

Basic Specifications

Reference No. 8SEFB-0015②(1)

Issuing Section Design Group 1, Actuator Division

Issuing Date Dec. 6 ,2021

Model No. TF029B-1000-F

1. Scope

This document applies to Blower TF029B-1000-F (hereinafter referred to as "PRODUCT"), a product of NIDEC COPAL ELECTRONICS CORP. (hereinafter referred to as "NCEL").

2. Specification

(Note1) Unless otherwise specified, the environmental conditions are 23°C±5°C, normal humidity, and atmospheric pressure range 90 to 106kPa.

(Note2) Measuring conditions :

driving circuit = NCEL's standard driving circuit,

supply voltage = DC24V, measurement equipment = NCEL's standard equipment

(Note3) The below specifications specify the characteristics of the Blowers at the time of shipment. The characteristics may change over time depending on the usage conditions and environment.

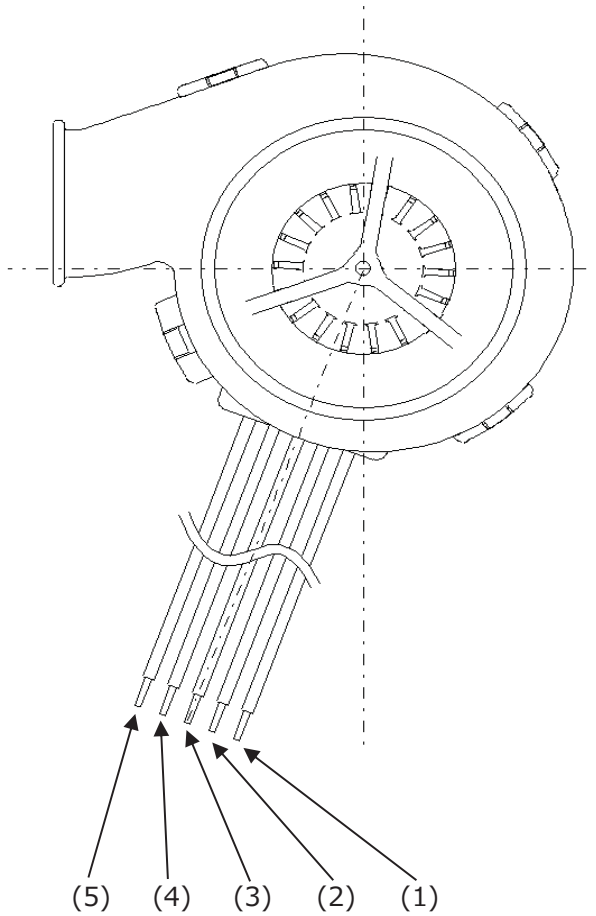
(Note4) Please contact us if you'd like to operate the PRODUCT outside of specifications.

No.	Items	Specification	Remarks
1	Rated Voltage	DC 12 ~ 27 V	
2	Direction of Rotation	CCW (Counter-Clockwise)	Looking down from the air inlet.
3	Kind of Gas	Air	Noncorrosive gas
4	Configuration	Motor with Centrifugal Blade	Without driving circuit
5	Type of Motor	DC Brushless Motor	
6	Number of Poles	4 Poles (2 pole pairs)	
7	Drive System	3 Phase, Bipolar	
8	Bearings	Aero-Dynamic Bearings	
9	Impeller	Centrifugal Turbo Blade	
10	Outline	Drawing : 6405-00151-01	Please refer to attached drawing.
11	Mounting Direction	Shaft vertical to ground, air inlet facing upwards	No vibration, shock, or gyration is to be applied during operation.

No.	Items	Specification	Remarks
12	Max. Input Coil Current	2.0 A rms max. (Note4)	In continuous operation. Excluding inrush current.
13	Rated Power Supply Current	0.62 A max.	at 2.0kPa, 100L/min, DC 24V
14	Rated Power Consumption	14.9 W max.	at 2.0kPa, 100L/min, DC 24V
15	Rated Air Flow	100 L/min	at 2.0kPa
16	Minimum Air Flow	10 L/min	
17	Rated Pressure	2.0 kPa (\approx 20 cmH ₂ O)	at 100L/min
18	Maximum Pressure	3.5 kPa (\approx 35 cmH ₂ O)	absolute maximum pressure.
19	Rated Rotation Speed	36,000 r/min (reference value)	at 2.0kPa, 100L/min
20	Min. Rotation Speed	10,000 r/min	
21	Max. Rotation Speed	50,000 r/min	<u>Pressure-air flow must be within the "area of use" specified in "5. Operating Range" on P.5.</u>
22	Torque Constant	0.0014 ~ 0.0020 N·m/A (reference value)	
23	Acoustic Audible Noise	65.0 dB(A) max.	at 2.0kPa, 100L/min. measured at 1m from air inlet. Include background noise 15dB(A).
24	Coil Resistance	0.37 ~ 0.49 $\frac{\Omega}{\text{ohm}}$ (reference value)	at 20°C (Between 2 phase)
25	Coil Inductance	22 ~ 29 μH (reference value)	at 20°C, 10kHz (Between 2 phase)
26	Insulation Class	Class E	JIS C 4003
27	Insulation Resistance	1M $\frac{\Omega}{\text{ohm}}$ min.	DC500V, between terminal pins and shaft holder. JIS C 4003
28	Dielectric Strength	Leak current to be less than 1mA.	AC600V for 1sec. between terminal pins and shaft holder. JIS C 4003
29	Weight	55 g (reference value)	
30	Rotor Inertia	10 g·cm ² (reference value)	
31	Max. Axial Loading	3N max.	maximum axial force applying to the intake (upper housing)

No.	Items	Specification	Remarks
32	Operating Temperature Range	0 to 50°C	
33	Operating Humidity Range	10 to 95%RH	No condensation
34	Storage Temperature Range	-20 to 60°C	
35	Storage Humidity Range	10 to 95%RH	No condensation
36	Resistance to Vibration	The Blower shall satisfy Specification No.12 ~ 28 after the following test.	
		Kind of Vibration	sweep
		Frequency Range	10~22Hz @ amplitude 1mm
			22~50Hz @ acceleration 19.6m/s ² (2G)
		Sweep	to-and-fro, approx. 5min.
Test Time	X, Y, Z directions, 60min. each		
37	Resistance to Shock	The Blower shall satisfy Specification No.12 ~ 28 after the following test.	
		Acceleration	294m/s ² (30G)
		Pulse Width	6ms
		Shock Wave	Simi-sinusoidal wave
		Number of Shock	X, Y, Z, directions, once per each direction

3. Interface



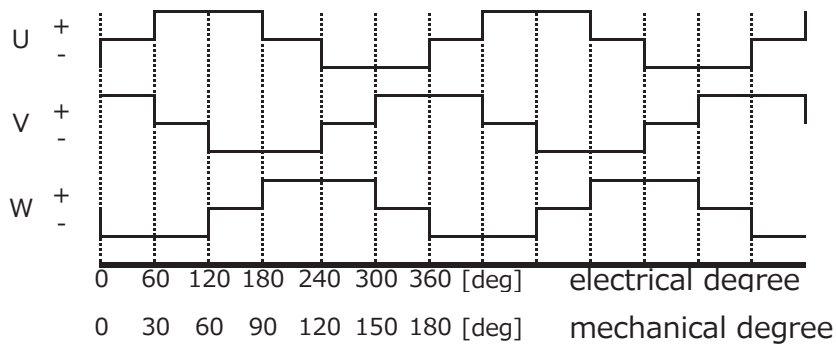
Pin No.	Symbol	Wire Color	Signal
1	U	Brown	Motor Coil (U)
2	V	Red	Motor Coil (V)
3	W	Orange	Motor Coil (W)
4	TH(-)	Yellow	Thermistor (-)
5	TH(+)	Green	Thermistor (+)

(Note5) Thermistor Manufacturer and Part No.;

Manufacturer : TDK Corp.

Part No. : NTCG164BH103JT

4. Timing Chart



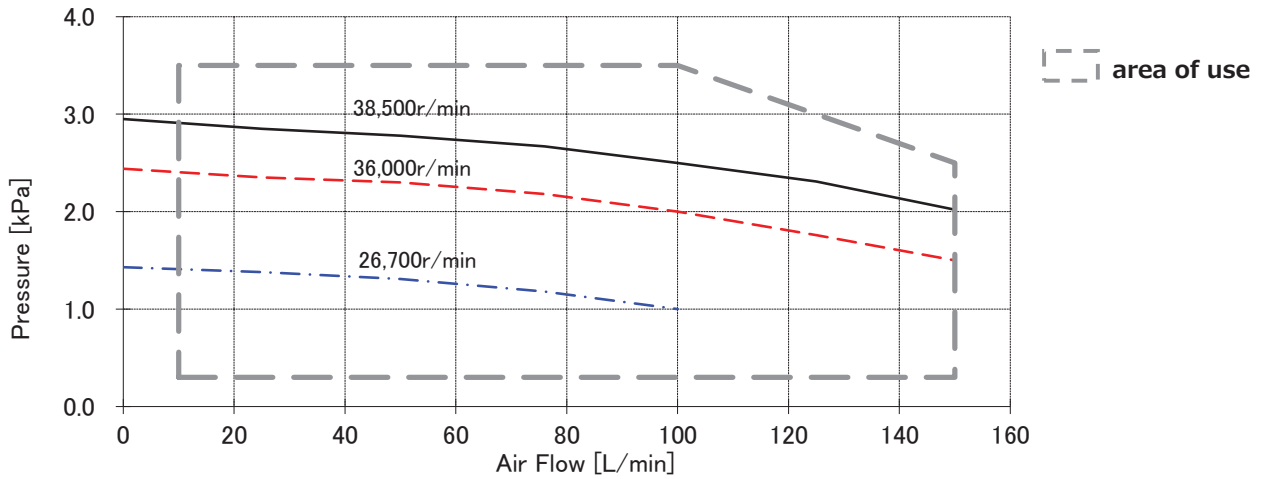
5. Operating Range

The following graph is provided for reference only. Values are not guaranteed.

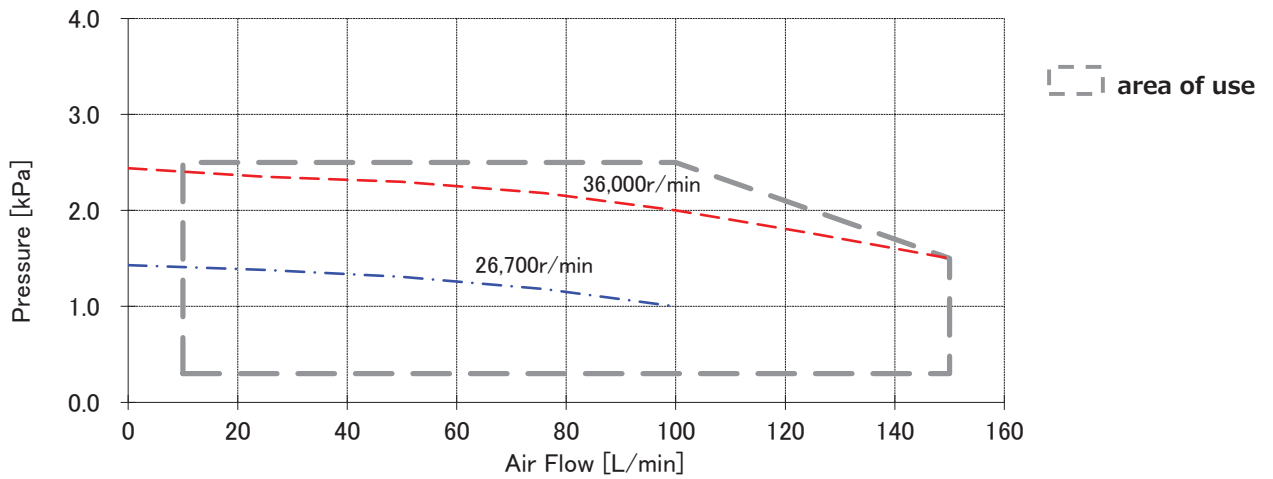
Conditions: Ambient temperature $23 \pm 5^\circ\text{C}$, normal humidity, atmospheric pressure ($100 \pm 2\text{kPa}$).

Make sure the thermistor temperature does not exceed 80°C during blower operation.
(Thermistor resistance value $R_{(80 \text{ deg C})} = 1.177\text{k}\Omega$)

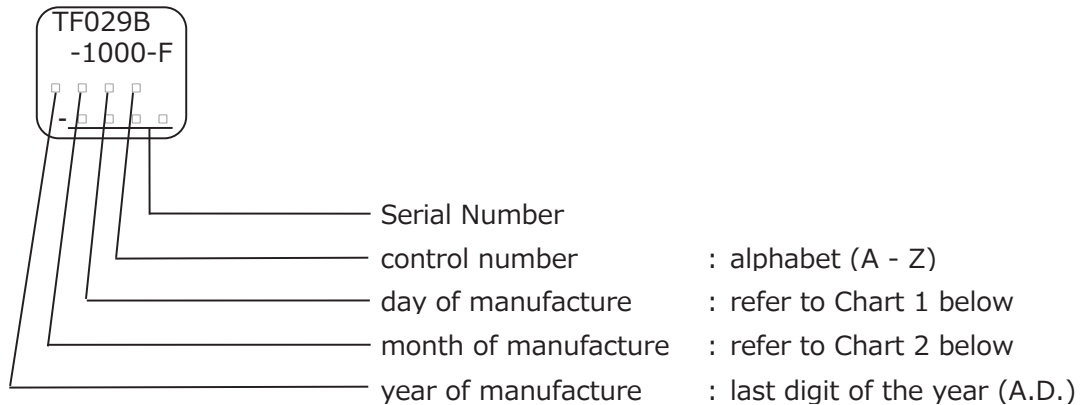
Operating Range at DC24V (1atm)



Operating Range at DC12V (1atm)



6. Manufacturing Code



【Chart 1】

day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
code	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	J	K	L

day	21	22	23	24	25	26	27	28	29	30	31
code	M	N	P	Q	R	T	U	V	W	X	Y

【Chart 2】

month	1	2	3	4	5	6	7	8	9	10	11	12
code	1	2	3	4	5	6	7	8	9	O	N	D

7. Warranty

Warranty period of the Product is one year from delivery. In case, defect has been found in the Product during the warranty period and it was found that Nidec Copal Electronics (here in after referred as NCE) is responsible and liable for the defect, NCE shall either repair or replace the defected Product free of charge, provided, however, that foregoing warranty shall be voided and shall not be applied in any instances where

1. Buyer fails to carry out proper handling, operating, installation, testing, service and checkout of the Product and/or to follow NCE's instruction or advice with respect to any of these matters,
2. Buyer utilizes any attachments or interface devices or makes any modification to the product which are not approved in writing by NCE.
3. Buyer incorporates any parts not supplied by NCE into the Product and/or combines any equipment not supplied by NCE with Product.
4. The alleged defect arises out of NCE's compliance with any written request, instruction, design change, drawing or specification (including but not limited to instruction manual, installation manual, and service manual prepared by Buyer) specifically furnished or imposed by Buyer upon Seller.
5. Defect arisen due to reason that it has been unable to be aware of the problem by ordinary scientific and technical knowledge and capability in those days.

In addition, NCE shall not indemnify Buyer against any damages and losses which are alleged to have arisen as a result of and/or caused by defect or malfunction of Product. Buyer must implement a proper protection measure on Buyer's system in preparation for sudden malfunction and out of control of Product.

8. PRECAUTION ON HANDLING

1. Do not give strong stress such as shock, vibration and oscillation to Product. While product is working, such stress may cause Lock-up of rotor which can lead the product to permanent damage .
2. This product doesn't include a driver. Buyer has to install and configure a driver properly according to characteristic, rating and recommendation in this specification.
3. This specification doesn't mean that NCE guarantees Product will not be breakdown or out of order in any case. Buyer has to implement a proper protection measure on Buyer's system in preparation for sudden malfunction and out of control of Product.
4. Product characteristic was measured with NEC's standard measuring equipment*1), therefore the characteristics in actual condition or use at Buyer may different from the characteristic in this specification. Checkout the characteristic results at the actual condition before use.
5. Do not plug and unplug cables while product is powered.
6. Turn power off and stop to use Product immediately in any of following cases
 - 1) any foreign object has got into product
 - 2) the Product have been dropped or got broken
 - 3) the Product becomes inordinately hot, has a strange odor, emits smoke, or makes unfamiliar noises.
7. Do not use or store Product where shock, vibration, static electricity might occurs and with high temperature, humidity, dust, corrosive gas, no ventilation and near splashing water, chemical material or oil.
8. Do not seal off or block the air vent and use by connecting products in series.
9. Product has parts rotating at high speed which might cause serious personal injury. Pay attention to handle Product while it works.
10. If you have any questions, please contact our sales representative.
11. The resin parts constituting the PRODUCT use non-flame-retardant grade.

*1) Flowmeter NCE is using is a mass flowmeter of thermal method displaying volume flow rate at 20°C·1 air pressure.

9. ENVIRONMENT/SAFETY REGULATION RELATED

The PRODUCT is compliant with RoHS directives which went into effect July, 2011.

Designated hazardous substances are lead, mercury, cadmium, hexavalent chrome, brominated flame retardants (PBB, PBDE) and its compounds.

The PRODUCT is compliant with Directive 2006/122/EC of the European Parliament (Council Directive 76/769/EEC (30th amendment)) which restricts the use of PFOS.

10. DISCLAIMERS

1. The product is not designed for use in equipment or devices that could have an impact on life or body, or those that could damage property (These include, but are not limited to, medical equipment, disaster prevention equipment, security equipment, combustion control equipment, infrastructure control equipment, vehicle equipment, transportation equipment, on-board equipment, aviation equipment, space equipment, and nuclear-related equipment). If you want to use this product for any of the above-mentioned equipment or devices, be sure to contact our point of contact beforehand. The details of warranty shall be as per the descriptions in this document and we shall not be liable for any damage on you resulting from the use of any equipment or device (including control systems) which is not in accordance with this document (hereinafter referred to as "use in violation"). In the case where you resell our products, we shall not be liable for any damage on a third party resulting from use in violation by the third party, and even if we make payment to the third party in connection with such use in violation regardless of the name by which such payment may be called, we may demand the whole amount thereof from you.
2. This product is strictly prohibited from using, providing or exporting for the purposes of the development of weapons of mass destruction or military use. NCE is not liable for any losses, damages, claims or demands caused by any provision or export to the person or entity who intends to develop, manufacture, use or store nuclear, biological or chemical weapons or missiles, or use any other military purposes.

3. All the information described herein(product data, specifications, figures, tables, programs and application circuit examples, etc) is current as of publishing date of this document and is subject to change without notice.
4. This specification doesn't mean that NCE guarantees Product will not be breakdown, out of order and fail in any case. Buyer has to therefore take responsibility to give thorough consideration to safety design to prevent accidents causing injury or damage that may ensue from the Product's failure or malfunction. The entire system in which the Product is used must be sufficiently evaluated and judged whether the Product operates without problems. NCE is not liable for losses, damages, claims or demands which are claimed to have arisen as a result of and caused directly or indirectly by Product's defect, out of order, failure and malfunction.

11. Revision History

<Revision Record>

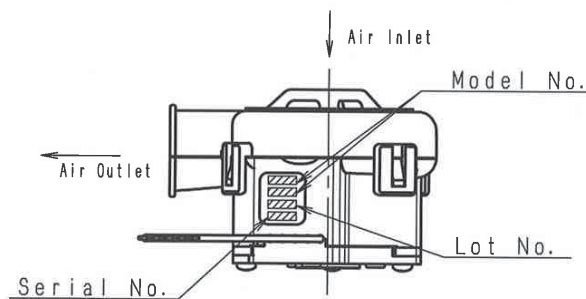
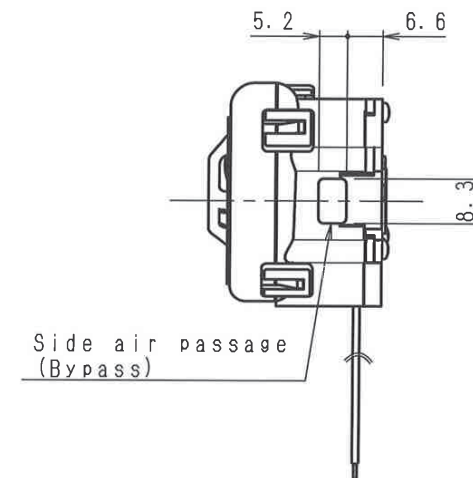
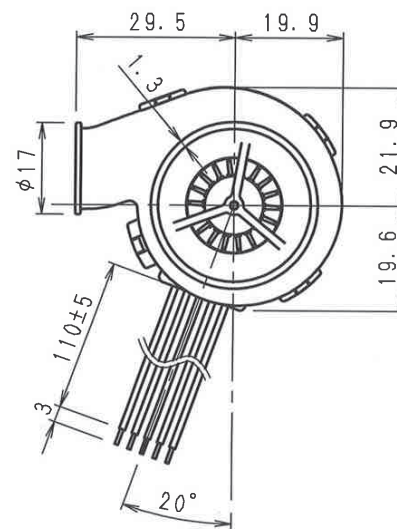
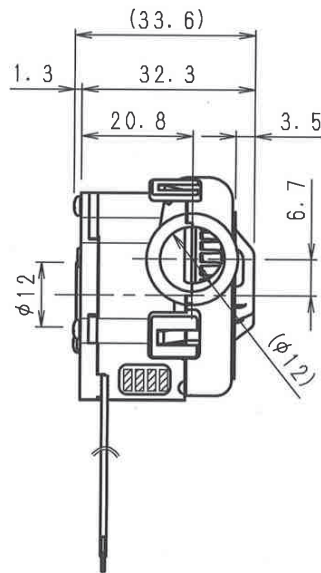
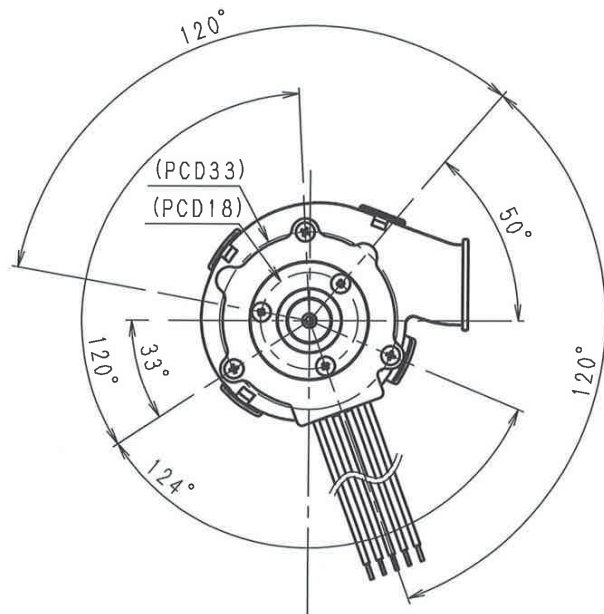
Revision Number	Revised Date	Item	Before Change	After Change	Mark
	20-Feb-17	First edition			
①	4-Apr-17	Reference No.	8SEFB-0015	8SEFB-0015①	☆
		This specification	English/Japanese	only Japanese	☆
②	6-Dec-21	Reference No.	8SEFB-0015①	8SEFB-0015②	☆
		Issuing Section	Design Group 3, Actuator Division	Design Group 1, Actuator Division	☆
		3. Interface	Thermistor Output (-)	Thermistor (-)	☆
			Thermistor Output (+)	Thermistor (+)	☆
		7. Warranty	7. Warranty	☆	
		8. PRECAUTION ON HANDLING	8. Notes	8. PRECAUTION ON HANDLING	☆
		9. ENVIRONMET/SAFTY REGULATION RELATED		9. ENVIRONMET/SAFTY REGULATION RELATED	◇
		10. DISCLAIMERS		10. DISCLAIMERS	◇
				Modify sentence of each items	☆
		8. PRECAUTION ON HANDLING		8(1),8(2),8(9)	◇
10. DISCLAIMERS		10(2)	◇		
		11. Revision History	9. Revision History	11. Revision History	☆

<Translation Revision Record>

Revision	Revised Date	Item	Before Change	After Change	Mark
(0)	5-Apr-17	English Edition			☆
(1)	6-Dec-21	English Edition	8SEFB-0015②	8SEFB-0015②(1)	☆

Mark : Changed...☆ Added...◇ Deleted...□

No.	Drawing Number	Name	Qty.	Notes
1				
2				



Note

1) General Tolerances. ± 0.5

(Dimensions: In mm)

ISSUED BY DESIGN GROUP 3
Previous Drawing: 6405-00151-92

		Third Angle Projection Method	Scale 1 : 1	Tolerances			Material	Surface Treatment
Qty.	Finish		A	B	S			
				0 - 30	± 0.1	± 0.2		
				30 - 120	± 0.15	± 0.3		
				120 - 315	± 0.2	± 0.5		
				315 - 1000	± 0.3	± 0.8		
				Approved by	Checked by	Designed by	Name	BLOWER OUTLINE
							Dwg. No.	6405-00151-01

△ Feb. 17 '17 8SELB-0060 Revised English version released.
Jan. 16 '16 First Print

C.No. Date Ecn. No. Revision

M.O. Name
M.O. Name
M. Name
N. Takamaki
M. Name
M. Olayashi

NIDEC COPAL ELECTRONICS CORP.

Name BLOWER OUTLINE

Dwg. No. 6405-00151-01