DIAMETRAL PITCH
SPUR GEARS

TO GET	HAVING	RULE	FORMULA
Module	Diametral pitch	Divide 25.4 by the diametral pitch	$m = 25.4 / P_d$
Diametral pitch	Module	Divide 25.4 by the module	$P_d = 25.4 / m$
	Circular pitch	Divide π by the circular pitch	$P_d = \pi / P$
	Pitch diameter and number of teeth	Divided the number of teeth by pitch diameter	$P_d = N / D$
	Outside of gear and number of teeth	Divide number of teeth plus 2 by the outside diameter	$P_d = N + 2 / D_o$
	Base pitch and pressure angle	Divide the base pitch by the cosine of the pressure angel then divide by π	$P_d = (P_b / \cos. \Phi) / \pi$
Operating diametral pitch	Center distance between 2 gears and number of teeth in both	Add the number of teeth in both gears and divide by 2, then divide by center distance	$d_p = (n_1 + n_2 / 2) / C$
Pressure angle	Base diameter and pitch	Divide the base diameter by	$\cos. \Phi = D_b / D$

	diameter	pitch diameter	
	Base pitch and diametral pitch	Divide π by diametral pitch, then divide by the base pitch	$\cos.\Phi = Pb / (\pi/Pd)$
	Base pitch and circular pitch	Divide the base pitch by the circular pitch = cosine pressure angle	$\cos \Phi = Pb / P$
Pitch diameter	Number of teeth and diametral pitch	Divide the number of teeth by the diametral pitch	$D = N / Pd$
	Number of teeth and outer diameter	Divide the product of the outer diameter and number of teeth by number of teeth +2	$D = N * Do / n + 2$
	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 number of teeth	Multiply addendum by the number of teeth	$D = a * n$
	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 number of teeth plus 2 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 number of teeth plus 2 by the quotient of number of teeth divided by the pitch diameter	Do = N + 2 / N / D
	Number of teeth and addendum	Multiply the number 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 * Pd
	Outside diameter and diametral pitch	Multiply outside diameter by the diametral pitch and subtract 2	N = Do * Pd - 2
Std. thickness of tooth	Diametral pitch	Divide 1.5708 by the diametral pitch	t = 1.5708 / Pd
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	Divide thickness	c = t / 10

	tooth	of tooth at pitch line by 10	
Center distance	Normal diametral pitch and number of teeth in both gears	Add number of teeth in both gears together 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 number of teeth in both gears	Add the number of teeth in both gears together and divide 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 * cos.Φ
Base pitch	Diametral pitch and pressure angle	Divide the diametral pitch by π, then multiply by cosine of pressure angle	Pb = cos.Φ * π / Pd