

# POWER STEERING GEARS



**SHEPPARD**

*A Bendix CVS Company • A member of Knorr-Bremse*



# Two full families of heavy-duty power steering gears with application specific designs available in single- and multiple-gear combinations

## Better Design & Performance

- Fully ground rack and sector for smooth operation with no gear lash or need for adjustment in the field
- Self locking tapered spline on output shaft for secure pitman arm retention
- High quality materials and components manufactured to precision tolerances; made in the USA
- Full part traceability tied to gear serial number
- Full functional testing of every steering gear

## Better Service and Support

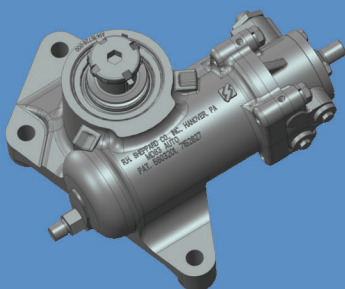
- Veteran Bendix sales and service team to deliver sales, service, and training support for you
- Expert factory direct assistance is readily available for technical support. Email us at [serviceweb@rhsheppard.com](mailto:serviceweb@rhsheppard.com) or call us toll-free at 1-800-2RH-SHEP (1-800-247-7437) Monday-Friday 7 a.m. to 6 p.m. ET
- Videos for self-based and refresher training are available in multiple languages online at [rhsheppard.com](http://rhsheppard.com)

## Lower Life Cycle Cost

- The Sheppard design offers the capability for on-vehicle repair vs. replacing the entire steering gear

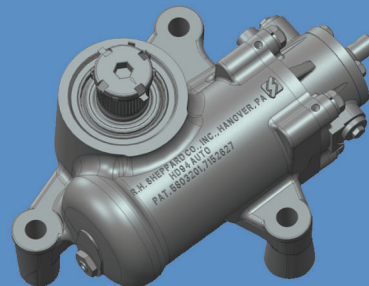


Currently available on select Daimler Trucks North America, Mack, PACCAR, and Volvo vehicles.



### MD83™

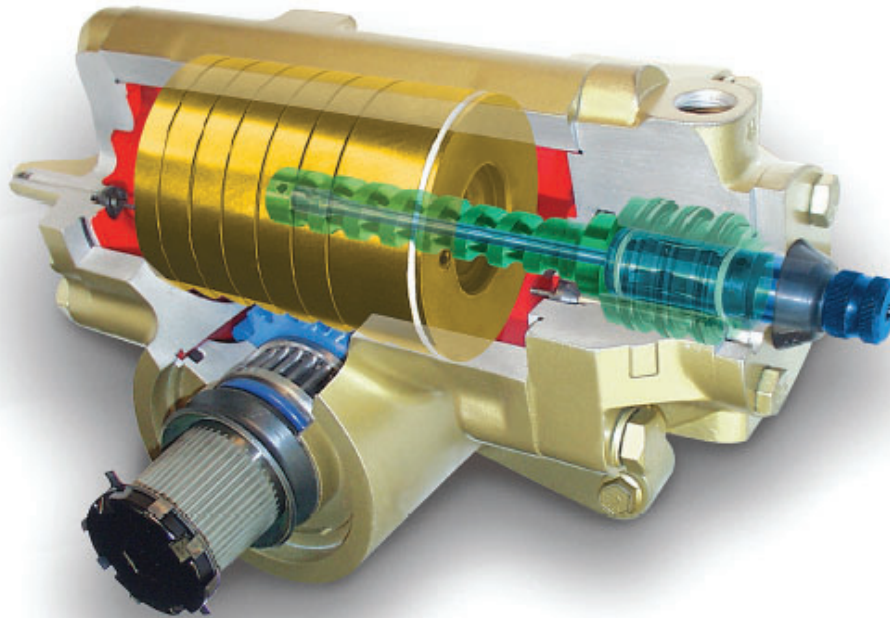
Front Axle Rating:  
6,000 – 10,000 lbs  
For medium-duty  
truck applications



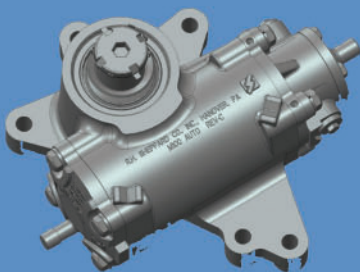
### HD94™

Front Axle Rating:  
10,000 – 14,600 lbs  
For heavy-duty  
line-haul applications

# SHEPPARD™ M-SERIES™ FEATURES



- Sheppard™ M-Series™ gears feature compacted graphite housings
- An 18.9:1 ratio suitable for wide range of applications
- Multiple application options including single, master, and slave gear configurations with a wide variety of mounting patterns available
- Multiple feature selections, such as valve types, pressure relief settings, input shaft spline types, manual or automatic end-of-travel plunger relief



## **M100™**

Front Axle Rating:  
10,000 – 14,600 lbs

*For heavy-duty  
line-haul trucks  
and heavy bus  
applications*



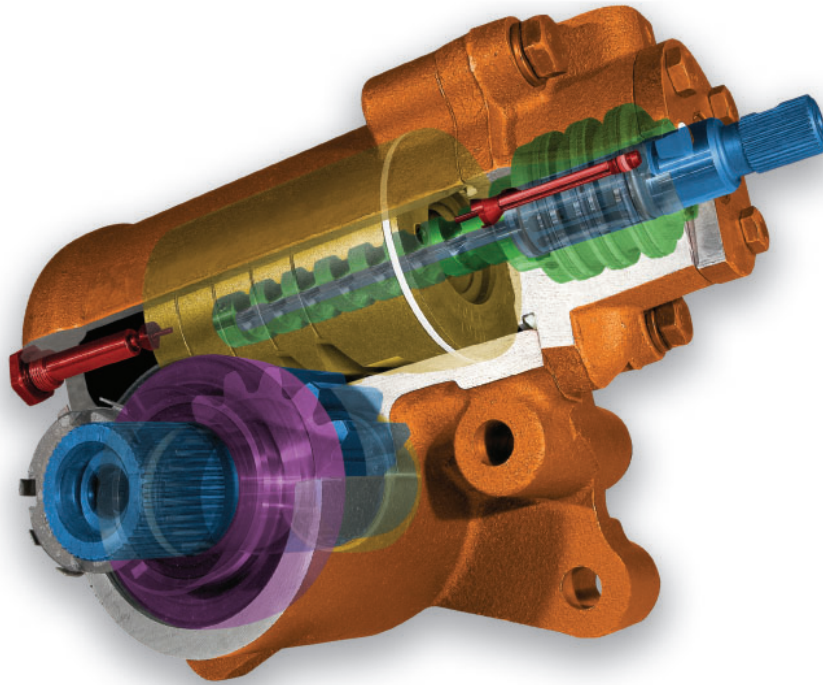
## **M110™**

Front Axle Rating:  
14,600 – 18,000 lbs

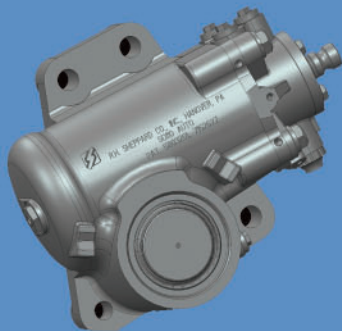
*For heavy vocational  
applications and  
transit buses*



# SHEPPARD™ D-SERIES™ FEATURES



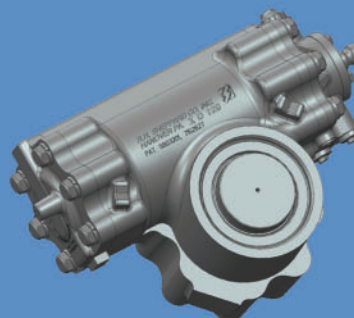
- Designed for high pressure and has a recessed autoplunger for reduced size and weight
- Larger rack and sector tooth design for improved durability
- Industry leading 16.9:1 ratio for improved handling, with a more passenger car-like feel
- Patented 8 slot rotary valve for ultra-quiet operation and better on-center performance
- Seal package designed for long life
- Self-bleed design to automatically eliminate trapped air



## SD110™

Front Axle Rating:  
14,600 – 18,000 lbs

*For severe-duty heavy  
trucks and heavy bus  
applications*



## XD120™

Front Axle Rating:  
18,000 – 23,000 lbs

*For extreme-duty  
vocational  
applications and  
transit buses*

	MD83™	HD94™	M100™	M110™	SD110™	XD120™
<b>Front Axle Range</b>	6-10k lbs (2700-4500 kg)	10-14.6k lbs (4500-6600 kg)	10-14.6k lbs (4500-6600 kg)	14.6-18k lbs (6600-8200 kg)	14.6-18k lbs (6600-8200 kg)	18-23k lbs (8200-10400 kg)
<b>Output Torque @ Rated Pressure &amp; 90% Efficiency</b>	35,058 in-lbf (3961 Nm)	45,436 in-lbf (5134 Nm)	46,345 in-lbf (5236 Nm)	59,300 in-lbf (6700 Nm)	59,760 in-lbf (6752 Nm)	78,825 in-lbf (8906 Nm)
<b>Rated Pressure</b>	2,683 psi (185 bar)	2,683 psi (185 bar)	2,350 psi (162 bar)	2,175 psi (150 bar)	2,756 psi (190 bar)	2,175 psi (150 bar)
<b>Minimum Pump Flow @ 1.5 HWT/s</b>	2.4 GPM (9.1 LPM)	3.0 GPM (11.4 LPM)	3.0 GPM (11.4 LPM)	3.5 GPM (13.2 LPM)	3.9 GPM (14.8 LPM)	4.8 GPM (18.2 LPM)
<b>Pump Flow Range Single Steering Gear</b>	2.4-3.4 GPM (9.1-12.9 LPM)	3.0-4.0 GPM (11.4-15.1 LPM)	3.0-4.0 GPM (11.4-15.1 LPM)	3.5-4.5 GPM (13.2-17.0 LPM)	3.9-4.9 GPM (14.8-18.5 LPM)	4.8-5.8 GPM (18.2-22.0 LPM)
<b>Ratio</b>	16.9:1	16.9:1	18.9:1	23.0:1	16.9:1	23.0:1
<b>Gear Travel</b>	95°	95°	95°	100°	95°	96°
<b>Normal System Operating Temperature</b>	-40 to 220°F (-40 to 104°C)	-40 to 220°F (-40 to 104°C)	-40 to 220°F (-40 to 104°C)	-40 to 220°F (-40 to 104°C)	-40 to 220°F (-40 to 104°C)	-40 to 220°F (-40 to 104°C)
<b>Not-To-Exceed Temperature</b>	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)
<b>Output Shaft Diameter</b>	2.00 in (50.8 mm)	2.00 in (50.8 mm)	2.00 in (50.8 mm)	2.25 in (57.2 mm)	2.25 in (57.2 mm)	2.50 in (63.5 mm)
<b>Approximate Dry Weight</b>	60 lbs (27.2 kg)	70 lbs (31.8 kg)	75 lbs (34.0 kg)	110 lbs (49.9 kg)	85 lbs (38.6 kg)	150 lbs (68.0 kg)
<b>Pump Flow Range Dual Steering Gears @ 1.0 HWT/s &amp; 90% Efficiency</b>						
<b>w/MD83 Slave</b>	4.0-5.5 GPM (15.1-20.8 LPM)	4.5-6.0 GPM (17.0-22.7 LPM)	4.6-6.1 GPM (17.4-23.1 LPM)	5.0-6.5 GPM (18.9-24.6 LPM)	5.3-6.8 GPM (20.1-25.7 LPM)	6.0-7.5 GPM (22.7-28.4 LPM)
<b>w/HD94 Slave</b>	N/A	5.0-6.5 GPM (18.9-24.6 LPM)	5.1-6.6 GPM (19.3-25.0 LPM)	5.5-7.0 GPM (20.8-26.5 LPM)	5.5-7.0 GPM (20.8-26.5 LPM)	6.5-8.0 GPM (24.6-30.3 LPM)
<b>w/M100 Slave</b>	N/A	N/A	5.3-6.8 GPM (20.1-25.7 LPM)	5.6-7.1 GPM (21.2-26.9 LPM)	N/A	6.6-8.1 GPM (25.0-30.7 LPM)
<b>w/M110 Slave</b>	N/A	N/A	N/A	6.0-7.5 GPM (22.7-28.4 LPM)	N/A	7.0-8.5 GPM (26.5-32.2 LPM)
<b>w/SD110 Slave</b>	N/A	N/A	N/A	6.5-8.0 GPM (24.6-30.3 LPM)	6.5-8.0 GPM (24.6-30.3 LPM)	7.3-8.8 GPM (27.6-33.3 LPM)
<b>w/XD120 Slave</b>	N/A	N/A	N/A	N/A	N/A	8.0-9.5 GPM (30.3-36.0 LPM)
<b>Output Torque Range @ Rated Pressure of Master Gear &amp; 90% Efficiency</b>						
<b>w/MD83 Slave</b>	70,116 in-lbf (7922 Nm)	80,497 in-lbf (9095 Nm)	77,052 in-lbf (8706 Nm)	87,720 in-lbf (9911 Nm)	95,772 in-lbf (10821 Nm)	107,245 in-lbf (12117 Nm)
<b>w/HD94 Slave</b>	N/A	90,878 in-lbf (10268 Nm)	86,144 in-lbf (9733 Nm)	96,133 in-lbf (10862 Nm)	106,435 in-lbf (12026 Nm)	115,661 in-lbf (13068 Nm)
<b>w/M100 Slave</b>	N/A	N/A	92,690 in-lbf (10473 Nm)	102,194 in-lbf (11546 Nm)	N/A	121,719 in-lbf (13752 Nm)
<b>w/M110 Slave</b>	N/A	N/A	N/A	118,600 in-lbf (13400 Nm)	N/A	138,125 in-lbf (15606 Nm)
<b>w/SD110 Slave</b>	N/A	N/A	N/A	106,462 in-lbf (12029 Nm)	119,520 in-lbf (13504 Nm)	125,987 in-lbf (14235 Nm)
<b>w/XD120 Slave</b>	N/A	N/A	N/A	N/A	N/A	157,650 in-lbf (17812 Nm)

## Engineered for the Long Haul

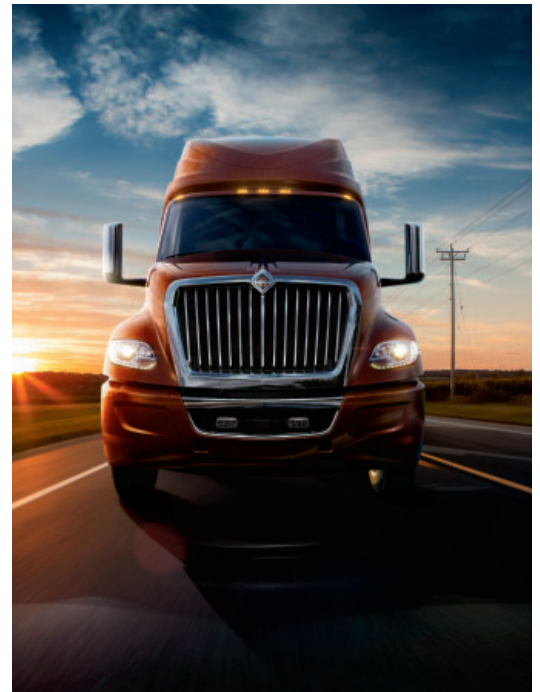
Sheppard™ power steering gears represent an evolution of our commitment to engineering design, manufacturing quality, reliability, and support for the demands of today's transportation environment. Sheppard power steering gears were created to meet and exceed your requirements. Whether you run medium- or heavy-duty vehicles, or severe- or extreme-duty vocational.

## Standing The Test of Time

All Sheppard products are rigorously tested in our Research and Development Center prior to application review. Every power steering gear is fully tested to exact specifications for defect prevention as part of our stringent TS-16949 quality management system.

## The Sheppard Advantage

Our reputation for quality engineered power steering gears is well established, but don't just take our word for it, ask around. From competitive pricing to on-time delivery, from full-function testing prior to delivery to unique aftermarket programs, you can rely on Sheppard – a Bendix CVS company – to provide the very best performance and support for your operation.



Bendix and Sheppard safety technologies complement safe driving practices. No commercial vehicle safety technology replaces a skilled, alert driver exercising safe driving techniques and proactive, comprehensive driver training. Responsibility for the safe operation of the vehicle remains with the driver at all times.

## World Class Customer Service

Sheppard's maintenance philosophy is focused on reduced life cycle cost. Our design allows for easy seal replacements over costly gear replacements. What's more, we offer a full range of aftermarket programs, training, and support. Plus all Sheppard products are backed by one of the strongest warranties in the business.



**Discover The Difference For Yourself. Talk To Your Bendix Account Manager Today For Sales, Service, and Training Support.**



101 Philadelphia Street, P.O. Box 877 • Hanover, PA 17331-0877 • 1-800-2RH-SHEP (1-800-247-7437) • [rhsheppard.com](http://rhsheppard.com)  
RHS0003 ©2022 R. H. Sheppard, a Bendix CVS Company, a member of Knorr-Bremse • 02/2022 • All Rights Reserved