



WELMETAL MECHANICAL COUPLER

The best methods to connect rebar

WELMETALCOMPANY INTRODUCTION

企業介紹

華美資源集團有限公司(下稱「華美資源」)於 2012年3月在香港特别行政區成立。同年7月 成為香港政府土木工程拓展署之質量認可螺 紋鋼存銷商,主要從事建築用螺紋鋼及鋼材加 工,產品存銷,與及建築用鋼材、板材、鋼坯和 鐵礦石及廢鋼的國際貿易。

目前華美資源總部設於香港,並在香港屯門及 澳門氹仔分别設有逾10萬平方呎及6萬平方呎 之貨倉用地。

企業沿革

華美資源成立時,深圳經濟特區最早成立的百家中外合資企業之一的廣東華美集團為控股股東,而青島鋼鐵控股集團有限任公司為廣東華美集團的控股企業;及後,廣東華美集團的企業股權結構於2013年重組,華美資源由其餘股東繼續經營,成為獨立於廣東華美集團的企業,並成為深圳華美鋼鐵有限公司的海外獨家代理,直至現在。

目前華美資源的投資者,包括曾主管本港上市 集團螺紋鋼存銷及鋼材國際貿易業務的要員、 歷任內地鋼鐵企業要職的高級管理人員,以及 具深厚鋼材貿易背景的投資者。

THE COMPANY

Welmetal Resources Group Limited (hereafter"Welmetal Resources") was incorporated rated in Hong Kong SAR in March 2012, and has become a Quality Assured Stockist of CEDD in July 2012. Its principal businesses include storage and distribution of reinforced steel bars and processed steel products, and international trade of steel products for construction, flat steels, billets, iron ore and steel scrap.

At present Welmetal Resources' main office is situated in Hong Kong SAR, it also has warehouses in Tuen Mun, Hong Kong SAR and Taipa, Macau SAR, occupying approximately 100,000 sq ft and 60,000 sq. ft of land respectively.

COMPANY HISTORY

Guangdong Welmetal Group, one of the earliest Sino-foreign joint venture enterprises established in Shenzhen Special Economic Zone RC, which was controlled by Qingdao Iron and Steel Group Co, Ltd, was the major shareholder of Welmetal Resources at its inception. Further to a change in ownership structure of Guangdong Welmetal Group in 2013, Welmetal Resources were taken over by the rest of the shareholders and has become independent from GuangDong Welmetal Group, as well as an exclusive overseas distributor of Shenzhen Welmetal Steel Company Limited.

At present, the investors of Welmetal Resources consist of a senior executive who was responsible for the steel stockist and international trade business of a company listed in Hong Kong SAR, a senior member of mainland China steel enterprises, and investors well versed in steel trading business.



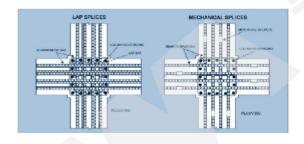
WELMETAL-COUPLERS

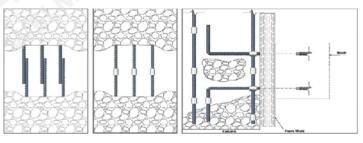
WHY A MECHANICAL COUPLER?

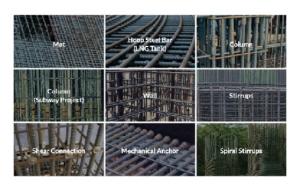
In today's world, construction projects have become more complex and sophisticated, yet at the same time clients are expected to build them faster than ever before. The traditional methods for connecting rebar, such as LAPPING or WELDING, are no longer the best methods to connect rebar. More and more construction codes are specifying a mechanical COUPLER because it provides better structural integrity while minimizing cost.

Here you can find some benefits of using WELMETAL® mechanical couplers listed below:

- Designed to withstand a breaking load of at least 650N/mm², which is well above the designed strength of most reinforcement hars.
- >> Superior quality control standard. Parallel thread works like a continuous bar when installed
- More reliable and more structural integrity than lap splices because they no longer rely on the concrete for load transfer.
- ▶ Slim design eliminates congestion and improve concrete consolidation.
- ➤ Efficient and Easy design options result in smaller and stronger columns with the maximum amount of useful area.
- >> Available in transition form for splicing of different sizes rebar.
- Avoids drilling and/or cutting forms, especially in crane, elevator openings, and stairwells installs easily and quickly.
- Available in extended thread form for application where incoming rebar cannot be rotated.







THE WELMRTAL COUPLER IS APPROPRIATE, BUT NOT LIMITED TO THE FOLLOWING USES

- >> Wall to slab connection
- >> Wall to pre-cast beam connection
- >> Column Construction
- ▶ Pre-cast element to pre-cast element connection
- >> Closing of access openings
- ►► Rebar cage pre-fabrication
- ▶ Fatigue applications
- >> Bar end terminators

WELMETAL RESOURCES —— 01

ADVANTAGES

OF WELMETAL'S COUPLER





Welmetal Mechanical Coupler System meets the requirements of COP for structural use of concrete 2013, clause 3.2.8.3 and clause 3.2.8.4.

Type 1 and Type 2.

Type 1 and Type 2 requirements including cyclic dynamic testing.

Type 2 connections are suitable for use in seismic structures when inelastic yielding may occur and may be used anywhere in the structure.





QUALITY ASSURANCE

Quality is always at the forefront of our thinking, to maintain control of the important coupler element we only manufacture at factories with ISO: 9001 or CARES certification, which boasts significant advanced CNC manufacturing facilities.

Assembled coupler will be picked up randomly and send to HOKLAS laboratory tested according to the requirement of COP2013.

Welmetal Mechanical Couplers is ISO 9001:2015 certified by the HKQAA



02 — WELMETAL RESOURCES

WELMETAL MECHANICAL COUPLERPR SERIES

The Parallel Cold Rolling Threaded System

Cold Rolling Technology:

Step1: Cold forming

The Cold forming method is essentially simple – the shape of the end of the rebar to be threaded, is modified via a round accurately predetermined sized steel die set. The forming load is minimal and applied transversely to the grain flow of the material. This will result in a near perfect round densified bar where pressure has been applied. Any remaining irregularity resulting from imperfection from the original bar will be trimmed away preserving the Martensite property; greatly improving the strength of the bar. These are the key steps before we proceed to the rolling threading phase.

Step2: Rebar chamfer

It is providing a installation, saving the time and manpower, improve efficiency.

Step3: Cold Rolling Thread

Cold Rolling Technology strengthens the root and flank of the rebar threads and provides for a significantly stronger rebar/coupler connection. Cold rolling is the preferred method for forming threads and delivers superior tensile strength, shear strength, resistance to fatigue and thread accuracy.

Rolling also leaves the surface layers of the thread, particularly those in the roots, stressed in the compression. These compressive stresses must be overcome before the tensile stresses can be built up, which alone, can cause fatigue failures. This increase in root hardness, up to 30%, adds considerably to the Rebar resistance to fatigue.



WELMETAL RESOURCES — 03



Welmetal PR Series Couplers transfer load directly from one bar to other without indirect interaction of concrete so that it enhances the structural integrity and thus overall reliability of the reinforcement system.

Welmetal PR Series Couplers are used to join rebars of the same diameter or different diameter. They comprise an internally threaded sleeve with two right hand threads which in parallel towards the center of the couplers.

Note: Different of transitional rebar diameters Coupler can be supplied upon request.

PR SERIES DIAMENTION

Rebar Diameter(mm)	Series Code	Length of Coupler(mm)	Outer Diameter of Coupler(mm)	Pitch of Thread(mm)	
	187	L	D	Р	
12mm	PR-12	38	19	2.0	
16mm	PR-16	40	26	2.5	
20mm	PR-20	50	32	2.5	
25mm	PR-25	65	40	3.0	
32mm	PR-32	80	50	3.0	
40mm	PR-40	100	60	3.0	
50mm	PR-50	115	75	3.5	

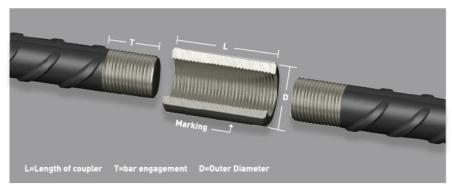
WHY ROLL THREAD:

- ▶▶ Increase in Tensile Strength
- >> No material wastage
- ▶▶ Uniform threads
- >> Improved physical characteristics
- ▶ Greater accuracy
- ▶ High level of surface finish





30% STRONGER



Marking Example: PR-(Bar Size) xx-xxx(Batch No.)

04 —

WELMETAL MECHANICAL COUPLERFP SERIES

Frictional Press Technology:

A simple, efficient and more effective method of connecting reinforcement, couplers and threading are prefabricated by factory precision CNC machine, which overcomes the disadvantages of the traditional method.

Commonly used in industrial applications, Friction Press is the process of generating heat through mechanical friction between a moving work piece and a stationary component. Our approach is to distinguish between the friction phase and the forging phase. During the friction phase a rotating work piece is pressed against a fixed one, then once both have been heated to sufficient temperature the forging phase begins whereby the rotating work piece is stopped and a force is applied to continue pressing the two pieces together.

Advantages of Frictional Press Technology

- >> Oxides and contaminants present would easily be removed during the initial rubbing so that edge cleaning is not a problem.
- >> Since the joining takes place by diffusion rather than by actual melting.
- >> The heat generated is small and below the melting temperature, there will be no distortion and warping.
- >> The quality of Frictional Press achieved is very high.
- >> No skilled operator is required to work on the friction welding machine since it is completely automatic in operation.
- >> No possibility of porosity and slag inclusion.
- >> It is an environmentally friendly process since there is no fumes, gases or smoke is generated.
- >> No flux, filler metal or gas is required to perform this process.

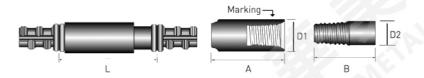


WELMETAL RESOURCES — 05

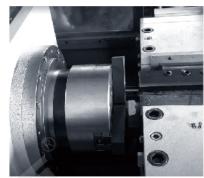
FP SERIES DIAMENTION

Rebar Diameter	Series Code	A	В	D1	D2	L
(mm)		(mm)	(mm)	(mm)	(mm)	(mm)
12mm	FP-12	29	38	19	14	42(± 3)
16mm	FP-16	32	41	25	18	50(± 3)
20mm	FP-20	40	43	25	19	60(± 3)
25mm	FP-25	50	55	34	25	70(± 3)
32mm	FP-32	63	63	42	32	80(± 3)
40mm	FP-40	70	75	53	46	100(± 3)
50mm	FP-50	85	85	65	50	110(± 3)

Note: Different of transitional rebar diameters Coupler can be supplied upon request.



Marking Example: FP-(Bar Size) xx-xxx(Batch No.)







06 — WELMETAL RESOURCES

PROJECT REFERENCES



The information provided in this brochure is the promotional nature only. The construction applications and details provided in this literature are indicative only. In every case, project working details should be entrusted to appropriately qualified and experienced persons. Whilst every care has been exercised in the preparation of this document to ensure that any advice, recommendations or information is accurate, no liability or responsibility of any kind is accepted product design and specification without due notice.

WELMETAL RESOURCES — 07

WELMETAL MECHANICAL COUPLER

The best methods to connect rebar



華美資源[®] WELMETAL RESOURCES

香港葵芳興芳路223號-新都會廣場-第一辦公大樓·42樓4212-4216室

Unit 4212-4216, 42/F., Tower 1, Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

Tel.+(852) 2153 3832 Fax.+(852) 2153 383

