

**JTEKT**

# The 3rd generation Ball Hub Units

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CAT.NO.BA009EN-OCH

JTEKT's technology and proven track record have been honed on roads around the world.

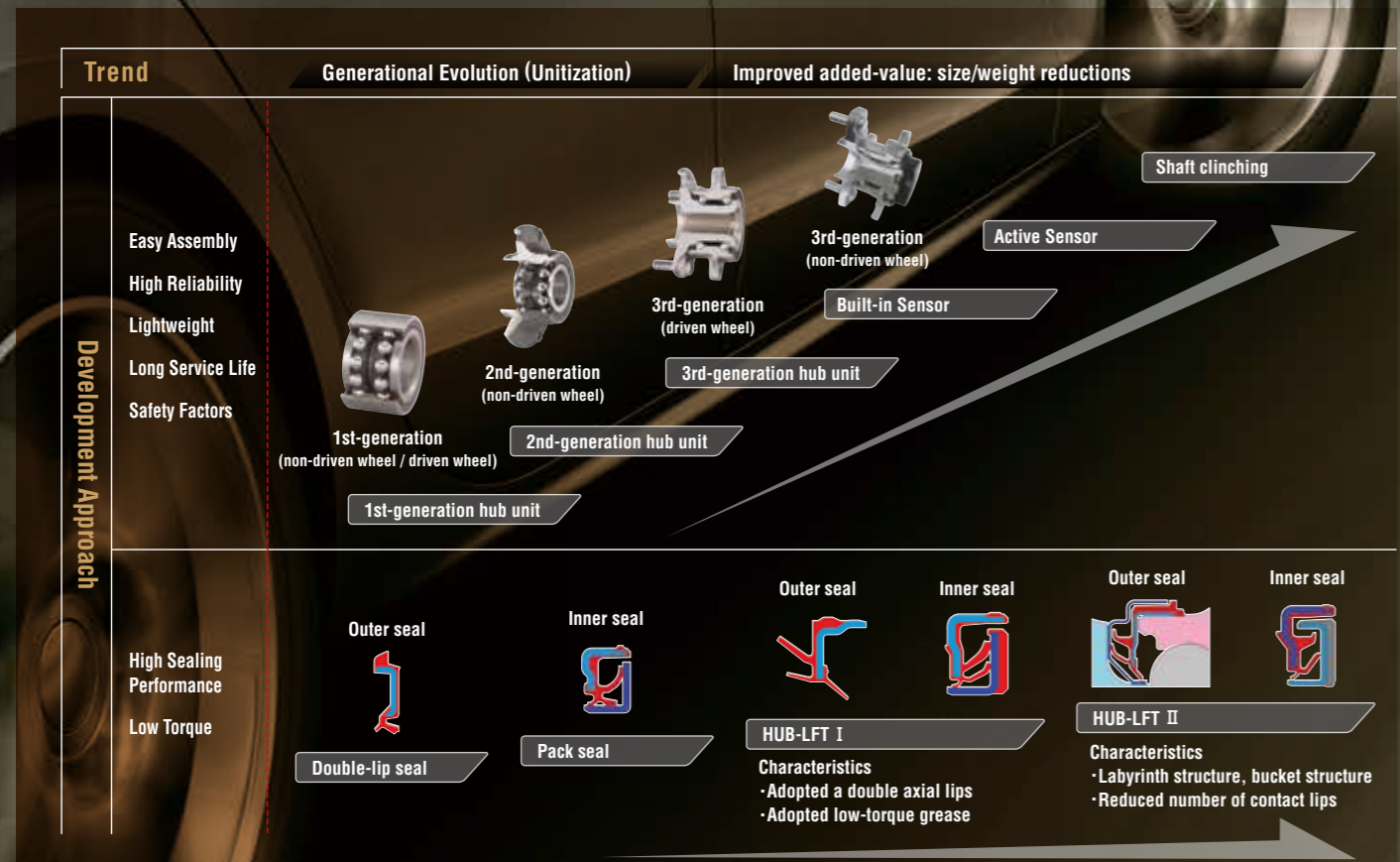
We deliver high quality to all vehicles through our optimal, environmentally conscious hub units.

Hub units play an important role in supporting the wheels of a vehicle, and are products that combine bearings and multiple peripheral parts into a single unit. There are two types of hub units: "non-driven type" that rotate smoothly while supporting the weight of the vehicle with high accuracy and durability, and "driven type" that transmit the driving force from the engine.

As a solution provider, JTEKT contributes to the realization of a carbon-neutral society by addressing the low fuel consumption and low electricity consumption needs of mobility through low-torque hub unit.

JTEKT hub units have evolved from the conventional 1st-generation design to the current advanced 3rd-generation configuration, which we most recommend to customers, by integrating flanges that facilitate their installation to vehicles.

- 1st-generation: Two single-row bearings integrated into a double-row bearing (driven/non-driven wheel)
- 2nd-generation: Integrated inner flange and outer ring (driven wheel), Integrated outer flange and outer ring (non-driven wheel)
- 3rd-generation: Integrated shaft and inner flange (driven/non-driven wheel)



\*LFT is an abbreviation for Low Friction Torque and is a registered trademark or trademark of JTEKT Corporation.

## JTEKT Hub Units Support Vehicles on Every Road around the World

Contributing to the environment through all characteristics  
— low fuel consumption and low electricity consumption, reliability, and weight reduction



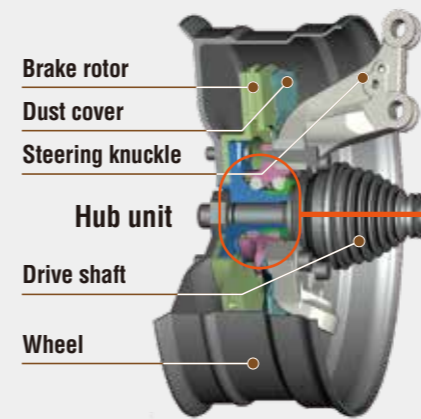
With technology and quality backed by over 100 years of history, our products are chosen by customers around the world.

### 【 Advantages of JTEKT's hub units 】

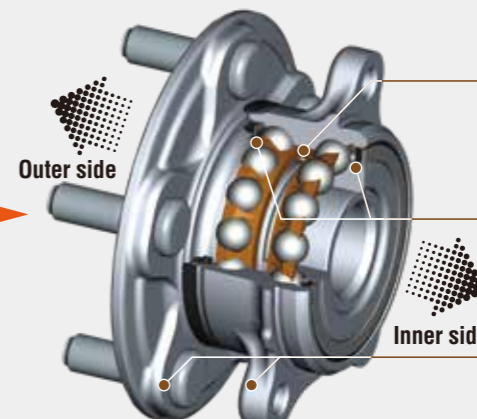
- Low-torque technology that contributes to improved fuel consumption and electricity consumption
- Advanced CAE technologies, evaluation techniques that simulate actual usage, and optimal design utilizing JTEKT test course
- Global support structure / Strong track record of adoption

Leveraging the expertise and achievements cultivated over many years as an automotive parts manufacturer, we help shorten our customers' development lead time.

【 Cross section of driven wheel 】

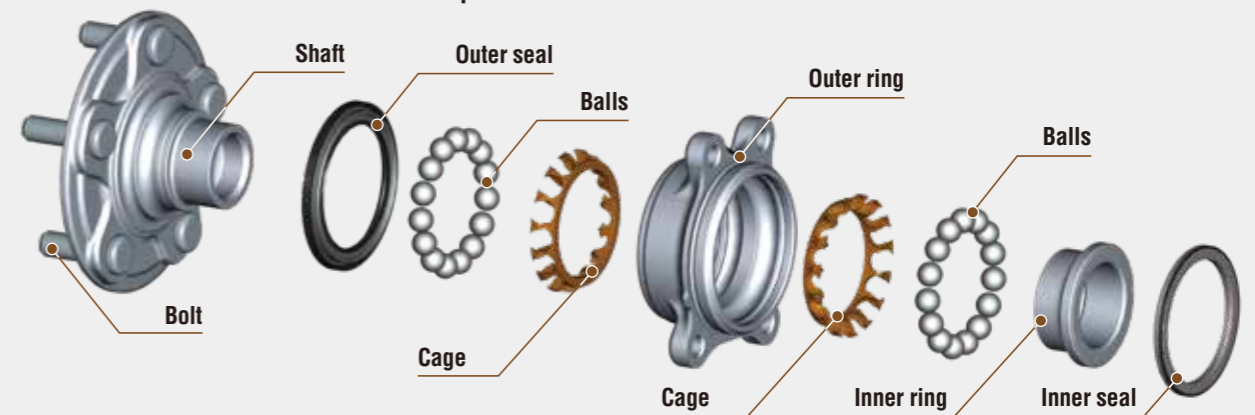


【 Structure of hub unit for driven wheel 】



- Grease**  
Superior lubrication / fretting resistance
- Outer seal / Inner seal**  
Superior muddy water resistance also in low friction torque
- Shape of shaft flange and outer ring flange**  
Strength / rigidity and weight reduction realized

【 Components of hub unit for driven wheel 】



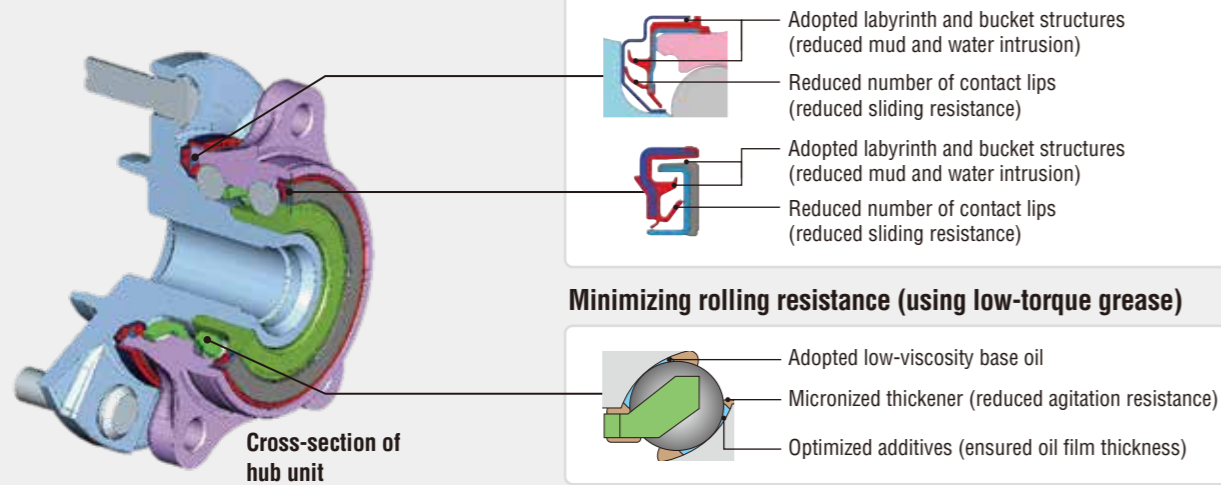
## Achieving improved fuel consumption and electricity consumption through low-torque technology (bearing and seal)

By applying JTEKT's lubrication technology and sealing technology, we have reduced rolling resistance in the bearing section and sliding resistance in the seal section, **achieving a 65% torque reduction compared with conventional products.**

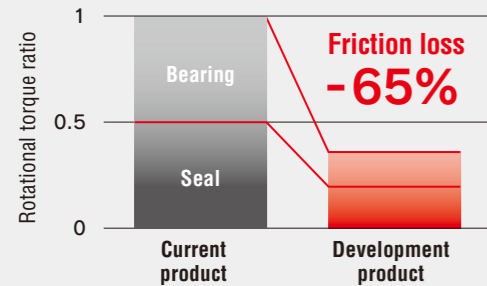
### Low-torque Hub Unit HUB-LFT

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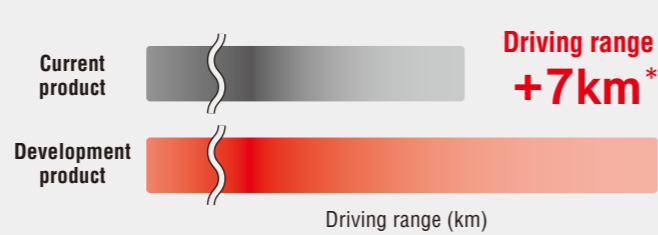
#### Balancing reduced sliding resistance and sealing performance



#### [ Rotational torque ]



#### [ BEV driving range ]



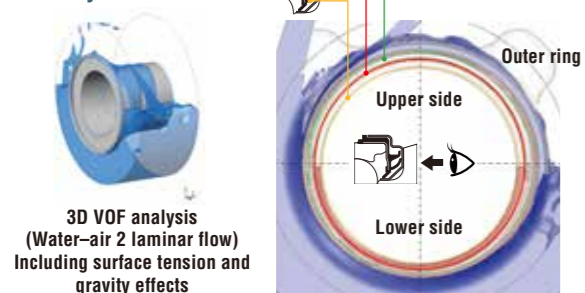
\* Our estimated value (Vehicles equivalent to the C and D segments)

## Advanced CAE technologies, evaluation techniques that simulate actual usage of the hub unit

### CAE analysis

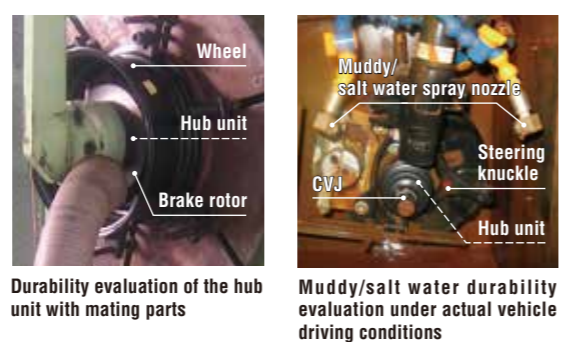
Reproduction and optimization of water-exposure characteristics around the seal using CAE

#### [ Analysis model ]



### Evaluation technology

Enables evaluation in accordance with the actual vehicle driving environment, including mating parts



## Optimal design utilizing JTEKT test course

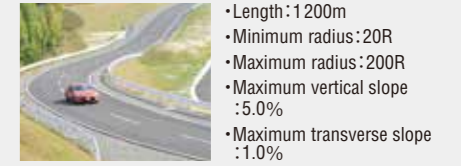
Through evaluation and analysis based on course driving tests, combined with feedback, we achieve optimal design and contribute to more efficient development and development time reduction for customer.



### A Straight-line Course



### B Winding Course



### C Administration / Maintenance Building



### D Slopes



### E Fording Course



### F Dynamics Pad



### G Low $\mu$ Surface



### H Noise Evaluation Course



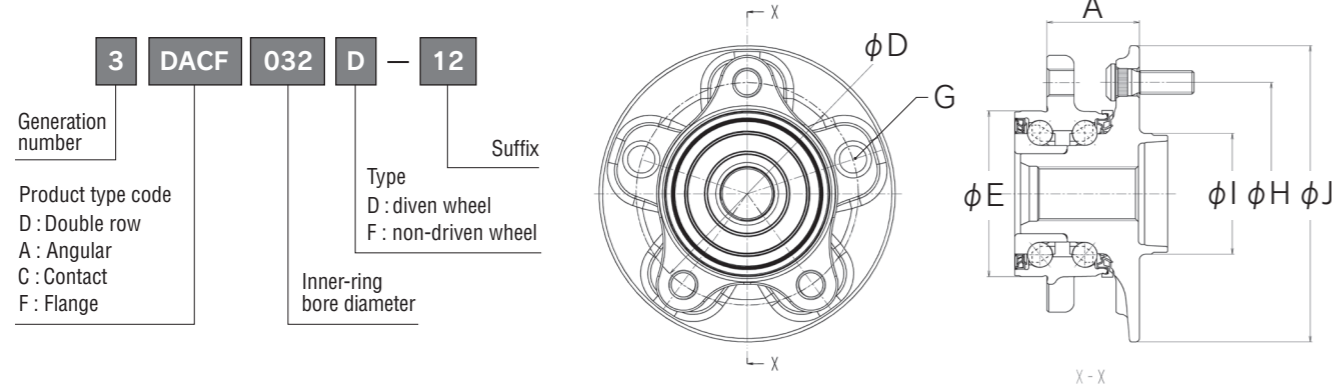
## Global Technical Support

Technical centers located around the world ensure quick response and technical support for customers' needs.



## Recommended hub unit Numbers (Hub unit for driven wheel)

JTEKT displays bearing number of hub unit using generation, product type, inner ring bore diameter, type, and suffix. Examples of bearing numbers are shown below.



Below are application examples of driven wheel hub units that our company has successfully supplied for various segments, along with our recommended hub-unit numbers, mounting dimensions, and basic load ratings. Please refer to the information provided.

### Application examples of hub unit for driven wheel

Axle load [kN]	4	5	6	7	8	9	10	11	12	13	14	15	16
Driven wheel	① 3DACF035D-13			② 3DACF038D-68		③ 3DACF041D-9		④ 3DACF047D-9		⑤ 3DACF048D-20		⑥ 3DACF050D-16	
Segment	U / A		A / B		C		D		E		SUV / P-UP		

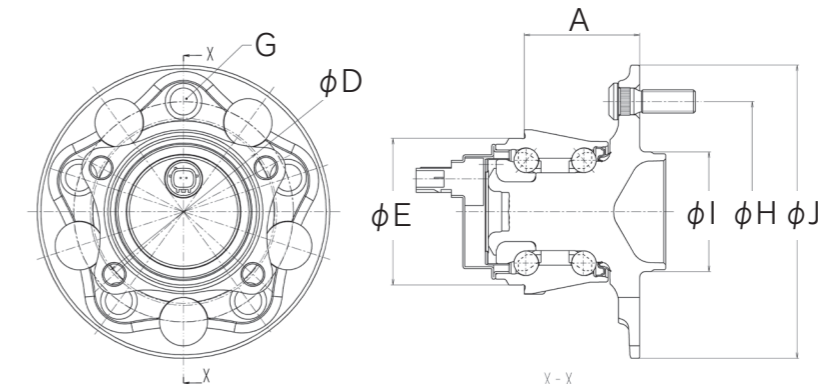
	Bearing number	Axle load (kN)	A: Assembly width *4	Vehicle-side Installation Dimensions		Wheel-side Installation Dimensions				Basic load ratings *3	
				D: Installation Hole P.C.D.	E: Spigot Outer Diameter	G: No. of bolts	H: Bolt P.C.D.	I: Spigot Outer Diameter	J: Maximum outer diameter of shaft	C (kN)	C0 (kN)
①	3DACF035D-12	6.3	38.4	100	70	4	100	60	120	36.6	31.3
	3DACF032D-1	6.4	59.4	92	63	4	100	61	134	29.6	27.1
	3DACF035D-13	7.1	47.0	94	70	4	100	64	122.5	40.4	34.3
②	3DACF038D-68	9.3	47.5	114	85	5	100	55	135	48.0	43.2
	3DACF037D-19	8.1	38.4	105	77	4	100	60	120	42.0	37.5
	3DACF037D-28	9.3	43.0	104	74	4	100	61	121.5	28.6/27.9	19.9/19.5
③	3DACF038D-26	9.3	47.5	114	85	5	100	55	135	48.0	43.2
	3DACF038D-63	10.7	75.0	97	76	5	114.3	62	152	48.0	43.2
	3DACF041D-9	10.8	47.5	114	85	5	114.3	62	152	58.7	52.0
④	3DACF041D-14	11.2	52.5	120	93	5	114.3	62	152	58.7	52.0
	3DACF044D-21	11.2	52.3	120	93	5	114.3	62	152	65.5	58.6
	3DACF047D-9	11.5	42.06	116	91.25	5	115	70.6	146	44.3/47.6	33.3/38.9
	3DACF045D-9	11.8	42.7	111	91	5	114.3	68	139	56.5	53.7
	3DACF044D-30	12.4	47.0	109	85	5	114.3	68	136	34.8/31.7	26.8/25.1
	3DACF046D-9	13.4	52.5	120	93	5	114.3	62	152	68.4	63.4
	3DACF046D-10	13.4	52.5	120	93	5	114.3	62	152	68.4	63.4
⑤	3DACF046D-13	13.4	52.5	120	93	5	114.3	62	152	42.1/46.6	31.7/35.5
	3DACF045D-13	12.9	42.7	111	91	5	114.3	68	139	61.2	56.4
	3DACF046D-21	13.6	52.5	120	93	5	114.3	62	152	68.4	63.4
	3DACF041D-35	14.0	65.0	110	87	5	120	62	152	58.7	52.0
⑥	3DACF048D-20	14.9	42.06	138	105	6	132	78.415	164	45.1/53.0	36.9/46.5
	3DACF048D-18	15.6	42.06	138	105	6	139.7	78.4	179	45.1/53.0	36.9/46.5
	3DACF050D-16	19.7	53.0	124/120	98	5	120	78.965	155	77.4	72.8

\*3 "Different-diameter P.C.D." refers to a specification in which ball P.C.D. of the inner side and outer side are not the same.

For hub units with different-diameter P.C.D., load rating values for both the inner and outer sides are listed separately.

\*4 Distance between outer ring flange and shaft flange.

## Recommended hub unit Numbers (Hub unit for non-driven wheel)



Below are application examples of non-driven wheel hub units that our company has successfully supplied for various segments, along with our recommended hub-unit numbers, mounting dimensions, and basic load ratings. Please refer to the information provided.

### Application examples of hub unit for non-driven wheel

Axle load [kN]	4	5	6	7	8	9	10	11	12	13	14	15	16	
Non-driven wheel	① 3DACF023F-18			② 3DACF026F-72	③ 3DACF027F-62	④ 3DACF031F-15	⑤ 3DACF047F-4			⑥ 3DACF050F-10		⑦ 3DACF048F-11		
Segment	U / A		A		B		C		D		E		SUV / P-UP	

	Bearing number	Axle load (kN)	A: Assembly width *4	Vehicle-side Installation Dimensions		Wheel-side Installation Dimensions				Basic load ratings *3	
				D: Installation Hole P.C.D.	E: Spigot Outer Diameter	G: No. of bolts	H: Bolt P.C.D.	I: Spigot Outer Diameter	J: Maximum outer diameter of shaft	C (kN)	C0 (kN)
①	3DACF022F-1	4.9	52.5	82	56	4	100	55	133	24.1	18.6
	3DACF023F-18	5.8	52.5	90	56	4	100	55	133	34.7	25.4
	3DACF026F-51	5.9	59.4	92	63	4	100	61	134	18.2/16.0	13.6/12.6
	3DACF022F-5	7.0	60.6	88	64	4	100	57	126	28.6	21.3
	3DACF022F-8	7.0	60.6	88	64	4	100	57	126	28.6	21.3
②	3DACF023F-16	7.1	60.0	90.3*1/91.2*2	62	4	100	62	120	33.4	25.3
	3DACF026F-72	7.6	59.4	90.3*1/91.2*2	62	4	100	62	130	38.7	31.0
③	3DACF023F-15	6.2	52.5	82	56	4	100	55	138	31.8	24.2
	3DACF026F-58	6.3	60.0	95	74	4	100	55	135	33.4	26.8
	3DACF026F-71	8.1	60.0	90.3*1/91.2*2	62	5	114.3	62	140	38.7	31.0
	3DACF026F-66	8.2	58.5	92	69	4	100	61	124.5	38.7	31.0
	3DACF027F-43	8.4	54.5	93	74	4	100	55	135	50.4	38.0
④	3DACF027F-62	8.9	48.0	93	74	5	100	55	135	50.4	38.0
	3DACF027F-59	7.4	60.0	95	74	5	100	55	135	50.4	38.0
	3DACF027F-28	8.3	60.0	97	76	5	100	55	135	50.4	38.0
	3DACF027F-51	8.3	60.0	95	74	5	114.3	62	152	50.4	38.0
	3DACF031F-15	9.4	60.0	97	76	5	114.3	62	152	53.4	42.6
⑤	3DACF041F-8	10.1	60.0	120	93	5	114.3	62	152	58.7	52
	3DACF031F-24	10.3	75.0	95	76	5	114.3	62	152	53.4	42.6
	3DACF047F-4	11.8	42.06	116	91.25	5	115	70.6	146	44.3/47.6	33.3/38.9
⑥	3DACF046F-6	13.8	60.0	120	93	5	114.3	62	152	68.4	63.4
	3DACF045F-4	12.9	62.0	102	83	5	114.3	68	139	61.2	56.4
⑦	3DACF050F-10	14.5	44.0	116	98	5	112	67	141	74.8	72.3
	3DACF048F-11	15.7	42.06	138	105	6	139.7	78.4	179	45.1/53.0	36.9/46.5
	3DACF048F-13	16.7	42.06	138	105	6	132	78.415	164	45.1/53.0	36.9/46.5

\*1 Pitch circle diameter of the two upper-side mounting holes of the vehicle \*2 Pitch circle diameter of the two lower-side mounting holes of the vehicle

\*3 "Different-diameter P.C.D." refers to a specification in which ball P.C.D. of the inner side and outer side are not the same.

For hub units with different-diameter P.C.D., load rating values for both the inner and outer sides are listed separately.

\*4 Distance between outer ring flange and shaft flange.

JTEKT Corporation WEB site

<https://www.jtekt.co.jp/e/>



JTEKT Overseas hubs

<https://www.jtekt.co.jp/e/company/global.html>



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