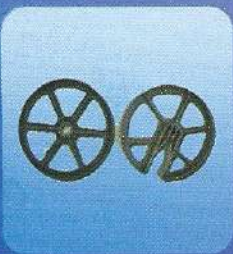
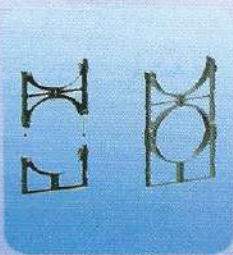




Castle for Building Materials *W.L.L.*



Modern **B**uilding **A**ccessories
Factory



PRODUCT CATALOGUE



PRODUCTS RANGE

MBA Products

PART 01



Formworks Accessories

PART 02



Scaffold Fittings



Props

Precast Concrete

PART 03



Rebar Couplers

PART 04



Frank Bartek

Mago DTR Coupler



Mago Swaging Coupler

Powers Anchor

PART 05



PRODUCTS RANGE

Anchor Channels



**PART
06**

Joint Fillers

Armon Back-up Rod



Jollyboard



**PART
07**

Concrete Spacers



**PART
08**

Drill Bit Armer

armac



**PART
09**

Miscellaneous

Binding Wire



Hessian Cloth



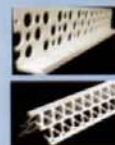
Green Net



Nails



Corner Beads



Corrugated Pipe



**PART
10**

CBM COMPANY PROFILE

We are pleased to introduce our company, Castle for Building Materials. The company was established in the year 2004 by experienced staff in the field of serving the construction sector. Our approach is to work hand in hand with our customer, the consultants and clients to ensure the right product for the right application. Our company is the main distributor of the following international companies.

Company	Origin	Field
Mago Befestigungstechnik GmbH (www.mago.at)	Austria	Precast concrete transport anchors, Rebar splicing couplers
Powers Fasteners (www.powerseurope.nl)	Netherland	Light and Heavy duty Fixing Anchors
Armeg (www.armeg.co.uk)	United Kingdom	Drilling Solution ranges
Max Frank (www.frankme.net)	Germany	Concrete Spacers
RSM GmbH (www.rsm-heitfeld.de)	Germany	Expanded metal for concrete construction joints.
Arnon (www.arnon.com.sa)	Kingdom of Saudi Arabia	Polyethylene Joint filler
Impertek (www.impertek.com)	Italy	Flooring Accessories
Bartek	Austria	Rebar Splicing Coupler

Besides the company owns Modern Building Accessories Factory based in Qatar manufacturing the

following:

- ✓ Plastic and shuttering cones
- ✓ PVC Levelling Shims for precast industry
- ✓ Hollow core Slab Plastic plugs
- ✓ PVC Chamfer and Pipes
- ✓ Rebar Protection Caps

MBA COMPANY PROFILE

We are pleased to introduce our company, modern Building Accessories Factory. The company was established in year 2005 by experience staff in the plastic industry and in serving the construction sector.

Our engineering, sales marketing office and production facilities is located at Small and Medium Industrial Zone Street 41 New Industrial Area, Qatar. All in all we are employing only 36 people including engineers, technicians and workers. Our products are developed based on many years of experience of our engineers.

For detailed product information please refer to our catalogue. Our material certificate is available upon request.

Our product is approved by highly reputable organization and consultants.

ZERTIFIKAT ♦ CERTIFICATE ♦ 証明書

TUV SÜD Management Service GmbH



Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that

Modern Building Accessories Factory
P.O.Box: 15756, Small & Medium Scale Industrial Area,
Salwa Road, Doha, Qatar

has established and applies
a Quality Management System for

**Manufacture and Supply of
Plastic Spacers and PVC Pipes**

An audit was performed, Report No. 70786136
Proof has been furnished that the requirements
according to

ISO 9001:2008

are fulfilled. The certificate is valid until 2014-12-29
Certificate Registration No. 12 100 42243 TMS



Munch, 2012-01-03

CMS-TGA-230-07-02

TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstraße 66 • 80336 München • Germany

TUV



Modern Building Accessories Factory



Contact

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Email Add: info@castle-mba.com

www.castlemba.com



Clip Spacer (MC)

Product Code	Item Description	Concrete Cover (mm)	For Steel Bar Diameter (mm)	Packing Quantity per Bag (pcs)
MBA-MC20	Clip Spacer MC 20	20	4-16	2,000
MBA-MC25	Clip Spacer MC 25	25	4-20	1,000
MBA-MC30	Clip Spacer MC 30	30	4-20	1,000
MBA-MC40	Clip Spacer MC 40	40	4-20	500
MBA-MC50	Clip Spacer MC 50	50	4-20	500
MBA-MC75	Clip Spacer MC 75	75	10-32	250
Application	A medium plastic chair spacer, designed for supporting a minimum load of 100kg according to German performance class L2 (1KN). The clips spacers can be used for various applications in horizontal positions in pre cast or inside concrete. Recommended installation 50cm interval.			



Clampfix Chair Spacer (MCL)

Product Code	Item Description	Concrete Cover (mm)	For Steel Bar Diameter (mm)	Packing Quantity per Bag (pcs)
MBA-MCL20	Clampfix M/D chair spacer20	20	4-16	2,000
MBA-MCL25	Clampfix M/D chair spacer25	25	4-20	1,000
MBA-MCL30	Clampfix M/D chair spacer30	30	4-20	1,000
MBA-MCL40	Clampfix M/D chair spacer40	40	4-20	500
MBA-MCL50	Clampfix M/D chair spacer50	50	4-20	500
MBA-MCL75	Clampfix M/D chair spacer75	75	10-32	250
Application	Clampfix is a sturdy general purpose clip-on spacer used in all types of applications, found in precast yards and on site.			



Normfix Spacer (NF)

Product Code	Item Description	Concrete Cover (mm)	For Steel Bar Diameter (mm)	Packing Quantity Per Bag (pcs)
MBA-NF25	Normfix H/D Spacer 25	25	8-24	500
MBA-NF30	Normfix H/D Spacer 30	30	8-24	500
MBA-NF40	Normfix H/D Spacer 40	40	8-24	500
MBA-NF50	Normfix H/D Spacer 50	50	8-24	250
MBA-NF60	Normfix H/D Spacer 60	60	16-36	200
MBA-NF65	Normfix H/D Spacer 65	65	16-36	200
MBA-NF75	Normfix H/D Spacer 75	75	16-36	150
MBA-NF100	Normfix H/D Spacer 100	100	16-36	150
Application	The wide stands prevent the tipping of the element usage area ranges from radial foundation to heavy duty lying and beams. The durability of our normfix is undeniable.			





Wheel Spacer (MW)

Product Code	Item Description	Concrete Cover (mm)	For Steel Diameter	Packing Quantity per Bag (pcs)
MBA-MW20	Wheel Spacer MW 20	20	4-13	1,000
MBA-MW25	Wheel Spacer MW 25	25	4-16	1,000
MBA-MW30	Wheel Spacer MW 30	30	4-20	500
MBA-MW40	Wheel Spacer MW 40	40	4-20	250
MBA-MW50	Wheel Spacer MW 50	50	4-22	250
MBA-MW60	Wheel Spacer MW 60	60	8-32	150
MBA-MW65	Wheel Spacer MW 65	65	8-32	150
MBA-MW75	Wheel Spacer MW 75	75	8-32	100
MBA-MW100	Wheel Spacer MW 100	100	8-32	50



Application Wheel Spacer was designed to use in vertical and horizontal reinforcements and it gives the required distance between formwork and rebar.

Modern Universal Spacer (MUS)

Product Code	Item Description	Concrete Cover (mm)	For Steel Diameter	Packing Quantity per Bag (pcs)
MBA-MUS20	Modern Universal Spacer 20	20	4-12	2,000
MBA-MUS25	Modern Universal Spacer 25	25	4-12	1,000
MBA-MUS30	Modern Universal Spacer 30	30	4-12	1,000
MBA-MUS40	Modern Universal Spacer 40	40	6-20	500
MBA-MUS50	Modern Universal Spacer 50	50	6-20	500



Application Universal wheel spacer is the most extensively used circular spacer for precast and on site concrete applications. Wide contact surface and foot members increase load capacity and prevent tipping.

4 Leg Chair Spacer (4LCS)

Product Code	Item Description	Packing Quantity per Bag (pcs)
MBA-4LCS20	4 Legs Chair Spacer 20	500
MBA-4LCS25	4 Legs Chair Spacer 25	500
MBA-4LCS30	4 Legs Chair Spacer 30	500
MBA-4LCS40	4 Legs Chair Spacer 40	500
MBA-4LCS50	4 Legs Chair Spacer 50	500



Application The 4 Leg chair spacer is suggested for all kinds of slabs, on site casting, prefabricated, tilt ups, post tension and concrete finish. (comes in various colors)



Shimpads (SHP)

Product Code	Item Description	Thickness Sizes mm	Packing Quantity per Bag (pcs)
MBA-SHP7002	Shimpad 70 x 70 x 02	02	1,000
MBA-SHP7003	Shimpad 70 x 70 x 03	03	500
MBA-SHP7005	Shimpad 70 x 70 x 05	05	500
MBA-SHP7010	Shimpad 70 x 70 x 10	10	250
MBA-SHP5002	Shimpad 50 x 50 x 03	03	1,000
MBA-SHP5005	Shimpad 50 x 50 x 05	05	1,000
MBA-SHP5010	Shimpad 50 x 50 x 10	10	500
MBA-USHP7002	U - Shimpad 70 x 70 x 02	02	1,000
MBA-USHP7003	U - Shimpad 70 x 70 x 03	03	1,000
MBA-USHP7005	U - Shimpad 70 x 70 x 05	05	1,000
MBA-USHP7010	U - Shimpad 70 x 70 x 10	10	1,000
Application	Used for alignment and leveling of heavy section steel plate and pre cast concrete sections. Available as plain flat section or horseshoe to fit around connecting bolts.		



Pile Cage Spacers

Product Code	Item Description	Sizes Ø mm	Concrete Cover	For Steel dia	Packing Quantity per Bag (pcs)
MBA-OPS75	Pile Spacer 75mm Open	75	75	12	90
MBA-CPS75	Pile Spacer 75mm Closed	75	75	12	80
MBA-CPS100	Pile Spacer 100mm Closed	100	100	16	50
MBA-CPS125	Pile Spacer 125mm Closed	125	125	16	25
Application	Pile cage spacers are attached to the external steelwork of pile cages to ensure correct spacing of the steelwork from the shuttering, and the required concrete cover is maintained over the length of the pile. Pile cage spacers are circular and of high strength to ensure smooth entry of the reinforcing cage without distortion. The pile cage spacers are available as thread-on or clip-on versions, with concrete cover options of 70mm or 45mm.				





TECHNICAL DATA FOR PLASTIC SPACER CHAIRS AND WHEELS

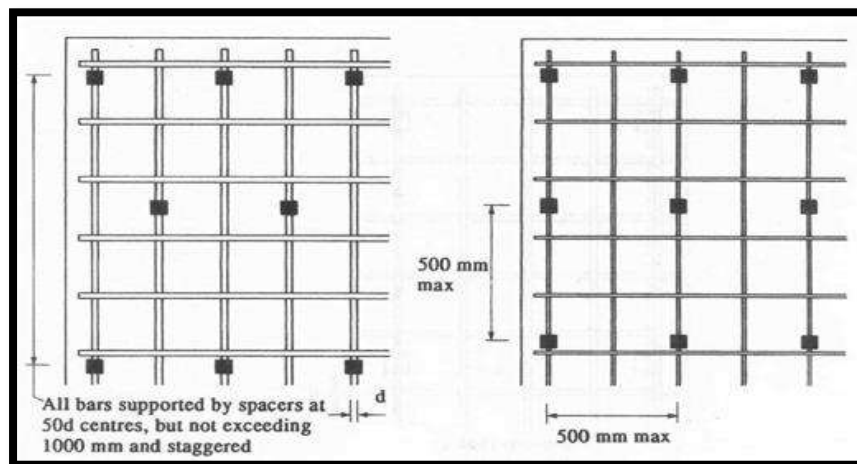
To achieve the required cover to reinforcing steel according to BS 7973-1-2001, QCS 2010 Section 5 Part 11.5.7 and Part 11.5.8 and ACI SP-66, chairs or wheels must be used according to a standard method of application. The spacers manufactured by MBA are of the plastic "clip on" type, in wheel or chair form. Spacers are available to give cover to a range of bars in nominal steps, typically 20, 25, 30, 40, 60, 65 and 75mm. Plastic Chair Spacers MC are used for spacing of lower reinforcing in slabs and beams and classified under category (L). Plastic Chair Normfix are used for spacing heavy reinforcing steel in slabs and beams and classified under category (H). The MW wheel spacers are for vertical reinforcing steel in walls and columns.

To ensure the correct positioning of the steel, spacers must be placed according to the recommended pattern and the load capacity of the individual chair at the allowable deflection, point load per spacer:

$$MC=0.40 \text{ KN} - \text{Normfix: } 6 \text{ KN} - \text{MW}=0.60 \text{ KN}$$

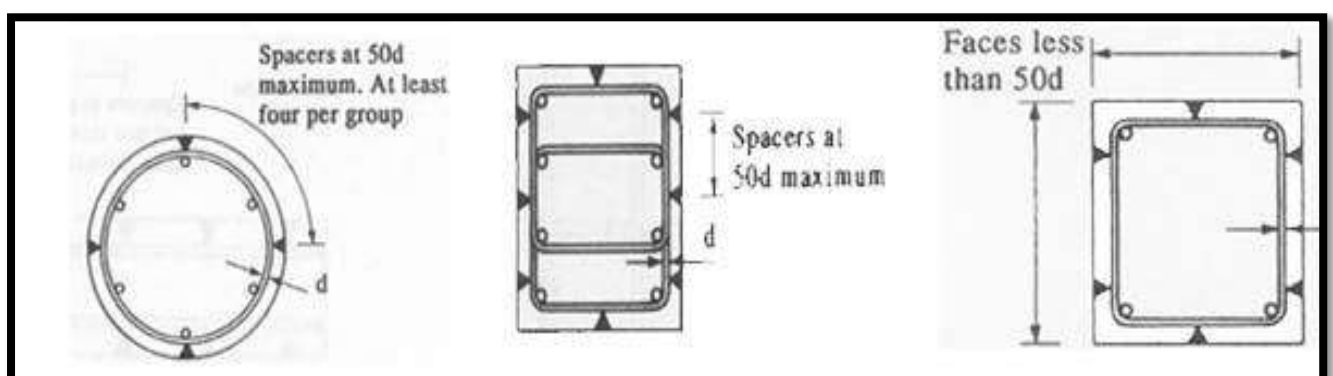
Spacers are marked with type, concrete cover, and bar size range.

CHAIR SPACING FOR SLAB CONSTRUCTION (d = bar diameter)



WHEEL SPACING IN COLUMN CONSTRUCTION (d = bar diameter)

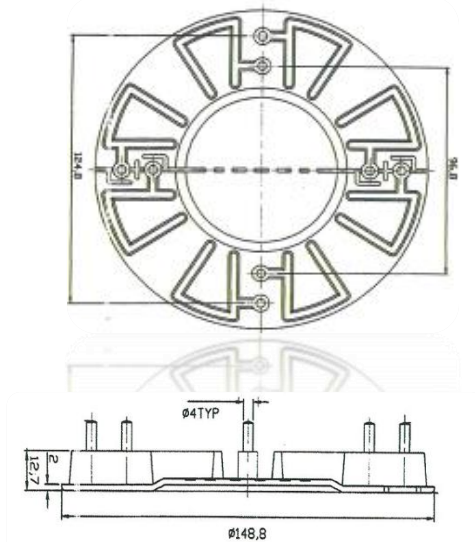
Spacers to be fixed vertically to links at top, middle and bottom of each lift, at centers not exceeding $100 \times d$.





Roof Tile Spacers

Product Code	Item Description	Packing Quantity per Bag (pcs)
MBA-RoofTile	Roof Tile Spacer	200
Application	It provides equal height and joint section at the erection of square ties laid over insulating material at open roofs to protect them against conditions of the nature and with recommended load of 200 kg.	



Hollow Core Cap (HCC)

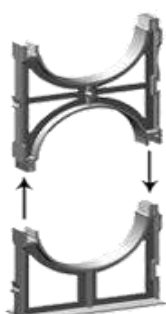
Product Code	Item Description	Slab Height	Packing Quantity per Bag (pcs)
MBA-HCC150	Hollow Core Cap 150	150	500
MBA-HCC200	Hollow Core Cap 200	200	400
MBA-HCC265	Hollow Core Cap 265	265	250
MBA-HCC320	Hollow Core Cap 320	320	150
MBA-HCC400	Hollow Core Cap 400	400	100
MBA-HCC500	Hollow Core Cap 500	500	100
Application	A cap oval or circle in shape used to capped it in both ends of the pre-cast slabs to prevent foreign materials from blocking up the hole opening reverse for installation of conceal service pipes or wires in need. Also prevent concrete from entering the hollow section mean for reduce weight loading on buildings.		





Pipe Spacer (PS)

Product Code	Item Description	Packing Qty. Per Bag (Pcs)
MBA-PS110B	Pipe Spacer 110mm Base	40
MBA-PS110IN	Pipe Spacer 110mm Intermediate	40
MBA-PS160B	Pipe Spacer 160mm Base	40
MBA-PS160IN	Pipe Spacer 160mm Intermediate	40
MBA-PS200B	Pipe Spacer 200mm Base	40
MBA-PS200IN	Pipe Spacer 200mm Intermediate	40
Application	Designed as pipe spacers used to align installed pipes.	



PVC Cone (CONE)

Product Code	Item Description	Color	Sizes Ø mm	Pipe Ø mm	Packing Quantity per Bag (pcs)
MBA-CONE22	PVC Cone 22mm	Black	22	25	1,000
MBA-CONE26	PVC Cone 26mm	Black	26	32	1,000
Application	Support cones are used at the end of the PVC tube and can be easily extracted after removal of the formwork				



PVC Sleeves

Nominal Size (mm)	Inside Diameter	Wall Thickness (mm)
20	17.4	1.4
25	22.1	1.6
32	26.6	2.5
38	33.0	2.5
50	43.2	3.2
Standard Color :	All PVC sleeves are White or Black in color.	
Application	..De bonding sleeves for Tie Rod Pipe ..De bonding sleeves to cover the reinforcement bar at the top of reinforced concrete cast insitu piles.	

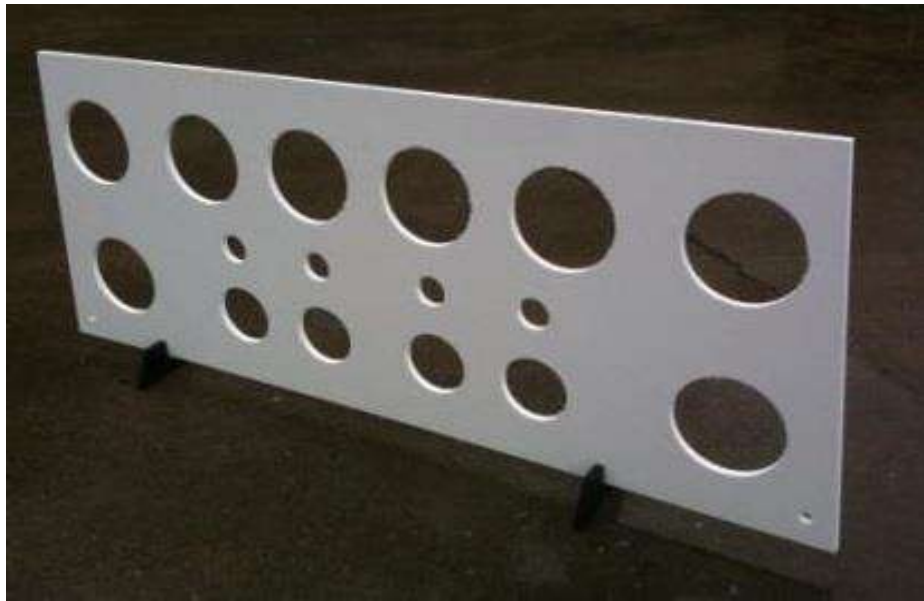




Multi Tubular Pipe Spacer

Technical Specification

- Static Bending Strength is 28 Mpa.
- Modulus of Elasticity is 1,541 Mpa



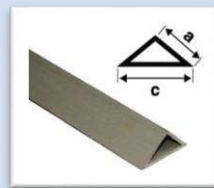
Material Properties

- Thickness is 12mm, 15mm & 18mm.
- 100 % Water-resistant.
- High Impact Strength.
- Very Smooth Wall Surface Quality.
- Excellent Corrosion, Acid and Alkali Resistance.
- The dimension of board can be customized, length, width, wall thickness and hole diameter as per your design specifications.
- High Temperature resistant, Impact resistant, Low Temperature resistant, abrasion resistant, alkali-resisting, Corrosion resistant, waterproof and fire resistant.



PVC Chamfer

Product Code	Item Description	Size (mm)	Length (m)	Packing Quantity per Bundle (pcs)
MBA-PCF1002	PVC Chamfer 10mm x 10mm x 2m	10	2	100
MBA-PCF1502	PVC Chamfer 15mm x 15mm x 2m	15	2	50
MBA-PCF2002	PVC Chamfer 20mm x 20mm x 2m	20	2	50
MBA-PCF2502	PVC Chamfer 25mm x 25mm x 2m	25	2	50
MBA-PCF3002	PVC Chamfer 30mm x 30mm x 2m	30	2	50



MBA-CFN1002	CFN 10mm x 2m	10	2	50
MBA-CFN2002	CFN 20mm x 2m	20	2	50

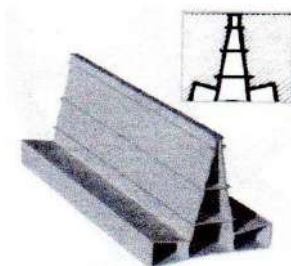


Application Impact resistance PVC figuration for chamfering corners for beams and it prevent s the leaking out of the mould. CFN is nailed in the corners by flange and can be remove afterwards.

MBA Crack Inducer

MBA PVC profile to induce a controlled crack for the use in expansion joints of concrete slabs.

Reference	Height	Length	Packing Qty.
MBAC1 40	40mm	400cm	50m





PVC Ceramic Tile Trim

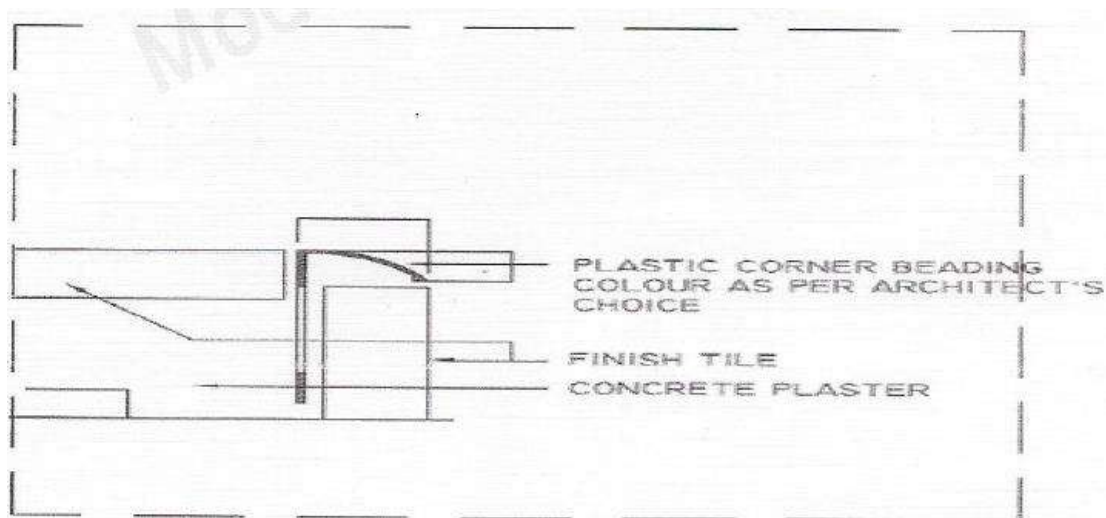
Quick Details

- **Type:** Tile Accessories
- **Place of Origin:** Modern Building Accessories Factory **MBA** (Qatar)
- **Model Number :** 8mm-9mm-10mm
- **Tile Accessory Type :** Tile Trims
- **Material:** PVC
- **Usage:** External Wall



Specifications:

- The PVC tile trim material rigid PVC.
- **Color:** According to the customer requirement.
- We could produce every size you like (8mm/9mm/10mm)
- This PROFILE replaces the traditional mitred joints systems, not used anymore. Against the weakness and breakage of the wall tile corners; these tile trims allow you to protect and enhance external tile corners and edges
- The above PVC Profiles can be used for all kind of tile corners, kitchen, bathrooms etc. Tops finishes and endings, getting always a perfect finish.
- This is the easiest way to protect, to decorate and to reduce high cost of old systems.
- **Length:** Generally 2.5mtr. or according to your requirement





Rebar Protection Cap (RBC)

Product Code	Item Description	Color	Sizes Ø mm	Packing Quantity per Bag (pcs)
MBA-RPC0816	Rebar Protection Cap Yellow 8-16	Yellow	8-16	250
MBA-RPC1632	Rebar Protection Cap Yellow 16-32	Yellow	16-32	250
Application	Act as a safety protection cap for the steel bar ends. Made of plastic which is durable and highly visible to prevent injuries from protruding rebars. Rebar protection cap are just one item in the market today that fit directly with OSHA.			

Note: We can produce any color as per your requirement.



Rebar Protection Cap (EC Type)

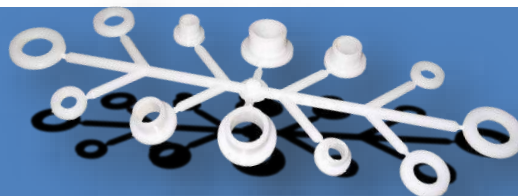
Product Code	Item Description	Color	Sizes Ø mm	Packing Quantity per Bag (pcs)
MBA-EC08-16	Rebar Protection Cap EC8-16	Yellow	8-16	500
MBA-EC16-32	Rebar Protection Cap EC16-30	Yellow	16-32	250
MBA-EC25-40	Rebar Protection Cap EC25-40	Yellow	25-40	100
Application	Act as a safety protection cap for the steel bar ends. Made of plastic which is durable and highly visible to prevent injuries from protruding rebars. Rebar protection cap are just one item in the market today that fit directly with OSHA.			

Note: We can produce any color as per your requirement.





POLYMIDE SLEEVES



Product Code	Item Description	Color	Sizes Ø mm	Packing Quantity per Bag (pcs)
MBA-PS06	Polymide Sleeve 06	White	06	10,000
MBA-PS08	Polymide Sleeve 08	White	08	10,000
MBA-PS12	Polymide Sleeve 12	White	12	10,000
MBA-PS16	Polymide Sleeve 16	White	16	10,000
MBA-PW08	Polymide Washer 08	White	08	10,000
MBA-PW12	Polymide Washer 12	White	12	10,000
MBA-PW16	Polymide Washer 16	White	16	\10,000



Concrete Movement Joints Accessories

Dowel Bar Sleeves

To provide an efficient method of de-bonding the steel dowel bars.

Dowel Bar End Caps

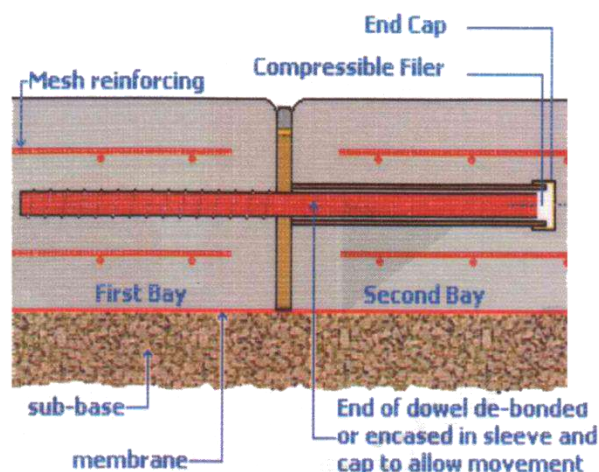
A quick applied cap supplied with compressible filler. It is designed to allow movement during expansion when fitted to de-bonding sleeves.

Application

Contraction and expansion joints in concrete floors in conjunction with designed dowel bars.

Material Specification

The de-bonding sleeve is made of PVC compound in black color extruded and cut accurate designed lengths. Expansion caps are made high density polyethylene with compressible filler made from low density polyethylene. The sizes are shown below:



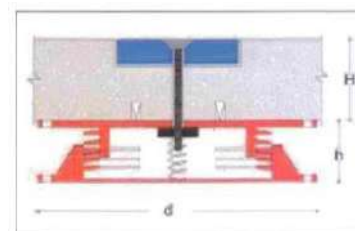
Sleeve Outside Dia. (mm)	Sleeve Thickness (mm)	Dowel Bar Dia. (mm)	Sleeve Part No.	Dowel Bar Dia. (mm)
20	1.20	16	RCM 20	16
25	1.20 - 2.10	20	RCM 25	20
32	1.25 - 2.10	25	RCM 32	25
40	1.25 - 2.10	32	RCM 40	32
50	1.25 - 2.10	40	RCM 50	35-40



MBA Monolithic Paving System

The product is designed to:

- Create a monolithic paving surface providing high wind uplift resistance
- Carry the lead load of paver surface.
- Perfect final leveling from 22mm to 30mm.



To meet the above targets, MBA monolithic paving system is consisting of:

1. High density polyethylene top plate 70x70x10mm with a middle hole 9mm.
2. Jack support with inside threading allows movements in height to the nearest millimeter.
3. Countersunk bolt M08 with different lengths according to paver thickness.
4. Galvanized spring nut M08.

Specifications and dimensions

DIMENSIONS			
Item Description	Size	Color	Packing
Top Plate	70mm x 70mm x 10mm	Black, other colors possible	250 / bag
Support Jack	d=150mm & h=(22-30)mm	Black	20 / cartoon
Countersunk Bolt	M08 XL	Black mill finish, S steel bright finish	Varies
G.I. Spring Nut	M08	Silver	50 / cartoon

Materials

- Top plate and support jack material certificate is shown below
- Countersunk bolt is mill fish, mild steel. S. steel A4 bolt is supplied on request
- Spring nut is zinc plated mild steel.



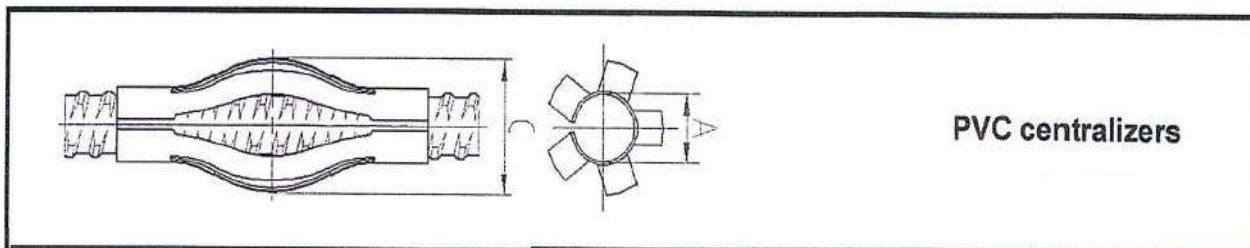
Raw Material: High Density Polyethylene HDPE B 5429A

Physical Properties	Value	Unit	Test Method
Material Density	0.954	g/cm	ASTM D-1505
Stress Crack Resistance F50 (100% 1 gepal, 50c)	55	Hrs	ASTM D-1693 B
Tensile Strength @ Yield	27(3920)	Mpa (psi)	ASTM D-638
Tensile Strength @ Break	32(4640)	Mpa (psi)	ASTM D-638
Tensile Elongation @ Break	850	%	ASTM D-638
Flexural Modulus	1,200,00		ASTM D-

*UV stabilizer is added to the above.



PVC CENTRALIZERS



PVC centralizers

Dimensions

Code	Bar Diameter "A" in mm	External Measurement Diameter "C" in mm
MBC-20	20	70
MBC-25	25	90
MBC-32	32	140
MBC-40	40	150
MBC-50	50	160
MBC-75	75	175

Materials Used

Material:	UPVC According to DIN 8062
Density:	about 1,42 g/cm ³
Yield Point:	> 52 Mpa
Yield Point Elongation:	> 52 Mpa
Elastic Module:	> 3300 Mpa
Vicat HDT:	> 88 °C
Linear Thermal Expansion:	Circa 0.06 mm/m°C
Color Gray, Orange & Black	





MODERN BUILDING ACCESSORIES FACTORY



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Email 2 : sales@castle-mba.com



ISO 9001 : 2008, ISO 14001:2004,
OHSAS 18001 :2007
www.castle-mba.com

info@castle-mba.com



Unplasticized Polyvinyl Chloride Pipes (uPVC)

MBA uPVC pipes are manufactured in accordance to the international standards for different types of usage mainly British and European standards (BS EN 1401, BS EN 1329, DIN 8062, BS 3505/3506, BS 6099, QCS 2010, QCS 2014). In some cases MBA are manufacturing pipes that are in accordance to the standard of telecommunication companies and contractors in the state of Qatar.

TECHNICAL DATA OF MODERN BUILDING ACCESSORIES FACTORY uPVC Pipes

PHYSICAL PROPERTIES

	Properties at 20_C	Unit	Values	Method of Evaluation
1	Specific Gravity at 23_C		1.43	ASTM D 792
2	Flammability	not support		ASTM D 635
3	Resistance of burning	Sec.	< 30	BS 4607 PART 2.70
4	Softening PT. (VSP 5kgf)	_C	82	BS 2782 - 1976
5	Shore Hardness		81	ASTM D 2240 - 75
6	Thermal Conductivity	W/m-k	0.17	BS 874 - 1973
7	Specific Heat	Cal/g_C	0.25	

MECHANICAL PROPERTIES

	Properties at 20_C	Unit	Values	Method of Evaluation
1	Tensile Strength 20_C	Kg/cm2	481 - 550	ISO R 257
2	Modulus of Elasticity	MN/m	3000	ASTM - 1784
3	Compressive Strength	Kp/cm	668	BS 4607 PART 2:70
4	Flexural Strength	Kp/cm	950	ASTM D 790
5	Elongation at Break	%	> 80	ISO R 527
6	Yield Stress	Kp/cm	> 400	ISO R 527
7	Resistance to Heat	mm	< 2	BS 4607 PART 2:70

CHEMICAL PROPERTIES

	Properties at 20_C	Unit	Values	Method of Evaluation
1	Resist to Sulphuric Acid	.g/45cm	-0.13 +3.19	
2	Resist to Methylene Chloride	%	<3	ISO 2508/81
3	Resist. Water Absortion	.mg/cm	<2.0	ISO 2508/81 & DIN 8061

TOXICITY

	Properties at 20_C	Unit	Values	Method of Evaluation
1	Pb Toxicity	.mg/L	<0.3	
2	Sn Toxicity	=	<0.02	
3	Zn Toxicity	=	<0.01	

ELECTRICAL PROPERTIES

	Properties at 20_C	Unit	Values	Method of Evaluation
1	Volume Resistivity	.mg/L	1014	
2	Surface Resistance	.ohm	1012	DIN 53482
3	Power Factor at 10 HERTZ		3	
4	Dielectric strength	V/mil	1400	BS 4607
5	Insulation Resistance	M. ohm	1.1x105	BS 4607



MODERN BUILDING ACCESSORIES FACTORY

Sewerage/Drainage Non-Pressure uPVC Pipes

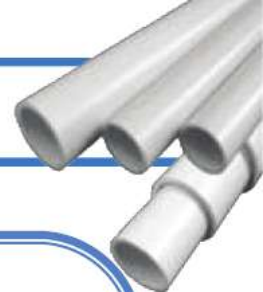
Due to in demand of supply for the sewerage/drainage non-pressure uPVC pipes in Qatar, we manufacture now this type of pipes in accordance to both British, Dutch & American standards as follows.

1. British Standards:

BS EN 1329 (Formerly BS 5255) Soil & Waste (Above Ground Drainage)			
Nominal Size		Mean Outside Diameter	Wall Thickness
INCH	mm	mm	mm
1 1/4	32	36.15	2.0
1 1/2	40	42.75	2.0
2	50	55.75	2.0
The Standard Length		4.0 Meters	
The Standard Color		Light Gray in Color.	
The Socket Type		Solvent Weld Socket Type	

BS EN 1329 (Formerly BS 4514) Soil & Waste (Above Ground Drainage)			
Nominal Size		Mean Outside Diameter	Wall Thickness
INCH	mm	mm	mm
3	82	82.4	3.2
4	110	110.0	3.2
6	160	160.0	3.2
The Standard Length		3"=> 4.0 Meters, 4 & 6"=>5.8 Meters.	
The Standard Color		Light Gray in Color.	
The Socket Type		Solvent Weld Socket Type	

BS EN 1401-1 (Formerly BS 4660) Sewer & Drainage (Underground)							
Nominal Size DN/OD ^a	Nominal Outside Dia.	SN2 SDR 51 ^b		SN4 SDR 41		SN8 SDR 34	
	d _n	e _{min}	e _{m.max}	e _{min}	e _{m.max}	e _{min}	e _{m.max}
110	110	-	-	3.2	3.8	3.2	3.8
125	125	-	-	3.2	3.8	3.7	4.3
160	160	3.2	3.8	4.0	4.6	4.7	5.4
200	200	3.9	4.5	4.9	5.6	5.9	6.7
250	250	4.9	5.6	6.2	7.1	7.3	8.3
315	315	6.2	7.1	7.7	8.7	9.2	10.4
(355)	355	7.0	7.9	8.7	9.8	10.4	11.7
400	400	7.9	8.9	9.8	11.0	11.7	13.1
(450)	450	8.8	9.9	11.0	12.3	13.2	14.8
500	500	9.8	11.0	12.3	13.8	14.6	16.3
630	630	12.3	13.8	15.4	17.2	18.4	20.5
Color golden brown or red							
Length 5.8 and 6 Meter							
Socket Rubber Ring Seal							
Solvent or plain ends							



BS 5481 Gravity Sewerage uPVC Pipes

Nominal Size	Mean Outside Diameter	Wall Thickness
mm	mm	mm
200	200.0	4.9
250	250.0	6.1
The Standard Length	5.8 & 6.0 Meters.	
The Standard Color	Red (Golden Brown)	
The Socket Type	Solvent Weld & Rubber Ring Seal Socket Type	

2. DIN Standards:

DIN19531 Drain (Above Ground) uPVC Pipe

Nominal Size	Mean Outside Diameter	Wall Thickness
mm	mm	mm
40	40.0	1.8
50	50.0	1.8
75	75.0	1.8
110	110.0	2.2
125	125.0	2.5
160	160.0	3.2
The Standard Length	4.0, 5.8, & 6.0 Meters	
The Standard Color	Gray and Black in Color.	
The Socket Type	Solvent Weld & Rubber Ring Seal Socket Type	

DIN19534 Sewer (Gravity) uPVC Pipe

Nominal Size	Mean Outside Diameter	Wall Thickness
mm	mm	mm
110	110.0	3.0
125	125.0	3.0
160	160.0	3.6
200	200.0	4.5
250	250.0	6.1
300	315	7.7
400	400	9.8
500	500	12.3
630	600	15.4
710	700	17.4
The Standard Length	5.0, & 6.0 Meters	
The Standard Color	Red (Golden Brown)	
The Socket Type	Solvent Weld & Rubber Ring Seal Socket Type	



MODERN BUILDING ACCESSORIES FACTORY

MBA Pressure uPVC Pipes

MBA manufactures this pressure pipes for the wide used in the plumped water supply system, irrigation and industrial purposes. These pipes are manufactured in accordance to the following:

1. British Standards:

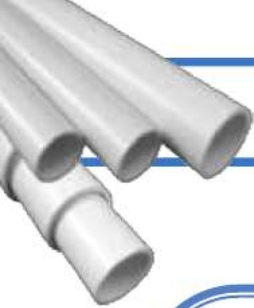
BS 3505/3506 MBA Pressure uPVC Pipes					
Nominal Size (inch)	Outside Diameter (mm)	Wall Thickness (mm)			
		Class B (6 BAR)	Class C (9 BAR)	Class D (12 BAR)	Class E (15 BAR)
1/2"	21.1				1.7
3/4"	26.6				1.9
1"	33.4				2.2
1 1/4"	42.1			2.2	2.7
1 1/2"	48.1			2.5	3.1
2"	60.2		2.5	3.1	3.9
2 1/2"	75.0		3.0	3.9	4.8
3"	88.7	2.9	3.5	4.6	5.7
4"	114.1	3.4	4.5	6.0	7.3
6"	168.0	4.5	6.6	8.8	10.8
8"	218.8	5.3	7.8	10.3	12.6
10"	272.6		9.7	12.8	15.7
12"	323.4		11.5	15.2	18.7
14"	355.0		12.6	16.7	20.5
16"	405.9		14.5	19.0	23.4
18"	456.7		16.3	21.4	
20"	507.5		18.1		
24"	609.1		21.7		
The Standard Length	5.0, & 6.0 Meters				
The Standard Color	Dark Gray				
The Socket Type	Solvent Weld Socket Type				
Rubber ring socket for sizes 4", 6" & 8" Class D & E.					



2. German DIN Standards:

DIN 8062/63 MBA Pressure uPVC Pipes

Nominal Size (mm)	Outside Diameter (mm)	Wall Thickness (mm)			
		Class 2 (4 BAR)	Class 3 (6 BAR)	Class 4 (10 BAR)	Class 5 (16 BAR)
40	40		1.8	1.9	3.0
50	50		1.8	2.4	3.7
63	63		1.9	3.4	4.7
75	75	1.8	2.2	3.6	5.6
90	90	1.8	2.7	4.3	6.7
110	110	2.2	3.2	5.3	8.2
160	160	3.2	4.7	7.7	11.9
200	200	4.0	5.9	9.6	14.9
225	225	4.5	6.6	10.8	16.7
250	250	4.9	7.3	11.9	18.6
280	280	5.5	8.2	13.4	20.8
315	315	6.2	9.2	15.0	23.4
355		7.0	10.4	16.9	26.3
400		7.9	11.7	19.1	29.7
450		8.9	13.2	21.5	
500		9.8	14.6	23.9	
560		11.0	16.4	26.7	
630		12.4	18.4	30.0	
710		14.0	20.7		
800		15.7	23.3		
The Standard Length		5.0, & 6.0 Meters			
The Standard Color		Dark Gray			
The Socket Type		Solvent Weld Socket Type			



3. ASTM Standards

ASTM D 1785 (Schedule Series) Pressure uPVC Pipes			
Nominal Size (inch)	Outside Diameter (mm)	Wall Thickness (mm)	
		Schedule 40	Schedule 80
1/2"	21.24	2.77	3.73
3/4"	26.57	2.87	3.91
1"	33.27	3.38	4.55
1 1/4"	42.03	3.56	4.85
1 1/2"	48.11	3.68	5.08
2"	60.17	3.91	5.54
2 1/2"	72.84	5.16	7.01
3"	88.70	5.49	7.62
4"	114.07	6.02	8.56
6"	168.00	7.11	10.97
8"	218.70	8.18	12.70
The Standard Length		4.0, 5.8 & 6.0 Meters.	
The Standard Color		For SCH. 40 = White & for SCH 80 = Dark Gray.	
The Socket Type		Solvent Weld	

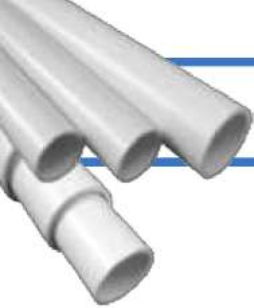
ASTM D 2241 (SDR - Series) Pressure uPVC Pipes							
Nominal Size (mm)	Outside Diameter (mm)	Wall Thickness (mm)					
		SDR 41	SDR 32.5	SDR 26	SDR 21	SDR 17	SDR 13.5
1/2"	21.24						1.57
3/4"	26.57				1.52	1.57	1.98
1"	33.27			1.52	1.60	1.96	2.46
1 1/4"	42.03		1.52	1.63	2.01	2.49	3.12
1 1/2"	48.11		1.52	1.85	2.29	2.84	3.58
2"	60.17		1.85	2.31	2.87	3.56	4.47
3"	88.70	2.16	2.74	3.43	4.24	5.23	6.58
4"	114.07	2.80	3.51	4.39	5.44	6.73	8.46
6"	168.0	4.11	5.18	6.48	8.03	9.91	12.47
8"	218.70	5.33	6.73	8.43	10.41	12.90	
SDR = $\frac{\text{Outside Diameter}}{\text{Wall Thickness}}$		The Standard Length		5.8 or 6.0 Meters			
		The Standard Color		White.			
		The Socket Type		Solvent Weld Socket			

ASTM 2279 (PVC) SEWER PIPES		
Normal Size	Outside Diameter (mm)	Wall Thickness (mm)
2"	57.15	1.80
3"	72.55	1.80
4"	107.6	1.90
6"	159.39	2.60
The Standard Length		5.8 Meters
The Standard Color		Grey
The Socket Type		Solvent Weld



uPVC Pipes According to DIN Standards (DIN8062, ISO/DIN 4422)

Nominal	Tolerance	Class 1 (2.5 Bar)		Class 2 (4.0 Bar)		Class 3 (6 Bar)		Class 4 (10 Bar)		Class 5 (16 Bar)	
OD mm	on O.D.	Wall mm	Wt Kg/m	Wall mm	Wt Kg/m	Wall mm	Wt Kg/m	Wall mm	Wt Kg/m	Wall mm	Wt Kg/m
180	(+) 0.4	1.8	1.57	3.6	3.02	5.3	4.37	8.6	6.88	13.4	10.4
200	(+) 0.4	1.8	1.74	4	3.7	5.9	5.37	9.6	8.51	14.9	12.8
225	(+) 0.5	1.8	1.96	4.5	4.7	6.6	6.76	10.8	10.8	16.7	16.1
250	(+) 0.5	2	2.4	4.9	5.65	7.3	8.31	11.9	13.2	18.6	19.9
280	(+) 0.5	2.3	3.11	5.5	7.11	8.2	10.4	13.4	16.6	20.8	24.9
315	(+) 0.6	2.5	3.78	6.2	9.02	9.2	13.2	15	20.9	23.4	31.5
355	(+) 0.7	2.9	4.88	7	11.4	10.4	16.7	16.9	26.5	26.3	39.9
400	(+) 0.7	3.2	6.1	7.9	14.5	11.7	21.1	19.1	33.7	29.7	50.8
450	(+) 0.8	3.6	7.65	8.9	18.3	13.2	26.8	21.5	42.7	-	-
500	(+) 0.9	4	9.38	9.8	22.4	14.6	32.9	23.9	52.6	-	-
560	(+) 1.0	4.2	11.8	11	28.1	16.4	41.4	26.7	65.8	-	-
630	(+) 1.1	2	14.6	12.4	35.7	18.4	52.2	30	83.2	-	-



MODERN BUILDING ACCESSORIES FACTORY

MBA uPVC Electrical Conduit & Cable Ducts

MBA has a variety of electrical conduits and cable ducts which are manufactured in accordance to British Standards, European Standards, Qatar Telecommunication (QTEL), Electricity (Kahrama) and Water Service Company.

BS EN 50086 & BS 6099/2 uPVC Electrical Conduit						
Nominal Size (mm)	Inside Diameter			Wall Thickness (mm)		
	Light	Medium	Heavy	Light	Medium	Heavy
20	17.4	16.9	15.8	1.4	1.6	1.8
25	22.1	21.9	20.6	1.6	1.8	1.9
32	28.6	27.8	26.6	1.7	2.1	2.5
38	34.8	33.6	33.0	1.6	2.3	2.5
50	45.1	44.3	43.2	2.45	2.85	3.2
Standard Length : All conduits are 2.9 meters in Length						
Standard Color : All conduits are White or Black in color.						

Electric Conduit Pipes

Modern Building Accessories Factory manufactured combustion-proof PVC cable trunk and conduit are certified by quality inspection organization, fire prevention department and other relevant departments. Combustion-proof of PVC cable trunk and conduit are marked with MBA brand, specifications, temperature of long service time, manufacturer, and fire prevention production license. The certificate of quality bears specification, quantity, and production date and inspector code.

The standard length of pipe is 2.9m; custom-made length is available upon request. MBA insulated conduit pipe and fittings for construction application conform to BS EN 61386-21 and BS EN 500086-2-1 (Formerly BS 6099).

Why conduit pipes?

1. Good Insulation -our product has good insulation property, high anti-current punctures strength, can resist 25kV, therefore no risk once leakage of voltage occurs.
2. Great Impact Resistance – can be buried in concrete, resist compression and impact.
3. Good fire-proofing – our product has high oxygen index, good combustion resistance, self extinguishing.
4. Moisture Proof – resistant to acids, alkalis. No rust occurs like metal pipe.
5. Biotic Resistance – no smell attracting rodent thus it will not suffer from biotic attack.



Characteristic

1. Easy to install and remove – Unique jointing method, very easy to open and assemble.
2. Good Screw fixing – no cracks occurs due to screwing.
3. Attracting Appearance – color in good appearance and it is also recommended for indoor installation.



Qatar Telecommunication (Ooredoo) Standard

Duct No.	Outside Diameter (mm)	Inside Diameter (mm)	Socket Length (mm)	Duct Length	Wall Thickness
54D	96.5	90.0	100.0	5.9	3.25
56D	56.5	50.0	70.0	3.90	3.25
Standard Color	All ducts & bends are black				
Socket Type	All ducts & bends are solvent weld type				

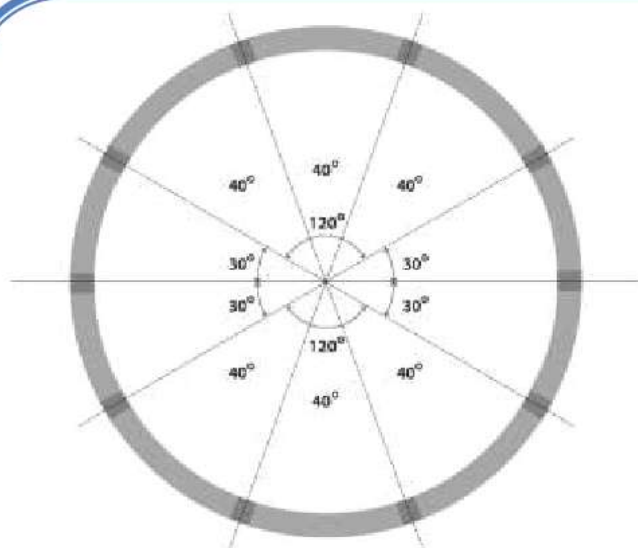
MBA DUCTS (According to QCS 2010 and 2014)

Nominal Size (Inch)	Outside Diameter (mm)	Wall Thickness (mm)	Standard Length (meters)
2"	55.75	2.0	4.0
3"	82.4	2.2	4.0
4"	110.0	2.4	5.8
6"	160.0	2.6	5.8
4"	110.0	3.2	5.8
6"	160.0	4.7	5.8
6"	160.0	3.6	5.8
8"	200.0	4.0	5.8
8"	200.0	4.9	5.8
10"	250.0	4.9	5.8
10"	250.0	6.1	5.8
12"	315.0	7.7	5.8
12"	315.0	9.2	5.8
Standard Color	Red, Grey and Black		
Socket Type	All pipes are solvent or rubber socket.		

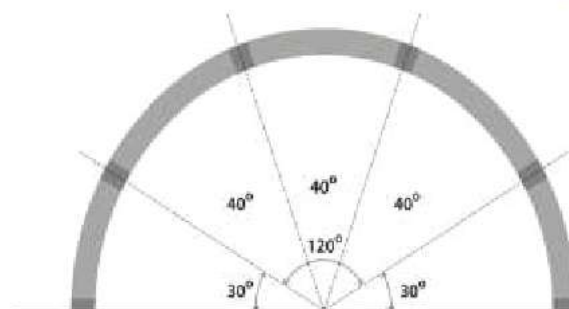


MODERN BUILDING ACCESSORIES FACTORY

Perforated Piping Systems



Fully Perforated Pipe

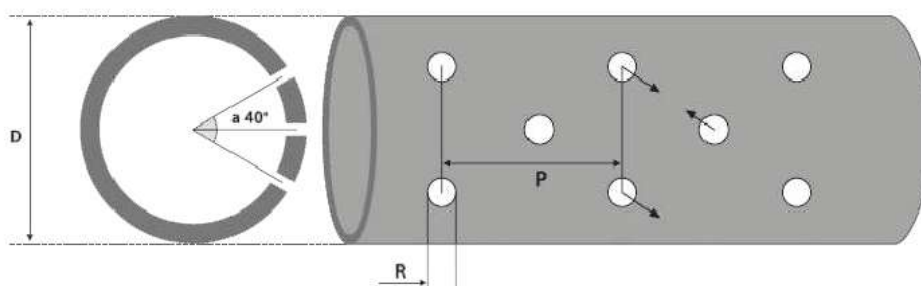


Half Perforated Pipe

Code	Outside Diameter (mm)	Wall Thickness (mm)	Joint Type
MBA-PRF-110	110	3.2	SCI
MBA-PRF-160	160	4.1	SCI
MBA-PRF-200	200	4.9	SCJ or RS
MBA-PRF-250	250	6.1	SCJ or RS
MBA-PRF-315	315	7.7	SCJ or RS

PERFORATED PIPE DATA

Hole Size (R)	8mm or as required
Hole Spacing (P)	200mm or 250mm along piping axis
Number of Rows	1 to 4 as mentioned in the drawing
Raw Spacing	40° separation between adjacent rows
	120° between outside raw if all four rows are used
Color	Red or grey



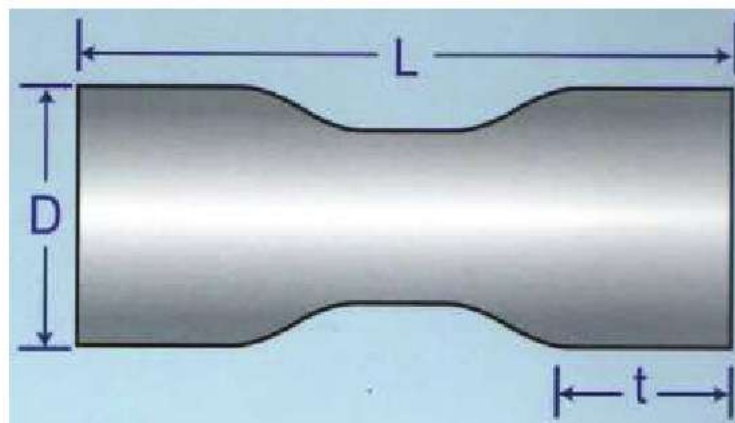
Staged Rows



DOUBLE COUPLING

Size	Length	"ID"
90	190mm	90mm
110	1 mtr.	110mm
160	1 mtr.	168mm

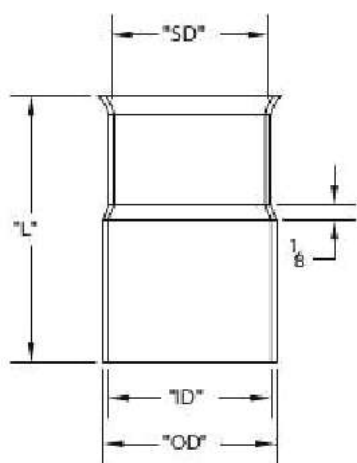
It is used to connect two spigot ended ducts straight through





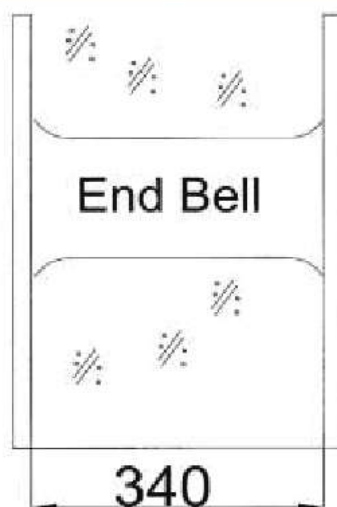
BELL MOUTH FABRICATED

Trade Size	Length	"OD"	Thickness
2	300mm	50mm	2.5mm
4	300mm	110mm	2.4mm
6	300mm	160mm	3.6mm
8	300mm	200mm	4.0mm
10	300mm	250mm	4.9mm



BELL TO BELL END FABRICATED

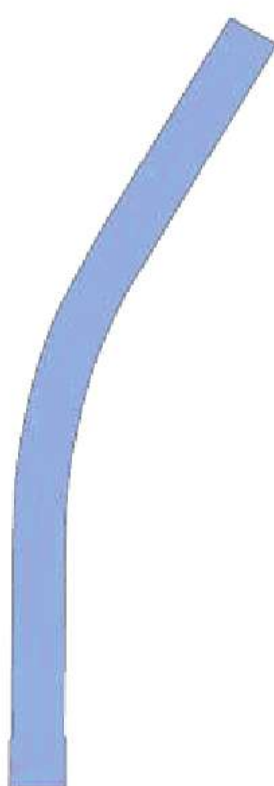
Trade Size	Length	"OD"	Thickness
2	340mm	50mm	2.5mm
4	340mm	110mm	2.4mm
6	340mm	160mm	3.6mm
8	340mm	200mm	4.0mm
10	340mm	250mm	4.9mm



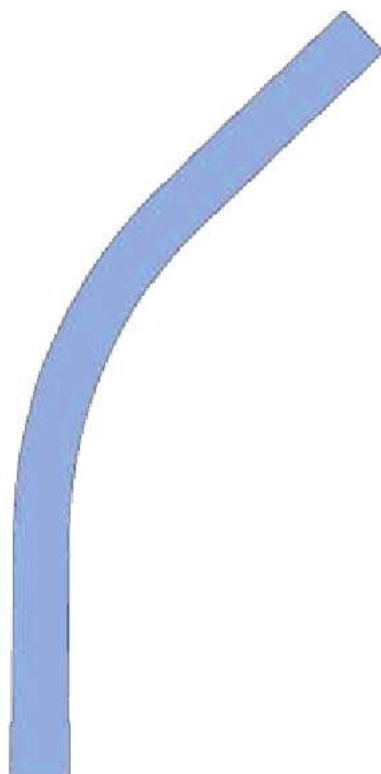
❖ Note: Also available with various sizes in case of request by contractor.



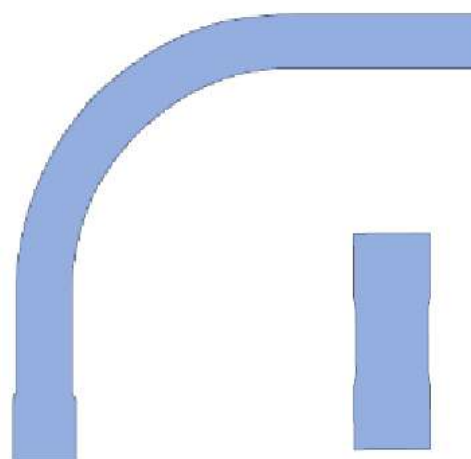
MBA uPVC Bends and Collars



Bend 30°



Bend 45°



Bend 90°



Collar

DIA	Wall Thickness	Bend 30°	Bend 45°	Bend 90°	Collar
75 mm	3.6 mm	✓	✓	✓	✓
110 mm	2.4 mm	✓	✓	✓	✓
160 mm	2.6 mm	✓	✓	✓	✓
160 mm	3.6 mm	✓	✓	✓	✓
56.5 mm	3.25 mm	✓	✓	✓	✓
96.5 mm	3.25 mm	✓	✓	✓	✓



Technical Specifications and installation instructions

MBA Conduit and trunkings are light weight, user friendly, easy to handle and does not call for on-site handling equipment due to its versatile design and features. MBA cable management products are non-conductive, non-corrosive, complies with relevant specifications, codes of practice and regulations for Electrical Equipment Buildings (IEE publication).

Installation should be undertaken by proficient personnel with due for safety and environment interests to achieve optimum benefits of cable management. Following instructions are intended to be a guide for the installation of MBA products.

Conduit Systems

Choice of Conduits and Installation	Joint and Couplers	Method of Bending	Cable Carrying Capacity
<p>The choice of conduit and fittings is subject to kind of work being executed and the specifications required. Appropriate gauge conduit is selected for surface fixing and suitable conduit is chosen for concealed installations. Conduit used in surface installations should be secured using saddles/spacer bar saddles. Distancing between supports shall be 1.5 meters for horizontal run and 1.75 meters for vertical run for the conduit sizes of 20 and 25mm diameter. For 32 and 38mm diameter conduits, saddle support shall be 1.75 horizontal and 2.0 meter vertical is recommended. 2.0 meter horizontal and vertical distancing is suggested for 50mm diameter conduit. In surface fixing, whenever mounting boxes/bends are used, conduit shall be secured with spacer bar saddle within 20cms on either side of fitting to give a firm support for installation. Where conduits are to be embedded in concrete, securing of conduits with reinforcing/formwork is desired to avert displacing of conduits while read-mix concrete pouring and subsequent vibrating of concrete mix.</p>	<p>Conduits have a tendency for expansion/contraction at changing ambient temperature. For facilitating this phenomenon, it's recommended for using expansion couplers for every 6-meter run avert conduit kinking and buckling. Expansion couplers are installed with the solvent cement applied on short spout of expansion coupler and pushing conduit firmly into notching. Use appropriate water resistant lubricating sealant on the other end and position conduit at midpoint of long spout for aiding expansion and contraction in the saddles. Joining of conduit into various fittings viz., couplings, adaptors, junction boxes, bends and mounting boxes are easily joined by using Comat solvent welding cement. Due care need to be taken for proper surface preparation of components. Cut conduit to required length using fine toothed hacksaw or pipe cutter and remove all burrs and loose dust. Apply evenly a layer of solvent cement to the pipe and fitting with a quarter turn to evenly spread the solvent cement wiping off any excess cement from the components.</p>	<p>All MBA conduits of different gauges under 25mm OD size can be easily bent cold by using designated bending spring. Ensure using of correct size and gauge. Insert the spring into desired position, grip the conduit on either sides and exert force by hand or place the conduit across the knee and continue bending slowly but progressively until bend is slightly beyond the angle required. Now, allow the conduit to recover back to the desired position. To remove the spring from conduit, twist it in anti-clockwise direction while rotating the conduit clockwise simultaneously pulling them slowly apart. Bending of conduits above 25mm size shall be carried out with hot bending technique. Insert proper size of spring into the conduit as explained above and immerse bending portion in boiling water or use a radiant heat source. When the conduit softens, used a suitable former and continue holding until bend is set to required angle.</p>	<p>Size of the conduit is explicitly governed by IEE publication to ensure accommodating maximum number of cables of the same size, or different sizes for complying with the requirement of regulations. This is necessitated to make certain the number of cables drawn into conduit or a wiring system shall be such that no damages caused to the cables and conduits while carrying out the installation</p>



Above Ground Drainage Waste BS 5255 Fittings			
Product Code	Description	Size	Photos
MBA-E90-1.5	Elbow 90	1 ½"	
MBA-E90-5	Elbow 90	2"	
MBA-E45-1.5	Elbow 45	1 ½"	
MBA-E45-2	Elbow 45	2"	
MBA-B90-1.5	Branch 90	1 ½"	
MBA-B90-2	Branch 90	2"	
MBA-B45-1.5	Branch 45	1 ½"	
MBA-B45-2	Branch 45	2"	
MBA-SOC-1.5	Socket	1 ½"	
MBA-SOC-2	Socket	2"	



Above Ground Drainage Soil BS 4514 Fittings			
Product Code	Description	Size	Photos
MBA-E90-3	Elbow 90	3"	
MBA-E90-4	Elbow 90	4"	
MBA-E90-6	Elbow 90	6"	
MBA-E45-3	Elbow 45	3"	
MBA-E45-4	Elbow 45	4"	
MBA-E45-6	Elbow 45	6"	
MBA-B90-3	Branch 90	3"	
MBA-B90-4	Branch 90	4"	
MBA-B90-6	Branch 90	6"	
MBA-B45-3	Branch 45	3"	
MBA-B45-4	Branch 45	4"	
MBA-B45-6	Branch 45	6"	
MBA-SOC-3	Socket	3"	
MBA-SOC-4	Socket	4"	
MBA-SOC-6	Socket	6"	
MBA-TFG-4	Trapped Floor Gully	4"	
MBA-ECAP-4 MBA-ECAP-6	End Cap End Cap	4" 6"	

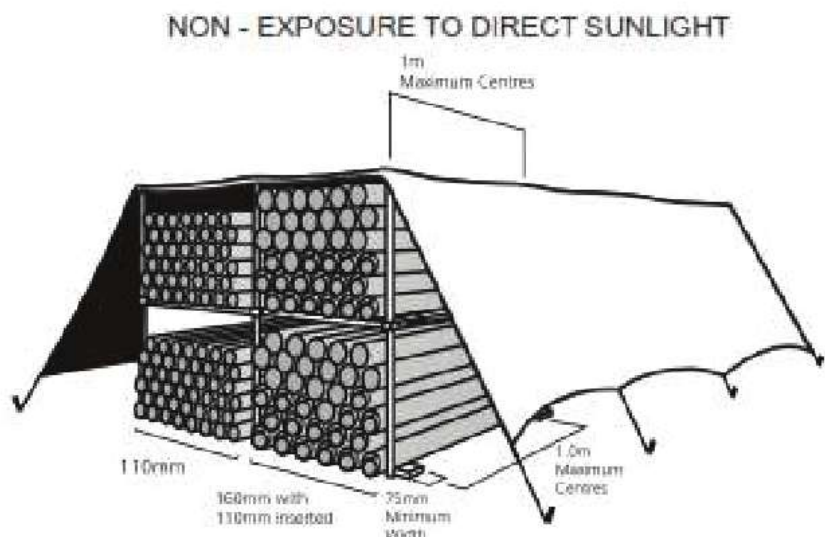


Underground Drainage System BS 4660 Fittings			
Product Code	Description	Size	Photos
MBA-E90-4UD	Elbow 90	4"	
MBA-E90-6UD	Elbow 90	6"	
MBA-B90-4UD	Branch 90	4"	
MBA-B90-6UD	Branch 90	6"	
MBA-B45-4UD	Branch 45	4"	
MBA-B45-6UD	Branch 45	6"	
MBA-E45-4UD	Elbow 45	4"	
MBA-E45-6UD	Elbow 45	6"	
MBA-TFG-4UD	P Trapped Gully	4"	
MBA-ECAP-4UD	End Cap	4"	

Modern Building Accessories Factory U P.V.C Pipes Transport Handling and Storage

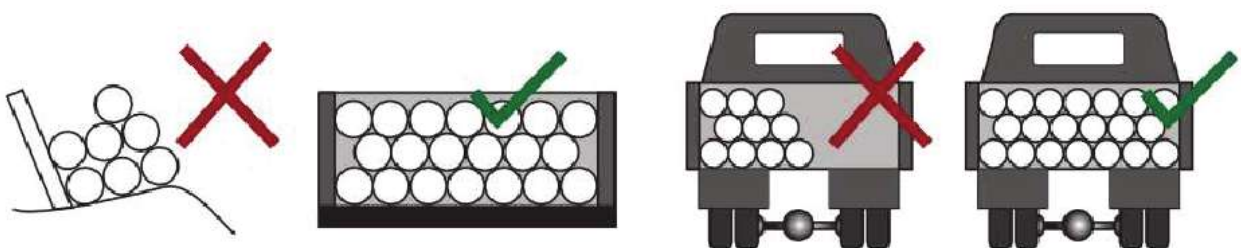
Our factory shown that:

1. Un plasticized u P.V.C pipes are strong but light,
2. Its specific gravity being approximately one- fifth that cast iron.
3. As a result, these pipes are more easily handled than their metal counterparts.
4. Reasonable care, however should be exercised at all times, and when of loading, pipes should be lowered, not dropped to the ground.
5. Pipe should be given adequate support at all times.
6. Pipes should not be stacked in large piles especially in warm temperature conditions, as the lower layers may distort: resulting in difficulties when joining and for pipe alignment.
7. Any pipe with ends prepared for joining (socket and spigot joints, RR joints, etc.) should be stacked in layers with the socket, placed at alternate ends of the stack and with sockets protruding to avoid lop-sided stacks and the Imparting of permanent set to pipes.
8. Particularly in the case of Ring pipe, rubber rings should not be exposed to solar radiation for any length of time if they are not coated.
9. It is recommended to stock them in a cool and shady place.
10. Rubber rings should not come in touch with chemicals, grease, oil and to be stored for too long a time.
11. For long-term storage, pipe racks should provide continuous support, but if this is not possible, timber of at least 75 mm bearing width at spacing not greater than 1 m centers for pipe sizes 150 mm and above, should be placed beneath the pipes and at 2 m centers at the side, if the stacks are rectangular.
12. These spacing apply to pipe size 160 mm and above.
13. Closer supports will be required for sizes below 160 mm.
14. In such pipe racks, pipes may be stored not more than seven layers or 1.5 m high, whichever is the lesser, but if different classes of pipe are kept in the same racks, then the thickest classes must always be at the bottom.





15. For temporary storage in the field, where racks are not provided, the ground should be level and free from coarse stones.
16. Pipes stored thus should not exceed three layers high and should be staked to prevent movement.
17. Stack heights should be reduced if pipes are nested; i. e. pipes stored inside pipes of larger diameters.
18. Reductions in height should be proportional to the weight of the nested pipe compared to the weight of the pipes normally contained in such storage's.
19. Since the soundness of any joint depends on the condition of the spigot and the socket, special care must be taken in transit, handling and storage to avoid damage to the ends.
20. When loading pipes on the vehicles, care must be taken to avoid their coming into contact with any sharp corners such as cope irons, loose nail-heads, etc., as pipes may be damaged by being rubbed against these during transit whilst in transit pipes shall be well secured over their entire length and not allowed to project unsecured over the tailboard of the lorry.
21. Pipes may be off loaded from lorries and or by rolling them gently down timbers, care being taken to ensure that pipes do not fall one upon another nor on any hard or uneven surfaces.
22. Fork-lift trucks will have to be used for bundles and large unit loads.





EXCAVATION

1. The width of the trench excavation should be kept to a minimum, allowing just sufficient working area for jointing and initial compaction around the pipe. For most purposes, a trench 300mm wider than the diameter of the pipe allows enough room for jointing.
2. It is important that the trench is not excavated too far in advance of the pipe laying operation, especially in situations where the trench walls are unstable.

BEDDING

1. The quality of the bedding material and its compaction, together with the nature of the undisturbed material of the trench walls are all relevant to the ultimate performance of Duroflo and Ultraflo pressure pipes once installed.
2. The trench bed must be free from all stones or sharp projections which are likely to cause damage to the pipe.
3. The bottom of the trench should be backslid to a depth of 100mm, with selected bedding material such as free draining coarse sand, gravel or soil of a friable nature.
4. The size of soil particles in the bedding material should not exceed 20mm.
5. The bedding, onto which the pipe is laid, should be thoroughly compacted to the specified density.
6. Reference should be made to SANS 2001 for bedding specifications.

ANCHORING

1. When an internal hydrostatic pressure is applied to the pipe, unbalanced forces develop at all changes of size and direction in a pipeline.
2. Thrust blocks prevent the movement of fittings and must be placed at all changes of direction, valves, stop ends and reducers. Concrete thrust blocks are most commonly used at all anchor points.
3. The dimensions of the thrust blocks must be calculated to suit the pipe diameter, pressure and the load bearing capacity of the soil.

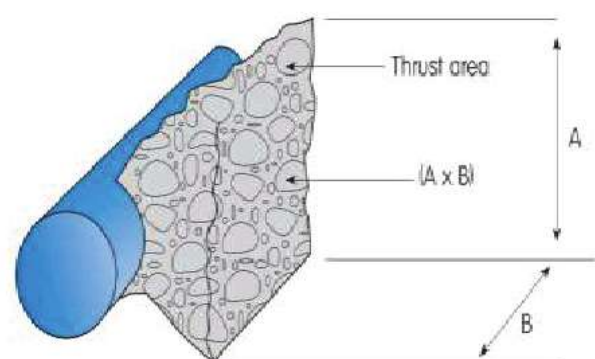
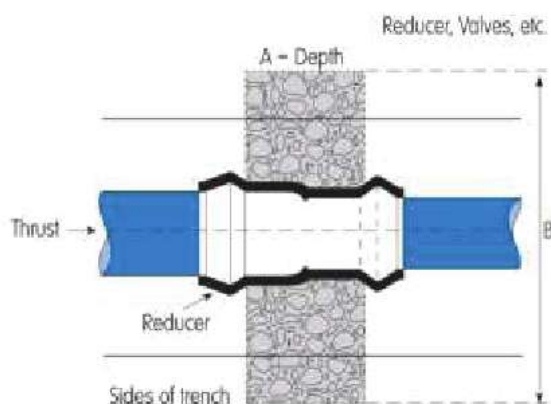
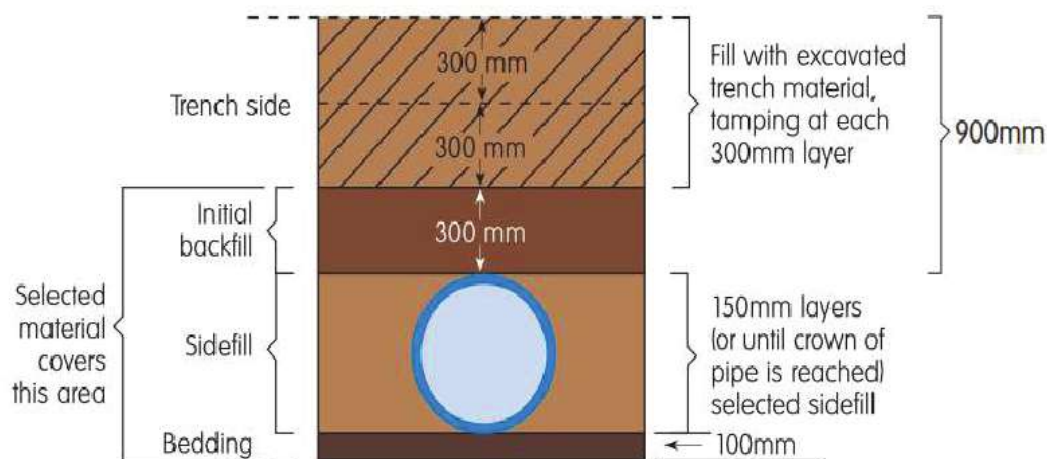


Typical Thrust Block Sizes

(Final dimensions must be specified by the consulting engineer)

Pipe Size (mm)	90° Bends A x B (m)	45° Bends A x B (m)	Tees A x B (m)	End Caps, Valves, Reducers A x B (m)
110	0.30 x 0.30	0.30 x 0.25	0.30 x 0.30	0.30 x 0.60
200	0.45 x 0.70	0.30 x 0.70	0.45 x 0.60	0.45 x 0.80
315	0.60 x 1.30	0.60 x 0.90	0.60 x 0.90	0.60 x 1.00
400	1.00 x 1.60	1.00 x 1.20	0.80 x 1.50	0.80 x 1.50

Drilling sector



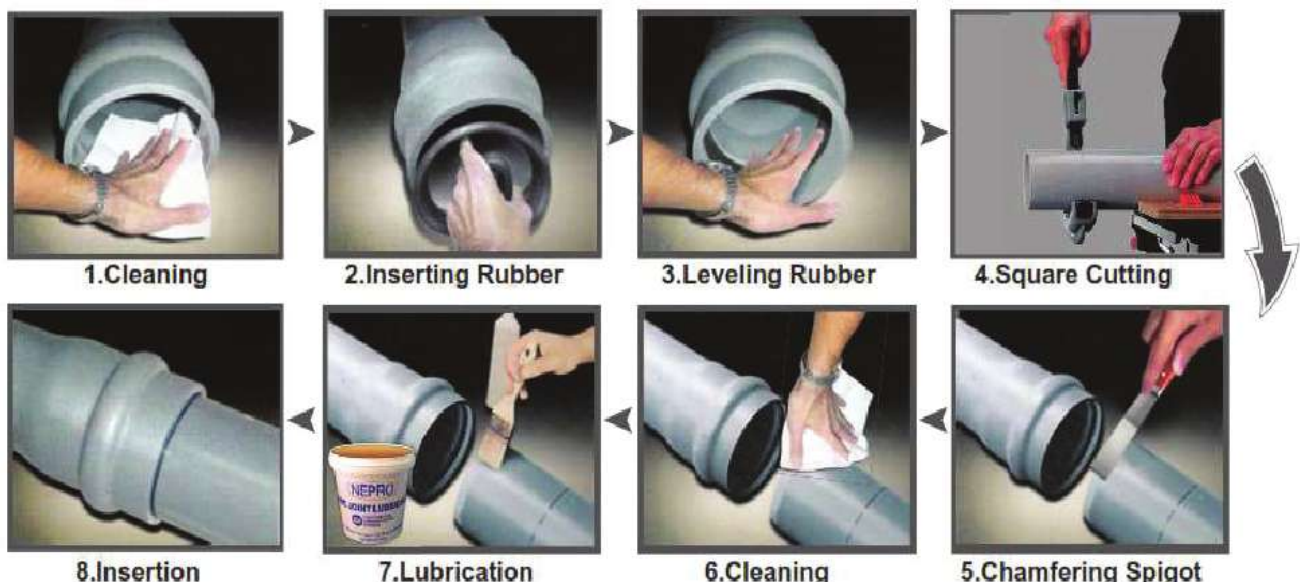
INSTALLATION METHODS

The following information is intended to assist Engineers and Contractors to take full advantages of the Physical and mechanical properties of uPVC pipes and to achieve the desired results:

A) Method for rubber ring joint installation:

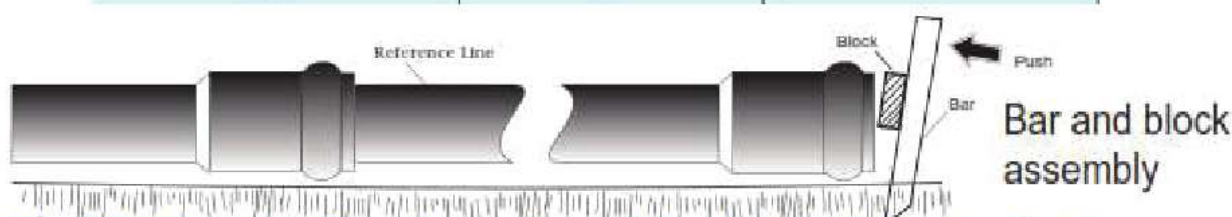
1. Ensure that the mating areas of spigot and socket are thoroughly clean.
2. Setting the rubber ring in grove.
3. Assess the full socket depth by simple measurement and mark spigot accordingly.
4. Apply lubricant to the spigot side and to the inside of the joint on rubber.
5. Accurate axial alignment of the spigot and socket prior to joining is important, hand feed spigot into rubber joint until resistance from the inner sealing section is felt.
6. Bar and block assembly is recommended because a worker is able feel the amount of force being used and whether the joint goes together smoothly.
7. If undue resistance to pipe insertion is encountered, disassemble the joint and check the position of the rubber ring.

Rubber Ring Jointing



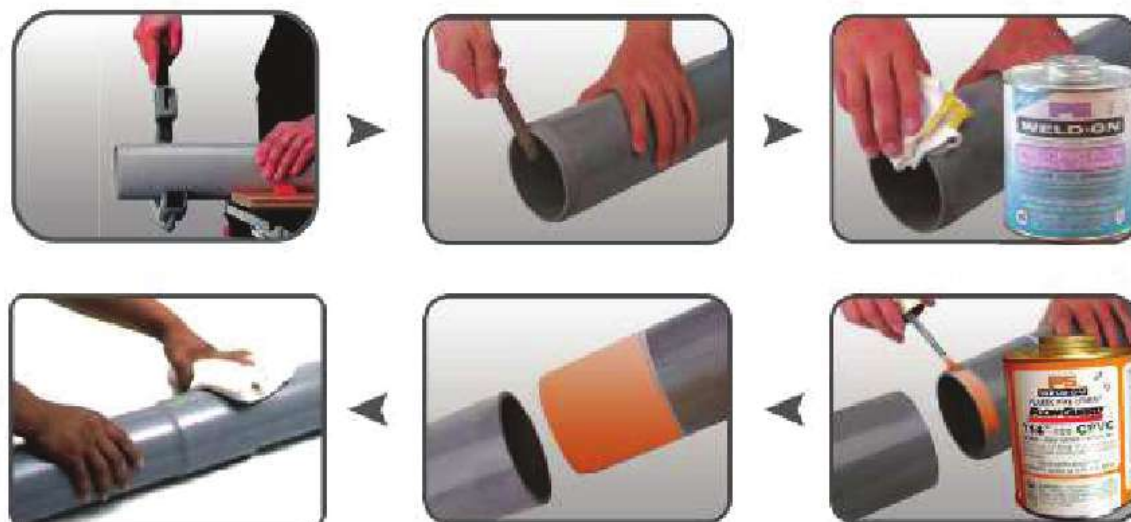
For 100 Joints use the following amounts of lubricant :

Pipe outside Diameter DN	Dia. / mm	Kg. Of Lubricant
DN 50	63	0,5
DN 80	90	0,85
DN 100	110	1,10
DN 125	140	1,35
DN 150	160	1,80
DN 200	225	2,40
DN 250	280	3,15
DN 300	315	3,85
DN 400	400	5
DN 450	450	6
DN 500	500	7



A) Method of solvent welded joint installation:

1. Joint Preparation - Cut Pipe square with the axis, using a one - tooth saw with a Miter box or guide. Remove all burrs and break the sharp lead edges.
2. Cleaning & Priming-Surface to be joined must be cleaned and free of dirt , Moisture , Oil ,and other FOREIGN material applying Weld-On primer.
3. Mark on spigot the full length of the socket side to make sure that the spigot will exactly the socket length.
4. Application of solvent cement - PVC solvent cement is fast drying and should be applied as quickly as possible, consistent with good workmanship, Follow up the manufacturer's recommendation to both spigot and socket side with an adequate quantity of cement.
5. Joint Assembly - While both the inside socket surface and the outside surface of the spigot of the pipe are WET with solvent cement, forcefully bottom the spigot in the socket. Turn the pipe or fittings 1/4 turn during assembly (but not after the pipe is bottomed) to distribute the cement evenly. Hold for a while until handling strength is developed. Assembly should be completed within 30 seconds after the last application of solvent cement.
6. After Assembly -Wipe excess cement from the pipe at the end of the socket. Gaps in the cement bead around the pipe perimeter may indicate a defective assembly. Handle the newly assembled joints carefully after 1 hour.



Importance Points of Pipe Installation with Solvent Cement Joints

1. The joining surfaces must be clean and dry
2. Sufficient cement must be applied to fill the gap between male and female ends.
3. The Assembly must be made while the surfaces are still wet and fluid.
4. Completed joints should not be disturbed until they have cured sufficiently to withstand handling.
5. Keep the solvent cement closed and shaded when not actually in use. Discard the solvent cement when a noticeable change in viscosity occurs, when the cement does not flow freely from the brush, or when the cement appears lumpy and stringy.

FOR 100 JOINTS USE THE FOLLOWING AMOUNTS OF ADHESIVE AND CLEANSER.

Pipe Outside Diameter DN	O.D Dia / mm	Cleaner kg	Adhesive kg
25	32	Approx. 0.5	Approx.08
32	40	Approx 0.7	Approx 1.1
40	50	Approx 0.9	Approx 1.6
50	63	Approx 1.7	Approx 1.7
60	75	Approx. 1.3	Approx 2.2
80	90	Approx 1.4	Approx 4.0
100	110	Approx 1.7	Approx 8.0
125	140	Approx 2.1	Approx 13.0
150	180	Approx 2.5	Approx 19.0
200	225	Approx 4.5	Approx 26.0
250	290	Approx 6.5	Approx 38.0
300	315	Approx 10.2	Approx 52.0

CASTLE

For Building Materials



Modern Building Accessories

FORMWORKS ACCSSORIES

Tie Rod (Cold Rolled)



Available in Breaking load of 200 KN, 165 KN, 135 KN, 110 KN.

Diameter is 15/17mm and the length is available 6 mtr.

Wing Nut (Casted)



Malleable Casting as per BS32-12 Standard
Safe working load of 90 KN.

Threading is suitable for 15/17mm tie rod.

Wing Nut (Forged) Heavy Duty



Drop Forged from Low Carbon Steel.
Safe Working Load of 90 KN.

Threading is suitable for 15/17mm tie rod.

Anchor Nut Round Type



Made from SG Iron Casting.
Safe working load of 90 KN.

Threading is suitable for 15/17mm tie rod.
This is 2lug type Nut with Base Diameter of 100mm.

FORMWORKS ACCSSORIES

Anchor Nut Flat Type



Made from SG Iron Casting.
Safe working load of 90 KN.

Threading is suitable for
15/17mm tie rod.
This is 2lug type Nut with
Base Diameter of 100mm.

Anchor Nut Forged Flat Type



Drop Forged from Low
Carbon Steel.
Safe Working Load of 90 KN.

Threading is suitable for
15/17mm tie rod.
This is 3lug type Nut with
Base Diameter of 100mm.

Tie Rod Connector



Made from Low Carbon
Steel.
The Safe Working Load is 90
KN.

Threading is suitable for
15/17mm tie rod.
Available in the Lengths
of 50mm, 100mm and
110mm

Water Stopper



Made from Malleable
Casting and has a safe
working load of 90 KN.

Threading is suitable for
15/17mm tie rod. Available
with 2 pcs. of plastic
adaptors.



FORMWORKS ACCSSORIES

Water Barrier



Made from Malleable Casting and has a safe working load of 90 KN.

Threading is suitable for 15/17mm tie rod.

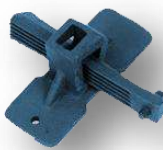
Washer Plate



Made from Low Carbon Steel.
The Safe Working Load is 90 KN.

120mm X 120mm X Thicknesses (mm) where T = 5, 6, 7, 8, 10, 12.

Rapid Clamp



Body is made of Malleable Casting and the Pin is made from Forged Steel. The teeth's on the Wedge is Heat Treated for Maximum Life.

Used for Deformed Bars of 6mm - 10mm.

Rapid Clamp Tensioner



Body is made from SG Iron Casting and the Threaded Rod is Forged Steel.

Used for Deformed Bars of 6mm - 10mm



FORMWORKS ACCESSORIES

Steel Cone



Made from Low Carbon Steel.
The Safe Working Load is 90 KN.

Threading is suitable for 15/17mm tie rod.
The available lengths is 75mm and 100mm.

PVC Type Steel Cone



Made from Low Carbon Steel with PVC Cove. The Safe Working Load is 90 KN.

Threading is suitable for 15/17mm tie rod.
The available length of 100mm.

Shuttering Clamps



Made from Low Carbon Steel.
The Safe Working Load is 90 KN.

Available in the following sizes:
Width from 25mm to 32mm,
Thickness from 4.5mm to 8mm and
Length of the Clamp from 600mm to 1200mm



FORMWORKS ACCSSORIES

Universal Clamp



Made from Low Carbon Steel with a Carriage Bolt, Nut and Washer.

The carriage bolt is M12 X 120mm.

Timber Walling Clamp



Made from Low Carbon Steel with an L-Bolt, Nut and Washer.

The L bolt is M16 X (5 inch + 6 inch)

Spring Clamp



Made from Low Carbon Steel.
The Safe Working Load is 90 KN.

Used for Deformed Bars of 6mm - 10mm.



Scaffold Fittings

Fixed Coupler Heavy Duty



Forged Steel and the Specifications are as per BS-1139 Standard.

For pipe of 48.3mm X 48.3mm.

Swivel Coupler



Forged Steel and the Specifications are as per BS-1139 Standard.

For pipe of 48.3mm X 48.3mm.

Putlog Coupler



The Body is sheeted and the Cap is forged and the specifications are as per BS-1139

For Pipe of 48.3mm X 48.3mm.



Scaffold Fittings

Fixed Coupler



Made from 4-5mm thick sheet,
as per BS-1139 Standard

For pipe of
48.3mm X 48.3mm.

Swivel Coupler



Made from 4-5mm thick sheet,
as per BS-1139 Standard.

For pipe of
48.3mm X 48.3mm.

Fixed Coupler Light Duty



Made from 3mm Thick
Sheet.

For pipe of
48.3mm X 48.3mm.



Scaffold Fittings

Swivel Coupler Light Duty



Made from 3mm Thick Sheet.

For pipe of
48.3mm X
48.3mm.

Fixed Combination Coupler



Made from 4-5mm thick sheet,
as per BS-1139 Standard.

For Pipe of
48.3mm X 60mm.

Swivel Combination Coupler



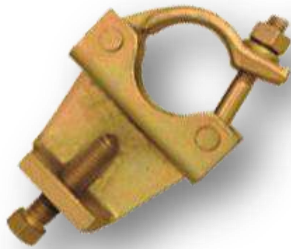
Made from 4-5mm thick sheet,
as per BS-1139 Standard

For Pipe of
48.3mm X 60mm.



Scaffold Fittings

Girder Coupler



The Body is made from 12mm and the cap from 4-5mm thick sheet.

For Pipe of 48.3mm.

Toe Board Coupler



Made from 4-5mm thick sheet, as per BS-1139 Standard.

For Pipe of 48.3mm.

Sleeve Coupler



Made from 4-5mm thick sheet, as per BS-1139 Standard.

For pipe of 48.3mm X 48.3mm.



Medium Duty Prop



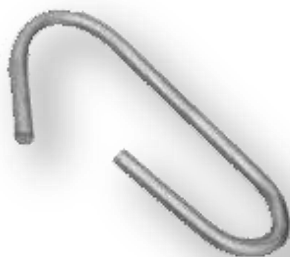
Screw Threaded Tube			Outer Tube			Inner Tube			Height	
L	OD	T	L	OD	T	L	OD	T	Min	Max
220	60.3	3.2	1500	60.3	2.0	1500	48.3	2.0	1750	3000
220	60.3	3.2	1500	60.3	2.0	2000	48.3	2.0	2000	3500
220	60.3	3.2	1500	60.3	2.0	2500	48.3	2.0	2500	4000
220	60.3	3.2	1500	60.3	2.0	3000	48.3	2.0	3000	4500
220	60.3	3.2	2000	60.3	2.0	3000	48.3	2.0	3000	5000

Heavy Duty Prop



Screw Threaded Tube			Outer Tube			Inner Tube			Height	
L	OD	T	L	OD	T	L	OD	T	Min	Max
220	60.3	3.2	1500	60.3	3.1	1500	48.3	3.1	1750	3000
220	60.3	3.2	1500	60.3	3.1	2000	48.3	3.1	2000	3500
220	60.3	3.2	1500	60.3	3.1	2500	48.3	3.1	2500	4000
220	60.3	3.2	1500	60.3	3.1	3000	48.3	3.1	3000	4500
220	60.3	3.2	1500	60.3	3.1	3000	48.3	3.1	3000	5000

Prop G Pin



Made from Low Carbon Steel.

The Diameter is 14mm and used for 60mm prop sleeve



Prop Sleeve



The pipe of 60mm OD is used and the threading is Rolled Type which gives extra strength to the pipe.

Available in lengths of 300mm and 210mm.

Prop Nut Heavy Duty



Made from SG Iron Casting.

For the prop sleeve of 60.3mm diameter.

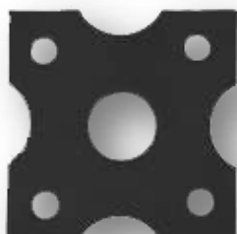
Prop Nut Light Duty



Made from SG Iron Casting.

For the prop sleeve of 60.3mm diameter.

Prop Plate



Made from Low Carbon Steel.

The size of the plate is 120 X 120 X 5mm.

High Rip (Expanded Metal Rib Lath)

High-RIP®, is the stable expanded metal rib for perfect construction joints in reinforced concrete constructions

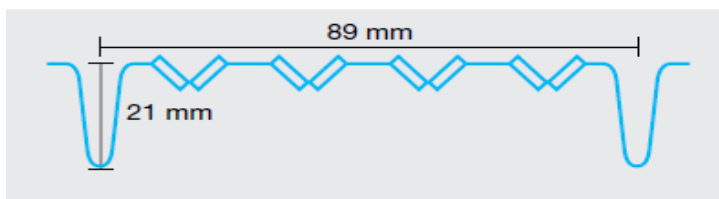
High-RIP® enables the perfect joint between the concreted sections without needing to further process the construction joint. This enables a high concreting speed and the visual monitoring of the concreting process.

The areas of application in concrete construction:

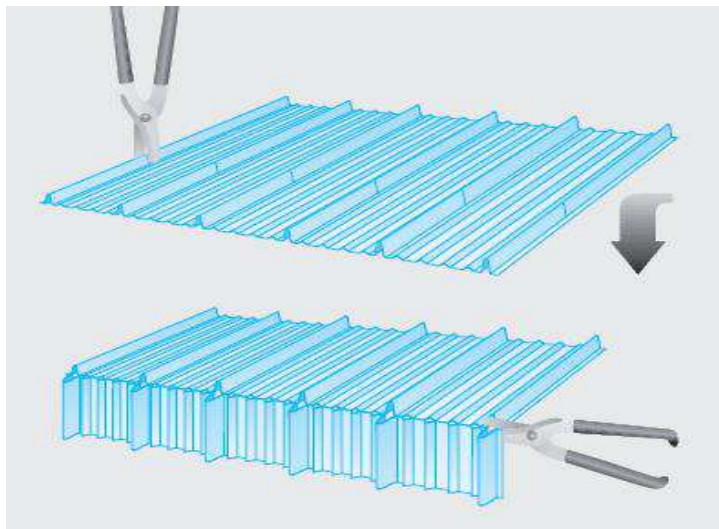
- As permanent formwork for construction joints
- As permanent formwork for flat, even or shaped components

The areas of application in plastering work:

- For rabbit construction with span widths of up to 1200 mm.



sections without needing to further process the construction joint.



- When concreting, the spine of the expanded metal rib work always faces the first concrete section. The open ribs on the exposed side guarantee safe bonding with the second section of concrete.
- High-RIP requires the same concrete coverage as reinforcing steel.

Cutting



High RIP areas of application advantages

Use in concrete construction work

- As permanent formwork for construction joints.
- As permanent formwork for flat, even or shaped components

Advantages in concrete construction work

- The perfect joint between the concreted
- Reduction of the concrete pressure during the concreting process.
- Minimisation of empty spaces and cement honeycomb.
- High concreting speed and visual monitoring of the concreting process is possible.

Use in plaster work

For rabbit construction with span widths of up to 1200 mm

Advantages in plaster work

- High stability
- Particularly economic for large span widths

Processing

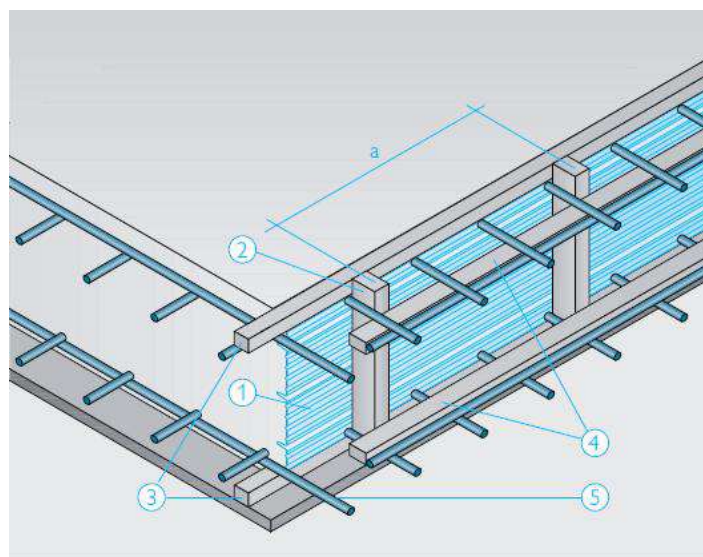
- Ribs should not be damaged or distorted during fixing.
- The panels must be placed rib on rib, overlapping.

- High-RIP® is cut using the metal shears or the circular saw. Avoid deforming the rib.
- Cut the spine of the expanded metal rib work.
- Bend the material.
- Cut off the High-RIP panels

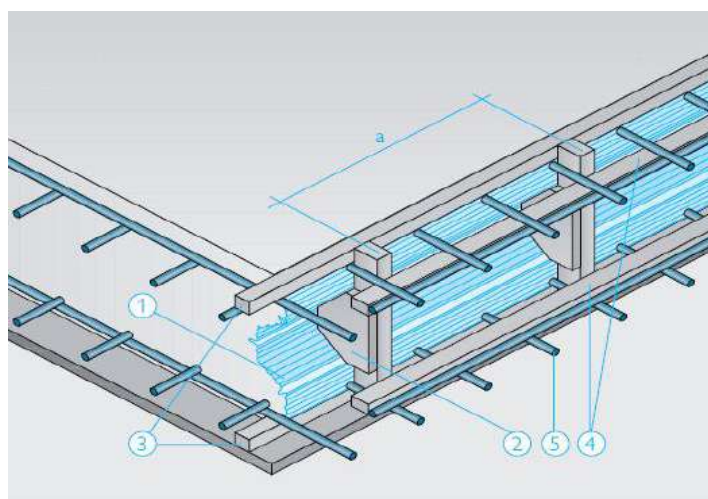
High-RIP®, Setting up a stop end for construction joints

Processing

- High-RIP® (1) is nailed to a corner or shaped bracing (2). Ribs should not be damaged or distorted during fixing. The closed expanded metal rib work point towards the first concreted section as the expanded metal rib work here is exposed to the most pressure. The expanded metal rib work is arranged cross-wise to the bracings.
- High-RIP® requires the same concrete coverage as reinforced concrete. In order to maintain the specified concrete coverage, the upper and underside of the component are fitted with wooden strips (3) as spacers and nailed to the bracings (2).
- The bracings (2) themselves are nailed to the formwork and held in place by wooden bars (4) supported by the existing armouring.
- The necessary subsequent armouring (5) is fed through the expanded metal rib work. High-RIP® is cut using the metal shears or the special pin shears. Avoid cutting the expanded metal rib work if possible.
- Joint strips can be mounted in accordance with Figure 3. The joint strip (6) is arranged between two High-RIP® strips. High-RIP® is cut using the metal shears or the special pin shears. In the bracings, gaps are provided for the joint strips.



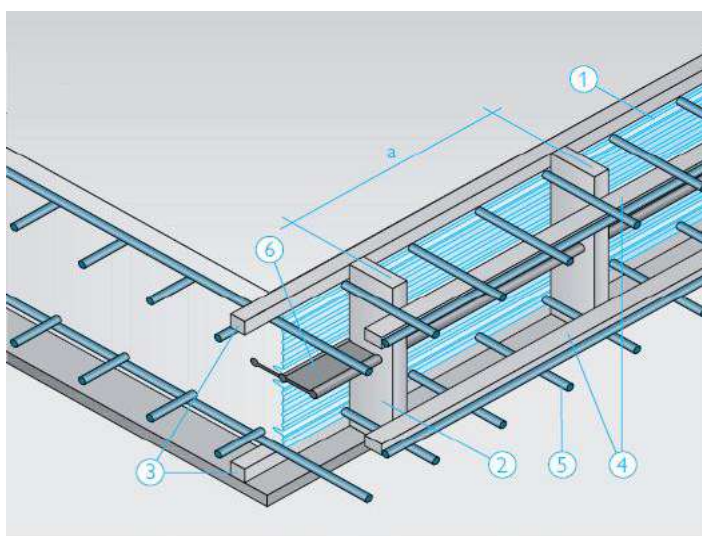
Straight construction joint using High-RIP®



Formed construction joint using High-RIP®

Bracing intervals depending on the concrete height

Concrete Height (m)	0.25	0.50	1.00	2.00	2.00	2.50	3.00
HRip 0.30	0.53	0.45	0.30	0.26	0.23	0.20	0.20
HRip 0.40	0.70	0.60	0.40	0.35	0.30	0.25	0.25
HRip 0.575	0.90	0.80	0.60	0.45	0.40	0.30	0.25
HRip 0.75	0.90	0.70	0.65	0.55	0.40	0.30	0.30



Construction joint with High-RIP® and joint strip

Permanent concrete formwork

High-RIP® is designed in such a way that it can be placed closed to the edge rib of the neighbouring High-RIP® panel. This ensures solid joints across the entire length and the stiffness of the panel joints in the preparation stage is strengthened.

The intermediate ribs of the High-RIP® panels create the internal stiffness along the length of the panel allowing supports to be bridged. As a result of the reduced load, less support system are required.

The fixture of High-RIP® panels can be carried out either before or after the application of armouring.

In the first phase of the concrete pouring, the High-RIP® noses are integrated into the poured concrete, the panel is embedded securely and cannot move from the floor.

The run-off water is able to flow off well through the open honeycomb structure. This forms a solid and impenetrable layer of concrete on the upper side, directly behind the High-RIP® panel.

The risk of honeycomb like trapped air is minimised to the most part by the use of High-RIP®. Generally, when creating traditional formwork, air is trapped during the pouring of fresh concrete. The High-RIP® structure enables air to escape again, and the risk of trapped air is kept low.

The poured concrete can be seen and monitored better during the pouring stage.

For subsequent concreting stages, the preparation time is considerable reduced as a result of the use of High-RIP®. The light weight nature of the High-RIP® panels ensures that they can be handled easily.

The panel width of 445 mm reduces the cutting work and the volume of waste for small items.



Upturn of joint strip for water sealing on a floor surface. High-RIP® is self-stiffening thanks to the longitudinal ribs and thus helps against upright armouring.



Meshes well with High-RIP® when creating permanent formwork. Preparation of the areas (forming) in one go.



High-RIP® as formwork

Lifting Sockets

APPLICATION

Lifting sockets are widely used in the application of precast concrete construction, such as lifting beams, wall and floor slabs etc.. A reinforcement bar is to be inserted through the cross hole to transfer the load into the concrete.

MATERIAL

Seamless Precision tube, galvanized. Stainless steel available on request

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimension
			L (mm)
RD12	10101	500	40
RD14	10104	800	47
RD16	10107	1,200	55
RD18	10110	1,600	65
RD20	10113	2,000	67
RD24	10116	2,500	77
RD30	10119	4,000	105
RD36	10122	6,300	125
RD42	10125	8,000	145
RD52	10128	12,500	195



APPLICATION

Flat Lifting Socket is ideal for large, thin precast concrete components such as slabs and shells, on which it's hard to place normal lifting sockets because of the thin thickness of the component. Additional reinforcement must be used to transmit the load into the concrete.

MATERIAL

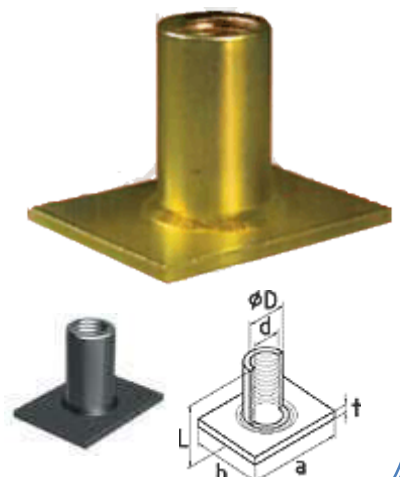
Seamless Precision tube and high strength steel plate.

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimensions
			L (mm)
RD12	10201	500	30
RD14	10204	800	33
RD16	10207	1,200	35
RD18	10210	1,600	44
RD20	10213	2,000	47
RD24	10216	2,500	54
RD30	10219	4,000	72
RD36	10222	6,300	84
RD42	10225	8,000	98
RD52	10228	12,500	117

Flat Lifting Sockets



Crown Foot Anchors

APPLICATION
Short Anchors are suitable for lifting the light weight flat units The advantage is that in most cases no additional reinforcement is needed as the load is transferred through the crown foot to the concrete.
MATERIAL
High Strength Steel, Galvanized. Stainless steel available on request

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm ²			
Description	Ref. No.	SWL (kg)	Dimensions L(mm)
RD12x60	10301	500	60
RD14x70	10304	800	70
RD16x80	10307	1200	80
RD18x90	10310	1600	90
RD20x100	10313	2000	100
RD24x115	10316	2500	115
RD30x150	10319	4000	150



Bar Anchor

APPLICATION
Bar Anchor is suitable for transporting very thin-walled precast components such as thin walls, flat panels etc., and Even precast masonry wall components can be transported with this Bar Anchor.
MATERIAL
Seamless precision tube with high strength rebars. Stainless Steel tube c/w rebar hot Zinc-Sprayed

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm ²			
Description d x L	Ref. No.	SWL (kg)	Dimensions L (mm)
RD12x190	10401	500	190
RD12x340	10404	500	340
RD16x270	10407	1200	270
RD16x500	10410	1200	500
RD20x350	10413	2000	350
RD20x600	10416	2000	600
RD24x400	10419	2500	400
RD24x720	10422	2500	720
RD30x540	10425	4000	540
RD30x840	10428	4000	840
RD36x670	10431	6300	670
RD36x980	10434	6300	980



APPLICATION

Suitable for transporting precast concrete components of varying dimensions. Thin flat slabs, facing panels, beams or columns can all be easily transported by this Combi Anchor. The load is transferred into the concrete through the round foot so generally no additional reinforcement is needed.

MATERIAL

Seamless precision tube with high strength rebars. Stainless Steel tube c/w rebars hot Zinc-Sprayed.

COMBI Anchor

Technical Data

<i>Dimensions & safe working loads at concrete strength of 25N/mm²</i>			
Description d x L	Ref. No.	SWL(kg)	L
RD12x100	10501	500	100
RD12x174	10503	500	174
RD14x135	10505	800	135
RD14x167	10507	800	167
RD16x150	10509	1200	150
RD16x195	10511	1200	195
RD18x170	10513	1600	170
RD18x275	10515	1600	275
RD20x190	10517	2000	190
RD20x235	10519	2000	235
RD24x210	10521	2500	210
RD24x260	10523	2500	260
RD30x270	10525	4000	270
RD30x390	10527	4000	390
RD36x330	10529	6300	330
RD36x440	10531	6300	440
RD42x450	10533	8000	450
RD42x540	10535	8000	540



APPLICATION

Wavy Tail Anchor is suitable for transporting very thin-walled precast components such as thin walls, flat panels etc., and Even precast masonry wall components can be transported with this Wavy Tail Anchor.

MATERIAL

Seamless precision tube with high strength rebars. Stainless Steel tube c/w rebars hot Zinc-Sprayed.

Technical Data

<i>Dimensions & safe working loads at concrete strength of 25N/mm²</i>			
Description dxL	Ref. No.	SWL(kg)	Dimensions L (mm)
RD12x108	10601	500	108
RD14x130	10604	800	130
RD16x167	10607	1200	167
RD18x175	10610	1600	175
RD20x187	10613	2000	187
RD24x240	10616	2500	240
RD30x300	10619	4000	300
RD36x380	10622	6300	380
RD42x450	10625	8000	450

Wavy Tail Anchor Short



APPLICATION

Wavy Tail Anchor is suitable for transporting very thin-walled precast components such as thin walls, flat panels etc., and Even precast masonry wall components can be transported with this Wavy Tail Anchor.

MATERIAL

Seamless precision tube with high strength rebars. Stainless Steel tube c/w rebars hot Zinc-Sprayed.

Technical Data

<i>Dimensions & safe working loads at concrete strength of 25N/mm²</i>			
Description dxL	Ref. No.	SWL(kg)	Dimensions L (mm)
RD12x137	10651	500	137
RD14x170	10654	800	170
RD16x216	10657	1200	216
RD18x235	10660	1600	235
RD20x257	10663	2000	257
RD24x360	10666	2500	360
RD30x450	10669	4000	450
RD36x570	10672	6300	570
RD42x620	10675	8000	620

Wavy Tail Anchor Long



APPLICATION

Lifting Insert is a M threaded insert for the lifting purpose. It can be used for the transport of beams, panels and slabs etc. A rebar must be passed through the cross hole to transfer the load into the concrete.

MATERIAL

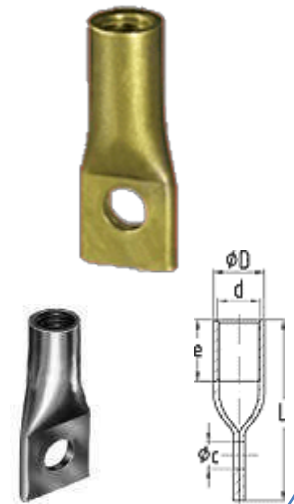
Seamless Precision tube, galvanized. Stainless steel available on request.

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimensions
			L (mm)
M10x50	10701	350	50
M12x60	10705	500	60
M16x80	10709	1200	80
M20x100	10713	2000	100
M24x110	10717	2500	110
M30x155	10721	4000	155

Lifting Inserts



APPLICATION

Heavy Duty Lifting/Fixing sockets for high tensile and shear loads. Widely used in the application of precast concrete construction, such as lifting beams, wall and floor slabs etc.. A Reinforcement bar is to be inserted through the cross hole to transfer the load into the concrete.

MATERIAL

High Strength Solid bar, galvanized. Stainless steel available on request

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimension
			L (mm)
M10x42	10901	600	42
M12x50	10904	900	50
M12x75	10907	900	75
M16x75	10910	1,700	75
M20x75	10913	2,300	75
M24x100	10916	3,000	100

Heavy Duty Lifting / Fixing Sockets



APPLICATION

Fixing Insert w/t Cross Bar transfers the forces into the concrete

MATERIAL

Seamless Precision tube, galvanized. Stainless steel available on request

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimensions
			L (mm)
M8X50	12301	250	50
M10X60	12304	450	60
M12X60	12307	500	60
M14X80	12310	700	80
M16X100	12313	1000	100
M20X100	12316	1250	100
M24X120	12319	1700	120



Fixing Insert With Cross Bar

APPLICATION

Shear Stud can be used as a simple concrete anchor, to provide a permanent bond between steel and concrete, such as in Concrete encasement of steel beams, piling walls and coffer dams. Or to be welded through metal decking to provide the required bond between the steel beams and the in-situ cast concrete floor. Tip fluxed.

MATERIAL

High Strength steel, black or galvanized.

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	Dimensions (mm)	
		L	D
SD06	11206	50-100	12.7
SD10	11210	50-175	19
SD13	11213	50-175	25.4
SD16	11216	50-175	31.7
SD19	11219	50-175	31.7
SD22	11222	50-200	34.9



Shear Stud

APPLICATION

Lifting Stud w/t Foot Eye is mainly designed for the use in slender reinforced concrete elements, e.g. beams and girders. It is also suitable for lightweight concrete elements; please take the reduced bond stresses into account.

MATERIAL

High Strength steel, black or galvanized.

Technical Data

Load Class (Ton)	Ref. No.	Dimensions
		L (mm)
1.3	11303	65
2.5	11307	90
5	11311	120
10	11315	180
20	11319	250

Lifting Stud



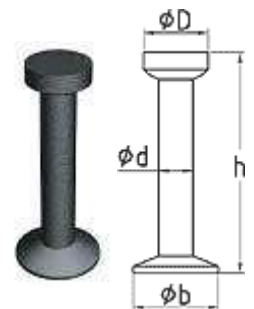
Lifting Stud

Lifting Stud is suitable for lifting Precast concrete pipes and slabs. The round foot transfers the load into the concrete thus reaching high permissible load even with relatively short anchor length. Longer lengths are used for reduced edge space or reduced concrete strengths.

Technical Data

Description	D	d	L	b	SWL(Ton)
1.3x55	19	10	55	25	1.3
1.3x65	19	10	65	25	1.3
1.3x85	19	10	85	25	1.3
1.3x120	19	10	120	25	1.3
2.5x55	26	14	55	35	2.5
2.5x85	26	14	85	35	2.5
2.5x120	26	14	120	35	2.5
2.5x170	26	14	170	35	2.5
5x75	36	20	75	50	5
5x95	36	20	95	50	5
5x120	36	20	120	50	5
5x240	36	20	240	50	5
7.5x120	47	24	120	60	7.5
7.5x164	47	24	164	60	7.5
10x120	47	28	120	70	10
10x170	47	28	170	70	10

Lifting Stud



APPLICATION

Lifting Loop/eyebolt is used for lifting precast concrete elements with precast anchors inside, the eyebolt can work under both straight pull and shear pull loads while lifting loop is supposed to work under straight pull situation only.

MATERIAL

High Strength wire rope with Cold-rolled sleeve / forged bolt.

Technical Data

Dimensions & Recommended Safe working Loads

Description	Lifting loop	Lifting Eyebolt	SWL (kg)
RD12	13101	13201	500
RD14	13104	13204	800
RD16	13107	13207	1,200
RD18	13110	13210	1,600
RD20	13113	13213	2,000
RD24	13116	13216	2,500
RD30	13119	13219	4,000
RD36	13122	13222	6,300
RD42	13125	13225	8,000
RD52	13128	13228	12,500

Lifting Loop/Eyebolt



APPLICATION

The Bolt Anchor type (I) is suitable for transporting precast concrete components of varying dimensions. Thin flat slabs, facing panels, beams of columns can all be easily transported by Bolt Anchors. The load is transferred into the concrete through the bolt so generally no additional reinforcement is needed.

MATERIAL

Seamless precision tube with high strength bolt.

Technical Data

Dimensions & Recommended Safe working Loads

Description	SWL (kg)	Dimensions
		L (mm)
M12x100	500	100
M16x140	1200	140
M20x135	2000	135
M20x150	2000	150
M20x180	2000	180
M24x135	2500	135
M24x170	2500	170
M24x200	2500	200
M30x240	4000	240
M36x300	6300	300
M42x300	8000	300

Bolt Anchor Type (I)



APPLICATION

The Bolt Anchor type T is suitable for transporting precast concrete components of varying dimensions. Thin flat slabs, facing panels, beams of columns can all be easily transported by Nekon Bolt Anchors with plate. The load is transferred into the concrete through the bolt so generally no additional reinforcement is needed.

MATERIAL

Seamless precision tube with high strength bolt.

Technical Data

Dimensions & Recommended Safe working Loads

Description	SWL (kg)	Dimensions
		L (mm)
M12x55	500	55
M16x75	1200	75
M20x90	2000	90
M24x110	2500	110
M30x140	4000	140

Bolt Anchor



Type (T)

APPLICATION

It is used for lifting precast concrete units where the connection side will not be visible (such as prefabricated bases, joists and supporting walls and etc.).

Technical Data

Dimensions & Safe working Loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimension
			h (mm)
NC08	50101	800	205
NC12	50105	1200	230
NC16	50109	1600	250
NC20	50113	2000	300
NC25	50117	2500	325
NC40	50121	4000	370
NC52	50125	5200	380
NC63	50129	6300	425
NC80	50133	8000	480
NC100	50137	10000	535
NC125	50141	12500	590

Cast In Loops





APPLICATION

Fixing Insert w/t bended end is used for the fixing of light weight precast-concrete units. Easy to use cause no reinforcement bar required.

MATERIAL

Seamless Precision tube, galvanized. Stainless steel available on request.

Technical Data

Dimensions & safe working loads at concrete strength of 25N/mm²

Description	Ref. No.	SWL (kg)	Dimensions
			L (mm)
M8x30x20	12201	180	30
M10x35x21	12205	240	35
M12x45x25	12209	400	45
M16x60x30	12213	950	60
M20x70x30	12217	1250	70
M24x80x37	12221	1450	80

Fixing Insert with bends





Rapid Lifting Anchor System

The **Rapid Lifting System** primary purpose is to lift precast concrete with the help of its Rapid anchoring system, comprises of **required dynamic load** bearing anchor and required connector ring clutches that is attached and locked to specific anchor in order to lift and transport. Moreover, unlocking the system can be done manually or by a remote system, designed for safe release (see German safety code).

Load As per required:

Connector Ring Clutch (t)	Anchor(t)
2.5	0.7
	1.4
	2.0
	2.5
5.0	3.0
	4.0
	5.0
10.0	7.5
	10.0
26.0	12.5
	14.0
	17.0
	22.0
	26.0

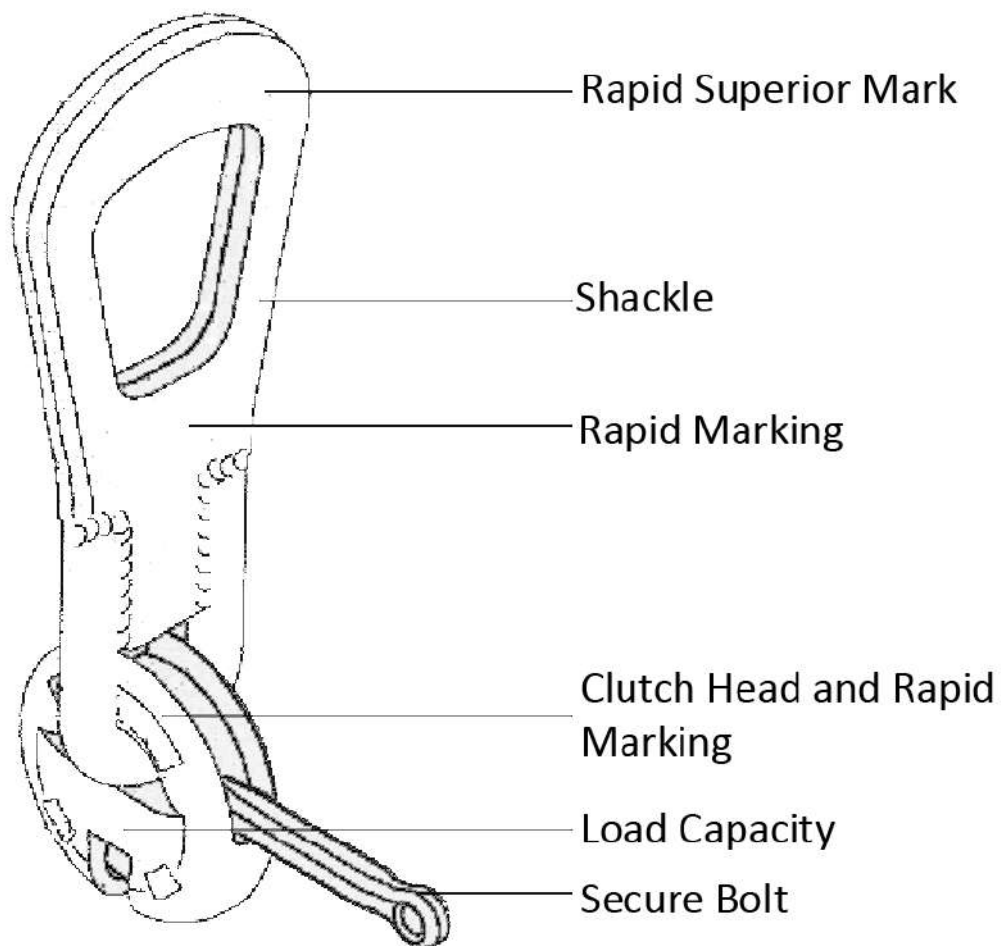
Above dynamic Load chart shall be observed in order to attain specified load requirement. **Factor of safety** submitted by our **technical team department** is supported by Testing Certificate, passed and approved by known Load Testing Centers.



Designs in misconnection of anchors and connector ring clutches are not permitted for safety purposes.

The Anchors

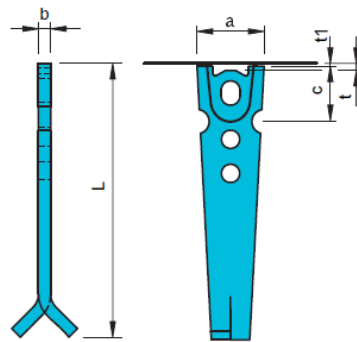
The anchors are made of high superior quality flat alloy. The Anchor figures foot is designed under their classifications. The top part of anchor has an aperture that matches the connection of ring clutch. The Anchor is mark by manufacturer product brand RAPID and system code designation for every part. (See Illustration Below).



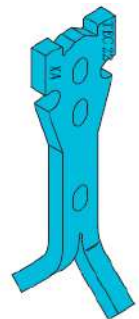
Installation Anchor TEC-XA / Unilateral Installation Anchor TEC-XB

Anchor Dimensions TEC-XA / TEC-XB

The design shape top part of anchor has a dynamic load taken by itself to avoid breakage of concrete. It also assists to place additional reinforcement for turning or moving in operation.



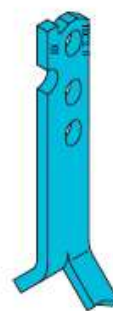
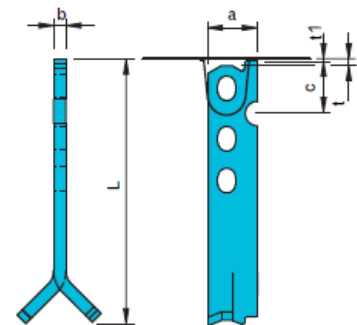
Load Range 1.4t-17.0t



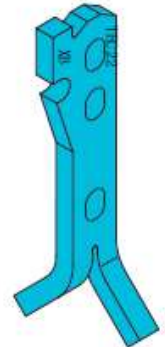
Load Range 22.0t

Dimensions, Installation Anchor TEC-XA									
Designation (Mill Finish)	Designations (Hot-dip Galvanized)	Load Group (t)	A (mm)	B (mm)	L (mm)	C (mm)	T (mm)	T1 (mm)	
TEC-XA 1.4-20	TEC-XA 1.4-20 TX	2.5	55	6	200	45	10	5	
TEC-XA 2.5-23	TEC-XA 2.5-23 TX		55	10	230	45			
TEC-XA 4.0-27	TEC-XA 4.0-27 TX	5.0	70	12	270	70	10	5	
TEC-XA 5.0-29	TEC-XA 5.0-29 TX		70	15	290	70			
TEC-XA 7.5-32	TEC-XA 7.5-32 TX	10.0	95	15	290	90	15	6	
TEC-XA 10.0-39	TEC-XA 10.0-39 TX		95	20	390	90			
TEC-XA 12.5-50	TEC-XA 12.5-50 TX	26.0	148	20	500	90	15	9	
TEC-XA 17.0-50	TEC-XA 17.0-50 TX		148	25	500	90			
TEC-XA 22.0-50	TEC-XA 22.0-50 TX		148	30	500	90			

TEC-XB load is only controlled in one direction and its designed is for thin components. Half notch Provision for fitting and turning reinforcement.



Load Range 1.4t-17.0t



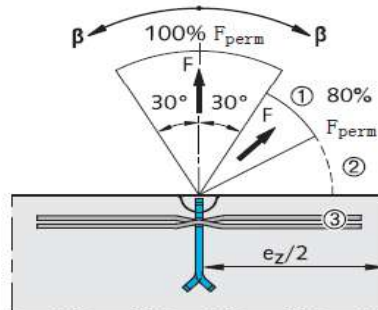
Load Range 22.0t

Dimensions, Installation Anchor TEC-XA									
Designation (Mill Finish)	Designations (Hot-dip Galvanized)	Load Group (t)	A (mm)	B (mm)	L (mm)	C (mm)	T (mm)	T1 (mm)	
TEC-XB 1.4-20	TEC-XB 1.4-20 TX	2.5	40	6	200	42.5	10	5	
TEC-XB 2.5-23	TEC-XB 2.5-23 TX			10	230				
TEC-XB 4.0-27	TEC-XB 4.0-27 TX	5.0	55	12	270	50.5	10	5	
TEC-XB 5.0-29	TEC-XB 5.0-29 TX			15	290				
TEC-XB 7.5-32	TEC-XB 7.5-32 TX	10.0	80	15	290	78.0	15	6	
TEC-XB 10.0-39	TEC-XB 10.0-39 TX			20	390				
TEC-XB 12.5-50	TEC-XB 12.5-50 TX	26.0	115	20	500	88.5	15	9	
TEC-XB 17.0-50	TEC-XB 17.0-50 TX			25	500				
TEC-XB 22.0-50	TEC-XB 22.0-50 TX			30	500				

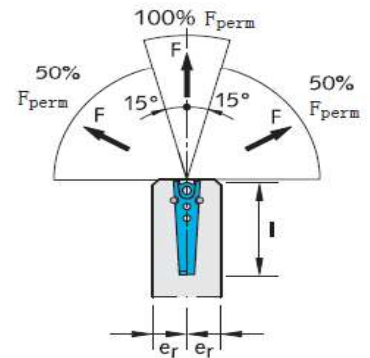
Load Capacity Installation Dimensions

- Where concrete strength $\beta w \geq 25$ MPa F_{perm} can be taken as 100%.

Lifting TEC-XA

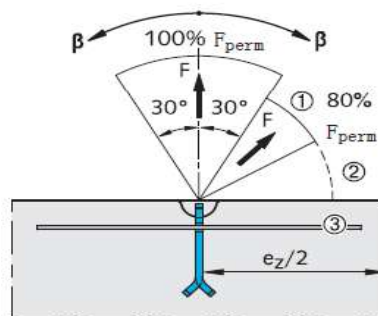


Tilting TEC-XA

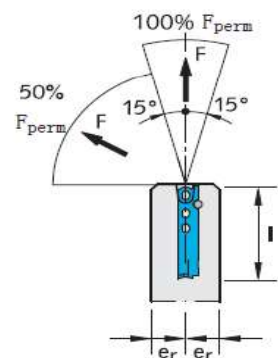


- Angle of $\beta w \geq 60^\circ$ due to cable spreads is not allowed.



Lifting TEC-XB



Tilting TEC-XB



- Insert the erection in the anchor notches.

Load Group	Load Range	Anchor Length (l)	Spacing Between Anchor Center	Lifting	Lifting	Tilting	Minimum Thickness of Precast Element (2 x e _r)			
							With Additional reinforcement		Without Additional reinforcement	
				Pull ($\beta w \geq 30^\circ$) 100% F _{perm}	Angle Pull ($\beta w \geq 30^\circ$) 80% F _{perm}	50% F _{perm}	TEC-XA	TEC-XB	TEC-XA	TEC-XB
(t)	(t)	(mm)	(mm)	(MPa)	(MPa)	(MPa)	(mm)	(mm)	(mm)	(mm)
2.5	1.4	200	700	14000	11000	7000	90	100	90	100
	2.5	230	800	25000	20000	13000	120	120	120	120
5.0	4.0	270	950	40000	32000	20000	140	150	150	150
	5.0	290	1000	50000	40000	25000	140	160	180	180
10.0	7.5	320	1200	75000	60000	38000	160	175	200	200
	10.0	390	1500	100000	80000	50000	200	200	250	250
26.0	12.5	500	1500	140000	112000	70000	240	240	320	320
	17.0	500	1500	170000	136000	85000	300	300	380	380
	22.0	500	1500	220000	176000	110000	360	360	450	450

Within the outermost position of the reinforced area is where the horizontal legs of tilting and turning reinforcement are directly located. Angle pull reinforcement on both sides and no extra angle pull reinforcement are needed.

Without additional reinforcement for pull: Meshes, slot-in links and edge reinforcement as for TEC-XS.

With additional reinforcement for pull: Meshes, slot-in links and edge reinforcement as for TEC-XZ.

* l_{s1} = length before bending reinforcement steel*

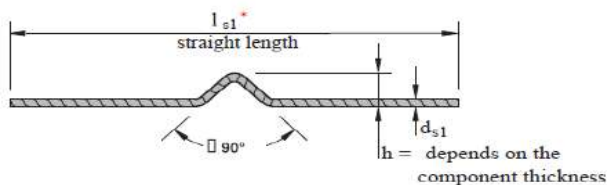
For other concrete strength, the length l_{s1} of the erecting reinforcement may be reduced in relation to the permitted composite stresses.

$\beta w \geq 15$ MPa : x0.8; $\beta w = 35$ MPa 51 : 0.65

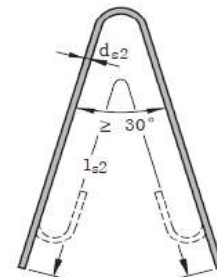
*yield strength : 500MPa

*Tensile Strength : 500MPa

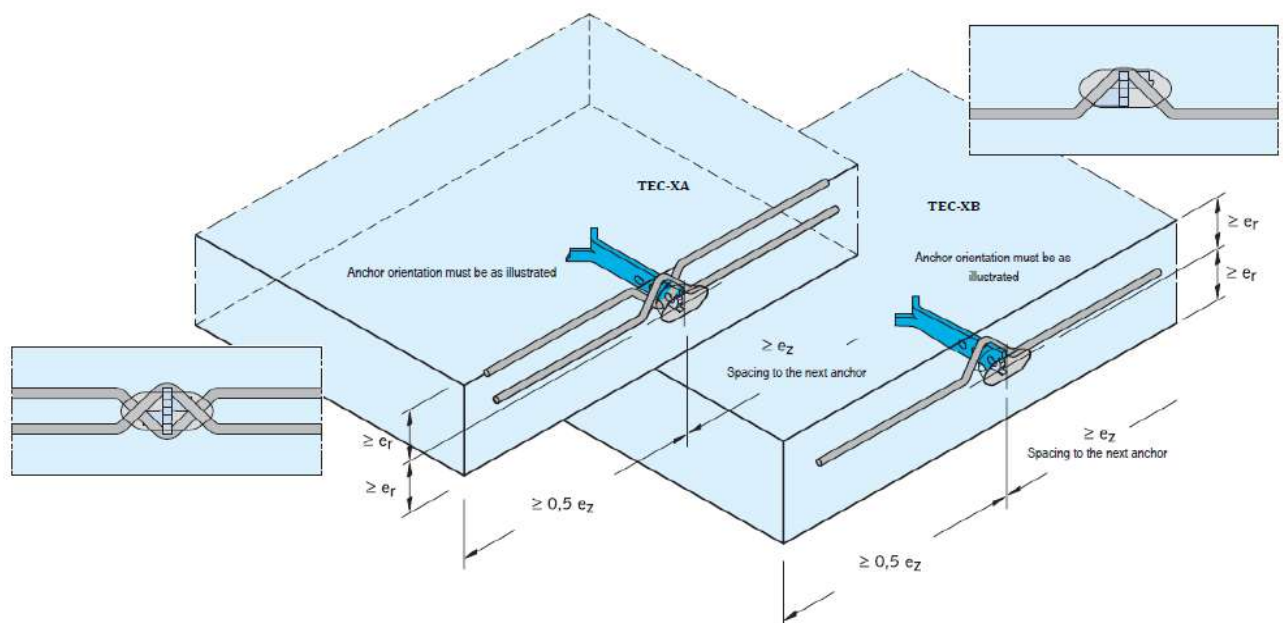
Load Group	Load Rate	Tilting Reinforcement $ds1 \times ls1^*$ (mm)	Additional Reinforcement for pull $ds2 \times ls2$ (mm)
2.5	1.4	\emptyset 10 x 700	\emptyset 10 x 650
	2.5	\emptyset 12 x 800	\emptyset 12 x 100
5.0	4.0	\emptyset 14 x 950	\emptyset 16 x 1200
	5.0	\emptyset 16 x 1000	\emptyset 16 x 1500
10.0	7.5	\emptyset 20 x 1200	\emptyset 20 x 1750
	10.0	\emptyset 20 x 1500	\emptyset 20 x 1900
26.0	12.5	\emptyset 25 x 1500	\emptyset 25 x 2200
	17.0	\emptyset 25 x 1800	\emptyset 28 x 2500
	22.0	\emptyset 25 x 1800	\emptyset 28 x 3000



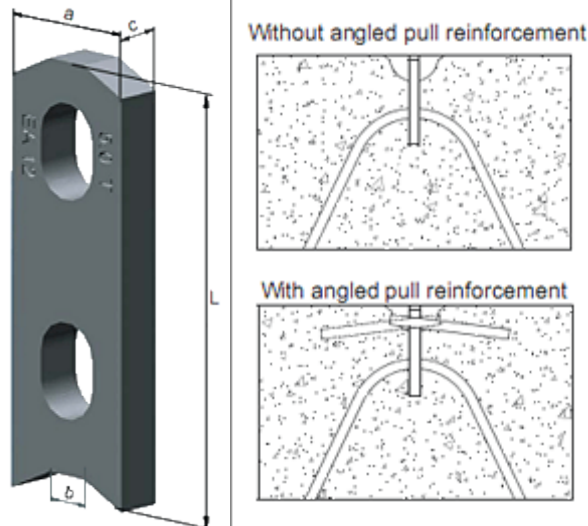
Bending radius acc. to DIN 1045-1.



Additional reinforcement for pull



TWO HOLE ANCHOR



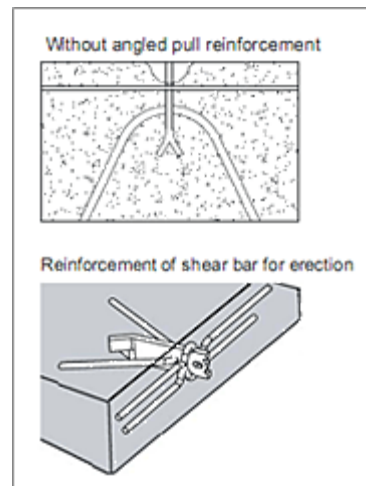
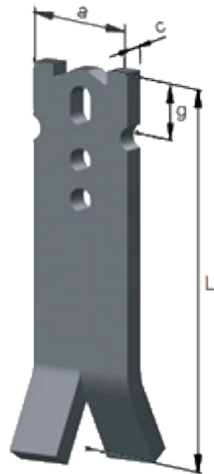
APPLICATION

Simple but universal use, suitable for thin slabs / panels and Low-grade / light-weight concrete, the load is distributed into the concrete by the reinforcement rebar inserted through the bottom hole

Technical Data

Load / Clutch Group	Self Color Black	Hot-Dip Galvanized	L	
			(mm)	
2.5 Ton	EA 0.7-9b	EA 0.7-9g	5	90
	EA 1.4-9b	EA 1.4-9g	6	90
	EA 2.0-9b	EA 2.0-9g	8	90
	EA 2.5-9b	EA 2.5-9g	10	90
5.0 Ton	EA 3.0-12b	EA 3.0-12g	10	120
	EA 4.0-12b	EA 4.0-12g	12	120
	EA 5.0-12b	EA 5.0-12g	15	120
10 Ton	EA 5.3-16b	EA 5.3-16g	12	160
	EA 7.5-16b	EA 7.5-16g	16	160
	EA 10.0-17b	EA 10.0-17g	20	165
26 Ton	EA 14.0-24b	EA 14.0-24g	20	240
	EA 22.0-30b	EA 22.0-30g	26	300
	EA 26.0-30b	EA 26.0-30g	30	300

ERECTION ANCHOR



APPLICATION

Combines the advantages of Two-hole anchor and the spread anchor, good for horizontal to vertical edge pull applications and the shear rotation of thin-walled unit. Notches on the side of the anchor is reserved for side reinforcement bar to ensure spall-free panel rotation, while the major load transferred into the concrete by the spread feet as well as the reinforcement bar inserted through the bottom hole.

Technical Data

Load / Clutch Group	Self Color Black	Hot-Dip Galvanized	L (mm)	
2.5 Ton	YC 1.4-20b	YC 1.4-20g	6	45
	YC 2.5-23b	YC 2.5-23g	10	45
5.0 Ton	YC 4.0-27b	YC 4.0-27g	12	70
	YC 5.0-29b	YC 5.0-29g	15	70
10 Ton	YC 7.5-32b	YC 7.5-32g	15	90
	YC 10.0-39b	YC 10.0-39g	20	90
26 Ton	YC 12.5-50b	YC 12.5-50g	20	90
	YC 17.0-50b	YC 17.0-50g	25	90
	YC 22.0-50b	YC 22.0-50g	30	90

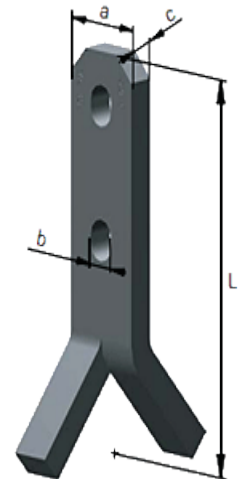
SPREAD ANCHORS

APPLICATION

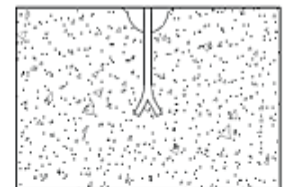
The most versatile anchor, suitable for columns and beams, wall panels and slabs, the load is transferred into the concrete either by the spread feet, or with the load distribution of the reinforcement bar inserted through the bottom hole.

Technical Data

Load / Clutch Group	Self Color Black	Hot-Dip Galvanized	L (mm)	
2.5 Ton	YA 0.7-11b	YA 0.7-11g	5	110
	YA 1.4-11b	YA 1.4-11g	6	110
	YA 1.4-16b	YA 1.4-16g	8	160
	YA 2.0-13b	YA 2.0-13g	8	130
	YA 2.0-16b	YA 2.0-16g	8	160
	YA 2.0-21b	YA 2.0-21g	8	210
	YA 2.5-15b	YA 2.5-15g	10	150
	YA 2.5-20b	YA 2.5-20g	10	200
5.0 Ton	YA 2.5-25b	YA 2.5-25g	10	250
	YA 3.0-16b	YA 3.0-16g	10	160
	YA 3.0-20b	YA 3.0-20g	10	200
	YA 3.0-28b	YA 3.0-28g	10	280
	YA 4.0-18b	YA 4.0-18g	12	180
	YA 4.0-24b	YA 4.0-24g	12	240
	YA 4.0-32b	YA 4.0-32g	12	320
	YA 5.0-18b	YA 5.0-18g	15	180
10.0 Ton	YA 5.0-24b	YA 5.0-24g	15	240
	YA 5.0-40b	YA 5.0-40g	15	400
	YA 5.3-22b	YA 5.3-22g	12	220
	YA 5.3-26b	YA 5.3-26g	12	260
	YA 5.3-34b	YA 5.3-34g	12	340
	YA 7.5-26b	YA 7.5-26g	16	260
	YA 7.5-30b	YA 7.5-30g	16	300
	YA 7.5-42b	YA 7.5-42g	16	420
22.0 Ton	YA 10.0-30b	YA 10.0-30g	20	300
	YA 10.0-37b	YA 10.0-37g	20	370
	YA 10.0-52b	YA 10.0-52g	20	520
	YA 14.0-37b	YA 14.0-37g	20	370
	YA 14.0-46b	YA 14.0-46g	20	460
	YA 22.0-50b	YA 22.0-50g	26	500
	YA 22.0-62b	YA 22.0-62g	26	620



Without angled pull reinforcement



With angled pull reinforcement



ROUND RECESS FORMER

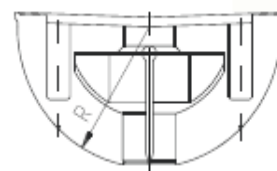
APPLICATION

The round rubber recess formers are produced from stable shape, oil and temperature (120 deg) resistant rubber and can be used repeatedly.

In order to ease the identification of the load groups the formers are produced in different colors.

Technical Data

Description		Ref. No.	SWL (kg)	Dimension (mm)	Colour
				R	
RF	30x13	2206030013	1300	30.0	Blue
RF	37x25	2206037025	2500	37.0	Yellow
RF	47x40	2206047040	4000	47.0	Black
RF	47x50	2206047050	5000	47.0	Blue
RF	59x75	2206059075	7500	59.0	Red
RF	59x100	2206059100	10000	59.0	Yellow
RF	80x150	2206080150	15000	80.0	Grey
RF	80x200	2206080200	20000	80.0	Black
RF	107x320	2206080320	32000	107.0	Black



NARROW RECESS FORMER

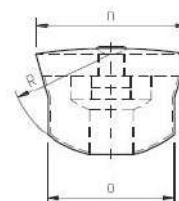
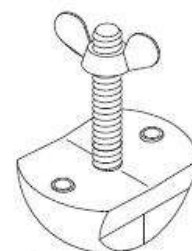
APPLICATION

The narrow rubber recess formers are produced from stable shape, oil and temperature (120 deg) resistant rubber and can be used repeatedly.

All of them are black color

Technical Data

Description	Ref. No.	SWL (kg)	Dimension (mm)			Colour
			R	n	o	
NF 30x13	2208030013	1300	30.0	42	34	Black
NF 37x25	2208037025	2500	37.0	52	43	
NF 47x40	2208047040	4000	47.0	69	58	
NF 47x50	2208047050	5000	47.0	69	58	
NF 59x75	2208059075	7500	59.0	85	78	
NF 59x100	2208059100	10000	59.0	85	78	
NF 80x150	2208080150	15000	80.0	124	116	
NF 80x200	2208080200	20000	80.0	124	116	



RUBBER RECESS FORMER

APPLICATION

The Recess former can receive all our anchors in load groups of 2.5 t, 5.0 t, 7.5T and 10.0 t.

The features are as follows:

- ✓ 4-Holo Recess former
- ✓ Fast, accurate installation due to the positioning 4 holes
- ✓ Easy to be fastened to the formwork with the mounting plate.
- ✓ Protects the anchor head from the concrete.
- ✓ High grade plastic ensures durability of the former.

Technical Data

Dimensions & Safe working Loads at concrete strength of 25N/mm²

Load Class (Ton)	Ref. No.
2.5	2603025091
5.0	2603050116
10.0	2603100188
26.0	2603260234



LIFTING STUD WITH FOOT EYE

APPLICATION

Lifting Stud w/t Foot Eye is mainly designed for the use in slender reinforced concrete elements, e.g. beams and girders. It is also suitable for lightweight concrete elements; please take the reduced bond stresses into account.

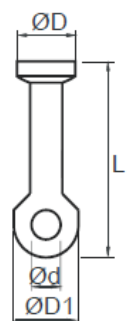
MATERIAL

High Strength steel, black or galvanized.

Technical Data

Dimensions and Safe Working Loads at concrete strength 25N/m²

Description	Ref No.	SWL(kg)	Dimension(mm)			
			D	d	D1	L
LS 1.3x55	2203013065	1300	19.0	10	19	65
LS 2.5x90	2203025090	2500	26.0	14	27	90
LS 5.0x120	2203050120	5000	36.0	20	42	120
LS 10.0x180	2203100180	10000	46.0	28	57	180
LS 20.0x250	2203200250	20000	69.0	38	76	250



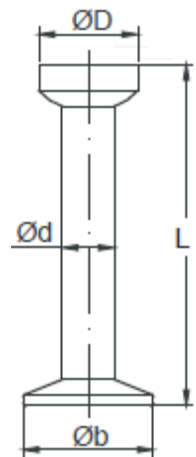
Lifting Stud/Spherical Head Anchor

Application

Spherical head anchor is suitable for lifting precast concrete pipes and slabs. The round foot transfers the load into the concrete thus reaching high permissible load even with relatively short anchor length. Longer lengths are used for reduced edge space or reduced concrete strengths.

Technical Data

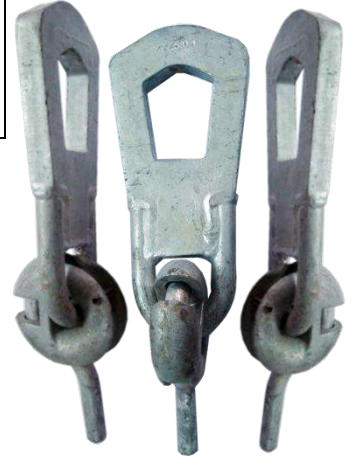
Dimensions and Safe Working Loads at concrete strength 25N/m ²							
Description		Ref No.	SWL(kg)	Dimension(mm)			
				L	D	d	b
LS	1.3x55	2201013055	1300	55.0	19	10	25
LS	1.3x65	2201013065	1300	65.0	19	10	25
LS	1.3x85	2201013085	1300	85.0	19	10	25
LS	1.3x120	2201013120	1300	120.0	19	10	25
LS	2.5x55	2201025055	2500	55.0	26	14	35
LS	2.5x85	2201025085	2500	85.0	26	14	35
LS	2.5x120	2201025120	2500	120.0	26	14	35
LS	2.5x170	2201025170	2500	170.0	26	14	50
LS	5.0x75	2201050075	5000	75.0	20	20	50
LS	5.0x95	2201050095	5000	95.0	20	20	50
LS	5.0x120	2201050120	5000	120.0	20	20	50
LS	5.0x240	2201050240	5000	240.0	20	20	50
LS	7.5x120	2201075120	7500	120.0	24	24	60
LS	7.5x164	2201075164	7500	164.0	24	24	60
LS	10.0x120	2201010120	10000	120.0	28	28	70
LS	10.0x170	2201010170	10000	170.0	28	28	70
Material: High Strength Steel							



RING CLUTCH

APPLICATION

The ring clutch is composed of a shackle and a lifting head, the free moving shackle gives the clutch great flexibility during the loading while the locking bolt in the lifting head makes it so easy to hook the anchor and secure the lifting. We provide 3 load classes of this clutch.



Technical Data

Dimensions & Safe working Loads at concrete strength of 25N/mm²

Load Class (Ton)	Ref. No.	Dimensions
		L (mm)
2.5	2604025210	210
5.0	2604050270	270
7.5 & 10.0	2604075365	365

LIFTING CLUTCH

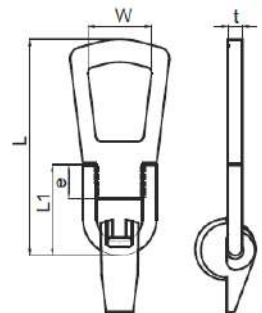
APPLICATION

Lifting clutch is a quick and reliable lifting device to work with the spherical head anchors, our clutches are all proof load tested in workshop.



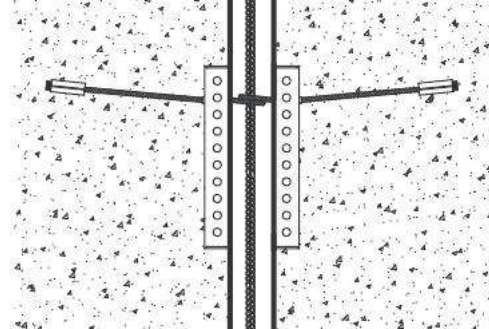
Technical Data

Description		Ref No.	SWL(kg)	Dimension(mm)				
				L	L1	e	W	T
LC	13x190	2701013190	1300	190	80	30	55	12
LC	25x210	2701025210	2500	210	90	40	56	14
LC	50x270	2701050270	5000	270	115	45	69	20
LC	75x365	2701075365	7500 & 10000	365	160	75	90	25



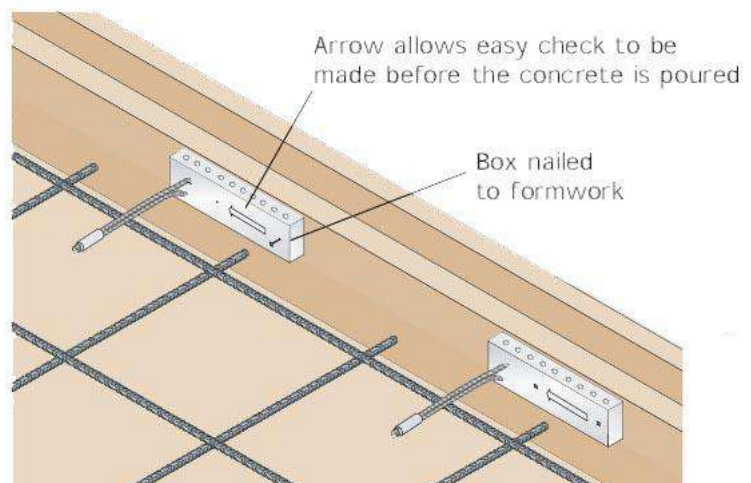
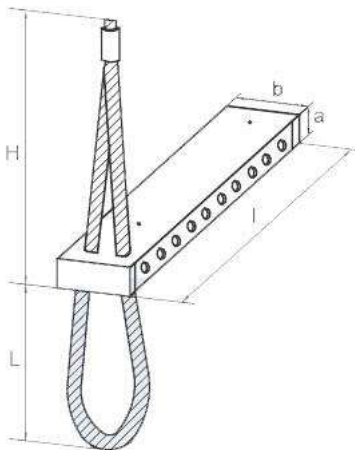
Wire Rope Link Box

The Wire Rope Link Box is a simple and highly efficient solution to join the precast elements together, mostly for the slabs and wall panels. The flexible folded-in wire ropes will be pulled out from the box and connect to each other, while the connection force is transferred into the concrete by the cast-in wire rope and its ferrule.



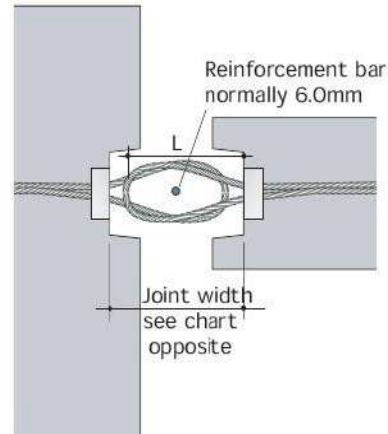
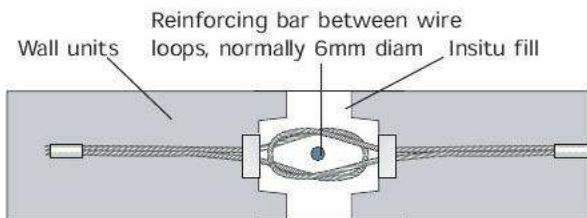
Description	Code	Dimensions				
		a	b	l	H	L
LB 80	50201	20	50	162	215	80
LB 100	50204	20	50	162	215	100
LB 120	50207	20	50	162	215	120

Installation in the precast unit

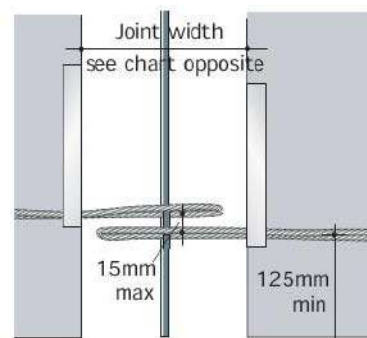
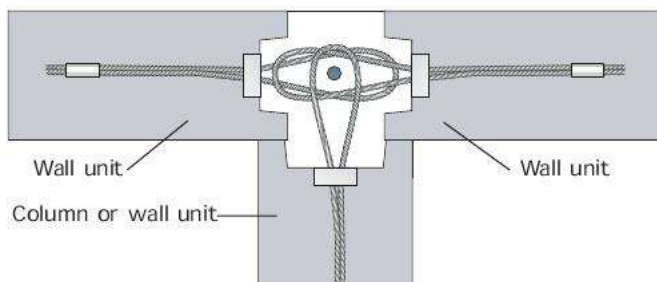


Assembly of the connection

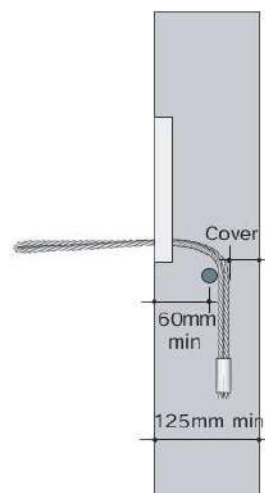
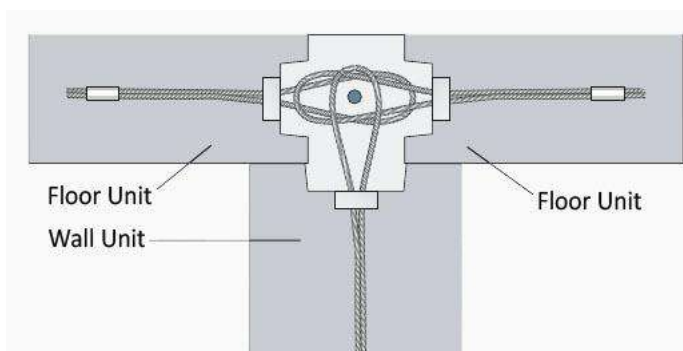
The use of wire for the loop means that rebending for final connection is quick and technically safe. Break the tape and pull out the wire loop. The shape of the loop does not form a dangerous protrusion. Butt up the panels as shown below. Place the stitching rod insitu fill as shown below.



The loop length selected must be long enough to ensure adjoining loops overlap sufficiently to accept a reinforcing bar as shown.



Abutting loops must be positioned level with each other. Any gap should be $\leq 15\text{mm}$.



This Units Link box in the face of thin precast units with the tall bent down over a reinforcing bar cover to tall to follow specification.



Castle for Building Materials *W.L.L.*



The New Generation of
Mechanical Splicing
works now...



DTR Rebar Splicing System

Technical Background

It's a big improvement when mechanical splicing like taper threaded rebar splicing replaced the traditional lap splicing. Since then, due to the shortcoming of the taper thread, a lot of parallel thread systems have been developed, like parallel thread on forged head of rebar, trying to take the advantage of the parallel thread, but does not work well.

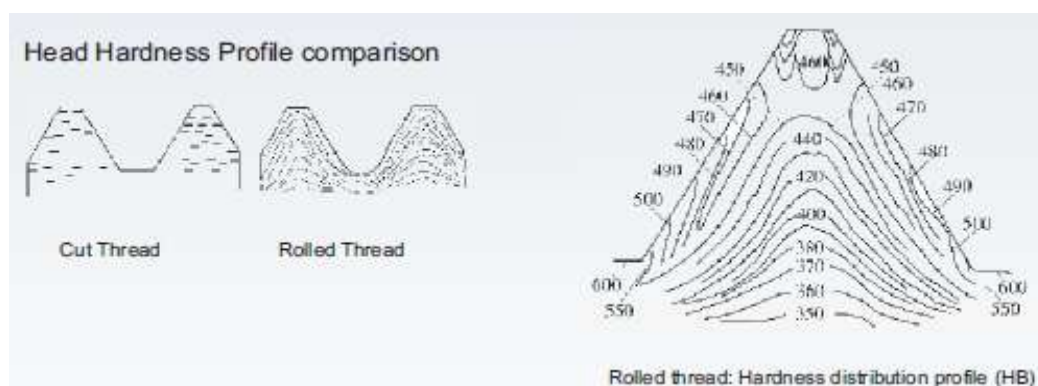
Now our latest parallel thread system (DTR) has been developed and proved to work the same good and even better than the other mechanical splicing systems. The major technology breakthrough is that we make the thread by rolling instead of cutting. Thread rolling is a cold hardening process and has the following advantages over thread cutting:

- ✓ The thread strength and hardness increased by the cold hardening process. The hardness of the teeth bottom is increased the most and results in the great improvement of wear-resisting property of the thread. The fatigue strength is increased by 20%-40%, the tensile strength is increased by 20% -30% and the shear strength increased by 5%.
- ✓ The thread rolling produces much better surface roughness than thread cutting; the fatigue limit is increased by 50% thanks to the smooth thread surface.
- ✓ The rolling makes the best use of the rebar material, no material waste. Save material by 5-10% in comparison to thread cutting on the forged rebar head.



But the above advantages can only be obtained when the base material has good roundness. Thanks to our newly developed rib tearing off technology, we remove the ribs on the rebar and rectify the roundness before thread rolling; this ensures the thread rolling is just like on a smooth round bar so the standard rolled thread is produced.

How about the material loss during the rib tearing off? Yes, the rib is removed but the material strength on the thread has been greatly increased and it's even more than the strength loss of the removed material (the rib), so the splice is equal strength to the base material (the rebar)





Features:

- High Performance, the ultimate tensile and compression strength of rebar can be fully applied with no compromise, satisfying all the major
- industry standards such as UBC1997, BS8110, NF35-20-1 and DIN1045
- Thread Rolling, no forging, the material properties of the rebar (Base Metal) kept and even strengthened without any change or damage, thread strength enhanced by cold rolling process.
- Two Processes, tearing off the rib and thread rolling, completed on one machine, Simple and easy operation, high efficiency.
- Highly versatile, suitable for most splicing situations.
- Short connector length, cost effective.
- The thread end can be made in advance so the installation can be done in any weather conditions, no power supply required.
- Easy connection at site, work without the need of a torque spanner.



Thread Rolling



Rebar Splice

The advantage of our machine

- Solid and reliable, powerful and versatile, one machine can cover all the rebar sizes from 16mm to 50mm.
- High efficiency, it takes only one minute for standard threading on a 32mm Rebar.
- Two Processes, tearing off the rib and thread rolling combined perfect and integrated seamlessly.
- Max. thread length up to 120mm. The thread length is easily set by the length marking plate, no other adjustments required.
- Semi-automatic, auto feeding once the thread rolling starts and auto reverse after the threading is finished.
- Easy adjustment for different sizes of rebars, the rebar size on the scale helps to adjust to the right diameter much faster and easier.
- Easy change of blades and rollers. The blade base and roller base are easy to take out from the threading head for replacement.



Our machines available for rent, please contact our agency for details.



Coupler Size and dimensions

All the major applications use one type of coupler only

Description	Rebar diameter Ø (mm)	Coupler Outer Diameter (mm)	Coupler Length (mm)	Coupler Thread M (mm)	Coupler Thread Pitch (mm)
DTR 12	12	18	34	12.5	2.0
DTR 14	14	21	40	14.5	2.0
DTR 16	16	25	45	16.5	2.5
DTR 18	18	27	50	18.5	2.5
DTR 20	20	30	55	20.5	2.5
DTR 22	22	32	60	22.5	2.5
DTR 25	25	38	65	25.5	3.0
DTR 28	28	42	70	28.5	3.0
DTR 32	32	48	80	32.5	3.0
DTR 36	36	54	90	36.5	3.0
DTR 40	40	61	100	40.5	3.0
DTR 50	50	77	118	50.5	3.5



Note: Special sizes / types available on request.

Coupler size & Dimensions

Tools & accessories

Blades: (4 blades/set) are used to tear off the rib of the rebar

Threading rollers: (3 rollers/set) are used for thread rolling. Both have been proved to be long life in production world wide as well as for different profiles of rebar.

Thread Gauge: ensures the rolled thread on the rebar within the required range.

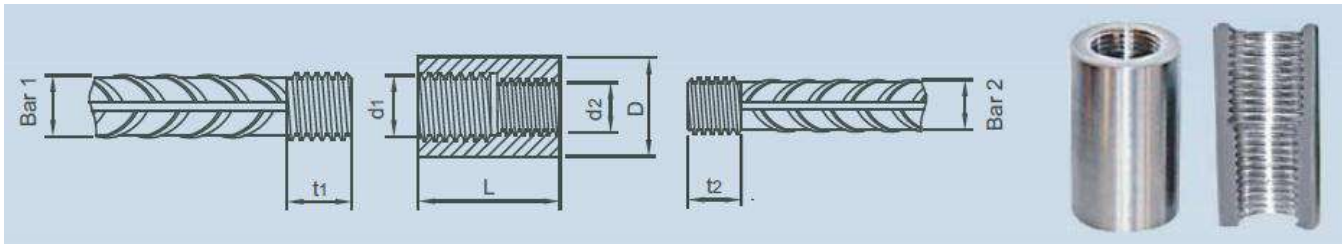
Work Spanners: To tight the splice at sight, no torque spanners required.





Transit Coupler DTRT

The transit coupler is used to connect the rebars of different sizes. Our DTRT transit coupler is easy to use as the rebar thread is made just the same as the standard splice.



Description	Rebar 1 Diameter \varnothing (mm)	Rebar 2 Diameter \varnothing (mm)	Coupler Diameter D (mm)	Coupler Length L (mm)	d1 (mm)	d2 (mm)	t1 (mm)	t2 (mm)
DTRT 40-32	40	32	60	95.0	40.5	32.5	44	38
DTRT 40-25	40	25	60	87.5	40.5	25.5	44	30
DTRT 32-25	32	25	48	77.5	32.5	25.5	35	30
DTRT 32-16	32	16	48	67.5	32.5	16.5	35	19
DTRT 25-16	25	16	38	60.0	25.5	16.5	28	19

Note: Special transit sizes available upon request.





APPLICATIONS



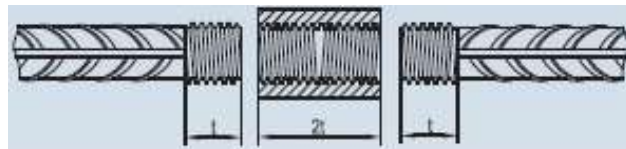
Standard Type:

Suitable for normal splicing where the continuation rebar can be rotated.



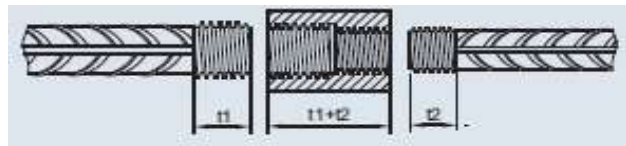
Right/Left thread Type:

Suitable for situation where both rebars are hard to rotate. The thread on one rebar is made to be right-handed while the other is made left-handed. The connection can be done by turning the coupler only.



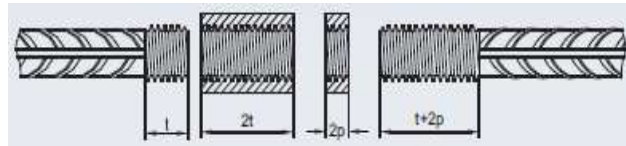
Transit Type:

The coupler has 2 different sizes of thread on each end, to connect the rebars of different diameters.



Extended with locknut:

The thread of one bar is extended to full coupler length, plus a locknut, suitable for applications where the continuation rebar cannot be rotated nor moved.



Note: Special model of machine available to obtain the extended thread length.

For other applications not mentioned above, please contact our engineers.



Appendix I Test Report of Coupler DTR 16

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 16 as samples to be tested.

Description : Rebar Coupler DTR 16 Material : CK45
 Dimensions: L : 45mm, Outer Diameter 25mm Thread : M16.5 x 2.5

2. Rebar Ø 16 as base metal.

Description : Rebar Ø 16 Grade: HRB400
 Dimensions : Nominal diameter 16mm, Theoretical section 201mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	15.48	15.80	15.52	15.60	
Yield Strength (N/mm ²)	440	435	430		≥400
Tensile Strength (N/mm ²)	618	620	610		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	625	622	628		≥ f_{st}^0
Inelastic deformation u (mm)	0.07	0.08	0.07	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	10.8	10.5	11.0	10.8	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Residual Deformation u_{20}	0.08	0.07	0.07	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength f^0_{mst} (N/mm ²)		625	628	622		$\geq f^0_{st}$
Residual Deformation	U^4	0.06	0.06	0.07	0.06	≤ 0.3
	U^8	0.11	0.10	0.13	0.11	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix II Test Report of Coupler DTR 20

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 20 as samples to be tested.

Description : Rebar Coupler DTR 20 Material : CK45
 Dimensions: L : 55mm, Outer Diameter 30mm Thread : M20.5 X 2.5

2. Rebar \varnothing 20 as base metal.

Description : Rebar \varnothing 20 Grade: HRB400
 Dimensions : Nominal diameter 20mm, Theoretical section 314mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	19.85	20.00	19.87	19.91	
Yield Strength (N/mm ²)	440	430	435		≥400
Tensile Strength (N/mm ²)	625	615	618		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Inelastic deformation u (mm)	0.08	0.07	0.06	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	9.0	9.5	8.5	9.0	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	633	636	635		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.07	0.08	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Repeated tension and compression test under Big Deformation						
Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength f^0_{mst} (N/mm ²)		635	630	632		$\geq f^0_{st}$
Residual Deformation	U^A	0.09	0.08	0.07	0.08	≤ 0.3
	U^B	0.13	0.10	0.11	0.11	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix III Test Report of Coupler DTR 25

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 25 as samples to be tested.

Description : Rebar Coupler DTR 25 Material : CK45
 Dimensions L : 65mm, Outer Diameter : 38mm Thread : M25.5 X 3

2. Rebar Ø 25 as base metal.

Description : Rebar Ø 25 Grade: HRB400
 Dimensions : Nominal diameter 25mm, Theoretical section 490mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	24.84	24.96	24.82	24.87	
Yield Strength (N/mm ²)	445	440	450		≥400
Tensile Strength (N/mm ²)	620	630	625		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	635	632		≥ f_{st}^0
Inelastic deformation u (mm)	0.04	0.05	0.04	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	7.5	9.0	8.5	8.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	638	636		≥ f_{st}^0
Residual Deformation u_{20}	0.05	0.07	0.06	0.06	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	638	635	637		≥ f_{st}^0
Residual Deformation	U^A	0.05	0.04	0.05	≤0.3
	U^B	0.12	0.14	0.10	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix IV Test Report of Coupler DTR 32

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 32 as samples to be tested.

Description : Rebar Coupler DTR 32 Material : CK45
 Dimensions L : 80mm, Outer Diameter : 48mm Thread : M32.5 X 3.0

2. Rebar Ø 32 as base metal.

Description : Rebar Ø 32 Grade: HRB400
 Dimensions : Nominal diameter 32mm, Theoretical section 804.2mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	31.88	31.72	31.74	31.78	
Yield Strength (N/mm ²)	415	425	425		≥400
Tensile Strength (N/mm ²)	615	625	620		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	635	628		≥ f_{st}^0
Inelastic deformation u (mm)	0.05	0.04	0.03	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	8.5	9.5	10.0	9.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	625	638	630		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.05	0.04	0.05	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Residual Deformation	U^4	0.05	0.07	0.06	≤0.3
	U^8	0.18	0.15	0.20	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"



Appendix V Test Report of Coupler DTR 40

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 40 as samples to be tested.

Description : Rebar Coupler DTR 40 Material : CK45
 Dimensions L : 100mm, Outer Diameter : 61mm Thread : M40.5 X 3.0

2. Rebar Ø 40 as base metal.

Description : Rebar Ø 40 Grade: HRB400
 Dimensions : Nominal diameter 40mm, Theoretical section 1256mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	39.85	39.75	39.7	39.8	
Yield Strength (N/mm ²)	420	422	430		≥400
Tensile Strength (N/mm ²)	618	627	630		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	638	635		≥ f_{st}^0
Inelastic deformation u (mm)	0.06	0.05	0.06	0.06	≤0.10
Grand Elongation δ_{sgt} (%)	9.2	8.1	9.1	8.8	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	621	633	625		≥ f_{st}^0
Residual Deformation u_{20}	0.05	0.06	0.04	0.05	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength f^0_{mst} (N/mm ²)		615	622	631		$\geq f^0_{\text{st}}$
Residual Deformation	U^4	0.06	0.05	0.07	0.06	≤ 0.3
	U^8	0.16	0.18	0.21	0.18	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"



Appendix VI Test Report of Coupler DTR 12

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 12 as samples to be tested.

Description : Rebar Coupler DTR 12 Material : CK45
 Dimensions L : 34mm, Outer Diameter : 18 mm Thread : M12.5 X 2.0

2. Rebar Ø 12 as base metal.

Description : Rebar Ø 12 Grade: HRB400
 Dimensions : Nominal diameter 12mm, Theoretical section 113mm²

Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	11.41	11.38	11.42	11.40	
Yield Strength (N/mm ²)	445	4432	443		≥400
Tensile Strength (N/mm ²)	622	618	624		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	625	635		≥ f_{st}^0
Inelastic deformation u (mm)	0.08	0.07	0.08	0.08	≤0.10
Grand Elongation δ_{sgt} (%)	10.7	10.6	10.2	10.50	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	626	630	622		≥ f_{st}^0
Residual Deformation u_{20}	0.08	0.08	0.07	0.08	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	620	635	624		≥ f_{st}^0
Residual Deformation	U^4	0.07	0.08	0.07	≤0.3
	U^8	0.11	0.12	0.13	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"



Appendix VII Test Report of Coupler DTR 14

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler DTR 14 as samples to be tested.

Description : Rebar Coupler DTR 14 Material : CK45
 Dimensions L : 40mm, Outer Diameter : 21mm Thread : M14.5 X 2.0

2. Rebar Ø 14 as base metal.

Description : Rebar Ø 14 Grade: HRB400
 Dimensions : Nominal diameter 14mm, Theoretical section 153mm²

Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	13.42	13.35	13.38	13.38	
Yield Strength (N/mm ²)	435	442	438		≥400
Tensile Strength (N/mm ²)	625	620	628		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	628	622	632		≥ f_{st}^0
Inelastic deformation u (mm)	0.07	0.08	0.07	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	10.6	10.3	10.7	10.53	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	626	625	630		≥ f_{st}^0
Residual Deformation u_{20}	0.08	0.07	0.07	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	623	621	630		≥ f_{st}^0
Residual Deformation	U^4	0.07	0.08	0.08	≤0.3
	U^8	0.12	0.11	0.12	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Castle for Building Materials *W.L.L.*



BSG COLD SWAGE
REBAR COUPLING
SYSTEM

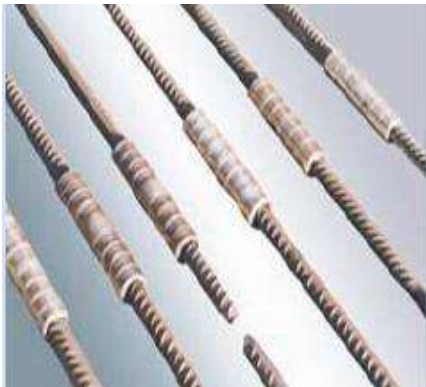


BSG Cold Swaged Rebar Coupling System

BSG swaging coupler

Introduction

BSG coupler system is a mechanical rebar splice system by cold swaging the coupler on the rebar and the connection reaches the specified ultimate tensile strength as well as yield strength of the rebar themselves. With our special designed hydraulic press head and the portable hydraulic station, it can be either used at workshop or at site, even on the existing rebar for repair.



Exceeds 125% of specified yield.



Highly efficient at sight



Work with vertical rebar

Features

- ✓ Mechanical connection, cold swaged, no heat or pre-heat needed, the original steel properties remain.
- ✓ Even can be connected to existing rebar at sight
- ✓ Splices rebars with any corrugation pattern and with any protection treatment like Epoxy Coated Rebars
- ✓ Weldable to structural steel
- ✓ Operation in any weather conditions.
- ✓ Rebar needs no special preparation, even no requirement of the head.
- ✓ Reach the specified ultimate tensile strength as well as the yield strength of the rebars, satisfying the most popular standards such as UBC1997, BS8110, DIN1045 etc.



Swaging Machine

This machine is specially designed to swage the coupler onto the rebar up to 40mm.

This machine is light weight and compact, highly reliable and efficient, easy operation, suitable for site operation and operation for the vertical couplers.

Our advantage:

One press head covers all the rebar sizes from Ø18 up to Ø40, convenient and highly efficient when connecting rebars of different sizes.

Machine Parameters

Model	YJ800	
Nominal press force (KN)	800	
Nominal pressure (Mpa)	52	
Cylinder area (cm²)	154	
Stroke (mm)	63	
Weight (kg)	48(55)	
Dimension (mm)	Dia.180x495	



Coupler Dimensions

Rebar diameter (mm)	Ø16	Ø20	Ø22	Ø25	Ø28	Ø32	Ø36	Ø40
Coupler model (mm)	BSG16	BSG20	BSG22	BSG25	BSG28	BSG32	BSG36	BSG40
Coupler diameter (mm)	33	36	40	45	50	56	63	70
Coupler length (mm)	108	120	132	150	168	192	216	240
Press die model	Ø16	Ø20	Ø22	Ø25	Ø28	Ø32	Ø36	Ø40
Swaging grooves on each side of coupler	3	3	3	3	4	5	6	7
Press force (T)	45	45	50	60	60	65	67	70
Pressure (Mpa)	40	40	44	53	53	57	48	52

Note : The pressure can be adjusted according to actual situations.



Appendix I Test Report of Coupler BSG 16

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 16 as samples to be tested.

Description : Rebar Coupler BSG 16 Material: CK20

Dimensions: L : 108mm, Outer Diameter 33mm

2. Rebar Ø 18 as base metal.

Description : Rebar Ø 18 Grade: HRB400

Dimensions : Nominal diameter 18mm, Theoretical section 254.5mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	15.48	15.80	15.52	15.60	
Yield Strength (N/mm ²)	440	435	430		≥400
Tensile Strength (N/mm ²)	618	620	610		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	625	622	628		≥ f_{st}^0
Inelastic deformation u (mm)	0.07	0.08	0.07	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	10.8	10.5	11.0	10.8	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Residual Deformation u_{20}	0.08	0.07	0.07	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Repeated tension and compression test under Dry Deformation:						
Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength $f^0_{mst}(N/mm^2)$		625	628	622		$\geq f^0_{st}$
Residual Deformation	U^4	0.06	0.06	0.07	0.06	≤ 0.3
	U^6	0.11	0.10	0.13	0.11	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix II Test Report of Coupler BSG 20

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 20 as samples to be tested.

Description : Rebar Coupler BSG 20 Material: CK20

Dimensions: L : 120mm, Outer Diameter 36mm

2. Rebar Ø 20 as base metal.

Description : Rebar Ø 20 Grade: HRB400

Dimensions : Nominal diameter 20mm, Theoretical section 314mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	19.85	20.00	19.87	19.91	
Yield Strength (N/mm ²)	440	430	435		≥400
Tensile Strength (N/mm ²)	625	615	618		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Inelastic deformation u (mm)	0.08	0.07	0.06	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	9.0	9.5	8.5	9.0	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	633	636	635		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.07	0.08	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	635	630	632		≥ f_{st}^0
Residual Deformation	U^4	0.08	0.07	0.08	≤0.3
	U^8	0.10	0.11	0.11	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix III Test Report of Coupler BSG 22

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 22 as samples to be tested.

Description : Rebar Coupler BSG 22 Material: CK20

Dimensions L : 132mm, Outer Diameter : 40mm

2. Rebar Ø 22 as base metal.

Description : Rebar Ø 22 Grade: HRB400

Dimensions : Nominal diameter 22mm, Theoretical section 380mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	21.85	22.00	21.87	21.91	
Yield Strength (N/mm ²)	442	436	438		≥400
Tensile Strength (N/mm ²)	625	615	618		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	625	630		≥ f_{st}^0
Inelastic deformation u (mm)	0.08	0.07	0.06	0.07	≤0.10
Grand Elongation δ_{sgt} (%)	9.0	9.5	8.5	9.0	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	636	635		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.07	0.08	0.07	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength $f^0_{mst}(\text{N/mm}^2)$		635	628	632		$\geq f^0_{st}$
Residual Deformation	U^4	0.09	0.08	0.07	0.08	≤ 0.3
	U^6	0.13	0.10	0.11	0.11	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix IV Test Report of Coupler BSG 25

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 25 as samples to be tested.

Description : Rebar Coupler BSG 25 Material: CK20
 Dimensions L : 150mm, Outer Diameter : 45mm

2. Rebar Ø 25 as base metal.

Description : Rebar Ø 25 Grade: HRB400
 Dimensions : Nominal diameter 25mm, Theoretical section 490mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	24.84	24.96	24.82	24.87	
Yield Strength (N/mm ²)	445	440	450		≥400
Tensile Strength (N/mm ²)	620	630	625		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	635	632		≥ f_{st}^0
Inelastic deformation u (mm)	0.04	0.05	0.04	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	7.5	9.0	8.5	8.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	638	636		≥ f_{st}^0
Residual Deformation u_{20}	0.05	0.07	0.06	0.06	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	638	635	637		≥ f_{st}^0
Residual Deformation	U^4	0.05	0.04	0.05	≤0.3
	U^8	0.12	0.12	0.10	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"



Appendix V Test Report of Coupler BSG 28

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 28 as samples to be tested.

Description : Rebar Coupler BSG 28 Material: CK20

Dimensions L : 168mm, Outer Diameter : 50mm

2. Rebar Ø 28 as base metal.

Description : Rebar Ø 28 Grade: HRB400

Dimensions : Nominal diameter 28mm, Theoretical section 615.8mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	27.84	27.96	27.82	27.87	
Yield Strength (N/mm ²)	448	445	450		≥400
Tensile Strength (N/mm ²)	622	632	625		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	635	636		≥ f_{st}^0
Inelastic deformation u (mm)	0.04	0.05	0.04	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	7.5	9.0	8.5	8.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	638	636		≥ f_{st}^0
Residual Deformation u_{20}	0.05	0.07	0.06	0.06	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	635	637		≥ f_{st}^0
Residual Deformation	U^4	0.04	0.05	0.05	≤0.3
	U^8	0.12	0.10	0.12	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix VI Test Report of Coupler BSG 32

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 32 as samples to be tested.

Description : Rebar Coupler BSG 32 Material: CK20

Dimensions L : 192mm, Outer Diameter : 56mm

2. Rebar Ø 32 as base metal.

Description : Rebar Ø 32 Grade: HRB400

Dimensions : Nominal diameter 32mm, Theoretical section 804.2mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	31.88	31.72	31.74	31.78	
Yield Strength (N/mm ²)	415	425	425		≥400
Tensile Strength (N/mm ²)	615	625	620		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	635	628		≥ f_{st}^0
Inelastic deformation u (mm)	0.05	0.04	0.03	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	8.5	9.5	10.0	9.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	628	638	630		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.05	0.04	0.05	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	630	628	632		≥ f_{st}^0
Residual Deformation	U^4	0.05	0.07	0.06	≤0.3
	U^8	0.18	0.15	0.20	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix VII Test Report of Coupler BSG 36

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 36 as samples to be tested.

Description : Rebar Coupler BSG 36 Material: CK20

Dimensions L : 216mm, Outer Diameter : 63mm

2. Rebar Ø 36 as base metal.

Description : Rebar Ø 36 Grade: HRB400

Dimensions : Nominal diameter 36mm, Theoretical section 1017.9mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	35.88	35.72	35.74	35.78	
Yield Strength (N/mm ²)	418	428	425		≥400
Tensile Strength (N/mm ²)	616	629	620		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	633	638	627		≥ f_{st}^0
Inelastic deformation u (mm)	0.05	0.04	0.03	0.04	≤0.10
Grand Elongation δ_{sgt} (%)	8.5	9.5	10.0	9.3	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	626	638	632		≥ f_{st}^0
Residual Deformation u_{20}	0.06	0.05	0.04	0.05	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.	No.7	No.8	No.9	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	631	625	635		≥ f_{st}^0
Residual Deformation	U^4	0.07	0.06	0.06	≤0.3
	U^8	0.15	0.20	0.18	≤0.6
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"

Appendix VIII Test Report of Coupler BSG 40

Test Description : Testing of Rebar Coupler (Rebar Splice)
 Test Equipment : 1. 1000 kN Tensile test machine.
 2. INSTRON 1343 Electro-Hydraulic Servo Fatigue Machine

Test Samples

1. Rebar Coupler BSG 40 as samples to be tested.

Description : Rebar Coupler BSG 40 Material: CK20

Dimensions L : 240mm, Outer Diameter : 70mm

2. Rebar Ø 40 as base metal.

Description : Rebar Ø 40 Grade: HRB400

Dimensions : Nominal diameter 40mm, Theoretical section 1256mm²



Test Results and Conclusion:

1. Test of Mechanical Properties of Rebar (Base Metal)

Rebar Sample NO.	No.1	No.2	No.3	Average	Required
Actual Diameter (mm)	39.85	39.75	39.7	39.8	
Yield Strength (N/mm ²)	420	422	430		≥400
Tensile Strength (N/mm ²)	618	627	630		≥570

Test Conclusion: The rebar as base metal for the test is qualified

2. Tensile test of the Splice (Single Direction)

Coupler Sample No.	No.1	No.2	No.3	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	632	638	635		≥ f_{st}^0
Inelastic deformation u (mm)	0.06	0.05	0.06	0.06	≤0.10
Grand Elongation δ_{sgt} (%)	9.2	8.1	9.1	8.8	≥4.0
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Tensile test (single direction) passed

3. Repeated tension and compression test under High Stress

Coupler Sample No.	No.4	No.5	No.6	Average	Required
Tensile Strength f_{mst}^0 (N/mm ²)	621	633	625		≥ f_{st}^0
Residual Deformation u_{20}	0.05	0.06	0.04	0.05	≤0.3
Breaking Mode	Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under High stress passed.

4. Repeated tension and compression test under Big Deformation

Coupler Sample No.		No.7	No.8	No.9	Average	Required
Tensile Strength f^0_{mst} (N/mm ²)		615	622	631		$\geq f^0_{\text{st}}$
Residual Deformation	U^4	0.06	0.05	0.07	0.06	≤ 0.3
	U^8	0.16	0.18	0.21	0.18	≤ 0.6
Breaking Mode		Bar	Bar	Bar		

Test Conclusion: Repeated tension and compression test under Big deformation passed

Conclusion: "All the test results meet the requirements of Grade SA Rebar Coupler"



JORDAHL® Channels and Accessories

Making Light Work of the Heaviest Loads.

Technical Information



JORDAHL®
anchored in quality

Quality since 1907.



JORDAHL's registered office and administrative headquarters on the premises of its affiliate PUK

The JORDAHL Company

JORDAHL connects: concrete, steel, heavy loads and a whole lot more. And of course numerous customers around the world who have already decided to use high-quality and individual products from fastening, reinforcement and shear connection, mounting technology and facade connection systems. Customers who choose JORDAHL want more – higher quality, broader choice, better technical advice, wider experience. And they get all of

this from us. Since our company was founded in Berlin in 1907 we have been at the forefront of connection and shear reinforcement systems development.

JORDAHL products such as anchor channels have become milestones in the evolution of structural engineering and have brought lasting changes to construction, shaping the way buildings are designed and making them safer, not just in Germany.

The JORDAHL Seal

JORDAHL has over 100 years of unique experience in the market. And this experience forms the basis of our competence and high standards. Whether high-quality products, service or consulting – we aim to do everything for our customers to the same demanding standard of excellence. That is what the JORDAHL seal stands for. It is a guarantee of quality for our customers and also the standard that we strive to adhere to each and every day.



The sign of excellent JORDAHL® Quality.

The JORDAHL Experts

You are always well advised when you choose JORDAHL products. Whether from the point of view of static calculations, general technical advice or the development of customised solutions – competent and experienced JORDAHL product specialists offer you state-of-the-art, flexible and customised solutions for all your needs.

If you wish to contact JORDAHL's experts simply send an e-mail to experten@jordahl.de or call 030 68283-433.



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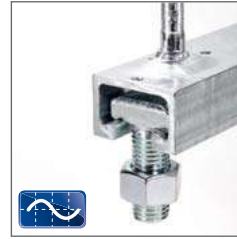
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Overview Anchor Channels



W-Profiles

- Hot-rolled from a single block
- Free from internal stresses
- Optimised geometry with strengthened channel lips for high tightening torques
- Suitable for dynamic loads
- Resistant to fatigue up to the working load limit
- Proven against explosion or shock limit loads
- European Technical Approval ETA-09/0338



K-Profiles

- Cold-formed profiles
- Constant material strength
- Suitable for static loads
- European Technical Approval ETA-09/0338



Toothed W- and K-Profiles

- Universal load capacity also in the longitudinal direction of the channel
- Toothed profiles have German Technical Approval (W-profiles: Z-21.4-1690, K-profiles: Z-21.4-741)



JORDAHL® Bolts

- Hook-Head Bolt and Hammer-Head Bolt – matched to JORDAHL® profiles
- Galvanised or from stainless steel
- Strong connections using high bolt tightening torques



Round and I-anchors

are cold-forged on the back of the channels in a monitored production process. Welded I-anchors are also available for special applications.



work safety



reduces
construction
time



economical



simple
assembly



fire
prevention



sustainable
construction

Proven Anchoring

For more than a century JORDAHL® anchor channels have been recognised as a secure way to anchor loads in concrete. Regardless of whether the concrete is reinforced or non-reinforced, cracked or non-cracked, JORDAHL® anchor channels always provide a load-carrying connection.

Planning

- Reinforcement can be recognised in the design
- Highest cost-effectiveness in series connection
- High bearing capacity even in delicate structural elements
- Independent of shrinkage and creep strain in the concrete element
- Suitable for prestressed structural elements
- Increased bearing capacity in the vicinity of reinforcement
- Small edge distances possible
- Simple, individual adaptation

Assembly

- Fastening on site reduces construction time
- Simple assembly of the attachment parts
- Suitable for heavily-reinforced concrete or delicate structural components
- Simple compensation of building tolerances

Safety

- Suitable for installation in structural components with fire prevention requirements
- High resistance to fatigue as well as loads resulting from seismic activities and explosions
- Maintenance-free for years using corrosion-resistant types of stainless steel
- Transparent safety concept
- Optimum mechanical undercut
- Anchoring without damaging the concrete or the reinforcement
- Suitable without restrictions for cracked and non-cracked concrete

Innovative Design Concept of JTA-CE Anchor Channels

The introduction of the new European approval for JORDAHL® JTA-CE anchor channels represents state of the art for anchoring in concrete and generally leads to optimised utilisation of anchor channels.

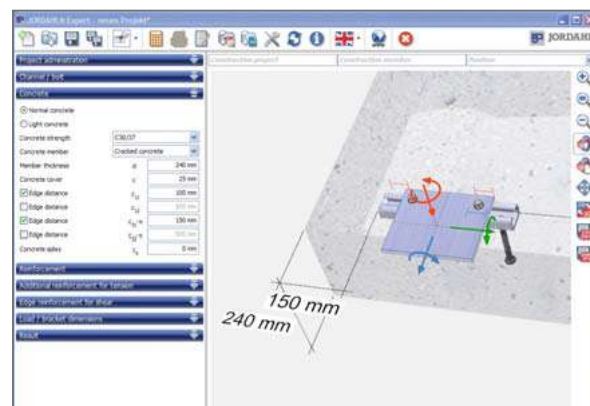
The design concept is based on the European partial safety concept CEN/TS 1992-4-3 and the European Technical Approval for JORDAHL® anchor channels (ETA-09/0338).

Optimised design taking into account:

- Edge distances
- Channel length
- Load distribution along the channels
- Concrete strength
- Additional reinforcement
- Thickness of the structural component

JORDAHL® EXPERT design software:

- Efficient design in accordance with CEN/TS
- Simple and quick to use
- Input with clear 3D graphics
- Easily comprehensible monitor output
- Testable print-out



JORDAHL® EXPERT Software

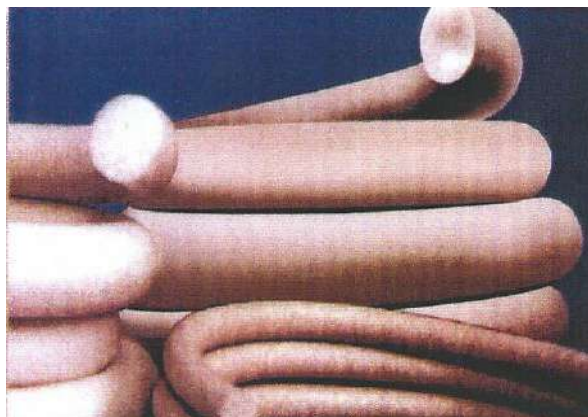
Further information on JORDAHL® anchor channels with European Technical Approval (ETA-09/0338) in catalogue "Anchor Channels JTA-CE".



MBA BACK UP ROD

DESCRIPTIONS:

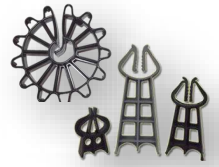
DIMENSION	STANDARD PACKAGE / ROLL
6MM	1,000 METER/ROLL
8MM	1,000 METER/ROLL
10MM	1,000 METER/ROLL
12MM	1,000 METER/ROLL
15MM	400 METER/ROLL
20MM	200 METER/ROLL
25MM	100 METER/ROLL
30MM	100 METER/ROLL
40MM	50 METER/ROLL
50MM	25 METER/ROLL
60MM	



APPLICATIONS:

- Used as a filler for decoration purposes.
- Used as an expansion joint and filler for precast, steel and concrete projects.

PROPERTIES	UNIT	VALUE	TEST METHOD
DENSITY	g/cm ³	0.04	ASTM D-792
CELL SIZE	mm	0.82	ASTM D-3576
WATER ABSORPTION	mg/cm ²	NIL	ASTM D-570
MOISTURE PERMEABILITY	g/cm ² .24hr	0.5	ASTM D-570
ELONGATION AT BREAK	%	60	ASTM D-638
THERMAL CONDUCTIVITY	g/cm ² .°C	0.0406	ASTM D-5930
PERMANENT COMPRESSION SET (100 (kgf/cm ²))	%	1-2	MBA METHOD



MBA BACK UP ROD

MBA Back up Rod provide the following benefits to aide in the correct application of sealant joints.

1. To control and provide the desired sealant depth.
2. Create a formed joint cavity that allows for the desired hourglass sealant shape.
3. Provide a firm back up which helps attain full wetting of the substrates when the sealant is tooled.
4. Act as a bond breaker to eliminate adhesion on the backside of a joint (three sided adhesion)

APPLICATIONS:

1. Joint or opening should be clean and dry and free of all contaminates, loose materials, dry, and free water or frost.
2. To install compress backer rod into the joint before sealants are applied. Install backer rod using a blunt tool or a plain faced roller.
3. Force the rod to the depth recommended by sealant manufacturer, (typically about $\frac{1}{2}$ of joint width measured at the crown of the backer rod). A template or roller gauge may be used to control the depth at which the rod is placed.
4. Don't stretch, puncture or tear backer rod during installation but gently force into the joint so that the backer rod fits tight against the sides of the joint. Use a backer rod roller or smooth tool to set backer rod to proper depth.



Bitumen Softboard

Jolly Bitulex Softboard is processed from cane fibre, the raw material tested and proven to provide the best resilience. Impregnated with Bitumen in various percentages, it is a perfect base material for expansion joint fillers.

The board's compression and recovery characteristics confirm to the U.K., U.S.A. and Indian Standards much above the required averages.

Jolly Board Expansion Joint Filler:

Jolly Board Expansion Joint Filler is manufactured from water resistant, bitumen impregnated cane fibre. It is available in a wide range of sizes, both as boards & strips in thicknesses of **12 MM, 18 MM, and 25 MM**.

Jolly Expansion Joint Filler displays excellent resistance to compression, with outstanding recovery characteristics. The fillers are environment friendly as opposed to the environment destroying thermocole/plastic expansion joint filler.

Applications:

- **External wall cladding**
 - Filling structural expansion & structural separation joints in block & insitu concrete construction.
- **Traffic surfaces**
 - Filling expansion joints in motorways, roads, runways, pedestrian areas, bridges, curbs etc.
- **Internal surfaces**
 - Filling expansion joints across concrete floors, including screed floors with under floor heating.
- **Roofs & floor finishes**
 - Ideal for filling expansion joints in concrete floors.
- **Building superstructures**
 - Filling expansion joints in basements, retaining walls, site slabs, subways & other water excluding structures.
- **Reinforced concrete structures**
 - Expansion joint fillers in piers and lateral supports like abutments.
- **Expansion strips**
 - Against existing or between adjacent constructions and insets in concrete paving like drains, manholes, etc.
- **Industrial Flooring**
- **Internal finishes**
 - Various other flat works and concrete floors according to the state of the art and local regulations.

Physical Properties:

Jolly Bitulex Expansion Joint Fillers conform to the following required standards

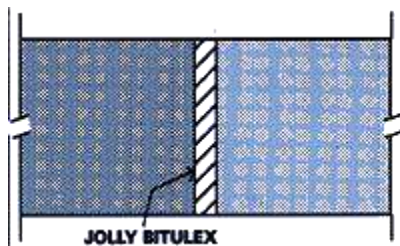
- ASTM -D. 1751-83/D.545 - 84 Testing
 - ‘concrete paving and structural construction’
 - ‘pre-formed expansion Joint Fillers for concrete’
- Department of Transport - London 1986: ‘specification to highway works, part 3, clause 1015’
- B.S. 1142 for Standard Specifications for Expansion Joint Fillers.
- IS 1838(Part-I) 1983 Standard Test of Expansion Joint Fillers.



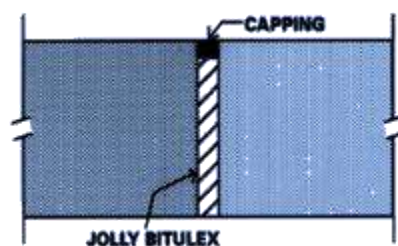
Strong points and performance characteristics:

1. **Compression** to 50% thickness in the initial state:- Recovery is 80/84%
2. **Weathering and compression** to 50% thickness: - **Recovery** is 70/76%. Jolly Bitulex returns to more than 70% of its original thickness after three applications of pressure sufficient to reduce its thickness by 50%.
3. **Extrusion:** No effect (0.75 mm)
4. **Unaffected by temperature changes**
5. **Low moisture absorption** due to bitumen impregnation. Standard Bitumen content 10-20-35%. Other possibilities upon request.

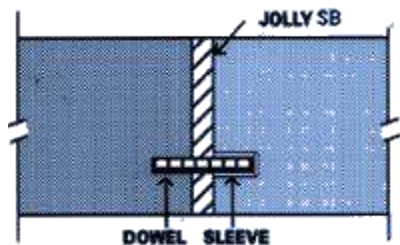
Suggested application details for typical joints



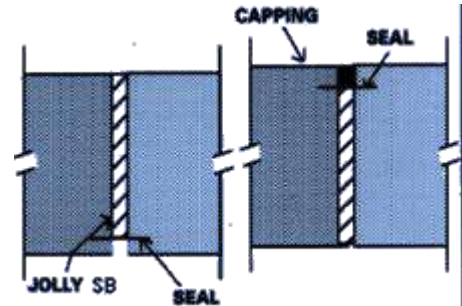
Ordinary type. Joint Filler is brought flush with the surface and extends full depth of slab. This is the most common type of application.



Joint using surface capping. Jolly Bitulex Concrete Joint Filler is placed approximately 3/4 of an inch below the surface of the slab. Suitable capping placed flush with concrete surface. Used extensively in highway construction.



Dowel bar used to preserve alignment of adjacent sections of concrete slab. The joint filler is fabricated to receive dowel bars and the entire joint assembly is placed in position before pouring concrete.



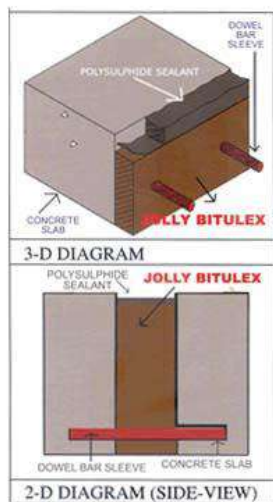
Joint employing continuous seal either at top or bottom of slab to close joint against hydrostatic pressure.



Jolly Expansion Joint Filler in Airport Runway



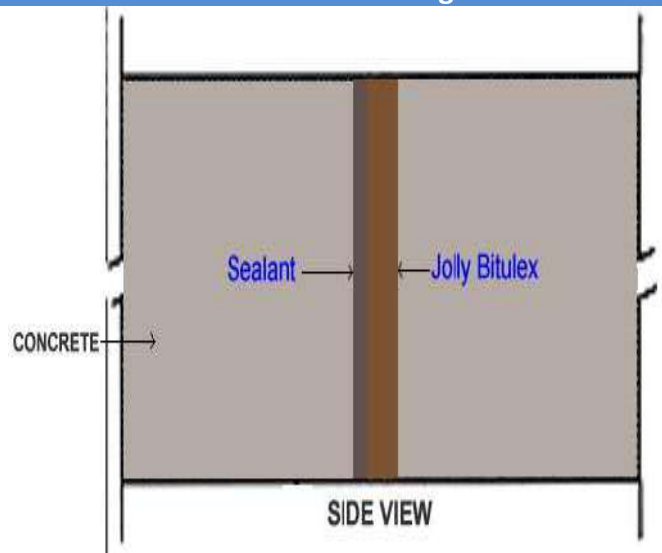
Suggested Application Details of Typical Joints



Jolly Bitulex is brought flush with the concrete slab and extends full depth of the slab placed approximately $\frac{3}{4}$ of an inch below the surface of the concrete slab. A suitable sealant is applied either at the top or bottom of the slab to close the joint against hydrostatic pressure. The dowel bar is used to preserve alignment of adjacent sections of concrete slab. Jolly Bitulex is fabricated to received dowel bars and the entire joint assembly is placed in position before pouring concrete.

Jolly Expansion Joint Filler in Building

Method of Using



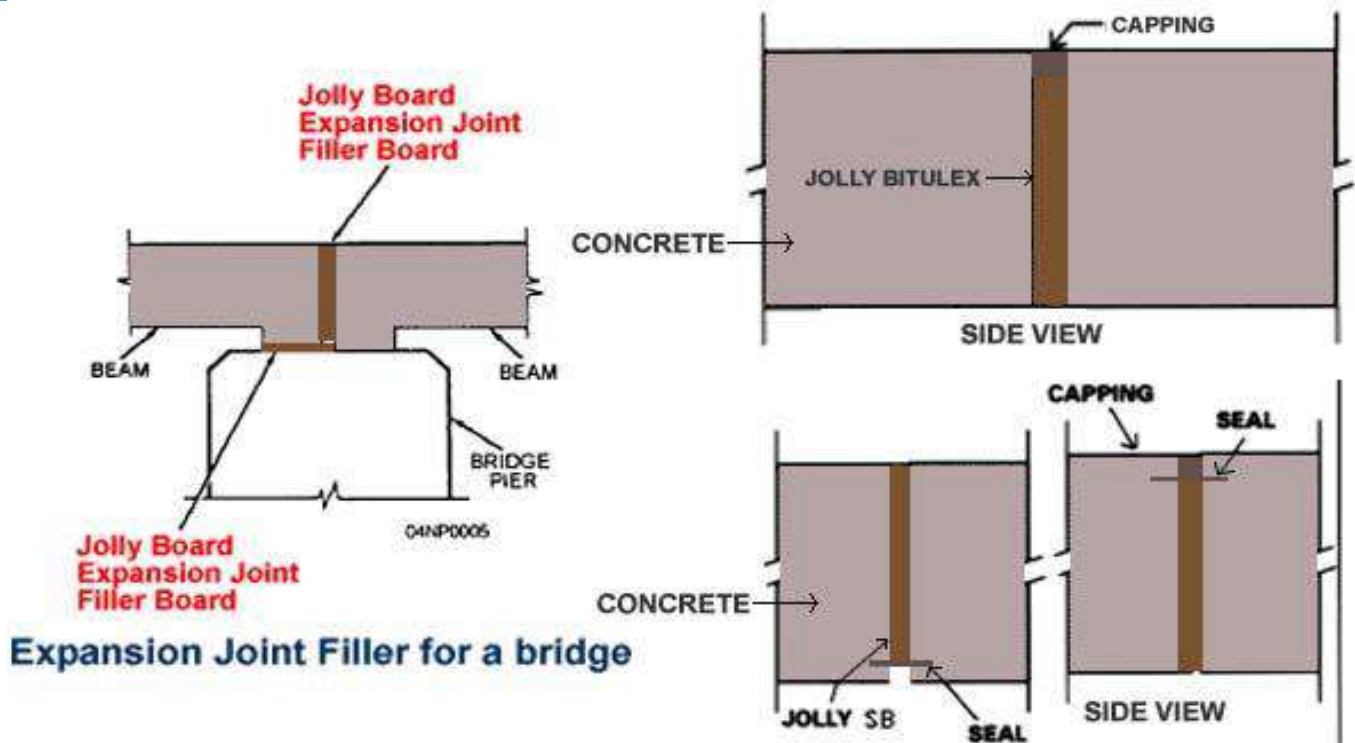
A suitable sealant is used flush with Jolly Expansion Joint Fillerboard in between columns and beams of building.

Jolly Expansion Joint Filler in Building



JOLLY BITULEX EXPANSION JOINT FILLER IN BRIDGE

Method of Using



Jolly Expansion Join Filler Board of a suitable thickness (depending upon size of slab) brought in between the gap, covered with a joint filler capping

Recommended Thickness to be used in concrete slab	
Slab Size	Board Thickness to be used
31 ft to 50 ft	12 mm
51 ft to 70 ft	18 mm
71 ft to 100 ft	25 mm



Jolly Expansion Joint Used in Road



JOLLY BOARD EXPANSION JOINT FILLER BOARDS

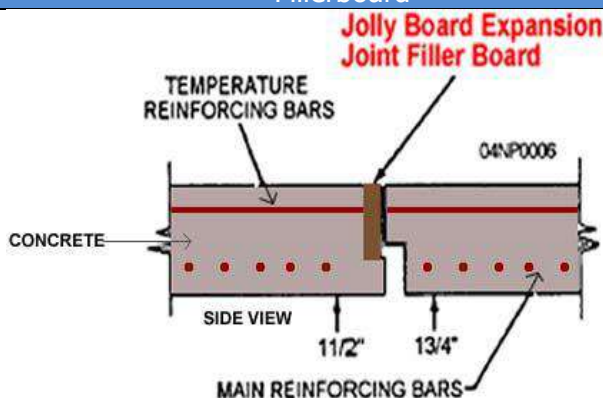
Jolly Expansion Joint Used in Sidewalk / Pavement



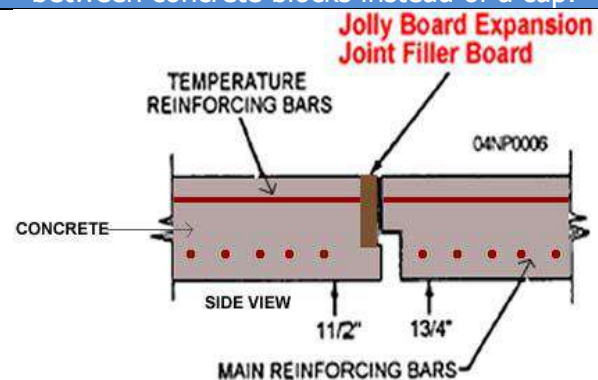
JOLLY BITULEX EXPANSION JOINT FILLER IN SIDEWALK/PAVEMENT

Method of Using is almost similar to that of a road except the placement of Jolly Expansion Joint Fillerboard

Method of Using is similar to that of a row and column except the water stopper is used as a filler between concrete blocks instead of a cap.



Expansion Joint Filler for a Floor Slab

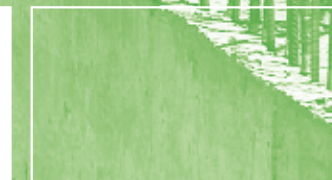


Expansion Joint Filler for a Wall

STEICO *bitumen*

Expansion Joint Filler Board
Protection Board

solution for concrete work and
water proofing membranes



with 10%, 20%
or 35% bitumen

| APPLICATION AREAS

Expansion joint filler for concrete slab
and wall construction

Protection board for
pressure-sensitive layers

Insulation board for wet screed and
dry screed applications

- Produced and supervised according to current European & American standards
- Standard sizes and customized panels and strips
- Easy processing with common tools
- Production certified according to ISO 9001:2008

For more information please visit our website at www.steico.com



STEICO SE – the group for ...

wood fibre insulation & building products

The STEICO Group is the world leader in the manufacture and sale of wood fibre insulation materials and employs around 1000 people.

The headquarters of STEICO SE are located in Feldkirchen near Munich to manage the group, sales, technical advice and research and development. Production takes place at three European sites - Czarnków (Poland), Czarna Woda (Poland) and Casteljalous (France). STEICO group also has two sales offices in France.

All the products manufactured by STEICO are certified under the banner of the FSC® (Forest Stewardship Council®) to guarantee our commitment to producing environmentally and ecological products.

Our knowledgeable staff and technical support offers you the guarantee of the best advice about the products and applications. In addition, we work closely with our distributors to provide local expertise and on site support.



PRODUCT DESCRIPTION

STEICO's Expansion Joint Filler Boards and STEICO's Protection Boards are woodfibre softboards impregnated with bitumen. This process gives the boards a high water resistance, high compression strengths and an extraordinary long durability.

STEICO*bitumen* is only manufactured with European timber from strictly controlled and sustainable forests. In its application as an Expansion Joint Filler Board, STEICO bitumen boards are one of the highest quality and find their use in all types of Expansion Joints.

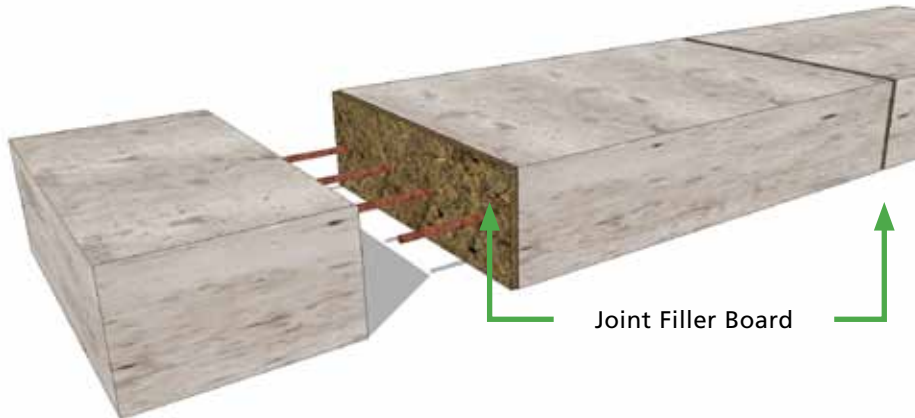
Typical it is used in North America, in the UK and in the Middle East and thus it complies with the ASTM and the BS Standards.

STEICO's Protection Board complies with the same standards and shows the same high quality features. It is used as a protection board for membranes in the waterproofing technology.

STEICO's highest requirements on product development and production standards assure products of highest quality.



EXPANSION JOINT FILLER BOARD



FILLER BOARDS IN CONCRETE SLABS:

- airport aprons & taxiways
- roads
- retail parks
- etc.

PROTECTION BOARD



PROTECTION BOARDS TO WATERPROOFING MEMBRANES:

- basements
- retaining walls
- lift pits
- etc.

| FORMATS STEICO*bitumen*

available thickness [mm]	available dimensions [mm / ft.]		
8, 10, 12, 15, 18, 19, 25	1220 * 2440 4' * 8'	1220 * 2200 4' * 7'2"	1220 * 2135 4' * 7'

cut strips according to specifications

| INGREDIENTS

Wood fibre, bitumen, water repellent ingredients, paraffin

| ADVICES

STEICO*bitumen* should be stored flat and dry on a level surface

Transport packaging should only be removed when the pallet is on a safe and level surface

Protect edges from damages

Carry single boards vertically

One way pallets

| REFERENCES

Mall of the Emirates
Dubai/UAE

Dubai Festival City - Development
Dubai/UAE

Abu Dhabi YAS Island
Abu Dhabi/UAE

King Abdullah Financial District
Kingdom of Saudi Arabia

King Saud University
Kingdom of Saudi Arabia

Bahrain International Circuit
Bahrain

Oman Convention & Exhibition Centre
Oman

Barwa Commercial Avenue
Qatar

New Doha International Airport Project
Qatar

Regional connector Transit Corridor
Los Angeles CA, USA

McCarran Airport
Las Vegas, Nevada, USA

Philadelphia PA Airport, USA

| CHARACTERISTIC VALUES STEICO*bitumen*

Produced and supervised according to EN 13986	
Porous wood fibre insulating board according to EN 622-4	
Fire class according to EN 13501-1	E
Bitumen content [%]	10/20/35
Density [kg/m³]	approx. 230 (10 %, 20 % bitumen) at least 310 (35 % bitumen)
Complies with ASTM D 1751-04	for the requirements of
Test procedure according to ASTM D 545-99	compression/extrusion/recovery

| SPECIFICATION STEICO*bitumen*

Property	for nominal thickness of < 13 mm	for nominal thickness of ≥ 13 mm	
Board Composition (ASTM D 1751-04)	Ligno-cellulosic fibres, asphalt		✓
Resistant to handling (ASTM D 1751-04)	Must not deform or break under normal handling		✓
Stress required to compress the test specimens to 50% of normal thickness (ASTM D 1751-04)	P ≤ 8618 kPa	689 kPa ≤ P ≤ 5175 kPa	✓
Weight loss during 50 % compression (ASTM D 1751-04)	≤ 3 %		✓
Recovery within 10 min after 50 % compression (ASTM D 545-99)	≥ 70 %		✓
Extrusion at 50 % compression (ASTM D 545-99)	≤ 6,4 mm		✓
24 h Volume water absorption (ASTM D 545-99)	≤ 20 %	≤ 15 %	✓

STEICO
engineered by nature



Your STEICO Distributor

ANTHON NILSEN



www.steico.com

CONCRETE SPACERS



CONCRETE SPACERS

Extruded fibre-reinforced concrete spacers

FRANK's range of extruded fibre-reinforced concrete spacers ensures that the specified concrete cover to the reinforcement for structures and structural elements is achieved, both before and during concreting. These spacers help to guarantee the durability of all structures.



Spacers made of fibre concrete have an optimum material compatibility with in-situ concrete. FRANK spacers are produced in two main grades (Standard and Premium) with strength and durability properties to match most site and precast concrete applications. The outstanding material properties of fibre-reinforced concrete include:

- High compressive strength, accurate dimensional tolerances, no deformation with temperature fluctuations, excellent physical and chemical resistance
- Excellent bond with concrete, no hairline cracks between the spacer and concrete, suitable for impermeable concrete
- Fire resistant to the highest requirements specified in EN13501-1:2002 - Class 1A
- The performance of FRANK spacers meets the requirements of BS 7973 (British Standard for Spacers) and of the Concrete Best Practice Guide produced by the European Concrete Societies Network.

FRANK's wide range of single spacers and bar spacers offers the ideal spacer for any application. We manufacture extruded fibre-reinforced concrete special spacers with special dimensions and shapes upon request. From support profiles for internal formwork in bridge building to finely detailed spacers, we can offer numerous technically ideal solutions. Extruded fibre concrete spacers can be used for all precast and cast in-situ applications including buildings and infrastructure projects.

Spacers are used e.g. for precasting plants, for drinking water reservoirs, for tunnel constructions or for exposed concrete surfaces.



CONCRETE SPACERS

Single spacers

Extruded fibre concrete block spacers are dimensionally accurate and have consistent high compressive strength and excellent chemical and physical resistance. The bond with concrete produces no hairline cracks making these spacers ideal for all exposure classes. All spacer mixes have been independently tested for strength and durability properties.



Extruded fibre concrete block spacers are used to ensure that the concrete cover specified for structures and structural elements made of reinforced concrete is maintained both before and during concreting.

Block spacers can be supplied in different widths, varying profiles and with a number of attachment options: without wire (added on site), pre-wired or with double steel clips wholly located outside the cover zone. These provide a secure fixing to ensure that in any installation position the spacer does not tilt during formwork erection.

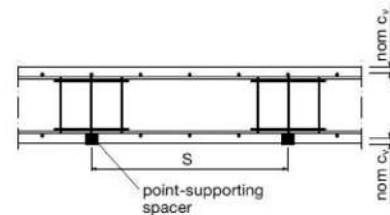
Standard and Premium grade spacers conform to the requirements of BS7973 (British Standard for Spacers). Both grades of spacer have known strength and durability properties. Spacers are also available in a Potable Water Approved version (BS6920) and with Class DC4 sulphate resistance.



Structural element: slabs

Spacer fixing distances S

Supported bars ds	max. S	Pcs. required per m ²			
		Single spacer	Bar spacers		
			L = 18 cm	L = 33 cm	L = 100 cm
up to 6,5 mm	50 cm	4	3.0	2.5	1.33
from 6,5 mm	70 cm	2	1.6	1.4	0.84



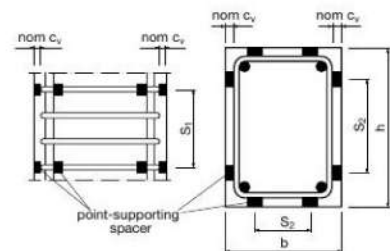
Structural component: beams and columns

Spacer fixing distances max. S_1 in longitudinal direction

longitudinal bars ds	columns	beams
up to 10 mm	50 cm	25 cm
12 to 20 mm	100 cm	50 cm
over 20 mm	125 cm	75 cm

Spacer fixing distances max. S_2 in transverse direction

Quantity, distances		
b or h	columns	beams
up to 1000 mm	2 pcs.	2 Stück
over 1000 mm	≥ 3 pcs.	≥ 3 pcs.
max. S_2	75 cm	50 cm

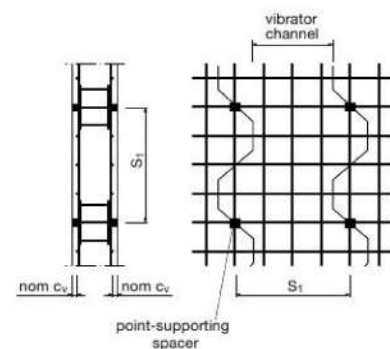


Structural element: walls

Spacer fixing distances S_1 and quantity







supporting bars ds	max. S_1	Pcs. required per m ² wall*		
		Single spacer	Bar spacers	
			L = 18 cm	L = 33 cm
up to 8 mm	70 cm	4	1.6	1.4
over 10 mm	100 cm	2	1.0	0.8

*and per wall side



Spacers without tying wire

made of fibre concrete for horizontal reinforcement

	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	BAO15*	15	24	1.9	1500	1160	
	BAO20*	20	24	2.7	1000	1100	
	BAO25*	25	24	3.3	750	1010	
	BAO30*	30	24	3.6	750	1100	
	BAO35*	35	24	4.5	500	920	
	BAO40*	40	24	5.0	500	1020	
	BAO45*	45	24	6.7	250	690	
	BAO50*	50	24	7.5	250	770	
	AO2501*	25	20	3.6	500	740	
	AO3001*	30	20	4.2	500	860	
	AO3512*	35	24	6.1	500	1240	
	AO4012*	40	24	7.5	250	770	
	AO4512*	45	24	8.5	250	870	
	AO5013*	50	28	11.7	250	1190	
	AO5513*	55	28	13.1	250	1330	
	AO6013*	60	28	14.3	200	1164	
	AO1561	15/20	20	2.7	1000	1100	
	AO2561	25/30	24	4.5	500	920	
	AO3562	35/40	24	6.8	250	700	
	AO4562	45/55	24	11.4	250	1160	
	AO5062	50/60	24	12.0	250	1220	
	AO2071	20/25/30	20	2.8	750	860	
	AO3572	35/40/50	24	9.3	250	950	
	AO4573	45/55/60	28	17.0	125	870	







Packaging: 40 sacks per pallet.

* Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Concrete cover > 60 mm, available upon request.

Spacers with tying wire

made of fibre concrete for horizontal and vertical reinforcement

	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	BAD15*	15	24	2.0	1500	1220	
	BAD20*	20	24	2.8	1000	1140	
	BAD25*	25	24	3.5	750	1070	
	BAD30*	30	24	3.8	750	1160	
	BAD35*	35	24	4.7	500	960	
	BAD40*	40	24	5.3	500	1080	
	BAD45*	45	24	7.0	250	720	
	BAD50*	50	24	7.8	250	800	
	AD2501*	25	20	3.8	500	780	
	AD3001*	30	20	4.4	500	900	
	AD3512*	35	24	6.3	500	1280	
	AD4012*	40	24	7.8	250	800	
	AD4512*	45	24	8.8	250	900	
	AD5013*	50	28	12.0	250	1220	
	AD5513*	55	28	13.4	250	1360	
	AD6013*	60	28	13.9	200	1132	
	AD1561	15/20	20	2.8	1000	1140	
	AD2561	25/30	24	4.7	500	960	
	AD3562	35/40	24	7.0	250	720	
	AD4562	45/55	24	11.7	250	1190	
	AD5062	50/60	24	12.3	250	1250	
	AD2071	20/25/30	20	2.9	750	890	
	AD3572	35/40/50	24	9.6	250	980	
	AD4572	45/55/60	24	15.3	125	785	

Surcharge when supplied with galvanised tying wire = P.O.A.






Packaging: 40 sacks per pallet.

* Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Concrete cover > 60 mm, available upon request.

Spacers with steel clips

made of fibre reinforced concrete for vertical reinforcement

	Designation	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	incl. clip type "KN" for rebar up to Ø 8 mm	AK15H	15	20	1.3	2000	1060	
		AK20H	20	20	1.6	1000	660	
		AK25H	25	20	2.3	1000	940	
		AK30H	30	20	3.0	1000	1220	
	Type "A" incl. clip type "KN" for rebar up to Ø 8 mm	AK20RA	20	20	2.3	1000	940	
		AK25RA	25	20	2.4	1000	980	
		AK30RA	30	20	2.9	1000	1180	
		AK35RA	35	20	3.5	500	720	
	Type "R" groove for rebar Ø 8 mm, incl. clip type "KN" for rebar up to Ø 8 mm	AK20ZR	20	20	3.0	500	620	
		AK25ZR	25	20	3.9	500	800	
		AK30ZR	30	20	4.0	500	820	
		AK35ZR	35	20	5.4	500	1100	
	Type "S" groove for rebar Ø 10 + 12 mm, clip type "SN" for rebar from Ø 10 to 16 mm on request.	AK30ZS*	30	20	5.5	500	1116	
		AK35ZS*	35	20	5.7	500	1160	
		AK40ZS*	40	20	6.6	250	680	
		AK45ZS*	45	20	7.6	250	780	
	Spacers for heavy single reinforcement. Groove for rebar up to Ø 16 mm, clip type "PL" for rebar from Ø 10 to 16 mm.	AK50ZS*	50	20	7.9	250	810	
		AK40E16*	40	40	12.0	125	620	
		AK45E16*	45	40	14.7	125	755	
		AK50E16*	50	40	16.5	125	845	
		AK55E16*	55	40	17.5	125	895	
		AK60E16*	60	40	17.9	125	915	

Packaging: 40 sacks per pallet.

Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.



* Can also be supplied with groove for larger rebar diameters.

Clip type "PX" for rebars Ø 20 – 28 mm (min. support width 70 mm) can also be supplied on request – Price on request.

Concrete cover > 60 mm, available upon request.

Spacers with cross-clips

made of fibre reinforced concrete for vertical reinforcement


	Designation	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	Groove for rebar from Ø 3 to 10 mm	AK30S5Q10	30	36	7.0	250	720	
		AK35S5Q10	35	36	7.7	250	790	
		AK40S6Q10	40	40	9.1	250	930	
		AK45S6Q10	45	40	9.8	250	1000	
	Groove for rebar from Ø 12 to 16 mm	AK50S6Q10	50	40	10.8	250	1100	
		AK30S5Q16	30	36	7.0	250	720	
		AK35S5Q16	35	36	8.1	250	830	
		AK40S6Q16	40	40	9.0	250	920	
		AK45S6Q16	45	40	10.7	250	1090	
		AK50S6Q16	50	40	11.2	250	1140	

Packaging: 40 sacks per pallet.

Tested according to DBV-data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Spacers with plastic clips

made of fibre concrete, no tying wire within the concrete cover


	Designation	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	Plastic clip for rebar from Ø 8 to 12 mm	AC20R6Z10	20	36	4.7	500	960	
		AC25R6Z10	25	36	5.7	500	1160	
		AC30R6Z10	30	36	7.5	250	770	
		AC35R6Z10	35	36	8.5	250	870	
		AC40R6Z10	40	36	10.1	250	1030	
		AC45R6Z10	45	36	11.6	250	1180	
		AC50R6Z10	50	36	12.5	250	1270	
		AC55R6Z10	55	36	14.5	125	745	
		AC60R6Z10	60	36	15.3	125	785	

Packaging: 40 bags per pallet.

Tested according to DRV data sheet "Spacers" (7/02) DRV-c-L /F/T/A.

Spacers with bevel cut for washed-out concrete

made of fibre reinforced concrete for vertical reinforcement

	Designation	Art. no.	Clamp for steel Ø mm	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	Groove for rebar from Ø 4 to 6 mm	AK20WZ	4-8	20	20	1,4	1000	580	
		AK25WZ	4-8	25	20	2,1	1000	860	
		AK30WZ	4-8	30	20	2,4	1000	980	
		AK35WZ	4-8	35	20	2,9	500	600	


Non-stock item. Delivery time on request.

Packaging: 40 sacks per pallet.

Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

"Rondo" spacer

round spacers made of fibre concrete for insertion of prefabricated reinforcement cages into formwork

	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	RONDO03002512	30	25	21,8	125	1110	
	RONDO03502512	35	25	25,5	125	1295	
	RONDO04002512	40	25	34,2	75	1046	
	RONDO04502512	45	25	42,0	75	1280	
	RONDO05002512	50	25	60,2	50	1224	


For rebar diameters of up to 12 mm.

Non-stock item. Delivery time approx. 3 working days. Packaging: 40 sacks per pallet.

Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Spacers for fire protection reinforcement

made of fibre concrete to guarantee concrete cover for load and fire protection reinforcement in tunnel construction

	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	AO5020BS	50/20	24	12,0	250	1220	
	AO6020BS	60/20	24	13,0	250	1320	
	AO7030BS	70/30	24	14,0	150	860	
	AD5020BS*	50/20	24	12,3	250	1250	
	AD6020BS*	60/20	24	13,3	200	1084	
	AD7030BS*	70/30	24	14,3	150	878	



* with tying wire, annealed black, for fixing of spacer to conventional reinforcement.

Concrete cover of fire protection reinforcement for steel mesh N94 or rebar ø 3 mm.

Packaging: 40 sacks per pallet. Delivery time: approx. 5 working days




Tunnel spacers

for fixing of sealing film in tunnel constructions

	Designation	Art. no.	Concrete cover mm	Weight kg/pce.	Carton contents piece	Cartons/pallet	Weight kg/pallet	Price €/pce.
	From fibre concrete, contact surface 80 x 100 mm, round-shaped corners	FBTA50*	50	0.50	–	–	–	
		FBTA60*	60	0.60	–	–	–	
	Made of synthetic material, contact surface 60 x 68 mm	KTA50	50	0.06	200	24	298	
		KTA60	60	0.07	170	24	306	



* Felt pad insert for FBTA can be supplied. Price on request.

Tying wire

	Designation	Art. no.	Wire thickness mm	Pack size kg	Packaging unit/pallet	Weight kg/pallet	Price €/kg
	Tying wire roll BR 1.4 black annealed	HSBDRS14	1,4	20	36	740	
	Tying wire roll BR 1.4 galvanised	HSBDRV14	1,4	20	36	740	
	Tying wire coil black annealed	HSBD1440	1,4	25-40	25	1020	

Spacers for concrete pipe production

extruded fibre concrete

	Designation	Art. no.	Concrete cover mm	Cut width mm	Weight kg/100 pcs.	Sack contents pcs.	Weight kg/pallet	Price €/100 pcs.
	transverse groove for rebar Ø 8 mm, clip for rebar Ø 6 mm	AK30Q3K	30	28	8.8	250	900	
		AK35Q3K	35	28	9.5	250	970	
		AK40Q3K	40	28	11.1	250	1130	
		AK45Q3K	45	28	12.6	250	1280	
		AK50Q3K	50	28	13.2	250	1340	
	longitudinal groove for rebar Ø 6 mm, clip for rebar Ø 8 mm	AK30L10K	30	55	7.5	250	770	
		AK35L10K	35	55	8.0	250	820	
		AK40L10K	40	55	9.0	250	920	
		AK45L10K	45	55	9.6	250	980	
		AK50L10K	50	55	10.1	250	1030	

Transverse or longitudinal groove for rebar Ø 8 – 10 mm can be supplied for all types.

Please state when ordering: e.g.: AK30Q3KE10 or AK30L10KE10.

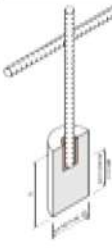
Spacers are a non-stock item – delivery time available on request. Other dimensions available on request.

Packaging 40 sacks per pallet or grid box.

Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Reinforcement end supports

made of fibre concrete used as stands for vertical single rebars

	Designation	Art. no.	External Ø mm	Concrete cover mm	Height h mm	Weight kg/pce.	Sack contents pcs.	Weight kg/pallet	Price €/pce.
	suitable for rebar diameter: smooth: 5.0 – 8.0 mm; ribbed: 4.0 mm – 8.0 mm	FBSP5352506*	27	25	40	0.05	500	980	
		FBSP5353006*	27	30	45	0.05	500	1100	
		FBSP5353506*	27	35	50	0.06	250	620	
		FBSP5354006*	27	40	55	0.07	250	680	
		FBSP5354506*	27	45	60	0.07	250	740	
		FBSP5355006*	27	50	65	0.08	250	800	
	suitable for rebar diameter: smooth: 6.0 – 10.0 mm; ribbed: 6.0 mm – 10.0 mm	FBSP53525	35	25	45	0.09	250	920	
		FBSP53530	35	30	50	0.10	250	1020	
		FBSP53535	35	35	55	0.11	250	1120	
		FBSP53540	35	40	60	0.12	250	1220	
		FBSP53545	35	45	65	0.13	200	1060	
		FBSP53550	35	50	70	0.14	200	1140	


Packaging: 40 sacks per pallet.

* Delivery time: approx. 5 working days.

Tested according to DBV data sheet "Spacers" (7/02) DBV-c-L/F/T/A.

Kickers made of fibre concrete

acting as continuous stop spacers between shutters, square profiles 40 x 40 mm with 2 nail holes


	Art. no.	Length mm	Weight kg/pce.	Carton contents piece	Weight kg/pallet	Price €/pce.
	SAV400150	150	0.38	95	1303	
	SAV400160	160	0.40	75	1100	
	SAV400180	180	0.45	75	1235	
	SAV400200	200	0.50	65	1190	
	SAV400250	250	0.63	50	1154	
	SAV400300	300	0.75	40	1100	

Packaging: 36 cartons per pallet.

Further dimensions available on request.

Kickers made of fibre concrete

acting as stop spacers between shutters

	Designation	Art. no.	External Ø mm	Height h mm	Weight kg/pce.	Pack size piece	Price €/pce.
	without nail insert	SAR60	60	40	0.23	100	
		SAR80	80	40	0.40	75	
	with nail insert (without nail)	SAR60N	60	40	0.23	100	
		SAR80N	80	40	0.40	75	
	Nail suitable for nail gun, shaft diameter 3.7 mm, shaft length 72 mm	SAFBRN72	–	–	0.01	100	

If nail guns are used, it is recommended that a trial installation is carried out to determine appropriate cartridge strength and tool settings on site in order to avoid damage to the kickers.

armeg

INNOVATIVE DRILLING & TOOL SOLUTIONS

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Drilling

The most comprehensive choice for
Innovative drilling solutions

Wood Beaver - Next generation wood drill



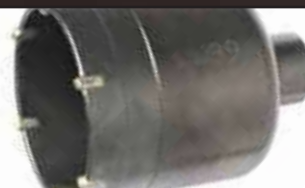
SDS Plus Cross Head for smoother drilling action



HSS Split Point for enhanced drilling



Hi-Speed Masonry Core Drills for speed and accuracy



Rebar Cutter the solution to drilling Rebar



**WOOD
BEAVER**



r1-rebar
REBAR CUTTER

LDX
METAL

Drilling

Innovative Drilling Solutions

Masonry / Wood / Metal

Introducing the Drilling Solutions Range from Armeg.

A **comprehensive** range of drilling products that covers hammer, rotary and percussion drill bits.

Products incorporate innovative head designs that maximise **speed**, performance, **strength** and therefore **long tool life**.



Masonry

4-16

SDS Plus QFDS Hammer Drills, SDS Plus Cross Heads,
a-line SDS Plus Hammer Drills, Rebar Cutters,
SDS Max Hammer Drills, Professional Masonry Drills,
Standard Masonrys, Threaded Shank Masonry Drills,
Hi-Speed Masonry Core Drills, Professional Masonry Core Drills,
Dry Diamond Core Drills, Points and Chisels, A & K Taper,
Drill Holders, Adaptors & SDS Plus Accessories



Wood

17-19

Wood Beaver next generation Wood Drill,
Super Wood Drill for large diameters,
Hexagon & SDS Plus Wood Augers, Brad Points
& Flat Wood Drills



3

Metal

19-23

LDX Metal Cutters, Screw Extractors,
HSS Split Points, HSS Twist Drills,
Blacksmith Drills, Holesaws & Step Drills





Black Annealed Wire

Black Annealed Wire is also called black iron wire, soft annealed wire and annealed iron wire. It includes annealed wire and black oiled wire. Black annealed iron wire gets its name from its plain black color.

Annealed wire is obtained by means of thermal annealing. Annealed wire offers excellent flexibility and softness through the process of oxygen free annealing. **Black Annealed Wire** is stored in coils or spools of a varying weights and dimensions depending on the purposes.

Materials:

The main materials of **Black Annealed Wire** are iron wire and carbon steel wire.

Features:

- Low cost and economy
- Easy to handle and install
- Soften and flexible character
- Continuous coils and uniform diameters
- Various sizes and packages available upon request
- Ideal for binding or mesh making



Applications:

Black Annealed Wire is famous known as burnt wire in civil construction which is widely used for iron setting.

Black Annealed Wire is widely used as tie wire or baling wire in building, parks and daily binding.

Packing:

In spool or coil and wrapped with hessian cloth

Specifications of Black Annealed Wire:

Wire Range:

Wire Gauge: 6# - 38#

Metric: 5mm - 0.17mm

Finish or Surface treatment: none or spray oil for rust resistance.

Tensile Strength: 300 N/MM2 - 450 N/MM2

Elongations: 8% - 15%



Galvanized Binding Iron Wire

Galvanized iron binding wire

Galvanized iron binding wire is the most economic binding wire. It is usually made into the form of cut type, U type, loop ties or small coil wire.

Galvanized iron binding wire is made of super quality iron wire, can be divided into electro galvanized iron wire and hot dipped galvanized iron wire. **Galvanized iron binding wire is mainly used as tie wire for construction.**

Packing:

In spool or coil and wrapped with hessian cloth

Specification

Size : BWG – 21

Tensile Strength : 30-45kgs/mm²

Zinc coating : about 18G/m²





HESSIAN CLOTH



- Description : Hessian Cloth or Burlap is a woven fabric usually made from skin of the plant jute fibers.
- Application : Suitable to use in construction and other industrial usage
- Packing : 800 yards per 90kg

GREEN SAFETY NET

Construction net, Scaffold net / Safety net used on construction sites to aid in worker safety and is used for protection against the wind.

Specifications

- Knitted high density polyethylene (HDPE) scaffold net;
- 1.83mX50/100m, 2.44X100m, 3.66X100m in rolls or in sheet or other size;
- Max. Width: 5.3 meters;
- Any color is available (Dark green, Black, Green, Blue are common colors);
- 80 to 320 grams per square meter;
- UV treated.



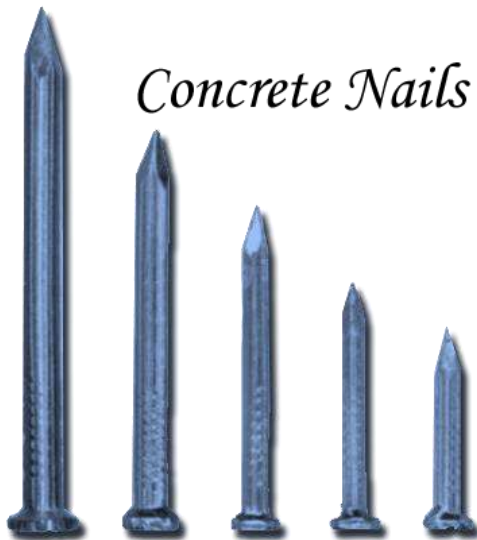
Debris Net cost effective lightweight debris netting, is manufactured from high density polyethylene monofilaments. New improved webbing with extra reinforcement and eyelets at loose intervals of 10cm. This is Ideal also for indoor and outdoor application.



Construction Nails

A hardened-steel nail that has a flat countersunk head and a tapered point and is used for nailing various materials to concrete or masonry.

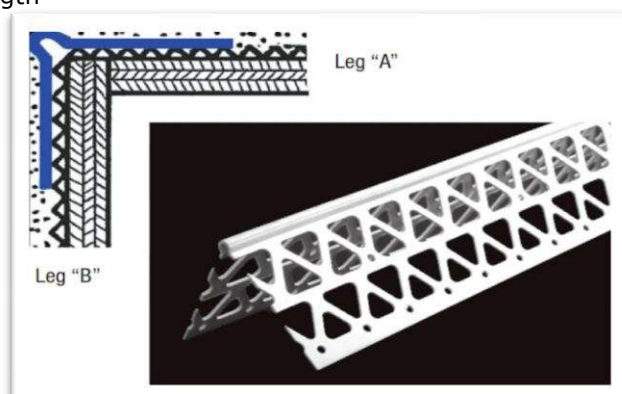
A slender metal shaft, pointed at one end and flattened at the other end, used as a fastener. Most often used to join pieces of wood.





Amico Vinyl Corner Bead

Vinyl Corner Bead reinforces exterior stucco corners with durable, straight and rust-free vinyl corners. The addition of stiffener ribs and slotted nailing holes makes these products easy and quick to install level and straight. 10' standard length

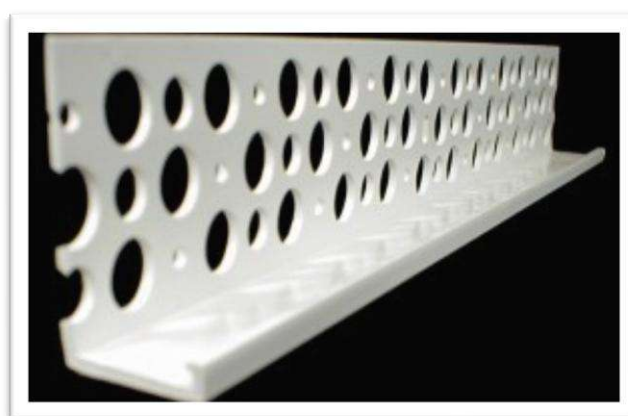


1. Corner Bead 2 ½ x 2 ½ x 10 ft

AMX-1

Amico Vinyl Casing Bead

Amico vinyl casing bead is often referred to, by the industry, as a plaster stop because it is used to terminate plaster or stucco. AMICO vinyl casing beads are strong and durable, to give maximum protection to this highly vulnerable stucco area. Casing beads larger than 7/8 inch, have additional reinforcement in the ground flange for extra strength.



1.	CASING BEAD REGULAR GROUND AM66-580	1¾" Perforated Flange	5/8"	100
2.	CASING BEAD REGULAR GROUND AM66-750	1¾" Perforated Flange	3/4"	75



Technical Data of Spiral for Post Tension

Corrugated Pipe – we manufacture this kind of product of any sizes as per your request.

Material and Application

Post tension pipe is made of zinc-plated or non-zinc-plated mild steel stripes. The steel stripes are spiraled and locked overlap joint by rolling process. The pipe can be used in making holes for post tensioning pre-stressed concrete structure and component.

Parameters of post tension pipe															
Bore diameter d (mm)	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
Allowable Deviation	+0.5													+1.0	
Width of Stripes (mm)	36														
Thickness of Stripes (mm)	0.25 – 0.3 (+-0.2)														
Spiral Angel a ⁰	10 ⁰ 49'	9 ⁰ 38'	8 ⁰ 41'	7 ⁰ 55'	7 ⁰ 16'	6 ⁰ 43'	6 ⁰ 14'	5 ⁰ 49'	5 ⁰ 28'	5 ⁰ 08'	4 ⁰ 51'	4 ⁰ 36'	4 ⁰ 22'	4 ⁰ 10'	3 ⁰ 28'
Mandrel Diameter	22	22	35	35	35	35	35	35	35	35	35	35	35	35	35
Spiral Guider Dia (mm)	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110
Pipe Die Diameter (mm)	40	45	50	55	60	65	70	75	80	85	90	95	100	105	111
Number of Gear Teeth	27	30	33	36	39	42	45	49	52	55	58	61	65	68	70
Point Load (N)	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Even Load (N)	496	628	775	938	1116	1310	1519	1744	194	2240	2511	2798	3100	3418	3751
Deformation (mm)	<8	<9	<10	<11	<12	<13	<14	<15	<16	<17	<18	<19	<20	<21	<22



Quality
fabrics
that build
nations



About Us

We are one of the latest manufacturers of specialty technical textiles with the most sophisticated equipment and processes in India. We manufacture high-quality needle-punched technical non-woven fabrics for a wide range of applications.

Since our inception in 2013, we have become one of the preferred partners for infrastructure developers, project consultants, institutional buyers, designers, and construction suppliers in India. In future, we aspire to expand to agricultural, automotive, and medical textiles that cater to European and Middle Eastern markets.

Khator Technical Textiles carries forward the legacy and manufacturing excellence of the Khator Group, a diversified business conglomerate and one of the leading global manufacturers of suiting and shirting fabrics since 1986. The Khator Group operates multiple production facilities in Maharashtra, Gujarat, and Rajasthan.



We aim to become a global leader of technical textiles with quality, innovation, trustworthiness, and technological prowess woven as intrinsic brand values.

T H E K H A T O R A N T A G E



**Fully Automated
Manufacturing Process**



**Extensive
Experience**



**Professional
Management Team**



**Adherence to Global
Quality Standards**



**Increased Cost
Competitiveness**



**Widest Range of
Custom-made Products**

The Facility

Our fully automated manufacturing plant at Silvassa in Western India, is one of the most technologically advanced in the country. Our investment towards building a future-ready facility ensures that we manufacture high quality fabrics that conform to global quality standards and are in line with the customer's requirements and specifications.

We manufacture non-woven geotextiles using the 'dry-laid needle-punch' technology with thermal treatments like IR bonding, and calendaring to meet specific requirements.

We have the capacity to manufacture fabrics of 6 meter width; ranging from 90 gsm to 1000 gsm - the widest range for any manufacturer in India.

The Product

Our products have the best functional properties and technical performance for numerous end-use applications across multi-disciplinary segments. They follow the highest standards across the world for functional requirements, health & safety, cost-effectiveness, chemical resistance, durability, ductility, UV-resistance, and strength.

Quality Practices and Management Practices

KTTL Geotextiles are manufactured under strict quality controlled conditions. We follow the principles of Total Quality Management to improve our ability to deliver high-quality products and services to customers. Our products are CE marked and conform to all prevailing European quality standards.

Khator
Technical Textiles is an
ISO 9001:2008
and CE certified
company.



Our products are tested at a state-of-the-art in-house testing facility. We perform various raw material and fabric tests such as tenacity, cone drop, AOS, Water Permeability under ASTM and EN test methods.

Functional Properties - Khator Technical Textiles

We take pride in manufacturing fabrics that build the infrastructure of nations and make them stronger and long-lasting. The following functional properties of KTTL Geotextiles make them well-suited for a wide range of applications.

Separation



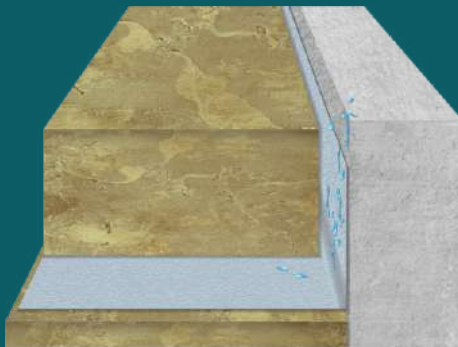
KTTL Geotextile is permeable to water but prevents the mixing of aggregate and soil when laid as a separator between the sub soil and aggregates. It also enhances the strength, durability, and structural integrity of the structure.

Filtration



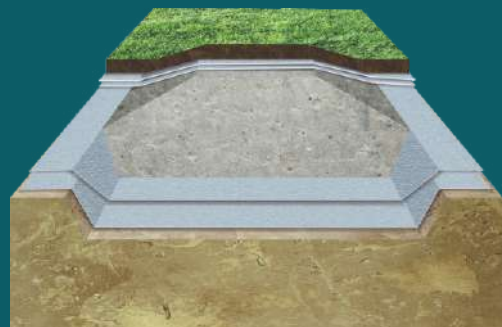
Minute perforations in the KTTL Geotextiles are designed to facilitate water flow & restricting the minute soil particles. As a result, the water pressure is reduced and load-bearing capacity of the structure is enhanced.

Transmissivity



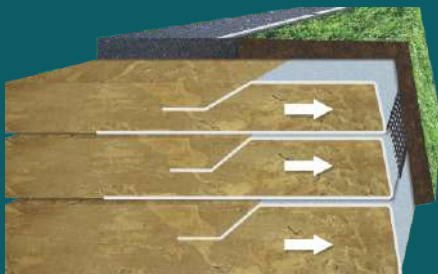
KTTL Geotextile is designed to drain off excess water in soil, over the lateral plane of fabric resulting in higher CBR of soil.

Protection



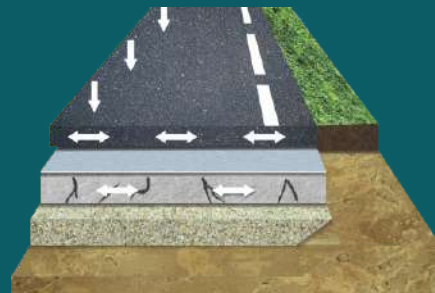
KTTL Geotextiles, due to high puncture resistance, prevent pumping of aggregates into the soil. This results in a stable soil structure.

Reinforcement



The high tensile strength of KTTL Geotextiles, combined with its property of elongation, makes it the best material to increase the load bearing capacity of weak soils. Hence most ideal to be used in road construction, slope protection etc.

Stress Reduction



Non-woven KTTL Geotextiles are designed to restrict movement of different road layers and prevent reflective cracking. These attributes together with separation, filtration, protection, and reinforcement functions make KTTL Geotextiles a preferred choice for road construction and repair.

Geotextiles Selection Criteria

Application of geotextiles are varied and yet, unique. Geofabrics need to perform different functions based on different requirements. Broadly, the selection of the right geofabric is based on the functional need of the end application. Following points are taken into consideration:

- 1 **Identifying the need and the primary function for which the geotextile is being incorporated in the design**
- 2 **Ascertaining the geotextile functions that govern this application**
- 3 **Establishing the property requirement based on site specific conditions**

Geotextile, graded and selected through such a selection process, will not only serve the design intent but also set clear standards for the project implementation team.

Here are some of the most common primary functions for which geotextiles are required:

Primary characteristic required	Corresponding functional properties required from the Geotextile
Filtration	▶ Permeability, Opening Size and Porosity
Strength	▶ Burst Resistance, Puncture Resistance, Dynamic Puncture Resistance, and Elongation
Protection	▶ Puncture Resistance, Thickness, Dynamic Puncture Resistance, and Weight
Drainage / Dissipation	▶ Transmissivity

KTTL Geotextiles - The Sustainable Choice

Climate Change is a phenomenon that has gone from being widely debated to globally accepted within a span of one lifetime. Governments and corporates are mulling ways to reduce Greenhouse Gas (GHG) emission, so that the impact of climate change can be lessened, if not reversed. The use of K TTL Geotextiles in civil projects can provide sustainability benefits such as reduction in associated congestions, noise, air pollution and significant reduction in CO₂ emission.

Applications

Khator's KTTL Geotextiles non-wovens, with their versatile properties, are the perfect choice for a wide range of applications in the building and infrastructure industry.



Road Construction Projects

Roads | Express-ways | Air strips | Runways

- Improves pavement performance
- Retains thickness of layers during repairs
- Restricts capillary function and prevents erosion of the base



Rail Construction Projects

Railways Tracks

- Prevents the ballast and the soil from mixing
- Absorbs dynamic loads and allows movement of trains at higher speeds
- Helps to retain the structural strength, alignment, and reduce friction of the tracks



Land-related Projects

Coastal protection | Landslide protection

- Prevents soil erosion
- Makes coastal embankments stronger and more stable



Water-related Projects

**Conservation Projects
Groundwater Replenishment Projects**

- Cost-effective and efficient products for subsurface drainage
- Preserves the integrity and filtration functions of the aggregate drainage



Flood Management Projects

- Geobags (Nonwoven bags filled with sand) channelise flood water
- Prevents soil erosion
- Cost-effective and more sustainable



Waste Management Systems

Waste containment | Landfills

- Acts as a filter to aggregate drainage layers
- Helps in gas ventilation
- Helps protect Geomembranes from puncture

Technical Specifications

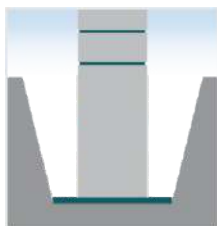
KTTL Geotextiles are non-woven geotextiles that are bonded by a needle punching process to provide superior support and stability for a wide range of terrains and project requirements.

Properties	Unit	ASTM D Test Method
Grab Strength (MD/CD)	N	ASTMD 4632
Elongation at break (MD/CD)	%	ASTMD 4632
Tensile Strength (MD/CD)	kN/mtr	ASTMD 4595
Elongation at break (MD/CD)	%	ASTMD 4595
Trap. Tear. Strength (MD/CD)	N	ASTMD 4533
Puncture Strength	N	ASTMD 4833
Static Puncture Strength (CBR)	N	ASTMD 6241
Mullen Burst Strength	kPa	ASTMD 3786
Permeability Co-efficient	cm/sec	ASTMD 4491
Flow rate	l/m ² /s	ASTMD 4491
Opening Size O95	microns	ASTMD 4751
Thickness (2 kN/m)	mm	ASTMD 5199
Mass Per Unit Area	g/m ²	ASTMD 5261
Roll Dimensions (width x length)	MT	Nominal

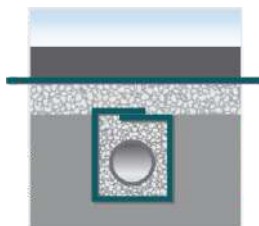
- *KTTL Geotextiles are synthetic fibers, have excellent resistance to chemicals and salts normally present in the soil and are unaffected by prolonged contact with common organic solvents.*
- *KTTL Geotextiles have excellent UV resistance and exhibit an excellent strength retention on test for weathering resistance to EN 12224.*

These specifications make KTTL Geotextiles, the ideal choice for varied applications like:

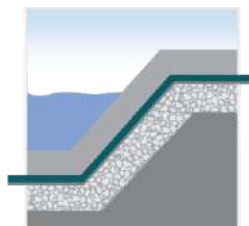
Stronger Foundations



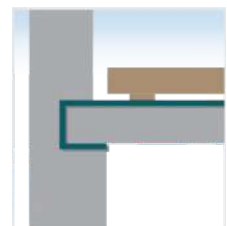
Efficient Drainage



Varied Hydraulic Applications



Effective Sound Suppression





KHATOR TECHNICAL TEXTILES PVT. LTD.

Plant:

Survey No 166, Plot No. 3 & 4, Naroli,
Silvassa - 396 235. Dadra & Nagar Haveli.

Corporate Office:

9/11, Assembly Lane, 38, Dadiseth Agiary Lane,
Ground Floor, Kalbadevi Road, Mumbai 400 002.

Tel.: +91 22 22414870 / 22408257

Fax: +91 22 22404041

techtex@khator.com | www.khator.com



銀龍股份

SILVERY DRAGON CO.,LTD

沪市股票代码 STOCK CODE: 603969



銀龍股份
SILVERY DRAGON CO.,LTD

银龙简介

银龙是全球品种最全，规模最大，最具技术创新和领导力的预应力混凝土用钢材生产企业。

Silvery Dragon is a prestressed concrete steel manufacturer with most various types, biggest production capacity, most potential technology innovation ability and with a leading position in the world.



银龙生产全系列预应力钢丝、预应力钢棒和预应力钢绞线，同时开发有轨道板专用预应力钢材和大直径预应力钢棒、空心预应力锚杆等产品，并可为客户开发各类新产品。银龙拥有五个预应力钢材生产基地，年产能50万吨，为全球规模最大预应力混凝土用钢材生产商。银龙是螺旋肋预应力钢丝发明者，并研发多项领先行业的新产品，是中国铁路、公路、水利、民建及特种预应力混凝土结构用预应力钢材主流供应商，拥有十余个国际认证，出口70余个国家。

Silvery Dragon produce the whole system of PC wire, PC bar and PC strand, also developed the special PC steel and the large diameter pre-stressed steel rods, hollow pre-stressed anchor bars, and for customers to develop all kinds of new products. Silvery Dragon has five pre-stressed steel production base, the annual production capacity of 500000 tons, the world's largest prestressed concrete steel producer. Silvery Dragon is the designer of spiral ribbed PC wire, research and development of a number of leading industry of new products, we are the supplier for Chinese railway, highway, water conservancy, constructions and special Prestressed Concrete Structure Prestressed Steel. We have more than ten international certifications, we export the goods to more than 70 countries.





Introduction

银龙是中国最具发展潜力和自主创新能力的高铁轨道板和铁路轨枕研发生产企业。

Silvery Dragon is a R&D manufacturer for high speed railway track plate and railway sleeper with most developing potential and independent technology innovation ability in China.



银龙是CRTSIII型先张法无砟轨道板和窖池式生产线主要研发单位，也是CRSD2025自动化轨道板生产线主要研发单位，是轨道板生产工厂BIM标杆单位。在过去20年间，参与研发YII-T、新II（YII-F）、IIIa（TKGIII）、矮II、矮III轨枕、提速枕（含岔枕）；参与研发地铁枕（板）；参与研发CRTSII单向先张、CRTSI后张、CRTSIII后张无砟轨道板及改进。依托自身具有的研发、资本和经营实力，迎接中国高铁及中国高铁走向世界建设高潮，银龙将成为最专业，最优秀的研发生产商。

Silvery Dragon is the R&D unit of the CRTSIII pretension ballastless track plate and the pool type method production line. Silvery Dragon is also the main designer of the CRSD-2025 automatic track plate production line. In the past 20 years, Silvery Dragon participated in the research and development of YII-T(patent), the new II (YII-F), IIIa (TKGIII), short II and short III sleeper, speed sleeper (including turnout sleepers); also participated in the research and development of subway iron sleeper(plate) represented by the subway rail frame plate; meanwhile, we are also involved in the research and improvement of CRTSII unidirectional pretension, CRTSI post-tension, CRTSIII post-tensioning ballastless track plate. Based on its own research& development ability, capital and operating strength, Silvery Dragon will become the most professional and excellent sleeper & track plate manufacturer with the coming construction boom of China high speed railway and its step to the world.



银龙，积蓄40年创业历史，登陆中国资本市场后，将放眼全球，着眼未来，继续专注两个优势传统产业，不断探索新型工业、高科技和农业发展，成为积极稳健，极具活力的优秀上市公司。

Silvery Dragon, with 40 years development history and listed in Chinese share exchange market, will focus on the global market and planning for the future. With keep developing two advanced traditional industries, Silvery Dragon will also research on new industries, high-tech industries and agriculture. Silvery Dragon will become a stable and potential public company.

核心人物



谢铁桥

Xie Tieqiao

董事长
Board Chairman
教授级高工
Professor of Engineering

银龙股份首要创建者

Main founder of Silvery Dragon

螺旋拉拔模具和拉拔技术发明人

Spiral rib drawing mould and spiral rib drawing technology inventor

炼钢轧钢和高碳钢盘条专家

Steel rolling and high carbon wire rod expert

拉拔模具和拉拔技术专家

Drawing mould and drawing technology expert

预应力混凝土制品专家

Prestressed concrete products expert

双向先张板式预应力结构创始人

Creator of bi-directional pretensioned plate-type prestressed structure

The Key Person



谢志峰
董事、总经理
Xie zhifeng
Director&CEO



余景岐
董事、总工程师
Yu Jingqi
Director&Chief Engineer



钟志超
董事、财务总监
Zhong Zhichao
Director&CFO



陈祥
董事
Chen Xiang
Director



王全喜
独立董事
Wang Quanxi
Independent Director



王玲君
独立董事
Wang Lingjun
Independent Director



乔少华
独立董事
Qiao Shaohua
Independent Director



孙伟娜
董事、外贸部部长
Sun Weina
Director& MFT Director



谢铁根
副总经理
Xie Tiegeng
Vice General Manager



李景全
副总经理
Li Jingquan
Vice General Manager



谢志礼
董秘、副总经理
Xie Zhili
Board Secretary&VGM



周弢
监事
Zhou Tao
Supervisor



王昕
监事会主席
Wang Xin
Supervisory Board Chairman



连江
本溪银龙总经理
Lian Jiang
Benxi SD General Manager



张祁明
银龙轨道总经理
Zhang Qiming
SD Rail General Manager



谢志钦
副总经理
Xie Zhiqin
Vice General Manager



谢志超
副总经理
Xie Zhichao
Vice General Manager



孙威
副总经理
Sun Wei
Vice General Manager



谢志杰
宝泽龙总经理
Xie zhijie
Baozelong General Manager



张新
机电研发中心主任
Zhang Xin
R&D Center Director

组织机构

天津银龙预应力材料股份有限公司
Silver Dragon Prestressed Materials Co., Ltd.

- 1** 天津银龙集团科贸有限公司
Silvery Dragon Group Technology and Trading Co., Ltd.Tianjin
 - 2** 本溪银龙预应力材料有限公司
Silvery Dragon Prestressed Materials Co., Ltd. Benxi
 - 3** 河间市宝泽龙金属材料有限公司
BaozeLong Metal Materials Co., Ltd. Hejian
 - 4** 天津银龙预应力材料股份有限公司河间分公司
Silvery Dragon Prestressed Materials Co.Ltd.Tianjin, Hejian Branch
 - 5** 新疆银龙预应力材料有限公司
Silvery Dragon Prestressed Materials Co., Ltd.Xinjiang
 - 6** 天津银龙高科新材料研究院有限公司
Silvery Dragon High Technology and New Materials Researching Co.,Ltd Tianjin
 - 7** 银龙轨道有限公司
Silvery Dragon Rail Co. , Ltd
- 7.1** 银龙轨道有限公司河间研发试验基地
Silvery Dragon Rail Co. , Ltd-Research and development test base in Hejian
 - 7.2** 银龙轨道有限公司安徽分公司
Silvery Dragon Rail Co. , Ltd Anhui branch
 - 7.3** 银龙轨道有限公司辽宁建平轨道板场项目部
Silvery Dragon Rail Co. , Ltd liaoning Jianping track plate project department
 - 7.4** 成都西南铁路轨道有限公司(合资)
Chengdu South-west Rail Co. , Ltd (Joint Venture)
 - 7.5** 上铁芜湖轨道板有限公司(合资)
Shanghai Railway Wuhu Track Plate Co.,Ltd (Joint Venture)





Organization

天津銀龍預應力材料股份有限公司

SILVERY DRAGON PRESTRESSED MATERIALS CO.,LTD TIANJIN



生产基地

预应力钢材生产基地

Pre-stressing Steel Production Base

天津北辰基地

Tianjin Beichen base



河北河间 分公司基地

Hebei Hejian base



河北河间宝泽龙基地

Hebei Hejian Baozelong base



新疆乌鲁木齐基地

Xinjiang Urumqi base



辽宁本溪基地

Liaoning Benxi base





Production Base

高速铁路轨道板生产基地 High Speed Railway Track Plate Production Base



银龙轨道有限公司
河间研发试验基地
Silvery Dragon Rail Co.,Ltd-Research and
development test base in Hejian



银龙轨道有限公司
安徽分公司
Silvery Dragon Rail Co.,Ltd Anhui branch



银龙轨道有限公司辽
宁建平轨道板场项目部
Silvery Dragon Rail Co.,Ltd liaoning Jianping
track board project department



成都西南铁路轨道
有限公司（合资）
Chengdu South-west Rail Co.,Ltd
(Joint Venture)



上铁芜湖轨道板
有限公司（合资）
Shanghai Railway Wuhu Track
Plate Co.,Ltd (Joint Venture)

生产场景



Production Scene



质量认证



ISO9001:2008质量
管理体系中国认证
ISO9001 2008 quality
management system certificate



预应力钢绞线钢丝棒中国认证
PC strand & PC wire & PC bar
China products certificate



预应力钢棒韩国认证
PC bar Korea Certificate

银龙积累30年品质管理经验,建立起严格可控的质量管理体系,从原材料检测、生产设备、拉拔模具、化学清洗、拉拔、热处理、包装等各个环节均得到有效控制和严格检测,检测记录将被保存5年,以便于客户和有关检测机构索取信息。现执行ISO9001质量体系,拥有德国MPABAU、韩国KS、挪威KONTROLLRAET、日本JIS、澳大利亚ACRS、印尼、马来西亚、以色列等国家认证。



预应力钢丝马来西亚认证
PC wire Malaysia Certificate



预应力钢丝澳大利亚认证
PC wire Australian Certificate



预应力钢丝德国认证
PC wire Germany certificate



预应力钢丝印度尼西亚认证
PC wire Indonesia certificate



预应力钢丝瑞典认证
PC wire Sweden Certificate



Quality Certificate

For the accumulation of experience for 30 years in quality management system, Silvery Dragon has already established the strict and controlled quality management system from raw material test, production equipment, drawing die to chemical cleaning, drawing, heat treatment and packaging. Each link is efficiently controlled and strictly tested; the test record is kept for five years so customers and the related testing organizations are convenient to acquire the information. Silvery Dragon carries out the production according to ISO9001 quality system, possessing certificates of Indonesia, Malaysia, Israel, German MPA BAU, South Korea Stock, Norway KONTROLLRAET, Japanese JIS, Australia ARCS etc.



预应力钢绞线日本认证
PC strand Japanese certificate



预应力钢绞线韩国认证
PC strand Korea certificate



预应力钢绞线澳大利亚认证
PC strand Australian Certificate



预应力钢绞线俄罗斯认证
PC strand Russian certificate



预应力钢绞线印度尼西亚认证
PC strand Indonesia certificate



预应力钢绞线以色列认证
PC strand Israel certificate



预应力钢绞线挪威认证
PC strand Norway Certificate



预应力钢绞线马来西亚认证
PC strand Malaysia certificate



品质检验

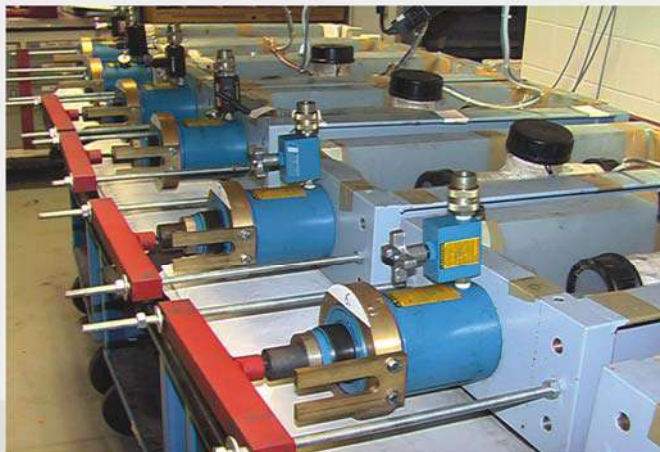


坚持不懈地追求产品质量稳定是任何一个企业的恒久目标，大家都在想尽办法来控制到最好水平。深深地理解客户对产品质量的关心和重要性，谁都无法保证在任何时候不出现任何问题，但我们会将可能性控制在最小最小。

我们的工程师和生产管理者感慨地讲：涉身预应力钢材制品行业时间越长越小心，时时刻刻都要牵挂着产品质量。当出现质量问题时，我们知道应该怎样做，也会从中汲取教训，以避免不再重复。



Quality Inspection



Unremitting pursuing of products ' quality stabilization is every company's forever goal. Every one is trying their best to reach the best level. We deeply comprehend customers ' concern over the quality; nobody can assure there is no problem at any time, but we will control it to the least.

Our engineers and production managers once sighed with emotion: the longer involved in the steel products line, the more careful we are, for the product quality is always in our mind. When come across quality problem, we know what to do, and learn lesson from it to avoid the repeated happening.



国家级研发资质和国家标准制定者



China National Accreditation Service for Conformity Assessment



National Identified Technology Center



The joint institute for high performance PC metallic materials by Hebei University of technology and Silvery Dragon co.,ltd



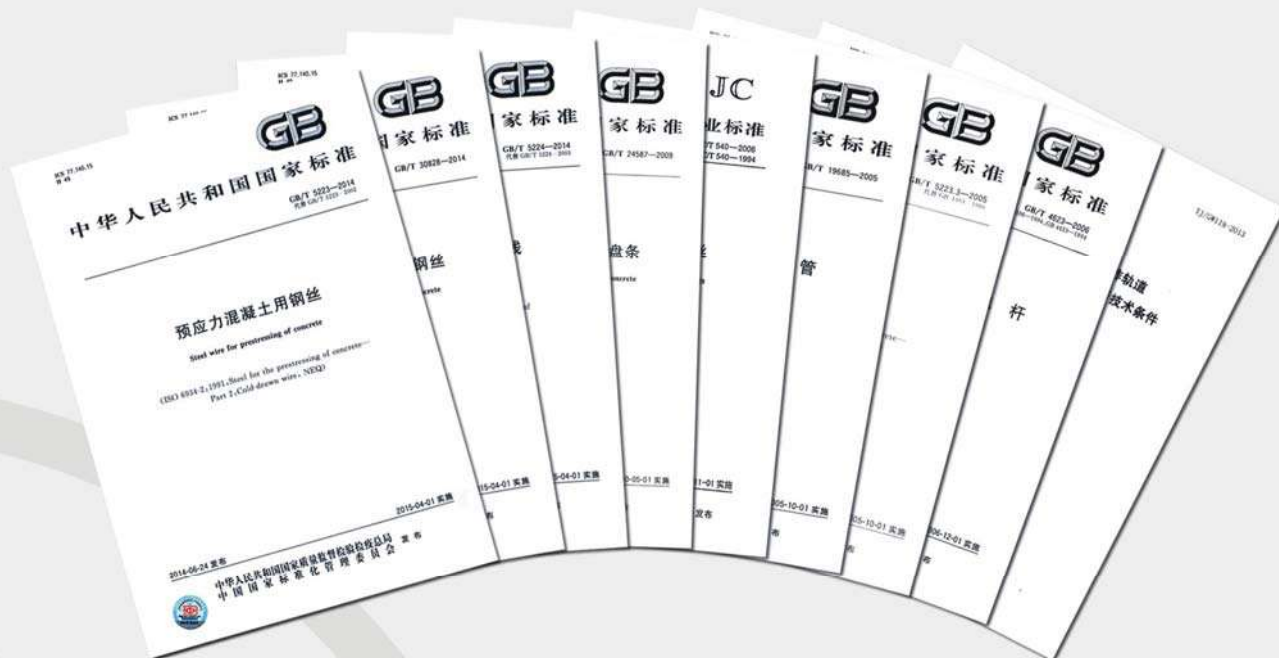
High-Tech Enterprise Certification



Double Direction Prestressed Ballastless Track Plate Award Certification



Qualification and Standard Participation

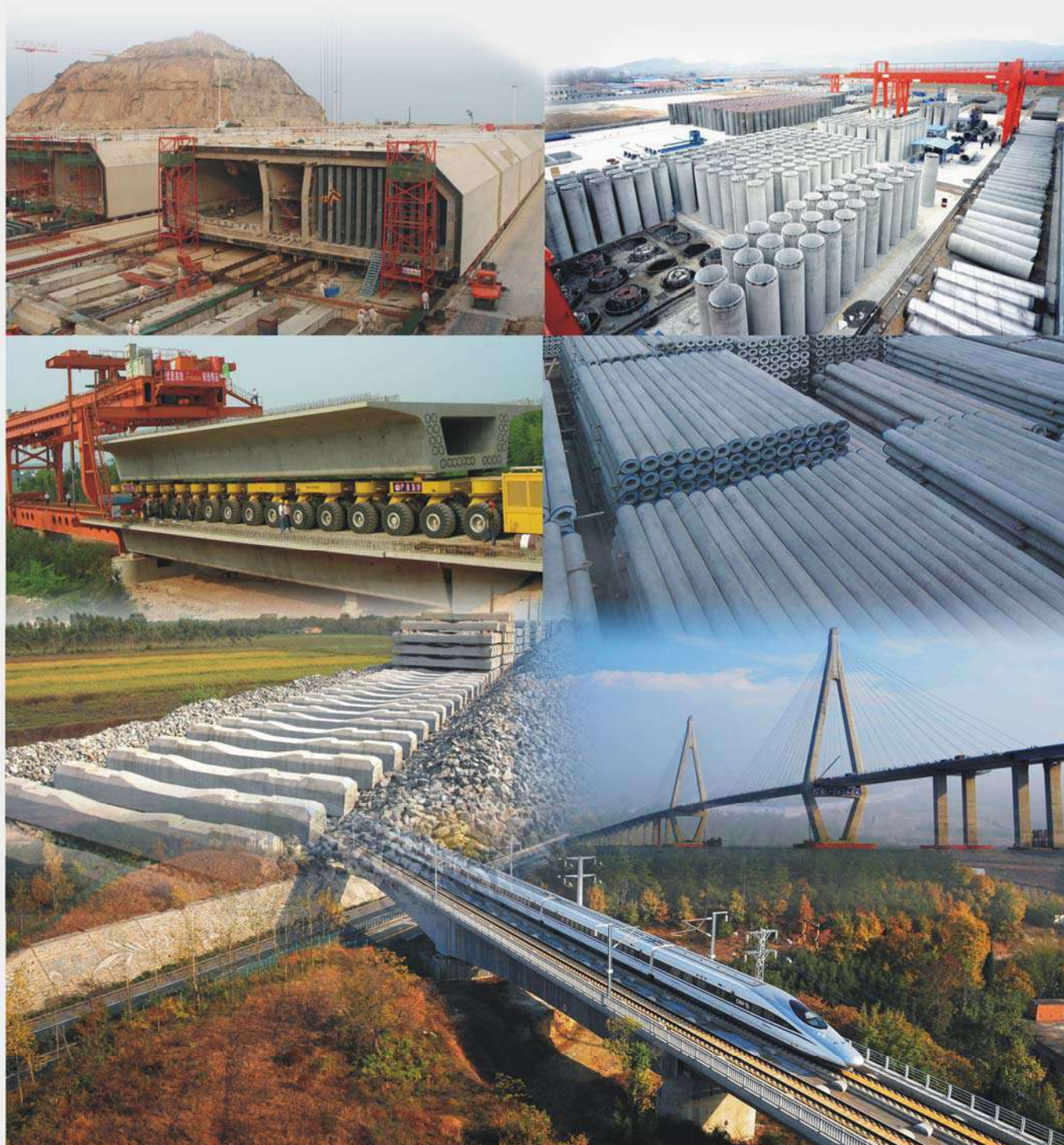


标准名称 Standard Title	标准号 Standard No	类型 Type
预应力混凝土用中强度钢丝 Middle strength steel wire for prestressed concrete	GB/T 30828-2014	主持起草 Presided over the drafting
预应力混凝土用钢丝 Steel wire for prestressing of concrete	GB/T 5223-2014	主持起草 Presided over the drafting
预应力混凝土用钢绞线 Steel strand for prestressed concrete	GB/T 5224-2014	主持起草 Presided over the drafting
预应力混凝土用钢筋 Steel bars prestressed concrete	GB/T 5223.3-2005	参与起草 Involved in the drafting
预应力钢管混凝土管 Prestressed concrete cylinder pipe	GB/T 19685-2005	参与起草 Involved in the drafting
混凝土制品用冷拔低碳钢丝 Cold-drawn low-carbon wire for concrete products	JC/T 540-2006	参与起草 Involved in the drafting
环形混凝土电杆 Circular concrete pole	GB/T 4623-2006	参与起草 Involved in the drafting
预应力混凝土钢筋用热轧盘条 Hot-rolled wire rods for prestressing steel bars of concrete	GB/T 24587-2009	参与起草 Involved in the drafting
预应力混凝土用钢材试验方法 Steel for prestressed concrete-Test methods	GB/T 21839-2008	参与起草 Involved in the drafting
预应力钢丝及钢绞线用盘条 Hot rolled wire rod for prestressed steel	GB/T 24238-2009	参与起草 Involved in the drafting
轨道板用钢筋 Ribbed bars for track panel		参与起草 Involved in the drafting
高速铁路CRTSIII型板式无砟轨道先张法预应力混凝土轨道板暂行技术条件 High speed railway CRTS III Two-way pre-tensioned condition non-ballasted track plate technology	TJ/GW118-2013	参与起草 Involved in the drafting

研发创新

30年来，银龙在铁路轨枕、轨道板、桥梁、PCCP输水管道、空心楼板、管桩等预应力混凝土制品领域有着卓越的研发创新成果。

In the past 30 years, Silvery Dragon has an outstanding achievement on research of Railway sleeper, Railway track plate, bridges, PCCP water division pipe, hollow core board, PC pile and other Prestressed concrete structure.



Research and innovation



银龙以预应力钢材性能不断提高和品种不断增加为主研发方向，同时在盘条生产技术、拉拔及热处理设备、拉拔模具方面有着持续的卓越的研发能力。

Silvery Dragon treats improving Prestressed steel performance and inventing variously type as the main research direction, and also has a outstanding achievements on wire rod rolling technology, drawing and stabilization treatment equipment, drawing mould and so on.



Xingtai Iron & Steel Corporation
Consultant Appointment Letter



Benxin Steel Group Technology
Consultant Appointment Letter



Rockcheck Steel Group Technology
Consultant Appointment Letter

产品展示

螺旋肋预应力混凝土用钢丝



Spiral Rib PC Wire

螺旋肋预应力钢丝由银龙发明，代表中国先进研发成果，服务中国，奉献世界。螺旋肋预应力钢丝的显著特点是钢丝表面有3至6条连续凸起状的螺旋肋，明显增加钢丝与混凝土的粘结力和预应力锚固性能，进而提高预应力混凝土制品综合性能，增加使用寿命。银龙掌握着最好的均匀螺旋拉拔变形、钢丝内应力消除、抗腐蚀等尖端生产工艺，满足德国、美国、法国等国际防腐要求。

螺旋肋预应力钢丝推向国际市场，鉴于国外标准中没有螺旋肋预应力钢丝标准，通常情况下，抗拉强度、屈服强度、抗腐蚀、松弛等技术指标采用客户认可的标准，而钢丝表面形状采用中国GB/T5223标准，现在越来越多的国外客户直接采用GB/T5223标准。

Spiral rib PC wire is invented by Silvery Dragon, representing China's advanced R & D achievements; it services in China and dedicates to world. The product is characteristic of 3 to 6 spiral ribs through spiral deforming drawing on the surface of wire, increasing the bond ability with concrete, thus improving the overall performance of pre-stressed concrete products and increase the service life. Silvery Dragon holds the advanced production technology of uniform spiral drawing, internal stress relief and anti-corrosion which meets Germany, USA, France and other international anti-corrosion requirements.

When the spiral rib wire was introduced to the international markets firstly, there was no specification for this kind of wire among all the standards in other countries. Normally, the technical specifications as for the tensile strength, yield strength, corrosion, relaxation conformed to standards recognized by the customers. And the Chinese standard GB/T5223 was used for the wire surface shape. Now more and more customers abroad have used the GB/T5223 directly.

技术参数及参考标准

Key parameter&reference

外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength (MPa)	松弛级别 (1000h) Relaxation (1000h)	执行标准 Standards
螺旋肋 Spiral ribs	3.8, 4.0, 5.0, 6.0, 6.25, 7.0, 7.5, 8.0, 9.0, 9.4, 9.5, 10.0, 10.5	1470, 1570, 1670, 1770, 1860	普通松弛≤8% 低松弛≤2.5%	GB/T5223、BS5896 JISG3536、EN10138-2
	5.03	1550, 1620, 1720	Normal relaxation≤8% Low relaxation≤2.5%	ASTMA881、AS/NZS4672.1
	4.88, 4.98, 6.35, 7.01	1620, 1655, 1725		ASTMA421





Products

PCCP Steel Wire

银龙是中国PCCP管道（Prestressed Concrete Cylinder Pipe）用预应力钢丝首家研发企业、国家标准制定企业和最具产能、技术、质量、业绩优势的优秀供应商。银龙也是中国PCCP管道、GB/5223标准起草人。自2001年起新疆引额济乌工程，南水北调北京段、河南片、河北片，哈尔滨磨盘山，沈阳大伙房，山西黄河二期，辽西北引水工程等30余个直径2米至4米PCCP管道重点引水工程均采用银龙产品，总量超过80万吨。除执行本企业所制定的GB/T5223国家标准外，还可满足美国ASTMA648标准、韩国KSD7009标准，也可执行其他国际标准和特殊的客户标准。



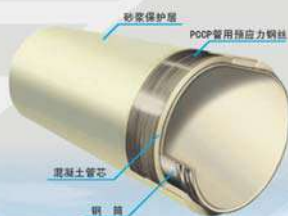
Silvery Dragon is the first specialized research and production company for PC wire in prestressed Concrete Cylinder Pipe in China. Silvery Dragon is the enterprise which formulates the National Standards and the excellent supplier with the largest capacity, technology, quality and performance advantages. Meanwhile, Silvery Dragon also drafted the standard GB/5223 for China PCCP pipes. Since the year of 2001, SD's products have been used in more than 30 important water diversion projects with the diameters from 2.0m-4.0m PCCP pipes, such as the project of diverting water from Irtysh river to Urumqi, South-North water diversion Beijing section, Henan section, Hebei section, the Mopanshan water transportation Project in Harbin, Shenyang Dahuofang project, the second phase of Shanxi Yellow River Project and the water diversion Project in North-West Liaoning Province. The total quantity exceeds 800,000 tons. Except for the National standard GB/T5223 made by SD, we can also meet with the American standard ASTM A648, South Korean standard KSD7009. The other international standard and special customer standards are also can be done.

技术参数及参考标准

Key parameter&reference

外形 Appearance	公称直径(mm) Nominal Dia.(mm)	抗拉强度级别(MPa) Tensile Strength(MPa)	松弛级别(1000h) Relaxation(1000h)	执行标准 Standards
PCCP光面 PCCP Plain Surface	4.0,5.0,6.0,7.0,8.0	1470,1570,1670,1770	普通松弛≤7.5%, 低松弛≤2.5% Normal Relaxations≤7.5%, Low Relaxations≤2.5%	GB/T5223
	4.88,6.35,7.92	1520,1650,1740		ASTMA648

我们还可为客户生产其他标准和开发非标准的产品
Other standard and non-standard products for customers



产品展示

预应力混凝土用光面钢丝

Plane Surface PC Steel Wire



外形 Appearance	公称直径 (mm) Nominal Dia.(mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
光面 Plain Surface	3.0,4.0,5.0	1470, 1570, 1670, 1770,1860	普通松弛≤8%, 低松弛≤2.5% Nonmal Relaxation ≤8%, Low Relaxation ≤2.5%	GB/T5223 ASTMA421 ISO6934-2 BS5896 TIS95-2540 AS/NZS4672 JISG3536 UNE36094 ASTMA648 EN10138-2 SS141757 NEN3868 ASTMA911
	6.0,7.0,8.0	1470,1570, 1670,1770		
	9.0,10.0,12.0	1470,1570,1670		
我们还可为客户生产其他标准或非标准的产品 Other standard and non-standard products for customers				

光面预应力钢丝是银龙生产历史最久的传统产品，产品适用于预应力混凝土桥梁、预应力混凝土轨枕、预应力混凝土管道等预应力混凝土制品，同时适用于大跨度桥梁斜拉索。

Plain surface PC wire is the traditional product with the longest production history in Silvery Dragon. This product is suitable for the prestressed concrete bridge, Pre-stressed concrete railway sleeper, Pre-stressed concrete pipe and other PC products. At the same time, it is also used for the large span cable-stayed bridge.



预应力混凝土用刻痕钢丝

Indented PC Wire



外形 Appearance	公称直径 (mm) Nominal Dia.(mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
两面刻痕 Two side indented	4.0,5.0,6.0	1570,1670,1770	普通松弛≤8%, 低松弛≤2.5% Nonmal Relaxation ≤8%, Low Relaxation ≤2.5%	ISO6934-2 ASTM881 TIS95-2540 EN10138-2 BS5896 JISG3536 LNECE-452 SS141757 NEN3868
	7.0,8.0,9.0			
三面刻痕 Three sides indented	5.03,5.32	1570,1670, 1770,1860		
	6.0,7.0,8.0,9.0			
我们还可为客户生产其他标准和非标准的产品 Other standard and non-standard products for customers				

银龙可为客户生产二面、三面、四面刻痕预应力钢丝，主要向国际市场出口。可为客户生产直径3mm至10mm，多种刻痕形状，不同抗拉强度，不同国家标准的产品。到目前，产品出口到澳大利亚、美国、英国、巴西等20多个国家。

Silvery Dragon can supply two sides, three sides and four sides indented PC wire for the customers with mainly for export. We can produce 3-10mm various shapes wire with different tensile strength and standard for customers. Up to now, the products have been exported to more than 20 countries including Australia, USA, UK, and Brazil and so on.



Products

CRTS I 型 (后张法) 高速铁路轨道板预应力钢棒系统

PC bar system used in CRTS I type (post tension) high-speed railway track plate

用途业绩: 哈大客专、哈齐客专、沪宁客专、成绵乐客专、海南东环客专。

Application: Harbin-Dalian, Harbin-Qiqihar, Shanghai-Nanjing, Chengdu-Mianyang-Leshan, Hainan East Ring passenger line.

序号 No.	产品名称 Product Name	技术描述 Technical description
1	预应力钢棒 PC bar	直径13mm, 抗拉强度1420MPa, 低松弛, GB/T5223标准。 Diameter 13mm, tensile strength 1420MPa, low relaxation, GB/T5223 standard.
2	无粘结涂层 Unbonded coating	厚度0.8-1.0mm, 材料: 预应力钢材专用防锈油脂和高密度聚乙烯塑料。 Thickness 0.8-1.0mm, material: anti-rust oil and high-density polyethylene plastic specially used in PC steel
3	锚垫板 Anchoring plate	45#优质碳素钢锻造而成。 Forged by 45 # quality carbon steel
4	锚固螺母 Anchoring nut	45#优质碳素钢, 经调质热处理, HRC不大于20。 45 # quality carbon steel, heat-treated, HRC less than 20
5	螺旋筋 Spiral tendon	螺旋导程、筋长度及内径尺寸精度高。 high accuracy of spiral lay length, tendon length and diameter



CRTS II 型 (先张法) 高速铁路轨道板用10mm螺旋肋预应力钢丝

10mm spiral rib wire Used in CRTS II type (pre-tensioned) high-speed railway track plate

用途业绩: 京津城际铁路、京沪高铁、北京-石家庄-武汉客专、津秦客专、宁杭客专、杭长客专、杭甬客专、合蚌客专、合福客专。

Application: Beijing-Tianjin inter-city railway, Beijing-Shanghai high-speed railway, Beijing-Shijiazhuang-Wuhan, Tianjin-Qinhuangdao, Nanjing-Hangzhou, Hangzhou-Changsha, Hangzhou-Ningbo, Hefei-Bengbu, Hefei-Fuzhou passenger line.

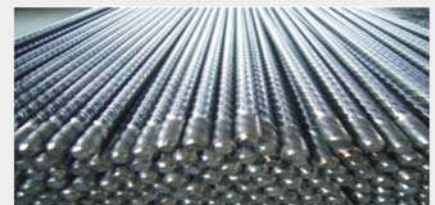
公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile strength (MPa)	屈服强度 (MPa) Yield strength (MPa)	松弛级别 (1000h) Relaxation (1000h)	执行标准 Standards
10.0mm	1570	1420	低松弛≤2.5% Low relaxation≤2.5%	GB/T5223-2014 科技基(2008)173号
我们还可为客户生产其他标准和非标准的产品 Other standard and non-standard products for customers				



CRTS III型 (先张法) 高速铁路轨道板预应力钢材系统

PC steel system used in CRTS III type (pre-tension) high-speed railway track plate

序号 No.	产品名称 Product Name	技术描述 Technical description
1	预应力钢筋 PC steel	直径10mm, 抗拉强度1570MPa, 低松弛, GB/T5223标准。 Diameter 10mm, tensile strength 1570MPa, low relaxation, GB/T5223 standard
2	构造筋 Constructional steel	直径8.0, 12.0mm, 材料: 冷轧带肋, 消除应力处理的低松弛中强钢筋。 Diameter 8.0, 12.0mm, Material: cold-rolled steel bar, stress-relieved low relaxation mid-tensile steel
3	锚固板 Anchoring plate	尺寸Φ25mm×H16, 45#碳素结构钢调质处理, HRC26~30。 Size Φ25mm×H16, 45 # carbon structural steel, heat-treated, HRC26 ~ 30



产品展示

预应力混凝土用钢棒 PC Steel bar



银龙股份是中国最早（1992年）生产预应力钢棒的企业，是预应力钢棒螺旋拉拔技术、高频热处理技术的研发者，并最早与中国钢厂成功开发多品种预应力钢棒用合金盘条。银龙预应力钢棒拥有韩国KS质量认证，并实现精排线包装供货，产品出口到越南、马来西亚、韩国、南美洲等国家和地区。

2008年，银龙成功开发高速铁路轨道板用预应力钢棒，成功开发预应力钢棒搓丝深加工，以高水平技术和稳定可靠质量向哈尔滨至大连、海南东环、成都遂渝等中国高速铁路I型、III型轨道板供应光面搓丝预应力钢棒系统。

Silvery Dragon is the earliest (1992) Chinese enterprise which produced the PC steel bars. Silvery Dragon is the researcher of the spiral drawing technology for PC bar and high frequency heat treatment technology. At the same time, Silvery Dragon developed successfully a lot of kinds of alloy wire rods used for PC steel bar with Chinese steel mills. Silvery Dragon applied for the KS quality certificate from South Korea for the PC bars and can supply the bars with the fine packaging. The products have been exported to Vietnam, Malaysia, South Korea, South America and some countries and regions.

In the year of 2008, Silvery Dragon developed successfully the PC steel bar used in high speed railway track plate, and developed the deep processing of thread for the PC steel bars. With high level technology, stable and reliable quality, Silvery Dragon has supplied plain threaded PC steel bar systems for Chinese high speed railway I type and III type track plates used in the projects from Harbin to Dalian, the East Ring in Hainan city and in Chengdu Suiyu Project.

技术参数及参考标准 Key parameter&reference

外形 Appearance	公称直径 (mm) Nominal Dia.(mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
螺旋槽 Spiral Groove	6.1,7.1,9.0, 10.0,10.7,12.6	1230,1420	低松弛≤2.5% Low relaxation≤2.5%	JISG3137
	7.4,9.2,11.0,13.0	1230,1420	低松弛≤2.0% Low relaxation≤2.0%	GB/T5223.3
光面 Plain surface	9.2,11.0,13.0, 17.0,23.0,26.0	1230,1420	低松弛≤1.5% Low relaxation≤1.5%	KSD3505
	9.2,11.0,13.0,17.0,23.0	1230,1420	低松弛≤2.5% Low relaxation≤2.5%	JISG3109
			低松弛≤2.0% Low relaxation≤2.0%	GB/T5223.3
			低松弛≤1.5% Low relaxation≤1.5%	KSD3505



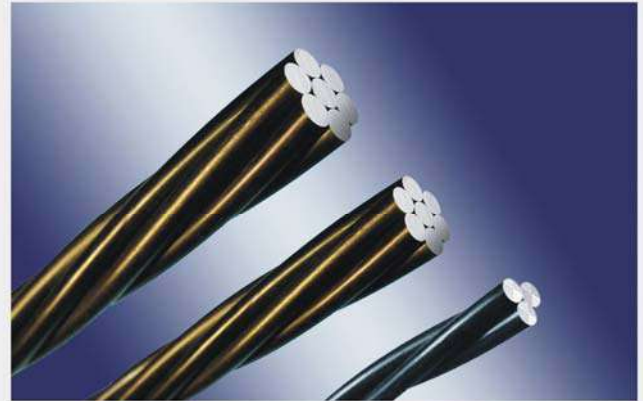
Products

Low Relaxation PC Strand

低松弛预应力钢绞线

银龙拥有6条预应力钢绞线生产线，年产量20万吨，是中国最早大批量向欧洲和美洲出口预应力钢绞线的企业，拥有中国、中国铁路、挪威、瑞典、英国、韩国、澳大利亚等10个国家质量认证，自2003年起累计向63个国家出口超过50万吨。

银龙7股光面预应力钢绞线在国内主要向铁路和高速铁路桥梁市场投放，自2005年京津城际客运专线开始，郑西、哈大、京沪、石太、京石、石武、津秦、海南东环等20余条总长度超6000公里，300至400公里/小时高速铁路建设中均有良好供应业绩，总量达35万吨。



With six pc strand production lines, and the annual output 200,000 tons, Silvery Dragon is China's first enterprise which exported PC strand in large quantity to Europe and America. Silvery Dragon has owned more than ten national quality Certificates from China, Chinese Railway, Norway, Sweden, England, South Korea and Australia and so on. Since 2003, Silvery Dragon had exported its products to 63 countries and the cumulative export quantity over than 500,000tons.

In China, Silvery Dragon mainly supplies its 7 wires plain strand to railways and high speed railway bridge markets. Since the Beijing-Tianjin inter-city passenger line began in the year of 2005, Silvery Dragon has supplied its strands for the total length of over 6000km including Zhengzhou-Xian, Harbin-Dalian, Beijing-Shanghai, Shijiazhuang-Taiyuan, Beijing-Shijiazhuang, Shijiazhuang-Wuhan, Tianjin-Qinhuangdao, the East Ring in Hainai city and so on. It included more than 20 projects. Silvery Dragon has got good supply performance in the 300-400km/h high-speed railway construction. The total amount reached 350,000tons.

技术参数及参考标准 Key parameter&reference

外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
7股左旋或右旋 Seven wires left or right lay	8.0, 9.3, 9.53, 11.1, 12.5, 12.7, 15.2, 15.7, 17.8, 21.6	1770, 1860, 2000	低松弛 $\leq 2.5\%$	ASTM A416, BS5896, EN10138-3 AS/NZS4672, GB/T5224, KS7002 ISO6934-4, SS213620, JISG3536 UNE36094, ABNT NBR7483, NEN3868
3股光面 Three wires plain	4.8, 5.2, 5.8, 6.2, 6.5, 7.5, 7.6, 8.6, 9.1	1725, 1860	Low relaxation $\leq 2.5\%$	ASTM A910, GB/T5224 TISG3536, EN10138-3, AS/NZS4672

我们还可以为客户生产其他标准和开发非标准的产品
Other standard and non-standard products for customers



产品展示

刻痕、螺旋肋预应力钢绞线 Indented、spiral-rip PC strand



技术参数及参考标准

Key parameter&reference

外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
7股左旋或右旋, 刻痕、螺旋肋 Seven wires left or right lay, spiral-rips, indented	8.0,9.3,9.53, 11.1,12.5,12.7, 15.2,15.7	1770,1860	低松弛≤2.5% Low relaxation≤2.5%	ASTM A886、BS5896、EN10138-3 AS/NZS4672、GB/T5224、KS7002 ISO6934-4、SS213620、JISG3536 UNE36094、NEN3868
2股、3股刻痕、螺旋肋 Two wires,three wires indented, spiral-rips	4.8,5.2,5.8, 6.2,6.5,7.5, 7.6,8.6,9.1	1725,1860		ASTM A910、GB/T5224 TISG3536、EN10138-3、AS/NZS4672

无粘结预应力钢绞线 PE Strand

无粘结预应力镀锌钢绞线 PE Zinc-coated strand



此产品采用精确的密排空心卷包装，出口到巴拿马、挪威、新加坡、以色列、沙特等20余个国家和地区，除执行中国标准JG161之外，还可执行国外任何标准，PE材料的颜色可按照客户要求生产。



Silvery Dragon use specified and accurate international shaft packaging and hollow core reel packaging with small diameter for PE strand. And we are exporting to Panama, Norway, Singapore, Israel, Saudi Arabia and more than 20 countries. Except for the Chinese standard JG161, Silvery Dragon can also perform any foreign standard. The color of the PE material demanded by the customers can be fully meet with by Silvery Dragon.

技术参数及参考标准

Key parameter&reference

类型 Type	外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength(MPa)	松弛级别 (1000h) Relaxation(1000h)	执行标准 Standards
无涂镀钢绞线 Uncoated PC strand	聚乙烯、油脂涂层 Polyethylene grease coating	12.5,12.7,15.2,15.7	1770,1860	低松弛≤2.5% Low relaxation ≤2.5%	ASTM A416、BS5896、EN10138-3、 AS/NZS4672、GB/T5224、KS7002、 ISO6934-4、SS213620、JISG3536、 UNE36094、JG161、NEN3868
镀锌钢绞线 Zinc-coated PC strand					

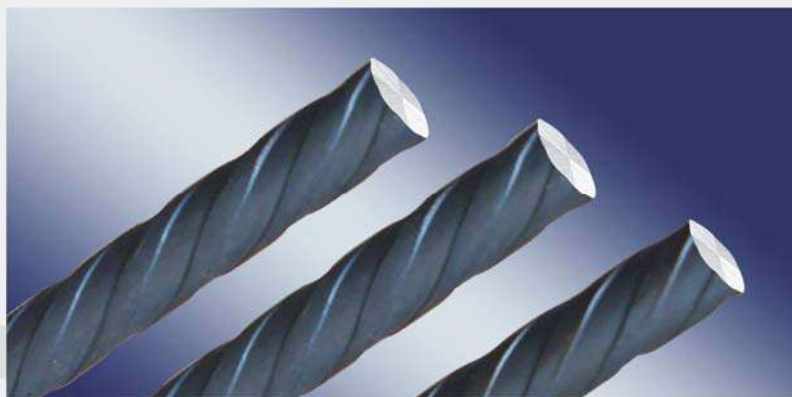
我们还可为客户生产标准和开发非标准的产品
Other standard and non-standard products for customers



Products

矿山支护用预应力钢棒

PC Steel Bar for mine reinforcement



技术参数及参考标准 Key parameter&reference



外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength (MPa)	松弛级别 (1000h) Relaxation (1000h)	冲击吸收能量 (J) Shock resistance grade
螺旋肋 Spiral ribs	16.0, 18.0, 20.0	1230, 1270, 1420, 1570	普通松弛≤8% 低松弛≤2.5% Normal relaxations≤8% Low relaxations≤2.5%	≥30

我们还可为客户生产标准和开发非标准的产品
Other standard and non-standard products for customers

煤矿用大直径螺旋预应力中空锚杆

Spiral hollow cable with big diameter used in mine

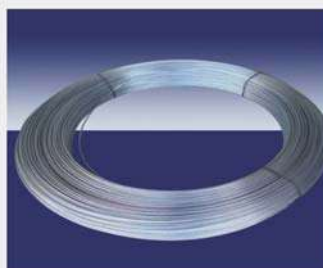


直径: 30mm-45mm
抗拉强度: 1670MPa

Diameter: 30mm-45mm
Tensile strength: 1670MPa

产品展示

预应力镀锌钢丝 Galvanized PC Wire



外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength (MPa)	松弛级别 (1000h) Relaxation (1000h)	执行标准 Standards
光面 Plain Surface	5.0, 7.0	1670, 1770, 1860	普通松弛 $\leq 7.5\%$, 低松弛 $\leq 2.5\%$ Normal Relaxation $\leq 7.5\%$, Low Relaxation $\leq 2.5\%$	GB/T 17101、NF A35-035 ASTM A641

我们还可为客户生产标准和开发非标准的产品
Other standard and non-standard products for customers

预应力镀锌钢绞线 Galvanized PC Strand



外形 Appearance	公称直径 (mm) Nominal Dia. (mm)	抗拉强度级别 (MPa) Tensile Strength (MPa)	松弛级别 (1000h) Relaxation (1000h)	执行标准 Standards
7股左旋或右旋、镀锌 Seven wires left or right galvanized	12.5, 12.9, 15.2, 15.7	1770, 1860	低松弛 $\leq 2.5\%$ Low relaxation $\leq 2.5\%$	YB/T152、ASTM A855 NF A35-035

我们还可为客户生产标准和开发非标准的产品
Other standard and non-standard products for customers



Products

CRTS III型（先张法）高速铁路轨道板 CRTS III type (pre-tension) high-speed railway track plate



应用：西宝、沈丹、兰新（试验段），郑徐、商合杭、济青、京沈、昌赣客专

Application: Xining-Baoji, Shenyang-Dandong, Lanzhou-Xinjiang passengerdedicated (local shop), Zhengzhou-Xuzhou , Shangqiu-Hefei-Hangzhou, Jinan-Qingdao, Beijing-Shenyang, Nanchang-GanzhouGanpassenger dedicated .

尺寸：长X宽X厚（mm） Size: length X width X thickness（mm）	抗压强度 Compressive strength	抗冻等级 Freezing level	混凝土电通量 Concrete electric flux	适用工程 Applicable project
4856X2500X200 4925X2500X200 5600X2500X200	C60	≥F300	≤1000C	≥300Km/h 高速铁路 ≥300Km/h high-speed railway



资质业绩

银龙股份在国内市场中的业绩 Silvery Dragon Co.,Ltd Achievements in China

