SELF-TAPPING INSERT

AMESELF

AMECA

RELIABILITY AND SAFETY MANUFACTURER

RELIABILITY

Product quality, respect of applicable standards, respect of our commitments through our certifications.

It is because we are reliable that we can be trusted.

EXPERTISE

We have been manufacturing for 45 years: design office & automated production system.

INNOVATION

Products, production and service, we are continuously looking for innovation for our customers.

PROXIMITY

We remain at our customers disposal at all times: listening, advising and being flexible to meet your expectations.

For over 45 years, AMECA provides **reliable, high-quality products** to a wide range of customers in a variety of industries around the world: aerospace, defense, nuclear, railway, etc.

We are **aware of product and quality standards** and we work in close partnership with our customers to adapt our service and meet their expectations.

FRENCH MANUFACTURER OF MECHANICAL FASTENING SOLUTIONS

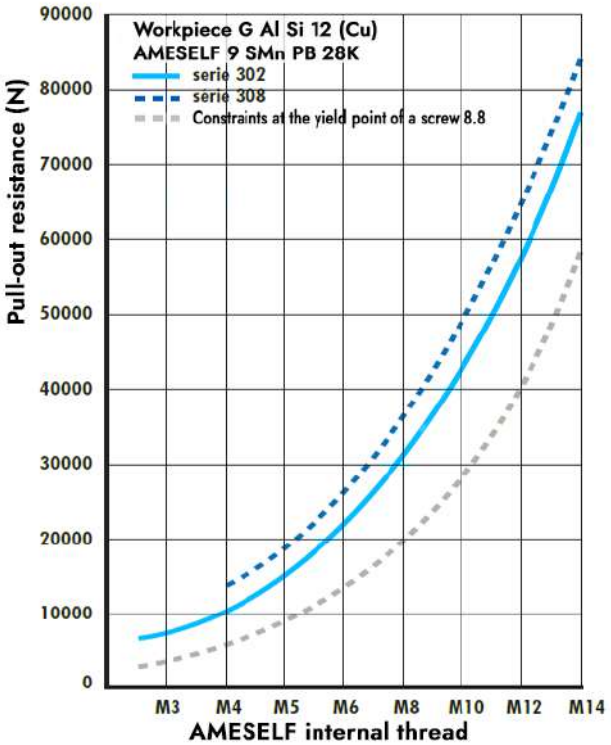
A PRODUCTION **ADAPTED TO YOUR NEEDS**: MICRO SERIES AND LARGE VOLUMES

SELF-TAPPING INSERT

AMESELF

AMESELF self-tapping threaded inserts are used to **reinforce or repair threaded holes**. They have an external thread and are either designed with a slot or cutting bores. They can be installed in a drilled bores with a manual tool for small production or can be fitted to a drill or tapping machine for larger production.

They are used in both hard (steel, stainless steel) and soft materials (light alloys, plastics, copper, cast iron, wood), and enable **high-performance mechanical fastening**.



ADVANTAGES

EASY INSTALLATION

Self-tapping inserts are easy to be installed. Simply drill the right hole diameter in the receiving material and insert the AMESELF by using a manual tool or a screwdriver. No tapping needed.

HIGH PERFORMANCE

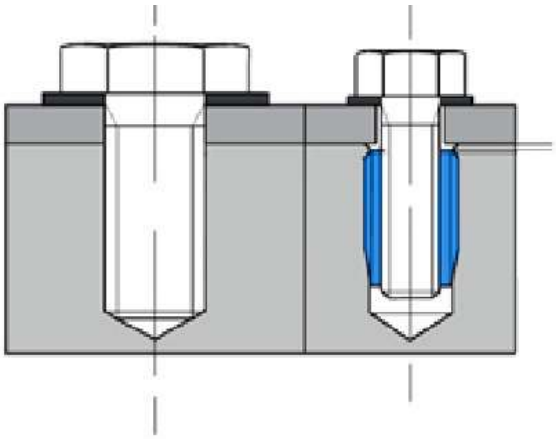
AMESELF are particularly strong and can withstand frequent assembly and disassembly of the screw, without altering the thread in light alloys, plastics and others.

COST SAVING

The use of self-tapping inserts can result in a reduction in thread size required, saving material, reducing weight and costs (i.e. M6 instead of M8 bolts, see fi g.) while maintaining the same pull-out resistance.

HIGH PULL-OUT RESISTANCE

Increased pull-out resistance thanks to a large shearing surface.



M8 bolt without self-tapping insert

M6 bolt with self-tapping insert

> Higher performance
> Reduced dimension

MATERIALS AND APPLICATIONS

TYPE	DIMENSIONS	MATERIALS	APPLICATIONS
A302 	From M2 to M30	Case hardened zinc-plated steel Stainless steel AISI 303 (1.4305) Stainless steel AISI 316L (1.4404) Brass	- Light alloy - Cast iron, brass, bronze - Plastic materials - Laminates, hardwoods - Composites and compressed panels
A307 – A308 	From M3 to M16	Case hardened zinc-plated steel Stainless steel AISI 303 (1.4305) Brass	- Aluminium and aluminium alloys - Magnesium alloys - Cast iron, brass, bronze - Duroplastics and thermoplastics
A309 	From M3 to M12	Brass	- Plastic materials - Wood - Composites

Available with hexagonal socket (A302 2 & A308 2) on request.
Other materials available on request.

TECHNICAL CHARACTERISTICS

DRILLING DIAMETER

The retaining hole can be simply drilled or integrated into the casting. Countersinking the borehole is recommended.

The below chart can be used to define the right drilling diameter depending on the workpiece materials and the type of AMESELF chosen.

Example:

Workpiece in light alloy (Rm = 280 N/mm²)

AMESELF diameter = M6

Recommended drilling diameter:

For A302 type: 8.8 à 9.0 mm

For A307 and A308 types: 9.3 à 9.4 mm

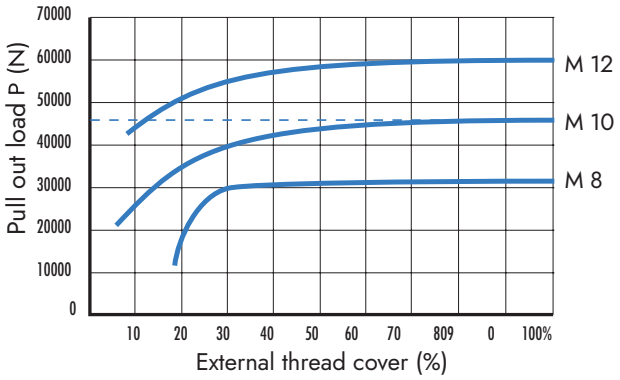
		Self-tapping inserts with cutting slots (A302 type)				Self-tapping inserts with cutting holes (A307 and A308 types)			
Materials	Light metal alloys / Tensile strength (N/mm²)	< 250 Rm							
		< 300 Rm				< 300 Rm			
			< 350 Rm				< 350 Rm		
				> 350 Rm				> 350 Rm	
	Brass, non-ferrous metal, bronze			> 350 Rm				> 350 Rm	
	Cast Iron Brinell hardness (HB)	< 150 HB				< 150 HB			
			< 200 HB				< 200 HB		
				> 200 HB				> 200 HB	
AMESELF Internal thread	M3	-	4,6 mm	4,7 mm	4,8 mm	4,6 mm	4,7 mm		4,8 mm
	M4	5,9 mm	6,0 mm	6,1 mm	6,2 mm	6,0 mm	6,1 mm		6,2 mm
	M5	7,2 mm	7,3 mm	7,5 mm	7,6 mm	7,4 mm	7,5 mm	7,6 mm	7,7 mm
	M6	8,8 mm	9,0 mm	9,2 mm	9,4 mm	9,3 mm	9,4 mm	9,5 mm	9,6 mm
	M8	10,8 mm	11,0 mm	11,2 mm	11,4 mm	11,1 mm	11,2 mm	11,3 mm	11,5 mm
	M10	12,8 mm	13,0 mm	13,2 mm	13,4 mm	13,1 mm	13,2 mm	13,3 mm	13,5 mm
	M12	14,8 mm	15,0 mm	15,2 mm	15,4 mm	15,0 mm	15,1 mm	15,2 mm	15,4 mm
	M16	18,8 mm	19,0 mm	19,2 mm	19,4 mm	19,0 mm	19,1 mm	19,2 mm	19,4 mm
	M18	20,8 mm	21,0 mm	21,2 mm	21,4 mm				
	M20	24,8 mm	25,0 mm	25,2 mm	25,4 mm				
	M22	24,8 mm	25,0 mm	25,2 mm	25,4 mm				
	M24	28,8 mm	29,0 mm	29,2 mm	29,4 mm				
	M26	32,8 mm	33,0 mm	33,2 mm	33,4 mm				
	M30	34,8 mm	35,0 mm	35,2 mm	35,4 mm				
	Thread cover	60%	50%	40%	30%	80%	70%	60%	50%

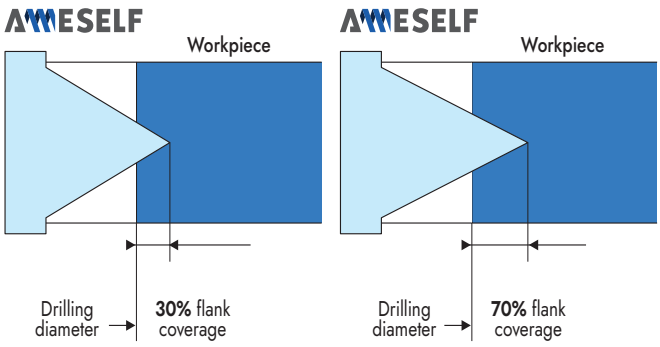
Lubrication is recommended for these drilling diameters.

These instructions are recommendations only and apply to AMESELF in case hardened steel.

FLANK COVERAGE

AMESELF A302 type almost reaches the maximum tensile strength at a flank coverage of only 30%.



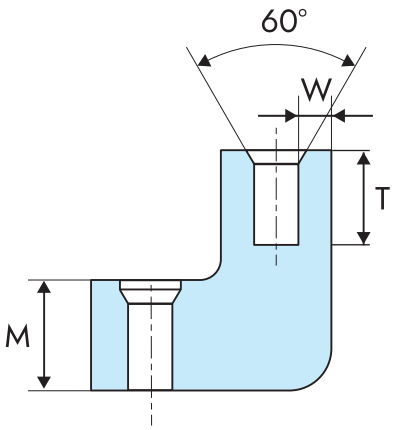


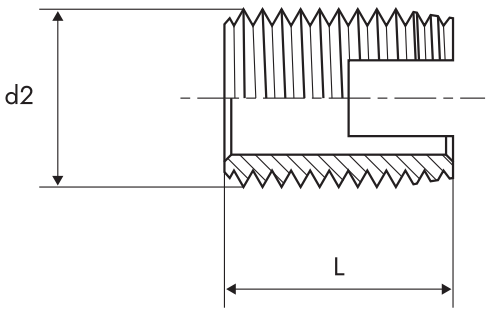
MATERIAL THICKNESS AND EDGE DISTANCE

The smallest admissible edge distance (W) depends on the planned stress level and the elasticity of the material into which the AMESELF is screwed.

Length of the AMESELF (L) = smallest admissible material thickness (M).

Guideline values:
For light alloys, W ≥ 0,2 à 0,6 x d2
For cast iron, W ≥ 0,3 à 0,5 x d2





d2 = AMESELF external diameter
T = Depth of the blind hole

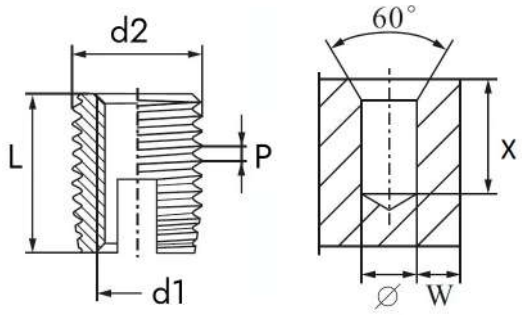
TECHNICAL DATA AND PART NUMBERS

STANDARD RANGE WITH CUTTING SLOT

TYPE A302

Application: AMESELF A302 with cutting slot is a self-tapping insert for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials with low shearing strength. Recommended for:

- light alloys,
- cast iron, brass, bronze,
- non-ferrous metals,
- plastics,
- laminates, hardwoods,
- compressed panels



Part Number:
The designation for a self-tapping A302 type with a thread d1 = M5, in case hardened steel, zinc-plated and chromated is: 701302050

Materials:
Case hardened zinc-plated steel: Code **701**
Brass (Maxi M12): Code **702**
Stainless steel: Code **705**

Part Number	Internal thread	External thread		Indicative drilling diameter		Length	Minimum borehole depth for blind holes
				Metals	Plastics		
N°	d1	d2	P			L	X
701302025	M2,5	4,5	0,5	4,2 - 4,3	4,1 - 4,2	6	8
701302030	M3	5	0,5	4,7 - 4,8	4,6 - 4,7	6	8
701302040	M4	6,5	0,75	6,1 - 6,2	6,0 - 6,1	8	10
701302050	M5	8	1	7,5 - 7,6	7,3 - 7,5	10	13
701302061	M6 (a)	9	1	8,5 - 8,6	8,3 - 8,5	12	15
701302060	M6	10	1,5	9,2 - 9,4	8,9 - 9,2	14	17
701302080	M8	12	1,5	11,2 - 11,4	10,9- 11,2	15	18
701302100	M10	14	1,5	13,2 - 13,4	12,9- 13,2	18	22
701302120	M12	16	1,5	15,2 - 15,4	14,9- 15,2	22	26
701302140	M14	18	1,5	17,2 - 17,4	16,9- 17,2	24	28
701302160	M16	20	1,5	19,2 - 19,4	18,9- 19,2	22	27
701302180	M18	22	1,5	21,2 - 21,4	20,9- 21,2	24	29
701302200	M20	26	1,5	25,2 - 25,4	24,8- 25,0	27	32
701302220	M22	26	1,5	25,2 - 25,4	24,8- 25,0	30	36
701302240	M24	30	1,5	29,2 - 29,4	28,8 - 29,0	30	36
701302270	M27	34	1,5	33,2 - 33,4	32,8 - 33,0	30	36
701302300	M30	36	1,5	35,2 - 35,4	34,8 - 35,0	40	46

↑ Material code to be inserted here

Dimensions in mm

Tolerances: Length L: ISO 2768-m - **Internal thread d1:** ISO 6H
External thread d2: according to AMECA standards
Other dimensions and materials on request.

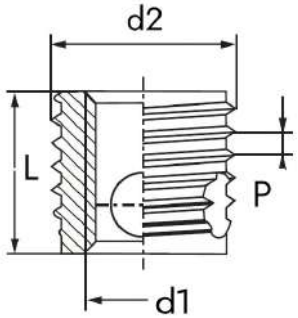
SPECIAL RANGE WITH CUTTING BORES

This special range with cutting bores is recommended for materials difficult to machine. The wall is thicker and the cutting force is distributed over the three cutting bores. Available in 2 lengths.

TYPE A307 - A308

Application: AMESELF A307 - A308 with cutting bores is a self-tapping insert for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials below:

- Aluminium and aluminium alloys
- Magnesium alloys
- Cast iron, Brass, Bronze
- Duroplastics and thermoplastics (except thermoplastics material < 100 Shore A soft such as rubber)



Part number:
The designation for a self-tapping A308 type with a thread d1 = M5, in case hardened steel, zinc-plated and chromated is: 701308050

Short design 307
Long design 308

Materials:
case hardened zinc-plated steel S 250: Code **701**
Brass (Maxi M12): Code **702**
Stainless steel: Code **705**

Part Number	Internal thread	External thread		Indicative drilling diameter		Length	Minimum borehole depth for blind holes
				Metals	Plastics		
N°	d1	d2	P			L	X
701307030	M3	5,0	0,60	4,7 - 4,8	4,6 - 4,7	4	6
701308030						6	8
701307040	M4	6,5	0,80	6,1 - 6,2	6,0 - 6,1	6	8
701308040						8	10
701307050	M5	8,0	1,00	7,6 - 7,7	7,4 - 7,6	7	9
701308050						10	13
701307060	M6	10,0	0,25	9,5 - 9,6	9,3 - 9,5	8	10
701308060						12	15
701307080	M8	12,0	1,50	11,3 - 11,5	11,1 - 11,3	9	11
701308080						14	17
701307100	M10	14,0	1,50	13,4 - 13,5	13,1 - 13,3	10	13
701308100						18	22
701307120	M12	16,0	1,75	15,2 - 15,4	15,0 - 15,2	12	18
701308120						22	26
701307140	M14	18,0	2,00	17,2 - 17,4	17,0 - 17,2	14	17
701308140						24	28
701307160	M16	20,0	2,00	19,2 - 19,4	19,0 - 19,2	14	17
701308160						24	28

Material code to be inserted here

Dimensions in mm

Tolerances: Length L: ISO 2768-m - **Internal thread d1:** ISO 6H
External thread d2: according to AMECA standards
Other dimensions and materials on request.

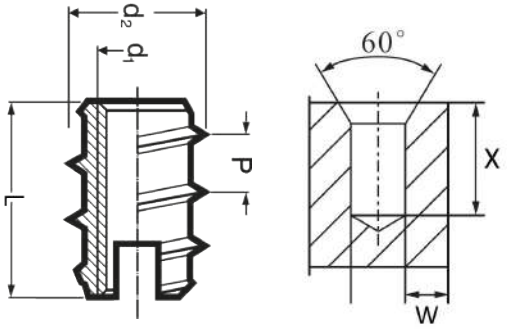
SPECIAL WOOD RANGE

TYPE A309

Application: AMESELF A309 with cutting slot is a self-tapping insert for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials below:

- Hard & soft woods
- Agglomerates
- Soft plastics

Materials: Brass



Part Number	Internal thread	External thread		Indicative drilling diameter	Length	Minimum borehole depth for blind holes
N°	d1	d2	P		L	X
702309030	M3	5,5	1,6	4,1 - 4,3	6	9
702309040	M4	7	2,5	5,1 - 5,3	10	13
702309050	M5	9	3	6,6 - 6,9	12	15
702309060	M6	10	4	7,6 - 7,9	14	17
702309080	M8	13	4	9,9 - 10,3	20	23
702309100	M10	16	5	12,4 - 12,8	23	26
702309120	M12	19	5	15,4 - 15,8	26	30

Dimensions in mm

Tolerances:

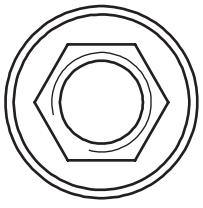
Length L: ISO 2768-m
Internal thread d1: ISO 6H
External thread d2: according to AMECA standards

HEXAGONAL SOCKET RANGE

TYPE A302 2
TYPE A307 2 / A308 2

The hexagonal socket version allows a quick assembly of the AMESELF with simple tools and right-hand screwdrivers.

Further information is available on request.



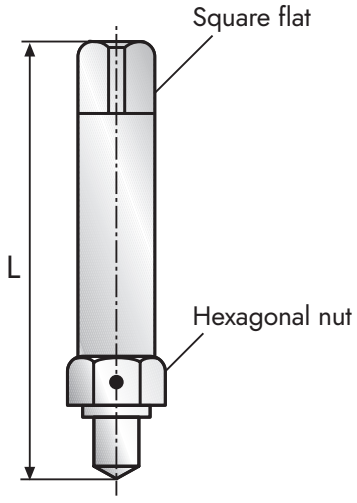
INSTALLATION TOOLS

TOOLS	INSTALLATION	DIMENSIONS
70610 	Manual	From M 2,5 to M 14
70630 	Manual / Mechanical **with hexagonal drive**	From M3 to M12
70620 	Mechanical **For flush installation**	From M 2,5 to M 30
70621 	Mechanical **For deep receiving holes**	From M 2,5 to M 30

TOOL TYPE 70610

Features:
To be used with a tap wrench

Part Number	Diameter	Length	Square SW	Counternut SW
N°		L		
7061025	M2,5	55	5	7
7061003	M3	55	5	7
7061035	M3,5	60	5	7
7061004	M4	60	5	7
7061005	M5	75	8	13
7061006	M6	75	8	13
7061008	M8	75	8	13
7061010	M10	95	12,5	19
7061012	M12	95	12,5	19
7061014	M14	95	12,5	19

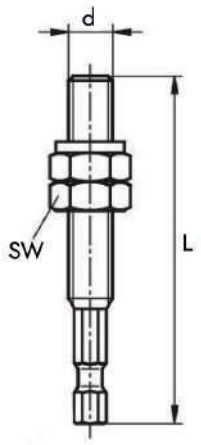


TOOL TYPE 70630

Features:

- With hexagonal drive
- Manual installation or with a screwdriver

Part Number	Diameter	Length	⬡	Counternut	Tightnening Torque (Nm)
N°	d	L		SW	
7063003	M3	46	1/4	5,5	2,5
7063004	M4	48	1/4	7	5,5
7063005	M5	57	1/4	8	10
7063006	M6	62	1/4	10	15
7063008	M8	72	1/4	13	28
7063010	M10	82	1/4	17	40
7063012	M12	92	1/4	19	60

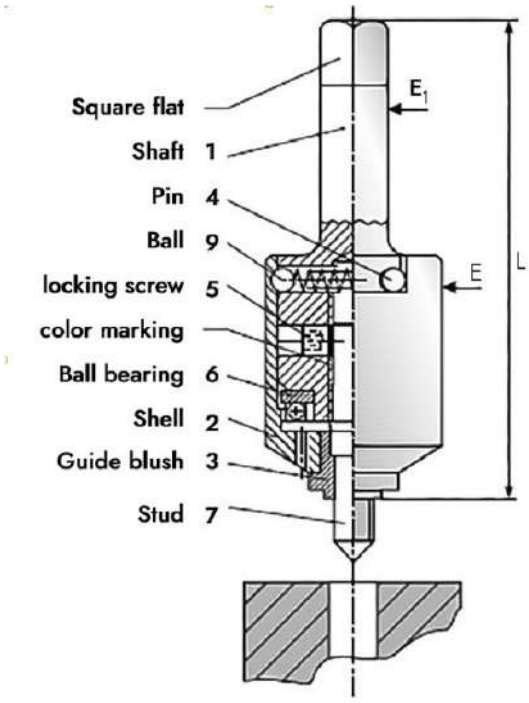


TOOL TYPE 70620

Features:

- Recommended for flush installation
- Suitable for tapping and drilling machines.

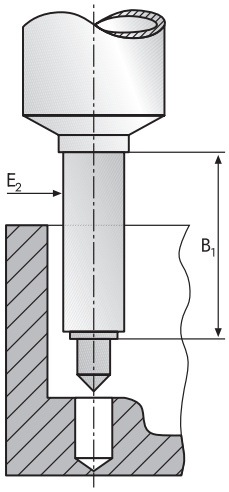
Dimensions	Part Number			Square SW	Length
		E	E1		L
M 2,5	7062025	18	8	6,3	78
M 3	7062003	18	8	6,3	78
M 3,5	7062035	18	8	6,3	78
M 4	7062004	18	8	6,3	78
M 5	7062005	24	12,5	10	95
M 6	7062006	24	12,5	10	95
M 8	7062008	24	12,5	10	95
M 10	7062010	32	16	12,5	118
M 12	7062012	32	16	12,5	118
M 14	7062014	50	25	20	145
M 16	7062016	50	25	20	145
M 18	7062018	50	25	20	145
M 20	7062020	58	25	20	169
M 22	7062022	58	25	20	169
M 24	7062024	70	30	25	198
M 27	7062027	70	30	25	198
M 30	7062030	70	30	25	198



TOOL TYPE 70621

Features:
- Recommended for deep receiving holes
- Suitable for tapping and drilling machines.

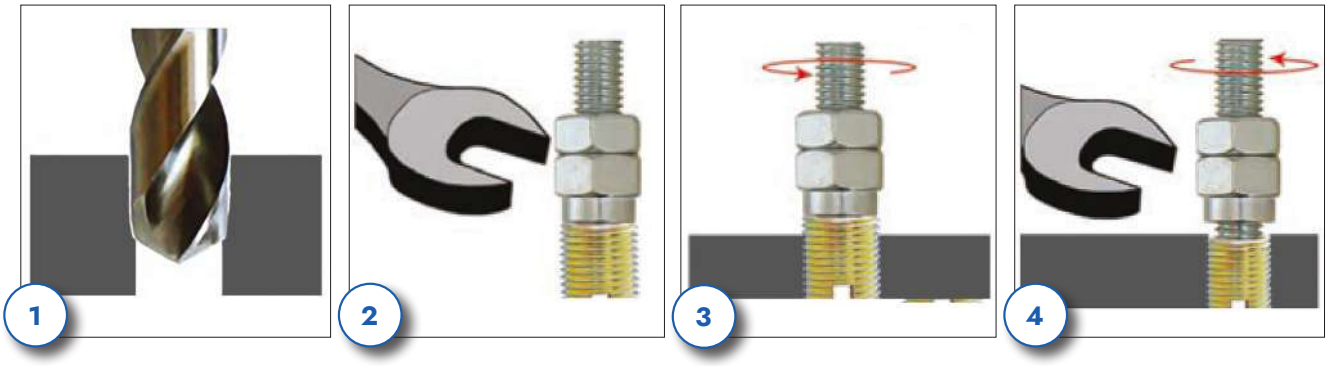
Dimensions	Part Number		
		B1	E2
M 2,5	7062125	40	7
M 3	7062103	40	7
M 3,5	7062135	40	7
M 4	7062104	40	7
M 5	7062105	50	9
M 6	7062106	50	10
M 8	7062108	50	12
M 10	7062110	60	15
M 12	7062112	60	18
M 14	7062114	60	20
M 16	7062116	60	22
M 18	7062118	60	24
M 20	7062120	60	26
M 22	7062122	60	28
M 24	7062124	60	32
M 27	7062127	60	35
M 30	7062130	60	38



Stud can be changed on tools 70620 and 70621

MANUAL INSTALLATION

Manual installation with **tool type 70610** and a tap wrench:

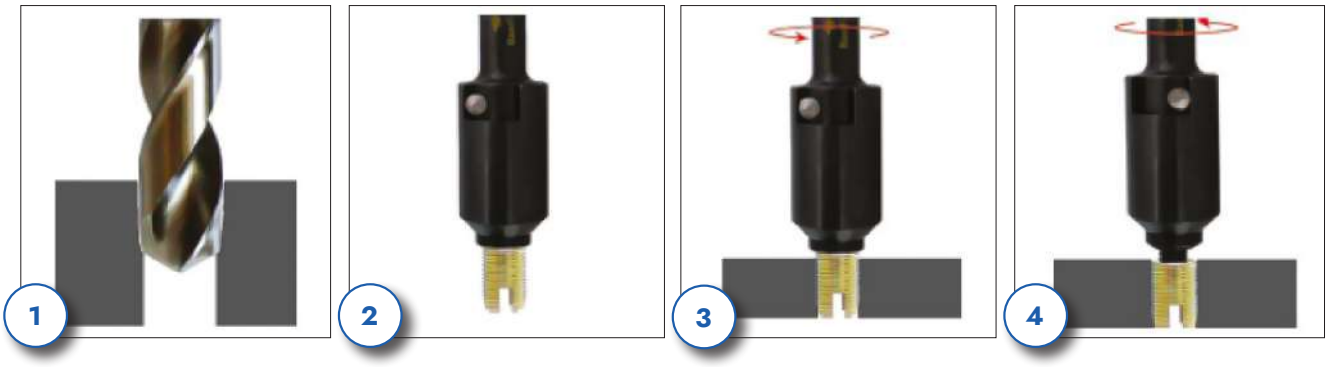


1. **Drill a hole** with the proper diameter according to the receiving material (see page 5).
2. **Screw** the AMESELF on the tool with the slots or cutting holes pointing downwards.
   Lock the nut by a wrench.
3. **Screw** in the ameself until approx. 0.1-0.2 Mm underneath the surface of the workpiece.
4. **Unlock** the counternut by a wrench and unscrew the tool.

If you have any difficulties while screwing, you can partially pre-tap the hole with a standard tap.

MACHINE INSTALLATION

Machine installation with **tool types 70620 & 70621**



1. **Drill** a hole at diameter according to the receiving material (see page 5).
2. **Precisely position** the workpiece so that the bore and machine spindle are at right angles to each other (do not tilt). Set the machine to the precise installation depth (appr. 0.1 to 0.2 mm below the surface of the workpiece).
   Actuate the operating lever of the machine. The rotatable outer shell of the tool must be resting against the outer visible stop pins at the beginning of the turning process so that it is driven by the pins in the clockwise direction.
3. **Feed** the AMESELF towards the tool (slot or cutting hole facing downwards) and grip for the duration of 2 to 4 revolutions.
   Continue to actuate the operating lever of the machine and to guide the tool to the hole until the AMESELF cuts into the borehole.
   Reminder: the driving process takes place without actuating the feed.
4. Switch on the reversing function. Depending on the type and structure of the device, this takes place automatically by means of a limit switch or depth sensor.

Guideline speed values for light alloy

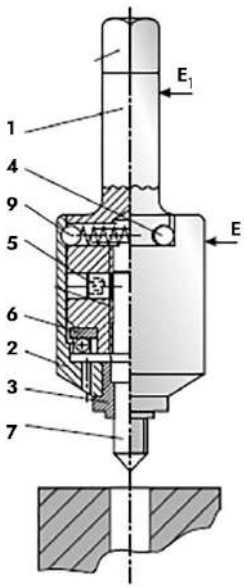
AMESELF female thread	Speed rpm [min-1]
M 2,5 /M 3	650 - 900
M 4 /M 5	400 - 600
M 6 /M 8	280 - 400
M 10 /M 12	200 - 300
M 14 /M 16	150 - 200
M 18 /M 20	120 - 200
M 22 /M 24	100 - 160
M 27 /M 30	80 - 140

Guideline values for driving torques (Nm)

M 2,5	1,5 Nm
M 3	2,5 Nm
M 4	5,5 Nm
M 5	10 Nm
M 6	15 Nm
M 8	28 Nm
M 10	40 Nm
M 12	60 Nm
M 14	100 Nm
M 16	160 Nm
M 18	220 Nm
M 20	310 Nm
M 22	420 Nm
M 24	530 Nm
M 27	770 Nm
M 30	1050 Nm

SET OR EXCHANGE THE STUD

- Pull off the shell (2) downwards off the shaft (1).
- Release the locking screw (5).
- Screw the stud (7) in or out. Yellow coloour marking indicates the flattened surfaces for the locking screws.
- When assembling, tighten both screws (5) evenly.
- Insert the ball bearing (6).
- Push on the shell (2) until the ball stop locks into place. To ensure that the tool functions perfectly, it must be possible to easily rotate the shell.



Dimensions	Part Number
M2,5	70620725
M3	70620703
M4	70620704
M5	70620705
M6	70620706
M8	70620708
M10	70620710
M12	70620712
M14	70620714
M16	70620716
M18	70620718
M20	70620720
M22	70620722
M24	70620724
M27	70620727
M30	70620730

FIND OUT ABOUT OTHER AMECA RANGES

/// MECHANICAL FASTENERS

WIRE THREAD INSERT AMECOIL®

HIGH ASSEMBLIES STRENGH

Used in all industry sectors, the AMECOIL® Wire Thread Insert is the key component to ensure high-quality assemblies. To reinforce threads in light alloys, but also to provide high-quality to all fastening points: correction of pitch and angle defects, resistance to corrosion, thermal shock, etc.

TANGLESS WIRE THREAD INSERT

TANGLESS® inserts guarantee an installation 100% reliable in high-risk areas such as the aerospace industry. They require no additional engineering and incur no cost implications for assembly modifications.

INSERT FOR PLASTIC AMEPLAST

AMEPLAST® threaded inserts are specifically designed for post-moulding installation in thermoset, thermoplastic or fiber material, providing high levels of tensile and torque strength.

- Sizes: M2 to M8

KEY-LOCKING INSERT CLAVSERT

Our Clavsert are easy to install and remove. The are driven down into the threads of the surrounding base material, locking the insert in place.

- 3 Models: light-weight, reinforced and closed
- Sizes: M4 to M24 depending on series

/// SHEET METAL FASTENERS

BLIND RIVET NUT

SELF-CLINCHING NUT AND STUD

SELF-CLINCHING STAND-OFF

WELD STUDS

CLIPS FASTENERS - CAGE-NUT

YOU HAVE A QUESTION OR A PROJECT?

Contact us via our website, our sales team or directly by phone.
We'll be happy to support and advise you on your projects.

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AMECA

RELIABILITY AND SAFETY MANUFACTURER

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