TIANJIN TINGCO TECH CO., LTD

www.tcfibers.com

Tingco

TIANJIN TINGCO TECH CO., LTD

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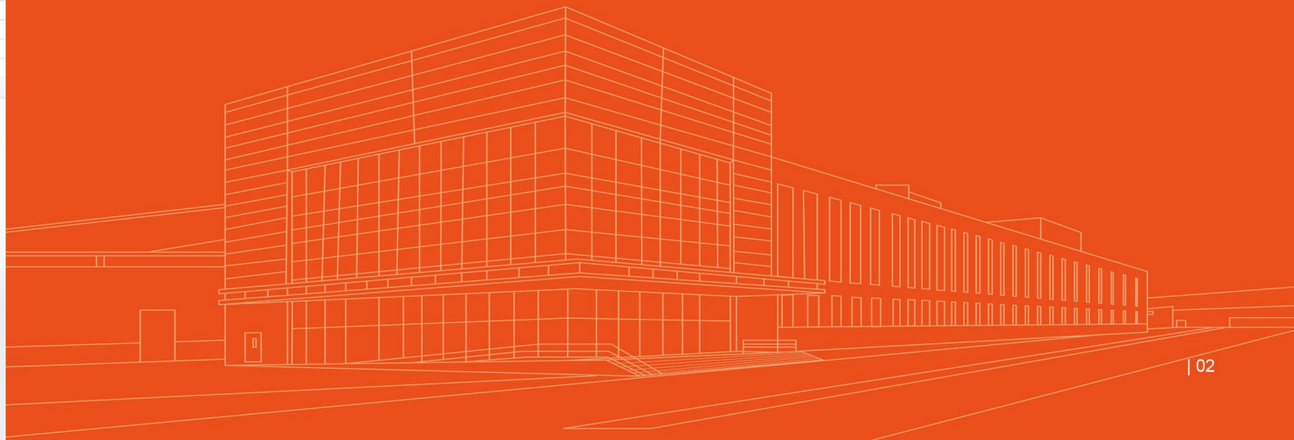
COMPANY PROFILE

We are more than just a steel fiber supplier. Backed by our dedicated R&D and technical teams, we have expanded our product line to include PP fibers, PA fibers, and our latest innovation - UHPC premix, responding to market demands and clients' needs for diversified solutions.



TINGCO VALUES

Deliver value to our enterprise, Create value for our customers.

With sincerity, resilience, optimism, initiative, continuous learning, and gratitude.

TINGCO VISION

To become a trusted and progressive enterprise that evolves with the times.

TINGCO MISSION

People-oriented, eco-friendly innovation for civil engineering development.

02

PRODUCT PORTFOLIO

- Copper Coated Micro Steel Fiber
- Stainless Micro Steel Fiber
- Hooked End Steel Fiber
- PP Micro Fibers
- PP Macro Fibers
- UHPC Premix Concrete

COPPER COATED MICRO STEEL FIBER

Type Straight

Product Range

Diameter: 0.16mm-0.32mm

Length: 6mm-25mm

T/S: 2400-3050MPa

Popular Spec

Diameter	Length	Tensile strength
0.16 mm	6 mm	3000 MPa
0.20 mm	13 mm	＞2850 MPa
0.20 mm	20 mm	＞2850 MPa

Type Hooked End

Product Range

Diameter: 0.16mm-0.32mm

Length: 6mm-25mm

T/S: 2400-3050MPa

Popular Spec

Diameter	Length	Tensile strength
0.20 mm	13 mm	＞2850 MPa

STAINLESS MICRO STEEL FIBER

Type Straight

Popular Spec

Diameter	Length	Tensile strength
0.20 mm	13 mm	2200 MPa
0.20 mm	20 mm	2200 MPa

Type Hooked End

Popular Spec

Diameter	Length	Tensile strength
0.20 mm	13 mm	2200 MPa

HOOKED END STEEL FIBER

Type Loose

Product Range

Diameter：0.5mm-1.0mm

Length：25mm-60mm

T/S：1100MPa，1300MPa，1900MPa，2100MPa

Popular Spec

Diameter	Length	Tensile strength
1.0 mm	50 mm	1100 MPa
1.0 mm	50 mm	1400 MPa
0.70 mm	50 mm	1225 MPa
0.75 mm	50 mm	1225 MPa
0.75 mm	50 mm	2100 MPa
0.90 mm	60 mm	1100 MPa
0.90 mm	60 mm	2100 MPa

Type

Glued

Product Range

Diameter：0.5mm-1.0mm

Length：25mm-60mm

T/S：1100MPa，1300MPa，1900MPa，2100MPa

Popular Spec

Diameter	Length	Tensile strength	fr1	fr2	fr3	fr4
0.55 mm	35 mm	1300 MPa	3.2	3.1	2.87	2.58
0.75 mm	60 mm	1225 MPa,	2.99	3.16	3.33	3.25
0.75 mm	60 mm	2100 MPa	5.52	7.71	8.29	8.02
0.90 mm	60 mm	1900MPa	4.38	6.32	6.68	6.49

PP MICRO FIBER

Material	Raw polypropylene
Diameter	18/30μm
Length	6/12/18 mm or Customize
Specific Gravity	0.91g/cm³

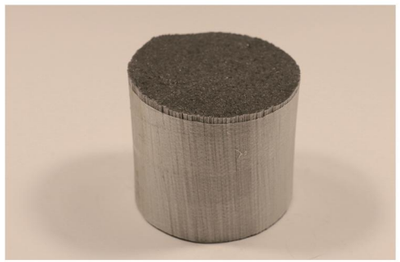
Tensile strength	450 MPa
Melting Point	165℃
Moisture	<0.1%

PP Macro Fibers

Material	Raw polypropylene
Diameter	0.7-0.9mm
Length	38/50 mm or Customize
Specific Gravity	0.91g/cm³
Tensile strength	＞600 MPa
Melting Point	165℃
Moisture	<0.1%

PP Twisted Fibers

Material	Raw polypropylene
Diameter	0.3-0.5mm
Length	25/54 mm or customize
Specific Gravity	0.91g/cm³
Tensile strength	＞600 MPa
Color	White/Grey/Black



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NEWLY LAUNCHED PRODUCT —— UHPC PREMIX

Product Features

Items	Characteristics
Premix	White, Composed of cement, admixtures, sand and additives
Fiber	Stainless steel fiber, 13mm in length, 0.2mm in diameter
Superplasticizer	Translucent liquid
Recommended water to Material ratio	0.08-0.09

Main technical indicators of UHPC (28d standard curing)

Items	Performance Index	Items	Performance Index
Spread value/mm	650-700	Flexural strength /MPa	≥20.0
Compressive Strength/MPa	≥120.0	Shrinkage/με	≤300
Tensile strength/MPa	≥9.0	Chloride ion diffusion coefficient/10-12(m2/s)	≤0.1
Elastic Modulus/Gpa	45.0-50.0	Freeze-thaw cycles/Times	≥500

Application Method and Matters Needing Attention

Materials	Premix	SP	Fiber	Water
Dosage	1000kg	8-10kg	60-100kg	85-90kg

03
LABORATORY FACILITIES

Standard EN14651
ASTMC1609

Test specimen: Beam with steel fiber (Ductil) No.2
Specimen information: Length = 600 mm, Width = 149 mm, Height = 150 mm
Span length (L): 500 mm

Date of testing: 5 February 2020
Age of sample at testing: 27 days

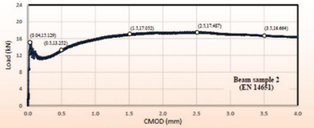
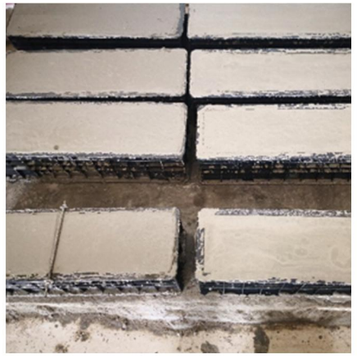


Figure 5: Relationship between load and CMOD

Table 2: The properties of the sample

CMOD	0.05 mm	F_1	15.129 N	LOP	4.95 MPa
$CMOD_1$	0.50 mm	F_1	13.252 N	$f_{R,1}$	4.33 MPa
$CMOD_2$	1.50 mm	F_2	17.052 N	$f_{R,2}$	5.58 MPa
$CMOD_3$	2.50 mm	F_3	17.487 N	$f_{R,3}$	5.72 MPa
$CMOD_4$	3.50 mm	F_4	16.664 N	$f_{R,4}$	5.46 MPa



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CERTIFICATIONS

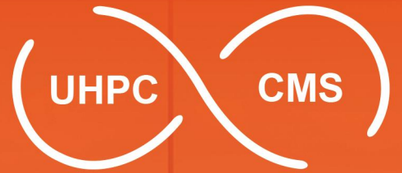
ISO14001

ISO9001

CE

EPD

05
TECHNICAL TEAM



UHPC TECHNICAL EXPERT

VICTOR YANG

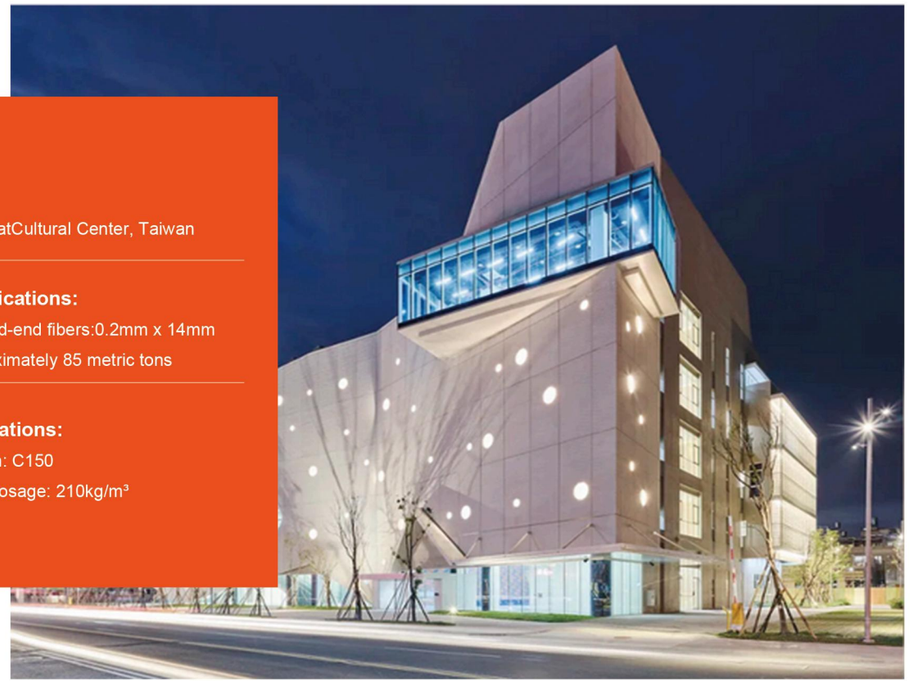
Senior Engineer (Research Professor level)

Industrial Professor at Nantong University

Yang Zhiqian is a Senior Engineer (Research Professor level) and Industrial Professor at Nantong University, specializing in engineering fibers and ultra-high-performance cement-based composites (UHPC). He is a member of the American Concrete Institute and the Jiangsu Society for Composite Materials.

With extensive expertise in UHPC technology, Professor Yang has led key national research projects, including initiatives under the National Natural Science Foundation of China. His work has contributed to the successful application of UHPC in landmark structures, such as the Xiamen New Convention Center and the Jiangyin Guoyue Island Concert Hall.

Professor Yang's achievements have been recognized with prestigious honors, including the Jiangsu Provincial Science and Technology First Prize and the Jianhua Engineering Award. He has published over 30 research papers, including 10 indexed in SCI/EI journals, filed 36 patents (22 granted), and played an active role in the development of UHPC industry standards.



Project Name:

Pingtung Wangye BoatCultural Center, Taiwan

Steel Fiber Specifications:

Stainless steel hooked-end fibers:0.2mm x 14mm

Total quantity: Approximately 85 metric tons

Concrete Specifications:

Compressive strength: C150

Stainless steel fiber dosage: 210kg/m³

Project Case:

Galaxy Hotel Dome Structure,Macau (Integrated Structural and Decorative Design)

Steel Fiber Specifications:

Type: Stainless Steel Hooked-End Fiber

Dimensions: 0.2 mm(diameter)x 14 mm(length)

Total Quantity: Approximately 60 metric tons

Stainless Steel Fiber Dosage: 210 kg/m

Concrete Specifications:

Concrete Strength Grade: C150

CMS TECHNICAL TEAM

CMS has been well recognized as a specialist for the industrial floor construction and engineering materials.

Our expertise can be proved by our excellent records of full support of engineering design services and supervisions at the jobsite to our customers.

CIVIL MASTER SOLUTION CO.,LTD

Dúctil® Steel Fiber

DUCTIL HiTech for your Concrete©

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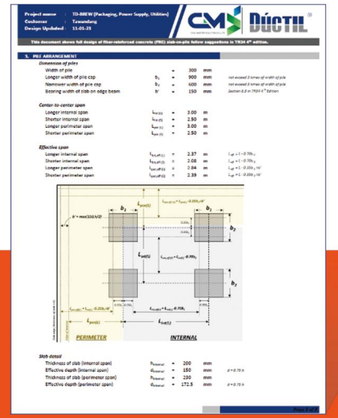
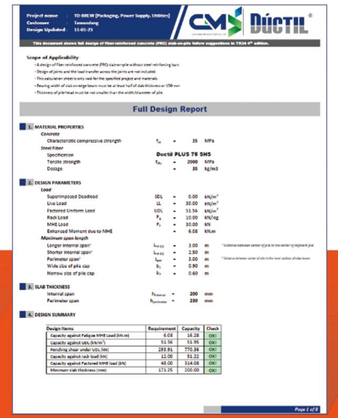
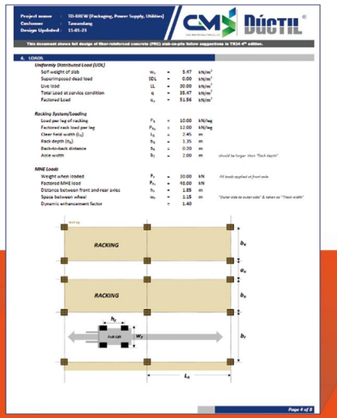
CMS TECHNICAL TEAM

CMS's in house design program.They design base on TR.344th Edition and reliable international standard.

Their design parameters come from the actual testing results that specified in the design guideline







Ticon Industrial Connection PCL.

TPARK Warehouse 331 Thailand, Chonburi

Facility Type: Ware House

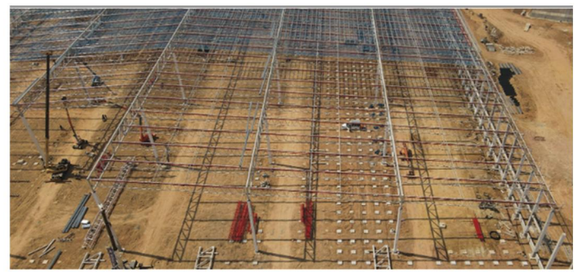
Floor Area: 37,500m²

Took Dee Distribution Center Khon Kaen.

Thailand, Khon Kaen (North-East)

Facility Type: Ware House

Floor Area: 66,000m²



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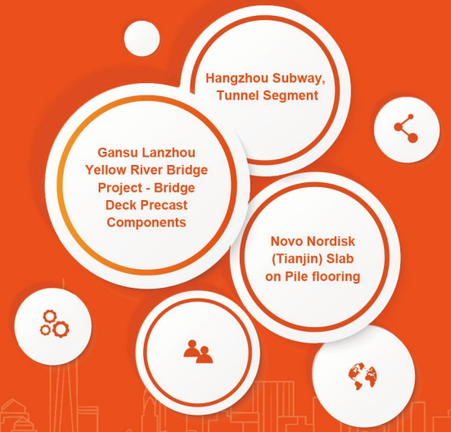
PROJECT CASES



Gansu Lanzhou Yellow River Bridge Project - Bridge Deck Precast Components

Steel Fiber Specifications:

- Copper-coated straight steel fibers: 0.2mm x 13mm
- Fiber dosage: 200 kg/m³
- Procurement quantity: 230 metric tons

Concrete Specifications:

- Concrete Compressive strength: C130

Novo Nordisk (Tianjin) Slab on Pile flooring

Steel Fiber :
80/60 2100MPa

Dosage:
30kg/m3 Total

Thickness:
250mm,C30

Total Uniform Load Design Value:
79kN/㎡

Hangzhou Subway, Tunnel Segment

Steel Fiber:
80/60 2100MPa (Glued)
65/50 2100MPa (Loose)

Dosage:
40kg/m³ Total

07

CBAM

(Carbon Border Adjustment Mechanism)

2 Summary of the production processes, included precursors and production routes, where relevant

(a) Aggregated good produced	Routes	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
Iron or steel products	All production routes	All production routes					

(b) Production process	Aggregated goods category	1	2	3	4	5	6
steel fiber for concrete reinforcement	Iron or steel products	Iron or steel products					

(c) Purchased precursor	Aggregated goods category	Route 1	Route 2	Route 3	Route 4	Route 5	Country code
wire rod	Iron or steel products						CN

Table: Process stages and EPD modules,

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITSAND LOADSBEYOND THESYSTEM BOUNDARIES
Raw material supply	Transport	Production	Transport from the gate to the	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	reuse-recovery-recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X