A job well done, begins with knowing what you need
Shaper Cap / Die Issues

• Section Transitions and Lubrication
• Ordering the correct size
• Avoid Mistakes
• Reduce Downtime
And We Won’t Waste Money!
attention to detail
Shaper Cap Set-Up
Core Installation
Cores should never extend beyond the face of the shaper cap!!!
Correct Position of Core Tips

FROM FLUSH TO 1/16" INSIDE SHAPER CAP
Use the correct parts for the job
A die with all the correct parts
Incorrect transition to shaper cap
Results of a poor transition

- Irregular wear
- Premature wear
- Quality Issues
- Lubrication Issues
Shaper Cap Transition

INCORRECT TRANSITION

INCORRECT TRANSITION

CORRECT TRANSITION

SHAPER CAP OPENING TOO SMALL

LIP GREATER THAN 1/8"

SHAPER CAP OPENING TOO BIG
Shaper Cap Ordering Form

**FRONT OPENING OF SHAPER CAP**

- **A** Height in corners
- **B** Height in center
- **C** Width in corners
- **D** Width in center
- **E** Corner radius
  - Standard corner radius is 1/32". Enter special radius below if required.
Shaper Cap Ordering Form

**CROSS SECTION OF SHAPER CAP**

**F** **OPTIONAL FLAT CAP:**
Optional 1" Flat at cap front opening extends useful life of cap in some cases Select below if desired.

**G** **LENGTH:** Standard length of Shaper Cap is 4-1/4". If you require a custom length (from 2-1/4" to 10") enter below.

**NOTE:** All rear openings should be 1/8" HIGHER and WIDER than front opening of die base.
DIE OPENING

CAUTION

You must provide die base opening dimensions (what they are now, NOT when the base was new). Failure to do so could drastically reduce the life of your new shaper cap.

NOTE: The die base opening must never be WIDER or HIGHER than the rear opening in the shaper cap.
Lubrication Using the Wrong Pump?

V-1 Lubrication Pump

- A single pump
- Simple and affordable
- Reasonably good for oil control in die back or die front
- Good for oil based lubricants only
Lubrication Pump Application

V-2 Lubrication Pump

- A single pump that provides:
  - Independent flow and pressure control at the rear of the die
  - Independent flow and pressure control at the front of the die
  - Precise control and durability with water or oil based lubricants
Installation Location Error
Extruder Auger Liners
Order and Orientation

• Pay attention to the order
  • Make notes/take pictures when removing parts
• Parts can be installed 180 degrees off
• Parts can be installed on shafts reversed
Vacuum Systems
DO NOT REVERSE THE FILTER HOUSING
Shredder Installation
Replace all required components
Pug-Sealing Area

- Shredder and Sealing Collar
- Sealing Die Retaining Ring
- Sealing Die
- Renewable Sealing Auger Case
- Sealing Auger Section
- Upper Vacuum Chamber Casting
- Two Rounds Non-Wearing Packing Between Shredder and Sealing Core
- Sealing Core
FRONT KNIFE PITCH

ALIGN WITH THE WING OF THE SEALING AUGER
Pug Knife Pitch
Material Flow and Mixing
Proper Knife Installation

- Knife Blade
- Knife Shank
- Pugmill Shaft
- Shank Bolt

1/4 Inch Gap Minimum

Desired Pitch + 1/8"
Identifying the Part

FIG 5: 90ADEX liner with engraving indicating the front side

ENGRAVING ON FRONT OF MACHINE
Even Feeder
NOTICE
Shaft No.1 & 3 have Spirals No.1 & 2 installed alternately.
Shaft No.2 & 4 have Spirals No.3 & 4 installed alternately.

Order of Installation
### Even Feeder Spiral Installation Chart

**SINGLE 88E "FRONT DISCHARGE"**

100% NOTCHED OR 100% FULL SPIRALS - 22 SPIRALS PER SHAFT

SPIRAL INSTALLATION FOR A FOUR SHAFT SEGMENT

<table>
<thead>
<tr>
<th>START</th>
<th>GEAR BOX END</th>
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<tbody>
<tr>
<td>O-RING RETAINER SPACER</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
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</tr>
<tr>
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**SINGLE 88E "FRONT DISCHARGE"**

<table>
<thead>
<tr>
<th>QTY</th>
<th>DESCRIPTION</th>
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<tr>
<td>22 EA.</td>
<td>#1 NOTCHED SPIRALS</td>
<td>NFC S 1010 PC</td>
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<td>NFC S 1011 PC</td>
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<tr>
<td>22 EA.</td>
<td>#3 NOTCHED SPIRALS</td>
<td>NFC S 1012 PC</td>
</tr>
<tr>
<td>22 EA.</td>
<td>#4 NOTCHED SPIRALS</td>
<td>NFC S 1013 PC</td>
</tr>
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</table>

**OR**

| 22 EA. | #1 FULL SPIRALS | NFC S 1000 PC |
| 22 EA. | #2 FULL SPIRALS | NFC S 1001 PC |
| 22 EA. | #3 FULL SPIRALS | NFC S 1002 PC |
| 22 EA. | #4 FULL SPIRALS | NFC S 1003 PC |
| 6 EA. | CHOPPER KNIVES | NFG S 1000 PC |
| 6 EA. | CHOPPER KNIVES | NFG S 1001 PC |

**OR**

| 4 EA. | OPTIONAL SLEEVES | FRE-S-1260-SS |
| 4 EA. | O-RING RETAINER SPACE | FRE-S-1300-SP |
| 4 EA. | SET COLLARS | DDE-S-0203-DU |

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Machine Installation

Starrett Model 98 Machine Level
Online Resources


Documents and Downloads

More online technical resources

You can pull up machine drawings, lubrication charts, quick tips for die balancing and other info you need for optimal machine performance and reliability. Check out the new Steele technical resources page — we’ll be adding more documents as they become available.
# General Information

## Technical Service Bulletins (TSBs)

### General TSBs
- TSB GEN 0001 Extrusion Efficiency
- TSB GEN 0002 Extrusion Efficiency with no Slug Cutter
- TSB GEN 0003 Extrusion Steam Events
- TSB GEN 0004 Hardcaking
- TSB GEN 0005 MOR Testing
- TSB GEN 0006 Welding AR Plate
- TSB GEN 0007 Belt Tensioning and Maintenance of Drive Systems
- TSB GEN 0009 Required Safety Grating of Pug Sealers & Pug Mills

### General De-airing Equipment TSBs
- TSB DXX 0001 Inspecting Thrust Bearing Cover Plate and Locknut
- TSB DXX 0002 Replacing Gearbox Oil Filter
- TSB DXX 0005 Installing Pug Shanks and Pug Knives
- TSB DXX 0006 Installing Sealing Core to Prevent Vacuum Leaks
- TSB DXX 0007 Design and Maintenance Of Feedroller Shear Pin
- TSB DXX 0008 Installation of Pulleyshaft Seals
- TSB DXX 0009 Gear Oil Recommendations
- TSB DXX 0011 When to Replace Wear Parts

### TSB Support Videos
- TSB DLM 0003: Installing 90BPS Sealing Augers
- TSB DSD 0004: Replacing the CAT-Seal in the JC Steele 90AD Extruder
- Installation of the Steele Sealing Core, Packing and Shredder for the Steele Extruders
Online Resources

45 SERIES
51 US Tons/hr
47 Metric Tons/hr
LEARN MORE

75 SERIES
59 US Tons/hr
54 Metric Tons/hr
75 SERIES BROCHURE

90 SERIES
90 US Tons/hr
81 Metric Tons/hr
LEARN MORE
90 Series Information

90-Series Documents and Downloads

Lubrication Charts (PDFs)
- 90AD Extruder
- 90AS Pug Sealer
- 90BDV Pug Sealer
- 90DB Pug Sealer

Technical Service Bulletins (PDFs)

EXTRUDERS:
- Removing Thrust Assembly (TSB DSD 0001)
- Removing Thrust Assembly – with Sled (TSB DSD 0002)
- Replacing Bearings in Thrust Assembly (TSB DSD 0003)
- Replacing the Cat Seal (TSB DSD 0004)
- Replacing Augers and Liners (TSB DSD 0005)
- Assembling the Feedroller Shaft (TSB DSD 0007)
- Pulleyshaft Seal Replacement Procedure (TSB DSD 0008)
- Installing the 3690 Hydraulic Die Changer (TSB DSD 0009)
- Replacing the Hydraulic Cylinder (TSB DSD 0010)
- Commonly Accessed Fasteners (TSB DSD 0011)
- Replacing the Rear-most Feed Roll Shaft Bearing (#20) (TSB DSD 0012)

PUG SEALERS:
- Commonly Accessed Fasteners (TSB DLM 0002)
- Procedure for Installing 90BPS Sealing Augers (TSB DLM 0003)
- Pulleyshaft Seal Replacement Procedure (TSB DSD 0008)

Instructional Service Videos
- Replacing the CAT-Seal in the 90AD Extruder
- Sealing Core, Packing and Shredder Installation
- Installing 90BPS Sealing Augers

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8. Remove point auger by pulling off of shaft.
9. Install puller rods in the liner adaptor (41LAR) and pull out front of the barrel.
10. Do the same thing to remove the adaptor (41LARCV).
    - Figure 4 refers to the HCV model, though this same procedure can be applied to the HTR model.
11. Pull the auger (72ZCV) off the shaft.
12. Slide the wedge liner (1WCV) out of the barrel.
13. Pull the auger (6ZCV) off of the shaft.

TSB DSD 0006
Rev. 0
7 Aug 2018

14. Remove the other augers (5ZCV, 4Z, 3Z, 2Z, 1Z) in the same way.
15. Clean auger shaft.
16. Coat auger shaft with grease or anti-seize.
17. Remove all of old liners from adaptors and clean adaptors (inside and outside).
18. Install a 1/4" bead of silicone on the rear hub of each auger and let dry.
19. The rear of the auger is the side that has the number on it.
20. Install the auger (1Z) on the shaft and push it all the way back.
21. Install the auger (2Z) so the wing will match up to the wing of the auger (1Z).
    - If the wings do not match up, remove the auger (2Z) and turn 180 degrees and reinstall.
22. Install the augers (3Z, 4Z, 5ZCV, 6ZCV) in the same way.
23. Install the liner (1WCV) with the tapered side to the rear of machine.
24. Install the liner (2W) in the adaptor (41LARCV) with the engraved letter or number facing the front.
TSB Auger Illustration
Online Resources

Installation of the Steele Sealing Core, Packing and Shredder

Published on Sep 27, 2018
Installation of the Steele Sealing Core, Packing and Shredder for the Steele Extruders
# Contact List

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>PHONE NUMBER</th>
<th>EMAIL</th>
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<td><a href="mailto:jharris@jcsteele.com">jharris@jcsteele.com</a></td>
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<tr>
<td>Emergency Pager</td>
<td>Allow 30 minutes for Return Call – leave your full phone number, including area code</td>
<td>704-832-0455</td>
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</tr>
<tr>
<td>Toll Free -</td>
<td>Receptionist</td>
<td>800-278-3353</td>
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</table>

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