

BECK®

FLUID DRIVE APPLICATIONS

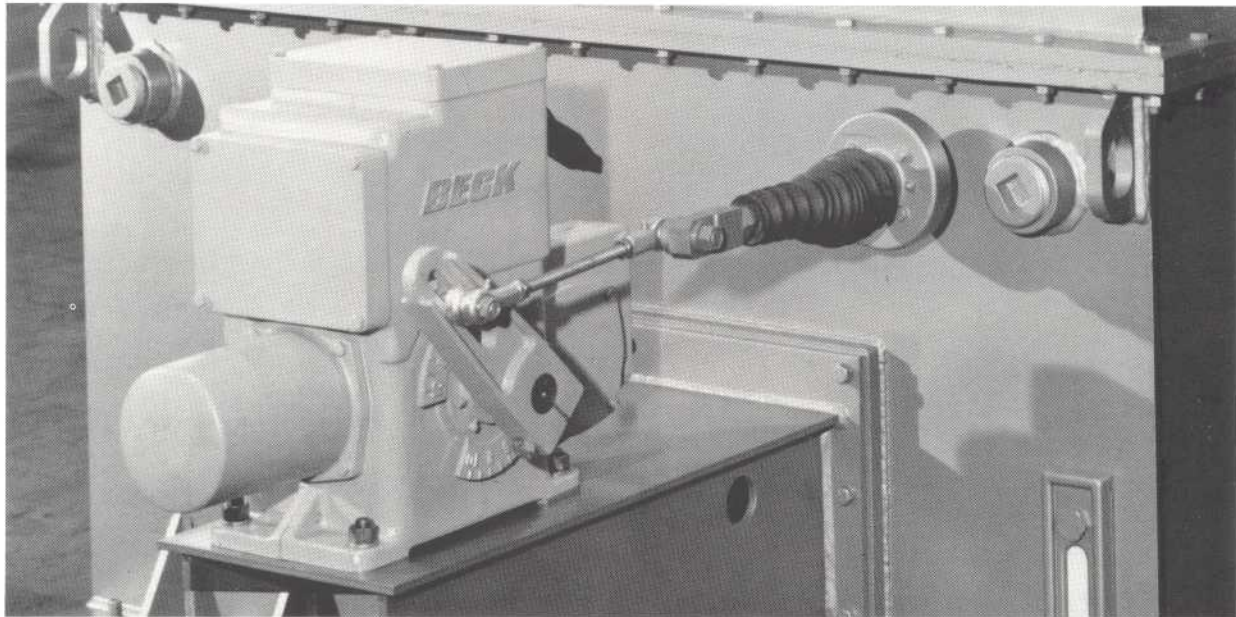


Fig. 1

Beck Electronic Control Drives are ideal for regulating fluid couplings and hydrodynamic transmissions.

Fluid couplings are used to start, stop, and control the speed of large loads requiring up to thousands of horsepower. Systems such as conveyors, fans, pumps, crushers, and compressors use these fluid transmissions to provide stepless speed, torque, and acceleration control by directing the flow of oil to turbine blades. The mechanical positioning of the oil "scoop tube" is a critical function, requiring the precision and reliability inherent in a Beck Electronic Control Drive.

Beck drives are designed and built for the continuous modulation and "live-loading" vibration of the scoop-tube. Their stability and repeatability result in accurate fluid coupling control.

OUTPUT

The output of a Beck drive is a 100° rotation of a crank arm, which is translated to linear force by a linkage, as illustrated in Figures 1 and 2. The amount of travel that the drive delivers may be varied with the radius adjustment in its crank arm. Use the graphs on the next page to select the Beck drive model that meets the thrust and travel requirements of your application.

You may also contact your Beck Sales Engineer for a computer-generated analysis of your application.

For units that use the rotation of an input shaft to control the scoop tube, a drive may be selected

from the torque ratings on the curves. If the required rotation of the fluid coupling input lever arm is less than 100°, the linkage connection between the Beck crank arm and the lever arm is configured to maintain the 100° rotation of the Beck crank arm. This allows the Beck drive to maintain its resolution.

CONTROL OPTIONS

Beck control drives may be specified with:

- Fully automatic modulating control by an analog input signal (4-20 mA or other industry standard). This system includes an Electronic Signal Receiver (ESR-4), and the Beck Contactless Position Sensor (CPS-2) to generate an output feedback signal.
- Modulating control with off-on direct AC control. This system includes the Beck Contactless Position Sensor to generate a feedback signal.

BECK DRIVE MOUNTING

Beck drives may be mounted directly to the housing of many fluid couplings, as in Figure 1, or they may be mounted on a free-standing pedestal as in Figure 2. Consult your Beck Sales Engineer about mounting options or to discuss retrofitting a Beck drive to your present installation.

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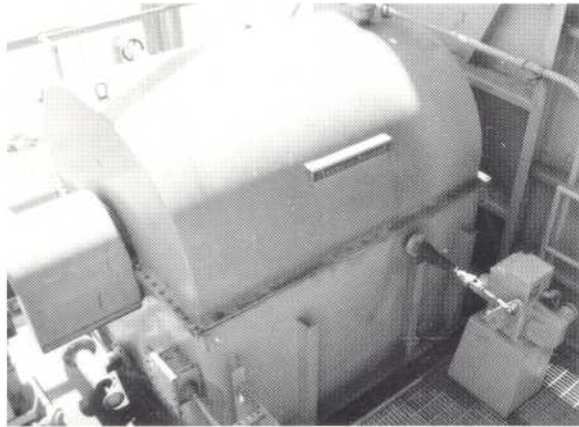


Fig. 2

LINKAGE KITS

Beck Hex Linkage Kits can be adjusted in length without disconnection. Together with the adjustable radius variation of the output crank arm, the drives are easily installed and adjusted. The kits contain all connecting hardware and rod ends.

BECK DRIVE SELECTION

To match your thrust and travel requirements with a Beck Electronic Control Drive, locate the thrust on the vertical axis and the travel on the horizontal axis of one of the graphs.

Each curve plots the thrust available versus the distance the drive moves the scoop tube lever. Each curve represents a different output torque, which is a function of the motor and timing gears in the drive.

Example: Find the smallest drive that will control a fluid coupling that requires 250 pounds thrust over a travel of 7 inches.

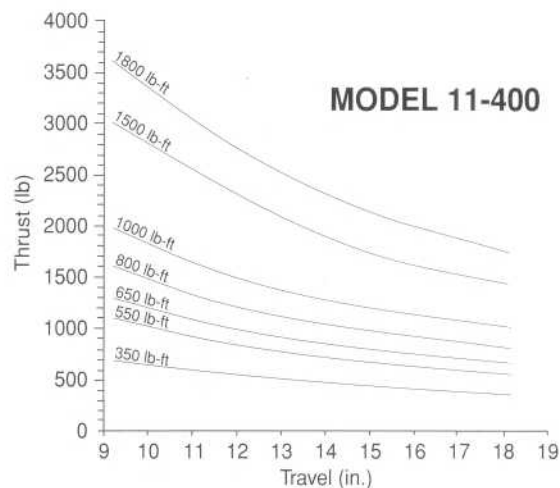
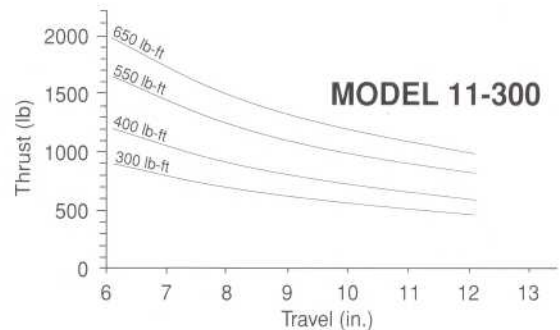
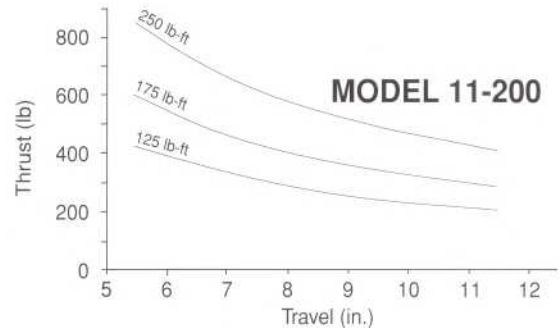
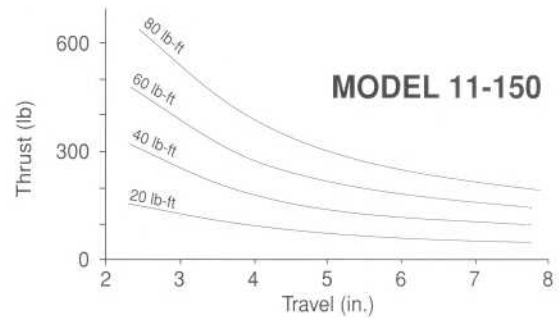
Locate the graph where the intersection of a 250 pound horizontal line and a 7 inch vertical line is below one of the curves.

The curves for the 11-150 drive show more than 250 pounds of thrust, but they fall below 250 for a 7 inch travel line.

An 11-200 drive will be needed. The curve for the unit with 125 lb-ft torque is well above 250 pounds at the 7 inch travel line.

If the application had required 350 pounds thrust over 7 inches of travel, the 11-200 drive rated at 175 lb-ft torque would be needed.

Consult the BECK Drive Specification Guide, DSG-121, for complete specifications and ordering information.



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