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Nanjing Guhua Metalwork Co Ltd
Xiongzhou Industrial Park
Luhe District
Nanjing
China

Report no:	14110936
Order No:	GH1120
Date of issue:	18/12/2014
Date of Test:	17/12/2014
Specification:	EN 74-1 2005
Element location:	Sheffield

This report details the results of prototype tests carried out on friction type sleeve couplers used for connecting steel tubes of 48.3mm outside diameter and of at least 3.2mm nominal wall thickness at a minimum in the construction of working scaffolds and false work required for the construction, maintenance, repair and demolition of buildings and structures.

Description and Marks on couplings

Pressed Sleeve Coupler

Marks :- EN74-1 B L GH 0914 CLASS BL

Basis of Tests.

The couplings have been tested in accordance with the requirements of EN 74-1: 2005.

Information given by customer

Manufactured by:	Nanjing Guhua Metalwork Co Ltd
Shape:	As per drawing shown at the end of this report
Dimensions:	As per drawing shown at the end of this report
Material Characteristics:	Sleeve
Surface Protection:	Zinc plated
Tightening Torque:	50 Nm

Element Materials Technology Sheffield
Authorised by: Lee Mangham - Operations Manager

Signature:

element™

RESULTS

Design

The design of the coupling complied with the requirements of the relevant items in clause 6.2 of the standard.

Dimensions and Material Characteristics

The measured dimensions, mass and material characteristics, of the couplings, were all within the tolerances as specified by the manufacturer. (Drawings are shown at the end of this report)

Marking

The markings satisfy the requirements laid out in EN74-1.

Slipping Force Tests, tested in accordance with Clause 7.2

Tested using 3.2mm steel tube	
Test Number	Load at $1 \le \Delta_2 \le 2$mm (kN)
1	12.25
2	11.01
3	13.25
4	11.28
5	11.94
6	10.96
7	13.02
8	12.26
9	13.20
10	11.06
$F_{S5\%}$	**10.21**

Tested using 4.0mm aluminium tube	
Test Number	Load at $1 \le \Delta_2 \le 2$mm (kN)
1	13.26
2	13.65
3	12.68
4	12.96
5	13.06
$F_{S5\%}$	**12.26**

Requirements from EN 74-1 table 8 for sleeve couplers :- Class A $1 \le \Delta_2 \le 2$mm ($F_{S5\%}$) = 6.0kN
Class B $1 \le \Delta_2 \le 2$mm ($F_{S5\%}$) = 9.0kN

From the results, the prototype is accepted for Class B.

Bending Moment Resistance, tested in accordance with 7.4.3

Tested using 4.0mm steel tube	
Test Number	Bending Moment Δ_4 @ 5mm
1	4.35mm @ 25kN
2	4.36mm @ 25kN
3	4.35mm @ 25kN
4	4.37mm @ 25kN
5	4.40mm @ 25kN

Requirements from EN 74-1 table 8 for sleeve couplers: - Δ_4=5mm 1.4kNm

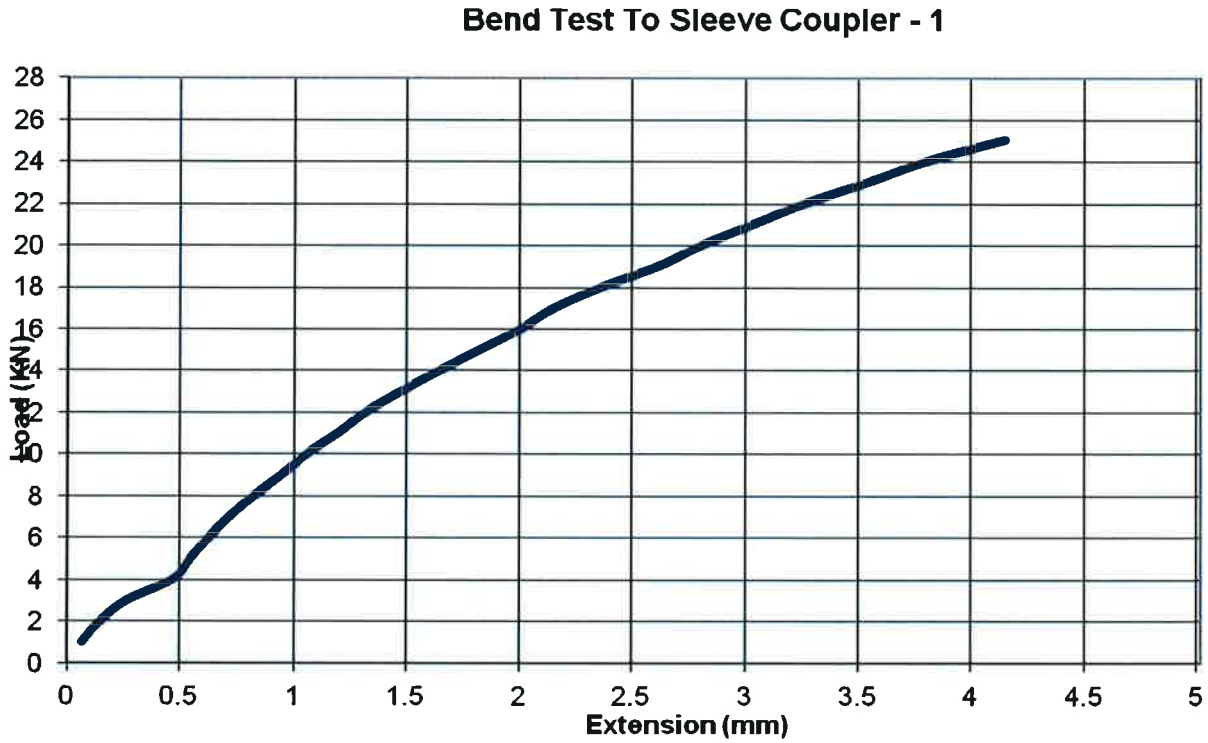
From the results, the prototype is accepted for Class B for bending load capacity.

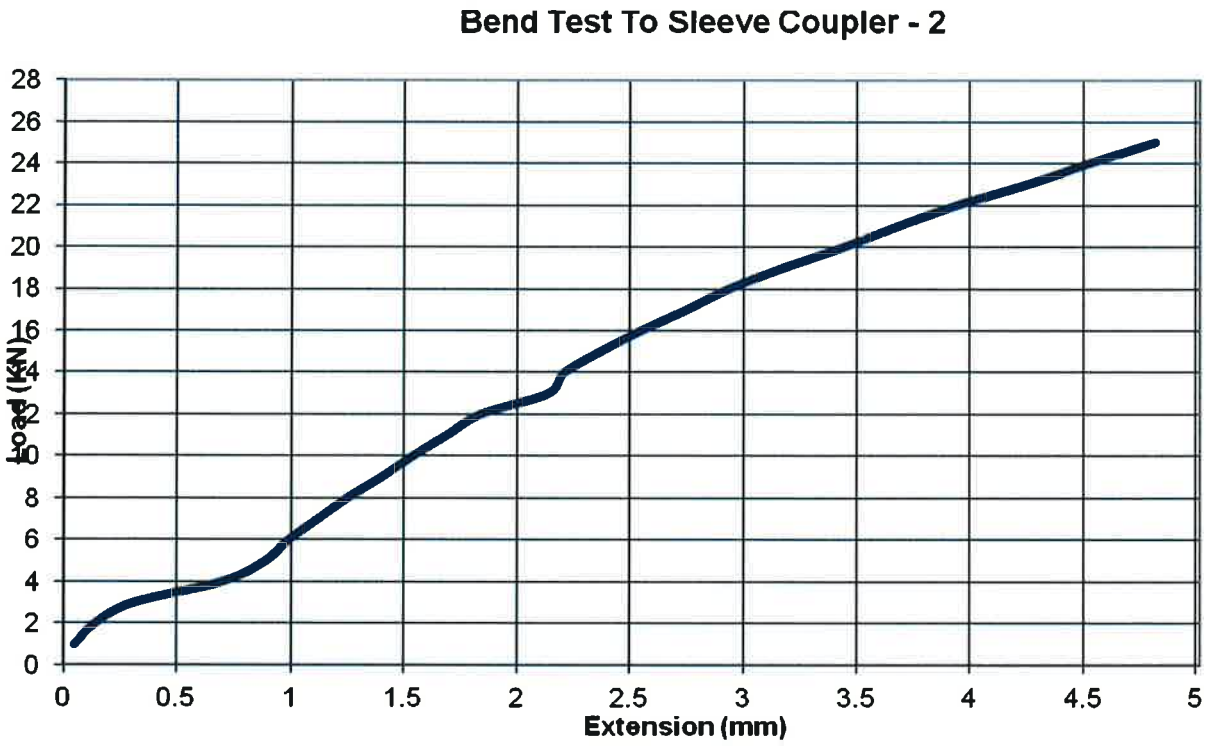
Load-displacement curves are shown in charts 1 to 5

Conclusion

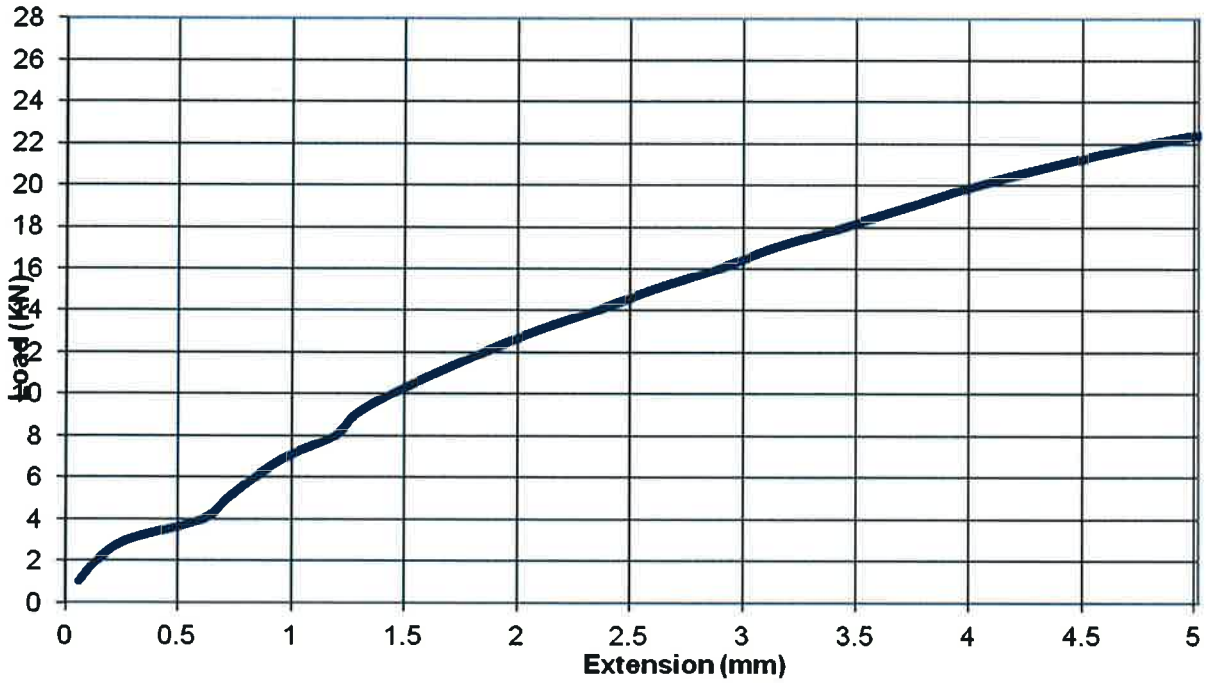
The coupler passed the requirements for Class B

Graphs of Bending Moment Test on 4.0mm Steel Tubes (RT_{S3})

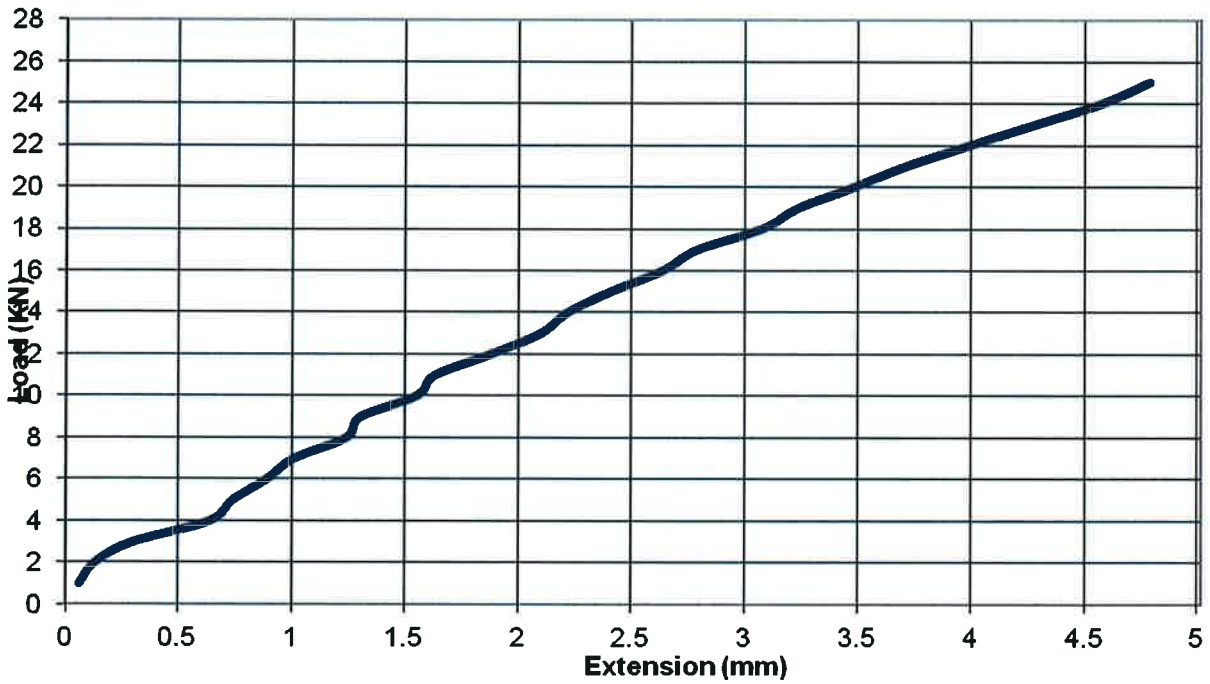




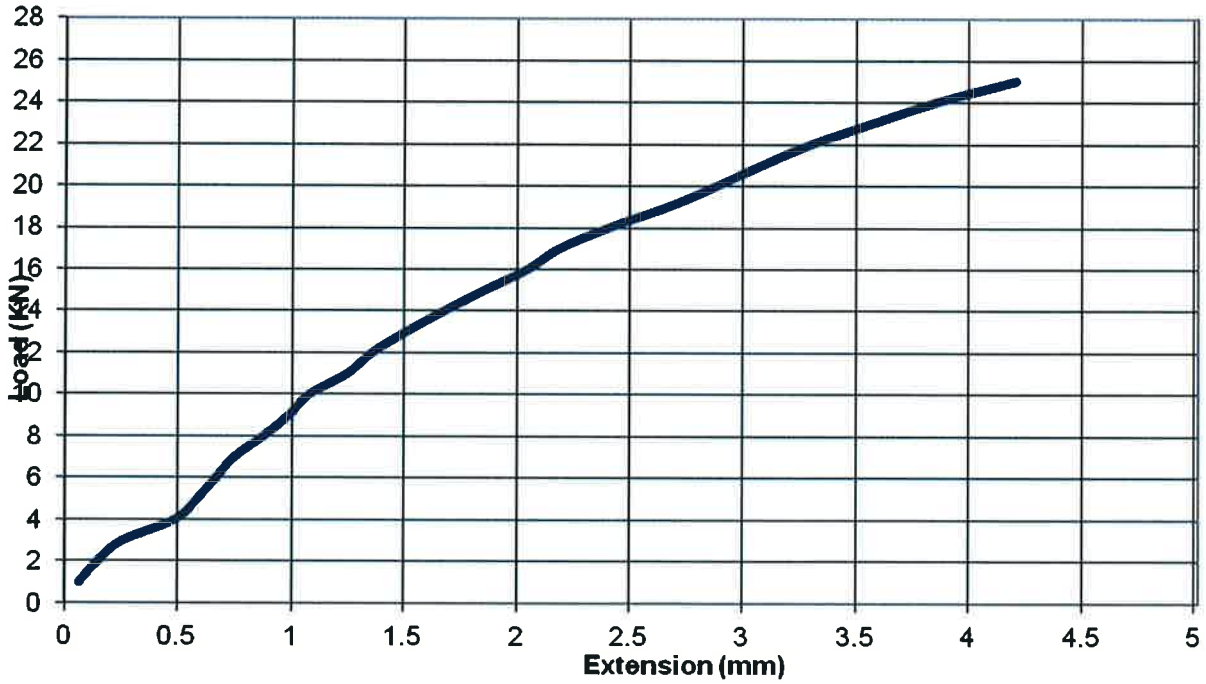
Bend Test To Sleeve Coupler - 3



Bend Test To Sleeve Coupler - 4

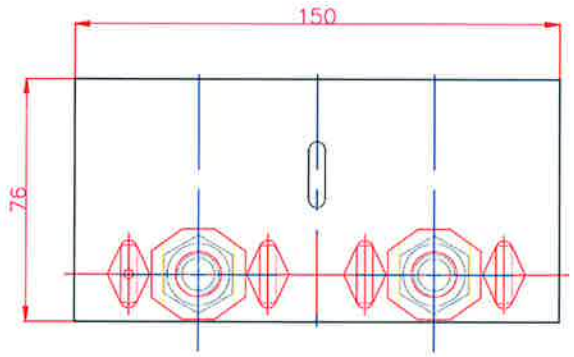


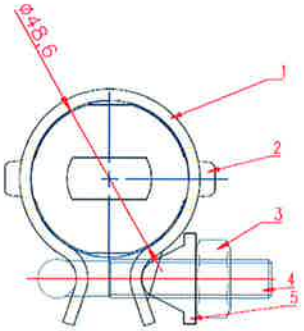
Bend Test To Sleeve Coupler - 5



Drawings of couplers supplied by customer

	0.5~3	3~6	6~30	30~120	120~400	400~1000	1000~2000	2000~4000
Tol C	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
Tol V		±0.5	±1.0	±1.5	±2.5	±4	±6	±8





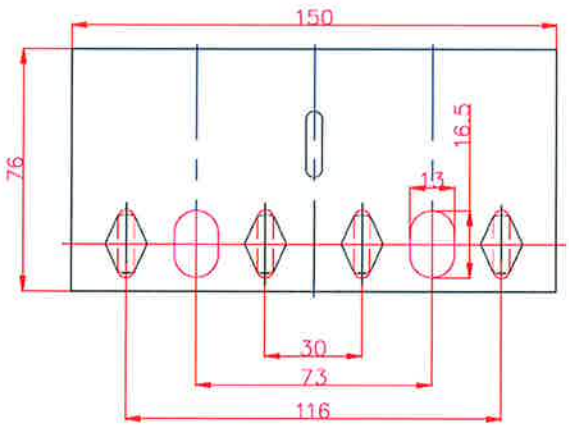
No	Name	Q'TY	Mat'l	Size	Drawing No.
5	U Washer	2	Q235		GH-10-3
4	T Bolt	2	35K	1/2"-12	GH-1036
3	Nut	2	35K	1/2"-12	GH-1000
2	Center Washer	1	Q235		GH-10-2
1	Out Sleeve	1	Q235		GH-10-1

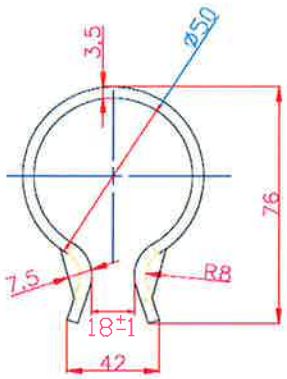
Nanjing Guhua metal work Co,.Ltd

Approved by	Checked by	Drawing by			
		Bruce			

Scale:	unit: MM	Order No:	
Pages:		Material:	
P/N:	Sleeve	Thickness:	
DWG No:	GH-10	Weight:	1.0Kg
Version:	V0	finish:	Zinc Plated

	0.5~3	3~6	6~30	30~120	120~400	400~1000	1000~2000	2000~4000
Tol C	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
Tol V		±0.5	±1.0	±1.5	±2.5	±4	±6	±8



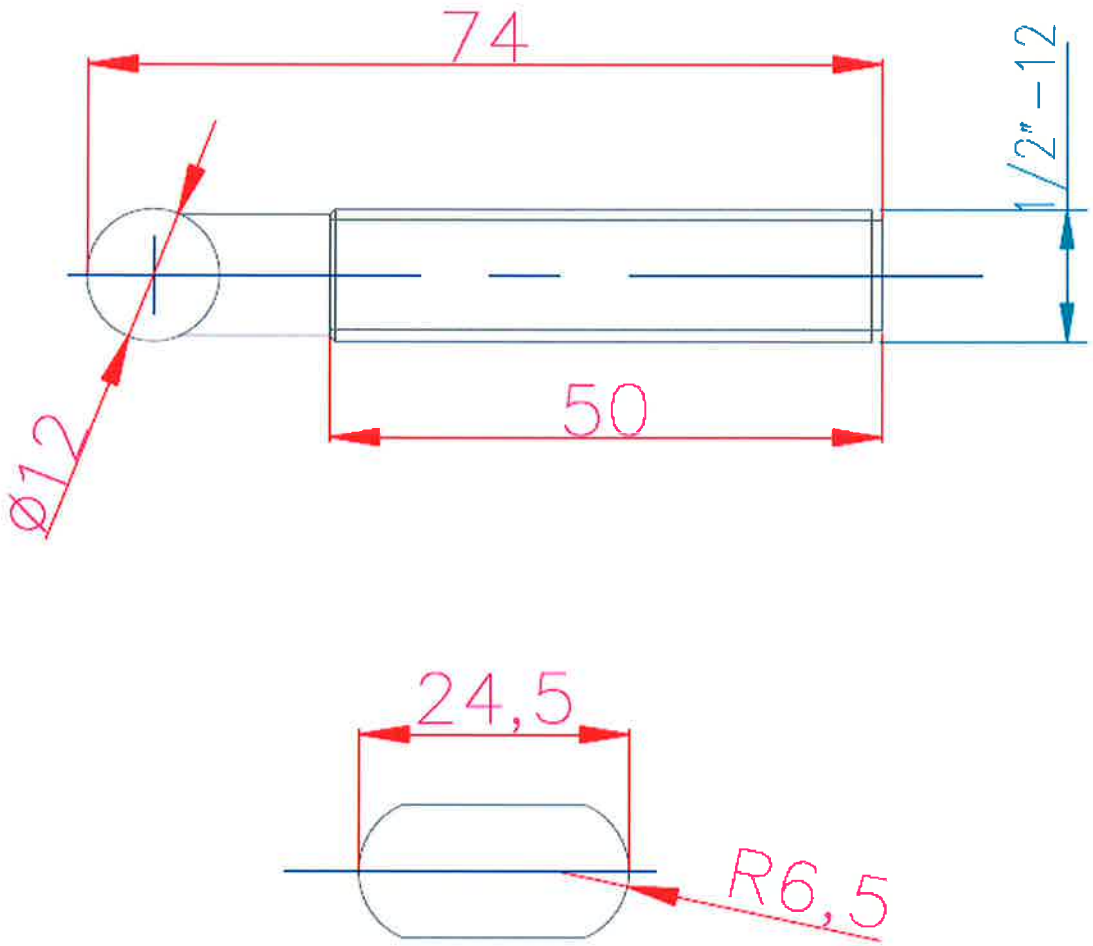


Nanjing Guhua metal work Co,.Ltd

Approved by	Checked by	Drawing by			
		Bruce			

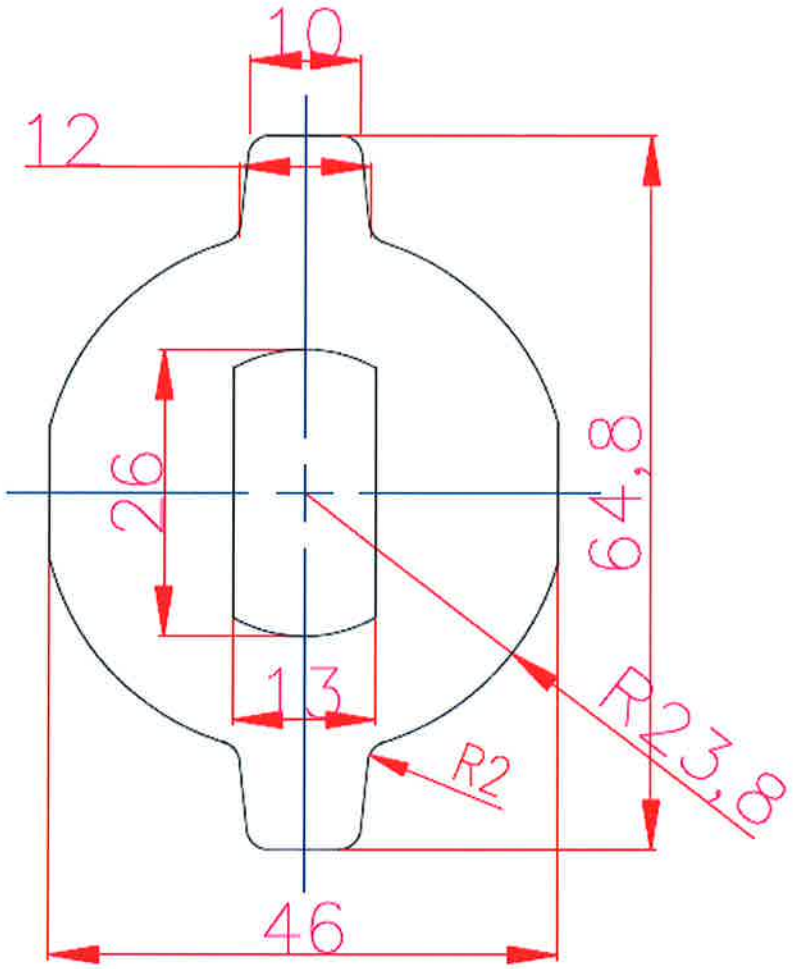
Scale:	unit: MM	Order No:	
Pages:		Material:	Q235
P/N:	Out Sleeve	Thickness:	3.5mm
DWG No:	GH-10-1	Weight:	
Version:	V0	finish:	Zinc Plated

	0.5~3	3~6	6~30	30~120	120~400	400~1000	1000~2000	2000~4000
Tol C	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
Tol V		±0.5	±1.0	±1.5	±2.5	±4	±6	±8



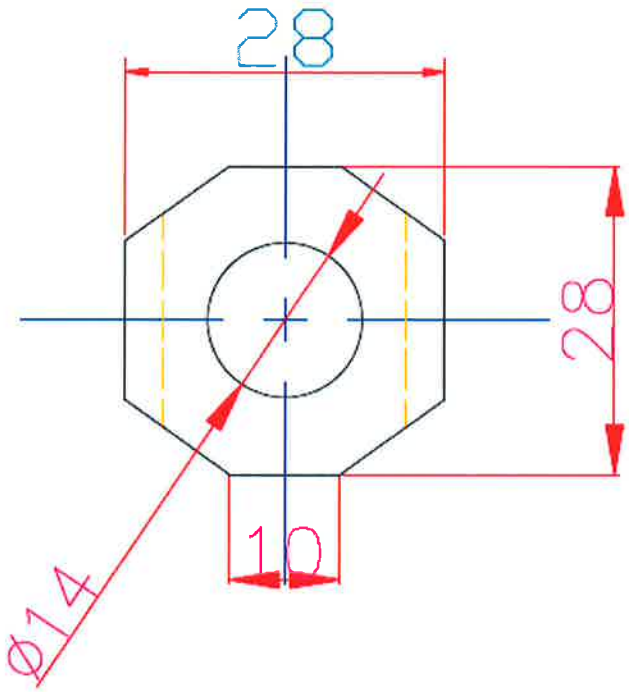
Nanjing Guhua metal work Co,.Ltd			Scale:	unit: MM	Order No:
			Pages:		Material: 35K
Approved by	Checked by	Drawing by	P/N:	T Bolt	Thickness:
		Bruce	DWG No:	GH-1036	Weight:
			Version:	V0	finish: Zinc Plated

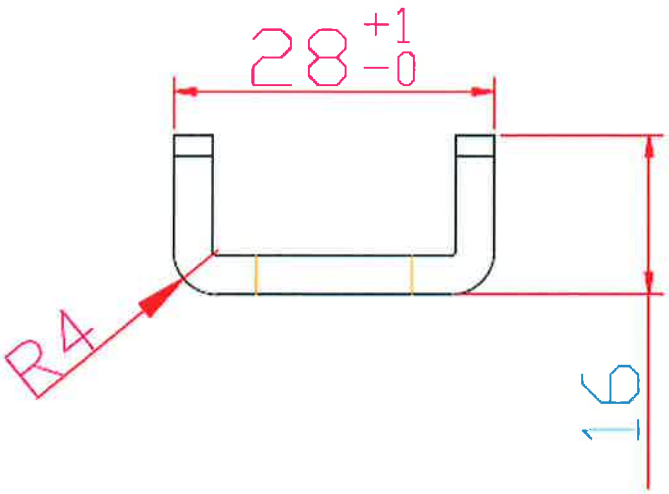
	0.5~3	3~6	6~30	30~120	120~400	400~1000	1000~2000	2000~4000
Tol C	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
Tol V		±0.5	±1.0	±1.5	±2.5	±4	±6	±8



Nanjing Guhua metal work Co,.Ltd			Scale:	unit: MM	Order No:
			Pages:		Material: Q235
Approved by	Checked by	Drawing by	P/N: Center Washer		Thickness:
		Bruce	DWG No: GH-10-2		Weight:
			Version: V0		finish: Zinc Plated

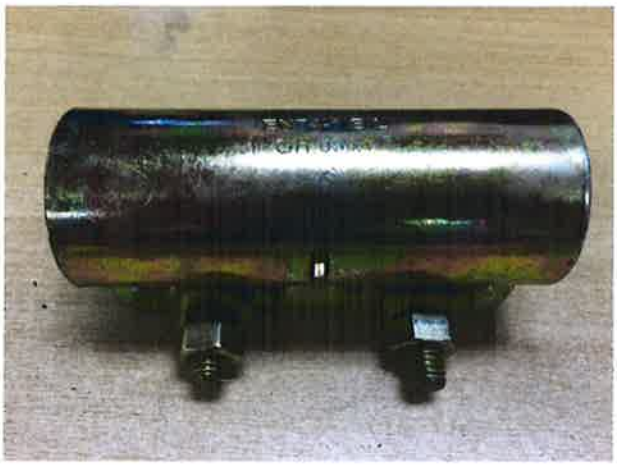
	0.5~3	3~6	6~30	30~120	120~400	400~1000	1000~2000	2000~4000
Tol C	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	±4
Tol V		±0.5	±1.0	±1.5	±2.5	±4	±6	±8

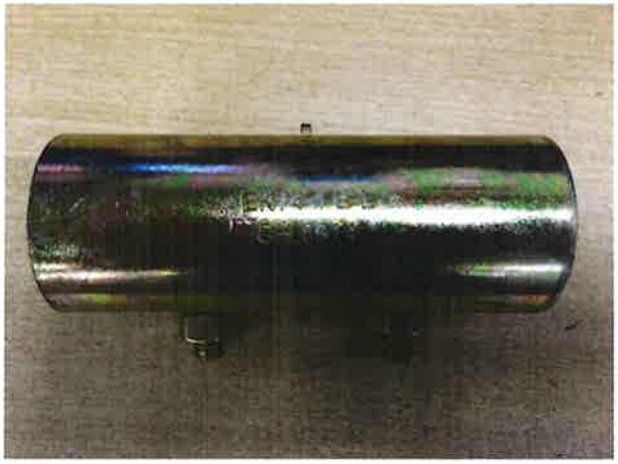




Nanjing Guhua metal work Co,.Ltd			Scale:	unit: MM	Order No:
			Pages:		Material: Q235
Approved by	Checked by	Drawing by	P/N: U Washer		Thickness:
		Bruce	DWG No: GH-10-3		Weight:
			Version: V0		finish: Zinc Plated

Photographs of Couplers





End of Report