








Graphic	Name	Description
	Edit	Places the screen in edit mode and position the cursor on the first field.
	Enter	Accepts data and move cursor to the next field.
	Arrow	The Up and Down arrow keys are used to move between the different fields on the screen. The Left and Right keys are used to move character positions within a field.
	Delete	Deletes the character at the current cursor position.
	Back	Backs up one screen.
	Top	Returns to the first field in a screen that currently being edited.
	Alphanumerical	Numbers are the default selection value. To access letters, hold the F4 (ShiftKey) key to scroll through upper and lower case letters and the number. Once the F4 key is released, the selection returns to the number only.

# MAIN SCREEN NAVIGATION

Manual - Manual mode 10 Main

**Main Screen**

Part Active / Next 0 / 0

Part Length 0.000 mm

Quantity 0 of 0

Tool Program 0

Material Position -0.097 mm

Material Velocity 0.000 mm/min

TestCut CropCut ImmCut InhibCut Manual

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

\*\*\* Next Production Part \*\*\* 30 ProdSetUp

**Production Setup**

Starting Part Index 1

Status Prod Active TRUE

TestMode Parts Tools Cuts Machine

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

Auto - Production Running 32 TestMode

**Test Mode Interface**

Test Mode Enabled FALSE

Master Position -648.135 mm

Velocity

Acceleration

TstEnbl

F1 F2

Jog- Setup A

\*\*\* Next Production Part \*\*\* 20 PartData

**Part Data**

Part Index 1

Part Name Part\_1

Part Length

Quantity

Tool Program

Next Part Index

Save C

F1 F2

Jog- Setup A

Auto - Production Running 25 ToolData

**Tool Data**

Tool Index 2

Tool Name

Min Cut Position 50.000 mm

Min Stroke Position

Tool Offset

Tool Width

Save C

F1 F2

Jog- Setup A

\*\*\* Next Production Part \*\*\* 36 EditCuts

**Cuts Setup**

Select Cut 101

Part Name Crop Cut

Part Length 100.000 mm

Tool Program 1

Save Cancel

F1 F2 F3

Jog- Setup Auto

Auto - Production Running 35 MachinSetUp

**Machine Setup**

Drive Mode OP

Actual Position -0.000 mm

Drive Status

A4002 Drive in automatic mode

IO Stat System Drive PM Mode

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

## TEST MODE SCREEN

Auto - Production Running		32 TestMode
<b>Test Mode Interface</b>		
Test Mode Enabled	FALSE	
Master Position	-648.135	mm
Velocity	1000.000	mm/min
Acceleration	1000.000	mm/s^2
TstEnbl	Run	
F1	F2	F3
F4	F5	Main
Jog-	Setup	Auto
Start	Stop	Jog+

## PART SETUP SCREEN

*** Next Production Part ***		20 PartData
<b>Part Data</b>		
Part Index	1	
Part Name	Part_1	
Part Length	1000.000	mm
Quantity	1	
Tool Program	2	
Next Part Index	1	
Save	Cancel	ShiftKey F7 PgDn
F1	F2	
Jog-	Setup	

*** Next Production Part ***		21 PartData
<b>Part Data</b>		
Part Index	1	
Enable Registration	0	1=T/0=F
Regn Pre Window	0.000	mm
Regn Post Window	0.000	mm
Regn Offset	0.000	mm
Save	Cancel	F6 PgUp
F1	F2	F3
F4	F5	Main
Jog-	Setup	Auto
Start	Stop	Jog+

## TOOL DATA SETUP SCREEN

Auto - Production Running		25 ToolData			
<b>Tool Data</b>					
<b>Tool Index</b>		2		Clear	
Tool Name					
Min Cut Position	50.000	mm	F6		
Min Stroke Position	75.000	mm	F7		
Tool Offset	0.000	mm			
Tool Width	0.000	mm			
Save	Cancel	ShiftKey	F7 PgDn		

F1	F2	*** Next Production Part *** 26 ToolData			
Jog-	Setup	<b>Tool Data</b>			
		<b>Tool Index</b>		2	
		Separation Distance	0.000	mm	F6
		Tool Outputs	2		
		Tool Cycle Time	0	ms	F7
		Tool Return Type	0		
		Save	Cancel	F6 PgUp	
F1	F2	F3	F4	F5	Main
Jog-	Setup	Auto	Start	Stop	Jog+

## CUT SETUP SCREENS

*** Next Production Part ***		36 EditCuts			
<b>Cuts Setup</b>					
<b>Select Cut</b>		101		Clear	
Part Name Crop Cut					
Part Length	100.000	mm	F6		
Tool Program	1	F7			
Save	Cancel				
F1	F2	F3	F4	F5	Main
Jog-	Setup	Auto	Start	Stop	Jog+

# INPUT & OUTPUT STATUS

Auto - Production Running 35 MachinSetup

**Machine Setup**

Drive Mode OP

Actual Position -0.000 mm

Drive Status

A4002 Drive in automatic mode

IO Stat System Drive PM Mode

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

Auto - Production Running 100 InputDiag

**IO Diagnosis(Inputs)**

BIT 0 1 2 3 4 5 6 7

BIT 8 9 10 11 12 13 14 15

F7 PgDn

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

\*\*\* Next Production Part \*\*\* 101 OutputDiag

**IO Diagnosis(Outputs)**

BIT 0 1 2 3 4 5 6 7

BIT 8 9 10 11 12 13 14 15

F6 PgUp

F1 F2 F3 F4 F5 Main

Jog- Setup Auto Start Stop Jog+

# System parameter

The following table summarizes the parameters shown in each of the seven screenshots:

Screen Number	Mode	Parameter Name	Value	Unit
50	Manual - Manual mode	Return Position	0.000	mm
50	Manual - Manual mode	Return Velocity	30000.000	mm/min
50	Manual - Manual mode	Return Acceleration	7500.000	mm/s <sup>2</sup>
50	Manual - Manual mode	Max Carriage Travel F	800.000	mm
50	Manual - Manual mode	Min Carriage Travel Pr	-100.000	mm
50	Manual - Manual mode	Travel Pulse Distance	1000.000	mm
51	Manual - Drive not enabled	Tool Change Position	0.000	mm
51	Manual - Drive not enabled	Min Sync Distance	10.000	mm
51	Manual - Drive not enabled	MW Feed Constant	200.000	mm/rev
51	Manual - Drive not enabled	MW Correction Factor	0.000	%
52	Manual - Manual mode	Jog Velocity Slow	1000.000	mm/min
52	Manual - Manual mode	Jog Velocity Fast	5000.000	mm/min
52	Manual - Manual mode	Jog Acceleration	1000.000	mm/s <sup>2</sup>
52	Manual - Manual mode	Error Deceleration	10000.000	mm/s <sup>2</sup>
52	Manual - Manual mode	Separation Velocity	100.000	mm/s <sup>2</sup>
52	Manual - Manual mode	Separation Acceleration	100.000	mm/s <sup>2</sup>
53	Manual - Manual mode	Regn Sensor Offset	0.000	mm
53	Manual - Manual mode	Regn Process Enable	0	1=T/0=F
53	Manual - Manual mode	Max Regn Correction	0.000	mm
53	Manual - Manual mode	Max Missed Count	0	
53	Manual - Manual mode	System Language	0	1=E/0=D
53	Manual - Manual mode	System Units	0	1=in/0=m
54	Auto - Production Running	Cropcut Length	100.000	mm
54	Auto - Production Running	Cropcut Tool	1	
54	Auto - Production Running	ImmediateCut Length	0.000	mm
54	Auto - Production Running	ImmediateCut Tool	21	
54	Auto - Production Running	ImmediateCut ToolTime	100	ms
54	Auto - Production Running	TestCut Length	100.000	mm
55	Auto - Production Running	Bad Material Enable	0	1=T/0=F
55	Auto - Production Running	Bad Material SnsOffset	0.000	mm
55	Auto - Production Running	Bad Material BufferSize	20	
55	Auto - Production Running	Bad Material OptSelect	0	
55	Auto - Production Running	Bad Material CutOffset	0.000	mm
56	*** Next Production Part ***	Scrapcut Type	0	
56	*** Next Production Part ***	Scrapcut Tool	1	
56	*** Next Production Part ***	Scrapcut Length	100.000	mm
56	*** Next Production Part ***	Scrapcut Time	100	ms
57	Auto - Production Running	AlternateCut Type	1	
57	Auto - Production Running	AlternateCut Tool	1	
57	Auto - Production Running	Alternatecut Length	100.000	mm

## **Key features of FS?**

- Modes of operation
- Cut types

## **Mode of operation**

The Flying Shear system supports the following operation modes:

- Parameter mode
  - Manual mode
  - Automatic mode
  - Test Mode

### **- Parameter mode**

In the parameter, user can edit and modify parameters. The activation of the parameter mode is only possible when system is not in AUTO mode.

#### **• Manual mode**

- Homing the carriage
- Jogging the carriage in the positive and negative directions
- Editing system and drive parameters in parameter mode

In manual mode, Immediate Cut can be performed.

#### **• Automatic mode**

In automatic mode, the Flying Shear application produces parts based on the user-defined parts and tools setup. Material velocity is inputted into the system via an external measuring wheel. All system status and error detections are processed by the system and available to the user via system parameters. The following cut types are supported in automatic mode:

- Crop Cut
- Inhibit Cut
- Test Cut

## **Cut Type**

- Crop Cut

A crop cut is used to provide a starting reference cut on the material before the first part is made in a production run. The piece of material that is produced by a crop cut is discarded from the production run.

- Immediate Cut

An immediate cut is used to provide an immediate reference cut on the material in manual mode operation. Typically an immediate cut is enabled by the operator after material is jogged into the carriage area and stopped. If the material is moving, an immediate cut will synchronize with the material before performing the cut.

- Test Cut

A test cut is used to provide a sample cut of material that can be measured for quality control. A test cut is defined in the Cuts Setup screen. It defines the length and the tool that will be used to perform the test cut. It is enabled by pressing the F1 (TestCut) key from the Main screen. When enabled, if a part is currently being produced, the next cut performed will be the test cut.

- Inhibit Cut

The Inhibit Cut is used during production to prevent the carriage from synchronizing to the material and executing a cut. This function is enabled by pressing the F4 (InhibCut) key from the Main screen. It is useful when defect material is detected by the operator. The function is only active while the F4 key is held. Once released, the carriage immediately re-synchronizes with the material and normal production resumes.



# Motion and input/output sequences

