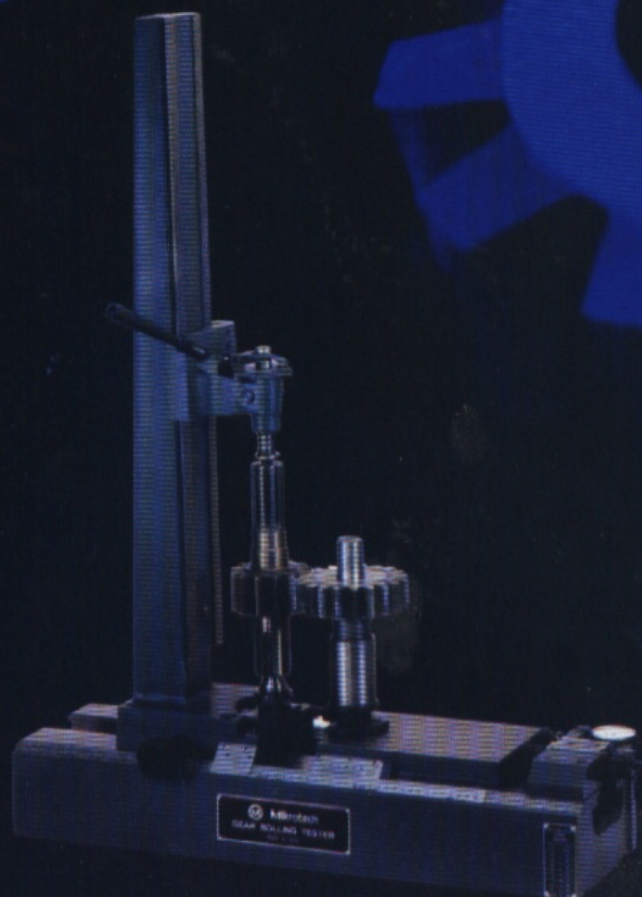




High Precision Gear Testing Solutions



Gear Measurement

The need for precision and cost effective method

The demand for ever faster and quieter running gears with low noise and wear factors, coupled with the fast depleting energy and increase in cost has necessitated high efficiency power transmission. As the load capacity and quiet running of the gearbox are influenced not only by overall gearbox construction and dimensions but also by the individual gearing.

The task of a gear, therefore, is to transmit power / torque without slippage and to vary the number of revolutions and degree of torque. Consequently, the requirement, particularly at high revolutions, is for a very high degree of kinematic accuracy and low noise. This demands highly precise gearing, especially in terms of the centre axis distance, tooth thickness, circumferential backlash and the working radial runout.

Precise gear measurements are therefore essential for quality control.

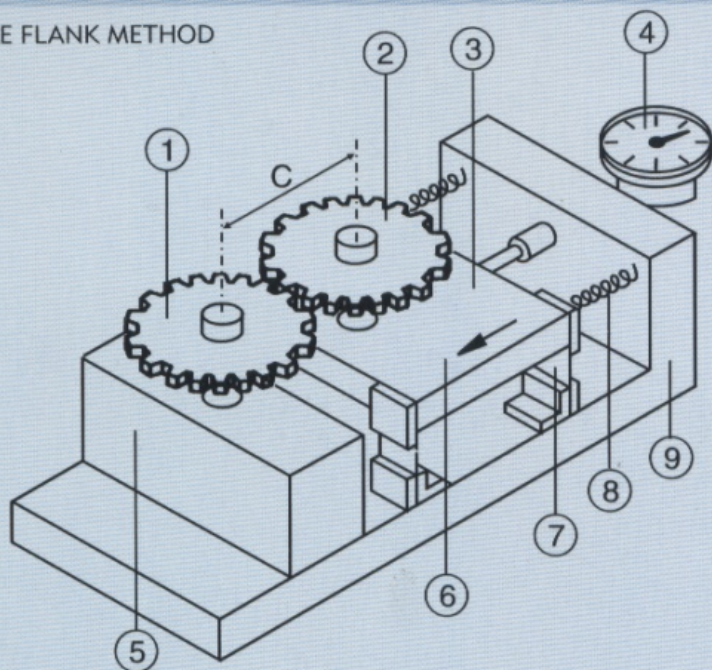
In order to evaluate the functional behaviour of gears quickly and reliably, there is no system more effective than the double flank rolling test which has clear advantages in its capacity for reliable assessment of the functional behaviour of gears at reasonable cost.

By applying this testing procedure, quality is controlled quickly and easily. Production time is reduced by taking advantage of allowed tolerance limits.

The Principle

Two gears are meshed with each other without backlash. The force acting in the direction of the gears' centers guarantees that a right-hand and a left-hand flank of the gears will be in contact. This type of arrangement is called Double Flank arrangement. The centre distance deviation, detected by the measuring side, is measured : This is the working centre distance C.

DOUBLE FLANK METHOD



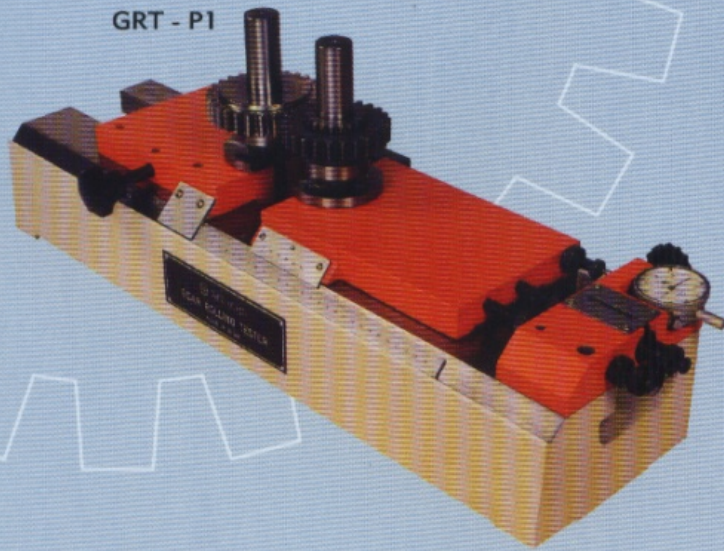
1. Gear to be tested
2. Master Gear
3. Measuring Slide
4. Displacement Transducer / Dial Gauge
5. Fixed support
6. Direction of measuring force
7. Spring support
8. Measuring force adjustment
9. Instrument Base

Double Flank Gear Rolling Testers

Introduction

We recommend exclusively Double Flank Rolling method which has clear advantages in its capacity for reliable assessment of the functional behaviour of the gears at reasonable cost. Available in different models to cater to different needs of gear measurement, the basic unit can be adapted to a multitude of different gear types by mounting attachments on the instrument bed and the measuring slide. This clearly displays the advantages of Double Flank Gear Rolling Tester. The solid and robust workmanship of the whole unit assures accuracy over the long term, even under workshop conditions.

GRT - P1

**Model : P1**

The equipment consists of accurately machined solid robust cast base which carries two slides – fixed and measuring slides, ensures accuracy, repeatability and fine movement without play and friction. A suitable spring mechanism incorporated in the equipment enables user to set the spring pressure, depending on the module of the gear. The equipment fitted with a linear scale with a vernier enables to set centre distance coarsely. Displacement of the measuring slide can be read from the dial indicator connected to the measuring slide.

The equipment is supplied with a dial indicator and two arbors to mount spur / helical gears with bore.

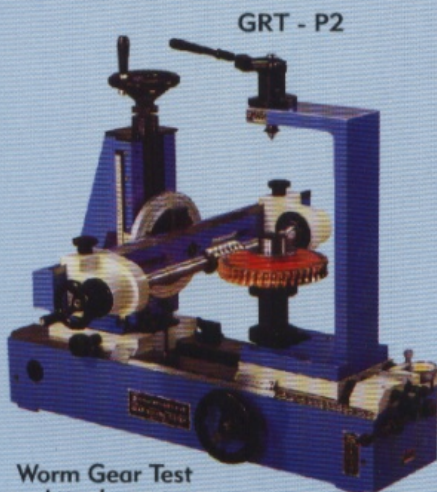
Model : P2

This Gear Rolling Tester P2 is a bigger model meant for bigger and heavier gears.

The construction of Gear Rolling Tester P2 is similar to Gear Rolling Tester P1.

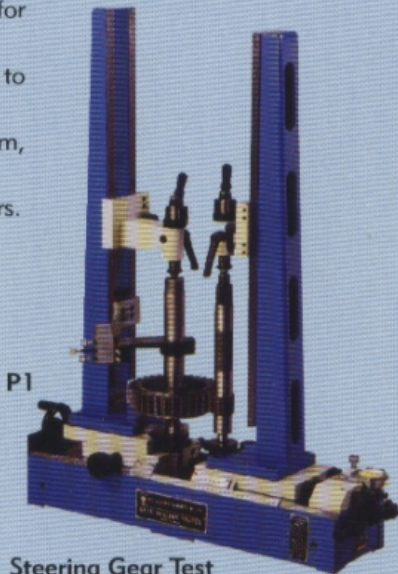
The equipment is fitted with a chain drive mechanism, for sliding fixed slide through a hand wheel.

This ensures fatigueless setting of master and test gears.



Worm Gear Test Attachment

GRT - P1



Steering Gear Test Attachment

Application :

To check composite error PCD runout and backlash of Spur, Helical, Bevel, Worm and Shaft gears, with suitable attachments.



GRT - P2

Optional Accessories :

1. Attachments for Bevel and Worm Gears.
2. Vertical column for checking shaft Gears.

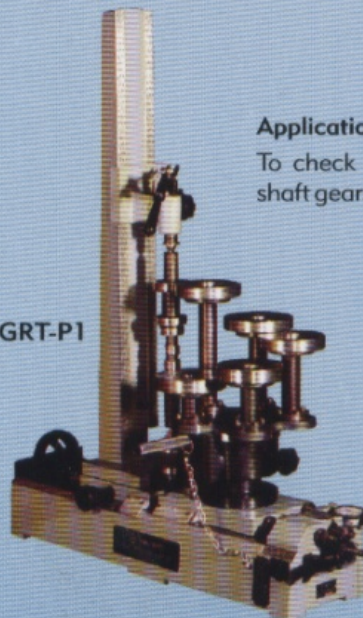
Model : K1 & K1-M K2 & K2-M**Design Features**

- A. Accurately machined and scraped cast iron base with dovetail guide way to guide fixed slide without play.
- B. Hand wheel operated sliding mechanism for easy sliding and accurate positioning of fixed slides, with a knob to clamp the slide to the base firmly.
- C. Vertical lead screw mechanism slide vertically up and down through a hand wheel.
- D. Quick and easy alignment of workpiece and master gear axis. Spring loaded lever mechanism for quick mounting and dismounting of shaft gear.
- E. The frictionless, low weight, zero backlash and maintenance free leaf spring support of the measuring slide guarantees unsuppressed accuracy and sensitivity. Thus even in continuous operation, high measuring accuracy and a long working life are achieved.

Application :

To check spur, helical and shaft gears, pinions etc.

GRT-P1



Indexing fixture for Shaft Gear

GRT-K1



Check Master

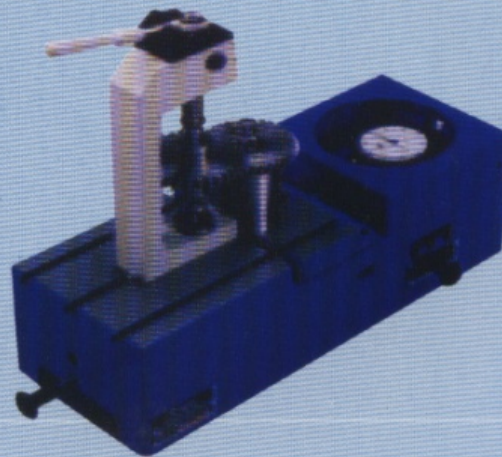
Mini Gear Rolling Tester : Useful for testing small gears upto 50 mm diameter. The dimensions of the product are as follows :

Overall Dimensions : 330 mm x 125 mm x 70 mm

Floating Table : 125 mm x 70 mm

Fixed Table : 125 mm x 125 mm

The floating slide is fitted with leaf springs which ensure high accuracy. Check Master can also be used for other varied applications, by interchanging the anvils for checking the Internal Dia., External Dia., Bush Concentricity etc.



TECHNICAL SPECIFICATIONS

Parameter Model	GRT-P0	GRT-P1	GRT-P2	GRT-K1	GRT-K2
Overall Dimensions	545Lx265Wx170H (mm approx.)	725Lx265Wx170H (mm approx.)	950Lx300Wx210H (mm approx.)	1000Lx320Wx1200H (mm approx.)	1000Lx320Wx1700H (mm approx.)
Centre Distance	35 to 200 mm	35 to 220 mm	60 to 350 mm	60 to 320 mm	60 to 320 mm
Shaft gear length	250 mm	500 to 750mm(Max.)	700mm (Max.)	100 to 500 mm	100 to 700 mm
Weight of basic equipment					
a) without column	45.00kg. (approx.)	61.50 kg. (approx.)	125.00 kg (approx.)	150.00 kg. (approx.)	175.00 kg. (approx.)
b) with column	54.00kg. (approx)	80.00 kg. (approx.)	170.00 kg. (approx.)	225.00 kg. (approx.)	250.00 kg. (approx.)

Short Center Attachment : The Short Center Attachment is available to obtain lower min. C.D. of 25 mm & 35 mm for model P-1 & P-2 respectively.

SPECIFICATIONS FOR BEVEL & WORM GEAR ATTACHMENT

Gear Attachment	Model	Centre Distance (C)		Height Adjustment (H)		Dimensions	
		Min	Max	Min	Max	D	L
Bevel Gear	GRT P1	52	230	90	240	—	—
	GRT P2	70	370	100	240	—	—
Worm Gear	GRT P1	40	84	90	240	139	254
	GRT P2	35	200	100	240	152	430

Bevel & Worm Gear attachments are available only on models GRT P1 & P2.

Motor Specifications

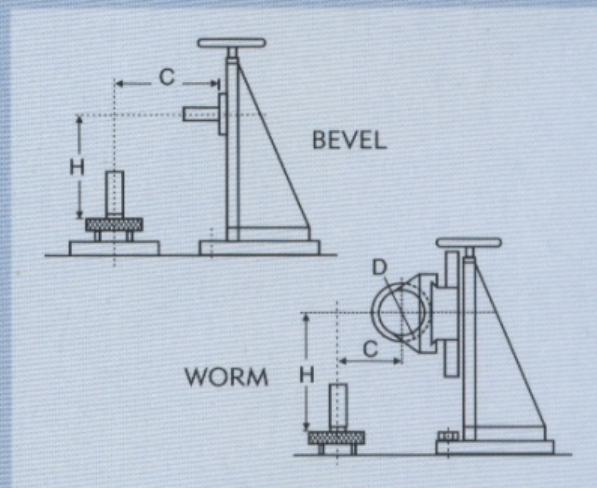
Type : D C Motor

Power : ± 0.5 HP

Revolving centre speed : 3 to 15 rpm

NOTE

1. Drawings of master and component gear to be supplied while ordering for manufacturing suitable mandrels, otherwise standard diameter mandrels will be supplied.
2. M for Motorised version viz. K1-M and K2-M
3. Digital display in place of Dial Gauge and Computerized version with software are available on demand.
4. All Dimensions are in mm.



Manufactured by :



KUDALE INSTRUMENTS
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