

**SYMBOLS FOR RULES & FORMULAS**

<b>a</b> Addendum	<b>t<sub>r</sub></b> Tooth Thickness Tolerance
<b>ac</b> Chordal Addendum	<b>t<sub>t</sub></b> Transverse Circular Thickness
<b>anc</b> Normal Chordal Addendum	<b>t<sub>x</sub></b> Axial Thickness
<b>B</b> Backlash	<b>V<sub>ap</sub></b> Total Accumulated Pitch Variation
<b>b</b> Dedendum	<b>V<sub>apk</sub></b> Total Accumulated Pitch Variation within a sector of k Pitches
<b>C</b> Center Distance	<b>V<sub>cq</sub></b> Total Composite Variation (double flank)
<b>c</b> Clearance	<b>V<sub>cqT</sub></b> Total Composite Tolerance (double flank)
<b>D</b> Reference Standard Pitch Diameter	<b>V<sub>p</sub></b> Pitch Variation
<b>D<sub>b</sub></b> Base Diameter	<b>V<sub>pA</sub></b> Allowable Pitch Variation
<b>D<sub>c</sub></b> Datum Circle	<b>V<sub>pn</sub></b> Normal Pitch Variation
<b>D<sub>i</sub></b> Internal Diameter	<b>V<sub>q</sub></b> Tooth-to-Tooth Composite Variation (double flank)
<b>D<sub>R</sub></b> Root Diameter	<b>V<sub>qT</sub></b> Tooth-to-Tooth Composite Tolerance (double flank)
<b>D<sub>t</sub></b> Throat Diameter	<b>V<sub>r</sub></b> Radial Runout
<b>D<sub>o</sub></b> Out side diameter	<b>V<sub>rT</sub></b> Radial Runout Tolerance
<b>dp</b> Operating Pitch Diameter	
<b>F</b> Face Width	
<b>Fe</b> Effective or Active Face Width	

<b>F<sub>t</sub></b>	Total Face Width	<b>V<sub>s</sub></b>	Spacing Variation
<b>hk</b>	Working Depth	<b>V<sub>x</sub></b>	Index Variation
<b>ht</b>	Whole Depth(tooth depth)	<b>V<sub>φ</sub></b>	Profile Variation
<b>L</b>	Lead	<b>V<sub>φT</sub></b>	Profile Tolerance
<b>m</b>	Module	<b>V<sub>ψ</sub></b>	Tooth Alignment Variation
<b>mc</b>	Contact Ratio	<b>V<sub>ψT</sub></b>	Tooth Alignment Tolerance
<b>m<sub>F</sub></b>	Face Contact Ratio	<b>Z</b>	Length of Action
<b>m<sub>G</sub></b>	Gear Ratio	<b>α</b>	Addendum Angle
<b>m<sub>n</sub></b>	Normal Module	<b>Γ</b>	Pitch Angle
<b>m<sub>o</sub></b>	Modified Contact Ratio	<b>Γ<sub>R</sub></b>	Root Angle
<b>m<sub>p</sub></b>	Transverse Contact Ratio	<b>Σ</b>	Shaft Angle
<b>mt</b>	Total Contact Ratio	<b>ε</b>	Involute Roll Angle
<b>N</b>	Number of teeth or threads	<b>θ</b>	Involute Polar Angle
<b>N<sub>e</sub></b>	Equivalent Number of teeth	<b>θ<sub>N</sub></b>	Angular Pitch
<b>P<sub>d</sub></b>	Diametral Pitch (transverse)	<b>λ</b>	Lead Angle
<b>P<sub>nd</sub></b>	Normal Diametral Pitch	<b>λ<sub>b</sub></b>	Base Lead Angle
<b>P</b>	Circular Pitch	<b>λ<sub>o</sub></b>	Outside Lead Angle
<b>P<sub>b</sub></b>	Base Pitch	<b>λ<sub>p</sub></b>	Pitch Lead Angle
<b>P<sub>m</sub></b>	True Position Pitch	<b>p</b>	Profile Radius of Curvature
<b>P<sub>n</sub></b>	Normal Circular Pitch	<b>φ</b>	Pressure Angle
<b>P<sub>N</sub></b>	Normal Base Pitch	<b>φ<sub>n</sub></b>	Normal Pressure Angle
<b>P<sub>t</sub></b>	Transverse Circular Pitch	<b>φ<sub>t</sub></b>	Transverse Pressure Angle

<b><math>P_x</math></b> Axial Pitch	<b><math>\Phi_x</math></b> Axial Pressure Angle
<b><math>P_X</math></b> Axial Base Pitch	<b><math>\Psi</math></b> Helix Angle, Spiral Angle
<b><math>Q</math></b> Quality Number	<b><math>\Psi_b</math></b> Base Helix Angle
<b><math>Q_a</math></b> Arc of Approach	-----
<b><math>Q_r</math></b> Arc of Recess	
<b><math>Q_t</math></b> Arc of Action	<b><math>A</math></b> Allowable Variation
<b><math>R_r</math></b> Test Radius	<b><math>G</math></b> Features on a gear
<b><math>r_f</math></b> Fillet Radius, (when constant)	<b><math>k</math></b> A Variable
<b><math>r_t</math></b> Throat-form Radius	<b><math>n</math></b> Normal plane
<b><math>rr</math></b> Tip or Edge Radius of Tool	<b><math>P</math></b> Features on a Pinion
<b><math>t</math></b> Circular Tooth Thickness	<b><math>T</math></b> Tolerance
<b><math>tb</math></b> Base Circular Thickness	<b><math>t</math></b> Transverse Plane
<b><math>t_c</math></b> Chordal Thickness	<b><math>W</math></b> Features on a Worm
<b><math>t_n</math></b> Normal Circular Thickness	
<b><math>t_{nc}</math></b> Normal Chordal Thickness	

#### DISCLAIMER AND LIMITED LIABILITY

Commercial Gear and Sprocket Company, Inc. has provided Designers & Engineers Resources in an effort to help you conceptualize your design. Due to the complex nature of designing and its interaction with an assortment of components, Commercial Gear and Sprocket Company, Inc. does not warrant that the usage of this site and the information therein is completely error free or fit for your specific design. Commercial Gear and Sprocket Company, Inc. makes no warranties, express or implied, with respect to the usage of the information provided or as to its fitness for any particular purpose. Commercial Gear and Sprocket Company, Inc. shall not be liable for any damage or loss of any kind, whether direct or indirect, incidental or consequential, regardless of whether such liability is based in Tort, Contract or otherwise including without limitation damages for loss of business, business profits, business interruption, or any other pecuniary loss arising out of or relating to the use of this site. **Commercial Gear and Sprocket Company, Inc. is however, standing by to assist you or design and fabricate to your specifications. Our third generation family owned company has been producing quality gears and other power transmission products at competitive prices since 1946. Call us at (800) 491-1073 and ask for Design Support**