NOVASERT®

Synopsis

NOVASERT®

Self tapping bushes

GENERAL INFORMATION

NOVASERTS are fixing parts used to repair or to reinforce a damaged tapping.
Their bold thread and their slots (or holes) facilitate the tapping and the installation in many receiving materials.

You can install them just after the drilling, thanks to either a manual adaptation tool (for few parts) or an adaptation for drilling machines.

In general, the Novaserts are made of stain, stainless steel or brass.

Bushing with slot cutting

USE

NOVASERTS can be installed in all materials, plastics or other industrial components.

APPLICATIONS FIELDS

- **Automobile industry**
  - Engineering parts
  - Gear box
  - Radiator/heater

- **Building**
  - Tools
  - Buildings Engines
  - Central heating boiler

- **Household appliances**
  - Hoovers
  - Electric stove
  - TV
  - Drilling machines

- **Electronic equipment**
  - PC
  - Laboratory apparatus
  - Optical material

- **Armament/equipment**
  - Tank
  - Aviation

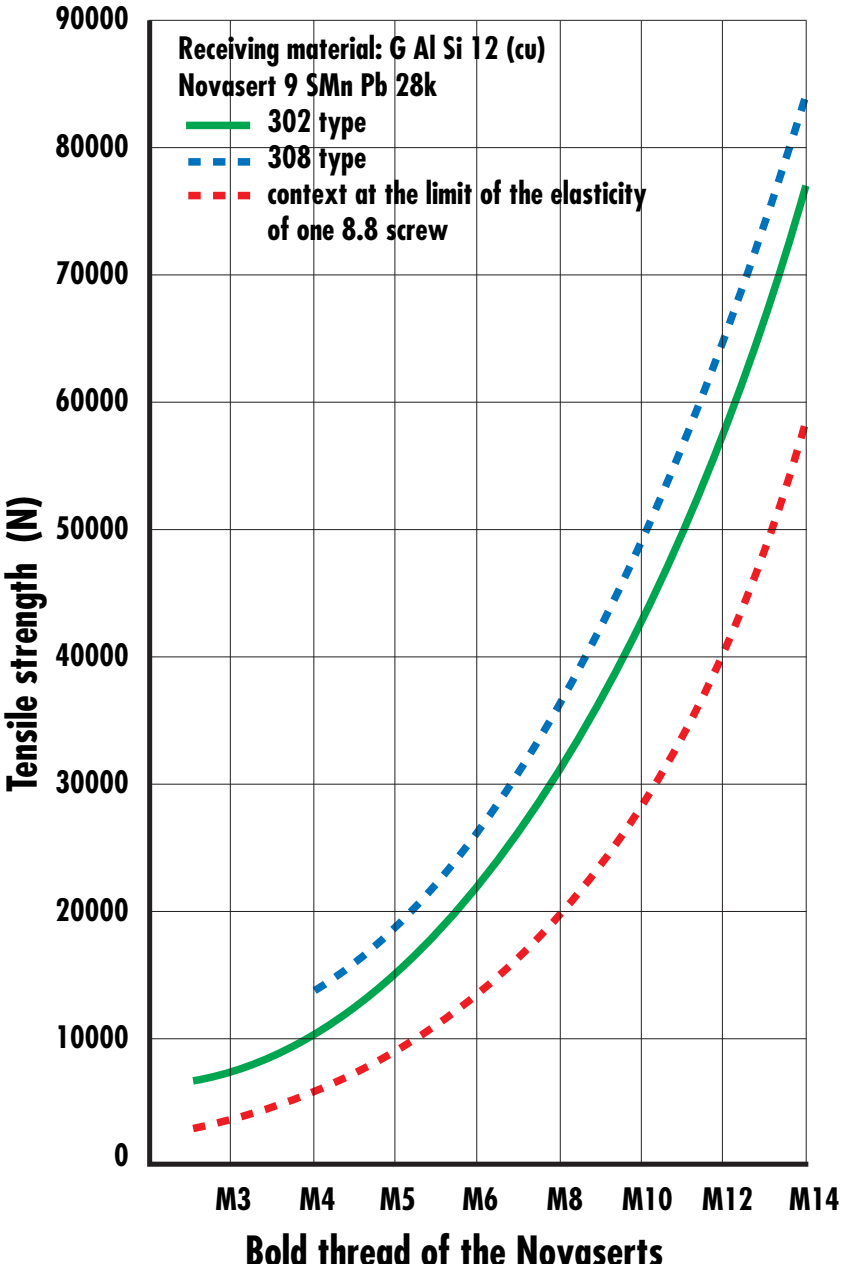
Bushing with hole cutting

TECHNICAL CHARACTERISTICS

The different advantages of the Novaserts are :

1. An easy and fast installation right after drilling.
2. A tensile strength.
3. An important resistance to wear.
4. A gain of place with the same tensile strength.

Indeed, as you will see below, Novaserts can be submitted to a very hard context. For example, if we compare a screw type 8.8, the tensile strength is much better for the Novaserts.



RANGE

The Novaserts products are made of two ranges :

- **The 302 type with slot cutting :** this is the standard range used for general applications.
- **The 307 and 308 types with hole cutting :** both types are used for stronger receiving materials. Besides, this type of NOVASERTS allows you to extract chips from the blind hole. They are also used in case of minimum wall thickness. The 307 type is the shorter one and the 308 is the longer one.

RANGE	DIAMETERS	MATERIAL OF THE NOVASERT	RECEIVING MATERIALS
302 	From the M2 to the M30	Non hardened steel Case-harden steel, zinc plated, chromated Brass Stainless steel 1.4105 Stainless steel 1.4305	Slight alloy Cast-iron, brass, bronze Non ferrous materials Plastic materials Stratified, hard wood
307 - 308 	From the M3 to the M16	Non hardened steel Case-harden steel, zinc plated, chromated Brass Stainless steel 1.4105 Stainless steel 1.4305	Aluminum, Slight alloy Magnesium alloy Thermosetting material Thermoplastic material (except thermoplastic < 100 shores A)

INSTALLATION

During the installation, if the different information mentioned in the technical table are respected, the tensile strength is assured by the Novaserts. Of course it will not be the case if only one factor mentioned in the table is not respected :

1. The drilling diameter
2. Overlapping of Novaserts sides
3. The required wall thickness of the receiving material

1 - THE DRILLING DIAMETER

The hole can be drilled or un-manufactured.
In general, we advise you to make a chamfer at the beginning of the hole (with a length of 1 time the pitch of the internal thread).
The table mentioned below gives you the information about the good diameter to drill, according to the receiving material and to the type of Novaserts.

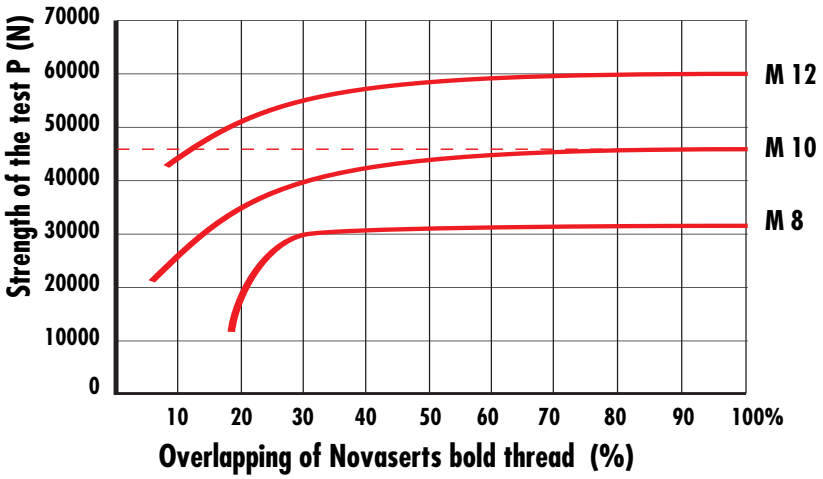
For example :
Slight alloy part (Rm=280 N/mm2)
Diameter of the Novaserts = M8
Drilling diameter advised :
For the 302 type : 10.8 to 11.0 mm
For the 307 and 308 types : 11.1 to 11.2 mm

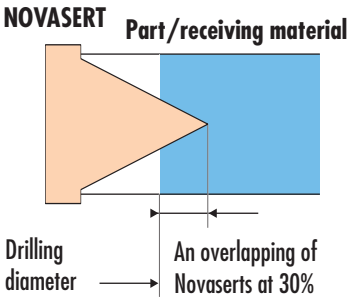
Receiving material	Tensile strength								
	302 TYPE					307-308 TYPES			
Slight alloys	← Rm < 250 →			← Rm > 350 →		← Rm < 300 →		← Rm < 350 →	
	← Rm < 300 →							← Rm > 350 →	
	← Rm < 350 →								
Brass ,bronze, Non ferrous materials	← Rm > 350 →					← Rm > 350 →			
Cast-iron	← < 150 HB →			← > 200 HB →		← < 150 HB →		← > 200 HB →	
	← < 200 HB →								
Diameter of the Novasert	**Drilling diameter in mm**								
M 2	4,0	4,1	4,1	4,2	4,3	-	-	-	-
M 2,5	4,0	4,1	4,1	4,2	4,3	-	-	-	-
M 3	4,5	4,6	4,6	4,7	4,8	4,6	4,7	4,7	4,8
M 3,5	5,0	5,4	5,5	5,6	5,7	5,5	5,6	5,6	5,7
M 4	5,8	5,9	6,0	6,1	6,2	6,0	6,1	6,1	6,2
M 5	7,1	7,2	7,3	7,5	7,6	7,4	7,5	7,6	7,7
M 6 (a)	8,1	8,2	8,3	8,5	8,6	-	-	-	-
M 6	8,6	8,8	9,0	9,2	9,4	9,3	9,4	9,5	9,6
M 8	10,6	10,8	11,0	11,2	11,4	11,1	11,2	11,3	11,5
M 10	12,6	12,8	13,0	13,2	13,4	13,1	13,2	13,3	13,5
M 12	14,6	14,8	15,0	15,2	15,4	15,0	15,1	15,2	15,4
M 14	16,6	16,8	17,0	17,2	17,4	17,0	17,1	17,2	17,4
M 16	18,6	18,8	19,0	19,2	19,4	19,0	19,1	19,2	19,4
M 18	20,6	20,8	21,0	21,2	21,4	-	-	-	-
M 20	24,6	24,8	25,0	25,2	25,4	-	-	-	-
M 22	24,6	24,8	25,0	25,2	25,4	-	-	-	-
M 24	28,6	28,8	39,0	29,2	29,4	-	-	-	-
M 27	32,6	32,8	33,0	33,2	33,4	-	-	-	-
M 30	34,6	34,8	35,0	35,2	35,4	-	-	-	-

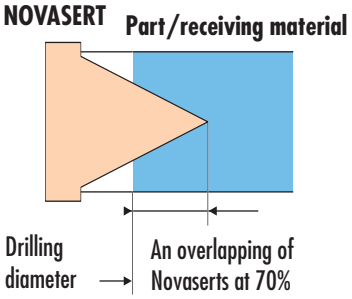
Rm = Tensile strength (N/mm2)
HB = Brinell Strength

2 - OVERLAPPING OF NOVASERTS SIDES

If we have the two conditions for the installation of the Novaserts : that is to say a slight alloy for the receiving material and an overlapping of Novaserts sides at 30%, the Novasert type 302 can reach a tensile strength close to the maximum.



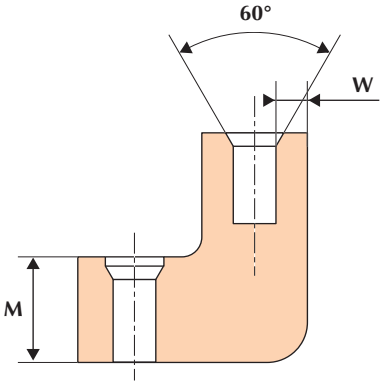


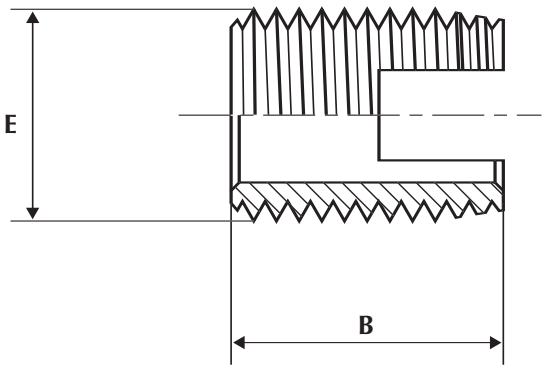


3 - THE THICKNESS OF THE WALL/OF THE RECEIVING MATERIAL

The minimum thickness of the wall (W) depends on the different factors advised during the installation, and on the components of the receiving material.
Example:
For an slight alloy, W>0.2 to 0.6 E
For the cast-iron, W>0.3 to 0.5 E

The minimum of the thickness wall (M) must be equal to the length of the Novaserts you will use.





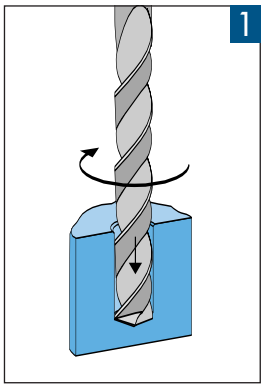
W = wall thickness
M = minimum thickness of the receiving material
E = external diameter of the Novasert
B = length of the Novasert

TOOLS

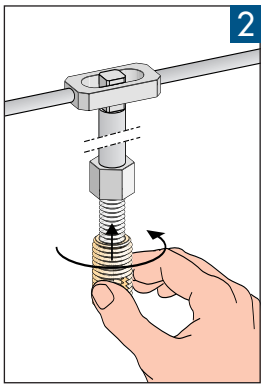
TOOLS	DIFFERENT STEPS	SERIES
DRILLS NOVADRILL	To drill the hole	Every
MANUAL ADAPTATION TOOL	To install the Novasert	Shorter
MECHANICAL ADAPTATION TOOL	To install the Novasert	Medium and longer

GENERAL ASSEMBLY INSTRUCTIONS

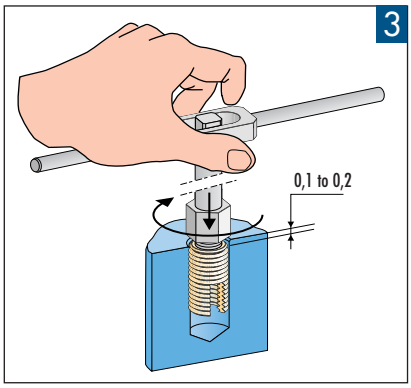
Manual assembly: tool type 610



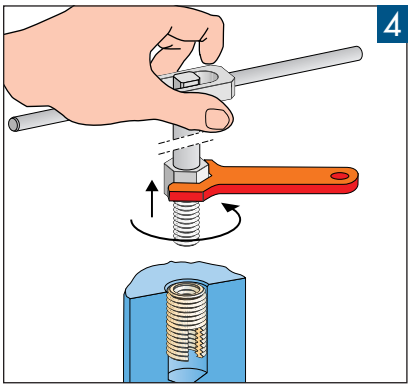
Drill the hole to the diameter indicated, in some case, make a chamfer



Screw the Novasert to the tool to the underside (with the slot or the hole toward the bottom side)

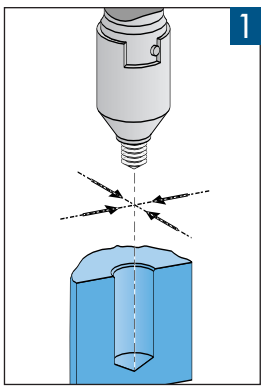


Screw the Novasert until 0.1 or 0.2 approximately under the surface of the part. Keep the right angle

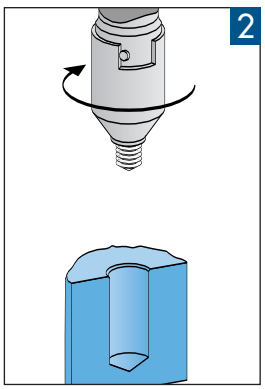


Screw up the tool. From the beginning of the operation, keep the nut clamped with your adjustable spanner until the Novasert gets separated from the tool.

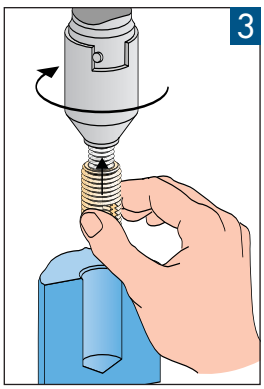
Mechanical assembly: tools types 620 and 621



Take care to install the tool at the right angle to the hole. Control and adapt the adjustable stop. The surface of the tool must be at around 0.1 or 0.2 mm at the top of the part

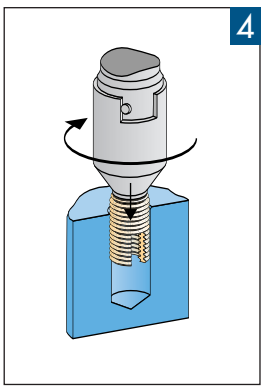


Turn the spindle of the machine to the right side. During the installation, the cotter-pin has to drive the external bushing out of the tool clockwise.

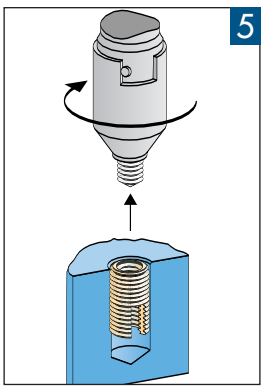


Put the Novasert in the tool (with the hole or the slot at the bottom), screw it in a few turns.

⚠ Make sure that the machine is off during this manipulation



Install the Novasert in the hole and make the spindle go down the hole. After a slight push on the button, the Novasert will be screwed down in its place.



When the spindle touches the surface, the anticlockwise is triggered, and the tool is automatically taken out of the Novasert.

SELF-TAPPING BUSHES

NOVASERT®

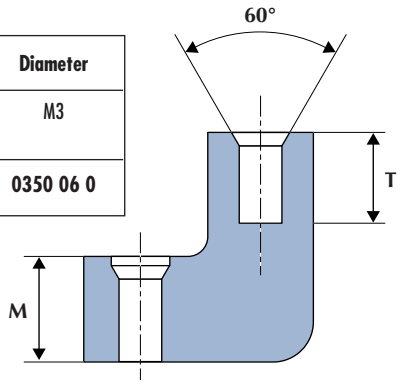
RANGE

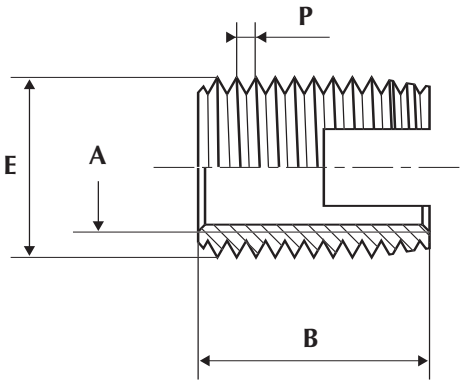
302 TYPE

Standard range
Novaserts with cutting slot

An example to make your choice

	Bushes	Material	Diameter
What you need	NOVASERT 302 TYPE	Non hardened steel	M3
Our codification	D01	A	0350 06 0





Tapping A	External diameter E	External Pitch P	Length of the Novasert B	Minimum thick-ness for open ending holes M	Minimum depth of the hole (for blind holes) T	CODIFICATION
M 2,5	4,5	0,5	6	6	8	D01 • 0245 06 0
M 3	5	0,5	6	6	8	D01 • 0350 06 0
M 3,5	6	0,75	8	8	10	D01 • 0460 08 0
M 4	6,5	0,75	8	8	10	D01 • 0470 08 0
M 5	8	1	10	10	13	D01 • 0580 10 0
M 6(a)	9	1	12	12	15	D01 • 0601 12 0
M 6	10	1,5	14	14	17	D01 • 0601 14 0
M 8	12	1,5	15	15	18	D01 • 0802 15 0
M 10	14	1,5	18	18	22	D01 • 1003 18 0
M 12	16	1,5	22	22	26	D01 • 1204 22 0
M 14	18	1,5	24	24	28	D01 • 1405 24 0
M 16	20	1,5	22	22	27	D01 • 1605 22 0
M 18	22	1,5	24	24	29	D01 • 1806 24 0
M 20	26	1,5	27	27	32	D01 • 2006 27 0
M 22	26	1,5	30	30	36	D01 • 2206 30 0
M 24	30	1,5	30	30	36	D01 • 2407 30 0
M 27	34	1,5	30	30	36	D01 • 2707 30 0
M 30	36	1,5	40	40	46	D01 • 3008 40 0

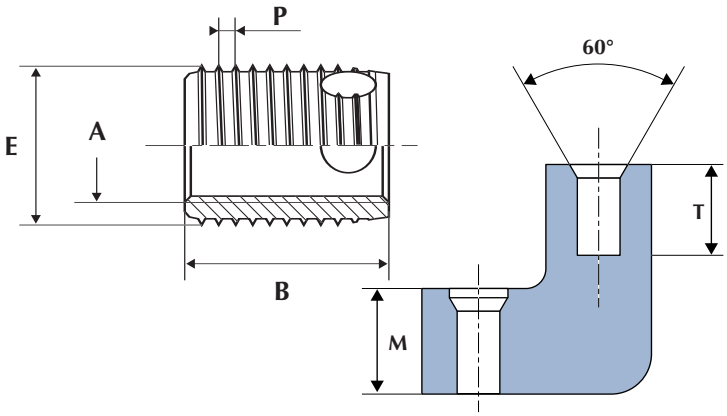
Materials : Non-hardened steel
Case-hardened steel, zinc plated
Brass
Stainless steel 1.4105
Stainless steel 1.4305

Fill in here the Prefix for the material

SELF-TAPPING BUSHES

NOVASERT®

307 TYPE



RANGE

Novaserts with three cutting holes
Special range for hard materials and for pushing chips out of the blind hole
Shorter range for thin wall

An example to make your choice

	Bushes	Material	Diameter
What you need	NOVASERT 307 TYPE	Non hardened steel	M3
Our codification	D11	A	0350 04 0

Tapping A	External diameter E	External Pitch P	Length of the Novasert B	Minimum thickness for open ending holes M	Minimum depth of the hole (for blind holes) T	CODIFICATION
M3	5	0,6	4	4	6	**D11 • 0350 04 0**
M 3,5	6	0,8	5	5	7	**D11 • 0460 05 0**
M 4	6,5	0,8	6	6	8	**D11 • 0470 06 0**
M 5	8	1	7	7	9	**D11 • 0580 07 0**
M 6	10	1,25	8	8	10	**D11 • 0601 08 0**
M 8	12	1,5	9	9	11	**D11 • 0802 09 0**
M 10	14	1,5	10	10	13	**D11 • 1003 10 0**
M 12	16	1,75	12	12	15	**D11 • 1204 12 0**
M 14	18	2	14	14	17	**D11 • 1405 14 0**
M 16	20	2	14	14	17	**D11 • 1605 14 0**

Materials : Non-hardened steel
Case-hardened steel, zinc plated,
Brass
Stainless steel 1.4105, Stainless steel 1.4305

Fill in here the Prefix for the material

SELF-TAPPING BUSHES

NOVASERT®

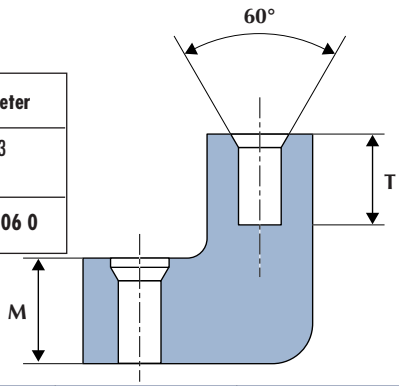
RANGE

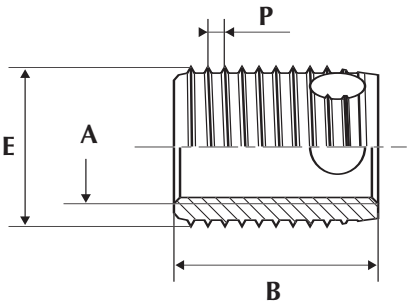
308 TYPE

Range with three cutting holes
Special range for hard materials and for pushing chips out of the blind hole
Longer range

An example to make your choice

	Bushes	Material	Diameter
What you need	NOVASERT 308 TYPE	Non hardened steel	M3
Our codification	D11	A	0350 06 0





Tapping A	External diameter E	External Pitch P	Length of the Novasert B	Minimum thick-ness for open ending holes M	Minimum depth of the hole (for blind holes) T	CODIFICATION
M 3	5	0,6	6	6	8	**D11 • 0350 06 0**
M 3,5	6	0,8	8	8	10	**D11 • 0460 08 0**
M 4	6,5	0,8	8	8	10	**D11 • 0470 08 0**
M 5	8	1	10	10	13	**D11 • 0580 10 0**
M 6	10	1,25	12	12	15	**D11 • 0601 12 0**
M 8	12	1,5	14	14	17	**D11 • 0802 14 0**
M 10	14	1,5	18	18	22	**D11 • 1003 18 0**
M 12	16	1,75	22	22	26	**D11 • 1204 22 0**
M 14	18	2	24	24	28	**D11 • 1405 24 0**
M 16	20	2	24	24	28	**D11 • 1605 24 0**

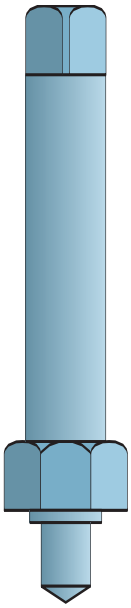
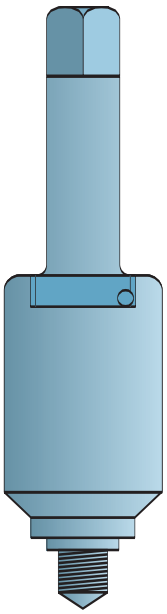
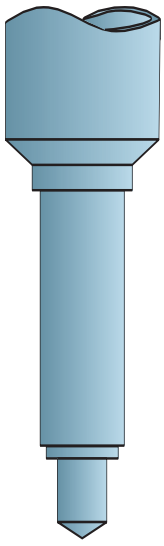
Materials : Non-hardened steel
Case-hardened steel, zinc plated
Brass
Stainless steel 1.4105, Stainless steel 1.4305

Fill in here the Prefix for the material

NOVASERT®

Mechanical and manual tools

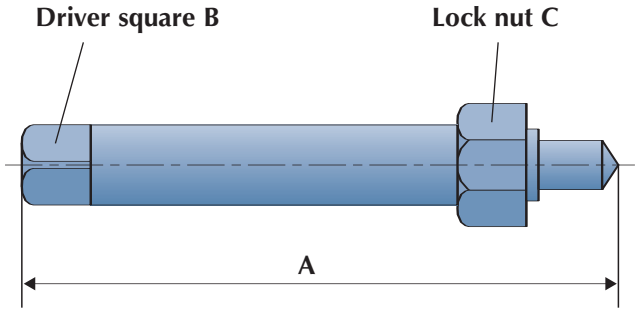
We have both ranges: manual or mechanical tool to assemble the Novaserts.

	610	620	621
TYPE OF ASSEMBLY	**Manual**	**Mechanical**	**Mechanical**
		For a installation close to the surface	**For an installation where the hole can not be easily reached**
SERIES	Shorter	Medium and longer	Medium and longer
DIAMETER	From the M2.5 to the M14	From the M2.5 to the M30	From the M2.5 to the M30
			

MANUAL TOOL

NOVASERT®

610 TYPE



REFERENCE

- Designation : Manual tool

CHARACTERISTICS

- They guarantee the assembly of the Novaserts
- They can be used in an anticlockwise tool
- They are used for an easy accessibility
- The range is from diameter M2.5 to M14

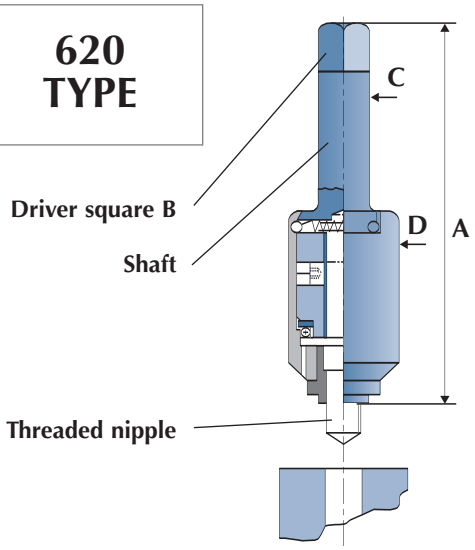
RANGE

Diameter	CODIFICATION	Length of the tool A	Diameter in mm of the driver square B	Diameter in mm of the lock nut C
M 2,5	D67Z0250000	55	5	7
M 3	D67Z0300000	55	5	7
M 3,5	D67Z0350000	60	5	7
M 4	D67Z0400000	60	5	7
M 5	D67Z0500000	75	8	13
M 6	D67Z0600000	75	8	13
M 8	D67Z0800000	75	8	13
M 10	D67Z1000000	95	12,5	19
M 12	D67Z1200000	95	12,5	19
M 14	D67Z1400000	95	12,5	19

MECHANICAL TOOL

NOVASERT®

620 TYPE



REFERENCE

- Designation: mechanical tool, type 620

CHARACTERISTICS

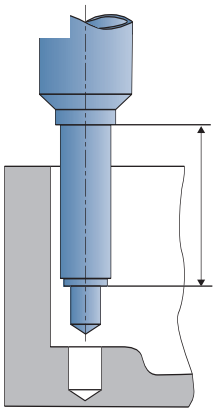
- They guarantee the assembly of the Novaserts
- They can be adapted on tapping or drilling machines
- They are used for an easy accessibility
- The range is from diameter M2.5 to M30.

RANGE

Diameter	CODIFICATION	Length in mm of the adaptation A	Diameter of the driver square B	Diameter in mm of the shaft C	Maximum diameter of the tool in mm D
M 2,5	D61Z0250000	78	6,3	8	18
M 3	D61Z0300000	78	6,3	8	18
M 3,5	D61Z0350000	78	6,3	8	18
M 4	D61Z0400000	78	6,3	8	18
M 5	D61Z0500000	95	10	12,5	24
M 6	D61Z0600000	95	10	12,5	24
M 8	D61Z0800000	95	10	12,5	24
M 10	D61Z1000000	118	12,5	16	32
M 12	D61Z1200000	118	12,5	16	32
M 14	D61Z1400000	145	20	25	50
M 16	D61Z1600000	145	20	25	50
M 18	D61Z1800000	145	20	25	50
M 20	D61Z2000000	169	20	25	58
M 22	D61Z2200000	169	20	25	58
M 24	D61Z2400000	198	25	30	70
M 27	D61Z2700000	198	25	30	70
M 30	D61Z3000000	198	25	30	70

MECHANICAL TOOL
NOVASERT®

621 TYPE



REFERENCE

- Designation: mechanical type 621

CHARACTERISTICS

- They guarantee the assembly of the Novaserts
- They can be adapted on tapping or drilling machines
- They are used for a hard accessibility
- The range is from diameter M2.5 to M30

RANGE

Diameter	CODIFICATION	Length of the tool in mm A	Diameter in mm of the driver square
M 2,5	D64Z0250000	40	7
M 3	D64Z0300000	40	7
M 3,5	D64Z0350000	40	7
M 4	D64Z0400000	40	7
M 5	D64Z0500000	50	9
M 6	D64Z0600000	50	10
M 8	D64Z0800000	50	12
M 10	D64Z1000000	60	15
M 12	D64Z1200000	60	18
M 14	D64Z1400000	60	20
M 16	D64Z1600000	60	22
M 18	D64Z1800000	60	24
M 20	D64Z2000000	60	26
M 22	D64Z2200000	60	28
M 24	D64Z2400000	60	32
M 27	D64Z2700000	60	35
M 30	D64Z3000000	60	38