



# KAT INSTRUMENTATION SERVICES PVT. LTD.

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ISO 9001:2008

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## IntelliTork

### Programmable Electrical Actuators

The Intelli Tork Range of Electrical Actuator has been developed for Rotary, multi turn and Linear operation keeping in mind the widely fluctuating requirements of valve & damper control in process & pollution control. Each system comprises of the following principal components:

- “Delphi series” 3-phase asynchronous induction motor from Rotomotive that are built according to international standard regulation IEC 72-1. Depending on the torque and Speed requirement, the power rating of the motor is decided.
- Rotomotive “BOX” series patented worm gearbox that are auto-lubricating and maintenance-free. The gearbox efficiency remains at 90% or more over the entire lifecycle of the product. The gearbox ratio is chosen according to the application.
- CGL Variable Frequency Drive (VFD) with suitable rating to drive the geared motor. The VFD can accept single phase input & convert the same to 3-phase output required to drive the motor.
- UTCON-12A Programmable Logic Controller (PLC) which is used to drive the valve or the damper according to the system logic. The valve opening/closing time, operating speed, external interlocks & other parameters can be programmed here. The PLC also provides flexibility regarding the mode of operation which can be either local(through pushbuttons) or remote(analog/digital)





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- Control panel which houses the PLC, VFD & the control accessories which are required for the system.



- Valve position feedback assembly that is mounted on the non-driving end of the gearbox. This gives a highly accurate 4-20mA feedback signal proportional to position of the valve that is used by the PLC for positioning.



## Advantages of **IntelliTork** over conventional actuators

1. 3-phase induction motors are much more rugged & dependable than single phase motors of the same rating. Single phase electrical actuators often fail due to capacitor leakage.
2. Rotomotive worm gearboxes have a very high efficiency & are totally maintenance free. They are also self-lubricating.
3. A wide range of torque & speed selections are available for each motor size. So torque versus cost optimization can be very easily achieved.
4. Use of single phase input VFD eliminates the need of 3-phase supplies thereby reducing system complexity & cabling cost.
5. The VFD also enhances motor & gearbox longevity by totally eliminating mechanical jerks.
6. The VFD can accept inching command from the PLC to further slow down the valve movement for precision positioning applications. The inherent flux control characteristic of the VFD ensures full torque even at very low inching speeds.



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7. The opening & closing times of the valve are totally programmable by frequency control from the VFD.
8. The angular position of the valve is displayed on the front panel of the PLC with the additional facility of remote transmission either through 4-20 mA current loop or RS-485 serial communication.
9. The PLC provides local & remote user control facility either through 4-20mA current loop or RS-485 serial link from a Laptop or a Desktop.
10. For PC-based remote monitoring & control, free software support is provided to the user.
11. The VFD guarantees energy saving which can be considerable for slow moving valves.
12. The PLC provides several value additions like pressure switch interlocking, flow monitoring by use of a separate DP transmitter etc.
13. In case of Power failure the system remain in “Stay put” Position. However for altered position battery backup (UPS) may be provided at an additional cost.

Customer to Specify for selecting the actuator

01. Torque (NM)
02. Thrust (kgf) in case of Linear Actuator.
03. Operating Speed (RPM)
04. Opening time to closing time (Sec.) required for the process.