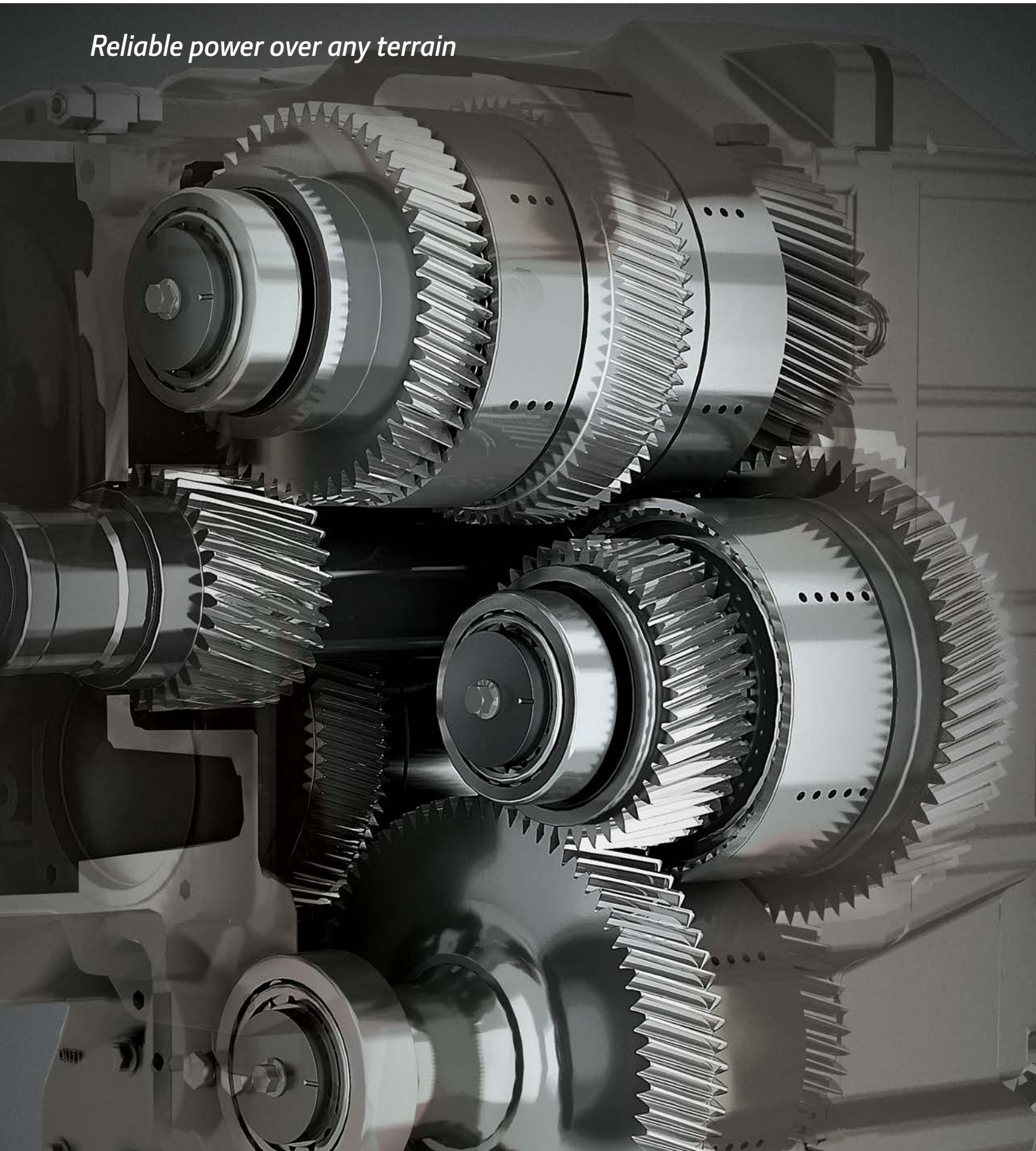
Mechanical Drivetrain Components

JOHN DEERE

Reliable power over any terrain



Inboard planetary axles for tough jobs

John Deere inboard planetary axles are as tough as they come

When workloads are heavy and conditions are harsh, your equipment needs axles that can handle the pressure.

Our family of axles has proven itself over and over in the most stringent conditions. Their strength and durability have made them a fixture in the forestry, ag, oil field, mining, and construction industries — as well as in a number of specialty applications.

Our high-torque, low-speed axles are designed using a building-block concept that enables us to offer thousands of configurations and, essentially, to custom-build an axle to fit your torque and load requirements precisely.

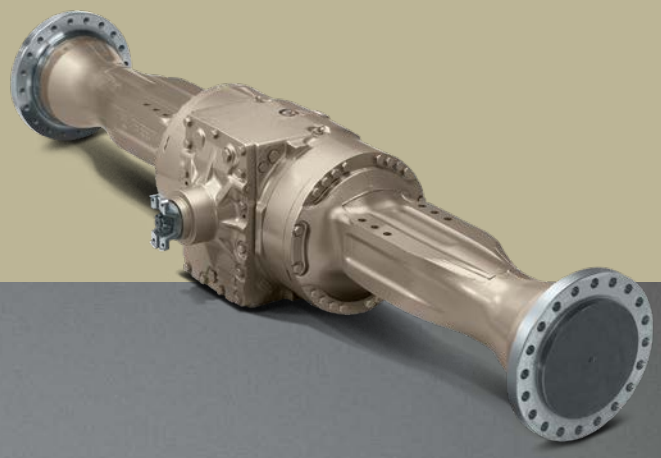
All John Deere axles are non-steerable, and are built strong to contribute to the rigidity of your equipment's frame. And because they offer wide bearing spacing, they give you additional track width flexibility.

We're committed to adding value to your equipment and giving you a competitive edge. Our inboard planetary axles are one example of that commitment.

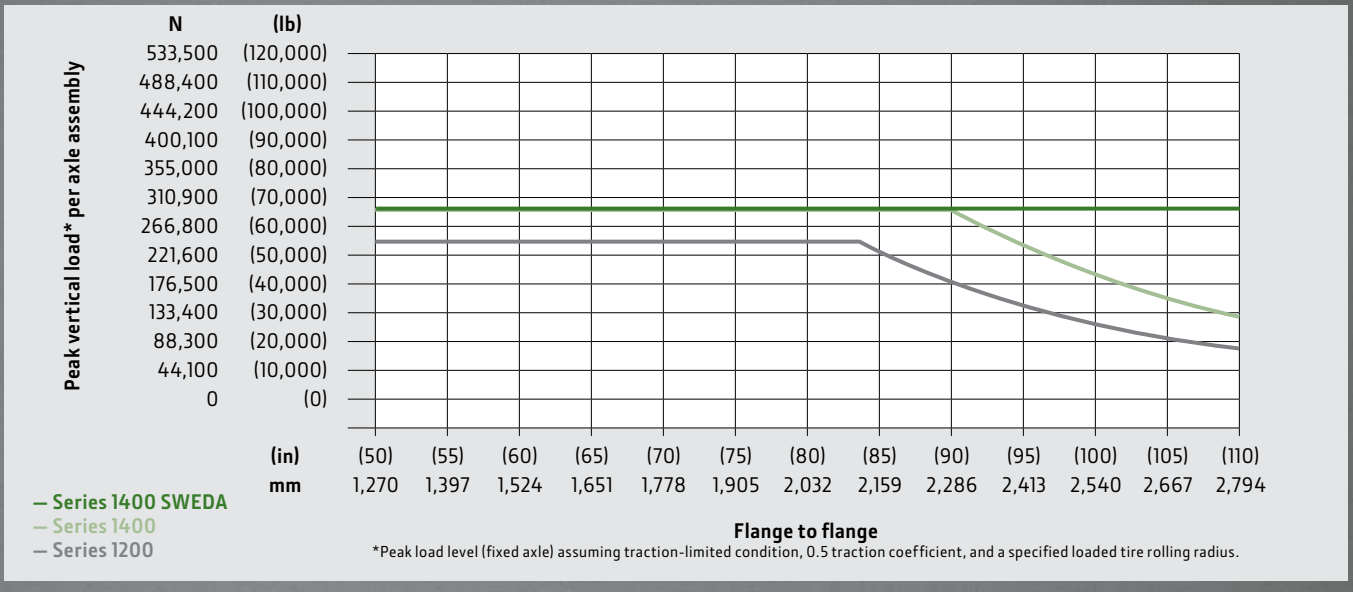
For low ground pressure applications, ask for SWEDA™

SWEDA is our Super Wide Extreme Duty Axle, and it's ideal in situations where your vehicles must leave only a minimal footprint without sacrificing rugged performance. Dual and wide tires can help in such situations, but they create additional demands on the axle — and that's where SWEDA comes in.

SWEDA offers greater flange-to-flange length, larger axle shaft size, and increased outboard bearing capacity than our standard Series 1400 axles. In addition, we employ metal-to-metal face seals to prevent oil leakage and keep debris out of the axle.



Peak axle load levels



*Peak load level (fixed axle) assuming traction-limited condition, 0.5 traction coefficient, and a specified loaded tire rolling radius.

Spiral bevel gear set

– Designed for bidirectional operation
– Reduced sliding-tooth contact for longer life

Multiple inboard wet disc brakes

– Larger sump means cooler operation and longer life
– Protected from contaminants
– Last up to four times longer than dry disc brakes
– Designed to address requirements of hazardous environments
– Independent or dual-activated for design flexibility
– Hydraulically applied — automatic adjustment reduces routine maintenance costs
– Anti-chatter brake facing improves operation
– Annular brake (1,000 psi/6,895 kPa) offers greater installation flexibility with lower operating pressure, increased torque capacity, and decreased brake repair costs
– Parking brake option

Building-block design

– Thousands of configurations
– Properly sized axles minimize installation costs
– Wide range of standard reduction ratios that match up with existing powertrain components
– Fixed-mount or centerline oscillation vehicle mounting options
– Large mounting area on axle housing accommodates variety of frame-mount locations
– Axle flange stud hole or tapped hole options
– Simple design means fewer parts for greater reliability, minimal parts and service inventory

Differential options

– Standard, no-spin, or John Deere DIF-LOK, matched to application requirements
– Operator-controlled DIF-LOK matches axle operation to conditions; provides better steering control, maneuverability, and tire life
– Hydraulic design for on-the-go engagement

Oscillation

– Centerline oscillation reduces driveline arc for longer life
– Eliminates need for cradle, reducing installation costs
– Dual-pivot oscillation means easy installation, adjustment, and maintenance

Input yoke dust seal

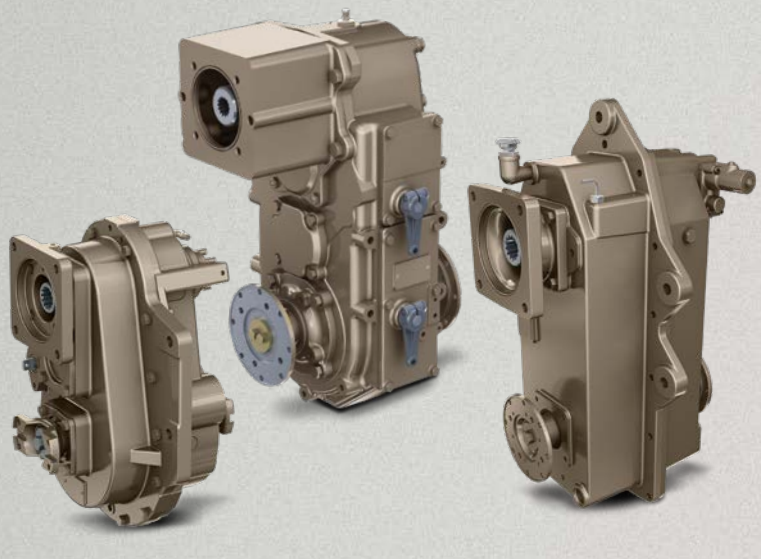
– Improves life of long-input shaft seal

Inboard planetary reduction

– Large planetary handles torque and forward-reverse transitions
– Larger sump for cooler operation
– Planetary doesn't compete with wheel space, so tire size is flexible

HMD transmissions for precise ground speed control

- Controlled ground speed at full engine power
- Multiple gear ratios in two-, three-, and four-speed models
- Selection of SAE hydraulic input motor mountings for application flexibility



Durable and dependable hydrostatic motor-driven (HMD) transmissions

Funk HMD transmissions are equipped to operate with high-tech hydraulics. They provide the electronic controls you need for heavy-duty equipment such as dozing machines, motor graders, railway vehicles, sweepers, pavers, and virtually any other application where a controlled travel speed is critical. Two-, three-, and four-speed models are available: 12700, HS17000, 18000, 23000, and 33000.

The 18000 HMD — for high-power needs

The most popular model in our HMD lineup, the two-speed 18000 offers a generous 149-kW (200-hp) rating. The design includes an integral lube pump that completely lubricates input splines and bearings, increasing the life of the transmission. Two high-gear and five low-gear ratio options produce the speeds appropriate for equipment in the forestry, construction, railroad, mining, and ag industries.

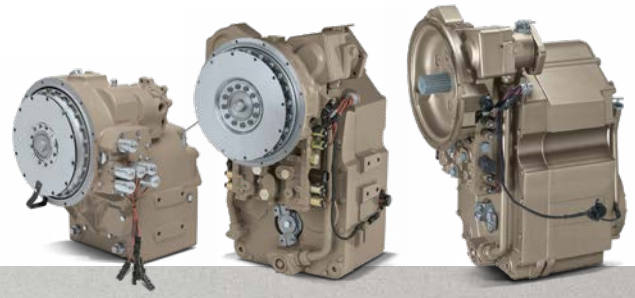
HS17000 HMD — shift on the go

The HS17000 is a two-speed powershift transmission capable of shifting gear ranges while in motion. The speeds are obtained through the use of electrically controlled solenoids and hydraulically actuated multiple wet disc clutches.

⚠ WARNING VEHICLE RUNAWAY HAZARD

A transmission is not a braking system. Install transmission only if there is a braking system capable of stopping vehicle with dead engine, disengaged transmission, or loss of hydrostatic retardation. Otherwise, vehicle may roll freely, resulting in loss of control or serious or fatal injury.

Powershift transmissions for smooth shifting



Reliable powershift transmissions

Customers trust us to provide reliable, high-performance equipment with the most up-to-date components. We produce powershift transmissions to help meet that need — and we do it with personal, attentive service, no matter what size your operation.

Our powershift transmissions are available in both torque-converter and direct-drive options, covering applications in ag, construction, forestry, mining, aircraft ground support, railroad maintenance, and other industries. Mounting options include engine, midship, and remote.

Funk powershift transmissions are built in one of the most advanced power transmission manufacturing facilities in the world. Our technology gives OEM machines smoother shifting, along with fingertip speed and directional control. This enables the operator to get more production out of the machine, more quickly and with less effort.

Best of all, we still believe in personal service, so when you have a specialty order or other unique need, we respond. Our application engineering group will work closely with you to conduct a detailed concept performance analysis of your vehicle.

Knowing your vehicle's expected performance beforehand will help reduce risks, such as costly and time-consuming redevelopment.

All models in the Funk powershift transmission line feature a high degree of parts interchangeability, minimizing your parts inventory.

Electronic or mechanical controls to fit your applications

Our 2000 powershift transmission series features mechanical/electric controls, while our DF series employs a transmission control unit (TCU). The DF series can communicate with other parts of your equipment — including the engine — and includes neutral start protection, inching/clutch control, automatic or operator selective shifting, and more.

DFR engine-mounted PTO

The front housing of our DF150 and DF250 products is our DFR engine-mounted PTO, which can also be purchased as a stand-alone product. The DFR mounts to the engine and can be used to power the transmission, as well as a variety of external equipment.

DF series powershift transmissions

The DF series brings the latest in electronic powershift technology to the off-highway market.

Electronic controls enable the transmission to recognize the operator's intentions, and to control the appropriate hydraulic valves, based on the customized software programmed into the controller. Choose from the DF150, DF250, and 2000 series, depending on your horsepower needs.

Pump drives for the ultimate in design flexibility

A modular approach to building pump drives

With thousands of combinations, gear ratios, hydraulic pump adapters, mounting options, and more — we can configure a pump drive to your design specifications.

Built for quiet operation, our pump drives are available in four series up to 708 kW (950 hp) and equipped to operate as independent mount, direct-engine mount, or clutch-driven units. Adapters are available in a variety of engine housings and flywheel sizes.

The advantages of customization

With decades of experience behind us, and our unique combination of custom design and modular manufacturing, John Deere can offer highly durable and reliable pump drives. Whether you need a new pump drive or support on an existing drive, our modular assembly system lets us get you what you need fast.

You will also appreciate our integration support network. Our application engineers can help you select the options that best fit your needs. We also offer dedicated OEM service and long-term aftermarket support.

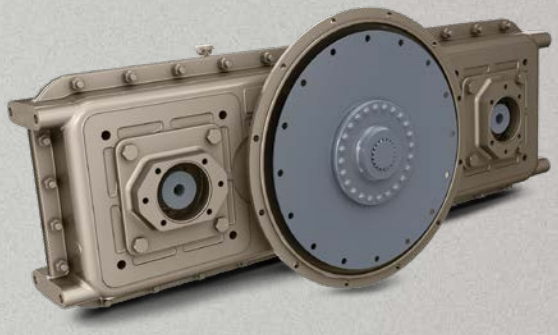
Add up all the advantages — including our many custom options — and it is easy to see why Funk pump drives are the choice of so many equipment OEMs.

28000 single direct drive
Max. input power — 268 kW (360 hp)
Max. input torque — 881 Nm (650 lb-ft)
Pump adaptation — SAE B, BB, C, D

28000 single, double
Max. input power — 242 kW (325 hp)
Max. input torque — 780 Nm (575 lb-ft)
Gear centers — 127 mm (5 in)
Pump adaptation — SAE A, B, BB, C, D

28000 double, triple
Max. input power — 268 kW (360 hp)
Max. input torque — 1,017 Nm (750 lb-ft)
Gear centers — 152 mm (6 in)
Pump adaptation — SAE A, B, C, D

59000 double, triple, four
Max. input power — 522 kW (700 hp)
Max. input torque — 1,695 Nm (1,250 lb-ft)
Gear centers — 203 mm (8 in), 308 mm (12.1 in)
Pump centers 4 wide — 308 mm (12.1 in)
Pump adaptation — SAE A, B, C, D



56000 double, four, five, five deep sump
Max. input power — 708 kW (950 hp)
Max. input torque — 2,712 Nm (2,000 lb-ft)
Pump centers — 254 mm (10 in), 407 mm (16 in)
Pump adaptation — SAE C, D, E
Wide centers for larger hydraulic pumps

57000 four
Max. input power — 708 kW (950 hp)
Max. input torque — 2,712 Nm (2,000 lb-ft)
Pump centers — 356 mm (14 in), 407 mm (16 in)
Pump adaptation — SAE C, D, E
Wide centers for larger hydraulic pumps

Planetary gear drives for flexibility and reliability

We offer a complete line of Funk planetary gear drives for OEMs in the ag, construction, manufacturing, marine, mining, and petroleum industries.

Applications for these durable drives include conveyers, cranes, crawlers, excavators, road rollers, track vehicles, winches, and many others.

- Maximum input power up to 71 kW (95 hp)
- Intermittent output torque up to 33,895 Nm (25,000 lb-ft)
- Continuous output torque up to 18,710 Nm (13,800 lb-ft)
- Ratios available from 3.27 to 117:1 (depending on model selected)

Planetary gear drive options

Choose from a wide selection of planetary gear drives to meet the needs of your design. Each series provides unique benefits that have been developed through years of design research and practical application.

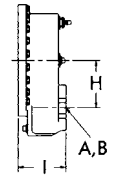
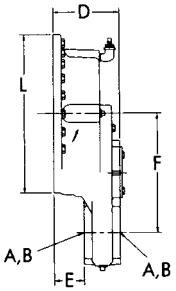
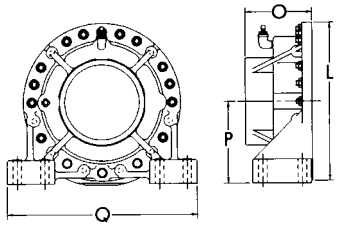
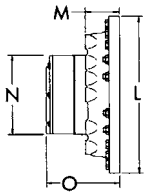
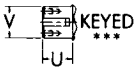
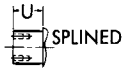
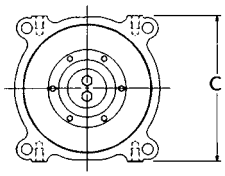
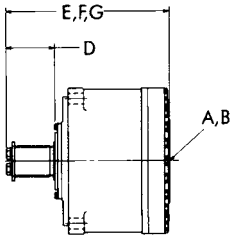
You can count on Funk planetary gear drives to deliver durability, performance, and superior engineering. Our drive designs include various ratios of input gear reduction sets, along with single and multiple combinations of center-section planetary gears that drive power through output arrangements to accommodate a wide range of applications.

Our distributor network will assist you in analyzing our planetary gear drives and selecting the one that best fits the needs of your machine.

NOTE: All data and specifications are subject to change without notice or obligation. Application and installation are subject to review.

Model	Outputs	Inputs	Dimensions mm (in)						
			A standard	B* optional	C	D	E	F	G
F9	R	C	SAE "C" 1/2" - 13 UNC 4 PLCS. ON 162 (6.375) B.C.D.	SAE "D" 3/4" - 10 UNC 4 PLCS. ON 228.6 (9.000) B.C.D.	356 (14.0)	95.3 (3.75)	One stage W/SAE "D" PAD 378 (14.88) W/SAE "C" PAD 387 (15.25)	Two stage W/SAE "D" PAD 460 (18.13) W/SAE "C" PAD 470 (18.5)	Three stage W/SAE "D" PAD 543 (21.38) W/SAE "C" PAD 552 (21.75)
F12	R	L, O	SAE "C" 1/2" - 13 UNC 4 PLCS. ON 162 (6.375) B.C.D.	SAE "B" 1/2" - 13 UNC 4 PLCS. ON 127 (5.000) B.C.D.	—	181 (7.13)	76 (3.00)	305 (12.0)	—
F25	P, R	L, O	SAE "C" 1/2" - 13 UNC 4 PLCS. ON 162 (6.375) B.C.D.	SAE "D" 3/4" - 10 UNC 4 PLCS. ON 228.6 (9.000) B.C.D.	—	204 (8.02)	90 (3.53)	381 (15.0)	—

F series planetary gear drive — input-output options

Model	Input configurations	Center section	Output configurations	Output shafts
F12 and F25	 "O" SINGLE OFFSET (F12 AND F25 MODELS)  "L" LONG OFFSET		 "P" PEDESTAL MOUNT  "R" RADIAL MOUNT	 
F9	 			

** **NOTE:** Optional input pads may alter dimensions shown. Two-bolt SAE mounting pads available on some styles.*

H	I	J	K	L	M	N	O	P	Q	V
152 (6.0)	151 (5.94)	12.7 (0.5)	356 (14.0)	356 (14.0)	81 (3.18)	191 (7.5)	182 (7.18)	—	—	—
191 (7.5)	154 (6.06)	45 (1.77)	479 (18.88)	502 (19.75)	102 (4.0)	254 (10.0)	229 (9.0)	260 (10.25)	562 (22.12)	101.55/101.52 (3.998/3.997)

Planetary gear drives

F9 model

Output rotation — same as input on all models
Gear ratios:
One-stage — 3.27:1, 4.89:1
Two-stage — 10.7:1, 16.0:1, 23.9:1
Three-stage — 35.0:1, 52.3:1, 78.2:1, 116.9:1
Hydraulic motor mounting — SAE "C," or "D" 2- or 4-bolt
Input spline — 14T, 12/24P 13T, 8/16P, 30° P.A.
Output shaft — splined — 23T, 8/16P, 30° P.A.

F12 model

"O" input configuration

Output rotation — opposite input
Gear ratios — 13.18:1, 24.17:1
Hydraulic motor mounting — SAE "B" 2- or 4-bolt
or SAE "C" 4-bolt
Input spline — 13T, 16/32P 14T, 12/24P, 30° P.A.
Output shaft — splined — 29T, 8/16P, 30° P.A.

"L" input configurations

Output rotation — same as input
Gear ratios — 28.99:1, 53.17:1, 65.07:1, 81.29:1
Hydraulic motor mounting — SAE "B" or "C", 2- or 4-bolt
Input spline — 13T, 16/32P 14T, 12/24P, 30° P.A.
Output shaft — splined — 29T, 8/16P, 30° P.A.

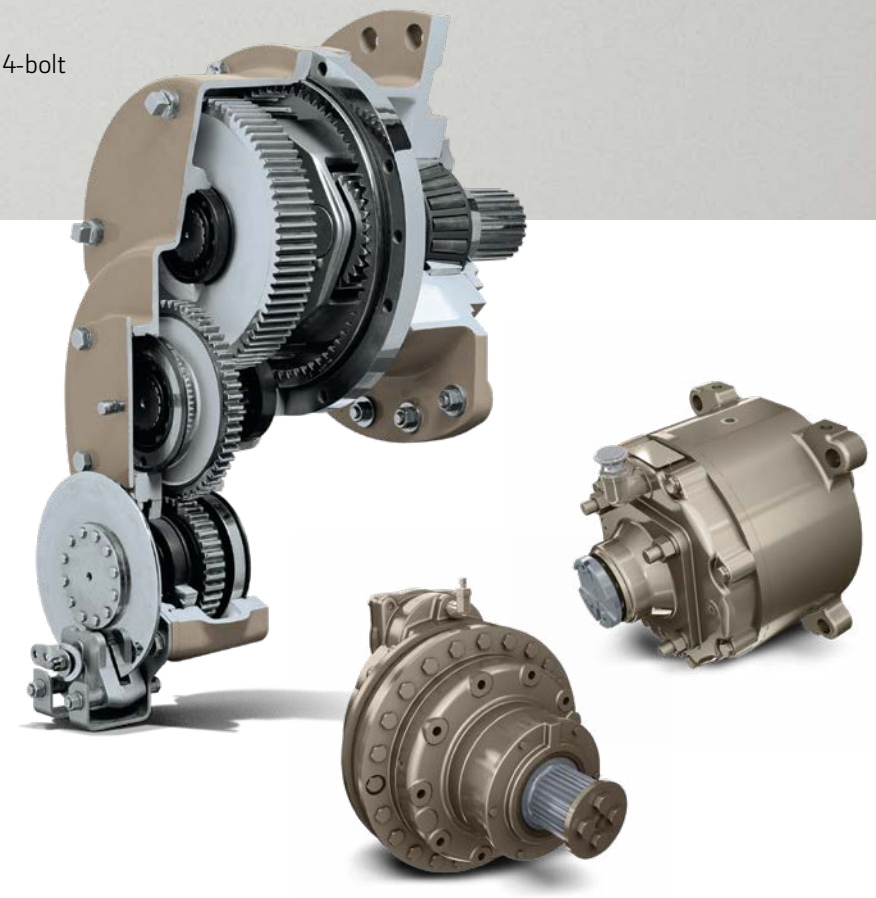
F25 model

"O" input configuration

Output rotation — opposite input
Gear ratios — 5.00:1, 6.25:1, 11.07:1, 24.67:1
Hydraulic motor mounting — SAE "C" or "D", 4-bolt
Input spline — 14T, 12/24P 13T, 8/16P, 30° P.A.
Output shaft — splined — 33T, 8/16P, 30° P.A.
Output shaft — keyed — 4 inch (nom.) dia. 1 inch key width

"L" input configuration

Output rotation — same as input
Gear ratios — 37.00:1, 54.61:1
Hydraulic motor mounting — SAE "C" 2- or 4-bolt or SAE "D" 4-bolt
Input spline — 14T, 12/24P 13T, 8/16P, 30° P.A.
Output shaft — splined — 33T, 8/16P, 30° P.A.
Output shaft — keyed — 4 inch (nom.) dia. 1 inch key width
Lubrication
Splash lubrication
Recommended lubricant — EP gear oil meeting
MIL-L-2105C or API classification GL5



Proven off-highway performance

Your equipment deserves nothing less

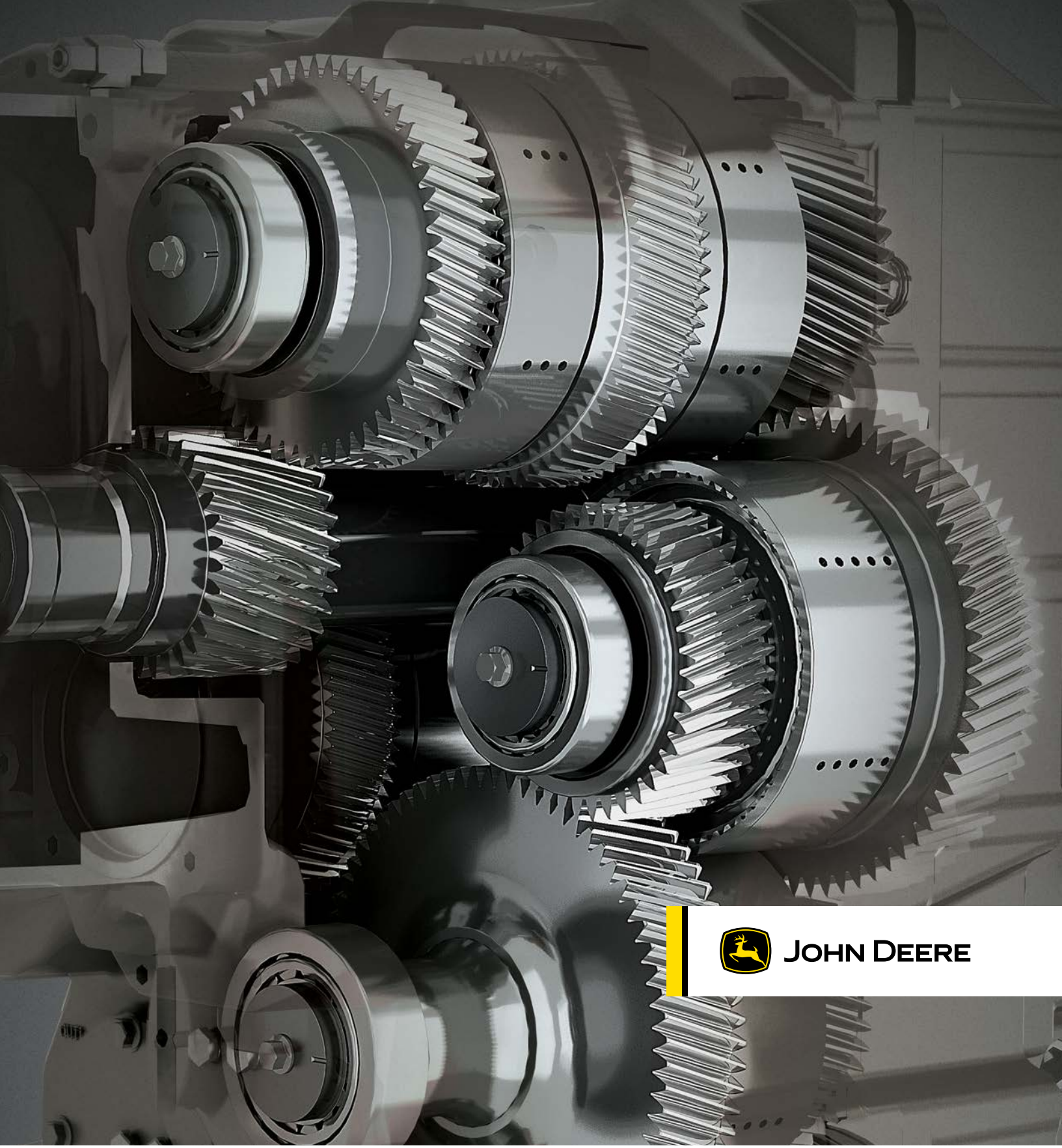
Staying true to our proven heritage, John Deere drivetrain components incorporate over 105 years of off-highway vehicle experience.

Our continued promise is to provide you with an array of robust designs to meet your demanding OEM needs. When you choose John Deere drivetrain components, you know you are getting the best combination of performance, reliability, and durability.

Our application engineers are ready to assist you in selecting the options that best fit your needs. We also offer dedicated OEM service and long-term aftermarket support.

To see the value we can add to your equipment, call us today at 800-533-6446.

John Deere Power Systems
3801 West Ridgeway Avenue
P.O. Box 5100
Waterloo, IA 50704-5100
Phone: 800-533-6446 (U.S.)
Phone: 319-292-6060 (Outside the U.S.)
Email: JDPower@JohnDeere.com



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