

OFF-HIGHWAY

Automatic & Powershift Transmission Pioneers

Mining

Construction

Oil Field

Railways

Metro Rail

Material Handling

Defence



Group Profile

The CK Birla Group is a growing US\$1.8 billion conglomerate that has a history of enduring relationships with renowned global companies.

With over 20,000 employees, 24 manufacturing facilities and numerous patents and awards, the Group's businesses are present across five continents. We operate in three industry clusters: technology and automotive, home and building, and healthcare and education.

About AVTEC

AVTEC is one of the largest independent manufacturers of powertrain and precision-engineered products in India. It is a part of CK Birla Group – a leading global business house, with over 20,000 employees and a combined turnover of USD 1.8 billion.



With years of experience in manufacturing, AVTEC delivers competency across the entire value chain of design & manufacture of engines; transmissions and high precision components like cylinder heads, cylinder blocks, crank shafts, cam shafts, cam rods and transmission gears for automotive, off-highway, Agriculture and Railway industry, in areas of both proprietary products and contract manufacturing.

The company serves some of the best-known domestic and global automotive and off-highway companies, including global OEMs such as Allison, Alstom, Ashok Leyland, Caterpillar, Daimler India Commercial Vehicles, Eaton, Ford India, ISUZU Motors, Punch Powertrain, SANY, Volvo Eicher Commercial Vehicles BEML and Hitachi.

AVTEC's domestic units comprise of an in-house tech centre in Hosur, R&D facilities in Hosur and Pithampur, and state-of-the-art manufacturing facilities in Hosur, Chennai, and Pithampur. All its facilities are TS 16949 and QS 14001 certified, equipped with high-tech machinery, and manned by experienced personnel.

With its global R&D and manufacturing footprint which includes face gear and innovative drive systems through the Switzerland-based subsidiary ASSAG, AVTEC aspires to reinforce its commitment to customers as a 'one-stop-shop' for Powertrain and Precision Engineered Products, across the globe.

Off-Highway Business Unit

AVTEC is the leading supplier of transmission aggregates to the Off-Highway segment in both Domestic and International markets. AVTEC has been a force to reckon with in Off-Highway market with its wide range of Hauling and Cycling Transmissions for customers in various segments like:

- Construction
- Mining
- Material Handling
- Oil Field
- Metro Rail and Railways
- Defence

AVTEC's world class facility at Hosur, Tamil Nadu manufactures Cycling and Hauling Automatic and Powershift Transmissions for Off-Highway applications.

The Hosur plant also manufactures indigenously designed transmissions for Material Handling and Locomotive and select Defence applications.

The plant follows cellular manufacturing concept, which is well suited to take care of the entire product mix and support faster response.

AVTEC's in-house research and development capabilities in India and Switzerland have made it the only Indian player with the ability to supply full transmission aggregates and components to the off-highway industry to the leading OEMs like Hitachi, BEML, Caterpillar, Tata Hitachi, SANY, L&T Construction Equipment Limited, Cargotec, KION and Godrej, covering a wide range of applications including Wheel Loaders, Dump trucks, Workover Rigs, Fracturing Pumps, forklifts, Railway OHE cars, Rough Terrain Cranes and many more.

R & D competencies

AVTEC's success is attributable to a strong focus on in-house research and product development capabilities.

AVTEC has a centralized tech centre at Hosur; development facilities at both Hosur and Pithampur along with a design house in Switzerland. Both Indian centres are built to upgrade the current product range and design new products for a growing range of applications. Both Indian Centres are recognised by Department of Scientific & Industrial Research (DSIR), Govt. of India.

AVTEC's core strength lies in technology development and absorption, seamless integration of product design, prototype building, testing and validation. The company offers a full range of solutions for Powertrains (i.e., engine and transmission systems) and components – from product concept, design, prototyping, testing, validation and manufacturing.

AVTEC's tech centres are ever engaged in product design and development activities with latest software tools like UG, ProE, Kiss-soft, AVL Boost, Romax, Nastran, Ansys, etc. and in-house transmission testing facilities, emission test beds, etc.

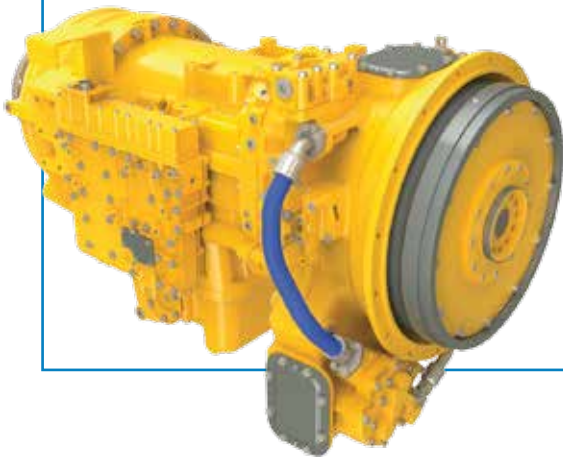


Hauling transmissions

AVTEC offers durable and reliable transmissions for various hauling applications like mining vehicles and Oil Field equipment. These Automatic and power shift hauling transmission aggregates are designed and engineered to work relentlessly in the most demanding situations and operate in the toughest terrain with ease. All these transmissions are supplied with AVTEC's home-grown electronic controls, Hauling Automatic Transmission System (HATS). HATS brings revolutionary controls with flawless communication between the engine and other systems and deploys a real-time micro control unit with a math-optimized core, integrated with powerful peripherals facilitating high system efficiency, reliability, and flexibility.

AOS 9800

AOS 9800 transmission is a fully automatic/powershift transmission available with 8 forward speeds and is operated with electronic controls. Available with optional engine driven PTO, there is a flexibility of mounting either direct or remote and using in-line arrangement and hydrodynamic retarder. This transmission is designed and developed to perform in demanding oil field applications like pumping and fracturing. This transmission relentlessly performs and ensures maximum uptime for all Oil Field Equipment.



Model Name	AOS 9800 Series
Net input power	1650-3100 HP (1230 kW – 2312 kW)
Net Input Torque	4868-8851 lb-ft (6600-12000 Nm)
Input speed (Max)	1800-2100 rpm
Speeds	8F
Segment	Oil Field

Application: Used in Frac pumps, Workover rigs, Drilling, Well logging, etc.

AH8700

AH8700 transmission is a fully automatic/powershift transmission available with 7 forward and 1 reverse speeds and is operated with electronic controls. Available with engine driven PTO, there is a flexibility of mounting either direct or remote and using in-line arrangement and hydrodynamic retarder.



Model Name	AH8700 series
Net input power	1050-1250 hp (783 kW – 933 kW)
Net Input Torque	3300-3700 Lb Ft (4474-5017 Nm)
Input speed (Max)	2500 rpm
Speeds	7F/1R
Segment	Mining, oil field

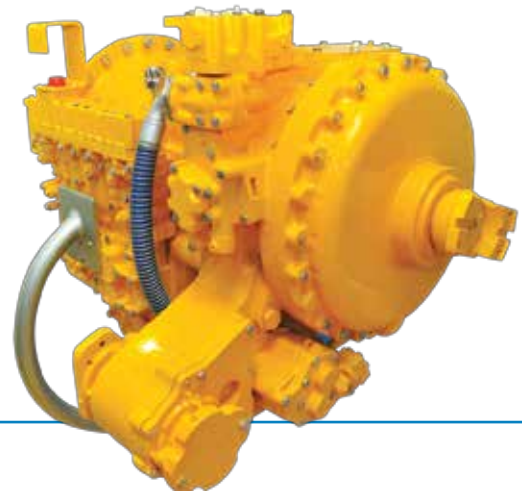
Application: Used in Rigid dumpers, Agricultural tractors, drilling rigs, Work over rigs, etc.

5600/6600 series

5600/6600 transmission is available with 6 forward and 2 reverse speeds. It can be operated with manual hydraulic, manual electric and fully automatic controls. Available with engine driven PTO, there is a flexibility of mounting direct & remote using in-line arrangement, drop arrangement and hydrodynamic retarder.

Model Name	5600/6600 Series
Net input power	550-710 (410 kW – 529 kW)
Net Input Torque	1750-2270 Lb Ft (2373-3078 Nm)
Input speed (Max)	2500 rpm
Speeds	6F/1R or 2R
Segment	Mining, oil field

Application: Used in 60T/40T rear dumpers, Agricultural tractors, crash fire tenders, Drilling rigs, Work over rigs, etc.



750 Series

750 Series is an automatic transmission with 5 forward and 1 reverse speeds with inline output. It is also available with drop option along with the provision for optional hydrodynamic retarder, engine driven PTO and converter driven PTO. There is flexibility of mounting direct and remote.

Model Name	750 Series
Net input power	445 HP (332 kW)
Net Input Torque	1300 Lb Ft (1764 Nm)
Input speed (Max)	2500 rpm
Speeds	5F/1R
Segment	Mining, oil field

Application: Used in dumpers, Water sprinklers and oil field equipment like mud pumps, Work over rigs, Cementing units, Well logging services, etc.

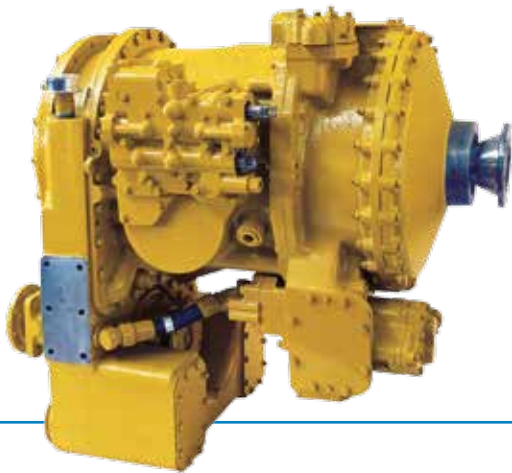


Cycling transmissions

AVTEC offers automatic and power shift cycling transmissions that have proven to meet all these expectations for tough applications such as Wheel Loaders, Motor graders, Forklifts, Rough Terrain Cranes, Railway Locomotives, etc. Cycling transmissions relentlessly perform in demanding environment and withstand continuous heavy loads. These transmissions render driver comfort by allowing easy manoeuvre of the vehicle through tough terrains.

CRT 5633

CRT 5633 is a unique transmission with 3 forward and 3 reverse gears. This transmission is very popular in applications where large amounts of torque multiplication is required out of a small package. There is flexibility of mounting direct and remote with drop and inline output.



Model Name	CRT 5633
Net input power	430 (320 kW)
Net Input Torque	900Lb Ft (1220 Nm)
Input speed (Max)	2500 rpm
Speeds	3F/3R
Segment	Material handling, construction, railway segment

Application: Used in Wheel Loaders, Wheel Dozers, Heavy Duty Forklifts, Top-Lift Trucks, Reach Stackers and Railway 8 – wheel & 4 – wheel OHE car, utility vehicle, Bridge inspection vehicle, Shunting locomotive, etc.

AC 2000

AC 2000 transmission is available with 6 forward and 3 reverse gears with Engine Driven PTO and manual electric shift options. Option of output disconnect is also available.



Model Name	AC 2000
Net input power	175 (130 kW)
Net Input Torque	590 Lb Ft (800 Nm)
Input speed (Max)	3000 rpm
Speeds	4F/2R or 4F/3R or 6F/3R
Segment	Material handling, construction

Application: Used in rough terrain cranes, Wheel loaders, motor graders, Forklift, Aircraft tow tractor and other material handling applications.

TT/TRT 2000 series

TT/TRT 2000 is a twin turbine transmission with high ST ratio available with option for output disconnect. Short and Long drop output options are also available to suit various vehicle configurations. There is flexibility of mounting direct and remote.

Model Name	TT/TRT 2000
Net input power	175 (130 kW)
Net Input Torque	310Lb Ft (420 Nm)
Input speed (Max)	3000 rpm
Speeds	2F/1R, 1F/1R or 2F/2R
Segment	Material handling, construction, mining, railway segment

Application: Used in Forklift, Aircraft tow tractor, Wheel loader, cranes, Track maintenance vehicle, Material Handling equipment and push back tractors etc.



CT 100

CT 100 transmission is the most popular model in material handling segment with equal forward and reverse gear range. Manual hydraulic shift and manual electric shift is available with engine driven PTO option.

Model Name	CT 100
Net input power	100 HP (74.5 kW)
Net Input Torque	221 Lb Ft (300 Nm)
Input speed (Max)	2500 rpm
Speeds	2F/2R or 3F/3R
Segment	Material handling

Application: Forklift, Aircraft tow tractor etc.



Other offerings

AVTEC Off-highway has been successful in producing technologically superior products which are need of the hour. AVTEC has strategically entered certain niches which require precision engineered aggregates and solutions.

Foray into Passenger Transportation - Metro Gearboxes

AMR 4000

Two stage helical bidirectional gearbox is designed and developed in India for metro rail and is optimally adapted to suit Electric Multiple Unit (EMU) and Mainline Electric Multiple Unit (MEMU) applications. Unique splash lubrication system ensures optimum lubrication to bearings along with fit-and-forget mechanical seals.



Model Name	AMR 4000
Max commercial speed	100 kmph
Maximum power	349 kW
Max gearbox speed	4000 rpm
Max torque	1850 Nm
Max axle load	16000 Kg
Min Gearbox life	35 years
Overall reduction ratio	6.2
Max Gearbox weight	410 Kg
Operating temperature	-40 °C to +50 °C

Foray into Renewable Energy - Yaw Gearboxes

AYG 1050

Yaw drive is an important component of the horizontal axis wind turbines. It is an integral part of the yaw drive system and ensures that the wind turbine is producing the maximal amount of electric energy at all times. It is used to keep the rotor facing into the wind as the wind direction changes.



Model Name	AYG 1050
Gear Ratio	1050 ± 5%
Max Torque	55 kNm
Planetary Stages	4
Weight	350 kg (with oil)
Design Life	20 years
Oil Change Interval	5 years

Application: Used in Windmills

Foray into Construction and Infrastructure Development - Transfer Cases

ATC 3000

The **ATC 3000** transfer case combines on-road handling of a rear-wheel drive with all-terrain capability. It automatically delivers precise amount of torque needed to the front and/or rear axle. By providing on-demand torque, ATC 3000 improves vehicle dynamics by increasing stability and enhancing driver comfort, whether driving off-road or on-road, in normal or difficult weather conditions.

Model Name	ATC 3000
Speeds	Two
Shafts	2
Ratio	1:1 and 2.5:1
Input horsepower maximum	447 kW (600 HP)
Input Speed maximum	3000 rpm
Output Location	Lower Front/ Rear
Input-Output drop	215 mm (8.46")
Nominal input torque rating	16270 Nm (12000 lbs-ft)
Front Declutch	Air Engaged
Hi/Lo Shift	Spring default into high. Air shift into low.



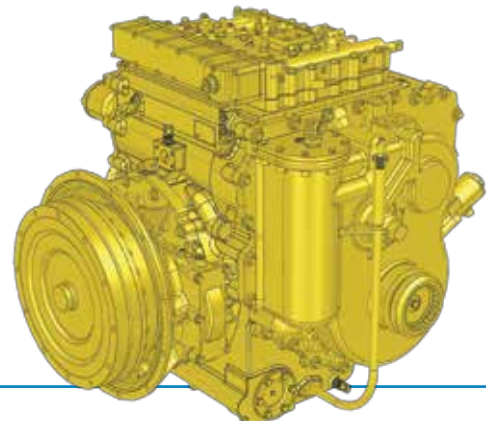
Application: Used in Concrete Mixers, Concrete Boom Pumps, etc.

Foray into Defence Applications

AX350 Automatic Transmission

AX350 is an automatic transmission designed and developed for light-medium tracked vehicles with engine ratings up to 335 kW (450 HP). The AX350 has a cross-drive design that integrates steering and braking into one unit. This transmission has 4 forward and 1 reverse range and an optional second reverse range. It is equipped with fully-electronic controls for use with modern engines and a torque converter with an automatic lock-up clutch for smooth, efficient starts and stops.

Model name	AX350
Gross Input Power (Maximum)	450 HP (335 kW)
Gross Input Torque (Maximum)	1750 lb ft (2372 Nm)
Input Speed	2500 rpm
Gross Vehicle Weight (GVW)	14T – 16T
Gross Input Power (Maximum)	450 HP (335 kW)
Gross Input Torque (Maximum)	1750 lb ft (2372 Nm)

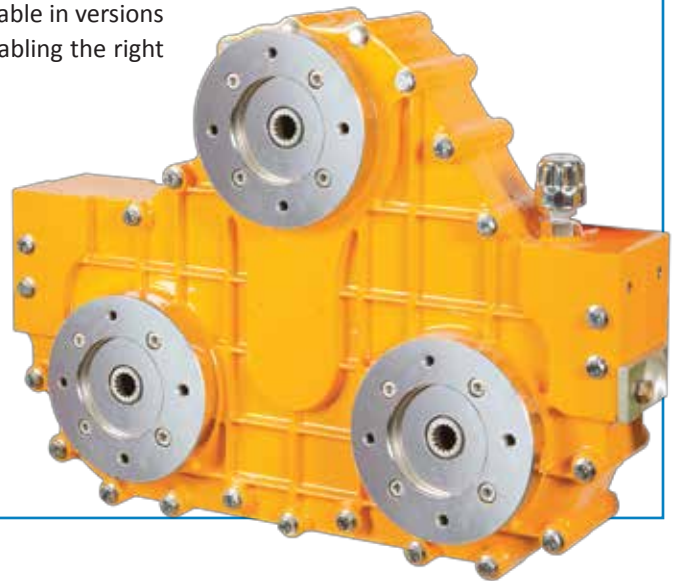


Splitter Gearboxes

Splitter gearboxes are ideal for fitting in diesel engines in order to power several hydraulic pumps. The gearboxes are available in versions for 1-3 pumps and with a number of different ratios enabling the right speed to be obtained for all pumps.

Model Name	ASG 360
Net input power	150 hp
Net Input Torque (Max)	360 Nm
Input speed (Max)	3000 rpm
Gear ratio of PTO 1	1.06 : 1
Gear ratio of PTO 2	1.06 : 1
Gear ratio of PTO 3	1.00 : 2.80

Application: Used in Advanced Towed Artillery Gun System, Refuse trucks, Special purpose vehicles, etc.





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