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MMF_P1R44F-024: Start-Up Manual

1. Information

1.1 Release

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Writer:	Andrea Zarantonello
Approver:	Giuliano Tognon
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Language:	English

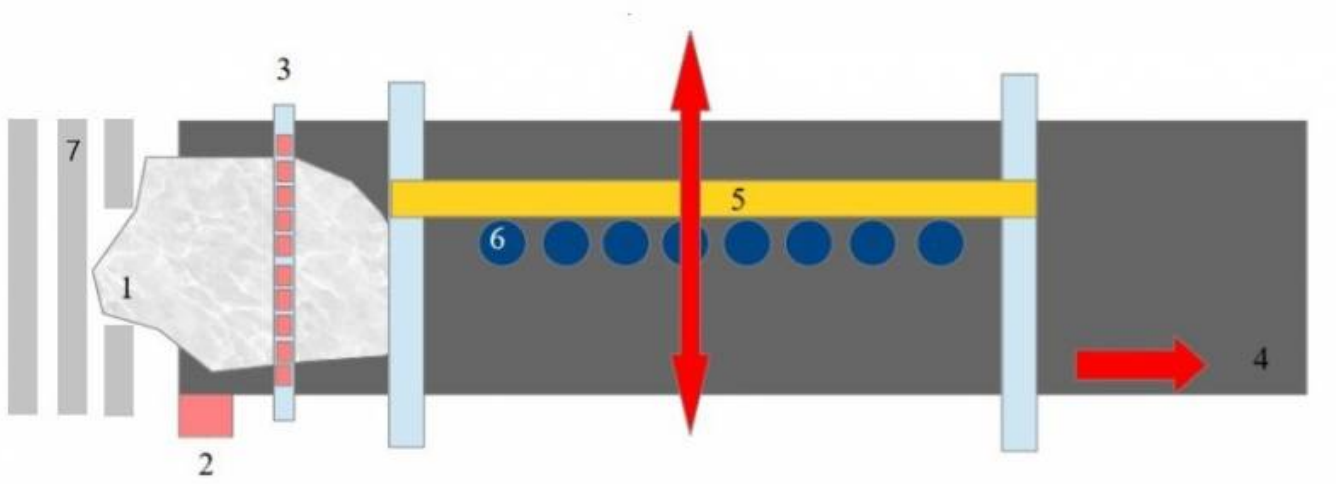
Document Release	Description	Notes	Date
01	New manual		15/01/2023

Specifications

2. Settings

Machine Overview

Machine top view :



n:	Description:
1	Raw Slab
2	Conveyor Encoder
3	Limit Switch Bar
4	Conveyor Belt
5	Mobile Bridge
6	Grinding Heads
7	Inlet Roller

2.1 Belt Settings

Belt Axis Resolution

Procedure	
1	Make a mark on the belt and correspondingly on the fixed part
2	Zero the ENCODER value using the  button
3	Move the belt about 4000 mm approximately
4	Set the PULSE parameter value to the number read in the ENCODER parameter
5	Measure the distance between the mark on the fixed part and the mark on the belt
6	Enter the measurement in the “MEASURE” field

2.2 Setting Bridge

Bridge Alignment / Sensor Bar

To align the bridge with the sensor bar, the homing sensor (or zero sensor) must be aligned with the first sheet detection sensor.

possible to align the homing sensor and the first sensor of the bar, enter the distance between the two sensors in parameter PB12.

Bridge Resolution

= gantry enable/disable button.

= gantry disabled

= gantry enabled

Procedure	
1	By pressing the “ - ” button, the instrument delivers -1 Volt.
2	By pressing the “ + ” button, the instrument delivers +1 Volt.
3	Press the “ - ” button to move the bridge axis towards one end (without actuating the limit switch).
4	Make a mark on the moving part, correspondingly make a mark on the fixed part.
5	Zero the **ENCODER** value using the  button.
6	With the “ +” button, move the axis towards the opposite end (without actuating the limit switch).
7	Measure the distance between the mark on the fixed part and the mark on the moving part with a tape measure.
8	Enter the measurement in the “ MEASURE” field.
9	Copy the number from the “ ENCODER” field to the “ PULSE” field.

Bridge Calibration

Important: parameters must be adjusted: inverter / brushless driver / servo valve to eliminate ramps (ramps will be managed by the instrument)

Calibration

1	Using the “ Resolution” page, move the bridge axis to the center of the stroke.
2	Zero it with the “ = 0” button
3	go to the “ BRIDGE CALIBRATION” page

4	Disconnect the control conductors (+/-10 Volt) Inverter/Driver/Servo Valve
5	Calibrate the Inverter/Driver/Servo Valve devices to have high sensitivity
6	Short-circuit the analog control inputs of the Inverter/Driver/Servo Valve devices
7	Calibrate the Offset of the Inverter/Driver/Servo Valve device so that the bridge axis is still
8	Connect the analog control conductors to the Inverter/Driver/Servo Valve
9	Press the “ A” button, the instrument will automatically calculate the OFFSET voltage
10	Move the bridge axis to 1/5 of the stroke
11	Enter the value 1 V in the “OUT VOLTAGE” field
12	Read the speed
13	Multiply the speed value by 10, then enter it in the “maximum speed” field

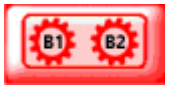
Setting Gantry

Gantry Alignment / Sensor Bar

To align the gantry with the sensor bar, the homing sensor (or zero sensor) on the gantry must be aligned with the first sensor on the sheet detection bar.

Gantry Resolution

= enable/disable gantry button.



= gantry disabled

= gantry enabled

Procedure	
1	Press the " - " button, the tool delivers -1 Volt
2	Press the " + " button, the tool delivers +1 Volt
3	Press the " - " button, move the gantry axis towards one end (do not activate the limit switch)
4	Make a mark on the moving part, and correspondingly, make a mark on the fixed part
5	Zero the **ENCODER** value with the  button
6	Using the " +" button, move the axis towards the opposite end (do not activate the limit switch)
7	Measure the distance between the mark on the fixed part and the mark on the moving part
8	Enter the measurement in the "MEASURE" field

Gantry Calibration

Important: You will need to adjust the parameters of the inverter/Driver Brushless/servo valve to eliminate the ramps (the ramps will be managed by the tool).

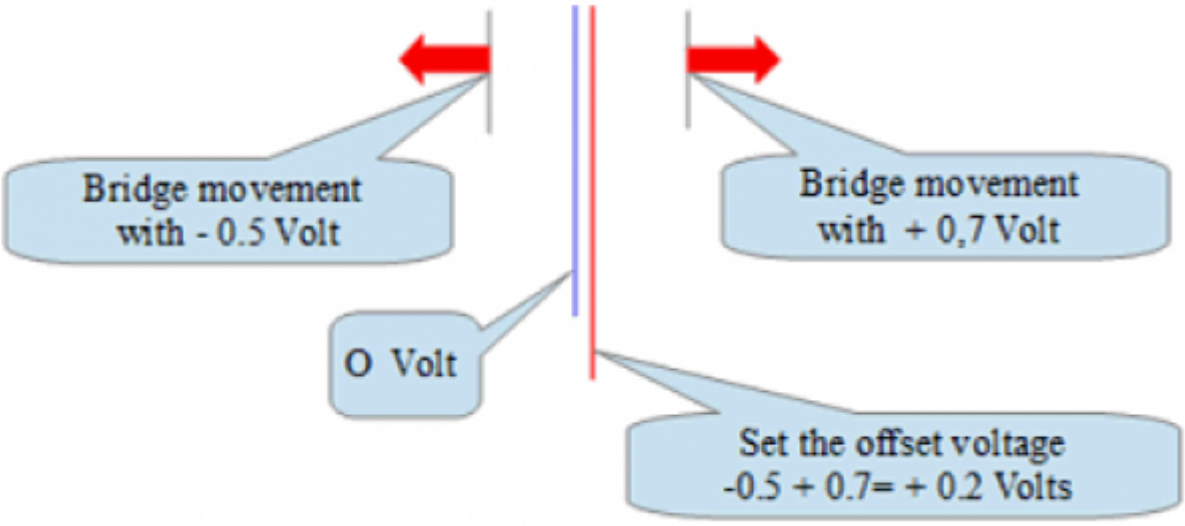
Calibration

1	Using the “RESOLUTION” page, move the gantry axis to the center of its travel
2	Zero it with the “ = 0” button
3	Go to the “GANTRY CALIBRATION” page

4	Disconnect the control conductors (+/-10 Volts) Inverter/Driver/Servo valve
5	Calibrate the Inverter/Driver/Servo valve devices to have high sensitivity
6	Short-circuit the analog control inputs of the Inverter/Driver/Servo valve devices
7	Calibrate the offset of the Inverter/Driver/Servo valve device to keep the gantry axis still
8	Connect the analog control conductors to the Inverter/Driver/Servo valve devices
9	Press the “A” button, the tool will automatically calculate the OFFSET voltage
10	Move the gantry axis to 1/5 of its travel
11	Enter a value of 1 V in the “OUT VOLTAGE” field
12	Read the speed
13	Multiply the speed value by 10 and enter it in the “maximum speed” field

Attention: If the automatic offset voltage calculation procedure (step 9) fails, perform the following manual procedure:
Determine :

with which positive voltage value the gantry moves forward with which negative voltage value the gantry moves backward
Then, set the voltage offset halfway between these two values
Example :


Bridge movement
with - 0.5 Volt
Bridge movement
with + 0,7 Volt
O Volt
Set the offset voltage
-0.5 + 0.7= + 0.2 Volts

Dynamic Calibration

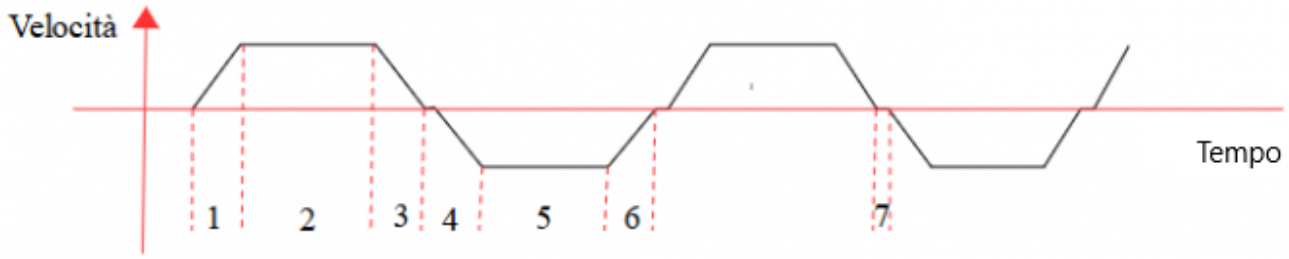
1	Move the gantry to 1/5 (20%) of its travel
2	Press the “ = 0” button
3	Enter a value in the “DELTA” field, equal to 4/5 (80%) of its travel
4	Set T INTEGRAL = 0
5	Set FEEDFORWARD TMP = 100
6	Set PROP.GAIN TMP = 0.02
7	Set TEMPO ACC = 3
8	Set TEMPO DEC. = 3
9	Set MAX ERR. INSEG. = 9999
10	Set the speed value to 30% of the maximum speed
11	Press Start
12	The gantry will start to oscillate

Perform the following activities repeatedly, calmly, with the following goals:

highest possible speed shortest possible acceleration ramps low tracking error Procedure:

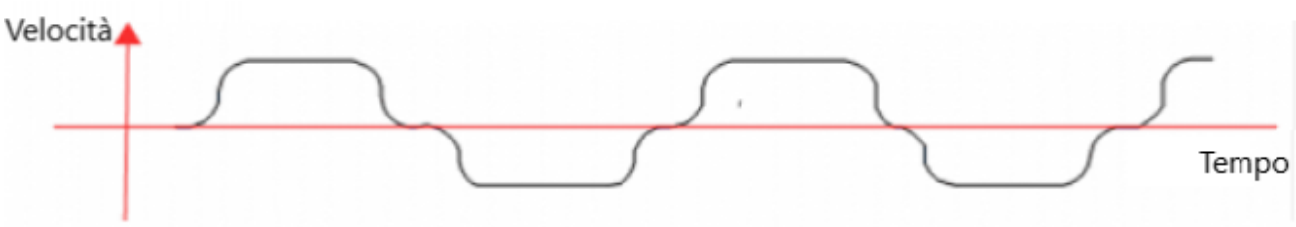
1	Slightly increase the PROP.GAIN TMP parameter (e.g., 0.03...0.04...0.05...)
2	Observe if the tracking error is less than 30 mm
3	Then, slightly decrease TEMPO ACC and TEMPO DEC
4	Slightly increase the PROP.GAIN TMP parameter again
5	Observe if the tracking error is less than 30 mm
6	Increase the speed from 30% to 40%
7	Slightly increase the PROP.GAIN TMP parameter again

Repeat steps 1 to 7 until the axis vibrates. When the axis vibrates, set PROP.GAIN TMP to -10%

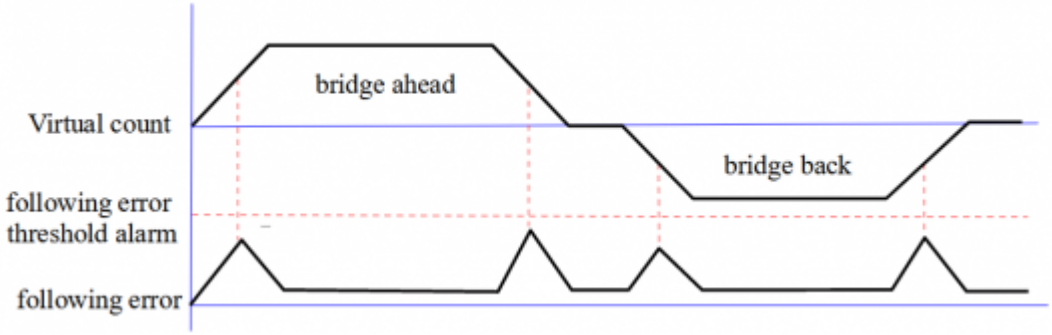


	Description	Parameter
1	Acceleration in the positive direction	PB 06
2	Constant speed	
3	Deceleration	PB 07
4	Acceleration in the negative direction	PB 07
5	Constant speed	
6	Deceleration	PB 07
7	Pause	PB 09

Note: Acceleration/deceleration with “S” ramps (parameter “PG 34”) reduce the number of back-and-forth cycles but contribute to a smoother gantry motion.



Tracking Error Setting:

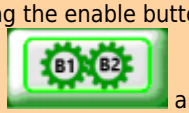


With the gantry in motion, lower the tracking error value (following error) from 9999 to 100. Gradually reduce it from 100 towards 0000. Once you find the value that triggers the alarm, add 15%. Caution: The MAX and min tracking errors must be less than 30.

The “RESET FOLL.ERR” button allows you to recalculate the maximum and minimum following error.
Press it each time you change the parameters for dynamic calibration.

Perform the same procedure on the slave gantry calibration page if you are using a second (slave) motor.

Then enable the gantry by pressing the enable button 

Check that the button turns green 

and try moving the master gantry, ensuring that the slave gantry moves in sync with the master.