Case Study of Delta-Star Converter on Belt Conveyor Application

Customer : Ultratech Cement Limited-Magdalla, Surat

Motor Rating : 22 KW/30 HP

Application : Belt Conveyor (G-30 Mill Feeling Belt)

A) While Operates with DOL Starter.

1) Motor Power : 9.5 KW
2) Power Factor : 0.6

B) After installing Star-Delta Starter panel with Delta-Star Converter (i.MWM-IO/SDS) & programmed its Under Power Set Point at 10KW, contactor change over to Star configuration with Star-Delta Starter.

1) Motor Power : 8.5 KW
2) Power Factor : 0.89

Power Saving : 9.5 – 8.5 KW = 1.0 KW

Operating Hours in Low Power Condition/Day = 24 Hrs

Power Saving / Day = 24 KWH

Operating 28 Days / Month = 672 Units/Month

Power Saving /Annum = 8064 KWH

Power Saving in Terms of Rupees:

8064 KWH X Rs 7.15/ KWH = Rs.57,657.00/Annum

As Loaded Conveyor unable to start in Star configuration hence it requires DOL Start only. So motor cannot be convert permanently to Star connection.
For this purpose i.MWM-IO is specially design to operate in Delta (DOL) while start & than convert to Star if load is below the set point.