

Application Story

It's About Time...

Automatic Winding System with an Ogura Clutch

Maine

Back in the Seventeenth Century, descending weights were used to run clocks in Towers. Manually resetting (or winding) of the tower weights was probably a pretty good job in 1636. But in 2012, it's not so good.



FIRST PARISH CONGREGATIONAL CHURCH
(United Church of Christ)
180 York Street, York, Maine. Church first built in 1636, restored in 1747. Re-Fitted with Ogura Electric clutches 2011.

In many communities, there is a push to restore original clock works to historical buildings. An automatic winding mechanism is then required for each function of the clock. If the clock has two functions, time and hour toll (as our example does), it will require two automatic winding mechanisms.

Balzer Family Clock works of Freeport Maine builds automatic winding systems designed to be installed or removed without any damage or modification to the clock movement and without the need to remove any of the mechanical components thus preserving the historical and chorological value of the timepiece.

Attached to each wind arbor is a sprocket and chain fitted to an Ogura CT 20 Electric clutch, then to a gearbox and motor assembly that will wind the weights.

As the clock runs, the clutch is disengaged so the motor/gearbox is completely disconnected and the weights fall via gravity. At the end of the weight's travel, it hits a limit switch. This causes the clutch coil to become activated generating a magnetic field which pulls the armature engaging the clutch to the motor gearbox. At the same time, the motor gear box turns on rewinding the clock weights at a slow, but steady speed. Once the weights reach their upper limit, it trips the upper limit switch disengaging the clutch and turning off the power to the motor and the weights, once again, start their slow descent.

The bottom switch is located about one foot up from the bottom of the track so that if there were ever a power outage, at the time the weights would wind, the clock would continue to run. Since the weights would still be engaged with the limit switch the weights would wind once the power is restored. The company constructs these automated winders and customizes them for each unique tower.

Balzer Family Clock Works designed Ogura CT 20 clutches into their time and labor saving machine due to their small compact size, corrosion resistance, high torque and ease of installation....

There is an old joke: The proud owner of an impressive new clock was showing it off to a friend. 'This clock,' he said, 'will go for 14 days without winding.' 'Really?' replied his friend, 'And how long will it go if you do wind it?'

If Balzer Family Clock works has anything to say about it, with Ogura clutches in the design: it will go forever... ●



Original clockworks with manual winding chains replaced with clutch and motor gearbox



Ogura model CT20 electromagnetic clutch