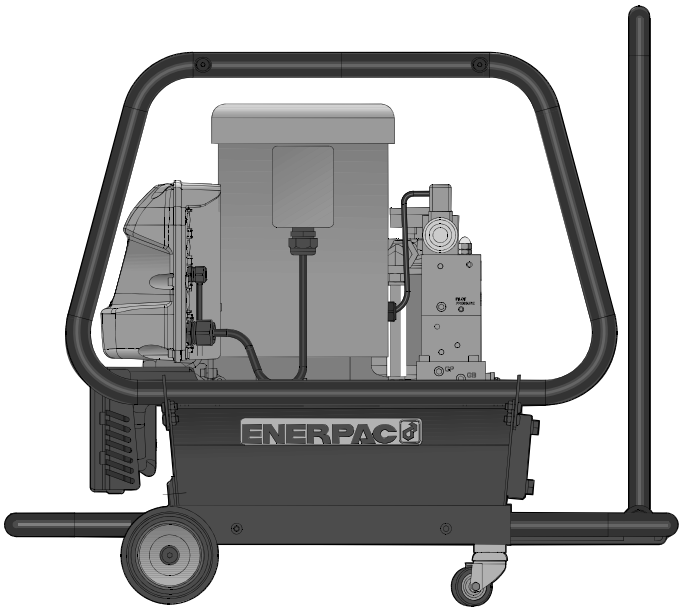
POP® Avdel®

Instruction Manual

Original Instruction



Larger Diameter NeoBolt® Fasteners

Installation Equipment (½" ⅝" ¾" 1")

Nose Equipment, Hydro-Electric Power Tool and Hydraulic Power Unit

STANLEY Engineered Fastening

Safety Instructions

This technical datasheet must be read with particular attention to the safety rules and operating instructions listed in the AV™15, AV™30 and AV™50 Hand Tool Instruction Manuals and the Enerpac® PRO Pump Unit Instruction Manual, by any person fitting or operating the NeoBolt Installation Equipment.

AVDEL® RECOMMENDS THAT ONLY AVDEL®/ENERPAC® HYDRAULIC PUMP UNITS BE USED TO DRIVE AVDEL® INSTALLATION TOOLS, AS OTHER MAKES OF HYDRAULIC POWER UNITS AND TOOLING MAY NOT OPERATE AT THE SAFE DESIGNED WORKING PRESSURES.

ENSURE THAT THERE IS ADEQUATE CLEARANCE FOR THE TOOL OPERATOR'S HANDS BEFORE PROCEEDING.

DO NOT ABUSE THE TOOL BY DROPPING OR USING IT AS A HAMMER.

KEEP DIRT AND FOREIGN MATTER OUT OF THE HYDRAULIC SYSTEM OF THE TOOL AS THIS WILL CAUSE THE TOOL AND PUMP UNIT TO MALFUNCTION. ALSO AVOID CONTAMINATION OF THE NOSE EQUIPMENT AS THIS MAY CAUSE ACCELERATED WEAR OR CLOGGING WHICH MAY JAM THE TOOL.

Specification

Intent of Use

The NeoBolt Installation Equipment, comprising nose equipment, AV™ Hand Tools, Hydraulic Hose Assembly and PRO Pump Units is designed for placing Avdel® NeoBolt structural fasteners only.

This document is concerned with the specification, set-up and operating instructions specific to the NeoBolt Installation Equipment. The Instruction Manuals for the AV™15, AV™30 & AV™50 Hand Tools and the PRO Pump Unit must be referred to for full details of the specification, operating instructions, servicing and maintenance.

The correct hand tool and nose assembly must be selected for each NeoBolt fastener size. The table below provides a full list of nose assemblies and base hand tools required and should be used to select the correct placing equipment.

NEOBOLT	NOSE ASSEMBLY			PLACING TOOL		
SIZE	PART NUMBER	DIM. 'A'	DIM. 'B'	MODEL	PART NUMBER	INSTRUCTION MANUAL
1/2"	73432-03300	99	47	AV15	73432-02000	07900-01021
5/8"	73434-03200	121	56	AV30	73434-02000	07900-01022
3/4"	73434-03300	134	56	AV30	73434-02000	07900-01022
1"	73435-03200	164	71	AV50	73435-02000	07900-01023

Refer to the illustration on page 4 for the identification of the nose assembly dimensions 'A' and 'B'.

The basic specification of each PRO pump unit is listed in the table below to aid selection of the most suitable device.

			PUMP UNIT										
PART NUMBER	76501-02000	76502-02000	76503-02000	76504-02000	76505-02000	76502-02300	76503-02300	76504-02300	76508-02000	76508-02300	76510-02500	76511-02000	76511-02300
NAME	PRO 115	PRO 220	PRO 240	PRO 415	PRO 480	PRO 220D	PRO 240D	PRO 415D	PRO 240 PLUS	PRO 240D PLUS	PRO 415F PLUS	PRO 480 PLUS	PRO 480D PLUS
MOTOR POWER (kW)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	5.6	5.6	5.6	5.6	5.6
VOLTAGE (V)	115	208-240	208-240	380-415	460-480	208-240	208-240	380-415	208-240	208-240	380-415	460-480	460-480
FREQUENCY (Hz)	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60	50-60
PHASE	1	1	3	3	3	1	3	3	3	3	3	3	3
FLOW RATE @ 700 bar (l/min)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3.3	3.3	3.3	3.3	3.3
RESERVOIR VOL. (l)	10	10	10	10	10	10	10	10	10	10	10	10	10
WEIGHT WITH OIL (kg)	51	51	51	51	51	60	60	60	78	78	78	78	78

Specification

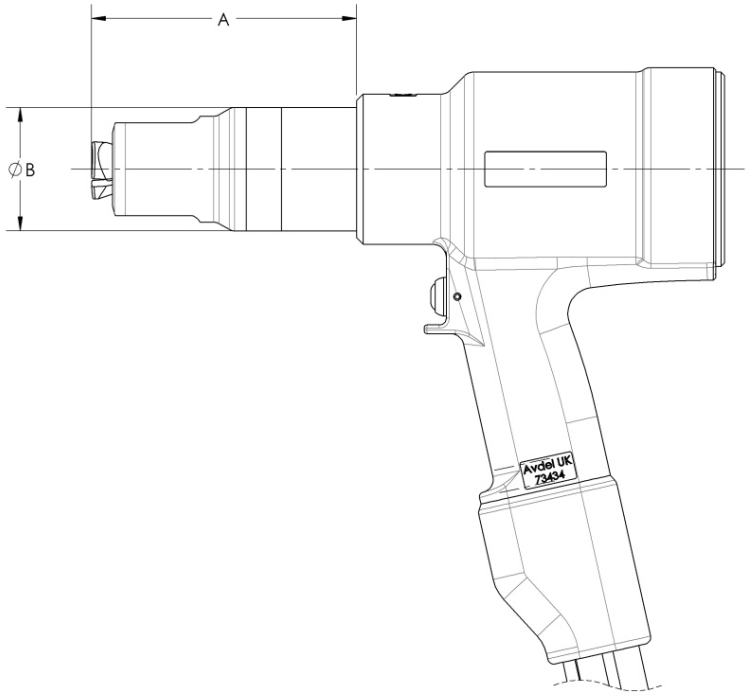
Intent of Use

The hand tool is fitted with two Hydraulic Hoses and an Electrical Control Cable, 0.6m in length. Additional Hydraulic Hose and Cable extension lengths are available to order separately as required. Refer to the table below for the available Hose Assembly lengths and associated part numbers.

HYDRAULIC HOSE ASSEMBLY	
PART NUMBER	**HOSE LENGTH**
07008-00448	5 METRE
07008-00449	10 METRE
07008-00450	15 METRE

I M P O R T A N T - THE NOSE ASSEMBLIES, HAND TOOLS AND PUMP UNITS MUST BE USED IN ACCORDANCE WITH THE SAFETY RULES AND OPERATING INSTRUCTIONS CONTAINED WITHIN THIS DATASHEET AND IN THE HAND TOOL AND PUMP UNIT INSTRUCTION MANUALS.

THE PLACING OF FASTENERS NOT INCLUDED IN THIS DATASHEET COULD HAVE A DETRIMENTAL IMPACT ON THE WORKING LIFE OF THE TOOL, PUMP UNIT AND NOSE ASSEMBLIES AND COULD INVALIDATE THE WARRANTY.



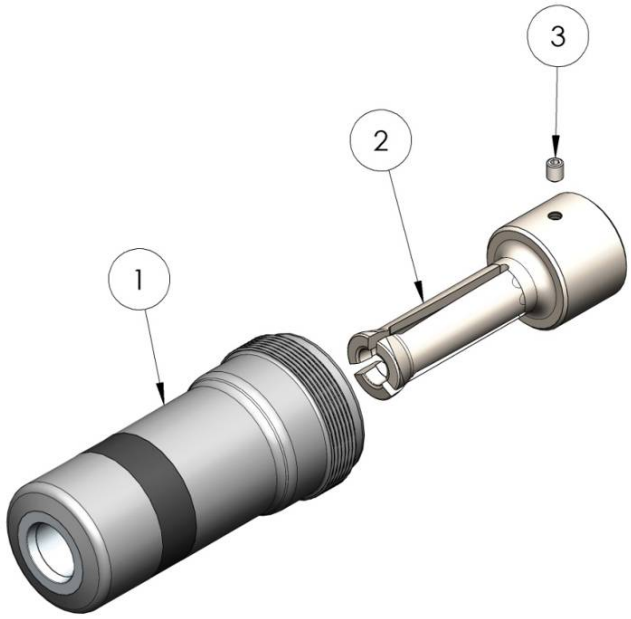
Refer to the table on page 3 for the nose assembly dimensions 'A' and 'B'.

Nose Equipment

I M P O R T A N T – ENSURE THE PUMP UNIT POWER SUPPLY IS DISCONNECTED BEFORE FITTING OR REMOVING THE NOSE ASSEMBLY

A list of the components within each NeoBolt nose assembly is provided in the table and illustration below.

NEOBOLT SIZE	NOSE ASSEMBLY	1		2		3	
		ANVIL		COLLET		SET SCREW	
	PART NUMBER	PART NO.	QTY	PART NO.	QTY	PART NO.	QTY
1/2"	73432-03300	73432-03301	1	73432-03302	1	07001-00404	1
5/8"	73434-03200	73434-03201	1	73434-03202	1	07001-00693	1
3/4"	73434-03300	73434-03301	1	73434-03302	1	07001-00693	1
1"	73435-03200	73435-03201	1	73435-03202	1	07001-00693	1



Fitting Instructions

Item numbers in **bold** refer to nose assembly components in the tables and illustration above.

- Lightly coat the outer surface of the Collet **2** jaws and the Anvil **1** bore and outer thread with Moly Lithium grease.
- Make a note of the orientation of the slot in the piston rod threaded end. Screw Collet **2** onto the placing tool piston rod until it contacts the end of the piston. Unscrew the Collet **2** by approximately two full rotations.
- Apply Loctite 243 to the Set Screw **3** thread. Insert the Set Screw into the Collet **2**. Rotate the Collet **2** on the piston rod in either direction until the Set Screw **3** is aligned with the slot on the piston rod. Tighten the Set Screw **3** into the slot on the piston rod. Ensure the Set Screw **3** sits below the exterior surface of the Collet **2**.

- Slide Anvil **1** over Collet **2** and push the expanded end of the Collet into the Anvil bore. Some force will be required to do this and so care should be taken to prevent pinching of hands – ideally wear protective gloves or cover the Anvil with a thick rag. For the larger sizes the use of a mechanical press may be advisable. Take care however to avoid the use of excessive force as this may damage to nose assembly or tool body.

- Screw the Anvil **1** fully into the body of the placing tool using a spanner if required. There is a locking 'O' Ring which will create a resistance to the final few turns of the Anvil **1**. It is important that the Anvil **1** be only gently tightened up against the rear locking face.

- Check that Collet **2** is positioned correctly within the Anvil **1**. The opening in the centre of the Collet should be slightly larger than the NeoBolt pin pulling tail diameter. (Excessive Collet protrusion will reduce the available tool stroke when installing NeoBolt fasteners close to minimum grip condition.)

- If the Collet opening is too small it will be necessary to remove the Anvil **1,** unscrew the Set Screw **3** completely**,** and unscrew the Collet **2** on the tool piston rod by half a turn at a time. If the Collet opening is too large it may be necessary to remove the Anvil **1,** unscrew the Set Screw **3,** and screw the Collet **2** clockwise further onto the tool piston rod by half a turn at a time. Refit the Set Screw **3** in the piston rod slot before replacing the Anvil **1**.

Servicing Instructions

Nose assemblies should be serviced at weekly intervals. You should hold some stock of all internal components of the nose assembly as they will need regular replacement.

- Remove the nose assembly using the reverse procedure to the 'Fitting Instructions'.

- Any worn or damaged part should be replaced.

- Clean and check wear on the Collet **2** jaws and the Anvil **1** bore.

- Clean and inspect components**,** renewing worn or damaged items.

- Assemble according to the 'Fitting Instructions'.

Putting Into Service

Preparation for Use

IMPORTANT – READ BOTH THE PLACING TOOL AND PUMP UNIT INSTRUCTION MANUAL CAREFULLY BEFORE PUTTING INTO SERVICE.

PERSONAL INJURY OR DAMAGE TO EQUIPMENT MAY OCCUR WITHOUT CORRECT PRESSURES. THE PULL AND RETURN PRESSURES SUPPLIED BY THE HYDRAULIC PUMP UNIT MUST NOT EXCEED THOSE PRESSURES LISTED IN THE PLACING TOOL SPECIFICATION.

IMPORTANT – BEFORE PUTTING THE TOOL, PUMP UNIT AND HOSE ASSEMBLY INTO SERVICE:

- **ENSURE THAT THE PUMP PRESSURE RELIEF VALVES HAVE BEEN SET IN ACCORDANCE WITH THE INSTRUCTION ON PAGES 6, 7 AND 8.**
- **ENSURE THAT THE HOSE KIT IS PRIMED WITH HYDRAULIC FLUID IN ACCORDANCE WITH THE PROCEDURE IN THE PUMP INSTRUCTION MANUAL 07900-01030.**

Pressure Settings

CAUTION - CORRECT PULL AND RETURN PRESSURES ARE IMPORTANT FOR PROPER FUNCTION OF THE INSTALLATION TOOL, PUMP UNIT AND FOR CORRECT INSTALLATION OF THE NeoBolt FASTENER.

For correct installation of NeoBolt the pull / advance pressure supplied by the pump unit, in combination with the specified placing tool must be set as stated in the table below.

NEOBOLT	PLACING TOOL		PUMP PRESSURE SETTINGS (bar)	
SIZE	MODEL	PART NUMBER	HI-PRESS	RELIEF VALVE
1/2"	AV15	73432-02000	330	370
5/8"	AV30	73434-02000	230	270
3/4"	AV30	73434-02000	280	320
1"	AV50	73435-02000	250	290

PUMP PRESSURE SETTINGS LOWER THAN THOSE STATED ABOVE WILL NOT FULLY SWAGE THE NEOBOLT COLLAR, LEADING TO LOWER THAN SPECIFIED PERFORMANCE FOR THE FASTENER.

PUMP PRESSURE SETTINGS HIGHER THAN THOSE STATED ABOVE MAY CAUSE FAILURE OF THE NEOBOLT PIN DURING INSTALLATION AND WILL ALSO REDUCED THE LIFE OF THE NOSE EQUIPMENT.

The pump has two methods for limiting the pull / advance pressure to the placing tool. The process below explains how to correctly set these pressure limits.

- Refer to the PRO Pump Unit Instruction Manual for the operating instructions and guidance on the use of the LCD Menus.
- Disconnect the placing tool and hoses from the pump.
- Connect the unit to the power supply and switch ON, as described on pages 11 and 12 of the Pump Unit Instruction Manual.
- Activate the LOCAL mode by displaying the 'LOCAL' menu and toggling the setting to 'ON' using the Arrow buttons. Save the setting by pressing the MENU button once.

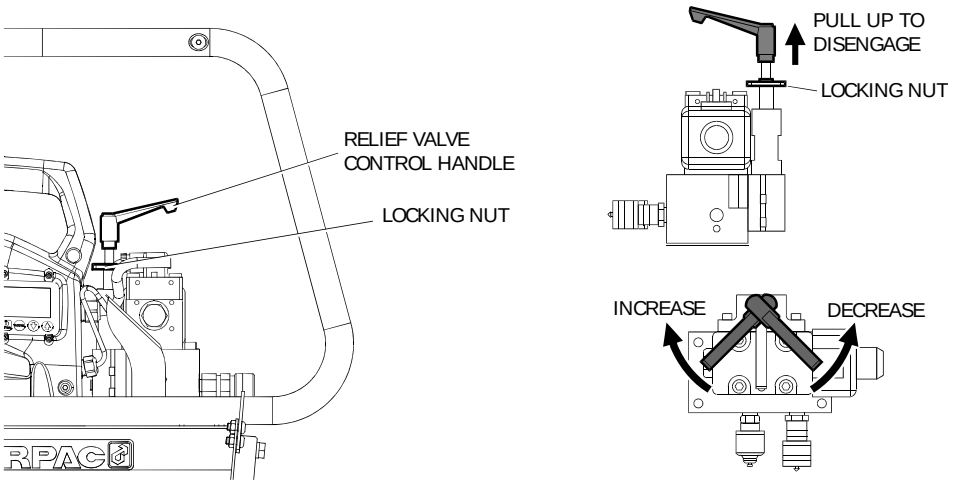
Putting Into Service

Pressure Settings

- Display the 'HI PRESS' menu and adjust the value to 600 bar using the Up Arrow button. Save the setting and return to the 'AVDEL' display by pressing and holding the MENU button for 2 seconds.

- Press and hold the Up Arrow. This will switch the valve solenoid to the pull / advance position and the relief valve pressure setting will be displayed on the LCD screen. Releasing the Up Arrow will switch the valve solenoid back to the return position and the return relief valve pressure will be displayed on the screen. The motor will then switch off after 5 to 20 seconds and the solenoid valve will switch to the idle position.

- Loosen the relief valve locking nut and turn the relief valve control handle counter-clockwise until there is a light drag when turning, this will decrease the pull / advance pressure. Refer to the illustration below.



- Start the pump and press and hold the Up Arrow as previously described to build pressure in the pull / advance circuit. While holding the Up Arrow button turn the relief valve control handle until the pressure display reads the pressure stated in the 'RELIEF VALVE' column of the above table for the specified NeoBolt size.

- **Note:** To get an accurate setting, decrease the pressure to a point below the final setting and then slowly increase the pressure until it reaches the correct setting.

- Tighten the relief valve locking nut.

- Release the Up Arrow button. Then recheck the final pressure setting by pressing the Up Arrow and pressurising the system again.

- De-activate the LOCAL mode by displaying the 'LOCAL' menu and toggling the setting to 'OFF'. Save the setting by pressing the MENU button once.

- Display the 'HI PRESS' menu. Adjust the pressure value to the pressure stated in the 'HI PRESS' column of the above table, for the specified NeoBolt size, using the Down Arrow button. Save the setting and return to the 'AVDEL' display by pressing and holding the MENU button for 2 seconds.

Putting Into Service

Return Timer Setting

The pump has an adjustable Return Timer that allows operator to set the length of time that the motor will run, after releasing the trigger or achieving the 'High Pressure' value, before switching to idle mode.

The timer can be set at any value between 5 and 20 seconds, but must be adjusted to allow the placing tool piston sufficient time to fully return before switching the motor off.

The following timer settings are recommended for the Avdel® range of placing tools and pumps.

PUMP RETURN TIMER SETTING			
TOOL PART NUMBER	**73432-02000**	**73434-02000**	**73435-02000**
TOOL MODEL	AV15	AV30	AV50
PUMP PRO 115 / 220 / 240 / 415 / 480 - TIMER SETTINGS	5 seconds	8 seconds	10 seconds
PUMP PRO 220D / 240D / 415D - TIMER SETTINGS	5 seconds	8 seconds	10 seconds

The process below explains how to correctly set the Return Timer.

- Connect the unit to the power supply and switch on as described on pages **11** and **12** of the pump unit instruction manual
- Press the MENU button on the LCD screen until the 'RET TIME' menu is displayed.
- Use the Up and Down Arrows to adjust to the timer in 1 second intervals to the desired value.
- Save the setting and return to the 'AVDEL' display by pressing and holding the MENU button for 2 seconds. The timer is now set.

Putting Into Service

Operating Instructions

Checking the Joints for NeoBolt fasteners

- Measure and ensure that the total joint thicknesses (the combination of the thickness of all the layers in all joints to be fastened) fall within the grip range specified for the NeoBolt fastener. Refer to the NeoBolt datasheet or Sales Drawing. To help with identification, each NeoBolt pin has the grip length code embossed on the pin head.

- Check application and remove excessive gaps between the layers of the joint. Gaps may be due to joint layers being bent or distorted. The gap is excessive if it is not possible to screw the collar fit-up tab onto the pin fit-up thread by at least half a turn. Additional clamping of the joint may be necessary to avoid excessive gaps.

- Measure and ensure that the hole diameters fall within the specified range. Ensure that holes are aligned in the different layers. Do not force pins into poorly aligned holes as this can damage the pin surface and fit-up thread. If necessary increase hole sizes up to the maximum specified diameter to ease pin insertion.

To Install NeoBolt fasteners

- Put NeoBolt pin tail into hole and push fully through the joint layers.

- Fit NeoBolt collar over the pin tail (the flanged end of the collar must be closest to the workpiece) and rotate clockwise to engage the collar onto the pin fit-up thread by at least half a turn.

- Push the Collet fully over the pin pulling tail until Collet fully covers the pulling groove on the NeoBolt pin. The placing tool must be held perpendicular (90°) to the workpiece surface.

- Depress and hold the tool trigger switch to start the installation cycle. The Collet will grip the NeoBolt pin tail and pull the Anvil up against the collar.

- Continue to hold the trigger down until the collar is fully swaged and the forward motion of the Anvil stops against the collar flange.

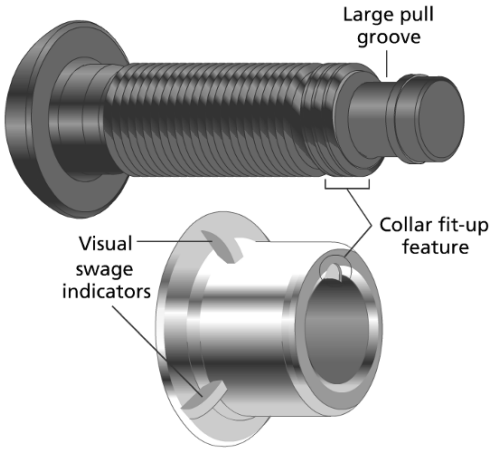
- Release the trigger. The placing tool piston and Collet will then return to push the Anvil off the installed collar and release the pintail from the Collet.

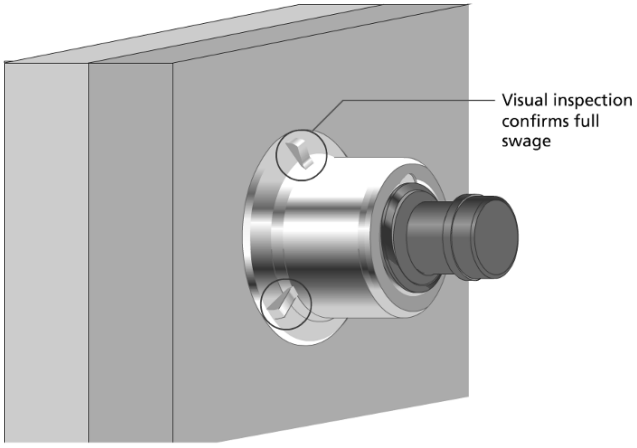
- Once the installed fastener has been ejected from the Anvil, the placing tool, nose assembly and pump unit are ready for the next installation.

CAUTION – DO NOT RELEASE THE TRIGGER UNTIL THE PLACING TOOL PULL CYCLE IS COMPLETE AND THE PUMP UNIT AND TOOL HAVE SWITCHED AUTOMATICALLY TO THE RETURN CYCLE. RELEASING THE TRIGGER BEFORE THIS POINT WILL RESULT IN AN INCORECTLY PLACED AND PARTIALLY INSTALLED NEOBOLT FASTENER.

Visual Inspection of Installed NeoBolt fasteners

- The raised radial bars on the installed NeoBolt collar flange should shown signs of having been flattened by the front face of the swaging Anvil (see below).
- The pin tail should not be greatly distorted, break or shear off. Some minor marking of the bearing surface in the pull groove is however normal.





General Advice for Installing NeoBolt fasteners

- When installing multiple NeoBolt fasteners, fit all the collars onto the pins prior to using the placing tool.
- Avoid dropping the tool as the impact can damage the end of the collet or allow dirt and grit to clog and wear out the nose equipment prematurely.

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For an authorized distributor nearby please check www.StanleyEngineeredFastening.com/econtact/distributors

Manual No.	Issue	Change Note No.
07900-01072	A2	15/131

STANLEY Engineered Fastening

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