

<b>OpenBeam FFB Flight Yoke – Materials &amp; Components List</b>				
<b>(To be read in conjunction with drawings)</b>				
<b>Type</b>	<b>Item Description</b>	<b>Part No.</b>	<b>Amount</b>	<b>Comments</b>
<b>Materials</b>				
	OpenBeam – 90 mm length		8	
	OpenBeam – 135 mm		1	Non-standard - Cut to length
	OpenBeam – 150 mm		7	
	OpenBeam – 210 mm		4	
	OpenBeam – 240 mm		3	
	OpenBeam – 420 mm		4	Non-standard - Cut to length
				Buy 2 x 1000mm lengths from which the 4 x 420 And 1 x 135 can be cut. The rest are standard lengths
	Steel Shaft - Ø8.0 DIA X 45 L (Idler Pulley Spindle)		1	
	Precision Steel Tube - Ø25.0 Dia (+0.0 -0.05) x 450 L (Yoke Tube)		1	Length as required, approx 1mm wall Thickness
	Ø25.0 inside Dia Plain Nylon Washer		2	
<b>Components</b>				
	12 mm Miniature Guide Rail – 320 to 420 mm length	eg HIWIN MGN12	2	
	12 mm Sliding Block	eg HIWIN MGN12C	4	
	MB082GA210 Brushless Motor with 360 ppr Encoder		2	SpeederMotion – Agenzia Ing Pini (Italy) (Alternative 60ST-M01330 motors can be used with adap
	Needle Roller Bearing - Ø8 BORE x Ø12 OD x 10 L		2	
	Needle Roller Bearing - Ø25 BORE X Ø32 OD X 20 L		2	
	3mm Pitch x 804 mm x 15 mm wide HTD BELT	HTD 804-3M-15 Belt	1	
	5mm Pitch x 450 mm x 15 mm wide HTD BELT	HTD 450-5M-15 Belt	1	NB Use 425-5M-15 if 60ST-M01330 motor is used on ail
	25 mm Clamp Shaft Collar	Eg RULAND MCL-25	1	
	72T 5MM HTD Pulley – for 1610 TAPERLOC Bush	HTD 72-5M-15	1	
	Ø25 1610 Taperloc Bush		1	
<b>Fasteners</b>				
	M6 x 50 Hex Head Screw		1	
	M6 Nut		1	
	M6 Plain Washer		2	
	M3 x 6 Hex Socket Button Head Screw	eg OpenBeam 10093	350	

Sheet1

M3 x 12 Hex Socket Head Cap Screw		75	
M3 x 16 Hex Socket Head Cap Screw		20	
M3 x 20 Hex Socket Head Cap Screw		10	
M3 Thread Forming Screws (to form threads in beam ends)	eg OpenBeam 10165	12	
M3 Nut		250	
M3 Plain Washer		100	For use with cap screws
M4 Plain Washer		20	For use in motor fixing
Fasteners for Feet attachment to mounting base, Ø8 holes		4 sets	As required for your support structure
<b>3D Printed Parts</b>			
L Bracket		26	May also be purchased from OpenBeam
T Bracket		14	"
Idler Pulley Bracket		1	
Feet		4	
Motor Spacers		4	
End Stop		1	
44T Motor Pulley (Elevator Drive)		1	Based on HTD 44-3M-15
44T Idler Pulley		1	Based on HTD 44-3M-15
Forward Bearing Housing		1	
Rear Bearing Housing		1	
Long Rail Bracket		2	
Short Rail Bracket		2	
Belt Bracket		1	
Belt Clamp Plate		1	
24T Motor Pulley (Aileron Drive)		1	Based on HTD 24-5M-15
The 3D printed parts must of of good quality. The pulleys and bearing housing especially must be precision printed to give the required accuracy for bearing and shaft assembly.			
I use a Zortrax M200 printer with Z-Ultrax material.			
A full set of 3D printed parts is available to buy at BFFSimulation.com			
.stl files are also available on the Yoke web page:			

<a href="http://bffsimulation.com/FFB-yoke-OpenBeam.php">http://bffsimulation.com/FFB-yoke-OpenBeam.php</a>			
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