

**Horizon**



# AF-406 series

Buckle Folder AF-406F/ AF-406FL/ AF-406S/ AF-406SL

**Save setup time  
with full automation.**



# Advanced automated functions saves setup time with minimal make-ready.

## Features

**1. Advanced automated setup functions** - Each section is set automatically by selecting the sheet size and fold pattern on the touchscreen. The advanced automated setup allows easy and quick changeover.

**406F AUTO** : Automated section for AF-406F

**406S AUTO** : Automated section for AF-406S

**2. Pharmaceutical folds** - A selection of folding rollers are available to fold various type of sheets including thinner sheets for pharmaceutical. A double counter is provided at both the feeder and delivery sections. This facilitates jobs that require accurate counting control. Various optional devices including the Barcode Reader and Image Checking System are also available.

**3. Stable Feeding** - A superior suction feed system and feed table control provides stable feeding operation. The minimum sheet size is :Width 50 mm x Length 100 mm / 1.970" x 3.940". The sheet size Width 50 mm x Length 60 mm / 1.970" x 2.362" can also be folded by using an optional device.

**4. Scoring Roller Position Navigator** - The scoring roller position navigator is equipped so that positioning of the scoring wheels are simple, fast and accurate. The delivery belt unit is movable for easy access and quicker adjustments. (this function is optional on the AF-406S)

**5. Memory Function** - All the set up information can be stored in job memory for easy recall. Up to 200 jobs can be stored.

**6. 6+6 buckle modular** - 6+6-buckle modular concept allows simple to complex fold patterns. Common fold patterns can be selected from the touchscreen for easy setup.

**7. Long table option (factory option)** - Extended table model is also available to feed sheet lengths up to 1,100mm / 43.310".

**8. JDF Workflow** – The system can be further enhanced with Horizon’s pXnet bindery control system which integrates JDF workflow from upstream devices.

## Stand-alone 6-buckle

Stand-alone 6-buckle configuration for brochure or leaflet folding.



Configuration: AF-406F+SCV-406 (with optional long table)

## Right Angle 6+6 buckle

6+6 buckle modular system with the right angle conveyor for pharmaceutical, small format, and direct mail applications. This configuration also allows scoring on the first station and folding on the second station for heavier weight stocks.



Configuration: AF-406F+T-406F+SCV-406 (with optional long table)

## Straight 6+6-buckle

Straight 6+6-buckle modular system for zigzag fold (up to 10 panel) operation. Complex fold patterns can be performed using this configuration.



Configuration: AF-406F+T-406F+SCV-406 (with optional long table)

## Register Guide - Long Type

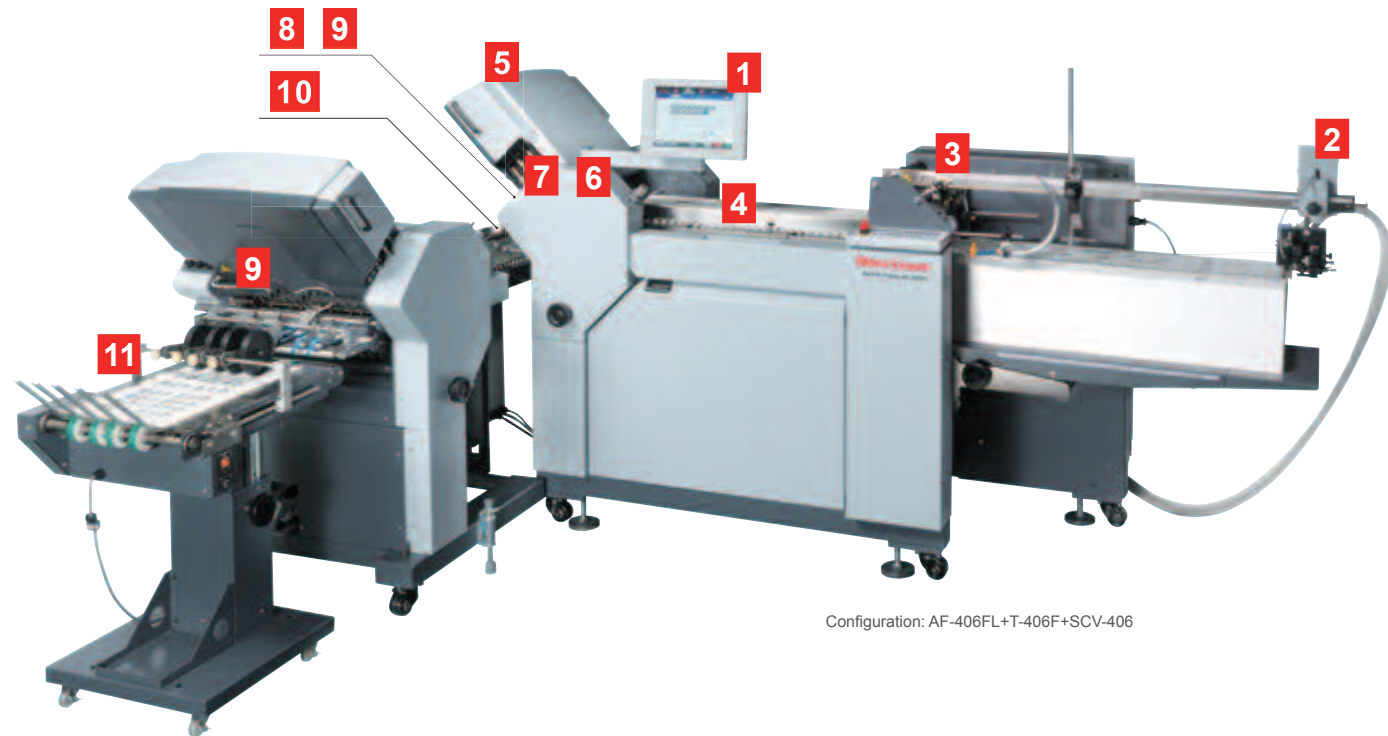
The 1,100 mm long register guide of AF-406FL and AF-406SL enables to fold the large-sized sheet accurately.



Configuration: AF-406FL+T-406F+SCV-406







Configuration: AF-406FL+T-406F+SCV-406

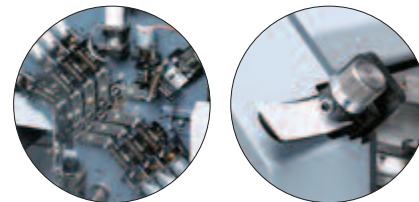
### 1 Control Panel

Each section of the AF-406T6F is set automatically by selecting the sheet size and fold pattern on the LCD touchscreen. The roller gaps are adjusted by 0.005 mm and the buckle chute stopper can be adjusted by 0.1 mm / 0.005" using the touchscreen.



#### Roller Gaps 406F AUTO

All fold roller gaps are calculated and set automatically by inserting just one sheet strip into the sheet thickness detector. Since the roller gaps are set automatically according to the fold patterns, you do not need to insert strips one by one for each gap.



### 2 Suction Head / Side Air

406F AUTO Table guide

An innovative new suction head design increases durability. Improved feed table control enables stable feeding even for very small size stacks. Easy air adjustment provides smooth feeding of various paper stocks. Side air is employed for fast, consistent feeding.



### 3 Feed Rotor

Quality polyurethane rotor provides high speed feeding without scratching. Feed timing and feed interval can be adjusted through the touchscreen. For small size stacks, the feeding operation can be done using only the feed rotor.



#### Supersonic Sensor

The ultra sonic sensor comes standard on the AF-406F for reliable double feed detection regardless of the printed image, such as solid black print.

(This feature is for the AF-406F/FL only)



### 4 Register Guide

406F AUTO 406S AUTO Register Guide Position

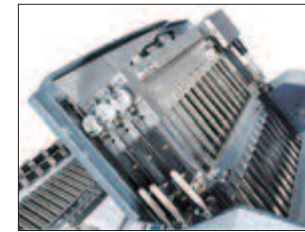
The register guide is coated with a special anti-static plating. Uniquely designed rigid register guide ensures accurate and smooth transportation of a wide range of paper stocks. Superior sheet aligning capability ensures consistent and accurate folding.



### 5 Buckle

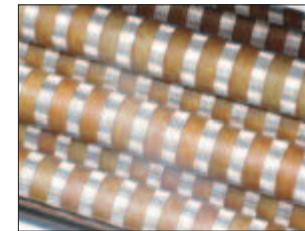
406F AUTO 406S AUTO Buckle plate position

Specially-coated buckle plates minimize paper friction to maintain fold accuracy. All the buckles are set up automatically with precise stepper motor drives for the sheet size and fold pattern selected. Each buckle has an integrated deflector/stopper.

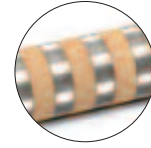
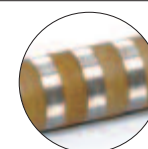
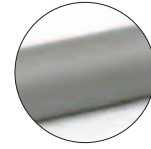



### 6 Fold Rollers

Three kinds of fold rollers are available for selection depending on the application.



#### Folding roller selections

Name	RL-406S	RL-406-H1
Description	Soft urethane roller (Segmented)	Hard urethane roller (Segmented)
Feature		
	Regular fold roller for easy set up	Higher durability, grip, and roller gap setting is more controlled
Name	RL-406H2	RL-406H3
Description	Hard urethane roller (Full length urethane)	Hard urethane roller (Segmented full length urethane)
Feature		
	Suitable for thinner sheet with increased accuracy. Roller gap setting is critical.	Suitable for thinner sheet with increased accuracy. Roller gap setting is critical.

### 7 Fold Roller Drive

Flexible cross couplings are employed for consistent drive of the fold rollers -- even with thick paper or complex folds -- and accurate folding performance over a long machine life. Horizon's unique belt drive system provides reliable, quiet operation.

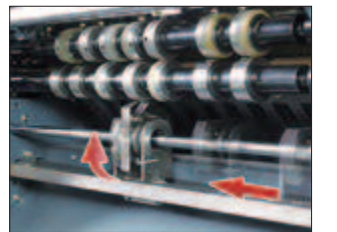


### 8 Perforating / Scoring

406F AUTO

Scoring can be positioned easily using the uniquely designed scoring navigator. The position can be saved in a job memory for easy recall of repeated jobs.

(The navigator can be mounted on the AF-406S/SL as an optional device - factory option).



### 9 Delivery Belt Unit

Uniquely designed delivery belt unit can slide out for easy set up of scoring and perforating positions.



### 10 Right Angle Conveyor

Connected to the first station at a right angle, 6+6-buckle modular allows complex folding such as pharmaceutical folds and DL folds.

#### Second Station Register Guide

Position 406F AUTO

The register guide is set automatically according to the sheet width.



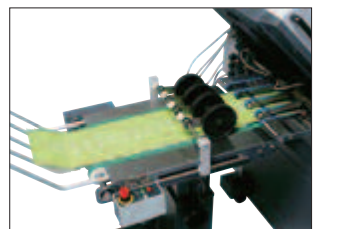
### 11 Delivery Conveyor (Optional)

#### Delivery Conveyor: SCV-406

Conveyor height is easily adjusted by the handwheel to the proper sheet delivery height.

#### Standing Delivery: ED-40S

Optional standing delivery staker is used for small size stacks. This staker includes batch counting for offset stacking.



SCV-406

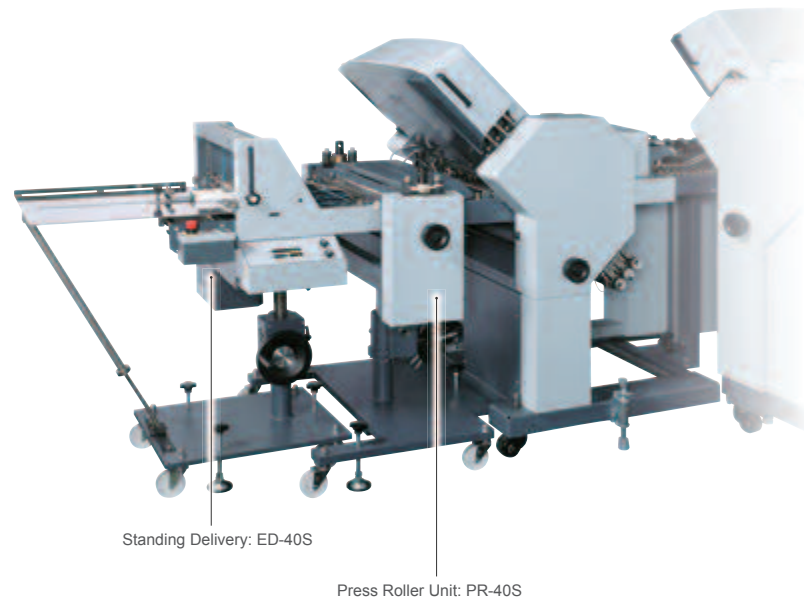
Optional Devices for Efficiency

**PR-40S** Press Roller Unit

Strong and rigid press roller presses the folded sheets to form crisp and tight folds. Tight folded sheets minimize shipping costs by reducing packaging.

**ED-40S** Standing Delivery

Standing delivery stacker increases the efficiency for sheet packing. Batch kicking function allows accurate counting.



Standing Delivery: ED-40S

Press Roller Unit: PR-40S

Connectable Downstream Devices for the 406F/FL,406S/SL

Folder	Press Roller Unit	Standing Delivery	Connection	BG-40S
AF-406F *1 AF-406FL *1 AF-406S *1 AF-406SL *1 T-406F *2 T-406S *2	PR-40 *3	ED-40 *3	Connectable	Necessary
		ED-40S	Connectable	Necessary
		ED-40S	Not Connectable	
	PR-40S	ED-40 *3	Connectable	Not Necessary
		ED-40S	Not Connectable	
		ED-40S	Connectable	Not Necessary

Folder	Fold Knife Unit	Connection	BG-40S
AF-406F *1 AF-406FL *1 AF-406S *1 AF-406SL *1 T-406F *2 T-406S *2	KTU-40	Connectable	Necessary
	MKU-38	Connectable	Not Necessary

\*1: The BG-40S is not supplied with the AF-406F and AF-406S.  
\*2: The BG-40S is supplied with the T-406F and T-406S.  
\*3: These machines are discontinued.

Connectable Downstream Devices for the 406A

Folder	Press Roller Unit	Standing Delivery	Connection	BG-406
AF-406A *3 T-406A *3	PR-40 *3	ED-40 *3	Connectable	Necessary
		ED-40S	Connectable	Necessary
		ED-40S	Not Connectable	
	PR-40S	ED-40 *3	Connectable	Not Necessary
		ED-40S	Not Connectable	
		ED-40S	Connectable	Necessary

Folder	Fold Knife Unit	Connection	BG-406
AF-406A *3 T-406A *3	KTU-40	Connectable	Necessary
	MKU-38	Connectable	Necessary

\*3: These machines are discontinued.  
\*4: The operation is improved by connecting the BG-406.

Differences between 406F/FL, 406S/SL

Unit	Item	406F	406S
Feed Section	Suction Head Position Adjustment	Manual	Manual
	Table guide	Automatic	Manual
Register Guide Section	Register Guide Position Adjustment	Automatic	Automatic
Fold Section	Roller Gap Adjustment	Automatic	Manual
	Buckle Chute Stopper Position	Automatic	Automatic
	Scoring Roller Position Navigator	Connectable	Not Connectable *Can be attached as an optional device (factory option).
Second Station	Second Station Register Guide Position	Automatic	Manual

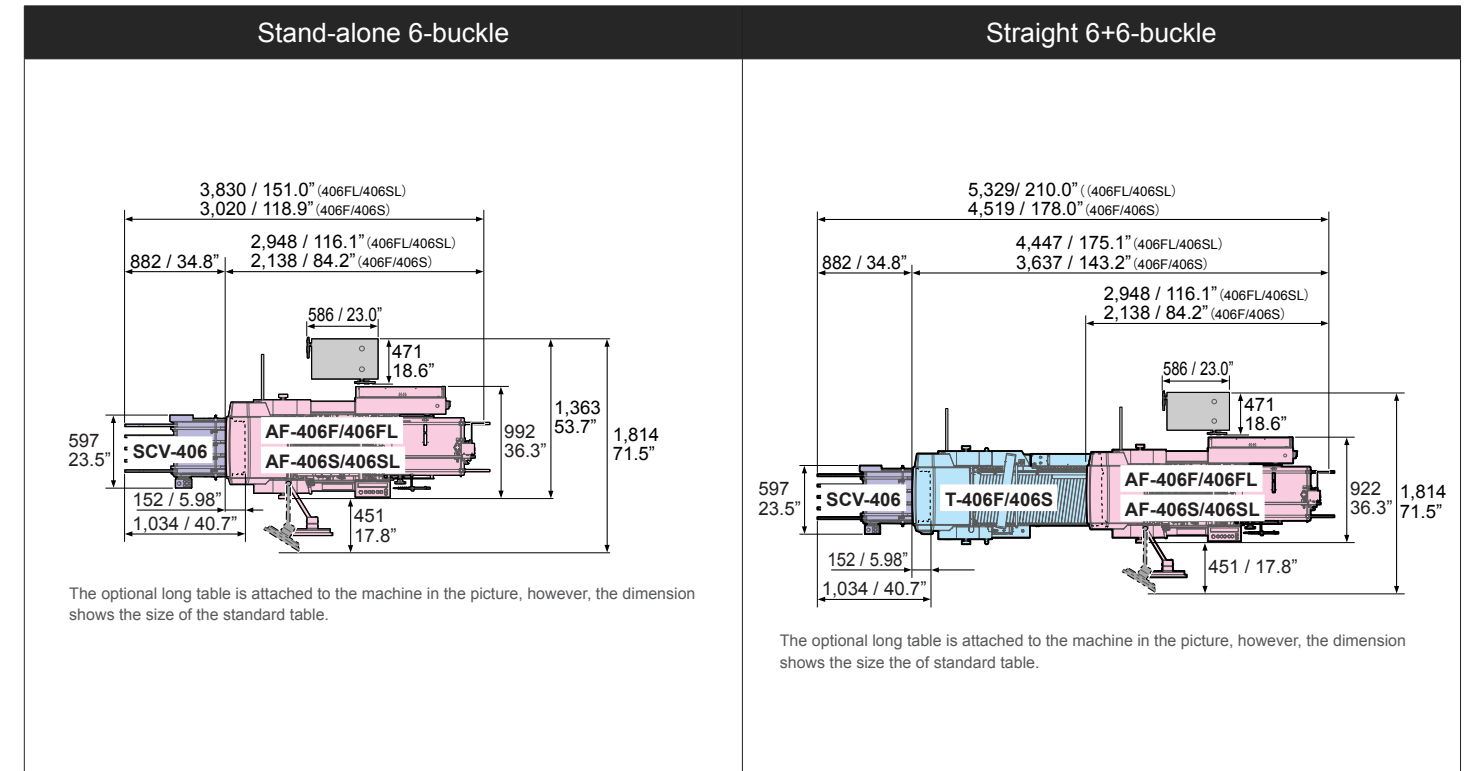
Combination of 406F/FL, 406S/SL and 406A

1st Station	2nd Station	Connection
AF-406F AF-406FL	T-406F	Connectable
	T-406S	Connectable
	T-406A *3	Connectable Requires upgrade to the control software and an optional connector relay box.
AF-406S AF-406SL	T-406F	Not Connectable
	T-406S	Connectable
	T-406A *3	Connectable Requires upgrade to the control software and an optional connector relay box.
AF-406A *3	T-406F	Not Connectable
	T-406S	Connectable Required to replace control software.

\*3: These machines are discontinued.

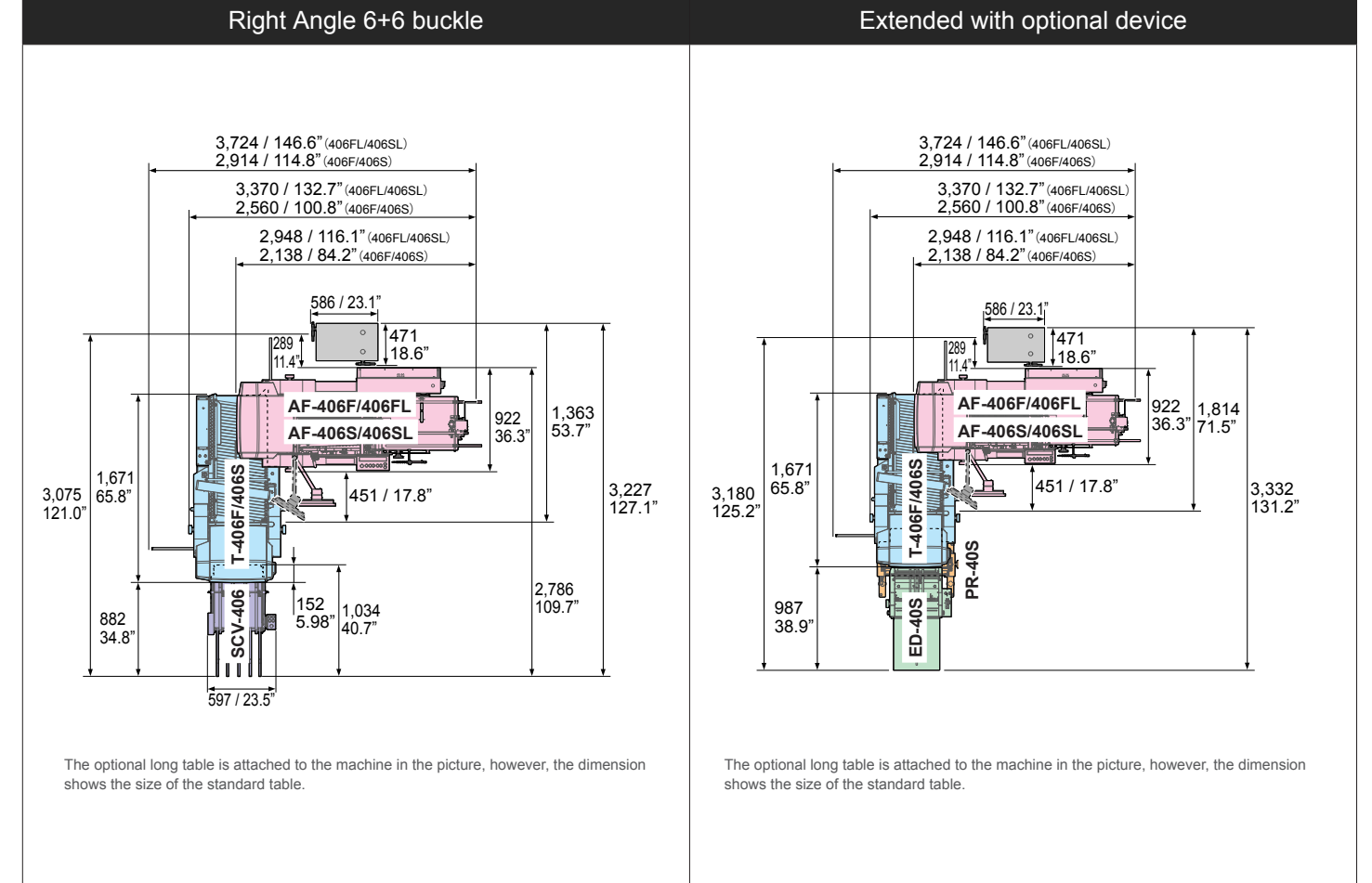
Machine Dimension (Unit: mm / inch)

Provide 700 mm / 27.6" of working space around the machine.



The optional long table is attached to the machine in the picture, however, the dimension shows the size of the standard table.

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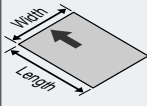


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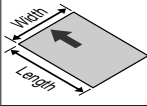
The optional long table is attached to the machine in the picture, however, the dimension shows the size of the standard table.



## AF-406F/FL, AF-406S/SL Specifications

Machine Structure	6 Buckles / 6 Buckles	
Sheet Size		<b>Width x Length</b> 430 mm x 660 mm / 16.92" x 25.98" Up to 900 mm with optional device 50 mm x 100 mm / 1.97" x 3.94" Up to 60 mm with optional device
Length of Register Guide	AF-406F, AF406S : 740 mm / 29.1" AF-406FL, AF406SL : 1,100 mm / 43.31"	
Sheet Weight Range	Uncoated Paper 33 to 157 gsm Coated Paper 73 to 157 gsm	
Belt Speed	30 to 180 meters per minute	
Production Speed	Suction Head 30,000 cycles per hour	
Buckle Fold Length	1st Station (AF-406F/FL, AF-406S/SL)	1st Buckle Chute: 20 to 350 mm / 0.79" to 13.77" (20 to 430 mm / 0.79" to 16.92" with optional LB-40S) 3rd / 5th Buckle Chute: 20 to 350 mm / 0.79" to 13.77" 2nd / 4th / 6th Buckle Chute: 20 to 280 mm / 0.79" to 11.02"
	2nd Station (T-406F / 406S)	1st to 6th Buckle Chute: 20 to 280 mm / 0.79" to 11.02"
Vacuum Pump	Standard	
Voltage/Frequency	1st Station	3-phase 200 to 220 V, 50 / 60 Hz Single Phase 220 to 240 V, 50 / 60 Hz
	2nd Station	Single Phase 220 to 240 V, 50 / 60 Hz
Machine Dimensions	1st Station (AF-406F / 406S) : W2,138 x D922 x H1,457 mm / W84.2" x D36.3" x H57.4"	
	1st Station (AF-406FL / 406SL) : W2,938 x D922 x H1457 mm / W115.7" x D36.3" x H57.4"	
	2nd Station (T-406F / 406S) : W1,671 x D858 x H1,285 mm / W65.8" x D33.8" x H50.6"	

## PR-40S Specifications

Sheet Size		Maximum Width 400 mm / 15.74" Minimum Width 30 mm / 1.19" Minimum Length 25 mm / 0.99"
Thickness of folded piece	Max. 3 mm / 0.12"	
Belt Speed	30 to 180 meters per minute	
Number of Press Rollers	Press Roller x 1	
Voltage/Frequency	Single Phase 200 to 240V, 50 / 60 Hz	
Machine Dimensions	W791 x D657 x H1,066 mm / W31.2" x D25.9" x H42.0"	











## ED-40S Specifications

Sheet Size	Maximum Width 400 mm / 15.74" Maximum Height 150 mm / 5.90" Minimum Width 30 mm / 1.19" Minimum Height 20 mm / 0.79"	
Thickness of folded piece	Max. 3 mm / 0.12"	
Stack Capacity	Max. 395 mm / 15.55" Min. 5 mm / 0.20"	
Belt Speed	30 to 160 meters per minute	
Offset Amount	Minimum Offset: Five sheets	
Voltage/Frequency	Single Phase 200 to 240V, 50 / 60 Hz	
Machine Dimensions	W982 x D624 x H1,153 mm / W38.7" x D24.6" x H45.4"	

\*The machine design and specifications are subject to change without any notice.

## Options

Various types of optional devices besides the following ones are available. Contact your local dealer for details.

Long table: LT-40S 	Supersonic Sensor 
Water Scoring Unit 	Barcode Reader 
Long Buckle Chute: LB-40S 	Gate Fold Buckle: GFB-40 
Reversing Buckle: RB-40 	Scoring Navigator: SN-40S*1 
Strip Trim Unit: AF-ST4S 	Alignment Detector: AD-40S 
Interface Unit: FABOX-40S 	Mobile Knife Unit: KTU-40 
Mobile Knife Unit: MKU-38 	Press Stacker: PST-66 
Edge Trim Unit: AF-ET4S 	

\*1 : Optional Device Only for AF-406S/SL