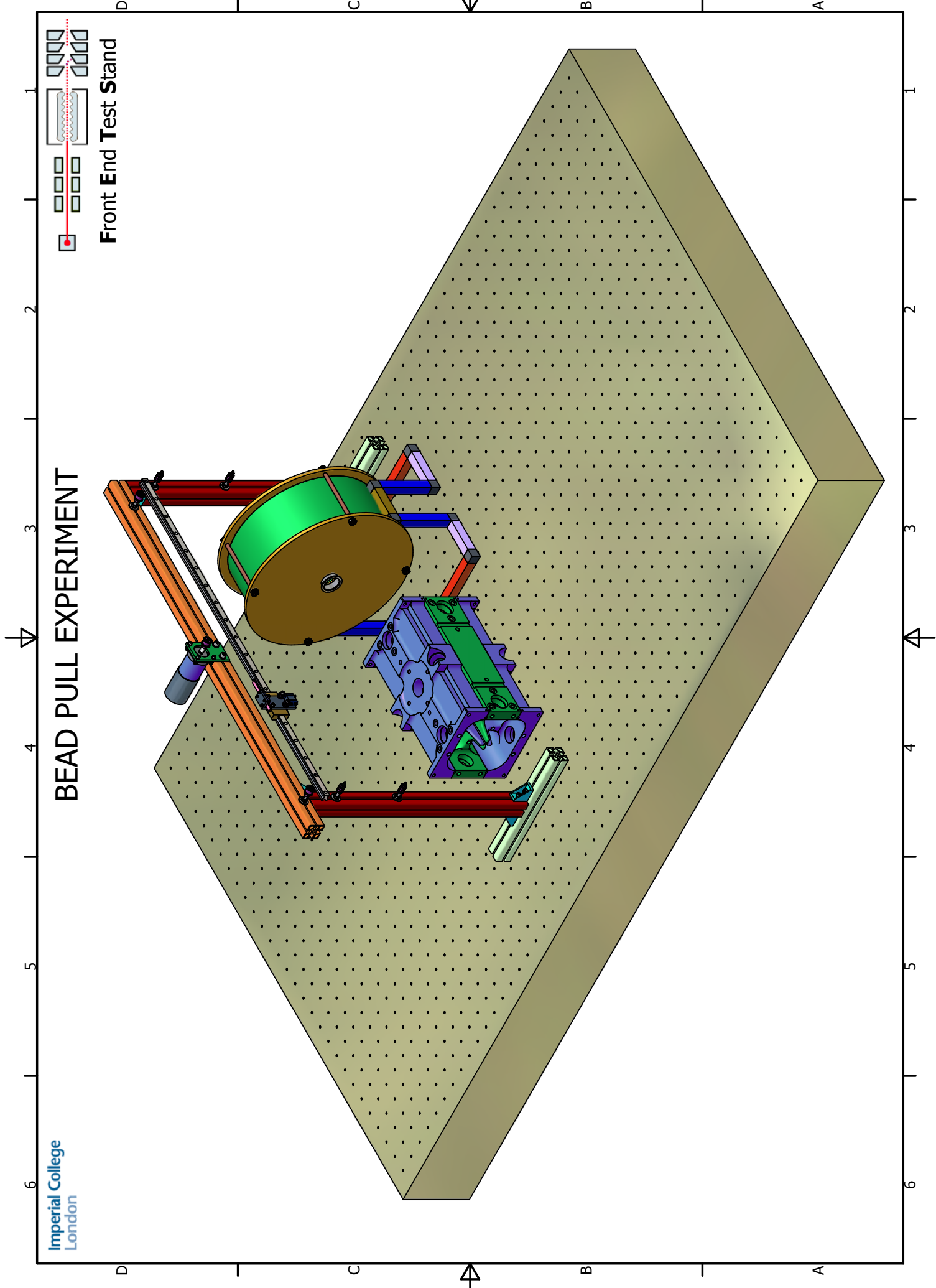
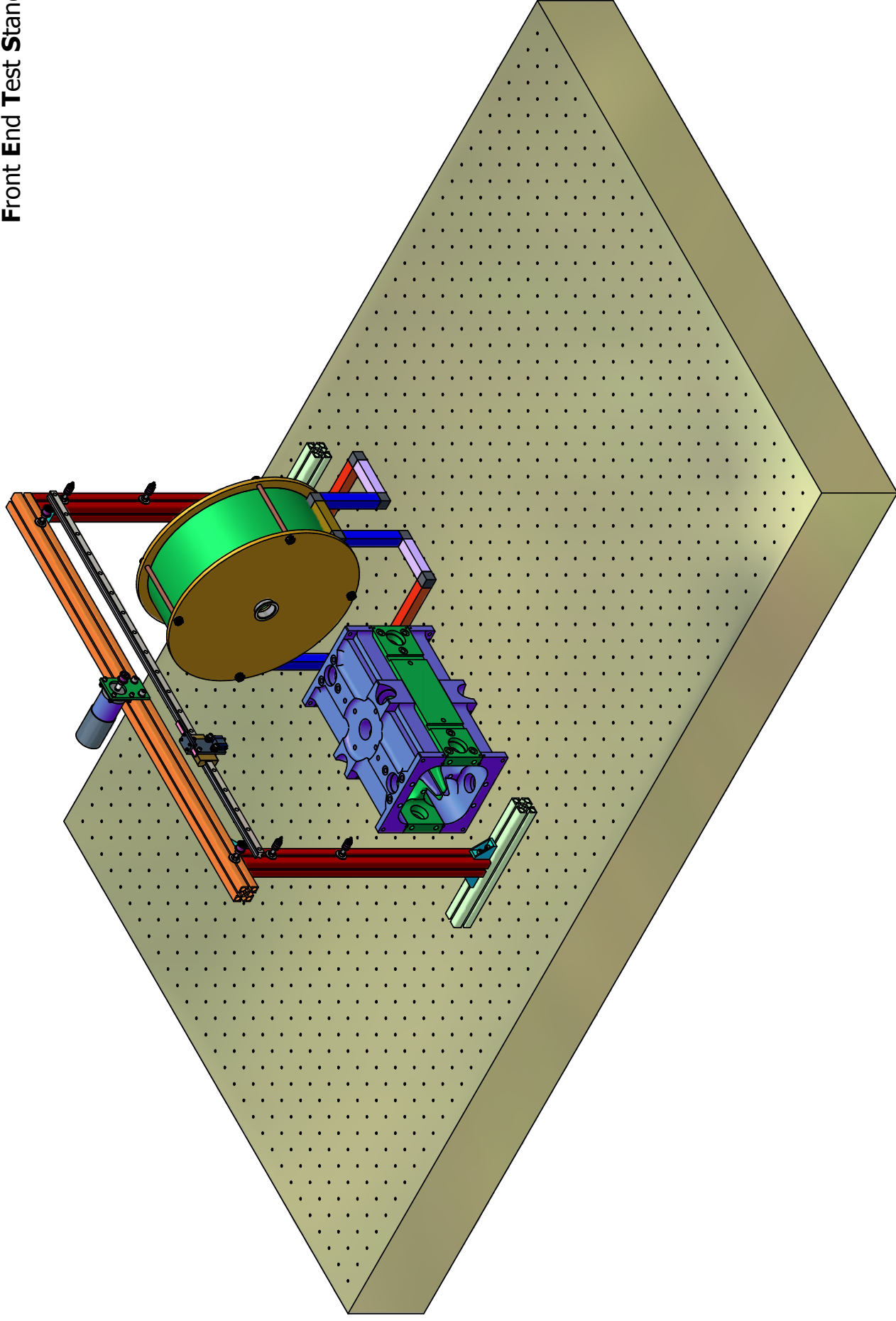
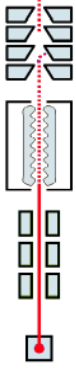
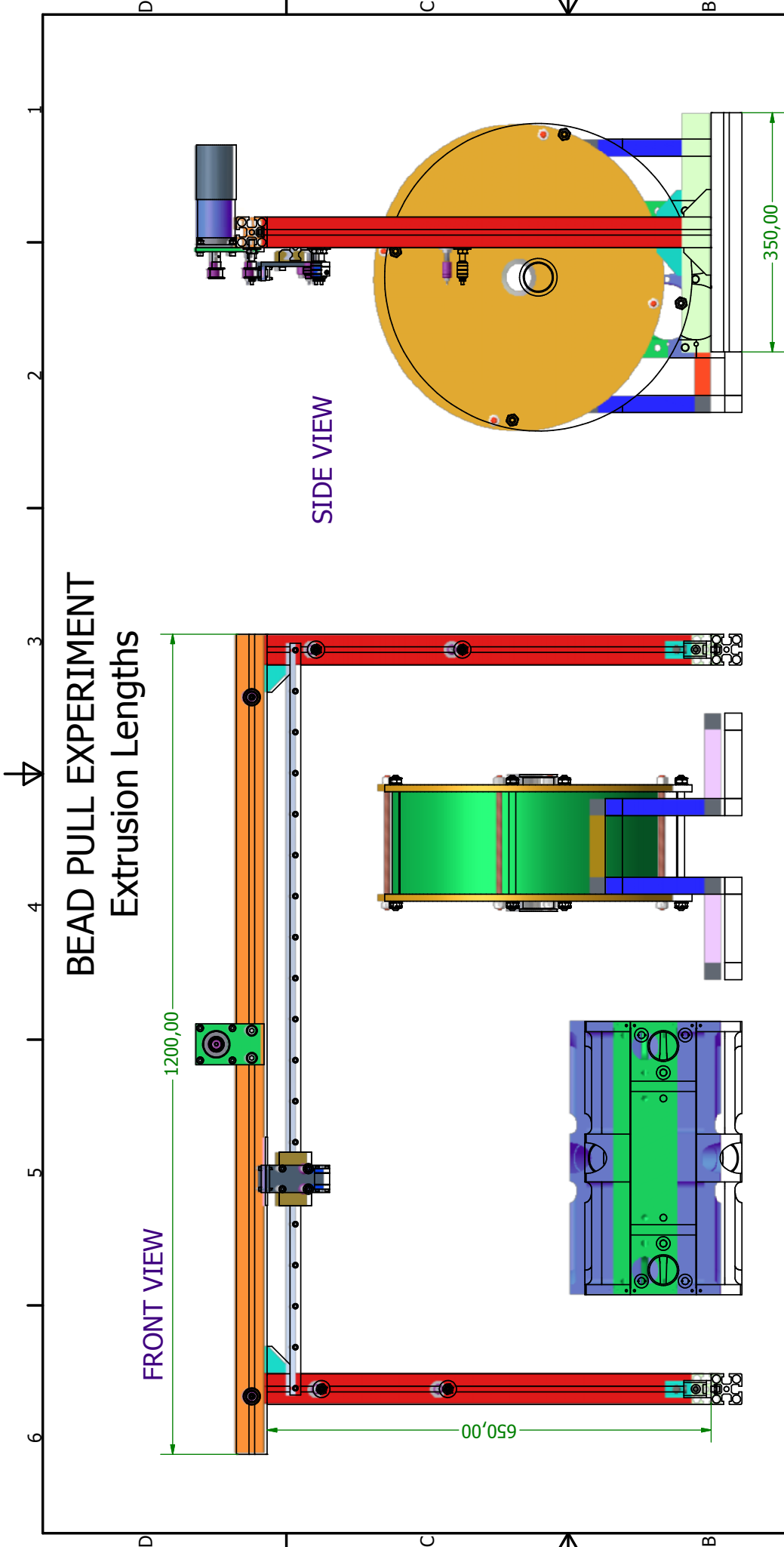


BEAD PULL EXPERIMENT

Front End Test Stand



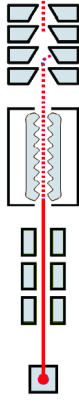


Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	Extrusion	
2	1	RFQ	
5	2	ShaftComplete	
6	1	Rail	
7	4	ShaftCompleteII	
8	1	BeltClamp	
9	2	Leg	
11	1	PilBoxCavity	
12	1	SM_Complete	
13	1	TimingPulley	

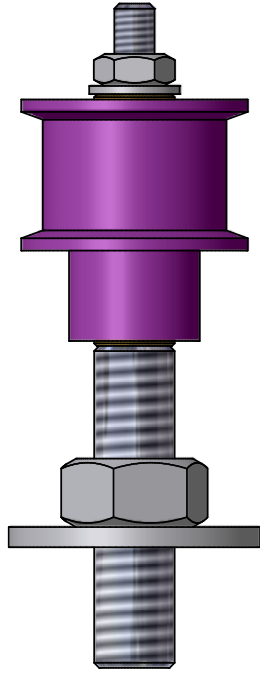
Title: Bead Pull Experiment - Front & Side Elevations

Drawn by:	P. Savage	Projection:	Third angle
Designed by:		Model file:	Complete2.iam
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:		Project:	F.E.T.S.
Material:	N/A	Sheet number:	2 / 15
Dimensions:		Number off:	1
General Tolerance:	+ / - 2mm u.o.s.		
Notes:			
Notes:			
Contact:	p.savage@imperial.ac.uk 0207 594 7817		

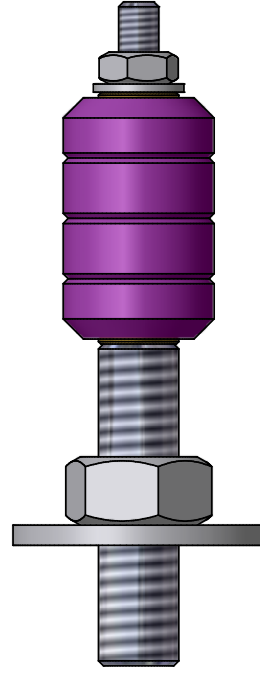
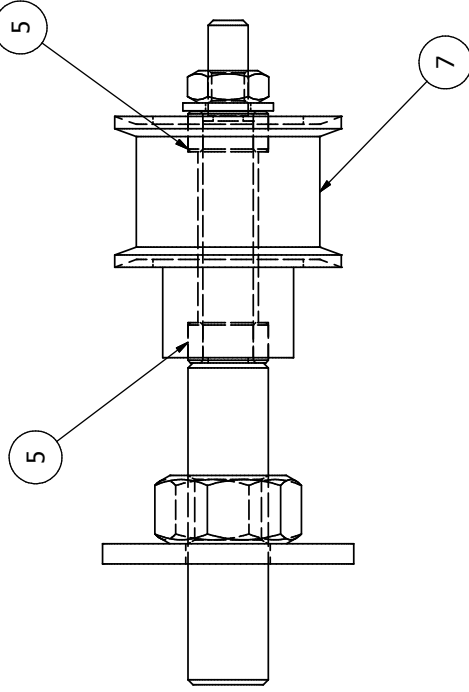
PULLEY ASSEMBLIES



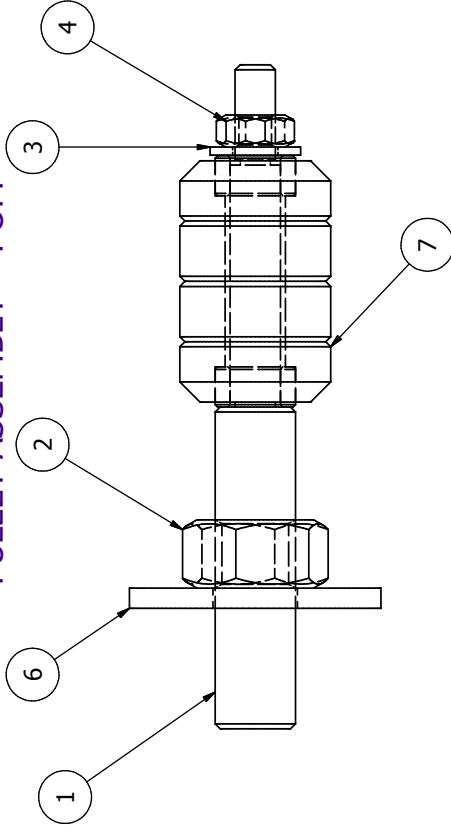
Front End Test Stand



TIMING PULLEY ASSEMBLY - 2 OFF



PULLEY ASSEMBLY - 4 OFF



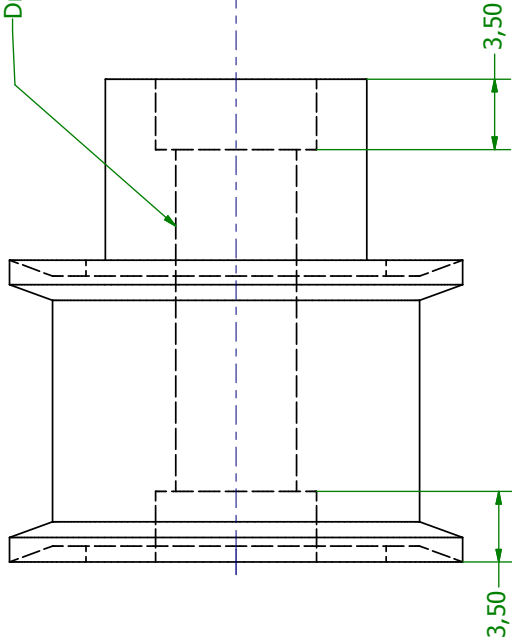
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	Shaft	
2	1	ISO 4032 - M8	Hex Nut
3	1	IS 2016 - A4.5	Washer
4	1	ISO 4032 - M4	Hex Nut
5	2	BrassBush	
6	1	IS 5370 - 8.4	Washer
7	1	Pulley	

Title: Bead Pull Experiment - Pulley Assemblies

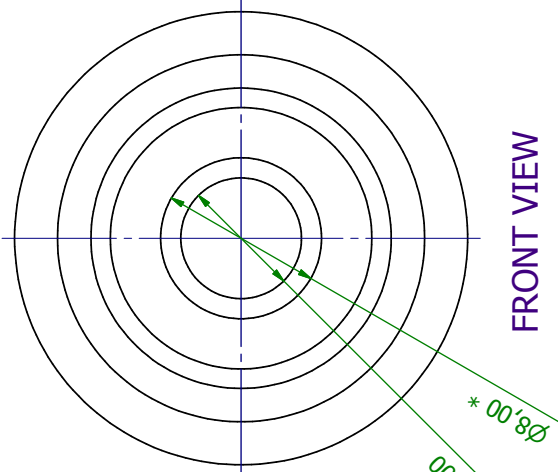
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	ShaftComplete.iam
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	N/A	Sheet number:	3 / 15
Dimensions:	N/A	Number off:	N/A
General Tolerance:	N/A		
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

TIMING PULLEY MODIFICATION

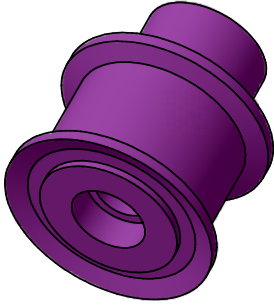
PULLEYS SUPPLIED
2 OFF



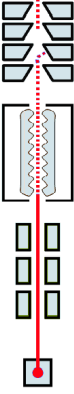
SIDE VIEW



FRONT VIEW



ISOMETRIC VIEW



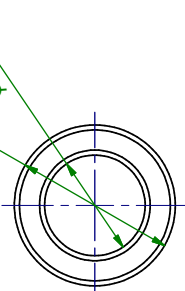
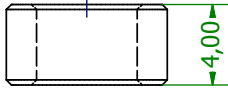
Front End Test Stand

- * Interference fit
- ** Sliding fit on pulley shaft

12 OFF

BUSHES

SIDE VIEW



FRONT VIEW



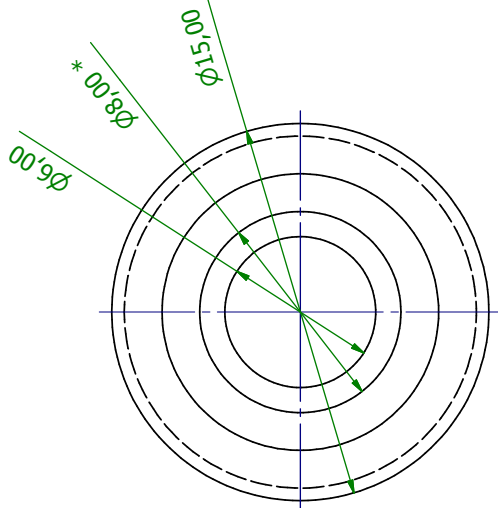
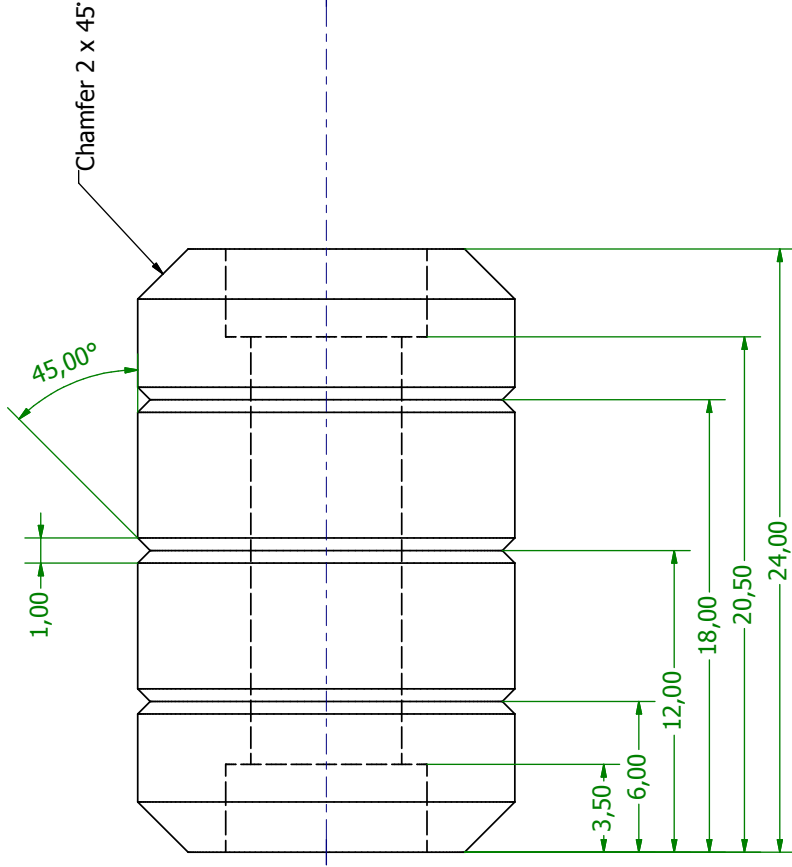
ISOMETRIC VIEW

Material: Brass or Phosphur Bronze

Title: Bead Pull Experiment - Timing Pulley Modification			
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	TimingPulley11.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	N/A	Sheet number:	4 / 15
Dimensions:	mm	Number off:	N/A
General Tolerance: +/- 0.1 u.o.s.			
Notes:			
Notes:			
Contact: p.savage@imperial.ac.uk			

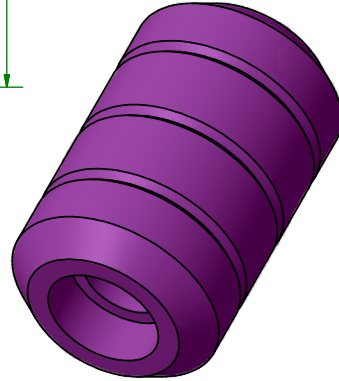
PULLEY

Front End Test Stand



FRONT VIEW

SIDE VIEW



ISOMETRIC VIEW

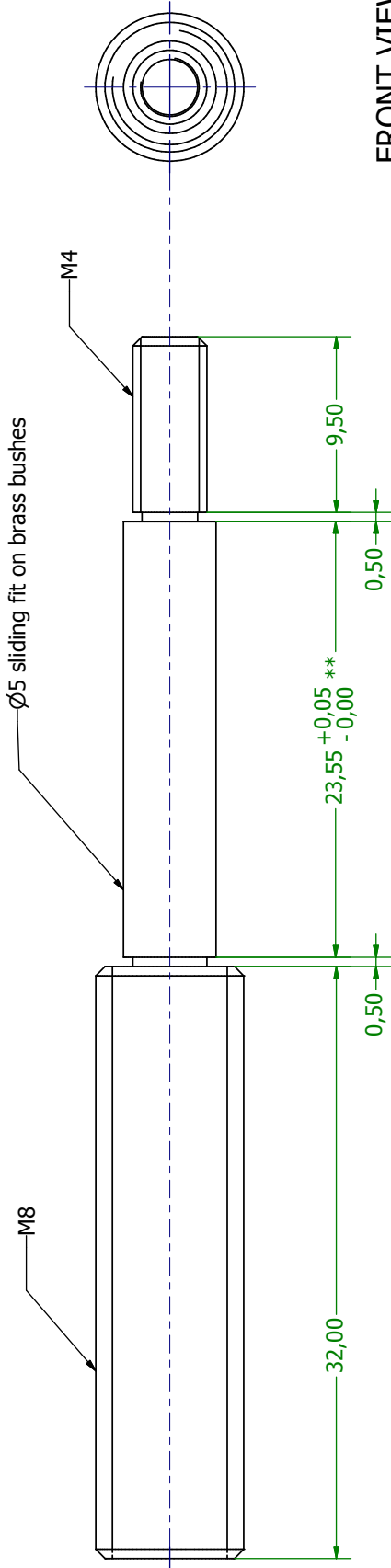
Title: Bead Pull Experiment - Pulley

Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	Pulley.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	Plastic **	Sheet number:	5 / 15
Dimensions:	mm	Number off:	4
General Tolerance:	+/- 0.1 u.o.s.		
Notes:	* Interference fit on bushes		
Notes:	** Glass filled Nylon 66		
Contact:	p.savage@imperial.ac.uk		

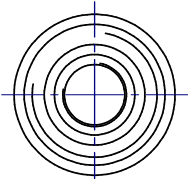
PULLEY SHAFT

All chamfers: 0.5 x 45°
All undercuts: 0.5 wide x 0.5 deep
** Section length to be longer than pulley and bush assemblies

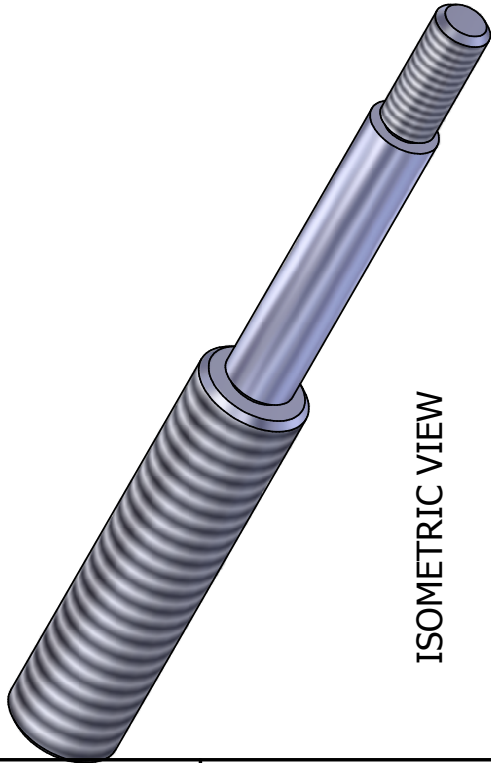
Front End Test **Stand**



SIDE VIEW



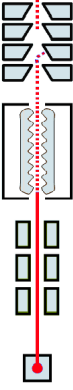
FRONT VIEW



ISOMETRIC VIEW

Title: Bead Pull Experiment - Pulley Shaft			
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	Shaft.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S
Material:	Steel / Brass	Sheet number:	6 / 15
Dimensions:	mm	Number off:	6
General Tolerance: +/- 0.25mm u.o.s.			
Notes:			
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

BELT CLAMP ASSEMBLY



Front End Test Stand

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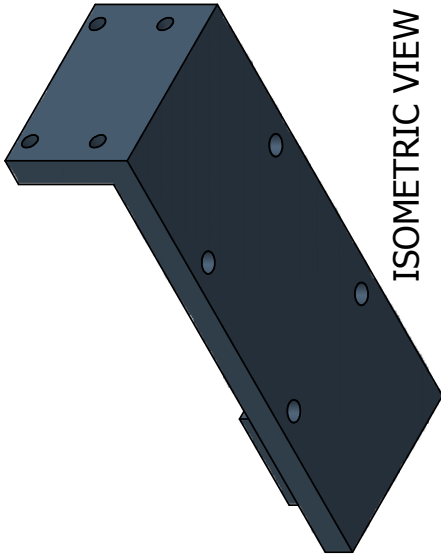
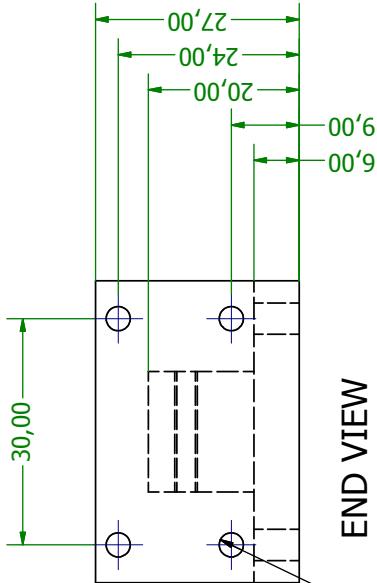
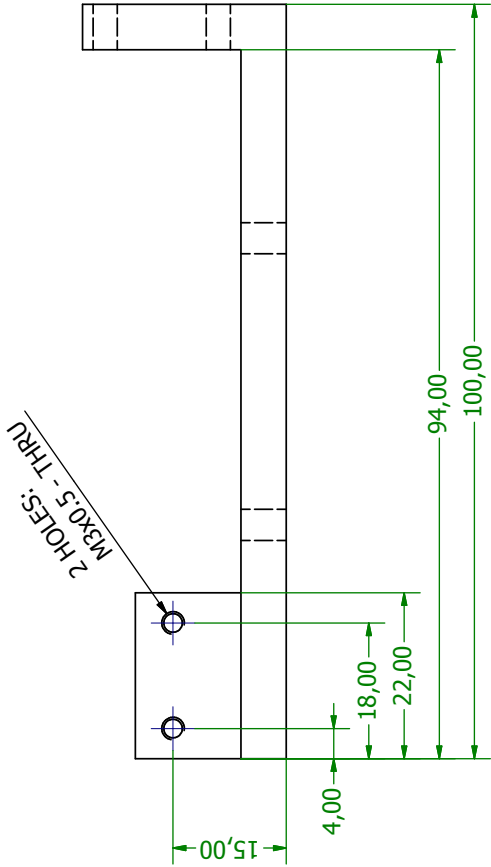
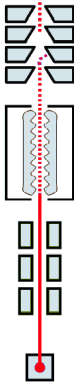
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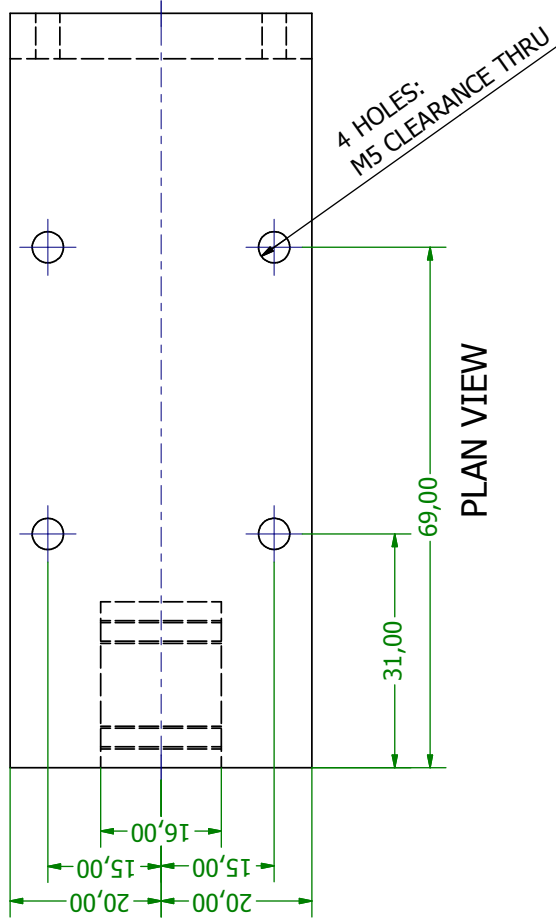
6

6

BELT CLAMP BACKPLATE



ISOMETRIC VIEW



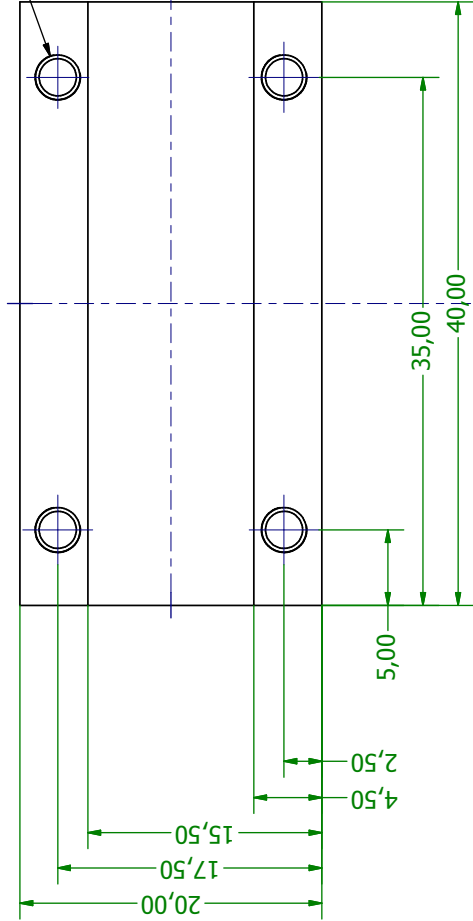
Title: Bead Pull Experiment - Belt Clamp Backplate

Drawn by:	P. Savage	Projection:	Third angle
Designed by:		Model file:	BeltClamp.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:		Project:	F.E.T.S.
Material:	Dural	Sheet number:	8 / 15
Dimensions:		Number off:	1
General Tolerance:	+/- 0.25 u.o.s.		
Notes:			
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

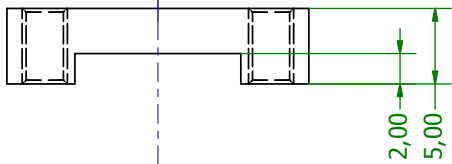
BELT CLAMP PLATE

Front End Test Stand

4 HOLES:
M3x0.5 T1 THRU



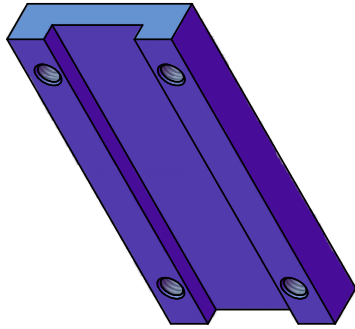
FRONT VIEW



END VIEW



SIDE VIEW



ISOMETRIC VIEW

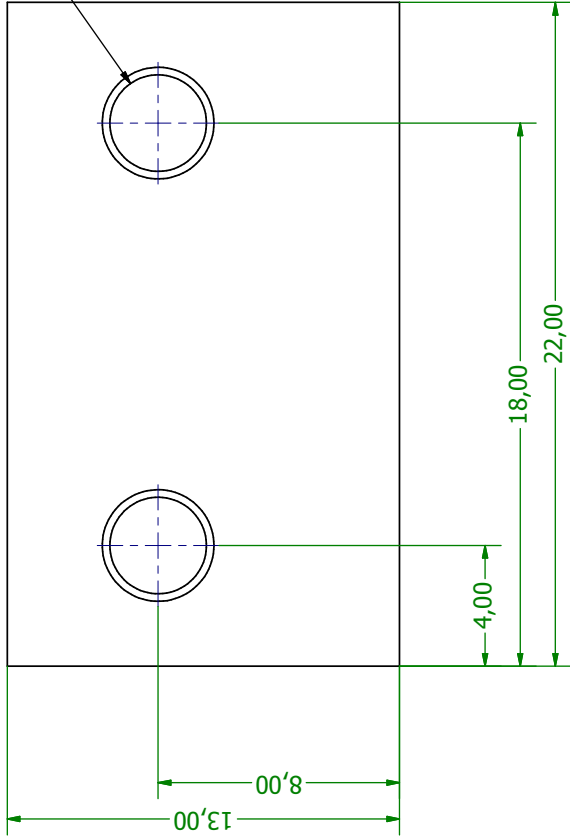
Title: Bead Pull Experiment

Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	BeltClampPlate2.ipt
Checked by:	Cheeky Dave	Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	Dural	Sheet number:	9 / 15
Dimensions:	mm	Number off:	1
General Tolerance:	+/- 0.25 u.o.s.		
Notes:	Hole spacing tolerance: +/- 0.05		
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

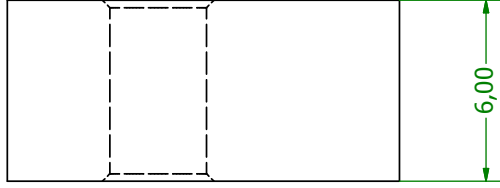
BELT CLAMP SIDE PLATE

Front End Test Stand

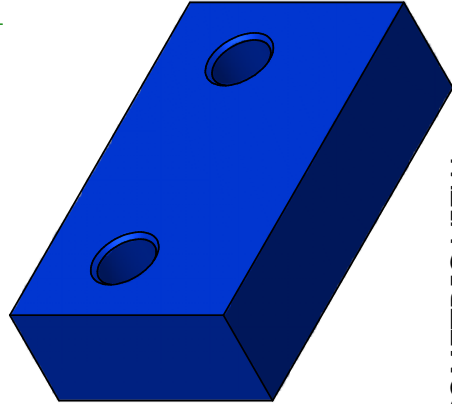
2 HOLES:
M3 CLEARANCE THRU



FRONT VIEW



SIDE VIEW

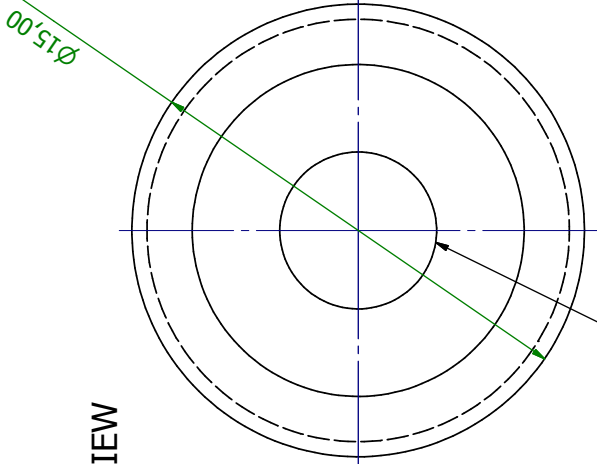


ISOMETRIC VIEW

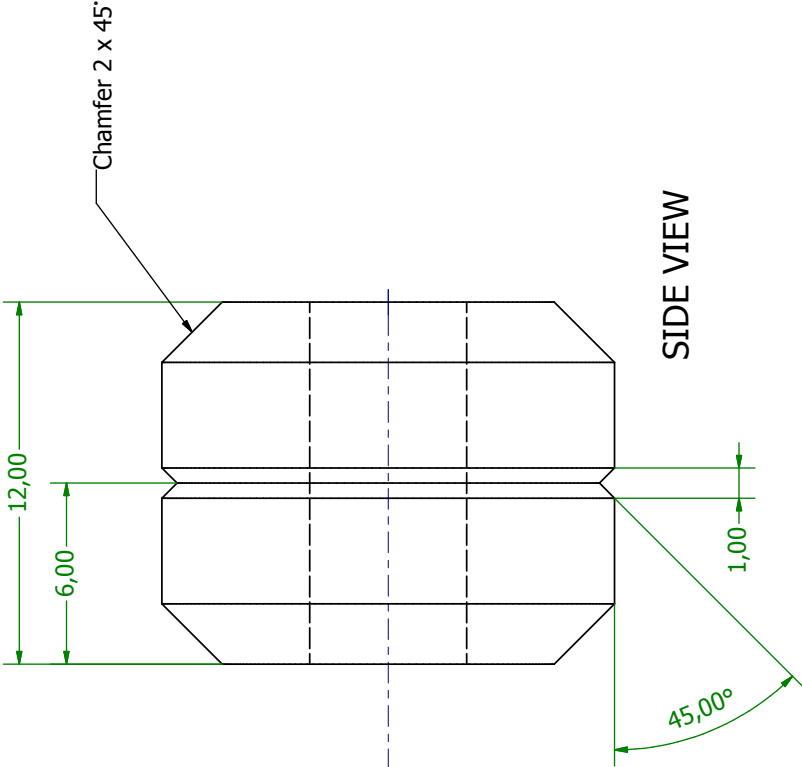
Title: Bead Pull Experiment - Belt Clamp Side Plate			
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	ClampSidePlate.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	Dural	Sheet number:	10 / 15
Dimensions:	mm	Number off:	2
General Tolerance: +/- 0.25 u.o.s.			
Notes: Hole centre tolerance: +/- 0.05			
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

BELT CLAMP PULLEY

Front End Test Stand

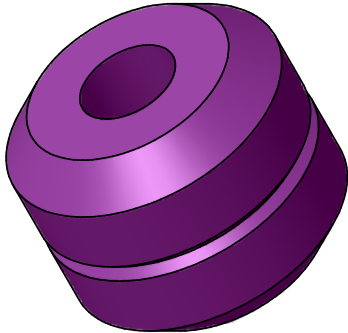


FRONT VIEW



SIDE VIEW

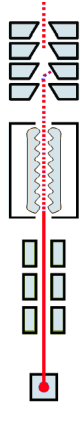
M5 CLEARANCE THRU



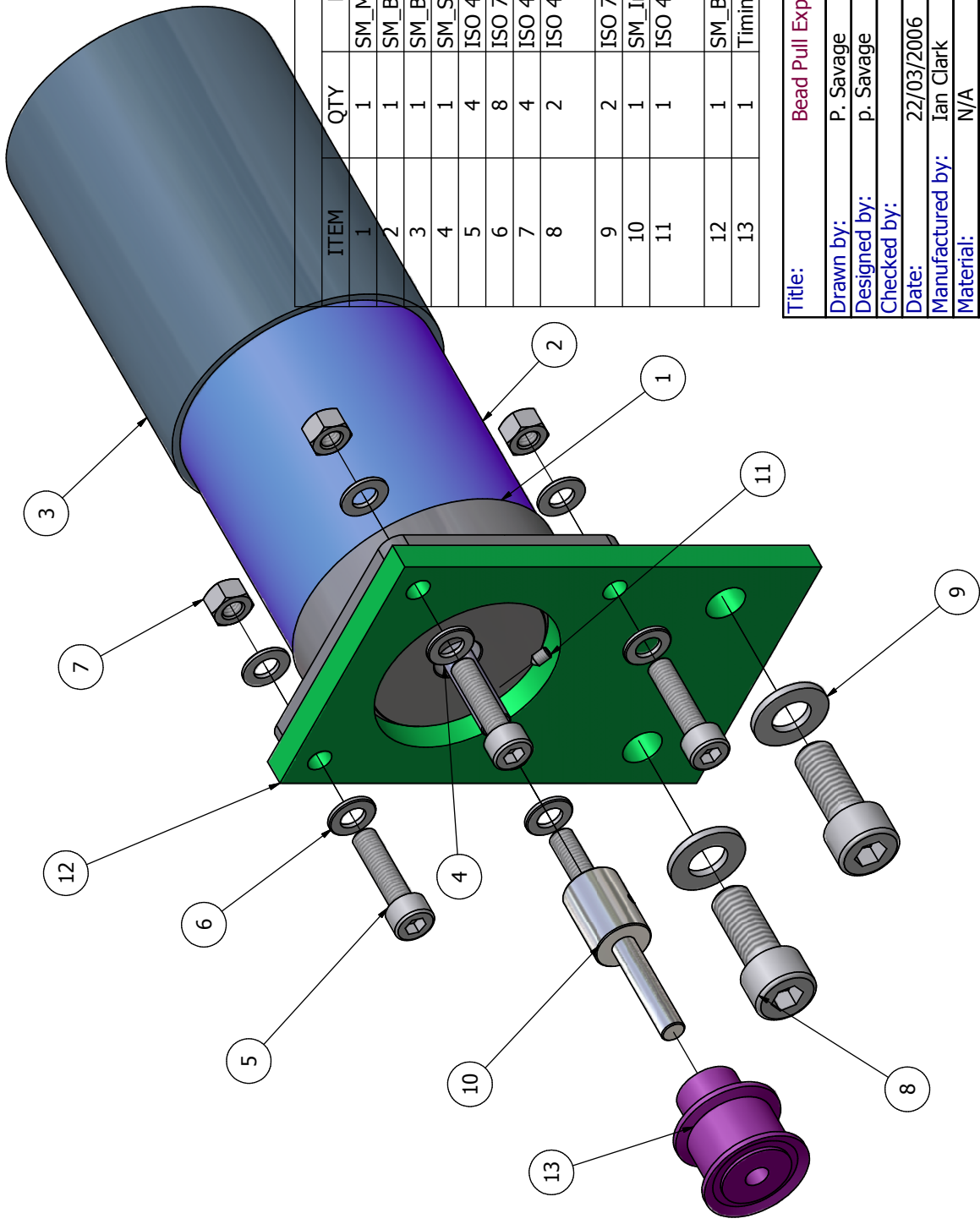
ISOMETRIC VIEW

Bead Pull Experiment - Belt Clamp Pulley			
Title:			
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	ClampPulley.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	Not bothered	Sheet number:	11 / 15
Dimensions:	mm	Number off:	2
General Tolerance:	+/- 0.25 u.o.s.		
Notes:			
Notes:			
Contact:	p.savage@imperial.ac.uk		

STEPPER MOTOR ASSEMBLY



Front End Test **Stand**



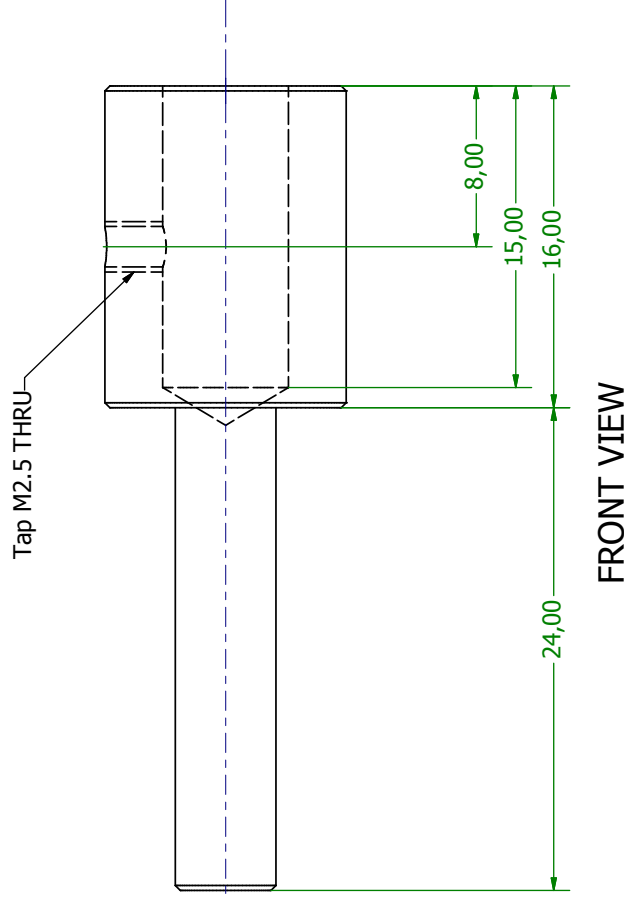
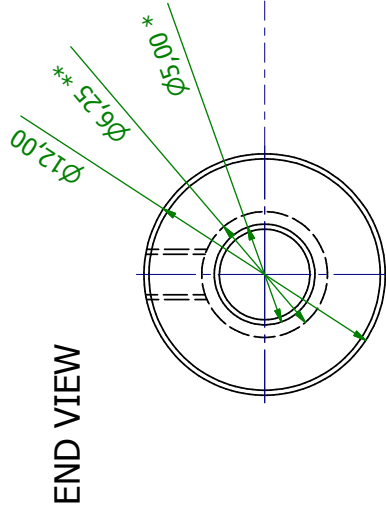
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	SM_MountingPlate	
2	1	SM_BodyCentre	
3	1	SM_BodyEnd	
4	1	SM_Shaft	
5	4	ISO 4762 M5x20	Bolt M5x20 ISO 4762
6	8	ISO 7090 5 - A	Washer ISO 7090 - 5 - A
7	4	ISO 4032 M5	Nut ISO 4032 M5
8	2	ISO 4762 - M8 x 20	Hexagon Socket Head Cap Screw
9	2	ISO 7089 - 8 - 140 HV	Washer
10	1	SM_InterfaceShaft	
11	1	ISO 4027 - M2.5 x 4	Hexagon Socket Set Screw
12	1	SM_Bracket	
13	1	TimingPulley	

Title: **Bead Pull Experiment - Stepper Motor Assembly**

Drawn by:	P. Savage	Projection:	N/A
Designed by:	p. Savage	Model file:	SM_Complete.iam
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	N/A	Sheet number:	12 / 15
Dimensions:	N/A	Number off:	N/A
General Tolerance:	N/A		
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

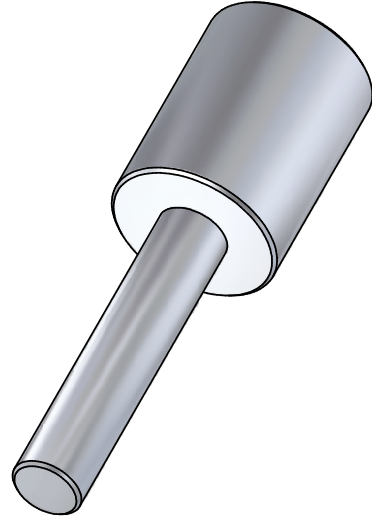
STEPPER MOTOR INTERFACE SHAFT

Front End Test Stand

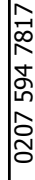


* Light push fit in zero backlash timing pulley (marked green).

** Light push fit on stepper motor shaft.

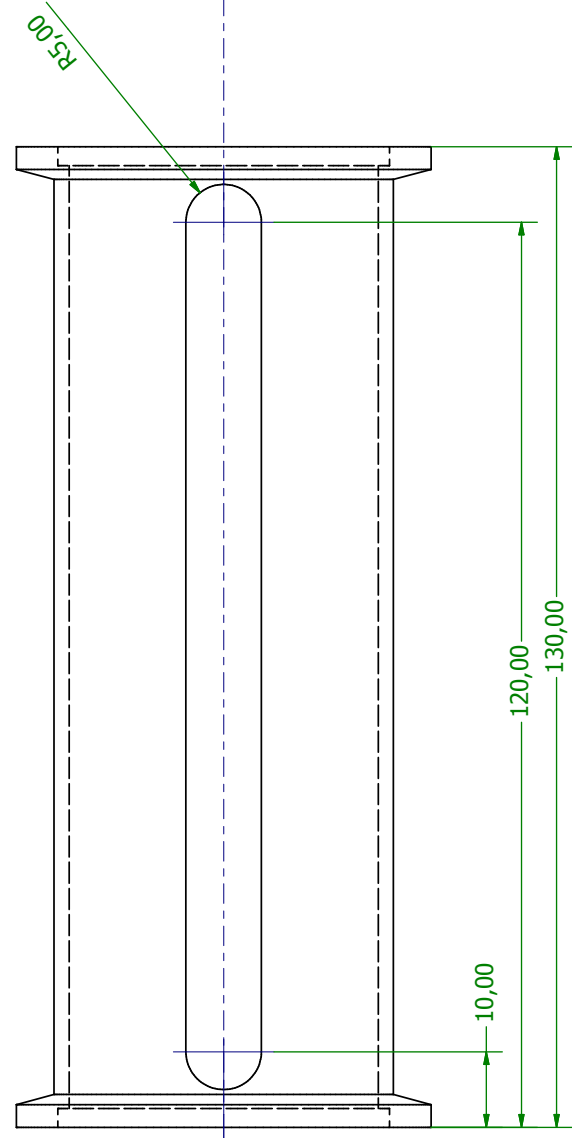


Title: Bead Pull Experiment - Stepper Motor Interface Shaft			
Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	SM_InterfaceShaft.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:	Ian Clark	Project:	F.E.T.S.
Material:	Steel / Brass	Sheet number:	13 / 15
Dimensions:	mm	Number off:	1
General Tolerance:		+/- 0.25 u.o.s.	
Notes:		Chamfer edges 0.25 x 45	
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	

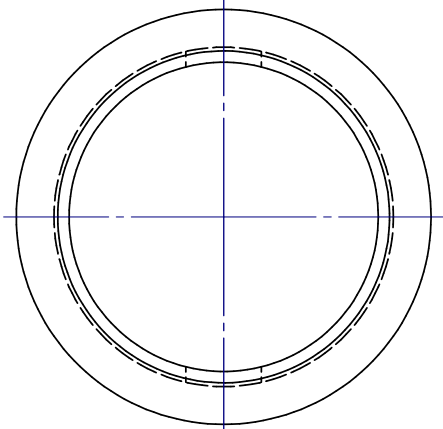


FLANGE EXTENSION

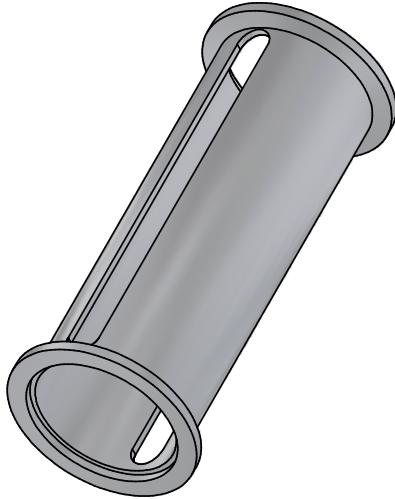
Front End Test Stand



SIDE VIEW



END VIEW



ISOMETRIC VIEW

Title: Bead Pull Experiment - Flange Extension

Drawn by:	P. Savage	Projection:	Third angle
Designed by:	P. Savage	Model file:	KF40_Flange_Double.ipt
Checked by:		Drawing file:	BeadPull.idw
Date:	22/03/2006	Version number:	1
Manufactured by:		Project:	F.E.T.S.
Material:	Aluminium	Sheet number:	15 / 15
Dimensions:	mm	Number off:	2
General Tolerance:	+/- 0.2		
Notes:			
Notes:			
Contact:	p.savage@imperial.ac.uk	0207 594 7817	