

ArmaCoil™



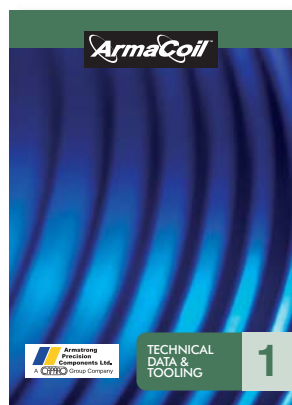
**Armstrong
Precision
Components Ltd.**

A **CAPARO** Group Company

**POWER
TOOLING**

2

Other product brochures available:



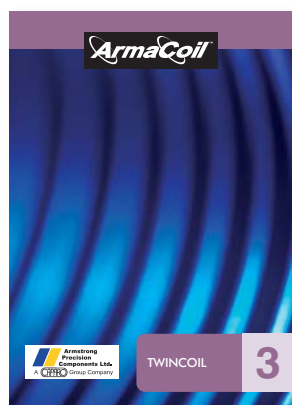
1 TECHNICAL DATA & TOOLING

The comprehensive catalogue for **ArmaCoil** inserts.

All the data on material and finishes available, tool selection and ordering codes.

New additions are the **ArmaCoil** dimensions in their free state plus Prevailing Torque figures for Screw Lock Inserts.

Professional, workshop and thread repair kits are now included.



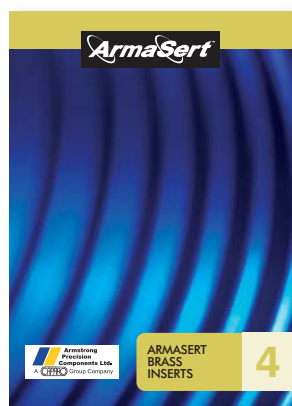
3 TWINCOIL

TwinCoil inserts are two inserts, one inside the other, for the repair and/or recovery of stripped or off-centre tapped holes.

The 'outer' **TwinCoil** is always Free Running and the 'inner' can be either Free Running or Screw Locking.

Lengths are from 1.5D upwards, 1D inserts due to the shorter inner insert are not recommended.

TwinCoil Kits come complete with tap, Outer Inserting Tool and both Inner and Outer inserts. The Inner Inserting Tool is not included as it is a standard tool.



4 ARMASERT BRASS INSERTS

Armstrong Precision Components Ltd. offer a range of threaded inserts for installation into Thermoset and Thermoplastic materials.

Armaserts in their many forms can be installed cold, hot or ultrasonically in thermoplastics and high friction retention in thermosets.

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Introduction

This catalogue will familiarise the user with all aspects of ordering, assembly, adjustment and operational requirements of the Power Tool to ensure that maximum advantage is taken this invaluable piece of equipment.

The ArmaCoil threaded mandrel Power Tool is essential for use in high volume production environments.

It minimises the in-place cost by reducing floor-to-floor time to install the ArmaCoil.

The advantages of using these Power Tools lie not only in the speed of operation but also in the accuracy of precisely installing insert after insert.

This pneumatically operated tool can be used either hand held or in conjunction with a 'lazy arm' or similar spring loaded device.

For even greater productivity the ArmaCoil inserts can be supplied on plastic tape in reels. The tape passes through the tool prewinder, presenting the insert correctly without the need for untangling or orientation.

The ArmaCoil Power Tool system is not a costly item of capital equipment and when used correctly it can dramatically reduce the installation cost.

General Description... Power Tool



Air Motor

Forward and reverse motion controlled by lever and button operation.

Two motor speeds are available. 1500RPM for normal operation and 900RPM for Nimonic 90 ArmaCoil screw lock inserts.



Adaptor

The connection between the motor and prewinder, which houses the clutch mechanism of the threaded mandrel. Threads connecting to the Motor and Prewinder lock nut are Left Hand threads.

Prewinder

Each prewinder is specific to a single thread size and in most cases has the slot incorporated for use with Tape feed ArmaCoil.

Tape feed Prewinders are capable of installing hand fed inserts.



Mandrel

The threaded mandrel ensures correct feed of the insert during installation and eliminates cross pitching.



Spacer Sets

Spacer sets enable the tool to be set to install ArmaCoils of varying lengths.

Fine adjustment on the depth of the insert is controlled using the spacer shims included.



POWER TOOL FRONT END ASSEMBLY



Adaptor

Small Adaptor

for sizes up to 1/4" or M6.

Large Adaptor

for sizes 5/16" to 1/2" or M8 to M12.

The connection to the Air Motor is via a LEFT HAND thread.

Care should be taken not to cross pitch when assembling.

Ensure the drive hexagon on the Motor is engaged with the Female Drive in the Adaptor.

Prewinder



Prewinders are generally supplied as a Tape Feed type for greater flexibility in assembly methods.

The slot allows the tape to pass through the chamber and presents the ArmaCoil correctly ready for installation.

Bulk inserts can be installed using the tape feed type prewinder.

The chamber is designed to accept the insert and present it correctly to the Mandrel.

Mandrel Assembly



Dependant on the size there are three styles of Mandrel Head.

1. **Clutch type Mandrels**
for sizes up to No.10 or M5.
2. **Solid head Mandrels**
for sizes 1/4" or M6.
3. **Sliding Head Mandrels**
for sizes 5/16" or M8
up to 1/2" or M12.

Spacer Sets



Each size assembly requires a Spacer Set. This enables the set-up to be adapted to install various lengths of ArmaCoils.

The installed depth can be adjusted by adding or removing shims.

The Spacer Set comprises:

For sizes up to 1/4 or M6

- One Spacer marked 1D
- One Spacer marked 1.5D
- One Spacer marked 2D
- Three shim washers 0.011" thick

For sizes larger than 1/4 or M6

- One Spacer marked 1D
- One Spacer marked 1.5D
- Three shim washers 0.011" thick

1

Select the correct Spacer for the length of ArmaCoil to be installed.

Place on Mandrel with any shims (if known) up to the mandrel head.

- For sizes up to 1/4 / M6 use 2 shims as initial setting.
- For sizes over 1/4 / M6 use 3 shims as initial setting.



2

Assemble into the Prewinder and wind the mandrel through the pitch nut thread completely. Check that the protrusion of the mandrel is approximately correct for the depth of installation.



3

Unscrew the Prewinder Locking Nut from the Adaptor and fit the prewinder and mandrel assembly.

NOTE: this is a LEFT HAND thread.



4

The mandrel pin should be engaged in the key slot in the driving sleeve.



5

Reassemble the locking nut with the prewinder chamber in the most suitable position for loading the insert. Tighten the lock nut.



6

Connect to the correct air supply and check the forward and reverse movement of the mandrel. When satisfied leave the mandrel in the fully retracted position.



7

Place an insert in the chamber of the Prewinder, tang forwards, and install into the component. Check for depth of installation and adjust by adding or removing shims.

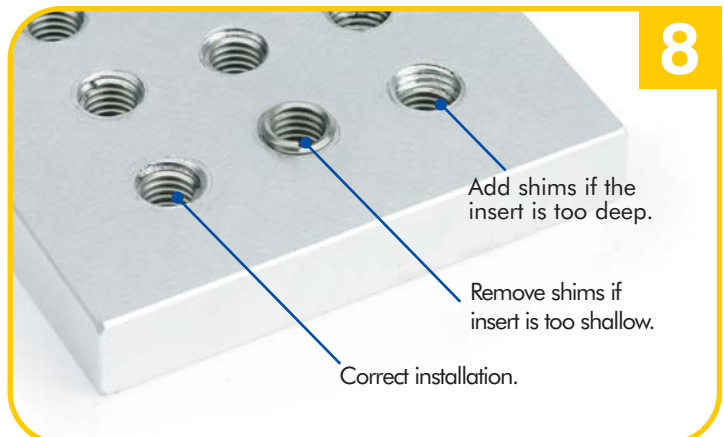


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Add shims if the insert is too deep.

Remove shims if insert is too shallow.

Correct installation.



1. The air supply must always pass through a Filter, Lubricator and Pressure Regulator.
2. Set the air pressure to the value indicated in Table 1. Note; Failure to observe this instruction can result in serious damage to the Tool.
3. Operate the tool without an insert to familiarise the lever and button controls.
 - a) Depress the lever and the mandrel will rotate fully forward until the clutch operates.
 - b) Depress the button (with the lever still depressed) and the mandrel will retract back through the insert into the pitch nut thread.
 - c) When operating the power tool without an insert, the mandrel will have no means of retracting. Lightly press the extended mandrel against a piece of wood (with both lever and button depressed) to re-engage with the pitch nut thread.



1. Depress both lever and button to fully retract the mandrel leaving the chamber clear to accept the insert.
2. Place an insert in the chamber with the tang forwards into the nozzle.
3. Depress the lever to start the insert in the nozzle. Do not allow the insert to protrude out of the nozzle thread. Release the lever to stop the mandrel.
4. Offer the nose of prewinder up to the tapped hole in the component making sure that the tool is in true alignment and concentric with the hole. Apply a light contact pressure and maintain throughout installation and withdrawal.
5. Depress and hold the lever to effect installation. Do not release the lever at the end of the forward cycle.
6. When the mandrel stops depress the button whilst the lever is still depressed.
7. Do not attempt to pull the tool away from the component until the mandrel is fully retracted.
8. Release both lever and button. The tool is now ready for the next installation

Air Pressure Settings

TABLE 1

SIZE RANGE		Set air pressure within these limits		
UNIFIED	METRIC	BAR	p.s.i.	Mpa
BELOW M3	BELOW NO.4	1.0 - 1.4	15 - 20	0.10 - 0.14
M3	NO.4	1.4 - 2.1	20 - 30	0.14 - 0.21
	NO.5	1.7 - 2.4	25 - 35	0.17 - 0.24
M3.5	NO.6	2.1 - 3.1	30 - 45	0.21 - 0.31
M4 - M5	NO.8 & 10	2.4 - 2.8	35 - 40	0.24 - 0.28
M6	NO12 & 1/4	2.8 - 3.5	40 - 50	0.28 - 0.35
M7		3.1 - 3.8	45 - 55	0.31 - 0.38
M8	5/16	3.5 - 4.1	50 - 60	0.35 - 0.41
M9		3.8 - 4.5	55 - 65	0.38 - 0.45
M10	3/8	4.1 - 4.8	60 - 70	0.41 - 0.48
M11	7/16	4.8 - 5.5	70 - 80	0.48 - 0.55
M12-M14	1/2	5.5 - 6.2	80 - 90	0.55 - 0.62

METRIC

NOMINAL THREAD SIZE	ADAPTOR	FRONT END ASSY		PREWINDER		MANDREL ASSY.	SPACER SET
		BULK	TAPE FEED	BULK	TAPE FEED		
M2.2 X 0.45	719024036		719035902		719065807	719045907	719090959
M2.5 X 0.45			719039139		719065914	719046690	719090200
M3 X 0.5			719036741		719066649	719046708	719082505
M3.5 X 0.6			719036750		719066710	719046770	719080400
M4 X 0.7			719036949		719066847	719046906	719082604
M5 X 0.8			719037160		719066900	719047102	719080905
M6 X 1.0			719038200		719067200	719047201	719081101
M8 X 1.0		719025033	719039950		719067420		719047610
M8 X 1.25			719037520		719067410	719047508	719081408
M10 X 1.25	719037720			719067720		719047706	719081606
M10 X 1.5	719037806			719067704		719047805	719081606
M12 X 1.25	719037901			719067901		719048001	719081804
M12 X 1.75	719038106			719068009		719048100	719081804

UNF

NOMINAL THREAD SIZE	ADAPTOR	FRONT END ASSY		PREWINDER		MANDREL ASSY.	SPACER SET
		BULK	TAPE FEED	BULK	TAPE FEED		
6-40	719024036	719030501		719060501		719040503	719080400
10-32			719030280		719060279	719041105	719080806
1/4-28			719030314		719061460	719041402	719081200
5/16-24	719025033		719030364		719063060	719043002	719081408
3/8-24		719033409		719063406		719043408	719082000
7/16-20		719035008		719063802		719045007	719082109
1/2-20		719035303		719065401		719045403	719082208

UNC

NOMINAL THREAD SIZE	ADAPTOR	FRONT END ASSY		PREWINDER		MANDREL ASSY.	SPACER SET	
		BULK	TAPE FEED	BULK	TAPE FEED			
2-56	719024036		719030300		719060135	719050130		
4-40			719030215		719060147	719040206	719080202	
6-32			719030256		719060253	719040602	719080400	
8-32			719030322		719060261	719040909	719090169	
10-24			719030330		719060295	719041204	719080806	
1/4-20			719030348		719061764	719041709	719081200	
5/16-18		719025033		719030356		719063360	719043309	719081408
3/8-16			719033706		719063703		719043705	719082000
7/16-14	719035206			719065203		719045205	719082109	
1/2-13	719035301			719065609		719045601	719082208	

Nimonic 90

NOMINAL THREAD SIZE	ADAPTOR	FRONT END ASSY		PREWINDER		MANDREL ASSY.	SPACER SET
		BULK	TAPE FEED	BULK	TAPE FEED		
10-32 UNF	719025090		719031147		719018887	719041147	719080847
1/4-28 UNF			719031444		719018886	719041446	719081244
5/16-24 UNF	719025190	719037915		719060565		719041155	719080825
3/8-24 UNF		719037920		719060570		719041030	719080830

METRIC

THREAD SIZE	INSERT LENGTH	QTY PER REEL	FREE RUNNING	SCREW LOCKING
M2.2 X 0.45	1D	3,000	711801990	711852010
	1.5D	2,000	711801991	711852011
	2D	1,500	711801992	711852012
M2.5 X 0.45	1D	3,000	711802001	711852023
	1.5D	2,000	711802013	711802124
	2D	1,500	711802033	711852125
M3 X 0.5	1D	3,000	711802066	711852061
	1.5D	2,000	711802074	711852079
	2D	1,500	711802082	711852087
M3.5 X 0.6	1D	3,000	711802116	711852095
	1.5D	2,000	711802124	711852103
	2D	1,500	711802132	711852111
M4 X 0.7	1D	2,000	711802165	711852177
	1.5D	1,500	711802173	711852178
	2D	1,000	711802181	711852186
M5 X 0.8	1D	1,500	711802264	711852269
	1.5D	750	711802272	711852277
	2D	500	711802280	711852285
M6 X 1.0	1D	1,000	711802312	711852310
	1.5D	500	711802314	711852311
	2D	500	711802321	711852312
M8 X 1.25	1D	750	711802330	711852415
	1.5D	500	711802331	711852416
	2D	250	711802332	711852417

UNF

THREAD SIZE	INSERT LENGTH	QTY PER REEL	FREE RUNNING	SCREW LOCKING
10-32	1D	1,500	711800516	711850511
	1.5D	1,000	711800524	711800529
	2D	500	711800532	711850537
1/4	1D	1,000	711800610	711850552
	1.5D	750	711800611	711850553
	2D	500	711800612	711850554
5/16	1D	750	711800710	711850573
	1.5D	500	711800711	711850574
	2D	250	711800712	711850575

UNC

THREAD SIZE	INSERT LENGTH	QTY PER REEL	FREE RUNNING	SCREW LOCKING
2-56	1D	2,500	711800001	711850001
	1.5D	2,500	711800002	711850002
	2D	2,500	711800003	711850003
4-40	1D	3,000	711800011	711850016
	1.5D	2,500	711800029	711850024
	2D	2,000	711800037	711850032
6-32	1D	2,500	711800053	711850064
	1.5D	2,000	711800060	711850065
	2D	1,500	711800078	711850073
8-32	1D	2,000	711800110	711850122
	1.5D	1,500	711800128	711850123
	2D	1,000	711800136	711850131
10-24	1D	1,500	711800243	711850221
	1.5D	1,000	711800250	711850222
	2D	750	711800251	711850230
1/4	1D	1,000	711809608	711850241
	1.5D	500	711809616	711850242
	2D	500	711809624	711850243
5/16	1D	750	711800350	711850252
	1.5D	500	711800351	711850253
	2D	250	711800352	711850254

In the 21st century production environment the need for ever greater efficiency has seen the development of the 'Armstrong Lazy Arm' tool holder and the use of ArmaCoil inserts in Tape.

By combining these two time saving features the high volume user can achieve maximum efficiency without having to increase operator skill levels.

'Armstrong Lazy Arm' Tool Holder

The ArmaCoil 'Lazy Arm' is a robust and versatile tool holder that presents the Power Tool vertically to the work piece.

Mounted on a substantial base that can be bolted or clamped to the bench, to provide a compact workstation.

The twin pivoting arms have a total swept radius from 40mm to 670mm.

Maximum adjustments on the main pillar can accommodate components up to 500mm high.

The Power Tool is mounted on a spring- loaded head with a vertical range of 80mm to accommodate differences in component height.

A regulator and gauge is mounted on the unit to control the outgoing air pressure to the Power tool. It is recommended that an air filter and lubricator is fitted to the air supply.

To complete the features of the 'Lazy Arm' one of the pivoting arms is fitted with a Reel mounting boss.

This will hold the Inserts in Tape and allow the tape and inserts to pass neatly to the Tool Prewinder prior to installation.

Inserts in Tape

ArmaCoil Inserts in Tape and the Power Inserting Tool are specifically to cater for the high volume market where productivity and competitive costs are a key factor.

Inserts in Tape eliminate the handling problems encountered with small inserts, in particular untangling and orientation is abolished as the inserts are held in a plastic tape and coiled on to reels.

There is no danger of spillage and consequent loss of inserts as can happen with bulk supplied inserts.

The plastic tape feeds directly through the chamber of the prewinder and presents the insert ready for installation.

The insert is pitch controlled as it moves from the tool to the component via the threaded mandrel. This eliminates cross threading and jamming and ensures a precise assembly every time.

The prewinder has a slot in the chamber to allow the tape to pass through and can be used for hand fed inserts. This gives the user greater flexibility to change to Inserts in Tape as volumes increase.



ArmaCoil Electric Inserting Tool

The ArmaCoil Electric Inserting Tool is in fact a fully automatic tapping tool with forward and reverse action in a single lever action.

Two sizes of tool are available, large and small, both operated from the same Power Control Unit.

The unit is operated from a 240V AC mains supply, transformed down to 24V DC. This makes it an extremely safe and versatile tool capable of being used anywhere with a mains electricity supply.

Working on the 'mandrel only' principle it is ideally suited for use with the Reduced Diameter (RD) Free Running ArmaCoil insert. Standard full size ArmaCoils will prove difficult to install due to the lack of a prewinder. This is also the case with Screw Locking ArmaCoils.

The mandrel comes complete with an adjustable depth stop to ensure correct installation every time.

Setting the Depth Stop

Set the Depth Stop on the mandrel to approximately the right depth. Set the depth shallow to allow for fine adjustment later.

Loosen the locknut and wind the depth stop back down the mandrel. By hand, wind the insert to the correct depth below the surface and any countersinks.

Without removing the mandrel and still engaged with the tang wind the depth stop down to the component face. Tighten the locknut. The depth should now be set. Check depth on the next insert.

Ordering Data

TABLE 2

TOOL		PART NO.	
Small Tool (up to M5 or No.10) Large Tool (M6 or 1/4 & above) Power Control Unit (all sizes)		71901721700	
		71901721701	
		71901721800	
METRIC	PART NO.	METRIC	PART NO.
M2X0.4	719000046	M4X0.7	719000060
M2.2X0.45	719000048	M5X0.8	719000057
M2.5X0.45	719000050	M6X1.0	719000070
M3X0.5	719000055	M8X1.25	719000080
M3.5X0.6	719000056	M10X1.5	719000090
UNC	PART NO.	UNF	PART NO.
2-56	719000548	2-64	719000163
3-48	719000549	3-56	719000164
4-40	719000550	4-48	719000166
6-32	719000552	6-40	719000167
8-32	719000554	8-36	719000168
10-24	719000556	10-32	719000169
3/8	719000560	3/8	719000170
5/16	719000570	5/16	719000180
3/8	719000580	3/8	719000181



Product Quality Assurance

Armstrong Precision Components Ltd is approved to:

ISO9001: 2000 Plus AS9100 Rev B CERT No: FM00049

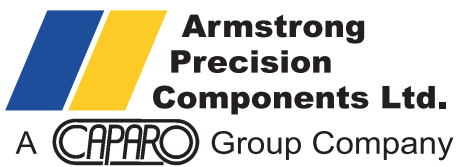
ISO14001: 2004 CERT No: EMS507767

OHSAS 18001: 1999 CERT No: OHS507769

Investor In People



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