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China-Accredited
Internationally Recognized Testing
TESTING
CNAS L0230

TEST REPORT

BETC-CL1-2022-00778

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD
National Center for Quality Inspection &Test of Building Engineering

2022-003146

Commission No.:2022-003146

No.of Report:BETC-CL1-2022-00778

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town, Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2022-00778
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 16 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-17
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sl eves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1. The type inspection sample and related coupler parameters were provided by the client. 2. All test results are presented on pages 2 to 4 of this report.

Approval	Verification	Chief Tester	Tel.	Date
			010-84281545	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	16	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		2.5	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		16.8	Coupler Installation Torque (N·m)		≥100

Coupler Marking, Appearance, and Dimension Inspection

Test Item / No. of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 16		25.5+0.5		40+1		14.7±0.4	
CL1-2022-00778-4	Qualified	Qualified	25.69	25.62	40.60	40.57	14.67	14.69
CL1-2022-00778-5	Qualified	Qualified	25.73	25.71	40.63	40.68	14.61	14.66
CL1-2022-00778-6	Qualified	Qualified	25.73	25.77	40.44	40.49	14.61	14.66
CL1-2022-00778-7	Qualified	Qualified	25.69	25.62	40.56	40.52	14.64	14.67
CL1-2022-00778-8	Qualified	Qualified	25.71	25.74	40.46	40.47	14.62	14.60
CL1-2022-00778-9	Qualified	Qualified	25.65	25.68	40.43	40.41	14.55	14.56
CL1-2022-00778-10	Qualified	Qualified	25.66	25.67	40.39	40.37	14.52	14.58
CL1-2022-00778-11	Qualified	Qualified	25.65	25.64	40.42	40.46	14.57	14.56
CL1-2022-00778-12	Qualified	Qualified	25.72	25.71	40.36	40.39	14.72	14.71
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data

Test Item \ No.of Sample	CL1-2022-00778-1	CL1-2022-00778-2	CL1-2022-00778-3	Qualification
Nominal Diameter of Rebars(mm)	16			/
Lower Yield Strength R_{eL} (N/mm²)	575	575	580	≥500
Tensile Strength R_m (N/mm²)	730	730	730	≥630
Maximum Total Elongation A_{gt} (%)	17.2	14.1	15.0	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data

Test Item \ No. of Sample	CL1-2022-00778-4	CL1-2022-00778-5	CL1-2022-00778-6	Average	Qualification
Residual Deformation u_0 (mm)	0.02	0.05	0.00	0.02	U_0≤0.10
Maximum Total Elongation A_{sgt} (%)	9.5	11.1	9.2	9.9	A_{sgt} ≥6.0
Tensile Strength f^0_{mst} (N/mm²)	693	695	691	/	f^0_{mst} ≥f_{stk} rebar breakage or ≥1.10f_{stk} connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00778-7	CL1-2022-00778-8	CL1-2022-00778-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.09	0.06	0.19	0.11	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	691	698	694	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00778-10	CL1-2022-00778-11	CL1-2022-00778-12	Average	Qualification
Residual Deformation u_4 (mm)	0.10	0.14	0.04	0.09	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.16	0.20	0.10	0.15	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	694	695	698	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements of Class I Performance.
Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².	

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TEST REPORT

BETC-CL1-2022-00779

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Buillding Engineering

2022-003146

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai;Dongqing Garden Industrial Park, Zhenglu Town,Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2022-00779
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 18 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-17
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sl eves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	The type inspection sample and related coupler parame[illegible] were pro[illegible]d by the client. All test results are presented on pages 2 to [illegible] thi[illegible]port.			
Approval	Verification	Chief Tester	Tel.	Date
[illegible]	[illegible]	[illegible]	010-84281545	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	18	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		2.5	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		18.6	Coupler Installation Torque (N·m)		≥200

Coupler Marking, Appearance, and Dimension Inspection

No. of Sample \ Test Item	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 18		28.5+0.5		46+1		16.6±0.4	
CL1-2022-00779-4	Qualified	Qualified	28.73	28.71	46.44	46.41	16.66	16.67
CL1-2022-00779-5	Qualified	Qualified	28.69	28.66	46.49	46.47	16.59	16.61
CL1-2022-00779-6	Qualified	Qualified	28.63	28.64	46.45	46.42	16.62	16.64
CL1-2022-00779-7	Qualified	Qualified	28.62	28.66	46.35	46.34	16.63	16.66
CL1-2022-00779-8	Qualified	Qualified	28.68	28.61	46.38	46.37	16.69	16.67
CL1-2022-00779-9	Qualified	Qualified	28.74	28.78	46.41	46.44	16.68	16.61
CL1-2022-00779-10	Qualified	Qualified	28.70	28.70	46.37	46.34	16.67	16.64
CL1-2022-00779-11	Qualified	Qualified	28.76	28.75	46.39	46.39	16.63	16.68
CL1-2022-00779-12	Qualified	Qualified	28.66	28.64	46.36	46.33	16.75	16.71
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2022-00779-1	CL1-2022-00779-2	CL1-2022-00779-3	Qualification
Nominal Diameter of Rebars(mm)	18			/
Lower Yield Strength R_{eL} (N/mm²)	525	525	520	≥500
Tensile Strength R_m (N/mm²)	735	735	745	≥630
Maximum Total Elongation A_{gt} (%)	11.2	11.6	11.7	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data					
No. of Sample / Test Item	CL1-2022-00779-4	CL1-2022-00779-5	CL1-2022-00779-6	Average	Qualification
Residual Deformation u_0 (mm)	0.02	0.02	0.02	0.02	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	9.0	7.2	10.5	8.9	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	720	712	706	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector reakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00779-7	CL1-2022-00779-8	CL1-2022-00779-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.10	0.11	0.12	0.11	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	705	712	711	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector reakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00779-10	CL1-2022-00779-11	CL1-2022-00779-12	Average	Qualification
Residual Deformation u_4 (mm)	0.08	0.10	0.10	0.09	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.16	0.19	0.18	0.18	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	711	710	720	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the Requirements of Class I Performance.				

Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².

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TEST REPORT

BETC-CL1-2022-00780

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD
National Center for Quality Inspection &Test of Building Engineering

2022-003146

CABR TESTING CENTER CO.,LTD

NATIONAL CENTER FOR QUALITY INSPECTION &TEST OF BUILDING ENGINEERING

Commission No.:2022-003146

No.of Report:BETC-CL1-2022-00780

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town, Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2022-00780
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 20 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-17
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1.The type inspection sample and related coupler parameters were provided by the client. 2.All test results are presented on pages 2 to 4 of this report.			
Approval	Verification	Chief Tester	Tel	Date
			010-8428 545	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	20	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		2.5	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		20.6	Coupler Installation Torque (N·m)		≥200

Coupler Marking, Appearance, and Dimension Inspection

Test Item / No.of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 20		31.5+0.5		50+1		18.6±0.4	
CL1-2022-00780-4	Qualified	Qualified	31.67	31.64	50.29	50.26	18.58	18.62
CL1-2022-00780-5	Qualified	Qualified	31.71	31.74	50.31	50.34	18.59	18.64
CL1-2022-00780-6	Qualified	Qualified	31.73	31.71	50.54	50.46	18.66	18.63
CL1-2022-00780-7	Qualified	Qualified	31.62	31.66	50.31	50.33	18.63	18.61
CL1-2022-00780-8	Qualified	Qualified	31.72	31.74	50.40	50.41	18.61	18.67
CL1-2022-00780-9	Qualified	Qualified	31.73	31.71	50.32	50.36	18.61	18.59
CL1-2022-00780-10	Qualified	Qualified	31.67	31.64	50.42	50.41	18.65	18.66
CL1-2022-00780-11	Qualified	Qualified	31.66	31.62	50.33	50.39	18.57	18.67
CL1-2022-00780-12	Qualified	Qualified	31.80	31.90	50.30	50.36	18.69	18.64
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2022-00780-1	CL1-2022-00780-2	CL1-2022-00780-3	Qualification
Nominal Diameter of Rebars(mm)	20			/
Lower Yield Strength R_{eL} (N/mm²)	535	535	575	≥500
Tensile Strength R_m (N/mm²)	745	745	785	≥630
Maximum Total Elongation A_{gt} (%)	11.7	12.2	11.1	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data					
No. Of Sample / Test Item	CL1-2022-00780-4	CL1-2022-00780-5	CL1-2022-00780-6	Average	Qualification
Residual Deformation u_0 (mm)	0.03	0.02	0.01	0.02	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	8.6	10.7	12.0	10.4	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	708	702	703	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00780-7	CL1-2022-00780-8	CL1-2022-00780-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.05	0.05	0.03	0.04	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	702	703	702	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00780-10	CL1-2022-00780-11	CL1-2022-00780-12	Average	Qualification
Residual Deformation u_4 (mm)	0.17	0.01	0.06	0.08	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.20	0.04	0.10	0.11	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	710	702	705	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the Requirements of Class I Performance.				

Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².

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CNAS L0230

TEST REPORT

BETC-CL1-2022-00781

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Building Engineering

2022-003146

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town, Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2022-00781
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 22 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-17
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sl eves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1.The type inspection sample and related coupler parameters were provided by the client. 2.All test results are presented on pages 2 to 4 of this report.			
Approval	Verification	Chief Tester	Tel.	Date
[illegible]	[illegible]	[illegible]	010-84281545	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	22	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		2.5	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		22.6	Coupler Installation Torque (N·m)		≥260

Coupler Marking, Appearance, and Dimension Inspection

Test Item / No. of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 22		34.5+0.5		54+1		20.6±0.4	
CL1-2022-00781-4	Qualified	Qualified	34.69	34.63	54.30	54.32	20.64	20.64
CL1-2022-00781-5	Qualified	Qualified	34.66	34.68	54.24	54.26	20.62	20.66
CL1-2022-00781-6	Qualified	Qualified	34.70	34.77	54.17	54.19	20.70	20.71
CL1-2022-00781-7	Qualified	Qualified	34.78	34.76	54.13	54.14	20.56	20.58
CL1-2022-00781-8	Qualified	Qualified	34.71	34.74	54.26	54.21	20.64	20.62
CL1-2022-00781-9	Qualified	Qualified	34.77	34.72	54.35	54.34	20.64	20.66
CL1-2022-00781-10	Qualified	Qualified	34.74	34.71	54.25	54.27	20.66	20.67
CL1-2022-00781-11	Qualified	Qualified	34.72	34.78	54.32	54.31	20.61	20.62
CL1-2022-00781-12	Qualified	Qualified	34.66	34.67	54.26	54.29	20.64	20.58
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

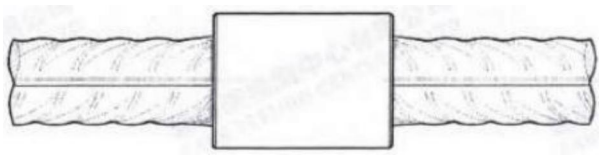

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2022-00781-1	CL1-2022-00781-2	CL1-2022-00781-3	Qualification
Nominal Diameter of Rebars(mm)	22			/
Lower Yield Strength R_{eL} (N/mm²)	560	565	570	≥500
Tensile Strength R_m (N/mm²)	735	735	735	≥630
Maximum Total Elongation A_{gt} (%)	15.8	12.8	14.4	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data					
No. of Sample / Test Item	CL1-2022-00781-4	CL1-2022-00781-5	CL1-2022-00781-6	Average	Qualification
Residual Deformation u_0 (mm)	0.04	0.09	0.04	0.06	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	15.6	12.2	13.2	10.4	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	735	733	730	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00781-7	CL1-2022-00781-8	CL1-2022-00781-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.07	0.11	0.07	0.08	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	728	729	731	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00781-10	CL1-2022-00781-11	CL1-2022-00781-12	Average	Qualification
Residual Deformation u_4 (mm)	0.15	0.25	0.20	0.20	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.24	0.35	0.26	0.28	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	729	731	736	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements of Class I Performance.

Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².

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CNAS L0230

TEST REPORT

BETC-CL1-2022-00782

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Buillding Engineering

2022-003146

Commission No.:2022-003146

No. of Report:BETC-CL1-2022-00782

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town, Tianning, Changzhou, Jiangsu	NO. of Sample	CL1-2022-00782
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 25 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-18
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1. The type inspection sample and related coupler parameters were provided by the client. 2. All test results are presented on pages 2 to 4 of this report.

Approval	Verification	Chief Tester	Tel.	Date
			010-84281545	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	25	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		3.0	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		25.8	Coupler Installation Torque (N·m)		≥260

Coupler Marking, Appearance, and Dimension Inspection

Test Item / No. of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 25		39.5+0.5		62+1		23.2±0.4	
CL1-2022-00782-4	Qualified	Qualified	39.72	39.76	62.71	62.74	23.34	23.39
CL1-2022-00782-5	Qualified	Qualified	39.70	39.74	62.53	62.77	23.41	23.44
CL1-2022-00782-6	Qualified	Qualified	39.69	39.66	62.56	62.57	23.40	23.41
CL1-2022-00782-7	Qualified	Qualified	39.72	39.73	62.49	62.44	23.49	23.44
CL1-2022-00782-8	Qualified	Qualified	39.71	39.74	62.66	62.64	23.20	23.26
CL1-2022-00782-9	Qualified	Qualified	39.67	39.66	62.57	62.68	23.30	23.31
CL1-2022-00782-10	Qualified	Qualified	39.71	39.67	62.66	62.64	23.50	23.54
CL1-2022-00782-11	Qualified	Qualified	39.64	39.66	62.56	62.52	23.46	23.40
CL1-2022-00782-12	Qualified	Qualified	39.73	39.71	62.65	62.59	23.45	23.47
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. Of Sample / Test Item	CL1-2022-00782-1	CL1-2022-00782-2	CL1-2022-00782-3	Qualification
Nominal Diameter of Rebars(mm)	25			/
Lower Yield Strength R_{eL} (N/mm²)	555	560	535	≥500
Tensile Strength R_m (N/mm²)	725	725	710	≥630
Maximum Total Elongation A_{gt} (%)	15.7	13.0	16.5	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data					
No. Of Sample / Test Item	CL1-2022-00782-4	CL1-2022-00782-5	CL1-2022-00782-6	Average	Qualification
Residual Deformation u_0 (mm)	0.08	0.05	0.05	0.06	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	8.3	7.6	10.1	8.7	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	713	713	709	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00782-7	CL1-2022-00782-8	CL1-2022-00782-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.06	0.02	0.13	0.07	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	707	711	720	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00782-10	CL1-2022-00782-11	CL1-2022-00782-12	Average	Qualification
Residual Deformation u_4 (mm)	0.05	0.03	0.02	0.03	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.12	0.06	0.05	0.08	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	719	724	724	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements of Class I Performance.

Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².

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TEST REPORT

BETC-CL1-2022-00783

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Building Engineering

2022-003146

CABR TESTING CENTER CO.,LTD

NATIONAL CENTER FOR QUALITY INSPECTION &TEST OF BUILDING ENGINEERING

Commission No.:2022-003146

No.of Report:BETC-CL1-2022-00783

<table>
<tr><td colspan="2">Client</td><td colspan="3">Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.</td></tr>
<tr><td colspan="2">ADD.</td><td>No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town,Tianning, Changzhou, Jiangsu</td><td>NO.of Sample</td><td>CL1-2022-00783</td></tr>
<tr><td rowspan="2">Sample</td><td>Name</td><td>Rib Stripping Thread Coupler</td><td>State</td><td>Normal</td></tr>
<tr><td>Brand</td><td>______</td><td>Type/Model</td><td>BB 5 28 (HRB500E)</td></tr>
<tr><td colspan="2">Manufacturer</td><td colspan="3">Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.</td></tr>
<tr><td colspan="2">Date of Delivery</td><td>2022-06-13</td><td>Quantity</td><td>3 Rebars, 9 Couplers</td></tr>
<tr><td colspan="2">Name of Engineering</td><td colspan="3">______</td></tr>
<tr><td rowspan="2">Test</td><td>Item</td><td>Type Inspection (Grade I)</td><td>Place</td><td>North Third Ring Headquarters</td></tr>
<tr><td>Instruments</td><td>Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine</td><td>Date</td><td>2022-06-18</td></tr>
<tr><td colspan="2">Test Based on</td><td colspan="3">JG/T 163-2013、JGJ 107-2016</td></tr>
<tr><td colspan="2">Criteria Based on</td><td colspan="3">JG/T 163-2013、JGJ 107-2016</td></tr>
<tr><td colspan="5">Conclusion</td></tr>
<tr><td colspan="5">Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 Sleeves for Mechanical Splicing of Rebars and JGJ 107-2016 Technical Specification for Mechanical Splicing of Rebars.

(No further text below on this page.)</td></tr>
<tr><td colspan="2">Remarks</td><td colspan="3">1.The type inspection sample and related coupler parameters were provided by the client.
2.All test results are presented on pages 2 to 4 of this report.</td></tr>
</table>

Approval	Verification	Chief Tester	Tel.	Date
			010-842815[illegible]	2022-06-[illegible]

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	28	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		3.0	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		28.8	Coupler Installation Torque (N·m)		≥320

Coupler Marking, Appearance, and Dimension Inspection

Test Item / No.of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 28		44+0.5		68+1		26.2±0.4	
CL1-2022-00783-4	Qualified	Qualified	44.33	44.31	68.71	68.74	26.24	26.21
CL1-2022-00783-5	Qualified	Qualified	44.32	44.36	68.57	68.76	26.22	26.27
CL1-2022-00783-6	Qualified	Qualified	44.29	44.27	68.90	68.94	26.26	26.24
CL1-2022-00783-7	Qualified	Qualified	44.32	44.31	68.71	68.92	26.29	26.30
CL1-2022-00783-8	Qualified	Qualified	44.33	44.34	68.77	68.71	26.23	26.24
CL1-2022-00783-9	Qualified	Qualified	44.32	44.39	68.48	68.46	26.00	26.08
CL1-2022-00783-10	Qualified	Qualified	44.37	44.36	68.79	68.74	26.26	26.20
CL1-2022-00783-11	Qualified	Qualified	44.32	44.31	68.56	68.58	26.15	26.18
CL1-2022-00783-12	Qualified	Qualified	44.31	44.31	68.87	68.83	26.19	26.13
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

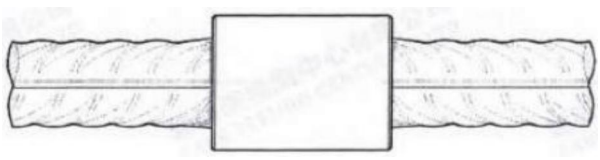

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2022-00783-1	CL1-2022-00783-2	CL1-2022-00783-3	Qualification
Nominal Diameter of Rebars(mm)	28			/
Lower Yield Strength R_{eL} (N/mm²)	540	540	545	≥500
Tensile Strength R_m (N/mm²)	730	730	730	≥630
Maximum Total Elongation A_{gt} (%)	11.7	12.8	13.3	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Standard Requirements.			

Uniaxial Tensile Test Data					
No. of Sample / Test Item	CL1-2022-00783-4	CL1-2022-00783-5	CL1-2022-00783-6	Average	Qualification
Residual Deformation u_0 (mm)	0.12	0.09	0.04	0.07	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	6.7	7.6	8.4	7.6	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	694	700	695	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00783-7	CL1-2022-00783-8	CL1-2022-00783-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.07	0.08	0.05	0.07	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	692	697	694	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00783-10	CL1-2022-00783-11	CL1-2022-00783-12	Average	Qualification
Residual Deformation u_4 (mm)	0.20	0.04	0.04	0.09	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.28	0.12	0.10	0.17	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	685	698	702	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements of Class I Performance.
Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².	

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TEST REPORT

BETC-CL1-2022-00784

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD
National Center for Quality Inspection &Test of Building Engineering

2022-003146

CABR TESTING CENTER CO.,LTD

NATIONAL CENTER FOR QUALITY INSPECTION &TEST OF BUILDING ENGINEERING

Commission No.:2022-003146

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai; Dongqing Garden Industrial Park, Zhenglu Town, Tianning, Changzhou, Jiangsu	NO. of Sample	CL1-2022-00784
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 32 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2022-06-13	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2022-06-18
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1. The type inspection sample and related coupler parameters were provided by the client. 2. All test results are presented on pages 2 to 4 of this report.

Approval	Verification	Chief Tester	Tel.	Date
			010-84281514	2022-06-20

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	June.6, 2022	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	32	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		3.0	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		32.8	Coupler Installation Torque (N·m)		≥320

Basic Specifications of Coupler

Test Item / No.of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 32		50.5+0.5		76+1		30.2±0.4	
CL1-2022-00784-4	Qualified	Qualified	50.55	50.58	76.08	76.06	30.37	30.31
CL1-2022-00784-5	Qualified	Qualified	50.62	50.64	76.04	76.11	30.43	30.40
CL1-2022-00784-6	Qualified	Qualified	50.71	50.73	76.11	76.13	30.36	30.29
CL1-2022-00784-7	Qualified	Qualified	50.55	50.56	76.06	76.14	30.53	30.46
CL1-2022-00784-8	Qualified	Qualified	50.58	50.59	76.17	76.19	30.50	30.52
CL1-2022-00784-9	Qualified	Qualified	50.55	50.55	76.07	76.08	30.44	30.44
CL1-2022-00784-10	Qualified	Qualified	50.60	50.61	76.06	76.11	30.38	30.39
CL1-2022-00784-11	Qualified	Qualified	50.54	50.58	76.07	76.08	30.35	30.41
CL1-2022-00784-12	Qualified	Qualified	50.54	50.59	76.13	76.14	30.46	30.44
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Standard Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2022-00784-1	CL1-2022-00784-2	CL1-2022-00784-3	Qualification
Nominal Diameter of Rebars(mm)	32			/
Lower Yield Strength R_{eL} (N/mm²)	585	585	575	≥500
Tensile Strength R_m (N/mm²)	755	755	755	≥630
Maximum Total Elongation A_{gt} (%)	14.5	15.1	13.8	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Requirements.			

Uniaxial Tensile Test Data					
No. of Sample / Test Item	CL1-2022-00784-4	CL1-2022-00784-5	CL1-2022-00784-6	Average	Qualification
Residual Deformation u_0 (mm)	0.03	0.07	0.12	0.07	$u_0 \leqslant 0.10$
Maximum Total Elongation A_{sgt} (%)	10.7	11.1	10.8	10.9	$A_{sgt} \geqslant 6.0$
Tensile Strength f^0_{mst} (N/mm²)	755	694	686	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2022-00784-7	CL1-2022-00784-8	CL1-2022-00784-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.13	0.08	0.04	0.08	$u_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	753	754	676	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements of class I performance.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2022-00784-10	CL1-2022-00784-11	CL1-2022-00784-12	Average	Qualification
Residual Deformation u_4 (mm)	0.23	0.16	0.02	0.14	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.32	0.25	0.08	0.22	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	678	677	680	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	

Test Based on	JGJ 107-2016 Appendix A.
Single Determination	Meets the Requirements of Class I Performance.
Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².	

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TEST REPORT

BETC-CL1-2024-01859

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Bullding Engineering

2024-003641

Commission No.:2024-003641

No.of Report:BETC-CL1-2024-01859

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai;Dongqing Garden Industrial Park, Zhenglu Town,Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2024-01859
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 36 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2024-08-19	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	Pinggu Experimental Base
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2024-08-26
Test Based on		JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*		
Criteria Based on		JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1. The type inspection sample and related coupler parameters were provided by the client. 2. All test results are prescribed on pages 2 to 4 of this report.			
Approval	Verification	Chief Tester	Tel	Date
			10-80910305	2024-8-27

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	Aug.19, 2024	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	36	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		3.0	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		36.7	Coupler Installation Torque (N·m)		≥360

Basic Specifications of Coupler								
Test Item / No.of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 5 36		56.5+0.5		84+1		33.8±0.4	
CL1-2024-01859-4	Qualified	Qualified	56.52	56.57	84.19	84.16	33.83	33.86
CL1-2024-01859-5	Qualified	Qualified	56.56	56.61	84.10	84.18	33.53	33.84
CL1-2024-01859-6	Qualified	Qualified	56.56	56.64	84.02	84.06	34.17	34.05
CL1-2024-01859-7	Qualified	Qualified	56.64	56.65	84.06	84.03	34.08	34.06
CL1-2024-01859-8	Qualified	Qualified	56.55	56.59	84.14	84.18	33.88	33.86
CL1-2024-01859-9	Qualified	Qualified	56.58	56.59	84.04	84.03	33.92	33.99
CL1-2024-01859-10	Qualified	Qualified	56.58	56.59	84.19	84.23	34.13	34.08
CL1-2024-01859-11	Qualified	Qualified	56.52	56.52	84.11	84.15	34.10	34.13
CL1-2024-01859-12	Qualified	Qualified	56.57	56.60	84.10	84.12	34.14	34.18
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Requirements.							

The schematic diagram of the connector is shown in Figure 1:

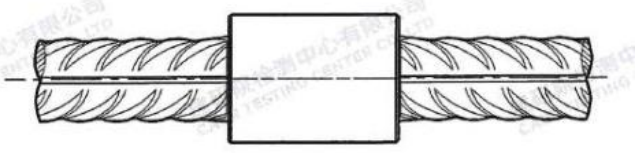

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data

No. of Sample / Test Item	CL1-2024-01859-1	CL1-2024-01859-2	CL1-2024-01859-3	Qualification
Nominal Diameter of Rebars(mm)	36			/
Lower Yield Strength R_{eL} (N/mm²)	550	545	545	≥500
Tensile Strength R_m (N/mm²)	735	730	730	≥630
Maximum Total Elongation A_{gt} (%)	13.1	12.7	11.8	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Requirements.			

Uniaxial Tensile Test Data

No.of Sample / Test Item	CL1-2024-01859-4	CL1-2024-01859-5	CL1-2024-01859-6	Average	Qualification
Residual Deformation u_0 (mm)	0.04	0.02	0.04	0.03	u_0≤0.14
Maximum Total Elongation A_{sgt} (%)	12.1	10.7	10.5	11.1	A_{sgt}≥6.0
Tensile Strength f^0_{mst} (N/mm²)	728	728	732	/	f^0_{mst}≥f_{stk} rebar breakage or≥1.10f_{stk} connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2024-01859-7	CL1-2024-01859-8	CL1-2024-01859-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.03	0.04	0.04	0.04	$U_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	733	732	730	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2024-01859-10	CL1-2024-01859-11	CL1-2024-01859-12	Average	Qualification
Residual Deformation u_4 (mm)	0.28	0.14	0.24	0.22	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.35	0.20	0.30	0.28	$u_8 \leqslant 0.6$
Tensile Strength f_{0mst} (N/mm^2)	733	736	734	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements.
Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².	

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TEST REPORT

BETC-CL1-2024-01860

Name of Product Rib Stripping Thread Coupler

Client Shanghai Ailong Construction Equipment Components Co., Ltd.
Changzhou Cheeron Construction Machinery Equipment Co., Ltd.

Test Category Commissioned Testing

CABR TESTING CENTER CO.,LTD

National Center for Quality Inspection &Test of Building Engineering

2024-003641

Client		Shanghai Ailong Construction Equipment Components Co., Ltd. Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
ADD.		No. 1388 Jiahao Road, Nanxiang Town, Jiading District, Shanghai;Dongqing Garden Industrial Park, Zhenglu Town,Tianning, Changzhou, Jiangsu	NO.of Sample	CL1-2022-00781
Sample	Name	Rib Stripping Thread Coupler	State	Normal
	Brand	------	Type/Model	BB 5 40 (HRB500E)
Manufacturer		Coupler: Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		
Date of Delivery		2024-08-19	Quantity	3 Rebars, 9 Couplers
Name of Engineering		------		
Test	Item	Type Inspection (Grade I)	Place	North Third Ring Headquarters
	Instruments	Computer-Controlled Hydraulic Universal Testing Machine, Digital Caliper, Computer-Controlled Electro-Hydraulic Servo Universal Testing Machine	Date	2024-08-26
Test Based on		JG/T 163-2013、JGJ 107-2016		
Criteria Based on		JG/T 163-2013、JGJ 107-2016		

Conclusion

Upon testing, the results of the type inspection for this sample comply with the Grade I performance requirements of JG/T 163-2013 *Sleeves for Mechanical Splicing of Rebars* and JGJ 107-2016 *Technical Specification for Mechanical Splicing of Rebars*.

(No further text below on this page.)

Remarks	1.The type inspection sample and related coupler parameters were provided by the client. 2. All test results are presented on pages 2 to 4 of this report.

Approval	Verification	Chief tester	Tel	Date
			010-80910305	2024-08-27

Basic Specifications of Coupler					
Specimen Manufacturing Entity	Changzhou Cheeron Construction Machinery Equipment Co., Ltd.		Manufacturing Date	Aug.19, 2024	
Rebar Type	Hot-Rolled Ribbed Rebar	Nominal Rebar Diameter (mm)	40	Rebar Grade	HRB500E
Coupler Raw Material Type		Cold-Rolled Precision Seamless Steel Tube	Thread Profile Angle		75°
Coupler Steel Grade		45	Thread Precision Grade		6H
Thread Pitch (mm)		3.0	Coupler Performance Grade		GradeI
Nominal Inner Thread Diameter of Coupler (mm)		40.7	Coupler Installation Torque (N·m)		≥360

Basic Specifications of Coupler								
Test Item / No. of Sample	Marks	Appearance	Design Value and Tolerance - Dimensions (mm)					
			Outer Diameter D		Lenth H		Thread Minor Diameter	
	AL BB 540		62.5+0.5		92+1		37.8±0.4	
CL1-2024-01860-4	Qualified	Qualified	62.92	62.93	92.69	92.54	37.75	37.99
CL1-2024-01860-5	Qualified	Qualified	62.97	62.96	92.68	92.74	37.87	37.92
CL1-2024-01860-6	Qualified	Qualified	62.96	62.94	92.56	92.56	37.98	37.99
CL1-2024-01860-7	Qualified	Qualified	62.95	62.93	92.71	92.67	37.94	38.02
CL1-2024-01860-8	Qualified	Qualified	62.97	62.94	92.62	92.57	37.89	37.99
CL1-2024-01860-9	Qualified	Qualified	62.93	62.91	92.59	92.54	37.93	37.96
CL1-2024-01860-10	Qualified	Qualified	62.96	62.95	92.56	92.58	37.90	37.95
CL1-2024-01860-11	Qualified	Qualified	62.95	62.95	92.52	92.59	37.93	37.88
CL1-2024-01860-12	Qualified	Qualified	62.97	62.96	92.60	92.59	37.96	37.89
Test Based on	JG/T 163-2013 No.6.2.1.							
Single Determination	Meet the Requirements.							

The schematic diagram of the connector is shown in Figure 1:

Figure 1 Schematic Diagram of Connector

Rebar Base Material Test Data				
No. of Sample / Test Item	CL1-2024-01860-1	CL1-2024-01860-2	CL1-2024-01860-3	Qualification
Nominal Diameter of Rebars(mm)	40			/
Lower Yield Strength R_{eL} (N/mm²)	545	540	535	≥500
Tensile Strength R_m (N/mm²)	730	730	715	≥630
Maximum Total Elongation A_{gt} (%)	14.1	13.1	13.6	≥9.0
Test Based on	JGJ 107-2016 Chapter5			
Single Determination	Meet the Requirements.			

Uniaxial Tensile Test Data					
No.of Sample / Test Item	CL1-2024-01860-4	CL1-2024-01860-5	CL1-2024-01860-6	Average	Qualification
Residual Deformation u_0 (mm)	0.13	0.09	0.08	0.10	$u_0 \leq 0.14$
Maximum Total Elongation A_{sgt} (%)	9.9	10.3	8.9	9.7	$A_{sgt} \geq 6.0$
Tensile Strength f^0_{mst} (N/mm²)	729	727	727	/	$f^0_{mst} \geq f_{stk}$ rebar breakage or $\geq 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements.				

High Stress Repeated Tension-Compression Performance Test Data					
No. of Sample / Test Item	CL1-2024-01860-7	CL1-2024-01860-8	CL1-2024-01860-9	Average	Qualification
Residual Deformation u_{20} (mm)	0.18	0.11	0.24	0.18	$U_{20} \leqslant 0.3$
Tensile Strength f^0_{mst} (N/mm^2)	723	727	727	/	$F^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				
Single Determination	Meets the requirements.				

Test Data of Repeated Tensile and Compression Properties of Large Deformation					
No. of Sample / Test Item	CL1-2024-01859-10	CL1-2024-01859-11	CL1-2024-01859-12	Average	Qualification
Residual Deformation u_4 (mm)	0.28	0.14	0.24	0.22	$u_4 \leqslant 0.3$
Residual Deformation u_8 (mm)	0.35	0.20	0.30	0.28	$u_8 \leqslant 0.6$
Tensile Strength f^0_{mst} (N/mm^2)	733	736	734	/	$f^0_{mst} \geqslant f_{stk}$ rebar breakage or $\geqslant 1.10 f_{stk}$ connector breakage
Destruction Patterns	Rebar Breakage	Rebar Breakage	Rebar Breakage	/	
Test Based on	JGJ 107-2016 Appendix A.				

Single Determination	Meets the Requirements.
Note: (1) Both joint residual deformation and maximum total elongation rate are determined by averaging three specimens; (2) Joint failure refers to breakage at the sleeve, longitudinal cracking of the sleeve, rebar withdrawal from the sleeve, or failure of other connection components; (3) The standard value of ultimate tensile strength of steel bars f_{stk}=630N/mm², 1.10f_{stk}=693N/mm².	