



EUROVITI
— Italy —

Plasticizing screws and barrels

EXTRUSION



INJECTION



finding solutions since 1992



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In recent years, Euroviti, looking to the future and embracing the challenges of the current historical period, has committed to being closer to the issues related to the relationship between "plastic and the environment". It has in fact increased the projects dedicated to components for recycling, compostable and biodegradable materials, as well as energy saving.

In this way, customers can optimize resources and energy in a sustainable way, pursuing environmental respect objectives and reducing production costs through energy saving, thanks to the use of these new solutions.

People, Means, Solutions

More than thirty years of history experience in plasticizing screws and barrels are reflected in a 360-degree consultancy service.

1992

Foundation

Giuseppe "Pino" Barrale, enriched by the experience gained in a leading company in the same sector, leaves his position as production manager and found Euroviti. The company soon becomes a reference point in the field of production and regeneration of plasticizing units.

2006

Acquisition and Growth

Euroviti acquires a well known Italian company, Cimam Srl, in Varese, specialized in single-screws. In the same year, it also annexes Agor sarl from Annecy France, expanding its presence in the French market with the creation of Euroviti France Sarl.

2010

Expansion

The acquisition of SBI Srl, another company in the same business sector with headquarters in Borgosatollo and Milan, marks new significant growth. Thanks to its ties in the Middle and Far East, Eastern Europe, and Scandinavia, Euroviti intensifies its presence in these foreign markets.



Founded in 1992, Euroviti has established itself as a leading company in the production of screws and barrels for both extrusion and injection. The team of

highly specialized technicians and salespeople have allowed the company to experience constant growth, both in terms of turnover and export areas.

2011

R&D

With a consolidated presence in Europe, South America, and the Middle and Far East, Euroviti strengthens its R&D office. In collaboration with the former production manager of SBI, it initiates a project of customized screw designs.

2013

Russia

The first participation in the Interplastica Fair in Moscow opens the doors to the Russian market. To better support the new customers, Euroviti inaugurates a representative office in Moscow.

2018

Injection

The growing interest in the injection sector leads to the launch of the "Injection Project". This new phase requires the recruitment of experts in trade, design, and production. Warehouses are also established for just-in-time delivery of high-quality injection moulding spare parts.

2020


German Rep.

To meet the growing demand for local assistance, Euroviti opens an office in Germany, joining the existing offices in France, Russia, and Italy, further strengthening its international presence.



Extrusion

Plasticizing screws and barrels play a key role in extrusion. They have the essential task of producing a high-quality and uniform plasticized polymer (melt), ensuring products without imperfections and with optimal aesthetic and mechanical properties.



During the extrusion process, the molten material exits through the die or the extrusion head. The plasticizing process occurs entirely within the plasticizing unit.

BARREL

Single Screw

The extrusion barrel plays a simple yet fundamental role in the processing of plastic materials, whether they are virgin, regrind, recycled, or filled. There are **two main types of barrels**, each with specific characteristics and uses:

Nitrided Barrels: These barrels undergo a specific heat treatment, nitriding, which can be carried out through gas or ionic/plasma processes. They are particularly suitable for operations where abrasive or corrosive wear is not present, making them ideal for applications with lesser or no wear issues at all.

Bimetallic Barrels: Unlike nitrided barrels, bimetallic barrels offer superior resistance to wear. This characteristic makes them more suitable for situations with various types of wear. It ensures greater stability during the production process and extended durability, making them a more resilient and long-lasting choice for numerous applications.

| EUV CODES | TYPE | INLAY BASE ALLOY | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|---------------|------------------|----------|--------------------------|---------------------------|
| EUV100 | Bimetallic | Fe | 58÷65HRC | •• | • |
| EUV200 | Bimetallic | Ni/Co | 48÷56HRC | • | ••••• |
| EUV400 | Bimetallic | Fe/Cr | 62÷69HRC | •••• | ••• |
| EUV1000W | Bimetallic WC | Ni/Wc | 58÷66HRC | ••••• | ••••• |

| EUV CODES | TYPE | INLAY BASE ALLOY | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|----------|-----------------------|------------|--------------------------|---------------------------|
| EUV31 | Nitrided | Quenched and Tempered | 700÷800HV | • | • |
| EUV34 | Nitrided | Quenched and Tempered | 950÷1100HV | • | • |
| EUV41 | Nitrided | Quenched and Tempered | 950÷1100HV | • | • |

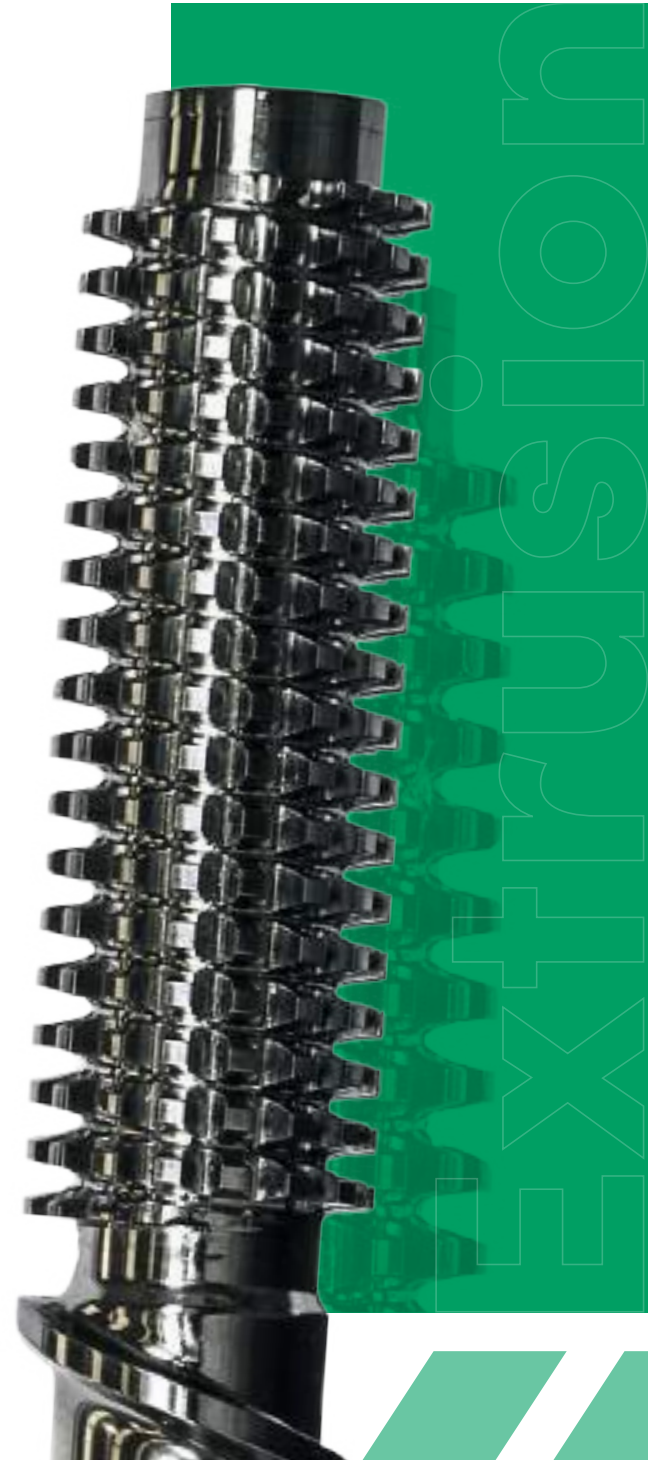


SCREW

Single Screw

The screw is the heart of the extruder and plays a crucial role in the success of the production process. Choosing the most suitable screw geometry, based on the characteristics of the materials to be processed and the final product to be made, is essential to anticipate and manage the difficulties that might arise during the process. It is important to anticipate issues such as corrosion or abrasion caused by the extruded materials and choose the most suitable base steel, subjecting it to the necessary heating treatments, galvanic treatments, or coatings. The profile of the screw is equally important while determining the quality and quantity of the finished product. Euroviti is able to offer new **high-performance screw profiles**, designed to address and solve existing and critical issues in the existing extrusion system.

| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|--|---|------------|--------------------------|---------------------------|
| EUV31 | Quenched and Tempered | Gas or Plasma Nitration | 700÷800HV | • | • |
| EUV34 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV38 | Quenched and Tempered | Gas or Plasma Nitration | 500÷600HV | • | • |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV79 | Cold Work Tool Steel | Hardening & Tempering | 58÷62HRC | ••• | •• |
| EUV10 | Powder Metallurgy Steel - Protection from Abrasion | Hardening & Tempering | 58÷64HRC | •••• | • |
| EUV90 | Powder Metallurgy Tool Steels | Special Hardening & Tempering | 57÷63HRC | •••• | ••••• |
| EUV276 | Superalloy | - | 32÷37HRC | ••• | ••••• |
| EUV50 | Stainless steels | Special Hardening & Tempering / Induction Hardening / Blank | 44÷60HRC | ••• | •••• |



FEEDING BLOCK

Single Screw

In more advanced and high-performance extrusion applications, the feeding zone of the extruder is divided into **two main components: an outer case or external body and an insert or inner sleeve.**

The external body of the extruder is equipped with an integrated cooling circuit, an important feature to ensure a constant and regular feed of the plastic material. The cooling circuit plays a key role in controlling the temperature of the extruder, to allow an optimized and high-performing extrusion process.



| PART | EUV CODES | TYPE | INLAY BASE ALLOY | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|------------------------------|-----------|--------------|-----------------------|------------|--------------------------|---------------------------|
| Complete Part | EUV41 | Nitrided | Quenched and Tempered | 950±1100HV | • | • |
| Main Body for Sleeve version | EUV40 | Carbon Steel | Quenched and Tempered | Not needed | Not subject to | Not subject to |

FEEDING SLEEVE

Single Screw

The Feeding Sleeve is a fundamental element in the extrusion system, especially when it is properly synchronized with the hopper body and matched with the correct screw geometry. **This component is responsible for feeding the plastic material into the extruder.**

The distinctive feature of this product is its **internal grooves**. They can come in various configurations: **trapezoidal, triangular, linear, or even helical**. The choice of groove's geometry is crucial for the success of the extrusion process, as well as their arrangement and shape.

| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|-----------------------|--|------------|--------------------------|---------------------------|
| EUV34 | Quenched and Tempered | Gas or Plasma Nitration / Surface Hardening | 950÷1100HV | • | • |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration / Surface Hardening | 950÷1100HV | • | • |
| EUV79 | Cold work tool steel | Hardening & Tempering / Total Hardening | 58÷62HRC | ••• | •• |
| EUV400 | Bimetallic | Fe/Cr / Good against abrasion and corrosion | 62÷69HRC | •••• | ••• |
| EUV1000W | Bimetallic WC | Ni/Wc / Extreme against abrasion and corrosion | 58÷66HRC | ••••• | ••••• |



BARREL

Twin-Screw *Co-rotating*

The bi-hole barrel for co-rotating extruders represents an advanced technological innovation. The barrel is equipped with a **sophisticated internal cooling system**, specifically designed to manage the heat generated during the extrusion process.

The flexibility of this bi-hole barrel extends beyond cooling. The design varies depending on the specific needs of the extrusion process. Some barrels can be supplied with **a feed hole**, others can be **smooth** or have **holes for degassing**. Some barrels include housings for a side feeder or liquid injection system.

| PART | EUV CODES | TYPE | INLAY BASE ALLOY | THERMAL TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|------------------------------|-----------|--------------|-----------------------|-------------------------|------------|--------------------------|---------------------------|
| Complete Part | EUV41 | Nitrided | Quenched and Tempered | Gas or Plasma Nitration | 950±1100HV | • | • |
| Main Body for Sleeve version | EUV40 | Carbon Steel | Quenched and Tempered | None | Not needed | Not subject to | Not subject to |



INTERNAL SLEEVE

Twin-Screw *Co-rotating*

A particularly advantageous aspect of the bi-hole barrel for co-rotating extruders is the ability to incorporate an internal sleeve made of hardened steel. This feature not only **increases the barrel's resistance** to corrosion but also helps to combat abrasive wear, significantly prolonging the life of the barrel itself.

Besides durability, another important advantage of this design is practicality in terms of maintenance. In case of wear, the internal sleeve **can be easily replaced without the need to change the entire outer body of the barrel**. This targeted replacement option represents a considerable saving on maintenance costs and makes the use of the bi-hole barrel for co-rotating extruders an efficient and economical option in the long term.



| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|--|-------------------------------|------------|--------------------------|---------------------------|
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV79 | Cold Work Tool Steel | Hardening & Tempering | 58÷62HRC | ••• | •• |
| EUV10 | Powder metallurgy steel - Protection from abrasion | Hardening & Tempering | 58÷64HRC | •••• | • |
| EUV90 | Powder metallurgy tool steels | Special Hardening & Tempering | 57÷63HRC | •••• | ••••• |
| EUV400 | Bimetallic | Fe/Cr | 62÷69HRC | •••• | ••• |
| EUV1000W | Bimetallic WC | Ni/Wc | 58÷66HRC | •••••• | •••••• |

SHAFTS & SEGMENTS

Twin-Screw *Co-rotating*

Segment-carrying shafts are the heart of **co-rotating screws** and play a crucial role in the functioning of these mechanical components. These shafts are characterized by their remarkable lengths, which in some cases can exceed 50 times their diameter, indicated as 50D.

A **segment-carrying shaft** must possess exceptional resistance to torsion and it must maintain a certain ductility to withstand the mechanical forces exerted during the extrusion process.

Co-rotating screws, key components in an extrusion system, are designed as **modular segments**. This structure offers not only significant flexibility in construction but also a self-cleaning profile that helps to prevent the accumulation of residual material along the extrusion path, eliminating potential stagnation zones.

Each screw segment, mounted on a dedicated shaft, can have different types of geometry based on its specific function. Generally, these segments are divided into two main categories: the **conveying segments**, which move the material along the extrusion path, and the **kneading blocks**, which work the material preparing it for extrusion.



SIDE FEEDER

Twin-Screw *Co-rotating*

The **side feeder**, or lateral feeder, is an essential component in **co-rotating extruders**. It plays a fundamental role in introducing various types of fillers into the main extruder, including diverse materials such as glass fibers or calcium carbonate, depending on the specific needs of the **extrusion process**.

This component consists of a **twin-barrel**, a cylindrical casing with two openings, and a pair of screws. These screws generally have a relatively **short length-to-diameter ratio (LD)** and a **simple geometry**, suitable for their main function of feeding the extruder with the material.



BARREL

Twin-Screw *Counter-rotating*

The **bi-hole barrel**, shaped like an inverted "8", is designed to house two screws, known as **twin-screws**, within its structure. This unique design allows for the efficient insertion and operation of the screws.

The main role of this barrel is to house the screws and the plastic material. The inner surface of the barrel is where the screws act on the plastic material during the melting process.



| EUV CODES | TYPE | INLAY BASE ALLOY | PROTECTION LEVEL | HARDNESS |
|-----------|----------|-----------------------|-------------------------|------------|
| EUV34 | Nitrided | Quenched and Tempered | Gas or Plasma Nitration | 950+1100HV |
| EUV41 | Nitrided | Quenched and Tempered | Gas or Plasma Nitration | 950+1100HV |

| EUV CODES | TYPE | INLAY BASE ALLOY | PROTECTION LEVEL | HARDNESS |
|-----------|---------------|------------------|--|----------|
| EUV400 | Bimetallic | Fe/Cr | Good against abrasion and corrosion | 62+69HRC |
| EUV1000W | Bimetallic WC | Ni/Wc | Extreme against abrasion and corrosion | 58+66HRC |

SCREW

Twin-Screw *Counter-rotating*

The **counter-rotating twin-screw** is distinguished by the presence of two parallel screws rotating in opposite directions synchronously, giving rise to its characteristic name.

Structurally, the profile of the counter-rotating twin-screw is divided into several segments, each with a specific function in the plasticizing process. These include **feeding**, where the material enters the unit; **compression**, which reduces the volume of the material; **plasticizing**, which transforms the material into a malleable form; **degassing**, which eliminates trapped gases; and **homogenization**, which ensures a uniform consistency of the product.

It is particularly suitable for processing materials like PVC, that requires greater force.

| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS |
|-----------|-----------------------|---|------------|
| EUV31 | Quenched and Tempered | Gas or Plasma Nitration / Surface Hardening | 700÷800HV |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration / Surface Hardening | 950÷1100HV |
| EUV50 | Stainless steels | Special Hardening & Tempering / Induction Hardening / Blank / Total or Partial Hardening or blank | 44÷52HRC |



BARREL

Twin-Screw *Conical*

The **conical twin-holed barrel** is characterized by a diameter that progressively narrows from the inlet to the outlet, forming what is known as the nominal diameter of the conical extruder.

The creation of this type of barrel presents a significant challenge: maintaining the correct distance and angle between the holes. This is crucial since the barrel must not only have a conical shape but also precise alignment of the holes, making it one of the most complex to produce in its category.

Conical barrels can have a **smooth or grooved external diameter**, depending on the specific application. In the case of external grooves, they play a functional role beyond aesthetics, ideal for supporting the positioning of the **cooling circuit tube**, usually made of stainless steel or copper.



| EUV CODES | TYPE | INLAY BASE ALLOY | TREATMENT | HARDNESS |
|-----------|----------|-----------------------|-------------------------|------------|
| EUV34 | Nitrided | Quenched and Tempered | Gas or Plasma Nitration | 950±1100HV |
| EUV41 | Nitrided | Quenched and Tempered | Gas or Plasma Nitration | 950±1100HV |

SCREW

Twin-Screw *Conical*

The **conical screws**, unlike traditional versions, feature a particular geometry: a larger diameter near the reducer and a smaller one at the upper end. This structure creates a natural compression that increases the pushing force of the plastic material, proving particularly useful in applications with back pressure at the tip of the screws, improving the **material processing efficiency**.

The choice of material for the screws is closely linked to the quality of the mix of plastic materials to be processed. Generally, traditional **nitriding steels** are used, but depending on the needs, different types of **welding overlays** can be employed. In some cases, **H.V.O.F. technologies** are also used to extend the life of the screws.

| EUV CODES | STEEL TYPE | STEEL TYPE | HARDNESS |
|-----------|-----------------------|-------------------------|------------|
| EUV31 | Quenched and Tempered | Gas or Plasma Nitration | 700÷800HV |
| EUV34 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV |



CONVEYING SCREWS

Specials

Conveying Screws, though similar in appearance to screws, perform different functions. While screws are used as plasticizing elements, these ones act as feeders, transporting materials from one point to another. Material can be homogeneous, regrind, or recycled, destined for the extrusion lines. Depending on the material to be handled, screw pumps can have a cylindrical or conical external diameter.

To improve durability and resistance, screw pumps are often made of **nitriding steels**, a type of steel subjected to treatments to increase hardness and wear resistance. Some screw pumps may also have **wear-resistant overlays** to further strengthen their structure.



CONTINUOUS MIXER/ROTORS

Specials

The **continuous mixer** stands out among mechanical components for its particular shape: it consists of two rotors that rotate in opposite directions but are not meshed with each other.

This feature makes it particularly suitable for cutting and mixing operations of plastic materials, earning it the name "continuous mixer." Its main function is to efficiently mix plastic materials, facilitating the production of homogeneous compounds.

The rotors of the mixer are typically reinforced with weldings on the top of flight for increased resistance. On the flights' flanks, **carbide overlays** are applied to increase wear resistance.



extrusion

FOOD PROCESSING UNITS

Specials

In response to the evolving demands of the **human and pet food industry**, our company has introduced substantial material innovations, despite these not being our primary business.

We've transitioned from the traditional screws Fe510+ chromium steel to **hardened and tempered stainless steels**. These advanced materials are not only certified for food use but also offer an extended lifespan due to their superior technical and mechanical properties. Furthermore, they are versatile enough to be implemented in twin-screw systems for both conveying and mixing processes.

At the same time we can offer single-screw compression barrels made from bimetallic blanks. The interior surface is fortified with an alloy with an hardness of 52/54 HRC, endowing the cylinder with exceptional wear and corrosion resistance. For applications requiring bi-hole barrels, we provide the traditional modular segments in both square and round configurations that can even feature a replaceable sleeve option for added versatility and longevity.



SINGLE SCREWS FOR RUBBER

Specials

The rubber processing can be done through both **extrusion and injection**, both are characterized by a low compression ratio and short L/D units. We specialized in creating dedicate solutions for EPDM, Viton, EPR, NBR, SBR or rubber compounds specific for tyres.

The units are available in **nitriding and bimetallic steels**. Screws customization includes differnt types of **flight armouring** and **surface coatings**, while the design including the standard profile, fall into the macro families HPS-HPB-HPE, depending on whether it is injection molding or extrusion.


This versatility extends from the basic injection units, which consist of a single barrel and screw, to the more complex extrusion systems. Extrusion units are typically designed with a four-part barrel: feeding block and feed sleeve, the barrel's external body which functions as a cooling circuit, and an integrated bush for optimal operation.





Injection

In the injection process, plasticizing screws and cylinders play a fundamental role. Their function is to plasticize polymers uniformly and mix possible additives in the best and fastest way, ensuring molded parts free of defects and with optimal aesthetic and mechanical properties.



Injection is when the molten material fills a closed mold at high pressure, where it cools down and takes the desired shape.



BARREL

Injection

The barrel plays a crucial role in the plasticizing process, providing the structure and strength needed to withstand high pressures and wear, both abrasive and corrosive. This resistance is essential to ensure the proper functioning of other components and the durability of the entire system. There are **two main types of barrels**, each with specific characteristics and uses:

- **Nitrided Barrels:** They are particularly suitable for operations where abrasive or corrosive wear is not present, making them ideal for applications with lesser or no wear issues at all.
- **Bimetallic Barrels:** Unlike nitrided barrels, bimetallic barrels offer superior resistance to wear.

| EUV CODES | TYPE | INLAY BASE ALLOY | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|---------------|------------------|----------|--------------------------|---------------------------|
| EUV100 | Bimetallic | Fe | 58÷65HRC | •• | • |
| EUV200 | Bimetallic | Ni/Co | 48÷56HRC | • | •••• |
| EUV400 | Bimetallic | Fe/Cr | 62÷69HRC | •••• | ••• |
| EUV1000W | Bimetallic WC | Ni/Wc | 58÷66HRC | •••• | •••• |

| EUV CODES | TYPE | INLAY BASE ALLOY | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|----------|-----------------------|------------|--------------------------|---------------------------|
| EUV31 | Nitrided | Quenched and Tempered | 700÷800HV | • | • |
| EUV34 | Nitrided | Quenched and Tempered | 950÷1100HV | • | • |
| EUV41 | Nitrided | Quenched and Tempered | 950÷1100HV | • | • |



SCREW

Injection

The screw is a crucial component in the injection molding process. A correctly chosen screw geometry can significantly increase the efficiency of the process, allowing for greater production capacity in less time.

Similar to barrels, there are **three types of screws**:

- **Nitrided Screws:** they undergo a specific heat treatment, either gaseous or ionic, which increases their hardness and wear resistance.
- **Hardened Screws:** produced with various types of steel, chosen based on the plastics or compounds to be processed, and subjected to hardening and tempering treatments.
- **“Bimetallic” Screws:** are based on the structure of nitrided screws, but with an added welding of different types of alloys on the top of the flight, which increases their wear resistance.

| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|--|---|------------|--------------------------|---------------------------|
| EUV31 | Quenched and Tempered | Gas or Plasma Nitration | 700÷800HV | • | • |
| EUV34 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV38 | Quenched and Tempered | Gas or Plasma Nitration | 500÷600HV | • | • |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV79 | Cold Work Tool Steel | Hardening & Tempering | 58÷62HRC | ••• | •• |
| EUV10 | Powder Metallurgy Steel - Protection from Abrasion | Hardening & Tempering | 58÷64HRC | •••• | • |
| EUV90 | Powder Metallurgy Tool Steels | Special Hardening & Tempering | 57÷63HRC | •••• | ••••• |
| EUV276 | Superalloy | / | 32÷37HRC | ••• | ••••• |
| EUV50 | Stainless steels | Special Hardening & Tempering / Induction Hardening / Blank | 44÷52HRC | ••• | •••• |



SCREW-TIP

Injection

The Screw-tip is an **essential component in controlling the injection process**. Its shape and the materials used vary depending on the specific application within the plasticizing unit. The main task is to ensure a **correct and consistent flow of the plastic material** during the process and to stop the flow in the injection phase.

There are different types of screw-tip, each one with its specific applications:

- Standard
- Ball Valve
- Fast Closure
- Castle-ring
- Mixing

The choice of the best screw-tip will be determined by the specific needs of the injection molding process and the characteristics of the material to be worked with.



| EUV CODES | TECHNICAL SOLUTION | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|---|-------------------------------|----------|--------------------------|---------------------------|
| EUV38 | Tip made in quenched and tempered steel with armoured wings area with BoroTec 10009 | | | | |
| EUV79 | Rings Made in Cold work tool steel | Hardening & Tempering | 58+62HRC | ... | .. |
| EUV CODES | TECHNICAL SOLUTION | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
| EUV300 | Entirely Made in Cold work tool steel | Hardening & Tempering | 53+55HRC | .. | .. |
| EUV90 | Entirely Made in Powder metallurgy tool steels | Special Hardening & Tempering | 57+63HRC | | |

END-CAP

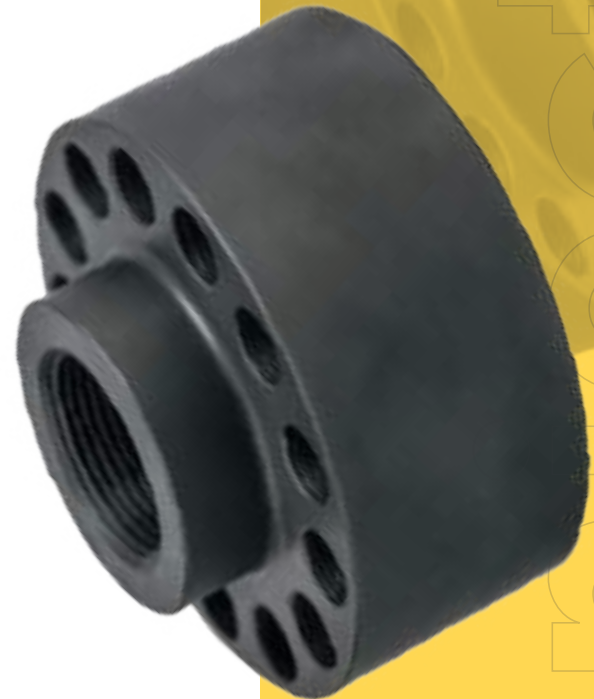
Injection

Barrel End-Caps function as a connecting element between the plasticizing barrel and the nozzle. Euroviti offers a **wide range of end-caps**, made in different types of steel and with PVD treatments or chrome plating to improve wear resistance, reduce friction coefficients, and **increase the durability** of the component.

The range includes standard End-Caps, suitable for most applications or End-Cap equipped with special pivots for mechanical hydraulic closure. The latter are particularly useful in applications that require more accurate control of the flow of plastic material or overlapping the injection process phases.

To assist customers in choosing the most suitable End-Cap, Euroviti's technical department is available to provide advice and expertise, suggesting modifications to the original design to prevent common problems such as material stagnation or the presence of gas.

| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|-------------------------------|-------------------------------|------------|--------------------------|---------------------------|
| EUV38 | Quenched and Tempered | Gas Nitration | 500÷600HV | • | • |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV79 | Cold work tool steel | Hardening & Tempering | 58÷62HRC | ••• | •• |
| EUV300 | Cold work tool steel | Hardening & Tempering | 53÷55HRC | •• | •• |
| EUV90 | Powder metallurgy tool steels | Special Hardening & Tempering | 57÷63HRC | •••• | ••••• |



NOZZLE

Injection

The nozzle is the component that allows the passage of molten material to the mold. There are nozzles of various shapes and sizes, both direct or composed by a body and a tip. In some cases, the nozzle can be equipped with an adapter to facilitate the flow of material.

Among the alternatives to standard nozzles, we find:

- **Mixing Nozzles:** contain a mixing element inside their main body, available in various sizes. The size of the mixing elements and the challenges it faces determine the dimension of these nozzles.
- **Filter Nozzles:** Particularly useful in processes involving recycled and regrinded polymers. They are designed to protect hot runners and molds from damage caused by impurities in the molten material.



| EUV CODES | STEEL TYPE | TREATMENT | HARDNESS | ABRASIVE WEAR RESISTANCE | CORROSIVE WEAR RESISTANCE |
|-----------|-------------------------------|-------------------------------|------------|--------------------------|---------------------------|
| EUV38 | Quenched and Tempered | Gas Nitration | 500÷600HV | • | • |
| EUV41 | Quenched and Tempered | Gas or Plasma Nitration | 950÷1100HV | • | • |
| EUV79 | Cold work tool steel | Hardening & Tempering | 58÷62HRC | ••• | •• |
| EUV300 | Cold work tool steel | Hardening & Tempering | 53÷55HRC | •• | •• |
| EUV90 | Powder metallurgy tool steels | Special Hardening & Tempering | 57÷63HRC | •••• | ••••• |

STOCK

Injection

Fast supply of plasticizing units for injection molding.

Being precise and fast is essential for efficiency in supplying components for plasticizing units used in injection molding. Our technical knowledge and experience allow us to identify the correct spare parts for the most common European and Asian brands, maintaining a wide stock of standard quality products.

This makes Euroviti a point of reference for long-standing customers and a valuable resource for new ones.



Surface Coatings

In certain applications, especially with specific plastics, challenges related to abrasive wear, corrosion, and polymer adhesion on steel surfaces often arise. When steels and heating treatments are not enough to solve them, various alternatives based on advanced technologies can be explored:

- **P.V.D.**
- **H.V.O.F.**
- **Thermal Spray**
- **Chrome Plating**
- **Thermochemical Treatments**

PVD

PVD (Physical Vapor Deposition) is a thin-film coating technology used to deposit a layer of material on the surface of an object. This process involves the evaporation of a solid material to create a vapor that condenses on the object's surface, forming a thin coating.

Euroviti, by using PVD, ensures greater resistance to abrasion, better coating adhesion to the surface, and extended durability. This technology is suitable for a wide range of plastic materials, preventing unwanted corrosive or adhesive effects.



P.v.d.



H.v.o.f.



Chroming

H.V.O.F.

The H.V.O.F. (High Velocity Oxy Fuel) is an advanced method of spray coating with high-performance powders that have protective properties. It is used to improve the surface characteristics of screws, extending their useful life and reducing wear, corrosion, and thermal damage. The H.V.O.F. is a thermal process that combines fuels to create a high-velocity "flame," through which metallic powders are injected, melted, and accelerated.

Once they impact the substrate, they solidify rapidly, forming lamellar structures that are refined with further steps, thanks to the high kinetic energy.

CHROMING

Chrome plating is a widely adopted technique for the surface protection of components such as screws, tips, and end-caps. Through a specialized galvanization process, the components are coated with a metallic layer. This process uses electrical current to transform the base metal into a significantly resistant surface.

This methodology offers excellent slipperiness of the plastic material and good resistance to corrosion and abrasion, all at a relatively low cost. Therefore, chrome plating is an efficient solution to improve the durability and performance of components across a wide range of applications.

THERMOCHEMICAL TREATMENTS

When we talk about thermochemical treatment in our industry, we refer to an oxidation procedure that is carried out following nitriding, offering a valid alternative to traditional galvanic processes.

The resulting product, magnetite, is an oxide of unparalleled compactness and uniformity whose main function is to enrich the mechanical properties of the base material and increase its resistance to chemical phenomena. The peculiarity of this oxide lies in its ability to adhere perfectly to the material, effectively resisting loads and torsions. This means that the layer of magnetite remains firmly anchored, preventing detachment.

The treatment has superior performance even to chrome plating in terms of elasticity, making it an excellent choice for those seeking robustness, flexibility, and durability.



Thermochemical treatments



Services

More than thirty years of experience in the construction and development of plasticizing screws and barrels for a wide range of plastic materials. Designing parts for the client's needs and the materials processed, ensuring high-quality standards in plasticizing, mastering, and mixing.

Euroviti could claim to be one of the few companies in the sector, at a global level, capable of providing customized solutions for both injection and extrusion plasticizing units.

Euroviti is committed to provide high-quality solutions that boost the production process. We do so, by offering R&D services, coatings, refurbishments and a large stock aiming to ensure maximum efficiency and cost reduction for our customers in the plasticizing industry.



Design

Consulting is the starting point of every great project.

Specialized in the creation of components based on technical drawings or samples, Euroviti could claim to be one of the few companies in the sector capable of providing customized solutions for both injection and extrusion.

With specific screw profiles, suitable for the client's needs and the processed materials, ensuring high quality standards in plasticization, homogenization, mastering, and mixing. Euroviti's R&D department has the necessary expertise to study and, if possible, design a customized profile to improve production capacity.

We offer a tailored service that optimizes the production process, ensuring high performance, energy savings, and a significant reduction in production costs.

The customized single-screw design, grouped in the HPS, HPB, and HPE versions, bring numerous benefits, including tangible improvements in production thanks to high efficiency and the quality of the melt. The benefits include significant reductions in pressure, a lower temperature required for melting, a reduction in peripheral speed for less stress on the fibers, and, thanks to the balance between profile and process, a longer lifespan for the screws. Moreover, a more fluid geometry and fewer stagnation points allow for quicker color changes. We also offer a range of surface coatings for better slipperiness and a reduction in the coefficient of friction.





HPS *High Performance Screw*

A three-zone profile (feed, compression, metering) revolutionized by customized variable pitch and TC (compression rate). Its characteristics vary depending on the material to be processed, the available L/Ds, and the features of the IMM.



HPB *High Performance Barrier*

It improves both the mixing and homogenization of the granule featuring a high shearing effect that prevents not melted granules. Can include a mixer with various geometric shapes, and even maddocks to further increase mastering performance, even up to 50% more compared to traditional three-zone screws.



HPE *High Performance Extrusion*

With dozens of different profiles depending on the application area. Tied to the world of extrusion, with extruders that have long L/Ds, they allow for the inclusion of specific features on the screw profile depending on the processed granule, achieving improvements in various aspects.

Screw profiles for recycling

Euroviti's screws represent the ideal solution for the recycling market, with the goal of increasing the efficiency of the extruder and IMM. They contribute to waste reduction and promote the responsible reuse of plastic resources. The recycling of post-industrial or post-consumer plastic waste is motivated not only by economic reasons but also by ethical, environmental, and sustainability considerations.

This synergy between advanced technology and environmental responsibility is fundamental to addressing global challenges related to the use of plastic resources and promoting a more sustainable future.



+HPR *High Performance Recycling*

A great versatile solution born after years of R&D with our customers and partners. Focusing on tackling significant issues with homogenisation, plasticising, and mixing of heterogeneous recycled, leaf or trims materials.



Complete Units

The supply of complete plasticizing units with accessories does not represent a central part of Euroviti's core business. This is because such supply is mainly based on products that can be re-used, resulting in an unnecessary extra expense for the customer.

Euroviti's goal is to encourage customers to reuse as many accessories that they already own as many times as possible, with a view to economy and waste reduction.

However, sometimes this step is necessary. In case of special units or complete units dedicated to specific materials, or when old parts cannot be re-used we are able to provide everything necessary for immediate installation. This includes heaterbands, thermocouples, protective housings, and, when necessary, even insulating mats.



Refurbishment

The plasticizing unit is fundamental in both extrusion and injection. Maintaining it and monitoring its wear is crucial to reduce machine downtime and improve production efficiency. Replacement acting on damaged or worn parts becomes essential to restore performances, and with a refurbishment time and costs can be reduced. Euroviti offers a comprehensive service that includes steel analysis,

dimensional checks and refurbishment for:

- **Barrel Boring**
- **Barrel restoration through bushing**
- **Screw Helix Restoration**
- **Mirror Polishing Screw**
- **Co-Rotating Bushing**

Barrel Boring

Barrel boring involves smoothing the inner diameter to remove signs of wear.

It can be done on bimetallic and nitrided barrels. This work also includes the restoration of the external diameter of the screw and if present the construction of a new check-valve.

Barrel restoration through bushing

Bushing, applicable to every type of single-hole barrel, means to insert a steel sleeve (nitrided, hardened, or bimetallic) at the ends of the barrel. In the extrusion sector, it is applied mainly in the feeding zone, while for injection products, normally it involves the end part.



Barrel boring



Barrel restoration

Screw Helix Restoration

The welding of screws' helix and flight means to restore all screws with cores in good condition, bringing them back to their original diameter. The intervention takes place on the external diameter of the helical part, followed by polishing, heat treatment, and grinding. Euroviti offers various types of welding alloys with various degrees of strength.



Screw welding

Screws Mirror Polishing

Mirror polishing can be done on all the screws free of wear and it is useful when using adhesive materials, minimizing surface roughness and preserving the original characteristics of the screw.



Mirror polishing screw

Co-Rotating Bushing

Old co-rotating barrels can be renewed by replacing the worn sleeves with new ones or by transforming nitrided barrels into bimetallic ones by inserting a hardened steel bushing.

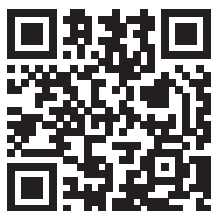


Co-rotating bushing

ALWAYS BY OUR CUSTOMERS' SIDE

Technical and Mechanical Assistance Services.

Euroviti's customer support service aims to provide timely and accurate responses, quickly addressing your inquiries and any requests within 24 hours.





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