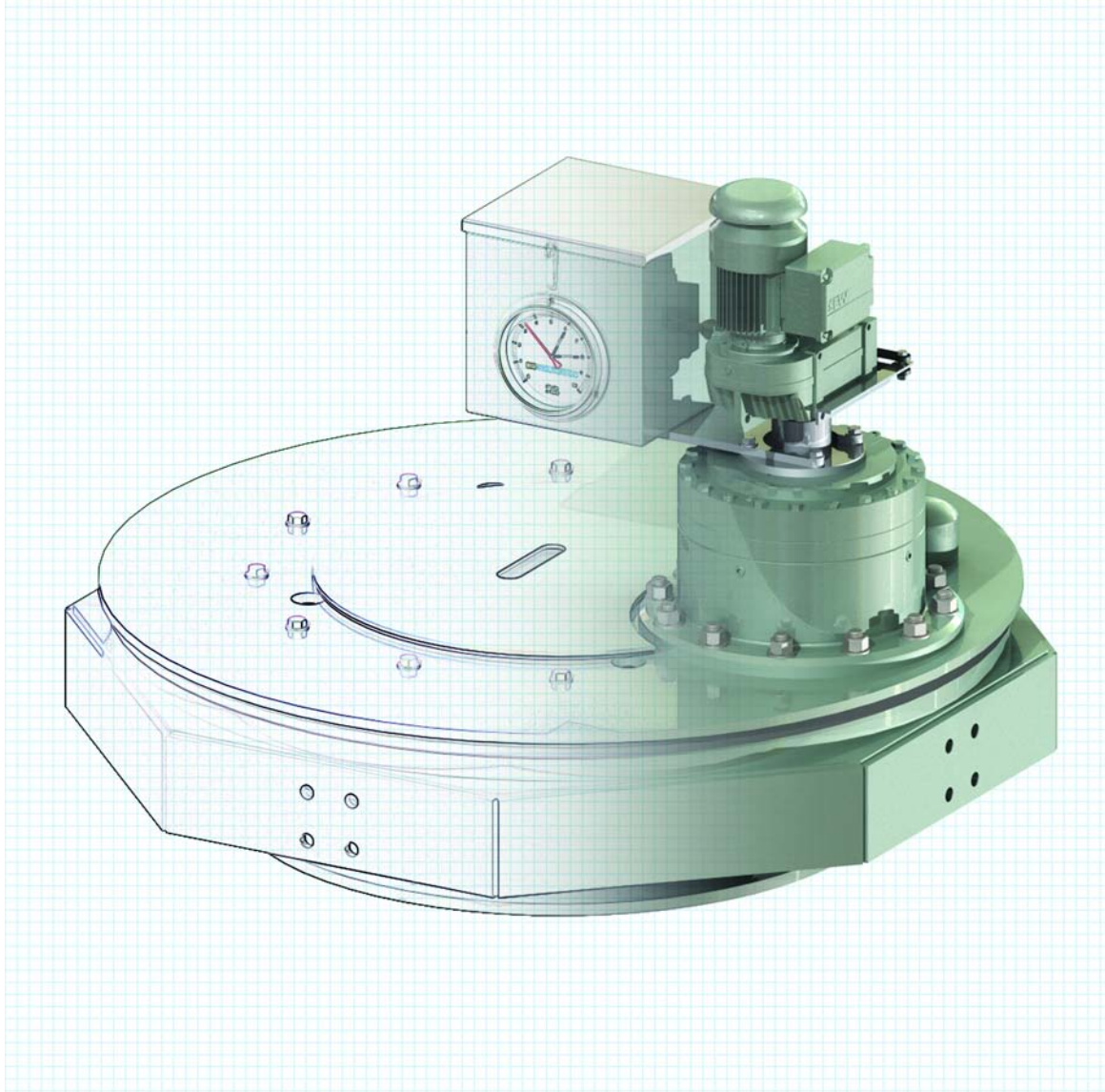


# Center Pier-Mounted Drive Units-DM Series



**DBS MANUFACTURING®**

# Center Pier-Mounted Drive Units - DM Series



## 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
- Composite 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 bearings and gears

**TORQUE CAPACITIES - PIER MOUNTED DM DRIVE UNITS WITH COMPOSITE MAIN BEARING**

Model	Continuous		Maximum Overload		Yield	
	ft-lbf	N-m	ft-lbf	N-m	ft-lbf	N-m
DM075-A*	18,000	24,500	36,000	49,000	94,000	127,000
DM075-B*	27,000	36,500	54,000	73,000	94,000	127,000
DM100-B*	36,000	49,000	72,000	98,000	195,000	264,000
DM100-C*	51,000	69,000	102,000	138,000	195,000	264,000
DM150-C*	70,000	95,000	140,000	190,000	440,000	597,000
DM150-D*	110,000	149,000	220,000	298,000	440,000	587,000
DM150-C*2	140,000	190,000	280,000	380,000	880,000	1,194,000

Replace the \* with the primary reducer option selected.

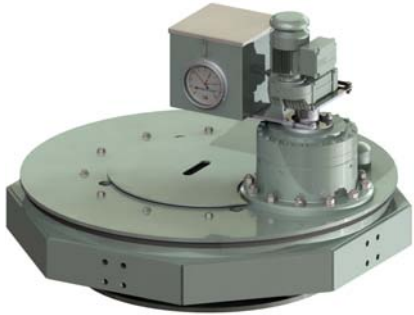
**Continuous:** Torque at which main gear will have a life in excess of 20 years at normal operating speeds.

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

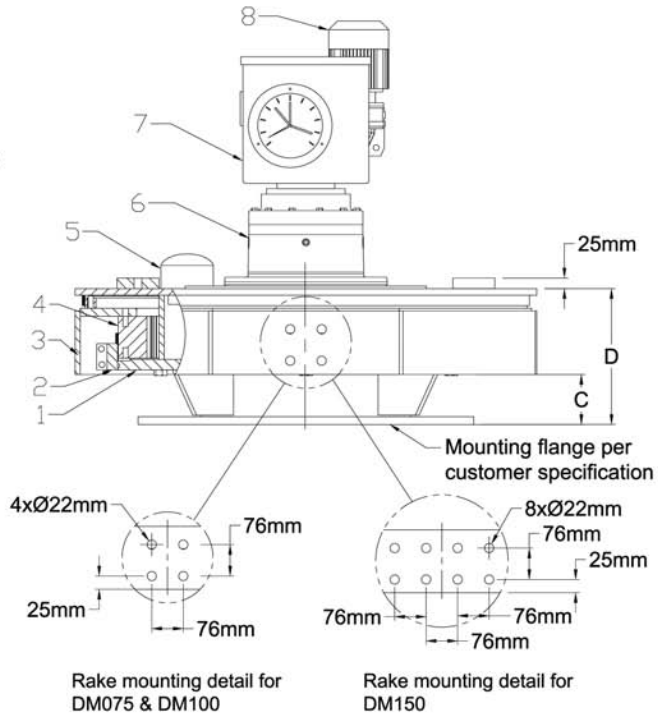
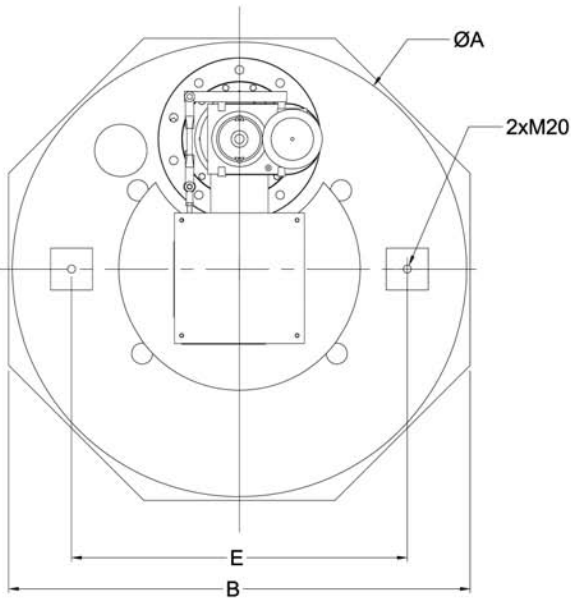
**Yield:** The structural maximum torque based on the minimum yield strength of the main gear.

# Center Pier-Mounted Drive Units - DM Series

## DM-Series Dimensions



- | Item | Description           |
|------|-----------------------|
| 1    | Machine frame         |
| 2    | Bearing ring          |
| 3    | Drive drum            |
| 4    | Main gear             |
| 5    | Inspection port       |
| 6    | Planetary gearbox     |
| 7    | Torque gauge assembly |
| 8    | Primary gearmotor     |



Model	A		B		C		D		E		Mounting <sup>1</sup> Flange		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
DM075-A*	42	1,067	44	1,118	5	127	12	305	32	813	32	813	1,900	862
DM075-B*	42	1,067	44	1,118	5	127	13.3	337	32	813	32	813	2,100	952
DM100-B*	54	1,372	54	1,372	5	127	13.3	337	35	889	42	1,067	3,300	1,497
DM100-C*	54	1,372	54	1,372	5	127	15.5	394	35	889	42	1,067	3,600	2,633
DM150-C*	76	1,930	76	1,930	7	128	15.5	394	35	889	62	1,575	5,500	2,494
DM150-D*	76	1,930	76	1,930	7	128	17.5	445	35	889	62	1,575	6,600	2,993

<sup>1</sup> Maximum standard outside diameter of mounting flange. For larger flange sizes, contact factory. Replace the \* with the primary reducer option selected.

# Center Pier-Mounted Drive Units - DM Series

---

## Features



DBS DM Series pier mounted drive units provide very low maintenance and very high reliability. The heart of the DM series drive units is the composite bearing system that supports the main gear. This bearing system can operate with little or no lubrication and is unaffected by water contamination. In addition, the bearing is designed to last over 50 years! And, when service is required, the bearing can easily and economically be replaced in a few hours without removing the drive from the clarifier. All that is required is to remove the steel band that locates and retains the bearing elements.

Standard DM drives are 100% grease lubricated and require no maintenance for 5 years.

- Specially designed for high corrosive environment, such as domed or covered clarifiers and thickeners, and industrial applications
- Low maintenance, every five years
- High tolerance to condensate buildup
- All helical or spur gear reductions for maximum mechanical efficiency
- Overload protection
- PV (pressure x velocity) value in excess of 10,000

# Center Pier-Mounted Drive Units - DM Series

## Primary Reducer Option

W-Type



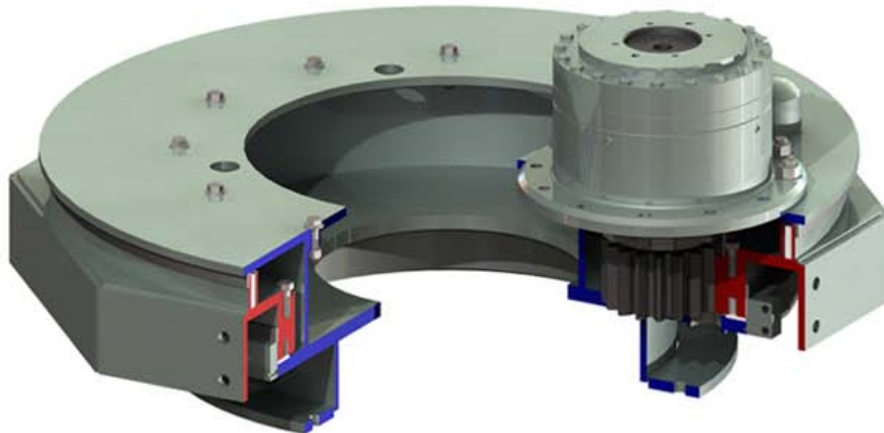
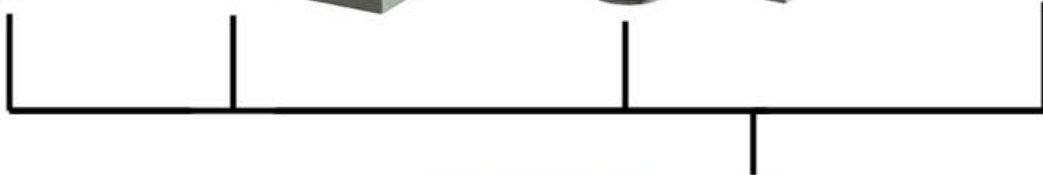
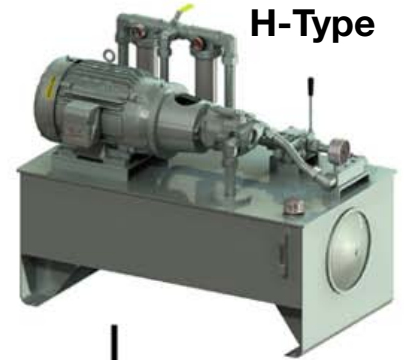
E-Type



F-Type



H-Type



DM Series

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

## 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

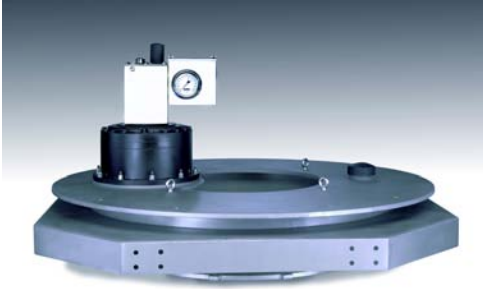
The W-type design uses helical gears for speed reduction. It has shear pin and shear pin activated cutoff switch to protect the drive unit. This is simplified E-type design used where a torque gauge and adjustable alarm switch are not required.



# Center Pier-Mounted Drive Units - DM Series

---

## Stainless Steel Option



DBS Manufacturing DM-Series pier-mounted stainless steel drive units are designed for operation in highly corrosive environments such as domed or covered clarifiers and thickeners, and industrial applications.

The heart of the DM-Series drive is a patent-pending main bearing that operates with little or no lubrication and is unaffected by water contamination. The bearing is designed to last over 50 years. When it is time for replacement the bearing can be easily removed and replaced without unbolting walkway bridges or the rake drive cage.

The drive housing is fabricated to ASME quality standards from ASME A240 grade stainless steel. The torque control housing is stainless steel. A stainless steel electric motor is standard.

## Features

- Specially designed for high corrosive environment, such as domed or covered clarifiers and thickeners, and industrial applications
- Stainless steel machine frame
- Low maintenance
- High tolerance to condensate buildup
- All helical or spur gear reductions for maximum mechanical efficiency
- Torque overload protection with standard alarm, cutoff switches, and shear pin

# Center Pier-Mounted Drive Units - DM Series

## Ordering Information

Pier-Mounted Drive Unit Model Number-with Composite Main Bearing			Lift Option Specification Extension		
Series	Rake Gear Pitch Dia. (mm)	-	Secondary Speed Reducer	Primary Speed Reducer	Number of Pinions
DM	075		A	E, F, W	1 (omit)
			B		
	100		B	E, F, H, W	1 (omit)
			C		
	150		C	E, F, H, W	1 (omit)
			D		

### Example: Model DM075-AF

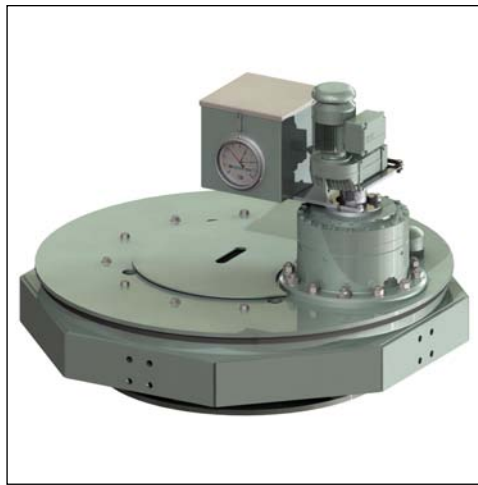
DM is for a pier-mounted drive unit; 075 is the size of the final gear pitch diameter in mm; A is the size of the secondary speed reducer; F is the type of the primary reducer.

### Standard Features

- Alarm and cutoff switches
- 2 O&M manuals on CD
- 6" torque gauge indicating real torque  
(not available on H-type and W-type primary reducers)

### Optional Features

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



**Center Pier-Mounted Drive Unit—DM Series  
Model DM100-BE**

**Clarifier & Thickener Drives**

**Retrofits**

**Low-Speed Surface Aerators**

**Rotary Distributor Center Mechanisms**

## **DBS Manufacturing, Incorporated**

45 SouthWoods Parkway, Atlanta, Georgia 30354 USA

404.768.2131 phone 404.761.6360 fax

www.dbsmfg.com email: [engineering@dbsmfg.com](mailto:engineering@dbsmfg.com)