TEST REPORT

No. : SHIN2503000511CM01-1_EN
Date : 2025-04-25
Page: 1 of 11

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SHIN2503000511CM01-1
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CUSTOMER NAME: NANJING EK METALWORK CO., LTD
ADDRESS: NO.2 GAOXIONG ROAD, LUHE DISTRICT, NANJING CITY, CHINA.

Sample Name : DROP FORGED DOUBLE COUPLER
Material : Ø48.3

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

****

Date of Receipt : 2025-03-13
Testing Period : 2025-03-13 ~ 2025-04-24
Test result(s) : For further details, please refer to the following page(s)
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for
SGS-CSTC Standards Technical
Services (Shanghai) Co., Ltd..

Xander Yang

Xander Yang
Authorized signatory

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TEST REPORT

No. : SHIN2503000511CM01-1_EN

Date : 2025-04-25

Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Slipping Force	EN 74-1:2022 Clause 7.2.1	See Result	Pass
2	Failure Force	EN 74-1:2022 Clause 7.2.2	See Result	Pass
3	Pull-apart Force	EN 74-1:2022 Clause 7.3	See Result	Pass
4	Cruciform Bending Stiffness and Cruciform Bending Ultimate Moment	EN 74-1:2022 Clause 7.4.1	See Result	Pass
5	Rotational Moment and the Stiffness	EN 74-1:2022 Clause 7.4.2	See Result	Pass

Note: Pass : Meet the requirements;
Fail : Does not meet the requirements;
N/A : Not Apply to the judgment.

Original Sample Photo(s):

	
Slipping Force / Failure Force / Pull-apart Force / Rotational Moment and the Stiffness - View 1	Slipping Force / Failure Force / Pull-apart Force / Rotational Moment and the Stiffness - View 2

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Cruciform Bending Stiffness and Cruciform Bending Ultimate Moment - View 1	Cruciform Bending Stiffness and Cruciform Bending Ultimate Moment - View 2

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TEST REPORT

1. Test Item: Slipping Force

Test Method: EN 74-1:2022 Clause 7.2.1

Test Condition:

Specimen: Right angle coupler, Class B, 10pcs

Test Results:

Test Item	Test Result	Requirement in EN 74-1:2022 Table 8	Conclusion
Slipping Force	$\triangle_1 \leq 7mm$, $F_{s,5\%}$ =20.9kN	$\triangle_1 \leq 7mm$, $F_{s,5\%} \geq 10.0kN$	Pass
	$1mm \leq \triangle_2 \leq 2mm$, $F_{s,5\%}$ =25.0kN	$1mm \leq \triangle_2 \leq 2mm$, $F_{s,5\%} \geq 15.0kN$	

Note:

1) $F_{f,5\%}$: the 5% quantile for the 75% level of confidence.

2) Specification of tube for slipping force: Steel tube of Φ48.3mm×3.2mm (wall thickness)

3) Please see Annex A for details of test results.

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Annex A Details of Test Results

Specimen No.	F_s (kN, $\triangle_1$=7mm)	F_s (kN, 1mm≤$\triangle_2$≤2mm)
1	22.18	26.59
2	23.06	26.35
3	21.97	25.88
4	23.14	27.06
5	22.85	26.37
6	22.91	27.24
7	24.45	28.36
8	23.66	27.42
9	21.73	25.62
10	21.51	26.03
$F_{s,5\%}$	20.9	25.0

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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. Commercial Construction National Laboratory

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2. Test Item: Failure Force

Test Method: EN 74-1:2022 Clause 7.2.2

Test Condition:

Specimen: Right angle coupler, Class B, 5pcs

Test Results:

Test Item	Test Result	Requirement in EN 74-1:2022 Table 8	Conclusion
Failure Force	$F_{f,5\%}/\gamma R2$=57.6kN	$F_{f,5\%}/\gamma R2 \geq 30.0$kN	Pass

Note:

1) $F_{f,5\%}$: the 5% quantile for the 75% level of confidence.

2) γR2=1.25 according to EN 74-1.

3) Specification of steel bar for failure force: Steel bar of Φ48.3mm.

4) Please see Annex B for details of test results.

Annex B Details of Test Results

Specimen No.	F_f (kN)
11	74.71
12	77.54
13	78.62
14	75.31
15	79.85
$F_{f,5\%}/\gamma R2$	57.6

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3. Test Item: Pull-apart Force

Test Method: EN 74-1:2022 Clause 7.3

Test Condition:

Specimen: Right angle coupler, Class B, 5pcs

Test Results:

Test Item	Test Result	Requirement in EN 74-1:2022 Table 8	Conclusion
Pull-apart Force	$F_{p,5\%}/\gamma R2$=48.9kN	$F_{p,5\%}/\gamma R2 \geq$30.0kN	Pass

Note:

1) $F_{p,5\%}$: the 5% quantile for the 75% level of confidence.

2) γR2=1.25 according to EN 74-1.

3) Specification of steel bar for pull-apart force: steel bar of Φ48.3mm.

4) Please see Annex C for details of test results.

Annex C Details of Test Results

Specimen No.	F_P (kN)
16	66.85
17	71.96
18	64.27
19	69.83
20	67.24
$F_{p,5\%}/\gamma R2$	48.9

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4. Test Item: Cruciform Bending Stiffness and Cruciform Bending Ultimate Moment

Test Method: EN 74-1:2022 Clause 7.4.1

Test Condition:

Specimen: Right angle coupler, Class B, 10pcs

Test Results:

Test Item	Test Result	Requirement in EN 74-1:2022 Table 8	Conclusion
Cruciform Bending Stiffness and Cruciform Bending Ultimate Moment	M_B/1.65=0.48kNm, C_1=28.9kNm/rad	M_B/1.65=0.48kNm, C_1≥15.0kNm/rad	Pass
	M_B=0.8kNm, C_2=7.5kNm/rad	M_B=0.8kNm, C_2≥6.0kNm/rad	
	$M_{ult,5\%}$=1.6kNm	$M_{ult,5\%}$≥1.6kNm	

Note:

1. $M_{ult,5\%}$: the 5% quantile for the 75% level of confidence.
2. Specification of tube for cruciform bending stiffness and cruciform bending ultimate moment: Steel tube of Φ48.3mm×3.2mm (wall thickness).

   Specification of steel bar for cruciform bending stiffness and cruciform bending ultimate moment: Steel bar of Φ48.3mm.
3. Please see Annex D for details of test results.

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No. : SHIN2503000511CM01-1_EN

Date : 2025-04-25

Annex D Details of Test Results

Sample No.	C_1 (kNm/rad, M_B/1.65=±0.48kNm)	C_2^+ (kNm/rad, M_B=0.8kNm)	C_2^- (kNm/rad, M_B=-0.8kNm)	M_{ult}(kNm)
26	29.35	8.07	-	1.61
27	30.96	7.59	-	1.63
28	29.75	8.45	-	1.60
29	31.43	8.08	-	1.64
30	24.62	8.26	-	1.62
31	30.72	-	6.45	1.59
32	30.52	-	6.61	1.64
33	25.12	-	6.73	1.60
34	27.19	-	7.74	1.61
35	31.56	-	7.41	1.63
-	C_1=28.9	C_2=7.5		$M_{ult,5\%}$=1.6

Test Photo(s):



In Test

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5. Test Item: Rotational Moment and the Stiffness

Test Method: EN 74-1:2022 Clause 7.4.2

Test Condition:

Specimen: Right angle coupler, Class B, 5pcs

Test Results:

Test Item	Test Result	Requirement in EN 74-1:2022 Table 8	Conclusion
Rotational Moment and the Stiffness	M_T=±0.13kNm, C_φ=61.5kNm/rad	M_T=±0.13kNm, C_φ≥7.5kNm/rad	Pass
	1°≤θ≤2°, $M_{T,5\%}$=0.51kNm	1°≤θ≤2°, $M_{T,5\%}$≥0.13kNm	

Note:

1) $M_{T,5\%}$: the 5% quantile for the 75% level of confidence.
2) Specification of tube for rotational moment and the stiffness: Steel tube of Φ48.3mm×3.2mm (wall thickness).
3) Please see Annex E for details of test results.

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Annex E Details of Test Results

Sample No.	C_φ(kNm/rad, M_T=±0.13kNm)	M_T (kNm, 1°≤θ≤2°)
21	61.29	0.576
22	61.73	0.647
23	59.38	0.545
24	63.09	0.597
25	62.17	0.618
-	C_φ=61.5	$M_{T,5\%}$=0.51

This test report adds test item, supersedes the test report No. SHIN2503000511CM01_EN dated Apr 01st, 2025, original report will be invalid from today.

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Unless otherwise stated, this report provides a declaration of conformity according to whether the test results are within the specified limits or specifications without considering the measurement uncertainty.

********End of report********

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