LIST OF SYMBOLS AND ABBREVIATIONS

SYMBOLS

Spur Gear and Helical Gear

\( a \) - Center distance between gear and pinion, mm
\( b \) - Thickness of pinion and gear, mm
\( d_1, d_2 \) - Pitch circle diameter of pinion and gear, mm
\( E \) - Young’s Modulus of the gear material, N/mm\(^2\)
\( i \) - Gear ratio
\( k \) - Load Concentration factor
\( k_d \) - Dynamic load factor
\( m \) - Module of gear and pinion, mm
\( m_n \) - Normal module, mm
\( M_t \) - Normal twisting moment transmitted by the pinion, Nmm
\([M_t]\) - Design twisting moment, Nmm
\( P \) - Power delivered, kW
\( P^{(U)} \) - Power Upper Limit
\( P^{(L)} \) - Power Lower Limit
\( R \) - Pitch circle radius of gear, mm
\( r \) - Pitch circle radius of pinion, mm
\( r_o \) - Outside circle radius of pinion, mm
\( R_o \) - Outside circle radius of gear, mm
\( y \) - Form factor
\( Z_1, Z_2 \) - Number of teeth in pinion and gear
\( \beta \) - Helix angle in degrees
\( \rho \) - Density of the material, kg/mm\(^3\)
\( \sigma_b \) - Induced bending stress, N/mm\(^2\)
\( \sigma_c \) - Induced Compressive stress, N/mm\(^2\)
\([\sigma_b]_{al}\) - Allowable bending stress, N/mm\(^2\)
\([\sigma_c]_{al}\) - Allowable Compressive stress, N/mm\(^2\)
\( \Phi \) - Pressure angle in degrees, 20\(^0\)
\( \Phi_n \) - Normal Pressure angle in degrees
\( \Psi \) - Ratio between the gear pair thickness and center distance to calculate minimum center distance.
\( \Psi_m \) - Ratio between the gear pair thickness and module to calculate the minimum module.

**Gear Box**

\( a_i \) - Centre distance for the corresponding gear-pair, mm
\( b_i \) - Thickness of the gear-pair, mm
\( k_c \) - Stress concentration factor, 1.5
\( k_d \) - Dynamic load factor, 1.1
\( r_i \) - Transmission ratio
\( w_i \) - Speed of the wheel in rpm
\( y_i \) - Form factor for the corresponding gear-pair
\( \beta \) - Pressure angle, 20\(^0\)
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