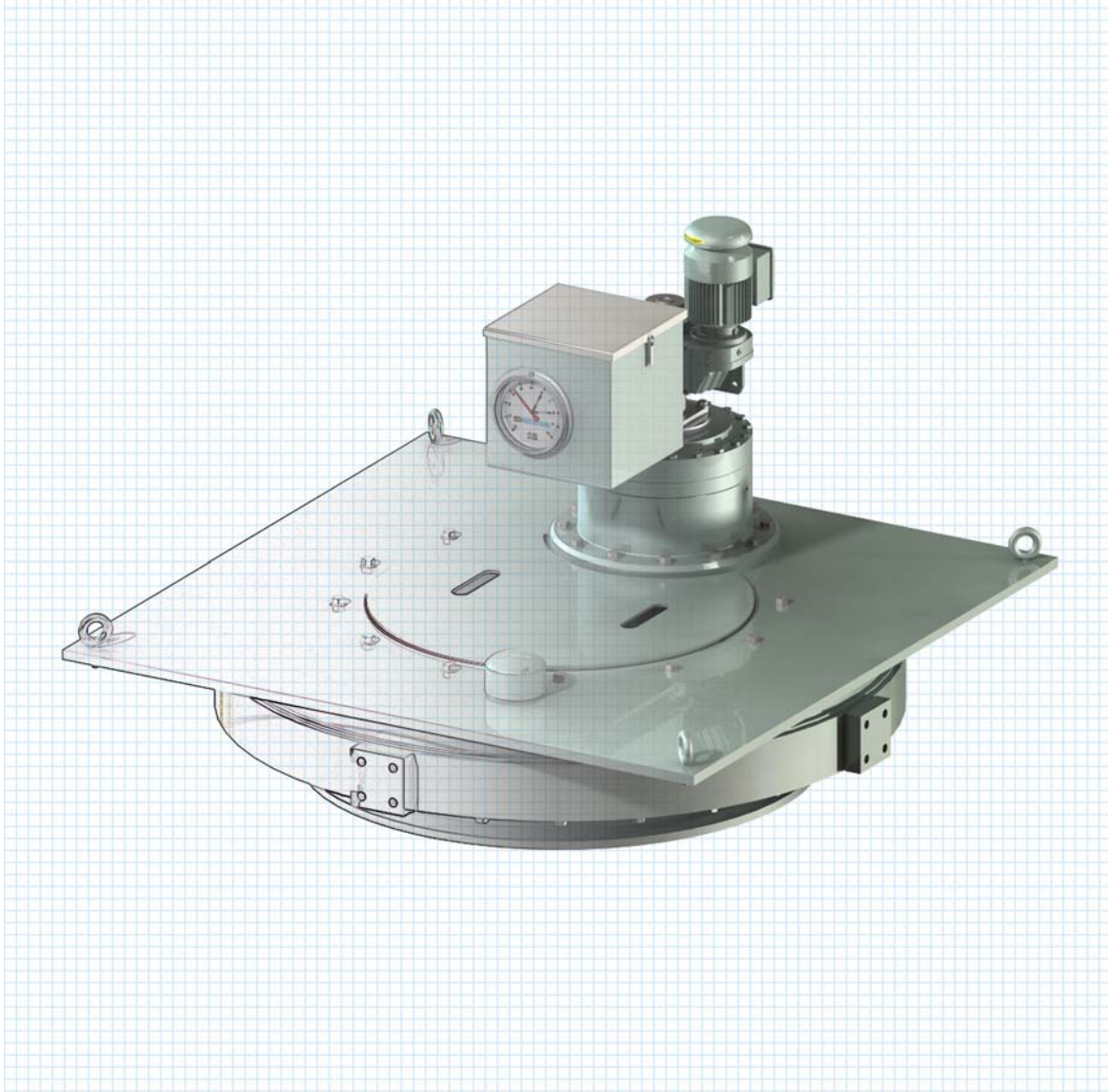


Center Pier-Mounted Drive Units-Drum Output



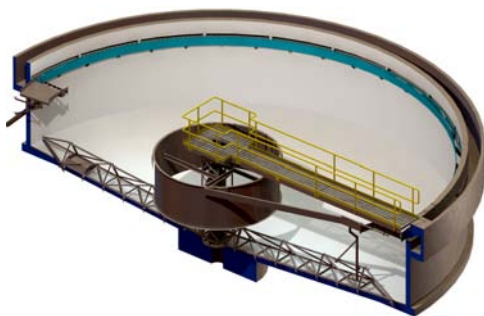
DBS MANUFACTURING®

Center Pier-Mounted Drive Units - Drum Output



Description

- A low-speed, high-torque, totally enclosed gear drive with positive output torque overload protection
- The drive unit is supported by a column in the center of the tank
- The drive unit has an external rotating drive drum with attachment points for the rake cage
- The drive access bridge typically spans one half of the tank
- Used in industrial, municipal and mining clarifiers and thickeners
- Typically used on tank sizes from 40 to 300 ft (12 to 100 m) in diameter



Features

- Forged alloy steel main gear and pinion designed for 20 years of life calculated per AGMA 2001-C95
- Precision, four-point-contact main bearing, with a 10-year warranty
- Accurate torque gauge calibrated in ft-lbf, N-m or any units desired
- Alarm and cutoff switches and maximum torque limiting via shear pin or pressure relief valve
- No lower pinion bearing, eliminating a common source of drive failure
- Designed for minimum maintenance with permanently lubricated secondary reducer

TORQUE CAPACITIES - PIER MOUNTED DRIVE UNITS – DRUM OUTPUT

| Model | Continuous | | Maximum Overload | | Yield | |
|----------|------------|-----------|------------------|-----------|-----------|-----------|
| | ft-lbf | N-m | ft-lbf | N-m | ft-lbf | N-m |
| DX-A* | 3,000 | 4,100 | 6,000 | 8,200 | 8,100 | 11,000 |
| DX-B* | 6,000 | 8,200 | 12,000 | 16,400 | 16,200 | 22,000 |
| D30-A* | 16,000 | 22,000 | 32,000 | 44,000 | 94,000 | 127,000 |
| D30-B* | 27,000 | 36,500 | 54,000 | 73,000 | 94,000 | 127,000 |
| D42-B* | 35,000 | 47,500 | 70,000 | 95,000 | 195,000 | 264,000 |
| D42-C* | 51,000 | 69,000 | 102,000 | 138,000 | 195,000 | 264,000 |
| D60-C* | 65,000 | 88,000 | 130,000 | 176,000 | 440,000 | 597,000 |
| D60-D* | 110,000 | 149,000 | 220,000 | 298,000 | 440,000 | 597,000 |
| D80-D* | 145,000 | 196,500 | 290,000 | 393,000 | 750,000 | 1,017,000 |
| D80-E* | 250,000 | 339,000 | 500,000 | 678,000 | 750,000 | 1,017,000 |
| D42-B*2 | 70,000 | 95,000 | 140,000 | 190,000 | 390,000 | 529,000 |
| D42-C*2 | 102,000 | 138,000 | 204,000 | 276,000 | 390,000 | 529,000 |
| D60-C*2 | 130,000 | 176,000 | 260,000 | 352,000 | 880,000 | 1,193,000 |
| D60-D*2 | 220,000 | 298,000 | 440,000 | 596,000 | 880,000 | 1,193,000 |
| D80-D*2 | 290,000 | 393,000 | 580,000 | 786,000 | 1,500,000 | 2,034,000 |
| D80-E*2 | 500,000 | 678,000 | 1,000,000 | 1,356,000 | 1,500,000 | 2,034,000 |
| D120-F*4 | 2,000,000 | 2,712,000 | 4,000,000 | 5,424,000 | 6,800,000 | 9,220,000 |

Replace the * with the primary reducer option selected.

Continuous: Torque at which main gear will have a life in excess of 20 years at normal operating speeds.

Maximum Overload: The maximum safe, short term operating torque.

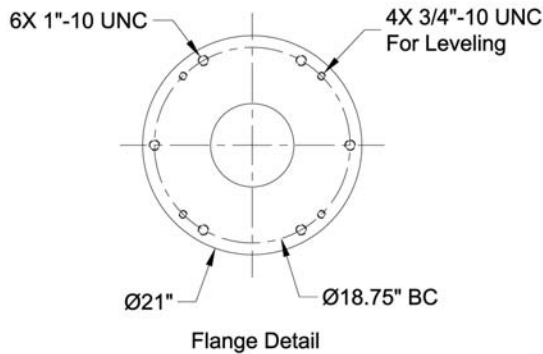
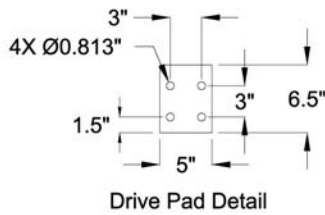
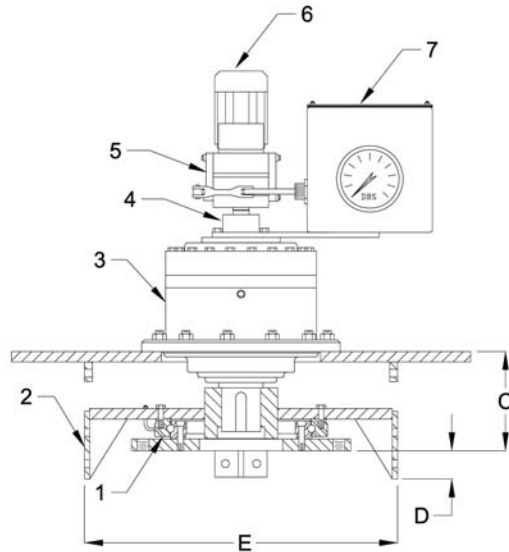
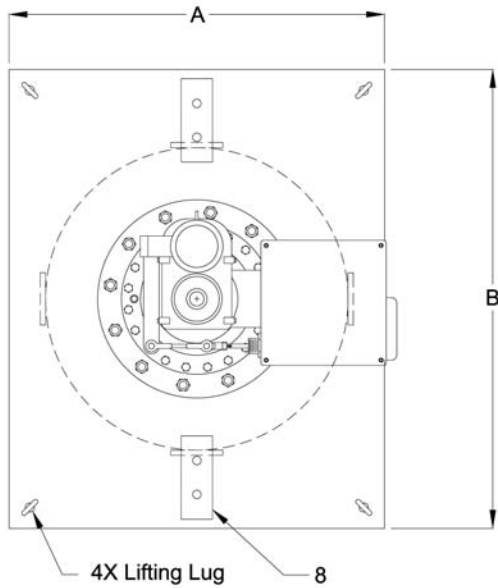
Yield: The structural maximum torque based on the minimum yield strength of the main gear.

Center Pier-Mounted Drive Units - Drum Output

DX-Series Dimensions



- | Item | Description |
|------|-----------------------|
| 1 | Main bearing |
| 2 | Drive drum |
| 3 | Planetary gearbox |
| 4 | Adapter assembly |
| 5 | Primary speed reducer |
| 6 | Electric motor |
| 7 | Torque gauge assembly |
| 8 | Bridge mounting pads |



| Model | A | | B | | C | | D | | E | | Weight | |
|-------|----|-----|----|-------|-----|-----|------|----|----|-----|--------|-----|
| | in | mm | in | mm | in | mm | in | mm | in | mm | in | kg |
| DX-A* | 36 | 914 | 44 | 1,118 | 7.5 | 191 | 2.75 | 70 | 30 | 762 | 1,320 | 600 |
| DX-B* | 36 | 914 | 44 | 1,118 | 9.5 | 241 | 2.75 | 70 | 30 | 762 | 1,530 | 694 |

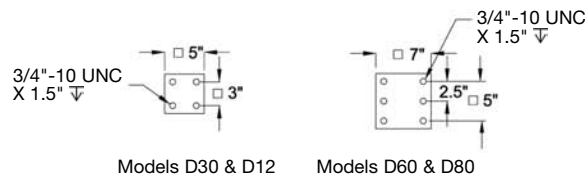
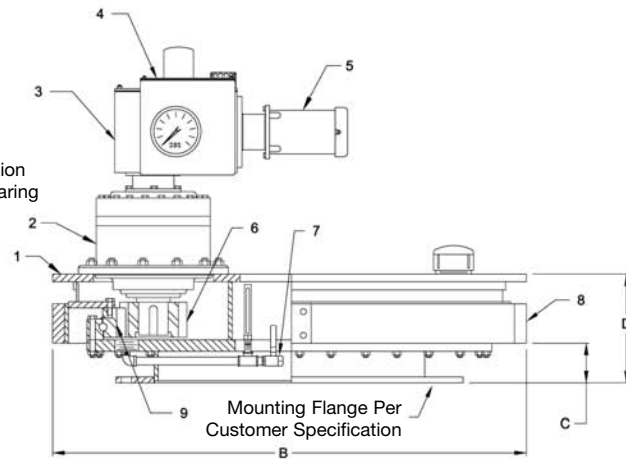
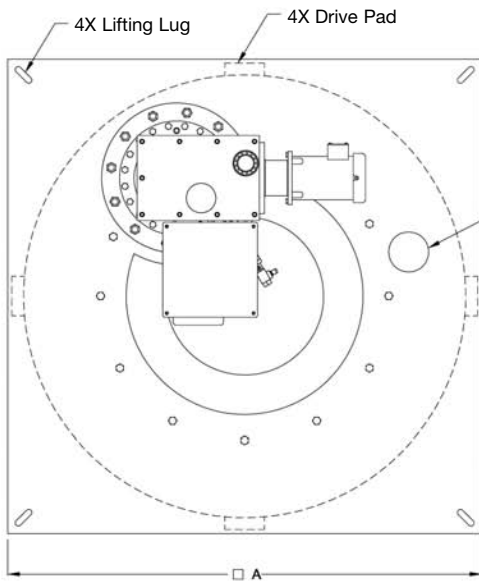
Replace the * with the primary reducer option selected.

Center Pier-Mounted Drive Units - Drum Output

D-Series Dimensions



- | Item | Description |
|------|--------------------------|
| 1 | Machine frame |
| 2 | Planetary gearbox |
| 3 | Primary speed reducer |
| 4 | Torque gauge assembly |
| 5 | Electric motor |
| 6 | Pinion gear |
| 7 | Oil drain - main gearbox |
| 8 | Drive drum |
| 9 | Main gear/bearing |



Drive Pad Details

| Model | A | | B | | C | | D | | Mounting Flange ¹ | | Weight | |
|--------|----|-------|-----|-------|----|-----|-------|-----|------------------------------|-------------------|--------|-------|
| | in | mm | in | mm | in | mm | in | mm | in | mm | lb | kg |
| D30-A* | 48 | 1,219 | 47 | 1,194 | 5 | 127 | 12.5 | 318 | 32 | 813 | 2,200 | 1,000 |
| D30-B* | 48 | 1,219 | 47 | 1,194 | 5 | 127 | 3.75 | 349 | 32 | 813 | 2,400 | 1,090 |
| D42-B* | 60 | 1,524 | 60 | 1,524 | 5 | 127 | 13.75 | 350 | 44 | 1118 | 3,800 | 1,720 |
| D42-C* | 60 | 1,524 | 60 | 1,524 | 5 | 127 | 15.5 | 394 | 44 | 1118 | 4,100 | 1,860 |
| D60-C* | 84 | 2,134 | 80 | 2,032 | 6 | 152 | 17.63 | 448 | 62 | 1575 | 6,100 | 2,770 |
| D60-D* | 84 | 2,134 | 80 | 2,032 | 6 | 152 | 19.63 | 499 | 62 | 1575 | 7,200 | 3,270 |
| D80-D* | 96 | 2,438 | 103 | 2,616 | 6 | 152 | 20.5 | 521 | Note ² | Note ² | 10,500 | 4,760 |

¹Maximum standard outside diameter of mounting flange. For larger flange sizes, contact factory.

²Consult factory.

Replace the * with the primary reducer option selected.

Center Pier-Mounted Drive Units - Drum Output

Primary Reducer Option

W-Type



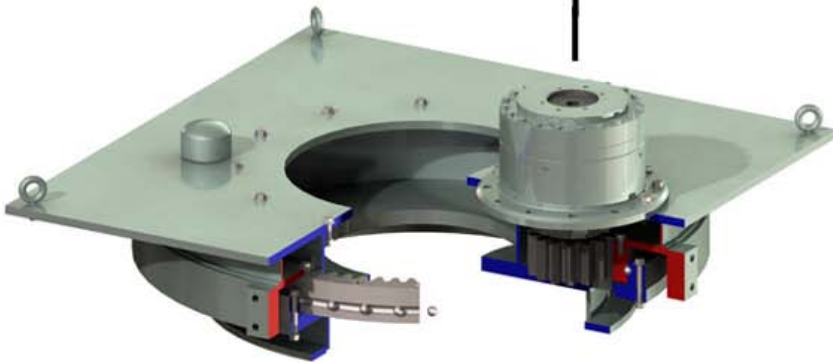
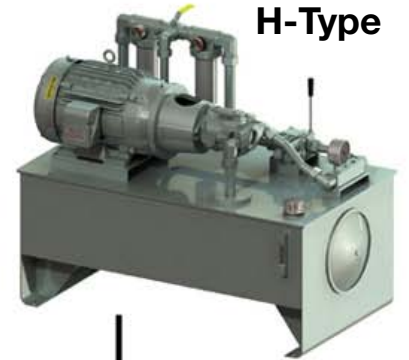
E-Type



F-Type



H-Type



D-Series



DX-Series

One of the items above will be used with one of the items below to make a complete drive unit assembly.

Center Pier-Mounted Drive Units - Drum Output

Primary Reducer Option

E-type primary speed reducer

The E-type design uses helical gears for speed reduction. It has alarm and cutoff switches and a shear pin to provide triple protection of the drive unit. This design is used where the output speed is outside the limits of the F-type primary speed reducers or when an electro-mechanical type drive unit is desired.



F-type primary speed reducer

The F-type design uses a hydraulic pump-motor combination for speed reduction. It has alarm and cutoff switches and hydraulic relief (equivalent to a shear pin in the E-type primary speed reducer) to provide triple protection of the drive unit. This design is positive torque-limiting and will operate under stalled and semi-stalled conditions. Optional reversing rotation and variable speed are available. The torque indication and protection system is equally accurate for operation in either direction.



H-type primary speed reducer

The H-type design has all the features of the F-type primary speed reducer. It uses a stand-alone industrial hydraulic power unit. This design is used on higher horsepower and multiple pinion drive applications.



W-type primary speed reducer

The W-type design uses helical gears for speed reduction. It has shear pin and shear pin activated cutoff switch to protect the drive unit. This is simplified E-type design used where a torque gauge and adjustable alarm switch are not required.

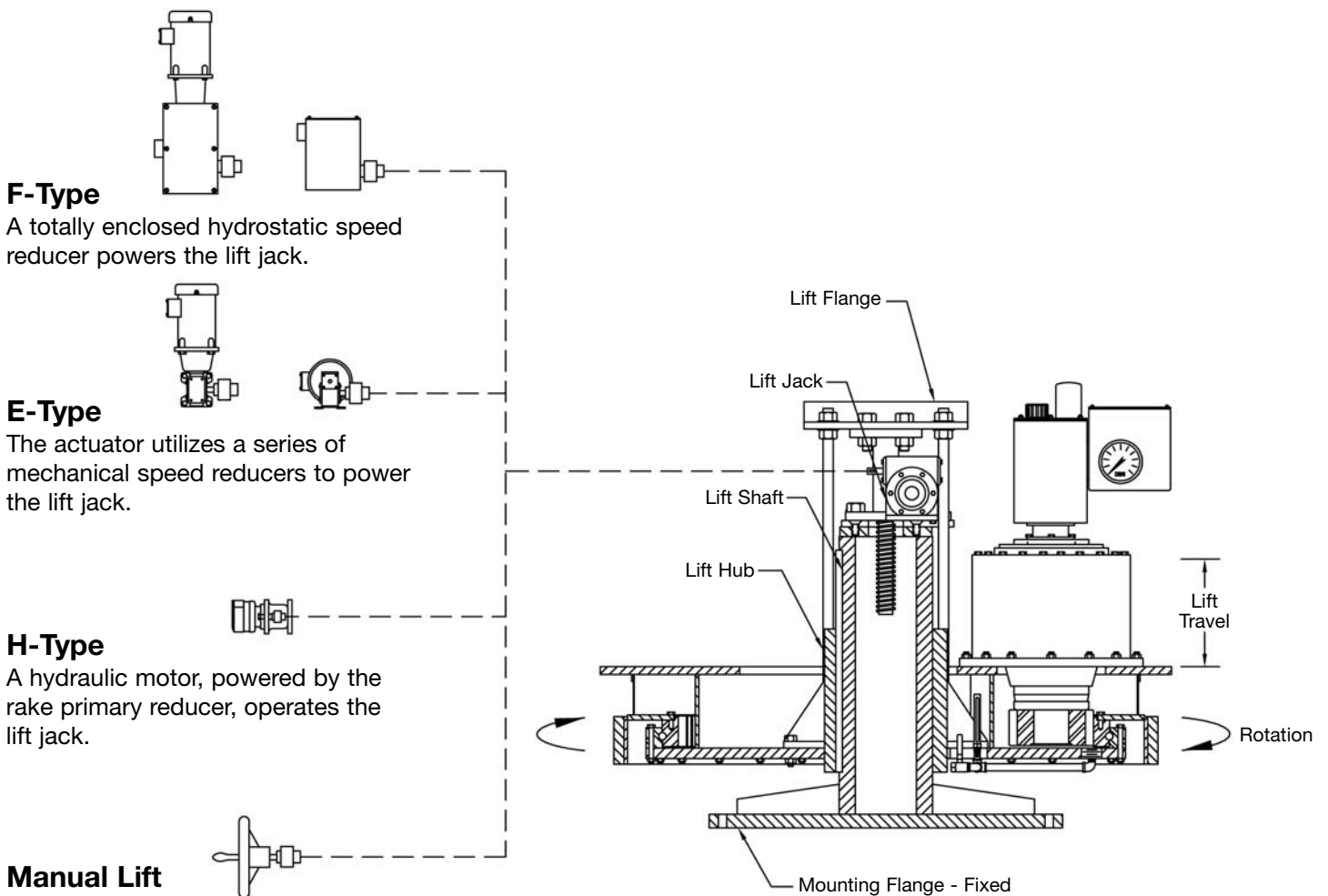


Center Pier-Mounted Drive Units - Drum Output

Lift Mechanism Option

The DBS lift mechanism provides the ability to raise and lower the rakes up to 24 inches (600 mm). The D-series lift operates by raising the entire drive unit. The lift mechanism is fully contained within the drive unit. In most cases, the installation of a DBS lift equipped drive unit is no more complicated than a normal non-lifting clarifier drive.

The lift option is offered with manual or powered operation. The powered lift mechanism provides positive lift force control to prevent damage to the rakes or the screw jack.



Center Pier-Mounted Drive Units - Drum Output

Ordering Information

| Pier-Mounted Drive Unit Model Number | | | | | Lift Option Specification Extension | | | | | |
|--------------------------------------|-------------------------------|---|-------------------------|-----------------------|-------------------------------------|---|-------------|----------------------|----------------------|----------------------|
| Series | Rake Gear Pitch Dia. (inches) | - | Secondary Speed Reducer | Primary Speed Reducer | Number of Pinions | - | Lift Option | Lift Capacity (tons) | Lift Travel (inches) | Lift Actuator Option |
| D | X for no final gear-bearing | | A | E | (N/A) | | (N/A) | (N/A) | (N/A) | (N/A) |
| | | | B | F | | | | | | |
| | 30 | | A | W | 1 (omit) | | L | Consult Factory | | |
| | | | B | | | | | | | |
| | 42 | | B | | 1 (omit) | | | | | |
| | | | C | | 2 | | | | | |
| | 60 | | C | E | 1 (omit) | | | | | |
| | | | D | F | 2 | | | | | |
| | 80 | | D | H | 3 | | | | | |
| | | | E | W | 4 | | | | | |
| 120 | | F | | | | | | | | |

Example: Model D30-AF-L1512F

D is for a pier-mounted drive unit; 30 is the size of the final gear pitch diameter in inches; A is the size of the secondary speed reducer; F is the type of the primary reducer; L is for a lift mechanism; 15 is the lift capacity in tons; 12 is the lift travel in inches; F is the type of the lift actuator.

Standard Features

- Alarm and cutoff switches
- 3 sets of O&M manuals
- 6" torque gauge indicating real torque
(not available on H-type primary reducer)

Optional Features

- 4-20 mA torque transducer
- Bi-directional operation (available for F and H-type primary reducers)
- Condensate control unit
- 4-20 mA lift position transducer
- Variable speed
- Loss motion switch
- Special electric motor
- Oil heater (available for F and H-type primary reducers and main gear housing)
- Special coating
- Oil temperature switch
- Oil level switch
- Explosion proof switches



**Center Pier-Mounted Drive Unit—Drum
Output Model D42-CE**

Clarifier & Thickener Drives

Retrofits

Low-Speed Surface Aerators

Rotary Distributor Center Mechanisms

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