

IPB-WW  
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An ISO 9001 company

# **BECK**® **ELECTRIC ACTUATORS**

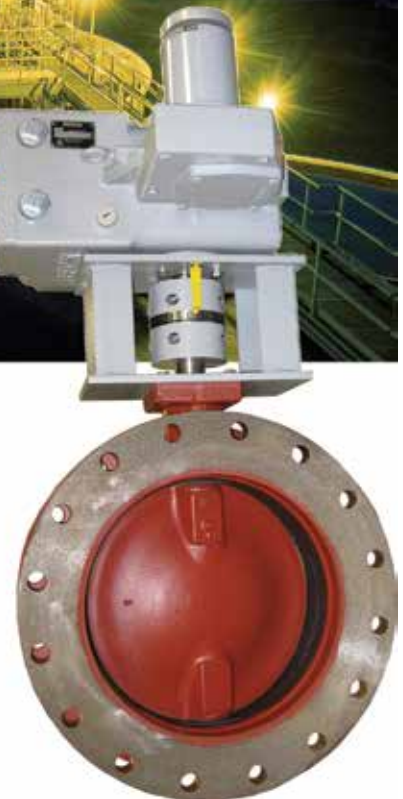
## **FOR INDUSTRIAL PROCESS CONTROL**



## **WATER AND WASTEWATER TREATMENT PLANTS**



BECK  
VIDEO  
Scan w/  
Smartphone



## Beck actuators are durable and dependable

- Over 75 years of proven performance
- No burn-out motor
- Unlimited modulation
- No torque switches
- No thermal overloads
- No worm gears
- No lithium batteries for electronics
- Positioning steps as small as 0.10 degrees
- No recommended periodic maintenance



*Beck Model 11-200/300 installed on a rotating scum pipe*

## Plant-wide solution for modulating and open/close applications

Beck actuator applications in water and wastewater treatment plants include:

- Filter flow control valves (effluent)
- Filter backwash valves
- Wash water return valves
- Aeration blower inlet vanes
- Air distribution header valves
- Return activated sludge valves (RAS)
- Waste activated sludge valves (WAS)
- Incinerator natural gas valves
- Incinerator Venturi scrubber valves/dampers
- Incinerator combustion air dampers
- Incinerator exhaust gas dampers
- Incinerator fan dampers
- Fluid and magnetic pump and fan adjustable speed couplings
- Variable pump control on MagnaDrive installations
- Ozone control valves (ozone destruct, oxygen control, ozone generator cooling water, etc.)
- Rotating scum pipes
- Reverse osmosis and membrane valves
- Interconnect valves & Well Station valves



*Beck Model 11-200/300 installed on a MagnaDrive Vertical ASD*

## The Beck motor

### No Burnout, Continuous Duty

The unique motor is one of the features that sets Beck actuators apart from other typical electric actuators. Beck's no burnout motor ensures that the actuator is available 100% of the time. There are no duty cycle limitations typical of most electric actuators, so the Beck actuator tracks the control signal perfectly, greatly simplifying loop tuning.



The Beck motor:

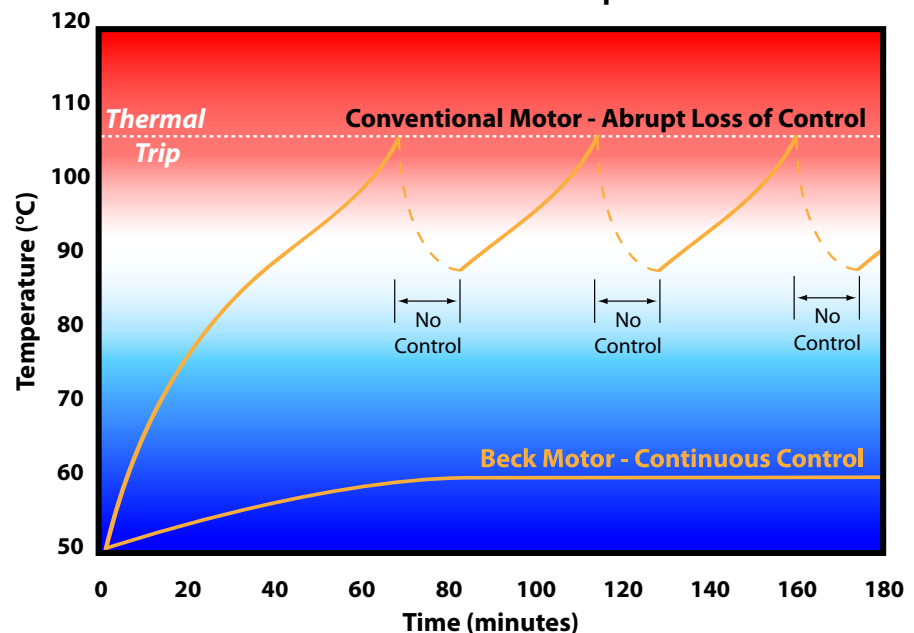
- Never overheats or burns-out—even under demanding modulating control or stalled conditions. Thermal overloads and torque switches are not required in Beck actuators.
- Reaches full speed and torque in milliseconds and stops in milliseconds, eliminating dead time.
- Provides extremely accurate and repeatable positioning for modulating applications.
- Does not coast or overshoot the desired position.
- Draws low current (0.16 A to 3.0 A).
- Uses double-lipped, grease-sealed bearings for maintenance-free operation and meets IP68 (submerged in 3 meters of water for 48 hours).



Beck Model 11-160s mounted on sludge valve extension bonnets

### Motor Temperature Rise Active Control Loop

**Tested in an active modulating loop, conventional motors rose rapidly in temperature, tripping thermal overload devices and becoming unavailable for extended time intervals. Only the Beck motor remained stable for continuous operation.**



## Digital Electronics



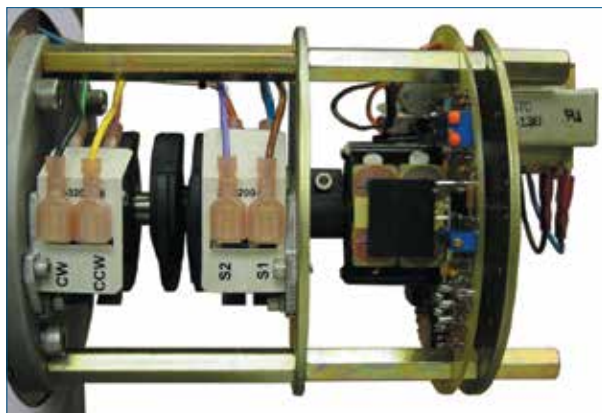
Digital Control Module (DCM)



DCM Equipped with Feedback Display

## Contactless Position Feedback

*With Over-travel Limit and Auxiliary Switches*



Contactless Position Sensor (CPS)

## High Efficiency Spur Gear Train

*Permanently Lubricated, Heat Treated Alloy Steels and Ductile Iron*



## Electric Handswitch

*Local Operation, Auxiliary Handswitch Contact*



## Manual Handwheel

*Without Declutch*



**BEFORE & AFTER PHOTOS OF A BECK 11-469 REPLACING AN UNRELIABLE ELECTRIC ACTUATOR ON A RETURN ACTIVATED SLUDGE VALVE**

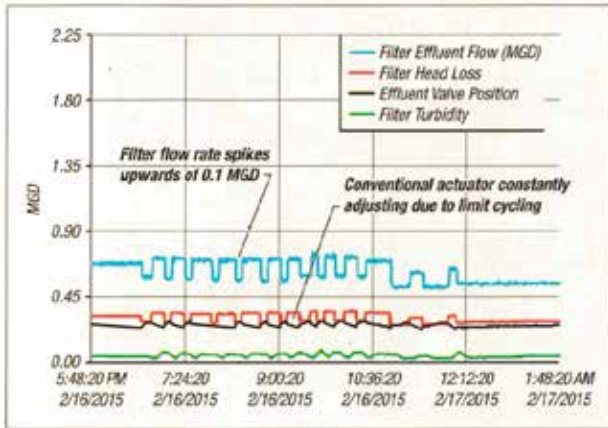


**BEFORE REPLACEMENT**

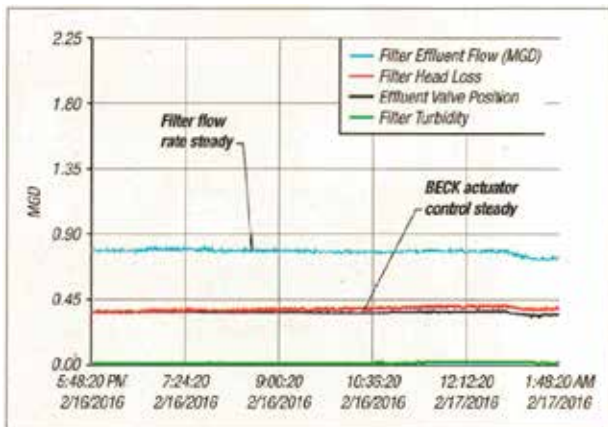


**AFTER REPLACEMENT**

**BEFORE & AFTER TREND DATA OF A BECK ACTUATOR REPLACING AN UNRELIABLE ELECTRIC ACTUATOR ON A FILTER EFFLUENT VALVE (City of East Moline Water Treatment Plant, IL)**



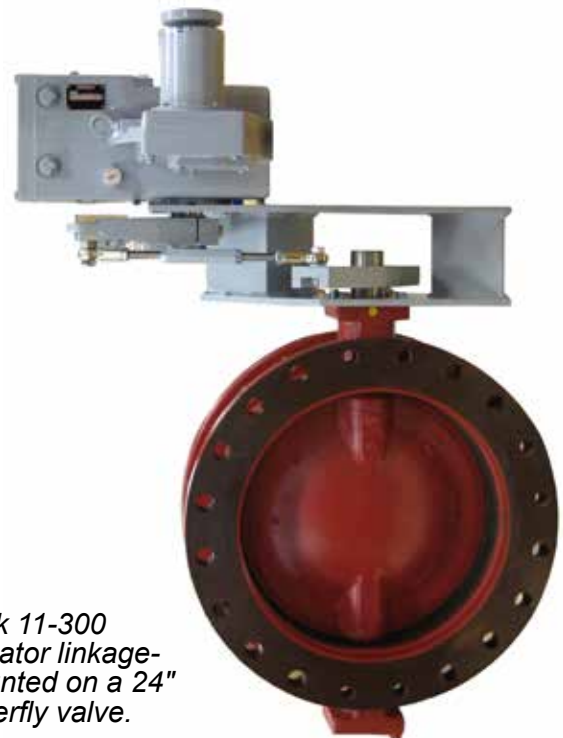
**FILTER PERFORMANCE BEFORE**



**FILTER PERFORMANCE AFTER**

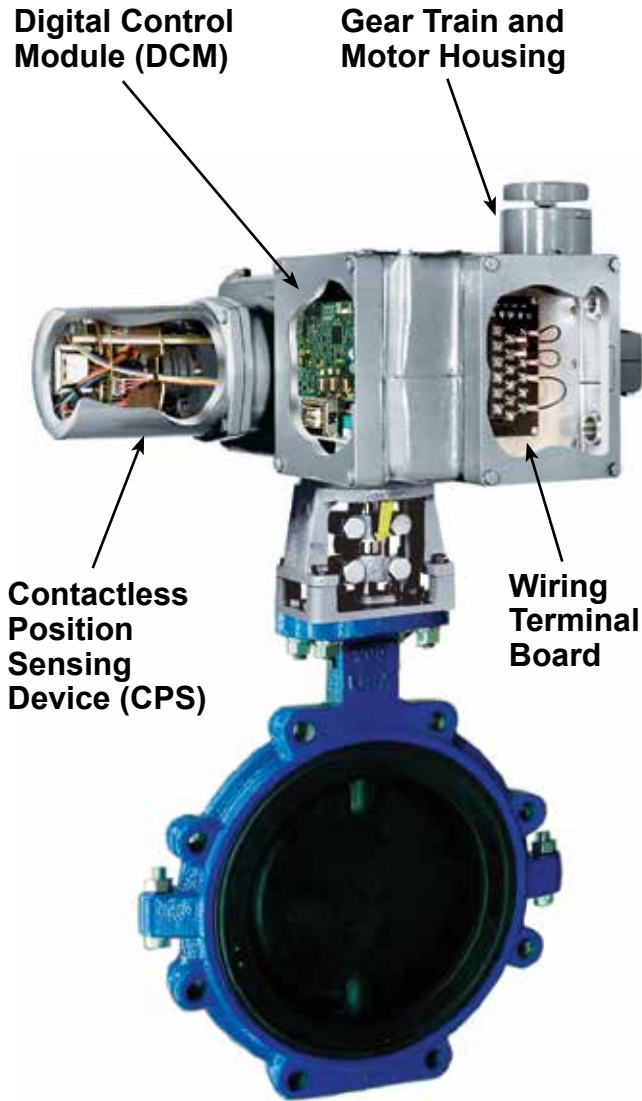


*Beck 11-300 actuator mounted on a filter effluent valve.*



*Beck 11-300 actuator linkage-mounted on a 24" butterfly valve.*

**Separate Compartments**  
*Type 4X Housings for Major Components, IP68 (3 meters / 48 hours)*



*Beck actuators with characterized linkages connected to butterfly valves to provide a torque multiplier at the valve seat*



*Beck actuator installed on a digester valve in a hazardous-rated application*



*Beck actuator installed on a filter effluent valve*

## Services

- Product demonstrations
  - Site surveys
  - Application reviews
  - Specification writing
  - Customer support (24/7)
  - Repair service
  - Field service
  - Stocked spare parts
- and ...
- All Beck actuators include a 3 year limited warranty.



*Beck actuator equipped with Remote Indication*



## GENERAL SPECIFICATIONS

<u>Drive Power</u>	
Model 11	120 V ac, single-phase, 60 Hz (50 Hz Optional) (208, 240, 380, 415, 480 & 575 V ac, 60 or 50 Hz Optional)
Model 14 & 29	120 V ac, single-phase, 60 Hz (50 Hz Optional) (240 V ac, single-phase, 60 or 50 Hz Optional)
<u>Output Torque/Thrust</u>	
Model 11	Up to 1,800 lb-ft (2440 N•m)
Model 14	Up to 1,800 lbs of thrust (8010 N)
Model 29	Up to 6,100 lbs of thrust (27 134 N)
<u>Operating Conditions</u>	-40° to 185° F (-40° to 85° C) 0 to 100% relative humidity, non-condensing
<u>Input Signal Options</u>	4–20 mA or 1–5 V dc for digital control
<u>Communication Interface Options</u>	HART, Modbus RTU, Modbus TCP (Ethernet), Foundation Fieldbus, Profibus PA, local pushbutton/LEDs and DB9 Serial Commands
<u>Position Feedback Signal</u>	4–20 mA
<u>Action on Loss of Input Signal</u>	Stays in place (all models) or moves to a preset position (configurable with some models)
<u>Action on Loss of Power</u>	Stays in place, manual Handwheel operation
<u>Enclosure</u>	Type 4 or 4X (depending on specific model). Models approved for use in Hazardous classified locations are also available—contact a Beck Sales or Application Engineer for details.

**DIRECT-COUPLED**



**J-BRACKET**



**REVERSE LINKAGE**



**L-BRACKET**



A 100% EMPLOYEE OWNED COMPANY

**BECK**

~ founded 1936 ~

SINCE 2021



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