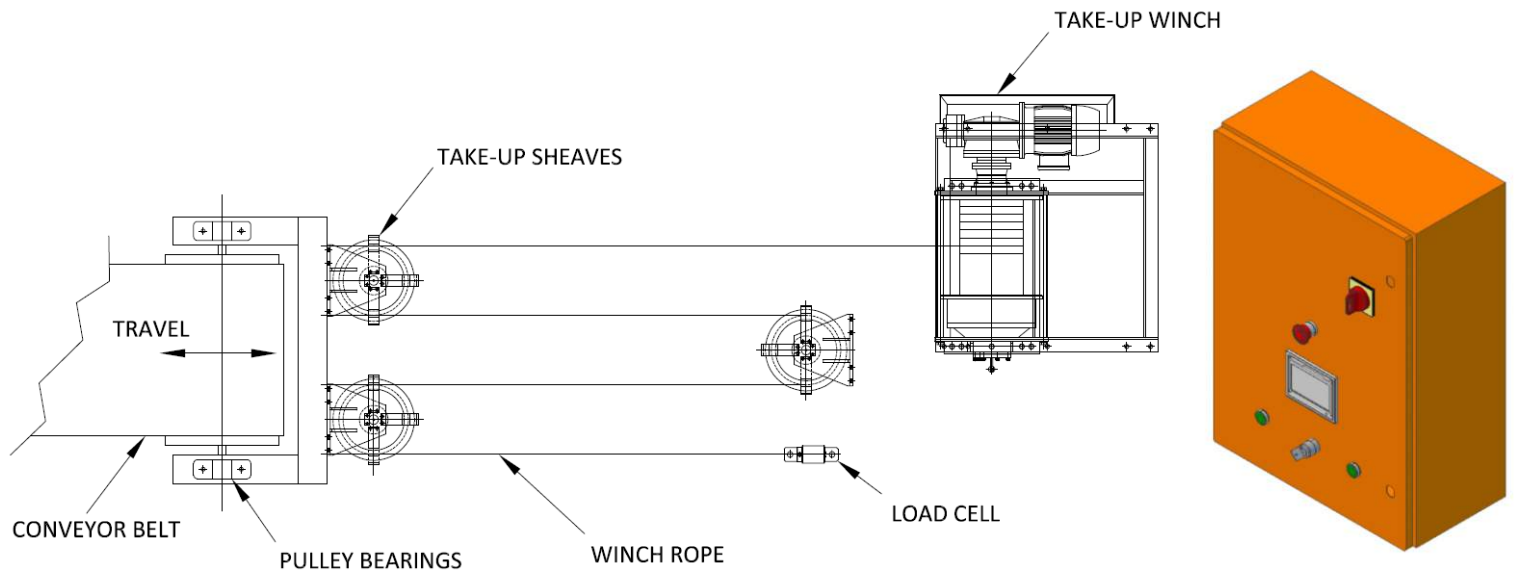


# AUTOMATIC TENSION CONTROL - BTS - VFD



## GENERAL INFORMATION

The modern high speed, large capacity, long length conveyors have created a need for an alternative to gravity TAKE UP SYSTEMS for TENSIONING these high production machines.

DYMOT ENGINEERING has developed an electronic tension control system specifically for this purpose. A VFD is incorporated into the system which offers multiple advantages as listed below.

## ADVANTAGES

- Controlled Starting via VFD.
- Mechanical Life of Winch and related equipment prolonged.
- Less Power Consumption as Torque is limited in the Drive.
- Almost No Brake Wear as the Motor will be held under full Torque at 0Hz when Brake is applied for Parking.
- Faster Response due to the Winch Active in Startup – Pre Tension Phase.
- Tension controlled more precisely - Drive speed automatically adjusts in relation to Torque Level.

## SYSTEM INCLUSIONS

- I.P. 65 Enclosure.
- Lockable Isolator.
- V.F.D.
- Motor Protection Unit for above.
- Control Transformer + Protection
- Brake Contactor + Protection.
- Cooling Fan Contactor + Protection.
- Power Supply + Protection.
- PLC Fully Programmed.
- H.M.I. Panel Mounted Touch Screen for operator information and control.
- Emergency Stop Button.
- Remote P.L.C. Interposing Relays.
- 25% Resistor Bank.



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## OPERATION METHOD

The Dymot new BTS consists of a VFD - Variable Frequency Drive that offers Torque control to maintain Belt Tension.

The Belt Tension will be set via the HMI and VFD to the required tensions.

- Pre Start Tension
- Running Tension (T2)

Manual Operation for Tensioning or Slacking the Belt for Maintenance or Emergency Condition comes Standard via a Key Switch.

The HMI will display the Belt Tension in both static and operational modes.

Once the Main Belt is at speed or per the time factor (settable) the VFD will maintain the running tension. After 10s at the same Tension Level the Brake will Park the Winch and the system will only monitor for tension fluctuation and react accordingly.

When the Main Belt is stopped the tension will be released via the VFD to a pre-set point normally the running tension.

## PLC INTEGRATION

Programmed into the PLC will be 2 output relays. These relays can be programmed as a high point and a low point output and can be used either for alarm or belt start prevention.

Intermediate relays to allow remote PLC Starting.

4-20mA output to allow retransmission of the Load Cell value to a remote PLC or SCADA System.

## FEATURES

- Pre-Start Tension
- Running Tension
- Manual Control
- Fault Monitoring
- Over Tension Trip
- Under Tension Trip
- Recording via HMI
- Communication to Plant

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DESCRIPTION	VALUE
T1 TENSION (kN)	
T2 PRE START TENSION (kN)	
T2 RUNNING TENSION (kN)	
T2 MOMENTARY TENSION (kN)	
FALLS OF ROPE ON TROLLEY	
BELT LENGTH	
TAKE UP TRAVEL LENGTH REQUIRED	