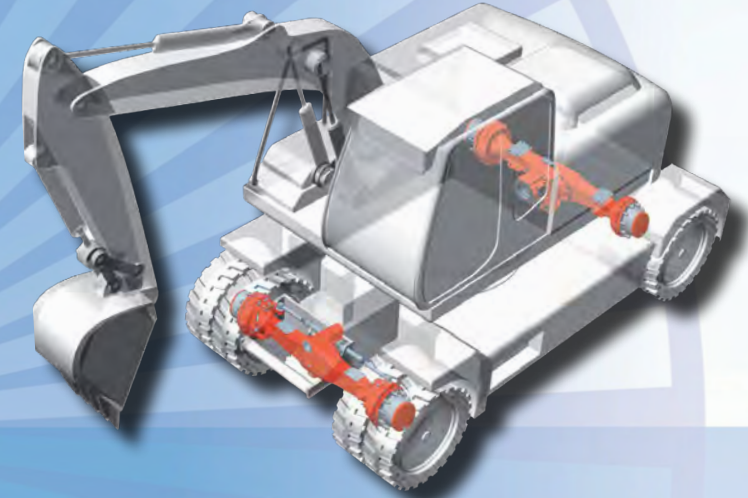
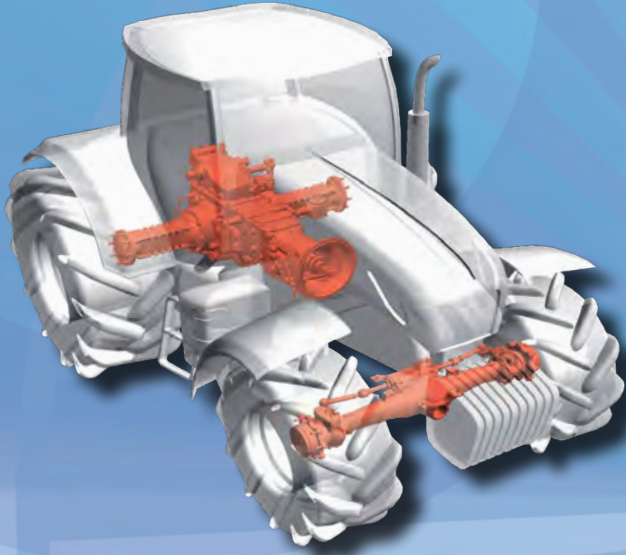


# Transmissions



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# Construction Equipment

- 1) Backhoe Transmissions
- 2) Telehandler Transmissions
- 3) Wheel Loader Transmissions
- 4) Mini Wheel Loader Transmissions
- 5) Compact Wheel Loader Transmissions
- 6) Soil Compactor Transmissions

# Agricultural Equipment

- 1) Tractor Transaxles

# Our Solutions

# Carraro Drive Tech

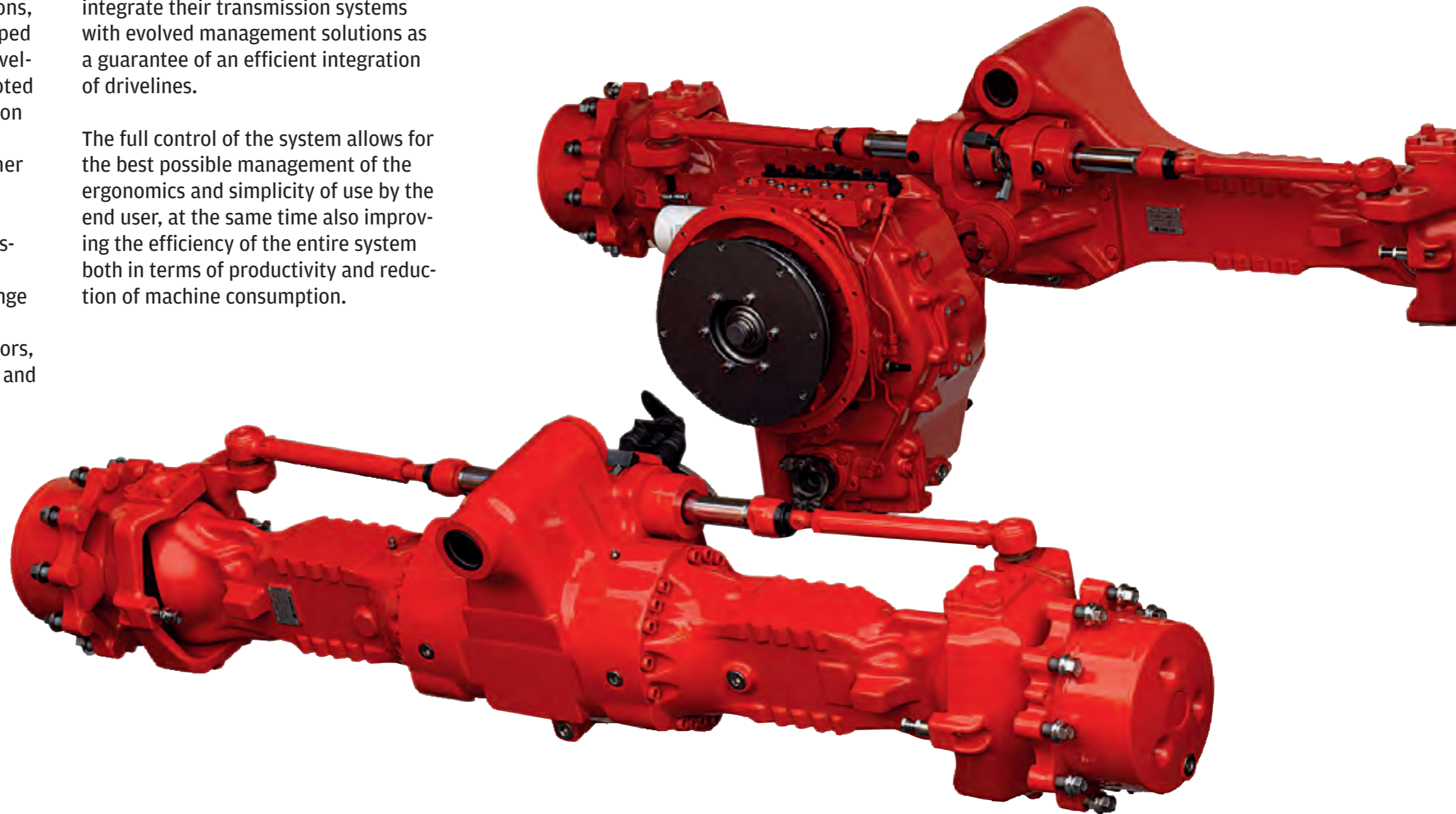
## Drivelines for Construction Equipment Applications

Thanks to a solid, long-lasting collaboration with major international constructions of off-highway applications, Carraro Drive Tech has now developed a consolidated know-how in the development of integrated systems devoted to all applications in the construction equipment sector, firmly positioning itself as a highly reliable full-liner partner.

An appropriate combination of transmissions, axles and drives today allows Carraro to offer a complete range for backhoe loaders, forklift trucks, wheel loaders, excavators, compactors, tracked vehicles and other wheeled and tracked applications.

The skills developed in power electronics further allow Carraro Drive Tech to integrate their transmission systems with evolved management solutions as a guarantee of an efficient integration of drivelines.

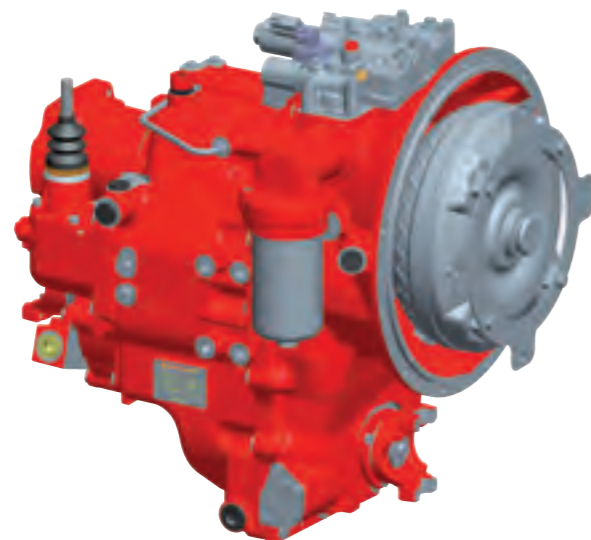
The full control of the system allows for the best possible management of the ergonomics and simplicity of use by the end user, at the same time also improving the efficiency of the entire system both in terms of productivity and reduction of machine consumption.



# Construction Equipment

## Torque Converter Transmissions Synchro Shuttle

MAIN TECHNICAL DATA	TLB1 2WD	TLB1 4WD							
Power Rating	82 kW @ 2,200 rpm	82 kW @ 2,200 rpm							
Max input Torque	750 Nm	750 Nm							
Max input speed	2,400 rpm	2,400 rpm							
Internal Pump Type	Gear	Gear							
Engine Flywheel Interface	SAE 3	SAE 3							
Output Flage Type	Yoke 1410	Yoke 1410							
2WD output drop from Engine	180 mm	180 mm							
4WD output drop from Engine	-	323 mm							
Vehicle Pump Interface	SAE C	SAE C							
Torque Converter Size	W300	W300							
Speed Gear	4 Fwd + 4 Rev	4 Fwd + 4 Rev							
Fwd/Rev Ratios Option	1:1 / 1:0.829	1:1 / 1:0.829							
Fwd Speed Gear Ratios	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup> 4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
		5.603:1	3.481:1	1.585:1	0.793:1	5.603:1	3.481:1	1.585:1	0.793:1
MFD Ratio Options	-	0.8:1 / 0.818:1 / 0.895:1							
Electronic Control	No	No							
Reverser	Power Reverse	Power Reverse							
Gear Shifting	Synchro Shuttle	Synchro Shuttle							
MFD Connection Options	-	SAHR Dog Clutch / SAHR Collar Shift							
Parking Brake Options	None / SAHR Wet Discs / Manual Wet Discs	None / SAHR Wet Discs / Manual Wet Discs							
Spin-On Oil Filter Options	Horizontal / Vertical / Remote	Horizontal / Vertical / Remote							
Electric System Voltage	12V	12V							
Differential Lock Solenoid	On Control Valve Assy	On Control Valve Assy							
Power Brake in/out Ports	15 bar nom.	15 bar nom.							
Speed Sensor	Available	Available							
Temperature Sensor	Available	Available							
Pressure Sensor	Available	Available							
Electrical Harness	N/A	N/A							



## Torque Converter Transmissions Power Synchro

MAIN TECHNICAL DATA	TLB1 SPS	TLB1 SPS Coaxial							
Power Rating	82 kW @ 2,200 rpm	82 kW @ 2,200 rpm							
Max input Torque	750 Nm	750 Nm							
Max input speed	2,400 rpm	2,400 rpm							
Internal Pump Type	Gear	Gear							
Engine Flywheel Interface	SAE 3	SAE 3							
Output Flage Type	Yoke 1410	Yoke 1410							
2WD output drop from Engine	180 mm	180 mm							
4WD output drop from Engine	323 mm	334 mm							
Vehicle Pump Interface	SAE C	SAE C							
Torque Converter Size	W300	W300							
Speed Gear	4 Fwd + 4 Rev	4 Fwd + 4 Rev							
Fwd/Rev Ratios Option	1:1 / 1:0.829	1:1 / 1:0.829							
FWD Speed Gear Ratios	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup> 4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
		5.603:1	3.481:1	1.585:1	0.793:1	5.603:1	3.481:1	1.585:1	0.793:1
MFD Ratio Options	0.8:1 / 0.818:1 / 0.895:1	1:1							
Electronic Control	Yes	Yes							
Reverser	Power Reverse	Power Reverse							
Gear Shifting	Servo Power Synchro	Servo Power Synchro							
MFD Connection Options	SAHR Dog Clutch / SAHR Collar Shift SAHR Wet Clutch	Permanent / SAHR Dog Clutch SAHR Collar Shift / SAHR Wet Clutch							
Parking Brake Options	None / SAHR Wet Discs / Manual Wet Discs	None / SAHR Wet Discs / Manual Wet Discs							
Spin-On Oil Filter Options	Vertical / Remote	Vertical / Remote							
Electric System Voltage	12V	12V							
Differential Lock Solenoid	On Control Valve Assy	On Control Valve Assy							
Power Brake in/out Ports	15 bar nom.	15 bar nom.							
Speed Sensor	Yes	Yes							
Temperature Sensor	Yes	Yes							
Pressure Sensor	Yes	Yes							
Electrical Harness	Available	Available							



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## Torque Converter Transmissions Power Shift

MAIN TECHNICAL DATA	TLB2	TLB2 Coaxial			
Power Rating	82 kW @ 2,200 rpm	82 kW @ 2,200 rpm			
Max input Torque	750 Nm	750 Nm			
Max input speed	2,400 rpm	2,400 rpm			
Internal Pump Type	Gear	Gear			
Engine Flywheel Interface	SAE 3	SAE 3			
Output Flage Type	Yoke 1410	Yoke 1410			
2WD output drop from Engine	188 mm	188 mm			
4WD output drop from Engine	350 mm	350 mm			
Vehicle Pump Interface	SAE C	SAE C			
Torque Converter Size	W300	W300			
Speed Gear	4 Fwd + 4 Rev	4 Fwd + 4 Rev			
Fwd/Rev Ratios Option	1:1 / 1:0.829	1:1 / 1:0.829			
FWD Speed Gear Ratios	1 <sup>st</sup> 2 <sup>nd</sup> 3 <sup>rd</sup> 4 <sup>th</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
		5.533:1	3.359:1	1.533:1	0.811:1
MFD Ratio Options	0.804:1	1:1			
Electronic Control	Yes	Yes			
Reverser	Power Reverse	Power Reverse			
Gear Shifting	Power Shift	Power Shift			
MFD Connection Options	SAHR Wet Clutch	Permanent / SAHR Wet Clutch			
Parking Brake Options	None / SAHR Wet Discs / Manual Wet Discs	None / SAHR Wet Discs / Manual Wet Discs			
Spin-On Oil Filter Options	Horizontal / Vertical / Remote	Horizontal / Vertical / Remote			
Electric System Voltage	12V	12V			
Differential Lock Solenoid	On Control Valve Assy	On Control Valve Assy			
Power Brake in/out Ports	15 bar nom.	15 bar nom.			
Speed Sensor	Yes	Yes			
Temperature Sensor	Yes	Yes			
Pressure Sensor	Yes	Yes			
Electrical Harness	Available	Available			



## Electronic Control Unit

### TRAX

#### Transmission Advanced Control System

Transmission management mode	Semiautomatic: management by driver Automatic: full automatized gearshift
Vehicle responsiveness customization	Smooth or direct clutch modulation Configurable software by customers needs
Prevention autodiagnostic system	Alarm / Error signal for excessive working parametres and wrong inputs / Safety Management SIL1/ISO13849 Perf. level C
Auxiliary functions	Differential lock and steering sensor control Data interchange with electronic dashboard platform, CAN J1939, Serial line diagnostic and servicing

### General

Operating Temperature	- 40 / + 85 °C
Storage Temperature	- 40 / + 85 °C
Protection Rating	IP 67

### Electrical

Nominal Supply Voltage	12 Vdc
Analog Voltage Input Range	0 / 5 Vdc
Rated Digital Output Current	2 A
Rated PWM Output Current	2 A
Rated PWM Output Frequency	4 kHz
Superimposed Dither Frequency	SW-adjustable
Superimposed Dither Amplitude	SW-adjustable
Serial Interface Communication	RS232, asynchronous, one CAN interface according to SAE J1939 / ISO 11783 / ISO 11898

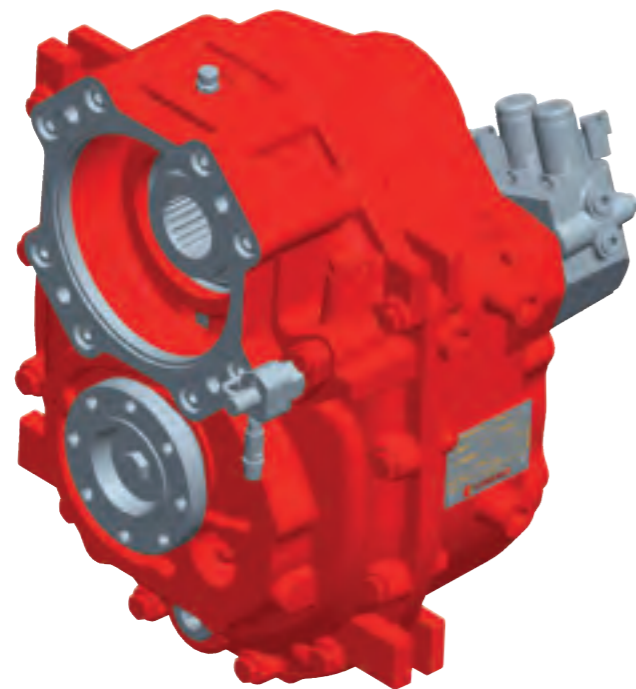
### Housing

Electrical Connections	56 pins board-mounted
Housing Material	High temperature nylon (Black)
Weight	0.25 Kg (for reference only)

# Construction Equipment

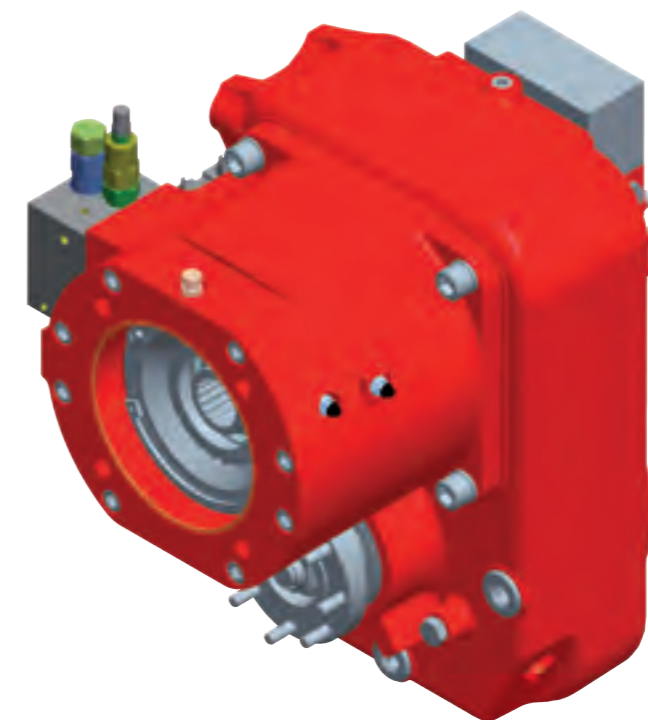
## Hydrostatic Transmissions

MODEL		TB172	TB172/2
Description		Single speed	Two speed synchro
Output drop from engine	mm	172	172
Input interfaces cc		Hydraulic motors	Hydraulic motors
		80/160	80/160
		SAE 1410/1480	SAE 1410/1480
		DIN 13010/1410	DIN 1410
Reduction ratios		2.750:1	1 <sup>st</sup> 2 <sup>nd</sup>
		2.031:1	4.286:1 1.359:1
		1.853:1	2.971:1 1.273:1
		1.553:1	
		1.545:1	
		1.179:1	
Max Input	rpm	5,500	5,500
Max Input torque	Nm	1,100	1,100
Park brake type		Dry discs manual control ball and ramp type	
Note		TB172/2 is available in two versions: Stop&Go and Speed Shift	



## Hydrostatic Powershift Transmissions

MODEL		CV2	FLS 3.2	LS 4.2
Description		2 speed power shift	2 speed power shift	2 speed power shift
Output drop from engine	mm	182	185	176
Input interfaces cc		Hydraulic motor	Hydraulic motor	Hydraulic motor
		80/107	107	80/140
Reduction ratios	1 <sup>st</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>
	9.137:1	2.400:1	4,217	1.022
	4.310:1	1.132:1		
			5.143:1	1.371:1
			4.423:1	1.179:1
Max Input	rpm	5,500	5,500	5,500
Max Input torque	Nm	770	770	1,100
Park brake type		Wet Inboard SAHR		



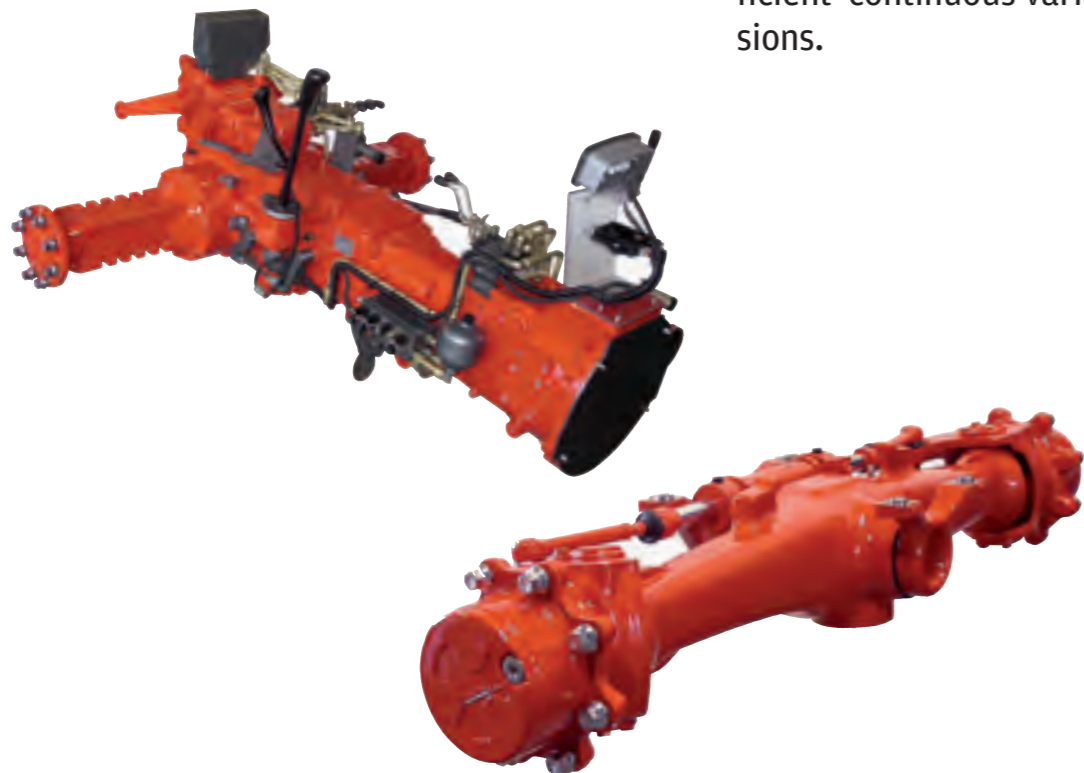
# Carraro Drive Tech

## Drivelines for agricultural applications

The Carraro Drive Tech range for agricultural use includes traditional or suspended axles for tractors, with engines of between 35 and 350 HP, coupled with a range of transmissions up to 150 HP. Designed to meet different needs (crop types, land dynamics, manoeuvring room, etc.) and to work in all weather conditions, the Carraro transmission systems guarantee performance that will maximise the productivity of the agricultural machines on which they are used.

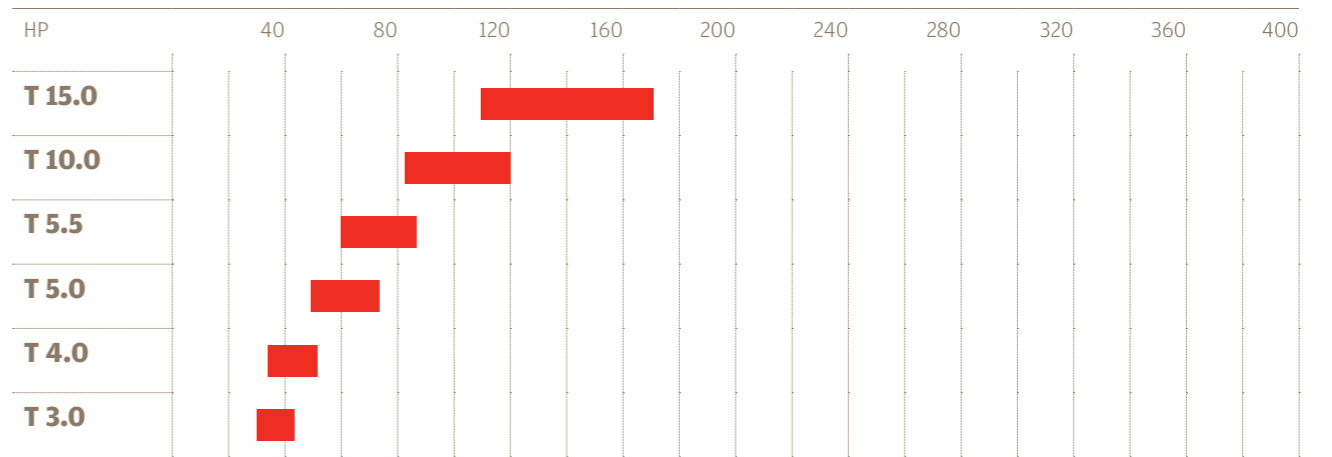
Thanks to a sophisticated, yet user-friendly electronic control system, the whole powertrain is managed excellently, both in terms of usability and efficiency. Consumptions and environmental impact are thereby drastically reduced.

The Carraro range of agricultural transmissions is further increased with **VaryT**, an evolved technology that can be applied - as a module - to all power categories. VaryT encompasses a highly innovative, unique concept in the agricultural sector, allowing for the development of a new generation of vehicles, featuring more comfortable and efficient 'continuous variation' transmissions.

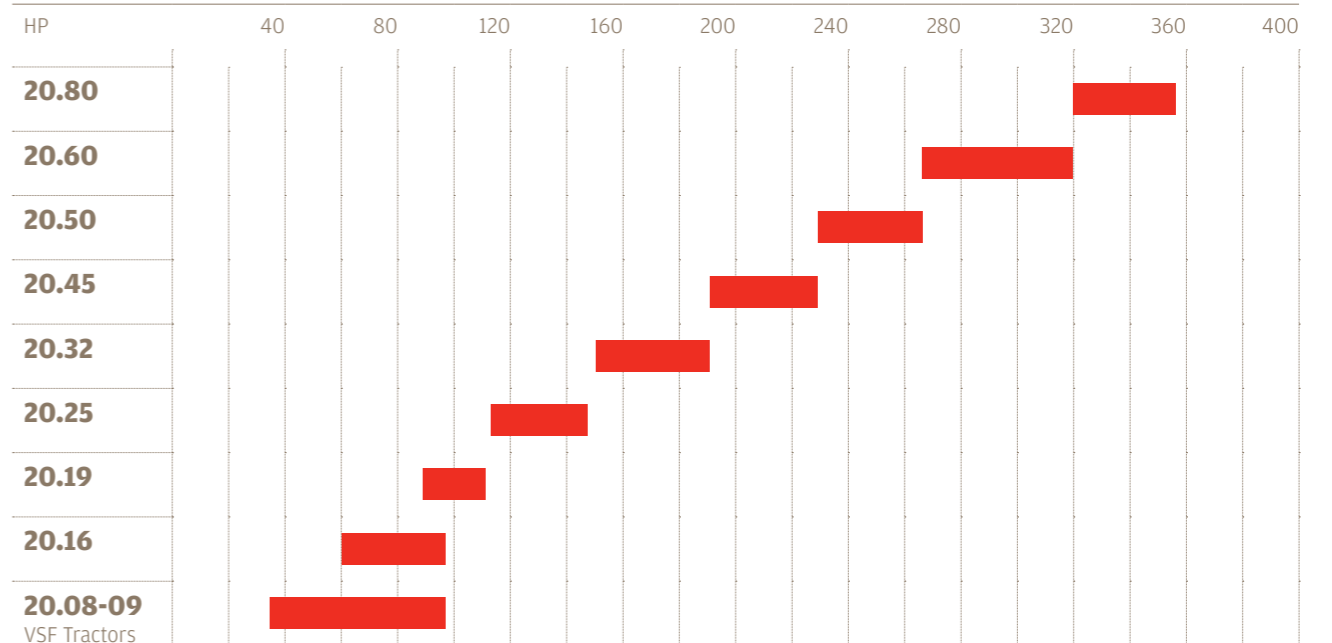


## Our wide agricultural range

### Transmissions



### Axles



# Agricultural Equipment

## T 3.0 Agricultural transaxle

- › Designed for tractors bound for the emerging markets for a power range up to 42 hp with a drop final reduction providing off-set wheel center axis
- › The two-axis design reduces dimensions, leaving ample room for the driver area
- › The basic version, with 8 forward plus 2 reverse speeds and constant mesh “collar shift” gears, allows massive cost savings, Premium option with synchro reverser provide the 8+8 transaxle version
- › The hydraulic lift draft, position and mixed control type, lift capacity 10,000 N, is designed for large attachments, thereby reducing job performance times
- › The mechanically operated “Ball & Ramp” wet brakes positioned close to the differential act before the reduction unit and are virtually maintenance free
- › The mechanical pedal-controlled differential locking ensures optimal grip even on difficult terrain
- › The optimal speed distribution between 2.6-32 Km/h allows smooth operation with the different attachments carried on the 3-point hitch or towed
- › 540 and 540/540E PTO speed controlled by a Single main clutch or with a double main clutch provide possibility to independently control the PTO versus the transmission
- › The SAE 4 clutch housing interfaces with different engine makes and satisfies the need for flexibility and image demanded by the various manufacturers

### Advantages

- › Progressive gear change with the tractor on the go
- › The independent PTO at 540 rpm or 540/540E ideal for jobs with balers, rotary cultivators, etc
- › The independent PTO at 540 rpm or 540/540E allows for tractor stop during implement use

### Options

- › The factory fitted “Rice paddy” seals allow to work in difficult environments
- › The facility for mechanical-control 4WD take-off will add further versatility to the transaxle

## T 3.0

### INPUT DATA

Maximum transmission input net power	<b>kW</b>	25,5
	<b>HP</b>	34,7
Max engine speed at rated power	<b>rpm</b>	2000
Maximum input torque	<b>Nm</b>	149

### CONFIGURATION

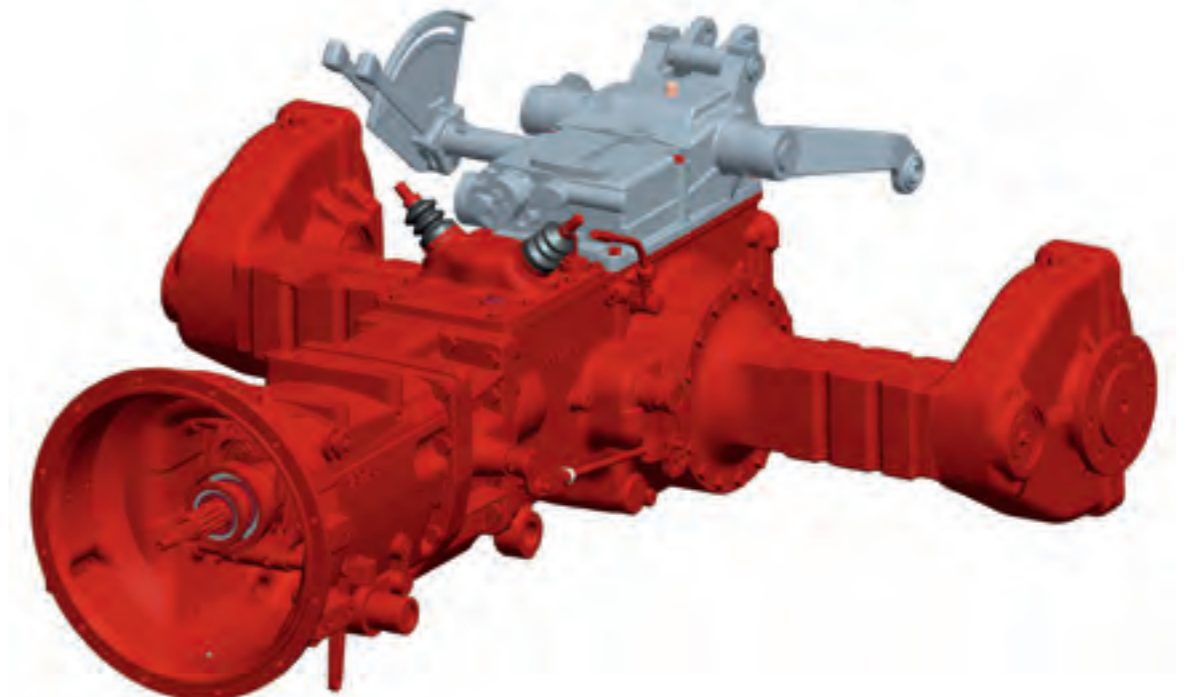
Total gear [fwd x rev]	8 x 2	8 x 8	16 x 4
Gear box forward split [gears x ranges]	4 x 2	4 x 2	4 x 2 x 2
Gear box shifting	Collar shift	Collar shift	Collar shift
Gear box reverse split [gears x ranges]	1 x 2	4 x 2	1 x 2 x 2
Reverse shifting	Constant mesh	Collar shift	Collar shift

### MAIN DATA

Flange to flange distance	<b>mm</b>	1368
Reference torque at rear axle	<b>Nm</b>	7800
Total tractor nallasted weight	<b>Kg</b>	1900
Maximum rear tire size		13.6 R 28
Rear tire index radius	<b>mm</b>	625
Rear lift capacity at lower link	<b>kN</b>	11
Total transaxle weight	<b>Kg</b>	470

### OPTIONS

1 or 2 PTO Speed, Gear synchro, Reverse sliding gear, 4WD





# Agricultural Equipment

## T 4.0 Agricultural transaxle

- › Designed for tractors bound for the emerging markets for a power range up to 45 hp with a epicyclic final reduction providing in line wheel center axis
- › The two-axis design reduces dimensions, leaving ample room for the driver area
- › The basic version has 8 forward plus 2 reverse speeds and constant mesh “collar shift” gears, Premium option with synchro reverser provide the 8+8 transaxle version
- › The hydraulic lift draft, position and mixed control type, lift capacity 10,000 N, is designed for heavy attachments
- › The wet oil brakes are ball and ramp type mechanically operated, located aside of differential unit and maintenance free
- › The transmission is equipped with 100% differential lock controlled by a pedal
- › The optimal speed distribution between 2.6-30 Km/h allows smooth operation with the different attachments carried on the 3-point hitch or towed
- › 540 and 540/540E PTO speed controlled by a Single main clutch or with a double main clutch provide possibility to independently control the PTO versus the transmission
- › The SAE 4 clutch housing enables to interface a large options of different engines

### Advantages

- › Progressive gear change with the tractor on the go
- › The independent PTO at 540 rpm or 540/540E ideal for jobs with balers, rotary cultivators, etc
- › The independent PTO at 540 rpm or 540/540E allows for tractor stop during implement use

### Options

- › The factory fitted “Rice paddy” seals allow to work in difficult environments
- › The facility for mechanical-control 4WD take-off will add further versatility to the transaxle

## T 4.0

### INPUT DATA

Maximum transmission input net power	<b>kW</b>	31
	<b>HP</b>	42,2
Max engine speed at rated power	<b>rpm</b>	2000
Maximum input torque	<b>Nm</b>	184

### CONFIGURATION

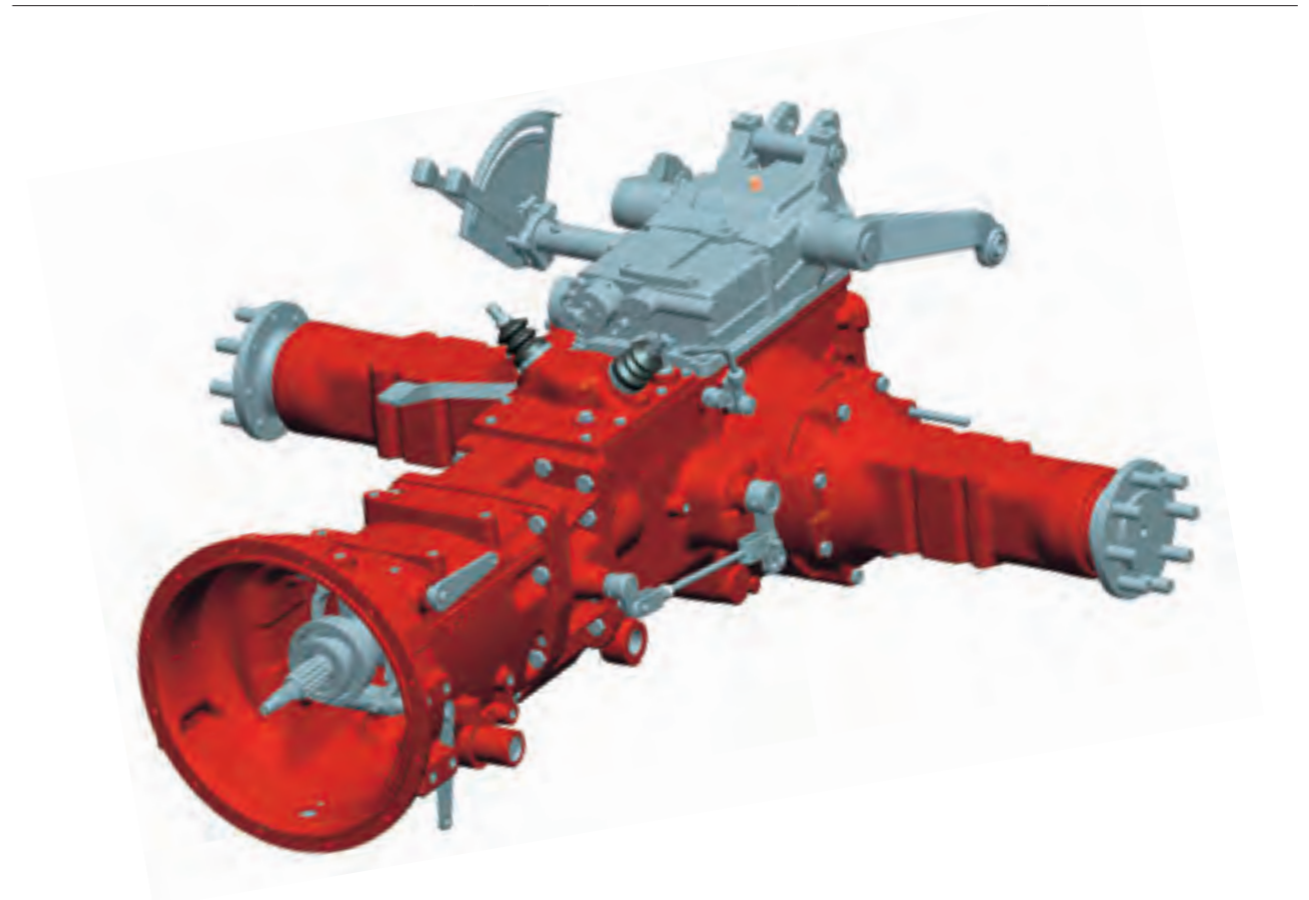
Total gear [fwd x rev]	8 x 2	8 x 8	16 x 4
Gear box forward split [gears x ranges]	4 x 2	4 x 2	4 x 2 x 2
Gear box shifting	Collar shift	Collar shift	Collar shift
Gear box reverse split [gears x ranges]	1 x 2	4 x 2	1 x 2 x 2
Reverse shifting	Constant mesh	Collar shift	Collar shift

### MAIN DATA

Flange to flange distance	<b>mm</b>	1368
Reference torque at rear axle	<b>Nm</b>	8584
Total tractor nallasted weight	<b>Kg</b>	2100
Maximum rear tire size		13.6 R 28
Rear tire index radius	<b>mm</b>	625
Rear lift capacity at lower link	<b>kN</b>	11
Total transaxle weight	<b>Kg</b>	470

### OPTIONS

1 or 2 PTO Speed, Gear synchro, Reverse sliding gear, 4WD



# Agricultural Equipment

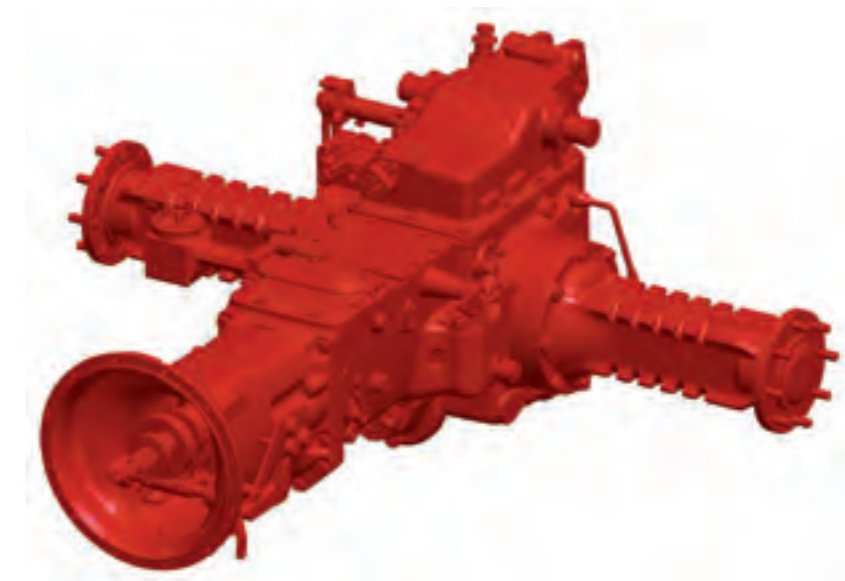
## T 5.0 Agricultural transaxle

- › The 2-shaft design reduces gearbox size and provides ample room in the driver area, significantly enhancing ergonomics and comfort
- › The basic configuration offers synchronized reverser
- › The basic version complete with synchronized constant mesh gears 8 forward / 8 reverse gears ensures driving comfort and reliability
- › The wet service brakes are designed to be virtually maintenance free and to last as long as the tractor
- › The basic version control is manual/mechanical
- › The ground drive rear power take-off (GDPTO), allows the attachment of a motor trailer, improving versatility and traction on slopes or muddy terrain
- › The independent rear PTO ideal for Vineyard/Orchard tractors and light duty STD's which are mainly used with attachments
- › The SAE 3 clutch housing ensures connection to different makes of diesel engine and satisfies the flexibility and brand image requirements of the various manufacturers

### Options

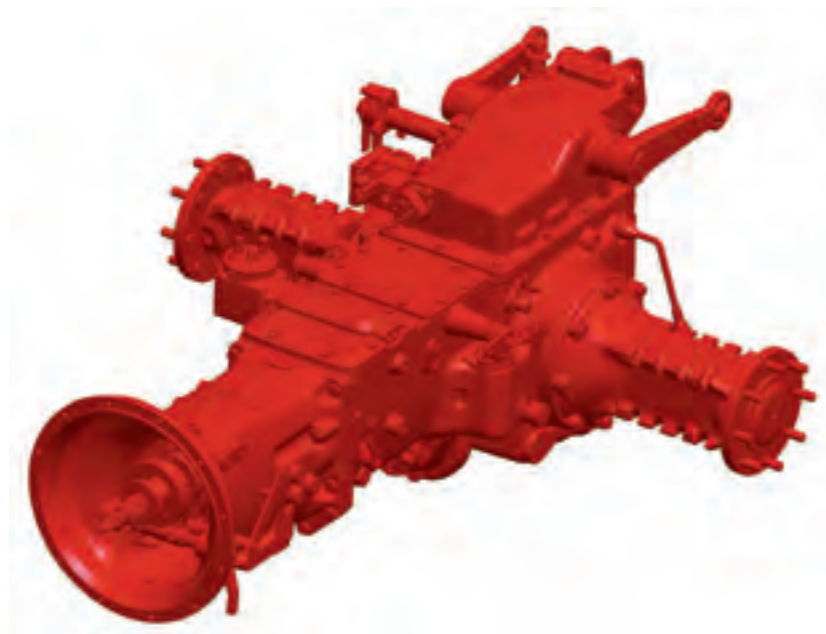
- › Hydraulic control is available on the version with suspended pedals for tractors with cabs, etc
- › 12 forward / 12 reverse or 24 forward /24 reverse gears, 30 km/h or 40 km/h
- › The central position 4WD box option incorporates the patented Easy-shift system and is available for the 40 km/h version
- › The rear PTO clutch disk can be supplied either in the “normally closed” or “normally open” version
- › The 540 rpm one-speed rear PTO is offered in the basic version, while the two speed 540/540E or 540/1000, available as an optional
- › The draft, position and mixed control hydraulic lift, together with descent speed and sensitivity control, is available as an optional
- › Clutch housing with special length and interface

	<b>T 5.0</b>		<b>T 5.5</b>		<b>VaryT 5.5</b>				
<b>INPUT DATA</b>									
Maximum transmission input net power	<b>kW</b>	50		60			60		
	<b>HP</b>	68		81,6			81,6		
Max engine speed at rated power	<b>rpm</b>	2300		2300			2300		
Maximum input torque	<b>Nm</b>	272		324			324		
<b>CONFIGURATION</b>									
Total gear [fwd x rev]		8 x 8	12 x 12	24 x 24	8 x 8	12 x 12	24 x 24	24 x 12	<b>VaryT</b>
Gear box configuration [gears x ranges]		4 x 2	4 x 3	2 x 4 x 3	4 x 2	4 x 3	2 x 4 x 3	2 x 4 x 3	
Gear box shifting		Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	
Gear box [hi-lo]		-	-	Synchro gear or Power shift	-	-	Synchro gear or Power shift	Power shift	
Gear box reverse shifting		Synchro gear	Synchro gear or Power shift	Synchro gear or Power shift	Synchro gear	Synchro gear or Power shift	Synchro gear or Power shift	Power shift	
<b>MAIN DATA</b>									
Flange to flange distance	<b>mm</b>	1540		1540					1540
Reference torque at rear axle	<b>Nm</b>	14900		17600					17600
Total tractor ballasted weight	<b>kg</b>	3240		3820					3820
Maximum rear tire size		16.9R30		16.9R30					16.9R30
Rear tire index radius	<b>mm</b>	700		700					700
Rear lift capacity at lower link	<b>kN</b>	26		26					26
Total transaxle weight	<b>kg</b>	725		725					725
<b>OPTIONS</b>									
1 or 2 PTO speed, Ground drive PTO / Mechanical or hydraulic: brakes actuation, rear diff lock actuation / Wet clutch PTO									

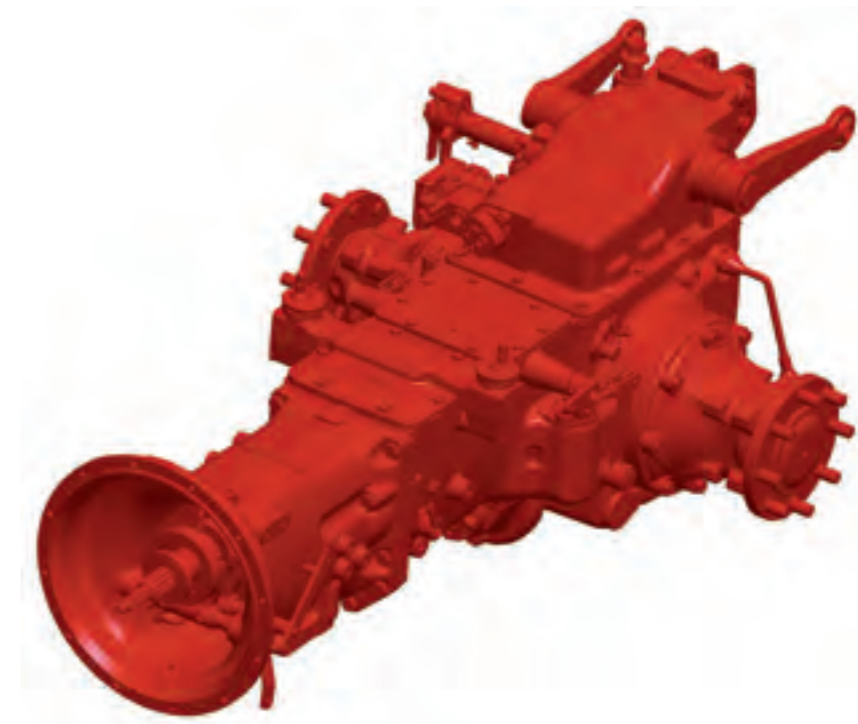


# Agricultural Equipment

	<b>T 5.0 F</b>			<b>T 5.5 F</b>			<b>VaryT 5.5 F</b>	
<b>INPUT DATA</b>								
Maximum transmission input net power	<b>kW</b>	55		67			67	
	<b>HP</b>	74,8		91,2			91,2	
Max engine speed at rated power	<b>rpm</b>	2300		2300			2300	
Maximum input torque	<b>Nm</b>	297		360			360	
<b>CONFIGURATION</b>								
Total gear [fwd x rev]	8 x 8	12 x 12	24 x 24	8 x 8	12 x 12	24 x 24	24 x 12	<b>VaryT</b>
Gear box configuration [gears x ranges]	4 x 2	4 x 3	2 x 4 x 3	4 x 2	4 x 3	2 x 4 x 3	2 x 4 x 3	
Gear box shifting	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	
Gear box [hi-lo]	-	-	Synchro gear or Power shift	-	-	Synchro gear or Power shift	Power shift	
Gear box reverse shifting	Synchro gear	Synchro gear or Power shift	Synchro gear or Power shift	Synchro gear	Synchro gear or Power shift	Synchro gear or Power shift	Power shift	
<b>MAIN DATA</b>								
Flange to flange distance	<b>mm</b>	1240		1240			1240	
Reference torque at rear axle	<b>Nm</b>	14100		16100			16100	
Total tractor ballasted weight	<b>kg</b>	3200		3650			3650	
Maximum rear tire size		16,9 R28		16,9 R28			16,9 R28	
Rear tire index radius	<b>mm</b>	675		675			675	
Rear lift capacity at lower link	<b>kN</b>	26		26			26	
Total transaxle weight	<b>kg</b>	700		700			700	
<b>OPTIONS</b>								
1 or 2 PTO Speed, Ground drive PTO / Mechanical or hydraulic: brakes actuation, Rear diff lock actuation / Wet clutch PTO								



	<b>T 5.0 V</b>			<b>VaryT 5.0 V</b>
<b>INPUT DATA</b>				
Maximum transmission input net power	<b>kW</b>	67		67
	<b>HP</b>	91,2		91,2
Max engine speed at rated power	<b>rpm</b>	2300		2300
Maximum input torque	<b>Nm</b>	360		360
<b>CONFIGURATION</b>				
Total gear [fwd x rev]	12 x 12	24 x 24	24 x 12	<b>VaryT</b>
Gear box configuration [gears x ranges]	4 x 3	2 x 4 x 3	2 x 4 x 3	
Gear box shifting	Synchro gear / Collar shift range	Synchro gear / Collar shift range	Synchro gear / Collar shift range	
Gear box [hi-lo]	-	Synchro gear or Power shift	Power shift	
Gear box reverse shifting	Synchro gear or Power shift	Synchro gear or Power shift	Power shift	
<b>MAIN DATA</b>				
Flange to flange distance	<b>mm</b>	890 or 970		890 or 970
Reference torque at rear axle	<b>Nm</b>	13080		13080
Total tractor ballasted weight	<b>kg</b>	3200		3200
Maximum rear tire size		13,6 R28		13,6 R28
Rear tire index radius	<b>mm</b>	625		625
Rear lift capacity at lower link	<b>kN</b>	26		26
Total transaxle weight	<b>kg</b>	680		680
<b>OPTIONS</b>				
1 Or 2 pto speed, ground drive pto / Mechanical or hydraulic: brakes actuation, rear diff lock actuation / Wet clutch pto / Creeper speed from 0,5 km/h				



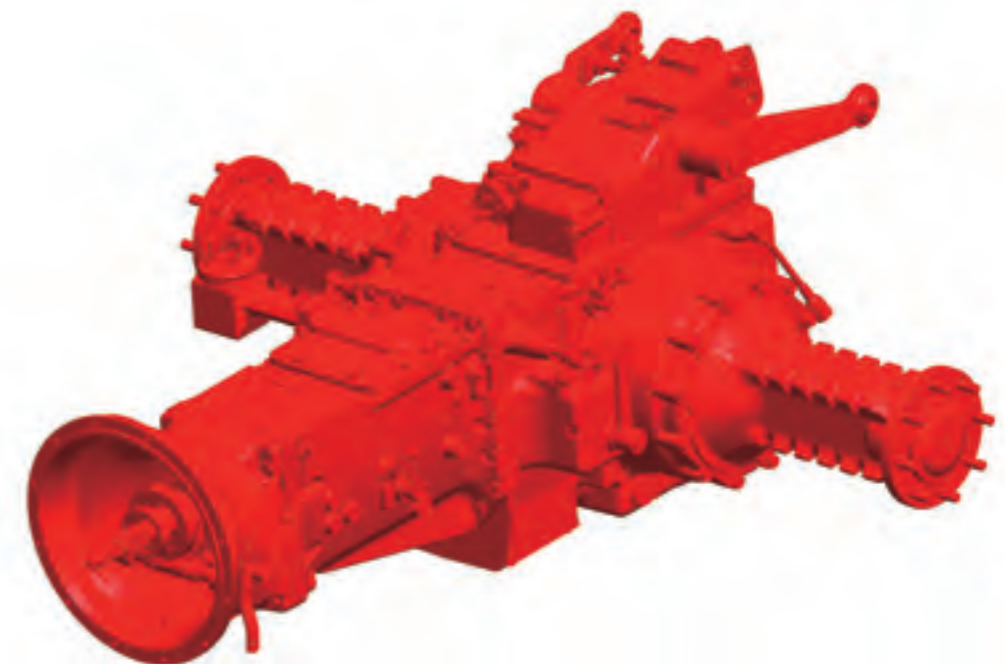
## T 10.0 Agricultural Transaxle

- › The 2-shaft design reduces gearbox size and provides ample room in the driver area, significantly enhancing ergonomics and comfort
- › The basic configuration offers synchronized reverser ensuring easy and rapid reversal when manoeuvring in narrow spaces typical of orchards
- › The basic version complete with synchronized constant mesh gears 12 forward / 12 reverse gears ensures driving comfort and reliability, as well as significant tractor cost savings
- › The wet service brakes, situated near the differential and before the final reduction, are designed to be virtually maintenance free and to last as long as the tractor. The basic version control is manual/mechanical, while the hydraulic control is available as an optional on the version with suspended pedals for tractors with cabs, etc
- › The ground drive rear power take-off (GDP-TO), basic on the 12 forward / 12 reverse and 24 forward / 24 reverse gear versions, allows the attachment of a motor trailer, improving versatility and traction on slopes or muddy terrain
- › The independent rear PTO has been designed to transmit all the engine's power and is therefore ideal for Orchard tractors
- › The SAE 3 clutch housing ensures connection to different makes of diesel engine and satisfies the flexibility and brand image requirements of the various manufacturers

### Options

- › The wide range of optionals available, such as 8/12/24 gears, 30 km/h or 40 km/h and creeper, are designed to satisfy the needs of state-of-the-art, high productivity tractors
- › The central position 4WD box option, designed for 4WD front axles with central differential, incorporates the SAHR wet clutch which provides shifting on-the-go and under load, so as to obtain automatic braking on the four wheels when the brake pedals are engaged. The mechanical easy shift is also available as option
- › The twin dry disk central clutch control completes the supply
- › The differential lock achieved with an hydraulically-controlled wet multidisc clutch is available
- › The 540 rpm one-speed rear PTO is offered in the basic version, while the two speed 540/540E or 540/1000, available as an optional, enhances cost-convenience and versatility
- › The clutch housing with special length and interface can be supplied on request to satisfy specific vehicle architecture requirements

T 10.0			VaryT 10.0
<b>INPUT DATA</b>			
Maximum transmission input net power	<b>kW</b>	77	77
	<b>HP</b>	104,7	104,7
Max engine speed at rated power	<b>rpm</b>	2200	2200
Maximum input torque	<b>Nm</b>	426	426
<b>CONFIGURATION</b>			
Total gear [fwd x rev]		12 x 12	24 x 24
			24 x 12
Gear box configuration [gears x ranges]		4 x 3	2 x 4 x 3
Gear box shifting		Synchro gear / Collar shift range	Synchro gear / Collar shift range
			Synchro gear / Collar shift range
Gear box [hi-lo]		-	Synchro gear or Power shift
Gear box reverse shifting		Synchro gear or Power shift	Synchro gear or Power shift
			Power shift
<b>MAIN DATA</b>			
Flange to flange distance	<b>mm</b>	1540	1540
Reference torque at rear axle	<b>Nm</b>	29271	29271
Total tractor ballasted weight	<b>kg</b>	5775	5775
Maximum rear tire size		18.4 R34	18.4 R34
Rear tire index radius	<b>mm</b>	775	775
Rear lift capacity at lower link	<b>kN</b>	45	45
Total transaxle weight	<b>kg</b>	1150	1150
<b>OPTIONS</b>			
1 or 2 PTO speed, ground drive PTO / Mechanical or hydraulic: brakes actuation, Rear diff lock actuation / Wet clutch: PTO, MFWD, differential lock / Creeper speed from 0,5 km/h			



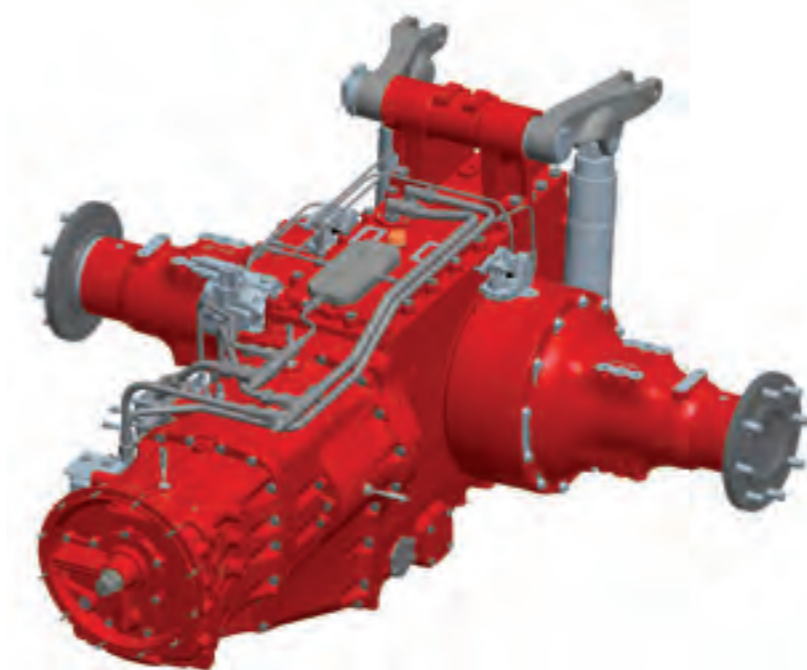
## T 15.0 Agricultural Transaxle

- › Transmission with Dual Clutch architecture: the even gears are connected to one of the two clutches, and the odd gears to the other. When changing gear the electronic control pre-selects the required gear by means of the synchroniser, and therefore inverts the clutch transmitting the power.
- › Standard speeds range from 1.6 to 40 km/h. Maximum speed can be taken to 50 or 60 km/h simply by acting on the electronic control.
- › Possibility of changing 8 gears smoothly in Powershift mode with 4 robotised ranges, thereby avoiding range changes and clutch use in almost all field work.
- › The Power Reverse clutch, housed in the central part of the transmission, allows for a fully-automatic change of direction, without gear changes, thereby reducing repeated actions and cycle times.
- › Independent rear PTO, designed to transmit full engine power, resulting in speeds of 540/540E/1000 revs./min.
- › The electronic control uses an electrical-hydraulic clutch to manage the full transmission, guaranteeing the 4 drive wheels during braking and in any working conditions, as well as the differential locking.
- › The hydraulic system connected to the transmission can be open centre or closed centre, with a sensitive line. In both cases, significant oil flows, pressure and lifting capacity are obtained.
- › The rear axle contains two oil-cooled multi-disc brake units and a hydraulic actuator with power brake.
- › Electronic control lifter with dual external cylinders guaranteeing lifting capacity of 7500 kg.

### Options

- › The Supercreeper option allows for tractor use at speeds starting from 0.2 km/h. The specific overlay of the ranges also allows for the reaching of top speeds of 40 km/h, at just 1460 revs./min.
- › Ground speed PTO, available on an extra axis, with a rotation regime proportional to tractor speed and allowing for the connection of a motorised cart. This improves versatility and traction on uneven or rugged ground.

		DueT 15.0	VaryT 15.0
<b>INPUT DATA</b>			
Maximum transmission input net power	<b>kW</b>	110	110
	<b>HP</b>	149,6	149,6
Max engine speed at rated power	<b>rpm</b>	2200	2200
Maximum input torque	<b>Nm</b>	677	677
<b>CONFIGURATION</b>			
Total gear [fwd x rev]	24 x 24	32 x 32	<b>VaryT</b>
Gear box configuration [gears x ranges]	4PS x 3 x 2	8PS x 4	
Gear box shifting	Power shift gear (dual clutch design) / Robotized gear synchro ranges	Power shift gear (dual clutch design) / Robotized gear synchro ranges	
Gear box [hi-lo ranges]	Collar shift	-	
Gear box reverse shifting	Power shift	Power shift	
<b>MAIN DATA</b>			
Flange to flange distance	<b>mm</b>	1890	1890
Reference torque at rear axle	<b>Nm</b>	47211	47211
Total tractor ballasted weight	<b>kg</b>	8250	8250
Maximum rear tire size		20.8 R38	20.8 R38
Rear tire index radius	<b>mm</b>	875	875
Rear lift capacity at lower link	<b>kN</b>	75	75
Total transaxle weight	<b>kg</b>	1980	1980
<b>OPTIONS</b>			
3 PTO speed, Ground drive PTO / Super creeper speed from 0,2 km/h			



# Our Solutions

## Carraro Drive Tech & Joseph Industries Drivelines & Drives

Carraro Drive Tech is the Business Unit managing the Carraro Group core business: designing, manufacturing and marketing drivelines, axles and transmissions, travel & cutter drives and electronic control units.

Wherever there is a need for integrated transmission systems for off- and on-highway vehicles, Carraro Drive Tech has the solution, with a complete, diversified product range for agriculture, construction equipment, mining, and material handling.

Carraro drivelines have been optimized for the individual markets of application, to guarantee the very best efficiency and most practical vehicle layout.

All this is possible thanks to the wide range of combinations of rigid and steering axles and mechanical, automatic or semi-automatic transmissions. The Carraro systems have been de-signed for the optimal integration of mechanics and hydraulics, under the supervision of an advanced electronic control unit. This can best manage the whole driveline while monitoring and diagnosing the vehicle functions.

Carraro Spare Parts, a division of Carraro Drive Tech, has made spare parts and components available for their construction and agricultural driveline units through their leading distributor Joseph Industries, Inc. Joseph Industries offers a wide variety of genuine repair parts, components and rebuild kits for Carraro axles, transmissions and final drive units. When it comes time to make repairs to your powertrain, whether it is a drive axle, steer axle, torque converter, transaxle, transmission or final drive; Joseph Industries will have the parts in stock ready to ship.

As your premier Carraro Distributor, Joseph Industries can supply genuine replacement parts, components and kits for drive train assemblies communally used in:  
Agco, Argo, Astec, Caterpillar, CNH, Case, Claas, Doosan-Daewoo, Ditch Witch, Eagle Tug, Farmtrac, Fiat, Ford, Gehl, Gradall, Grove, Harlo, Hyster, Ingersoll Rand, International Harvester, JCB, JLG, John Deere, Komatsu, Lull, McCormick, Massey Ferguson, Manitou, New Holland, Pettibone, Renault, Sellick, Steyr, Terex, Valtra, Volvo, Xtreme, Yale, Zetor.

