OmniGear
& Machine Corp

Diametral PitchSpur Gears

TO GET		HAVING	RULE	FORMULA
Module	-	Diametral pitch	Divide 25.4 by the diametral pitch	m=25.4/Pd
Diametral pitch	-	Module	Divide 25.4 by the module	Pd=25.4/m
		Circular pitch	Divide ? by the circular pitch	Pd=π/P
		Pitch diameter and number of teeth	Divided the number of teeth by pitch diameter	Pd=N/D
		Outside of gear and number of teeth	Divide number of teeth plus 2 by the outside diameter	Pd=N+2/Do
		Base pitch and pressure angle	Divide the base pitch by the cosine of the pressure angle then divide by ?	Pd=(Pb/cos.Φ)/ π
Operating diametral pitch	-	Center distance between 2 gears and no. of teeth in both	Add the no. of teeth in both gears and divide by 2, then divide by center distance	dp= (n1+n2/2)/C
Pressure angle	-	Base diam.. and pitch diam.	Divide the base diameter by the pitch diam.	cos. Φ=Db/D
		Base pitch and diametral pitch	Divide π by the diametral pitch, then divide by the base pitch	cos. Φ=Pb/(π/Pd)
		Base pitch and circular pitch	Divide the base pitch by the circular pitch= cosine pressure angle	cos. Φ=Pb/P

1

Diametral PitchSpur Gears

Pitch Diameter	Number of teeth and diametral pitch	Divide the no. of teeth by the diametral pitch	$D=N/Pd$
	Number of teeth and outer diameter	Divide the product of the outer diam.. and number of teeth by number of teeth +2	$D=NoDo/n+2$
	Outside diameter and diametral pitch	Subtract from the outside diameter, the quotient of 2 divided by the diametral pitch	$D=Do-2/pd$
	Addendum and no. of teeth	Multiply addendum by the no. of teeth	$D=a{\bullet}n$
	Base diameter and pressure angle	Divide the base diameter by the cosine of the pressure angle	$dp=Db/cos.f$
Outside Diameter	Number of teeth and diametral pitch	Divide no. of teeth plus two by the diametral pitch	$Do=N+2/Pd$
	Pitch diameter and diametral pitch	Add the pitch diameter to the quotient of 2 divided by the diametral pitch	$Do=D+2/Pd$
	Pitch diameter and number of teeth	Divide the no. of teeth plus 2 by the quotient of no. of teeth divided by the pitch diameter	$Do=N+2/N/D$
	Number of teeth and addendum	Multiply the no. of teeth plus 2 by addendum	$Do=(N+2)a$
Number of teeth	Pitch diameter and diametral pitch	Multiply pitch diameter by the diametral pitch	$N=D{\bullet}Pd$
	Outside diameter and diametral pitch	Multiply outside diameter by the diametral pitch and subtract 2	$N=Do{\bullet}Pd-2$
Std. thickness of tooth	Diametral pitch	Divide 1.5708 by the diametral pitch	$t=1.5708/Pd$

2

Diametral PitchSpur Gears

Std. addendum	Diametral pitch	Divide 1 by the diametral pitch	$a=1/Pd$
Std. Dedendum	Diametral pitch	Divide 1.157 (or 1.25) by the diametral pitch	$b=1.157/Pd$
Std. whole depth	Diametral pitch	Divide 2.157 (or 2.25) by the diametral pitch	$ht=2.157/Pd$
Clearance	Diametral pitch	Divide .157 or (.250) by the diametral pitch	$c=.157/Pd$
	Thickness of tooth	Divide thickness of tooth at pitch line by 10	$c=t/10$
Center distance	Normal diametral pitch and no. of teeth in both gears	Add no. of teeth in both gears and divide by 2, then divide result by the normal diametral pitch	$dp=((n1+n)2/2)/Pnd$
Operating center distance	Operating diametral pitch and no. of teeth in both gears	Add the no. of teeth in both gears together and divide results by 2, then divide results by operating diametral pitch	$dp=(n1+n2/2)/Pod$
Base diameter	Pitch diameter and pressure angle	Multiply the pitch diameter by cosine of the pressure angle	$Db=D\bullet\cos\Phi$
Base pitch	Diametral pitch and pressure angle	Divide the diametral pitch by ?, then multiply by cosine of pressure angle	$Pb=\cos.\ \Phi\bullet\pi/Pd$