

**BT-Series Shaft Mounted Gear Units**

The **POWERGEAR BT-Series** Round Shaft Mounted Gear Unit is a versatile gearbox developed on special demand from our customers worldwide.

The speed reducer is compact in size mounting directly on to the driven shaft, thus eliminating the need of a foundation & coupling.

The torque arm anchors the speed reducer and provides easy & quick method of adjustment of V-belts by means of a turnbuckle. All our units are supplied with a torque arm kit.

The gear units are available in 6 sizes from **BT40 to BT100** upto a torque ratings of 11,000 Nm with reduction ratio of 15:1.

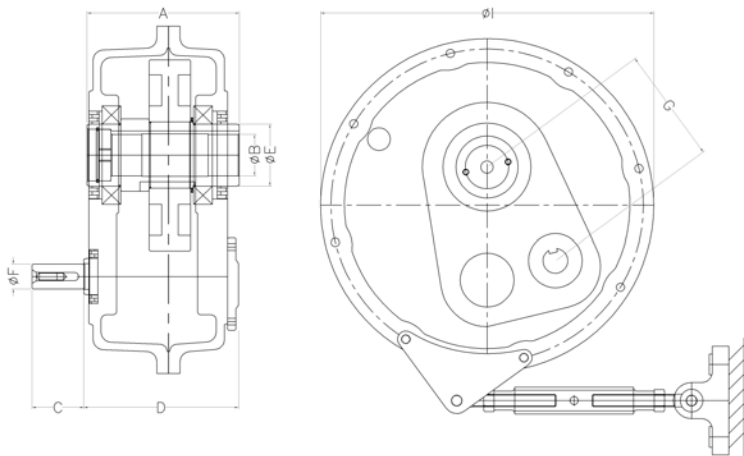
A wider range of final speed ratios may be achieved by use of pulley combinations. The gearbox is suitable for **Benefits:** both forward and reverse motion.

Accessories:

Anti-Roll Back Adapters / Backstops: A simple accessory that prevents reversal of the speed reducer and is ideal for inclined conveyors.



- *Hardened & Ground Gearing*
- *Compact and Low Cost*
- *High efficiency of 96%*
- *Multiple Bore Sizes*
- *Backstop Provision in All Models*
- *Interchangeable with Leading Brands*

**Dimensions, Sizes BT40 – BT100**

Size	Mass Kg	A	φB F7 HUB BORE	C	D	φE	φF j6	φI	G
BT40	30	146	35 / 40 / 45	50	150	60	24	322	112
BT45	40	164	45 / 50 / 55	60	164	75	28	364	123
BT50	62	184	50 / 55 / 60	80	190	85	38	435	143
BT60	97	201	60 / 65 / 70	80	205	100	38	498	174
BT70	127	225	70 / 75 / 80 / 85	110	230	120	42	550	188
BT100	270	297	85 / 100 / 125	115	288	160	48	709	256

*Dimensions in mm / Larger Sizes Available on Request

*Recommended Mineral Oil Grade – 320 / 460

*Input Pinion Tolerance – j6

*Hub Bore Tolerance – F7

Office: 13, Jor Bagh, New Delhi - 110003, India, Tel: +91 (011) 24621453

Works I: Plot 65, Sec. 27C, Faridabad – 121003, India, Tel: +91 (0129) 4279001, Fax: +91 (0129) 427009

Works II: Plot 69, Sec. 27A, Faridabad – 121003, India, Tel: +91 (0129) 4015951

Email: info@involutetools.com URL: www.involutetools.com / www.gears-reducers.com



Selection Procedure

1. Determine Required Output Speed
2. Determine Power Absorbed by the Drive
Absorbed Power = Absorbed Torque x Machine Speed
$$\frac{(kW) \quad (Nm) \quad \times \quad (rpm)}{9550}$$
3. Determine Service Factor from Table
4. Multiply the Absorbed Power by the Service Factor
5. Using the Table for Power Rating select the smallest gear unit that is suitable for transmitting this power at the Output Speed

For Example:

A torque of 500 Nm is required to be transmitted on the brick press at 70 rpm

The brick press is under heavy load and operates for 17 hours per day

Absorbed Power = $(500 \times 70) / 9550 = 3.66 \text{ kW}$

Service Factor from Table = 2.0

Selection Power = $3.66 \times 2.0 = 7.33 \text{ kW}$

From Power Rating chart at 70 rpm size "BT45" double reduction speed reducer at 9.80 kW is the smallest for this application.

*For Speed Higher than 70 rpm use 15:1 & 13:1 ratios

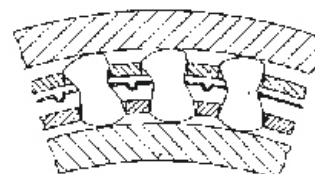
Power (kW) & Torque (Nm) Rating

RPM	BT40	BT45	BT50	BT60	BT70	BT100
10	1.5	2.2	4.0	6.0	8.9	19.0
20	2.0	3.1	5.1	7.9	11.2	24.0
30	3.1	4.8	7.7	13.0	18.0	38.0
40	3.4	5.9	9.2	14.9	20.0	45.0
50	4.4	6.8	11.0	18.2	25.0	55.0
60	5.3	8.3	12.9	22.0	30.0	66.0
70	6.1	9.8	14.8	25.0	34.0	72.0
80	6.9	11.0	16.9	28.5	39.0	83.0
90	7.7	12.3	19.0	32.0	44.0	94.0
100	8.1	13.5	21.0	35.4	48.3	105.3
Nm	950	1400	2300	3600	5100	11000

Driven Machine Types Service Factors	Daily Operating Hours		
	Below 10 Hours	Between 10-16 Hours	Above 16 Hours
UNIFORM LOAD Liquid and Semi Liquid Mixer Centrifugal Discharged Equipments Bottling Machines Fixed Load Carrier Ovens Washing Machines Centrifugal & Gear Pumps Wire Drawing Machines	1.0	1.12	1.25
MODERATE SHOCK Variable Density Mixer Variable Load Conveyors Cranes, Movable Carriers, & Lifters Rolling Machines Heavy Load Elevators Drying Stoves Drying Machines Lifting Machines Piston Pumps with 3 or more Cylinders Pulp Machines Homing Cylinders Wet Pressing Machines Small Mixers Rotary Screens Textile Machines	1.25	1.4	1.5
HEAVY SHOCK Brick Press Briquette Manufacturing Machine Conveyor Band Moving Forward/Backward & Shaking Breaking Machines Hammer Hill Piston Pumps with 1 or 2 Cylinders Extruders Vibrators Forging Mills	1.6	1.8	2.0

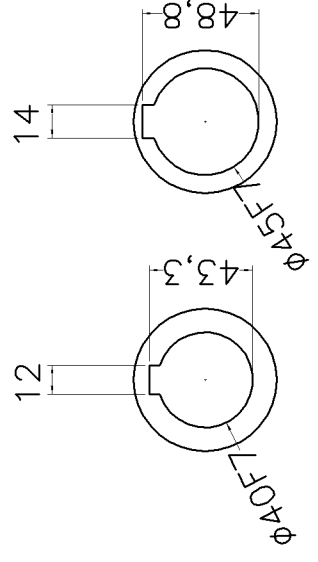
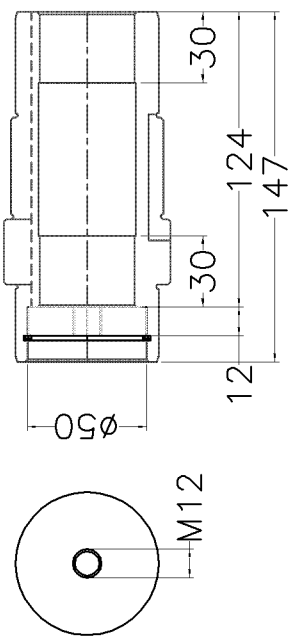
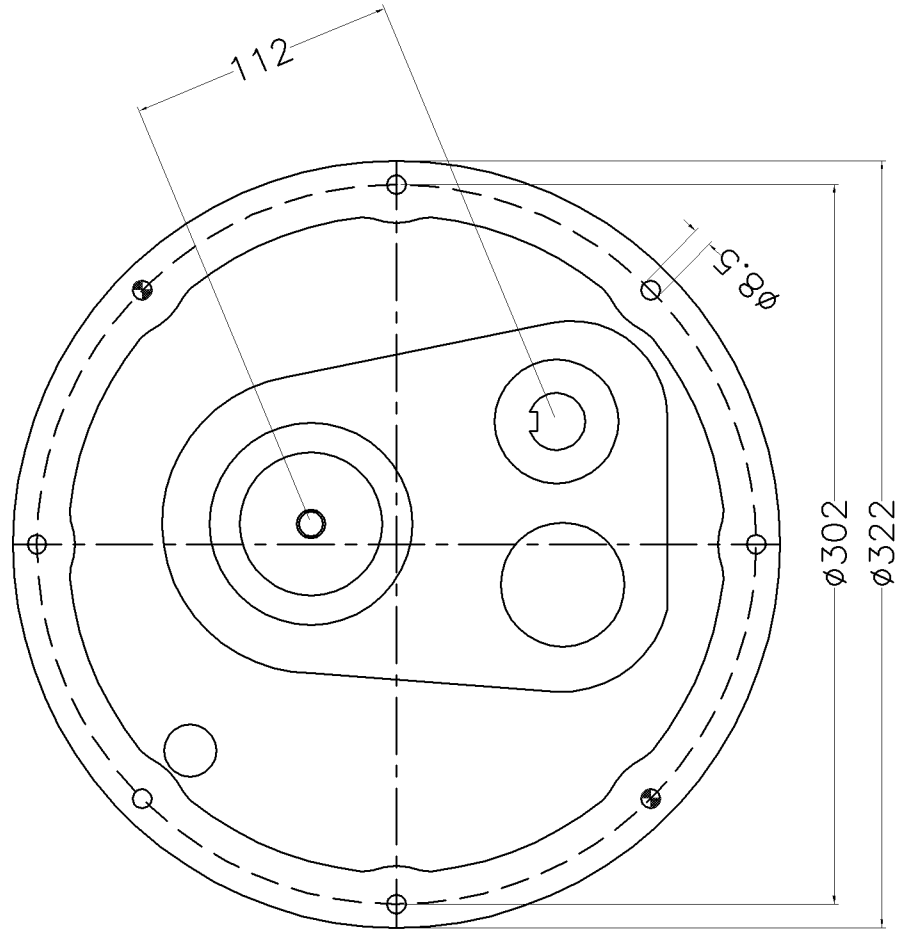
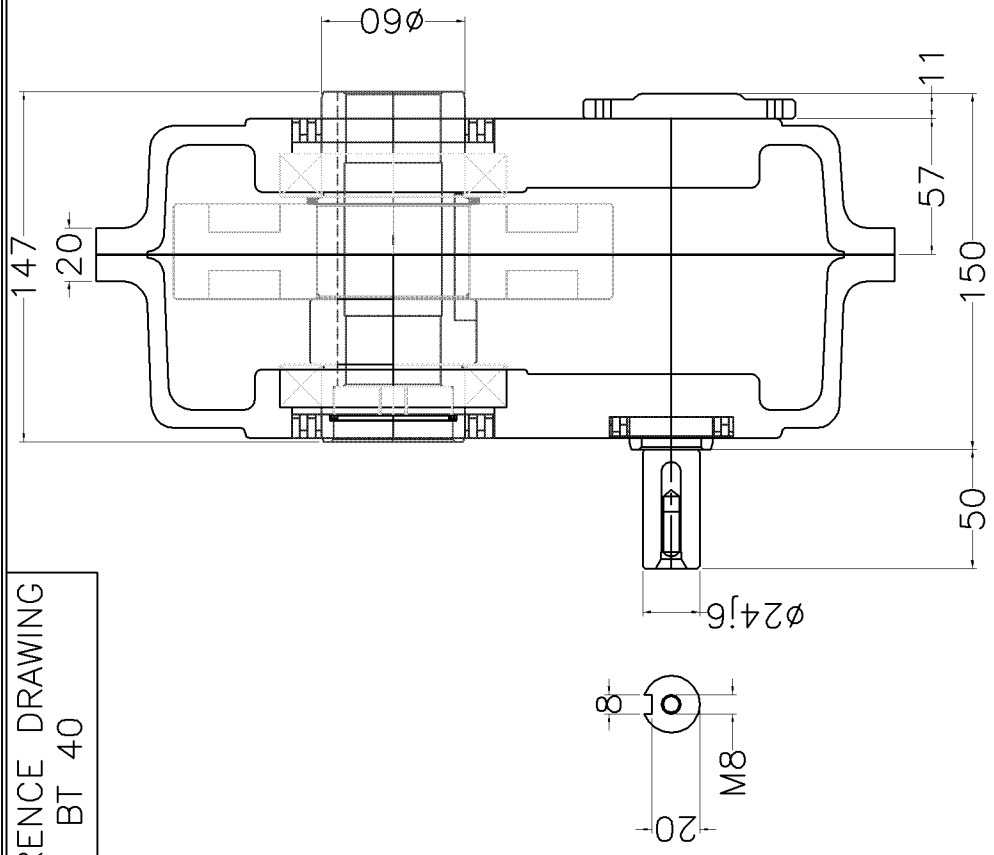
Backstop Installation

- Drain off oil from gearbox, if filled.
- Remove backstop cover on the intermediate stage.
- Fit the outer bush in the housing with the key. The bush should fit snugly on the intermediate shaft.
- Determine direction of rotation.
- Fit the backstop in the backstop cover, feeding the assembly while rotating the input shaft.



Note: If opposite direction is required the backstop should be taken out and the backstop sprag assembly inserted in the other direction.

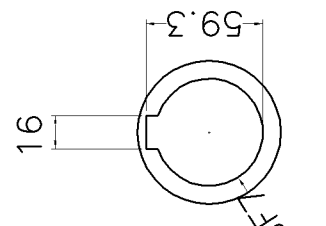
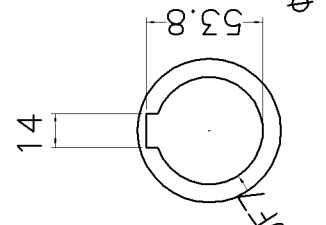
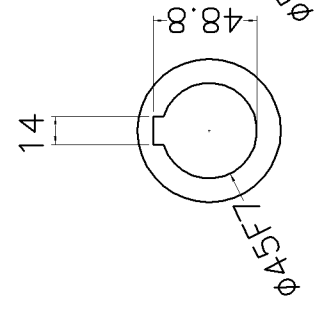
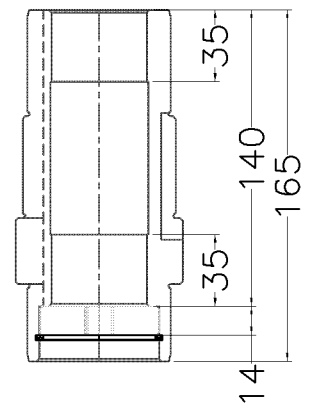
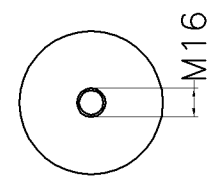
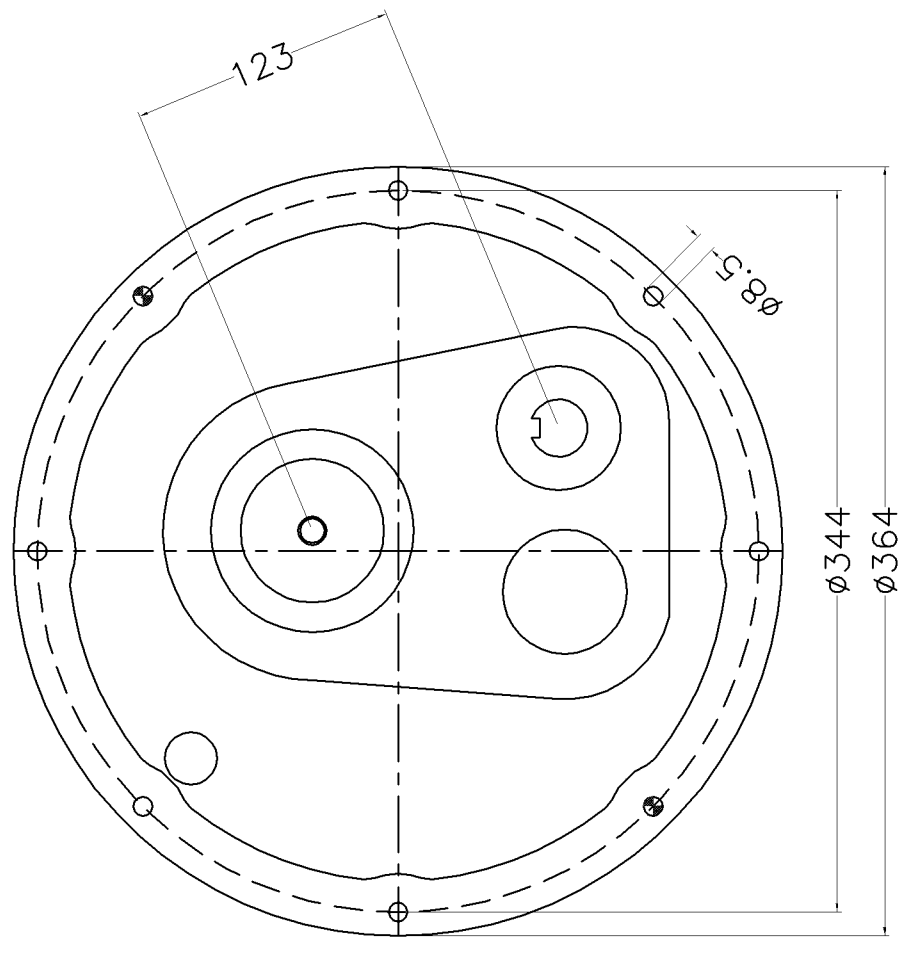
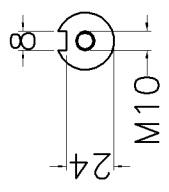
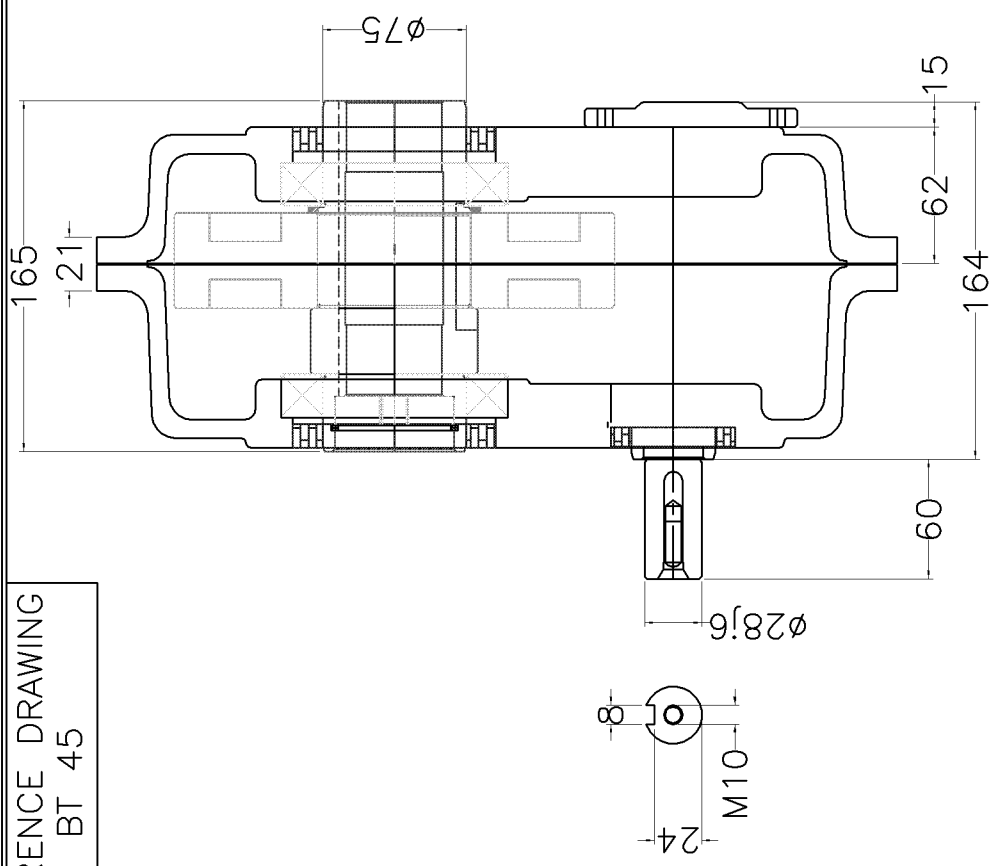
REFERENCE DRAWING
BT 40



GENERAL NOTES
1. ALL DIMENSIONS IN MM.
2. REMOVE SHARP CORNERS

PART NAME - REFERENCE DRW		BT 40		WEIGHT 30 KG	
DRN.	S.K.	CHKD.	AAG	BT-40	DATE
APPD.					18.04.14
SCALE - 1:1				DRG. NO.	
INVOLUTE POWERGEAR PVT. LTD. PLOT NO. 65, SECTOR 27-C, FARIDABAD - 121003 (HARYANA) INDIA					

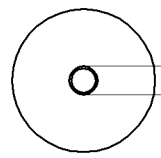
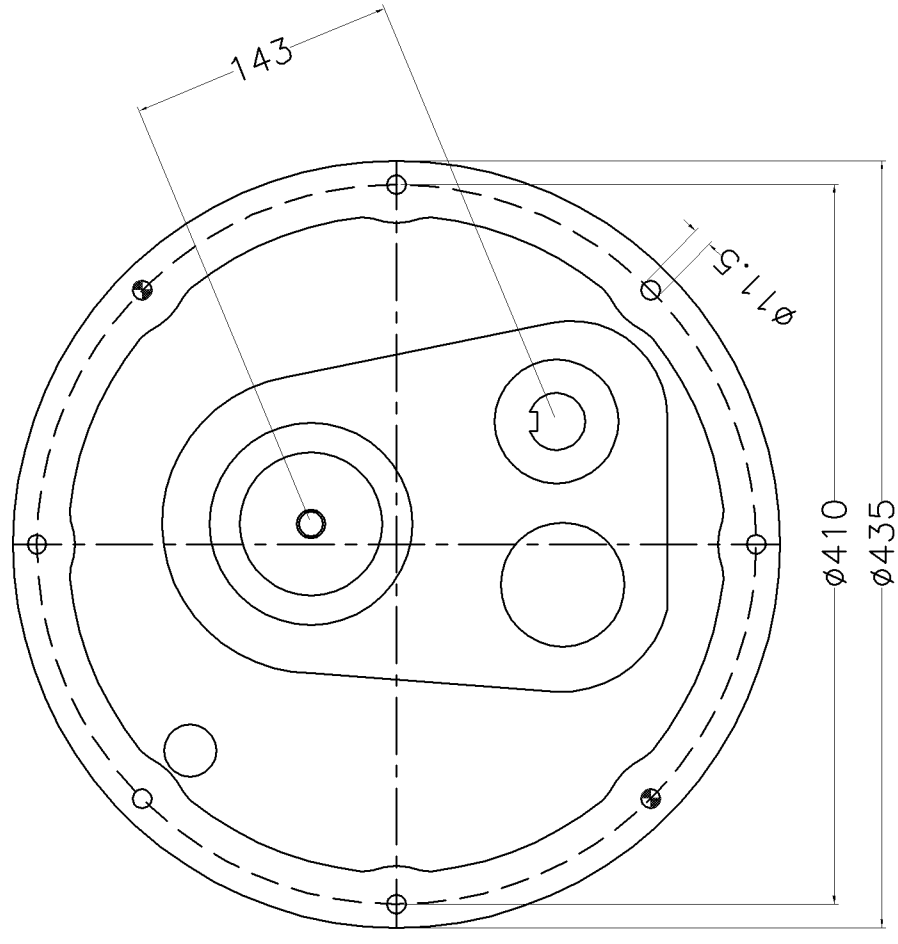
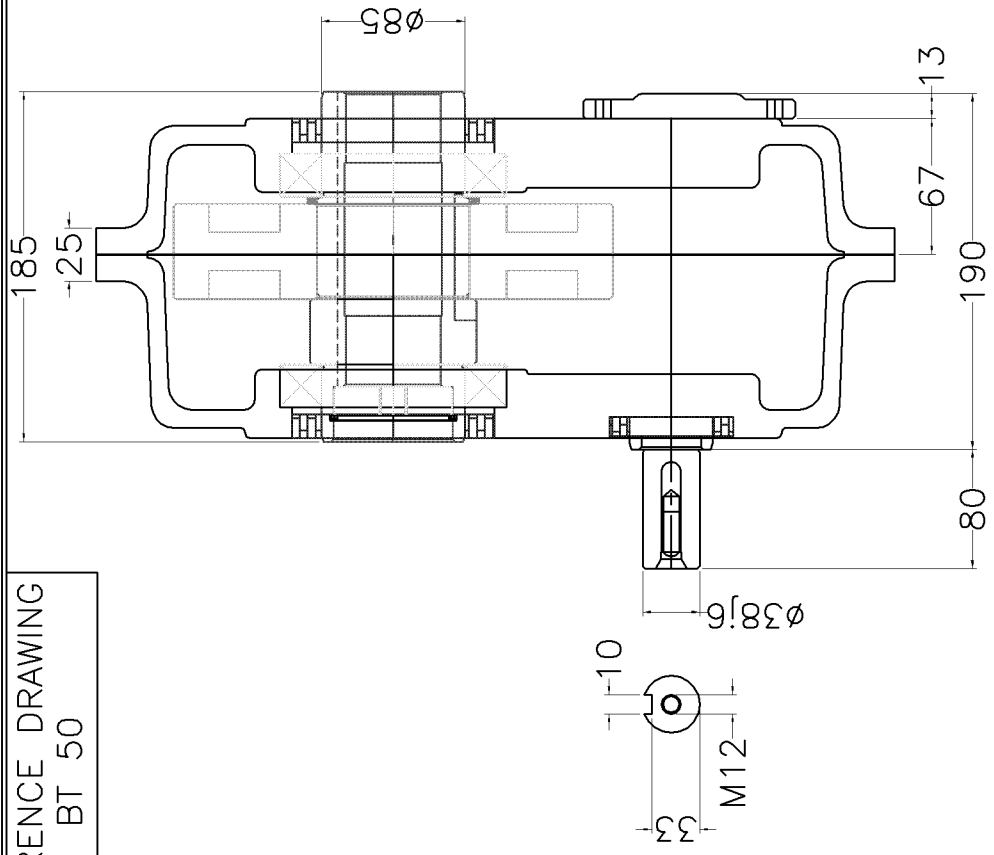
REFERENCE DRAWING
BT 45



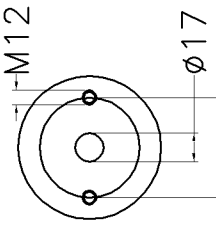
PART NAME - REFERENCE DRW		BT 45		WEIGHT 40 KG.	
DRN.	S.K.	CHKD.	AAG	BT-45	DATE
					05.02.12
SCALE-1:1			DRG. NO.		
INVOLUTE POWERGEAR PVT. LTD. PLOT NO. 65, SECTOR 27-C, FARIDABAD - 121003 (HARYANA) INDIA					

GENERAL NOTES
1. ALL DIMENSIONS IN MM.
2. REMOVE SHARP CORNERS

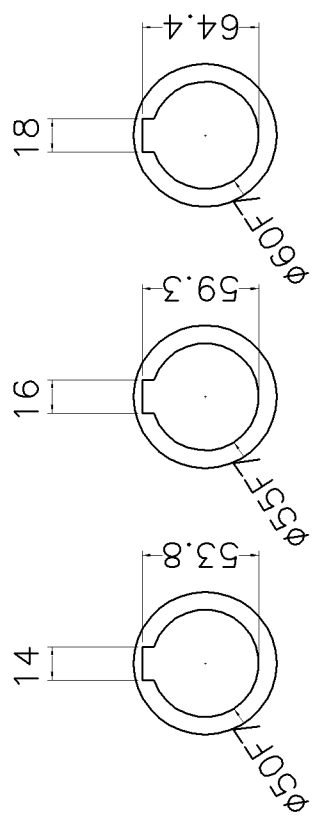
REFERENCE DRAWING
BT 50



For Bore $\phi 50$ & $\phi 55$



For Bore $\phi 60$

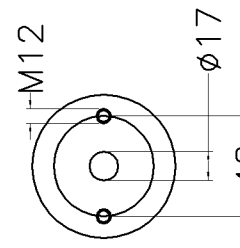
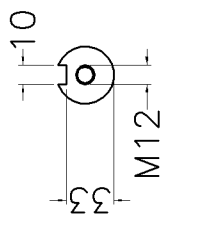
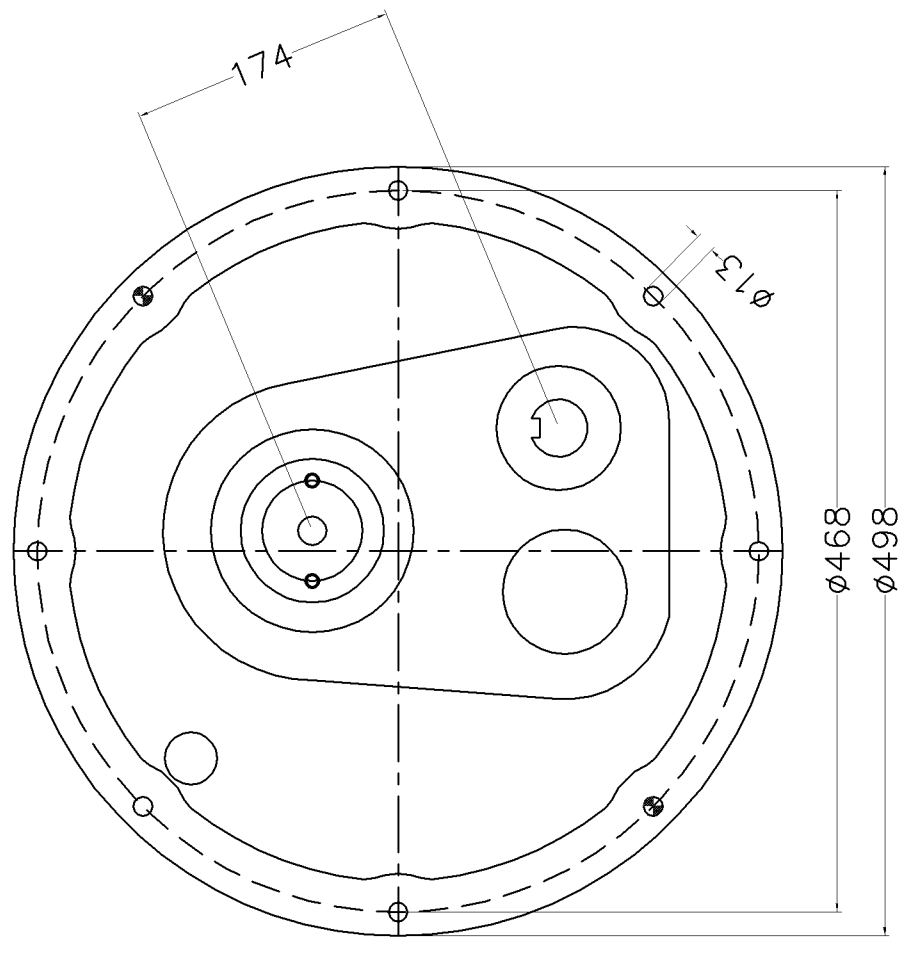
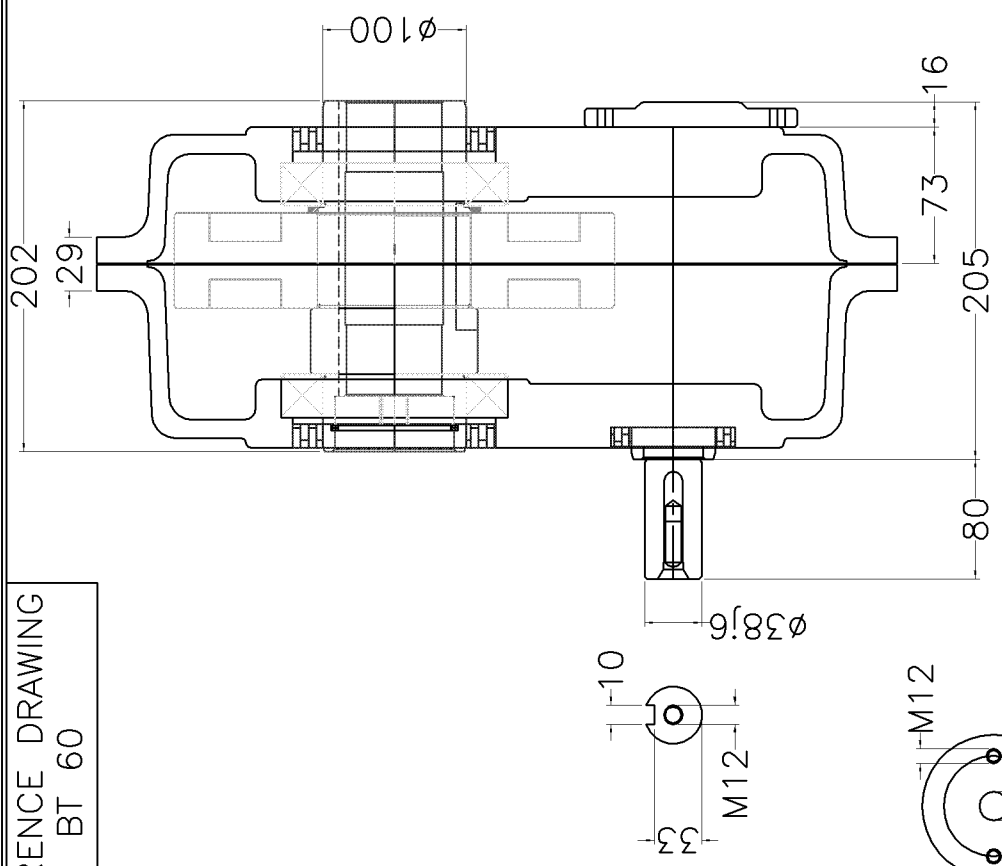


PART NAME - REFERENCE DRW		BT 50		WEIGHT 62 KG.	
DRN.	S.K.	SCALE	1:1	DRG. NO.	
CHKD.	AAG	BT-50	DATE	05.02.12	
APPD.					

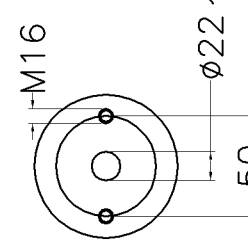
GENERAL NOTES
1. ALL DIMENSIONS IN MM.
2. REMOVE SHARP CORNERS

INVOLUTE POWERGEAR PVT. LTD.
PLOT NO. 65, SECTOR 27-C,
FARIDABAD - 121003 (HARYANA) INDIA

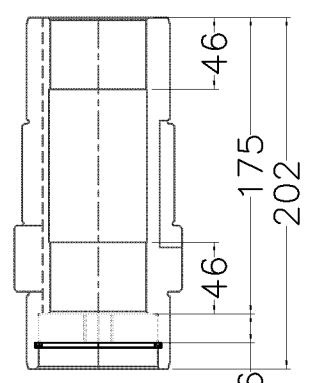
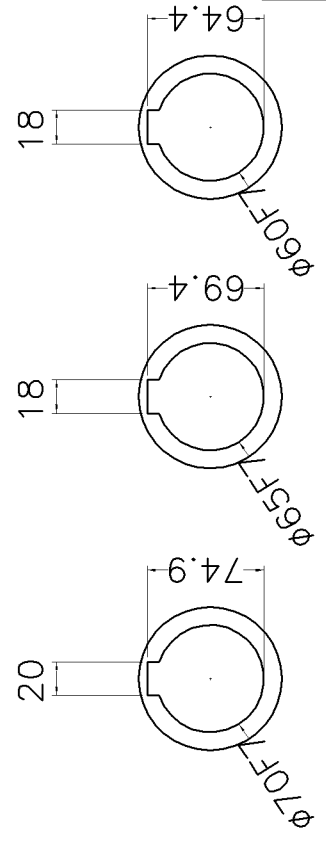
REFERENCE DRAWING
BT 60



For Bore $\phi 60$



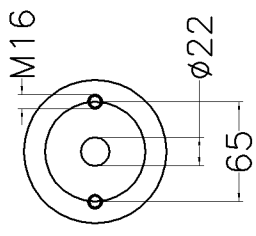
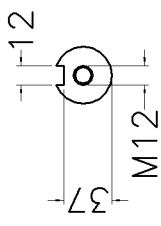
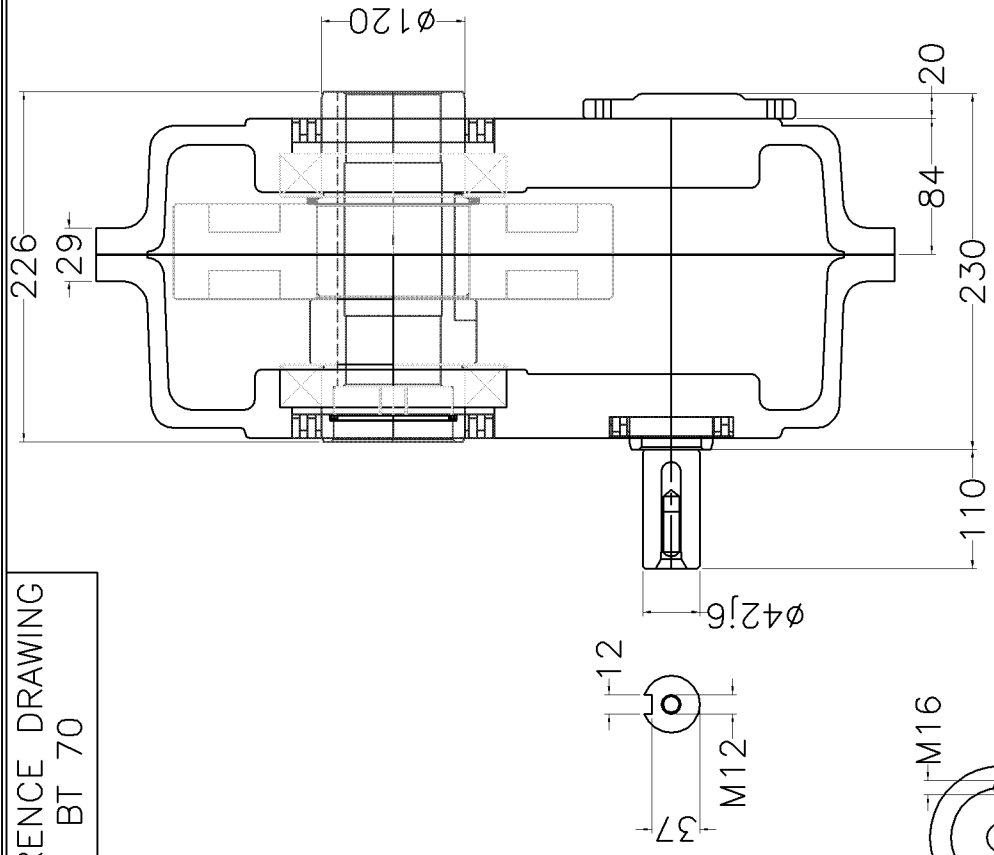
For Bore $\phi 65$ & $\phi 70$



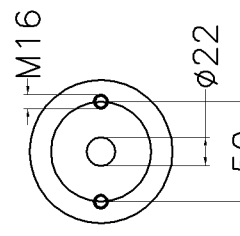
PART NAME - REFERENCE DRW		BT 60		WEIGHT 97 KG.	
DRN.	S.K.	SCALE-1:1	DRG. NO.		
CHKD.	AAG	BT-60	DATE		
APPD.			05.02.12		
INVOLUTE POWERGEAR PVT. LTD. PLOT NO. 65, SECTOR 27-C, FARIDABAD - 121003 (HARYANA) INDIA					

GENERAL NOTES
1. ALL DIMENSIONS IN MM.
2. REMOVE SHARP CORNERS

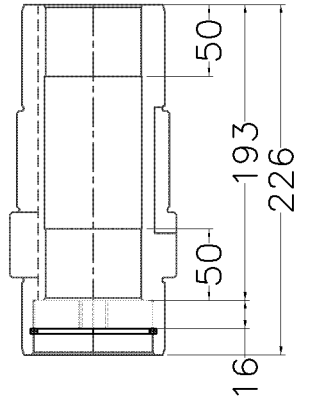
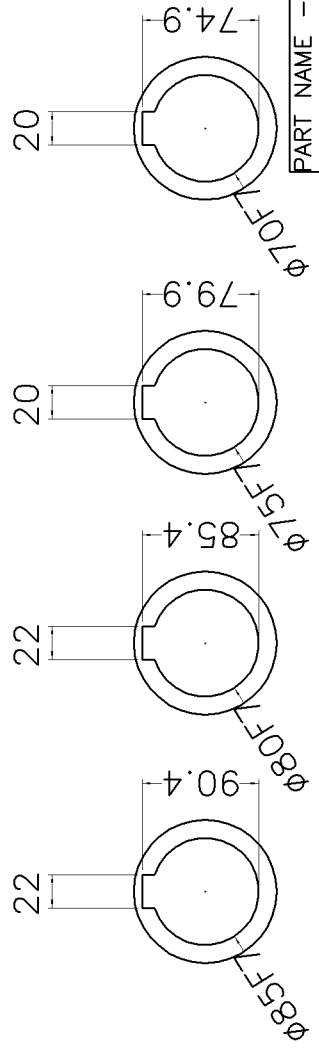
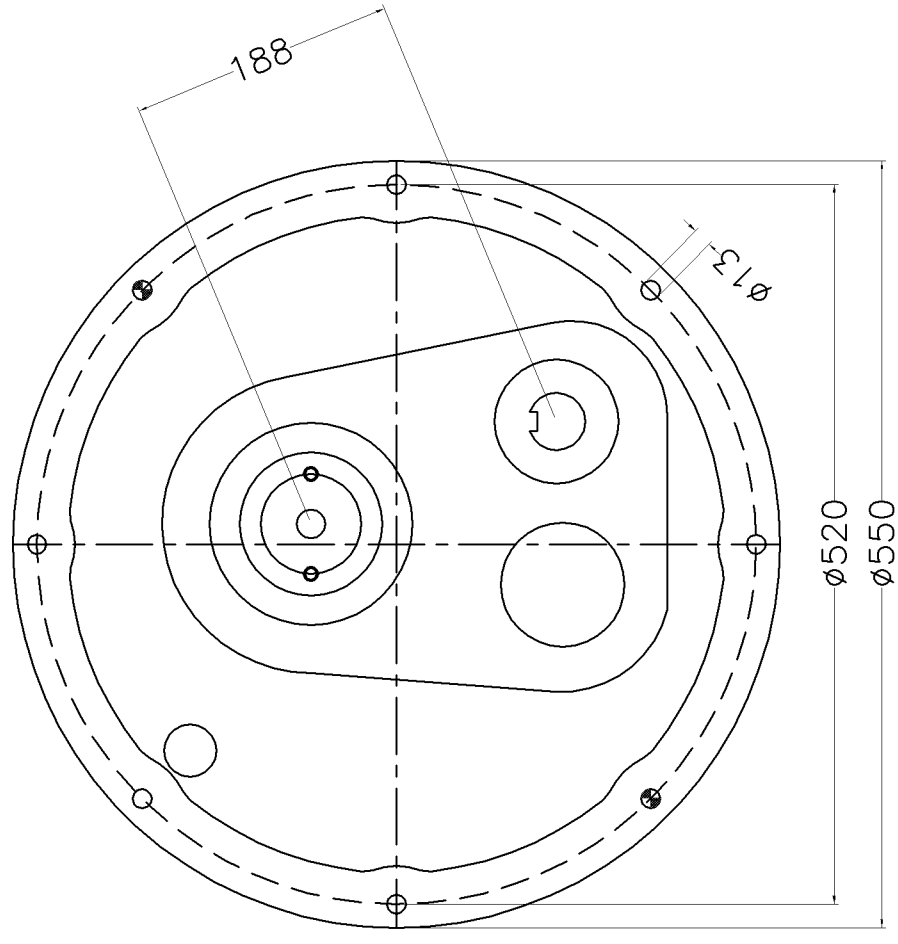
REFERENCE DRAWING
BT 70



For Bore $\phi 70$ & $\phi 75$



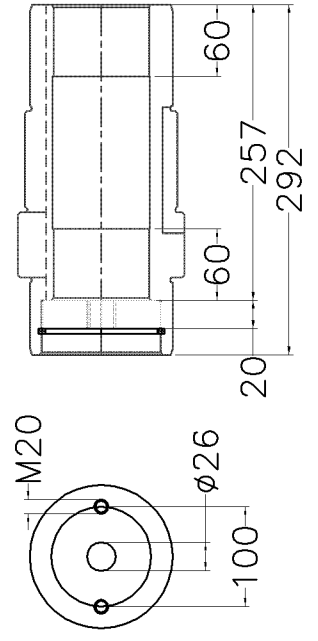
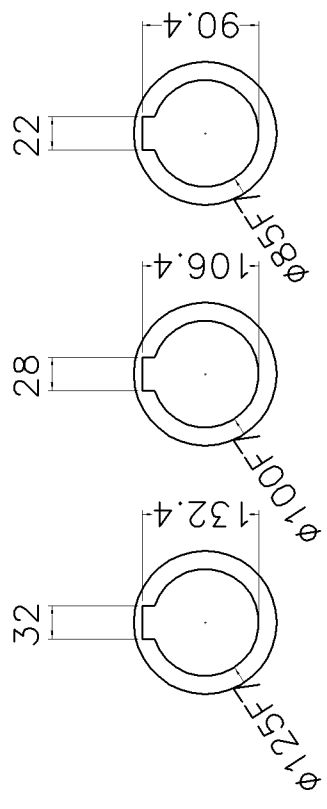
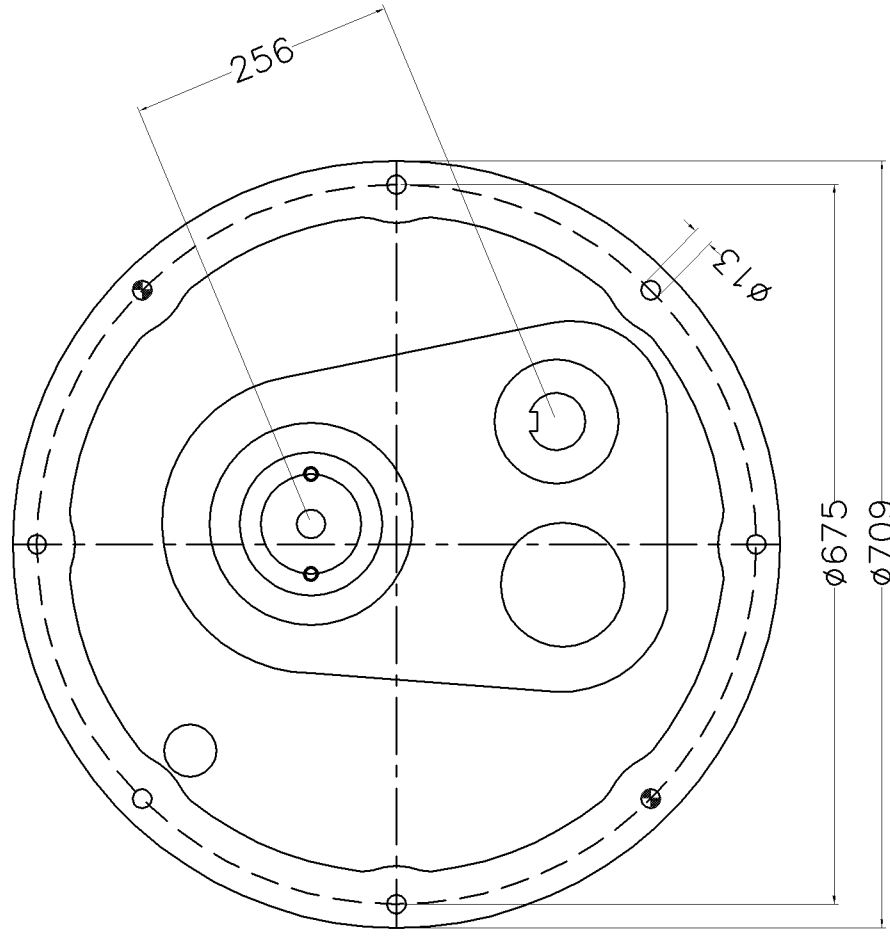
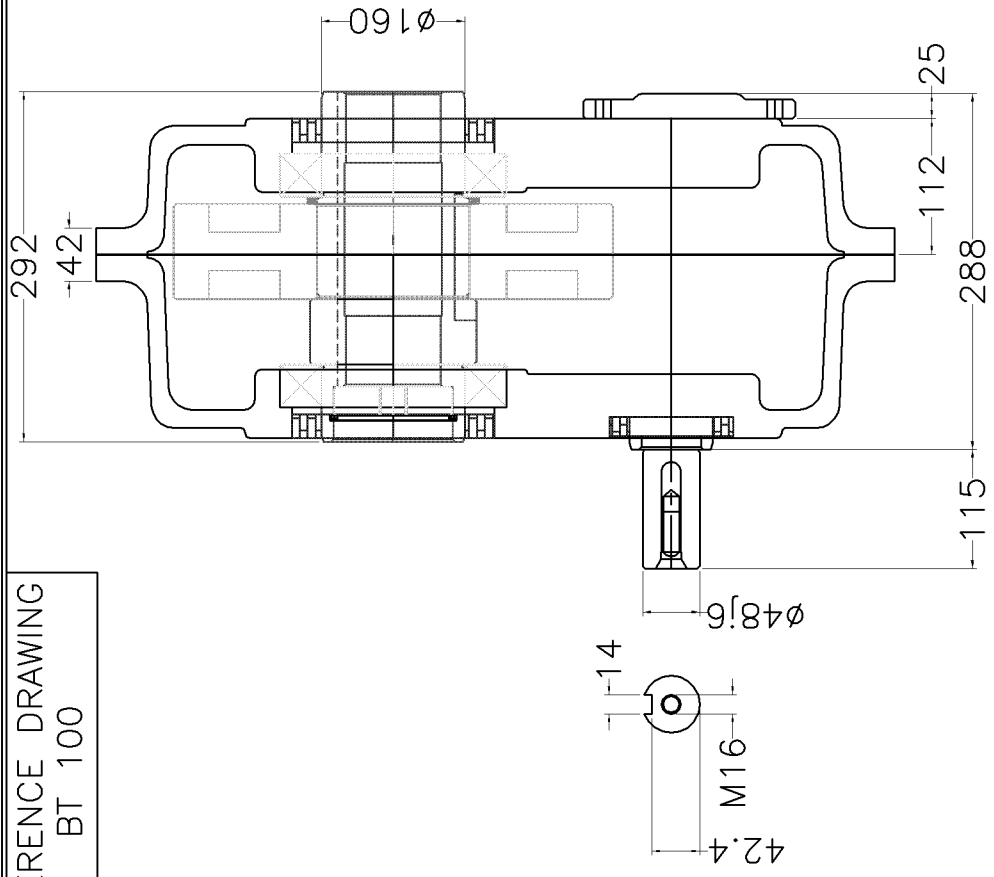
For Bore $\phi 70$ & $\phi 75$



PART NAME - REFERENCE DRW		BT 70		WEIGHT 127KG.	
DRN.	S.K.	DATE	SCALE-1:1	INVOOLUTE POWERGEAR PVT. LTD.	
CHKD.	AAG	BT-70	05.02.12	PLOT NO. 65, SECTOR 27-C,	
APPD.				FARIDABAD - 121003 (HARYANA) INDIA	

- GENERAL NOTES
1. ALL DIMENSIONS IN MM.
 2. REMOVE SHARP CORNERS

REFERENCE DRAWING
BT 100



PART NAME - REFERENCE DRW		BT 100		SCALE - 1:1	
DRN.	S.K.	CHKD.	AAG	DATE	DRG. NO.
				05.02.12	BT-100
APPD.					

WEIGHT 270KG.

GENERAL NOTES
1. ALL DIMENSIONS IN MM.
2. REMOVE SHARP CORNERS

INVOLUTE POWERGEAR PVT. LTD.
PLOT NO. 65, SECTOR 27-C,
FARIDABAD - 121003 (HARYANA) INDIA