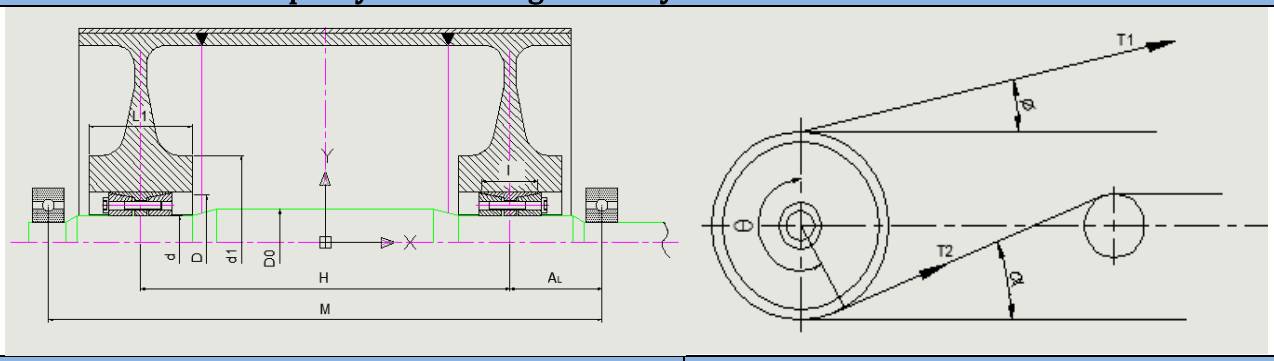
Doc No.: **N-DD-LASCA**	**Locking Assembly selection Procedure for Conveyor Application**	

❖ Nomenclature of pulley with locking assembly



Technical specification	Where
Step 1: **Application Torque calculation:** *Is calculated by resultant force formula and general torque formula. Ref, engineering hand book.* Required Torque, $$*\text{Ma} = \frac{k \times (T_1 - T_2) \times D_2}{2000} \quad \text{Nm}$$ **or** $$*\text{MA} = \frac{\text{P}_\text{M}\ x\ 60\ x\ 10^3}{2\ x\ \pi\ x\ \frac{No}{i}}$$ ** Required Torque, is considered whichever is maximum for further calculation.* **Step 2:** **Application Bending moment calculation :** *By using force triangles, law of cosines and "**Dubbel Handbook for Mechanical Engineer**" bending moment formula required bending moment is calculated.* Required bending moment, $$\text{Mba} = (k\ \times AL\ ) \times \frac{\sqrt{T_1^2 + T_2^2 - 2 \times T_1 \times T_2 \times \cos\theta}}{2000}$$	P_M= Motor Power , KW No = Motor speed , RPM i = Gear Box Ratio T1 = Tight side Tension (N) T2 = Slack side Tension (N) D2 = outer Diameter of Pulley (mm) k = start - up factor (on the basis of customer requirements) θ = Wrap angle in degree A_L = Lever arm length (mm) Ma = Required torque (Nm) Mba = Required bending Moment (Nm) Mtc = Composite torque (Nm) Kb = 1.2 to 2 (Bending Moment factor, Depending upon your Application) d = Shaft Diameter at Hub , mm d1 = Hub Outer diameter , mm L1 = Hub Length , mm T1 = Tight side Tension * start up Factor , N T2 = Slack side Tension * start up Factor , N

Step 3:

Combined torque calculation when there is simultaneous torque and bending load

Composite Torque,

$\text{Mtc} = \sqrt{M_a^2 + (kb \times M_{ba})^2}$

For Drive Pulley,

Catalogue Torque ***Mt ≥ Mtc***

Catalogue ***Mb ≥ Mba***

For Non-Drive Pulley,

Catalogue ***Mb ≥ Mba***