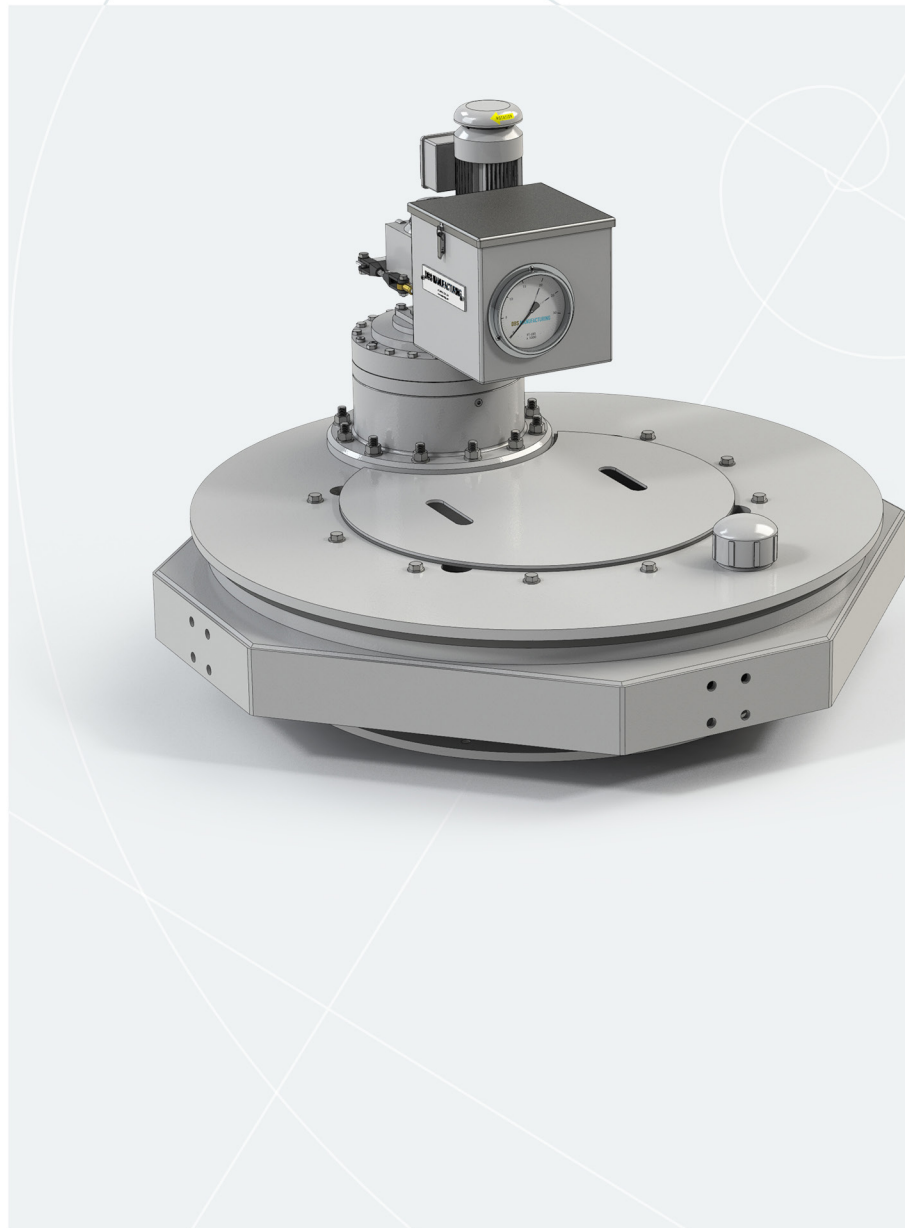


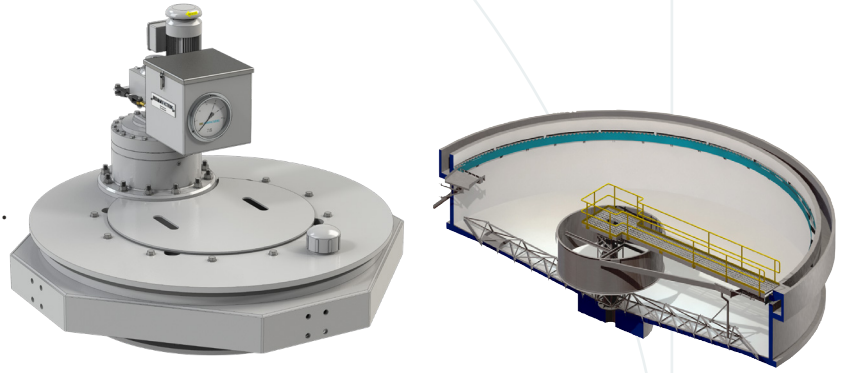
CENTER PIER-MOUNTED
DRIVE UNITS | DRUM OUTPUT



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
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	130,000
D30-B*	27,000	36,500	54,000	73,000	94,000	130,000
D42-B*	35,000	47,500	70,000	95,000	195,000	260,000
D42-C*	50,000	70,000	102,000	138,000	195,000	260,000
D60-C*	65,000	88,000	130,000	176,000	440,000	600,000
D60-D*	125,000	170,000	250,000	340,000	440,000	600,000
D60-E*	250,000	340,000	500,000	680,000	750,000	1,020,000
D80-E*	350,000	475,000	700,000	950,000	950,000	1,290,000
D42-B*2	70,000	95,000	140,000	190,000	390,000	530,000
D42-C*2	100,000	140,000	204,000	280,000	390,000	530,000
D60-C*2	130,000	176,000	260,000	350,000	880,000	1,190,000
D60-D*2	250,000	340,000	500,000	680,000	880,000	1,190,000
D60-E*2	500,000	680,000	1,000,000	1,360,000	1,500,000	2,040,000
D80-E*2	700,000	950,000	1,400,000	1,900,000	1,900,000	2,580,000
D104-G*2	1,250,000	1,695,000	2,500,000	3,390,000	8,840,000	11,990,000
D120-H*2	1,750,000	2,370,000	3,500,000	4,750,000	1,650,000	2,240,000

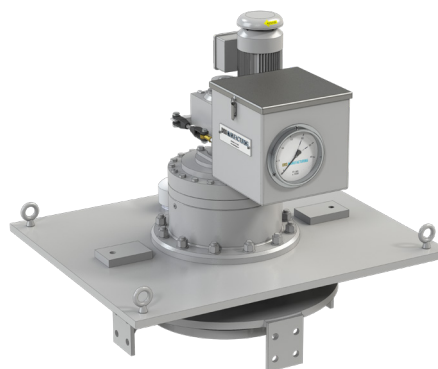
Replace the * with the primary reducer option selected.
Continuous: Torque at which main gear will have a life in excess of 20 years at normal operating speeds.

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

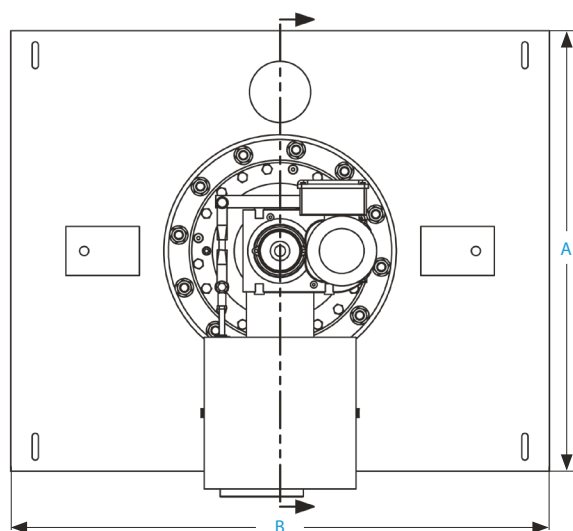
Yield: The structural maximum torque based on the minimum yield strength of the main gear.

DX-SERIES DIMENSIONS

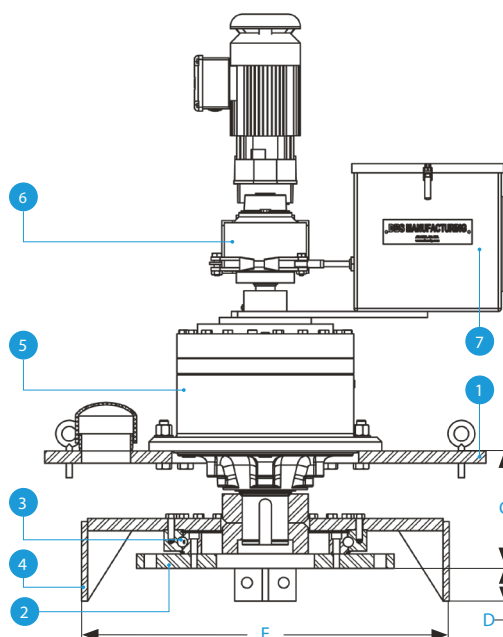
Designed for smaller tanks with a center column and rake cage, the DX-Series drives feature a large precision ball bearing to carry thrust and moment loads.



DRIVE UNIT PLAN



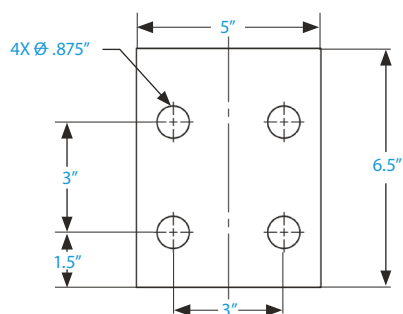
DRIVE UNIT SECTION



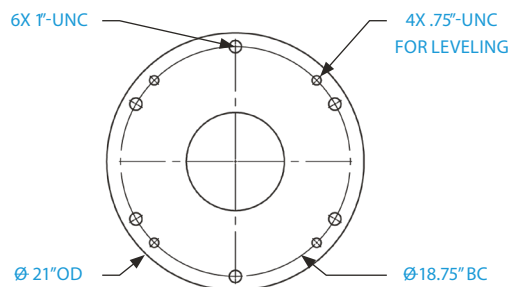
ITEM DESCRIPTION

- 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

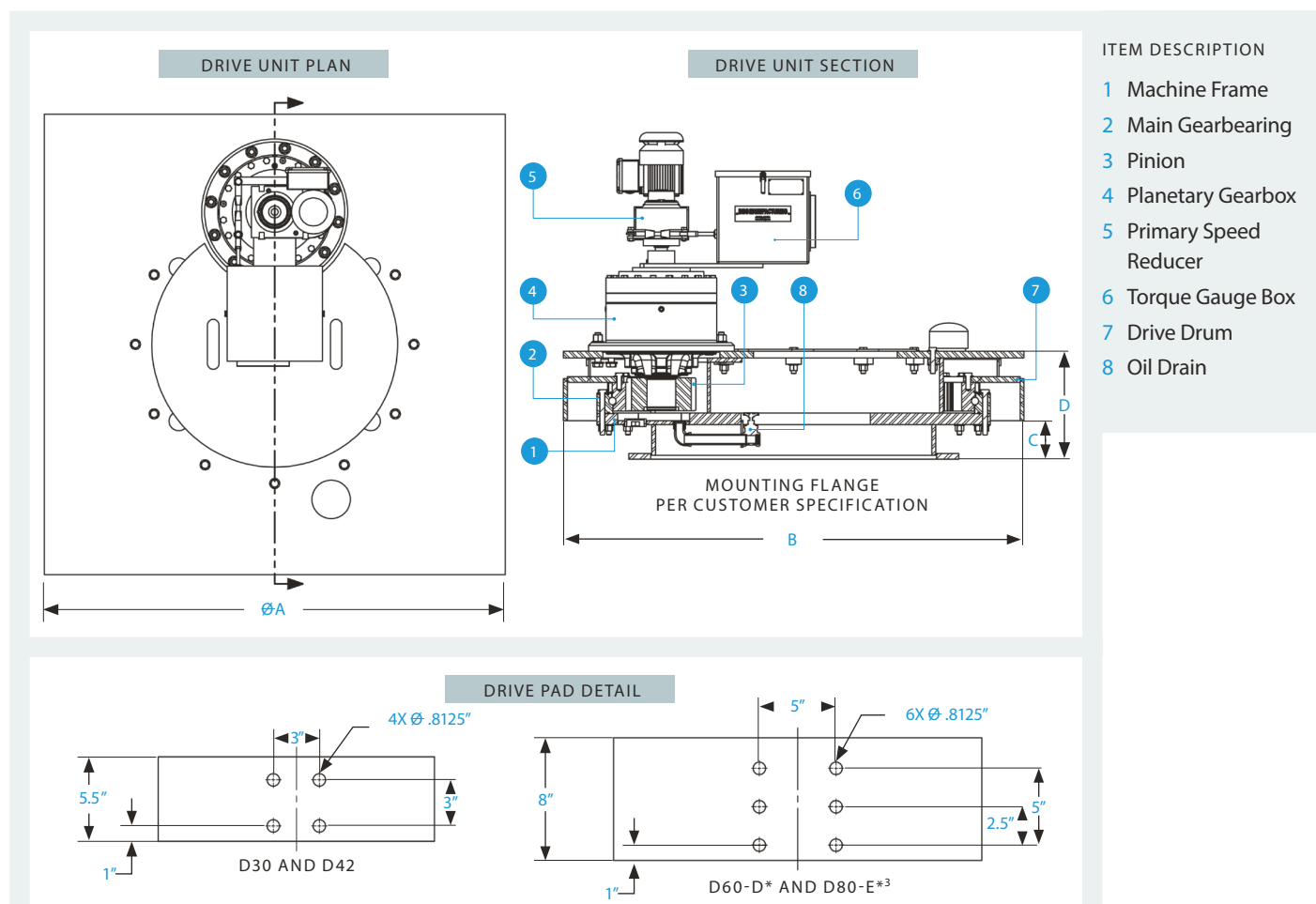
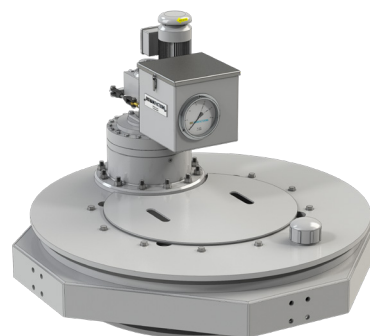


MODEL	A		B		C		D		E		WEIGHT	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	LB	KG
DX-A*	36	914	44	1,118	7.5	191	2.75	70	30	762	1,320	600
DX-B*	36	914	44	1,118	9.5	241	2.75	70	30	762	1,530	694

* Replace the * with the primary reducer option selected.

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.



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	13.75	350	32	813	2,400	1,090
D42-B*	60	1,524	60	1,524	5	127	13.75	350	44	1,118	3,800	1,720
D42-C*	60	1,524	60	1,524	5	127	15.5	394	44	1,118	4,100	1,860
D60-C*	84	2,134	80	2,032	6	152	17.63	448	62	1,575	6,100	2,770
D60-D*	84	2,134	80	2,032	6	152	19.63	499	62	1,575	7,200	3,270
D60-E*	75	1,905	74	1,880	9.25	235	21.13	791	57	1,450	8,200	3,720
D80-E*	96	2,438	103	2,616	6	152	20.5	521	Note ²	Note ²	10,500	4,760

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

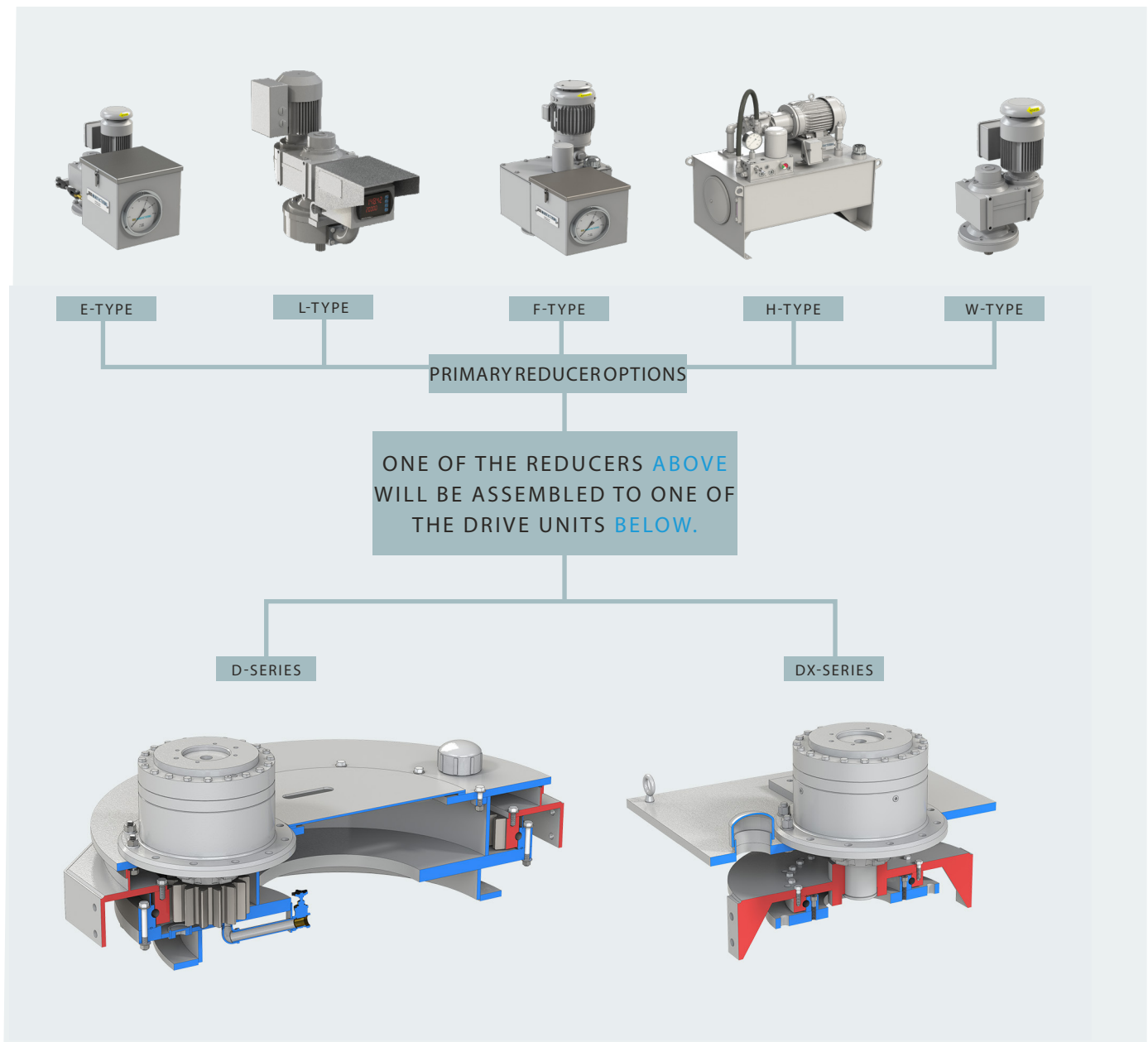
2 Consult factory.

3 Consult factory for D60-E* drive pad dimensions.

* 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.



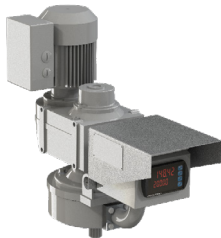
PRIMARY SPEED REDUCER OPTIONS

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.



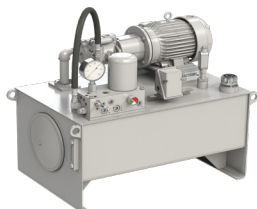
L-TYPE

The L-type design has all the features of the E-type except that the torque indicator is digital and torque sensing is solid state with no moving parts. The torque is measured through a load cell. This design can be used in all applications.



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.

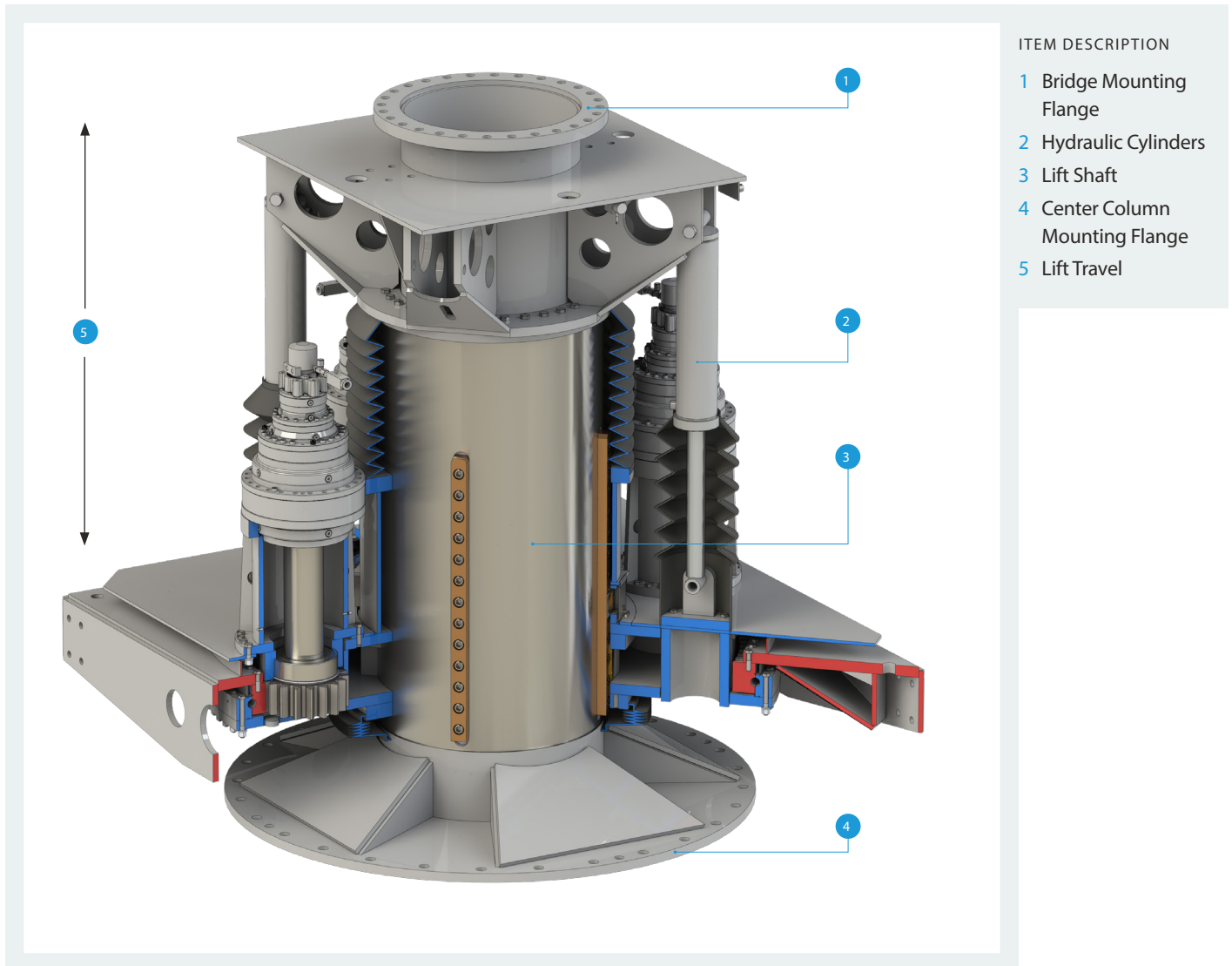


W-TYPE

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 L	(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
		E							4
		80		D					5
	E								
	104	G							
120	H								

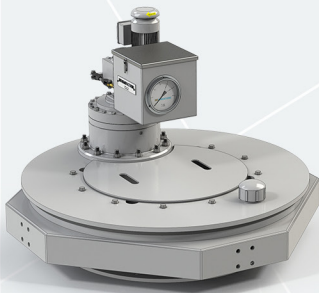
EXAMPLE: MODEL D30-AF-L1512F D is for a pier-mounted drive unit; 30 is the size of the final gear pitch diameter in inches; A is the size of the secondary speed reducer; F is the type of the primary reducer; L is for a lift mechanism; 15 is the lift capacity in tons; 12 is the lift travel in inches; 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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