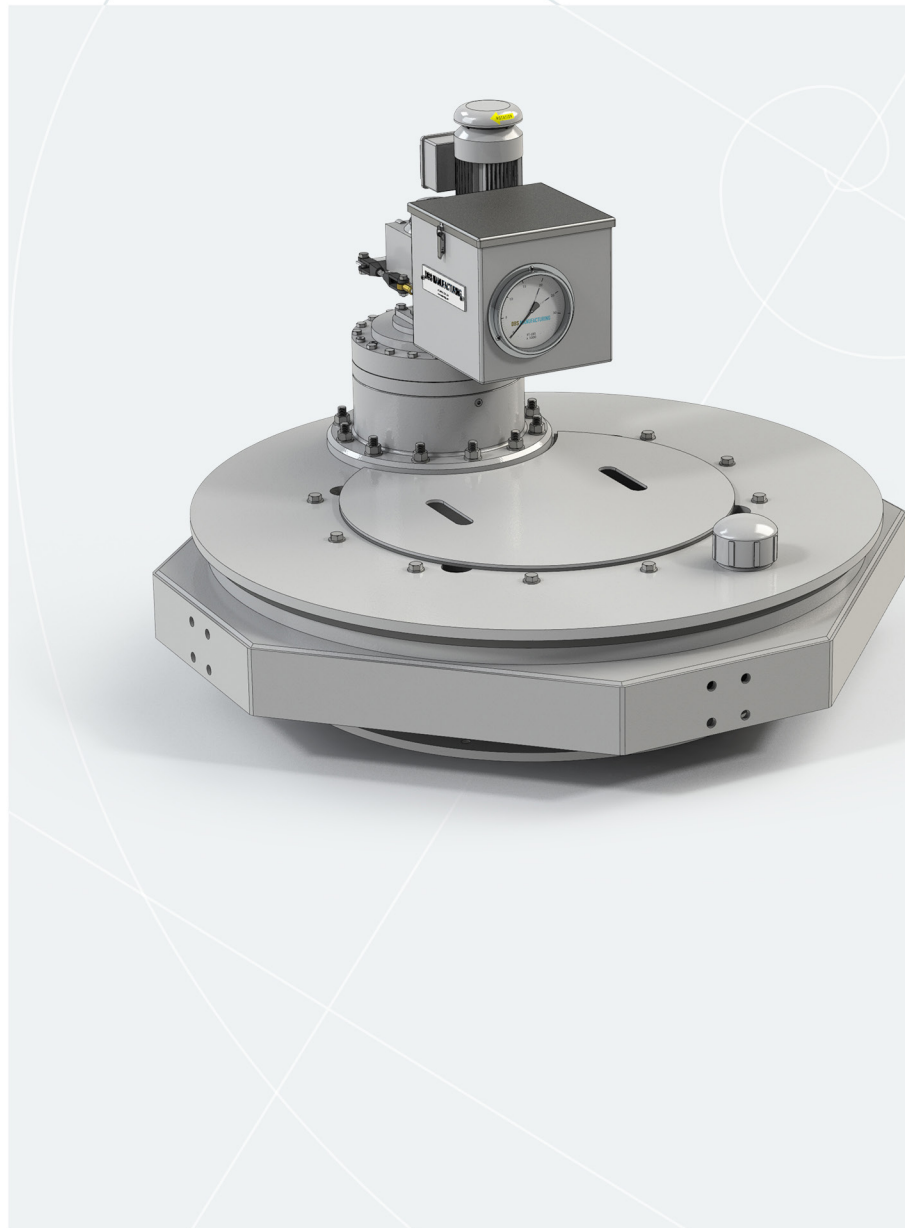


CENTER PIER-MOUNTED  
DRIVE UNITS | **DRUM OUTPUT**

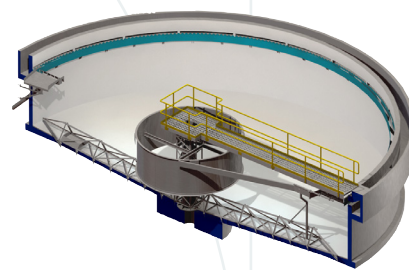
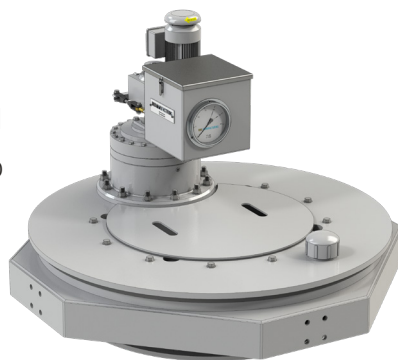


ENGINEERED FIRSTS | **BUILT TO LAST**

## OVERVIEW

With over 40 years experience designing and building drive units, DBS has the expertise to provide the right solution for every application.

The D-Series drive units are specifically designed for clarifiers and thickeners with a center column and a rake cage.



## 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-D04
- 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 CAPACITY - PIER-MOUNTED DRIVE UNITS**

MODEL	CONTINUOUS		MAXIMUM OVERLOAD		YIELD	
	FT-LBF	N-m	FT-LBF	N-m	FT-LBF	N-m
<b>DX-A*</b>	3,000	4,100	6,000	8,200	8,100	11,000
<b>DX-B*</b>	6,000	8,200	12,000	16,400	16,200	22,000
<b>D30-A*</b>	16,000	22,000	32,000	44,000	94,000	127,000
<b>D30-B*</b>	27,000	36,500	54,000	73,000	94,000	127,000
<b>D42-B*</b>	35,000	47,500	70,000	95,000	195,000	264,000
<b>D42-C*</b>	51,000	69,000	102,000	138,000	195,000	264,000
<b>D60-C*</b>	65,000	88,000	130,000	176,000	440,000	597,000
<b>D60-D*</b>	125,000	169,500	250,000	339,000	440,000	597,000
<b>D80-D*</b>	165,000	223,500	330,000	447,000	750,000	1,017,000
<b>D80-E*</b>	250,000	339,000	500,000	678,000	750,000	1,017,000
<b>D42-B*2</b>	70,000	95,000	140,000	190,000	390,000	529,000
<b>D42-C*2</b>	102,000	138,000	204,000	276,000	390,000	529,000
<b>D60-C*2</b>	130,000	176,000	260,000	352,000	880,000	1,193,000
<b>D60-D*2</b>	250,000	339,000	500,000	678,000	880,000	1,193,000
<b>D80-D*2</b>	330,000	447,000	660,000	895,000	1,500,000	2,034,000
<b>D80-E*2</b>	500,000	678,000	1,000,000	1,356,000	1,500,000	2,034,000
<b>D104-F*2</b>	1,000,000	1,356,000	2,000,000	2,712,000	6,630,000	8,990,000
<b>D104-G*2</b>	1,250,000	1,695,000	2,500,000	3,390,000	8,840,000	11,987,000
<b>D120-G*2</b>	1,570,000	2,129,000	3,140,000	4,258,000	1,650,000	2,237,000
<b>D120-H*2</b>	1,750,000	2,373,000	3,500,000	4,746,000	1,650,000	2,237,000

\* Replace the \* with the primary reducer option selected.

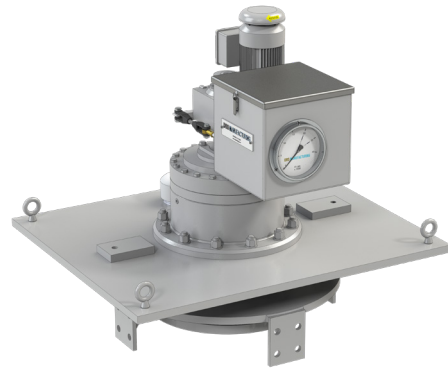
**Continuous:** Torque at which main gear will have a life in excess of 20 years at normal operating speeds.

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

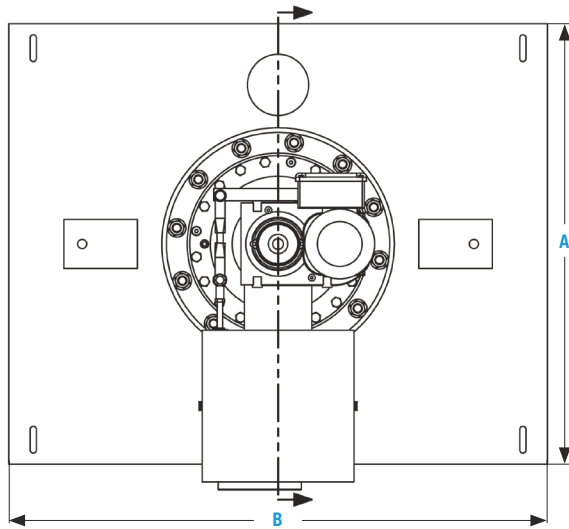
**Yield:** The structural maximum torque based on the minimum yield strength of the main gear.

## DX-SERIES DIMENSIONS

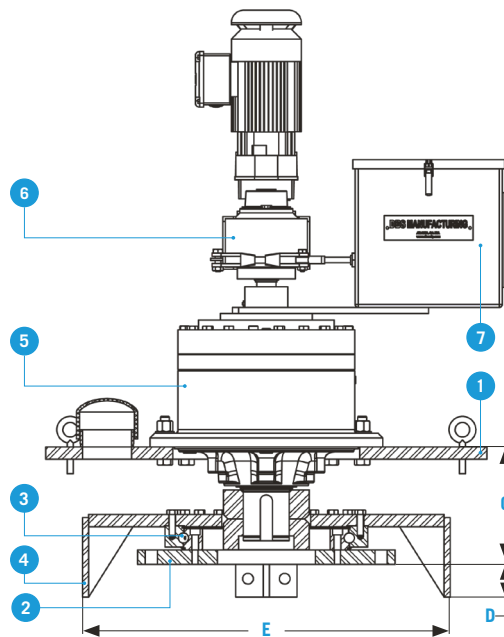
Designed for smaller tanks with a center column and rake cage, the DX-Series drives feature a large precision ball bearing to carry thrust and moment loads.



DRIVE UNIT PLAN



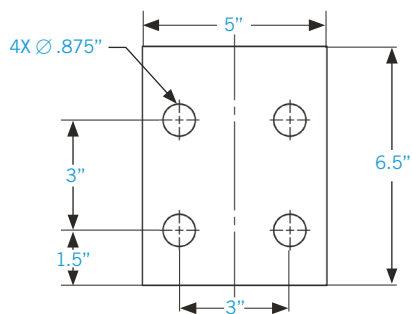
DRIVE UNIT SECTION



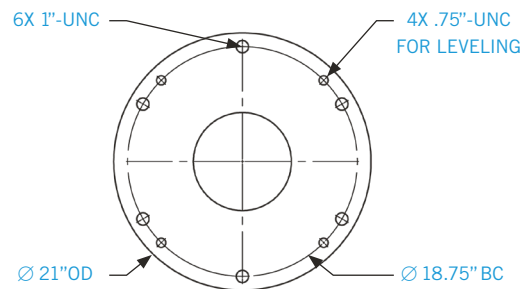
### ITEM DESCRIPTION

- 1 Bridge Mounting Plate
- 2 Mounting Flange
- 3 Main Bearing
- 4 Drive Drum
- 5 Planetary Gearbox
- 6 Primary Speed Reducer
- 7 Torque Gauge Box

DRIVE PAD DETAIL



MOUNTING FLANGE DETAIL

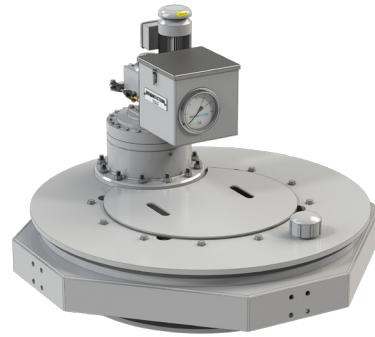


MODEL	A		B		C		D		E		WEIGHT	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	LB	KG
<b>DX-A*</b>	36	914	44	1,118	7.5	191	2.75	70	30	762	1,320	600
<b>DX-B*</b>	36	914	44	1,118	9.5	241	2.75	70	30	762	1,530	694

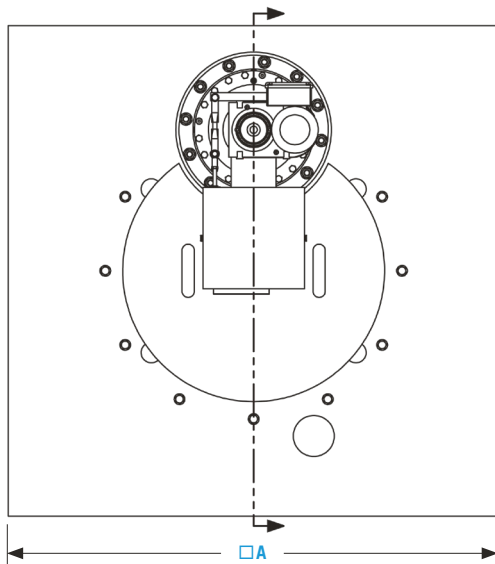
\* Replace the \* with the primary reducer option selected.

## D-SERIES DIMENSIONS

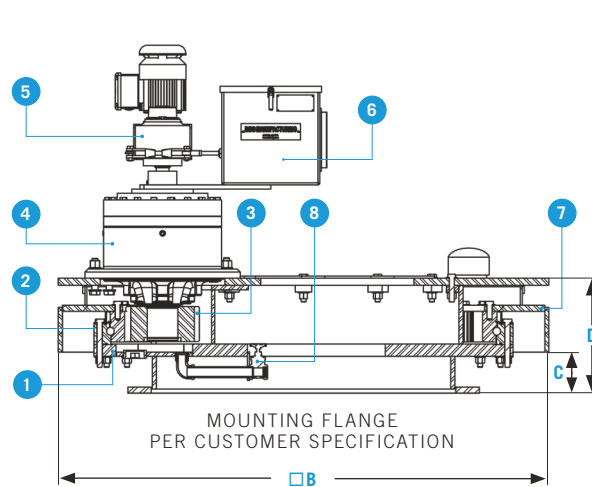
Designed for large tanks with a center column and rake cage, the D-Series drives feature a large combination internal gear and precision ball bearing.



DRIVE UNIT PLAN



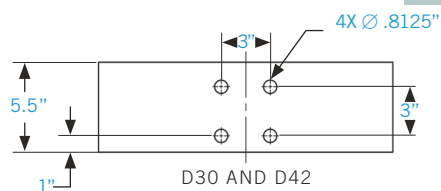
DRIVE UNIT SECTION



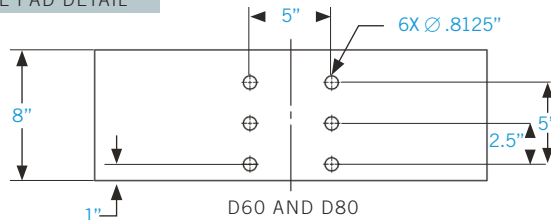
ITEM DESCRIPTION

- 1 Machine Frame
- 2 Main Gearbearing
- 3 Pinion
- 4 Planetary Gearbox
- 5 Primary Speed Reducer
- 6 Torque Gauge Box
- 7 Drive Drum
- 8 Oil Drain

DRIVE PAD DETAIL



D30 AND D42



D60 AND D80

MODEL	A		B		C		D		MOUNTING FLANGE <sup>1</sup>		WEIGHT	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	LB	KG
<b>D30-A*</b>	48	1,219	47	1,194	5	127	12.5	318	32	813	2,200	1,000
<b>D30-B*</b>	48	1,219	47	1,194	5	127	13.75	350	32	813	2,400	1,090
<b>D42-B*</b>	60	1,524	60	1,524	5	127	13.75	350	44	1,118	3,800	1,720
<b>D42-C*</b>	60	1,524	60	1,524	5	127	15.5	394	44	1,118	4,100	1,860
<b>D60-C*</b>	84	2,134	80	2,032	6	152	17.63	448	62	1,575	6,100	2,770
<b>D60-D*</b>	84	2,134	80	2,032	6	152	19.63	499	62	1,575	7,200	3,270
<b>D80-D*</b>	96	2,438	103	2,616	6	152	20.5	521	Note <sup>2</sup>	Note <sup>2</sup>	10,500	4,760

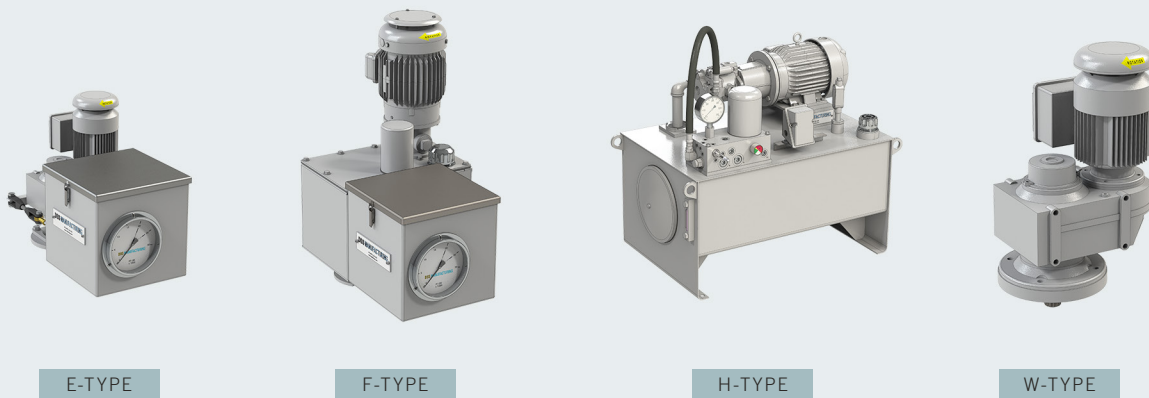
<sup>1</sup> Maximum standard outside diameter of mounting flange.  
For larger flange sizes, contact factory.

<sup>2</sup> Consult factory.

\* Replace the \* with the primary reducer option selected.

## PRIMARY REDUCER OPTIONS

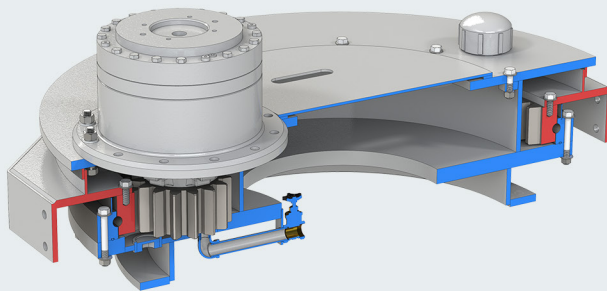
DBS drive units are made up of several reducers: primary, secondary, and a final reduction unit consisting of a pinion and combination gear-bearing for larger mechanisms. All reducers are directly coupled. A selection of primary reduction units is available to meet customer requirements.



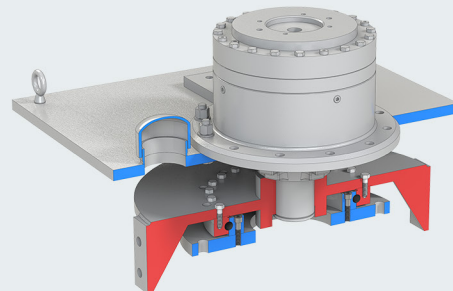
PRIMARY REDUCER OPTIONS

ONE OF THE REDUCERS ABOVE  
WILL BE ASSEMBLED TO ONE OF  
THE DRIVE UNITS BELOW.

D-SERIES



DX-SERIES



## PRIMARY SPEED REDUCER OPTIONS

Primary reduction units are available in mechanical and hydraulic versions, with unique advantages to each design. Selections are made based on customer requirements and drive unit application.



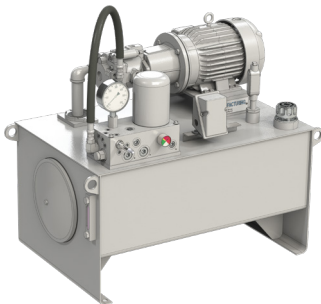
### E-TYPE

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

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

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.

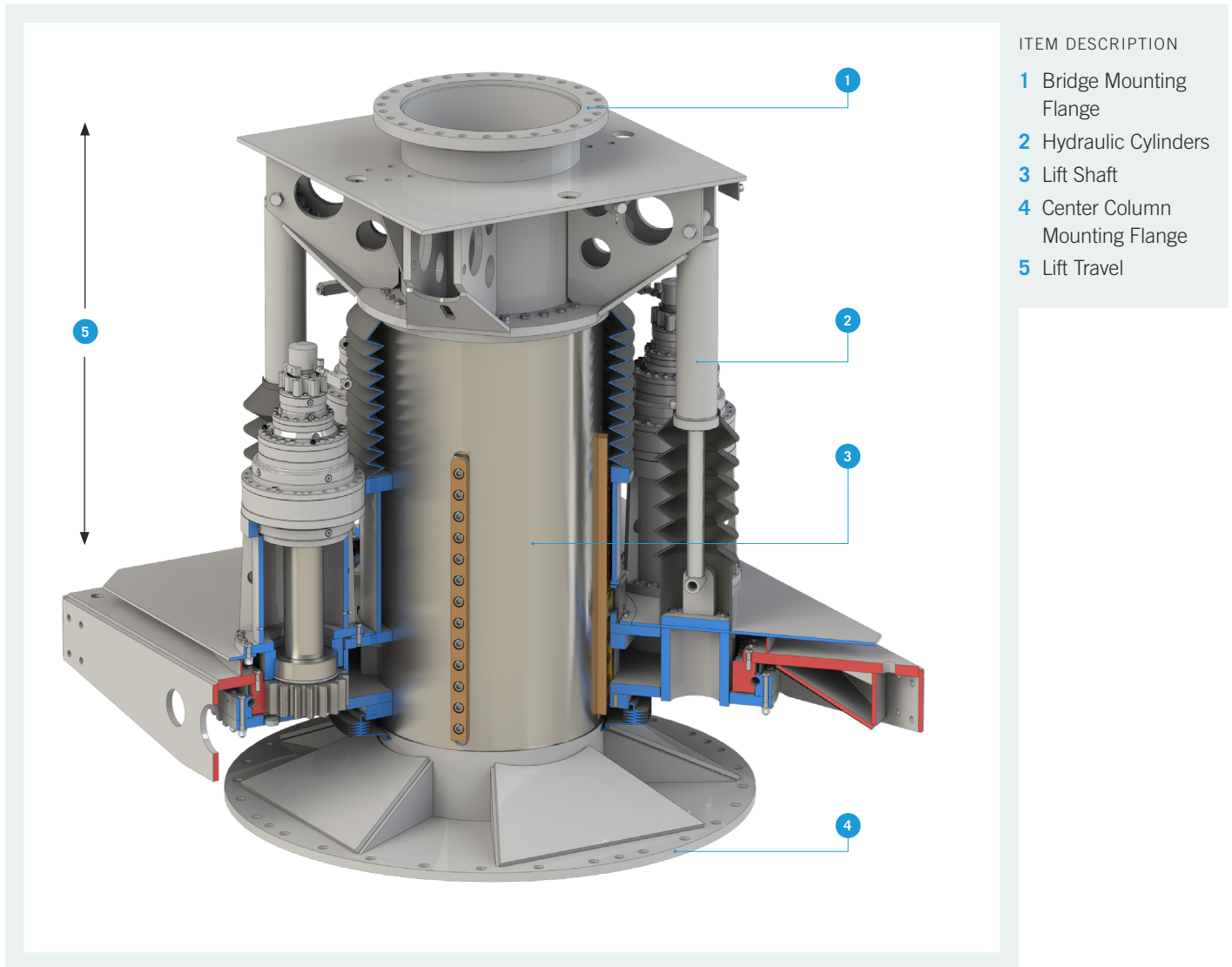


### W-TYPE

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.

## LIFT MECHANISM OPTIONS

The lift mechanism is an integral part of the drive unit and operates by raising and lowering the rakes up to 24 inches (600 mm). The design features a single machined center shaft to handle a combination of large torque, thrust, and overturning moment loads. The powered lift mechanism provides positive force control to prevent damage to the rakes or lift mechanism. A selection of mechanical and hydraulic reducers is available for powered operation.





## ORDERING INFORMATION

The DBS model number nomenclature is designed to easily identify size and lift option. Contact DBS or a DBS representative for assistance in deciding your equipment requirements.

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 F H W	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)
	30	B		1 (omit)	L	Consult Factory		
		A		1 (omit)				
	42	B		2				
		C		1 (omit)				
	60	C		2				
		D		3				
	80	D		4				
		E		5				
	104	F		5				
		G		6				
	120	G						

**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.

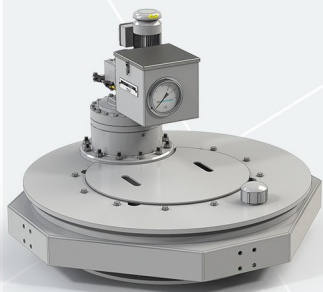
### STANDARD FEATURES

- Alarm and cutoff switches
- O&M manual in PDF format
- 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

**DBS MANUFACTURING**

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