

Verification Report No.: SHAEC24000065901 Date: Jan 16, 2024 Page 1 of 10

Client Name: Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

Client Address: 355 Longjin Road, Changzhou Economic Development Zone, Jiangsu, China

Sample Name: Stepper Lead Screw Linear Actuator/Stepper Ball Screw Linear Actuator

Tested Basic Model No.: 11E2110K4-75.5SNAN.130 Tested Extended Model No.: 11E2110BS64-106RSN-030

Client Ref. Information: E/N/C/K/BS

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 12, 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)	Pass
phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and	
Diisobutyl phthalate (DIBP)	

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

Jessica Chen

Approved Signatory





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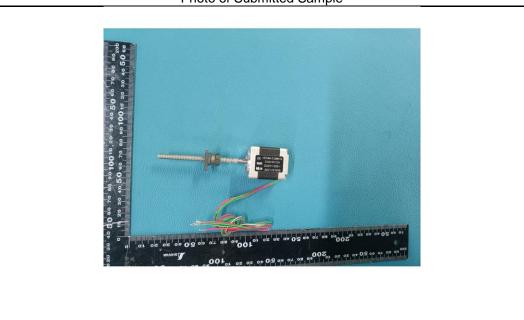
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## Verification Method(s):

- 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:

	'erification Part Description:								
SN ID	Sample No.	SGS Sample ID	Description						
SN1	A1	SHA24-0000659-0001.C001	Silvery metal						
SN2	A2	SHA24-0000659-0001.C002	Silvery/Black adhesive plastic						
SN3	A3	SHA24-0000659-0001.C003	Silvery metal						
SN4	A4	SHA24-0000659-0001.C004	Silvery metal						
SN5	A5	SHA24-0000659-0001.C005	Black/White adhesive plastic						
SN6	A6	SHA24-0000659-0001.C006	Gray plastic						
SN7	A7	SHA24-0000659-0001.C007	Silvery metal						
SN8	A8	SHA24-0000659-0001.C008	Gray plastic						
SN9	A9	SHA24-0000659-0001.C009	Red/White plastic						
SN10	A10	SHA24-0000659-0001.C010	Green/White plastic						
SN11	A11	SHA24-0000659-0001.C011	Silvery metal						
SN12	A12	SHA24-0000659-0001.C012	Golden metal						
SN13	A13	SHA24-0000659-0001.C013	Silvery metal						
SN14	A14	SHA24-0000659-0001.C014	Silvery metal						
SN15	A15	SHA24-0000659-0001.C015	Silvery metal						
SN16	A16	SHA24-0000659-0001.C016	Silvery metal						
SN17	A17	SHA24-0000659-0001.C017	Silvery metal						
SN18	A18	SHA24-0000659-0001.C018	Silvery metal						
SN19	A19	SHA24-0000659-0001.C019	Silvery metal						
SN20	A20	SHA24-0000659-0001.C020	Silvery metal						
SN21	A21	SHA24-0000659-0001.C021	Silvery metal						
SN22	A22	SHA24-0000659-0001.C022	Copper-colored metal						
SN23	A23	SHA24-0000659-0001.C023	White plastic						
SN24	A24	SHA24-0000659-0001.C024	Black metal						
SN25	B1	SHA24-0000659-0001.C025	Silvery metal						
SN26	B2	SHA24-0000659-0001.C026	Silvery metal						
SN27	B3	SHA24-0000659-0001.C027	Silvery metal						
SN28	B4	SHA24-0000659-0001.C028	Black plastic						
SN29	B5	SHA24-0000659-0001.C029	Black metal						



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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).

	2p.o							
Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	BL	BL	BL	ND	BL	BL	ND	BL
PBBs		BL			BL	BL		BL
PBDEs		BL			BL	BL		BL
DBP		BL			BL	BL		BL
BBP		BL			BL	BL		BL
DEHP		BL			BL	BL		BL
DIBP		BL			BL	BL		BL
Conclusion	PASS							

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

Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A24
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	ND	ND	ND	ND	ND	BL	BL	ND
PBBs							BL	
PBDEs							BL	
DBP							BL	
BBP							BL	
DEHP							BL	
DIBP							BL	
Conclusion	PASS							

Test Item(s)	B1	B2	B3	B4	B5
Cd	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL
Cr(VI)▼	BL	ND	ND	BL	ND



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Test Item(s)	B1	B2	В3	B4	B5
PBBs				BL	
PBDEs				BL	
DBP				BL	
BBP				BL	
DEHP				BL	
DIBP				BL	
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≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>BL≤(70-3σ)<x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<></td></x<(130+3σ)≤ol<>	BL≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<>	LOD <x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<>
Pb	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>
Hg	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>
Br	BL ≤ (300-3σ)< X	Not applicable	BL ≤ (250-3σ)< X
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< 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 ≤ 600< X
Benzylbutyl Phthalate (BBP)	85-68-7	BL ≤ 600< X
Bis(2-ethylhexyl) Phthalate (DEHP)	117-81-7	BL ≤ 600< X
Diisobutyl Phthalate (DIBP)	84-69-5	BL ≤ 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/cm<sup>2</sup>.

- (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/Hq/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.
- (6) ▲=According to the declaration from the client, Lead (Pb) in No.A12 is exempted by EU RoHS directive 2011/65/EU based on |ANNEX III 6(c)|: Copper alloy containing up to 4 % lead by weight.

More information about exemption can be found via the following link: https://rohs.sgsonline.com.cn/PDFLinks/en/RSTS-TP-037%20RoHS%20Exemption%20%28EN%29.pdf

- (7) According to the declaration from applicant, the materials of other parts in Model "11E2110BS64-106RSN-030" are the same as those in Model "11E2110K4-75.5SNAN.130", and the results of Model "11E2110K4-75.5SNAN.130" for support the results of other parts in Model "11E2110BS64-106RSN-030". The applicant will take the responsibility of all discrepancy and risk.
- (8) According to the declaration from applicant, the materials of Model "11E2110K4-75.5SNAN.130" are the same as those in Model "E/N/C/K/BS" and its results for support the results of Model "E/N/C/K/BS". The applicant will take the responsibility of all discrepancy and risk.

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.

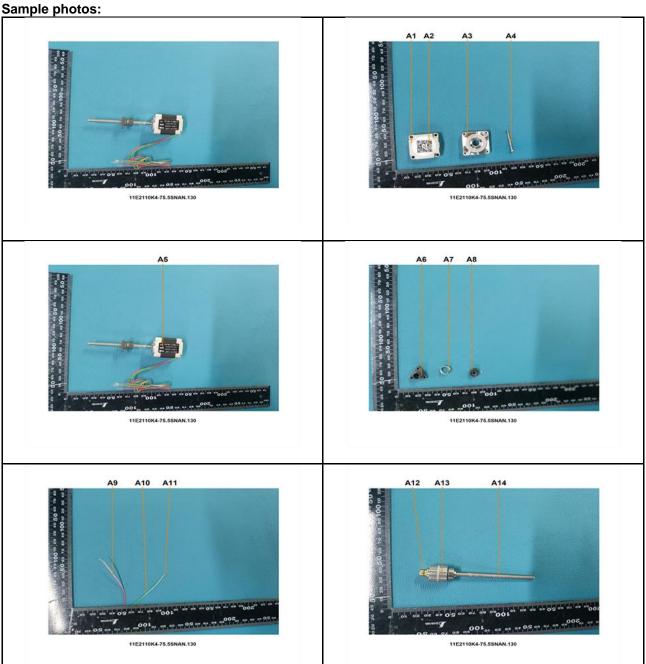


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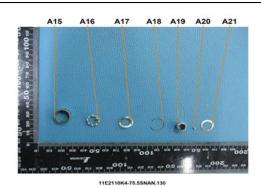
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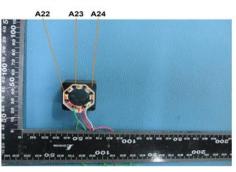
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11E2110K4-75.5SNAN.130





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