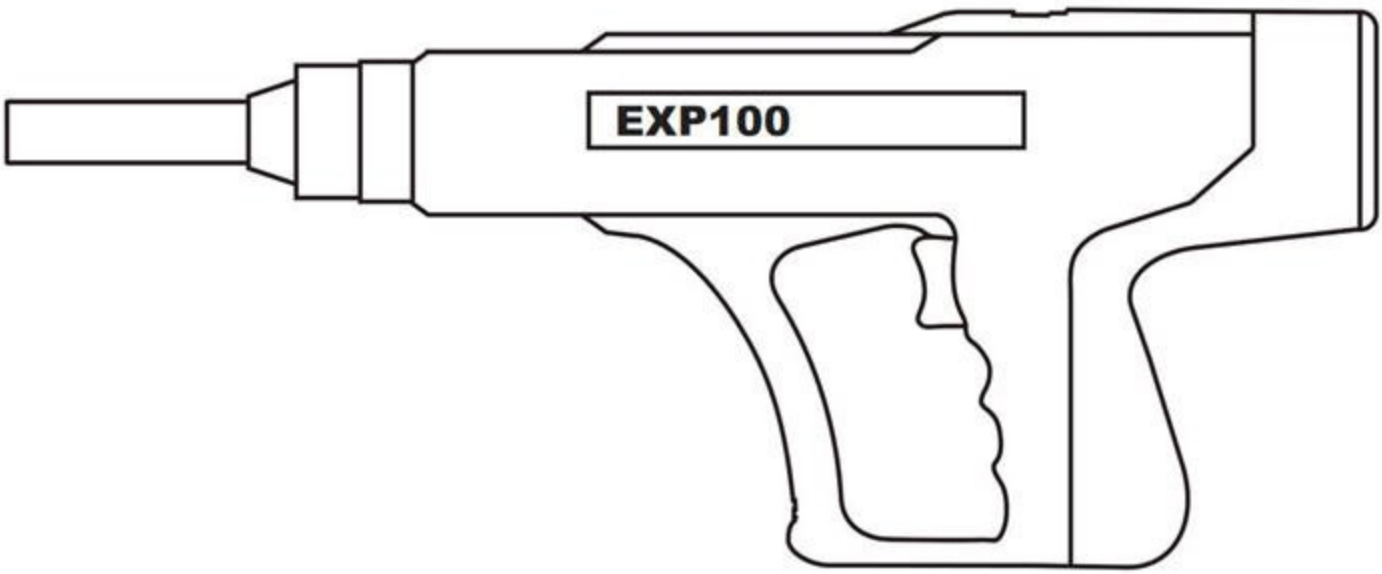
Automatic Powder Actuated Tool

EXP100
Operation Manual



EXP100-MX32

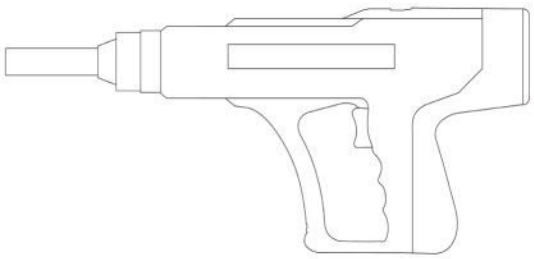
EXP100-IF

--- Unique design with patent (Taiwan, China, ...)
--- Exceptionally quiet, it's the quietest among powder actuated tools.
--- Balanced and vented to reduce recoil. Easy to work without fatigue.
--- Simple mechanical automatic piston return and cartridges advancing system.
--- Power level adjustment dial.
--- Designed for high volume fastening applications.
--- Easy cleaning and servicing

Power Load and Fastener Selection Guidelines

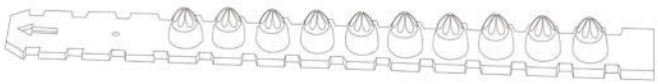
Tool

EXP100 is in-direct powder actuated tool, automatic piston reset, cartridge advance system and power level adjustments. Tool weight is 7-1/2 lbs and length is 17-1/2".



Cartridges

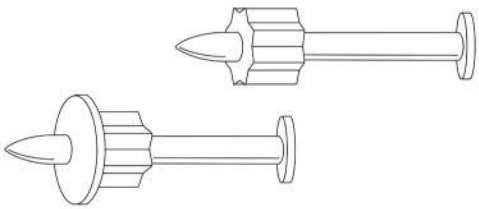
.27 cal. (6.8/11mm) 10 shot in a strip. Level from green color (light), yellow color (medium) to red color (heavy).



Fasteners

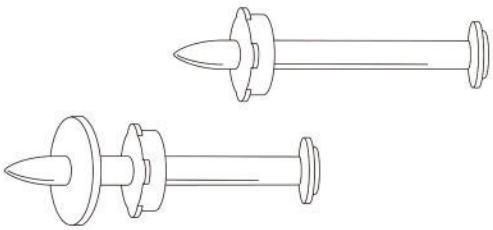
.300 Head Dia. .145 Shank Dia., range from 1/2" to 3" in length (also with premounted steel washer available)

*** Knurled shank for use in structural steel.



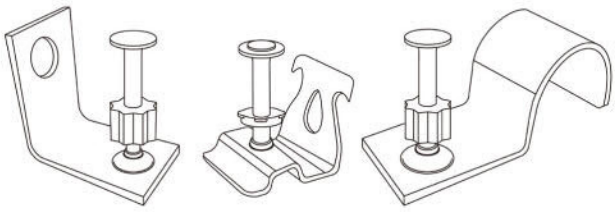
DN pins (8mm Head Dia.), .145 Shank Dia., range from 16mm to 97mm in length (also with premounted steel washer available)

*** Knurled shank for use in structural steel.



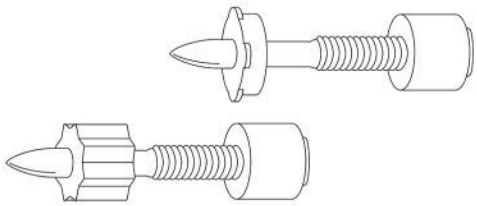
.300 Head Dia. Pins or DN Pins, .145 Shank Dia., assembled with ceiling clips & conduit straps.

*** Knurled shank for use in structural steel.



1/4"-20UNC Thread Studs, M6/W6/M8 Thread Studs with .300 thread cap.

*** Knurled shank for use in structural steel.



Warnings

The EXP100 powder actuated tool is for use only by qualified operators. Failure to read and understand the operator's manual and/or follow safety precautions may result in serious injury.

Never cock the tool against your hand or other part of your body.

Never attempt to pry a cartridge that fails to ignite out of the tool or plastic strip.

Safety goggles and ear protection must always be worn when operating a powder actuated tool.

Safety Precautions

1. Never leave a loaded tool unattended. Always unload the tool before cleaning or maintenance. Tool must be kept in a locked tool case when not in use.
2. Know the base material into which you intend to fasten to. Suitable base materials for powder actuated tool fastenings are masonry of various types and hardness, such as concrete with a minimum thickness of 4-1/2" and structural steel from 5/32" to 3/8" thick. To determine the suitability of a base material, use a fastener as a center punch as follows:
    - If the material shows a clear fastener point impression - proceed with the first test fastening.
    - If fastener point is blunted – material is too hard.
    - If material cracks or shatters – material is too brittle.
    - If fasteners sinks into or passes through material with an average hammer blow – material is too soft.
3. Never attempt to fasten to – Hardened steel, welds, cast iron, marble, spring steel, natural rock, glass, glazed tile, brick, slate, wood, plaster, drywall, plywood, etc.
4. Never attempt a fastening into a concrete base material which is less than 3 times the fastener's intended depth of penetration into steel base material thinner than 5/32" or thicker than 3/8".
5. Always use the stabilizer/spall guard when possible.
6. Never use the tool without first giving it a personal and thorough safety inspection to determine that the tool is clean, that all moving parts operate freely, and that the barrel and breach are free from obstructions. Refer to "Tool Safety and Operational Test Procedures", page 5 of this manual.

7. Never permit a broken tool to continue to be used. Immediately remove it from service until it has been properly repaired.
8. Never alter or manufacture parts for your EXP100 tool. Use quality fasteners, cartridges and parts at all times. The use of improper parts, cartridges or fasteners could result in tool damage and or serious injury or death to the operator and/or bystanders.
9. Never use the tool for making fastenings in an explosive or flammable atmosphere.
10. Never exceed 240 fastenings per hour, otherwise the tool could overheat causing operator discomfort and/or melt the plastic cartridge strip. Let tool rest for 30 minutes to cool down or submerge it in a bucket of water for a couple minutes to hasten the cool down period.
11. Never disassemble tool when it is hot.
12. Never load the tool until you are ready to make a fastening.
13. Post a sign alerting co-workers and bystanders that a powder actuated tool is being used.
14. Tools and loads must be stored in a locked container when not in use.
15. Always hold the tool at right angles to the work surface and base material when making fastenings to avoid injury from a ricocheting fastener.
16. Keep arms flexed when operating tool, (do ot stiff or straight arm) to avoid recoil effects. If you feel discomfort, discontinue use.
17. Never place your hand over the front end of the tool or against your body. The fastener or piston can seriously injure your hand or body in the event of an accidental discharge.
18. Always make your first fastening with the lowest power setting, then increase the power setting until the fastening is accomplished satisfactorily.
19. In the case of misfire (the cartridge/power load/booster fails to ignite):
    a. keep the tool depressed, continue to hold the tool firmly against the work surface for a period of thirty seconds.
    b. if the cartridge still falls to ignite, withdraw tool from the work surface, taking care the tool is not pointed at yourself or a bystander.
    c. depress the tool against the work surface a second time. This will advance the unfired cartridge out of the tool and position a new cartridge in the chamber. Continue to use the remaining cartridges in the plastic strip. Once all the remaining cartridges are used, remove the strip with the unfired load in it and dispose of it in a responsible manner.
20. You must obtain training and instructions from qualified dealer, agent or distributor for the correct and safe use of EXP100 tool and receive a “Qualified Operator License” of certification prior to using the tool.
21. Receiving training and instructions on one make or model tool does not qualify you to operate any other powder actuated tool. Failure to get and follow OSHA-Required training and instructions from qualified dealer, agent or distributor could result in serious injury to the operator or bystanders.

Tool Safety and Operational Test Procedures

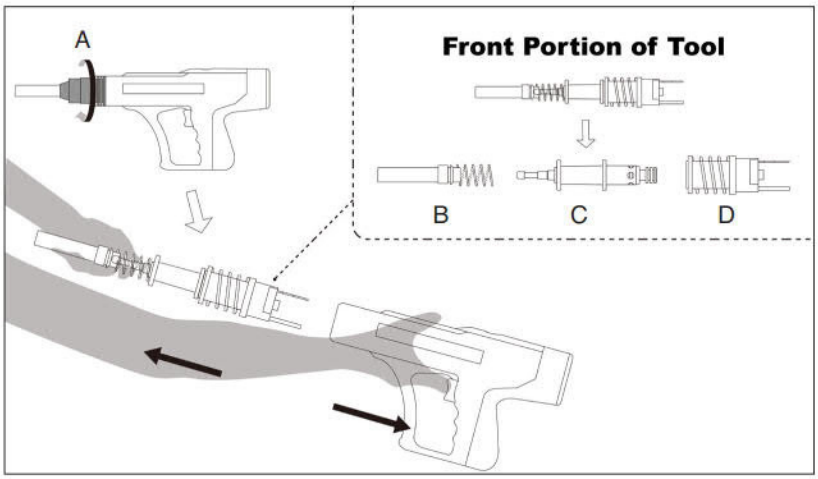
TO BE PERFORMED PRIOR TO USING THE TOOL

FORWARD

The EXP100 tool's safety devices are designed into the operational working parts of the tool. The tool is classified as low velocity and as a result of the indirect captive drive piston principle, it provides lethal shoot through and ricochet safety. It does not eliminate a potential shoot through or ricochet hazard which could injure the operator or bystander. Refer to "**Warning & Safety Precautions**" and "**Tool Operation**" sections of this instruction manual. The tool's design requires two separate and distinct operations to fire, (1) it must be held against the work surface with a force at least 5 pounds greater than the weight of the tool, requiring a forward movement of 1-7/8" to cock the tool, (2) while being held against the work surface the trigger must be pulled to fire the tool. The contact pressure safety device prevents a loaded tol from being fired if it is not pressed against a firm work surface. To ensure the safe operation of the tool the operator must perform the following safety test procedures before using the tool each day.

PROCEDURES

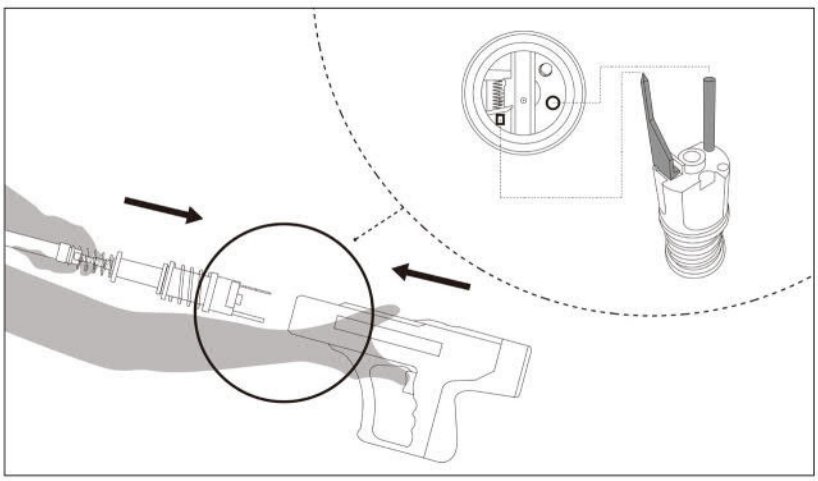
--- Disassemble



Disassemble the front portion of the tool by first unscrewing the front collar (Part A). Holding the front collar (Part A) and nosepiece (Part B) with one hand and the tool body with the other hand, pull the front portion of the tool out of the tool body. Inspect all parts for signs of wear, replace any broken parts.

∗∗∗ Confirm that there are no foreign particals, debris, or obstructions within the nosepiece, (Part B), drive piston assembly (Part C) , or the breach assembly (Part D) and that all parts move freely.

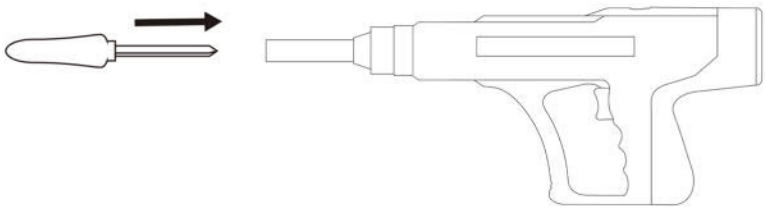
--- Re-assemble



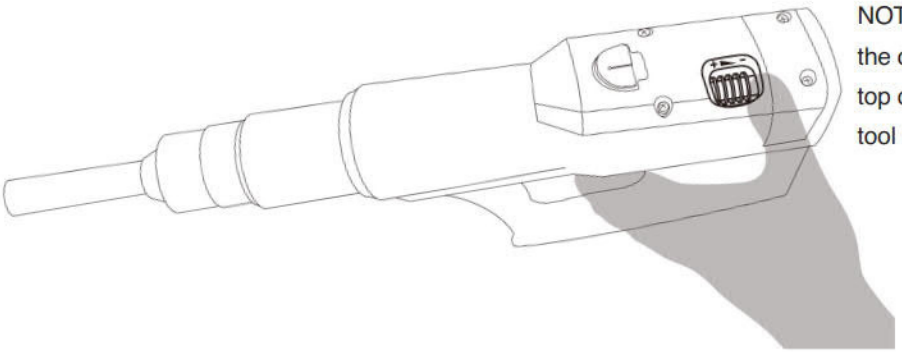
Re-assemble the tool by holding the front color in one hand, tool body in your other hand, align parts E and F with their respective receptacles in the rear of the tool body, push them together and screw the front collar in place.

∗∗∗ Confirm that the tool is unloaded, then dry fire the tool once or twice by depressing it against a solid work service, pull the trigger to confirm it works freely. If it does, the tool is now ready for use.

Tool Operation



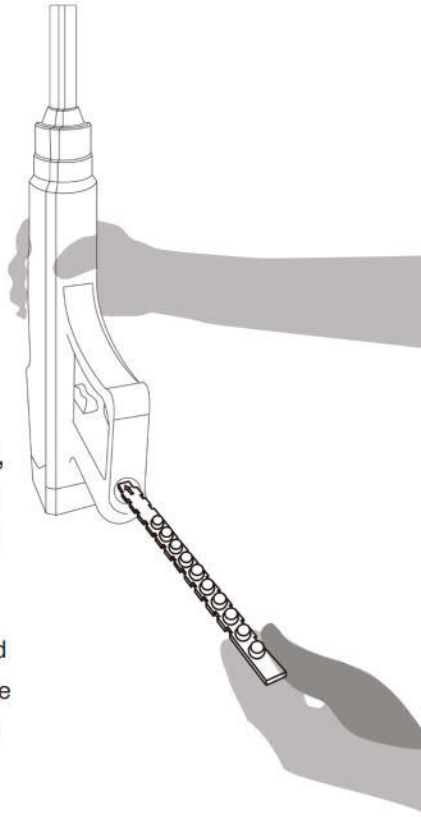
1 Make sure there is no cartridge strip in the tool then use the enclosed philips screwdriver to push the drive piston to the rear of the tool, its starting position.



2

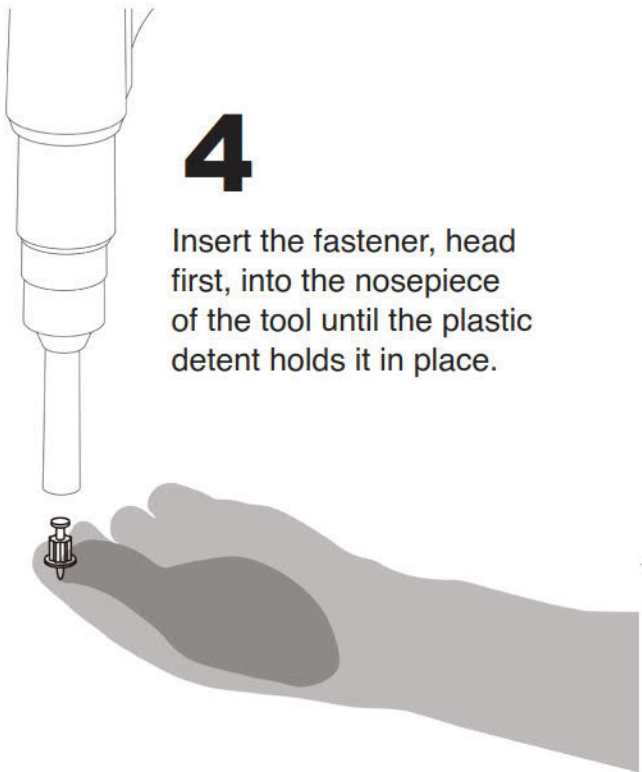
Load the cartridge strip (long tab in first), by inserting it into the bottom of tool handle until flush.

NOTE: Never attempt to load the cartridge strip through the top of the tool. It will jam the tool up immediately.



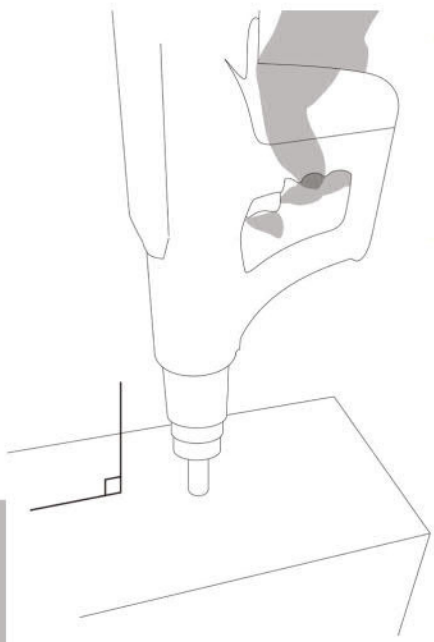
3 Turn the power level adjustment dial to its lowest power level position. + ◣ -
Make your first test fastening with the minimum power. If the fastener does not penetrate deep enough, continue increasing the driving power by turning the power level adjustment dial towards the + maximum end, and/or increasing the cartridge power level.

NOTE: if a load is advanced without being fired, do not attempt to push it back down from the top of the tool, it will jam up immediately, continue using the strip until only the un-fired load is remaining, re-insert the plastic strip advance unfired load to the correct breach position to make the next fastening.



4

Insert the fastener, head first, into the nosepiece of the tool until the plastic detent holds it in place.



5 Position the tool against the work surface where you want to make the fastening, with one hand on the handle, the other on the rear of the tool, depress tool to override safety then pull the trigger to fire.

NOTE: To avoid injury as a result of recoil, do not stiff or straight arm the tool, never put your head or body directly behind the tool.

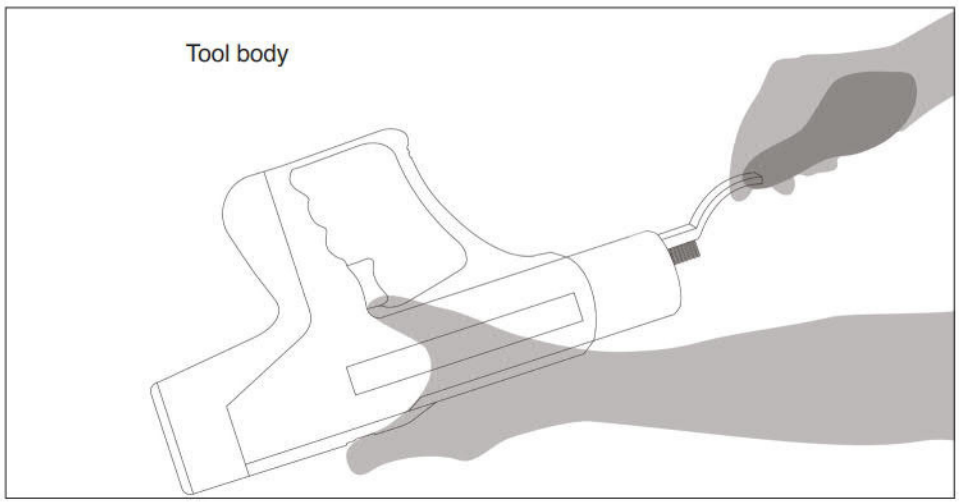
Maintenance & Cleaning Instructions

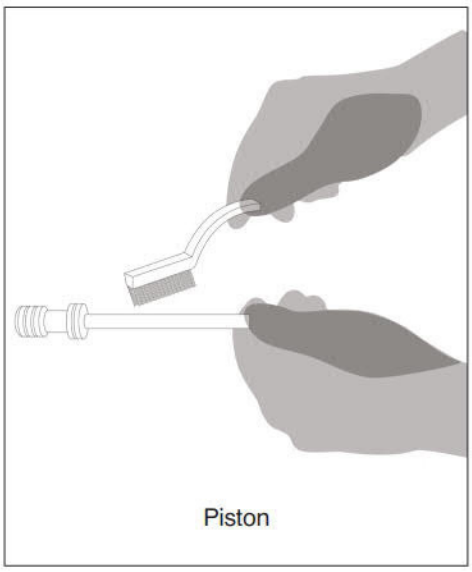
To maintain the tool in good working condition, the tool should be routinely cleaned at least once a week, or if in continuous use, after each 5,000 fastenings.

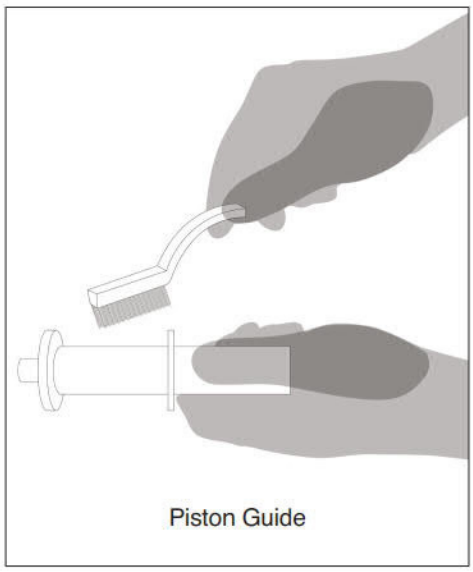
This tool performs best “dry”. Oiling is not necessary for proper functioning of the tool. Use cleaning spray containing oil to protect metal parts from rust and corrosion. Always wipe all parts dry of excessive oil prior to re-assembling the tool. Do not spray oil into the rear of the tool. Do not spray oil into the cartridge insertion or exit opening. Do not spray oil into the power level dial.

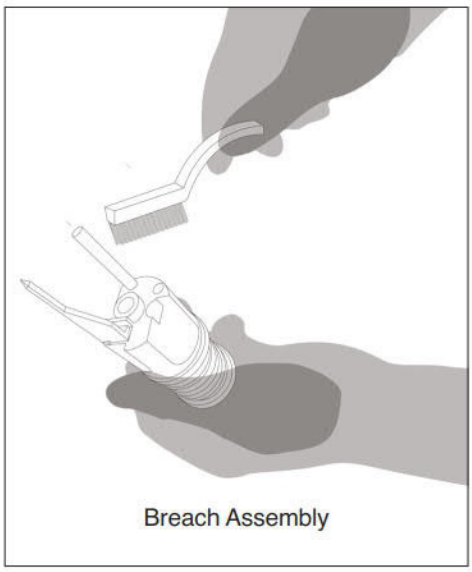
ROUTINE CLEANING

1. Make sure the cartridge strip and drive pin have been removed from the tool. Then take the tool apart by removing the nosepiece, piston and breach assemblies from the tool body, Refer to “Tool Safety and Operational Test Procedures”, page 5 for this procedure.
2. Clean the tool parts by using the brushed provided in the tool kit. Lightly oil and wipe dry.







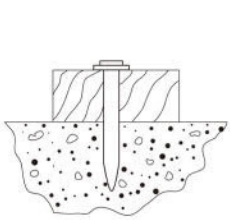


3. Reassemble tool. Refer to "Tool Safety and Operational Test Procedures", page 5 for instructions. Dryfire the tool a few times. If it works freely, the tool is ready for use.

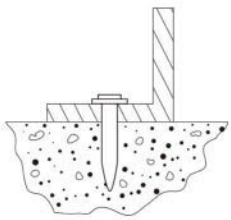
Power Load and Fastener Selection Guidelines

BASIC POWDER ACTUATED TOOL FASTENING APPLICATIONS

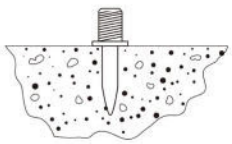
--- Base Material, Concrete, or Block



WOOD TO CONCRETE



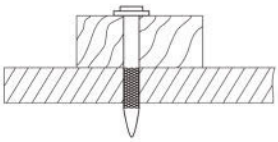
METAL TO CONCRETE



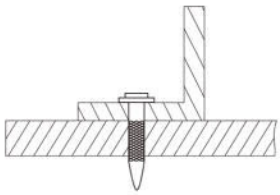
DIRECT TO CONCRETE

Holding power in concrete is determined by the compressive strength (elasticity) of base fastening material. The less dense the material being fastened to, the greater penetration required.

--- Base Material, Structural Steel



WOOD TO STEEL



METAL TO STEEL

DIRECT TO STEEL

When fastening to steel, it is necessary for the fastener to completely penetrate the steel so that the point protrudes past the point radius on the backside.

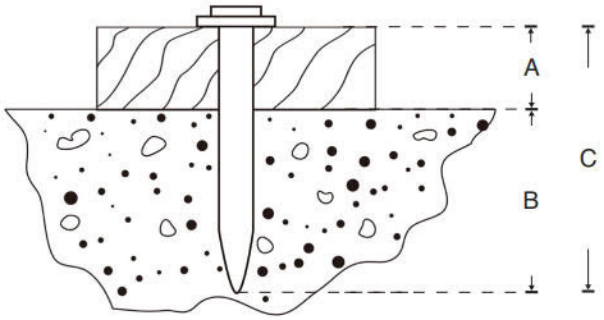
✱✱✱ The steel base must be a minimum 5/32" thick or a maximum 3/8" thick.

Suitable Base Materials have sufficient hardness and thickness to prevent the entire fastener from passing completely through and will expand to compress the fastener shank and produce holding power.

Unknown or Questionable Base Material refer to point 2,3 &4 (Warnings & Safety Precautions" page 3 of this manual to determine suitability of base material by using the "Hammer & Fastener Center Punch Test". If in doubt, call qualified dealer, agent or distributor.

FASTENER SELECTION

Once it has been determined that the base material is suitable for powder actuated tool fastening the fastener selection depends on the application. "What" is to be fastened to the base material.



Selecting the length of nail when fastening to concrete:

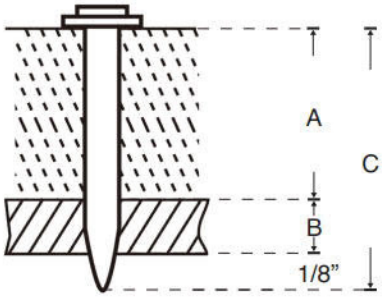
A. Thickness of item being fastened

B. Depth of nail penetration into base material

C. Length of fastener (A+B=C)

NOTE:

- Fastener depth of penetration "B" would be a minimum 3/4", maximum 1-1/2" depending on the hardness (density) of the concrete or block base material.
- Minimum edge distance for basic application is 3". For 2×4 sill plate application it is 1-3/4" (Refer to ICBO Report #ER-4535)
- Minimum spacing is 4" on center.
- Minimum base material thickness is 4".



Selecting the length of nail when fastening to steel:

A. Thickness of item being fastened

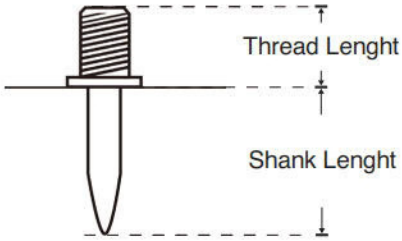
B. Thickness of steel base material

C. Length of fastener (C=A+B+1/8”)

NOTE:

- In order to get maximum holding power, the fastener point should completely penetrate the opposite side of the steel base material.
- Minimum edge distance for fasteners with a .145 shank diameter is 1/4”
- Minimum spacing is 1” on center.
- Minimum steel thickness is 5/32” to maximum 3/8”

When fastening a thread stud directly to concrete or steel, use the same principals as for the nail to determine what the “shank length” of the thread stud fastener should be.



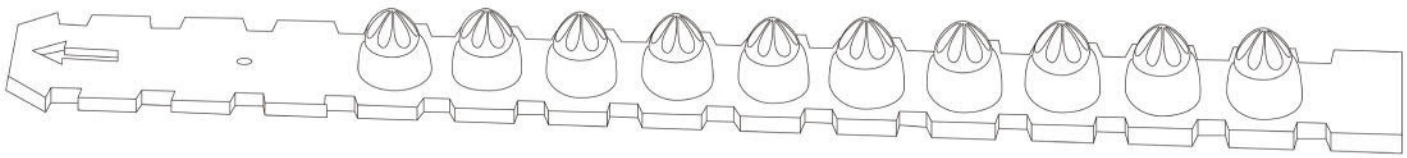
NOTE:

- When fastening directly to concrete or steel, always use the spall shield/stabilizer attached to the nosepiece to protect yourself and bystanders from flying concrete spall or metal particals.

POWER LOAD SELECTION

The correct power loads (cartridges) designed for use in the EXP100 tool are .27 cal. (6.8/11mm) short crimped collated in a special color coded, long tab plastic strip.

Catalog Number	Color	Power Level
L27-3	Green	Light
L27-4	Yellow	Medium
L27-5	Red	Heavy



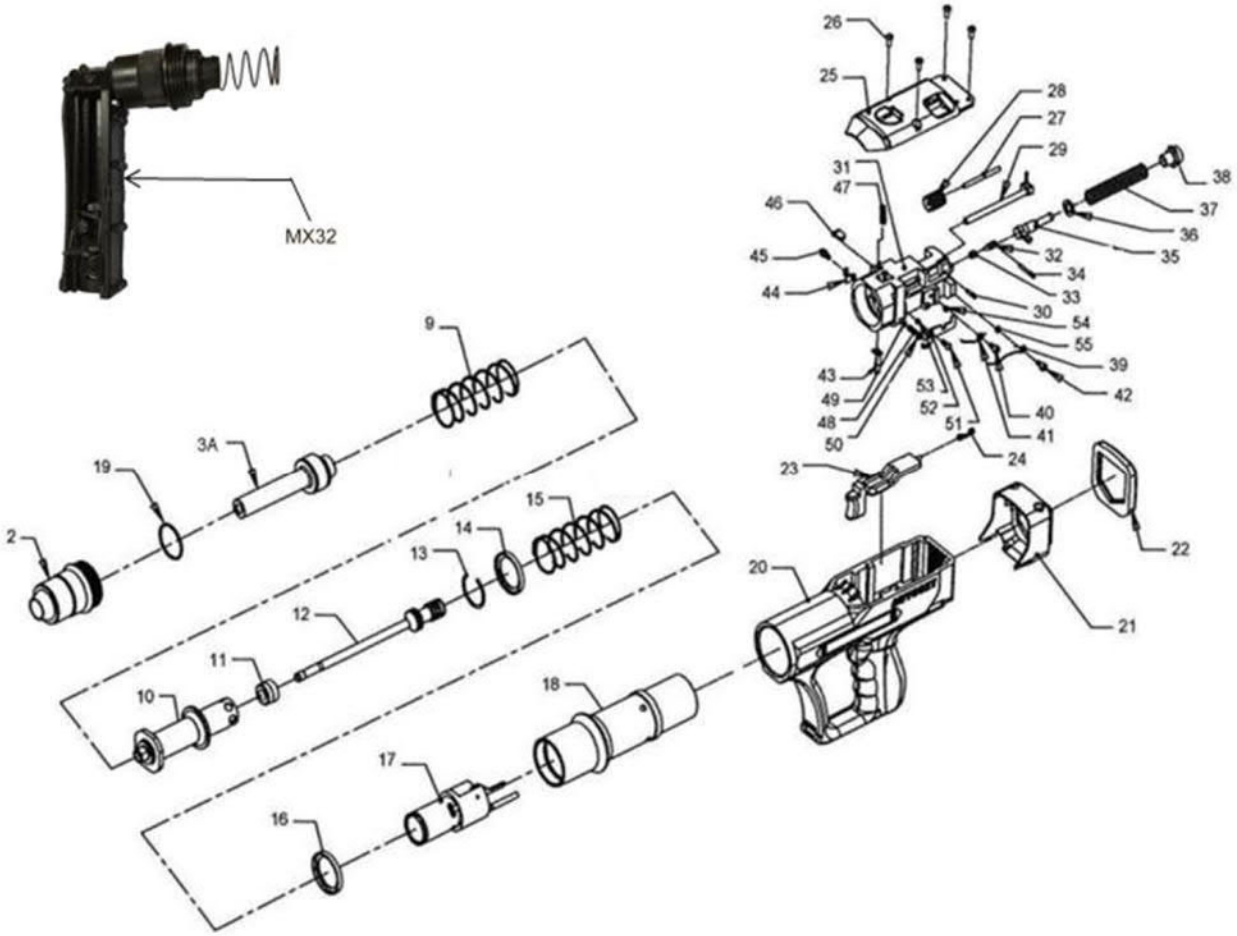
For personnel safety and to avoid tool malfunction and/or damage do not attempt to use any other type of power load in the EXP100 tool.

In selecting the proper power level cartridge to use for any application, it is important to start with the lowest power level, green, with the power level adjustment dial set to its lowest position. If the first test fastener does not penetrate to the desired depth continue increasing the power using the power level adjustment dial and/or increasing the cartridge power level strength to yellow or red by single steps until the proper penetration is obtained.

NOTE:

- If you have reached the strongest power level possible and the fastener still doesn’t fully set, consider shorting the fastener length, keeping to the minimum 5/8” depth of penetration into hard concrete, or the point protruding out the back side of the steel base material.

EXP100
Tool Part List



No.	Description
2	Front Collar
2-IF	Front Collar-IF
3A	Nosepiece Ass'y
3-IF	Nosepiece Ass'y-IF
9	Guide Spring
10	Front Piston Cylinder
11	Buffer
12	Piston
12-IF	Piston-IF
13	"C" Buckle
14	Front Loop
15	Compression Spring
16	Rear Loop
17	Rear Piston Cylinder
18	Casing
19	O-Ring (Ø2x38mm)
20	Housing
21	Housing Cover
22	Rubber Pad

No.	Description
23	Trigger
24	Trigger Spring
25	Upper Cover
26	Threaded Pin
27	Adjust Axle
28	Adjust Wheel
29	Adjust Dial
30	Adjust Pin
31	Firing Pin Holder
32	Firing Pin Spring
33	Firing Pin
34	Firing Pin Spring Fix
35	Release
36	Release Spring Ring
37	Release Spring
38	Release Spring Holder
39	Push Spring
40	Hex Socket Cap Screw
41	Pull Spring

No.	Description
42	Hex Socket Cap Screw
43	Advance Bar
44	Gear Plate
45	Hex Socket Cap Screw
46	Gear Plate Spring
47	Advance Bar Spring
48	Steel Ball
49	Advance Spring
50	Headless Screw
51	Round Hex Screw
52	Release Plate
53	Washer Ø4xØ5x1.6
54	Washer Ø4xØ5x3.1
55	Washer Ø4xØ5x3.1
MX32	Pin Magazine (For Length 16~32mm)