

DRIVE SOLUTION FOR CONVEYOR DRIVES THROUGH FLUIDOMAT SCOOP CONTROL SC COUPLINGS

A large conveyor drives with HT (High tension) motors face following problems:-

1. HT Motors cannot be started frequently and a minimum gap of 15 minutes has to be provided between two starts.
2. In case of necessity of stopping the conveyor because of any reasons including pull chord operation, power failure etc then the drive motor has to be stopped but cannot be restarted until 15 minutes causing loss of production and other system problems.
3. Generally in large plants or material handling facilities there are a number of conveyors operating in series and if one conveyor is stopped, then the remaining conveyors have to be stopped else it will cause overflow of chutes or other problems.
4. HT motors experience lot of stresses on each starting which further amplify on reduced voltages prevailing and occurring at the time of starting.

The stresses are also caused by long time taken to decay the starting current kick. Heating of motors during starting, stresses on insulation and other mechanical stresses affect the life of motor adversely and reduce their reliability.
5. The motor KW rating has to be selected based on starting condition rather than running KW or consumed power and thus larger KW motors have to be selected which are inefficient on reduced powers. There is a continuous loss of energy.
6. Getting smooth, jerkless and controlled acceleration of conveyor is a difficulty. This results into reduced life of conveyor belting and frequent breakages. A larger thickness of belt has to be thus provided which increases the cost.

Fluidomat provided an effective solution to above problems through its Scoop Control “Fluidomat SC” fluid couplings.

- Fluidomat SC provides continuous declutching duty.

Thus in case of any operational problem/difficulty the conveyor can be stopped while the motor will keep running on no load.
- Fluidomat SC provides totally no load start to motor under declutched condition.

Thus the motor accelerates without any load very fast to full speed and starting current kick decays very fast. With fast decay of starting current kick the stresses on motor are greatly reduced. The heating in motor during starting is reduced by as much as 15-20 times due to fast decay of starting current.

Any conveyor, in a system of material handling, can be stopped and motor kept running.

This provides great flexibility in operations to take care of pull chord/sway switch operations, emergency stops, overflowing or mismatch of material flow conditions etc.

Fluidomat SC provides controlled and smooth acceleration of conveyor.

The starting torque can be adjusted by scoop tube operation in a wide range to control acceleration time. The peak torque of motor can be utilised for conveyor acceleration and thus motor is selected based on running power and thus energy wastage is reduced.

The torque/power transmission is very smooth and jerkless thus reducing stresses on belting.

Besides Fluidomat SC provide other conventional advantages of :

Overload protection by limiting maximum torque and thus greater safety to motor and belting.

<Absorption of jerks, shocks and oscillations thus reducing fatigue on transmission elements like gear boxes, shafts, flexible couplings etc and thus higher life and reliability.

<Easy load sharing in multi drive units.

<Very flexible and simple control system in multi conveyor material handling system with centralized controls, alarms and announcement.

Fluidomat SC couplings are well proven on conveyor drives. Some of the projects on which they are supplied with de-clutching feature are:-

- TNEB - Tuticorin :12 Nos.
- TNEB - North Chennai:26 Nos.
- NTPC - Unchahar:03 Nos.
- NTPC - Rihand: 10 Nos.
- ISPAT METALLIC - Dhurva:10 Nos.
- MGPT - Goa:03 Nos.
- PSEB - Lehar Mohabbat:14 Nos.
- GIPCL - Surat :03 Nos.

Fluidomat has executed a major order of 29 Scoop Control couplings for TNEB - North Chennai External Coal Handling Facility. The conveyors drives ratings are upto 1100KW.