

SERPLAST



***Tapping inserts and stud bolts
for plastic material***

**SOCIÉTÉ INDUSTRIELLE DE MÉCANIQUE
ET D'AUTOMATION DU FAUCIGNY**

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S.A. au capital de 249 600 € - R.C. Nanterre 94 B 3563 - Siret 606 620 524 00060 - APE 516K

SERPLAST RANGE :

Our Serplast range is very large and offers different uses with different mounting ways as shown on table below.

	Page	Material		Different mounting ways				
		Thermoplastics	Duroplastics	Insert moulding	By heat	Ultrasonic	By expansion	
Serplast type TH	3							
Serplast type THC	4							
Serplast GTH/GTHC	5							
Serplast type TR	7							
Serplast type DM	8							
Serplast type C	9							
Serplast type CM	10							

TH



THC



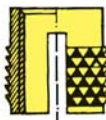
GTH/GTHC



TR



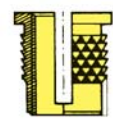
DM



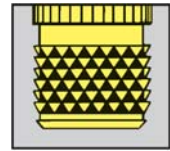
C



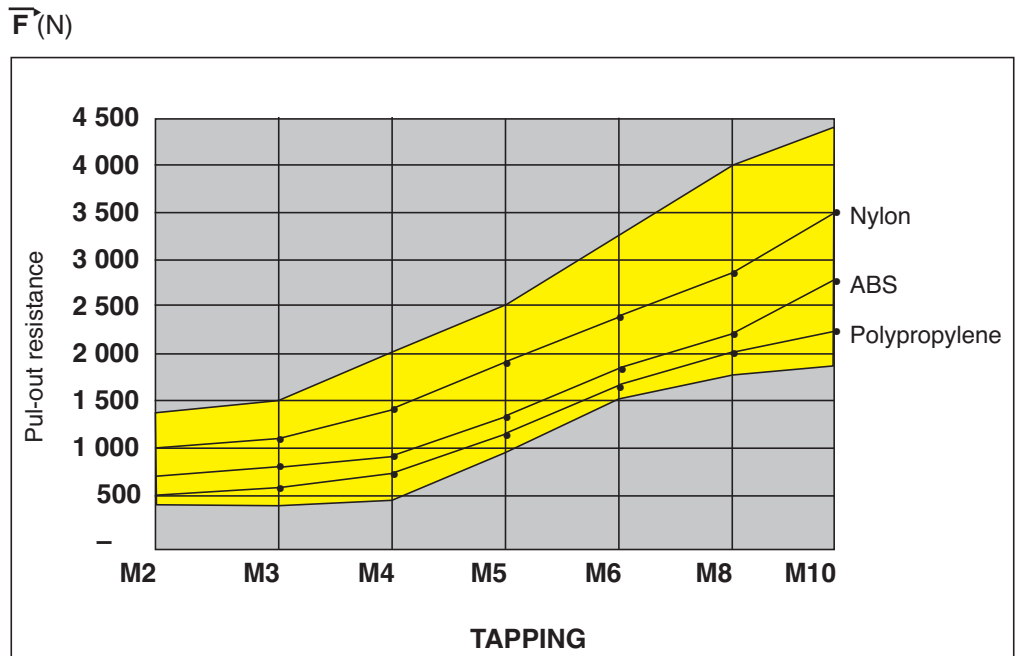
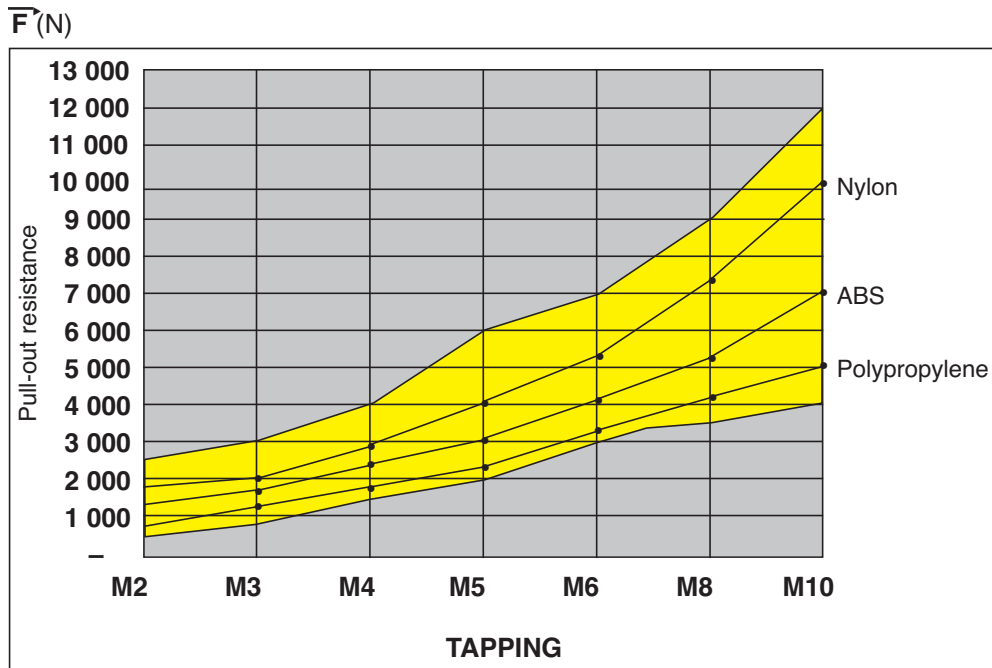
CM



SERPLAST PULL-OUT RESISTANCE \vec{F}



SERPLAST
Type TH, THC, GTH
GTHC
by thermic or
ultrasonic process.
Mounting is a question
of fusing the plastic
around the SERPLAST
insert.
The value are in N.



SERPLAST
Type TR, DM, C, CM
by expansion
The value are in N.

Please note that the values of the above graphs are given for information because many parameters influence the hold of the inserts : the material, the hole dimensions in the plastic and the mounting conditions.

Test, free of charge, can be performed in our laboratories for special application. Our technical department can advise you on the type of insert to be used.

THERMIC AND ULTRASONIC MOUNTING PROCEDURE

SERPLAST TYPES TH, THC, GTH, GTHC



ADVANTAGES

They avoid stress in the plastic surrounding the insert. With their high resistance to tensile strength and tightening torque, they have all the advantages of cast inserts moulded without the disadvantages.

- **ECONOMIC** - Mounting after moulding, using a thermic or ultrasonic process, is fast and easy, allowing a substantially higher cycle rate of injected parts. The use of sonotrodes or adapted heating bits enables positioning of several SERPLAST TH inserts at the same time.
- **RELIABILITY - SOLIDITY** - The outside configuration of SERPLAST TH provides high resistance to tensile strength and tightening torque, SERPLAST TH ensures a resistant tapped or threaded mounting.

APPLICATIONS



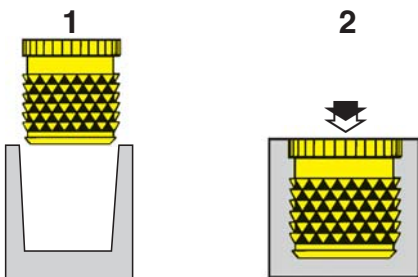
SERPLAST TH inserts and studs can be used in all thermoplastics inside a moulded hole.

SERPLAST TH - SERPLAST TH inserts and studs were designed for very resistant mounting in thermoplastics. They provide a reliable and lasting metal mounting. The external configuration ensures free movement of flow and complete filling of the plastic material around the teeth during the installation process, giving a solid bond with maximum tensile strength resistance. The upper flute increases rotation resistance.

SERPLAST THC - SERPLAST THC inserts have the same advantages of resistance to tensile strength and rotation as SERPLAST TH, but the large upper collar ensures efficient electrical contact for attachment of components, lugs or other metal parts. This insert also plays a role for thinner plastic with punched holes. The collar resting against the plastic provides greater resistance to tensile strength when the traction force applied is in opposition to the collar.

MATERIAL - Brass, but can also be made of dural, soft or stainless steel, arcap.

2 MOUNTING POSSIBILITIES



1 Positioning the insert in the hole manually or automatically.

2 Contact and pushing home of the insert with a heating rod or sonotrode.

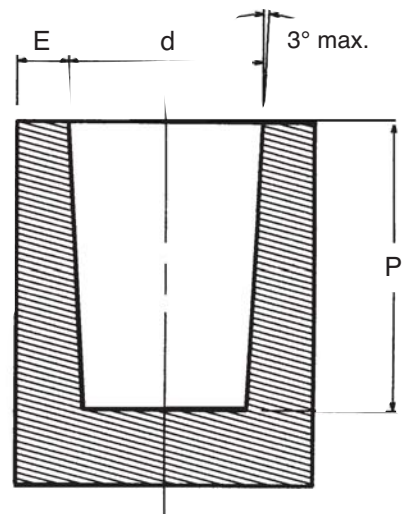
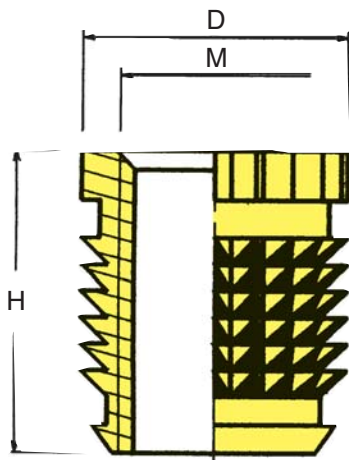
By thermic or ultrasonic process. Mounting is a question of fusing the plastic around the SERPLAST TH insert.

THERMIC MOUNTING - HEATING BIT - This system is based on the principle of thermic exchange. The SERPLAST TH insert or stud is placed in contact with heating rod. Simultaneously, as a result of thermic exchange, the plastic softens and the pressure applied on the rod forces the insert or stud into the hole. Once cooled, one has a perfect mould around the SERPLAST insert or the indexed section of the stud, providing the same mechanical resistance as the cast moulded inserts. We recommend our manual SER 2000 machine for small series, and SER 3000 B for large series.

ULTRASONIC MOUNTING - SONOTRODE - A high frequency generator transmits ultrasonic vibrations to a sonotrode in contact with the SERPLAST insert or stud, up to the area of the metal-plastic junction. The heat created by the vibrations of the insert in contact with the plastic is enough to momentarily melt it. At the same time, the pressure of the sonotrode on the SERPLAST insert pushes it home. Once the sonotrode is removed, the plastic cools and forms around all the SERPLAST insert or stud, so anchoring it in position. The assembly provides considerable resistance to torsion and tensile strength.

TYPE TH

For thermoplastics, using a thermic or ultrasonic process.

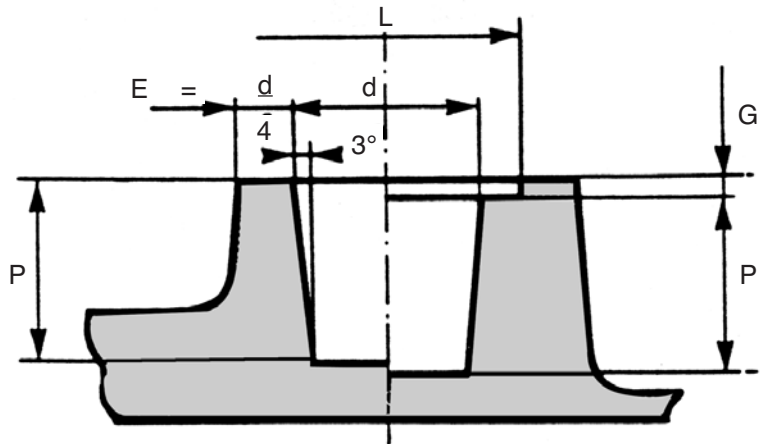
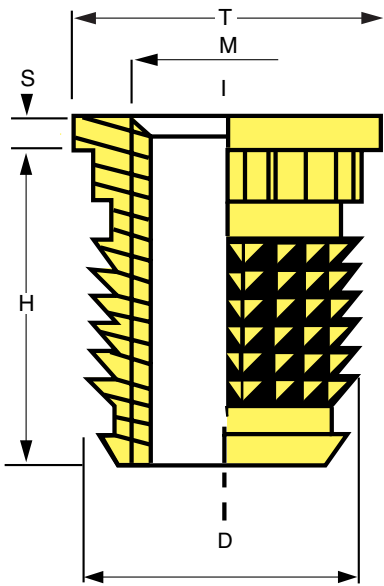


ISO thread M	Article reference	Height H	Diameter D	Hole dimensions		
	Serplast TH			d	P mini.	E mini.
M2	40/TH020H040	4	4	3,5	5,5	1
M2,5	40/TH025H050	5	4	3,5	6,5	1
M3	40/TH030H055	5,5	4,5	4	7	1,1
M3,5	40/TH035H060	6	5,5	5	7,5	1,3
M4	40/TH040H075	7,5	6	5,4	9	1,4
M5	40/TH050H080	8	7	6,4	9,5	1,7
M6	40/TH060H090	9	8,5	7,9	11	2
M8	40/TH080H110	11	10	9,4	13	2,4
M10	40/TH100H130	13	12	11,3	15,5	2,9

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

TYPE THC

For thermoplastics, using an ultrasonic or thermic process.



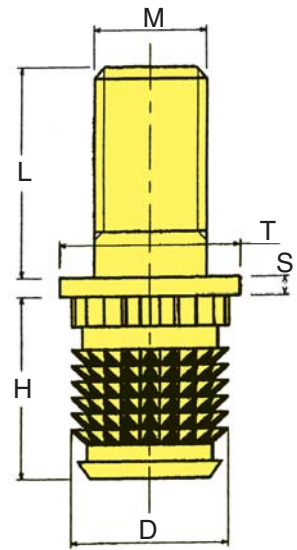
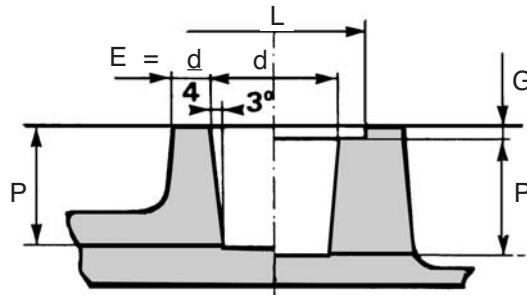
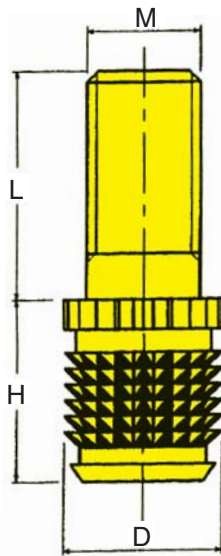
ISO thread M	Article reference	Height H	D	T	S	Hole dimensions				
	Serplast THC					d	P mini.	E mini.	L mini.	G
M2	40/THC020H040	4	4	5	0,5	3,5	6,5	1	5,2	0,5
M2,5	40/THC025H050	5	4	5	0,5	3,5	6,5	1	5,2	0,5
M3	40/THC030H055	5,5	4,5	6	0,5	4	7	1,1	6,2	0,5
M3,5	40/THC035H060	6	5,5	7	0,5	5	7,5	1,3	7,2	0,5
M4	40/THC040H075	7,5	6	7,5	0,8	5,4	9	1,4	7,7	0,8
M5	40/THC050H080	8	7	8	0,8	5,4	9,5	1,7	8,2	0,8
M6	40/THC060H090	9	8,5	10	0,8	7,9	11	2	10,2	0,8
M8	40/THC080H100	10	10	12	1	9,4	13	2,4	12,2	1
M10	40/THC100H130	13	12	14	1	11,3	15,5	2,9	14,2	1

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

TYPE GTH

For thermoplastics, using an ultrasonic or thermic process.

TYPE GTHC



ISO thread M	Article reference		Height					Hole dimensions				
	Serplast GTH	Serplast GTHC	H	D	L	T	S	d	P mini	E mini	L mini	G
M3	40/GTHM03L05	40/GTHCM03L05	5,5	4,5	5	6	0,5	4	7	1,1	6,2	0,5
	40/GTHM03L10	40/GTHCM03L10			10							
	40/GTHM03L15	40/GTHCM03L15			15							
M4	40/GTHM04L05	40/GTHCM04L05	7,5	6	5	7,5	0,8	5,4	9	1,4	7,7	0,8
	40/GTHM04L10	40/GTHCM04L10			10							
	40/GTHM04L15	40/GTHCM04L15			15							
M5	40/GTHM05L10	40/GTHCM05L10	8	7	10	8	0,8	6,4	9,5	1,7	8,2	0,8
	40/GTHM05L15	40/GTHCM05L15			15							
	40/GTHM05L20	40/GTHCM05L20			20							
M6	40/GTHM06L10	40/GTHCM06L10	9	8,5	10	10	0,8	7,9	11	2	10,2	0,8
	40/GTHM06L15	40/GTHCM06L15			15							
	40/GTHM06L20	40/GTHCM06L20			20							
M8	40/GTHM08L15	40/GTHCM08L15	11	10	15	12	1	9,4	13	2,4	12,2	1
	40/GTHM08L20	40/GTHCM08L20			20							
	40/GTHM08L25	40/GTHCM08L25			25							

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

SPLIT INSERTS FOR INSERTION BY EXPANSION IN PLASTICS

As with all our SERPLAST inserts, the shape and configuration of teeth formation avoids any movement or rotation, even when a very high tightening torque is applied. Our SERPLAST inserts absorb stress and evenly spread loads ensuring a solid and permanent mounting.

SERPLAST TYPES TR, DM, C, CM

ADVANTAGES

- They provide a resistant internal threading for plastic materials and suitably replace cast moulded inserts.
- Positioned after moulding, either manually or automatically, they allow substantially higher production rates.
- Deterioration of internal threading in plastic parts is done away with.
- Very precise positioning.
- If the insert to be cast moulded has not been positioned exactly right, it avoids to damage the cast when closing.

APPLICATIONS

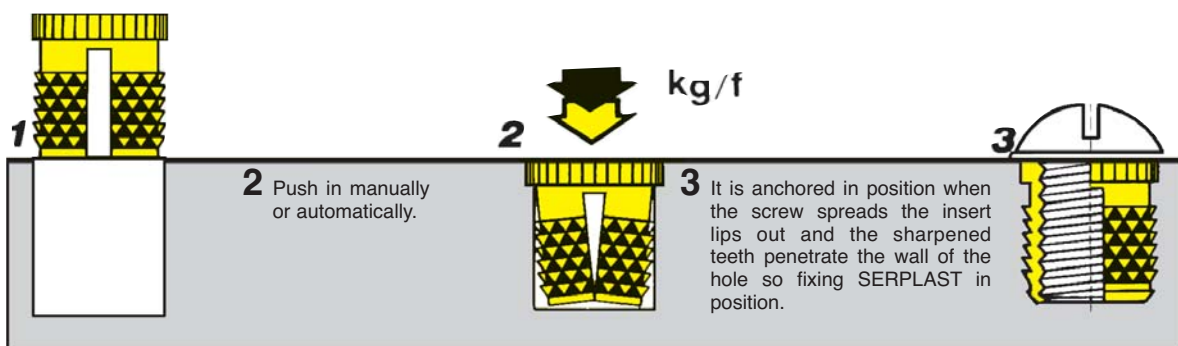
SERPLAST can be used with all types of plastic. SERPLAST TR is for thermoplastics ; SERPLAST DM is for duroplastics. They are inserted in a special hole that has been moulded or drilled.

MATERIAL AND FINISH

SERPLAST TR-DM INSERTS are made of brass and can be zinc or nickel coated.

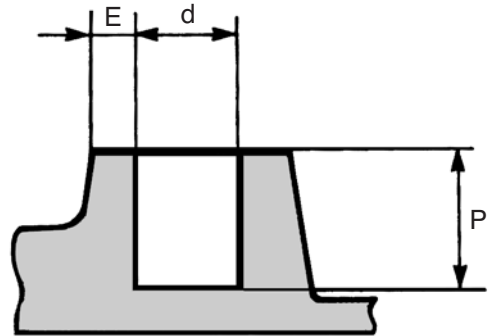
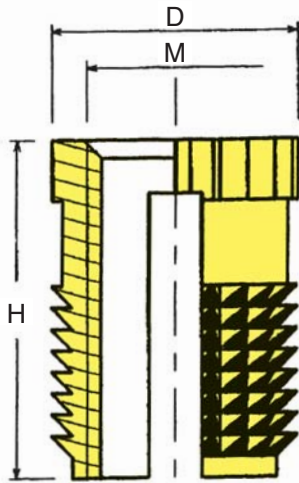
MOUNTING

By simple manual pressure, the SERPLAST INSERT fits into the hole made for it, no special tooling is required.



* To ensure solid mounting, the threaded length of the screw to be put in the SERPLAST insert must be at least the same length as the insert.

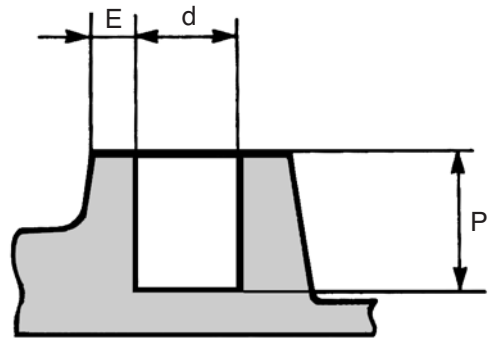
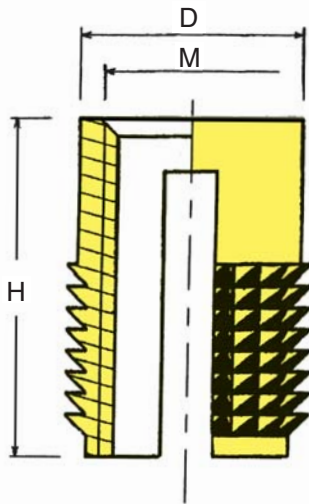
TYPE TR Split inserts for insertion by expansion in plastics.



ISO thread M	Article reference	Heigth H	D	Hole dimensions		
	Serplast TR			d	P mini.	E mini.
M2	40/TR020H040	4	4	3,5	4,5	1,8
M2,5	40/TR025H040 40/TR025H065	4 6,5	4,5	4	4,5 7	2
M3	40/TR030H050 40/TR030H065	5 6,5	4,5	4	5,5 7	2
M3,5	40/TR035H050 40/TR035H080	5 8	5,5	5	5,8 8,8	2,5
M4	40/TR040H080 40/TR040H095	8 9,5	6	5,5	8,8 10,3	2,8
M5	40/TR050H095 40/TR050H110	9,5 11	7	6,5	10,3 12	3,3
M6	40/TR060H095 40/TR060H125	9,5 12,5	8,5	8	10,3 10,5	4
M8	40/TR080H100	10	10	9,5	11	4,8
M10	40/TR100H130	13	12	11,5	14	5,8

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

TYPE DM Split inserts for insertion by expansion in duroplastics.

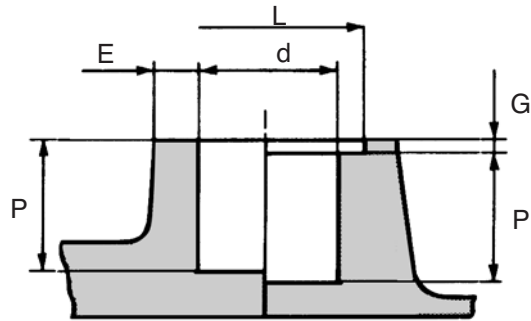
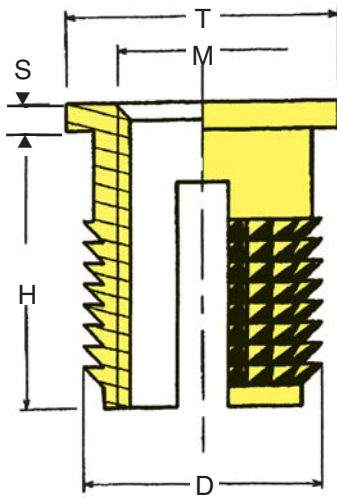


ISO thread M	Article reference	Height H	D	Hole dimensions		
	Serplast DM			d	P mini.	E mini.
M2	40/DM020H040	4	3,4	3,5	4,5	1,8
M2,5	40/DM025H040 40/DM025H065	4 6,5	3,8	4	4,5 7	2
M3	40/DM030H050 40/DM030H065	5 6,5	3,8	4	5,5 7	2
M3,5	40/DM035H050 40/DM035H080	5 8	4,8	5	5,8 8,8	2,5
M4	40/DM040H080 40/DM040H095	8 9,5	5,4	5,5	8,8 10,3	2,8
M5	40/DM050H095 40/DM050H110	9,5 11	6,4	6,5	10,3 12	3,3
M6	40/DM060H095 40/DM060H125	9,5 12,5	7,9	8	10,3 13,5	4
M8	40/DM080H100	10	9,4	9,5	11	4,8
M10	40/DM100H130	13	10,9	11,5	14	5,8

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

TYPE C

SERPLAST with collar. Recommended for attaching electrical components or other metal parts.

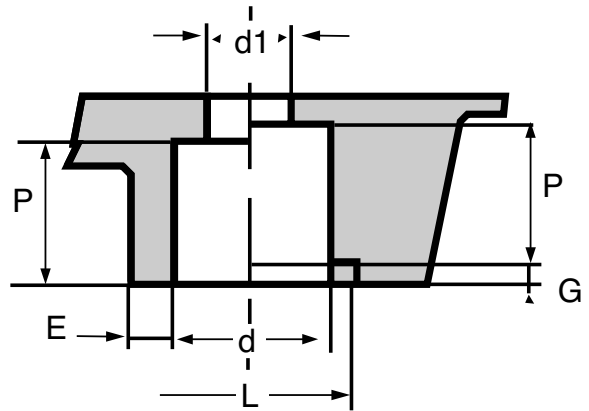
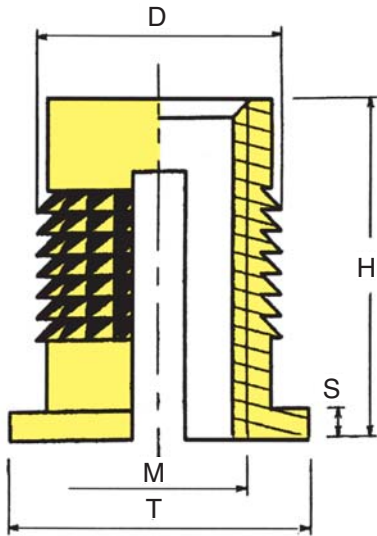


ISO thread M	Article reference	Height H	D	T	S	Hole dimensions				
	Serplast C					d	P mini.	E mini.	L mini.	G
M2,5	40/C025H065	6,5	4,5	6	0,5	4	7	2	6,2	0,5
M3	40/C030H065	6,5	4,5	6	0,5	4	7	2	6,2	0,5
M3,5	40/C035H080	8	5,5	7	0,5	5	8,8	2,5	7,2	0,5
M4	40/C040H080	8	6	7	0,8	5,5	8,8	2,8	7,2	0,8
M5	40/C050H080	8	7	8	0,8	6,5	8,8	3,3	8,2	0,8
M6	40/C060H095	9,5	8,5	10	0,8	8	10	4	10,2	0,8
M8	40/C080H100	10	10	12	1	9,5	10,3	4,8	12,2	1
M10	40/C100H130	13	12	14	1	11,5	14	5,8	14,2	1

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

TYPE CM

Split inserts for insertion by expansion in duroplastics.



ISO thread M	Article reference	Height	D	T	S	Hole dimensions					
	Serplast CM	H				d	P mini.	E mini.	L mini.	G	d1
M2,5	40/CM025H065	6,5	4,5	6	0,5	4	7	2	6,2	0,5	2,7
M3	40/CM030H065	6,5	4,5	6	0,5	4	7	2	6,2	0,5	3,2
M3,5	40/CM035H080	8	5,5	7	0,5	5	8,5	2,5	7,2	0,5	3,8
M4	40/CM040H080	8	6	6	0,8	5,5	8,5	2,8	7,7	0,8	4,3
M5	40/CM050H095	9,5	7	8,5	0,8	6,5	10	3,3	8,7	0,8	5,3
M6	40/CM060H095	9,5	8,5	10	0,8	8	10	4	10,7	0,8	6,3
M8	40/CM080H100	10	10	12	1	9,5	10	4,8	12,2	1	8,3
M10	40/CM100H130	13	12	14	1	11,5	13	5,8	14,2	1	10,3

Dimensions indicated in this table are not limited. We can manufacture any SERPLAST INSERTS that can be needed.

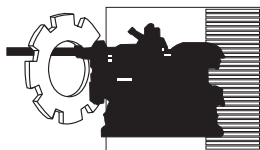
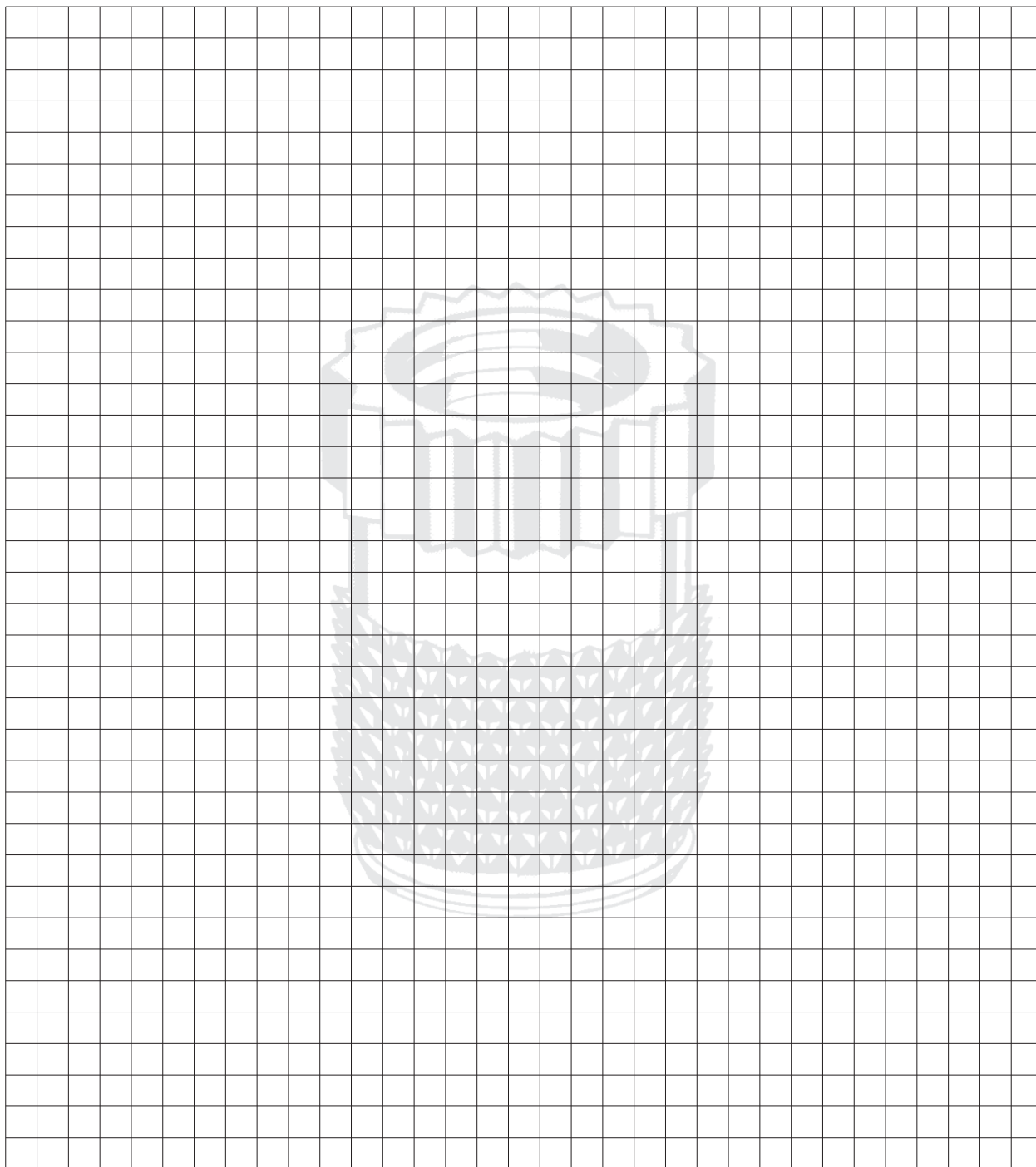
SPECIAL INSERTS

We can manufacture special SERPLAST INSERTS, other than the standard range listed in our documentation, that correspond to other more specific applications.



Special notes and technical data

Interlocutor :



SIMAF

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MOUNTING TOOLS

Serplast type TH, THC, GTH et GTHC SER 2000

THERMIC PROCESS

SER 2000

for small and medium series

These machines have a heating block with interchangeable control and spindle sit. When it is at the desired temperature the bit or heating rod is placed on the SERPLAST insert or stud. Thermic exchange occurs, the plastic matter flows and with simple pressure, using a lever, the rod pushes the insert or stud and sets it in the hole.



MANUAL MOUNTING TOOLS

They allow better centering of the SERPLAST, but are more generally used for mounting small series. The SERPLAST is placed in its hole. The tool centering dog points is then inserted in the SERPLAST INSERT threading. A Tap of a hammer on the tool handle drives the SERPLAST INSERT home.



By adapting our production to new technologies, we have managed to gain the confidence of both small enterprises and major international corporations, in leading economic sectors like the automobile industry, household appliances, telephone, office automation, computer technology, etc.

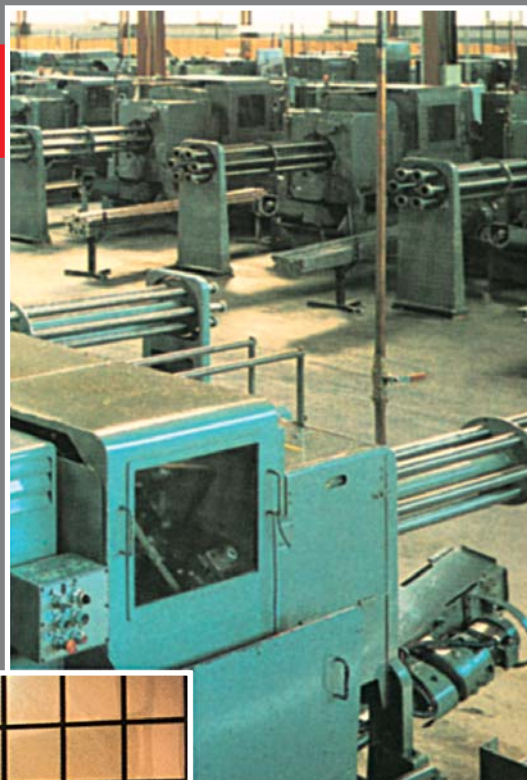


For more than THIRTY YEARS, SIMAF has designed and marketed assembly system that meet industry's increasingly sophisticated demands.

By adapting our production to new technologies and strict quality control of the millions of products shipped each month, we have managed to gain the confidence of both small enterprises and major international corporations, in leading economics sectors like the automobile industry, household appliances, telephony, office automation, computer technology, structural steelwork, etc.

Design-technicity

Customers in hi-tech domains are forever searching for the essential creativity needed to meet new requirements. Our technical services are constantly striving to find the most suitable solutions.



Quality Control Test laboratory

SIMAF has a golden rule of permanently controlling products, from manufacture to distribution. It has guaranteed constant quality of our production.

We can provide customers with precise information as to the mechanical properties of articles supplied, and thanks to simulation exercises in our test laboratory, we can give advice on the most suitable product for a customer's specific needs.



SIMAF

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