

1. GENERAL TERMS AND CONDITIONS OF SALE

1. Delivery of Goods All materials subject to quotation or sale are understood to be sold Ex Works (EXW) our facility. Packaging costs are charged at cost price.

2. Transport and Risks

Shipments made by Mon Plast Srl always travel at the sole risk and peril of the customer. Mon Plast Srl declines all responsibility for any damage, total or partial loss of goods occurring during transport.

3. Deadlines for Claims

Any disputes will be considered exclusively if sent in writing no later than 8 working days from the date of receipt of the goods. Claims received through different methods or timeframes will not be accepted.

4. Warranty and Liability

The products illustrated in this catalog are guaranteed against raw material defects or manufacturing errors. The warranty does not cover defects not attributable to the company. Mon Plast Srl declines all responsibility for direct or indirect damage resulting from the use of the goods produced. Should defects attributable to workmanship or material be ascertained, the goods must be returned to Mon Plast Srl, which will provide for their free replacement. In such circumstances, transport costs will be borne by Mon Plast Srl.

5. Impossibility of Replacement

In the event that the replacement of defective goods is not possible, a credit note will be issued for the full invoiced value.

6. Return Procedure

Any return of goods must be previously authorized in writing by our sales office. Goods arriving at our warehouse without such authorization will be refused and returned to the sender with transport costs at their expense.

7. Shipping Errors

In case of errors attributable to Mon Plast Srl in shipping, the goods must be returned according to the methods agreed upon with the sales office. Transport costs will be borne by Mon Plast Srl and the full value of the goods will be credited.

8. Ordering Errors by the Customer

Any return requests for ordering errors will be evaluated by Mon Plast Srl based on quantities and accepted exclusively for standard material present in the latest edition of the general catalog. The right to return is limited exclusively to cases of order non-conformity attributable to Mon Plast. Specifically, the return will be authorized only if the goods are incorrect compared to what was ordered or show damage occurred during the product loading phase. In any case, the defect must be traceable to a direct responsibility of the seller. Method: To be agreed with the sales office. Transport: At the customer's expense. Credit: The credited value will be equal to the invoice amount minus a percentage as relocation costs (counting, cleaning, unpacking/repositioning). This deduction will vary from a minimum of 10% up to a maximum of 50%.

9. Order Cancellation and Tolerances

Order cancellation is accepted only in writing and limited to standard products from the latest general catalog. Custom-made items (Special Execution): Cancellation is possible only if the production of any component has not started. If production has started, the goods will be regularly delivered and invoiced. Quantitative tolerance: For special execution items, delivery may undergo a quantitative variation compared to the order with a tolerance of -2% / +10%. (Ref. ver. NTIT.18-0719)

10. Validity of Technical Data and Modifications

The dimensions and product types reported in the catalog are indicative and not binding. Mon Plast Srl reserves the right to make changes, additions, or deletions to products without notice, for technical-qualitative or commercial reasons.

11. Payments and Unpaid Invoices

The payment terms indicated on the invoice are mandatory; unauthorized discounts or rounding are not allowed. Unpaid invoice fees: In case of non-payment, a fixed fee of €12 will be charged. Interest: Delays exceeding 30 days from the due date will result in the application of late payment interest. Credit block: Upon the second consecutive unpaid invoice, subsequent supplies will be processed exclusively with advance payment.

12. Order Management Fees and Small Amounts

Invoices up to €50 (taxable): Automatic charge of €10 for management fees. Invoices up to €150 (taxable): Payment accepted exclusively via advance bank transfer. Higher amounts: Standard bank payments to be agreed with the sales office.

13. Invoicing

The invoice will be issued in electronic format (SDI) as provided by Italian law. As a courtesy, a copy in PDF format will also be temporarily sent.

14. Retention of Title

Ownership of the goods transfers to the buyer only at the time of full payment of the agreed price. Until that date, the buyer assumes the role of depositary responsible for the custody of the goods, without right to any compensation.

15. Competent Court

For any legal dispute, the Court of Vicenza shall have exclusive jurisdiction.

2. PRODUCT RESERVATIONS

2.1 Weights

The weights indicated in the tables of this catalog are purely indicative and not binding. Any discrepancies found are to be attributed to natural variations in the specific weights of the individual materials used.

2.2 Dimensions of Plastic Parts

The dimensions of the plastic parts reported in the catalog were measured based on warehouse samples. It is therefore possible to find dimensional deviations on the supplied pieces, with a tolerance varying from 0.1 to 0.6 mm compared to the declared values.

2.3 Product Modification

Mon Plast reserves the final right to modify the dimensions, geometry, or shape of the items in the latest version of the catalog at any time and without obligation of notice.

2.4 Colors and Finishes

As indicated in the latest version of the catalog, most products are available in colored variants. It is specified that the cited RAL reference corresponds exclusively to that of the masterbatch (pigment) used. The color of the finished product might not perfectly match the reference color swatches for the following technical reasons: Presence of glass fiber: Glass fiber cannot be colored. Its presence in percentages of 15-30% tends to reflect white light, causing a general lightening of the chosen shade. Surface finish: The SATIN surface, which characterizes most of our products, reflects light differently than glossy surfaces, making the color appear lighter. This phenomenon is clearly visible in the color test plates we produce, where the GLOSSY section appears darker than the SATIN one despite being made with the same material. Nature of the polymer: The same color grade can take on different shades if molded using different base plastic materials.

3. COMPLIANCE AND REGULATIONS

3.1 RoHS Regulation

It is certified that all products in the catalog are manufactured in full compliance with the RoHS 3 environmental regulation (2015/863/EC). Mon Plast guarantees compliance during the production phase by performing timely checks with its suppliers at every variation. The relative declarations of conformity can be found in the reserved area of our website or requested directly from our Quality Office.

3.2 REACH Regulation

As a processor of raw materials, Mon Plast does not synthesize or introduce new chemical compounds and, therefore, is not subject to the obligation to report hazardous substances to the EC REACH Commission. However, the company verifies that all raw material suppliers fulfill the prescribed obligations. Mon Plast monitors the update of the SVHC CANDIDATE LIST every six months, providing for the consequent update of its declarations.

3.3 Conflict Minerals

Mon Plast declares that all products in the catalog do not contain minerals from conflict zones ("Conflict Minerals"), in compliance with the US regulation – Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

3.4 Product Compliance

Mon Plast guarantees that all items produced and marketed are fully compliant with the agreed technical specifications, approved drawings, and offers stipulated with customers.

3.5 Quality Certification

Mon Plast operates according to a Quality Management System compliant with the UNI EN ISO 9001:2015 standard, with certificate no. 9190.Monp.

4. MATERIALS

The selection of materials used in the production of our handles is the result of careful research aimed at obtaining the best quality-price ratio and optimizing performance according to the intended use. Base raw materials are often modified through specific formulations to enhance characteristics such as resilience, strength, dimensional stability, and surface quality. Although the TYPE of material is indicated on every page of the catalog, a summary is provided below for easier consultation. For detailed requirements, specific technical data sheets can be requested from our Sales/Quality office. Registered users can also download technical documentation in PDF format directly from the reserved area of the website.

4.1 PLASTIC MATERIALS

This category includes almost all materials used for Mon Plast handles.

● **Polyamide 6 (PA6 – Nylon):** It is the technopolymer of choice for our production. It stands out for its high mechanical resistance characteristics (further increased in reinforced versions), good stability to chemical agents, and excellent resistance to impacts and sudden stresses. It is used in various variants with glass fiber fillers, glass microspheres, or mineral fillers in percentages ranging from 15% to 40%.

● **Polycarbonate (PC):** Mainly used for the production of CE safety guards. Used pure in Orange and Yellow colors. For products code T558 and T559, the transparent version (PC Crystal) is used.

● **Polystyrene (PS):** Used in high-impact and self-extinguishing variants, with or without reinforcing fillers. It finds application mainly in products of the TR family.

● **Polypropylene (PP):** Used with mineral reinforcements and special additives, or in a blend with TPV rubber as a replacement for standard Polypropylene. Sometimes used for the production of colored items.

● **Polymethylmethacrylate (PMMA):** Chosen for its excellent optical transparency properties, similar to glass, it is used as a screen for indicators.

● **Polyoxymethylene (POM):** Commonly known by the trade name Delrin, it is selected for its hardness and mechanical resistance characteristics. Used for the production of balls and tips in the W and P families.

● **Nitrile Rubber (NBR):** Thermosetting (vulcanized) material characterized by excellent resistance to chemical agents. Used for the non-slip bases of support feet.

● **Thermoplastic Rubber (TPV):** Cross-linked thermoplastic elastomer to increase its mechanical and chemical performance. It represents an excellent recyclable alternative to NBR rubber. Used in the M-S-P families as a non-slip base.

● **Bakelite (PF31 – Thermosetting Phenolic Resins):** Phenolic-based thermosetting material with a characteristic glossy appearance. Although its use is reduced due to fragility and lower mechanical resistance compared to modern technopolymers, it is still used where high electrical or thermal insulation is required.

4.2 METALS AND ALLOYS

Metals and alloys are used both for the production of structural components and for inserts embedded in the plastic material.

● **Steel for small parts / High speed (AVP):** Used for all lathe-machined inserts. Official designation: CF9SMnPb36.

● **Steel for heat treatments:** Intended for inserts that require superior mechanical resistance and must undergo treatments (hardening, nitriding) or welding.

Official designation: CF35SMnPb10.

● **AISI 303 Stainless Steel:** Standard for all stainless inserts.

Official designation: X10CrMnS1809 (or 1.4305 German standard).

● **AISI 304 Stainless Steel:** Used for inserts needing greater resistance to atmospheric agents, as well as for pins and bolts.

Official designation: X10CrMnS1810 (or 1.4303 German standard).

● **C10 Cold Heading Steel:** Used for standard production of screws and nuts.

● **Brass (OT58):** Alloy used for small inserts with threaded holes.

● **Zamak (Alloy 15):** Die-cast alloy of Zinc, Aluminum, and Copper (ZnAl4Cu1), used for various components of the Metalline line.

● **Aluminum (Alloy 6060):** Used for tubes in the B family and for components in the W family.

4.3 SURFACE FINISHES

● **Blue Zinc Plating:** Standard galvanic treatment for all steel inserts, performed with a thickness of 3 to 5 µm.

● **Burnishing (Black Oxidation):** Standard treatment for many inserts in the A and M families, as well as for inserts with H7 precision tolerance or special machining.

● **Epoxy Powder Coating:** Finishing treatment applied to many aluminum and zamak components.

● **Electroless Nickel Plating:** Surface coating treatment available upon request for inserts and specific items in the W family.

5. TEMPERATURE RESISTANCE (MANUFACTURERS' VALUES)

The temperature resistance of plastic materials is not an absolute value but is influenced by various external factors: the determining variables are the duration of exposure to the heat source and the extent of the applied mechanical stresses. The main risk associated with thermal exposure is the progressive softening of the material. In this critical phase, the application of a force (e.g., tightening torque) can compromise the bond between the plastic matrix and the embedded metal insert, causing component failure. Although the inserts are designed with specific geometries (knurling/undercuts) to ensure maxi-

mum anchoring, exceeding the limit temperatures inevitably compromises the functionality of the piece.

Below are the official technical values relative to the raw materials. However, to ensure greater operational precision, specific limit values for each particular item are indicated on every page of the catalog, under each product CODE. These values were calculated considering not only the raw material but also the thicknesses, the TYPE of insert used, and field experience.

Material	Continuous use (8 hours) Max. °C	Continuous use (8 hours) under load HDT/A °C max.	Short use (60 ÷ 120 sec.) °C max	Continuous use (8 hours) °C min
Bakelite (termoind.)	200	-	200	-40
PA6 + GF	110	100	160	-10
PA6 puro	80	80	120	-10
PC	120	120	140	-40
ABS	85	100	100	-40
PS	75	75	90	-10
PELD-PEHD	75	40	85	-50
PP copolimero + GF	65	90	90	-50
Gomma NBR	120	-	130	-30
Gomma TPV	80	-		-30

6. MECHANICAL RESISTANCE

Simply consulting the technical data sheet of the raw material is not sufficient to guarantee the final performance of the product. In the injection molding process, critical variables intervene that can alter the mechanical characteristics of the finished piece, such as the positioning of the injection point, cooling stresses, and non-homogeneous distribution of fillers and additives.

To overcome these unknowns, Mon Plast has chosen to provide empirical performance data, measured directly "in the field" through specific tests that simulate real conditions of use. Our internal laboratory is equipped with advanced instrumentation (dynamometers, climatic chambers, fatigue testing machines, hardness testers, and dedicated fixing systems) to replicate various breaking stresses. The results are processed via dedicated software that returns precise data on applicable forces, tightening torques, twisting moments, and breaking loads.

Safety Coefficient To guarantee maximum reliability, a prudential safety coefficient of 1.3 is applied to the limit value measured by the tests. The breaking resistance data thus calculated are reported in the catalog pages next to the most relevant items; specific graphic symbols (arrows) clearly indicate the position and direction of the forces applied during the test.

Technical Documentation Complete test sheets are available at our sales office or downloadable from the reserved area of the website. Each report includes:

Test data;
● Description of the test with execution diagrams;
● Specifications of the machinery used;
(Upon request) Breaking graphs processed by the software.

Reference Environmental Conditions It is specified that all tests are performed in a controlled humidity environment and at a constant temperature of 23°C. Exposure to different environmental conditions (different temperatures or humidity levels) can lead to variations in resistance characteristics. For use in specific operating conditions, we invite you to consult our Technical Office in advance.

7. RESISTANCE TO CHEMICAL AGENTS

Resistance to chemical agents constitutes one of the distinctive characteristics of plastic materials. However, given the heterogeneous nature of polymers, each deriving from specific chemical formulations, the response to attacks by aggressive substances varies significantly from one material to another.

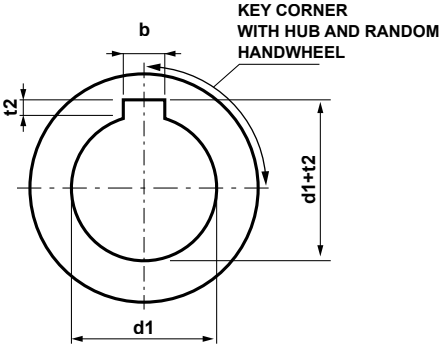
To support the customer in selecting the most suitable product for their conditions of use, we provide below a summary of the chemical compatibility relative to the main materials used in the production of our handles. For more specific needs or further details, detailed chemical compatibility tables are available upon request.

Substance	Substance	PA6 (Poliammide)	PS Polistirolo)	ABS	PP (Polipropilene)	PC (Policarbonato)	PE-LD	PE-HD
GENERAL	Water	A	A	A	A	A	A	A
	Inorganic salts	A	A	A	A	B	A	A
	Halogen	E	E	E	D	A	E	E
	Oxidizing compounds	E	C	D	E	C	E	E
ACIDS	Weak acids	E	A	A	A	A	A	A
	Strong acids	E	B	B	B	D	A	A
	Hydrofluoric acid	E	B	A	B	B	A	A
ALKALES	Weak alkalis	B	B	A	A	E	A	A
	Strong alkalis	A	A	A	A	E	A	A
SOLVENTS	Paraffinic hydrocarbons	B	D	C	B	B	D	
	Halogens-Alkalis	B	E	E	D	E	E	D
	Alcohols	B	A	B	A	B	A	A
	Ethers	A	D	E	C	E	D	C
	Foreign	A	E	E	B	C	B	A
	Ketones	A	E	E	B	C	B	A
	Aldehydes	B	D	D	A	E	B	
	Amines	A	A	A	A	E	A	
	Organic acids	B	B	A	B	C	A	A
OIL/CARB.	Aromatic compounds	B	D	E	D	E	B	B
	Fuels	A	D	A	B	B	B	B
	Mineral oils	A	C	A	A	A	B	B
	Fats	A	A	A	A	A	B	A
	Oil	A	A	A	A	A	B	A

LEGEND	A	B	C	D	E
	STABLE	FROM STABLE TO SLIGHTLY STABLE	LIMITED STABILITY	FROM SLIGHTLY STABLE TO UNSTABLE	UNSTABLE

8. TAB SEATS

Mon Plast offers broaching services for the creation of keyways on metal inserts with through-holes. The available standard dimensions are listed in the table below. For requests regarding non-standard dimensions or tolerances, please contact our Technical/Sales Department to verify feasibility.



Ø shaft d1 (mm.)	b x h (mm.)	t2 (mm.)
FROM 6 TO 8	2 H8 x 2	1,0 ^{+0,1/-0}
FROM 8 TO 10	3 H8 x 3	1,4 ^{+0,1/-0}
FROM 10 TO 12	4 H8 x 4	1,8 ^{+0,1/-0}
FROM 12 TO 17	5 H8 x 5	2,3 ^{+0,1/-0}
FROM 17 TO 22	6 H8 x 6	2,8 ^{+0,1/-0}
FROM 22 TO 30	8 H8 x 7	3,3 ^{+0,1/-0}
FROM 30 TO 38	10 H8 x 8	3,3 ^{+0,1/-0}

ATTENZIONE in fase di stampaggio il posizionamento angolare della linguetta rispetto al mozzo del volantino è casuale.

9. SQUARE OR HEXAGONAL HOLES

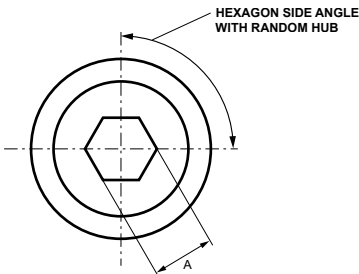
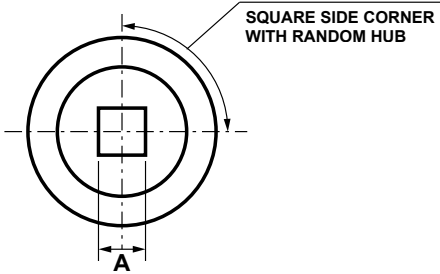
Mon Plast offers the possibility of creating square or hexagonal section holes on metal inserts with through holes. “Metal-Free” Solution (Molded holes) Should the final application allow it, it is possible to obtain the same geometries (square or hexagonal) directly in the plastic body through molding.

Application advantages: The absence of metal inserts makes this solution ideal for the medical and food sectors and for use in outdoor environments, eliminating any risk of oxidation or corrosion at the root.

Note on tolerances: It is noted that, for holes obtained directly in the mold, dimensional tolerances are subject to the intrinsic constraints of the injection process and cannot guarantee the same precision as mechanical machining on metal.

Resistance: The use of technopolymers reinforced with glass fiber guarantees the walls of the hole considerable structural and mechanical resistance.

The standard sizes available are reported in the following table:

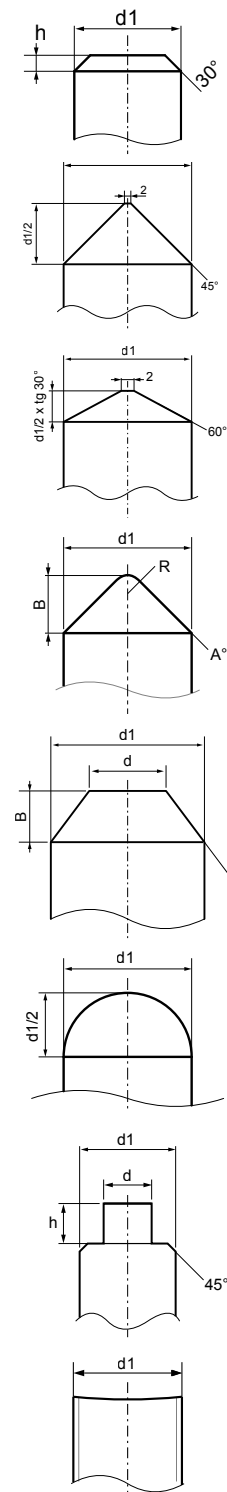


QUADRO (su insert) AxA (mm.)	QUADRO (su plastica stampata) AxA (mm.)	ESAGONO (su insert) A (mm.)	ESAGONO (su plastica stampata) A (mm.)
5x5 H7	5 ^(+0,2 / +0,1)	5 H7	5 ^(+0,2 / +0,1)
6x6 H7	6 ^(+0,2 / +0,1)	6 H7	6 ^(+0,2 / +0,1)
8x8 H7	8 ^(+0,2 / +0,1)	8 H7	8 ^(+0,2 / +0,1)
10x10 H7	10 ^(+0,2 / +0,1)	10 H7	10 ^(+0,2 / +0,1)
12x12 H7	12 ^(+0,2 / +0,1)	11 H7	12 ^(+0,2 / +0,1)
14x14 H7	14 ^(+0,2 / +0,1)	12 H7	14 ^(+0,2 / +0,1)
17x17 H7	16 ^(+0,2 / +0,1)	14 H7	16 ^(+0,2 / +0,1)
	17 ^(+0,2 / +0,1)	16 H7	17 ^(+0,2 / +0,1)

10. EXECUTION OF THREADED STUD TERMINALS

The threaded studs integrated into our handles can vary in the TYPE of execution of the free end. The two standard configurations used in production are identified as Type A and Type Z.

Due to needs related to production flexibility, the catalog sheets do not specify the TYPE of terminal provided by default. Therefore, if the application specifically requires the presence of a lead-in chamfer at the end of the thread, it is essential to make an explicit request during the ordering phase. Special Executions Upon request and for minimum quantities, Mon Plast is able to provide studs with terminals different from the standard. To facilitate selection, we report below the most common technical configurations. In case of an order for special executions, please indicate the reference letter of the chosen end and the relative dimensional dimensions necessary for its realization.



TYPE A – NORMAL CHAMFER

The chamfer performed is standard at 30°.

The chamfers follow the following table:

With a minimum of 250 pieces, it is possible to perform chamfers to drawing.

Filettature d1	Smusso	Filettature d1	Smusso	Filettature d1	Smusso
M05	0,8x30°	M10	1,1x30°	M16	1,5x30°
M06	0,9x30°	M12	1,3x30°	M18	1,8x30°
M08	0,x30° *	M14	1,5x30°	M20	1,8x30°

TYPE B – 45° CONICAL POINT

The 47° conical point terminal starts from the thread diameter and ends in a flat surface with Ø 2mm. The length of the conical part is slightly less than half the diameter of the pin.

TYPE C – 60° CONICAL POINT

The 60° conical point terminal starts from the thread diameter and ends in a flat surface with Ø 2mm. The length of the conical point is equal to half the thread diameter multiplied by the Tangent of 30° ($d1/2 \times \tan 30^\circ$).

TYPE D – RADIUSED CONICAL POINT

The radiused conical point terminal is like a normal conical point.

With the difference that instead of ending with a vertex, it ends with a radius.

When ordering, please specify the following measurements:

R = Radius / A = Angle of Conicity / B = Distance of the Radius from the start of the conicity.

TYPE E – TRUNCATED CONICAL POINT

The truncated conical point terminal is like a normal conical point.

With the difference that instead of ending with a vertex, it ends with the vertex truncated.

When ordering, please specify the following measurements:

A = Angle of Conicity / d = Base Diameter / B = Distance of the Base from the conicity.

TYPE F – SPHERICAL POINT

The spherical point terminal ends with a sphere of diameter equal to the thread diameter.

The length of the sphere is half compared to the diameter.

TYPE G – PLASTIC FIXING TIP

The plastic tip is a small plastic cylinder, press-fitted into a hole made in the end of the stud.

The tip is used in cases where it is necessary to protect the part to be tightened from scratching.

The stud is supplied with the tip already mounted.

The diameters and protrusion of the tip are as per the following table:

Threads d1	d x h	Threads d1	d x h	Threads d1	d x h
M05	3 x 2	M10	6 x 3	M16	8 x 4
M06	3 x 2	M12	6 x 3	M18	10 x 5
M08	5 x 3	M14	8 x 4	M20	10 x 5

TYPE Z – END WITH VI EDGE

This type of terminal is present in all studs obtained by molding.

It does not have chamfers and the surface of the end is not regular.

11. GENERAL TOLERANCES

11.1 Threaded Studs

Metric thread diameter (standard and fine pitch): 6g ISO UNI 5545-65. Protrusion of the stud from the plastic hub: ± 1 mm.

11.2 Smooth Studs

Outer diameter: h9 – h11 (standard tolerance for drawn bars UNI 5105). Protrusion of the stud from the plastic hub: ± 1 mm.

11.3 Partially Threaded Smooth Studs

For studs with mixed machining, the following tolerances apply:

Outer diameter: h9 – h11 (standard tolerance for drawn bars UNI 5105). Metric thread diameter (standard and fine pitch): 6g ISO UNI 5545-65.

Protrusion of the stud from the plastic hub: ± 1 mm.

Length of the threaded part: ± 0.2 mm.

11.4 Blind Threaded Holes

Metric thread diameter (standard and fine pitch): 6H ISO UNI 5545-65. Useful depth: Since this measurement is influenced by the TYPE of insert, the catalog data were measured using a plug gauge with 6g tolerance and a 1 mm x 45° lead-in chamfer. The depth tolerance is -0 / +1 mm.

11.5 Through Threaded Holes

Metric thread diameter (standard and fine pitch): 6H ISO UNI 5545-65. Thread length: ± 0.2 mm.

11.6 Through Smooth Holes

Tolerances for through smooth holes vary based on the insert finish:

Zinc-plated Insert: Hole diameter H10 – H11 ISO UNI 5545-65.

Burnished Insert: Hole diameter H7 ISO UNI 5545-65.

Preparation holes (diameter 5/8 mm for subsequent machining): H10.

Smooth hole depth: ± 0.5 mm.

11.7 Threaded holes obtained by molding

(Plastic)

For threads obtained directly in the plastic material, it is not possible to define a unique tolerance due to process variables (shrinkage, density, injection pressure). Normally, the thread is made with a slight oversize to facilitate assembly without compromising the seal. To ensure secure and long-lasting fixing over time, the use of suitable thread-lockers or sealants is recommended.

11.8 Smooth holes obtained by molding

(Press-fit Assembly)

To ensure optimal assembly on shafts with different tolerances, Mon Plast creates a series of coaxial compensating lines inside the smooth hole, having a diameter smaller than the nominal hole. During press-fit assembly, these ribs deform, adapting to the dimensional differences of the shaft and ensuring an excellent seal.

Hole depth tolerance: ± 1 mm.

11.9 General tolerances of plastic products

Unless otherwise indicated, the plastic items in the catalog are not subject to stringent prescriptive tolerances. Generally, dimensional variations (length or diameter) in the order of ± 0.5 mm are to be considered irrelevant to the functionality of the piece.



12. REWORKING OF PRODUCTS

Mon Plast products are suitable for subsequent mechanical machining, thanks to the use of high-quality reinforced technopolymers and inserts in machinable metals. However, to guarantee the structural integrity and functionality of the component, it is fundamental to observe some technical precautions during modification operations.

12.1 General Machining Notes

- Cutting parameters: In chip removal operations on thermoplastic materials, it is imperative to maintain low cutting speeds and reduced feeds. This precaution prevents local overheating of the material which could reach the softening temperature, causing degradation of mechanical characteristics, premature wear of the cutting edges, and the formation of burrs difficult to remove.
- Tooling: For continuous or series machining, the use of carbide tools is recommended. High-speed steel (HSS) tools tend to have a limited life on these materials. It is essential to keep the cutting edge always perfectly sharp.
- Cooling: It is necessary to ensure abundant lubrication-cooling during machining, using simple emulsified water. This favors the disposal of heat generated by friction.

12.2 Enlarging the Axial Pilot Hole

- The operation of enlarging the hole on a metal insert can be performed following these directives:
- Centering: It is recommended to start reaming from the side of the existing pilot hole to ensure better centering.
 - Heat management: If the difference between the pilot hole diameter and the final one is significant, it is necessary to proceed in stages, making multiple passes with increasing diameters. Heavy chip removal in a single pass would generate excessive heat on the metal insert; this heat, transmitting to the surrounding plastic, could cause it to soften and compromise the physical grip between the insert and the plastic body (with consequent risk of slippage or rotation of the insert itself).
 - Clamping (Small handwheels): For small diameter handwheels, fixing on the chuck by clamping the piece by the hub is recommended.

- Clamping (Families C and D): For control handwheels belonging to families C and D, it is preferable to clamp the piece on the chuck by the rim. This way, better centering between the hole and the geometry of the handwheel is obtained. Maximum care in centering the piece is still recommended.
- Cooling: Also in this phase, the abundant use of emulsified water is crucial for thermal dissipation.
- Through holes: In the transformation of a blind hole into a through hole, no problems of plastic chipping at the drill exit point are encountered.

12.3 Execution of Radial Holes (Smooth or Threaded)

- Braking effect: It is recalled that a threaded hole made directly on the plastic tends naturally to tighten (elastic shrinkage). This phenomenon is positive as the plastic exerts a slight braking force on the set screw, preventing accidental unscrewing.
- Tapping: To avoid premature wear of the taps during threading, it is recommended to perform the pre-hole with a slightly larger diameter than the standard for metals.



COLORS



ORANGE
RAL 2004



BLUE
RAL 5015



YELLOW
RAL 1021



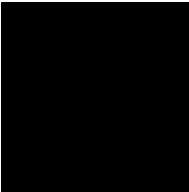
RED
RAL 3000



GREEN
RAL 6024



GREY
RAL 7035



BLACK
RAL 9011



13. SPECIAL EXECUTIONS

Constant technological evolution requires the search for specific solutions. The Mon Plast Technical Office is available for the study and design of custom solutions.