



CATALOGUE

FORGED AND TURNED SPECIAL / STANDARD SCREWS,
STUD-BOLTS AND NUTS

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Certified Quality Management System ISO
9001:2015 N° ISO 9001-00017681 - PED
The Quality Management System supports P.E.D. 2014/68/EU requirements, Annex 1, sect. 4.3.

CATALOGO

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AB&S-AVVITO deals with the production and supply of standard and special screws, studs, bolts, nuts and fasteners, made according to Customers' specifications. All our products can be manufactured by moulding or turning, through the use of the following materials: steel, carbon steel, stainless steel and super alloys, aimed to provide the following sectors:

OIL & GAS	PHARMACEUTICAL
OFF-SHORE	RAILWAY
PETROCHEMICAL	EARTHWORKS MEANS
ENERGY INDUSTRY	AUTOMOTIVE
CHEMICAL	WASTE DISPOSAL



AB&S-AVVITO has boldly transformed itself to create value for its customers, that is the reason why we have chosen to join two deeply experienced companies such as Avvito Service A&C S.r.l. (**challenging the market since 1969**) and AB&S S.r.l.

Thanks to the following strengths: wide and long experience in a complex and unpredictable marketplace, innovation, core competencies and expertise we can boast a working power which goes beyond the supply of quality products, thus confirming **Reliability and Excellence in its services.**

In fact, we can give a full optional service specifically tailor-made according to manufacturing industry's needs, retaining our single-trusted-partner status.

Our costs reduction guarantees both product excellence and the highest quality level.

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ABOUT US

Our goal: improving customer performances

Full availability and broad flexibility are our core features, which enable us to understand and satisfy our customers' needs, thus fulfilling our major aim: to meet customers' changing needs and create a long lasting partnership.

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AB&S-AVVITO: quality comes first

For this reason we provide only products meeting the highest quality and fully respecting standards and specifications indicated by our customers and quoted in the purchase order or drawing.

Excellence is our trademark and quality our greatest strength.

Since 1969 we provide "just in time" solutions to our customers, both in terms of products and services.



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PRODUCTS

Thanks to a wide and solid experience in the fasteners market (since 1969), we have well learned to fully understand our customers' needs and for this reason we have started to produce items according to special materials and dimensions.

To better face all different requests, we have focused our production process on special steels.

Our products range includes both standard and special items produced according to Customer specifications.

AB&S-AVVITO boasts a high quality spread of stud bolts manufactured with different special materials, among which the most commonly used are alloyed steels and stainless steels, according to ASTM, ASME, UNI EN ISO, NACE standards.

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Supply main features:

We can supply items produced according to materials stocked in our warehouse and others indicated by our Customers.

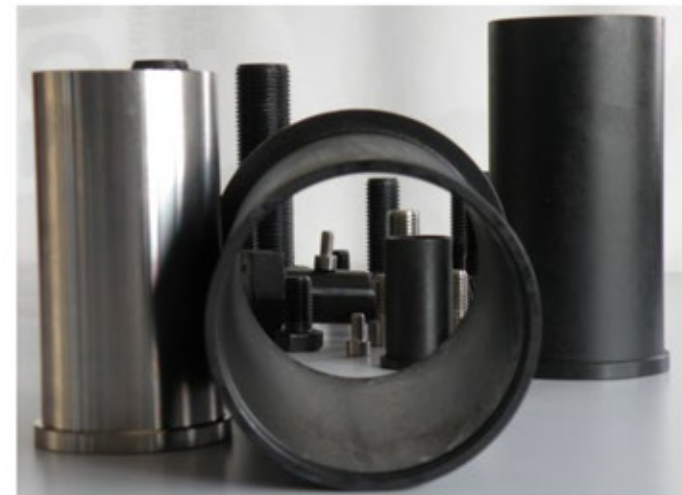
We supply according to the "zero defects" policy by applying the highest accuracy in our controls before delivering the goods to our Customers.

Our supply strategy is based on:

high quality products grounded on the "right and best" price policy

possibility to stock in our warehouse a number of authorized batches to be collected according to Customer release

in this way we can guarantee a valuable product together with a honest money saving, as the Customer shouldn't take care of the stock management anymore, it will be an AB&S-AVVITO duty.



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PRODUCTS RANGE

PRODUCTS RANGE

OIL & GAS / PETROCHEMICAL / ENERGY PRODUCTS

SCREWS:

Standard and Special Screws and Stud-bolts

Special Screws for Drilling and Off-Shore sector

Hex Cap Screws

Hexagon Socket Head Cap Screws

Hexagon Socket Set Screws With Flat Point

Hexagon Nuts

Keys and Pins

Washers:

Plain Washers

Single Coil Spring Washers

Other Types of Washers on demand

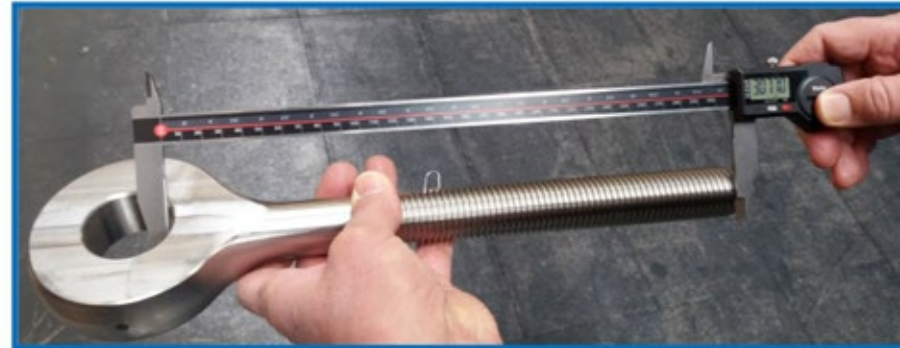
Bushes

Eye Bolts

Plates

Anti-Blow out Rings

Special Products according to Customer's drawing



STANDARD PRODUCTS

High Resistance Screws:

- Hexagon Head Cap Screws
- Cheese Fillister Head Cap Screws
- Hexagon Countersunk Flat Head Screws

Tapping, Self Drilling, Thread Cutting and Thread Forming Screws:

- Cheese Fillister Head, Cross Recessed and Slotted Screws
- Countersunk Flat Head, Crossed Recessed and Slotted Screws
- Countersunk Oval Head, Slotted Screws
- Hexagon Head Cap Screws
- Hexagon Head Screws with Collar

Nuts:

- Hexagonal Nuts
- Self-locking Nuts

Washers:

- Plain Washers
- Spring Lock Washers
- Oval Spring Washers
- Wave Spring Washers – Curved Spring Washers

Stainless steel Screws, Nuts and Washers

Brass Screws, Nuts and Washers

Spring Rings:

- Snap Rings
- Wire Rings
- External Rings

Pins:

- Spring Pins
- Cylindrical Pins

- Threaded Bars
- Ringbolts



Hexagon Head Screws and Hexagon Socket Head Cap Screws

Hexagon Head Screws, plain, fully threaded, diameters up to max M24 and 1 inch.

- ASTM A193 in GR.B7
- ASTM A320 in GR.L7

Hexagon Socket Head Cap Screws, plain, fully threaded, diameters up to max M24

- ASTM A193 in GR.B7
- ASTM A320 in GR.L7

For all products, we can manufacture version B7M-L7M thanks to our in-shop oven for heating treatments

In a very short time, we can supply the following items

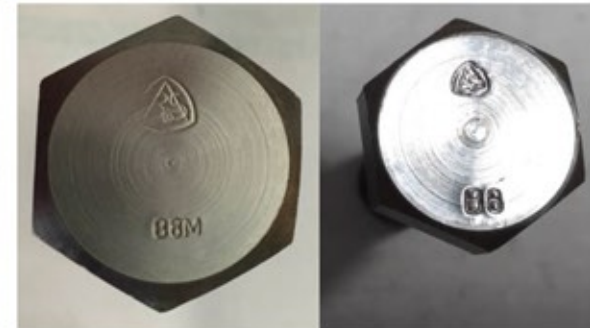
Hexagon Head Screws, diameters up to max M24

- ASTM A193 and A320 Gr.B8M Cl.2

Hexagon Socket Head Cap Screws, diameters up to max M24

- ASTM A193 and A320 Gr.B8M Cl.2

We can manufacture version B8 Cl.1 and B8M Cl.1 thanks to our in-shop oven for heating treatments



STUD-BOLTS

Stud-bolts, plain, fully threaded

Stock available in **ASTM A193 Gr. B7** with diameters up to **M24** and **1"**

We can produce in the following materials:

ASTM A193 Gr. B7/B7M

ASTM A320 Gr. L7/L7M

ASTM A193 e ASTM A320 in B8 and B8M

ASTM A453 Gr. 660

Hastelloy, Inconel and other materials on demand

- Raw material available up to $\varnothing 4"$
- Raw material to be supplied for more than $\varnothing 4"$ and up to $\varnothing 6"$



NUTS

Carbon Steel Nuts

Metric pitch from \varnothing M6 up to \varnothing M52

Inch pitch from \varnothing 1/4" up to \varnothing 2" Heavy Series ANSI B18.2.2

In the main degrees of the standard:

- ASTM A194 GR.2H, 2HM, GR.4+S3 (4L), GR.7+S3 (7L), GR.7+S3 (7ML)

Stainless Steel Nuts

Metric pitch from \varnothing M6 up to \varnothing M48

Inch pitch from \varnothing 1/4" up to \varnothing 2" Heavy Series ANSI B18.2.2

In the main degrees of the standard:

- ASTM A194 GR.8, GR.8M,
with the possibility to manufacture version A (8A - 8MA) with the use of the oven for heating treatments



BONNET BOLTS for DRILLING SECTOR

AB&S-AVVITO offers to all Companies working in **drilling field** a new range of flawless and guaranteed products made according to Customer's drawings:

hot forged bolts and studs
Ø max 350 mm and up to max 130 kgs each piece

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All our supplied goods:

- can be produced with our range materials or according to Customer's request
- can be treated with a wide range of coatings
- are characterized by a zero defect policy, throughout **strict inspections** on all the incoming materials before delivering to our Customer



PINS AND KEYS PRODUCTION

AB&S-AVVITO is furtherly specialized in the supply of standard and special keys and pins with different types of materials.

Besides our usual supplied materials such as:

- Steels (e.g. *steel C45K, quenched and tempered steel 39NiCrMo3*)
- Stainless steels (e.g. *stainless steel AISI 316L*)
- Superalloys

we can number here below a brand new range.

Among the most requested and used for the production, we have:

- Nitronic®
- F51÷55
- Alloy K 500
- Other different materials can be delivered on demand



MATERIALS



Our Company supplies different machined products including: traditional steels, stainless steels, Nitronic[®], alloy steels, Nichel alloys Hastelloy[®], Inconel[®], Monel[®], Titanium alloys, non ferrous materials.

Every manufacturing process is carried out following standards

- ASTM,
- AISI,
- UNI,
- UNI-EN,
- UNI-EN-ISO,
- DIN.

MATERIAL RANGE

AB&S-AVVITO supplies only high quality materials of Italian/European origin, essential prerogative for the guarantee of the best quality in all deliveries.

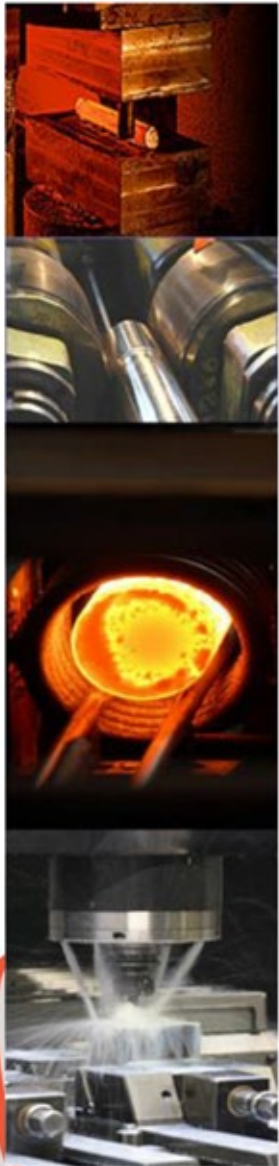
The wide material range enables us to satisfy our Customers' requests.

Alloy and Unalloyed Carbon Steels	Stainless Steels	Steels - Duplex - Superduplex	Nickel Alloys	Aluminium Alloys	Titanium Alloys
ASTM A193 GR B7 - B7M GR B16	ASTM A193 GR B8 - B8A UNS S 30400 AISI 304 A2 - 50/70/80	ASTM A182 F55 ZERON 100®	ASTM F467M - F468M UNS N 10276 HASTELLOY 276® NICKELVAC C276®	ASTM F468 UNS A 97075 LEGA 7075	ASTM F467M - F468M UNS R 50400 TITANIO GR 2
ASTM A194 GR 2H - 2HM 4 - 7 - 7M	ASTM A194 GR 8 UNS S 30400 A2 - 50/70/80	ASTM A182 F51	UNS N 08020 NICKELVAC 23®		ASTM F467M - F468M UNS R 50700 TITANIO GR 4
ASTM A320 GR L7 - L7M	ASTM A193 GR B8M - B8MA UNS S 31600 AISI 316 A4 - 50/70/80		ASTM F467M - F468M UNS N 06625 INCONEL 625®		ASTM F467M - F468M UNS R56400 TITANIO GR 5
ISO 898-1 CL. 8.8 10.9 12.9	ASTM A194 GR 8M - 8MA UNS S 31600		ASTM F467M - F468M UNS N 05500 MONEL K500® NICKELVAC K500®		
ISO 898-2 CL. 8 10	ASTM A193 GR B8R UNS S 20910 NITRONIC 50® NICKELVAC XM - 19®				
	ASTM A193 GR B8S UNS S 21800 NITRONIC 60®				
	ASTM A193 GR B8T AISI 321				
	ASTM A453 GR 660: cl.A, cl.B, cl.C UNS S 66286 NICKELVAC A-286®				

Other materials quoted on request



MACHININGS, TREATMENTS AND COATINGS

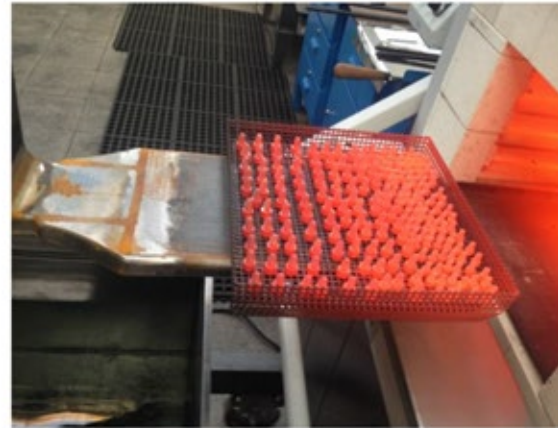


<i>Forging</i>	<i>cold hot</i>	
<i>Machinings</i>	<i>roll forming turning milling</i>	
<i>Heat Treatments</i>	<i>hargening tempering solution heat treatment ageing</i>	
<i>Surface Treatments</i>	<i>nitriding special stainless steel processes (S³P)</i>	<i>salt bath nitriding ARCOR® plasma-ion-nitriding kolsterising®</i>
<i>Inhibiting Treatments</i>	<i>electroplating</i>	<i>galvanization zinc plating nickel plating, chromium plating</i>
	<i>hot dip galvanizing (HDG) burniching dry/oiled phosphating</i>	
<i>Coatings</i>	<i>metallic zinc flave base</i>	<i>Geomet® LAFRE® ZEC® (Zinc protector ZEC® - 888)</i>
	<i>PTFE treatment</i>	<i>Xylar®</i>
	<i>self-locking threads, locking, sealer painting</i>	<i>Precoté®</i>
	<i>arc-welding</i>	<i>Niploy®/Cheniflor®</i>
	<i>silver plate</i>	

BENCH TYPE FURNACE THERM CONCEPT KM 10/13 *for heat treatments*

In order to satisfy our Customers' requests, we have bought an industrial furnace to carry out all heat treatments including quenching and solution heat treatment on small and medium batches.

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Furnace technical features:

- Maximum temperature: 1300 °C
- Double lined housing
 - Outer casting side walls, lintel of the door and door made of stainless steel
 - Low heat loss, very low Energy consumption, low operating costs, excellent temperature uniformity in the chamber
 - Control panel with Eurotherm 3208 program (it allows a better precision during)

OUR COATINGS AND TREATMENTS

Our Company provides the following coatings and treatments :

Hardenings (NITRIDINGS, SPECIAL TREATMENTS) :

The surface hardenings such as salt bath nitridings (ARCOR®), plasma-ion-nitridings and innovative hardenings (i.e. *Kolsterising*®) can increase the surface hardness with full retention of corrosion resistance. These surface hardenings can be very different from each others as far as costs and performances are concerned; for this reason it is really important that the Client previously defines its main aim inside the plant engineering use.

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Specialty Stainless Steel Processes:

S³P

Specialty stainless processes (S³P), featuring *Kolsterising*® and *Nivox*® technology offer unique surface hardening solutions for austenitic stainless steel, nickel-based alloys and cobalt-chromium alloys producing increased mechanical and wear properties without adversely affecting corrosion resistance.

Austenitic stainless steel parts improve their mechanical properties by applying the S³P processes, resulting in hardened austenitic stainless steel surfaces. In all S³P processes, the corrosion of the base material is not altered, while exhibiting superior wear resistance, strength and ductility, as well as resistance to galling . As surface diffusion processes, the surface do not crack or chip, offering significant advantages over coating technologies. S³P A® and *Kolsterising*® are the state of the art processes for austenitic stainless steel, duplex stainless and nickel-based materials. S³P M is used for the treatment of martensitic and precipitation hardened stainless steel materials.

Benefits include:

- Increased surface hardness to 900-1300 HV0.05 (depending on base material and surface conditions)
- Properly selected and designed materials and parts maintaining corrosion resistance
- Treated parts offer colour and dimensional stability
- No post treatment is necessary
- No risk of delamination
- The paramagnetic properties of austenitic materials remain unchanged after treatment
- Eliminates fretting and galling
- Highly resistant to surface wear environments such as sliding in combination with abrasive wear and cavitation erosion.

Applications and materials:

- Non-galling wear resistant demands of industrial fluid handling pumps, valves and fittings
- Fasteners that need to maintain their corrosion resistance, to be non galling and wear resistant, and may need to be disassembled easily
- Wear and scratch resistant parts and fasteners that maintain corrosion resistance used in marine applications

All stainless steel as well as nickel-based alloys we use can be treated by various S³P processes.

Some typical examples are:



- Austenitic stainless steel: AISI 304, 304L, 316, 316L
- Duplex stainless steel: AISI 430, 440
- Precipitation hardened stainless steel: PH 17-4, PH 13-8 Mo
- Nickel Based Alloys: Hastelloy® and Inconel®

S³P treatments involve low temperature diffusion of large quantities of carbon and/or nitrose into the surface without the formation of chromium precipitations. No additional chemical elements that were not already present prior to the treatment are introduced during the process. There is no risk of delamination because S³P processes neither add a coating nor introduce brittle phases in the material.

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Non-electrolytically applied thin-film coating:

“GEOMET” (with or without lubrication)

This coating is a non-electrolytically applied thin-film coating for the corrosion protection of parts made from steel, cast iron, or other iron metals. It is composed of zinc and aluminum flakes in an inorganic binder. It is obtained by the application of an aqueous dispersion by cold immersion or spray and it therefore free of any risk of hydrogen embrittlement.

ZINC PROTECTOR ZEC® - 888

Coating that inhibits corrosion, completely chromium free

Suitable for electrolytic zinc, zinc/nickel alloy, zinc die-cast, zinc flake

Replacement of chromium conversion coatings

Features

Excellent protection against corrosion, **SST test up to 1000 hours cleared**

Self-healing properties

Only 1-2 µm of thickness, no clogging

Slight variation of friction coefficient

Clear/transparent

LAFRE®

High anti-corrosion performance with extremely thin film:

SST test 2000 hours cleared with film thickness of 5 µm

No hydrogen embrittlement:

There is no pickling and electrolytic processes, there is no worry of hydrogen embrittlement

Environmental Performance:

Completely free of hexavalent and trivalent chromium and firing temperature of 250°C.

Top Coating Performance:

Good adhesion of various paints. Powder coating, electrostatic painting are also available



Polymer coatings such as “XYLAN®”:

All our products (usually bolting material, but also other components such as bushes) can be protected/coated with polymer coatings based on PTFE, such as “XYLAN®” coatings (WHITFORD’s TM). This kind of coatings has an anti-corrosion protective function and/or a minimum friction/galling coefficient. These coatings, with a thickness of some millimetres tenth, are selected among different kinds or “compositions” according to the specific application and they have a high resistance with temperature from –60° C to 220° C.

A typical application is in the bolting material field: there are many kinds of products with a different corrosion resistance (for bolting material made of carbon and alloy steels), but it is also possible to apply the same coating on stainless steels in order to avoid the galling or the wear on threads when a number of screwing and unscrewing operation is applied.

Other more specific uses, with special Xylan® products, can be applied on different components (i.e. bushes) subject to friction, which need a protective film and a long-term lubrication.

Pre-Applied Thread Sealants and Threadlockers:

In order to lock or seal thread fits, our company provides a range of pre-applied coatings, such as “Precote®”, which eliminate other sealers or mechanical devices during the assembling process.

All the thread sealing and threadlocking pre-application are marked by a different colour apt to ease the inspection and the identification of the product.

These coatings are divided in four different groups according to their functions:

strong locker, to hinder the loosening caused by high stresses;

medium locker, to hinder the loosening caused by medium stresses;

low locker, to hinder the loosening caused by low stresses;

sealer, to prevent leakage of liquids.

Note:

Usually the low threadlocking process is “stamp” applied (from 90° to 120°), but if it is spread over 360° it prevents leakage of liquids too (at the 1° screwing only).

Special metallic-polymer coating, such as “NIPLOY®” and “CHENIFLON®” :

This kind of coating has a specific use (provides a slow friction coefficient for a very long period of work) with bushes and similar components, which need a better performance than the “Xylan®” ones. “Cheniflon®” will provide for an excellent friction coefficient thanks to the dry self-lubricating action of Teflon particles. This feature will also offer many advantages in terms of anti-adhesion and slipping wear. This coating, usually of 25-30 microns, provides high mechanical and self-lubricant actions, as well as a good corrosion resistance. It is strongly efficient at a temperature range included from – 190 °C to + 200 °C.

This coating is mainly used in food industry, but it is also applied for small parts production in chemical and energy fields.



HOT DIP GALVANIZED - HDG

- VISUAL SELECTIONS AND COUPLING TEST ON EVERY PIECE
- GUARANTEED THICKNESS ACCORDING TO THE REFERENCE STANDARDS
- WITHOUT PITCHES AND OTHER ZINC RESIDUAL
- WITHOUT BLACK SPOTS AND/OR NON-COVERED PARTS
- PERFECT SCREWING OF THE NUT
- INSPECTION FOR THE COMPLIANCE OF THE REPORTED TOLERANCES

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OUR HDG PRODUCTS RANGE:

- Screws and studs with nominal thread + HDG thickness with overtapped nut
- Screws and undersize studs + HDG thickness for the nominal diameter with retapped nut
- Washers and other products on demand



SERVICES

AB&S – AVVITO can work for you, we can be your “personal and virtual” Purchase Office. It is sufficient to communicate us your needs in the fasteners field and we will provide all you asked for.

Prices freeze

AB&S-AVVITO guarantees the price freeze of stocked items and savings on new prices. This is possible whenever a Customer decides to authorize for a new batch production of product. In the meantime, he will be able to release the collection of necessary quantities only, stocking the rest in our warehouse, in this way only the real delivered quantity will be billed.

Stock

AB&S - AVVITO keeps at stock authorised quantities of the parts on behalf of his customers, also on the basis of annual budget, to cover their needs from 4 to 12 months and taking in charge the financial costs for all the time goods stay in our warehouse.

Besides, AB&S - AVVITO guarantees flexibility for possible extensions concerning the absorption deadline of authorized batches, in case consumption of some items slows down.

Quality warranty for supplied parts

The quality management system, certified according to Standard UNI EN ISO 9001:2015 and our quality laboratory, guarantee the conformity of AB&S-AVVITO products.

Planned deliveries

“kan-ban”

“just-in-time”

“milk run”

Weekly

Fortnightly

Monthly

Fast deliveries in emergency situations of small and medium quantities of special items (screws, bolts, studs and nuts) at stock

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Tailor-made packaging

Thanks to our automatic and semiautomatic equipment, we can pack ordered goods according to Customers' instructions (wooden cases, pallets, bags, big or small boxes, envelopes made up of polyethylene thermos-sealed). It is sufficient to previously agree type and quantity per packaging, enabling the Customer to have always the right quantity in assembly-line.

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Besides, AB&S - AVVITO guarantees flexibility for possible extensions concerning the absorption deadline of authorized batches, in case consumption of some items slows down.



IN-SHOP QUALITY LABORATORY



SPECTROCHECK

A spectrometer is a machine which consists of an analytical technique that identifies the chemical composition of a compound or sample on the basis of the mass-to-charge ratio of charged particles.

This machine is equipped with programs on base Fe, Cu and stainless steels, used to identify the kind of material under analysis.

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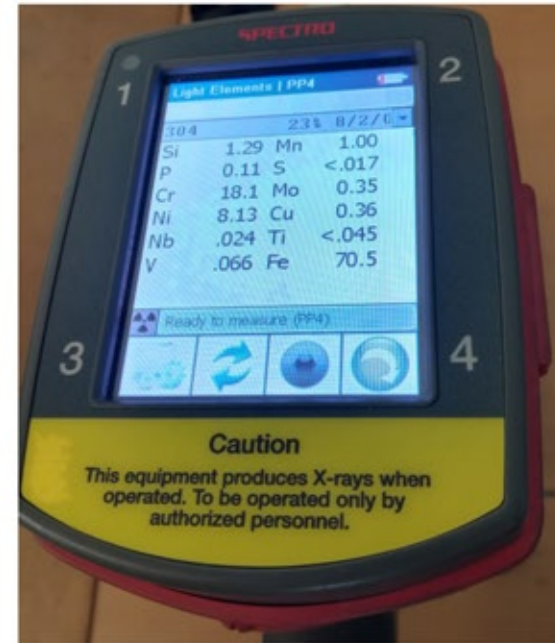


HANDHELD SPECTROMETER

The SPECTRO XSORT is designed for high-throughput elemental testing and spectrochemical analysis of a wide range of metals and other materials in the field.

SPECTRO xSORT is ideal for applications, including positive material identification (PMI) and environmental screening, recycling of alloys, precious metals, and aluminium, plus mining and compliance screening.

For many jobs, such as material verification, SPECTRO xSORT delivers highly reliable analyses in two seconds. And, for more complex matrices such as in environmental screening, SPECTRO xSORT achieves very low detection limits.



METROCOM – MATERIAL TESTING MACHINE FOR TRACTION

It is a universal machine with hydraulic drive used to carry out traction tests up to a maximum load of 300 Kn. Thanks to a special software, all data are processed and displayed on a high-resolution screen. All data are indicated in diagrams load/stretch – load/strain and they can be saved in order to certify tested products.



FISCHERSCOPE X RAY 1600-2

It is a machine based on X-Ray Fluorescence systems, which enable to measure coating thickness and perform material analysis without any contact and with no need to set special preparations.



RADIATION DETECTOR AND SEARCH PDS-100G-GN

This sensitive pocket-sized device is designed to detect, locate and quantify any radioactive materials as Special Nuclear Materials as radiological Dispersal Devices (RDD), in a very short time. This instrument features the capability to transmit the measurement and the spectrum on request.



COATING THICKNESS MEASURING INSTRUMENT DELTASCOPE® FMP30

The DELTASCOPE® FMP30 hand-held instrument measures coating thicknesses with high precision and non-destructively throughout magnetic induction method (DELTA).

It is modern, robust and user friendly and can be adapted to any measuring application using interchangeable probes.

FMP30 features various strategies for structured data collection, more memory and Bluetooth®-data transfer. Extensive graphical and statistical evaluation capabilities make it well suited for complex measuring applications.



HEIDENHAIN IK 5000 QUADRA-CHEK Multisensor Systems

The Quadra-Chek 5000 is an advanced software application for multisensory measurement systems. It features a graphical user interface for simple point and click operation.

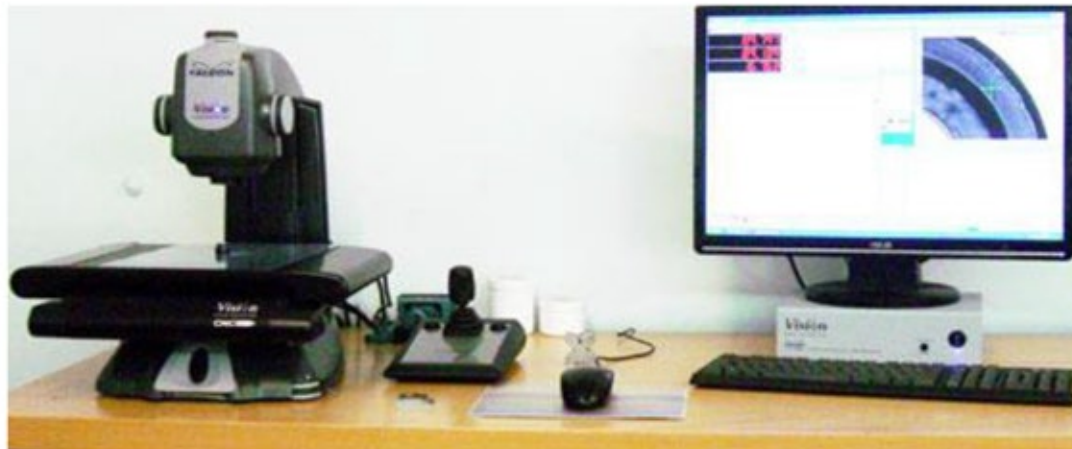
The QC-5000 measures part features using the simplest geometric components: points. Lines can be created from two points, circles from three points, and cones from six points. Simply probe the points and the QC-5000 measures the feature.

Once the required number of points are entered the QC-5000 displays the feature in the part view window.

The QC-5000 continues building the part in the part view window as features are added.

It is easy to use the QC-5000 because each measurement requires only a few points. All geometry and mathematics are handled by the software.

Once the basic measuring principles are understood the QC-5000 can be programmed to handle repetitive measuring tasks. Finally, inspection and quality reports can be produced to document your results.



HARDNESS TESTERS

Hardness measuring instrument generally testing penetration hardness by means of a ball loaded under a given load. It carries out:

- Rockwell Standard tests HRC and HRB
- Brinell tests HB

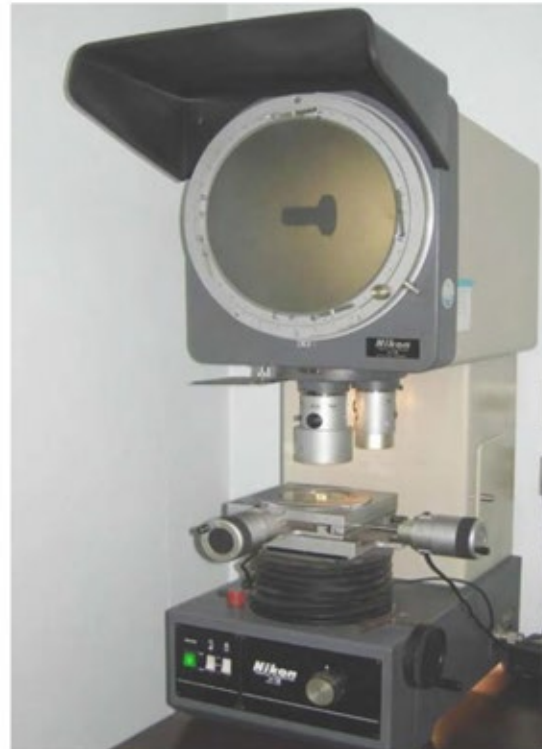


PROFILE PROJECTOR

It consists of a graduated ground-glass screen on which a greatly enlarged image of the article is projected, so that any travel of the article, as well as the progress of the working process, can be assessed by reference to the graduations on the screen.

Resolution up to 1/1000 mm.

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ASTM STANDARDS**ASTM A193:**

Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications

ASTM A194:

Carbon and Alloy-Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both

ASTM A307:

Carbon Steel Bolts and Studs, 60.000 PSI Tensile Strength

ASTM A320:

Alloy-Steel and Stainless Steel Bolting Materials for Low Temperature Service

ASTM A370:

Standard Test Methods and Definitions for Mechanical Testing of Steel Products

ASTM A380:

Cleaning, Descaling and Passivation of Stainless Steel Parts, Equipment and Systems

ASTM A453:

High-Temperature Bolting Materials, with Expansion Coefficients Comparable to Austenitic Stainless Steels

ASTM A962:

Common Requirements for Steel Fasteners or Fastener Materials, or Both, Intended for Use at Any Temperature from Cryogenic to the Creep Range

ASTM A1082:

Standard Specification for High Strength Precipitation Hardening and Duplex Stainless Steel Bolting for Special Purpose Applications

ASTM B117:

Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM F467:

Nonferrous Nuts for General Use (Metric)

ASTM F468:

Nonferrous Bolts, Hex Cap Screws, and Studs for General Use (Metric)



MATERIAL STANDARDS AND OTHER IMPORTANT REFERENCES CODES

API SPECIFICATION 6A

Specification for Wellhead and Christmas Tree Equipment

API STANDARD 6A718

Nickel Base Alloy 718 (UNS N07718) for Oil and Gas Drilling and Production Equipment

ANSI/API SPECIFICATION 16A

Specification for Drill-through Equipment

API SPECIFICATION 20E

Alloy and Carbon Steel Bolting for Use in the Petroleum and Natural Gas Industries

ASME B 31.3:

ASME code for pressure piping

UNI EN 10204 (BS EN 10204):

Metallic products - Types of inspection documents

EN 10269:

Steel and nickel alloys for fasteners with specified elevated and or low temperature properties

EN ISO 3506 part 1 & 2):

Mechanical properties of corrosion-resistant stainless steel fasteners: bolts, screws and nuts.

UNI EN ISO 10684 (EN ISO 106841):

Fasteners - Hot Dip galvanized coatings

ISO 15156 part 1-2-3 (ex NACE MR0175/ISO):

Petroleum and natural gas industries - Materials for use in H₂S containing environments in oil and gas production

ISO 8992:

Fasteners - General Requirements for bolts, screws, studs and nuts

NACE MR 0103:

Materials resistant to sulphide stress cracking in corrosive petroleum refining environments

PRODUCTS STANDARDS

ASME B18.2.1a - Addenda to ASME B18.2.1:

Square and hex bolts and screws (Inch series)

ASME B18.2.2:

Square and hex nuts (Inch series)

UNI EN ISO 4014 (ex UNI 5737):

Hexagon head bolts - Product grades A and B

UNI EN ISO 4017 (ex UNI 5739):

Hexagon head screws - Product grades A and B

UNI EN ISO 4032 (ex UNI 5588):

Hexagon nuts, style 1 - Product grades A and B

UNI EN ISO 4033 (ex UNI 5587):

Hexagon nuts, style 2 - Product grades A and B

UNI EN ISO 4035 (ex UNI 5589):

Hexagon thin nuts (chamfered) - Product grades A and B

UNI EN ISO 4762 (ex UNI 5931):

Hexagon socket head cap screws

PRODUCTION UNITS



PRODUCTION UNITS: HOT FORGING Unit N. 1

Machine shop equipment list:

- N.3 Mills
- N.2 Electrical upsetters
- N.1 Induction furnace
- N.3 Cutting-off machines
- N.2 Numerical Control lathes
- N.4 Semiautomatic horizontal lathes
- N.2 Rolling machine

Current production:

Hot forging:

Hex cap screw

Standards UNI \varnothing max 56

Standards ASME \varnothing max 2"

Hexagon socket head cap screw

Standards UNI \varnothing max 56

Materials:

Carbon steels

Alloy steels

Stainless steels

On request we can manufacture different items from the ones above indicated, if these are suitable with the equipment listed.

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PRODUCTION UNITS: HOT FORGING Unit N.2/1

Machine shop equipment list:

- N.1 Horizontal upsetter 9" 2500 TON
- N.1 Horizontal upsetter 7"½ 2000 TON
- N.1 Horizontal upsetter 6" 1600 TON
- N.1 Vertical press 4000 TON
- N.1 Screw press diam. 300 mm
- N.1 Screw press diam. 250 mm
- N.1 Screw press diam. 180 mm
- N.1 Hammer 25 TON
- N.1 Press 600 TON robotized

Current production:

Hot forging:

Studbolts, screws and fasteners

Sizes: min. 3 Kgs. max 130 Kgs.

Materials:

Carbon Steels

Alloy steels

On request we can manufacture different items from the ones above indicated, if these are suitable with the equipment listed.

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PRODUCTION UNITS HOT FORGING: MACHINING Unit N.2/2

Machine shop equipment list:

- N.9 CNC lathes
- N.2 Workstations

Current production:

Hot forged products machining

Sizes: min. 3 Kgs. max 130 Kgs.

In-shop laboratory tests on machined products:

- **Dimensional controls** carried out with 3D instruments, digital profile gauges and roughness measurement devices

In-shop machines to carry out heating treatments:

- N.2 Electric furnaces with outputs of 300 kW and 200 kW

for cycles of:

normalization

isothermal and globular annealing (9 tons/day)

- hardening in water and polymers (6 ton/days)

- N.2 Sandblasting lines with cluster and carpet type machines:

max size 2 mt length and 150 kgs weight

In-shop laboratory tests of treated materials:

- BRINELL and ROCKWELL hardness tests
- structural micrographic tests for acid attacks of the samples
- Microscope with a video camera to document the structures of the treated steels.

On request we can manufacture different items from the ones above indicated, if these are suitable with the equipment listed

PRODUCTION UNITS: STUDS

Unit N. 3

Machine shop equipment list:

- N.7 Automatic band saws
- N.1 Vertical mechanical shears
- N.2 Chamfer and marking machines
- N.5 Rolling machines
- N.6 CNC turning centres
- N.2 CNC machining

Current production:

Studs and threaded rods with raw material in-shop:

Metric pitch from \varnothing M6 to \varnothing M100

Imperial pitch from \varnothing 1/4" to \varnothing 4"

Materials:

All the materials foreseen by the standards ASTM, DIN, UNI.

On request we can manufacture different items from the ones above indicated up to:

- metric pitch \varnothing max M150,

- imperial pitch \varnothing max 6"

with raw material to be ordered

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PRODUCTION UNITS: TURNING

Unit N. 4

Machine shop equipment list:

- N.6 CNC lathes 4 axes for bars from \varnothing 10 to \varnothing 70
- N.1 CNC lathes 4 axes for bars from \varnothing 10 to \varnothing 80
- N.1 CNC lathes for lapping working max \varnothing 350
- N.2 CNC lathes for lapping working max \varnothing 350
- N.1 Program Software CAD – CAM 3D

Current production:

Production of standard and on drawing items both turned:

Special bolting material

Nuts

Anti – Blow Out rings (ABO)

Thrust washers

Bushes

Lapping working up to \varnothing 350 mm max

Materials:

Steels

Stainless steels

Other materials on request

On request we can manufacture different items from the ones above indicated, if these are suitable with the equipment listed.

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PRODUCTION UNITS: TURNING Unit N. 5

Machine shop equipment list:

- N.5 CNC lathes with sliding head double spindle from 4 to 8 controlled axles for bars from \varnothing 20 to \varnothing 32
- N.4 CNC lathes with fixed head single spindle with 2 controlled axles for bars from \varnothing 25 to \varnothing 50
- N.1 CNC lathes with fixed head single spindle with 6 controlled axles for bars \varnothing max 52
- N.1 Machining centre with vertical rotary tiller with 4 controlled axles for bars max mm 1300x600x700

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Current production:

Production of turned standard and on drawing items:

Special bolting material

Nuts

Pins

Materials:

Stainless steels AISI 303, 304, 316

Alloyed and standard steels

42crmo4

39ncd3

100cr6

On request we can manufacture different items from the ones above indicated, if these are suitable with the equipment listed.

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PRODUCTION UNITS: KEYS AND PINS

Unit N. 6

Machine shop equipment list:

- N.3 Milling machine centres
- N.2 CNC grinding machines for flat surfaces
- N.2 Band saws
- N.8 Automatic machines for the production of standard keys
- N.6 Drilling machines
- N.6 Tapping machines

Current production

Production of:

Pins and Keys:

Tables UNI 6604/DIN 6885

Shape A (rounded)

Shape B (straight)

Shape C (one rounded side - one straight side)

Table UNI 7510/DIN 6885

Thin pins

Table UNI 6607

Cone shaped pins

Table UNI 6608/DIN 6887

Gib-head keys

Table UNI 6605/DIN 6885

Hollow keys

Materials:

Standard:

Steel C45K

Stainless steel INOX AISI 316L

Quenched and tempered steel 39NiCrMo3

Special:

Nitronic®

F51 ÷ 55

Alloy K500

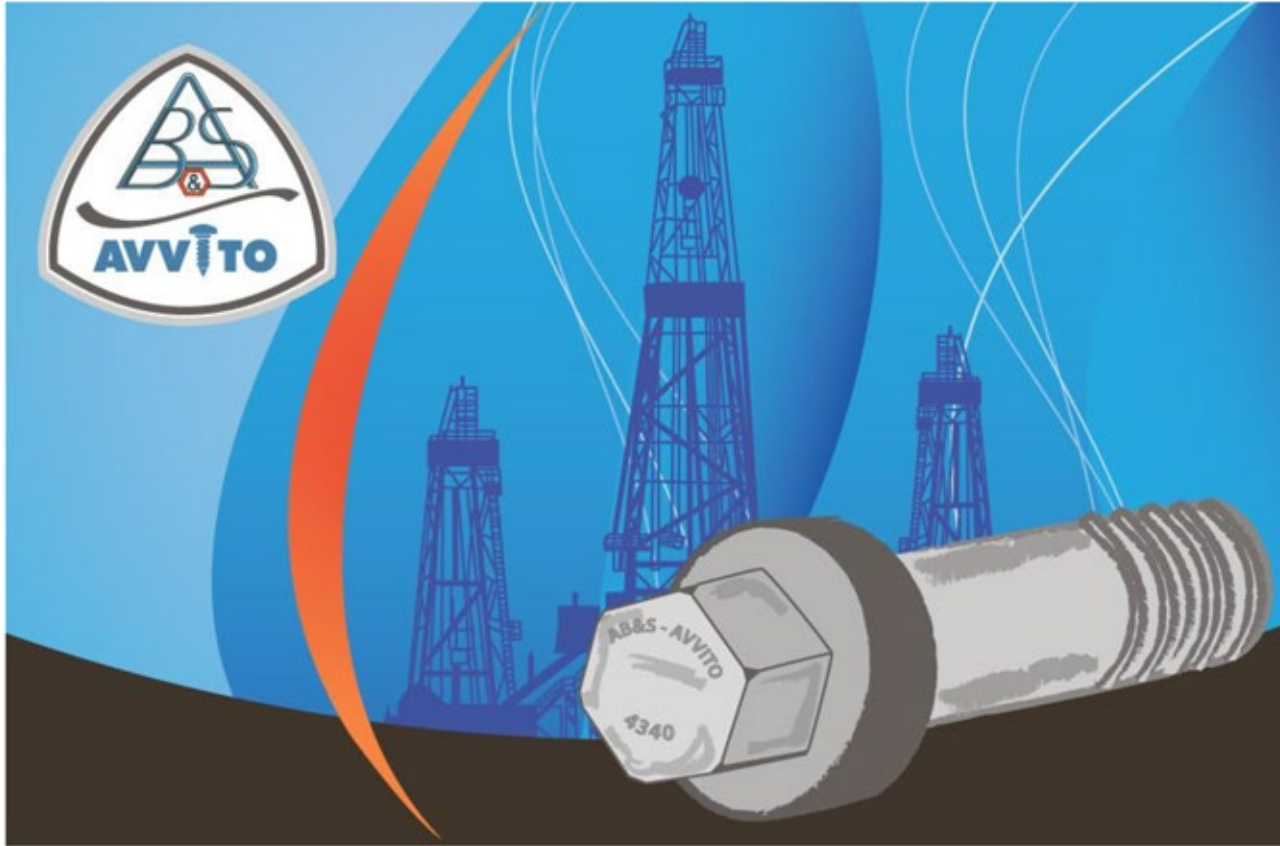
On demand we can manufacture different items from the ones above indicated, if these are suitable with the machines listed.

CATALOGUE

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CATALOGUE



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