

Expansion Box Instructions & User's Guide

Introduction

Thank you for investing in a North Star Expansion Box. The Expansion Box is an extruder accessory that allows the user to produce larger extrusions from their North Star 4" extruder. This is accomplished by adapting the bottom portion of a detachable box to fit North Star's selection of 6 inch Dies. We have a selection of stock 6" dies available & custom dies are quickly made and inexpensive.

What's Included in the Kit

Please take a few moments to make yourself familiar with the items included in the expansion box kit. The kit includes: The expansion box, die retainer ring and mounting bolts, hex wrench, three piece spacer board and lag bolts.

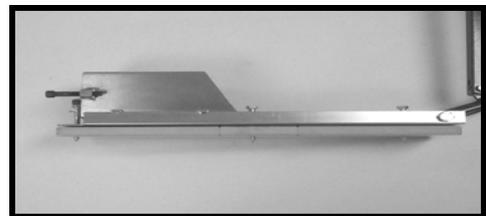


Getting Started

Installing The Expansion Box Spacer

If you have purchased the expansion box as an add on to your existing North Star extruder, or if you have purchased the expansion box along with the purchase of a new North Star extruder, the extruder mounting requirements are the same. The expansion box requires the extruder to be extended away from its typical mounting surface to allow room for the back of the expansion box.

Included with your expansion box kit is a three piece puzzle looking board called the expansion box spacer. Assemble this board as if you were constructing a puzzle. This board when assembled will be approximately the same size as the back of the extruder. Place the expansion box spacer between the back of the extruder and your mounting surface. Align the mounting holes of the expansion box spacer with the holes in the back of the extruder. Use the three extra long lag bolts included with your kit to mount the spacer / extruder combination.



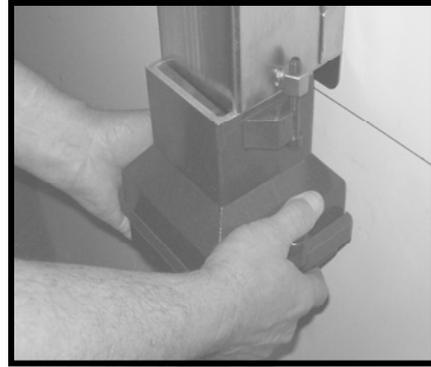
Mounting Dies on the Expansion Box

Position the expansion box with the 6" side facing up. Place the die on the expansion box as shown. The outer diameter of the expansion box will fit into the small channel in the outer portion of the die. Make sure the small half moon shaped cut-outs in the die align with the mounting lugs on the bottom of the expansion box. Place the die retainer ring on top of the die and secure the die retainer ring to the expansion box using the two hex head bolts. Use the hex wrench supplied to tighten the bolts.



Mounting the Expansion Box to the Extruder

Unscrew the mounting bolts on the bottom of the extruder to allow the slots in the upper portion of the expansion box to easily slide onto the bolts. Align the top portion of the expansion box to the clay box on the extruder. Tighten the bolts securely, but do not over tighten. No gasket is required, but if you notice excessive amounts of clay escaping between the extruder and the expansion box, slightly tighten the appropriate bolt. Again, do not over tighten. Small amounts of clay squeezing out at this junction are normal and you should not be concerned.



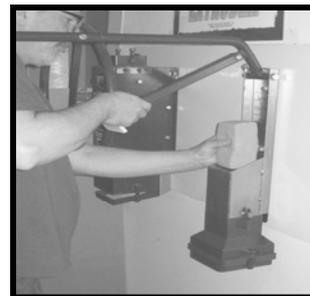
Extruding with the Expansion Box

USE SOFT CLAY! - Most problems with extrusions can be linked to clay with low moisture content. If it's easy to throw, it's perfect for extruding.

Preloading the Expansion Box

Preloading of the Expansion Box with soft clay is required before actual extruding can take place. Form 3 loaves of soft clay slightly smaller than the barrel of the extruder. Load clay as shown, pushing clay into the expansion box with the extruder plunger until clay fills both the expansion box and the barrel of the extruder.

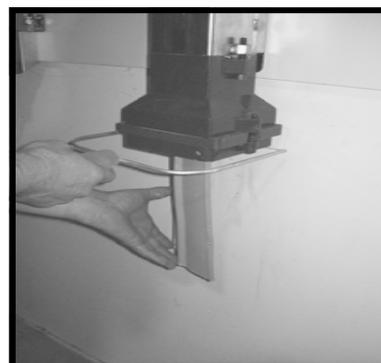
To achieve a fully formed non-distorted extrusion the user must extrude enough clay through the expansion box to establish a continuous clay column where no voids or air pockets exist. It is normal that as you begin, your extrusion will at first want to curl - cut off and recycle this portion when your clay is firm enough to handle. As you continue extruding it will straighten out on its own.



Removing the Extrusion

The extrusion may be removed with a wire tool or similar device. Use the bottom of the die retainer ring for your cut-off reference.

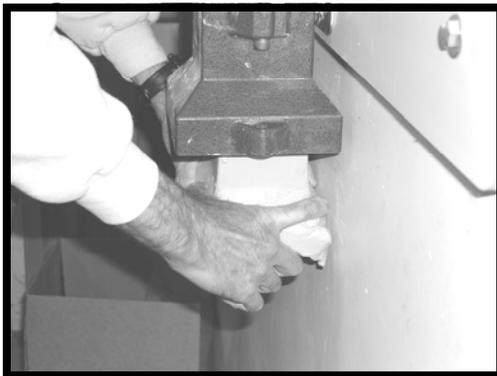
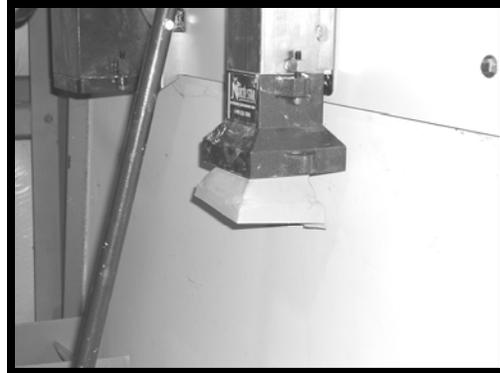
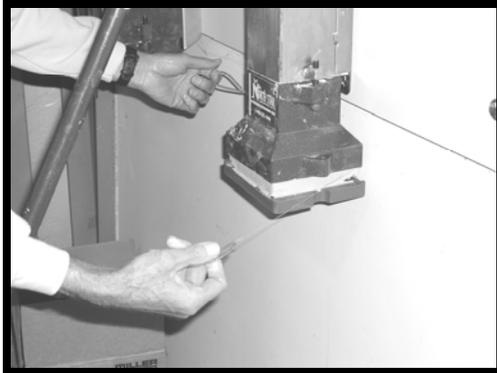
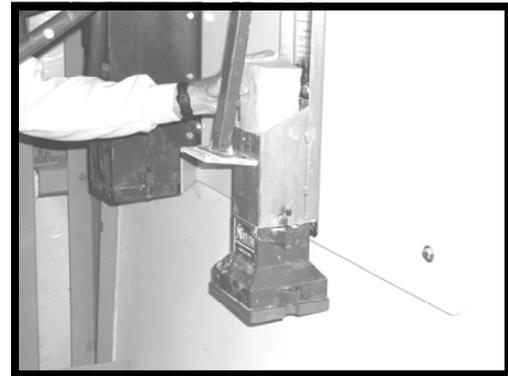
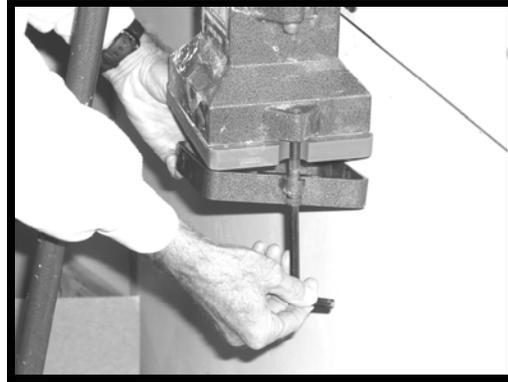
Larger extrusions are more likely to be damaged when handling. Allow the extrusion to dry somewhat longer than usual before removing from the expansion box (a hair dryer is an excellent way to speed up the process) and use a supportive transporting device such as a hod or mold to move your extrusion to your work table.



Cleaning the Expansion Box

Removing the Clay

- 1.) Push the extruder plunger down to the end of its travel.
- 2.) Remove the die retainer ring.
- 3.) Add clay to the clay barrel.
- 4.) Press down on the handle until the clay column separates the die from the bottom of the expansion box - about 1 inch. You may have to increase this separation a bit more if your die includes the die brace.
- 5.) Wire-off the die.
- 6.) Add clay to the clay barrel again.
- 7.) Push the extruder plunger down to the end of its travel. The clay that was shaped by the expansion box should now be visible. Grab the protruding clay column, and with a downward rocking motion pull the clay from the expansion box. Normally, this effort will also remove the last inch of clay from the extruder clay box as well.
- 8.) Remove the expansion box to clean the junction of the expansion box and the extruder, if necessary.



Custom Extruder Dies

DIRECTIONS: Remove and copy the following page. Simply draw on the outline exactly what is wanted in actual size, centered on the "X". Make the clearest, sharpest lines possible. Ink from a fine point drawing pen is ideal. Give all available dimensions. If we have even a few, we can usually infer the others very accurately.

Notice that the Standard die template is superimposed over that for the Big Blue die. The z-shaped black line represents the Z-brace path on the Standard die. Ignore it if designing a solid die. The brace path is straight on Big Blue dies. Again, ignore it if designing a solid die.

If you give a contact name and number, we will call if we do not understand what is wanted or if we have a suggestion about another way to do it.

We make dies of almost any material for any hand or power extruder or pug mill. We routinely work in aluminum, plastic, wood, steel, hardboards, stainless, etc.

For machines other than North Star extruders, simply trace the outline of any existing die (including all mounting holes) on plain paper. Then draw the cavity desired and specify the material. Again, give all available dimensions. Handle these by mail only. Do not fax! We will contact you with a quote before proceeding.

**Mail drawing to:
North Star Equipment
P.O. Box 189,
Cheney, WA 99004**

or fax to (800) 447-3293 or (USA) (509) 235-9203. Allow 14 days.

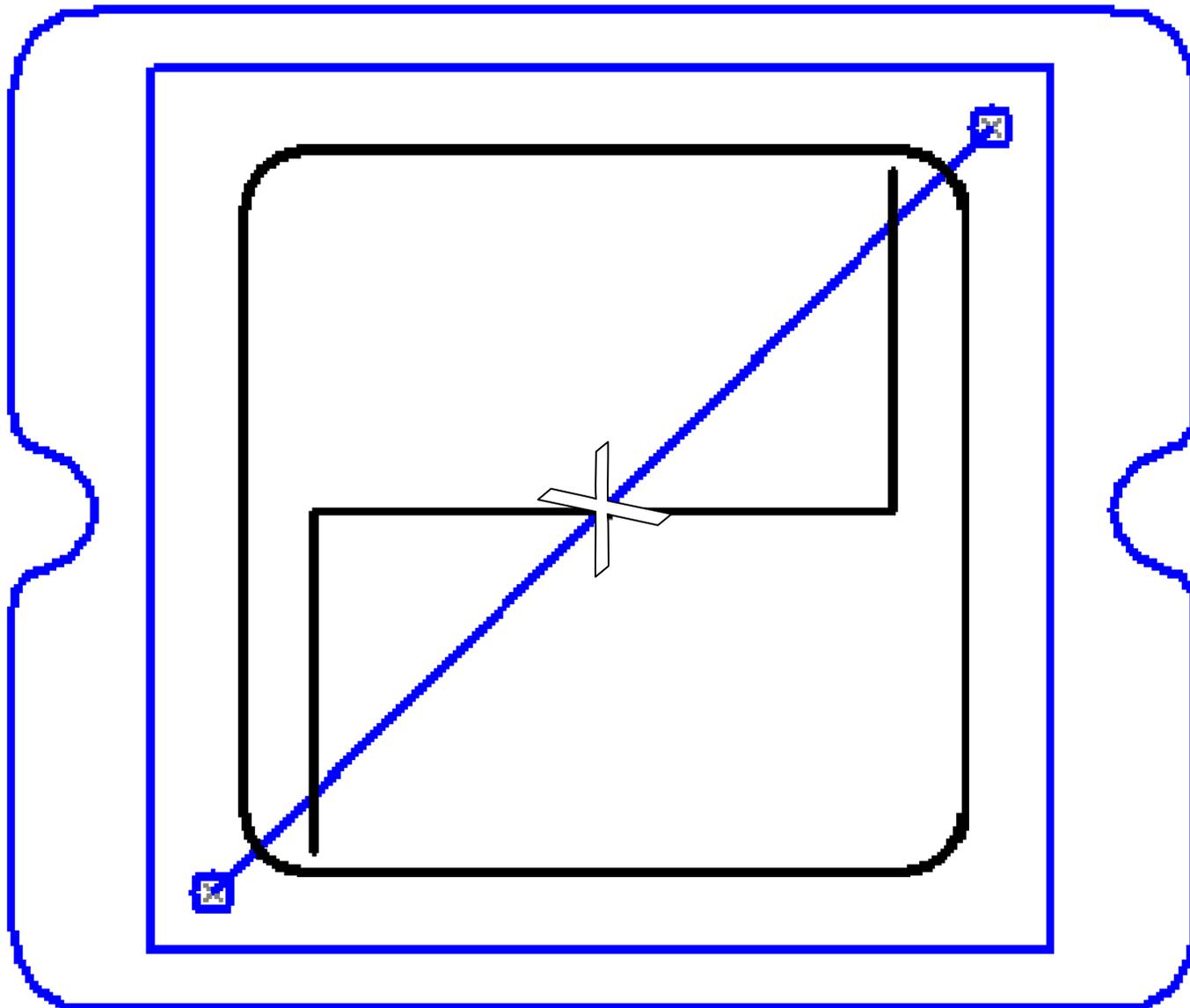
Custom Die Price Schedule

Effective March 1, 2008 and subject to change without notice. No stock numbers assigned - order by description. Allow 14 days. North Star reserves the right to add a surcharge on very complicated dies.

Customer will be notified if that is necessary.

Custom dies for extruders or pug mills other than North Star are by quote only.

| Description | Price per cavity |
|--------------------------------------------|------------------|
| Standard (4") solid die from your drawing | \$25.00 |
| Standard (4") hollow die from your drawing | 45.00 |
| Big Blue (6") solid die from your drawing | 45.00 |
| Big Blue (6") hollow die from your drawing | 65.00 |



Please type or print clearly as possible.

Name: _____ Phone: () _____

Mailing address: _____

Dealer: _____

Best time to contact: _____