

FD 2096 Mid-Volume Production Pressure Sealer

> OPERATOR MANUAL First Edition

TABLE OF CONTENTS

OVERVIEW	1
SPECIFICATIONS	2
PROPER MACHINE HANDLING	3
SAFETY INSTRUCTIONS & FEATURES	4-7
AIR FEEDER	8
OPERATION	8
DESCRIPTION	8
SETTING THE FORMAT	9
SETTING SHEET SEPARATION	10-14
SETTING THE SHEET GAP	15
POSITIONING THE PAPER STACK	15
FOLD AND SEAL UNIT	16
FOLD PLATE POSITIONS	17
INSERTING FOLD PLATES / DEFLECTORS	18
SETTING FOLD PLATE STOPS	19
SETTING GUIDE FOR COMMON FOLD TYPES	19-21
ADJUSTING THE EJECTOR ROLLERS	22
OUTFEED CONVEYOR SETUP	23
OPERATION / TEST FOLDS	24
FINE ADJUSTMENTS AND CORRECTIONS	25
FOLD LENGTH	25
SKEWED FOLDS	25-26
OUT-OF-SQUARE PAPER	26
COUNTER	27
TROUBLESHOOTING GUIDE	28-30

CJ9FJ₉K

General Description

The AutoSeal FD 2096 Pressure Sealer folds and seals one piece pressure sensitive mailers using the buckle fold principle. The FD 2096 can fold and seal a variety of form lengths with different fold types.

Fold Types:









The infeed rollers (1 and 2) transport the sheet to be folded into the fold plate (4).

As soon as it comes up against the adjustable stop, the sheet forms a buckle because the infeed rollers keep on moving.

The loop gets bigger until the sheet is seized by rollers (2) and (3); this is where the actual fold occurs.

The rollers draw the folded sheet from the fold plate and the infeed rollers and move it on.

Noise emission:

SPECIFICATIONS

Paper size:	max. size min	. size
air feeder:	32 x 45 cm 8.5	x 12 cm (width x length)
Fold length:	36 cm 5 cm	n
Speed:	Air feeder: up t	o 30,000 sheets/h
Paper weight:	40 - 250 GSM for sing	gle parallel fold
Electrical:	Voltage:	120V, single phase
	Current consumption: 1st fold unit: Pump:	max. 30A 0.3 kW 0.7 kW
Ambient conditions:	Temperature:15 -Humidity:50 -	40°C 90%
Net weight of machine:		
fold unit:	45 kg	
Pump:	16 kg	
Pressure Sealer/conveyor:	kg	
Stand:	36 kg	
nission:		
Sound pressure level: measured at feeder: measured	83 dB(A) ured at delivery: 82 dB(A)	

PROPER MACHINE HANDLING

The FD 2096 is designed for folding and sealing pressure seal forms.

It is unsuitable for handling other materials, such as foils, plastics and textiles. The manufacturer / distributor is not responsible for damages resulting from such unsuitable applications. Responsibility lies alone with the user.

Installation of the machine, i.e. assembling as well as electrical and pneumatic work should be carried out only by skilled personnel authorized by the manufacturer or representatives.

Additional instructions are provided for this purpose.

Repairs and service should be carried out only by skilled personnel authorized by the manufacturer or representatives.

The interval between inspections including safety-related functions depends on the machine usage.

For regular one-shift operation, one inspection per year is recommended. The machine weight should be considered when choosing a table for the folder. The mobile stands are equipped with casters which can be locked to guarantee the stability of the machine during operation.

The line voltage must correspond to the voltages on the serial plate.

Read the Operator's Manual before working with the machine!

We recommend to carry out all operations and settings in the sequence mentioned in this manual so that nothing is overlooked.

The terms "right" or "left" in the following text always refer to the direction of paper travel. Therefore the right side is the operator side.



SAFETY INSTRUCTIONS

Safety Instructions for Transport and Set-Up

The following instructions and warnings are applied to the packing to ensure appropriate and safe transport:



Top! - Transport in upright position only!

Protect from humidity!

Fragile! Handle with care!

These instructions and warnings must also be observed for transport within the users premises.

For transport to other premises or for return shipment the machines must be packed and provided with the same markings.

Fundamental Safety Instructions

Warnings and Symbols

The following symbols and designations are used in the manual to identify instructions of particular importance:



General instructions and special information on how to use the machine most efficiently.



Instructions designed to prevent injury or extensive equipment damage.

Basic Operation

The machine has been built in accordance with state-of-the art standards and the recognized safety rules.

Nevertheless, operators and third parties may get injured when working with the machine, or damage to the machine and to other material property may result. The machine must only be used in a technically perfect condition in accordance with its designated use and the instructions set out in the operator's manual. Any malfunctions, especially those affecting the safety of the machine, should therefore be rectified immediately.

Safety	The operator's manual must always be available near the machine.
Measures	For reasons of safety, long hair must be tied back or otherwise secured, garments must be close-fitting and no jewelry - such as rings - may be worn. Injury may result from being caught on moving parts.
	Observe all safety instructions and warnings attached to the machine. See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible. In the event of safety-relevant modifications or changes in the performance of the machine during operation, stop the machine immediately and report the malfunction to a competent person.
	Never make any modifications, additions or conversions which might affect safety without the manufacturer's approval. Adhere to prescribed intervals or those specified in the operator's manual for routine checks and inspections.
Standard Operation	Avoid any operational mode that might be detrimental to safety. Take the necessary precautions to ensure that the machine is used only in a safe and reliable state. Operate the machine only if all protective and safety-oriented devices, such as removable safety devices, emergency stops, sound proofing elements, are in place and fully functional. In the event of malfunctions, stop the machine immediately and prevent further use. Have any defects rectified immediately. Before starting up or setting the machine in motion, make sure that nobody is in danger.
Special Work, Maintenance, Repair	Observe the adjusting, maintenance and inspection activities and intervals set out in the operator's manual, including information on the replacement of parts and equipment. If the machine is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by attaching a warning sign to the main switch. Always tighten any screw connections that have been loosened during maintenance and repair.

Special Dangers

The electrical equipment of machines is to be inspected and checked at regular intervals.

Defects such as loose connections or scorched cables must be rectified immediately.

Product-Specific Safety Instructions

 \triangle

Exercise caution in the vicinity of rotating shafts and rollers! Hair, loose garments and jewelry may get caught! SERIOUS INJURY MAY RESULT!

4.3 Cleaning and Maintenance

Regular and proper cleaning contributes to a long life of the machine and a consistent quality. Therefore it is important to clean the machine in regular intervals and above all to remove paper dust.

The interval between maintenance jobs depends on the workload. It is recommended to clean the machine once a week.

Before cleaning the machine always pull the power plug!

The maintenance-free flat belt drive needs no greasing or oiling.

The fold rollers consist of polyurethane foam and are impregnated with an antistatic liquid.

The rollers must **not** be washed with cleaning fluids such as roller- or blanket cleaner. This would damage the antistatic surface and cause folding problems. If cleaning is required, **use a stiff brush**, no liquids of any kind.

SAFETY FEATURES

The machines are equipped with the following safety features:

- Fixed cover at the fold roller infeed section (internal, not shown)
- Swing-up and removable noise covers (2)
- Safety handwheels (3)
- Seal Roller Cover (4)



AIR FEEDER

Principle of Operation	The air feeder is suitable for handling a wide variety of papers. The sheets are separated by air and vacuum. Air is supplied from the bottom of the stack both on the left and right side, separating the paper in the stack which now floats on a cushion of air. A rotating suction drum can then separate the sheets from the bottom of the paper stack. This principle has the advantage that paper can be reloaded continuously. There is no need to stop the machine.		
Description	 Components and operating elements of the air feeder Rear paper stop Air guides left and right Feed table Front paper stop Knurled screw for locking the suction segment Lever for adjusting the suction segment Air regulating valves Knobs for adjusting and locking the air guides Suction drum 		

Setting the Format



The paper should be positioned in such a way that it is fed approximately from the center.

- Loosen the knobs (1) by turning them counter-clockwise.
- Loosen the lock levers (2) by turning them counter-clockwise. They can be moved to a convenient position for tightening by lifting and then turning them.
- Set the left air guide to half the paper width with the help of the scale (3).



- Tighten the knob and the lock lever of the left air bracket.
- Place a paper stack of about 50 sheets on the feed table.
- Slide the right feed guide (4) against the stack.
 - Do not pinch the stack, leave at least 0.5 mm between paper stack and guide.
- Tighten the knob and the lock lever of the right air guide.

Setting Sheet Separation

Sheet separation is achieved by the combined action of the rotating suction drum, the paper stop and the air. Paper weight and type of paper have an influence on the setting.

Setting the air:

A suction drum (1) separates the sheets from the bottom of the paper stack. This is achieved by the suction segment (2) inside the suction drum. The angle of the suction segment with respect to the paper stop can be changed to suit the different types of paper.



Basic setting:

 By turning the handwheel, move the suction drum (3) to such a position that a row of suction holes is in the uppermost position (4) of the suction drum.

Proper adjustment can be checked as follows:

Place a sheet (5) against the edges of the cutout in the suction drum (6). This marks the centerline of the drum.

The sheet must cover the left half of the suction holes (7), while the right half (8) is still visible.

 Change the angle of the suction segment in such a way that the openings in the suction segment (9) line up with the next row of suction holes (10) in direction of paper travel.









Set the suction segment as follows:

- Loosen the knurled screw (1) by turning it counter-clockwise.
- Move the swivel lever (2) up or down, thus swinging the suction segment to the required position.

Heavy paper grades: move swivel lever up Light paper grades: move lever down



• Tighten the clamp lever by turning it clockwise.

Setting for light paper grades:

Light paper grades easily cling to the curve of the suction drum. Therefore, the suction segment must be tilted in direction of the paper stop.

For running light-weight paper, first try the setting as described under "Basic Setting".

The inclination of the suction segment in this direction has the effect that the paper is wrapped around the suction drum (4). The sheets are easily separated from the stack and double sheets occur very rarely.



Setting for heavy paper grades:

Heavier paper grades do not easily cling to the curve of the suction drum. For this reason, the suction segment must be tilted in direction of the paper stack.

The inclination of the suction segment in this direction has the effect that the paper is wrapped around the suction drum (5) very little. This is sufficient because heavier paper grades are more easily separated from the paper stack.



Air:

Open the valves (1) at both air brackets.

In most cases it is sufficient to open the second and the last valve (with reference to the format length).



open

closed



Air and vacuum:

Air and vacuum can be modified by means of air-regulating valves.

This is necessary because heavy paper grades require more vacuum and air than light paper grades.

- Valve for vacuum at the suction drum (1)
- Valve for air at the right air guide (2)
- Valve for air at the left air guide (3)

Air and vacuum can be modified by means of sliding collars (valves).

Bleeder hole covered completely: maximum effect

Bleeder hole half open:

reduced effect

Bleeder hole completely open:

minimum effect



3

Setting the vacuum:

For setting the vacuum, the machine must be turned on.



Exercise caution in the vicinity of rotating shafts and rollers! Hair, loose garments and jewelry may get caught! SERIOUS INJURY MAY RESULT!

Do not get close to rotating shafts and rollers while the machine is running and the noise-absorbing cover is open! **SERIOUS INJURY MAY RESULT!**

- Open the bleeder hole for setting the minimum effect.
- Start the machine.
- Slowly slide the collar over the bleeder hole. ٠ Observe sheet separation while doing this.



 \supset At first no sheets are pulled off the stack or they are pulled off irregularily. The more the collar covers the bleeder hole, the smoother the paper transport.





Leave the collar in the position where even separation is obtained.



^D Make sure that much vacuum does not cause feeding of double sheets.

Switch off the machine.

Adjusting the front paper stop:

The position of the front paper stop (1) can be adjusted in a horizontal and vertical direction.

Adjusting the horizontal position:

The horizontal position of the front paper stop determines the suction point on the paper and in turn depends on the position of the suction segment in the suction drum.



The inclination of the suction segment must be set correctly before making the horizontal adjustment (see page 10/11).





When the suction segment is adjusted, the horizontal position must also be changed accordingly.

- Turn the handwheel until the openings of the suction drum (2) are exactly above the openings of the suction segment (3).
- Adjust the horizontal position of the front paper stop in such a way that it forms a vertical line (4) with the leading edge of the suction openings. To achieve this, turn the knurled screw (5) counter-clockwise or clockwise.

Adjusting the vertical position:

The respective paper thickness is set by adjusting the vertical position of the front paper stop. Proceed as follows:

- Place a stack of about 50 sheets on the feed table.
- Switch on the pump.
- Start the machine (switch position I).



Exercise caution in the vicinity of rotating shafts and rollers! Hair, loose garments and jewelry may get caught! SERIOUS INJURY MAY RESULT!

- By turning the knurled screw (6), adjust the vertical position of the paper stop in such a way that only one sheet is pulled off the stack.
- Switch off the machine (switch position 0).

Setting the Sheet Gap

Positioning the

Paper Stack

The sheet gap can be changed by means of a set screw (1).

This adjustment changes the speed of the suction drum, i.e. the gap between sheets is the result of the speed difference between feed drum and fold rollers.

• Small gap between sheets:

Turn the screw (1) all the way clockwise by means of a 2-mm Allen key.



For all parallel folds with the exception of letter fold in fold plate 1 and 2.

Large gap between sheets:

Turn the set screw (1) all the way counter-clockwise by means of a 2-mm Allen key. To be used when the sheet length in the first fold plate is larger than half the length of the unfolded sheet (example: letter fold in fold plates 1 and 2).

.

[®] The feed speed has no influence on the speed of the fold rollers. Folding speed is set separately.

- Fan the paper stack to avoid double sheets.
- Place the stack on the feed table (2).
- Position the rear paper stop (3). It prevents the paper from sliding off towards the rear.



FOLDING & SEALING UNIT



1	Sound-Dampening Covers
2	Infeed Table
3	Folder Main Power Switch
4	Handwheel
5	Folder Start/Stop Switch
6	Folder Speed Adjustment Knob
7	Sealer Main Power Switch
8	Sealer Start/Stop Switch
9	Seal Rollers
10	Sealer Infeed Deck
11	Outfeed Conveyor
12	Conveyor Extension
13	Conveyor Speed Adjustment Knob
14	Conveyor Run-Out Switch

Fold Plate Positions

In the fold unit, there are two positions for the fold plates:



The fold plates are marked. When installing them, make sure that the fold plates are in the correct positions.

Position 1: Position 2: only fold plates marked "I" only fold plates marked "II"

Each fold plate has a deflector on its rear edge (1).

If a fold plate is not needed for a certain folding job, the respective position must be closed by inserting a fold plate with the deflector side pointing towards the fold rollers.



Inserting the Fold Plates and the Deflectors

The fold plates must be inserted in such a way

that two cutouts each (1, 2, 4, 5) engage in the positioning pins which are located in the side panels of the fold unit. Proceed as follows:

• Guide the fold plates with the mouth pointing forward (6) between the side panels of the fold unit. Cutouts (1) and (2) must engage in the positioning pins on the left- and righthand side.



- If a fold plate is to be used as deflector, turn it by 180° and slide it between the side panels with the uninterrupted surface (7) pointing forward. Cutouts (4) and (5) must engage in the positioning pins on the left- and right-hand side.
- Check whether all pins are firmly engaged by turning the fold rollers by the handwheel.

Displacing the Fold Plates and Deflectors

There are special adjustment devices (8, 9) at the left- and right-hand side of the fold plates which make it possible to reduce the distance to the fold rollers, for example, when folding thin paper.

- Loosen the Allen screws on both sides of the fold plate (2.5 mm wrench).
- Set all 4 adjustment devices to the same measurement to make sure that the fold plate always has the same distance to the fold rollers, no matter whether it is used as fold plate or as deflector.
- Retighten the Allen screws.



Setting the Fold	• Loosen the fold plate stop by turning the knurled screw counter-clockwise (1).
Plate Stops	• Set the stop to the required position on the scale (2).
	• Secure the fold plate stop by turn- ing the knurled screw clockwise.
	• By turning a fine adjustment screw (3), the fold length can be adjusted precisely with the machine running
	 Angle corrections for the paper stop are possible by turning the knurled screw (4).
	The type of fold determines the position of the fold plates and of the deflec-

The type of fold determines the position of the fold plates and of the deflectors. The original format determines the fold lengths to be set. The fold length is the distance between the fold plate stop and the fold line.

Setting Guide for Common Types of Fold

On the following pages you will find a few examples on which fold plates and deflectors to use and how to set them:





19

Common Fold Plate Settings



For accordion folds, fold plate stops should be set so they increase by 1 mm from one fold plate to the next.



Adjusting the Ejector Rollers

The ejector rollers on the delivery shafts must be set so that they are running on top of each other (1). An adjustment is only necessary when the sheets are no longer guided properly after a change of format. To adjust:

- Turn the handwheel until the set screws of the ejector rollers are visible (2).
- Loosen the screws (2) with a 2-mm Allen key.



• Shift the ejector rollers to the required position. Tighten the set screws.

4

Outfeed Conveyor Setup

1. Raise the outfeed conveyor to its upright position. You may need to loosen the rear knobs on either side (1).

2. Slide the conveyor back into position as far as it will go.

3. Tighten the rear knobs, and install the front knobs on either side (2).

4. Connect the conveyor cable (3).

5. Attach the outfeed tray extension (4), using the 8 screws provided.

6. Adjust the stacker wheels (5). Loosen the side knobs (6), move the wheel assembly in or out, then re-tighten the knobs.





6

Operation and Test Folds

WARNING: Use caution when the machine is running and any covers are open. Keep long hair, loose garments and jewelry away from spinning rollers and moving parts, to avoid serious injury or damage to the machine.

- 1. After all fold plate adjustments have been made, check the settings by making a few test folds.
- 2. Turn on the folder power switch (1). This will activate the pump supplying air to the infeed table.
- 3. Load a small stack of forms on the infeed table (2) and adjust the paper guide (3) so it fits snugly against the end of the paper stack.
- 4. Turn on the sealer power switch (4) and press the green sealer button (5). This will start the seal rollers and the conveyor.
- 5. Turn the folder start/stop switch (6) to the right into the ON position, and set the processing speed with the speed control knob (7).
- 6. Adjust the conveyor speed using the speed control knob (8). Adjust the stacker wheels (8a) to allow the processed forms to stack neatly. Loosen the knobs (8b) on either side and slide the wheel assembly in or out, then re-tighten.
- 7. Once the forms are processed, press the conveyor run-out switch (9) to easily unload the forms.
- 8. Examine the processed forms and make any minor corrections using the fine adjustment knobs on the fold plates. Load more forms and continue processing.

NOTE: It's a good idea to interrupt the sheet feed before switching off the folder. To do this, push down the stack on the feed table to prevent sheets from being fed. Then turn the folder start/stop switch (6) off (position O).

NOTE: After running a batch of forms, to reset the counter to zero, press the "C" button.



FINE ADJUSTMENTS AND CORRECTIONS

Fold Length

Fold variations may occur if the fold plate stops are not set accurately or if the folding speed is changed. The fold is off across the whole width of the sheets (as opposed to a skewed fold).

Corrections of the fold length are made by turning the fine adjustment screw (1).

A change in the folding speed also changes the fold length. Therefore the set-up speed must be maintained.



Skewed Folds

Skewed (out-of-square) folds occur when the paper is fed not at right angles with respect to the fold rollers. This can be corrected as follows:

- Mark the leading edge of a sheet and feed it through the fold unit (2).
- To make the deviation more obvious, exaggerate the skewed fold by hand (3), (4).
- Open the folded sheet and place it in front of the roller infeed section (5).
- Correct, as shown on the following page.







Correction of Skewed Folds

Machines with air feeder:

Adjust the paper guides or air brackets on the feeder in such a way that the leading edge of the sheet is parallel to the fold rollers. (1).



Out-of-Square Paper	If the paper is not cut precisely at right angles, the folded sheets may show "points".
	By turning a knurled screw (4), the fold plate stop can be adapted to the angle of the sheets. \bigvee
	 Turning the screw clockwise: The right side of the fold plate stop moves down. Turning the screw counter-clockwise:
	The right side of the fold plate stop moves up.

Make this correction only on the first fold plate.

COUNTER

The counter permanently displays the number of folded sheets. It cannot be switched off. The display consists of 6 digits (2). The number shown can be reset by pressing the reset button (3).





TROUBLE SHOOTING GUIDE

Problem:	see	num	ber.				
Intermittent and irregular paper feed	1	2	3	4	5		
Creasing	2	6	7	8	9	23	24
Several sheets fed together	10	11	12	13			
Paper jam at the entrance into the fold plates	14	15					
No feed	16	17	18				
Out-of-square folds	19						
Points	20						
Fold variations	21	22					
Folded sheets run into each other	25	26	27				
Sheets not evenly fanned on delivery	26	27	28	29			
Folder does not run	30						
Sheet gap cannot be set although display indicates changes in sheet gap	31	32					

No: Possible Cause:

1	Guide bracket set too narrow	Set with a little more side play
2	Gap between feed- and pressure roller too narrow	Increase gap with setting disk
3	Infeed roller pressure insufficient or infeed roller worn	Increase pressure with knurled nut on feeder or replace roller
4	Hold-down pressure too high	Slide the hold-down disks on the feed shaft outward somewhat
5	Feed shaft drive belt worn	Replace belt
6	Infeed roller pressure too strong	Reduce with knurled nut
7	Speed too high	Reduce speed
8	Paper runs at an angle	Correct with guides
9	Pressure of first pair of folding rollers too strong or uneven	Have pressure and parallel alignment set by our service engineer

Remedy:

No:	Possible Cause:	Remedy:
10	Gap between feed- and pressure roller too wide	Narrow gap by turning setting disk
11	Paper stop is not set at the correct height	Change height by means of setting screw
12	Too much vacuum	Reduce vacuum
13	Air brackets are not set parallel	Adjust air brackets according to scale
14	Feed speed of suction drum too high	Set hand wheel to slow feed speed
15	Gap between sheets is too narrow	Adjust air flow. Move suction segment against the rotation of the suction drum
16	Pump is not switched on	Switch on pump
17	Suction drum is loose	Tighten suction drum (3 Allen screws)
18	Timing belt pulley is loose	Tighten timing belt pulley
19	Sheets are not fed at right angles	Align sheet guide on the feeder or right- angle table
20	Sheets are not cut at right angles	Adapt fold plate stop to the sheet by ad-justing the knurled screw
21	Fold plate stop not set correctly	Readjust with fine adjustment screw
22	Change of fold speed	Set regular speed, check fold
23	Steel balls too heavy	Use plastic balls
24	Insufficient guidance by balls	Shift ball cages
25	Distance between ejector rollers and hold-down rollers too short	Increase distance
26	Ejector rollers on knife shafts are not distributed evenly across paper width	Arrange ejector rollers evenly across the paper width
27	Ejector rollers worn	Replace rollers
28	Paper feed irregular	Correct setting
29	Delivery belt is slack	Tension belt or replace, if necessary
30	Paper jam, safety system has switched off the machine	Clear jam, switch the machine off and then on again.

No:	Possible Cause:	Remedy:
31	Setting of sheet gap photodetector too sensitive or not sensitive enough. Red LED on photodetector is on continuously or not on at all	Using a screwdriver, reduce sensor sensi- tivity at potentiometer of sheet gap photodetector until LED goes out. Then check function of photodetector as follows: Place a paper strip under the detector: LED (red) comes on Remove paper strip from under the photodetector: LED (red) goes out
32	Sheet gap photodetector dirty	Clean bottom of photodetector with a soft cloth or a brush