

TEST REPORT

No. : SHIN1907051498CM

Date : Aug 06, 2019

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Sample name: DROP FORGED DOUBLE COUPLER

Test Method: EN 74-1:2005

Sample Description: See photos

Test Condition:

Specimen: Right angle coupler, Class B, 30pcs

Test Results:

Test Clause	Test Item	Test Requirement (Right angle coupler, Class B)	Test Result	Conclusion
7.2.1	Slipping force	$\Delta_1 \leq 7\text{mm}$, $F_{0.5\%} \geq 10.0\text{kN}$ and	$\Delta_1 = 7\text{mm}$, $F_{0.5\%} = 15.9\text{kN}$	Pass
		$1\text{mm} \leq \Delta_2 \leq 2\text{mm}$, $F_{0.5\%} \geq 15.0\text{kN}$	$1\text{mm} \leq \Delta_2 \leq 2\text{mm}$, $F_{0.5\%} = 15.4\text{kN}$	
7.2.2	Failure force	$F_{t,5\%}/\gamma R2 \geq 30.0\text{kN}$	$F_{t,5\%}/\gamma R2 = 55.2\text{kN}$	Pass
7.3	Pull-apart force	$F_{p,5\%}/\gamma R2 \geq 30.0\text{kN}$	$F_{p,5\%}/\gamma R2 = 44.5\text{kN}$	Pass
7.4.2	Rotational moment and the stiffness	$M_T = \pm 0.13\text{kNm}$, $C_p \geq 7.5\text{kNm/rad}$	$M_T = \pm 0.13\text{kNm}$, $C_p = 43.9\text{kNm/rad}$	Pass
		$1^\circ \leq \theta \leq 2^\circ$, $M_{T,5\%} \geq 0.13\text{kNm}$	$1^\circ \leq \theta \leq 2^\circ$, $M_{T,5\%} = 0.30\text{kNm}$	
7.5	Indentation	$F = 10\text{kN}$, $\Delta_{10} \leq 1.5\text{mm}$	$F = 10\text{kN}$, $\Delta_{10} < 1.5\text{mm}$	Pass

Note:

- $F_{0.5\%}$, $F_{t,5\%}$, $F_{p,5\%}$, $M_{T,5\%}$: the 5% quantile for the 75% level of confidence.
- $\gamma R2 = 1.25$ according to EN 74-1.
- Specification of tube for slipping force, rotational moment and the stiffness: Steel tube of $\Phi 48.3\text{mm} \times 3.2\text{mm}$ (wall thickness).
Specification of steel bar for failure force and pull-apart force: steel bar of $\Phi 48.3\text{mm}$.
Specification of tube for indentation: Steel tube of $\Phi 48.3\text{mm} \times 2.8\text{mm}$ (wall thickness).
- Please see Annex A for details of test results.



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Annex A Details of test results

1. Slipping force

Sample No.	F_s (kN, $\Delta_1=7\text{mm}$)	F_s (kN, $1\text{mm}\leq\Delta_2\leq2\text{mm}$)
1	18.05	17.64
2	18.34	18.32
3	17.64	17.46
4	17.34	17.30
5	17.60	16.67
6	19.80	18.89
7	17.83	16.23
8	19.74	17.98
9	22.25	20.92
10	19.88	17.82
$F_{s,5\%}$	15.9	15.4

2. Failure force

Sample No.	F_r (kN)
11	75.67
12	79.05
13	73.29
14	72.78
15	73.85
$F_{r,5\%}/YR2$	55.2

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3. Pull-apart force

Sample No.	F _P (kN)
16	63.55
17	57.61
18	62.14
19	62.12
20	64.45
F _{P,5%} /γR2	44.5

4. Rotational moment and the stiffness

Sample No.	C _θ (kNm/rad, M _T ±0.13kNm)	M _T (kNm, 1°≤θ≤2°)
21	45.10	0.356
22	47.26	0.341
23	44.01	0.333
24	43.58	0.326
25	40.31	0.323
-	C _θ =43.9	M _{T,5%} =0.30

5. Indentation

Sample No.	Δ ₁₀ (mm, F=10kN)
26	0.25
27	0.35
28	0.77
29	0.40
30	0.40

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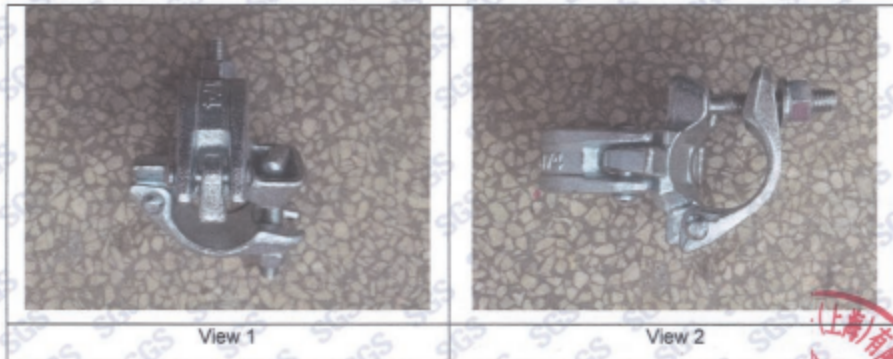
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Sample Photos:



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



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