

Client Name: Jiangsu DINGS' Intelligent Control Technology Co., Ltd.
 Client Address: 355 Longjin Road, Changzhou Economic Development Zone, Jiangsu, China

Sample Name: Hybrid Hollow Shaft Stepper Motor
 Tested Basic Model No.: 11HS2045-4D-100
 Client Ref. Information: HS

The above sample(s) and information were provided by the client.

SGS Job No.: SHP24-000057
 Sample Receiving Date: Jan 02, 2024
 Verification Period: Jan 02, 2024 ~ Jan 11, 2024
 Verification Requested: With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.
 Verification Method(s): Please refer to next page(s).
 Verification Result(s): Please refer to next page(s).

Test Result Summary:

Test Items	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of
 SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Jessica Chen

Jessica Chen
 Approved Signatory

scan to see the report

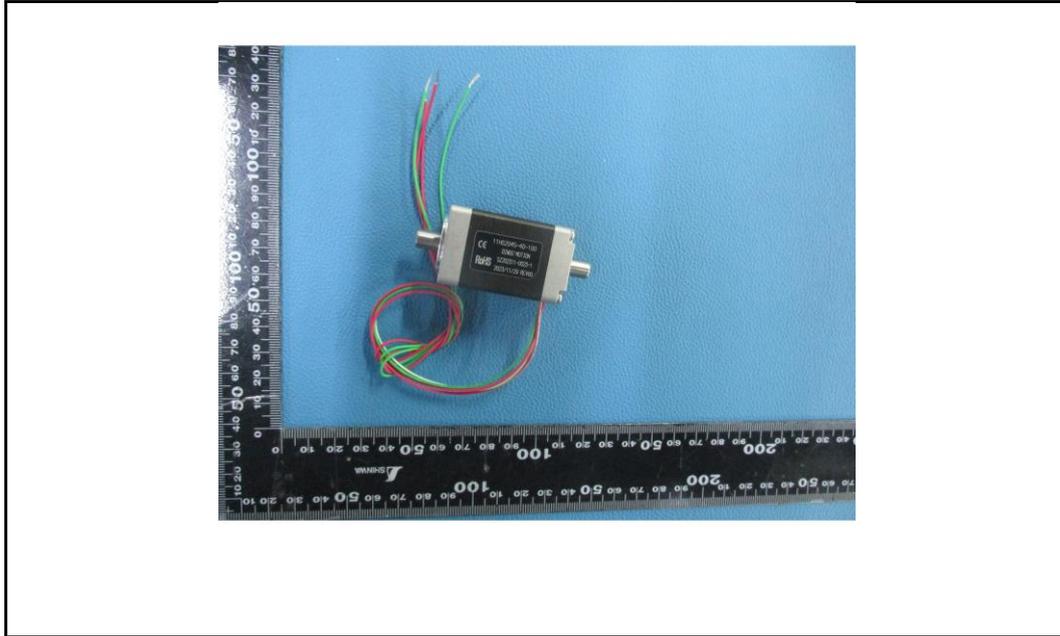


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Photo of Submitted Sample



Verification Method(s):

1. With reference to IEC 62321-2:2021, disassembly and disjointment were performed for the submitted samples.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
 - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
 - (2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, ISO 17075-1:2017, IEC 62321-12:2023, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.



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Verification Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA24-0000683-0001.C001	Silvery metal (shell)
SN2	A2	SHA24-0000683-0001.C002	Silvery metal (shell)
SN3	A3	SHA24-0000683-0001.C003	Silvery metal (screw)
SN4	A4	SHA24-0000683-0001.C004	Black adhesive plastic (label)
SN5	A5	SHA24-0000683-0001.C005	Green/White plastic (jacket)
SN6	A6	SHA24-0000683-0001.C006	Red/White plastic (jacket)
SN7	A7	SHA24-0000683-0001.C007	Silvery metal (wire core)
SN8	A8	SHA24-0000683-0001.C008	Silvery metal (shaft)
SN9	A9	SHA24-0000683-0001.C009	Silvery metal (shaft)
SN10	A10	SHA24-0000683-0001.C010	Copper-colored metal (loop)
SN11	A11	SHA24-0000683-0001.C011	Beige plastic (bracket)
SN12	A12	SHA24-0000683-0001.C012	Silvery metal (soldering tin) (PCB)
SN13	A13	SHA24-0000683-0001.C013	Green PCB (body)
SN14	A14	SHA24-0000683-0001.C014	White adhesive (PCB)
SN15	A15	SHA24-0000683-0001.C015	Black metal (silicon plate)
SN16	A16	SHA24-0000683-0001.C016	Silvery metal (bearing)
SN17	A17	SHA24-0000683-0001.C017	Silvery metal (bearing)
SN18	A18	SHA24-0000683-0001.C018	Silvery metal (bearing)
SN19	A19	SHA24-0000683-0001.C019	Silvery metal (bearing)
SN20	A20	SHA24-0000683-0001.C020	Silvery metal (bearing)
SN21	A21	SHA24-0000683-0001.C021	Silvery metal (bearing)



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Testing Center-Chemical Laboratory

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Verification Result(s):

In accordance with the result of material risk assessment, the following disjointed parts in the submitted sample have been verified. (Unless otherwise specified, the unit is mg/kg).

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	ND	ND	ND	BL	BL	BL	BL	ND
PBBs	---	---	---	BL	BL	BL	---	---
PBDEs	---	---	---	BL	BL	BL	---	---
DBP	---	---	---	BL	BL	BL	---	---
BBP	---	---	---	BL	BL	BL	---	---
DEHP	---	---	---	BL	BL	BL	---	---
DIBP	---	---	---	BL	BL	BL	---	---
Conclusion	PASS							

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	ND	BL	BL	BL	BL	BL	ND	ND
PBBs	---	---	BL	---	ND	ND	---	---
PBDEs	---	---	BL	---	ND	ND	---	---
DBP	---	---	BL	---	BL	BL	---	---
BBP	---	---	BL	---	BL	BL	---	---
DEHP	---	---	BL	---	BL	BL	---	---
DIBP	---	---	BL	---	BL	BL	---	---
Conclusion	PASS							

Test Item(s)	A17	A18	A19	A20	A21
Cd	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL
Cr(VI)▼	ND	ND	ND	ND	ND
PBBs	---	---	---	---	---
PBDEs	---	---	---	---	---
DBP	---	---	---	---	---
BBP	---	---	---	---	---
DEHP	---	---	---	---	---
DIBP	---	---	---	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS



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Notes:

- (1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):
 (a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-1:2013 Annex A as below table.

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

- (b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or Cr are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".
 (c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL= Over Limit, IN (The symbol X marks the region)=Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs/PBDEs) are recommended to be performed.
 (d) The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (2) Screening results of Phthalates (PHTH) are for primary screening, and further chemical testing by GC-MS (for DBP, BBP, DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value (unit: mg/kg).

Test Items	CAS No.	Polymer/ Composite Materials
Dibutyl Phthalate (DBP)	84-74-2	$BL \leq 600 < X$
Benzylbutyl Phthalate (BBP)	85-68-7	$BL \leq 600 < X$
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	$BL \leq 600 < X$
Diisobutyl Phthalate (DIBP)	84-69-5	$BL \leq 600 < X$

- (3) Interpretation of results by chemical tests:
 (a) mg/kg = 0.0001%, MDL=Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.
 (b) Unit and MDL in wet chemical test

Test Items	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
Unit	mg/kg						
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBBs and PBDEs is 100 mg/kg,
 MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.
 MDL of Cr(VI) for metal sample is 0.10 µg/cm².

- (c) ▼ =Metal sample
 a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive-unavoidable coating variations may influence the determination



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Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

- (4) Restricted substances and maximum concentration values tolerated by weight in homogeneous materials under RoHS Directive: Cd: 0.01%, Pb/Hg/Cr(VI)/PBBs/PBDEs/DEHP/DBP/BBP/DIBP: 0.1%. The limit is quoted from RoHS Directive (EU) 2015/863.
- (5) IEC 62321 series is equivalent to EN 62321 series.

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019.



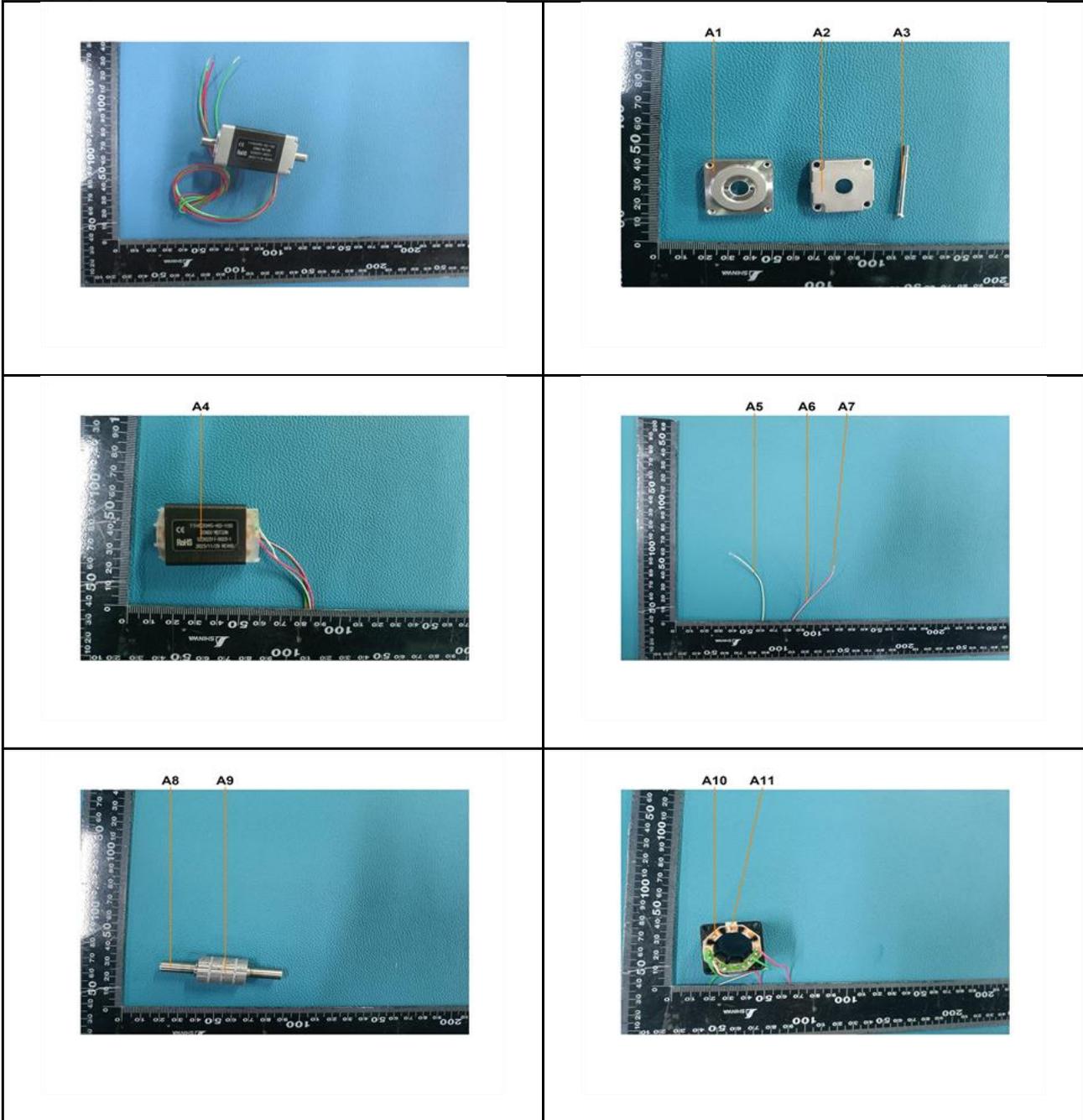
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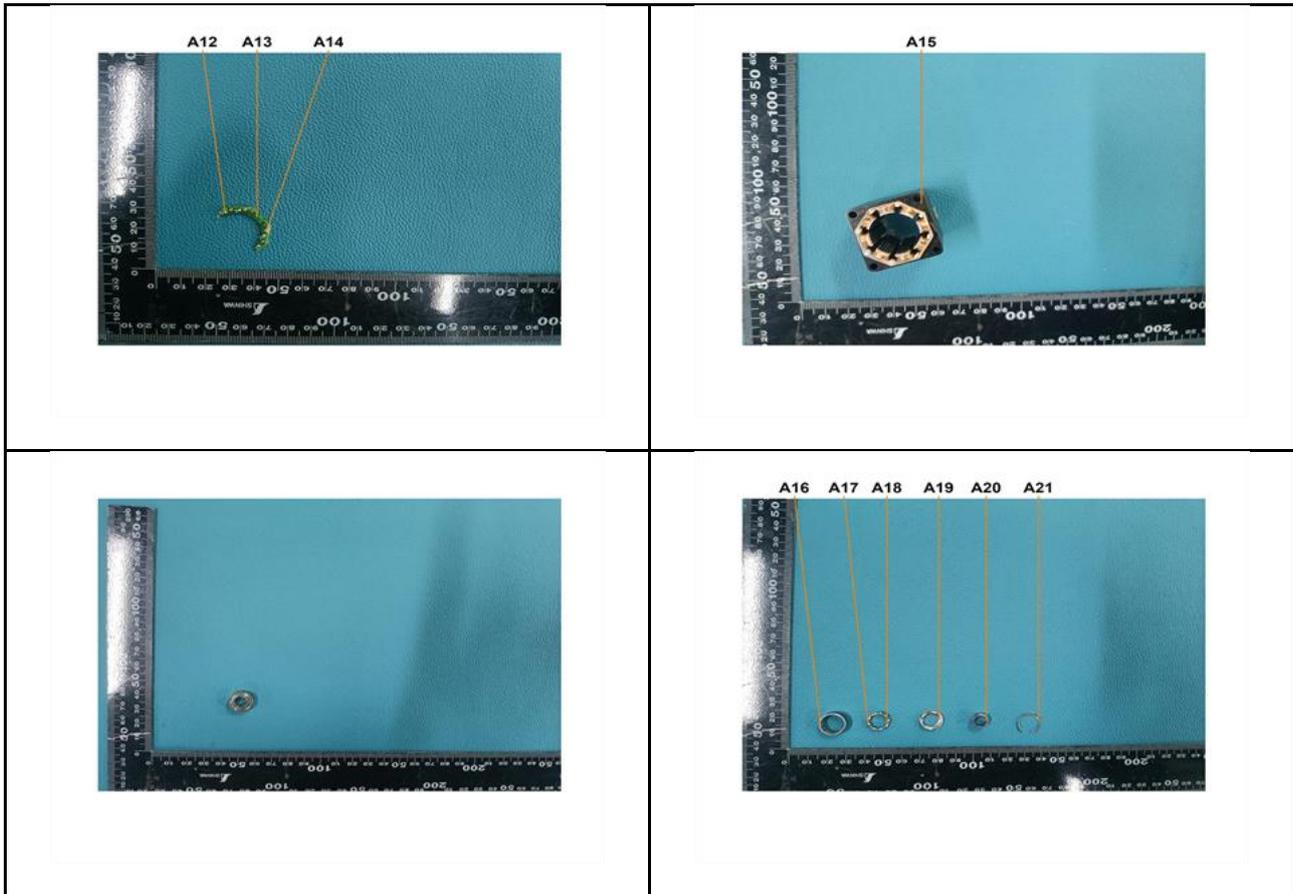
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