

Don't you have any trouble and problem with Standard Master gear?

– Interference, Undercut, Worse measuring results

Sophisticated theoretic design enables the master gear '**Ms + GC**' type to keep up "**Backlash, High-tooth, Profile shifted gear - addendum modification**" and "**Interference into fillet surface and bottom land**" can be cleared. Furthermore,

The price is also lowered!

The latest master gear is **Multi-“Ms + GC”** for Gear rolling tester



High accuracy · Wider applicable measuring range · Keeping away from Interference into fillet surface and bottom land
Price is also exciting!

Multi – “Ms + GC” Master Gear’s Features

Master Gear ideally should be prepared respectively for each gear to be measured.

Higher accuracy with more severe measurements requires each specific master gear.

Made-to-order Master Gear will need over 30days for manufacturing and cost a few thousands US dollars.

Speedy production of gears is always requiring quick delivery of Master Gear for inspection.

Ready made Master Gear (standard master gear) limits applicable measuring range

Simple and common gears will be measured with ready made master gears

Backlash, addendum modification, Base tangent length (Tooth thickness), High-tooth, etc

will not accept ready made Master Gears with standard gear specification.

Ready made - Master gear is specified on standard gear. It means

Tooth thickness is same as tooth space which is 1/2 of one pitch

Addendum and dedendum is equal to module-mm and bottom clearance is 25% of module-mm

On the other hand,

Tooth thickness of any gear is always thinner than tooth space, which is essential for rotation of gears

This concept is “Backlash”

Due to backlash (Thinner tooth thickness),

during double flank rolling test, teeth tips of both master gear and work gear get over

“ True involute form diameter” which is effective tooth flank length

Measuring of unnecessary tooth flank will make worse measuring results

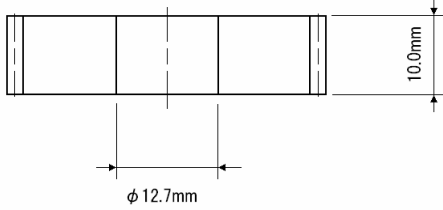
Further more, extreme intruding will make interference into fillet surface and bottom land.

Muli-“ Ms+GC” -Master Gear will make clear above troubles

For excessive gear specification, which can not covered with 'Ms+GC'-Master Gear,

Made-to order Master gear will be necessary.

Multi - Ms+GC type Master Gear



Dimension

Under Code of ISO 1328-2

[pressure angle 20° Bore dia. : 12.7mm Tooth width : 10mm Material : S45C]

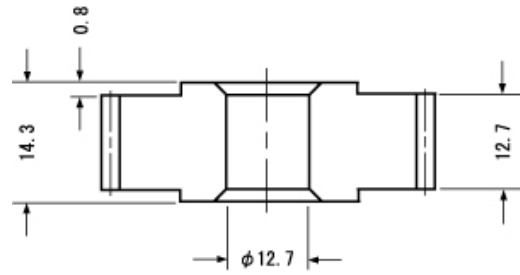
Module	No. of teeth	P.C.D.
0.4	65	26.0
0.5	76	38.0
0.6	64	38.4
0.7	54	37.8
0.8	48	38.4
0.9	42	37.8
1.0	38	38.0
1.25	30	37.5
1.5	24	36.0

Accuracy of 'Ms + GC' Master Gears :

Ms : I / Q & H [within F_i'' : 5 μ mm] • **Ms : II / Q & H** [within F_i'' : 7 μ mm]

GC : I / Q & H [within F_i'' : 9 μ mm] • **GC : II / Q & H** [within F_i'' : 12 μ mm]

Standard type Master Gear



Under Code of AGMA 2000-A88 Grade : 3A
JIS B1751 - M00

[pressure angle 20° Bore dia. : 12.7mm Tooth width : 12.7mm Material : SUJ]

Module	P.C.D.	Module	P.C.D.
0.1	30.0	0.15	25.5
0.2	38.0	0.25	38.0
0.3	38.4	0.35	38.5
0.4	38.4	0.45	38.25
0.5	38.0	0.55	38.5
0.6	38.4	0.65	38.35
0.7	38.5	0.75	38.25
0.8	38.4	0.85	38.25
0.9	37.8	0.95	38.0
1.0	38.0	1.25	40.0
1.5	51.0		

Work gears can be measured						Grades of Multi-“Ms + GC” Master Gears				
Features and specific gear data : Backlash and Interference						Accuracy of work gear	Very high	High	Ordinary +	Ordinary
Tooth thickness	1/2xPitchx88%	High-tooth	Addendum : m x 1.25	Addendum-modification	Coefficient : -0.25					
			1/2xPitchx76%			Addendum : m x 1.50		Coefficient : -0.50		Ms - I / H
Almost equivalent to Standard gear specification						Under Code of AGMA 2000-A88 Grade : 3A and JIS B1751 - M00, M0, M1				

2 models of 'Ms + GC' master gears and 2 types of Q & H sizes cover wider applicable measuring range, inclusive of "Backlash, High-tooth, Profile shifted gear - addendum modification" and "Interference into fillet surface and bottom land" can be cleared.

Multi - “Ms + GC” Master Gear can be delivered promptly from stock

“ Double flank gear rolling test ” is officially described as [Measurement of radial composite deviations for cylindrical involute gear] in ISO 1328-2.

The definitions and allowable values of the deviation for above test are specified also in the same ISO 1328-2.

This gear rolling test is the most practical, convenient, and low-cost method.

The details of this measurement is specified in Technical report ISO TR10064-2:1996

Deviations of radial composite deviation:

Total radial composite deviation: F_i'')

F_i'' is the difference between the maximum and minimum values of centre distance which occur

During a radial (double-flank) composite test, when the product gear with its right and left flank

Simultaneously in contact with those of the master gear, is turned though one complete revolution.

Figure 5 shows an example of a relevant diagram

Tooth-to-tooth radial composite deviation: f_i'')

f_i'' is the value of the radial composite deviation corresponding to one pitch, 360degree/z, during

the complete cycle of engagement of all the product gear teeth. The maximum value f_i'' of all the

product gear teeth should not exceed the specified allowable value(see Figure 5)

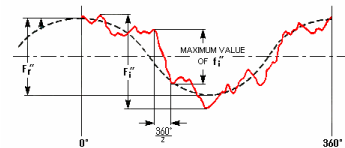
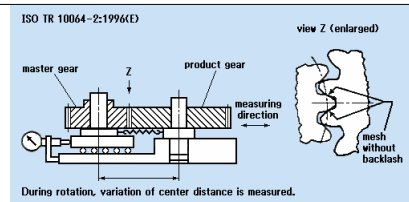


Figure 5 - Radial composite deviation diagram

Made to order Master gear (Helical, Addendum modification, Spur, etc)

Special Master Gear will be manufactured strictly in corresponding to the product gear

We are ready to supply every kind of master gears upon your requests, please send us your specific gear [drawings] for measuring with rolling tester

We are also a manufacturer of Gear rolling tester [Double flank] Please contact us for inspection of gears.

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