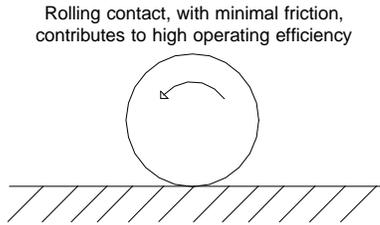


Cycloidal Advantage

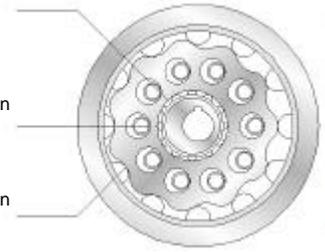
1. Rolling Contact - All major torque transmitting components roll; they do not slide. Rolling motion contributes to minimal friction and high efficiency. Single stage efficiency approaches 93%, and double stage efficiency approaches 86%.



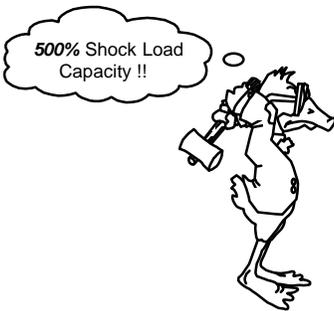
Rolling contact between eccentric bearing and cycloidal disc.

Rolling contact between cycloidal disc and output shaft roller.

Rolling contact between cycloidal disc and ring gear pin/roller.



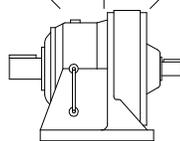
2. Torque transmitting elements experience COMPRESSION; they do not shear - Unlike involute gear mechanism which has only 1 or 2 teeth to absorb the entire shock load with possible gear teeth breakage, at least 66% of ring gear rollers and cycloidal disc lobes share the shock load under compression (Frame size B10 and above with twin disc design). In addition, major torque transmission components inside the DARALI® Cycloidal Reducers are made of 52100 (JIS SUJ2) bearing grade steel and heat treated to Rockwell Hardness of H_RC 61-63. The end result is that **DARALI® Cycloidal Reducers are capable of withstanding intermittent shock load up to 500% of its catalog torque rating.**



2/3 of cycloidal disc lobes and ring gear pins to absorb shock load

Compression Contact

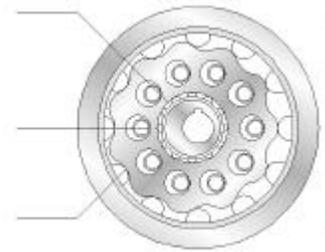
Internal Components made of bearing grade steel, hardened to H_RC 61-63



Compression between eccentric bearing and cycloidal disc.

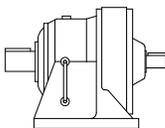
Compression between cycloidal disc and output shaft roller.

Compression between cycloidal disc and ring gear pin/roller.



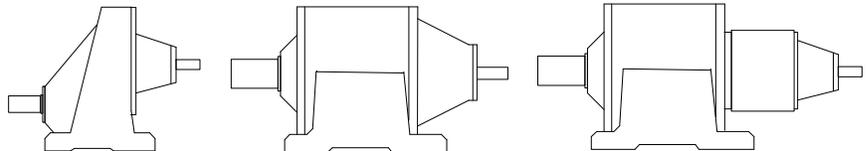
3. Compactness - Unlike helical speed reducers which require additional stages to achieve higher reduction ratio (increased size/weight, decreased efficiency, more bearings and gears to maintain), changing the ratio of DARALI® Cycloidal Reducers (up to 87:1) involves only the changing of ring gear rollers, cycloidal disc lobes, and eccentric bearing. The physical dimensions of speed reducers remain the same.

Cycloidal Reducer Single Stage
6:1 ~ 87:1



Physical dimensions and number of components remain unchanged.

Helical Speed Reducer
Single Stage up to 7:1 or 8:1



Each additional stage requires two extra bearings and one extra gear; increased size/weight, decreased efficiency, more components to maintain.

4. Excellent performance against worm gear reducers - Rolling motion creates minimal friction. Minimal friction contributes to minimal wear and minimal heat generation. Worm gear reducers performance are greatly limited by thermal rating. DARALI® Cycloidal Reducers with rolling components internally, enjoy minimal heat loss. The thermal capability of each frame size and ratio of DARALI® Cycloidal Reducers exceed its mechanical capability. Worm gear reducers are characterized by lower efficiency; you can select a smaller size DARALI® Cycloidal Reducer and still enjoy larger output power. The end result is longer service life and tremendous energy saving !!

