

# R0015299 Install Spindle control pipework and fittings

Fitting of control pipes and connections

 Difficulty **Hard**

 Duration **4 hour(s)**

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Comments

## Introduction

### Tools Required

Pipe cutters

Standard screwdriver set

Standard hex key set

Standard spanner set

### Parts Required

D0010807 upstand collar x 32

P0001023 6mm compact y x 4

P0000456 M5-4mm straight fitting x 24

P0001091 Bulkhead 6mm straight x 24

P0001093 6mm - 4mm stem elbow x 8

## Step 1 - unless otherwise stated

Use Loctite 243 on all fasteners

Pen mark all fasteners to show finalised



## Step 2 - Quality

It is vital that no air pipes are kinked on installation .

Ensure all pipes are checked for correct running .

Example attached of kinked pipe



## Step 3 - Mount Single plunge valves

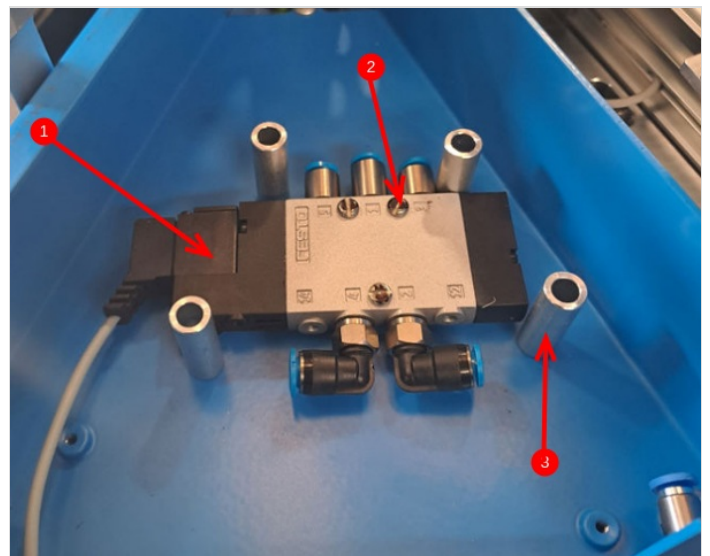
4 off

1 Mount pre assembled valve into spindle connection boxes to the left of the single slide spindle assembly (as viewed from rear)

2 Use 3 off M3 x 12 pan heads to secure valve to connection box as shown

3 Before tightening, add 4 off D0010807 upstand collars to define position of valve mounting

4 Finalise fixing



## Step 4 - Mount Double plunge valves

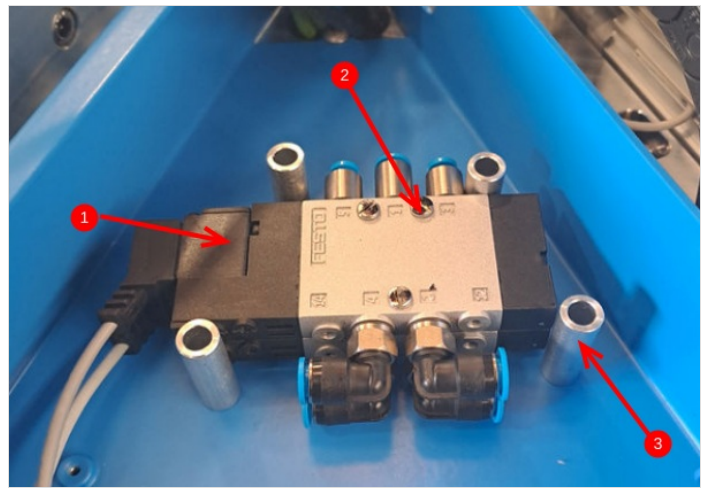
4 off

1 Mount double stack of valves into spindle boxes to the left of the double plunge spindle assemblies. (as viewed from rear)

2 Use 3 off M3 x 25 pan heads to secure valve to connection box as shown

3 Before tightening, add 4 off D0010807 upstand collars to define position of valve mounting

4 Finalise fixing



## Step 5 - Air Feed connections

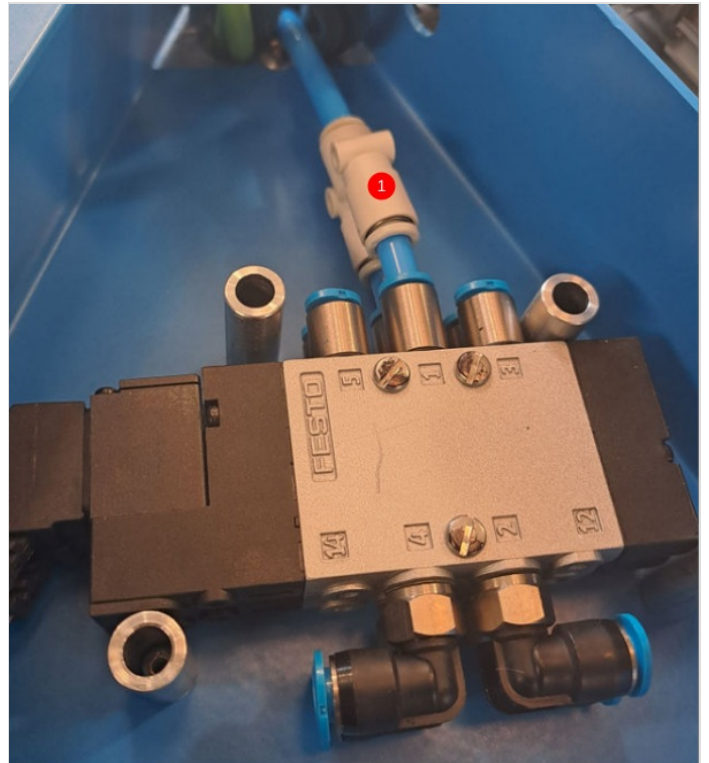
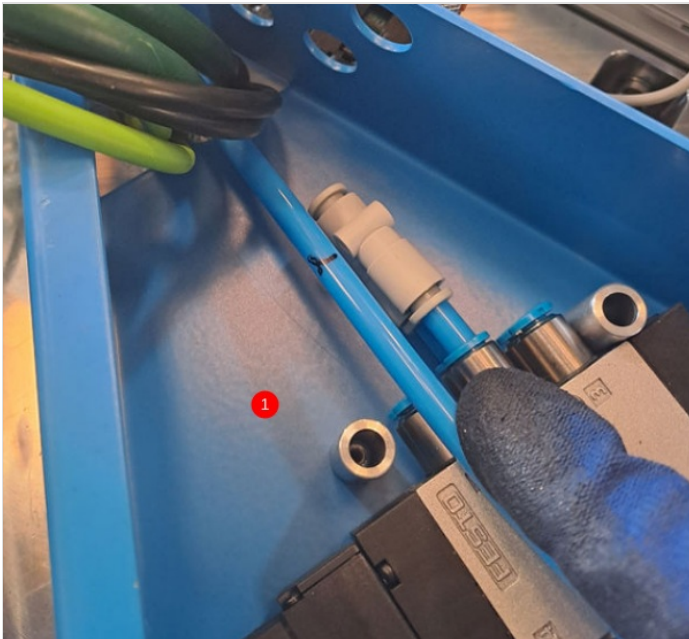
1 Double valve connections

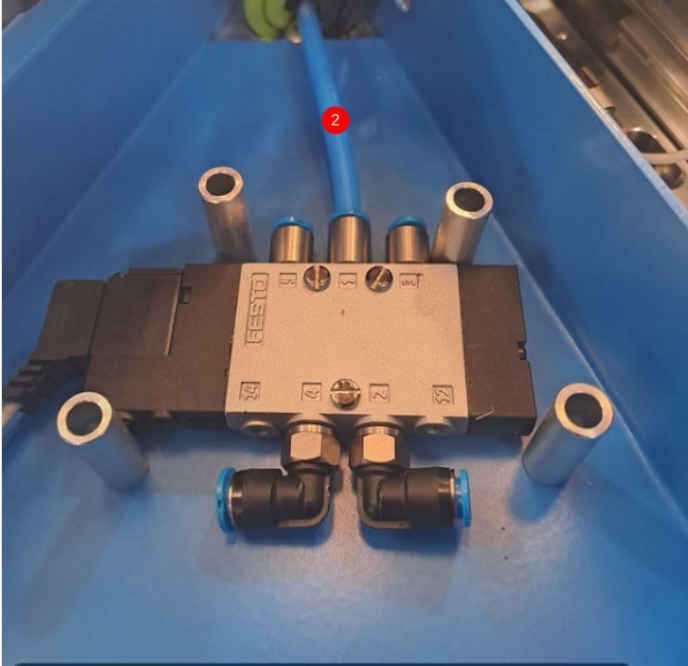
Use compact 6mm tee P0001023 and connect two valves together as picture

Lay feed pipe over top and mark length, cut and connect

2 Single valve connections

Lay feed pipe over valve fitting, mark and cut then connect



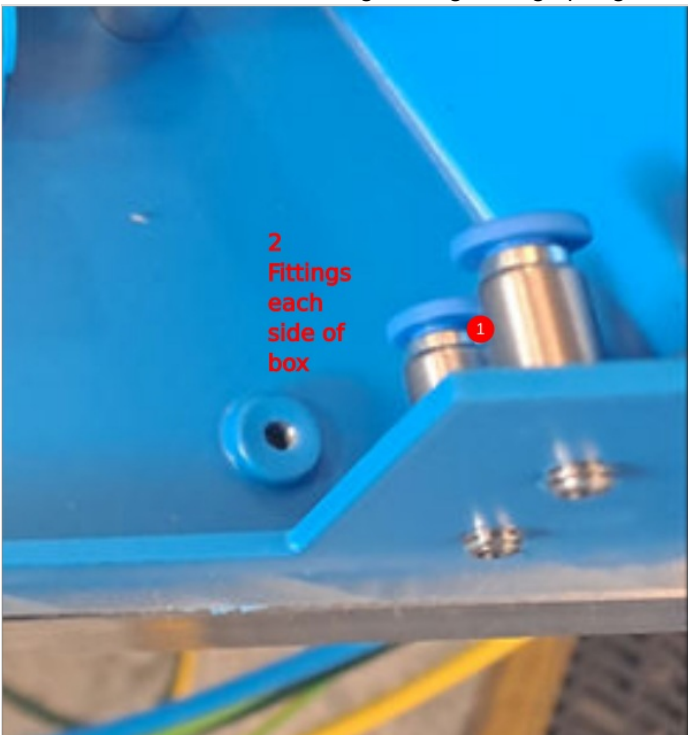


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## Step 6 - Exhaust line fittings

1 Fit 4 off P0000456 m5 -4mm straight fittings to double plunge connection boxes ( 2 valve boxes)

2 Fit 2 off P0000456 m5-4mm straight fittings to single plunge connection boxes (1 valve boxes) and 2 off M5 x5 button heads as blanks



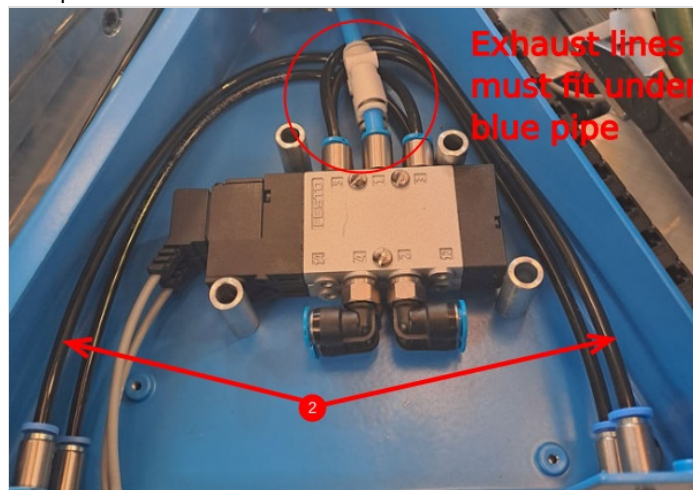
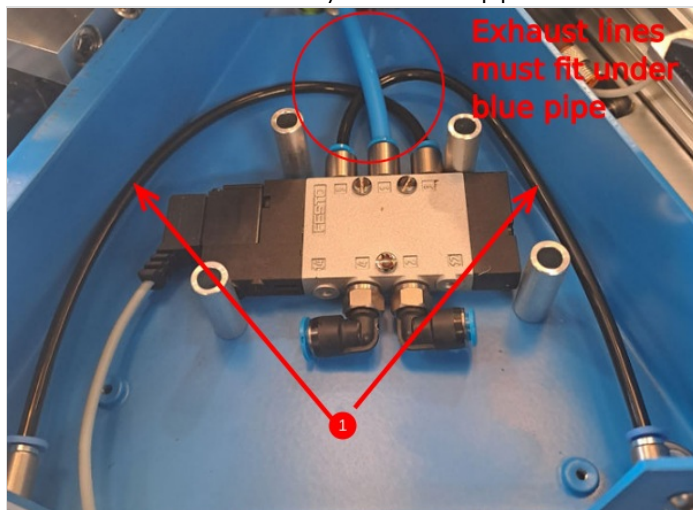




## Step 7 - Exhaust line pipes

1 Use 4mm black air pipe to connect lower valve in all connection boxes as shown

2 On double valve boxes overlay second set of pipes to connect exhausts of top valve

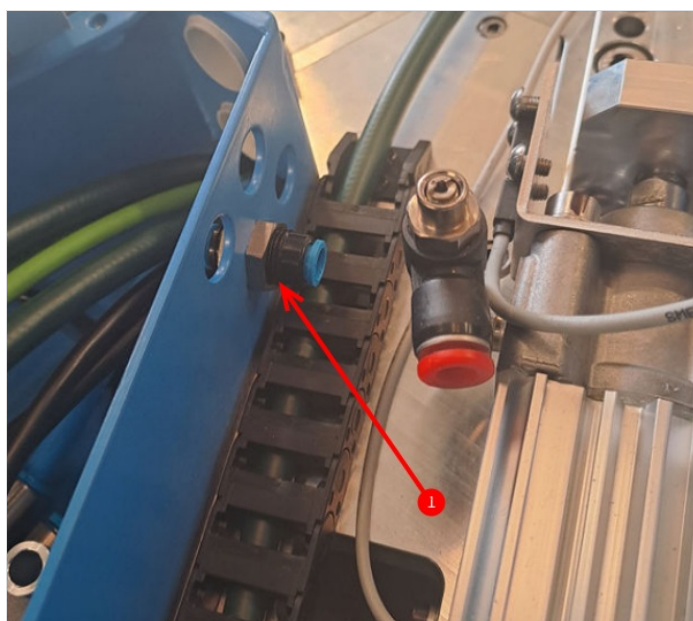


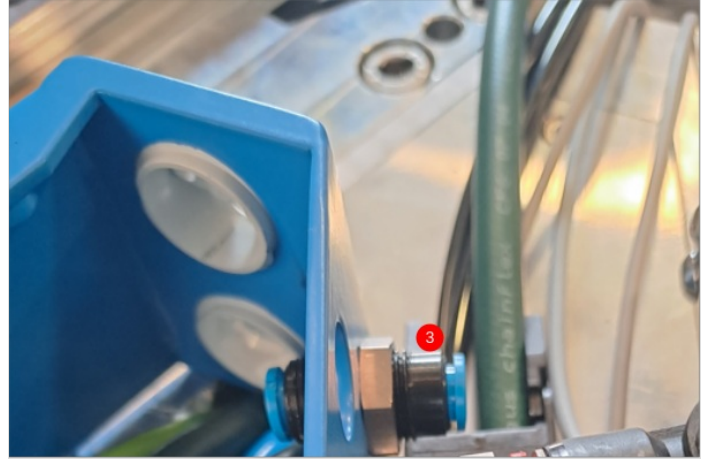
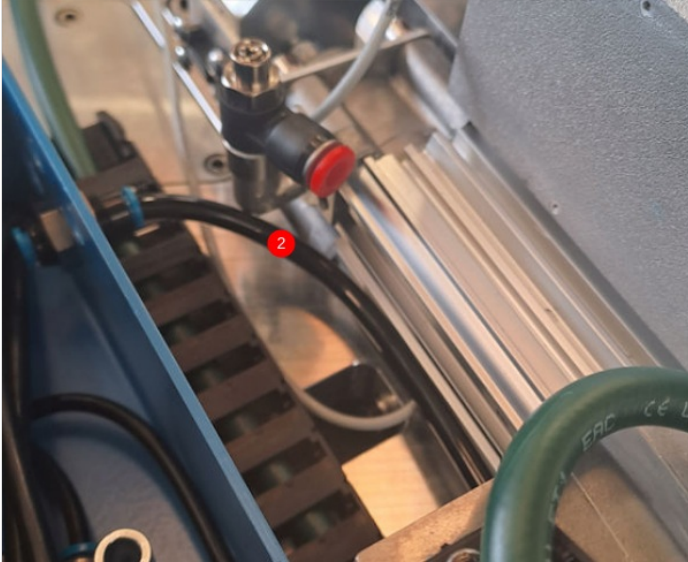
## Step 8 - Cylinder connections

1 Fit P0001091 bulkhead connector to all spindle boxes at position shown, ensuring orientation of bulkhead is the same

2 Cut 8 pieces of black 6mm air pipe @230mm long and fit as show

3 Add P0001091 bulkhead to double slide connection boxes only as shown

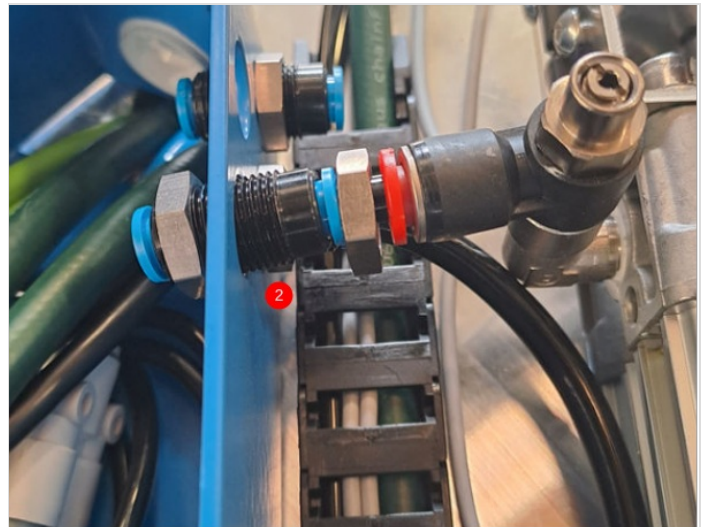




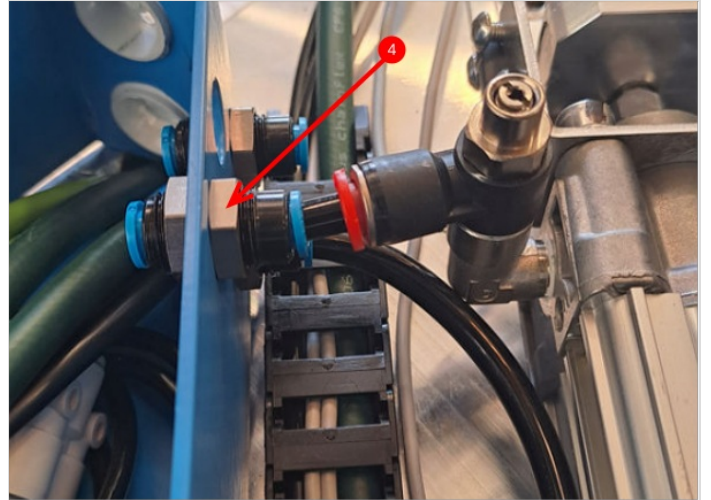
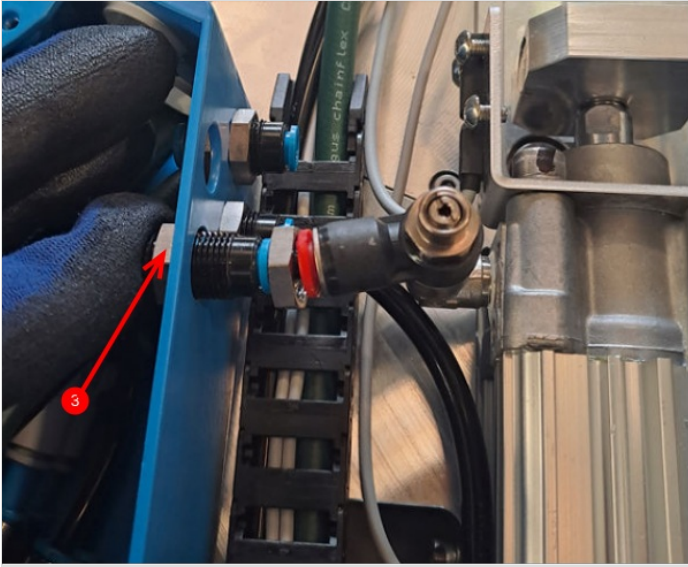
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## Step 9 - Cylinder connections

- 1 Prepare 8 off P0001091 bulkheads with a piece of 32mm long 6mm black pipe added and one nut removed
- 2 Push pipe into cylinder fitting with nuts loose as shown
- 3 Apply force on fitting towards cylinder and run indicated nut to face to ensure no strain is added to fitting when tightening
- 4 Spin indicated nut to the connection box face and then tighten nuts



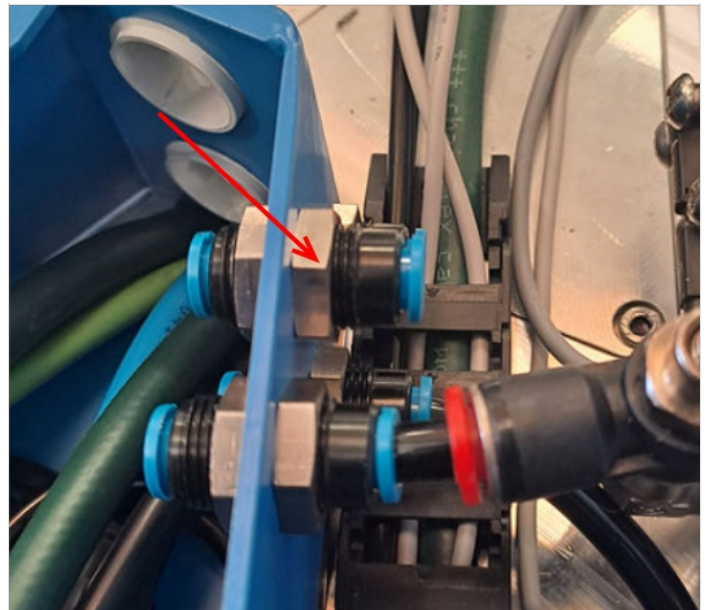




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## Step 10 - Cylinder connections

Fit remaining p0001091 bulkhead to double slide connection boxes as shown





## Step 11 - Quality

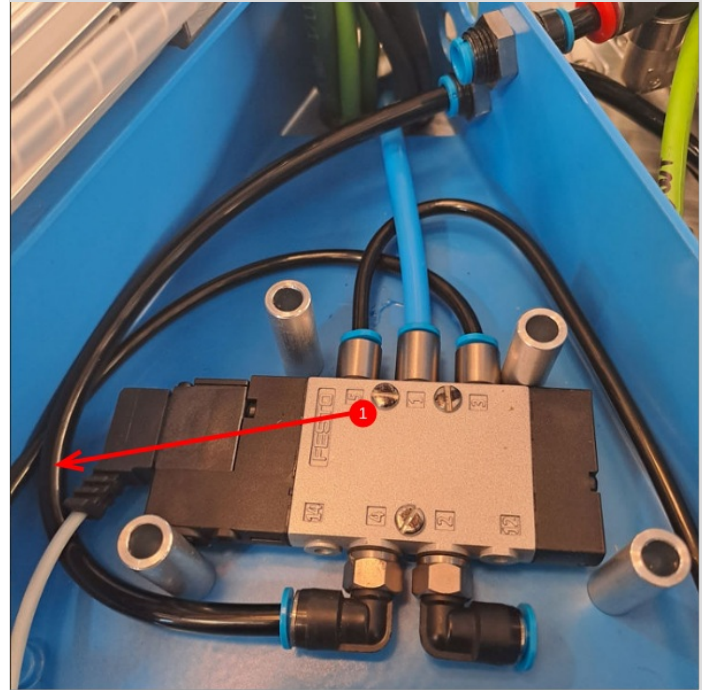
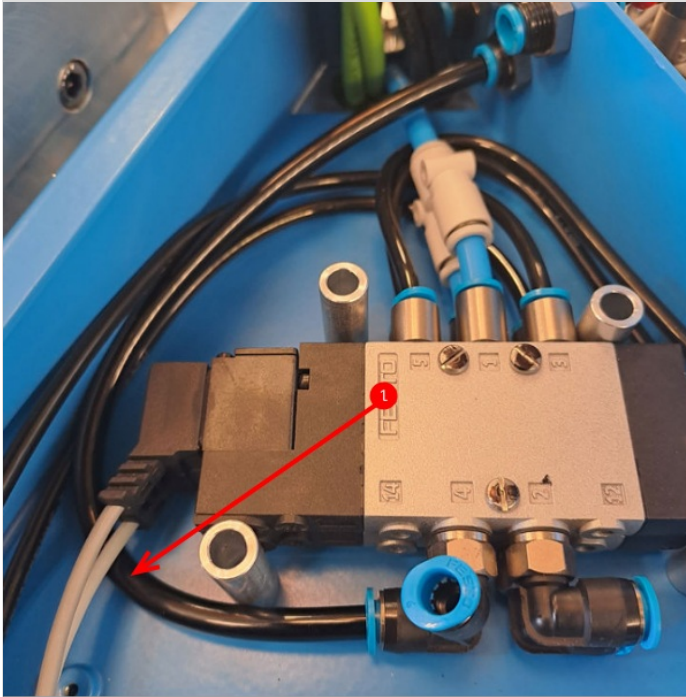
Please ensure all looms created and run are identical on each spindle head and copy examples shown . Looms must be kept to minimal size to protect from debris during operation

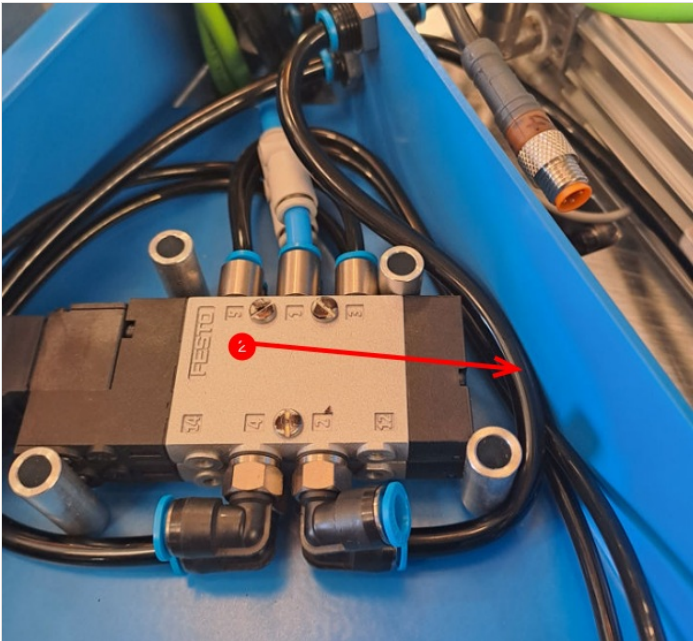
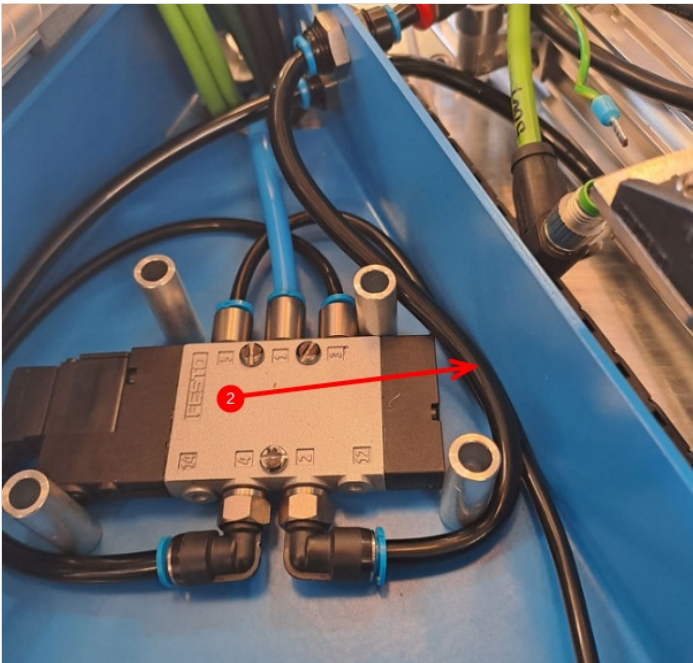


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## Step 12 - Valve connections

- 1 Cut 8 off pieces of black air pipe @ 230mm and fit as shown to all connection boxes, noting pipe routing
- 2 Cut 8 off pieces of black 6mm air pipe @ 190mm and fit as shown to all connection boxes



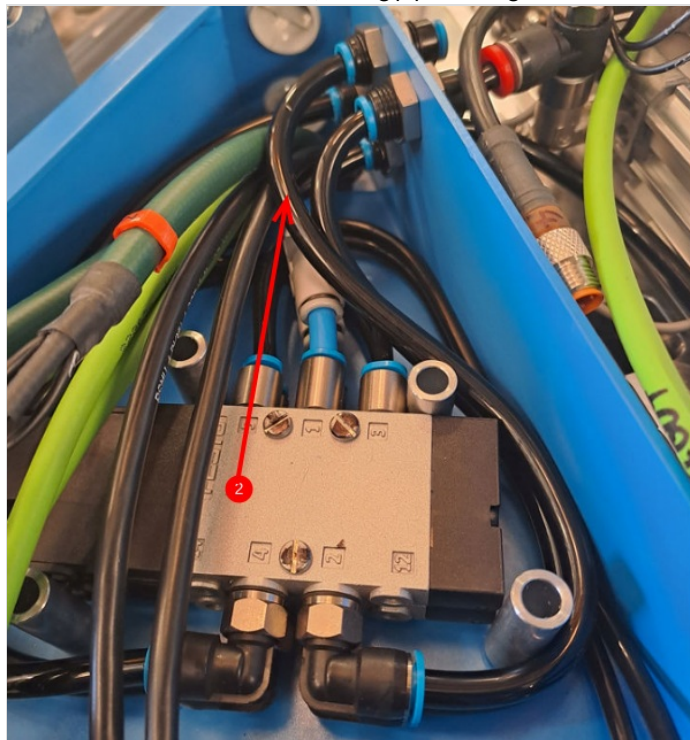
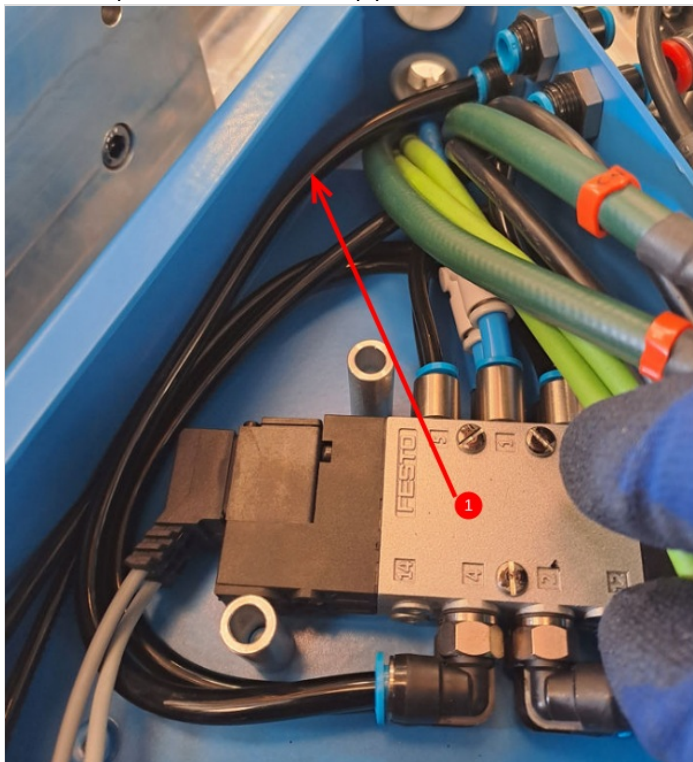




## Step 13 - Valve connections

1 Cut 4 off pieces of 6mm black airpipe @ 245mm and install in double slide connection boxes as shown, noting pipe routing

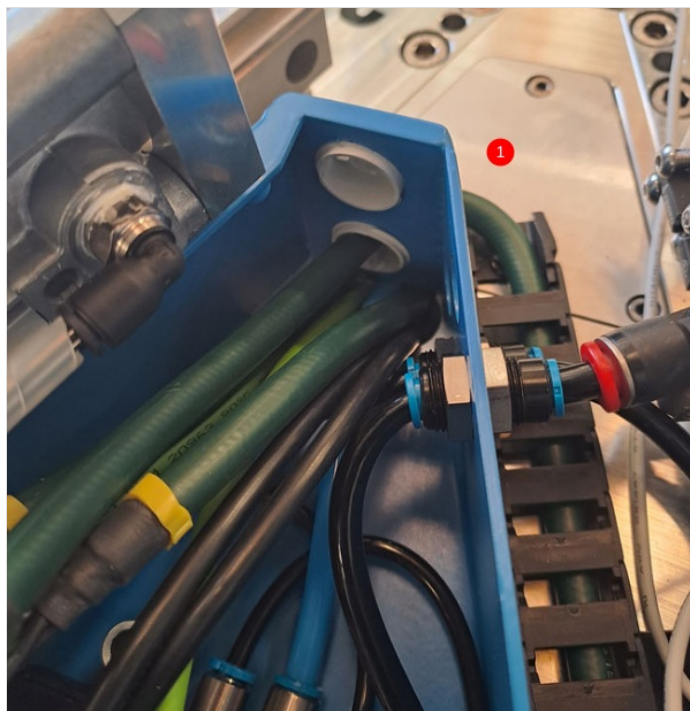
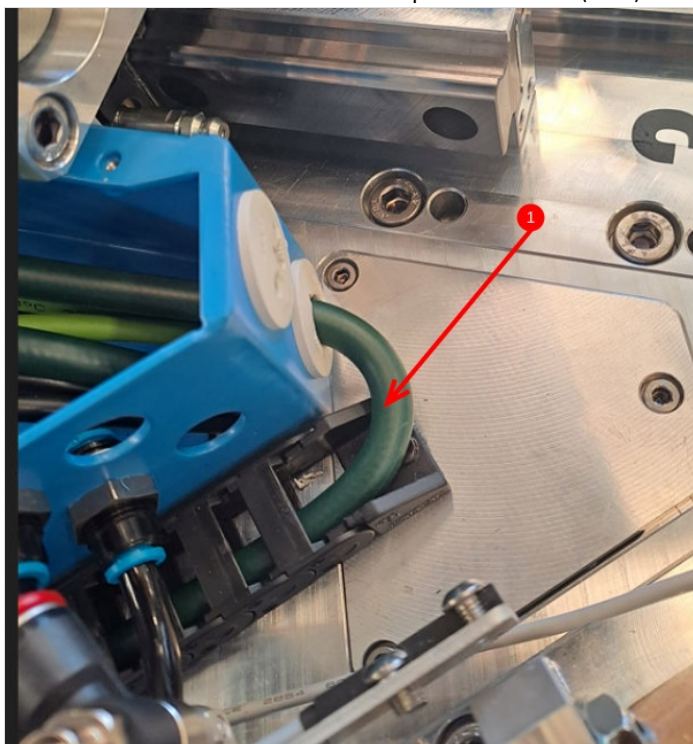
2 Cut 4 off pieces of 6mm black airpipe @ 205mm and install in double slide connection boxes as shown, noting pipe routing



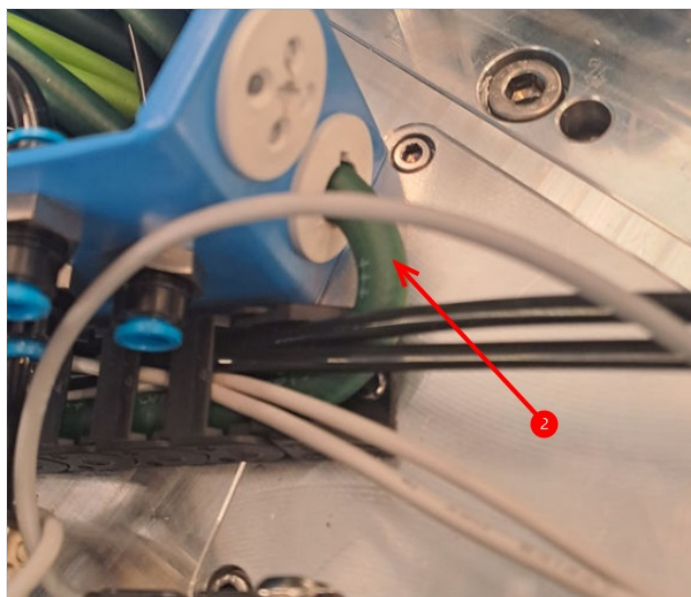
## Step 14 - Route single slide 300hz

1 Install 300hz cable from single slide spindle as shown (4 off)

2 Install 300hz cable from double slide spindle as shown (4 off)





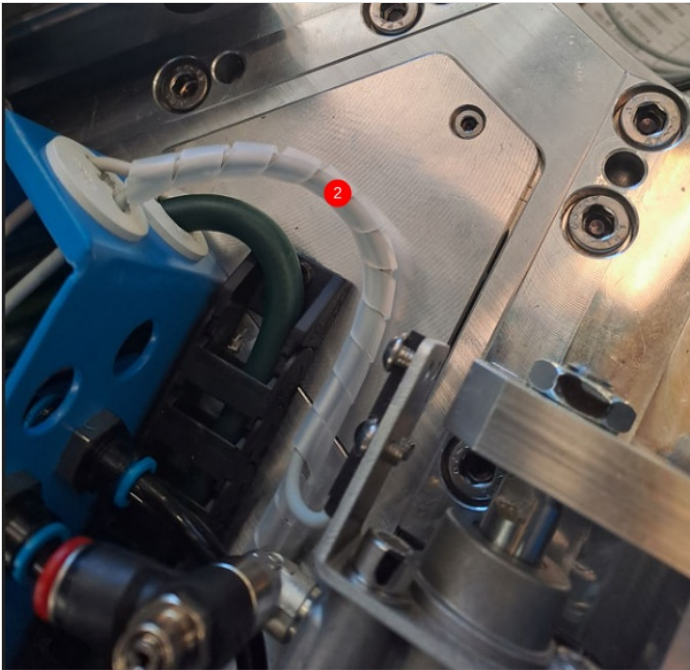
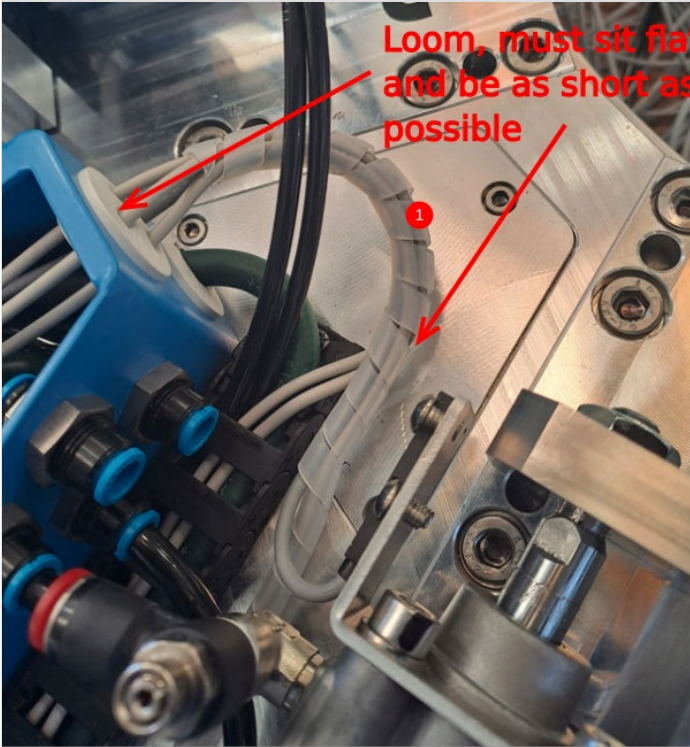
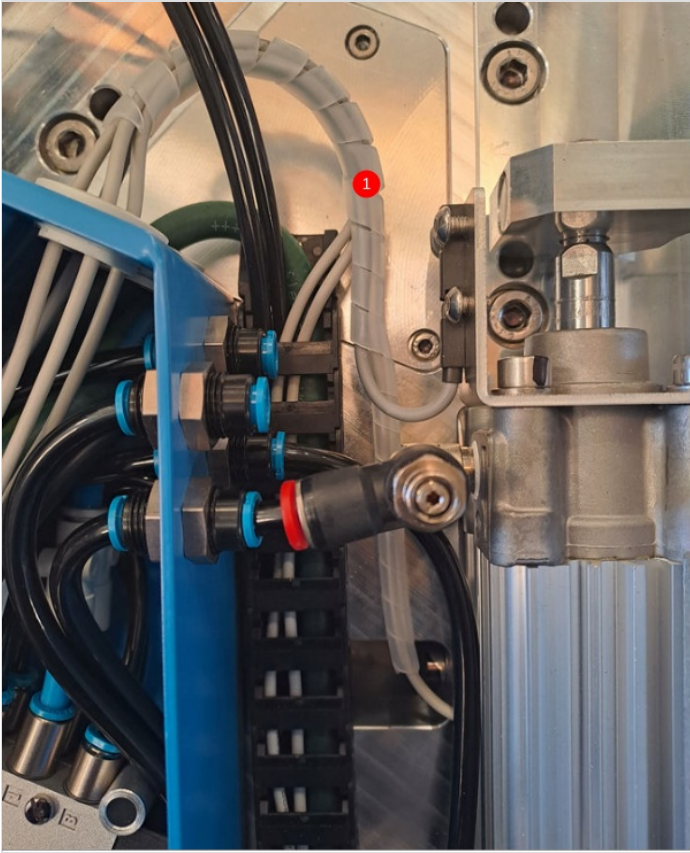


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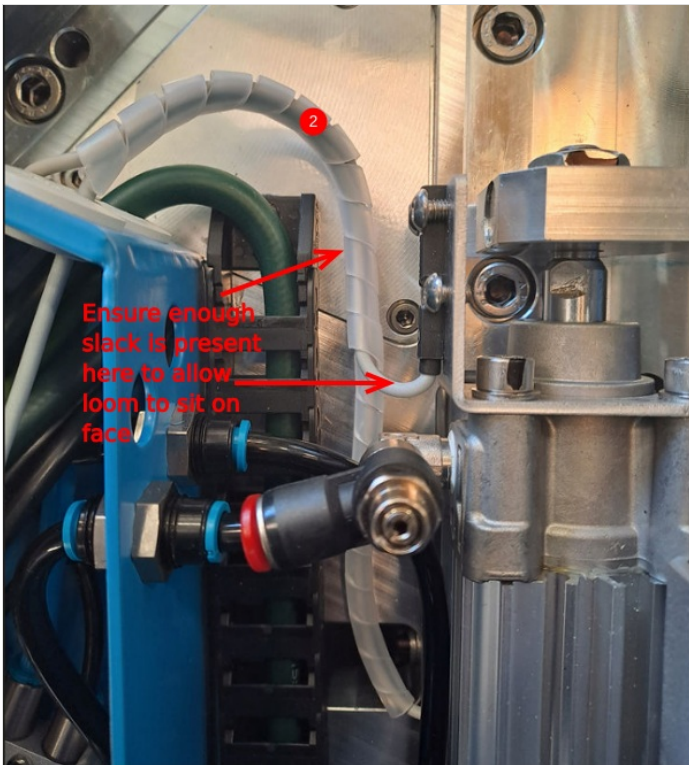
## Step 15 - Loom sensors

- 1 Loom with spiral wrap as shown sensors from double plunge assembly
- 2 Loom with spiral wrap as shown sensors from single plunge assembly

**⚠** ...Ensure sensors are loomed to enable loom to sit flat on spindle base and have minimal slack or exposed loom







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## Step 16 - Connect 4mm air pipes

Fit 2 off P0001093 stem elbows as shown then connect 4mm airpipes over length as shown to either connection ( these will be identified and tidied later on)

Repeat on remaining 3 double plunge connection boxes

