



POWERGEAR™

INVOLUTE POWERGEAR PVT. LTD.
(FORMERLY INVOLUTE TOOLING CORPORATION)

ISO 9001-2008 Certified Systems

Manufacturers of Drives and Transmissions

T-Series Round Shaft Mounted Speed Reducer

The T-Series Round Shaft Mounted Speed Reducer is a versatile gearbox developed as an alternative to our shaft mounted gear units.

The speed reducer is compact in size mounting directly onto 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.

The gearboxes are available in **5 sizes of TD, TE, TF, TG and TH** with a range of nominal ratios of 5:1, 13:1, 15:1 & 20:1 with torque ratings from upto 4500 Nm.

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



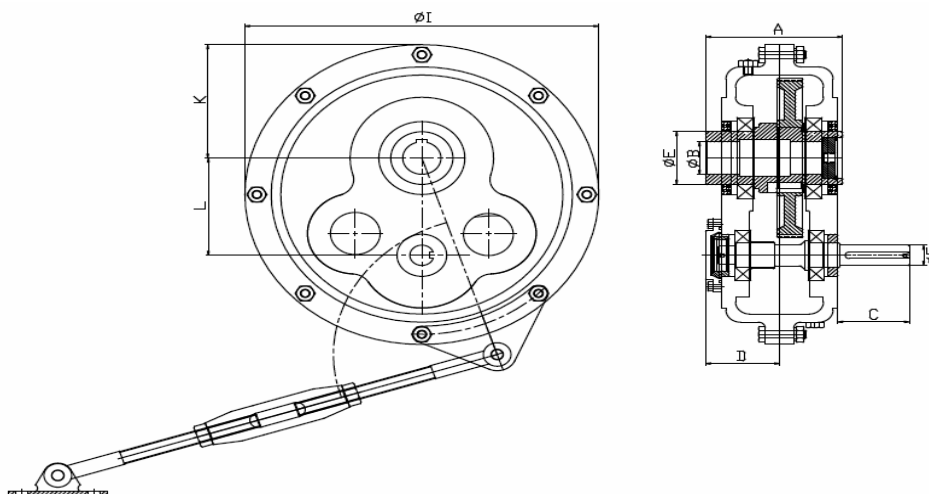
Accessories:

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

Flanged Motor Mounts: For directly coupling the electric motor to the gearbox.

Benefits:

- 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 TD – TH

*Dimensions in mm / Larger Sizes Available on Request

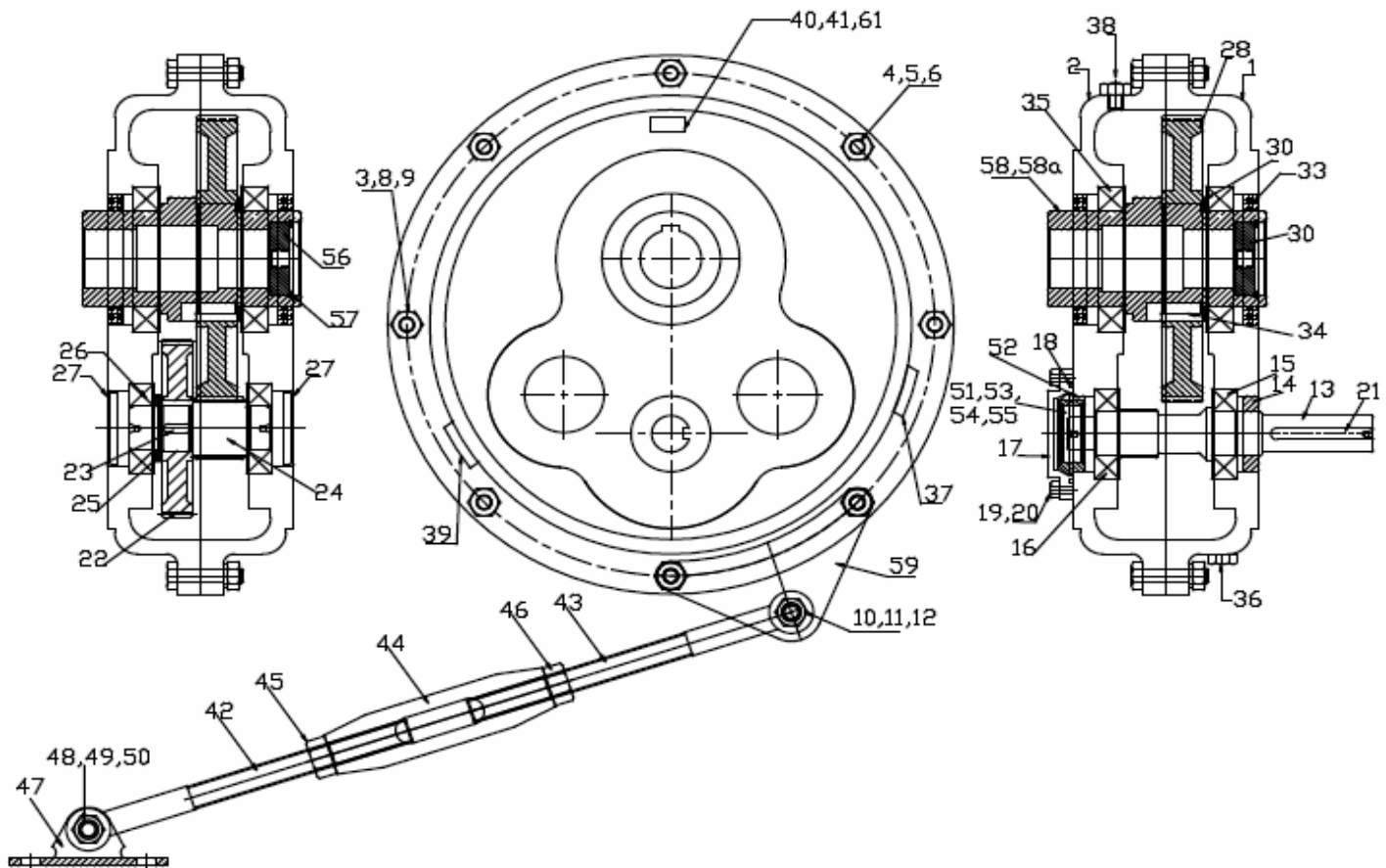
Size	Mass Kg	A	φB F7 HUB BORE	C	D	φE	φF j6	F KEYWAY	φI	K	L
TD40	35	143	40 / 45	75	77	65	25	8x4x63	370	140	120
TE45	45	157	45 / 50 / 55	84	84	75	28	8x4x70	420	155	135
TF50	63	175	50 / 55 / 60	90	91	85	32	10x5x70	470	175	150
TG60	100	199	60 / 70	105	109	100	42	12x5x90	550	205	166
TH70	135	223	70 / 85	115	115	110	48	14x5.5x100	580	230	199

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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



Part List – T-Series Round Shaft Mounted Speed Reducer

1	Casing Half R.H.	24	Output Pinion - 13/15/20	46	Nut R.H.
2	Casing Half L.H.	25	Spacer for Inter Pinion	47	Fulcrum
3	Hollow Dowel	26	Intermediate Bearings	48	Fulcrum Hex Bolt
4	Hex Bolts	27	End Covers	49	Fulcrum Hex Nut
5	Hex Nuts	28	Output Gear	50	Fulcrum Lock Washer
6	Lock Washers	29	Output Hub – STD	51	Backstop Bush Outer
7		29a	Output Hub – ALT	52	Backstop Bush - Key
8	Plain Washers	30	Output Spacer	53	Backstop Bush Inner
9	Hex Bolt / Nut / Lock Washer	31	Hub Grub Screw on Key	54	Backstop Bush - Keys
10	Hex Bolt Torque Arm	32	Hub Grub Screw	55	Backstop Bush - Circlips
11	Hex Nut Torque Arm	33	Output Oil Seals	56	Hub Plate – T Series
12	Lock Washer Torque Arm	34	Output Gear Key	57	Hub Circlip – T Series
13	Input Pinion Ratio 5/13/15/20	35	Output Bearings	58	Hub – STD T Series
14	Input Oilseal	36	Drain Plug	58a	Hub – ALT T Series
15	Bearing Input Front	37	Sight Glass	59	Torque Arm Bracket – T Series
16	Bearing Input Back	38	Breather Assembly	60	Labyrinth Front (*Optional)
17	Backstop Cover	39	Hex Oil Plug	61	Fill Oil – Sticker
18	Backstop O-Ring	40	Name Plate	62	Labyrinth Back (*Optional)
19	Backstop Bolts	41	Name Plate Dowels	63	Labyrinth Screws (*Optional)
20	Backstop Bolt Lock Washers	42	Torque Arm L.H.	64	Hub Cover (*Optional)
21	Input Shaft Key	43	Torque Arm R.H.	65	Hub Cover Hex Bolts (*Optional)
22	Intermediate Gear 13/15/20	44	Turnbuckle	66	Grease Nipple
23	Intermediate Gear Key	45	Nut L.H.		

*Dimensions/Parts are Subject to Change without Notice

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Selection Procedure

1. Determine Required Output Speed
2. Determine Power Absorbed by the Drive
Absorbed Power = Absorbed Torque x Machine Speed

$$\frac{\text{(kW)} \quad \text{(Nm)} \quad \times \quad \text{(rpm)}}{9550}$$
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 "TE" double reduction speed reducer at 8.20 kW is the smallest for this application.

*For Speed Higher than 70 rpm use 5:1 & 13:1 ratios

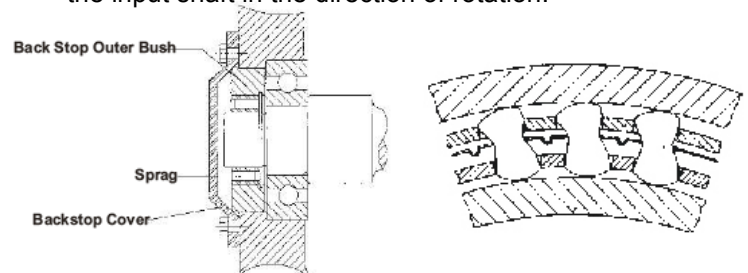
Power (kW) & Torque (Nm) Rating

OUTPUT RPM	TD	TE	TF	TG	TH
10	0.75	1.20	1.85	3.00	4.60
20	1.50	2.40	3.74	6.10	9.20
30	2.30	3.63	5.60	9.30	14.3
40	3.10	4.80	7.50	12.6	20.3
50	3.90	5.70	9.30	15.4	22.0
60	4.60	7.10	11.0	18.7	28.6
70	5.50	8.20	13.2	22.0	34.0
80	6.10	9.60	14.3	24.2	36.3
90	7.00	11.0	15.4	26.4	40.7
100	7.70	11.5	17.6	29.1	44.0
TORQUE AT 70 RPM (Nm)	742	1100	1780	2960	4500

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 Mill 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.
- Fit the outer bush in the housing with the key. The bush should fit snugly in contact with the casing.
- Determine direction of rotation.
- Fit the backstop, feeding the assembly while rotating the input shaft in the direction of rotation.



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

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