clear solid front, providing further protection to the operator. Select an instrument with an adequate level of protection, consulting the following tables (Tab 1-2):

Tab 1

Pressurised fluid	LIQUID			
	None		Liquid filled	
Case filling	None	None	Liquid filled	Liquid filled
DN	<100	≥100	<100	≥100
Range (bar)	≤25 >25	≤25 >25	≤25 >25	≤25 >25
Safety code	0 0 0 0	0 S1	S1 S1	S1 S1

Tab 2

Pressurised fluid	GAS OR STEAM			
	None		Liquid filled	
Case filling	None	None	Liquid filled	Liquid filled
ND	<100	≥100	<100	≥100
Range (bar)	≤25 >25	≤25 >25	≤25 >25	≤25 >25
Safety code	0 S2 S1 S3	S1 S2 S1 S3		

E723 - Dynamic or cyclical pressures - These are generally encountered when the instruments are installed on pumps, and result in a significant reduction in the lifetime of the measuring element and the amplifying mechanism of the

pressure gauge. Such pressures are generally indicated by broad fluctuations of the pointer. It is necessary to minimise this type of pulsating pressure by fitting a snubber between the source of the pressure and the instrument. Filling the case with a damper liquid can also reduce the harmful effect of pulsations on the moving parts of the pressure gauge. Incorrect selection of the instrument may result in fatigue failure.

A4271 - Fatigue Failure - This is caused by mechanical stress resulting from the pressure and takes the form of a small crack from the inside to the outside, generally along an edge. Such failures are more dangerous when the measured medium is a compressed gas rather than a liquid. Fatigue failures release the fluid gradually, and therefore the case pressure build-up is indicated by the opening of the relief valve. When measuring high pressures, the process operating pressure is close to the maximum permissible stress limit, and can therefore result in an explosive failure. In this case a choke should be fitted on the instrument's coupling, in order to limit the flow of liquid.

E724 - Overpressure - Any overpressures subject the measuring element to stress, with a consequent reduction in its lifespan and accuracy. It is therefore always advisable to choose an instrument whose full scale pressure is greater than the maximum operating pressure, so that it is better able to withstand overpressures and pressure surges. Pressure surges can be handled in the same way as pulsating pressures. Overpressures of longer duration can be handled by installing a pressure-reducing valve on the pressure gauge line. The occurrence of even a single overpressure event can result in an overpressure failure.

A4272 - Overpressure Failure - This is caused by application of internal pressure greater than the rated limits of the measuring element, and can occur when a low-pressure gauge is installed on a high-pressure system. The effects of this type of failure, generally more serious in compressed gas applications, are unpredictable and may result in instrument fragments being projected in all directions. The opening of the safety device on the case does not always guarantee containment of the fragments. It is generally accepted that using an instrument with a solid front and blow-out back reduces the possibility of fragments being projected toward the front of the instrument, where the operator stops to take readings. The clear front alone does not provide adequate protection, and in fact is the most dangerous component in such a case. Overpressure pulses of short duration (spikes) can occur in pneumatic or hydraulic systems, especially when valves are opened or closed. The amplitude of such pulses can be many times the operating pressure, and the great speed at which they occur prevents them from being read out on the instrument, making them invisible to the operator. They can result in definitive breakage of the instrument or a permanent zero error. A choke reduces the amplitude of the overpressure spike that reaches the measuring element. The use of a pressure-limiting valve protects the instrument from all pressures which exceed the calibration limit of the valve, thereby protecting the instrument from overpressures.

A4331 - The measuring element is generally characterised by its thickness and therefore works under considerable mechanical stress. Chemical compatibility with the pressure fluid must therefore be taken into account. None of the commonly used materials can be considered immune to chemical attack, and various factors can influence its extent: Concentration, temperature and the type of mixture of the various chemical substances. Chemical attack can rapidly lead to corrosion failure.

A4273 - Corrosion Failure - This occurs when the material of the measuring element is weakened through attack by the corrosive chemicals present either in the media inside or the environment around it. Failure may occur as a pinhole leakage or early fatigue failure due to stress cracking brought about by the chemical deterioration of the material. In such a case the use of a fluid separator made of suitable material must be considered. However the addition of a separator may influence the sensitivity or accuracy, or both. As an alternative to a fluid separator, it is possible to consider choosing a measuring element made from AISI316 or Monel 400, rather than phosphor bronze.

A4274 - Explosive Failure - This occurs as a result of the violent release of thermal energy due to a chemical reaction, such as adiabatic compression of oxygen in the presence of hydrocarbons. It is generally accepted that the effects of this type of failure cannot be anticipated. Even the use of solid-front instruments does not guarantee against the projection of fragments toward the front of the instrument. - Pressure gauges suitable for use with oxygen are marked "Oxygen - Use no Oil" and/or with a crossed out oil can symbol on the dial

The instruments are supplied already washed and degreased using appropriate products and packed in polyethylene bags. The user must take the necessary precautions to ensure that the connection and the elastic element are kept clean after the pressure gauge has been unpacked.

A4275 - Vibration Failure - The most common mode of vibration failure is that where the movement parts wear because of high cyclic loading caused by vibration, resulting in a gradual loss of accuracy and, ultimately, failure of the pointer to indicate a pressure change.

A4276 - Vibration-Induced Fatigue Failure - Large amplitude vibrations may in some instances cause fatigue cracks in the structure of the measuring element. In this case the pressure build-up may be slow or fast, or even explosive.

E722 - Vibrations - When the pressure gauge support is subject to vibrations, various solutions may be considered, such as:

a) the use of liquid-filled gauges; b) if the vibrations are strong or irregular, the instruments must be mounted at a distance and connected using a flexible hose or tubing.

The presence of vibrations is indicated by continuous, often irregular fluctuations of the pointer.

A4362 - Liquid filled Cases - Liquid filling is generally used to dampen the vibrations of moving parts due to vibrations and/or pulsations. Great care must be taken in choosing the damping liquid for instruments that will be used with oxidising media such as oxygen, chlorine, nitric acid, hydrogen peroxide, etc. In the presence of oxidising agents, there is the possible risk of chemical reaction, ignition and explosion of the instrument. In this case it is necessary to use fluorine or chlorine based filling liquids. In order to contain the damping liquid inside the case, the pressure gauges are built and supplied in a sealed construction. In some cases, during installation it is necessary to ventilate the case following the instructions on the label affixed to the instrument itself. Special care must be taken with the type of filling liquid used and its usage limitations as a function of ambient temperature (Tab.3).

Filling liquids	Ambient Temperature
Glycerin 98%	+15...+65°C (+60...+150°F)
Silicone Oil	-15...+65°C (-50...+150°F)
Fluorinated Liquid	-15...+65°C (-50...+150°F)

A3352 - In case of radial mounting, especially if the case is filled with damping liquid and the vibrations are extensive, the possibility of failure resulting from the considerable vibrating mass of the pressure gauge must be taken into account. In such cases a threaded 1/2" coupling to the process line is an essential minimum requirement.

E721 - Mechanical stress - Pressure gauges must not be subjected to mechanical stress. If the installation points are subject to mechanical stresses, the instrument must be installed at a distance and connected using flexible hoses. - The instruments selected must be of the surface, wall or panel mount type.

NF21 - Regardless of the material with which the unit has been made or welded (connection to the process, Bourdon tube, terminal) it is not advisable to use the pressure gauges at temperatures exceeding 65°C (150°F). It is recommended to use a trap in cases where the pressure gauge is used with steam or liquid media at high temperatures. A trap or similar device should always be fitted near the instrument and filled with condensed fluid before pressurising the system, so as to prevent the hot fluid from reaching the instrument during the initial pressure rise. The fluid should not be allowed to freeze or crystallise inside the measuring element. However, if the instrument is used for measuring points at high temperature, it is recommended to use a hose with inside diameter of at least 6 mm to connect it to the pressure coupling. A hose about 1.5-2 metres long reduces the effective operating temperature to approximately ambient level.

If the type of fluid does not permit the use of a small section hose, it is often necessary to insert a separator between the process fluid and the instrument, provided that the transmission fluid is suitable for the temperature of the process fluid.

NF22 - The characteristics of the instruments may be affected during transport, despite adequate packing, and must be checked before use. Correct calibration can be checked by excluding the instrument from the process by means of the shut-off valve and checking that the pointer returns to the zero mark (unless the temperature varies greatly from 20°C). Failure of the pointer to return to zero indicates serious damage to the instrument.

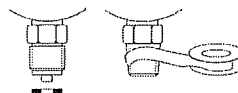
MAXIMUM ALLOWABLE PRESSURE OF AN ASSEMBLY

The maximum allowable pressure (PS) of an Assembly is determined by the PS of every component. To calculate the PS of an assembly, simply select the lesser value of the components. For safe operation, the PS of the assembly should not be exceeded.

To determine the maximum allowable pressure of standard product please consult the data sheet available on the web site www.nuovafima.com. For product not present into the NUOVA FIMA catalogue, please refer to the contractual documents.

INSTALLATION

E71 - To facilitate removal for maintenance purposes, a shut-off valve can be installed between the pressure gauge and the plant. The pressure connection must be watertight. If the pressure connection has a cylindrical thread, the seal is achieved using an O-ring clamped between the two flat sealing surfaces, one on the pressure connection and the other on the instrument's process connection. If the pressure connection has a tapered thread, the seal is achieved by simply screwing the connection onto the coupling, through the mating of the threads. It is common practice to wrap PTFE tape around the male thread before coupling (see Fig.2).



In both cases the torque must be applied using two hexagonal spanners, one on the flat faces of the instrument/process coupling and the other on the pressure connection.

Do not tighten towards the casing as this may damage the instrument. When pressurising the system for the first time, check the tightness of the connection seal. All instruments must be mounted in such a way that the dial is vertical, unless otherwise indicated on the dial itself.

When the instrument includes a safety device, this must be at least 20 mm from any other object. - For wall or panel mount instruments, make sure that the pipe conveying the pressurised fluid is connected to the instrument coupling without exerting torsion or force.

E727 - Effect of liquid columns - The installer must be aware that, if the instrument is subjected to the load of a liquid column, it must be calibrated to compensate for this effect. In this case, the compensation needs to be indicated on the dial, and should therefore be communicated to NUOVA FIMA when placing the order.

E8 - Putting into service - The instrument must always be put into service with care, to avoid pressure surges or sudden changes in temperature. **Shut-off valves must therefore be opened slowly.**

USE

A432 - It is not advisable to use the instruments for measuring pressures near zero, as in that range the accuracy tolerance can represent a significant percentage of the applied pressure. For this reason, these instruments should not be used for measuring residual pressures inside large volume containers such as tanks, surge tanks, and the like. In fact, such containers may retain pressures that are dangerous for the operator, even when the instrument indicates a zero pressure. It is recommended to install a ventilation device on tanks in order to achieve zero pressure before removing covers or connections, or performing similar tasks.

E721 - Ambient Temperature - It is difficult to insulate the instrument from ambient temperatures that are too high or too low. One solution is to position it further away from the source of cold or heat, when this is possible. If an instrument of accuracy class 0.6 or higher is used at an ambient temperature different from the reference value (20°C ± 2°C), it is necessary to make a correction.

A44 - It is not advisable to successively install instruments on systems with different operating media, to avoid initiating chemical reactions that may cause explosions resulting from contamination of the wetted parts.

NF45 - If the instrument dial indicates a fixed pressure for a prolonged time, make sure this is not due to an obstruction of the pressure element supply pipe. Especially in the case of a zero pressure reading, make sure that there is effectively zero pressure inside the instrument before removing it, by isolating it using the shut-off valve.

MAINTENANCE

E9 - The general safety of an installation often depends on the operating conditions of the instruments which it contains. It is essential that the measurements indicated by these instruments are reliable. Therefore, any instrument which appears to give an abnormal reading should be removed, checked and recalibrated if necessary. Maintenance of accuracy should be confirmed by routine checks. Checks and recalibrations must be carried out by competent personnel using suitable testing equipment.

NF40 - Every 3/6 months after installation, check the accuracy and the wear on moving parts and the state of corrosion on the measuring element. For instruments used on plant subject to demanding conditions (vibrations, pulsating pressures, corrosive media, sediments, etc.) replace them after the time intervals indicated in the plant procedures.

A4332 - The calibration and testing fluid must be compatible with the measured media in the pressurised system. Fluids containing hydrocarbons must not be used when the measured medium is oxygen or any other oxidising substance.

NF41 - Instruments kept in their original standard packing (cardboard box) must be stored in a closed area and protected from moisture; in this case no special attention is required. If the instruments are packed in special materials (wooden crates lined with tar paper or barrier bags) it is preferable to store them in a closed room if possible, or in any case in an area protected from the elements; the condition of the packed materials should be checked every 3-4 months, especially if the crates are exposed to the elements.

The temperature of the storage area should be between -20 and +65°C, except where otherwise specified on the catalogue data sheets.

WARNING - Improper use may damage the instrument, resulting in failure and possible injury to persons or damage to the plant. Carefully read the above instructions before using this product

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTION

WARNING: Incorrect use or application of this product could result in explosion or personal injury. These instructions must be read and adhered to before installation.

- ASSEMBLY

Before mounting the instrument ensure that:

- a) the range is correct for the fluid pressure present;
- b) the wetted parts of the switch are chemically compatible with the process fluid;
- c) the process connection is appropriate to the plant process connection;
- d) the switching power of the microswitch is not exceeded (see table 1).

If the instrument has been graded with the intervention value already preset, check that the latter is correct. Ensure that when installed the instrument will not be subjected to excessive humidity, corrosive fumes or to heat sources exceeding the fixed room temperature limits. Wherever possible mechanical vibrations should be avoided. If the connection to the process unit is a cylindrical thread (GAS - metric) use head packing material compatible with the process fluid. During assembly, tighten the unit by applying force to the exagonal flats on the process connection with wrench, not by twisting the unit. If the instrument is fitted with a diaphragm seal unit, apply force in the same manner on to the seal unit, as applying force by twisting the gauge may damage the unit. If the instrument is fitted with a capillary for remote mounting ensure that the capillary tubing is not twisted or bent, as this will flatten the tube inside and could result in a breakage. When mounting instruments with a PTFE* lined flanged diaphragm seal take care to ensure the nuts are adequately tightened in the right manner (progressively, crosswise) to maintain consistent accuracy of the unit.

- OPERATION

It is important to make sure that the operating parameters do not exceed those specified at time of purchase; in particular check that the:

- a) the overpressure does not exceed the expected range;
- b) a pressure specified that as stable does not become pulsating;
- c) vibrations do not become excessive.

table 1 maximum electrical load of microswitch

Type	N.1 micro code	250 Vac	125 Vac	125 Vdc	24 Vdc
std.	C	15A	15A	0,5A	2A
splash proof	G	15A	15A	0,5A	2A
goldplated	I		0,1A		0,1A
inert gas filled	M	15A	15A	0,5A	2A
goldplated & inert gas filled	N		0,1A		0,1A

Apply the pressure to the instrument slowly using, if necessary, an on-off valve, to avoid sudden pressure bursts or pressure pulsations.

Check that the assembly has been carried out correctly and that there is no leakage from the threaded and flanged joints. Under normal conditions, the pressure should not exceed 80% of the full range of the instrument. The temperature of the process fluid must not exceed 100 °C. If the process temperature is higher than this a trap or a capillary (1,5 - 2 mt) must be placed between the pressure intake and the instrument to lower the temperature to an acceptable level.

- ELECTRICAL CONNECTION

03.27 pressure switch is provided with an internal terminal board with screw terminals for cables with a maximum section area of 2,5 sqmm and a grounding terminal provided with a cable terminal. The cable output of the instrument is realised by means of a coupling with a 1/2" female threading NPT ANSI B2.1 or a 1/2" GAS UNI 6125. For the connection, use cables having a section area appropriate to the electric capacity required and in compliance with the technical specifications for connection to switching equipment. In the cable connection take care that:

- a) they are not subject to torsion or excessively stretched;
- b) they are not broken or the insulating sheath is not cut or damaged;
- c) they do not have dummy contacts and the screws of the terminal board are properly tightened.

- SET POINT ADJUSTMENT

Unless otherwise specified during the order, the instrument is delivered preset at the lowest possible value. Set-point adjustment must be carried out by comparing with a test pressure gauge connected in parallel to the pressure intake of the pressure switch. Carry out the following operations:

• Instrument with 1 micro-switch:

- connect the microswitch in series to a signalling lamp or to a sound source as indicated in figure 2, so as to have a reference of the intervention;
- apply a pressure/vacuum to the pressure switch equal to the intervention value by reading this value on the test gauge;
- for an adjustment of the intervention in the lifting scale of pressure value, turn the adjusting screw of the microswitch anticlockwise to increase the intervention value (this is true also for the instruments that work normally in vacuum, naturally the work is considered in absolute pressure), clockwise to lower it, until the optic/acoustic signalling is inserted;
- decrease pressure until the intervention is reset;
- repeat the above mentioned operations until you obtain the desired intervention

fig.1 connection and adjustment

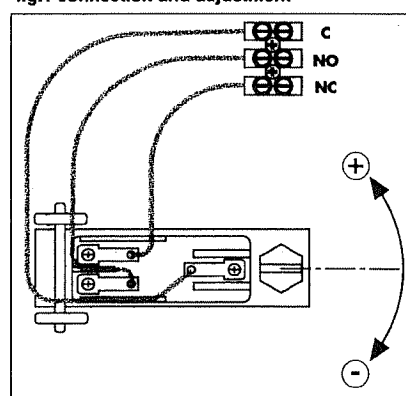
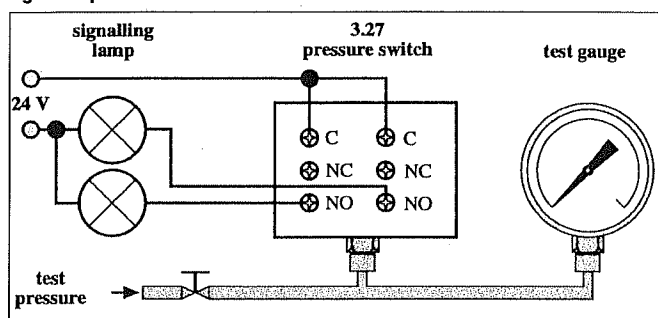


fig. 2 set-point circuit



value with the required accuracy;

- for an adjustment of the intervention in the falling scale of the pressure value, turn the adjusting screw of the microswitch anticlockwise to lift the intervention value (this is true also for the instruments that work normally in vacuum, naturally the work is considered in absolute pressure), clockwise to lower it, until the optic/acoustic signalling is inserted, keeping in mind that the pressure must correspond to the reset value;
- repeat the above mentioned operations until you obtain an intervention value;

• instrument with 2 microswitch:

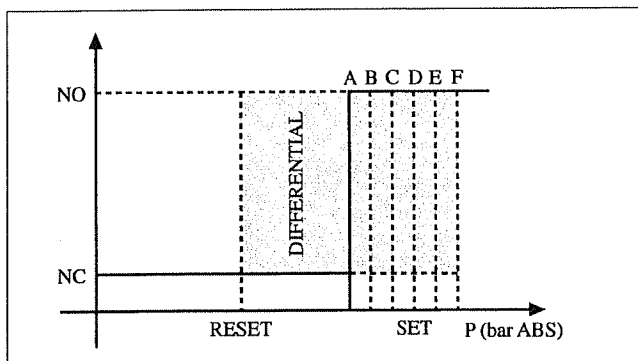
- connect the microswitches in series to a signalling lamp or to a sound source as indicated in figure 2, so as to have a reference of their intervention;
- apply a pressure/vacuum to the pressure switch equal to the intervention value by reading this value on the test gauge;
- carry out the gauging operations as provided for the instruments with one microswitch by extending the operations also for the second microswitch; keep in mind that these operations must be repeated in turn for one microswitch and then for the other, until you obtain the precision of the desired intervention. This is necessary due to the interaction of the two microswitches on the same measuring element.

• adjustable differential

- in the instruments provided with a microswitch with adjustable differential, the latter must be adjusted by operating the graduated roller present under the microswitch. The adjustable roller is graduated from letter "A" to letter "F" to which corresponds the minimum (about 10% of the full scale value) and the maximum (about 40/50% of the full scale value) differential, respectively. During the adjustment of the differential you must keep in mind that the device, by acting on the tripping force of the microswitch, increase the adjusted intervention value, by leaving the reset value fixed (see figure 3 for this purpose). It is important to consider this mainly when

the instrument provided with this microswitch is factory pre-set and is adjusted later on the installation. Moreover it is important to consider this when the instrument operates in vacuum.

fig. 3 differential operation



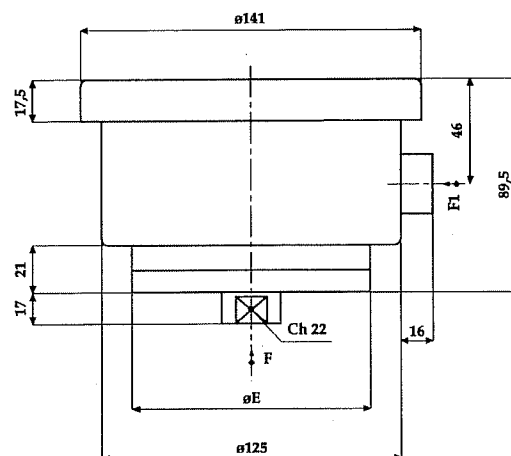
tab. 2 SETTING RANGES

Setting ranges (1)	Test pressure	Differential 1 micro type A,G,M (2)	Differential 2 micro type B,H,P (2)
5+40 mbar	0,5 bar	4 mbar	5 mbar
5+60 mbar	0,5 bar	4 mbar	5 mbar
6+100 mbar	0,5 bar	4 mbar	6 mbar
9+160 mbar	0,5 bar	6 mbar	9 mbar
9+250 mbar	1 bar	6 mbar	9 mbar
15+400 mbar	1 bar	10 mbar	15 mbar
18+600 mbar	1 bar	12 mbar	18 mbar
0,06+1 bar	1,2 bar	25 mbar	60 mbar
0,06+1,6 bar	2 bar	30 mbar	60 mbar
0,06+2,5 bar	3 bar	40 mbar	60 mbar
0,08+4 bar	5 bar	50 mbar	80 mbar
0,09+6 bar	8 bar	60 mbar	90 mbar
0,15+10 bar	12 bar	100 mbar	150 mbar
0,25+16 bar	20 bar	160 mbar	250 mbar
0,4+25 bar	30 bar	250 mbar	400 mbar

(1) available also for vacuum adjustment

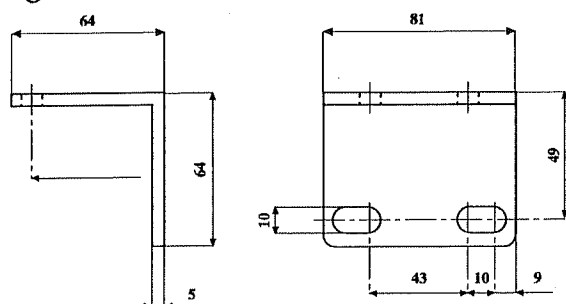
(2) for microswitch with golden contacts the differential is about 3 times the one indicated in the table

fig. 4 DIMENSIONS AND WEIGHTS



F = process connection; F1 = cable exit

fig. 5 MOUNTING BRACKET



Setting ranges	E	I	Weight
≤ 600 mbar	150	69	3,3 Kg.
≥ 1 bar	98	37	2,3 Kg.

documento N°	lingua	rev.	data
MI - 03.27 - 001	ENG	0	04 - 97



Industrial Instrumentation for Pressure and Temperature

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www.nuovafima.com – e_mail: info@nuovafima.com
Codice Fiscale/Partita IVA 01719710038
Reg. Imp. Novara 10895/1999 – REA 193327

ERECTING AND MAINTENANCE INSTRUCTIONS FOR THERMOMETERS

THERMOMETER SELECTION

THERMOMETERS ARE PRECISION INSTRUMENTS. HANDLE THEM CAREFULLY.
SELECT A STANDARD RANGE THERMOMETER THAT IS GRADUATED TO ABOUT DOUBLE THE AVERAGE WORKING TEMPERATURE. THIS ASSURES RESERVE STRENGTH TO MAKE THE THERMOMETERS LAST LONGER AND THE POINTER WILL BE EASIER TO READ BECAUSE THE SAME WILL BE ON CENTER OF DIAL

THERMOMETER INSTALLATION

ALWAYS USE A WRENCH ON THE SQUARE SHANK OF THE THERMOMETER SOCKET TO SCREW THE THERMOMETER IN PLACE. NEVER APPLY FORCE AGAINST THE THERMOMETER CASE. TO SCREW A FITTING TO THE THERMOMETER, HOLD A WRENCH ON THE SOCKET FLATS. THE LOWER PART OF THE STEM IS THE SENSITIVE PORTION. BE SURE THAT THIS PART OF THE STEM IS EXPOSED TO THE TEMPERATURE TO BE MEASURED.

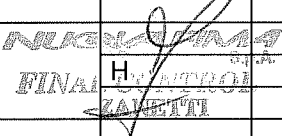
TIGHTEN THE THERMOMETER TO THE APPARATUS OR INTO THE THERMOWELL, USING AN OPEN-END WRENCH APPLIED TO THE EXAGON HEAD OF THE CONNECTION BUSHING. TURN UNTIL REASONABLY TIGHT, THEN TIGHTEN FURTHER (IN THE SAME MANNER AS A PIPE FITTING) UNTIL THE SCALE IS IN DESIRED POSITION FOR READING. DO NOT TIGHTEN BY TURNING THE THERMOMETER CASE OR THE HARNESS. WHEN THERMOMETERS ARE MADE WITH CAPILLARY TUBE, FOR REMOTE READING BE CAREFUL, DO NOT FOLD THE CAPILLARY. IT MAY BE BROKEN. THE OVERPLUS CAPILLARY MUST BE ROLLED AROUND DIAMETER 30CM.

THERMOMETER WELLS

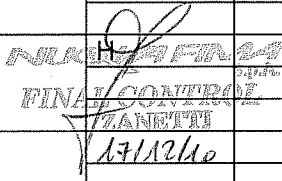
WHEN THE THERMOMETER IS EQUIPPED WITH A THERMOWELL, THE SAME SHOULD FIRST BE REMOVED FROM THE THERMOMETER AND MOUNTED INTO THE APPARATUS. COAT THE THERMOMETER'S STEM WITH A HEAT CONDUCTING MEDIUM SUCH AS A MIXTURE OF GRAPHITE AND GLYCERINE. THIS IMPROVES THE SPEED OF RESPONSE OF THE THERMOMETER. IF THE OPERATING TEMPERATURE DOES NOT EXCEED 175°C VASELINE OR ANY OTHER HEAVY LUBRICANT MAY BE USED AS A SUBSTITUTE FOR THE GLYCERINE AND GRAPHITE MIXTURE. IF THE OPERATING TEMPERATURE EXCEEDS 175°C THE GLYCERINE AND GRAPHITE MIXTURE MAY EVAPORATE. THIS IS CAUSED BY THE GLYCERINE VAPORIZING, LEAVING THE DRY GRAPHITE BEHIND AND SHOULD NOT BE A CAUSE FOR ALARM. THE DRY GRAPHITE WILL ACT EQUALLY WELL AS A HEAT CONDUCTING MEDIUM FOR TEMPERATURES UP TO 540°C.

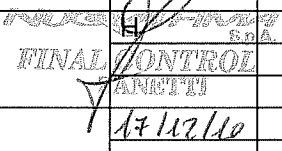
MAINTENANCE

ASIDE FROM OCCASIONAL TESTING, LITTLE OR NO MAINTENANCE IS REQUIRED. EVERY 6 MONTHS FROM INSTALLATION THE ACCURACY MUST BE CONTROLLED AND ROATING PARTS MUST BE INSPECTED IN THE MECHANISM AND LUBRICATED WITH SHELL TONNA 33 OIL OR A CORRESPONDING ONE (ONLY FOR FILLED SYSTEM THERMOMETERS) BE SURE THAT THE GASKETS AND THE TRANSPARENT ARE CORRECTLY PLACED ON THE CASE FOR TO AVOID THAT MOISTURE AND DIRT INSIDE THE CASE WILL EVENTUALLY CAUSE LOSS OF ACCURACY. IF THE THERMOMETER IS USED FOR MEASURING THE TEMPERATURE OF MATERIAL THAT MAY HARDEN AND MAKE ON THE STEM, THE THERMOMETER SHOULD BE REMOVED FROM APPARATUS OCCASIONALLY, AND THE STEM CLEANED. OBSERVE THIS PRECAUTION TO INSURE THE SENSITIVITY OF THE INSTRUMENT

NUOVA FIMA UFFICIO GQ		PIANO DI CONTROLLO CONTROL PLAN			N° No. BAL/5290/001	
Cliente - Customer DESMET BALLESTRA SPA		Ordine N° - Order No. 101963 COMM. C1E35Z			Ordine interno N° - Job card No. 724/OR/2010	
Descrizione - Description A) PRESSURE GAUGES B) PRESSURE GAUGES + DIAPHRAGM SEAL C) DIAPHRAGM GAUGES					Disegno - Drawing CD/10/5290/01+07	
					N° pezzi - Quantity 27	
Impianto - Plant						
Pos. N° Step. N°	Descrizione fasi di controllo Control steps description	Documenti applicabili Applicable documents	Ispezioni - Inspections			Certificati emessi Issued certificates
			NUOVA FIMA			
			Firma - Signature	Firma - Signature	Firma - Signature	
			Data - Date	Data - Date	Data - Date	
01	Materials and relevant certificates identification	Proced. N° M 018/M	H R			
02	Final control instruments and ambient conditions check	Proced. N° M 018/M	H			
03	Control of instruments tags	Proced. N° M 018/M	H R			
04	Visual and dimensional check	Proced. N° M 018/M	H R			
05	Accuracy test	Proced. N° M 018/M	H R			
06	Overpressure test or Static Pressure test	Proced. N° M 018/M	H R			
07	Compliance with Purchase Order requirements		H			
			17/12/10			
N=Fase da notificare-Notifying point; H=Fase vincolante-Hold point; R=Emissione certificato-Issued certificate; RW=Esame certificati-Review of certificates						
Note - Notes POS.A) N°16 POS.B) N°10 POS.C) N°1					Approvazione del Cliente Customer approval	
0	14/12/2010	TALARICO	ZANETTI			
Rev.	Data	Preparato	Approvazione	Note		
Rev.	Date	Prepared	Approval	Notes		

NUOVA FIMA UFFICIO GQ		PIANO DI CONTROLLO CONTROL PLAN			N° No. BAL/5290/002	
Cliente - Customer DESMET BALLESTRA SPA		Ordine N° - Order No. 101963 COMM. C1E35Z			Ordine interno N° - Job card No. 5290/OR/2010	
Descrizione - Description A)PRESSURE SWITCHES 3.27 3/4" NPT-Fx1/2 "NPT-M					Disegno - Drawing CD/10/5290/08	
					N° pezzi - Quantity 6	
Impianto - Plant or project						
Pos. N° Step. N°	Descrizione fasi di controllo Control steps description	Documenti applicabili Applicable documents	Ispezioni - Inspections			Certificati emessi Issued certificates
			NUOVA FIMA	CLIENTE CUSTOMER		
			Firma - Signature Data - Date	Firma - Signatu-re Data - Date	Firma - Signatu-re Data - Date	
01	Materials and relevant certificates identification		RW			
02	Final control instruments and ambient conditions check	Proced.N° M 053	H			
03	Control of instruments tags	Proced.N° M 053	H			
04	Visual and dimensional check	Proced.N° M 053	H R			
05	Accuracy test of set point.	Proced.N° M 053	H R			
06	Repeability test of set point	Proced.N° M 053	H R			
07	Overpressure test.	Proced.N° M 053	H R			
08	Final documentation control		H			
N=Fase da notificare-Notifying point; H=Fase vincolante-Hold point; R=Emissione certificato-Issued certificate; RW=Esame certificati-Review of certificates						
Note - Notes					Approvazione del Cliente Customer approval	
0	14/12/2010	TALARICO	ZANETTI			
Rev. Rev.	Data Date	Preparato Prepared	Approvazione Approval	Note Notes		

NUOVA FIMA UFFICIO GQ		PIANO DI CONTROLLO CONTROL PLAN			N° BAL/5290/003 No.	
Cliente - Customer DESMET BALLESTRA SPA		Ordine N° - Order No. 101963 COMM. C1E35Z		Ordine interno N° - Job card No. 5290/OR/2010		
Descrizione - Description A) THERMOMETERS TG899 1/2" NPTM B) THERMOMETERS TB899 1/2" NPTM				Disegno - Drawing CD10/5290/09-10		
				N° pezzi - Quantity 17		
Impianto - Plant						
Pos. N° Step. N°	Descrizione fasi di controllo Control steps description	Documenti applicabili Applicable documents	Ispezioni - Inspections			Certificati emessi Issued certificates
			NUOVA FIMA			
			Firma - Signature Data - Date	Firma - Signature Data - Date	Firma - Signature Data - Date	
01	Materials and relevant certificates identification	Proced.N° M 022	HR			
02	Final control instruments and ambient conditions check	Proced.N° M 018/T	H			
03	Control of instruments tags	Proced.N° M 018/T	H			
04	Visual and dimensional check	Proced.N° M 018/T	HR			
05	Accuracy test	Proced.N° M 018/T	HR			
06	Overtemperature test	Proced.N° M 018/T	HR			
07	Compliance with Purchase Order requirements					
N=Fase da notificare-Notifying point; H=Fase vincolante-Hold point; R=Emissione certificato-Issued certificate; RW=Esame certificati-Review of certificates						
Note - Notes A) N°14 B) N°3					Approvazione del Cliente Customer approval	
0	14/12/2010	TALARICO	ZANETTI			
Rev. Rev.	Data Date	Preparato Prepared	Approvazione Approval	Note Notes		

NUOVA FIMA UFFICIO GQ		PIANO DI CONTROLLO CONTROL PLAN			N° No. BAL/5290/004	
Cliente - Customer DESMET BALLESTRA SPA		Ordine N° - Order No. 101963 COMM. C1E35Z			Ordine interno N° - Job card No. 5290/OR/2010	
Descrizione - Description: THERMOWELLS W13 1"NPT-M					Disegno - Drawing CD10/5290/11	
					N° pezzi - Quantity 17	
Impianto - Plant or project						
Pos. N° Step. N°	Descrizione fasi di controllo Control steps description	Documenti applicabili Applicable documents	Ispezioni - Inspections			Certificati emessi Issued certificates
			NUOVA FIMA			
			Firma - Signatura Data - Date	Firma - Signatura Data - Date	Firma - Signatura Data - Date	
01	Materials and relevant certificates identification		H R			
02	Final control instruments and ambient conditions check		H			
03	Control of thermowells tags		H			
04	Visual and dimensional check		H R			
05	Hydraulic test	Proced.N° T 038	H R			
06	Compliance with Purchase Order requirements					
N=Fase da notificare-Notifying point; H=Fase vincolante-Hold point; R=Emissione certificato-Issued certificate; RW=Esame certificati-Review of certificates						
Note - Notes					Approvazione del Cliente Customer approval	
0	14/12/2010	TALARICO	ZANETTI			
Rev. Rev.	Data Date	Preparato Prepared	Approvazione Approval	Note Notes		

TEST AND CONFORMITY CERTIFICATE

ACCORDING TO
EN 10204 - 3.1

NUOVA FIMA

Industrial Instrumentation For Pressure & Temperature

NUOVAFIMA S.p.a. - Cap.Soc. € 3.500.000 I.V.
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www.nuovafima.com - email : info@nuovafima.com
Codice fiscale / Partita IVA 01719710038
Reg.Imp. NOVARA 10895/1999 - REA 193327

MESSRS./SPETT.

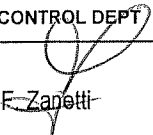
DESMET BALLESTRA SPA
VIA PIERO PORTALUPPI 17
20138 MILANO MI (I)

Date	Certificate	Nuova Fima Order	Purchase Order N.	Sheet
14/12/2010	0000010478	5290/OR/2010	101963 COMM.1E35Z of 25/10/2010	1 / 4
Description	Q.ty	Test		
1.18.2.A.G.---AAE5.43M.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...4 BAR, 1/2" NPT-M, ADJUSTABLE POINTER,AISI316L LABEL,TROPICALIZATION TAG N.: PI 62.6A, PI 62.6B, PI 63.2A, PI 63.2B, PI 63.7A, PI 63.7B, PI 63.12A, PI 63.12B	8	A,B,C=+-1,00 % F.S.,D= 5,20 BAR		
1.18.2.A.G.---AAE7.43M.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...6 BAR, 1/2" NPT-M, ADJUSTABLE POINTER,AISI316L LABEL,TROPICALIZATION TAG N.: PI 63.1, PI 63.6	2	A,B,C=+-1,00 % F.S.,D= 7,80 BAR		
1.18.2.A.G.---Aafb.41M.C.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...10 BAR, 1/2" BSP-M, TYPE "C" FLANGE,ADJUSTABLE POINTER,AISI316L LABEL, TROPICALIZATION TAG N.: PI 63.2, PI 63.4 4.R00.4.---.4.---.41F.9 DIAPHRAGM SEAL MGS9/R AISI316, AISI316L DIAPHRAGM, 1/2" BSP-F INSTR. CONN.,AISI304 CAPILLARY + AISI304 ARMOUR L = 3.0 MT	2	A,B,C=+-1,60 % F.S.,D= 13,0 BAR		
1.18.2.A.G.---Aafb.41M.C.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...10 BAR, 1/2" BSP-M, TYPE "C" FLANGE,ADJUSTABLE POINTER,AISI316L LABEL, TROPICALIZATION TAG N.: PI 63.5 4.R00.4.---.4.---.41F.9 DIAPHRAGM SEAL MGS9/R AISI316, AISI316L DIAPHRAGM, 1/2" BSP-F INSTR. CONN.,AISI304 CAPILLARY + AISI304 ARMOUR L = 3.0 MT	1	A,B,C=+-1,60 % F.S.,D= 13,0 BAR		
1.18.2.A.G.---Aafp.41M.C.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...100 BAR, 1/2" BSP-M, TYPE "C" FLANGE,ADJUSTABLE POINTER,AISI316L LABEL, TROPICALIZATION TAG N.: PI 64.3A, PI 64.4A, PI 64.5A, PI 64.3B, PI 64.4B, PI 64.5B 4.R00.4.---.4.---.41F.9 DIAPHRAGM SEAL MGS9/R AISI316, AISI316L DIAPHRAGM, 1/2" BSP-F INSTR. CONN.,AISI304 CAPILLARY + AISI304 ARMOUR L = 3.0 MT	6	A,B,C=+-1,60 % F.S.,D= 130 BAR		
1.18.2.A.G.---AAEY.43M.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...1 BAR, 1/2" NPT-M, ADJUSTABLE POINTER,AISI316L LABEL,TROPICALIZATION TAG N.: PI 64.6, PI 64.7	2	A,B,C=+-1,00 % F.S.,D= 1,30 BAR		


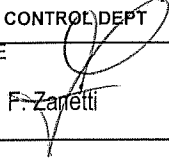
TEST: A) VISUAL B) DIMENSIONAL C) ACCURACY D) OVER PRESSURE E) TEST PRESSURE
F) REGULATION MICRO G) RELIABILITY MICRO H) TEST TEMPERATURE I) MAX STATIC PRESS. L) DIFFERENTIAL RANGE
M) MAX TEMPERATURE N) OVER TEMPERATURE

WE HEREBY CERTIFY THAT THE SUPPLY IS IN CONFORMITY WITH SPECIFICATIONS, DRAWINGS AND TO THE ORDER WHO IS
REFERRED. THE SUPPLY HAS BEEN POSITIVELY CHECKED AND TESTED IN ACCORDANCE WITH THE NUOVA FIMA S.P.A.
SPECIFICATIONS AND PROCEDURES.

NOTES:

FINAL CONTROL DEPT	INSPECTOR	THIRD PART INSPECTION	QUALITY ASSURANCE
SIGNATURE 	SIGNATURE	SIGNATURE	SIGNATURE

>>> NEXT / SEGUE / SIGUIENTE / SUIT >>>

TEST AND CONFORMITY CERTIFICATE			ACCORDING TO EN 10204 - 3.1	
 <p>Industrial Instrumentation For Pressure & Temperature</p> <p>NUOVAFIMA S.p.a. - Cap.Soc. € 3.500.000 I.V. Via C.Battisti, 59/61 - 28045 INVORIO (NO) Italy Tel. +39 0322 253200 - Fax +39 0322 253232 www.nuovafima.com - email : info@nuovafima.com Codice fiscale / Partita IVA 01719710038 Reg.Imp. NOVARA 10895/1999 - REA 193327</p>			<p>MESSRS./SPETT.</p> <p>DESMET BALLESTRA SPA VIA PIERO PORTALUPPI 17 20138 MILANO MI (I)</p>	
Date	Certificate	Nuova Fima Order	Purchase Order N.	Sheet
14/12/2010	0000010478	5290/OR/2010	101963 COMM.1E35Z of 25/10/2010	2 / 4
Description			Q.ty	Test
1.18.2.A.G.---.AAFB.43M.L02.T25.T01 MANOMETER MGS18/2/A DS 6" (150 MM), 0...10 BAR, 1/2" NPT-M, ADJUSTABLE POINTER,AISI316L LABEL,TROPICALIZATION TAG N.: PI 64.8			1	A,B,C=+-1,00 % F.S.,D= 13,0 BAR
2.42.1.A.G.---.AHBA.43M.---.E65.T25.T01 MANOMETER MN12/18/A DS 6" (150 MM), -250...0 MMH2O, 1/2" NPT-M,IP65 PROTECTION DEGREE,AISI316L LABEL, TROPICALIZATION TAG N.: PI 64.9			1	A,B,C=+-1,60 % F.S.,D= 61,2 MMH2O
1.M3.1.A.G.---.AAFB.43M.M1S.E65.T25.T01 MANOMETER MCE20/1/A DS 6" (150 MM), 0...10 BAR, 1/2" NPT-M, 01S/BM CONTACT,IP65 PROTECTION DEGREE,AISI316L LABEL, TROPICALIZATION TAG N.: PISH 65.1, PISH 65.2, PISL 65. 1			3	A,B,C=+-1,00 % F.S.
1.M3.1.A.G.---.AAFP.41M.M1S.C.E65.T25.T01 MANOMETER MCE20/1/A DS 6" (150 MM), 0...100 BAR, 1/2" BSP-M, 01S/BM CONTACT,TYPE "C" FLANGE,IP65 PROTECTION DEGREE,AISI316L LABEL,TROPICALIZATION TAG N.: PISH 63.3 4.R00.4.---.4.---.41F.9 DIAPHRAGM SEAL MGS9/R AISI316, AISI316L DIAPHRAGM, 1/2" BSP-F INSTR. CONN.,AISI304 CAPILLARY + AISI304 ARMOUR L = 3.0 MT			1	A,B,C=+-1,60 % F.S.
3.27.---.AAFB.B.4.43M.T25.F03.T01 PRESS. SWITCH 3.27, 0...10 BAR,N°2 MICRO STANDARD, CODE B, 3/4" NPT-F, 1/2" NPT-M,AISI316L LABEL,HIGH OVERPRESSURE, TROPICALIZATION TAG N.: PSHL 63.2A, PSHL 63.2B, PSHL 63.8A, PSHL 63.8B			4	A,B,E=40,0 BAR,F=OK,G=+-1,00 % F.S.,L=0,150 BAR
3.27.---.AAE3.A.4.43M.T25.F03.T01 PRESS. SWITCH 3.27, 0...2,5 BAR,N°1 MICRO STANDARD, CODE A, 3/4" NPT-F, 1/2" NPT-M,AISI316L LABEL,HIGH OVERPRESSURE,TROPICALIZATION TAG N.: PSH 64.6, PSH 64.7			2	A,B,E=25,0 BAR,F=OK,G=+-1,00 % F.S.,L=0,040 BAR
6.TG8.5.9.G.ATFQ.43M.S10.9.E65.T25.T01 THERMOMETER TG859 DS 6" (150 MM), RANGE 0...120 °C, 1/2" NPT-M, 11,5 MM DIAM.; FLEXIBLE EXT. S = 386 MM, AISI304+AISI304 L = 3.0 MT,IP65 PROTECTION DEGREE, AISI316L LABEL,TROPICALIZATION TAG N.: TI 62.1, TI 63.1A, TI 63.1B, TI 63.2, TI 63.3, TI 63.4, TI 63.11, TI 63.12 9.W13.4.43F.63M.120.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN.,1" NPT-M,Ø 12			8	A,B,C=1,N= 150 °C,E=40 BAR
<p>TEST :A) VISUAL B) DIMENSIONAL C) ACCURACY D) OVER PRESSURE E) TEST PRESSURE F) REGULATION MICRO G) RELIABILITY MICRO H) TEST TEMPERATURE I) MAX STATIC PRESS. L) DIFFERENTIAL RANGE M) MAX TEMPERATURE N) OVER TEMPERATURE</p> <p>WE HEREBY CERTIFY THAT THE SUPPLY IS IN CONFORMITY WITH SPECIFICATIONS, DRAWINGS AND TO THE ORDER WHO IS REFERRED. THE SUPPLY HAS BEEN POSITIVELY CHECKED AND TESTED IN ACCORDANCE WITH THE NUOVA FIMA S.P.A. SPECIFICATIONS AND PROCEDURES.</p> <p>NOTES :</p>				
FINAL CONTROL DEPT		INSPECTOR	THIRD PART INSPECTION	QUALITY ASSURANCE
SIGNATURE 		SIGNATURE	SIGNATURE	SIGNATURE

TEST AND CONFORMITY CERTIFICATE

ACCORDING TO
EN 10204 - 3.1



Industrial Instrumentation For Pressure & Temperature

NUOVAFIMA S.p.a. - Cap.Soc. € 3.500.000 I.V.
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www.nuovafima.com - email : info@nuovafima.com
Codice fiscale / Partita IVA 01719710038
Reg.Imp. NOVARA 10895/1999 - REA 193327

MESSRS./SPETT.

DESMET BALLESTRA SPA
VIA PIERO PORTALUPPI 17
20138 MILANO MI (I)

Date	Certificate	Nuova Fima Order	Purchase Order N.	Sheet
14/12/2010	0000010478	5290/OR/2010	101963 COMM.1E35Z of 25/10/2010	3 / 4

Description	Q.ty	Test
MM,IMMERSION U = 340 MM, TAG N.: TW 62.1, TW 63.1A, TW 63.1B, TW 63.2, TW 63.3, TW 63.4, TW 63.11, TW 63.12		
6.TG8.5.9.G.ATFV.43M.S10.9.E65.T25.T01 THERMOMETER TG859 DS 6" (150 MM), RANGE 0...250 °C, 1/2" NPT-M, 11,5 MM DIAM.; FLEXIBLE EXT. S = 386 MM, AISI304+ AISI304 L = 3.0 MT, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 64.5 9.W13.4.43F.63M.120.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 12 MM,IMMERSION U = 340 MM, TAG N.: TW 64.5	1	A,B,N= 313 °C,E=40 BAR
6.TG8.5.9.G.ATFO.43M.S10.9.E65.T25.T01 THERMOMETER TG859 DS 6" (150 MM), RANGE 0...80 °C, 1/2" NPT-M, 11,5 MM DIAM.; FLEXIBLE EXT. S = 386 MM, AISI304+ AISI304 L = 3.0 MT, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 64.8 9.W13.4.43F.63M.120.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 12 MM,IMMERSION U = 340 MM, TAG N.: TW 64.8	1	A,B,C=1,N= 100 °C,E=40 BAR
6.TG8.5.9.G.ATF2.43M.S10.9.E65.T25.T01 THERMOMETER TG859 DS 6" (150 MM), RANGE 0...600 °C, 1/2" NPT-M, 11,5 MM DIAM.; FLEXIBLE EXT. S = 386 MM, AISI304+ AISI304 L = 3.0 MT, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 64.9 9.W13.4.43F.63M.120.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 12 MM,IMMERSION U = 340 MM, TAG N.: TW 64.9	1	A,B,C=1,E=40 BAR
6.TB8.9.9.G.ATFS.43M.8.E65.T25.T01 THERMOMETER TB899 DS 6" (150 MM), RANGE 0...160 °C, 1/2" NPT-M, 8 MM DIAM. S = 136 MM, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 64.10, TI 64.11 9.W13.4.43F.63M.100.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 10 MM,IMMERSION U = 90 MM, TAG N.: TW 64.10, TW 64.11	2	A,B,C=1,N= 208 °C,E=40 BAR

TEST: A) VISUAL B) DIMENSIONAL C) ACCURACY D) OVER PRESSURE E) TEST PRESSURE
F) REGULATION MICRO G) RELIABILITY MICRO H) TEST TEMPERATURE I) MAX STATIC PRESS. L) DIFFERENTIAL RANGE
M) MAX TEMPERATURE N) OVER TEMPERATURE

WE HEREBY CERTIFY THAT THE SUPPLY IS IN CONFORMITY WITH SPECIFICATIONS, DRAWINGS AND TO THE ORDER WHO IS REFERRED. THE SUPPLY HAS BEEN POSITIVELY CHECKED AND TESTED IN ACCORDANCE WITH THE NUOVA FIMA S.P.A. SPECIFICATIONS AND PROCEDURES.

NOTES:

FINAL CONTROL DEPT	INSPECTOR	THIRD PART INSPECTION	QUALITY ASSURANCE
SIGNATURE 	SIGNATURE	SIGNATURE	SIGNATURE

>>> NEXT / SEGUE / SIGUIENTE / SUIT >>>

TEST AND CONFORMITY CERTIFICATE

ACCORDING TO
EN 10204 - 3.1**NUOVA FIMA**

Industrial Instrumentation For Pressure & Temperature

NUOVAFIMA S.p.a. - Cap.Soc. € 3.500.000 I.V.
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Reg.Imp. NOVARA 10895/1999 - REA 193327

MESSRS./SPETT.

DESMET BALLESTRA SPA
VIA PIERO PORTALUPPI 17
20138 MILANO MI (I)

Date	Certificate	Nuova Fima Order	Purchase Order N.	Sheet
14/12/2010	0000010478	5290/OR/2010	101963 COMM.1E35Z of 25/10/2010	4 / 4
Description			Q.ty	Test
6.TB8.9.9.G.ATFP.43M.8.E65.T25.T01 THERMOMETER TB899 DS 6" (150 MM), RANGE 0...100 °C, 1/2" NPT-M, 8 MM DIAM. S = 286 MM, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 64.15 9.W13.4.43F.63M.100.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 10 MM, IMMERSION U = 240 MM, TAG N.: TW 64.15			1	A,B,C=1,N= 130 °C, E=40 BAR
6.TG8.5.9.G.ATFQ.43M.S10.9.E65.T25.T01 THERMOMETER TG859 DS 6" (150 MM), RANGE 0...120 °C, 1/2" NPT-M, 11,5 MM DIAM.; FLEXIBLE EXT. S = 286 MM, AISI304+AISI304 L = 3.0 MT, IP65 PROTECTION DEGREE, AISI316L LABEL, TROPICALIZATION TAG N.: TI 62.2, TI 62.3, TI 62.4 9.W13.4.43F.63M.120.U.SP1 THERMOWELL W13 AISI316, 1/2" NPT-F INSTR. CONN., 1" NPT-M, Ø 12 MM, IMMERSION U = 240 MM, TAG N.: TW 62.2, TW 62.3, TW 62.4			3	A,B,C=1,N= 150 °C, E=40 BAR

TEST : A) VISUAL B) DIMENSIONAL C) ACCURACY D) OVER PRESSURE E) TEST PRESSURE
F) REGULATION MICRO G) RELIABILITY MICRO H) TEST TEMPERATURE I) MAX STATIC PRESS. L) DIFFERENTIAL RANGE
M) MAX TEMPERATURE N) OVER TEMPERATURE

WE HEREBY CERTIFY THAT THE SUPPLY IS IN CONFORMITY WITH SPECIFICATIONS, DRAWINGS AND TO THE ORDER WHO IS
REFERRED. THE SUPPLY HAS BEEN POSITIVELY CHECKED AND TESTED IN ACCORDANCE WITH THE NUOVA FIMA S.P.A.
SPECIFICATIONS AND PROCEDURES.

NOTES :

FINAL CONTROL DEPT	INSPECTOR	THIRD PART INSPECTION	QUALITY ASSURANCE
SIGNATURE F. Zanetti	SIGNATURE	SIGNATURE	SIGNATURE

DICHIARAZIONE DI CONFORMITA'

Direttiva 97/23/CE
Attrezzature a Pressione

DECLARATION OF CONFORMITY

Directive 97/23/EC
Pressure Equipment Directive (PED)

NUOVA FIMA S.p.A dichiara sotto la propria responsabilità che i manometri a molla tubolare di seguito elencati sono in accordo con la direttiva

NUOVA FIMA S.p.A. declares on its sole responsibility that the followings bourdon tube pressure gauges comply with the directive

Modello/Model	DN/DS	Codice/Code
MGS 8	250	1.08
MGS 18	40/50/63/100/150	1.18
MGS 19	100/150	1.19
MGS 20	63/100/150	1.20
MGS 21	100/150	1.21
MGS 22	100/150	1.22
MN 25	150	1.25
MN 26	250	1.26
MGS 30	125	1.30
MGS 36	100/150	1.36
MGS 40	100/150	1.40
MGS 41	100/150	1.41
MGS 60	125	1.60

Gli strumenti con sovrappressione applicabile ≤ 200 bar (massima pressione ammissibile - PS) sono progettati e fabbricati secondo criteri di buona prassi costruttiva.

Gli strumenti con sovrappressione applicabile maggiore di 200 bar (massima pressione ammissibile - PS) in aggiunta, sono classificati in **CATEGORIA I**, sottoposti a valutazione della conformità secondo il **Modulo A - Controllo di fabbricazione interno** e sono marcati **CE**.

Instruments with allowable overpressure value ≤ 200 bar (maximum allowable pressure - PS) are designed and manufactured in accordance with sound engineering practice.

*Instruments with allowable overpressure value beyond 200 bar (maximum allowable pressure - PS) are additionally classified with **CATEGORY I**, subjected to the conformity assessment procedure according to **Module A - Internal production control** and they are marked **CE**.*

Norma di riferimento applicata: UNI EN 837-1 ed.1998 "Manometri a molla tubolare".
Applied reference standard: UNI EN 837-1 ed. 1998 "Bourdon tube pressure gauges".

Il controllo della fabbricazione interna degli strumenti è assicurato dal Sistema Qualità secondo ISO 9001:2000 operante in azienda e certificato da ICIM S.p.A.

The control of internal manufacturing of the instruments is assured by the Quality System according to ISO 9001:2000 of the factory, certified from ICIM S.p.A.

NUOVA FIMA
Amministratore Delegato
Managing Director
F.Zaveri

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Data di emissione 14/01/2010

Edizione 8

Emesso UGQ-G.Adami

Visto e approvato DP-F.Zaveri



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www.nuovafima.com - info@nuovafima.com

DICHIARAZIONE DI CONFORMITA' DECLARATION OF CONFORMITY

NUOVA FIMA S.p.A dichiara sotto la propria responsabilità che i seguenti strumenti
NUOVA FIMA S.p.A. declares on its sole responsibility that the followings instruments

Modello/Model	DN/DS	Codice/Code
MCE 10	100	1.M1
MCE 18	100	1.M2
MCE 20	150	1.M3
MGS 72	100	1.72
MGS 74	100	1.74
MN 14/10	100/150	1.M7
MN 14/18	100/150	1.M8

sono in accordo con le seguenti direttive
comply with the followings directives

97/23/CE - Attrezzature a pressione - Pressure equipment (PED)⁽¹⁾
73/23/CE + 93/68/CE- Bassa tensione - Low voltage (LV)⁽²⁾

- ⁽¹⁾ Gli strumenti con sovrappressione applicabile ≤ 200 bar (massima pressione ammissibile - PS) sono progettati e fabbricati secondo criteri di buona prassi costruttiva.
Gli strumenti con sovrappressione applicabile maggiore di 200 bar (massima pressione ammissibile - PS) in aggiunta, sono classificati in **CATEGORIA I** e sottoposti a valutazione della conformità secondo il **Modulo A - Controllo di fabbricazione interno** e sono marcati **CE**.
Instruments with allowable overpressure value ≤ 200 bar (maximum allowable pressure - PS) are designed and manufactured in accordance with sound engineering practice.
*Instruments with allowable overpressure value beyond 200 bar (maximum allowable pressure - PS) are additionally classified with **CATEGORY I** and subjected to the conformity assessment procedure according to **Module A - Internal production control** and they are marked **CE**.*

Norme di riferimento - Reference standards:

- ⁽¹⁾ EN 837-1 "Manometri a molla tubolare - Bourdon tube pressure gauges".
⁽²⁾ EN 60947-1 "Apparecchiature a bassa tensione-Parte 1: regole generali - Low tension instruments-Part1: general rules".
⁽²⁾ EN 60947-5-1 "Apparecchiature a bassa tensione - Parte 5: Dispositivi per circuiti di comando ed elementi di manovra - Sezione 1: Dispositivi elettromeccanici per circuiti di comando.
Low tension instruments - Part 5: Devices for control circuits and control's components - Section 1: electromechanical devices for control circuits.

Il controllo della fabbricazione interna degli strumenti è assicurato dal Sistema Qualità secondo ISO 9001:2008 operante in azienda e certificato da ICIM.

The control of internal manufacturing of the instruments is assured by the Quality System of the factory according to standard ISO 9001:2008, certified from ICIM.

NUOVA FIMA
Amministratore Delegato
Managing Director
F.Zaveri

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Data di emissione 01/09/2010

Edizione 3

Emesso UGQ-G.Adami

Visto e approvato DP-F.Zaveri



Industrial Instrumentation for Pressure and Temperature
Via C.Battisti 59 - 28045 INVORIO (NO) -Italy
Tel. +39 0322 253200 - Fax +39 0322 253232
www.nuovafima.com - info@nuovafima.com

DECHIARAZIONE DEL COSTRUTTORE
Direttiva 97/23/CE
Attrezzature a Pressione

MANUFACTURER'S DECLARATION
Directive 97/23/EC
Pressure Equipment Directive (PED)

Termometri e sensori di temperatura come pure i pozzetti termometrici sono considerati dalla suddetta direttiva come componenti isolati, senza alloggiamenti sottoposti a pressione. Essi non corrispondono alla definizione di "Accessori a pressione " (Art. 1 par. 2.1.3), e neppure alla definizione di "Accessori di sicurezza" (Art. 1 par. 2.1.4). Conseguentemente non possono riportare la marcatura CE.

I sopra menzionati prodotti sono comunque conformi all'art.3 par. 3 della direttiva e sono progettati e realizzati secondo la buona prassi costruttiva.

Thermometers and temperature sensors as well as their thermowells are classified by the above mentioned directive as isolated sensors without own compartment under pressure.

They do not fulfill the requirements neither for "Pressure accessories" (article 1 par. 2.1.3) nor for "Safety Accessories" (article 1. par. 2.1.4) . Therefore , thermometers and thermowells cannot bear the CE mark as per the meaning of the above mentioned directive.

The mentioned products nevertheless have to comply with art. 3 par. 3 of the directive and are designed and manufactured in accordance with the sound practice.

Le contrôle de fabrication interne des instruments est garanti par le Système Qualité selon ISO 9001:2008 mis en pratique à l'usine et certifié par l'ICIM S.p.A.

The control of internal manufacturing of the instruments is assured by the Quality System according to ISO 9001:2008 of the factory, certified from ICIM S.p.A.

Administrateur Délégué
Managing Director
F. Zaveri

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Data 26/07/2010	Edizione 0	Emesso da UGQ-G.Adami	Visto e approvato DP-F.Zaveri

NUOVA FIMA S.p.A. – Cap. Soc. € 3.500.000 i.v.
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Tel. +39 0322 253200 – Fax +39 0322 253232
www.nuovafima.com – e_mail: info@nuovafima.com
Codice Fiscale/Partita IVA 01719710038
Reg. Imp. Novara 10895/1999 – REA 193327

Friday, 17 December 2010

MATERIAL CERTIFICATES N° MAT- 10/10478

CUSTOMER: DESMET BALLESTRA

P.ORDER : 101963 C1E35Z

<u>MANUFACTURER</u>	<u>CERT.NUMBER</u>	<u>TYPE OF PRODUCT</u>
ACCIAIERIE VALBRUNA	938225/2010	THREAD CONN.PRESS.GAUGES AISI316L
LNI	4602/10/20	TUBE 1 BAR AISI316L
LNI	11'504/1/3	TUBE 4 BAR AISI316L
LNI	EXP02503/30	TUBE 6 BAR AISI316L
LNI	EXP01946/10	TUBE 10 BAR AISI316L
UGITECH	1418054	THREAD CONN. DIAPHRAGM GAUGES
LAMINERIES MATTHEY	10022400	DIAPHRAGM GAUGES
UGITECH	80757357000020	THREAD CONN. PRESS.SWITCHES 3.27
RODNEY METALS	54547	DIAPHRAGM SEALS AND SWITCHES
ACCIAIERIE VALBRUNA	923631/2010	BODY SEAL MGS9/R
ACCIAIERIE VALBRUNA	944907/2010	BODY SEAL MGS9/RA-RC
ACCIAIERIE VALBRUNA	938586/2010	THREAD CONNECTION THERMOMETERS
SANDVIK	A/08-772678	STEM THERMOMETERS Ø8
OLIMPIA INOX	504/04	TUBE THERMOWELLS

NUOVA FIMA
S.p.A.
FINAL CONTROL
ZANETTI

Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-NO

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-TO10003172
Lieferanzettel/Packing list/B.L.

Ordine nr: 228
Bestell/Your order/Commande

Certificato nr: MEST938225/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO10000751
Werks/Our Order/Rel nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Pointon de l'essayeur

Oggetto Prove: Sgrassato Solubilizzato Trafilato
Prüfgegenstand/Item Inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Specifiche:
Anforderungen / Requirements / Exigences
ST - 001 9 316L A,CF

ASTM A276 2008A S31603

ASTM A479 2010 S31603

Qualità: 316L
Werkstoff/Grade/Nuance

Marca: MVAPML MAXIVAL
Markenbezeichnung/Brand/Nuance

Punzonatura: 316L
Kennzeichnung/Marking/Marquage

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descr. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Tolleranza Tolleranz. Allowance Tolerance	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heal Coulée	Pezzi Stückzahl Pieces Pièces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0010	Quadro	22,000 x 22,000	h11	3000 / 3100	423617		1856,0	106204300

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüfung auf Lieferbereitem produkt test a l'etat de fourniture Prueba sobre el material así como entregado

TEST	Provetta/Probetas Specimen/Eprouvette Lag diam Spec. Brelle Diam, Dicke Width Diam, Thickness Lag. diam. epais mm	°C	Posiz. Saggio Probenlage Locación Emplacement 1)	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Einschnürung Reduction of area Striction RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
	Valori richiesti 1 Anforderungen/Required values Valeurs demandées	min max		205	-	515	-	30	-	-
A	12,5	20	L	483		684	43	67		232

TEST	min	max
A HRC		22,0 19,2

1) L=longitudinale/längs, T=transversale/quer, Q=Tangenziale/tangentiel

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max 0,030	-	-	16,00 18,00	2,00 3,00	10,00 14,00	-	-	-	-	-	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %						
423617	0,018	0,57	1,55	16,99	2,02	10,06	0,026	0,027	0,056						

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimiscelazione: OK
Verwechslungsprüfung: spectralanalytisch durchgeführt
Anilming testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks: satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s.4.3 by TUEV and LLOYD'S

Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.

Maximal and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.

The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

Vicenza, 05/11/10 VCO008 (Mod. MCER)	Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine M. Rizzotto	Pagina - 1 di 1
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LN INDUSTRIES SA

USINE DE CHAMPAGNE

Case postale CH-1422 Grandson - Suisse
Tél. ++41 (0) 24 436 0606
Fax ++41 (0) 24 436 0607 - TVA N° 143 359



TEST CERTIFICATE : 4602 / 10/20

(DIN 10204 / 3.1B)

Your order Acknowledgment-No. Item
01/00513 dated 28.11.2001 02 4008 10/20
Champagne, le 20/02/02
01719710038
1235

NUOVA FIMA S.p.A.	
UFFICIO GQ	
CODICE CERTIFICATO	DATA
Y404	21-03-02

NUOVA FIMA S.P.A.
Via Cesare Battisti 59

I-28045 INVORIO
Italie

TEST CERTIFICATE

No : 4602 / 10/20

$\phi 100$

$0 \div 1,6$
2 BAR

Item	$\phi 150$ $0 \div 1$ BAR	Ordered Qty.	Supplied Qty.
------	------------------------------	--------------	---------------

10/20 917090803980200

1'500 m.

1'633 m.

Aisi 316 L/ 1.4435, seamless
Flat-oval tube
Dis. M 106/ 7-ST 004 Rév.No 4
Dimensions : 20.00 * 6.000 * 0.200 mm.

	REQUIERED		SUPPLIED	
	MINI	MAXI	MINI	MAXI
Outside diam. or 2A mm.	20.00	20.20	20.14	20.16
Inside diam. or 2B mm.	6.000	6.200	6.070	6.120
Wall mm.	0.190	0.210	0.193	0.209
Length mm.	3'000	4'000	3'000	3'500
Meterweight gr/m.	ab.	73.50		75.00
Piece weight gr/pce.				
Hardness (300 grs.) Hv.	150	170	150	152
Tensile strength N/mm2	580	640	586	598
Elongation %	40	55	53	54
Yield strength N/mm2			301	307
Grain size micron.		35	15	22
Sight control :			Accomplished.	
Eddy Current test 10% of the tubes :			Positive.	

CHEMICAL ANALYSIS : DIN

Heat Nr. : 454233 / Sandvik.

Al: % Fe: % Si: 0.390% Mo: 2.570% Ti: %
C : 0.013% Pb: % Mn: 1.680% Ni:12.900% V : %
Cr:17.320% P : 0.031% S : 0.007% N : % W : %
Cu: % Zn: % Co: %

REMARKS :

BOX NR. : 909.910.

Quality control

Engineer in charge



LN INDUSTRIES SA

USINE DE CHAMPAGNE

Case postale CH-1422 Grandson - Suisse
Tél. +41 (0) 24 436 0806
Fax +41 (0) 24 436 0807 - TVA N° 143 359



TEST CERTIFICATE : 11'504 / 1/3
(EN 10204 / 3.1B)

Champagne, le 24/01/05

NUOVA FIMA S.p.A.	
UFFICIO GQ	
CODICE CERTIFICATO Y820	DATA 01-02-05

Your order
937 / 27.10.2003

Acknowledgment-No. Item
10008 1/3

NUOVA FIMA S.P.A.
Via Cesare Battisti 59
IT-28045 INVORIO
Italie

TEST CERTIFICATE

No : 11'504 / 1/3

RANGE 0 1/4 BAR

Medal N° 9755

Item	Ordered Qty.	Supplied Qty.
------	--------------	---------------

1/3 917090803980400

1'500 M

1'643 M

Flat-oval tube, Aisi 316 L/ 1.4435, seamless
Our reference : CODE T - AIS. 026/040
Your reference : M 105 / 16 - ST 004 Rév. N° 4
Dimensions : 20.00 * 6.000 * 0.400 mm.

	REQUIRED		SUPPLIED	
	MINI	MAXI	MINI	MAXI
Outside diam. or 2A mm.	20.00	20.20	20.14	20.16
Inside diam. or 2B mm.	6.000	6.200	6.070	6.095
Wall mm.	0.380	0.420	0.385	0.420
Length mm.	3'000	4'000	3'000	3'400
Meterweight gr/m.	ab.	145.0		146.0
Piece weight gr/pce.				
Hardness (500 grs.) Hv.	170	190	184	188
Tensile strength N/mm2	620	650	626	627
Elongation %	40	55	40	41
Yield strength N/mm2			453	454
Grain size micron.		35	22	31
Sight control :			Accomplished.	
Eddy Current test 10% of the tubes :			Positive.	

CHEMICAL ANALYSIS :

Heat Nr. : 455 156 / Sandvik.

Al: % Fe: % Si: 0.370% Mo: 2.630% Ti: %
C : 0.010% Pb: % Mn: 1.760% Ni: 13.080% V : %
Cr: 17.620% P : 0.034% S : 0.008% N : % W : %
Cu: % Zn: % Co: %

REMARKS :

BOX NR. : 364.365.

Quality control

Engineer in charge





LN INDUSTRIES SA

USINE DE CHAMPAGNE

Rue du Moulin 1 Champagne Case postale 241
CH-1422 GRANDSON 1 - Suisse
Tél. +41 (0) 24 436 0606
Fax +41 (0) 24 436 0607 - TVA N° 143 359



TEST CERTIFICATE : EXP02503 / 30

(EN 10204 / 3.1)

Champagne, le 12.10.2010

NUOVA FIMA S.p.A.	
UFFICIO QQ	
CODICE CERTIFICATO M136	DATA 26-10-10

Your order Acknowledgment-No. Item
430 of 29.03.2010 CV01903 30

NUOVA FIMA S.P.A.
Via Cesare Battisti 59
IT - 28045 INVORIO
Italie

TEST CERTIFICATE

EXP02503 / 30

OF 28750

Item	Ordered Qty.	Supplied Qty.
------	--------------	---------------

30 917090802670400	200 Kg.	218 Kg.
--------------------	---------	---------

Tube Flat oval, Stainless Steel Aisi 316L / 1.4435, seamless.

Your reference : T - AIS.017/040.

Reference LNI. : T - OP - 0267 A.

Your reference M 105/19 ST004 Rév 4.

Dimensions : 17.00 * 7.000 * 0.400 mm.

		REQUIRED		SUPPLIED	
		MINI	MAXI	MINI	MAXI
Outside width	mm.	17.00	17.20	17.10	17.13
outside height	mm.	7.000	7.200	7.100	7.140
Wall	mm.	0.380	0.420	0.385	0.410
Length	mm.	3'000	4'000	3'000	3'800
Meterweight	gr/m.	about 129.5			130.8
Piece weight	gr/pce.				
Hardness (300 gr.)	Hv.	170	190	171	189
Tensile strength	N/mm2	620	670	621	624
Elongation	%	40	55	43	45
Yield strength	N/mm2				
Grain size	µm.		35	16	19
Sight control	:			Accomplished.	
Eddy Current test 10 % of the tubes :				Positive.	

CHEMICAL ANALYSIS :

Heat Nr. : 525 287 / Sandvik.

Al:	% Fe: Bal.	% Si:0.390	% Mo: 2.530	% Ti:	%
C :	0.017%	Pb:	% Mn:1.670	% Ni:13.160	% V :
Cr:17.300%	P :0.028	% Sn:	% N : 0.036	% W :	%
Cu:	% Zn:	% S :0.008	%		

REMARKS :

BOX NR. : 218. 219.

Quality control

Engineer in charge



LN INDUSTRIES SA

USINE DE CHAMPAGNE

Rue du Moulin 1 Champagne Case postale 241
CH-1422 GRANDSON 1 - Suisse
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Fax +41(0) 24 436 0607 - TVA N° 143 359



TEST CERTIFICATE : EXP01946 / 10

(EN 10204 / 3.1)

Champagne, le 04.06.2010

NUOVA FIMA S.p.A.	
UFFICIO GQ	
CODICE CERTIFICATO M331	DATA 2006-10

Your order

431 of 29.03.2010

Acknowledgment-No. Item

CV01904 10

NUOVA FIMA S.P.A.

Via Cesare Battisti 59

IT - 28045 INVORIO

Italie

TEST CERTIFICATE

EXP01946 / 10

OF 28743

Item	Ordered Qty.	Supplied Qty.
------	--------------	---------------

10 917090802670500

100 Kg.

103 Kg.

Stainless Steel Aisi 316 L/ 1.4435 seamless

Tube Flat oval

Ref. LNI : T-OP-0267 A.

Your reference : T-AIS 017/050/M 105/19 ST004 Rév.4

Dimensions : 17.000 * 7.000 * 0.500 mm.

REQUIRED

SUPPLIED

		MINI	MAXI	MINI	MAXI
Outside width	mm.	17.00	17.20	17.12	17.16
Outside height	mm.	7.000	7.200	7.090	7.150
Wall	mm.	0.475	0.525	0.480	0.510
Length	mm.	3'000	4'000		3'400
Meterweight	gr/m.	about 160.7			156.2
Piece weight	gr/pce.				
Hardness (500 gr.)	Hv.	170	190	170	183
Tensile strength	N/mm2	620	670	620	625
Elongation	%.	40	55	42	44
Yield strength	N/mm2				
Grain size	µm.		35	23	27
Sight control	:			Accomplished.	
Eddy Current test 10% of the tubes :				Positive.	

CHEMICAL ANALYSIS :

Heat Nr. : 524 461 / Sandvik.

Al: % Fe: Bal. % Si: 0.390% Mo: 2.600% Ti: %
 C : 0.018% Pb: % Mn: 1.610% Ni:13.060% V : %
 Cr:17.270% P : 0.028% S : 0.007% N : 0.042% W : %
 Cu: % Zn: % Co: %

REMARKS :

BOX NR. : 553.

Quality control

Engineer in charge

Usine de Reinosá

ISO 9001 - ISO/TS 16949

CLIENT: UGITECH, SA-GROUPE ARCELOR-D.C.F.	USINE REFERENCE: 1418054
REFERENCE: 4500144627	COMMANDEMENT: 213505-4
ARTICLE: 402707	VERSION: 122089
	N° COULEE: 99185
	LAMINE: 05.11.2009

PRODUIT DEMANDE				
1.4404 (15XA) ROND BARRES TOURNE HYPERTRENPE 150 +0/+0,63 mm ISO k13 5.000/6.000 mm				
COURANTE				
ECOUTEUR	REMISE: 80279039	FARDEAU (KG): 3.734	PAQUET: 2	BARRES: 6

NORME	
ASTM A276 - 2002 ; JIS G4303 - 1998 ; EN 10272 - 10.2000 ; ASME SA-276 - 2007	
AD2000W2 W2 07.2006 ; AD-W10 - 01.11.1987 ; ASTM A479-A479M - 2008	
ASTM A182-A182M - 2007 ; NACE MR0103-2005 - 2005 ; EN 10088-3 - 01.04.1995	
ASME SA182-SA182M - 2001 ; UGITECH SMQ 5048 131 3 10.02.2009	
AISI STAINLESS STEELS - 01.03.1999 ; EN DIRECTIVA 97/23/CE: 97 - 29.05.1997	
ASME SA479-SA479M SECTION II, PART A 2007	
NACE MR0175/ISO 15156-3:2003/COR.1:2005 1° EDITION 15.12.2003	
EN 10204 :2004 OCT. 2004 3.1	

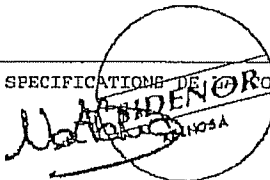
ANALYSE CHIMIQUE DE LA COULEE										U: % N° COULEE: 99185
C	Mn	Si	P	S	Cr	Ni	Mo	V	Co	Cu
Min.	1,200	0,200		0,015	16,500	10,000	2,000			
Max.	0,030	2,000	0,700	0,040	0,030	17,500	11,000	2,500		0,700
car.	0,019	1,580	0,457	0,031	0,026	16,680	10,080	2,020	0,050	0,2280
	Al	Ti	B	Ca	Nb	N				
Min.										
Max.					0,0900					
car.	0,004	0,0030	0,0002	0,0030	0,0500	0,0760				
DFW=138-99, 7*R (Ferritadelta) <= 5,00000: 2,71585 14,0000 <= Ni+2Mo <= 20,0000: 14,1200										
23,0000 <= FPREN=Cr+3,3 (Mo+0,5N)+16N <= 28,0000: 24,6940										

PROPRIETES MECHANIQUES DE LIVRAISON	
Emplacement de l'éprouvette: à 1/4 du diamètre ou coté de la surface	
Temperature du: (1): Hypertrempe 1.050 °C	
PROPRIETES MECHANIQUES DE LIVRAISON	
Sens de l'éprouvette de Traction (longitudinal): longitudinal ; Rm (517/690 N/mm2): 605 N/mm2	
Re (1) (Rp(0,2%) >= 207 N/mm2): Rp(0,2%) 260 N/mm2 ; Re (2) ((1%) >= 235 N/mm2): ((1%)) 293 N/mm2	
A ((5d) >= 40 %): (5d) 57,8 % ; Z (>= 50 %): 76,1 %	
Sens de l'éprouvette de Resilience (longitudinal): longitudinal	
Classe de l'éprouvette de Resilience (KCV): KCV ; Temperature de l'essai de Resilience (20 °C): 20 °C	
K (1): 277 J ; K (2): 273 J ; K (3): 270 J ; K (moyenne) (>= 100 J): 273,32999 J	
Dureté (1) (<= 200 HB): 177 HB ; Dureté (2) (<= 22 HRC): 8 HRC	

AUTRES ESSAIS	
Structure: 2,72 % ; Norma (1) (ASTM A262-01-2001) ; Norma (2) (ISO 3651-2-1998.)	
Classe / Méthode (Practice E) ; Corrosion Intergranulaire: ok	

ESSAIS NON DESTRUCTIFS	
Standard de défauts internes (NF EN 10308-MARZO 2002)	
Classe/méthode défauts internes (Tabla 3, Tipo 1a, Clase 3)	
ULTRASONIC INSPECTION 100%: OK - NF EN 10308-MARZO 2002 (T3, T1a, Clase 3)	
DIMENSIONAL & CRACKS CONTROL 100%: OK ; ANTIMIXING TEST SPECTROSCOPY 100%: OK	

INFORMATION SUPPLEMENTAIRE	
SOLUTION ANNEALED, (Hiperquenching) at 1050 °C-IN WATER - MELTING PROCESS: EAF+ VOD + LF ; AD-2000-W2	

TECHNOLOGIE ET QUALITE CERTIFIEE QUE LE PRODUIT EST D'ACCORD AVEC LES SPECIFICATIONS DE LA COMMANDE	
APPROUVE: NATALIA MANTILLA DIAZ	SIGNE: 
DATE: 17.11.2009	Page 1 de 1
REF.: 6001195760000	

U-25 mbar

Lamineries
MATTHEY SA
www.matthey.ch

Rte de Neuchâtel 6
Case postale
CH-2520 La Neuveville

Tel: +41 32 751 35 35
Fax: +41 32 751 35 90
Email: matthey@matthey.ch



BRUSHWELLMAN
ENGINEERED MATERIALS

Métaux laminés à froid
Kaltgewalzte Metalle
Cold rolled metals

Cuivre au beryllium
Berylliumkupfer
Beryllium copper

CERTIFICAT DE RECEPTION SELON EN 10204-3.1.B
ABNAHMEPRUEFZEUGNIS NACH EN 10204-3.1.B

16819

BECK GmbH

LEINENWEBERST. 48
D - 70567 STUTTGART

NO/NR**10022400** 13.03.2001

BULLETIN DE LIV./LIEFERSCHEIN
NO/NR : 8001-00891
DU/VOM : 13.03.2001/dm
MASSE : 6.8 KG

VOTRE CDE.NO/IHRE BEST.NR : 00230
VOTRE ART.NO/IHRE ART.NR : 62147

26.10.00

MATIERE/WERKSTOFF :
AC INOX 1.4571 150 X 0.08

LOT NO/LOS NR : 409
COMPOSITION CHIMIQUE/CHEMISCHE ZUSAMMENSETZUNG :
Ni 11.2 Mn 1.7 C.04 Cr 16.5 P.019 S.001 Si.39 Mo 2.1 Ti.38 %.


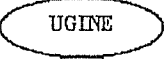


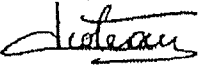
GRANDEUR GROESSE	UNITE EINHEIT	MOYENNE MITTELWERT	ECART TYPE STAND.ABW.	NB DONNEES DATENZAHL
DURETE	HV .3	230.0	0.0	1
RESISTANCE	N/MM2	810.4	0.0	1
LARGEUR	MM	147.01	0.00	1
EPAISSEUR	MM	.082	0	1

NOUS CERTIFIONS QUE LA LIVRAISON EST CONFORME AUX STIPULATIONS
DE LA CONFIRMATION DE COMMANDE.

ES WIRD BESTAETIGT, DASS DIE LIEFERUNG DEN VEREINBARUNGEN DER
AUFTRAGBESTAETIGUNG ENTSPRICHT.

LAMINERIES MATTHEY SA
LE CONTROLEUR



N. Nr N° 80757357000020		N° de commande usine - Werksbestellnummer - Works order number 1PT95000		0931PT9500		11
<p align="center">CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1 CERTIFICAT DE RECEPTION 3.1 INSPECTION CERTIFICATE 3.1</p> <p align="center">EN 10204 / 3.1</p> <p align="right">Page 1/ 2</p>						
Site d'UGINE	Certification - Werkzeugs - Certificate AD 2000-MERKBLATT W0/TRD100 Pressure Equipment Directive 97/23/EC ISO 9001 : 2000 ISO/TS 16949 : 2002 ISO 14001 : 2004		par - von - by  Industrie Service		Marque d'usine - Herstellerzeichen - Supplier's Mark 	
			 ISO/TS 16949 VERSION 2002		Poinçon de l'expert - Prüfstempel - Inspector's stamp 	
Produkt - Erzeugnisform - Product <p align="center">UGIMA 4404HM BARRA LAMINATO DECALAMINATO SOLUBILIZZATO K13 TONDO 100,000MM LONG. 5,400M +300,000MM -300,000MM (IT)</p> <p align="center">UGIMA 4404HM BARRE LAMINÉ(E) DÉCALAMINÉ(E) HYPERTREMPÉ(E) K13 ROND(E) 100,000MM LONG. 5,400M +300,000MM -300,000MM (FR)</p> <p align="center">UGIMA 4404HM BAR ROLLED DESCALED SOLUTION ANNEALED K13 ROUND 100,000MM LONG. 5,400M +300,000MM -300,000MM (EN)</p> <p align="center">UGIMA 4404HM STAB GEWALZT ENTZUNDERT/ÜBERDREHT ABGESCHRECKT K13 RUND 100,000MM LONG. 5,400M +300,000MM -300,000MM (DE)</p>						
Client et/ou destinataire - Besteller und/oder Empfänger - Purchaser and/or Consigner 0000017612 BOTTELLI RINALDO & C S.R.L.				N° de commande client - Kundenbestellnummer - Purchaser order number N° 2009-073		
Marque commerciale - Handelsmarke - Trade name UGIMA 4404HM						
Norme de référence - Bezugsnorm - Standard for reference AD 2000 W2 ED 02.2009 1.4404/4401 ; EN 10088-3 ED 2005 1.4404/4401 ; EN 10272 ED08 1.4404/4401 ; NACE MR0175/ISO 15156-3:2005 316/316L ; ASTM A182-08a F316L/316 ; ASTM A479-06a 79S16/3 ; AD 2000 W10 ED04 1.4404/4401 ; PED 97/23 EC ; AISI 316L/316 ; ASTM A276-08a oct 2008 TYPE 316L/316 ; AMS 5648K S31600 ; AMS 5653F S						
Spécifications client - Kundenspezifikation - Customer's specification						
(1) Etat de livraison - Lieferzustand - As delivered HYPERTREMPE				(1) Traitement de référence - Probestreifenbehandlung - Treatment on test sample		
Identification du produit Erzeugnis Benennung Product Identification		Numéro de lot Losnummer Lot number 15	N° poste Post Nr Item Nr 17	N° de coulée - Schmelzen Nr - Heat No 937041		
1PT95		000		16		
Nombre Stueckzahl Pieces Nbr 18		Profil Profile Shape 19		Dimension Ausmessung Dimension 21		Longueur Laenge Length 21
24		RO		100,000 mm		5,400 m
8228 kg						
(3) L = Long Laengs - Long T = Travers Quer - Transverse 58		(1) TE = Trempe à l'eau-Wasserhaerten-Waterquench TH = Trempe à l'huile-Ölhaften-Oil Quench A = Hypertrempe-Loesungsgeglueht-Solution annealed RO = Rond-Rund-Round QR = Carré-Viereckig-Square		R = Revenu-Anlassen-Tempered RT = Recuit-Geglueht-Annealed TRM = Recuit maxi-Weichgeglueht-Maxi annealed HX = Hexagonal-Sechskant-Hexagonal		Ugine, le 03.11.2009 L'agent Réceptionnaire de l'usine Der Werkssachverständige The work inspector  C. BIOTEAU
(4) A l'état de référence Zum Bezug Zustand At reference condition 59A		(5) A l'état de livraison In Lieferzustand In state of delivery 59B		Contrôles de marquage, d'aspect et de dimensions : satisfaisants Bezeichnung, Besichtigung und Ausmessung : ohne Beanstandung Marking, inspection and measurement : without objection 62		Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestimmungsvorschriften entsprechen We certify hereby that the above mentioned products are consistent with the order prescriptions 66
63						



N. Nr N°	N° de commande usine - Werkbestellnummer - Works order number	
80757357000020	4 1PT95000	0931PT9500 11

CERTIFICATO COLLAUDO DI ACCETTAZIONE 3.1
CERTIFICAT DE RECEPTION 3.1
INSPECTION CERTIFICATE 3.1

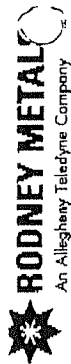
EN 10204 / 3.1

Page 2/ 2

Numéro de prélèvement Probenummer Test Number	Demandé-Vorschrift-Required Sens Richtung Direction (3)	Traction-Zugversuch-Tensile test							Résilience-Kerbschlagzähigkeit-Notch Toughness						
		Température d'essai Probetemperatur Test Temperature	Limite d'élasticité Streckgrenze Yield Strength		Résistance à la traction Zugfestigkeit Tensile	Allongement Bruchdehnung Elongation	Striction Einschnürung Red of Area	Dureté Haerte Hardness	Dureté Haerte Hardness	Type Form Type	Sens Richtung Direction (3)	Température d'essai Probetemperatur Test Temperature	Valeurs Individuelles Einzelwerte Individual Values	Moyenne Mittelwerte Average	Dureté Haerte Hardness (5)
			0,2%	1%											
			MPa	MPa											
398	24	25 °C	26A MPa	26B MPa	27 MPa	28 %	29 %	30 HB	37 HRC	31	32	33 °C	35 J	36 J	30B KBLiv
	L	20	205	235	515 700	40	50	215	22	ISOV	L	20	100		
	Min														
	Max														
	(5)		239 249	288 300	561 583	60 59	78 76	172				200-204-196 192-188-186			
	(4)														
39A	40		42 % C	43 % Si	44 % Mn	45 % Ni	46 % Cr	47 % Mo	48 % N	49 % S	50 % P				
Numéro de prélèvement Probenummer Test Number		Min Max	0,0300	1,0000	2,0000	10,0000 13,0000	16,5000 18,0000	2,0000 2,5000	0,1000	0,0300	0,0450				
Numéro de coulée Schmelz Nr Heat N. 937041			0,0160	0,3800	1,3500	10,0500	16,5900	2,0200	0,0410	0,0280	0,0280				
38		51	52	53	54	55	70	71	72	73	74				
Mode d'élaboration Erstellungszugart Melting process EAF + AOD	Demandé Vorschrift Required	Min Max													

ZUSTIMMUNGSSCHREIBEN DER TÜV SÜD LIEGT VOR
AUF GEGENZEICHNUNG WIRD VERZICHTET
INTERKRISTALLINE KORROSION BESTÄNDIG NACH ISO 3651-2 / IDENTITÄT GEPRÜFT
INNERE FEHLERFREIHEIT DURCH PROZESS-KONTROLLE GARANTIER
INTERCRYSTAL. CORROSION RESISTANT ACC.TO EN ISO 3651-2 / ANTIMIXING TESTED
INTERCRYSTALLINE CORROSION RESISTANT ACCORDING TO ASTM A262 PRACTICE E

(3) L = Long Laengs - Long T = Travers Quer - Transverse 58	(1) TE = Trempé à l'eau-Wasserhaerten-Waterquench TH = Trempé à l'huile-Ölhaerten-Oil Quench A = Hypertrempé-Loesungsgeglueht-Solution annealed RO = Rond-Rund-Round QR = Carré-Viereckig-Square	R = Revenu-Anlassen-Tempered RT = Recuit-Geglueht-Annealed TRM = Recuit maxi-Weichgeglueht-Maxi annealed HX = Hexagonal-Sechskant-Hexagonal	Ugine, le 03.11.2009 L'agent Réceptionnaire de l'usine Der Werkssachverständige The work Inspector C. BIOTEAU
(4) A l'état de référence Zum Bezug Zustand At reference condition 59A	(5) A l'état de livraison In Lieferzustand In state of delivery 59B	Contrôles de marquage, d'aspect et de dimensions : satisfaisants Bezeichnung, Beschichtung und Ausmessung : ohne Beanstandung Marking, inspection and measurement : without objection 62 Nous certifions que les produits énumérés ci-dessus sont conformes aux prescriptions de la commande Wir bestätigen hiermit dass die obengenannten Erzeugnisse den Bestimmungsvorschriften entsprechen We certify hereby that the above mentioned products are consistent with the order prescriptions 63	7



RODNEY METAL
An Allegheny Teledyne Company

1357 EAST RODNEY FRENCH BLVD. NEW BEDFORD, MASS. 02744-2124
P.O. BOX 6915 NEW BEDFORD, MASS. 02742-0915
TEL 508-996-5691 FAX # 508-993-3176

TEST CERTIFICATE NO.

DESCRIPTION: 316L ANNEALED

54547

00000-0000

00000-0000

ESPACINOX
FRANCE

ESPACINOX
FRANCE

SGTRACOM
LES CHAMPS MUGNIERS
74800 ETEAUX
FRANCE

LINE	PROD. NO. COE PRODUIT PROD. NO.	WIDTH LARGUEUR BARRIE	TOLERANCE TOLERANCE	TOURANCE TOURANCE	CUSTOMER PART NUMBER NUMERO DE PIECE CLIENT KUNDENTELER.	ORDERED QUANTITY QUANTITE COMMANDE BESTELLUNG	SHIPPED QUANTITY QUANTITE LIVREE VERSANDMENGE	NO. OF PIECES NOMBRE DE PIECES STÜCKZAHL DER COILS
1	017525	4.921	+0.005	-0.005	mm 0.06 x 125	400.0	KG	
2	017526	4.290	+0.005	-0.005	mm 0.06 x 109	100.0	KG	

COIL NUMBER NUMERO DE COILLOUNE COIL-NO.	HEAT NUMBER NUMERO DE COULEE CHARGEN-NO.	SUPER POURSEUR BEREICH	METHOD OF WELD TYPE DE COULEE SCHWEIßART	LOT NUMBER NUMERO DE LOT LOS-NO.	CUSTOMER SPECIFICATIONS SPECIFICATION CLIENT KUNDENSPEZIFIKATION			
2055788A	875763	AS	ADD					

CHEMISTRY ANALYSIS

Inspection and dimensional records above verified by:

ANALYSIS	C	MN	P	S	SI	CR	NI	N2	CU	MO
	.019	1.80	.032	.0004	.57	17.25	12.71	.031	.44	2.65

***** M E C H A N I C A L P R O P E R T I E S *****

CONDITION -- HARDNESS -- D - MPA 642.0 --in 2" BEND--GRAIN SIZE--EMB--I.G.A.--- RA MICRO INCH
ANNEALED U.T.S. .2775 MPA 291.0 46.5

Massima rugosità superficiale Ra 0,35 µm
Maximum surface roughness

NUOVA FIMA S.p.A.
QA Service
G.Adami 17.09.2001

SUPPLIER'S COIL NO: 05017NB66
CHEMICAL ANALYSIS IS TAKEN FROM THE RAW MATERIAL SUPPLIER'S TEST CERTIFICATE.

NUOVA FIMA S.p.A.	
UFFICIO GG	DATA
CODICE CERTIFICATO	ASL 060
10.05.98	

NUOVA FIMA S.p.A.	
UFFICIO GG	DATA
CODICE CERTIFICATO	ASL 061
10.05.98	

The test information above shall not be reproduced, except in full, without written approval of T.R.M.

Edw. Ursillo
DATE 05/05/98

Edward L. Ursillo
DIR. QUALITY ASSURANCE
Les résultats d'essai sur le matériel décrit ci-dessus sont valides et sincères. Ils sont conformes aux spécifications applicables et sont enregistrés.

ISO 9002 TUV CERT Registration No. 12 100 5942
EN 10 204 1991 3.1.B Certificate

Die obenstehenden Daten sind nach besten Wissen und Gewissen korrekt ermittelt und basieren auf Testergebnissen von Werkstoffproben. Die Ergebnisse entsprechen

Acciaierie Valbruna S.p.A.



36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-NO

Produttore: ACCIAIERIE VALBRUNA S.P.A.
Hersteller/Item/Usine producer

Oggetto Prove: - Solubilizzato Pelato
Prüfgegenstand/Item Inspected/Finissage

Avviso di Spedizione: A-TO10002821
Lieferanzeige/Packing list/V.L.

Ordine nr: ORD. N. 420
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode of elaboration

CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

Certificato nr: MEST923631/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO10003603
Werks/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigla de l'usine productrice

Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Pointeur de l'essayeur



Specifiche:
Anforderungen / Requirements / Exigences

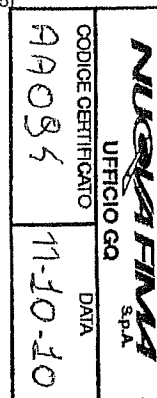
VAL STOCK 2010 1.4404/316L A
ASME SA182 2007 S31600 A (0)
ASME SA276 2007 S31600 A (3)
ASME SA479 2007 S31600 A (6)
ASTM A182 2010 S31603 (9)
ASTM A276 2010 S31600 A
ASTM A320 2008 B8M CLASS1
DIN 17440 96 1.4401 A
EN 10088-3 2005 1.4404 A
EN 10272 2007 1.4401 A
NACE MR0103 2007 S31603 A

AISI 316
ASME SA182 2007 S31603 A (1)
ASME SA276 2007 S31603 A (2)
ASME SA479 2007 S31603 A (7)
ASTM A193 2009 B8M CLASS1
ASTM A276 2010 S31603 A
ASTM A479 2010A S31600 A
DIN 17440 96 1.4404 A
EN 10269 99 1.4401
EN 10272 2007 1.4404 A
NACE MR0175* 2003 S31600 (A)

AISI 316L
ASME SA193 2007 B8M CLASS1 (2)
ASME SA320 2007 B8M CLASS1 (5)
ASTM A182 2010 S31600 A (8)
ASTM A262 2010 PRACTICE E
ASTM A314 2008 S31600
ASTM A479 2010A S31603 A
EN 10088-3 2005 1.4401 A
EN 10269 99 1.4404
NACE MR0103 2007 S31600 A
NACE MR0175* 2003 S31603 (B)

- (0) SEC.II PT.A 2007 EDITION ADD. 2009b
(1) SEC.II PT.A 2007 EDITION ADD. 2009b
(2) SEC.II PT.A 2007 EDITION ADD. 2009b
(4) SEC.II PT.A 2007 EDITION ADD. 2009b
(6) SEC.II PT.A 2007 EDITION ADD. 2009b
(8) For products machined directly from bar refer to ASTM A479.
(A) * ISO 15156-3

- (0) For products machined directly from bar refer to ASME SA479.
(1) For products machined directly from bar refer to ASME SA479.
(3) SEC.II PT.A 2007 EDITION ADD. 2009b
(5) SEC.II PT.A 2007 EDITION ADD. 2009b
(7) SEC.II PT.A 2007 EDITION ADD. 2009b
(9) For products machined directly from bar refer to ASTM A479.
(B) * ISO 15156-3



Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML MAXIVAL
Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung/Marking/Marque

Pos. nr. Pos. nr. Nr. de poste	Oggetto Gegenstand Product description Descr. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Tolleranza Tolleranz. Allowance Tolerance	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0010	Tondo	50,000	k12	4015 / 5680	423740		355,0	926403081

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüfung auf lieferbereitem produkt Test à l'état de fourniture Prueba sobre el material así como entregado

TEST	Provetta/Probtestab Specimen/Proovetena Larg diam Spec. Bieche Diam. Dicke Wirth Diam. Thickness Larg. diam. épais mm	°C	Posiz. Saggio Probenlage Position Empfohlene Lage	Snervamento Streckgrenze Yield Stress Limite élastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Limite élastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 % E 4d %	Strizione Einschnürung Reduction of area Striction Z % RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J	Durezza Härte Hardness Dureté HB
Valori richiesti 1 Anforderungen/Required values Valeurs demandées	min max			205	240	515 690	40 40	- 50	100	- 215
A	10	20	L	333	362	629	53 56	65 65	238 241 243	182

TEST	min	max
A	Dimensioni grano x ASTM E112	6

1) L=longitudinale/längs, T=transversale/quer, Q=Tangenziale/tangentiel

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max 0,030	- 1,00	- 2,00	16,50 18,00	2,00 2,50	10,00 13,00	- 0,045	- 0,030	- 0,100	- -	- -	- -	- -	- -
	C %	Si %	Mn %	Cr %	Mo %	Ni %	P %	S %	N %					
423740	0,013	0,56	1,53	16,86	2,00	10,40	0,028	0,030	0,057					

Intergranular corrosion test per ASTM A262 pract. E: ok.

I. Korrosion nach EN ISO 3651-2A Sensibilisierung : T1 : OK

Vicenza, 04/10/10 VCC012 (Mod. MCER)	Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine M. Rizzotto	Pagina - 1 di 2
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Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-NO

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Item/Usine produtrice

Oggetto Prove: - Solubilizzato Pelato
Prüfgegenstand/Item Inspected/Finissage

Avviso di Spedizione: A-TO10002821
Lieferanzettel/Packing list/B.L.

Ordine nr: ORD. N. 420
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Certificato nr: MEST923631/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO10003603
Works/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine produtrice



Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Pointon de l'essayeur



Corrosion test per EN ISO 3651-2A sensitized T1 : OK

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind i. A. erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spezialanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimeslange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks: satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s., 4.3 by TUEV and LLOYD'S

Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.

Maximal and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.

The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

Vicenza, 04/10/10

VCD012
(Mod. MCER)

Il collaudatore di stabilimento / der Werkssachverständiger / Works inspector / L'agent d'usine

M. Rizzotto

Pagina - 2 di 2

Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Käufer/Klient
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-IT

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Hersteller/Usine productrice

Avviso di Spedizione: A-
Lieferanzzeit/Packung Istb.L.

Ordine nr: ORD. N. 1611
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Smelting process/Mode d'elaboration

Certificato nr: MEST944907/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO09003392
Werks/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice



Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Pointon de l'essayeur

Oggetto Prove: - Solubilizzato Pelato
Prüfgegenstand/Item Inspected/Finissage

Specifiche:
Anforderungen / Requirements / Exigences

VAL STOCK 2005 1.4404/316L A
AMS 5648 K S31600 A
ASME SA182 2007 S31603 A (1)
ASME SA276 2007 S31603 A (4)
ASME SA479 2007 S31603 A (7)
ASTM A193 2009 B8M CLASS1
ASTM A276 2008A S31603 A
ASTM A479 2009 S31600 A
DIN 17440 96 1.4404 A
EN 10269 99 1.4401
EN 10272 2007 1.4404 A
NACE MR0175* 2003 S31600 (A)
QQ-S-763 F 316L A

AISI 316
AMS 5653 F S31603 A
ASME SA193 2007 B8M CLASS1 (2)
ASME SA320 2007 B8M CLASS1 (5)
ASTM A182 2009A S31600 A (8)
ASTM A262 2002A PRACTICE E
ASTM A314 2008 S31600
ASTM A479 2009 S31603 A
EN 10088-3 2005 1.4401 A
EN 10269 99 1.4404
NACE MR0103 2007 S31600 A
NACE MR0175* 2003 S31603 (B)

AISI 316L
ASME SA182 2007 S31600 A (0)
ASME SA276 2007 S31600 A (3)
ASME SA479 2007 S31600 A (6)
ASTM A182 2009A S31603 (9)
ASTM A276 2008A S31600 A
ASTM A320 2008 B8M CLASS1
DIN 17440 96 1.4401 A
EN 10088-3 2005 1.4404 A
EN 10272 2007 1.4401 A
NACE MR0103 2007 S31603 A
QQ-S-763 F 316 A

(0) SEC.II PT.A 2007 EDITION ADD. 2009b
(1) SEC.II PT.A 2007 EDITION ADD. 2009b
(2) SEC.II PT.A 2007 EDITION ADD. 2009b
(4) SEC.II PT.A 2007 EDITION ADD. 2009b
(5) SEC.II PT.A 2007 EDITION ADD. 2009b
(6) SEC.II PT.A 2007 EDITION ADD. 2009b
(7) SEC.II PT.A 2007 EDITION ADD. 2009b
(8) Chemical analysis only and mechanical properties.
(A) * ISO 15156-3

(0) Chemical analysis only and mechanical properties.
(1) Chemical analysis only and mechanical properties.
(3) SEC.II PT.A 2007 EDITION ADD. 2009b
(5) SEC.II PT.A 2007 EDITION ADD. 2009b
(7) SEC.II PT.A 2007 EDITION ADD. 2009b
(8) Chemical analysis only and mechanical properties.
(B) * ISO 15156-3

Qualità: 1.4401/1.4404/316/316L
Werkstoff/Grade/Nuance

Marca: MVAPML MAXIVAL
Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4401/4/316/L
Kennzeichnung/Marking/Marquage

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Tolleranza Toleranz Allowance Tolerance	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0010	Tondo	80,000	k12	5900 / 6030	251231	1	237,0	106800860

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüfung auf Lieferbetriebsprodukt test a l'état de fourniture Prueba sobre el material así como entregado

TEST	Provetta/Probe Speicherproben Long diam. Spec. Billet Diam. Dike Width Diam. Thickness Long. diam. spds mm	°C	Poste. Saggio Probenummer Lazarka Eryczowanie 1)	Snervamento Bieckgrenze Yield Stress Limite elastique Rp 0,2% N/mm2	Snervamento Bieckgrenze Yield Stress Limite elastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation A5 % E 4d %	Strizione Einschnürung Reduction of area Striction Z RA %	Resilienza Kerbschlagarbeit Impact Value Resilience KV J	Durezza Härte Hardness Durete HB
Valori richiesti 1 Anforderungen/Required values Valeurs d'arrondées		min max		207	240	517 690	40 40	- 50	100	140 215
A	10	20	L	312	367	611	53 56	67 67	241 233 246	180
B	10	20	L	318	370	620	52 54	65 65	238 241 242	182

TEST	min	max
B	Dimensioni grano x ASTM E112	6

1) L=longitudinale/längs, T=trasversale/quer, Q=Tangenziale/tangentiel

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max 0,030	1,00	1,25 2,00	16,50 18,00	2,00 2,50	1,00	10,00 13,00	-	-	0,040	-	0,030	0,100	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %						
251231	0,015	0,48	1,50	16,99	2,02	0,47	10,09	0,110	0,029	0,030	0,058						

Vicenza, 22/11/10 VCD012 (Mod. MCER)	Il collaudatore di stabilimento / der Werkssachverständige / Works inspector / L'agent d'usine M. Rizzotto	Pagina - 1 di 2
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Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Cliant
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-IT

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Item/Usine productrice

Oggetto Prove: - Solubilizzato Pelato
Prüfgegenstand/Item Inspected/Finissage

Avviso di Spedizione: A-
Lieferanzelge/Packing list/B.L.

Ordine nr: ORD. N. 1611
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d' élaboration

Certificato nr: MEST944907/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO09003392
Werks/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Werks/Mark
Trade mark
Sigle de l' usine productrice



Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Pointon de l' essayeur



Intergranular corrosion test per ASTM A262 pract. E: ok.
I.Korrosion nach EN ISO 3651-2A Sensibilisierung : T1 : OK
Corrosion test per EN ISO 3651-2A sensitized T1 : OK

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo animescolanza: OK
Verwechslungsprüfung: spezialanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle anlimelange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks: satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s. 4.3 by TUEV and LLOYD'S

Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.

Maximal and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.

The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

Vicenza, 22/11/10

VCO012
(Mod. MCER)

Il collaudatore di stabilimento / der Werkssachverständiger / Works inspector / L' agent d' usine

M. Rizzotto

Pagina - 2 di 2

Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVERIGO-NO

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Item/Usine productrice

Avviso di Spedizione: A-TO10003184
Lieferanzelge/Packing list/B.L.

Ordine nr: ORD. N. 1504
Bestell/Your order/Commande

Certificato nr: MEST938586/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO10004082
Werks/Our Order/Fol nr.

Marchio di Fabbrica:
Zeichen des Werks
Trade mark
Sigle de l'usine productrice



Oggetto Prove: Sgrassato Solubilizzato FINITO A FREDDO
Prüfgegenstand/Item Inspected/Finissage

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Mode d'elaboration

Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Poinçon de l'essayeur

Specifiche:

Anforderungen / Requirements / Exigences

VAL STOCK 2005 1.4401/316 A,CF
ASME SA182 2004 S31600 A (0)
ASTM A182 2007 S31600 A (3)
ASTM A479 2006A S31600 A
NACE MR0175* 2003 S31600 (4)

ASTM 316
ASME SA276 2004 S31600 A,CF (1)
ASTM A262 2002A PRACTICE E
EN 10088-3 2005 1.4401 A,CF
QQ-S-763 F 316 A,CF

AMS 5648 K S31600 A
ASME SA479 2004 S31600 A (2)
ASTM A276 2006 S31600 A,CF
EN 10272 2000 1.4401 A,CF

(0) SEC.II PT.A 2004 EDITION ADD.2006
(1) SEC.II PT.A 2004 EDITION ADD.2006
(3) Chemical analysis only and mechanical properties.

(0) Chemical analysis only and mechanical properties.
(2) SEC.II PT.A 2004 EDITION ADD.2006
(4) * ISO 15156-3

Qualità: 1.4401/316
Werkstoff/Grade/Nuance

Marca: APM

Markenbezeichnung/Brand/Nuance

Punzonatura: 1.4401/316

Kennzeichnung/Marking/Marquage

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descr. du produit	Dimensioni - mm Abmessungen Dimension Dimension	Tolleranza Toleranz. Allowance Tolerance	Lunghezza - mm Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pieces	Peso - KG Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0030	Esagono	22,000	484-09	3660 / 3660	237751		327,0	719101140

TEST ALLO STATO DI FORNITURA

Test on delivery condition Prüfung auf lieferbarem produkt test a l'etat de fourniture Prueba sobre el material así como entregado

TEST	Provetta/Probestab Specimen/Eprouvette Leng. diam. Spess. Brille Diam. Dicke Width Diam. Thickness Leng. diam. épais mm	°C	Posiz. Sagittio Probenlage Lage Empfängnis I)	Snervamento Streckgrenze Yield Stress Unité élastique Rp 0,2% N/mm2	Snervamento Streckgrenze Yield Stress Unité élastique Rp 1% N/mm2	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm N/mm2	Allungamento Bruchdehnung Elongation Allongement A5 % E 4d %	Strizione Etichnührung Reduction of area Striction Z % RA %	Resilienza Kerbschlagigkeit Impact Value Resilience KV J	Durezza Härte Hardness Dureté HB
Valori richiesti 1 Anforderungen/Required values Valeurs demandées	min max			207	235	517 900	20 30	- 50	100	140 235
A	10	20	L	460	532	680	45 48	68 68	180 181 186	232

TEST	min	max
Dimensioni grano x ASTM E112		5

1)L=longitudinale/längs, T=transversale/quer, Q=Tangentiale/tangentiel

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max 0,070	- 1,00	1,25 2,00	16,50 18,00	2,00 2,50	- 1,00	10,00 13,00	- 0,040	- 0,030	- 0,100	- -	- -	- -	- -	- -
237751	C % 0,040	Si % 0,52	Mn % 1,29	Cr % 17,32	Mo % 2,14	Cu % 0,50	Ni % 10,15	P % 0,029	S % 0,023	N % 0,069					

Intergranular corrosion test per ASTM A262 pract. E: ok.

I. Korrosion nach EN ISO 3651-2A Sensibilisierung: T1 : OK

Corrosion test per EN ISO 3651-2A sensitization T1 : OK

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind lt. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été trouvé conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spektralanalytisch durchgeführt
Antimixing testing performed: OK
Contrôle antimélange fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
Besichtigung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional checks: satisfactory
Contrôle visuel et dimensions: satisfaisant

Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

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Vicenza, 08/11/10 VCC012 (Mod. MCER)	Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine M. Rizzotto	Pagina - 1 di 2
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Acciaierie Valbruna S.p.A.



CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Besteller/Purchaser/Client
NUOVA FIMA SPA
VIA C. BATTISTI, 59/61
28045-INVORIO-NO

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Item/Usine productrice

Oggetto Prove: Sgrassato Solubilizzato FINITO A FREDDO
Prüfgegenstand/Item inspected/Finissage

Avviso di Spedizione: A-TO10003184
Lieferranzelge/Packing list/B.L.

Ordine nr: ORD. N. 1504
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Erschmelzungsart/Melting process/Made of elaboration

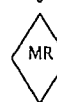
Certificato nr: MEST938586/2010/
Prüfung/Test/Essai

Conferma ordine nr: TO10004082
Werks/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice



Punzone del Collaudatore:
Stempel des Werksachverständigen
Inspector's stamp/Pointon de l'essayeur



The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

Vicenza, 08/11/10

VCQ012
(Mod. MCER)

Il collaudatore di stabilimento / der Werkssachverständiger / Works inspector / L' agent d' usine

M. Rizzotto

Pagina - 2 di 2



CERTIFICATE

No. A/08-772678 Rev 00
Date 2008-04-11 Page 1/2INSPECTION CERTIFICATE acc to
EN 10 204 3.1NUOVA FIMA, S.A.
CAN SALVA, S/N
GIRONAINSPECTION STAMP
QA-TUBE

Customer References		Sandvik References	
2008/5136	Customer order	Order No. 184631	Subs No. 38401
	2008-03-11	ABSMT No. 300-66223	ABSMT Dispatch note 33580/54
320-00991	NUOVA FI*T	C.Code 29	

Material description	Steel/material Designations
SEAMLESS STAINLESS COLD FINISHED HYDRAULIC TUBING	Sandvik AISI 3R60 TP316L
Steel making process Electric furnace	

Technical requirements
ASTM A-213-06AE1 AW, ASTM A-269-04 Tol. D4/T3

EXTENT OF DELIVERY						
It	Product designation	Heat	Lot	Pieces	Kg	M
01	THT-3R60-8-1	047030	96300	32	35.0	192.00
	8.00 X 1.00	047068	96617	39	42.0	234.00
		047068	96687	21	22.0	126.00
				Total	92	552.00

KEY TO HEAT

Heat Code	Heat No.
047030	515373
047068	515788

KEY TO LOT

Lot Code	Lot No.
96300	335089
96617	337024
96687	336573

TEST RESULTS

Chemical composition (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047030	0.020	0.37	1.48	0.034	0.009	17.34	13.15	2.64
047068	0.019	0.41	1.66	0.038	0.009	17.23	13.13	2.58
N								
047030	0.036							
047068	0.037							

Quality assurance - Per Eriksson/ QA-manager Tube & Pipe
MTC Service / CertificatesAB SANDVIK MATERIALS TECHNOLOGY Reg No. 556234-6832 VAT No. SE663000-060901
SE-81181 SANDVIKEN SWEDEN www.smt.sandvik.com mtc_service.smt@sandvik.com



CERTIFICATE

No. A/08-772678 Rev 00
Date 2008-04-11 Page 2/2

Chemical composition, product (weight%)

Heat	C	Si	Mn	P	S	Cr	Ni	Mo
047030	0.019	0.37	1.51	0.034	0.009	17.27	13.12	2.63
047068	0.019	0.42	1.67	0.035	0.009	17.30	13.16	2.59
N								
047030	0.033							
047068	0.034							

Tensile test at room temperature

Lot	Yield strength	Tensile strength	Elongation
	MPa	MPa	%
96300	Rp0.2	Rm	2"
	290	603	52
	276	605	50
96617	318	621	52
	337	626	52
96687	306	591	56
	326	628	54

Hardness test

Lot	Min	Max
	HRB	HRB
96300	75.0	76.0
96617	77.0	78.0
96687	75.0	76.0

Following controls/tests have been satisfactorily performed:

- Flattening test
- Flaring test
- PMI-test.
- Leak test: Eddy current test acc to ASTM A-1016.
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

The number of tests are based on the size of the manufacturing lot before cutting to finished lengths.

The delivered products comply with the specifications and requirements of the order.

The material is manufactured according to a Quality system, approved and registered to ISO 9001.

The certificate is produced with EDP and valid without signature.

TEST RESULTS TRANSFERRED FROM CERTIFICATE NO 00034047
00034775
00034454



OLIMPIA INOX s.r.l.

Sede legale 27029 Vigevano (Pv) via Galilei 15

Sede operativa 29015 C.S. Giovanni (Pc) zona industriale Ca Tre Di

Via Salvo d'Acquisto 2 Tel. 0523-884238 Fax 0523-884216

Part. IVA 01776140186 R.I. 26651/1998 (Pv)

R.E.A. 230275/Pv

DATA
DATE

30/06/04

CLIENTE CUSTOMER	INOX TEAM	COMMESSA OLIMPIA INOX N° MILL ORDER N°	ORDINE CLIENTE N° CUSTOMER'S ORDER N°
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3886/03

Bolla di consegna N°	504	Avviso di spedizione N°	
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TUBI ELETTROUNITI LONGITUDINALMENTE - LONGWELDED TUBES

CERTIFICATO DI COLLAUDO N° TEST CERTIFICATE	504/04	IN ACCORDO CON: EN 10204 - 3.1B
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QUALITA' QUALITY	ASTM A312	TOLLERANZE TOLERANCES
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NORMA STANDARD	DN 17457	TRATTAMENTO TERMICO HEAT TREATMENT
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Pos. Item N°	Colata Heat N°	Dimensioni Dimensions mm.	Quant. Quant. Mt.	Peso Weig. Kg.	Pezzi Pies. N°	Stato di finitura	Fabbric. cells	Composizione chimica in % Chemical analysis in %									
								C	Mn	Si	P	S	Cr	Ni	Mo	N	
1	0564460	14 X 1	4158		653			0,022	0,84	0,38	0,028	0,001	16,55	11,03	2,01	0,046	

Collaudo n° Test n°	Snervimento Yield str. 0,2% - Nitrog. 1%	Rottura Tens. br. N/mm²	Allung. Elong. % LG	Durez. Hardn. Tipe	Svasat. Haring Test	Schlag. Planing Test	Piega rov. Reversend Test	Prova torc. Flang Test	Prova idr. Waresello Test	Eddy cur. Eddy cur. Test	Antirisc. Antirisc. Test
Valori richiesti. Requies. values											
Pos. 1	247	563	57,2	70						OK	
Item N°											

Prova di trazione Tensile test secondo <input type="checkbox"/> according to <input type="checkbox"/>	Prova di corrosione intercristallina secondo intergranular corrosion test according to <input type="checkbox"/>	Controllo visivo e dimensionale Visual and dimensional control OK	Omologazioni
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OSSERVAZIONI	Noi certifichiamo che il prodotto fornito è conforme ai requisiti dell'ordinazione. We certify that material supplied complies with the requirements agreed on order.	Timbro e firma Controllo qualità OLIMPIA INOX P. Agnelli
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