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**Nidec Develops Linear Vibration Motors with Smallest-class Diameters  
in the World**

Nidec Corporation (TSE: 6594; OTC US: NJDCY) (the “Company” or “Nidec”) announced today that it has developed a series of linear vibration motors with smallest-class diameters in the world (the “CA series”).



**Linear Vibration Motor “CA Series”**

A number of commercially available smartphones and smartwatches equipped with a vibration motor nowadays. Though, in the past, its primary purpose was to vibrate in a certain pattern to notify users of an incoming message, the motor is equipped with a function in recent years to control vibrations to make users feel as if they were pressing a button. Vibration motors are now expected to be installed in portable devices such as stylus pens, and VR units such as Smart Goggles/Gloves, among others. To accommodate such needs, Nidec has developed a “CA series,” a group of ultra-small cylindrical vibration motors developed based on larger conventional vibration motors.

The “CA series” comprises three vibration motors, “CA3,” “CA7-VH5,” and “CA7-VH9,” all of which are mainly intended to be built into stylus pens. By replicating the way a pen tip vibrates when writing words, the motors recreate a tactile sense to make users feel as if they were actually writing on paper. Additionally, with the motors’ sizes and vibration strength designed to differ by type, we are able to propose motors that satisfy our customers’ needs.

The “CA series” vibration motors were developed based on Nidec’s magnetic circuit design technology, which was cultivated in the Company’s design of HDD spindle motors – the products of which we account for the largest global market share. The “CA series” motors consume only 1.3mW to 6mW of electricity, which is approximately one-fiftieth of the power consumed by the vibration motors installed in general smartphones (data based on a comparison with Nidec’s standard vibration motors). This high-level energy efficiency reduces the required capacity of the battery to be installed in the smartphones, and helps us to trim their weights.

As of the end of March 2020, Nidec had shipped a total of more than 300 million vibration motors for smartphones. These motors, manufactured based on our technologies to make light, thin, short, and compact products, to improve efficiency, and to keep everything in control, are highly evaluated

by our customers. As the world's leading comprehensive motor manufacturer, Nidec will stay committed to providing innovative solutions to help shape a comfortable society.

\*The information on the products in this press release is available in the technological contents of the Company's website as well.

[https://www.nidec.com/en/technology/casestudy/tactile\\_new/](https://www.nidec.com/en/technology/casestudy/tactile_new/)

### CA Series: Specifications

	CA7-VH9	CA7-VH5	CA3
Exterior and Vibration Direction			
Size (Volume)	Φ 6.55 x 8.8mm (300mm <sup>3</sup> )	Φ 6.55 x 5.0mm (170mm <sup>3</sup> )	Φ 3.0 x 10.7mm (70mm <sup>3</sup> )
Rated voltage	0.2 Vrms	0.2 Vrms	0.1 Vrms
Resonant frequency	150 Hz	200 Hz	190 Hz
Acceleration (100g JIG eq.)	0.25Grms	0.14Grms	0.05Grms
Rise time (0-50%)	13 ms	13 ms	16 ms
Rated current	25mArms(max)	25mArms(max)	16mArms(max)
Resistance	8.7 Ω	8.7 Ω	6.2 Ω
Power Consumption	6 mW	6mW	1.6 mW

For inquiries regarding the products herein, please contact:  
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### Cautionary Statement Concerning Forward-Looking Information

This press release contains forward-looking statements regarding the intent, belief, strategy, plans or expectations of the Nidec Group or other parties. Such forward-looking statements are not guarantees of future performance or events and involve risks and uncertainties. Actual results may differ materially from those described in such forward-looking statements as a result of various factors, including, but not limited to, the risks to successfully integrating the acquired business with the Nidec Group, the anticipated benefits of the Transaction not being realized, changes in general economic conditions, shifts in technology or user preferences for particular technologies and changes in business and regulatory environments. The Nidec Group does not undertake any obligation to update the forward-looking statements contained herein or the reasons why actual results could differ from those projected in the forward-looking statements except as may be required by law.