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GOVERNMENT OF INDIA  
BHABHA ATOMIC RESEARCH CENTRE  
REACTOR DESIGN AND DEVELOPMENT GROUP (RD&DG)  
DIVISION OF REMOTE HANDLING & ROBOTICS (DRHR)

Ref: DRHR /KDL/ENQ/2017/ 186

Date: 27-7-2017

Sub : **Minor Fabrication - Invitation of Quotation.**

**2PRR Master Slave (Qty : 1 Assembly), Delta Master Slave (Qty : 1 Assembly), Magnetic Worm and Worm Wheel (Qty : 1 Assembly) and Magnetic Skew Gears (Qty : 1 Assembly)**

Dear Sir,

Quotations are invited for the minor fabrication job : **2PRR Master Slave (Qty : 1 Assembly) Delta Master Slave (Qty : 1 Assembly), Magnetic Worm and Worm Wheel (Qty : 1 Assembly) and Magnetic Skew Gears (Qty : 1 Assembly)**

Bidder shall quote for fabrication of these components as per the enclosed specifications **with raw material and hardware as per the bill of material.**

1. Taxes, Excise Duties, other charges, if any, shall be quoted separately.
2. The quotation must reach Head, DRHR, BARC by **9<sup>th</sup> August 2017** and must be sent in a sealed envelope superscribed with the **reference number & the due date given above.**
3. The address on the envelope should read:

**Director,  
Reactor Design and Development Group,  
and Head, DRHR, BARC, Trombay, Mumbai - 400 085.**

4. Head, DRHR, BARC reserves the right to accept / reject any or all quotations without assigning any reason.
5. Incomplete offer / offer received after the due date shall not be considered.
6. Quotations should be preferably neatly typed and corrections are not acceptable.
7. Quotation received in computer-generated form shall not be acceptable. Quotation must be submitted in printed letterhead, mentioning clearly ST/VAT registration No. , PAN No. & Service Tax Registration No. Submission of challan and Invoice shall also comply the same, in case, work order is placed.

For detailed drawings and specifications , the supplier should contact : 022-25592109

Director, Reactor Design and Development Group ,  
Head, DRHR

**Encl.:**

Technical Specifications for Manufacture, Assembly Supply of 2PRR Master Slave (Qty : 1 Assembly) and Delta Master Slave (Qty : 1 Assembly), Magnetic Worm and Worm Wheel (Qty : 1 Assembly) and Magnetic Skew Gears (Qty : 1 Assembly)

**Technical Specifications for Manufacture, Assembly and Supply of 2PRR Master Slave (Qty : 1 Assembly) and Delta Master Slave (Qty : 1 Assembly)**

The following components are to be manufactured and standard components have to be bought by the supplier , and assembled as per the assembly drawing:

**A ) 2PRR MASTER SLAVE**

Sr. No.	Part Name	Overall Size (mm)	Material	Qty
1	Base Plate	700 x 150 x 10	Anodised Aluminium(Black)	1
2	Elevation Block	150 x 85 x 20	Anodised Aluminium(Black)	1
3	<b>THK Make</b> Linear Guide and Block : <b>2SRS 12 MMU + 300 L M</b>	Rail Length : 300 mm	Rail Material : Stainless Steel	2 sets , each set consisting of 1 rail and two LM blocks
4	Link -1	124 x 24 x 15	Anodised Aluminium(Black)	3
5	Link -2	124 x 24 x 15	Anodised Aluminium(Black)	3
6	Prismatic Link End Block	20 x 20 x 12	SS 304 (Electropolished)	6
7	Link Pin -1	Dia. 8 x 28 length	SS 17-4 PH	10
8	Link Pin -2	Dia.8 x 33 length	SS 17-4 PH	6
9	Spherical Bearing	GE6E	Steel	8
10	Spherical Bearing Spacer	Dia. 9 x 5.5 length	SS 304	5
11	SKF Bearing 625 2 Z	5 x 16 x 5	Std.	13
12	Allen Screw	M3 x 10	High Tensile Steel	16
13	External Circlip	6 mm	Steel	10
14	External Circlip	5 mm	Steel	10

**B ) DELTA MASTER SLAVE**

	Part Name	Overall Size (mm)	Material	Qty
1	Base Plate	600 x 200 x 10	Anodised Aluminium(Black)	1
2	Base	Dia. 200 x 12	Anodised Aluminium(Black)	1
3	Delta Mounting Bracket	75 x 75 x 90 x 5 thick	SS 304 Electropolished	2
4	LM Block Mounting Bracket	35 x 35 x 27 x 3 thick	SS 304 Electropolished	6
5	<b>THK Make</b> Linear Guide and	Rail Length : 300	Rail Material :	3 sets ,

	Block : <b>2SRS 12 MMU + 300 L M</b>	mm	Stainless Steel	each set consisting of 1 rail and two LM blocks
6	Prismatic Link End Block	24 x 15 x 35	SS 304 (Electropolished)	6
7	Link Pin	Dia. 7 x 26.5 length	SS 17-4 PH	24
8	<b>THK Make</b> Rod End	NOS 6 T	Std.	24
9	Master Platform	Dia. 75 x 10 thk.	Anodised Aluminium(Black)	1
10	Slave Platform	Dia. 75 x 10 thk.	Anodised Aluminium(Black)	1
11	Joining Rod	Dia. 10 x 120 long	SS 304 (Electropolished)	12
12	Hand Knob	Dia. 20 x 52 long	SS 304 (Electropolished)	1
13	External Circlip	6 mm	Steel	10
14	Allen Screw	M6 x 12	High Tensile	10
15	Allen Screw	M6 x 10	High Tensile	10
16	Allen Screw	M5 x 8	High Tensile	10
17	Allen Screw	M5 x 6	High Tensile	10

### C) MAGNETIC WORM GEAR

ITEM NO.	PART NUMBER	SIZE	MATERIAL	QTY.
1	MWG_Simple_Worm	dia. 54 x 190 long	Mild Steel (chromium Plated)	2
2	MWG_Simple_Worm_wheel	dia. 101.84 x 38 long	Mild Steel (chromium Plated)	2
3	SY_12_TF_PART1	NOT IN SUPPLIER'S SCOPE		2
4	SY_12_TF_PART2	NOT IN SUPPLIER'S SCOPE		2
5	SY_12_TF_PART3	NOT IN SUPPLIER'S SCOPE		16
6	MWG_Base_Plate	200 x 200 x 12		1
7	MWG_Bearing_Block	dia 52 x 36 long	SS 304 (Electropolished)	1
8	MWG_worm_shaft	dia. 12 x 79 long	SS 304 (Electropolished)	1
9	SKF - 6000 - 8,SI,NC,8_68	SKF BEARING 6000 2 Z 10 X 26 X 8		2
10	IS 3075(Part2) NI- 26	INTERNAL CIRCLIP 26 mm		2

11	IS 2269 - M4 x 12-N	Allen Screw	high tensile	4
12	Geared_Motor_EG_530AD_2 B	Not in supplier's scope		1
13	IS 2269 - M8 x 60-N	Allen Screw	high tensile	4
14	MWG_Motor_Bracket	75 x 80 L shape, 50 wide, 5 thick	SS 304 (Electropolished)	1
15	Nut_for_Geared_Motor	Not in supplier's scope		1
16	MWG_Coupling_Half	dia. 30 x 20 long	Mild Steel ( chromium Plated )	2
17	IS 2269 - M10 x 25-N	Allen Screw	High Tensile	4
18	MWG_Mag_6x10	NIB Cylindrical Magnet 6 mm Dia x 10 mm long	NIB	140
19	IS 2269 - M5 x 12-N	Allen Screw	High Tensile	4
20	IS 6094 CUP - M3 x 5-N	Grub Screw	high tensile	16
21	IS 6094 FLAT - M4 x 8-N	Grub Screw	high tensile	2
22	IS 3075 NE- 10	EXTERNAL CIRCLIP 10 mm		1
23	IS 1363-2 - M8-N	Hex Nut	Steel	4

#### D) MAGNETIC SKEW GEARS

ITEM NO.	PART NUMBER	OVERALL SIZE	MATERIAL	QTY.
1	MSG_Side_Plate_1	130 x 40 x10	Anodised Aluminium(Black)	6
2	MSG_45_deg_20_Teeth h_Gear	dia. 100 x 40 long	Mild Steel ( chromium Plated )	2
3	MSG_Side_Plate_2	110 x 299 x 10	Anodised Aluminium(Black)	2
4	SKF - 6000 - 8,SI,NC,8_68	SKF BEARING 6000 2 Z : 10 x 26 x 8	Anodised Aluminium(Black)	8
5	Mag_	6x20x2 mm	NIB Magnet	50
6	MSG_Shaft_1	dia. 12 x 150 long	SS 17- 4 PH	2
7	MSG_Motor_Plate	50 x 100 x 5	SS 304 (Electropolished)	1
8	Geared_Motor_EG_53 0AD_2 B	Not in supplier's scope		2
9	700_PSI_Lov_Joy_Cou pling_L -050	L-50	Cast Iron	1
10	MSG_Bottom_Plate_2	130 x 190 x 10	Anodised Aluminium(Black)	2

11	MSG_Shaft_2	dia. 12 x 150 long	SS 17- 4 PH	1
12	MSG_45_deg_10_Teeth_Gear	dia 50 x 40 long	Mild Steel ( chromium Plated )	1
13	IS 3075 NE- 10	External Circlip 10 mm	10 mm	3
14	IS 2269 - M4 x 12-N	Allen Screw	High Tensile	42
15	IS 6094 FLAT - M5 x 10-N	Grub Screw	High Tensile	2
16	IS 6094 FLAT - M5 x 12-N	Grub Screw	High Tensile	5
17	IS 6094 CUP - M5 x 10-N	Grub Screw	High Tensile	2
18	IS 6094 CUP - M5 x 8-N	Grub Screw	High Tensile	2

**Note:**

1. Supplier has to quote with material for all the above Components and parts.
2. Supplier has to submit all the material test reports and take approval before starting the manufacturing of components.
3. Supplier should use facilities like VMC, CNC Turning Center, EDM Wire Cut for machining and CMM for inspection.
4. All the parts are to be manufactured as per enclosed drawings. Inspection should be carried out as per drawings and reports to be issued along with the manufactured components. Our engineers will verify the inspection reports.
5. Standard items like locking screws, nuts and other fasteners are to be supplied along with the sub-assemblies.

Director, RD&DG and Head, DRHR,  
BARC, Trombay.