Test Report No.: 01 220 CHN/T-2403442-3

Test Report

Client:	ANHUI HAODING METAL PRODUCT LIMITED COMPANY
Client address:	NO.32, GAOXIN ROAD, CHAHE ECONOMIC DEVELOPMENT ZONE, LAI'AN, ANHUI PROVINCE, CHINA
Contact information:	Tel.: / Mail: 277867611@qq.com
Sample No.:	SHM20240603442-3#-1~3#~20
Sample receiving date:	Jun.25, 2024
Testing period:	Jun.25, 2024~Jul.29, 2024

For and on behalf of
TÜV Rheinland (Shanghai) Co., Ltd.

Jul.29, 2024	King Chen Metal Materials Lab Project Manager	Yixiang Shen Metal Materials Lab Technical Manager
Date	Name	Name

TÜV Rheinland (Shanghai) Co., Ltd. 1/F. of No.10, No.177/178, Lane 777, West Guangzhong Road, Jing'an District, Shanghai 200072, P.R. China
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1. Sample information (provided by customer):

Sample name:	SWIVEL COUPLER
Sample description:	A batch of swivel couplers
Sample obtaining method:	☑ Sending by customer ☐ Sampling by TÜV staffs ☐ Other ( )
Other information:	Product specification: Φ48.3mm; Material and Mark: Q235.

Sample photo(s):

	
3#-1~10	3#-11~20

2. Conclusion:

Test item	Test requirement (EN 74-1:2022 Class A)	Test result	Conclusion
Slipping force	$\triangle_1 \leq 7mm$, $F_{s,5\%} \geq 7.0kN$	$F_{s,5\%}=8.6kN$	Pass
	$1mm \leq \triangle_2 \leq 2mm$, $F_{s,5\%} \geq 10.0kN$	$F_s=20.0kN$, $\triangle_2<1mm$	
Failure force	$F_{f,5\%}/\gamma R2 \geq 14.0kN$	$F_{f,5\%}/\gamma R2=22.9kN$	Pass
Indentation	$F=4.7kN$, $\triangle_{10} \leq 1.5mm$	$F=4.7kN$, $\triangle_{10}<1.5mm$	Pass

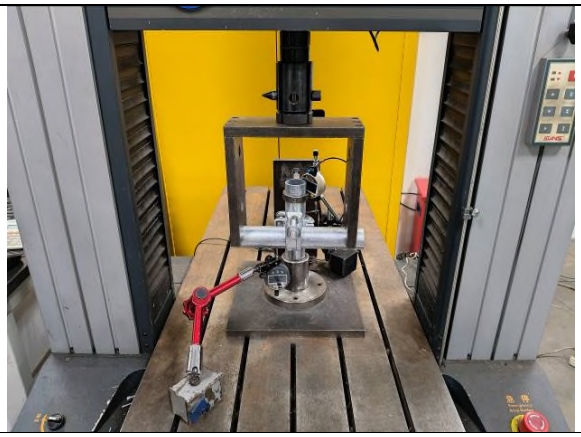
Note: 1. $F_{s,5\%}$, $F_{f,5\%}$: the 5%-quantile for a confidence level of 75%;
2. $\gamma R2=1.25$, Torque=50Nm.

3. Test result:

3.1 Slipping force:
Test method: EN 74-1:2022
Specification of steel tube: Φ48.3mmx3.2mm(wall thickness)
Loading rate: 2mm/min(before beginning to slip: 0.3kN/s)

Sample	F_s (kN, $\triangle_1 \leq 7mm$)	F_s (kN, $1mm \leq \triangle_2 \leq 2mm$)
3#-1	13.17	$F_s=20.0$, $\triangle_2<1mm$
3#-2	10.54	$F_s=20.0$, $\triangle_2<1mm$
3#-3	12.56	$F_s=20.0$, $\triangle_2<1mm$
3#-4	11.09	$F_s=20.0$, $\triangle_2<1mm$
3#-5	9.17	$F_s=20.0$, $\triangle_2<1mm$
3#-6	10.49	$F_s=20.0$, $\triangle_2<1mm$
3#-7	13.01	$F_s=20.0$, $\triangle_2<1mm$
3#-8	10.75	$F_s=20.0$, $\triangle_2<1mm$
3#-9	10.20	$F_s=20.0$, $\triangle_2<1mm$
3#-10	10.15	$F_s=20.0$, $\triangle_2<1mm$
$F_{s,5\%}$	8.6	$F_s=20.0$, $\triangle_2<1mm$

Note: When the test load reached twice the specified F_s given in Table 8 of EN 74-1:2022, the test could be ended according to the standard.

	
During test	After test

3.2 Failure force:
Test method: EN 74-1:2022
Specification of steel bar: Φ48.3mm
Loading rate: 2mm/min

Sample	F_f (kN)	Failure mode
3#-11	37.03	The center rivet was broken.
3#-12	36.24	The center rivet was broken.
3#-13	44.09	The center rivet was broken.
3#-14	33.25	The rivet was ruptured.
3#-15	43.03	The bolt was ruptured.
$F_{f,5\%}/\gamma R2$	22.9	/

	
During test	After test

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3.3 Indentation:
Test method: EN 74-1:2022
Specification of steel tube: Vertical tube: Φ48.3mmx2.8mm (wall thickness)
Horizontal tube: Φ48.3mmx3.2mm (wall thickness)
Loading rate: 2mm/min

Sample	$\triangle_{10}$ (mm,P_{ind}=4.7kN)
3#-16	0.12
3#-17	0.07
3#-18	0.15
3#-19	0.08
3#-20	0.13

During test

After test

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