WÜRTH

TIME-SERT®
THREAD REPAIR

The easy, reliable solution

CONTENTS

Please note, the **TIME-SERT®** system is based on precision engineering. All the tools are special sizes to ensure optimum strength and quality of the repaired thread. Therefore it is essential to use genuine **TIME-SERT®** tools from the **TIME-SERT®** assortments listed here.

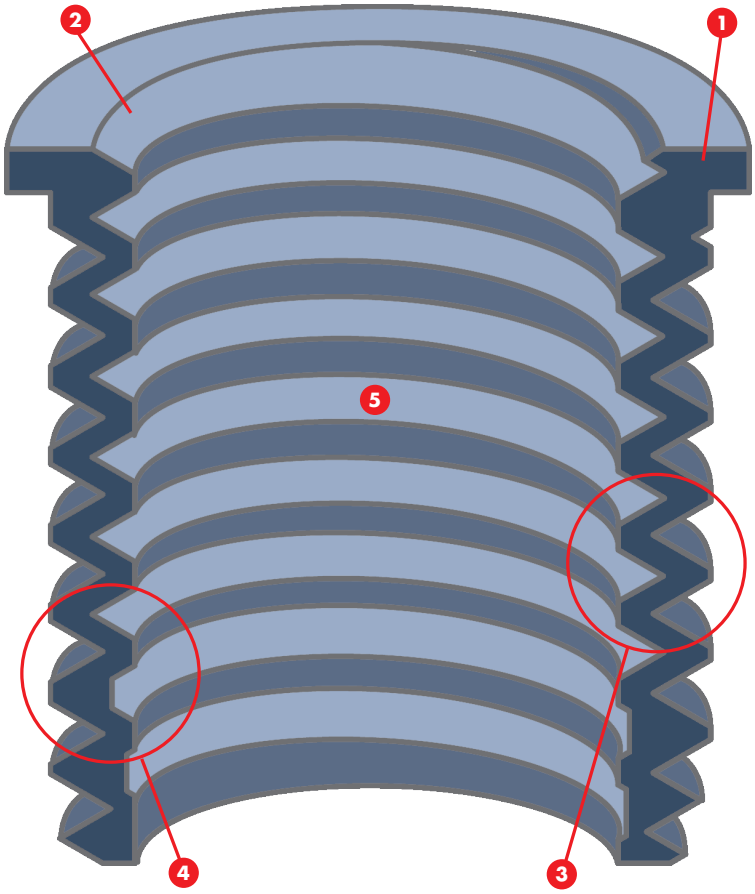
WHY USE TIME-SERT®

DESIGN CHARACTERISTICS

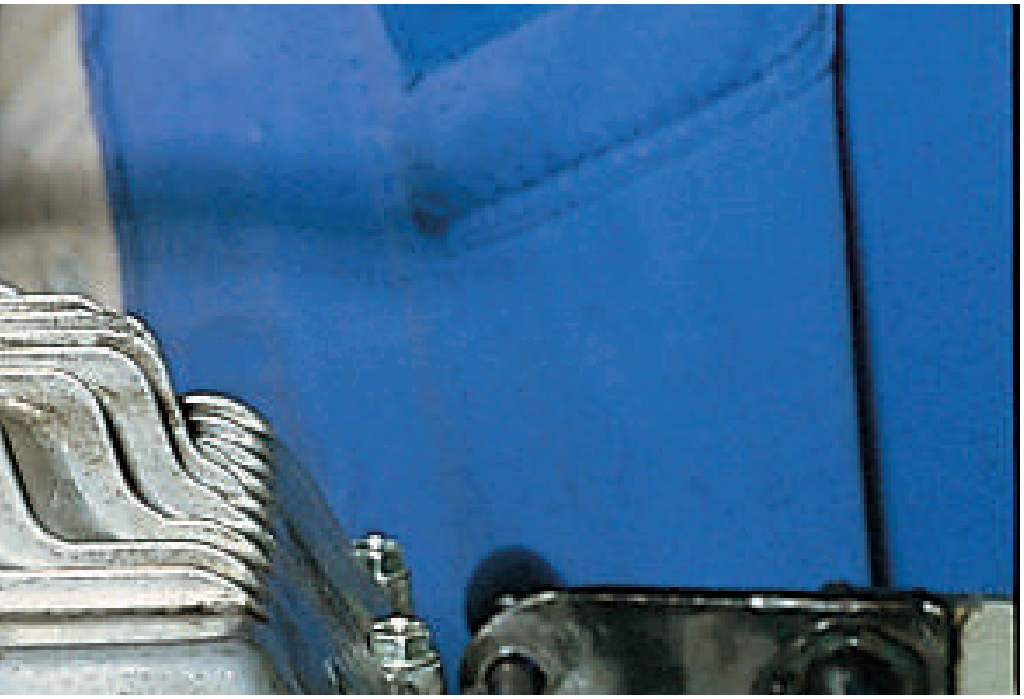
The **TIME-SERT®** system is based on a solid steel insert machined from a solid piece of material. The thin walled insert is press fitted to the workpiece. Therefore, **TIME-SERT®** is able to withstand high continuous strains as well as frequent tightening and undoing of screws. The available inserts cater for metric standard, and fine pitches as well as imperial threads.

TIME-SERT® can be used in all metal base materials :-

- Iron metals, e.g. steel, stainless steel and cast iron.
- Light metals, e.g. aluminium, titanium, magnesium.
- Non-ferrous metals, e.g. brass, bronze, copper, zinc.
- High strength and synthetically hardened materials (testing required) **TIME-SERT®** achieves a permanent thread of higher tear-out strength than the original thread in light metals or low strength materials. The larger outer thread of the insert also enlarges the load bearing thread area.

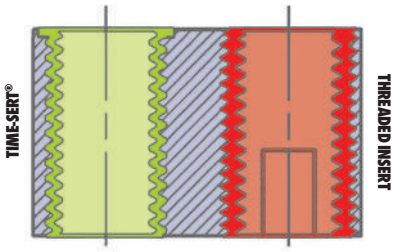


1. Strong collar for positioning of the insert.
2. Chamfered interior thread for an easy insertion of screw.
3. Extremely thin wall due to synchronous path of threads.
4. The lower 3 to 5 turns of thread are not completely cut. These are pressed into the workpiece during insertion.
5. The inserts for spark plug threads are copper or silver plated for improved heat dissipation.



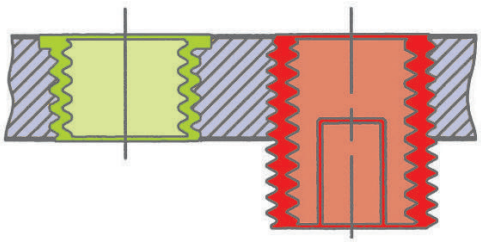
TIME-SERT® is very thin walled owing to the synchronous path of the inner and outer threads.

YOUR ADVANTAGE:
TIME-SERT® can be used even when there is little base material to work in.



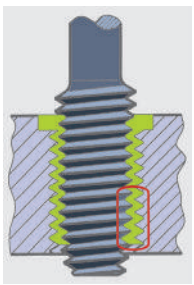
TIME-SERT® can be installed in thin walled components too.

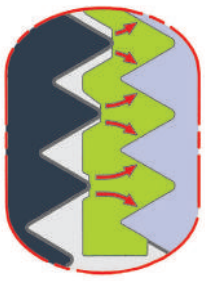
YOUR ADVANTAGE:
Allows dependable repairs in places where only a few threads exist, such as sump plugs.



TIME-SERT® is self locking through automatic forming of the semi-finished threads during installation.

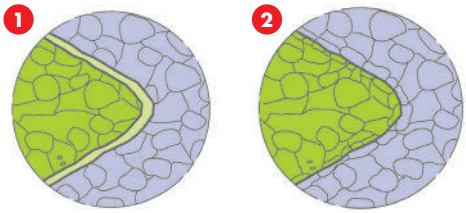
YOUR ADVANTAGE:
The insert will not unscrew, even without bonding.





1 Insert BEFORE press fitting
There is sufficient play between the insert and the workpiece to allow the insert to be screwed in.

1 Insert AFTER press fitting
In the press fitting process the excess material of the insert is pressed into the workpiece, causing both materials to form a tight bond.



AREAS OF APPLICATION

For the repair of threads in situations where threads are subject to the toughest conditions and short maintenance intervals.

AUTOMOTIVE
Motorcycles, commercial vehicles, buses, plant vehicles, fork lift trucks.

ENGINE
Spark plug threads, stud bolt threads, engine blocks and heads.

ATTACHMENTS
Servo pumps, alternators, air conditioning units.

TRANSMISSION
Gearbox covers, mounting brackets.

DIFFERENTIAL
Stud bolts.

AXLES
Mounts, brackets.

CHASSIS

HOUSINGS

ENGINEERING REPAIRS
Perfect thread repair of damaged or stripped threads, on machinery, production equipment, devices, appliances.

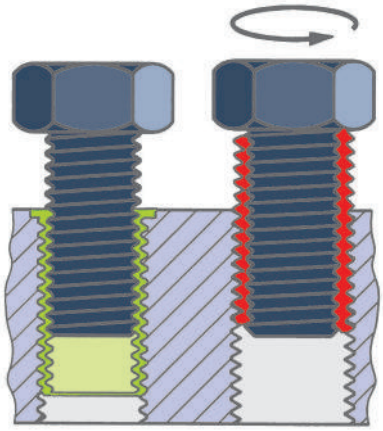
LIGHT-WEIGHT CONSTRUCTION
Any area where light metals are used for weight-saving reasons, **TIME-SERT®** provides a permanent and strong thread, for racing engines, chain saws, hand-held machines.

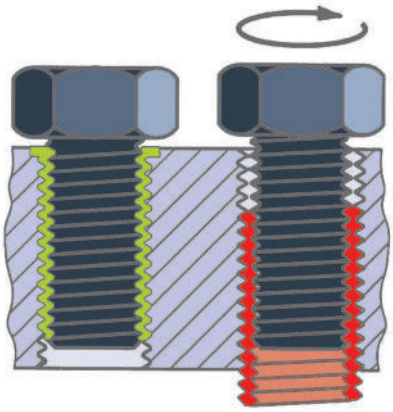
FOOD PROCESSING
Threads must be repaired or reinforced with stainless steel inserts in all areas of food processing where contact with food is possible, for stirrers, industrial kitchen appliances, stainless steel containers.

ADVANTAGES AND BENEFITS

TIME-SERT® is equipped with a collar permitting precise positioning in the workpiece.

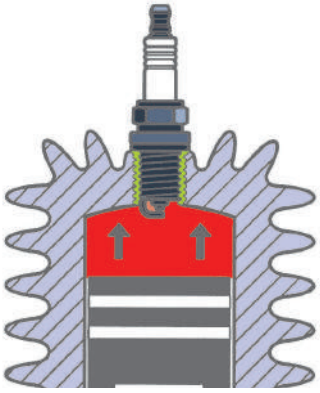
YOUR ADVANTAGE:
Additional fixing in the workpiece is not required.





TIME-SERT® is pressure tight owing to the press fit with the workpiece.

YOUR ADVANTAGE:
Pressure tight in applications with water, oil or other liquids, as well as compressed gases, such as in spark plug threads. The copper plating and the press fit with the workpiece provide optimal heat dissipation properties.



TIME-SERT® is also available in certain sizes in stainless steel.

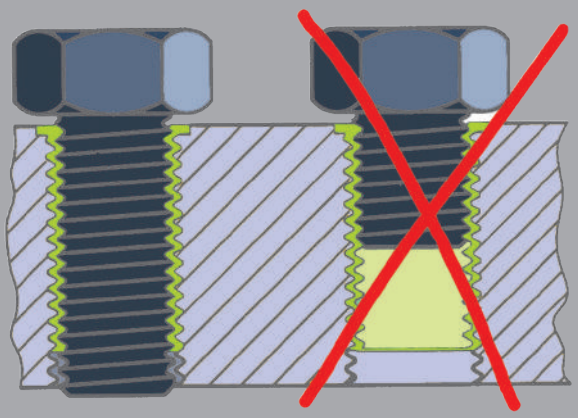
YOUR ADVANTAGE:
Suitable for food processing, including critical areas of food production. The stainless steel inserts have superior strength properties and thus can be used in applications with extensive loads.

SOME TIME-SERT® TIPS

Problems with press fitting?
The insertion tool plays a decisive role in the press fitting procedure. If the forming thread of the tool is no longer in perfect condition, correct press fitting of the insert is no longer assured. Therefore, avoid damaging the insertion tool (with scratches, impact notches or chips). The tool should always be carefully stored.

Spark plug thread repairs
Never lubricate the outer thread of the **TIME-SERT®** insert. Owing to the high temperatures, the oil film between insert and cylinder head would evaporate, leading to unscrewing of the bushes.

Load bearing capacity
The highest level of transmission of forces with **TIME-SERT®** can be achieved if the screw protrudes slightly from the insert. If short screws are used, the lower part of the insert can bend inwards and this increases the likelihood of the insert unscrewing.

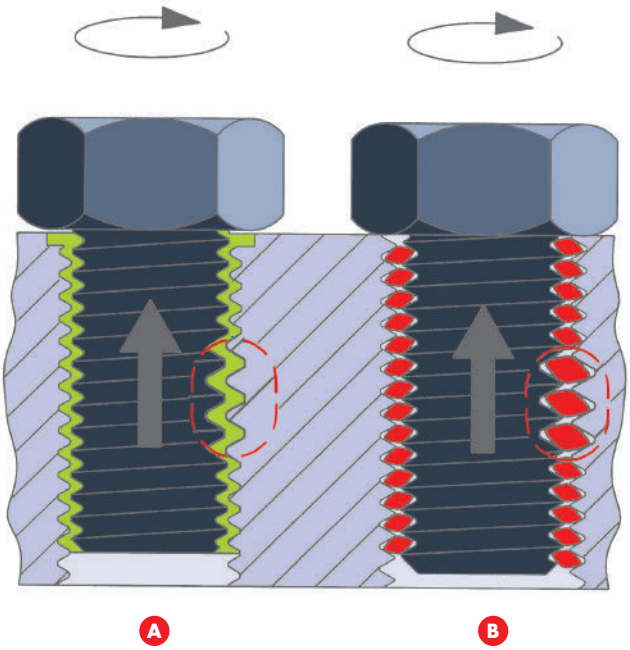


ADVANTAGES OF TIME-SERT® OVER WIRE INSERTS

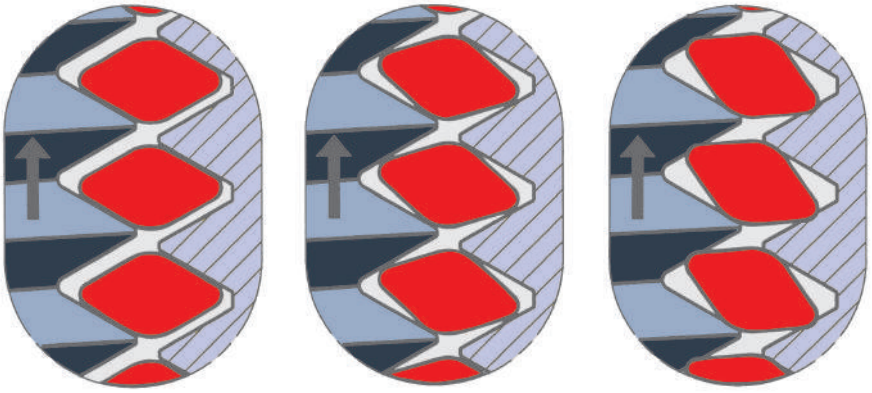
Distortion of the rhombic wire type inserts

The solid **TIME-SERT®** insert is able to transmit the pressure loads of torque evenly through the entire contact area with the workpiece. In case of wire inserts, however, the rhombic cross section is distorted in the direction of the pressure load.

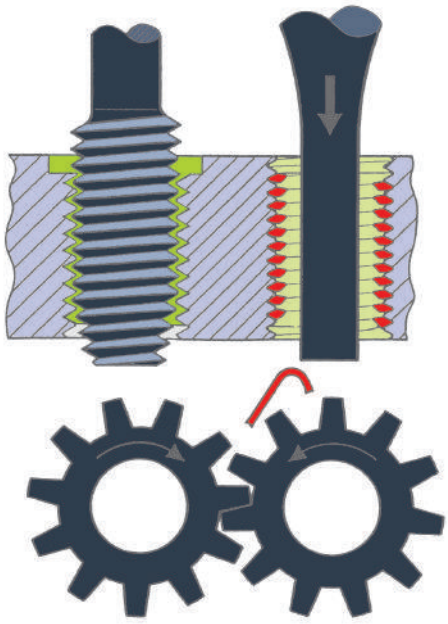
1. Under high pressure load conditions, a permanent distortion of the screw, the thread of the workpiece and the wire insert occurs. This damaging of the thread causes a jamming effect throughout the entire repair, thus it becomes very difficult to tighten or undo the screw.
2. The wire insert is oversize-wound in order to prevent unscrewing, the distortion described above counteracts this effect. In many cases the wire insert is unscrewed unavoidably from the workpiece together with the screw.
3. **TIME-SERT®** secures itself against unscrewing, even in just a few flights of thread A. In this situation the wire insert will normally unscrew, as the small amount of thread does not provide enough support B.



TIME-SERT® under low and highest loads



Wire insert under low, medium and highest loads



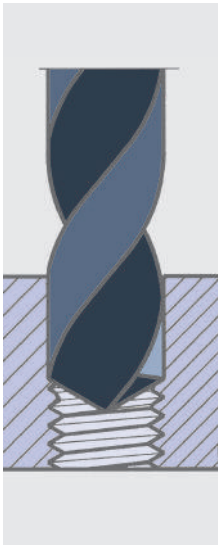
REPAIR OF THREAD INSERTS

Once a **TIME-SERT®** insert has been used for repair or reinforcement, a subsequent repair of the repaired area can be performed without any problem.

Removal of the insert is done with a common screw extractor (left handed thread) without doing any damage to the thread of the workpiece. Simply screw in the screw extractor from the collar end of the insert and unscrew it from the workpiece by turning it anti clockwise. The press fitted insert will release and thus free the insert for extraction.

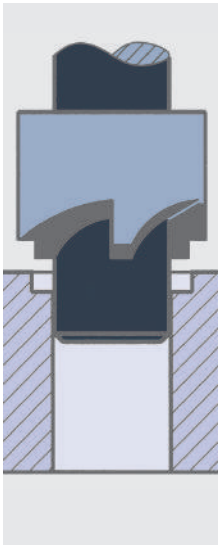
1. A wire insert cannot be extracted just like that, since the wire helix expands. The flanks of the thread are damaged when the wire is extracted.
2. Once the wire insert is installed, the insertion aid must be knocked off. This foreign object may cause trouble in certain components and therefore must be removed, which sometimes can be difficult.

METRIC AND IMPERIAL THREADS



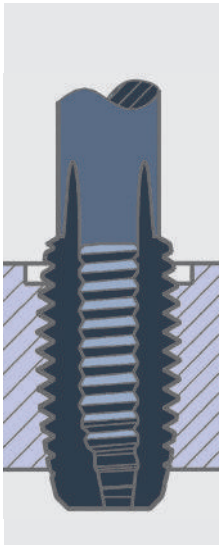
STAGE 1

Drill out the damaged thread all the way to the bottom using a HSS drill bit A. Be sure to keep the drill hole straight.



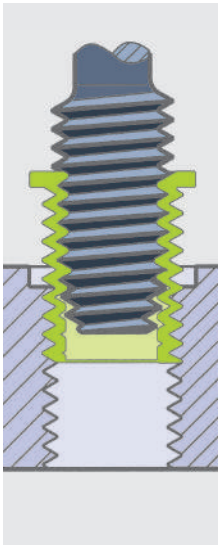
STAGE 2

Machine the drill hole with seat cutter B, until the depth stop comes into contact with the workpiece. The depth limit stop is designed as a non-cutting contact edge, always assuring a uniformly countersunk seating depth.



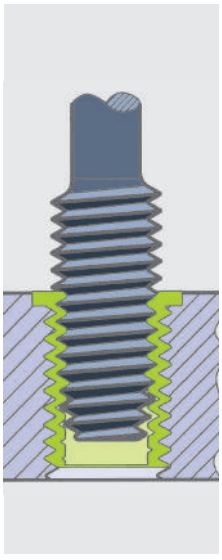
STAGE 3

Using thread tap C, cut the thread for the **TIME-SERT®** insert. Be sure to keep the drill hole straight. Carefully clean the thread to remove all swarf and cutting oil.



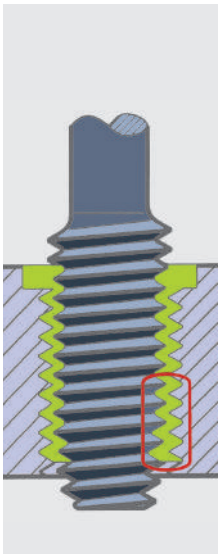
STAGE 4

Lubricate the tip of insertion tool D and screw on the insert by hand. Do not allow oil to get onto the outer thread of the insert. Start to screw the insert into the newly formed thread.



STAGE 5

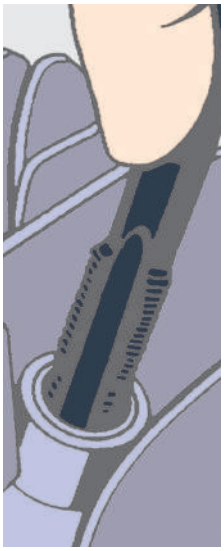
Once the insert sits flush with the surface, the remaining threads are formed using the insertion tool D. The resistance increases noticeably.



STAGE 6

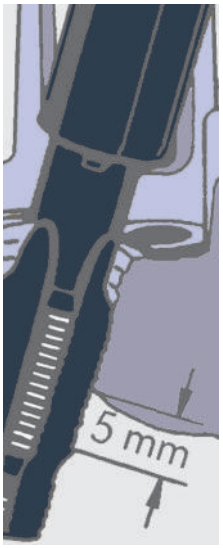
In this phase, the semifinished threads of the insert are pressed outward. The insertion tool D presses excess material into the workpiece. The repair is complete when the tool can be turned with noticeably less resistance.

SPARK PLUG THREADS



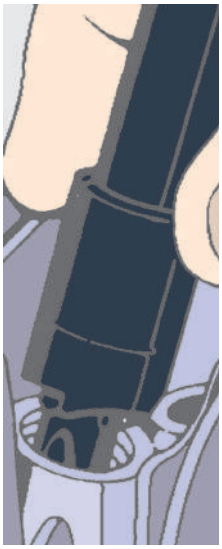
STAGE 1

Screw in stepped tap **A** into the remaining thread. The leading thread of the tool provides straight alignment for tapping, even in the case of completely stripped threads.



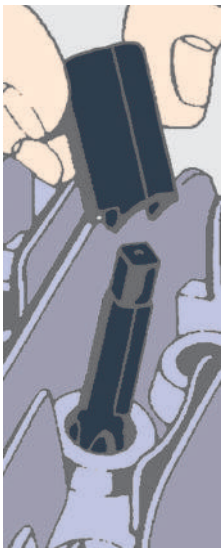
STAGE 2

Place socket wrench **D** onto stepped tap **A** and continue turning until the outer tap protrudes about 5mm from the thread. This way, the old thread is removed and the new one is cut in a single operation.



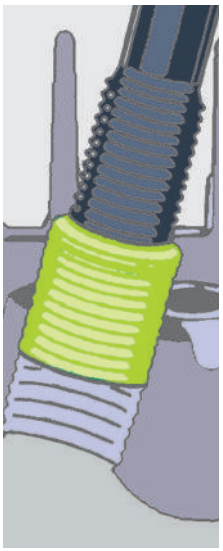
STAGE 3

With the stepped tap **A** still in the thread, slide the seat cutter **B** onto the stepped tap. Keep turning until the seat has been completely cut out. The entire seating surface must be bright.



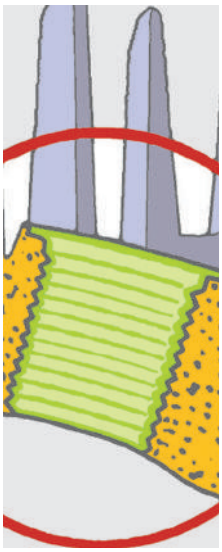
STAGE 4

Remove both tools and clean the swarf from the thread thoroughly. Lubricate the tip of insertion tool **C** and screw on the insert by hand. Do not oil the outer thread of the insert.



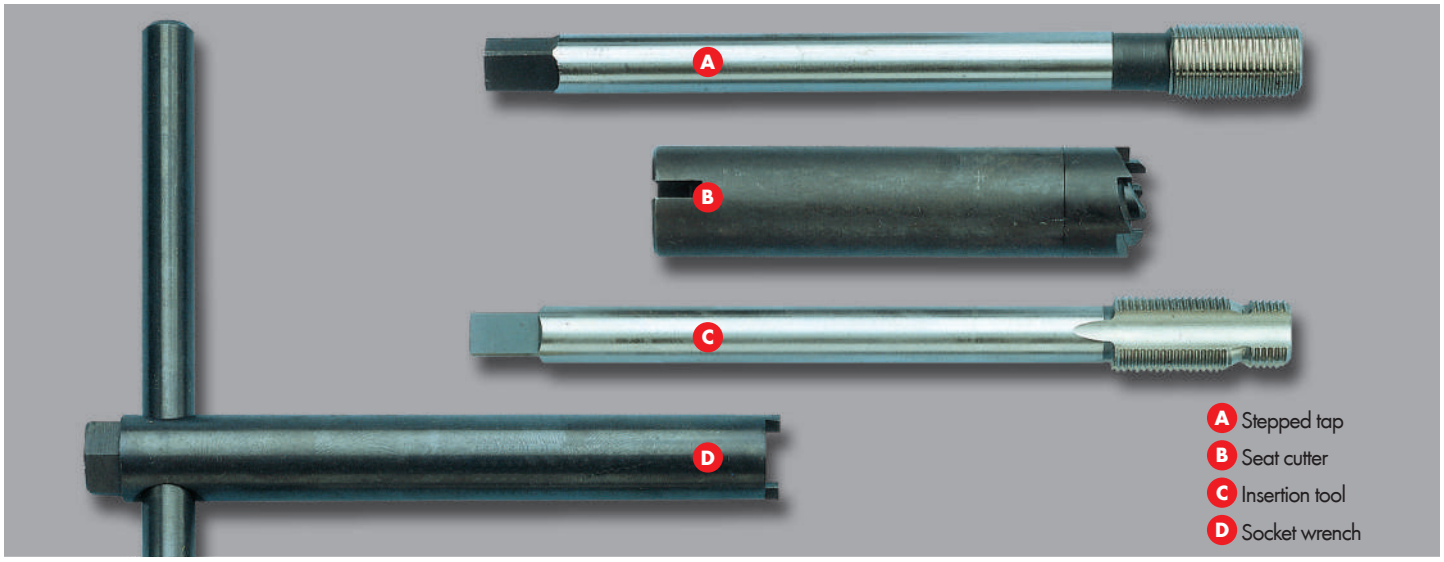
STAGE 5

Screw in the insert until it is seated securely using the lubricated insertion tool **C** and socket wrench **D**. The screw-in resistance will increase noticeably. Continue turning until the resistance drops noticeably.



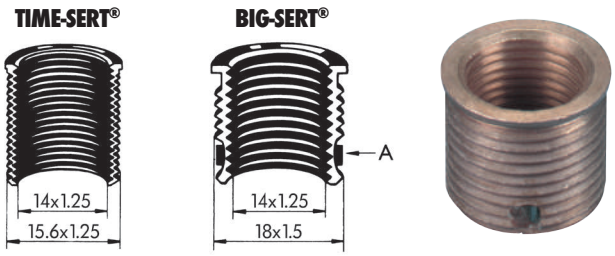
STAGE 6

The repair is complete. The threaded insert is now gas tight and will not unscrew.



BIG-SERT®

Big-Sert® will repair oversized holes which have previously been repaired or excessively damaged. Big-Sert external thread is M18 x 1.5 (maximum diameter for repair = 16.3mm). The locking pins A are pushed into the base material. This creates a cam-lock effect, thereby preventing accidental removal of the Insert.



STAGE 1

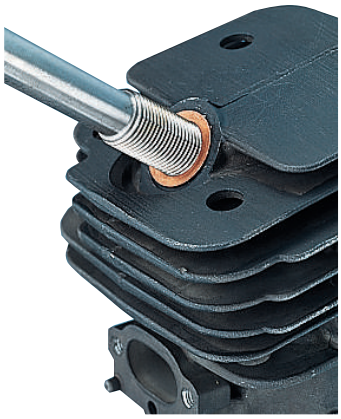
Ream the damaged thread with the socket wrench A and the reamer tool B. Maintaining a 90° angle to the hole, ream until the collar of reamer tool B is lying on the base material.

STAGE 2

Place tap C to socket wrench and cut thread. Clean out swarf and completely degrease the newly cut thread.

STAGE 3

Tighten the socket head screw of locating tool D with the socket head wrench F and screw the insert onto the tool. Apply sealing compound G around the upper part of the insert collar. Screw the insert into the prepared hole using the hexagon nut. Loosen the locating tool socket head screw. Remove tool from insert.



STAGE 4

Attach inserting tool E to the socket wrench and screw into insert. Continue turning using increased pressure until the inserting tool freely turns in the insert. The insert is now locked in place. Remove inserting tool, the repair is now completed.

DIESEL INJECTOR (M24 X 2.0)

Includes a **TIME-SERT®** locating guide which guarantees correct positioning of the Insert which holds the replacement injector.

STAGE 1
Using screw, locate the guide into base of hole and remove screw.

STAGE 2
Position reamer into hole, positioning the spindle into the guide, rotate reamer to full depth of hole to remove damaged thread.

STAGE 3
Position tap into hole, positioning the spindle into the guide, tap thread to full depth of hole, remove tap.

STAGE 4
Using screw, remove guide from base of hole, ensure that hole is totally clean and free of swarf.

STAGE 5
Lubricate inserting tool (cutting oil 0893 050). Screw the insert onto the inserting tool and then into the prepared hole. When the head of the Insert is seated the inserting tool will tighten up. Using increased pressure, continue to rotate the tool until it loosens up. Remove tool. The repair is now completed.

LAMBDA PROBE

The **TIME-SERT®** insert has a collar which guarantees exact positioning. When using **TIME-SERT®** inserts, exchange of the catalyst or exhaust manifold is not required. Locking of **TIME-SERT®** inserts makes them absolutely gas tight and also guarantees prevention of unscrewing.

FREQUENTLY ASKED QUESTIONS

Q. WHAT ARE THE ADVANTAGES OF TIME-SERT® OVER WIRE INSERTS?
A. See Advantages and Benefits

Q. WHAT MATERIALS ARE TIME-SERT® MADE OF?
A. TIME-SERT® inserts are made from 12L14 carbon steel and 303 stainless steel.

Q. WHEN SHOULD STAINLESS STEEL INSERTS BE USED?
A. We recommend the standard carbon steel inserts for most applications. Stainless steel is recommended for the medical or food industry and water applications. Stainless steel may cause gauling in heated applications.

Q. CAN TIME-SERT® BE INSTALLED IN BLIND HOLES?
A. Yes **TIME-SERT®** can be installed in blind holes. A basic dimension we give is .200 deeper hole, than the insert itself. This gives enough room for the insert driver to pass though and expand the last few threads of the insert into the base material. For example the blind hole depth for a 5/16 - 18 x .450 should be a minimum of .650 deep. Insert length .450 + .200 = .650. Another thing to keep in mind when repairing a blind hole application is that you "DO NOT" want to bottom out the driver tool on installation. If the driver tool bottoms out there is a possibility it can break. There is a simple method to safeguard against breaking the tool in a bottom hole application as follows. Before installing the insert, place the driver tool into the hole and mark the tool at the point it can't enter any further. Use a ink marker or even use a small strip of electrical tape around the driver. This way we know exactly how deep the hole is and there is no danger of bottoming the tool out.

Q. CAN TIME-SERT® BE REMOVED EASILY?
A. **TIME-SERT®** can be removed with a spiral point screw extractor, or drilled out with the drill that came in the repair kit.

Q. CAN TIME-SERT® BE REINSTALLED?
A. Yes, if the threads in the base material are not damaged a new **TIME-SERT®** can be re-inserted into that hole. This is a common practice on CNC pallet changers. When an insert starts to show wear over time, the insert can be removed with a screw extractor then replaced with a new one.

Q. WHAT TYPES OF PLATING ARE USED?
The standard **TIME-SERT®** carbon steel inserts are plated with zinc phosphate. Spark plug washer seat inserts are plated with copper plating and Spark plug taper seat are silver plated.

Q. CAN TIME-SERT® INSERTS BE SHORTENED FOR LENGTH?
A. No! You cannot cut off the bottom or top of the inserts for these reasons. The top has a flange which give the insert a place to sit for positive placement. The bottom of the insert is the locking portion.

Q. WHAT ARE THE TORQUE AND PULL OUT SPECIFICATIONS FOR THE TIME-SERT®?
A. TIME-SERT® makes no claims on torque specs or pullout. The reason being there are many factors that can determine the end result of the insert thread strength, one being the installation process. Was the insert actually installed correctly and square to the hole? This would have a huge effect on the outcome of the torque specification. Along with what type of material being inserted, plastics will not have the same torque values as aluminium's, steels, or cast irons. Another thing to keep in mind is the length of the insert. Inserts must match the length of the bolt threading into the hole. Too short of an insert length could result in thread failure. **TIME-SERT®** will state that if the thread repair is done correctly and with the proper length of insert used for the application the result should be a hole that will match the original torque specification of the hole. Customers have found in there own testing data that **TIME-SERT®** have exceeded there expectations in testing. Many of our larger customers will test **TIME-SERT®** before placing them in critical applications and find excellent results.

Q. CAN SPARK PLUG REPAIR BE DONE WITHOUT REMOVING THE HEAD FROM THE MOTOR?
A. Yes, Spark plug repair can be done without removing the head, this is done by placing a heavy grease on the step tap flutes to catch the chips. TIP: mechanics have mentioned that using a shop vac with a plastic tube taped to the nozzle end works well for removing any stray chips left over.

Q. CAN CUSTOM LENGTHS OF INSERTS BE ORDERED?
A. Yes custom lengths can be ordered but a minimum of a1000 insert quantity will be required. The estimated time of delivery is 4 - 6 weeks nationally (USA), longer times when ordered internationally.

Q. WHAT IS THE CORRECT INSERT FOR MY SPARK PLUG APPLICATION?
A. What type of spark plug do you have? Washer seat or taper seat. Washer seat spark plugs will have a washer to seal the spark plug against the head. Taper seat spark plugs will have a taper to seal against the head. Measure from either the spark plug (washer) or (taper) to the last thread. (NOT to the end of the electrode). This will give you the correct length on insert. **TIME-SERT®** inserts cannot be shortened for length. Please refer to our catalogue or web site for length of inserts.

Q. CAN I REPAIR A STRIPPED WIRE INSERT WITH TIME-SERT®?
A. No, you cannot repair a wire insert with a **TIME-SERT®**. The over-sized line in inserts available is called BIG-SERT. Please refer to catalogue or web page for sizes available.

Q. IS THE HOLE TO LARGE FOR A TIME-SERT®?
A. Normally if the hole has never be repaired **TIME-SERT®** will repair that hole. You can check the drill size from the **TIME-SERT®** catalogue.

Q. DO TIME-SERT® INSERTS USE SPECIAL TAPS?
A. Yes, **TIME-SERT®** inserts use S.T.I taps which are considered special. S.T.I stands for "Screw Thread Insert" an example would be a **TIME-SERT®** M8 x 1.25 repair kit would require a M8 x 1.25 S.T.I tap, this is "larger" than a standard M8 x 1.25.

Q. INSERTS ONLY SCREW ONTO THE INSERT DRIVER 1 OR 2 THREADS?
A. Inserts will only screw on the installation driver 1 or 2 threads because the insert driver is a few thousandths larger on the pitch diameter than the tapped hole so it can cold form the last few threads of the insert, locking it in place. This is common on all inserts.

Q. WILL HONDA DRAIN PLUG REPAIR WORK IN "TIN PANS" WITH OVERSIZED DRAIN PLUGS?
A. No! Because the oversized drain plug has oversized the hole in the drain pan making it larger, so the insert will not hold properly. The kit will work by reducing the hole from M14 x 1.5 to M12 x 1.5 there is no drilling because the tin pans are too thin and the thread would break out entirely. So no oversized drain plugs in tin pan repair. Aluminium pan repair: If the drain pan is aluminium use the aluminium pan kit, it does not matter if there are oversized drain plugs used because we are drilling out the hole to bring it back to its original size. Aluminium pans have enough material to drill out and insert back to the standard M14 x 1.5.

Q. THE HOLE BEING REPAIRED IS SHORTER THAN THE LENGTH OF YOUR SHORTEST INSERT?
A. One possible solution. The hole being repaired has a depth shorter than the length of our shortest insert. There are a few cases where we do not have a short enough insert for a particular application. For example: trying to repair a hole 5/16 - 18 our shortest length insert is .450 inches and the hole depth is .350 inches deep. You can install a **TIME-SERT®** without using a counter bore. Leaving the shoulder sticking up to remove later on by milling or filing. On installation: Screw the insert in the hole with the insertion tool to the desired location. Let the insert set up with thread locker (0893 270 050) before running the insert tool through the insert. The thread locker will prevent the insert from going to deep into the prepared hole. Use the insertion tool to expand the last few threads of the inserts. The insert will now be protruding or sticking up higher in the hole, you will have to "file down" or mill the top of the insert to get the insert flush with the surface. It's recommended to run the insert tool back through the insert to clean any burs at the top of the insert. The repair is complete.

PROBLEM SOLVING

PROBLEM: Insert can not be inserted.
PROBABLE CAUSE: Incorrect sequence of tools so the leading thread is chamfered incorrectly or incorrect thread or wrong insert.
CORRECTIVE MEASURES: follow sequence, first drill, cut seat, then tap the thread and always use suitable pitch and thread diameter.

PROBLEM: Insert jams half-way.
PROBABLE CAUSE: Thread insufficiently cleaned, swarf in the flanks.
CORRECTIVE MEASURES: Clean thread with compressed air.

PROBLEM: Insert will not screw in flush with the surface.
PROBABLE CAUSE: Seat not cut to sufficient depth and the chamfer of the insert is contacting the leading thread or swarf in the thread.
CORRECTIVE MEASURES: Cut seat until the depth stop contacts the workpiece and re-tap thread deeper, observe leading thread of the tap or clean thread with compressed air.

PROBLEM: Insert can not be press fit.
PROBABLE CAUSE: Tip of the insertion tool is making contact with the bottom of the bore hole or the insertion tool is not lubricated or defective.
CORRECTIVE MEASURES: Drill deeper or remove the tip of the insertion tool, lubricate insertion tool well or replace if defective.

PROBLEM: Insert collar tears away.
PROBABLE CAUSE: Insertion tool is not lubricated or is defective.
CORRECTIVE MEASURES: Lubricate insertion tool well or replace if defective.

PROBLEM: Insert collar is screwed into the thread.
PROBABLE CAUSE: Workpiece material is too soft and is displaced by the insert collar or the insertion tool is not lubricated or defective.
CORRECTIVE MEASURES: Bond the insert flush with the surface, after hardening the insert can be press fitted as usual, lubricate insertion tool well or replace if defective.

TIME-SERT® RANGE

STANDARD METRIC THREAD REPAIR

Master Assortment
Including all tools, inserts for sizes M5, 6, 8, 10 and 12

Mini Master Assortment
Including all tools, insert sizes M6, 8, and 10

Individual size assortments
For all popular standard metric threads up to M16

FINE METRIC THREAD REPAIR

Master Assortment
Including all tools, inserts for sizes M5, 6, 8, 10 and 12

Mini Master Assortment
Including all tools, inserts for M6, 8 and 10

Individual Size Assortments
For all popular fine metric threads up to M18

IMPERIAL THREAD REPAIR

UNC Master Assortment
Including all tools, inserts for the five most popular threads

UNF Master Assortment
Including all tools, inserts for the five most popular threads

UNC Mini Master Assortment
Including all tools, inserts for the three most popular threads

UNF Mini Master Assortment
Including all tools, inserts for the three most popular threads

Individual Size Assortments
for all popular UNC and UNF threads

SPARK PLUG THREAD REPAIR

Individual Size Assortments
For all popular thread sizes both in flat and tapered seats

SUMP THREAD REPAIR

Individual Size Assortments
For both metric and imperial thread types, without the need to remove the sump from the engine

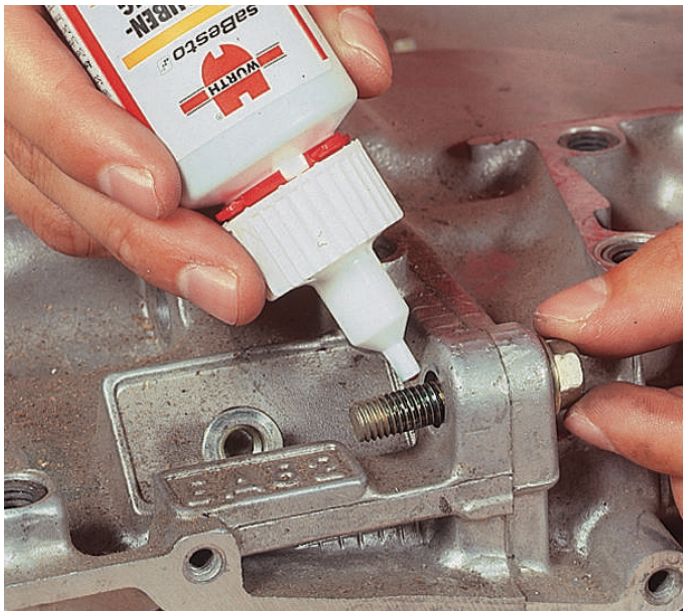
BIG-SERT®

For the repair of damaged and previously repaired threads

DIESEL INJECTOR THREAD REPAIR

LAMBDA PROBE THREAD REPAIR

ASSOCIATED PRODUCTS



THREAD LOCKER
50g
0893 270 050

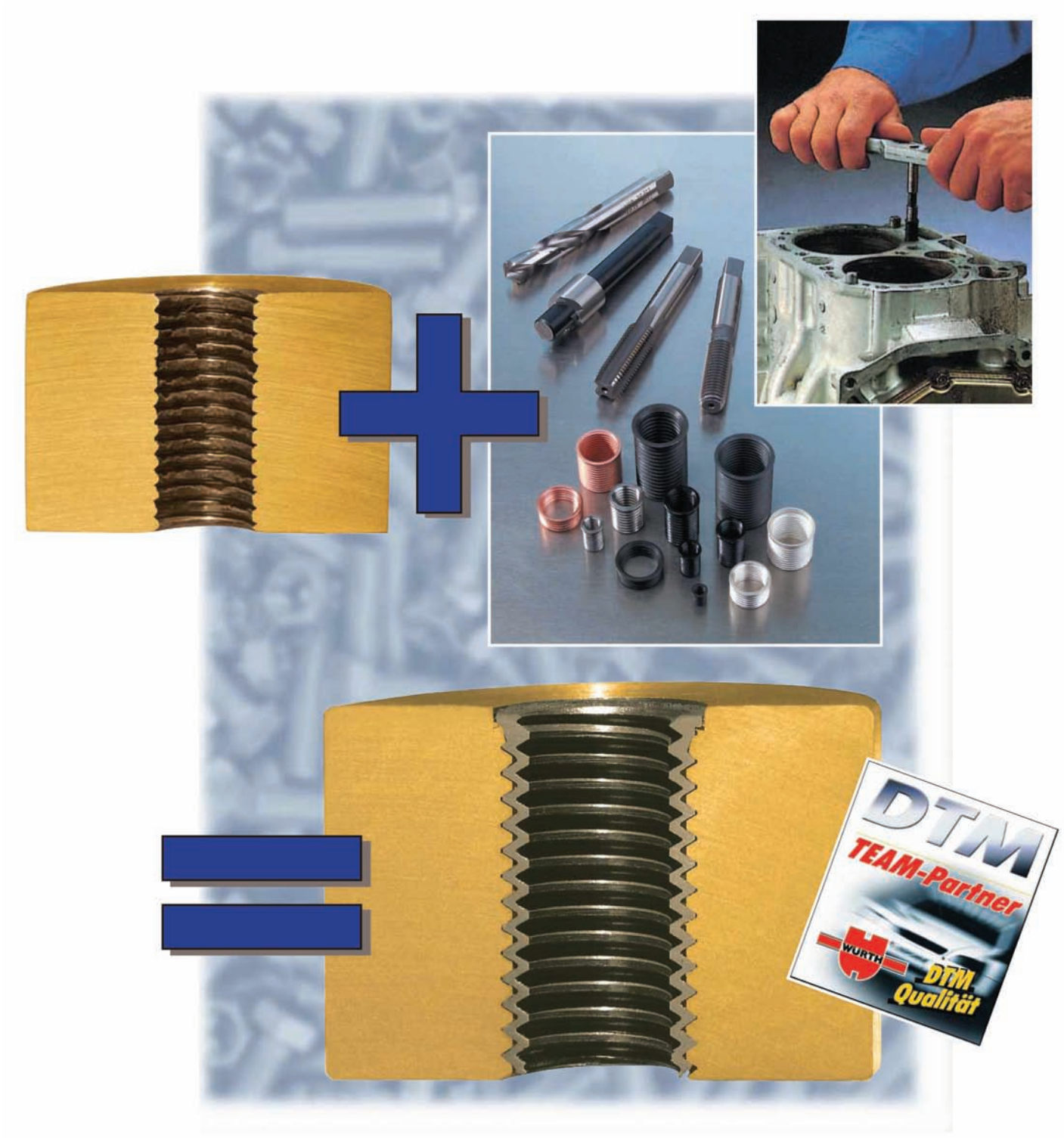
COMPRESSED AIR SPRAY
200ml
0893 62

DP 300 RED 80ML
0890 100 048

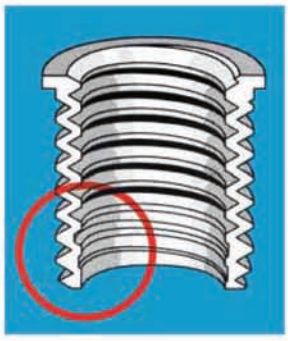
CUTTING AND DRILLING OIL
0893 050 004

TEMPERATURE REDUCTION SPRAY ALL PURPOSE CLOTH WIPES HIGH TEMPERATURE LUBRICANT **INDUSTRIAL STRENGTH HANDCLEANING WIPES** POLYPROPYLENE CROWS FEET WIPE **1PLY BLUE C-FOLD HAND TOWELS** LARGE ROLL CLEANING PAPER INDUSTRIAL CLEANER **MULTI-PURPOSE FOOD SAFE GREASE POWERFUL MULTIPURPOSE CLEANER** DOS **D-MARK HANDCLEANER SAFETY GOGGLES** STUD FRONT COVERALL BARRIER HAND FOAM **PROTECTIVE OVERALL** LATEX GLOVES NITRILE GLOVES

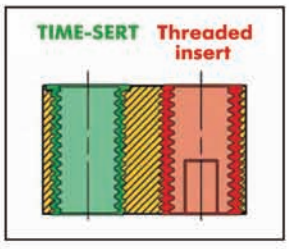
PERFECT THREAD REPAIR AND REINFORCEMENT



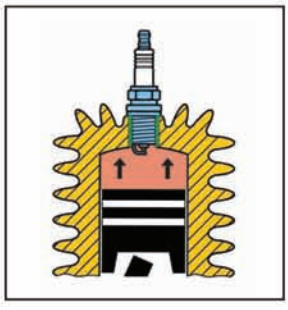
CONVINCING ADVANTAGES - ECONOMICAL ADVANTAGES



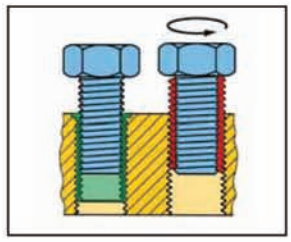
- The TIME-SERT system is based on a solid steel bush machined from a solid piece of material. The thin-walled bush is press-fitted to the workpiece. Therefore, TIME-SERT is able to withstand high continuous strains as well as frequent tightening and undoing of screws. The available bushes can be used with ISO, coarse-pitch, fine-pitch and unified threads. TIME-SERT is universally applicable, e.g. in aluminium, brass, steel or casting materials.



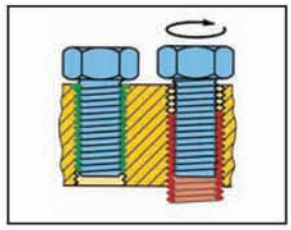
- TIME-SERTis very thin-walled owing to the synchronous path of the inner and outer threads.
  Your advantage:
  TIME-SERT can be used safely even with very thin-walled workpieces.



- TIME-SERT is media-proof owing to the press-fit with the workpiece.
  Your advantage:
  Pressure sealed to resist water, oil and other liquids, as well as compressed gases, e.g. in case of spark plug threads.

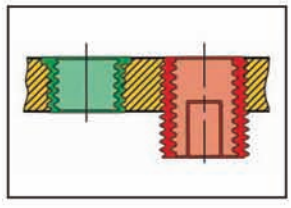


- TIME-SERT is self-locking through automatic forming of the semi-finished threads during installation.
  Your advantage:
  The bush is absolutely secure against unscrewing without the necessity of bonding.



- TIME-SERT is equipped with a collar permitting precise positioning in the workpiece.
  Your advantage:
  Additional fixing in the workpiece is not required.

- Certain sizes of TIME-SERT are also available in stainless steel.
  Your advantage:
  Suitable for food processing even in critical areas, as well as for extremely high strains.



- TIME-SERT can be installed in thin-walled components, as well.
  Your advantage:
  Permits dependable repairs in places where only a few threads exist, e.g. oil drain plug.

Application Examples

Automotive

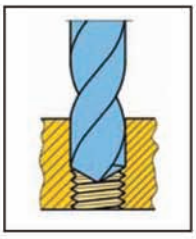
- **Motor**
  Spark plug threads, stud bolt threads
- **Aggregates**
  Attachments of servo pump, alternator, compressor
- **Transmission**
  Gear cover, brackets
- **Differential**
  Stud bolts
- **Axles**
  Attaching parts, brackets
- **Body**

Mechanical Engineering / Precision Mechanics

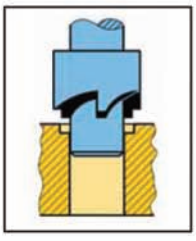
- **Repairs**
  Perfect repair of damaged or stripped threads
- **Lightweight construction**
  TIME-SERT can serve as a permanently installed thread anywhere in lightweight construction when saving weight is a consideration.
- **Food processing**
  In food processing applications, where contact with food is possible, threads must be repaired or reinforced with stainless steel bushes only.

INSTALLATION INSTRUCTIONS

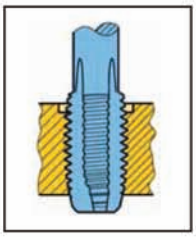
METRIC THREADS / UNC THREADS



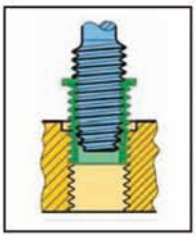
Phase 1
Drill out the damaged thread all the way to the bottom using a HSS drill bit **A**. Be sure to keep the borehole aligned.



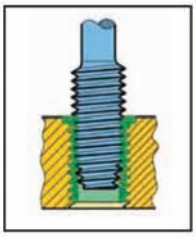
Phase 2
Machine the borehole with seat cutter **B** deep enough that the depth stop gets in contact with the workpiece.



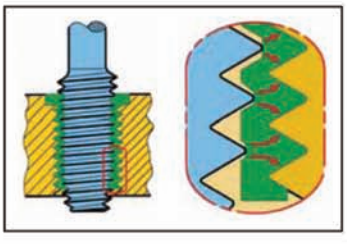
Phase 3
Using thread tap **C**, cut the thread for the TIME-SERT bush. Be sure to keep the borehole aligned.



Phase 4
Blow out the shavings. Lubricate insertion tool **D** and screw in bush manually into the TIME-SERT thread.



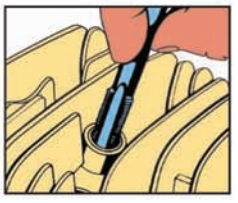
Phase 5
Once the bush sits flush with the surface, the remaining threads are formed using the insertion tool **D**. The screw-in resistance increases noticeably.



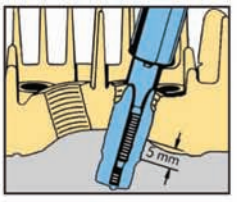
Phase 6
In this phase, the semi-finished threads of the bush are pressed outward. The insertion tool **D** presses excess material into the workpiece. The repair is complete when the tool can be turned with noticeably less resistance.

A HSS drill bit
B Seat cutter
C Tap
D Insertion tool

SPARK PLUG THREADS

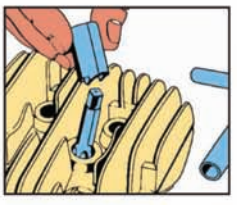


Phase 1
Screw in stepped tap **A** into the remaining thread.

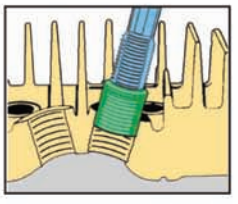


Phase 2
Snap socket wrench **D** onto stepped tap **A** and continue turning until the outer tap protrudes about 5 mm from the thread. In this way, the old thread is removed and the new one is cut in a single operation.

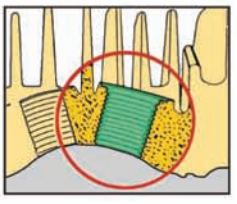
Phase 3
The stepped tap **A** remains in the thread. Slide the seat cutter **B** onto the stepped tap. Keep turning until the seat has been completely cut out. The entire seating surface must be bright.



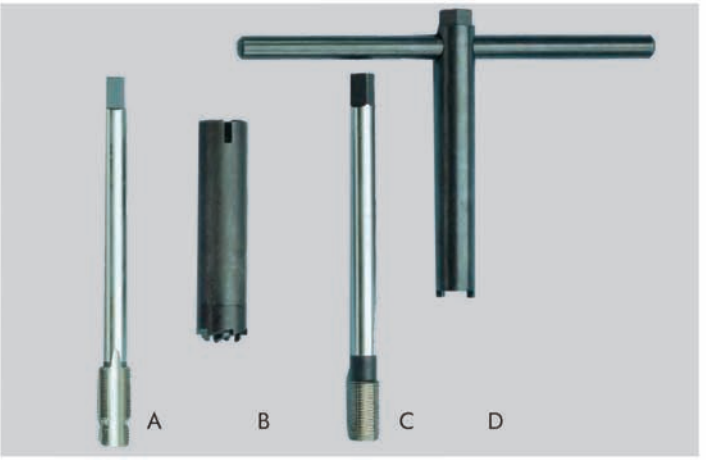
Phase 4
Blow out the shavings. Screw in TIME-SERT bush manually with a few turns - or using insertion tool **C**. Make sure to lubricate the insertion tool first.



Phase 5
Screw in the bush until it is seated securely using the lubricated insertion tool **C** and socket wrench **D**. The screw-in resistance will increase noticeably. Continue turning until the resistance drops noticeably.



Phase 6
The repair is complete. The threaded bush is now compression proof and secured against unscrewing.



A Stepped tap
B Seat cutter
C Insertion tool
D Socket wrench

COMPLETE SET

M5 / M6 / M8 / M10 / M12

- Metric coarse thread
- Bushes and tools for 5 sizes with 2 different lengths of bushes

Art. No.0964 9617

Thread Ø x pitch x length, mm		
M 5 x 0.8 x 7.6	M 8 x 1.25 x 16.2	5
M 5 x 0.8 x 10.0	M 10 x 1.5 x 14.0	
M 6 x 1.0 x 9.4	M 10 x 1.5 x 20.0	
M 6 x 1.0 x 12.0	M 12 x 1.75 x 16.2	
M 8 x 1.25 x 11.7	M 12 x 1.75 x 24.0	

COMPLETE SET

M6 / M8 / M10

- Metric coarse thread
- Bushes and tools for 3 sizes with 2 different lengths of bushes each

Art. No.0964 9616

Thread Ø x pitch x length, mm		
M 6 x 1.0 x 9.4	M 8 x 1.25 x 16.2	5
M 6 x 1.0 x 12.0	M 10 x 1.5 x 14.0	
M 8 x 1.25 x 11.7	M 10 x 1.5 x 20.0	

BUSH REFILL PACKS

Metric coarse thread
Metric fine thread

Thread Ø x pitch x length, mm	Art. No. Steel galvanized
M 4 x 0.7 x 6.0	0663 4 60*
M 4 x 0.7 x 8.0	0663 4 80*
M 5 x 0.8 x 7.6	0663 5 76
M 5 x 0.8 x 10.0	0663 5 100
M 6 x 1 x 9.4	0663 6 94
M 6 x 1 x 12.0	0663 6 120
M 7 x 1 x 10.0	0663 7 100
M 7 x 1 x 14.0	0663 7 140
M 8 x 1 x 11.7	0663 8 117
M 8 x 1.25 x 11.7	0663 812 511
M 8 x 1.25 x 16.2	0663 812 516
M 9 x 1.25 x 13.0	0663 912 513
M 9 x 1.25 x 18.0	0663 912 518
M 10 x 1 x 6.2	0663 101
M 10 x 1 x 9.0	0663 101 90*
M 10 x 1 x 15.0	0663 10 150
M 10 x 1.25 x 9.0	0663 101 250*
M 10 x 1.25 x 15.0	0663 101 251
M 10 x 1.25 x 20.0	0663 101 252
M 10 x 1.5 x 14.0	0663 101 514
M 10 x 1.5 x 20.0	0663 101 520
M 11 x 1.25 x 22.0	0663 111 122*
M 11 x 1.5 x 16.0	0663 111 516*
M 11 x 1.5 x 22.0	0663 111 522*
M 12 x 1.5 x 6.7	0663 121 567
M 12 x 1.5 x 9.3	0663 121 593
M 12 x 1.5 x 16.3	0663 121 516
M 12 x 1.5 x 24.0	0663 121 524
M 12 x 1.75 x 16.2	0663 121 751
M 12 x 1.75 x 24.0	0663 121 752
M 14 x 1.5 x 6.5	0663 141 565
M 14 x 1.5 x 9.3	0663 141 593
M 14 x 1.5 x 12.8	0663 141 512
M 14 x 1.5 x 16.0	0663 141 516
M 14 x 1.5 x 26.0	0663 141 526
M 16 x 1.5 x 7.0	0663 161 570*
M 16 x 1.5 x 12.7	0663 161 512*
M 16 x 1.5 x 24.0	0663 161 524*
M 16 x 2 x 24.0	0663 16 240*
M 16 x 2 x 32.0	0663 16 320*
M 18 x 1.5 x 10.0	0663 181 610*
M 18 x 1.5 x 18.3	0663 181 518*
M 18 x 1.5 x 27.0	0663 181 527*

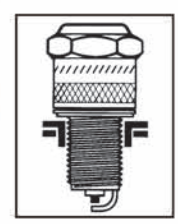
* ORSY

Type: steel, galvanized, passivated and A2 with contents of 25 each

Thread Ø x pitch x length, mm	Art. No. A2
M 6 x 1 x 9.4	0663 06 94*
M 6 x 1 x 12.0	0663 06 120*
M 8 x 1.25 x 11.7	0663 081 211*
M 8 x 1.25 x 16.2	0663 081 216*
M 10 x 1.5 x 14.0	0663 011 514*
M 10 x 1.5 x 20.0	0663 011 520*

TIME SERT

for the replacement of spark plug threads



Owing to the copper or silver plating, the TIME-SERT bushes have excellent heat conductivity properties. Due to press-fitting, the bushes are absolutely compression-proof and protected against expansion.

For flat seal
Short type, 70 bushes
Art. No. 0964 961 1

Dimension Type	Assortment **Art. No.**	Length of bushes*	Individual Parts / Contents of Assortment **Art. No.** / pcs.			
			Cutter **A**	Seat cutter **B**	Insertion tool **C**	Socket wrench **D**
M 14 x 1.25 For spark plugs with seal, steel, copper-plated	**0964 961 1**	7.0 – 16.8 mm 70 pcs.	**0661 014 250** 1 pc.	**0661 014 251** 1 pc.	**0661 014 252** 1 pc.	**0661 014 253** 1 pc.

* Refill packs with 25 pcs.

Contents of Assortment of Bushes

L 7.0 mm	L 8.0 mm	L 9.4 mm	L 11.0 mm	L 15.0 mm	L 16.8 mm
0662 141 250 5 pcs.	**0662 141 251** 5 pcs.	**0662 141 252** 15 pcs.	**0662 141 253** 15 pcs.	**0662 141 254** 15 pcs.	**0662 141 255** 15 pcs.

For flat seal
Long type, 25 bushes
Art. No. 0964 961 50
Fits BMW, Peugeot, VW, Opel

Dimension Type	Assortment **Art. No.**	Length of bushes* **Art. No.**	Individual Parts / Contents of Assortment **Art. No.** / pcs.			
			Cutter **A**	Seat cutter **B**	Insertion tool **C**	Socket wrench **D**
M 14 x 1.25 For flat seal steel, copper-plated	**0964 961 50**	L 15 mm **0662 141 254** 10 pcs. L 16.8 mm **0662 141 255** 15 pcs.	**0661 914 250** 1 pc.	**0661 914 254** 1 pc.	**0661 914 252** 1 pc.	**0661 914 253** **0661 914 254** 1 pc.

* Refill packs with 25 pcs.

BIG SERT

BIG-SERT Repair Set for M 14 x 1.25 TIME-SERT Thread

Version	Art. No.	Assortment contents
M 18 x 1.5	**0661 18**	A – F

The BIG-SERT tool set contains no liners* or sealing compound.

	Designation	Art. No.	P. Qty.
A	BIG-SERT Socket Wrench with Tommy Bar	**0661 182 1**	1
B	BIG-SERT Milling Tool	**0661 182 2**	
C	BIG-SERT Thread Cutting Tool	**0661 182 3**	
D	BIG-SERT Liner Setting Tool	**0661 182 4**	
E	BIG-SERT Screw-In Tool	**0661 182 5**	
F	BIG-SERT Allen Key	**0715 311 32**	
G	BIG-SERT DP 300 Non-Hardening Sealing Compound	**0890 100 048**	

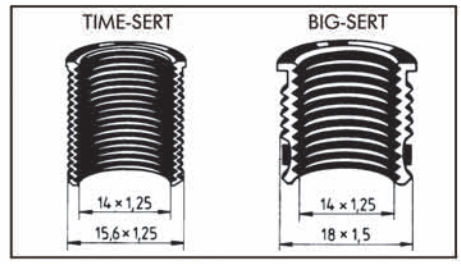
Liners

Length in mm	Fig. **Art. No.** Flat*	**Art. No.** Tapered*	**Art. No.** Ford taper with shank*
9.4	**0663 180 1**	–	–
11.0	**0663 180 3**	**0663 185 3**	–
15.0	**0663 180 5**	**0663 185 5**	–
16.8	**0663 180 7**	**0663 185 7**	**0663 185 9**

* Liner package with 2 liners

For repairing spark plug threads M14 x1.25. When repairs with TIME-SERT are no longer possible.

Using the BIG-SERT thread repair set, stripped threads or threads cut with oversizing can be renewed. The BIG-SERT threaded liner is equipped with a screw-outlock. The outside thread of BIG-SERT is M18x1.5. Theinside thread is M14x1.25. The maximum diameter for repairs should not exceed 16.3 mm or 0.64 inch.



A notch with an integrated metal pin is provided on the lower thread turns of each liner. When inserting the liner, this pin is pressed outward into the cut-open base material. The catch effect of this pin ensures 100% protection against screwing out of the liner.

Use

Phase 1 – Mill out the damaged thread with the socket wrench/tommy bar (A) and the milling tool (B). The correct milling depth has been reached when the shoulder of the tool (B) rests on the base material. It must be ensured that the milling tool does not jam in the hole.

Phase 2 – Mount thread cutting tool (C) on tool (A) and cut thread. Blow out chips and completely degrease newly cut thread.

Phase 3 – Firmly screw in Allen screw of liner setting tool (D) with Allen key (F) and screw liner onto BIG-SERT liner setting tool. In the process, the sealing compound (G) must be applied in the upper area around the liner shoulder. The liner screwed onto the setting tool (D) and provided with sealing compound must be screwed into the precut thread with the hexagon socket. Relax the liner setting tool (D) by turning the Allen screw counterclockwise. Then screw the setting tool out of the liner with the corresponding socket.

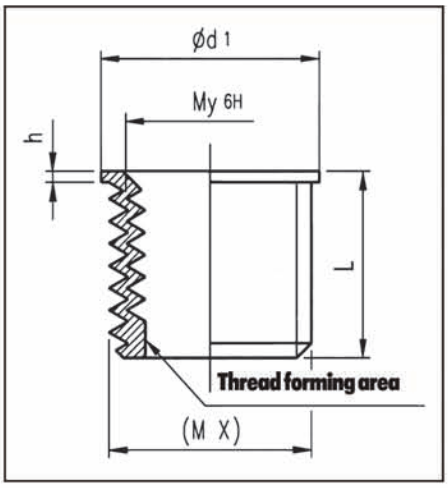
Phase 4 – Place the screw-in tool (E) on the socket wrench/tommy bar (A). Screw the screw-in tool into the liner. Pressing in is completed when the screw-in tool can suddenly be turned further more easily – the screw-in tool can be turned back. The repair is ended.

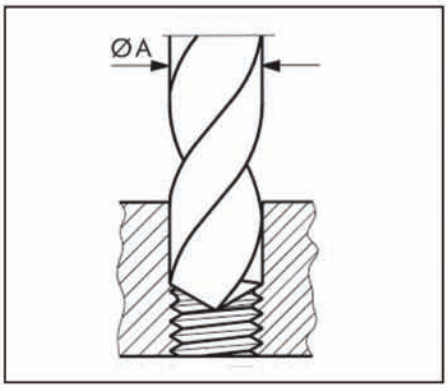
SPECIFICATIONS

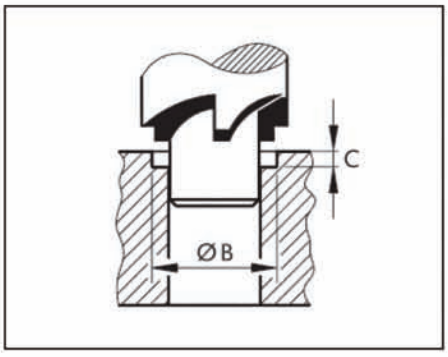
Art. No.	Nominal Dimension My	Length L mm	(M X)	Ø d1 mm	h mm	Ø A mm	Ø B mm	C mm
0663 4 60*	M 4	6.0	M 4.8 x 0.7	5.5	0.75	4.2	5.8	1.7
0663 4 80*	M 4	8.0	M 4.8 x 0.7	5.5	0.75	4.2	5.8	1.7
0663 5 76	M 5	7.6	M 5.9 x 0.8	7.0	0.75	5.05	7.1	1.8
0663 5 100	M 5	10.0	M 5.9 x 0.8	7.0	0.75	5.05	7.1	1.8
0663 6 94	M 6	9.4	M 7.2x1	8.0	0.75	6.25	8.1	1.8
0663 6 120	M 6	12.0	M 7.2x1	8.0	0.75	6.25	8.1	1.8
0663 7 100	M 7x1	10.0	M 8.25 x 1	8.8	0.75	7.35	8.9	1.9
0663 7 140	M 7x1	14.0	M 8.25 x 1	8.8	0.75	7.35	8.9	1.9
0663 8 117	M 8x1	11.7	M 9.2x1	10.0	0.75	8.2	10.7	2.1
0663 812 511	M 8	11.7	M 9.5x1.25	10.6	0.75	8.2	10.7	2.1
0663 812 516	M 8	16.2	M 9.5x1.25	10.6	0.75	8.2	10.7	2.1
0663 912 513	M 9x1.25	13.0	M 10.5x1.25	11.0	0.75	9.3	11.2	2.1
0663 912 518	M 9x1.25	18.0	M 10.5x1.25	11.0	0.75	9.3	11.2	2.1
0663 101	M 10x1	6.2	M 11.2x1	11.6	0.75	10.3	12.9	2.0
0663 101 90*	M 10x1	9.0	M 11.2x1	11.6	0.75	10.3	12.9	2.0
0663 101 50	M 10x1	15.0	M 11.2x1	11.6	0.75	10.3	12.9	2.0
0663 101 250*	M 10x1.25	9.0	M 11.5x1.25	12.6	0.75	10.3	12.9	2.2
0663 101 251	M 10x1.25	15.0	M 11.5x1.25	12.6	0.75	10.3	12.9	2.2
0663 101 252	M 10x1.25	20.0	M 11.5x1.25	12.6	0.75	10.3	12.9	2.2
0663 101 514	M 10	14.0	M 11.8x1.5	12.6	0.75	10.3	12.9	2.2
0663 101 520	M 10	20.0	M 11.8x1.5	12.6	0.75	10.3	12.9	2.2
0663 111 122*	M 11x1.25	22.0	M 12.4x1.25	13.5	0.75	11.5	14.1	2.6
0663 111 516*	M 11x1.5	16.1	M 12.9x1.5	13.5	0.75	11.5	14.1	2.1
0663 111 522*	M 11x1.5	22.2	M 12.9x1.5	13.5	0.75	11.5	14.1	2.1
0662 121 250	M 12x1.25	9.0	M 13.6x1.25	14.0	0.75	12.1	14.1	2.1
0662 121 251	M 12x1.25	15.0	M 13.6x1.25	14.0	0.75	12.1	14.1	2.1
0663 121 567	M 12x1.5	6.7	M 13.9x1.5	15.0	0.75	12.3	15.1	2.1
0663 121 593	M 12x1.5	9.2	M 13.9x1.5	15.0	0.75	12.3	15.1	2.1
0663 121 516	M 12x1.5	16.3	M 13.9x1.5	15.0	0.75	12.3	15.1	2.1
0663 121 524	M 12x1.5	24.0	M 13.9x1.5	15.0	0.75	12.3	15.1	2.1
0663 121 751	M 12	16.2	M 14.2x1.75	15.0	0.75	12.7	15.4	2.8
0663 121 752	M 12	24.0	M 14.2x1.75	15.0	0.75	12.7	15.4	2.8
0662 141 250	M 14x1.25	7.0	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0662 141 251	M 14x1.25	8.0	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0662 141 252	M 14x1.25	9.4	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0662 141 253	M 14x1.25	11.0	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0662 141 254	M 14x1.25	15.0	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0662 141 255	M 14x1.25	16.8	M 15.6x1.25	16.0	0.75	14.0	16.2	2.8
0663 141 565	M 14x1.5	6.5	M 15.9x1.5	17.0	0.75	14.7	17.1	2.8
0663 141 593	M 14x1.5	9.3	M 15.9x1.5	17.0	0.75	14.7	17.1	2.8
0663 141 512	M 14x1.5	12.8	M 15.9x1.5	17.0	0.75	14.7	17.1	2.8
0663 141 516	M 14x1.5	16.0	M 15.9x1.5	17.0	0.75	14.7	17.1	2.8
0663 141 526	M 14x1.5	26.0	M 15.9x1.5	17.0	0.75	14.7	17.1	2.8
0663 161 570*	M 16x1.5	7.0	M 17.8x 1.5	18.5	0.75	16.7	19.0	2.9
0663 161 512*	M 16x1.5	12.7	M 17.8x 1.5	18.5	0.75	16.7	19.0	2.9
0663 161 524*	M 16x1.5	24.0	M 17.8x 1.5	18.5	0.75	16.7	19.0	2.9
0663 16 240*	M 16	24.0	M 18.8x 2	19.8	0.75	16.7	20.0	2.9
0663 16 320*	M 16	32.0	M 18.8x 2	19.8	0.75	16.7	20.0	2.9
0663 181 610*	M 18x1.5	10.0	M 19.9x1.5	20.5	0.75	18.3	21.3	3.5
0663 181 518*	M 18x1.5	18.3	M 19.9x1.5	20.5	0.75	18.3	21.3	3.5
0663 181 527*	M 18x1.5	27.0	M 19.9x1.5	20.5	0.75	18.3	21.3	3.5
0663 06 94*	M 6 V2A	9.4	M 7.2x1	8.0	0.75	6.25	8.1	1.8
0663 06 120*	M 6 V2A	12.0	M 7.2x1	8.0	0.75	6.25	8.1	1.8
0663 081 211*	M 8 V2A	11.7	M 9.5x1.25	10.6	0.75	8.2	10.7	2.1
0663 081 216*	M 8 V2A	16.2	M 9.5x1.25	10.6	0.75	8.2	10.7	2.1
0663 011 514*	M 10 V2A	14.0	M 11.8x1.5	12.6	0.75	10.3	12.9	2.2
0663 011 520*	M 10 V2A	20.0	M 11.8x1.5	12.6	0.75	10.3	12.9	2.2

All dimensions subject to reservations.

* ORSY







Tear-Out Strength

Depending on the individual case (near edge, material thickness, ...) and material (steel, casting, brass, light metals, ...) the tear-out strength may vary. For that reason, it is not possible to make any general statement, however, tests in the labs of Würth have shown that a repair with TIME-SERT in most cases is equal to the strength of the original thread. The material of the bushes is listed as supplementary information.

Steel Bushes
Material: 9SMn / Pb28K DIN 1651 / 668
Coating: galvanized, passivated

Stainless Steel Bushes
Material: 1.4301 (V2A) DIN 17440 / 1654

TIME SERT

for the replacement of M10 spark plug threads

Dimension Type	Assortment Art. No.	Length of bushes* Art. No.	Individual Parts / Contents of Assortment Art. No. / pcs. Cutter A	Seat cutter B	Insertion tool C	Socket wrench D
M 10 x 1 For flat seal, steel copper-plated	**0661 010 1**	L 9.0 mm **0662 101 09** 5 pcs.	**0661 010 10** 1 pc.	**0661 010 11** 1 pc.	**0661 010 12** 1 pc.	**0661 010 13** **0661 010 14** 1 pc.
steel, silver-plated		L 15.0 mm **0662 101 015** 5 pcs.				

* Refill packs with 25 pcs. per size

For the repair of motorcycles

- with spark plug threads M 10 x 1 for CR 9 EH spark plugs. Mainly used in Honda motorcycles with CBR engines.

Dimension Type	Assortment Art. No.	Length of bushes* Art. No.	Individual Parts / Contents of Assortment Art. No. / pcs. Cutter A	Seat cutter B	Insertion tool C	Socket wrench D
M 10 x 1 For flat seal, steel copper-plated	**0661 010 2**	L 9.0 mm **0662 101 09** 5 pcs.	**0661 010 10** 1 pc.	**0661 010 21** 1 pc.	**0661 010 12** 1 pc.	**0661 010 23** **0661 010 24** 1 pc.

* Refill packs with 25 pcs. per size

SPARK PLUG THREAD M12

Dimension Type	Assortment Art. No.	Length of bushes* Art. No.	Individual Parts / Contents of Assortment Art. No. / pcs. Cutter A	Seat cutter B	Insertion tool C	Socket wrench D
M 12 x 1.25 For flat seal, steel copper-plated	**0661 012 125**	L 9.0 mm **0662 121 250** 5 pcs.	**0661 012 150** 1 pc.	**0661 012 151** 1 pc.	**0661 012 152** 1 pc.	**0661 012 153** **0661 012 153** 1 pc.
		L 15.0 mm **0662 121 251** 5 pcs.				

* Refill packs with 25 pcs. per size

SPARK PLUG THREAD M14

Dimension Type	Assortment Art. No.	Length of bushes* Art. No.	Individual Parts / Contents of Assortment Art. No. / pcs. Cutter A	Seat cutter B	Insertion tool C	Socket wrench D
M 14 x 1.25 For flat seal, steel copper-plated	**0661 014 125**	see following table	**0661 014 250** 1 pc.	**0661 014 254** 1 pc.	**0661 014 252** 1 pc.	**0661 014 253** **0661 014 253** 1 pc.

* Refill packs with 25 pcs. per size

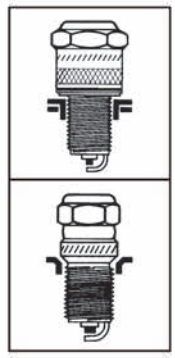
TIME-SERT-Bushes

L 7.0 mm	L 8.0 mm	L 9.4 mm	L 11.0 mm	L 15.0 mm	L 16.8 mm
0662 141 250	**0662 141 251**	**0662 141 252**	**0662 141 253**	**0662 141 254**	**0662 141 255**
25 pcs.	25 pcs.	25 pcs.	25 pcs.	25 pcs.	25 pcs.

These bushes are optional for the Assortment 0661 014 125.

TIME SERT

for renewing spark plug threads



for flat and conical sealing seat
Long version, 20 bushings
Art. No. 0964 961 51

Dimensions Type	Assortment **Art. No.**	Bushing length **Art. No.**	Individual parts / range content **Art. No.** / qty.			
			Cutting tool **A**	Seat milling cutter **B**	Screw-in tool **C**	Socket wrench /tommy bar **D**
M 14 x 1.25 for flat sealing seat and conical sealing seat silver-plated copper-plated	**0964 961 51**	L 15 mm **0662 141 254** 10 pieces	**0661 914 250** 1 pieces	**0661 914 254** **0661 914 251** 1 pieces	**0661 914 252** 1 pieces	**0661 014 253** **0661 014 254** 1 piece each
		L 15.8 mm **0662 914 125** 10 Stück				

* Refill packs with 25 pieces each per size

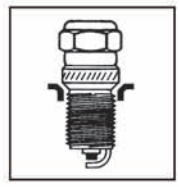
THREADED INSERTS FOR SPARK PLUG REPAIR (CARS)

Dimensions	Flat	Cone	Type	Art. No.*
10 x 1.0 x 9.0	x		Copper-plated steel	**0662 101 09**
10 x 1.0 x 15.0				**0662 101 015***
12 x 1.25 x 9.0				**0662 121 250**
12 x 1.25 x 15.0				**0662 121 251**
14 x 1.25 x 7.0				**0662 141 250**
14 x 1.25 x 8.0				**0662 141 251**
14 x 1.25 x 9.4				**0662 141 252**
14 x 1.25 x 11.0				**0662 141 253**
14 x 1.25 x 15.0				**0662 141 254**
14 x 1.25 x 16.8				**0662 141 255**
14 x 1.25 x 15.8		x	Silver-plated steel	**0662 914 125**
14 x 1.25 x 16.4	x			**0662 914 129**

* Refill packs with 25 pieces each.

Available versions:

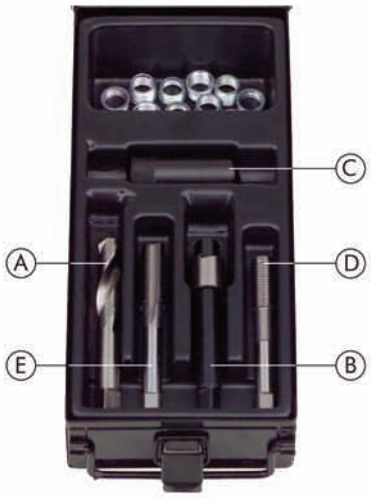
For flat sealing seat



For conical sealing seat

TIME-SERT FOR RENEWING OIL DRAIN-PLUG THREADS

- TIME-SERT also offers decisive advantages when repairing oil drain-plug threads.
- The bushings are self-locking.
- The guidance of the threaded sleeve always ensures proper seating of the oil drain plug during installation. There are no sealing problems.
- The bushing enables reliable thread renewals even where only a few thread turns exist.



Dimensions M 10 x 1

Assortment **Art. No. 0661 100**

	Spare Parts	Art. No.
A	Drill Bit	**0661 101 0**
B	Seat Milling Cutter	**0661 102**
D	Thread Tap	**0661 101**
E	Screw-In Tool	**0661 103**
	10 Bushings 10 x 1 x 6.2	**0663 101***

Dimensions M 12 x 1.5

Assortment **Art. No. 0661 121 501**

	Individual Parts	Art. No.
A	Drill Bit	**0661 121 50**
B	Seat Milling Cutter	**0661 121 52**
C	Guide Sleeve	**0661 121 54**
D	Thread Tap	**0661 121 51**
E	Screw-In Tool	**0661 121 53**
	5 Bushings 12 x 1.5 x 6.7	**0663 121 567***
	5 Bushings 12 x 1.5 x 9.3	**0663 121 593***

Dimensions M 14 x 1.5

Assortment **Art. No. 0661 141 5**

	Individual Parts	Art. No.
A	Drill Bit	**0661 141 51**
B	Seat Milling Cutter	**0661 141 52**
C	Guide Sleeve	**0661 141 55**
D	Thread Tap	**0661 141 53**
E	Screw-In Tool	**0661 141 54**
	5 Bushings 14 x 1.5 x 12.8	**0663 141 512***
	5 Bushings 14 x 1.5 x 9.3	**0663 141 593***
	5 Bushings 14 x 1.5 x 6.5	**0663 141 565***
	5 Bushings 14 x 1.5 x 16.0	**0663 141 516***
	5 Bushings 14 x 1.5 x 26.0	**0663 141 526***

* Refill packs with 25 pieces each

FOR RENEWING LAMBDA PROBE THREADS

TIME-SERT also offers decisive advantages when repairing Lambda probe threads:

- Pressing in the TIME-SERT bushings makes them absolutely media-tight.
- Using the TIME-SERT bushing eliminates the need to replace the catalytic converter or the exhaust manifold.
- The TIME-SERT bushing has a shoulder to ensure exact positioning, i. e. the thread repair is equivalent to the original condition.
- Thanks to the shaping of the thread turns not completely formed, the TIME-SERT bushing is self-locking, and therefore guaranteed resistant to screwing out.
- The working procedure is similar to that for a metric thread repair.

Complete assortment:
Art. No. 0661 181 6
P. Qty.: 1

Dimensions Version	Assortment Art. No.	Bushing* length Art. No.	Individual parts/Assortment content **Art. No.** / Pieces HSS drill bit	Seat milling cutter	Thread cutting tool	Screw-in tool
M 18 x 1.5 Flat sealing seat (black bushing)	**0661 181 6**	L 10.0 **0663 181 610** 5 pieces	**0661 181 50** 1 piece	**0661 181 62** 1 piece	**0661 181 51** 1 piece	**0661 181 53** 1 piece

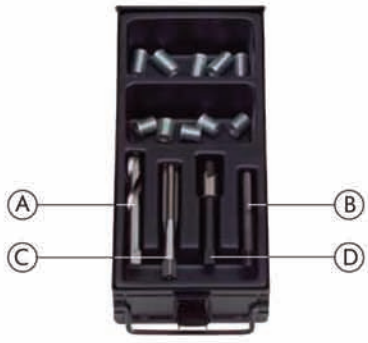
INDIVIDUAL SETS

For metric threads with bushes and tools.

Thread Ø x pitch x length mm	Cont.	Art. No. Set	Art. No. of individual tools A HSS Drill Bit	B Seat Cutter	C HSS Tap	D Insertion Tool
M 4 x 0.7 x 6.0 M 4 x 0.7 x 8.0	5 5	0661 4	0661 408 0	0661 408 2	0661 408 1	0661 408 3
M 5 x 0.8 x 7.6 M 5 x 0.8 x 10.0	5 5	0661 5	0661 508 0	0661 508 2	0661 508 1	0661 508 3
M 6 x 1 x 9.4 M 6 x 1 x 12.0	5 5	0661 6	0661 610	0661 612	0661 611	0661 613
M 7 x 1 x 10.0 M 7 x 1 x 14.0	5 5	0661 7	0661 710	0661 712	0661 711	0661 713
M 8 x 1 x 11.7	10	0661 8	0661 810	0661 812	0661 811	0661 813
M 8 x 1.25 x 11.7 M 8 x 1.25 x 16.2	5 5	0661 812 5	0661 812 50	0661 812	0661 812 51	0661 812 53
M 9 x 1.25 x 13.0 M 9 x 1.25 x 18.0	5 5	0661 912 5	0661 912 50	0661 912	0661 912 51	0661 912 53
M 10 x 1 x 15.0	10	0661 10	0661 101 0	0661 102	0661 101	0661 103
M 10 x 1.25 x 15.0 M 10 x 1.25 x 20.0	5 5	0661 101 25	0661 101 250	0661 102	0661 101 251	0661 102 53
M 10 x 1.5 x 14.0 M 10 x 1.5 x 20.0	5 5	0661 101 5	0661 101 50	0661 102	0661 101 51	0661 101 53
M 11 x 1.25 x 22.0	10	0661 111 25	0661 111 250	0661 111 252	0661 111 251	0661 111 253
M 11 x 1.5 x 16.0 M 11 x 1.5 x 22.0	5 5	0661 111 5	0661 111 50	0661 111	0661 111 51	0661 111 57
M 12 x 1.5 x 16.3 M 12 x 1.5 x 24.0	5 5	0661 121 5	0661 121 50	0661 121 52	0661 121 51	0661 121 53
M 12 x 1.75 x 16.2 M 12 x 1.75 x 24.0	5 5	0661 121 75	0661 121 750	0661 121 752	0661 121 751	0661 121 753
M 14 x 1.5 x 16.0 M 14 x 1.5 x 26.0	5 5	0661 141 59	0661 141 51	0661 141 52	0661 141 53	0661 141 54
M 16 x 1.5 x 12.7 M 16 x 1.5 x 24.0	5 5	0661 161 5	0661 161 50	0661 161 52	0661 161 51	0661 161 53
M 16 x 2 x 24.0 M 16 x 2 x 32.0	5 5	0661 162	0661 162 0	0661 162 2	0661 162 1	0661 162 3
M 18 x 1.5 x 18.3 M 18 x 1.5 x 27.0	5 5	0661 181 5	0661 181 50	0661 181 52	0661 181 51	0661 181 53

TIME-SERT UNC THREAD

Unified coarse thread (USA, GB, Canada).



Individual Sets

- With 4 tools and 5 bushes each per length.

Dimensions 10 – 24 to 5/8″	Length (Inch)	Assortment Art. No.
10 – 24	0,30 / 0,37	0661 200 24
1/4 – 20	0,38 / 0,50	0661 201 40
5/16 – 18	0,45 / 0,62	0661 205 61
3/8 – 16	0,52 / 0,75	0661 203 81
7/16 – 14	0,60 / 0,87	0661 207 61
1/2 – 13	0,65 / 1,00	0661 201 21
9/16 – 12	0,75 / 1,12	0661 209 61
5/8 – 11	0,85 / 1,25	0661 205 81

Individual Tools

Dimensions 10 – 24 to 5/8″	Special HSS Drill A Art. No.	Seat Cutter B Art. No.	Tap C Art. No.	Insertion Tool D Art. No.
10 – 24	0661 200 241	0661 200 242	0661 200 243	0661 200 244
1/4 – 20	0661 200 401	0661 200 402	0661 200 403	0661 200 404
5/16 – 18	0661 200 511	0661 200 512	0661 200 513	0661 200 514
3/8 – 16	0661 200 811	0661 200 812	0661 200 813	0661 200 814
7/16 – 14	0661 200 711	0661 200 712	0661 200 713	0661 200 714
1/2 – 13	0661 200 211	0661 200 212	0661 200 213	0661 200 214
9/16 – 12	0661 200 611	0661 200 612	0661 200 613	0661 200 614
5/8 – 11	0661 200 911	0661 200 912	0661 200 913	0661 200 914

Bushes

Refill packs with 25 pcs. each

Dimensions 10 – 24 to 5/8″	Length (Inch)	Art. No.	Dimensions 10 – 24 to 5/8″	Length (Inch)	Art. No.
10 – 24	0.30 0.37	0663 200 241 0663 200 243	7/16 – 14	0.60 0.87	0663 207 711* 0663 207 713*
1/4 – 20	0.38 0.50	0663 201 401 0663 201 403	1/2 – 13	0.65 1.00	0663 201 211* 0663 201 213*
5/16 – 18	0.45 0.62	0663 205 511 0663 205 513	9/16 – 12	0.75 1.12	0663 209 611* 0663 209 615*
3/8 – 16	0.52 0.75	0663 203 811 0663 203 815	5/8 – 11	0.85 1.25	0663 205 911* 0663 205 913*

Description Example	Meaning
1/4 – 20 UNC	UNC thread with 1/4 inch nominal diameter – 20 flights per inch

* ORSY