



## **HIGH EFFICIENCY GEAR DRIVES** for **SUGAR CRYSTALLISERS**



- **Low Power Consumption**

High efficiency planetary transmission ensures at least 60% reduction in installed power as compared to the conventional worm gear system.

- **Shaft Mounting Construction**

Compact, single unit, shaft mounted drive configuration goes directly on the Crystalliser shaft. No couplings, bulky foundation, base frames etc are required.

- **Longer Life**

Enclosed construction ensures uniform lubrication of rotating elements and results in longer life.

- **Reduced Maintenance Cost**

Routine maintenance is limited to re-lubrication, and that too once a season.



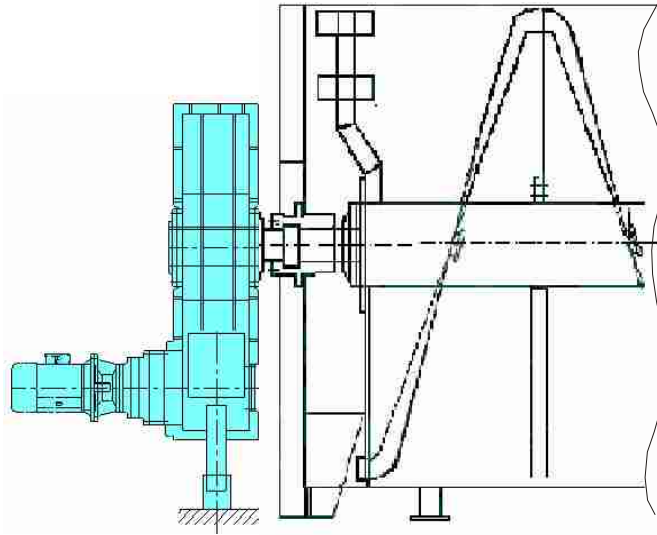
DYNASPEDE offers easy-to-fit, shaft-mounted MAGTORQ crystalliser drives rated up to 7.5HP, and for output speeds 1 to 0.3 RPM to cover standard range of horizontal type sugar crystallisers from 45T to 100T capacities and upto 300T capacity for vertical crystallisers. Developed after an in-depth study of typical crystalliser installations, MAGTORQ crystalliser drive employs high efficiency spur & helical gearing instead of conventionally used worm gearing. The overall efficiency of MAGTORQ crystalliser drives is better than 90% and the installed motor rating is optimally used resulting in attractive savings in power consumption.

The drive arrangement consists of an electric motor, a multi-stage planetary gear reducer and a single stage helical gear transmission. The electric motor is flange-mounted to the input of the planetary gear reducer, which in turn is flange-mounted to the input of the helical gear transmission. The hollow output shaft of the helical transmission can be keyed directly onto the crystalliser shaft. The drive unit can be aligned in a convenient direction with respect to the crystalliser axis, and its torque arm structure is to be bolted at the convenient place. No other additional structures, such as base frames or any couplings are required. The drive unit is completely enclosed & oil-tight. All internals including bearings are oil-lubricated, oil change is recommended only once in a season.

## COMPARISON OF MAGTORQ DRIVE WITH OPEN TYPE WORM AND WORM WHEEL ARRANGEMENT FOR CRYSTALLISER APPLICATION

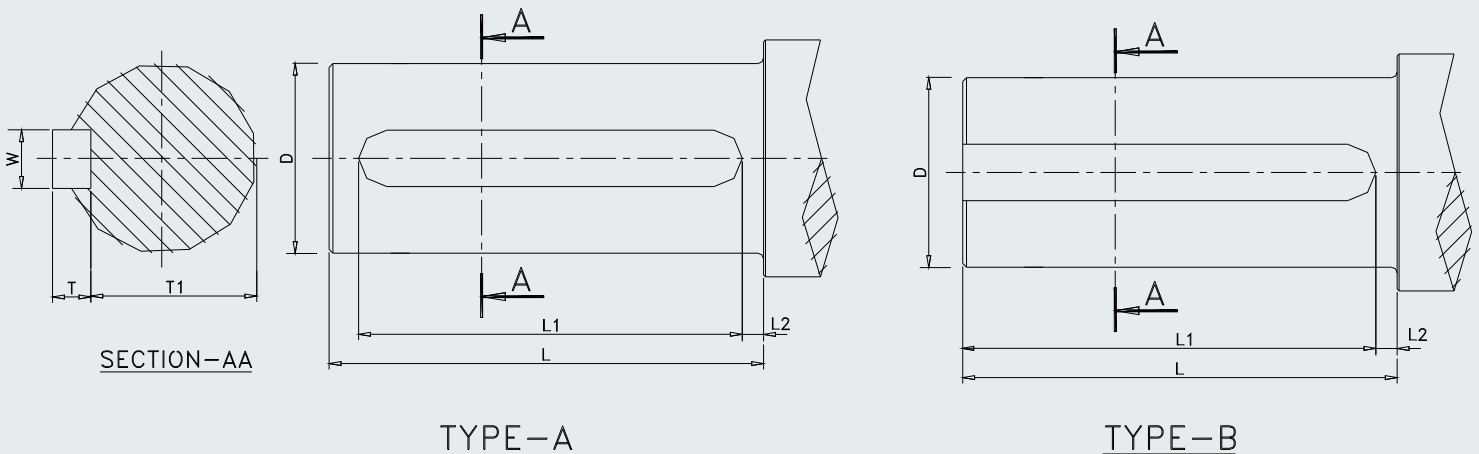
	<b>Open type Worm and Worm Wheel arrangement</b>	<b>MAGTORQ Crystalliser Drive</b>
Motor rating	Generally motor ratings will be from 10 to 30 HP	Maximum motor rating will be within 7.5HP
Efficiency	Highly inefficient and losses in the gear system are very high and efficiency is very poor and goes down to 30%	Efficiency is very high – about 90%
Labor requirement for operation while the gear unit is running	As gears are open type and hence one person is always required to attend the oil filling	As the unit is totally enclosed, no need of frequent oil filling. Oil to be changed only once in a season
Cleanliness	Surrounding area will be highly unclean due to oil overflowing	As there is no oil overflow, surroundings will remain clean and free of oil spread
During power failure – Operation by hand.	Very difficult to rotate it by hand	Very less power is required and one person can rotate the shaft without any difficulty
Alignment related problems	Due to wear in the bush bearing provided in the crystalliser shaft, the worm wheel tends to bend downward and sit on worm shaft. This will add additional load and results in reduced life of worm and worm wheel. Also one coupling is required between the motor and worm gear unit which needs to be aligned properly	Since the entire gear unit is mounted on the crystalliser shaft (weight of the total gear unit is less than weight of the worm wheel), wear of the bush does not pose any problem. Also, as no couplings and base plates are involved, no alignment related problems
Annual Maintenance	Generally motors and gear units are dismantled and bearings are changed during off season. This involves major work and cost	No special annual maintenance is needed. Maintenance is limited to only changing the oil once in a season
Life of the gear unit	Since the gears are open type and surrounding atmosphere is dirty due to overflowing of Masecute, gear unit life is very much affected. Higher frictional losses, improper gear meshing, contamination in lubricants etc reduce the gear life	Totally enclosed construction and hence continuous lubrication is ensured and there is no scope for foreign material entry inside the gear unit leading to extended life of the gear unit

# MAGTORQ CRYSTALLISER DRIVE TYPICAL ARRANGEMENT



Kindly furnish the following details on your existing worm drive arrangement to suggest suitable MAGTORQ crystalliser drive:

	1	2	3	4	5
Type of crystalliser (A,B,C OR VERTICAL)					
Capacity of the crystalliser in Tonnes					
Motor rating (kw/rpm)					
Crystalliser shaft diameter where worm wheel is fitted					
Speed (RPM) at which crystalliser shaft is being driven					



Note: Shaft diameter and key dimensions are to be given upto two decimal places.

CRYSTALLISER DESCRIPTION	KEYWAY TYPE-A (OR) B	SHAFT DIA. $\varnothing D$	SHAFT LENGTH L	KEY WIDTH W	KEY THK. T	KEYWAY DEPTH T1	KEYWAY LENGTH L1	DISTANCE L2	KEY TYPE TAPER/PARALLEL



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