Oriental Metals Pte Ltd
東方五金私人有限公司

REBAR COUPLERS

PRODUCT CATALOGUE

CONSTRUCTION AND STEEL DISTRIBUTION & SERVICES

Subsidiary of HG Metal Manufacturing Limited
No. 28, Jalan Buroh, Singapore (619484)
Tel : +65 6268 2828 Fax : +65 6261 6470
www.hgmetal.com

ORIENTAL METALS

Oriental Metals Pte Ltd has more than 20 years strong background in the steel and construction businesses. We are here together with China Academy of Building Research (CABR) to supply top quality rebars mechanical splice and anchor system to the reinforced concrete construction industry in the South East Asia Region.

HG FAMILY

Oriental Metals Pte Ltd is fully owned by HG Metal Manufacturing Limited (Listed on SGX Mainboard). The Group has a non-current asset of S$36.8 million as at 31 December 2017 mainly attributed to the investment in bonds of S$10.0 million and increase in property, plant and equipment, land use rights of S$13.6 million.


HG METAL MANUFACTURING LIMITED
JALAN BUROH

建研科技股份有限公司
CABR TECHNOLOGY CO.,LTD.

COMPANY PROFILE

CABR Tech is founded in 2001 and integrated the resources of Institute of Building Structure, Institute of Building Engineering Software, Institute of Earthquake Engineering, Institute of Building Materials and an excellent staff team including design masters and well-known experts. The company has obtained thousands of research and development achievements in the past ten years and hundreds of technical patents; developed PKPM software product with market share of over 95% in China; provided services of design, consultation, testing and assessment, specialty engineering construction to hundreds of important and complicated projects; developed and amended over 150 national and industrial standards and codes. Thus, CABR Tech has established its leading position in China in fields such as engineering structures and earthquake resistance, software and informatization and new construction materials.

CABR Tech is mainly involved in the R&D and application of new technologies and products of the building industry, including design software of building structures, software of green building and energy efficiency, software of general budget and construction technology, management and informatization of building enterprises, comprehensive design of building engineering, specialty design of engineering structures, engineering consultation and experiment, engineering testing and appraisal, prestressed construction, structure and cable structure engineering, reinforcement and retrofitting of existing buildings, deviation rectification and translation, water proof engineering, reinforcement materials and products, high performance concrete and admixtures, water proof and protection products, technologies and products of thermal insulation of wall, testing equipment of building materials, products of vibration isolation and damping, equipment and products of prestressed technology, rebar splicing and anchoring products, and so on.

CABR Tech is a professional corporation who engaged in rebars mechanical splice and anchor technology development, management, services, consulting and project subcontracting for over 20 years, owned the national patents for the main products include anchor plate, parallel thread rebar splice with upsetting end, parallel thread rebar splice with rolling end, cold forged sleeve splice for ribbed rebar, etc., which are widely applied in many projects such as high-rise building structure, bridges, tunnels, hydraulic structure, television towers, nuclear power plants and received excellent feedbacks form clients. In China, we are the chief editor for national industrial standards for rebar splice and rebar anchor, such as JGJ 107-2010 Technical Specifications of Mechanical Splice for Rebar, JG/T163-2013 Couplers for Rebar Mechanical splice, and JGJ 256-2011 Technical Specifications of Application for Rebar Anchor Plate, etc.

CABR Tech has offices throughout China and agencies in many countries of the world. Rebar mechanical anchor and splice technologies and products have been widely used in over 30 countries, including Russia, Mexico, Malaysia, Indonesia, Pakistan, India, UAE, Qatar, Saudi Arabia, Iran, Vietnam, Thailand, France, Singapore, etc.

Chief Editor for National Rebar Splice / Anchor Standards
Industry Leader in Rebar Mechnical Splice / Anchor Industry

- *JGJ 107 Technical Specifications of Mechanical Splice for Rebar;*
- *JGJ 256 Technical Specifications of Application for Rebar Anchor Plate;*
- *JG/T 163 Couplers for Rebar Mechanical splice;*
- *JGJ 355 Specifications of Grouting Sleeve Splice for Rebars;*
- *JG/T 398 The Grouting Sleeve Coupler for Rebar Splice;*
- *JG/T 408 Cementitious Grout Sleeve Coupler for Rebar Splice;*
- *JGJ 108 Specifications of Cold Forged Sleeve Splice for Ribbed Rebars;*
- *JGJ 171 Parallel Thread Rebar Splice with Upsetting End;*
- *JGJ 163 Parallel Thread Rebar Splice with Rolling End ;*
- *JGJ 109 Specifications of Taperred Threaded Splice for Rebars.*

CERTIFIED QUALITY MANAGEMENT SYSTEM POSSESSING OVER 20 TECHNICAL PATENTS

AWARDS

Business License

Safety Production License

High-tech Enterprise Certificate

National Key Technology Certificate

National Technology Process Certificate

Ministry of Construction, P.R.China Recommendation

Oversea Entrepreneur Award

Ten Key Technologies Certificate

Quality Management System Certificate

CERTIFICATES

China CABR Certificate

Dubai DCL Certificate

Russia Certificate

Euro CE Certificate

SGS Certificate

America IQAC Certificate

France CSTB Certiifcate

Australia NATA Certificate

Australia ALS Certificate

India NABL Certificate

Bodycote Dubai Certificate

ACES Dubai Certificate

Malaysia Testech Certificate

Germany BAM Certificate

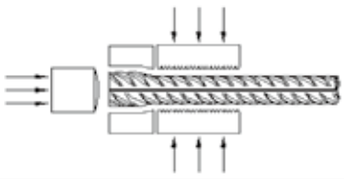
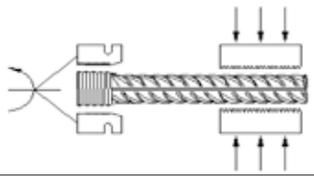
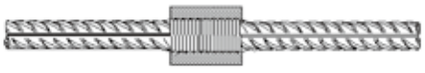
CABR

Rebar Mechanical Splice Technology

Sys. A

Parallel Thread Rebar Splice with Upsetting End

1. Process

1	Rebar Cutting		
2	Rebar End Forging		
3	Rebar End Threading		
4	Rebar Coupler Connecting		

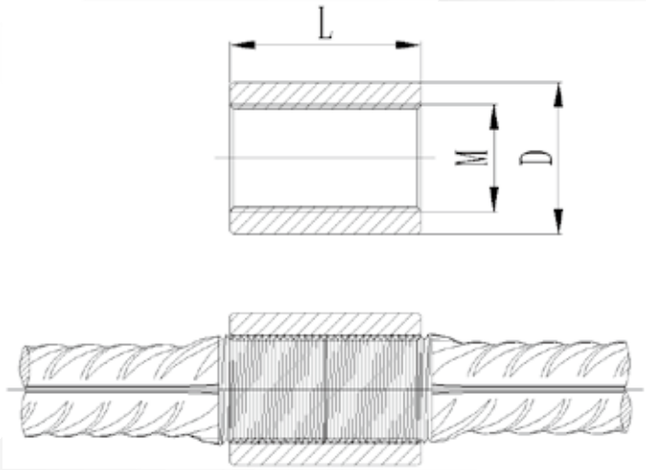
2. Product Advantages

Safe & Reliable	High strength coupler; Achieve 100% ultimate tensile and yield strength of rebar; Comply with the requirements of Chinese JGJ107, American standard ACI318 ACI349, British standard BS8110, French standard NF35-20-1, German standard DIN1045, ISO 15835 and other relevant standards.
Simple & Efficient	Easy to operate and maintain; High efficienct production; Fast installation; Take less than 1 minute to forge and thread one rebar end on-site.
Widely Applicable	Different types of couplers; Suitable for different construction situations such as the rebar cage and the bending rebar.
Widely Adaptable	Adaptable for different weather conditions.
Energy-Saving	Environmentally-friendly; Cost-saving; Economic.

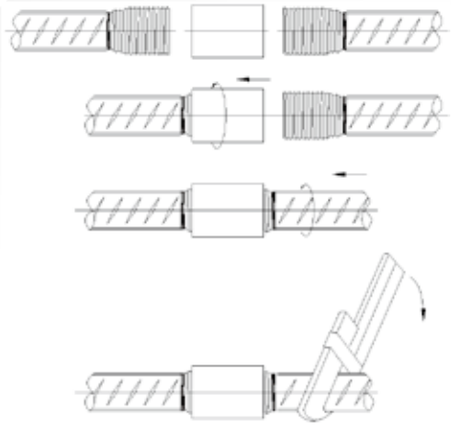
3. Specifications

1.Standard Splice

Suitable for condition where rebar can move and rotate freely, and can move axially.



Installation Process



1. Thread two standard rebar thread ends.

2. Connect coupler with one rebar thread end.

3. Connect coupler with antoher rebar thread end.

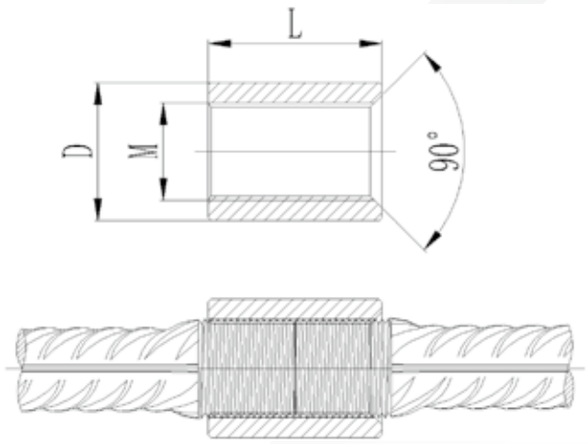
4. Screw tightly by wrech. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

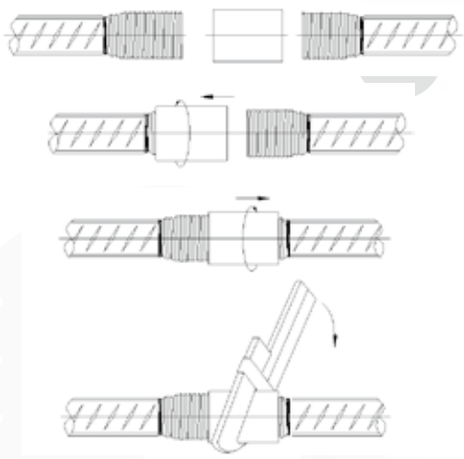
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Coupler Length (mm)/L	Coupler Weigth (kg)
16	M18×2.0	26.5	32	0.08
18	M22×2.5	30	36	0.11
20	M24×2.5	33	40	0.15
22	M25×2.5	36	44	0.20
25	M29×3.0	41	50	0.30
28	M32×3.0	45.5	56	0.40
32	M36×3.0	51.5	64	0.59
36	M40.3×3.5	57.5	72	0.83
40	M45.3×3.5	64	80	1.11

2.Splice With One Slope End

Suitable for condition where rebar is difficult to connect, such as rebar cage connecting.



Installation Process



1. Thread one standard thread end and one lengthened thread end.

2. Connect coupler with one lengthened thread end rebar.

3. Connect coupler with one standard thread end rebar by reversely rotating the coupler.

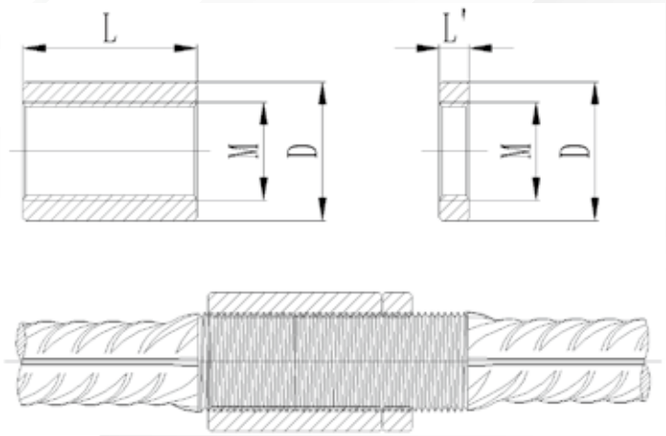
4. Screw tightly by wrech. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

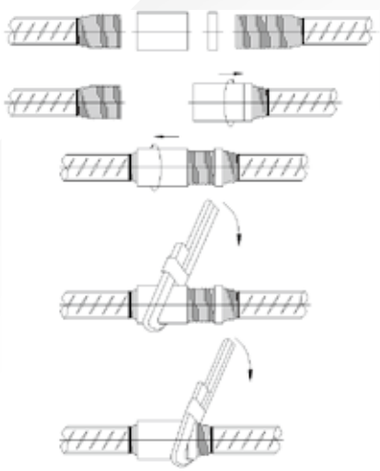
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Coupler Length (mm)/L	Coupler Weigth (kg)
16	M18×2.0	26.5	36	0.09
18	M22×2.5	30	41	0.12
20	M24×2.5	33	45	0.16
22	M25×2.5	36	49	0.22
25	M29×3.0	41	56	0.32
28	M32×3.0	45.5	62	0.44
32	M36×3.0	51.5	70	0.63
36	M40.3×3.5	57.5	79	0.88
40	M45.3×3.5	64	87	1.18

3. Splice with Lock Nut

Suitable for condition where rebar is difficult to rotate but can move axially. Coupler is locked by lock nut.



Installation Process



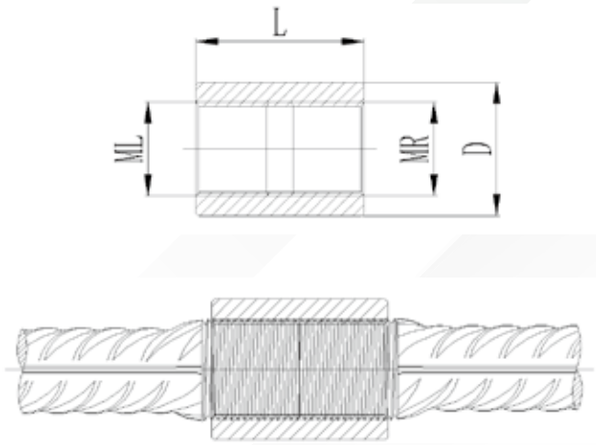
1. Thread one standard thread end and one lengthened thread end.
2. Connect coupler with one lengthened thread end rebar, lock nut is on the inner side.
3. Connect coupler with one standard thread end rebar by reversely rotating the coupler.
4. Screw tightly by wrech. The torque should comply with JGJ107.
5. Screw tightly the lock nut with the coupler. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

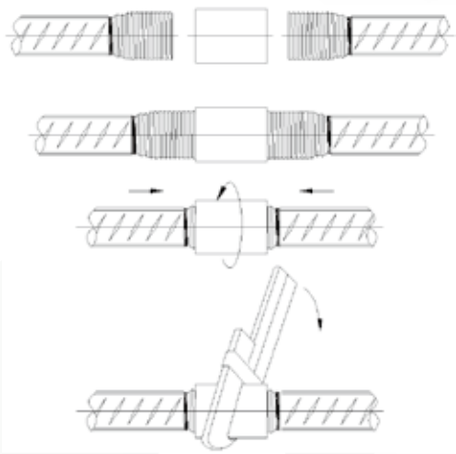
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Coupler Length (mm)/L	Coupler Weight (kg)	Nut O.D. (mm)	Nut Length (mm)/L	Nut Weight (kg)
16	M18×2.0	26.5	36	0.09	26.5	8	0.02
18	M22×2.5	30	41	0.12	30	10	0.03
20	M24×2.5	33	45	0.16	33	10	0.04
22	M25×2.5	36	49	0.22	36	10	0.05
25	M29×3.0	41	56	0.32	41	12	0.07
28	M32×3.0	45.5	62	0.44	45.5	12	0.09
32	M36×3.0	51.5	70	0.64	51.5	12	0.11
36	M40.3×3.5	57.5	79	0.90	57.5	14	0.16
40	M45.3×3.5	64	87	1.20	64	14	0.19

4. Splice with Left & Right Hand Thread

Suitable for condition where rebar is difficult to rotate but can move axially.



Installation Process



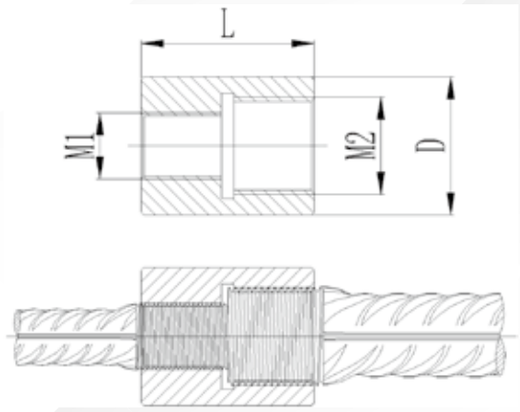
1. Thread one left hand thread and one right hand thread end.
2. Position the coupler with two rebars together.
3. Rotate coupler to connect two rebars together.
4. Screw tightly by wrench. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

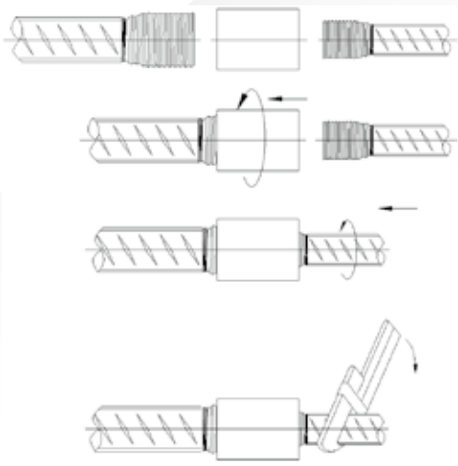
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Coupler Length (mm)/L	Coupler Weight (kg)
16	M18×2.0	26.5	32	0.08
18	M22×2.5	30	36	0.11
20	M24×2.5	33	40	0.15
22	M25×2.5	36	44	0.20
25	M29×3.0	41	50	0.29
28	M32×3.0	45.5	56	0.40
32	M36×3.0	51.5	64	0.59
36	M40.3×3.5	57.5	72	0.83
40	M45.3×3.5	64	80	1.11

5.Splice with Different Bar Diameter

Suitable for connecting two different diameter rebars.



Installation Process



1. Thread two standard thread ends.

2. Connect coupler with one standard thread end rebar with larger size.

3. Connect coupler with another standard thread end rebar with smaller size.

4. Screw tightly by wrech. The torque should comply with JGJ107.

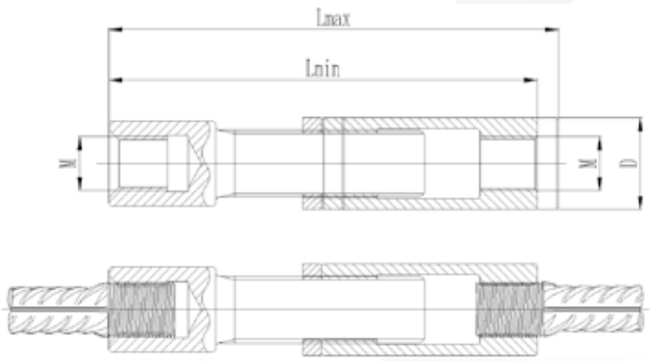
Coupler Specficiations (Suitable for 500MPa Rebar)

Rebar Diameter (mm)	Threads (mm) M1/M2	O.D. (mm)/D	Coupler Length (mm)/L	Coupler Weight (kg)
16/18	M18×2.0/M22×2.5	28.9	34	0.10
18/20	M22×2.5/M24×2.5	32.5	38	0.14
20/22	M24×2.5/M25×2.5	34.5	42	0.17
22/25	M25×2.5/M29×3.0	38.7	47	0.25
25/28	M29×3.0/M32×3.0	43.5	53	0.35
28/32	M32×3.0/M36×3.0	48.5	60	0.49
32/36	M36×3.0/M40.3×3.5	58.5	68	0.89
36/40	M40.3×3.5/M45.3×3.5	63.5	76	1.11

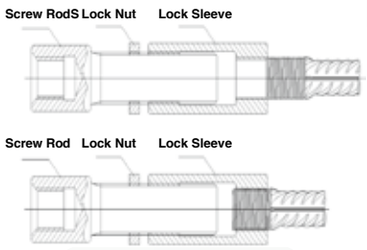
Remarks：Check design data for other size of coupler

6. Adjustable Coupler

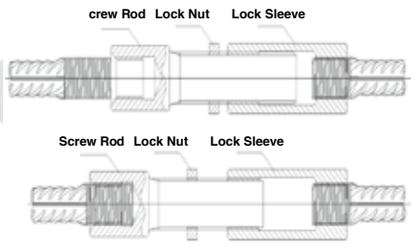
Suitable for condition where rebar is difficult to rotate but can move axially, and there is space between two rebar ends.



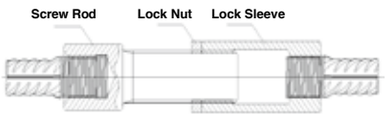
Installation Process



1. Thread two standard thread ends.
2. Connect lock sleeve with one standard thread end rebar. The torque should comply with JGJ107.



3. Connect another standard thread end rebar by reversely rotating the Screw Rod. The torque should comply with JGJ107.



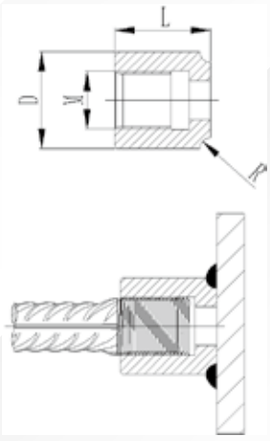
4. Screw tightly by wrech. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

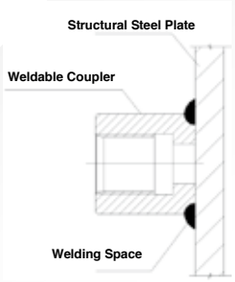
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Total Length (mm)/L	Adjustable Length (mm)	Coupler Weight (kg)
16	M18×2.0	32	132~137	5	0.56
18	M22×2.5	35	140~145	5	0.70
20	M24×2.5	39	153~158	5	0.93
22	M25×2.5	43	168~173	5	1.29
25	M29×3.0	48.5	187~192	5	1.72
28	M32×3.0	54	206~211	5	2.45
32	M36×3.0	62	233~238	5	3.57
36	M40.3×3.5	68.5	258~263	5	4.94
40	M45.3×3.5	78.5	281~286	5	7.02

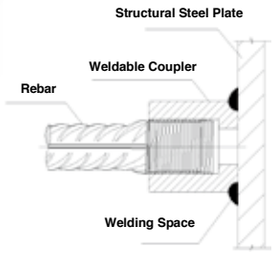
7.Weldable Coupler

Suitable for connecting rebars to structural steel sections or plates.



Installation Process





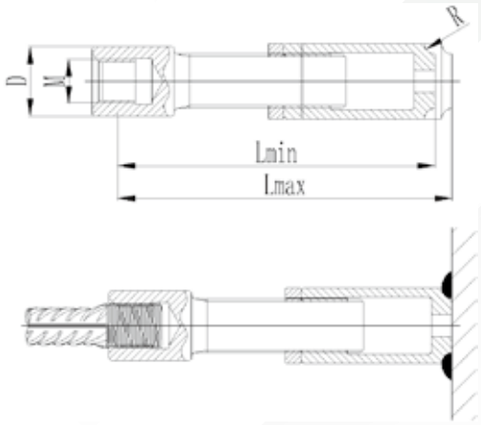
1. Thread one standard rebar thread end.
2. Weld the coupler on the position of structural steel sections or plates.Welding strength and tolerance should comply with standards.
3. Connect rebar by rotating the rebar to the weldable coupler. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

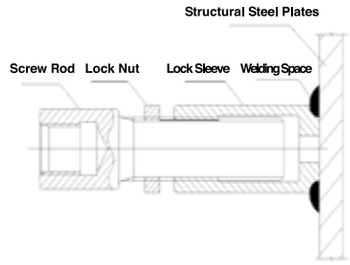
Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Length (mm)/L	Chamfer Diameter (mm)/R	Coupler Weight (kg)
16	M18×2.0	28.5	32.0	4.0	0.10
18	M22×2.5	32.5	34.5	4.5	0.13
20	M24×2.5	36.5	36.5	4.5	0.18
22	M25×2.5	38.5	39.5	5.5	0.21
25	M29×3.0	43.8	43.0	6.0	0.30
28	M32×3.0	48.6	47.0	7.0	0.40
32	M36×3.0	58.5	51.5	7.5	0.68
36	M40.3×3.5	63.5	56.5	8.5	0.85
40	M45.3×3.5	73.5	61.0	9.0	1.28

8. Weldable & Adjustable Coupler

Suitable for condition where rebar is difficult to rotate and cannot move axially, and there is space between rebar end and structural steel sections.

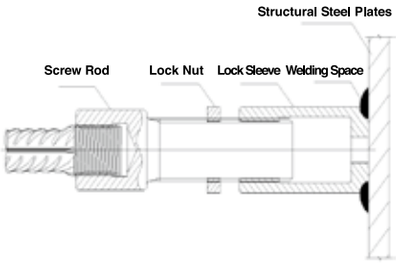


Installation Process

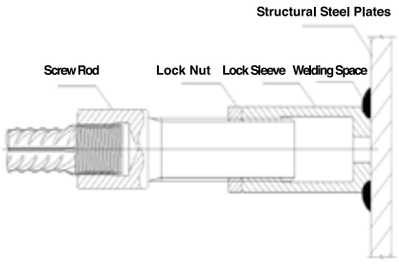


1. Thread one standard rebar thread end.

2. Weld the coupler on the position of structural steel sections or plates. Welding strength and tolerance should comply with standards.



3. Connect another standard thread end rebar by reversely rotating the Screw Rod. The torque should comply with JGJ107.



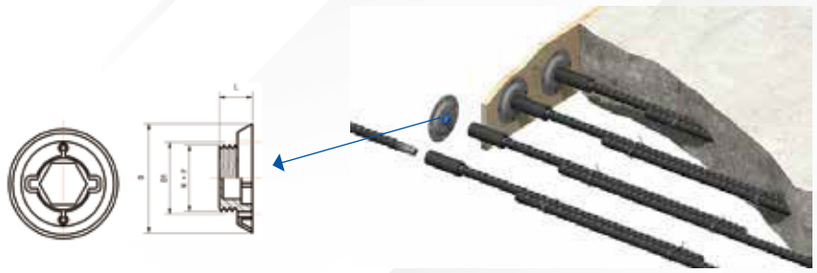
4. Screw tightly the lock nut with the coupler. The torque should comply with JGJ107.

Coupler Specficiations (Suitable for 500MPa Rebar)

Rebar Diameter (mm)	Threads (mm)/M	O.D. (mm)/D	Total Length (mm)/L	Adjustable Length (mm)	Coupler Weight (kg)
16	M18×2.0	32	189~194	5	0.82
18	M22×2.5	35	204~209	5	1.07
20	M24×2.5	39	214~219	5	1.41
22	M25×2.5	43	242~247	5	1.94
25	M29×3.0	48.5	264~269	5	2.66
28	M32×3.0	54	280~285	5	3.53
32	M36×3.0	62	301~306	5	5.02
36	M40.3×3.5	68.5	339~344	5	6.95
40	M45.3×3.5	78.5	360~365	5	9.59

9. Nail Plate

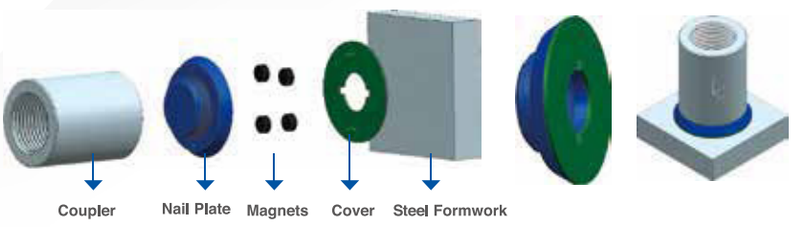
Used for precisely installing coupler to formwork.



Installation Process for Wooden Formwork

1. Make holes on the formwork to match nail plate installing holes.
2. Fix nail plate by nails to the formwork.
3. Connect coupler (one side is connected with rebar) to nail plate to the correct position.

Installation Process for Steel Formwork



1. Assemble magnets, cover and nail plate together.
2. Mark position on the steel formwork.
3. Fix nail plate by magnets to the formwork.
4. Connect coupler (one side is connected with rebar) to nail plate to the correct position.

Nail Plate Specficiations

Rebar Diameter (mm)	Nail Plate				Cover			Magnet	
	Threads (mm)	O.D. (mm)	Space (mm)	Thickness (mm)	O.D. (mm)	Space (mm)	Thickness (mm)	O.D. (mm)	Thickness (mm)
16	M18×2.0	59	39.0	18	59	39.0	2	6.5	5
18	M22×2.5	59	39.0	18	59	39.0	2	6.5	5
20	M24×2.5	59	39.0	18	59	39.0	2	6.5	5
22	M25×2.5	59	39.0	18	59	39.0	2	6.5	5
25	M29×3.0	59	39.0	18	59	39.0	2	6.5	5
28	M32×3.0	59	39.0	18	59	39.0	2	6.5	5
32	M36×3.0	59	39.0	18	59	39.0	2	6.5	5
36	M40.3×3.5	74.0	54.0	20	74.0	54.0	2	13	5
40	M45.3×3.5	74.0	54.0	20	74.0	54.0	2	13	5

4. Machines & Accessories

Combo 1（16~32mm）：LD1200 Upsetting Machine + BSB6 Hydraulic Pump + QTL-40 Threading Machine

Combo 2（16~40mm）：LD1800 Upsetting Machine + BSB6 Hydraulic Pump + QTL-40 Threading Machine

Combo 3（16~40mm）： DC2500 Upsetting Machine + DBS10/35 Hydraulic Pump + QTL-40 Threading Machine

Rebar Cutting Machine

Type	Picture	Motor Power (kw)	Rated Voltage (V)	Dimensions (mm)	Weight (kg)
GQ-50		4.0	380	1485×615×740	≈ 580

Rebar Forging Machine

Type	LD1200	LD1800	DC2500
Picture			
Rebar Size (mm)	16-32	16-40	16-40
Rated Forging Force (kN)	1200	1800	2500
Dimensions (mm)	660×360×360	810×410×410	1380×670×1240
Weight (kg)	≈ 380	≈ 625	≈ 1200

Hydraulic Pump

Type	BSB6	DBS10/35
Picture		
Rated Pressure (MPa)	40	30
Rated Flow (L/min)	6.0	10-35
Motor Power (kw)	4.0	7.5
Dimensions (mm)	460×460×640	1650 × 1000 × 1070
Weight (kg)	≈ 89	≈ 300

Rebar Threading Machine

Type	Picture	Motor Power (kw)	Reduction Ratio	Dimensions (mm)	Weight (kg)
QTL-40		4.0	1:35	1170×710×1140	≈ 484

Related Accessories

				
Dies	Chasers	Cutting Powder	Thread Gauge	Wrench

CABR

Rebar Mechanical Anchor Technology

CABR Rebar Mechanical Anchor Technology

Solve Rebar Congestion
Reduce Rebar Anchor Length

China Invention Patent No.：ZL 2006102003 01.4

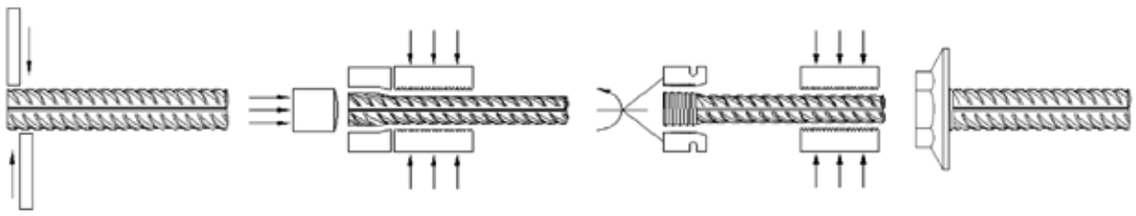
Bond and anchor performance between steel and concrete is one of the basic research questions for concrete structure. It has affected a lot on its structural strength of steel, crack control, reinforcement structure and security structures. Currently, in the reinforced concrete structure, the common method is to use rebar hook. Through 90 ° or 135 ° hooked rebar to some extent enhances rebar performance and reduces the anchor length, but bent or curved arc radius often brings many problems, such as rebar congestion on beam - column joint area, hooked rebars and other rebars interfere with each other, anchor length does not meet the requirements and so on. When using large diameter rebar, these problems become more prominent. CABR developed a patented rebar mechanical anchor technology and has become a good solution to this problem. It can ensure rebar mechanical anchoring performance, optimize steel anchor conditions, and reduce the length of the steel anchor, save steel anchor length. It is convenient, and to improve concrete pouring quality.

1. Applications

- Replace hooked rebar, used on beam-column joints;
- Replace traditional bended rebar and rebar hoop, used on simply supported beam ;
- Used for concrete projects such as bridge, subway, nuclear power plants ;
- Used as fastner for steel bolt (or rod) .

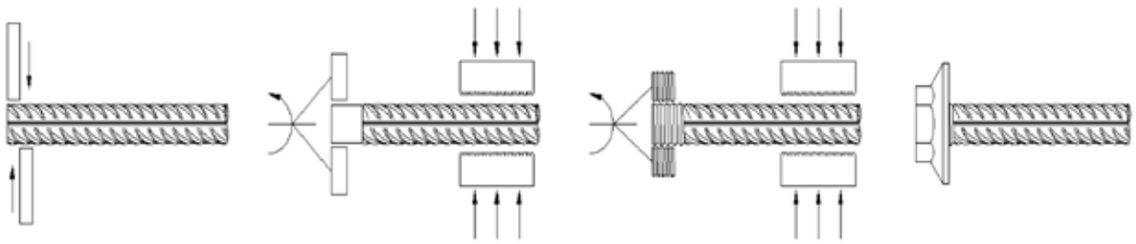
2. Process

System.A



Rebar Cutting	Rebar Forging	Rebar End Threading	Anchor Plate Installation

System.B



Rebar Cutting	Rebar Rib Stripping	Rebar End Rolling	Anchor Plate Installation

3. Product Advantages

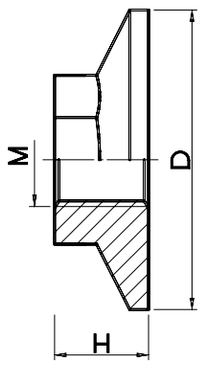
Technical Authority	Chief Editor of Chinese Rebar Mechanical Anchor Standard JGJ 256-2011.
Safe & Reliable	Good anchor performance; 100% achieve strength of rebar; Suitable for high-strength rebar to use with.
Simple Effective	Minimize rebar embedment length; Save 40~50% steel; Lower costs.
Cost Saving	Reduce rebar congestion; Solve the difficult of pouring concrete; Improve the construction quality.
Promising Market	One of Ten Promoting New Technologies and Green Technologies in Building Industry in China

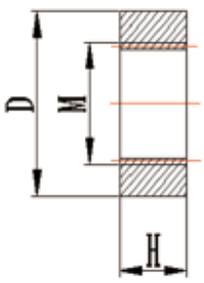
4. Classification and Specification

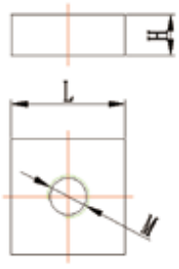
1. Classification

Anchor Plate	Processing Method	Picture	Ratio of bearing area and rebar cross-sectional area	Source of anchoringing force
Partial Anchor Plate	Casting / Forging		≥ 4.5	Bond force of rebar and concrete at anchoring area + anchor plate bearing force
Full Anchor Plate	Casting / Forging		≥ 9.0	Anchor plate bearing force

2. Specification

Sketch	Rebar Diameter (mm)	SYS.A Threads (mm)/M	SYS.B Threads (mm)/M	Partial anchor plate		Full anchor plate	
				O.D. (mm)/D	Thickness (mm)/H	O.D. (mm)/D	Thickness (mm)/H
	16	M18×2.0	M16.55×2.0	38	16	51	16
	18	M22×2.5	M18.60×2.5	43	18	58	18
	20	M24×2.5	M20.60×2.5	48	20	64	20
	22	M25×2.5	M22.60×2.5	52	22	70	22
	25	M29×3.0	M25.65×3.0	60	25	80	25
	28	M32×3.0	M28.65×3.0	66	28	89	28
	32	M36×3.0	M32.65×3.0	76	32	102	32
	36	M40.3×3.5	M36.65×3.0	85	36	115	36
	40	M45.3×3.5	M40.65×3.0	95	40	127	40
	50	-	M50.65×3.0	118	50	159	50

Anchor Plate Sketch	Rebar Diameter (mm)	SYS.A Threads (mm)/M	SYS.B Threads (mm)/M	Partial anchor plate		Full anchor plate	
				O.D. (mm)/D	Thickness (mm)/H	O.D. (mm)/D	Thickness (mm)/H
	16	M18×2.0	M16.55×2.0	38	16	51	16
	18	M22×2.5	M18.60×2.5	43	18	58	18
	20	M24×2.5	M20.60×2.5	48	20	64	20
	22	M25×2.5	M22.60×2.5	52	22	70	22
	25	M29×3.0	M25.65×3.0	60	25	80	25
	28	M32×3.0	M28.65×3.0	66	28	89	28
	32	M36×3.0	M32.65×3.0	76	32	102	32
	36	M40.3×3.5	M36.65×3.0	85	36	115	36
	40	M45.3×3.5	M40.65×3.0	95	40	127	40
	50	—	M50.65×3.0	118	50	159	50

Anchor Plate Sketch	Rebar Diameter (mm)	SYS.A Threads (mm)/M	SYS.B Threads (mm)/M	Partial anchor plate		Full anchor plate	
				Length	Thickness (mm)/H	Length	Thickness (mm)/H
	16	M18×2.0	M16.55×2.0	34	16	45	16
	18	M22×2.5	M18.60×2.5	38	18	51	18
	20	M24×2.5	M20.60×2.5	42	20	57	20
	22	M25×2.5	M22.60×2.5	46	22	62	22
	25	M29×3.0	M25.65×3.0	52	25	71	25
	28	M32×3.0	M28.65×3.0	59	28	79	28
	32	M36×3.0	M32.65×3.0	67	32	90	32
	36	M40.3×3.5	M36.65×3.0	75	36	101	36
	40	M45.3×3.5	M40.65×3.0	84	40	113	40
	50	-	M50.65×3.0	104	50	141	50

Remarks: please check with CABR technical manager for other customized design.

3. Machines & Accessories

3.1 System A

Combo 1（16~32mm）: LD1200 Upsetting Machine + BSB6 Hydraulic Pump + QTL-40 Threading Machine

Combo 2（16~40mm）: LD1800 Upsetting Machine + BSB6 Hydraulic Pump + QTL-40 Threading Machine

Combo 3（16~40mm）: DC2500 Upsetting Machine + DBS10/35 Hydraulic Pump + QTL-40 Threading Machine

Rebar Forging Machine

Type	LD1200	LD1800	DC2500
Picture			
Rebar Size (mm)	16-32	16-40	16-40
Rated Forging Force (kN)	1200	1800	2500
Dimensions (mm)	660×360×360	810×410×410	1380×670×1240
Weight (kg)	≈ 380	≈ 625	≈ 1200

Hydraulic Pump

Type	BSB6	DBS10/35
Picture		
Rated Pressure (MPa)	40	30
Rated Flow (L/min)	6.0	10-35
Motor Power (kw)	4.0	7.5
Dimensions (mm)	460×460×640	1650 × 1000 × 1070
Weight (kg)	≈ 89	≈ 300

Rebar Threading Machine

Type	Picture	Motor Power (kw)	Reduction Ratio	Dimensions (mm)	Weight (kg)
QTL-40		4.0	1:35	1170×710×1140	≈ 484

Related Accessories





Dies	Chasers	Cutting Powder	Thread Gauge	Wrench

3.2 System B

Rebar Rolling Machine

Type	QGL-40	Picture	
Rebar Size (mm)	14-40（16-40）		
Motor Rate (kw)	4.0		
Reduction ratio	1.29		
Dimensions (mm)	1170*710*1140		
Weight (kg)	≈ 500		

Related Accessories





Cutting Powder	Rib Cutters	Rollers	Thread Gauge	Wrench

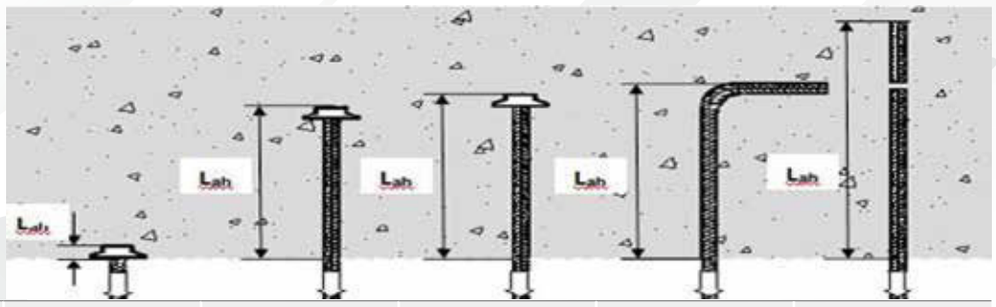
5. Anchor Technical Comparison

Symbol Description：

d—Rebar Diameter

As—Rebar Area

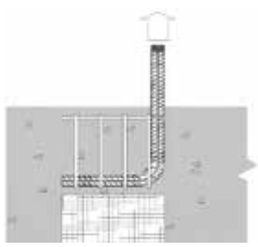
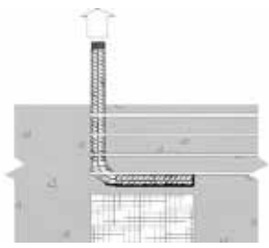
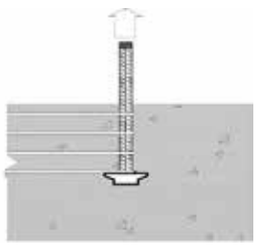
Lah—Rebar Anchoring Length



Anchor	Full anchor plate	Partial anchor plate	Partial anchor plate	Bend rebar	Straight rebar
Bond to Concrete or Not	no	part	part	part	yes
Anchor plate Bearing Area	9.0 As	4.5 As	4.5 As	—	—
Anchoring Length	1.0 d	6.0-7.0 d	0.3-0.4 Lah	0.4-0.5 Lah	Lah
Standard	JGJ256-2011 ACI318-2008	JGJ256-2011 GB50010-2010	JGJ256-2011 GB50010-2010 ACI318-2008	GB50010-2010 ACI318-2008	GB50010-2010 ACI318-2008
Ratio of Steel	0.1-0.2	0.2-0.3	0.4-0.5	0.6-0.7	1.0
Application	Rebar maximum stress at rebar end.	Beam end support	Bend rebar replacement	Beam-column joint	Various occasions
Usage Requirement	JGJ256-2011 Clause 4.2.1	JGJ256-2011 Clause4.1.2	JGJ256-2011 Clause 4.1.1	GB50010-2010 Clause 9.3.4	GB50010-2010 Clause 8.3.1

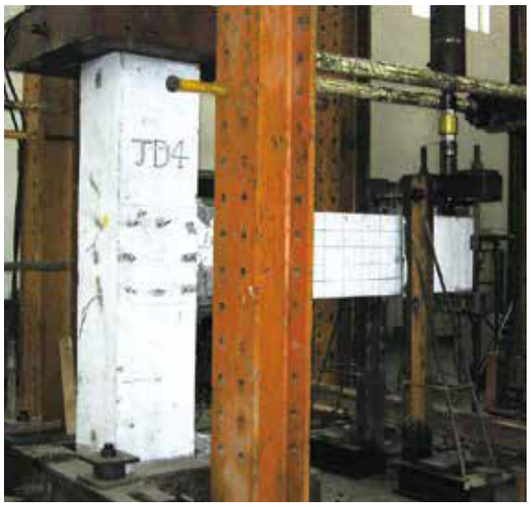
6. Confirmatory Comparison Test

1.163 Anchor Plate and Bend Rebar in Concrete Pull-out Tests

Anchor situation	Bend rebar (hoop bars perpendicular to rebar bend parts)	Bend rebar (hoop bars parallel with rebar bend parts)	Anchor plate (hoop bars perpendicular to rebar)
Sketch			
Test result			
	Concrete stush	Protective cover fracturing	Concrete stush
Damaged load kN	196	255	304
Ratio of rebar stress and rebar practical tensile strength when damaged	0.65	0.84	1.0
Test situation	1) Concrete strength C40. 2) Rebar dia. 25mm. 3) Rebar embedmen t length 14d.		

2. 11 Beam-column Joints Tests

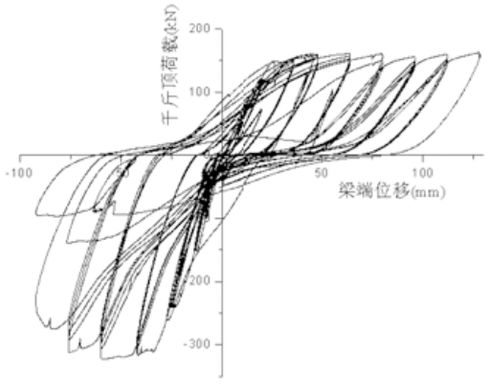
The end joint on top floor



The end joint on standard floor

Bend bars anchor test result

Anchor plate test result



Hysteresis curve

The end joint on top floor

7. Expert Evaluation

The evaluation report was given by the expert assessments organized by Ministry of Housing and Urban-rural Development of the People's Republic of China (MOHU RD) in December 2012, the following conclusions were given,

Provide the test basis for National and Industry Standard.

Anchor plate performance is better than bend rebar anchor.

The submitted enterprise standard provides the basis for the an chor plate application in project.

The anchor technology reaches international advanced level, and fill the blank in China.

8. Project Applications

Frame Joint

The end joint on top floor side column

The end joint on top floor corner column

The middle joint on top floor

The middle joint on the standard floor

The end joint on the standard joint

Concrete Wall

Anchor Plate for Wall

Anchor Plate for Floor to Wall

Prefabricated Components

Precast concrete columns, Steel beams, Cast-in-place Slab Structure

Rock Anchor Rod

Threaded Rebar+Anchor Plate+Bearing Plate

Foundation

Anchor Plate for Nuclear Power Plant Foundation

建研科技股份有限公司
CABR TECHNOLOGY CO.,LTD.
ADD: NO.30 BEISANHUAN DONGLU, P.O.BOX.752 BEIJING, CHINA
POSTAL CODE：100013
TEL: 8610-84287492
FAX: 8610-84282668
www.bar-splicing.com
E-mail: info@bar-splicing.com

ISO9001
Approved
Company

Authorization Letter

To Whom It May Concern:

Dear Sirs,

We, CABR TECHNOLOGY CO., LTD., a leading manufacturer of Rebar Coupler and Anchor Plate in China, wish to inform you that we have been providing rebar coupler and anchor plate in general in particular to the company as follows:

ORIENTAL METALS PTE LTD

And we confirm that the above company is our sole distributor in coupler and anchor plate for Singapore market.

Validity period: Dec 04, 2019 ~ Dec 03, 2024

Yours faithfully,

Signature: _____(President)

For and on behalf of

CABR TECHOLOGY CO., LTD.

Signing Date: Dec 04, 2019

Signing Place: Beijing, P.R. China

TEST REPORT

(This Report is issued subject to the terms & conditions set out below)

SETSCO
Setsco Services Pte Ltd
18 Tebian Gardens Crescent
Singapore 608925
Tel : (65) 6566 7777
Fax: (65) 6566 7718
www.setsco.com
Business Reg. No. 199000289D

Date: 05 March 2020

Your Ref: Letter dtd 28th February 2020 Our Ref: MM-8500101836/OJX/2 Page 1 of 3

Subject : Testing of mechanical spliced reinforcement steel bar submitted by Oriental Metals Pte Ltd on 03 March 2020.

Tested For : **ORIENTAL METALS PTE LTD**
28 Jalan Buroh
Singapore 619484

Attn: Mr. Dan Ang

Project : R & D

Date and Place of Test : 04 March 2020 at Setsco Laboratory

Method of Test : ISO 15835-1: 2009 (E) - Tensile and Slip Test

Description of Sample : Nine (09) pieces of mechanical spliced reinforcement steel bar (Grade B500B) were received as follow:

S/No.	Sample Ref.	Type of Coupler	Qty.
01	Ø 13.0mm	CABR Coupler	03
02	Ø 16.0mm		03
03	Ø 20.0mm		03

Results : Tensile and Slip Test
The tested samples met the requirements of ISO 15835-1: 2009 (E) specification.
Refer to Tables attached.

Witness : Mr. Ken Ho (Oriental Metals Pte Ltd)

ONG JIAN XIANG
Testing Officer

TAN AH SIONG
Executive Engineer (Mechanical Testing)
Mechanical Technology Division

Results:

Table 1a: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 13.0mm S1	CABR Coupler Ø 13.0mm S2	ISO 15835-1: 2009 (E) Requirements
Nominal Size (mm) #	13.0		-
Nominal Cross-sectional area, *So* (mm²)	132.73		
Permanent Elongation After Loading to $0.6R_{eH,spec}$ ##, (mm)	0.02	0.05	Max. 0.10
Maximum Load, *P* (kN)	85.8	86.4	-
$\frac{(P \times 1000)}{So} (N / mm^2)$	646.4	650.9	Min. 540
Agt (%)	13.5	10.0	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)		-

(1kN = 102 kgf)
"#" – Based on client's sample reference

Results:

Table 1c: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 16.0mm S1	CABR Coupler Ø 16.0mm S2	CABR Coupler Ø 16.0mm S3	ISO 15835-1: 2009 (E) Requirements
Nominal Size (mm) #	16.0			-
Nominal Cross-sectional area, *So* (mm²)	201.06			
Permanent Elongation After Loading to $0.6R_{eH,spec}$ ##, (mm)	0.06	0.07	0.06	Max. 0.10
Maximum Load, *P* (kN)	125.9	128.7	121.9	-
$\frac{(P \times 1000)}{So} (N / mm^2)$	626.2	640.1	606.3	Min. 540
Agt (%)	11.0	11.5	11.0	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)			-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.

Table 1d: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 20.0mm S1	CABR Coupler Ø 20.0mm S2	CABR Coupler Ø 20.0mm S3	ISO 15835-1: 2009 (E) Requirements
Nominal Size (mm) #	20.0			-
Nominal Cross-sectional area, *So* (mm²)	314.16			
Permanent Elongation After Loading to $0.6R_{eH,spec}$ ##, (mm)	0.05	0.03	0.06	Max. 0.10
Maximum Load, *P* (kN)	204.4	211.0	207.7	-
$\frac{(P \times 1000)}{So} (N / mm^2)$	650.6	671.6	661.1	Min. 540
Agt (%)	9.5	8.5	9.5	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)			-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.

TEST REPORT

(This Report is issued subject to the terms & conditions set out below)

SETSCO
Setsco Services Pte Ltd
18 Teban Gardens Crescent
Singapore 608925
Tel : (65) 6566 7777
Fax: (65) 6566 7718
www.setsco.com
Company Reg. No. 196900369D

Date: 05 March 2020

Your Ref: Letter dtd 28th February 2020 Our Ref: MM-8500101836/OJX/1 Page 1 of 3

Subject : Testing of mechanical spliced reinforcement steel bar submitted by Oriental Metals Pte Ltd on 02 March 2020.

Tested For : **ORIENTAL METALS PTE LTD**
28 Jalan Buroh
Singapore 619484

Attn: Mr. Dan Ang

Project : R & D

Date and Place of Test : 02 March 2020 at Setsco Laboratory

Method of Test : ISO 15835-1: 2009 (E) - Tensile and Slip Test

Description of Sample : Nine (09) pieces of mechanical spliced reinforcement steel bar (Grade B500B) were received as follow:

S/No.	Sample Ref.	Type of Coupler	Qty.
01	Ø 25.0mm	CABR Coupler	03
02	Ø 32.0mm		03
03	Ø 40.0mm		03

Results : Tensile and Slip Test
The tested samples met the requirements of ISO 15835-1: 2009 (E) specification.
Refer to Tables attached.

Witness : Mr. Ken Ho (Oriental Metals Pte Ltd)

ONG JIAN XIANG
Testing Officer

TAN AH SIONG
Executive Engineer (Mechanical Testing)
Mechanical Technology Division

Results:

Table 1a: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 25.0mm			ISO 15835-1: 2009 (E) Requirements
	S1	S2	S3	
Nominal Size (mm) #	25.0			-
Nominal Cross-sectional area, *So* (mm²)	490.87			
Permanent Elongation After Loading to 0.6$R_{eH,spec}$ ##, (mm)	0.04	0.04	0.05	Max. 0.10
Maximum Load, *P* (kN)	328.4	333.1	331.1	-
$\frac{(P \times 1000)}{So}$ (*N / mm* ²)	669.0	678.6	674.5	Min. 540
Agt (%)	9.0	9.0	10.5	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)			-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.

Table 1b: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 32.0mm	ISO 15835-1: 2009 (E) Requirements
	S1	
Nominal Size (mm) #	32.0	-
Nominal Cross-sectional area, *So* (mm²)	804.25	
Permanent Elongation After Loading to 0.6$R_{eH,spec}$ ##, (mm)	0.05	Max. 0.10
Maximum Load, *P* (kN)	525.1	-
$\frac{(P \times 1000)}{So}$ (*N / mm* ²)	652.9	Min. 540
Agt (%)	11.0	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Inside the mechanical splice length)	-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.

Results:

Table 1c: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 32.0mm		ISO 15835-1: 2009 (E) Requirements
	S2	S3	
Nominal Size (mm) #	32.0		-
Nominal Cross-sectional area, *So* (mm²)	804.25		
Permanent Elongation After Loading to 0.6$R_{eH,spec}$ ##, (mm)	0.05	0.04	Max. 0.10
Maximum Load, *P* (kN)	546.5	546.0	-
$\frac{(P \times 1000)}{So}$ (*N / mm* ²)	679.5	678.9	Min. 540
Agt (%)	7.0	9.5	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)		-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.

Table 1d: Tensile and Slip Test

Sample Reference	CABR Coupler Ø 40.0mm			ISO 15835-1: 2009 (E) Requirements
	S1	S2	S3	
Nominal Size (mm) #	40.0			-
Nominal Cross-sectional area, *So* (mm²)	1256.64			
Permanent Elongation After Loading to 0.6$R_{eH,spec}$ ##, (mm)	0.05	0.05	0.04	Max. 0.10
Maximum Load, *P* (kN)	864.1	862.5	861.5	-
$\frac{(P \times 1000)}{So}$ (*N / mm* ²)	687.6	686.4	685.6	Min. 540
Agt (%)	7.0	12.0	12.5	Min. 3.5
Position of Fracture ###	Fractured at the reinforcement steel bar (Outside the mechanical splice length)			-

(1kN = 102 kgf)
"#" – Based on client's sample reference
"##" – $R_{eH,\ spec}$ = 500 MPa
"###" – Length of the mechanical splice define as coupler length plus two times the nominal diameter at both ends of the coupler.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