



**HITACHI**  
Inspire the Next

# TACN Series TDCN Series

Power-Shift Transmission For Rail





## Introduction of “Hitachi Nico Transmission Co., Ltd.”

Since 1952 when our predecessor company “Niigata converter” started operation, we extensively have contributed to society through our products for mainly Japanese railway business. Our products for railways are Power-shift transmission, Final drive gearbox, etc. for DHMU, DHL, and motor cars by diesel engine drive.

In the history of about 70 years, our products have not only had a high share in the domestic market but also been sold all over the world(Asia, Oceania, Europe, South America, etc.).

We continue efforts to develop the rail industry around the world by supplying our optimal products in accordance with regional characteristics in its operating areas.

## Our visions

### CHALLENGE IS OUR VALUE

Up to now, we have grown by supplying new products to the market. From now on, we will continue to challenge to develop new products required in each era too.

**The update on our new special products and our sales achievements in recent years are as follows.**

#### 1. Parallel hybrid transmission for Diesel Hydraulic Multiple Units

World' first : we have developed the parallel hybrid transmission for Diesel Hydraulic Multiple Units in 2008. This transmission has engine driving mode, motor driving mode, motor-assisted driving mode and regeneration brake mode. The best fuel efficiency for Diesel Hydraulic Multiple Units is realized by combining several operation modes.

#### 2. Special transmission for Rail-carrier

Various options for our transmissions have been requested to realize an ideal driving for rail-carrier carrying a lot of heavy rails. This transmission has two major options of the constant low speed system and the retarder brake for running on a long downhill.

As described above, we can produce not only the standard models but also the optimally customized models in accordance with your requirements. We look forward to hearing your precious suggestions.

## Transmission for Railway applications

Our transmissions consist of a high-elastic coupling, a torque converter, a two-, three- or four-speed power-shift-transmission and an advanced electronic control system.

### Standard specifications

Our transmission is categorized as “hydromechanical transmission” which combines a torque converter with a wet multiplate clutch. Our standard specifications are as follows.

#### Torque converter

Torque converter realizes a smooth shockless start of vehicle and increases the torque at a low speed of vehicle.

#### Power-shift-transmission

Power-shift-transmission provides forward/reverse shifts and multiple speed steps. And a direct clutch option is available.

#### TCU “Transmission Control Units”

TCU has the functions of an automatical smooth clutch shifting, a monitoring system, an abnormal alarm, etc.

### Optional specifications

You can tailor a transmission by selecting the following options.

#### Brake function to reduce speed :

This function is an auxiliary brake to reduce the vehicle speed while the vehicle is running downhill in a mountainous area.

**Optional device** Hydraulic Retarder Brake, Multiple-disc Brake, Engine Brake

#### Constant low speed control :

TCU controls a transmission brake effort to realize a constant low speed of vehicle.

**Optional device** Multiple-disc Brake

**Power Take Off (PTO) :** Generator, Oil pump and Fan

**Power Take In (PTI) :** Oil motor and Electrical motor

**Others :**

- Hybrid (Parallel Hybrid)
- Parking Brake
- Cut-off-shifter (one-side-output)
- Customized design, etc.

### Request to Customer

We can challenge new technologies to meet the new needs of customers. If you have any question, request and/or idea, please contact us.

## Transmission **TACN series**

Underfloor installation  
For Diesel Hydraulic Multiple Units and Motor cars

### Features and Benefits

- Covers a range of 150 to 588kW
- High-efficiency by direct-drive \*
- Includes High-elastic coupling

\*Remarks : Direct Clutch  
High-efficiency of "Maximum 97%" is realized by the Direct Clutch transmitting the tractive effort directly to the wheels. High-efficiency improves the tractive effort and the fuel consumption.



### Capacity chart

Model Name	100	200	300	400	500	600	[kW]
TACN-22-1400		150-210					
TACN-22-1600 TACN-33-1600		180-250					
TACN-33-2000 TACN-44-2000			230-300				
TACN-33-3000				300-440			
TACN-22-3540						390-588	

### Applications examples



## Transmission **TDCN series**

Drop box-type For Locomotives and Motor cars

### Features and Benefits

- Covers a range of 80 to 1000kW
- Easy-to-mount PTO
- Various options \*

\*Remarks : Various options for special purpose vehicles  
Various options --- PTO, Multiple-disc brake, Hydraulic retarder, constant speed functions  
special purpose vehicles --- Multiple tie tamper, Rail carrier, Catenary maintenance vehicle, etc.



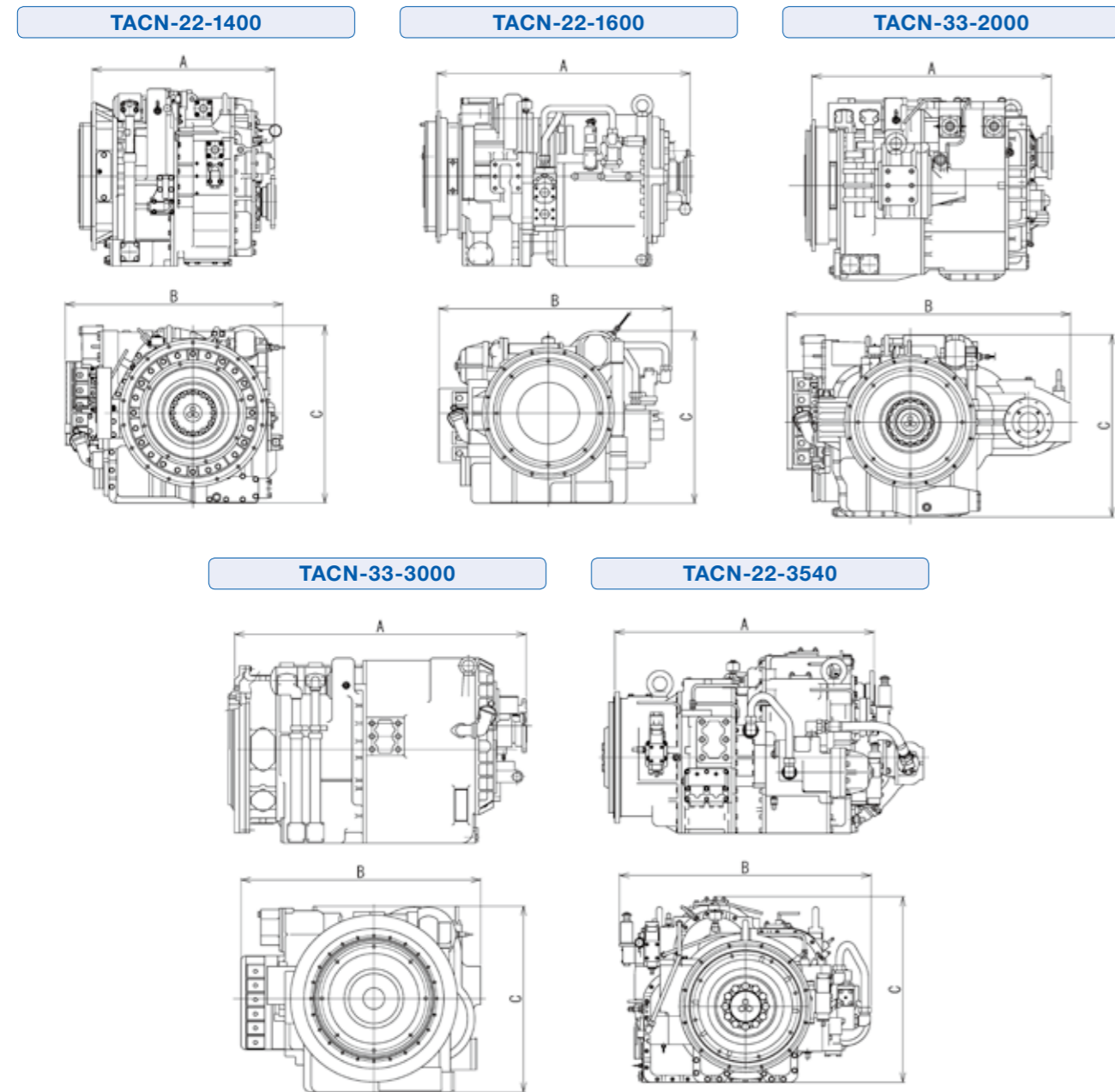
### Capacity chart

Model Name	100	250	500	750	1000	[kW]
TDCN-22-800	80-120					
TDCN-22-1000 TDCN-33-1000		180-250				
TDCN-22-1800		250-310				
TDCN-22-1840		290-350				
TDCN-22-3040 TDCN-33-3040			350-520			
TDCN-22-6000					520-1000	

### Applications examples



## Transmission "TACN" series

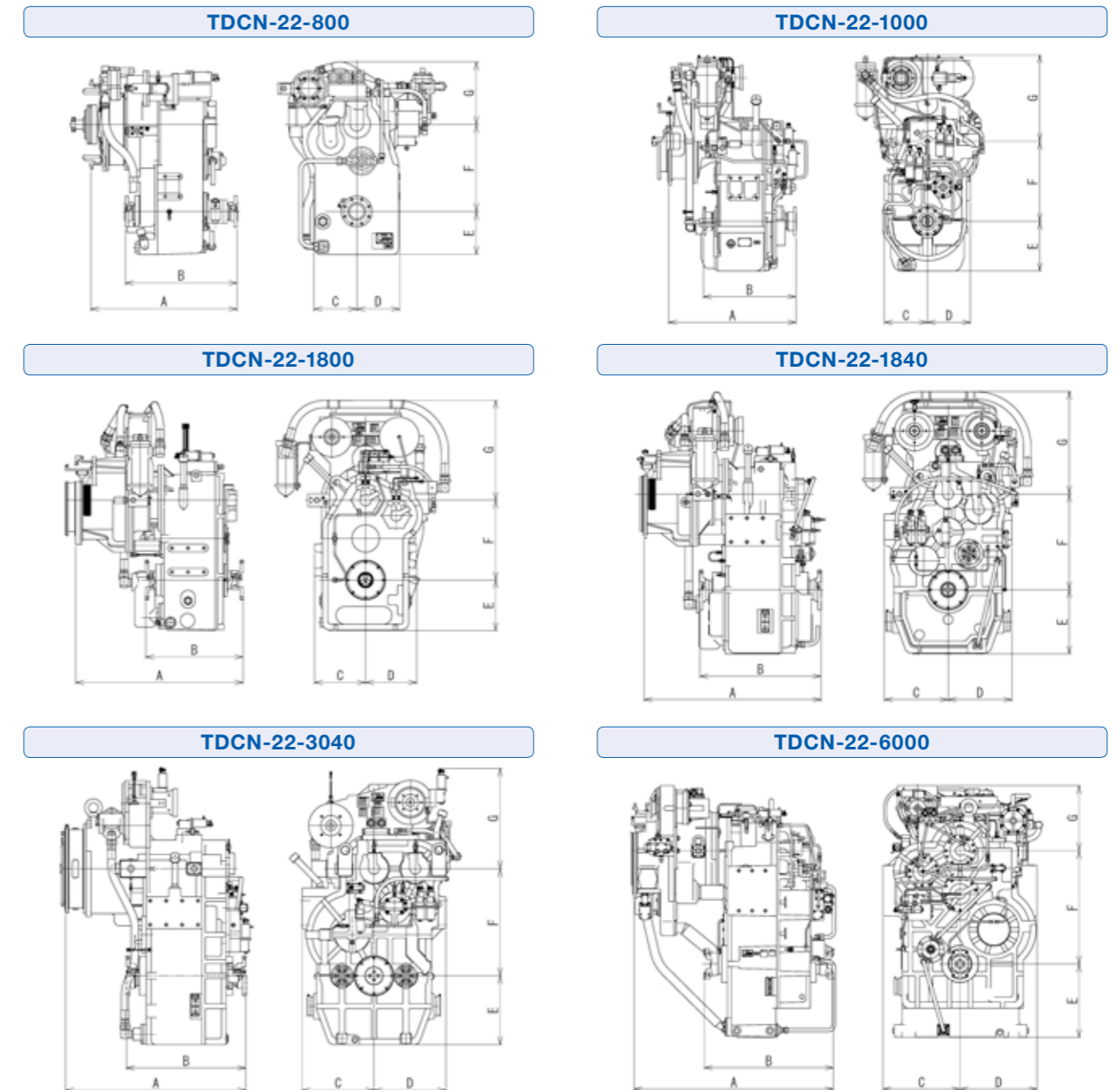


### Technical Data

Transmission Model		TACN-22-1400	TACN-22-1600	TACN-33-2000	TACN-33-3000	TACN-22-3540
Input power	kW	210	250	300	440	588
	PS	250	340	420	600	800
Input speed	min-1	1900	2100	2100	2100	2100
Speed steps	-	2	2 or 3	3 or 4	3	2
PTO (Power take off)	Q'ty	-	-	2	-	-
Dry weight	kg	580	900	1160	1200	1450
Dimensions (mm)	A	770	1067	1009	1228	1093
	B	917	980	1195	1010	1062
	C	750	730	770	785	783

\* Reverser function is included in all models. \* Specifications are subject to change without notice.

## Transmission "TDCN" series



### Technical Data

Transmission Model		TDCN-22-800	TDCN-22-1000	TDCN-22-1800	TDCN-22-1840	TDCN-22-3040	TDCN-22-6000
Input power	kW	120	250	310	350	520	1000
	PS	163	336	420	470	700	1360
Input speed	min-1	2200	2200	2100	2100	2100	2100
Speed steps	-	2	2 or 3	2	2	2 or 3	2
PTO (Power take off)	Q'ty	1	2	2	2	2	2
Dry weight	kg	520	1000	1200	1500	1800	3410
Dimensions (mm)	A	734	799	1048	1110	1128	1502
	B	560	581	610	760	748	972
	C	215	270	320	400	450	580
	D	215	270	320	400	450	580
	E	215	310	315	400	430	552
	F	435	500	500	600	670	850
	G	320	540	625	640	630	490

\* Reverser function is included in all models. \* Specifications are subject to change without notice.



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