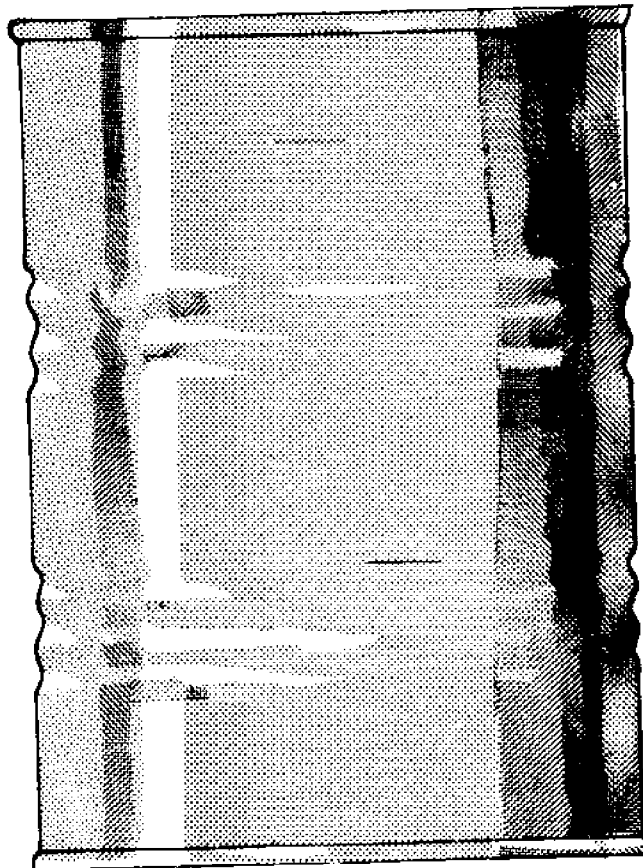


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Using Cans in Home Food Preservation

U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20252



Using Cans in Home Food Preservation

by
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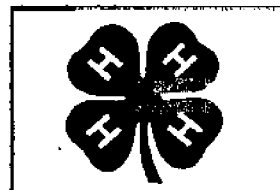


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Using Cans in Home Food Preservation

The information in this publication is provided to assist you in the use of cans as a container in home food preservation and to support information provided to consumers participating in the Cooperative Extension Can Seam Inspection Program. This material is not a recommendation for the use of cans instead of jars. It is meant to help you judge how well this type of container will work for you.

The "how-to" instructions for preserving specific types of foods in cans are not included in this publication. Cans may have plain, C-enamel ("seafood"), or R-enamel linings. Use the correct type of can for the food you plan to preserve. Contact your nearest University of Alaska Cooperative Extension or Marine Advisory Office for recommendations and publications about home food preservation.

INSPECTING CANS BEFORE USE

Check all cans, lids, and lid sealing material (gasket compound) before use in food preservation. Do not use cans or lids that are bent or dented, especially if there is damage to the edges where the lid and can seam are formed.

Examine can side and bottom seams for damage. Then check the lid sealing material. The sealing material should go completely around the lid sealing edge.

Do not wash can lids before use. If the lids are dusty wipe them with a damp cloth.

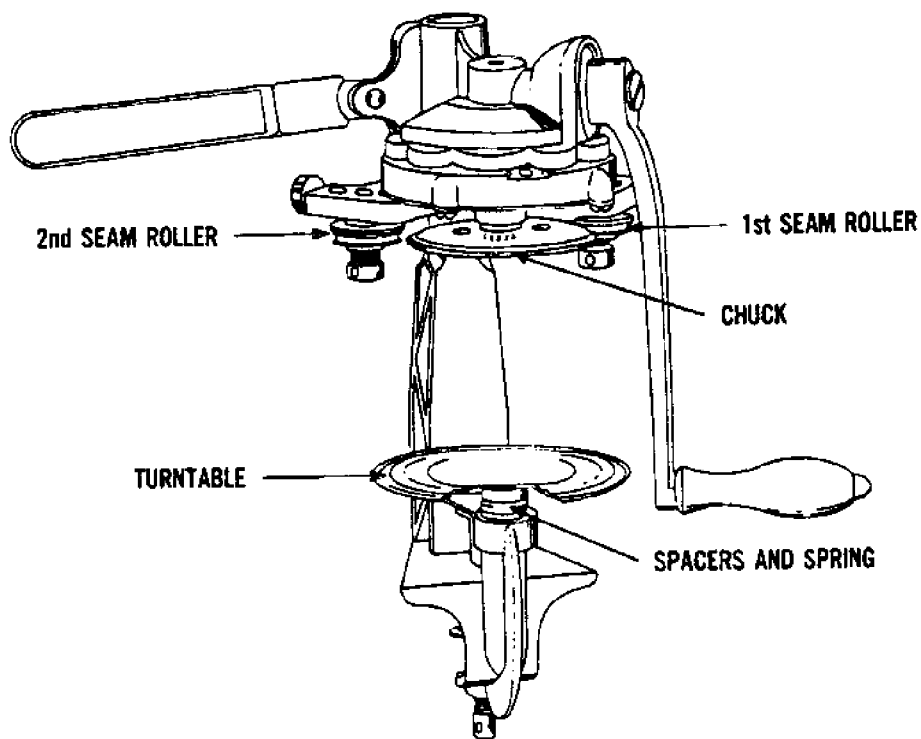
Do not boil or heat lids before use. The sealing material on can lids is not prepared like jar lids.

Damaged lids, lid sealing material, or can bodies may prevent airtight seams and allow spoilage of the food after processing.

THE CAN SEALER

The extra piece of equipment needed for using cans in home food preservation is the manual home can sealer. Read the can sealer instructions carefully. You will need to know:

1. the parts of the sealer;
2. how to put together and adjust the sealer for the size can you plan to use;
3. how to adjust the seam rollers and turntable for good quality seams.
4. how to visually inspect your can seams and adjust the sealer when problems occur.

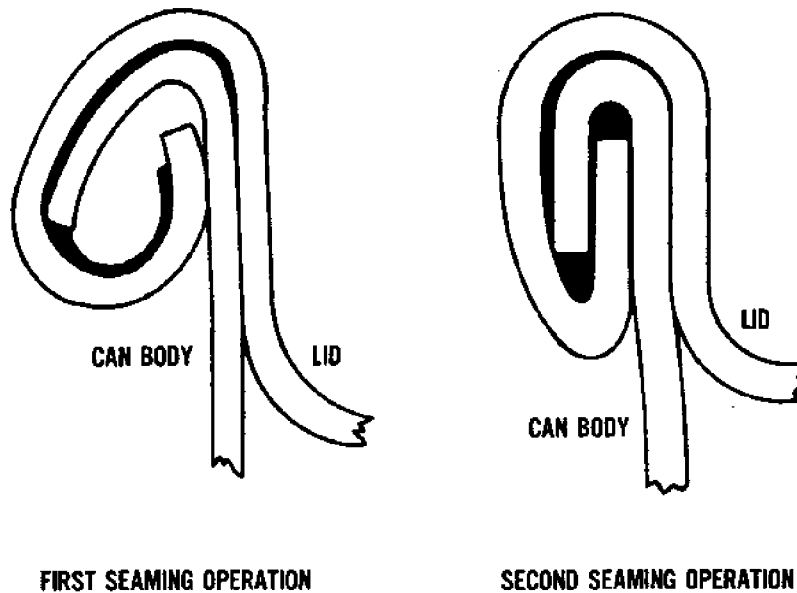


THE CAN SEAM

A double seam attaches the can lid to the can body. The seaming operation, which has two parts, is carried out by using a can sealer.

The double seam has five layers of metal (seven at the side seam) that are curled, or folded, and then pressed together. The first seaming operation interlocks the lid edge and sealing material with the can body edge by curling them together. This step is made by the can sealer's first seam roller operation. It is important that this first seaming operation be correctly formed because it cannot be corrected during the second part of the seaming operation.

The second seam operation flattens and smoothes the seam by pressing the layers of metal tightly together. This operation also squeezes the lid sealing material into the spaces between the metal to give an airtight seal. This part of the seam is made by the can sealer's second seam roller operation.



Visual Seam Defects

DROOP

Seam drop is a smooth overhang along the bottom of the normal seam. Droop gives the bottom edge of the seam a scalloped look. This defect may occur at any point around the seam but is found most often where the can seam crosses the side seam of the can body. A very slight droop at the side seam may be normal because of the extra thickness at this point.

Read sealer instructions before adjusting for defective seams.

Possible Causes

Turntable pressure too great.

First seam roller operation too loose.

Food trapped in seam.

Defective cans (bent or dented).

First seam roller worn.

Possible Solutions

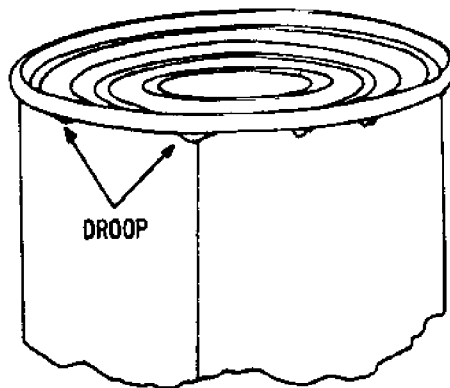
Decrease turntable pressure. Check number of spacers needed for can size.

Tighten first seam roller operation.

Clean can edge carefully before seaming on lid.

Inspect cans for damage before using.

Replace seam roller.



Visual Seam Defects

VEE

Seam vee is a sharp, pointed overhang along the bottom edge of the normal seam. The presence of vees means the lid and can body edges are not interlocking correctly.

Read sealer directions before adjusting for defective seams.

Possible Causes

Turntable pressure too great.

First seam roller operation too loose.

Food trapped in seam.

First seam roller operation too tight.

First seam roller worn.

Possible Solutions

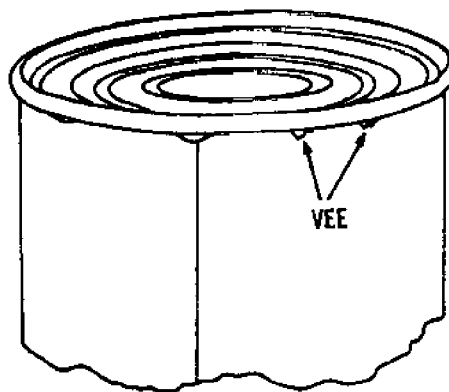
Decrease turntable pressure. Check number of spacers needed for can size.

Tighten first seam roller operation.

Clean can edge carefully before seaming on lid.

Loosen first seam roller operation.

Replace seam roller.



Visual Seam Defects

SHARP SEAM AND CUTOVER

A sharp seam is a sharp edge at the top inside portion of the seam. A sharp seam can usually be felt by running a finger around the inside part of the lid seam. This defect can be the first indication of cutover, where the seam is fractured. Sharp seam and cutover have the same possible causes and possible solutions.

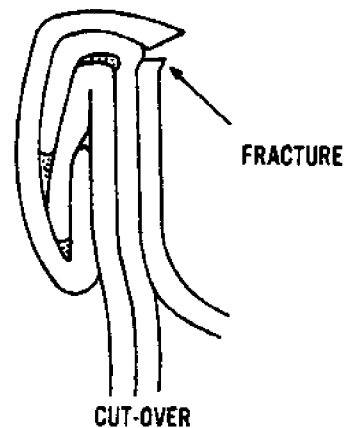
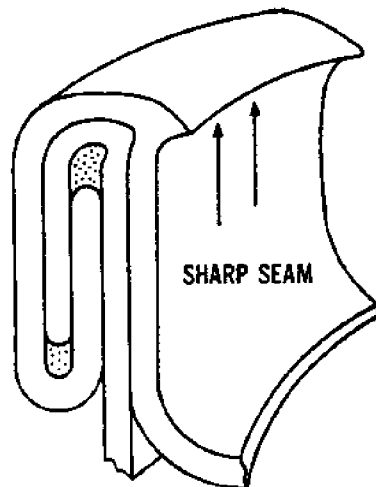
Read sealer directions carefully before adjusting for defective seams.

Possible Causes

- First or second seam roller operations too tight.
- Food trapped in seam.
- Turntable pressure too great.
- Worn seam rollers and/or chuck.

Possible Solutions

- Loosen first and/or second seam roller operations.
- Clean can edge carefully before seaming lid.
- Decrease turntable pressure. Check number of spacers needed for can size.
- Replace seam rollers and/or chuck.



Visual Seam Defects

CUT SEAM

A cut seam is an extremely tight seam. The outer layer of the seam is fractured.

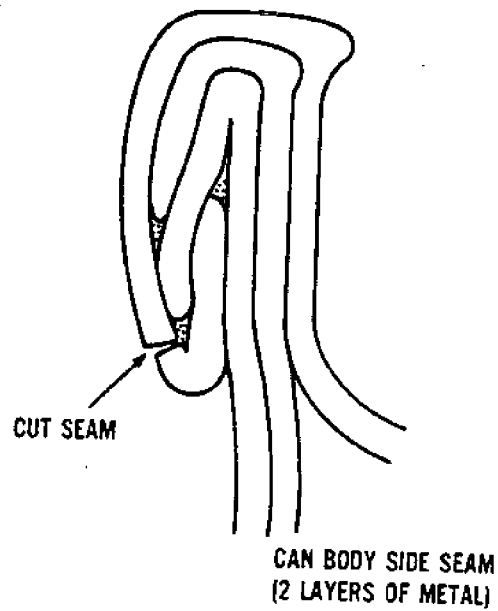
Read sealer instructions before adjusting for defective seams.

Possible Causes

First and second seam roller operations too tight.

Possible Solutions

Loosen first and second seam roller operations.



Visual Seam Defects

INCOMPLETE SEAM

The incomplete seam is a defect where the seam is unfinished, or loose, in sections around the completed seam.

Read sealer instructions carefully before adjusting for defective seams.

Possible Causes

Turntable pressure too high or too low.

Worn seaming chuck.

Seam rollers not rotating freely.

Oil or grease on seaming chuck or on turntable.

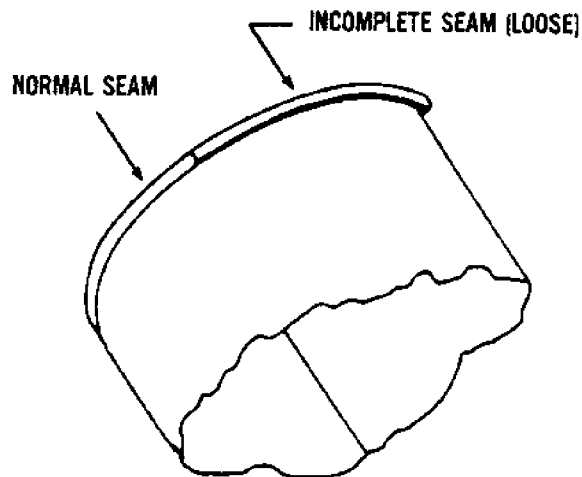
Possible Solutions

Check sealer instructions for number of spacers needed for can size.

Replace chuck.

Clean, oil, or repair seam rollers so they rotate freely.

Clean seaming chuck and/or turntable.



Visual Seam Defects

FALSE SEAM

The false seam is a serious defect that will cause leakage of food from the can. Visible on the outside of the can by close inspection, the lid and can edges are pushed flat against the can but are not hooked together.

Possible Causes

Bent or damaged lid or can edges.

Food trapped in seam and/or can overfilled.

First seam roller operation too loose.

Second seam roller operation too tight.

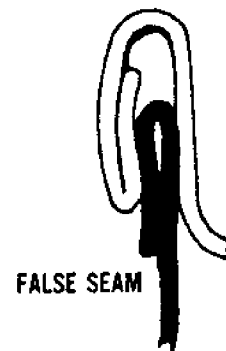
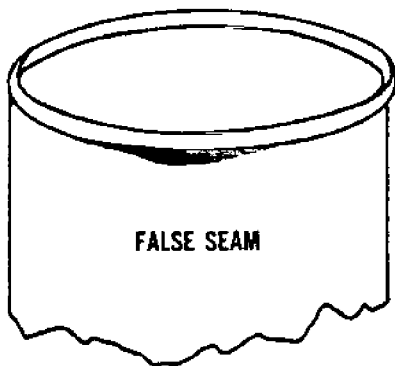
Possible Solutions

Inspect cans and lids for damage before using.

Clean can edge carefully before seaming. Check fill of can.

Tighten first seam roller operation.

Loosen second seam roller operation.



CAN SEAM MEASUREMENTS

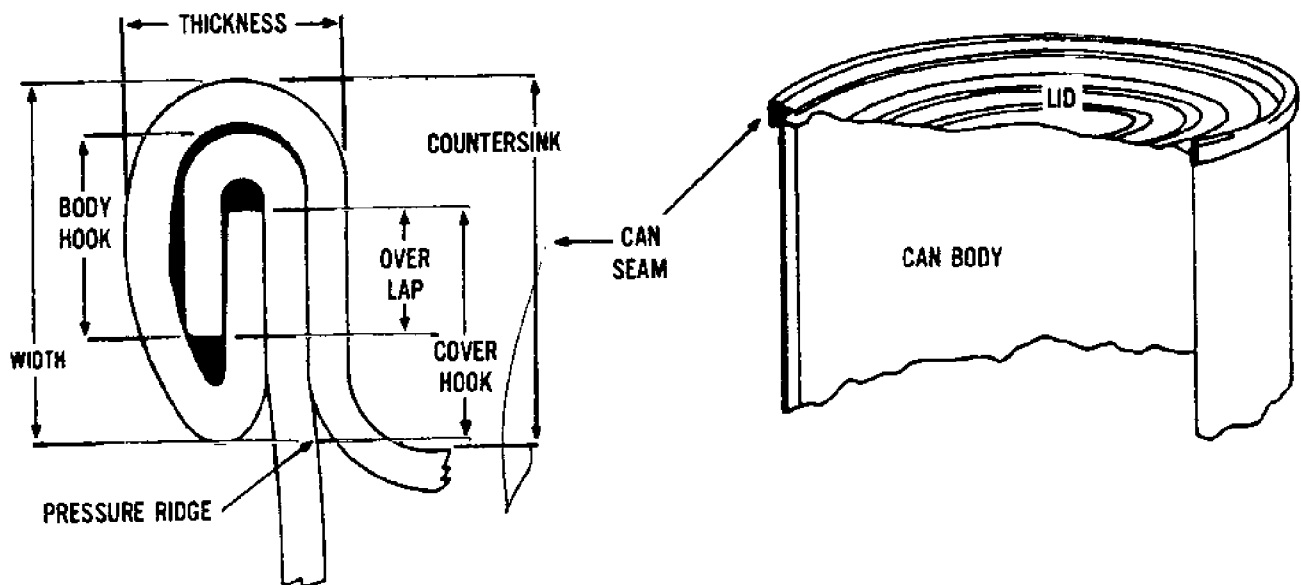
Seam measurements are taken on the parts of the can seam that hold the lid and can body together. These measurements show if a can seam is **ACCEPTABLE** or **UNACCEPTABLE**. Can seam measurements include: thickness, width, countersink, body hook, cover hook, overlap, wrinkle, and pressure ridge. The vacuum in a can may also be measured.

An **ACCEPTABLE** seam means the can seam is airtight. Airtight seams are needed to:

- 1) keep microorganisms out of the can;
- 2) prevent the can from leaking;
- 3) maintain a vacuum in the can.

An **UNACCEPTABLE**, or defective, can seam could:

- 1) prevent the seam from being airtight;
- 2) cause loss of the canned food through spoilage;
- 3) be a health hazard if the bacteria that causes botulism enters the can through the defective seam.



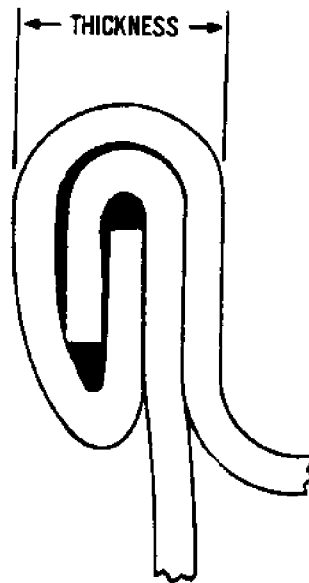
Can Seam Measurements

THICKNESS

Seam thickness is the measurement across the layers of metal at the top of the seam. This measurement is one indication of the tightness of the seam. An **ACCEPTABLE** thickness means the seam measurements are within the correct range for an airtight seam.

Read sealer instructions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LOOSE thickness (seam too loose)	Second seam roller operation too loose.	Tighten second seam roller operation.
TIGHT thickness (seam too tight)	Second seam roller operation too tight.	Loosen second seam roller operation.



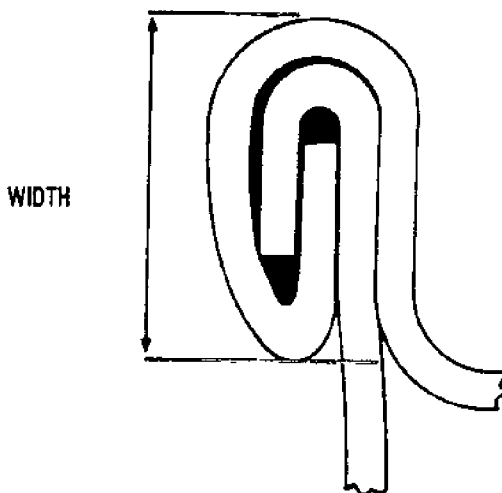
Can Seam Measurements

SEAM WIDTH

Seam width is also called seam length or height. This seam measurement is made parallel to the side of the can. Seam width is a second indicator of the tightness of the seam. An ACCEPTABLE width means the seam measurements are within the correct range for an airtight seam.

Read sealer instructions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LONG width	First seam roller operation too loose.	Tighten first seam roller operation.
	Second seam roller operation too tight.	Loosen second seam roller operation.
	Worn seam rollers.	Replace seam rollers.
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SHORT width	Second seam roller operation too loose.	Tighten second seam roller operation.
	Turntable (baseplate) pressure too great.	Decrease turntable pressure. Check number of spacers needed for can size.



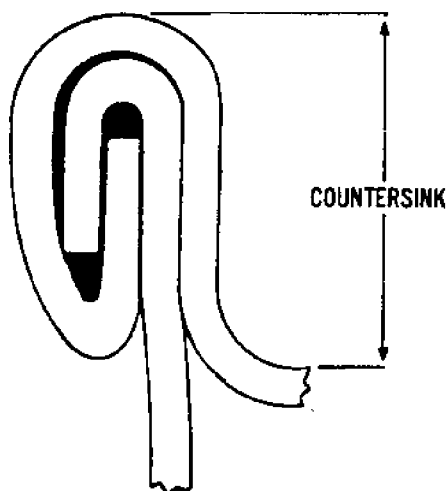
Can Seam Measurements

COUNTERSINK:

The countersink is measured from the top of the seam down to the top of the lid. An **ACCEPTABLE** countersink measurement generally means that the turntable (baseplate) pressure is correctly adjusted for the can size.

Read sealer directions before adjusting for defective countersink.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
DEEP countersink	Turntable (baseplate) pressure too great.	Decrease turntable pressure. Check number of spacers needed for can size.
	Incorrect chuck for can size being sealed.	Check sealer instructions for correct chuck size.
SHALLOW countersink	Turntable (baseplate) pressure too low.	Increase turntable pressure. Check number of spacers needed for can size.
	Chuck worn.	Replace chuck.



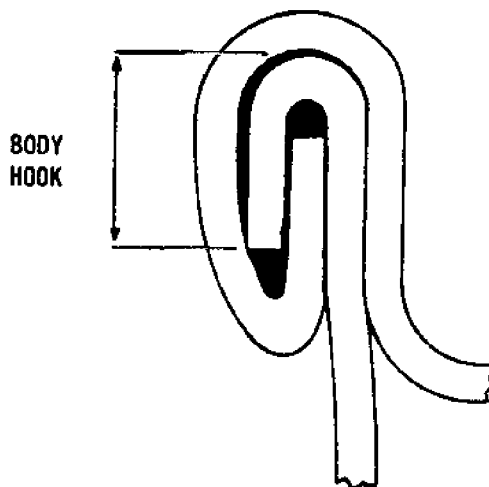
Can Seam Measurements

BODY HOOK:

The body hook of the seam is made from the top edge of the can body. The body hook interlocks with the cover hook (from the lid) to form the inside of the can seam. An ACCEPTABLE body hook means the seam measurements are within the correct range for an airtight seam.

Read sealer instructions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LONG body hook	Turntable (baseplate) pressure too great.	Decrease turntable pressure. Check number of spacers needed for can size.
SHORT body hook	Turntable (baseplate) pressure too low.	Increase turntable pressure. Check number of spacers needed for can size.
	First seam roller operation too tight.	Loosen first seam roller operation.
	Second seam roller operation too loose.	Tighten second seam roller operation.

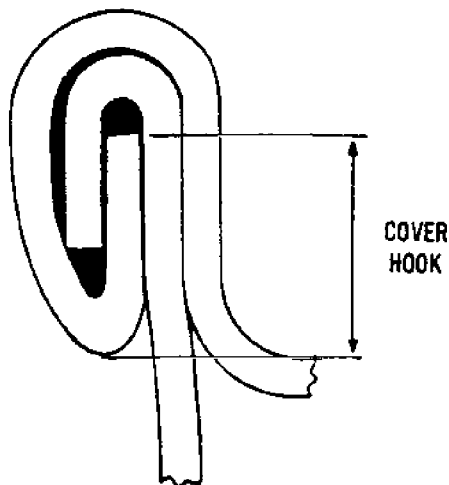


COVER HOOK

The cover hook of the seam is made from the edge of the can lid. The cover hook interlocks with the body hook (from the can body), to form the inside of the can seam. An ACCEPTABLE cover hook means the seam measurements are within the correct range for an airtight seam.

Read sealer directions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LONG cover hook	First seam roller operation too tight.	Loosen first seam roller operation.
	Turntable (baseplate) pressure too low.	Increase turntable pressure. Check number of spacers needed for can size.
SHORT cover hook	First seam roller operation too loose.	Tighten first seam operation.
	Turntable (baseplate) pressure too great.	Decrease turntable pressure. Check number of spacers needed for can size.
	First seam roller worn.	Replace seam rollers.



Can Seam Measurements

OVERLAP

Overlap is the distance the lid edge laps over, or interlocks, the can body edge inside the seam. Too little overlap may result in leakage, especially where the can/lid seam crosses over the side seam of the can body.

Defect

OVERLAP short

Possible Causes

Damaged can or lid edges.

First seam roller operation too tight.

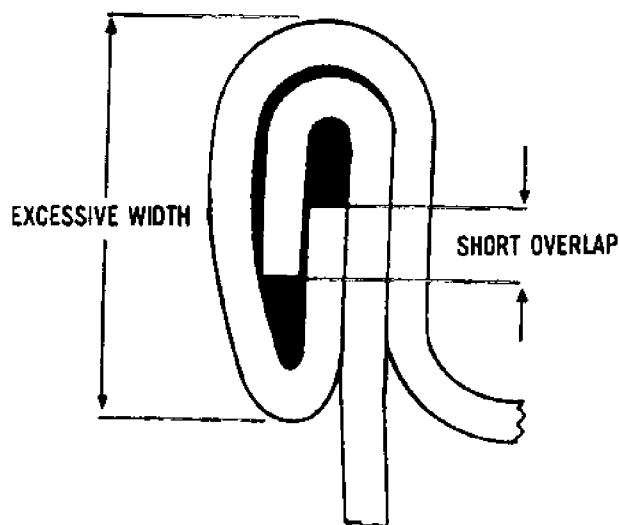
Turntable (baseplate) pressure too low.

Possible Solutions

Inspect cans and lids for damage before use.

Loosen first seam roller operation.

Increase turntable pressure. Check number of spacers needed for can size.



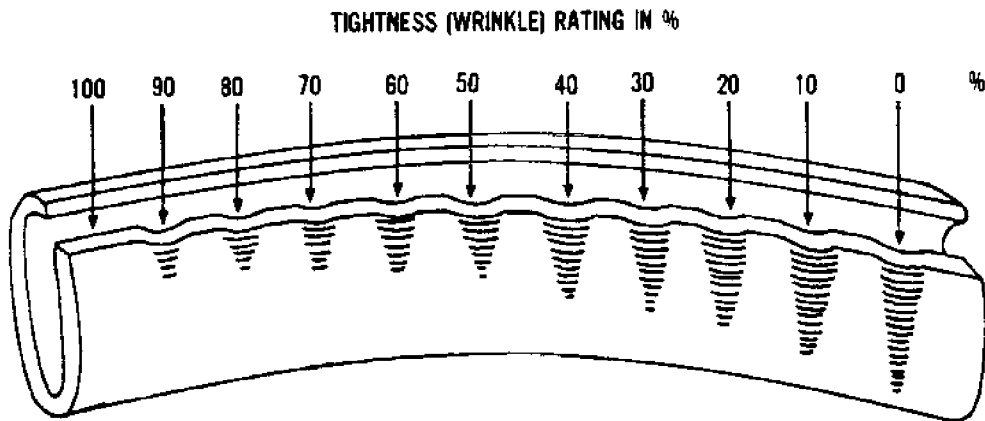
Can Seam Measurements

WRINKLE

The wrinkle measurement is another way to tell the tightness of the seam. The percent wrinkle is determined by the second seam operation. An ACCEPTABLE wrinkle rating means the tightness of the seam is within the correct range for an airtight seam.

Read the sealer instructions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LOOSE wrinkle	Second seam roller operation too loose.	Tighten second seam roller operation.
TIGHT wrinkle	Second seam roller operation too tight.	Loosen second seam roller operation.

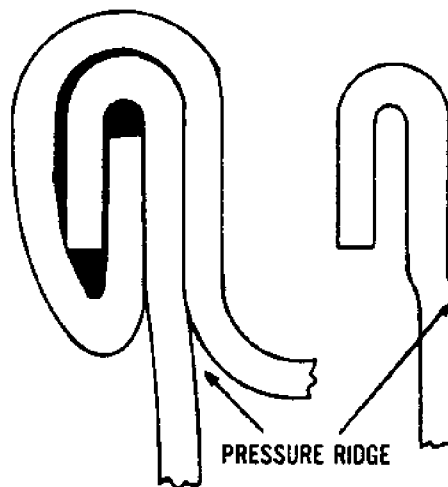


PRESSURE RIDGE

The pressure of the seam roller operations against the can forms a ridge around the inside of the can. This pressure ridge, in the body wall of a can, is an indicator of seam tightness. An ACCEPTABLE pressure ridge should be visible all the way around the inside of the can.

Read sealer instructions before adjusting for defective seams.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
Pressure ridge NOT PRESENT	Second seam roller operation too loose. Turntable (baseplate) pressure too low.	Tighten second seam roller operation. Increase turntable pressure. Check number of spacers needed for can size.



CAN SEAM MEASUREMENTS

VACUUM

Vacuum in canned foods indicates the amount of air left in the headspace of the container. An ACCEPTABLE amount of vacuum: keeps the can "ends-in", or concave, during storage; helps minimize chemical changes and discoloration of food; reduces corrosion of the inside of the can; and prevents permanent bulging of the can ends during processing.

<u>Defect</u>	<u>Possible Causes</u>	<u>Possible Solutions</u>
LOW vacuum	Cans not exhausted, or food heated, to 170°F before attaching lid.	Check canning instructions for exhausting and hot packing methods used with cans.
	Too little headspace in filled can.	Check canning instructions for correct amount of headspace.
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HIGH vacuum	Too much headspace in filled can.	Check canning instructions for correct amount of headspace.

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