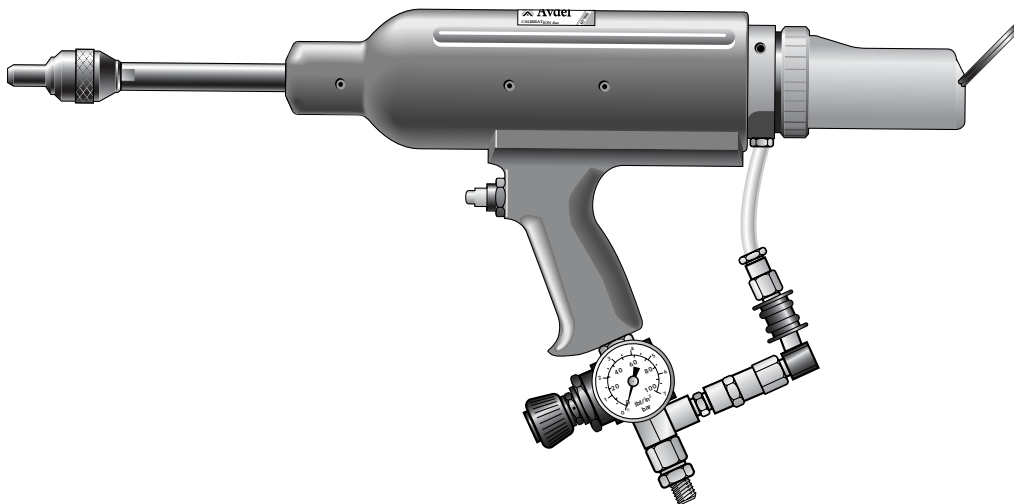


Instruction Manual



07900-09080
Speed Fastening Applications

Broach Load Test Power Tool

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Warranty

Avdel UK Limited installation tools carry a 12 month warranty against defects caused by faulty materials or workmanship, the warranty period commencing from the date of delivery confirmed by invoice or delivery note.

The warranty applies to the user/purchaser when sold through an authorised outlet, and only when used for the intended purpose. The warranty is invalidated if the installation tool is not serviced, maintained and operated according to the instructions contained in the Instruction and Service Manuals.

In the event of a defect or failure, and at its sole discretion, Avdel UK Limited undertakes only to repair or replace faulty components.

Avdel UK Limited policy is one of continuous product development and improvement and we reserve the right to change the specification of any product without prior notice.

Safety Rules

This instruction manual must be read with particular attention to the following safety rules, by any person operating this tool.

- 1 Do not use outside the design intent.
- 2 Do not use equipment with this tool/machine other than that recommended and supplied by Avdel UK Limited.
- 3 Any modification undertaken by the customer to the tool/machine or any equipment supplied by Avdel UK Limited or their representatives, shall be the customer's entire responsibility. Avdel UK Limited will be pleased to advise upon any proposed modification.
- 4 The tool/machine must be maintained in a safe working condition at all times and examined at regular intervals for damage and function by trained competent personnel. Any dismantling procedure shall be undertaken only by personnel trained in Avdel UK Limited procedures. Do not dismantle this tool/machine without prior reference to the maintenance instructions. Please contact Avdel UK Limited with your training requirements.
- 5 The tool/machine shall at all times be operated in accordance with relevant Health and Safety legislation. In the U.K. the "Health and Safety at Work etc. Act 1974" applies. Any question regarding the correct operation of the tool/machine and operator safety should be directed to Avdel UK Limited.
- 6 The precautions to be observed when using this tool/machine must be explained by the customer to all operators.
- 7 Always disconnect the airline from the tool/machine inlet before attempting to adjust, fit or remove a nose assembly.
- 8 Do not operate a tool/machine that is directed towards any person(s).
- 9 Always adopt a firm footing or a stable position before operating the tool/machine.
- 10 Ensure that vent holes do not become blocked or covered.
- 11 Do not operate the tool if it is not fitted with a complete nose assembly or swivel head unless specifically instructed otherwise.
- 12 When using the tool, the wearing of safety glasses is required both by the operator and others in the vicinity to protect against fastener ejection, should a fastener be placed 'in air'. We recommend wearing gloves if there are sharp edges or corners on the application.
- 13 Take care to avoid entanglement of loose clothes, ties, long hair, cleaning rags etc. in the moving parts of the tool which should be kept dry and clean for best possible grip.
- 14 When carrying the tool from place to place keep hands away from the trigger/lever to avoid inadvertent start up.
- 15 The combination of fastener, mandrel, hole size and sheet thickness shall be in accordance with specifications set by Avdel UK Limited.
- 16 The cylinder of the tool must be free to move without risk of hitting or trapping the operator.

I M P O R T A N T

While a small amount of wear and marking will naturally occur through normal and correct use of mandrels, they must be regularly examined for excessive wear and marking, with particular attention to the head diameter, the tail jaw gripping area of the shank or heavy pitting of the shank and any mandrel distortion. Mandrels which fail during use could forcibly exit the tool. It is the customer's responsibility to ensure that mandrels are replaced before any excessive levels of wear and always before the maximum recommended number of placings. Contact your Avdel UK Limited representative who will let you know what that figure is by measuring the broach load of your application with a calibrated test tool. These tools can also be purchased under Part Number 07900-09080, supplied with all necessary information for testing in this manual.

Specification

Air Pressure	Maximum	7 bar
Free Air Volume Required	@ 5.5 bar	1.72 litres
Noise Level	Less than	70 dB(A)
Weight	Without nose equipment	3.0 kg
Vibration	Less than	2.5 m/s ²

Intent of Use

This particular test tool is to be used solely with Avdel® speed fasteners supplied by Avdel®. The precise list of fasteners appears in the mandrel life table page 9. The tool is supplied without any nose equipment as it is fundamental that this tool is used fitted with the exact same nose equipment as that used on the placing tool you have selected to place your fasteners. Tools can be purchased under part number 07900-09080 or you may contact your local Avdel representative to test your application.

The test tool can be used to define the ideal combination of tool/nose equipment/fastener for your application and in any case MUST be used prior to the actual placing tool in order to define the broach load exerted on the mandrel when placing a fastener in the application. IT IS ESSENTIAL TO ESTABLISH THE BROACH LOAD TO PREVENT OVER-USAGE OF MANDRELS AND RISK BREAKAGE AND INJURY.

The intensity of the broach load will vary with the level of interference between the diameters of the fastener, of the mandrel head and of the hole in the application as well as with the thickness of the application. SPEED FASTENING DEMANDS RIGOROUS OBSERVATION OF RECOMMENDATIONS laid down in fastener technical data sheets and in the selection process of nose equipment laid down in instruction manuals.

When putting the test tool into operation, its gauge will display the air pressure at which a **particular** fastener will place in a **specific** application with **defined** nose equipment.

The graph on page 8, will allow you to convert that air pressure (bars) into a broach load (Newtons) which in turn can be translated, using the table page 9, into a maximum safe number of placings for that series of fasteners with the exact same nose equipment you will use with your placing tool AND in random samples of your actual application.

Putting into Service

Air Supply

This tool operates with compressed air at a maximum pressure of 7 bar. We recommend that you temporarily make use of the air supply set up for your actual placing tool with precautions as described in the instruction manual for your placing tool.

Loading the Tool

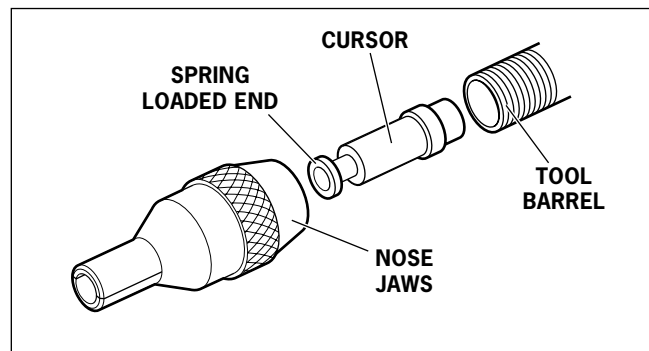
The procedure for loading the tool with fasteners and for fitting the nose equipment to the tool are integral. Refer to the instruction manual for your specific placing tool EXCEPT FOR 1.6MM (1/16") AVLUG® WHICH SHOULD BE LOADED ONE AT A TIME PER TEST AS THE TEST TOOL CANNOT EXACTLY EMULATE THE 07176 PLACING TOOL USED FOR PLACING THIS FASTENER.

Cursor

IMPORTANT

It is essential to check that the cursor orientation before attempting to operate the tool.

To avoid complete dismantling of the tool check the orientation of the cursor before fitting the nose equipment to the tool. If fitted incorrectly, the cursor will not allow feeding of the fasteners. When fitted the correct way round, the cursor will easily slide out of the barrel when a mandrel is pushed into its centre then pulled back. To reverse the orientation of the cursor, refer to the instruction manual for your particular placing tool. The sprung loaded, slightly concave, end of the cursor should point towards the front of the tool as shown right.



Nose Equipment

Fit the same mandrel, follower spring and nose jaws as you intend to fit on the tool which you have selected to place your fasteners following the 'tool loading' instructions in the manual for that tool.

IMPORTANT

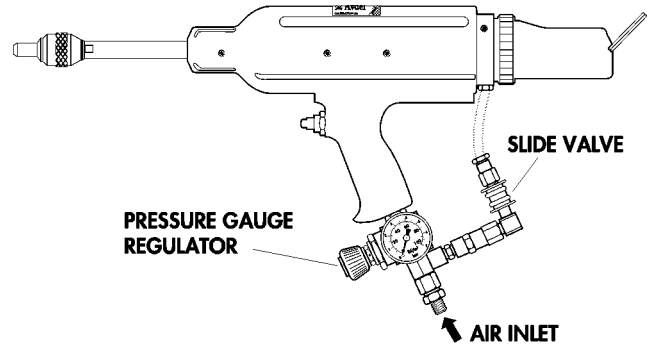
It is essential that the correct nose equipment is fitted to the tool to ensure both effective placing of the fastener and SAFE operation of the tool.

Putting into Service

Operating Procedure

READ THE SAFETY INSTRUCTIONS page 4 carefully.

- Connect the test tool to the air supply.
- Set the gauge on the test tool to zero actuating the trigger to ensure a true reading.
- Fit the exact same nose equipment to the test tool as you intend to use on the tool you will be using to place the fasteners in your application and as recommended in the instruction manual for your specific tool. Note that when testing 1/16" Avlug® fasteners NO POD must be used. A single fastener must be fed at a time. To fit the nose equipment, follow the 'Loading the tool' procedure in the instruction manual for your placing tool.
- Switch on tail jaws by operating slider valve.
- Offer the protruding fastener into the application applying a little pressure to ensure that the fastener head rests against the application (This is crucial to obtain a true reading).
- Hold the trigger in and SLOWLY raise the air supply pressure until the fastener places. Keeping the trigger held, read the air pressure off the gauge before releasing the trigger.
- The mandrel is pulled through the fastener which is formed into the application.
- Remove the application. The next fastener will automatically be presented through the front nose jaws, ready for placing.
- The highest of at least 10 readings should be used.
- As the test tool was calibrated, the graph on page 8 will convert the air pressure reading in bars into a broach load in newtons.



TO CONVERT THE BROACH LOAD INTO A MAXIMUM NUMBER OF FASTENER PLACINGS PER MANDREL

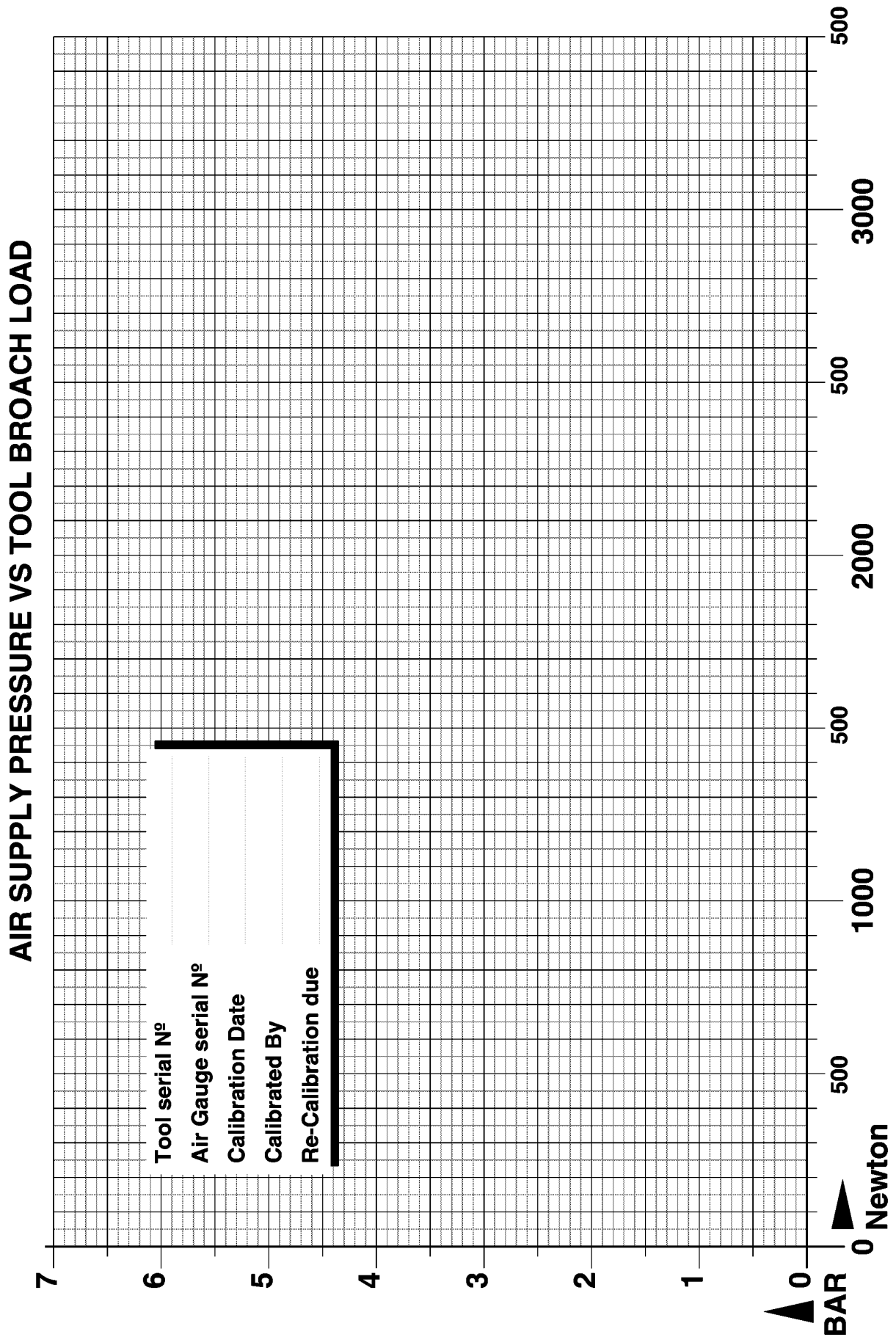
- Locate your broach load reading on the scale at the top of the table on page 9 and on the left-hand side, find the line with your fastener (name and size).
- The maximum recommended number of fastener placings with one mandrel will be shown where they intersect. THIS NUMBER OF PLACINGS MUST NOT BE EXCEEDED. In case of doubt contact Avdel Fastening Systems for advice.

IMPORTANT

The test tool MUST be returned to Avdel UK Limited at minimum every 6 months for re-calibration. A new manual with an updated air pressure versus broach load graph will be supplied in English and in the official language of your country if EC regulations apply.

NO MAINTENANCE WHATSOEVER MAY BE CARRIED OUT ON THIS TOOL BY ANYONE OTHER THAN SPECIFICALLY TRAINED AND DESIGNATED AVDEL PERSONNEL. FOLLOWING MAINTENANCE, THE TOOL MUST BE RE-CALIBRATED PRIOR TO FURTHER USE.

Air Pressure Graph vs Broach Load



Mandrel Life Table

Fastener (for which the mandrel is used)	MAXIMUM NUMBER OF FASTENER PLACINGS PER MANDREL																							MAX. LOAD AT 5000 PLACINGS										
	Tool Broach Load (lb / N)																																	
	100 / 445	110 / 489	120 / 538	130 / 582	140 / 627	150 / 672	160 / 717	170 / 762	180 / 806	190 / 851	200 / 896	225 / 1008	250 / 1120	275 / 1232	300 / 1344	325 / 1456	350 / 1568	375 / 1680	400 / 1792	450 / 2016	500 / 2240	550 / 2464	600 / 2688		650 / 2912	700 / 3136	750 / 3360	800 / 3584	850 / 3808	900 / 4032	5000 / 5500	lbstf	N	
1/16 Avlug	26000	20000	13000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.8mm Rivcrew	45700	36300	32500	28800	25100	23400	16000	10200	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3mm Rivcrew	50000	39500	25100	20900	16200	14600	13200	10400	8710	7240	6110	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.5mm Avtronic	50000	50000	50000	49000	38900	35100	32400	29500	26600	23700	20400	11200	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3/32 Avlug	50000	50000	50000	50000	43200	37200	33900	31600	28800	26200	23200	14500	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3/32 Chobert	50000	42600	33500	28200	23400	20400	17400	15000	12900	10800	9300	6400	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3/32 Grovit	50000	42600	33500	28200	23400	20400	17400	15000	12900	10800	9300	6400	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.5mm Avsert	50000	42600	33500	28200	23400	20400	17400	15000	12900	10800	9300	6400	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-40 UNC Avsert	50000	50000	50000	50000	50000	50000	50000	48400	39800	35900	34500	30900	25700	19100	10800	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.8mm Avtronic	50000	50000	50000	50000	50000	50000	50000	44200	38500	33100	27900	21900	14600	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1/8 Chobert	-	-	-	-	-	-	-	-	-	50000	50000	41000	34600	30500	26000	20900	15700	8900	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1/8 Grovit	-	-	-	-	-	-	-	-	-	50000	50000	30200	26600	20200	18000	12200	9660	7080	5250	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3mm Avsert	-	-	-	-	-	-	-	-	-	41700	35100	29500	26000	20200	18000	12200	9660	7080	5250	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6-32 UNC Avsert	-	-	-	-	-	-	-	-	-	41700	35100	29500	26000	20200	18000	12200	9660	7080	5250	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1/8 Brv	-	-	-	-	-	-	-	-	-	50000	50000	44200	38500	33100	28200	23000	16800	8510	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1/8 Brv (St. Steel)	-	-	-	-	-	-	-	-	-	50000	50000	41000	34600	30500	26000	20900	15700	8900	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3.5mm Rivcrew	-	-	-	-	-	-	-	-	-	50000	50000	50000	34700	30200	26600	20200	15800	12200	9660	7110	5820	X	X	X	X	X	X	X	X	X	X	X	X	X
5/32 Brv	-	-	-	-	-	-	-	-	-	50000	50000	44200	38500	33100	28200	23000	16800	8510	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.0mm Rivcrew	-	-	-	-	-	-	-	-	-	50000	50000	44200	38500	33100	28200	23000	16800	8510	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4.8mm Rivcrew	-	-	-	-	-	-	-	-	-	50000	50000	44200	38500	33100	28200	23000	16800	8510	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5/32 Chobert	-	-	-	-	-	-	-	-	-	48400	35100	26600	21900	17600	14500	11700	9660	7760	5190	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5/32 Brv (St. Steel)	-	-	-	-	-	-	-	-	-	48400	35100	26600	21900	17600	14500	11700	9660	7760	5190	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3/16 Brv	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25100	22400	18600	13600	10500	7590	5620	X	X	X	X	X	X	X	X	X	X	X	X
3/16 Grovit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50000	50000	47900	38500	32700	24300	19700	15500	12200	9660	7500	6100	X	X	X	X	X	X	
3/16 Chobert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50000	50000	47900	38500	32700	24300	19700	15500	12200	9660	7500	6100	X	X	X	X	X	X	
3/16 Grovit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35900	27500	22600	18400	15000	12200	9660	7500	6100	X	X	X	X	X	X	X	X	X	
3/16 Brv (St. Steel)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50000	35900	27500	22600	18400	15000	12200	9660	7500	6100	5500	X	X	X	X	X	X	X	
6mm Brv	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50000	35900	27500	22600	18400	15000	12200	9660	7500	6100	5500	X	X	X	X	X	X	X	
1/4 Chobert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50000	35900	27500	22600	18400	15000	12200	9660	7500	6100	5500	X	X	X	X	X	X	X	

TO CONVERT THE BROACH LOAD INTO A MAXIMUM OF FASTENERS PLACINGS PER MANDREL

- Locate your broach load reading on the scale at the top of the table and on the left-hand side, find the line with your fastener (name & size).
- The maximum recommended number of fastener placings with one mandrel will be shown where they intersect. **THIS NUMBER OF PLACINGS MUST NOT BE EXCEEDED.**
- In case of doubt contact Avdel UK Limited
- Where the achieved broach load is in between two values on the scale at the top of the table, use the higher table value to determine the mandrel life

Note

- # Denotes using long mandrel
- 3/16 Briv, 6mm Briv & 1/4 Chobert - At higher broach loads, tool air pressure may need to be Circa 90PSI
- Any application which results in a broach load in excess of that stated for a mandrel life of 5000 rivet placings (Refer to right hand column of table) should be referred to Avdel UK Limited.

Broach Load is too high - If close to the lowest number of placings, contact Avdel UK Limited for advice

Never use mandrels to place more than 50000 placings or more than the highest number shown

 X

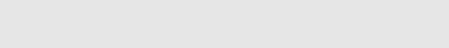
 -

Notes

Declaration of Conformity

We, Avdel UK Limited, Watchmead Industrial Estate, Welwyn Garden City, Herts, AL7 1LY
declare under our sole responsibility that the product:

Model: Broach Load Test Power Tool

Serial No. 

to which this declaration relates is in conformity with the following standards:

EN ISO 12100 - parts 1 & 2

BS EN ISO 8662 - part 6

BS EN ISO 3744

ISO EN 792 part 13 - 2000

BS EN ISO 11202

BS EN 982

BS EN 983

following the provisions of the Machine Directive 98/37/EC



A. Seewraj - Product Engineering Manager - Automation Tools

Date of issue





**This box contains a power tool which is in
conformity with Machines Directive
98/37/EC. The 'Declaration of Conformity' is
contained within.**



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Manual No.	Issue	Change Note No.	Date
07900-00683	AA	03/008	06-02-03
	AB	03/338	06-10-03
	AC	07/176	24-05-07

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