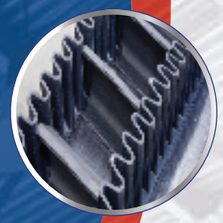

All your faith in us

75 RUBBER ONE MEMBER CO.,LTD
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MINISTRY OF NATIONAL DEFENCE
GENERAL DEPARTMENT DEFENCE INDUSTRY

All your faith in us

75 RUBBER ONE MEMBER LIMITED LIABILITY COMPANY

CATALOGUE

www.caosu75.com.vn
Z175 Residential Group, Xuan Son commune,
Son Tay town, Hanoi, Vietnam

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HEADQUARTER

Z175 residential group, Xuan Son commune,
Son Tay Town, Hanoi, Vietnam

INTRODUCTION

75 Rubber One Member Limited Liability Company (Z175 Factory) was established on April 26, 1968, as a Defense - Security enterprise under the General Department of national defence, Ministry of Defence. Headquartered at Z175 residential group, Xuan Son commune, Son Tay town, Hanoi, which is a leading enterprise in the field of manufacturing technical rubber products:

- Wear-resistant, fire-resistant, heat-resistant, chemical-resistant rubber conveyor belts, bucket conveyor belts, quantitative weighing conveyor belts,...
- Rubber-coated conveyor roller, porcelain-coated conveyor roller.
- Pressure-resistant rubber hose, oil-resistant rubber hose, hydraulic rubber hose, petroleum rubber hose, exhaust pipe,...
- Technical rubber parts for automobile and motorcycle industry, gaskets, shock absorbers, seals,...
- Lambda Ship fender, round cylinder Ship fender, CSS Ship fender, hydraulic Ship fender, W-Ship fender, D-Ship fender, ...
- Oil containment rubber sheet on rivers and seas.
- Anti-static rubber sheet, oil-resistant rubber sheet, floor rubber sheet, oil-resistant rubber sheet,...
- Guard packer.
- Air tires, solid tires.

Products are manufactured on advanced imported lines managed according to the ISO 9001:2015, IATF 16949:2016 system to meet the needs of defense and important national economic sectors such as: mining, petroleum, shipbuilding, thermal power, building materials, transportation, textiles, chemical industry, automobile and motorcycle assembly industry, electronics, refrigeration,... Imported goods substitution.

The company's products have been awarded many gold medals at the annual international industrial fairs and the Vietnam Gold Star Award for the company's brand in 2006.

VISION & MISSION

VISION:

Becoming a leading unit in the field of manufacturing high-tech rubber products for national defense and economy by sustainable development strategy, modern production technology, advanced management level.

MISSION:

Ensuring mission, sustainable development; Capital preservation and development; Market expansion, proactive economic cooperation; Creating a reputation to conquer every customer and challenge.

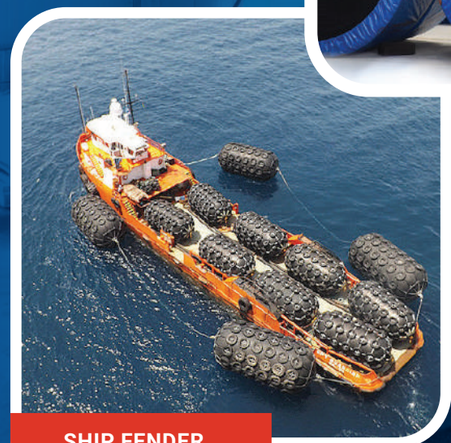
FIELDS OF ACTIVITIES

Technical rubber products of the Company have met the needs of National Defense, many important national economic sectors such as: mining, oil and gas, shipbuilding, thermal power, building materials, transportation, textiles, chemical industry, automobile and motorcycle assembly industry, electronics, refrigeration,... replacing imported goods.
The products are manufactured on advanced production lines, managed according to the ISO 9001:2015, IATF 16949:2016 system.

RUBBER PIPES

TECHNICAL RUBBER SPARE PARTS

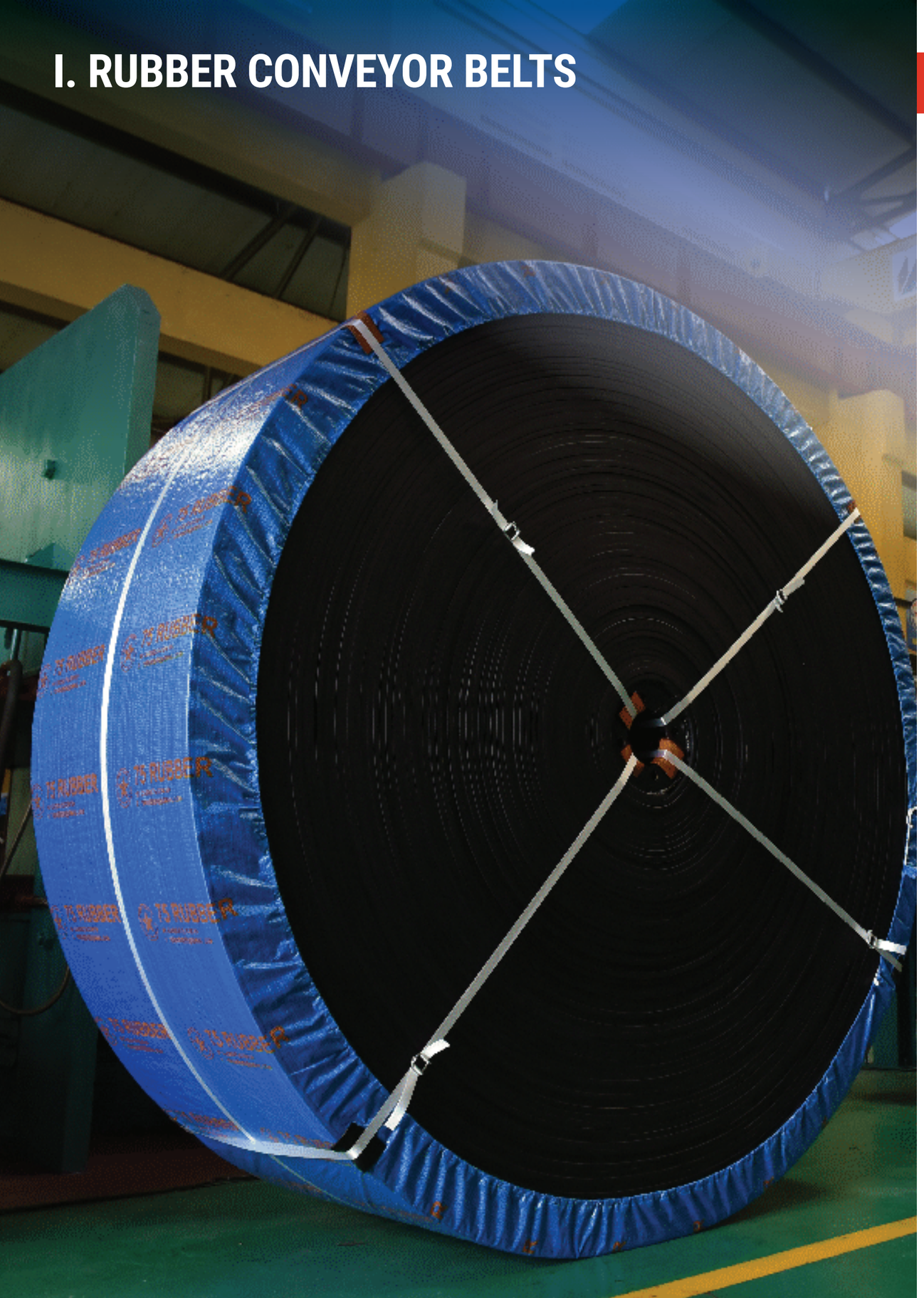
RUBBER CONVEYOR BELTS



SHIP FENDER

OTHER PRODUCTS

I. RUBBER CONVEYOR BELTS



I.1. CONVEYOR BELT (EP)

SPECIAL SPECIFICATIONS		
Number of layers of reinforcement fabric (EP)		1 - 8
Maximum width		2200mm
Maximum thickness		55mm
Type of reinforcement fabric layer (EP)		EP100 - EP500
Maximum product breaking tensile strength		3000N/mm
Standard roll length		100m (Can be produced according to customer's requirements up to 400m)
Adhesion force	Cover rubber with reinforcement fabric (EP)	≥5N/mm
	Reinforcement fabric (EP) layer with reinforcement fabric (EP) layer	≥6N/mm

SOME INDICATORS FOR COVER RUBBER

Types of conveyor belts	Tensile strength (MPa)	Elongation (%)	Abrasion (mm^3)
Grade-A abrasive resistant conveyor belts (JIS K 6322:2011)	≥14	≥400	≤150
Grade-D abrasive resistant conveyor belts (JIS K 6322:2011)	≥18	≥400	≤100
Grade-L fire resistant conveyor belts (JIS K 6322:2011)	≥15	≥400	≤150
Heat-resistant conveyor belts up to 180ºC (Heat pulse 220ºC) (JIS K 6322:2011)	≥16	≥450	≤150
DIN 22102 Conveyor Belt (DIN W)	≥18	≥400	≤90
DIN 22102 Conveyor Belt (DIN X)	≥25	≥450	≤120
DIN 22102 Conveyor Belt (DIN Y)	≥20	≥400	≤150
DIN 22102 Conveyor Belt (DIN Z)	≥15	≥350	≤250
Fireproof conveyor belts (DIN K)	≥20	≥400	≤150

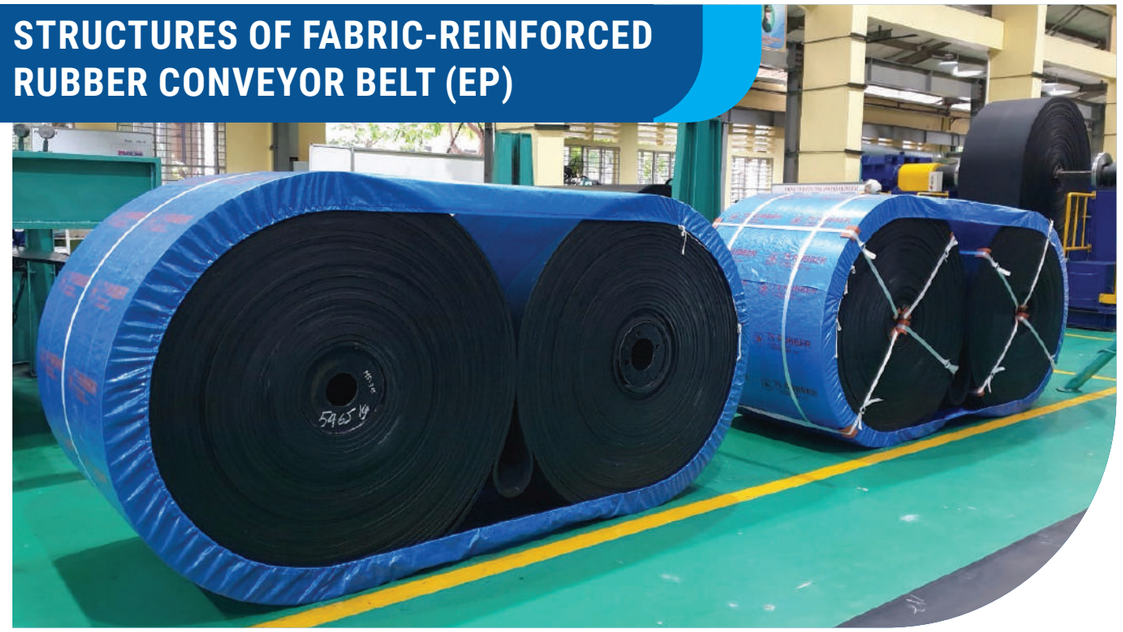
4500T CONVEYOR BELTVULCANIZING MACHINE

STRUCTURES OF COMMON FABRIC-REINFORCED CONVEYOR BELT (EP)

Width (mm)	Thickness (mm)	Tensile strength (min, N/mm)	Structure			
			2 layers	3 layers	4 layers	5 layers
200 - 2200	5 ÷ 55	200	2EP100			
		300	2EP150	3EP100		
		400	2EP200	3EP125	4EP100	
		500		3EP150	4EP125	5EP100
		600		3EP200	4EP150	5EP125
		750		3EP250		5EP150
		800		3EP300	4EP200	5EP150
		1000			4EP250	5EP200
		1200			4EP300	
		1250			4EP300	5EP250
		1500				5EP300
		1600			4EP400	
		2000			4EP500	5EP400

In addition, the factory will respond to the specific requirements of customers.

STRUCTURES OF FABRIC-REINFORCED RUBBER CONVEYOR BELT (EP)



Cover rubber layer

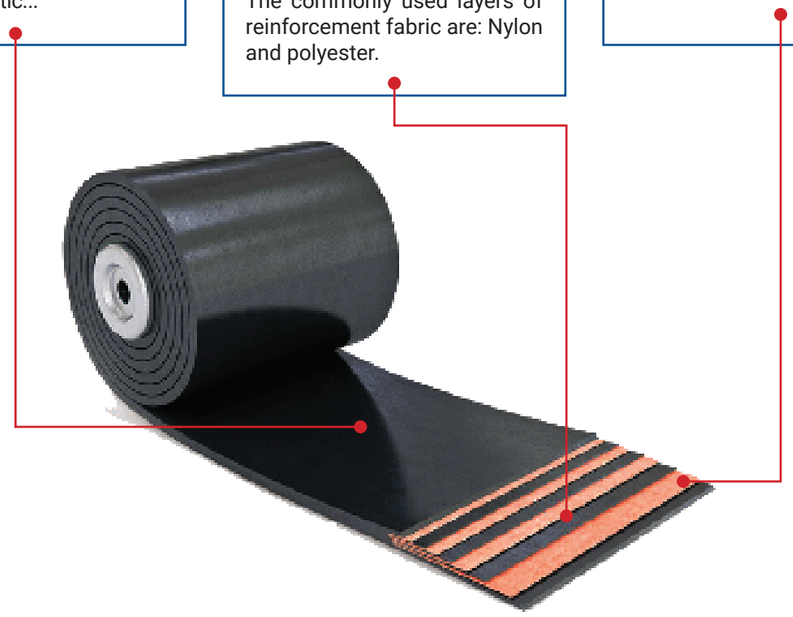
Natural or synthetic rubber suitable for protecting the reinforcement layer from abrasion, mechanical impact and harmful effects on conveyor belts. They are also incorporated into specific working conditions such as: wear-resistant, heat-resistant, fireproof, chemical, grease, antistatic...

Reinforcement fabric(EP) layer

The reinforcement fabric (EP) layer creates durability for the conveyor belt, which is responsible for transmitting force and carrying the load. The reinforcement fabric (EP) layer consists of many layers of fabric fibers bonded together by an adhesive rubber layer. The commonly used layers of reinforcement fabric are: Nylon and polyester.

Adhesive rubber layer

The adhesive rubber layer to bond the layers of fabric (EP) helps them not to separate in case of being bent, creating softness for the conveyor belt. Adhesive rubber coatings on the fabric provide resistance to compression and moisture.



I.1.1. ANTI-ABRASIVE CONVEYOR BELT

APPLICATIONS

- To transport abrasive materials such as: coal dust, cement, fertilizers, chemicals, sand, gravel,...
- Working temperature: -30°C ÷ 70°C
- Depending on the purpose of use which will correspond to different levels of abrasion: 90mm³; 120mm³; 150mm³; 200mm³...

I.1.2. HEAT-RESISTANT CONVEYOR BELT

Heat-resistant conveyor belt is made by inner force bearing layer and cover rubber which can withstand temperature widely used in cement industry to load hot clinker and fertilizer, chemical, materials, fuels, transportation of construction materials (Bitum, Asphalt,...)

CLASSIFICATION OF HEAT-RESISTANT CONVEYOR BELT ACCORDING TO HEAT-RESISTANCE LEVEL

- **Heat resistant up to 100ºC**
- **Heat resistant up to 150ºC**
- **Heat resistant up to 180ºC**

I.1.3. FIRE-RESISTANT RUBBER CONVEYOR BELT

APPLICATIONS

To transport materials in pits where there are many explosive gases.

CHARACTERISTICS OF COVER RUBBER LAYER

- **Capable of self-extinguishing flames after leaving the fire source**
- **Not generating embers, fire, not generating temperatures higher than 325°C when getting sliding friction with rollers**
- **The product is certified by an authorized independent testing center to meet fire resistance and antistatic standards**

Hardness	65±5 Shore A
Working temperature	-30ºC ÷ 70ºC
Conveyor belt surface resistance	≤300MΩ
Production standard	BS EN 14973

I.1.4. OIL-RESISTANT CONVEYOR BELTS

APPLICATIONS

Used to transport materials containing oil, grease, processing oil, vegetable oil,...

I.1.5. ACID & CHEMICAL-RESISTANCE CONVEYOR BELT

APPLICATIONS

To transport acidic, basic, corrosive resistant materials such as fertilizer, chemical, construction materials, ...

I.1.6. ENDLESS CONNECTION CONVEYOR BELTS

APPLICATIONS

Used in weighing equipment for materials with normal or high temperature such as: gypsum powder, chemicals,...
Application for cement factories, ceramic tiles, tea processing,...

CLASSIFICATION BY STYLE

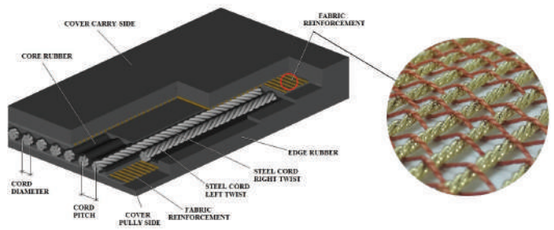
- Regular endless conveyor belts
- Conveyor belts with side-wall
- Type with horizontal ribbed, "V" ribbed
- Type with S wall
- Rough surface type (anti-slip)

CLASSIFICATION BY WORKING CONDITIONS

Working temperature	100ºC	150ºC	180ºC
Produced according to standard JIS K 6322:2011			

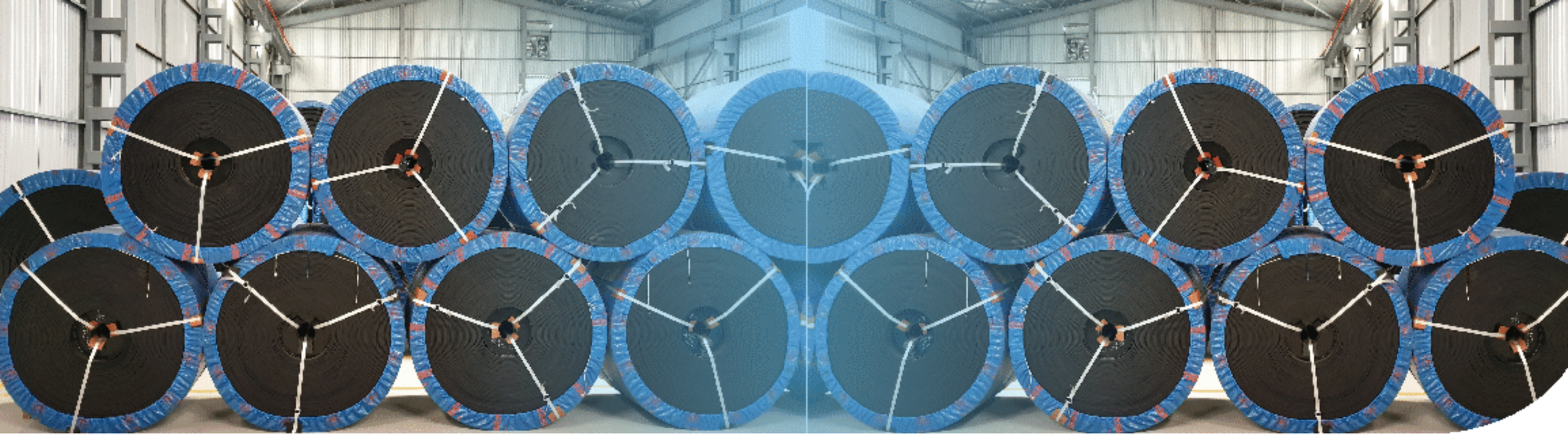
I.2. STEEL CORD CONVEYOR BELT

The steel cords are inside inside, as a reinforced layer of steel cord fibers linked together by an adhesive rubber layer, with a cover rubber layer outside, capable of working in different conditions according to customer requirements, such as working in normal condition, fireproof, high wear resistance, heat resistant...



PHÂN GRADE

- Wear-resistant rubber conveyor belts reinforced with steel cords
- Fireproof rubber conveyr belt reinforced with steel cords
- Heat resistant rubber conveyor belts reinforced with steel cords
- Bucket Conveyor Belts



SOME BASIC SPECIFICATIONS

Maximum number of steel cords	156 cords
Maximum width	1800mm
Minimum thickness	11mm (unlimited maximum)
Maximum conveyor belt force	ST4000
Standard roll length	100m (Can be produced according to customer's requirements up to 400m)
Cable diameter	2,7 - 8,1mm

SOME INDICATORS FOR COVER RUBBER

Types of conveyor belts	Tensile strength (MPa)	Elongation (%)	Abrasion (mm^3)
Grade-D anti-abrasive conveyor belt (JIS K 6322:2011)	≥18	≥400	≤100
Heat-resistant conveyor belts up to 180ºC (Heat pulse 220ºC) (JIS K 6322:2011)	≥16	≥450	≤150
DIN 22102 Conveyor belt (DIN W)	≥18	≥400	≤90
DIN 22102 Conveyor belt (DIN X)	≥25	≥450	≤120
DIN 22102 Conveyor belt (DIN Y)	≥20	≥400	≤150
DIN 22102 Conveyor belt (DIN Z)	≥15	≥350	≤250
Fireproof Conveyor belt (DIN K)	≥20	≥400	≤150

SPECIFICATIONS AND TESTING STANDARDS

No.	Specifications	Testing standards
1	Conveyor belt width	JIS K 6369:2007
2	Conveyor belt thickness	JIS K 6369:2007
3	Working upper cover rubber	JIS K 6369:2007
4	Under rubber cover thickness	JIS K 6369:2007
5	Conveyor belt break tensile strength	JIS K 6369:2007
6	Elongation at break	JIS K 6369:2007
7	Working elongation	JIS K 6369:2007
8	Adhesion between cover rubber layer and core rubber layer	JIS K 6369:2007
9	Adhesion between core rubber layer and reinforcement steel core	JIS K 6369:2007
10	Tensile strength between adhesive rubber and steel wire rope	JIS K 6369:2007
11	Steel core conveyor belt joints	JIS K 6369:2007

BASIC STRUCTURES OF STEEL FIBER REINFORCED RUBBER CONVEYOR BELTS

Table 1 - Grade A_0

	ST - 500	ST - 630	ST - 800	ST - 1000	ST - 1250	ST - 1400	ST - 1600	ST - 1800	ST - 2000	ST - 2250	ST - 2500	ST - 2800	ST - 3150	ST - 3500	ST - 4000
Tensile strength minimum (N/mm)	500	630	800	1000	1250	1400	1600	1800	2000	2250	2500	2800	3150	3500	4000
Diameter of steel cord maximum (mm)	2,8	3,0	3,5	4,0	4,5	4,5	5,0	5,0	6,0	6,3	7,2	7,6	8,1	8,6	9,2
Minimum tensile strength of steel cord (kN)	5,6	7,0	8,9	13,2	16,5	18,5	21,1	23,7	26,4	29,6	41,7	46,7	52,5	58,4	66,7
Pitch (mm)	10,0	10,0	10,0	12,0	12,0	12,0	12,0	12,0	12,0	12,0	15,0	15,0	15,0	15,0	15,0
Thickness of seat and min working surface (mm)	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	5,0	5,0	5,0	5,5	5,5	6,0	6,5
Width (mm)	**Number of steel cords**														
500	45	45	45	38	38	38	38	-	-	-	-	-	-	-	-
650	60	60	60	50	50	50	50	50	50	50	40	40	40	40	40
750	70	70	70	59	59	59	59	59	59	59	47	47	47	47	47
800	75	75	75	63	63	63	63	63	63	63	50	50	50	50	50
900	85	85	85	71	71	71	71	71	71	71	57	57	57	57	57
1000	95	95	95	79	79	79	79	79	79	79	64	64	64	64	64
1050	98	98	98	82	82	82	82	82	82	82	66	66	66	66	66
1200	113	113	113	94	94	94	94	94	94	94	76	76	76	76	76
1400	-	-	-	111	111	111	111	111	111	111	89	89	89	89	89
1500	-	-	-	-	-	-	-	-	-	-	94	94	94	94	94
1600	-	-	-	-	-	-	-	-	-	-	101	101	101	101	101

Table 2 - Grade A_1

	ST - 500	ST - 630	ST - 800	ST - 1000	ST - 1250	ST - 1400	ST - 1600	ST - 1800	ST - 2000	ST - 2250	ST - 2500	ST - 2800	ST - 3150	ST - 3500	ST - 4000
Minimum breaking strength (N/mm)	500	630	800	1000	1250	1400	1600	1800	2000	2250	2500	2800	3150	3500	4000
Maximum steel cord diameter (mm)	3,0	3,0	3,7	4,2	4,9	5,0	5,6	5,6	5,6	5,6	7,2	7,2	8,1	8,6	8,9
Minimum tensile strength of steel cord (kN)	7,6	7,6	10,3	12,9	18,4	20,6	26,2	25,5	25,5	26,2	39,7	39,7	50,0	55,5	63,5
Pitch (mm)	14,0	11,0	12,0	12,0	14,0	14,0	15,0	13,5	12,0	11,0	15,0	13,5	15,0	15,0	15,0
Thickness of seat and working surface minimum (mm)	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	5,0	5,0	5,5	6,0	6,5
Width (mm)	**Number of steel cords**														
500	33	42	39	39	34	34	31	-	-	-	-	-	-	-	-
650	44	54	51	51	45	45	41	46	52	56	41	46	41	41	41
800	54	68	64	63	55	55	50	57	64	69	51	57	51	51	51
1000	68	84	80	80	68	68	63	71	80	86	63	71	63	64	63
1200	86	110	97	97	82	82	76	85	96	104	76	85	76	76	76
1400	96	124	114	113	97	97	90	100	112	122	89	99	89	89	89
1600	111	142	130	130	111	111	103	114	129	140	102	114	102	102	102

Rubber conveyor belts manufactured by the Company are installed for The Vissai Group at Nghi Thiet port - Nghe An

I.2.1. WEAR-RESISTANT RUBBER CONVEYOR BELTS REINFORCED WITH STEEL CORDS

- Scope of use: Transporting coal, ore, limestone, additives.
- Maximum working temperature of 70°C.
- Capable of absorbing energy on impact.
- Usually made with natural rubber or Styrene - Butadiene rubber.
- The belt is used for conveying abrasive materials under heavy loads.
- The wear-resistant rubber material is manufactured in accordance with DIN 22131, JIS K 6369:2007 standards.
- Do not use in oily environments.

I.2.2. FIREPROOF RUBBER CONVEYOR BELT REINFORCED WITH STEEL CORDS

75 Rubber conveyor belt used in pits of Ha Lam Coal Company - TKV

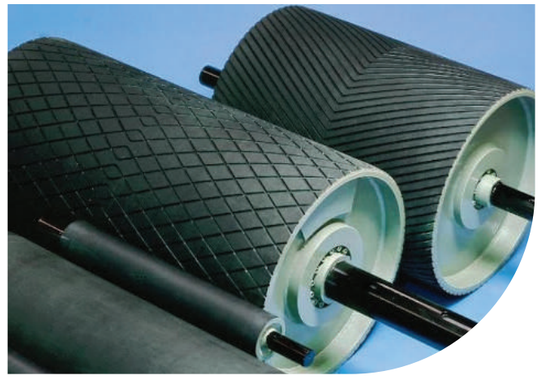
- Scope of use in high fire hazard environments especially in underground coal mines.
- Maximum working temperature of 100°C.
- Conductivity meets DIN 22104, ISO 284 standards (Resistance ≤3 x 10^8 Ohm).
- Materials are based on Chloroprene rubber or modified synthetic rubber.

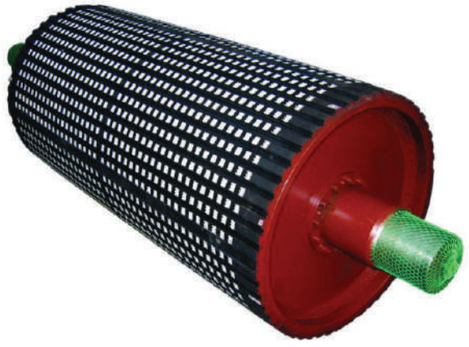
I.2.3. HEAT-RESISTANT STEEL CORD CONVEYOR BELT

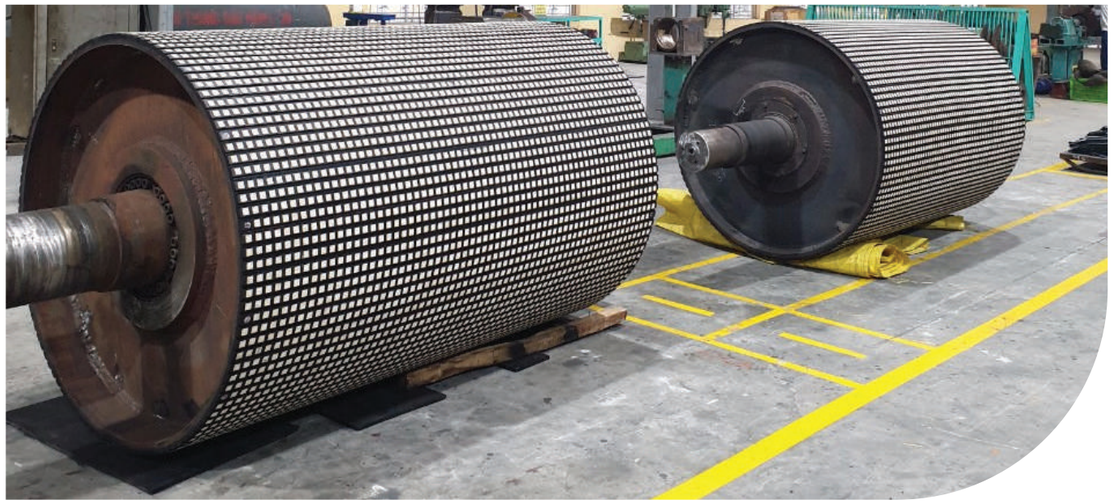
- Usually to transport high temperature materials vertically.
- Steel mesh structure is impact resistant, tear resistant.
- Manufactured according to JIS K 6369:2007 standard.

II. ROLLER

75 Rubber One Member Limited Liability Company (Z175) specializes in providing rubber-coated, ceramic-coated rollers with diameter from Ø400 mm and products that ensure abrasion and fire resistance standards. In addition, the Compan also provides repair and restoration services for rubber and porcelain coated rollers with a diameter of up to Ø2000mm.







Ceramic coated roller, manufactured by 75 Rubber Company for Vinh Tan Thermal Power Plant - EVN

Roller is coated with rubber according to customer's request by hot gluing method to increase coefficient of friction, damping, corrosion resistance, fire resistance, heat resistance.

Specifications of rubber material coated with rollers				
1.1. ABRASION RESISTANCE				
No.	**Specifications**	**Unit**	**Testing standards**	**Target level**
1	Rubber hardness	Shore A	TCVN 1595-2:2013	60-80
2	Rubber elongation at break	%	TCVN 4509:2013	≥ 350
3	Rubber breaking strength	MPa	TCVN 4509:2013	≥ 15,0
4	Abrasion	mm^3	TCVN 5363-2013	≤ 150
5	Adhesion with steel surface	Kg/cm^2	TCVN 10230:2013	≥ 3
1.2. FIRE RESISTANT CORE				
1	Rubber hardness	Shore A	TCVN 1595-2:2013	60-80
2	Rubber elongation at break	%	TCVN 4509:2013	≥ 350
3	Rubber breaking strength	MPa	TCVN 4509:2013	≥ 15,0
4	Abrasion	mm^3	TCVN 5363-2013	≤ 150
5	Adhesion with steel surface	Kg/cm^2	TCVN 10230:2013	≥ 3
6	Criteria for fire resistance of coated rubber	-	ISO 340:2007	Đạt
7	Surface resistance	MΩ	ISO 284:2003	≤ 300
1.3. HEAT RESISTANCE				
1	Hardness	Shore A	TCVN 1595-2:2013	65±5
2	Rubber breaking strength	MPa	TCVN 4509:2013	≥ 14
3	Rubber elongation at break	%	TCVN 4509:2013	≥ 350
4	Abrasion	mm^3	TCVN 5363-2013	≤ 150
5	Adhesion with steel surface	Kg/cm^2	TCVN 10230:2013	≤ 3
6	Working temperature	°C	-	≤ 150

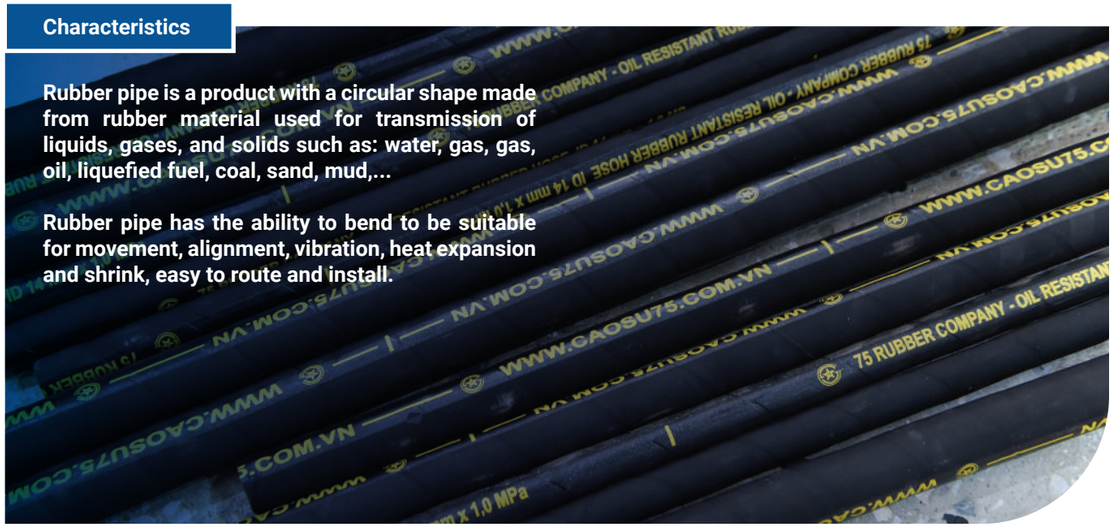
Dimensions of rollers	
DATA DETAILS	
Minimum diameter	2000 mm
Maximum length	5000 mm
Maximum volume	10 T

III. RUBBER PIPES

4" rubber hoses for floating oil are supplied to oil and gas exploitation

III.1. GENERAL INTRODUCTION ON RUBBER TUBE

Characteristics



Rubber pipe is a product with a circular shape made from rubber material used for transmission of liquids, gases, and solids such as: water, gas, gas, oil, liquefied fuel, coal, sand, mud,...

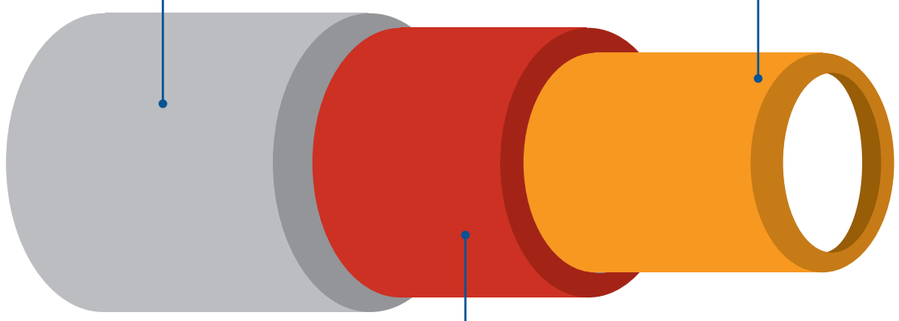
Rubber pipe has the ability to bend to be suitable for movement, alignment, vibration, heat expansion and shrink, easy to route and install.

Shell rubber layer

The shell rubber is the outermost part of the hose, resistant to weathering and general damages under specific working conditions.

Core rubber layer

The inner rubber layer of the tube, directly contacting with the conductor, should be flexible, resistant to abrasion, and resistant to the destruction of the conductor in working conditions.



Reinforcement layer

Frame layer reinforced with polyamide or metal fibers or a combination: They are tightly bonded to the core rubber layer and the shell rubber layer to function under pressure to create durability for the hose.

The production process is managed according to the quality management system ISO 9001: 2015.

III.2. CLASSIFICATION

III.2.1. AIR SUPPLY RUBBER TUBE

Manufactured in accordance with ISO 2398:2016

1.1. MATERIAL STANDARDS

Targets	Rubber layer	Test method
Minimum breaking strength	7,0MPa	ISO 37
Minimum elongation at break	250%	ISO 37
Anti-aging		
Maximum changes in tensile strength	±25%	ISO 188:1998 (3 days at 100ºC±1ºC)
Maximum elongation change	±50%	

1.2. BASIC SPECIFICATIONS OF PRODUCTS

Pipe outside diameter (mm)	Minimum inner diameter (mm)	Maximum inner diameter (mm)	Maximum working pressure (MPa)	Length (m)
4	3,25	4,75	2,5	1- 20
5	4,25	5,75		
6,3	5,55	7,05		
8	7,25	8,75		
10	9,25	10,75		
12,5	11,75	13,25		
16	15,25	16,75		
19	18,25	19,75		
20	19,25	20,75		
25	23,75	26,25		
31,5	30,25	32,75		
38	36,50	39,50		
40	38,50	41,50		
51	49,50	52,50		
63	61,50	64,50		
76	74,50	77,50		
80	78,00	82,00		
100	98,00	102,00		
102	100,00	104,00		

III.2.2. DREDGING WATERWAYS, SUCTION, DISCHARGE (MUD, SAND, WATER, CHEMICALS...)

Rubber pipes produced by the Company for dredging seaports in Binh Thuan

Manufactured according to ISO 28017: 2011

2.1.MATERIAL STANDARDS

Targets	Rubber layer	Test method
Abrasion	≤200mm³	ISO 4649, Method A_1
Tear strength	≥35kN/m	ISO 34-2:2011
Elasticity	≥35%	ISO 4662:2009
Ozone resistance	No cracks at x2 magnification	ISO 1431-1 at 72h x 40ºC and 20% tension at Ozone 50pphm

2.2. TABLE OF TOLERANCES ON INNER DIAMETERS OF DREDGING PIPES

Diameter tube (mm)	Inner Diameter min (mm)	Inner Diameter max (mm)	Maximum working pressure (MPa)	Length(m)	Minimum bending radius (mm)	
					Type 1	Type 2 Type C
100	97	103	4,0	1 - 6	600	1200
150	147	153			900	1800
200	197	203			1200	2400
250	246	254			1500	3000
300	296	304			1800	3600
350	345	355			2100	4200
400	395	405			2400	4800
450	445	455			2700	5400
500	495	505			3000	6000
550	545	555			3300	6600
600	595	605			3600	7200
650	645	655			3900	7800
700	695	705			4200	8400
750	745	755			4500	9000
800	794	806			4800	9600
850	844	856			5100	10200
900	894	906			5400	10800
1000	994	1006			6000	-
1100	1093	1107			6600	-
1200	1193	1207			7200	-

III.2.3. RUBBER TUBE FOR DRAINING AND SUCKING WATER

Manufactured according to ISO 4641:2016 standard

3.1. MATERIAL STANDARDS

Targets	Rubber layer	Test method
Minimum tensile strength	7,0MPa	ISO 37
Minimum elongation	200%	ISO 37
Anti-aging		
Maximum changes in tensile strength	±25%	ISO 188:1998 (3 days at 100ºC±1ºC), T31,T32
Maximum elongation change	±50%	

3.1. TABLE OF SIZE AND WORKING PRESSURE OF TUBE

Pipe outside diameter (mm)	Minimum inner diameter(mm)	Maximum inner diameter (mm)	Minimum bending radius (mm)	Maximum working pressure (MPa)	Length (m)
16	15,4	16,6	50	4,0	1 - 20
20	19,4	20,6	60		
25	24,2	25,8	75		
31,5	30,5	32,5	95	4,0	1 - 75
40	39,0	41,0	120		
50	48,8	51,2	150		
63	61,8	64,2	250		
80	78,6	81,4	320		
100	98,4	101,6	500		
125	123,4	126,6	750	4,0	1 - 10
150	148,0	152,0	960		
160	158,0	162,0	980		
200	197,5	202,5	1200		
250	247,0	253,0	1500		
315	312,0	318,0	1900		

III.2.4. ABRASION-RESISTANT RUBBER TUBE (SAND SPRAYING)

Production Standard ISO 3861:2005

4.1. MATERIAL STANDARDS

Targets	Core layer	Shell layer	Test method
Minimum tensile strength	14,0MPa	10,0MPa	ISO 37
Minimum elongation	400%	300%	ISO 37
Maximum abrasion	140mm³	-	ISO 4649:2002, Method A
Anti-aging			
Maximum changes in tensile strength	±25%	±25%	ISO 188:1998 (3 days at 70ºC±1ºC)
Maximum elongation change	+10% / -30%	+10% / -30%	

4.1. TABLE OF DIAMETER AND TOLERANCE SIZE OF PRODUCTS

Pipe diameter (mm)	Inner diameter tolerance (mm)	Maximum working pressure(MPa)	Length (m)
12,5	±0,75	2,5	1 - 20
16	±0,75		
19	±0,75		
20	±0,75		
25	±1,25		
31,5	±1,25		
38	±1,50		
40	±1,50		
45	±1,50		
50	±1,50		
51	±1,50		

III.2.5. GAS TUBE, FIRE RESISTANCE TUBE

Applicable standard ISO 2928:2003

5.1. MATERIAL STANDARDS

Targets	Core layer	Shell layer	Test method
Minimum tensile strength	10,0MPa	10,0MPa	ISO 37
Minimum elongation	250%	250%	ISO 37
Maximum abrasion	-	170mm³	ISO 4649:2002, Method A
Anti-aging			
Maximum changes in tensile strength	±30%	±30%	ISO 188:1998 (14 days at 70ºC), ISO 37 and ISO 48
Maximum elongation change	-35%	-35%	
Variable hardness	+10 IRHD	+10 IRHD	
Effect of liquid			
Maximum swelling	+ 10%	-	ISO 1817 (after 7 days soaking in n-pentane at 23ºC)
Maximum variable hardness	+10 / -3 IRHD	-	ISO 1817 (after 7 days soaking in n-pentane at 23°C and drying at 70 hours x 40ºC)
Maximum volume reduction	-5%	-	

5.2. FIRE RESISTANCE (AS 2660-1991 STANDARD)

Average burning time of 06 samples when leaving the burning flame	s	≤30
Surface resistance	MΩ	≤1

5.3. TABLE OF DIAMETER AND TOLERANCE SIZE OF PRODUCTS

Nominal diameter (mm)	Inner Diameter (mm)	Inner diameter tolerance (mm)	Outer diameter (mm)	Outside diameter tolerance (mm)	Minimum test pressure (MPa)	Minimum bursting pressure (MPa)	Length (mm)	Minimum bending radius (mm)
12	12,7	±0,5	22,7	±1,0	3,75	v10	1 - 20	100
15	15	±0,5	25	±1,0				120
16	15,9	±0,5	25,9	±1,0				125
19	19	±0,5	31	±1,0				160
25	25	±0,5	38	±1,0				200
32	32	±0,5	45	±1,0				250
38	38	±0,5	52	±1,0				320
50	50	±0,6	66	±1,2				400
51	51	±0,6	67	±1,2				400
63	63	±0,6	81	±1,2				550
75	75	±0,6	93	±1,2				650
76	76	±0,6	94	±1,2				650
80	80	±0,6	98	±1,2				725
100	100	±1,6	120	±1,6				800
150	150	±2,0	174	±2,0				1200
200	200	±2,0	224	±2,0				1600
250	254	±2,0	-	-				2000
300	305	±2,0	-	-				2500

III.2.6. COMPOSITE INSULATION & NEOPRENE COATING TO PREVENT CORROSION OF SEA SUBMARINE OIL PIPELINES

6.1. MATERIALS

Specifications	Test method	Regulation level
Synthetic Rubbber		
Adhesion (MPa)	TCVN 10230:2013	>4,0
Working temperature (°C)	-	20-80ºC
Time of use (years)	-	25
Density (kg/m³)	TCVN 4866:2013	1400
Adhesive layer thickness (mm)	Shore watch	1,0
Density (kg/m³)	TCVN 4846:2013	600
Working temperature (°C)	-	20-80ºC
Time of use (years)	-	25
Heat transfer coefficient, (W/m,0K)	GOST 30.256.90-94	<0,07
Insulation layer thickness Composite (mm)	Calliper	According to product standards
Neoprene protective material		
Density (kg/m³)	TCVN 4846:2013	1400
Hardness (Shore A)	TCVN 1595-1:2013	55-65
Adhesion (MPa)	TCVN 10230:2013	>1
Elongation at break (%)	TCVN 4509:2013	>400
Working temperature (ºC)	-	20-80ºC
Time of use (năm)	-	25
Neoprene layer thickness (mm)	Calliper	According to product standards

Composite insulation coating for undersea oil pipelines

6.2. PRODUCT DIMENSIONS

Tube size	Product length (m)	Note
Φ323,9	12	With weight increase
Φ323,9	12	Without weight increase
Φ323,9-α	-	Curved tube
Φ273,1	12	With weight increase
Φ273,1	12	Without weight increase
Φ273,1-α	-	Curved tube
Φ219,1	12	With weight increase
Φ219,1	12	Without weight increase
Φ219,1-α	-	Curved tube
Φ406	12	Neoprene-coat
Φ273,1	12	Neoprene-coat
Φ219,1	12	Neoprene-coat

III.2.7. WIRE MESH WOVEN RUBBER HOSE

Applicable standard ISO 1436:2009

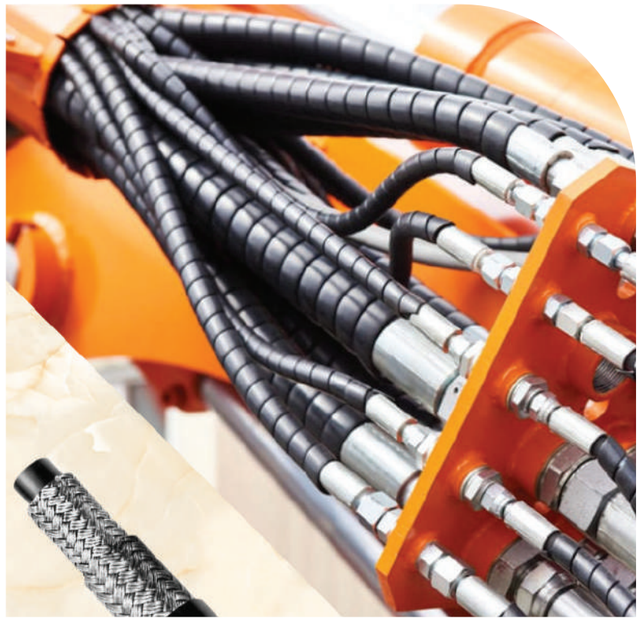
7.1. PRODUCT DIMENSIONS

Nominal size (mm)	Type		Type 1ST			Type 1SN, R1ATS			Type 2ST			Type 2SN, R2ATS		
	Ø inner (mm)		Ø outter (mm)		P_{iv} (MPa)	Ø outter (mm)	P_{iv} (MPa)		Ø outter (mm)		P_{iv} (MPa)	Ø outter (mm)	P_{iv} (MPa)	
	min	max	min	max	max	max	min	max	min	max	max	max	min	max
5	4,6	5,4	11,9	13,5	25	12,5	25	15,1	16,7	41,5	14,1	41,5	0,8	1,5
6,3	6,1	7,0	15,1	16,7	22,5	14,1	22,5	16,7	18,3	40	15,7	40	0,8	1,5
8	7,7	8,5	16,7	18,3	21,5	15,7	21,5	18,3	19,9	35	17,3	35	0,8	1,5
10	9,3	10,1	19,0	20,6	18	18,1	18	20,6	22,2	33	19,7	33	0,8	1,5
12,5	12,3	13,5	22,2	23,8	16	21,5	16	23,8	25,4	27,5	23,1	27,5	0,8	1,5
16	15,5	16,7	25,4	27,0	13	24,7	13	27,0	28,6	25	26,3	25	0,8	1,5
19	18,6	19,8	29,4	31,0	10,5	28,6	10,5	31,0	32,6	21,5	30,2	21,5	0,8	1,5
25	25,0	26,4	36,9	39,3	8,7	36,6	8,7	38,5	40,9	16,5	38,9	16,5	0,8	1,5
31,5	31,4	33,0	44,4	47,6	6,2	44,8	6,2	49,2	52,4	12,5	49,6	12,5	1,0	2,0
38	37,7	39,3	50,8	54,0	5,0	52,1	5,0	55,6	58,8	9,0	56,0	9,0	1,3	2,5
51	50,4	52,0	65,1	68,3	4,0	65,9	4,0	68,2	71,4	8,0	68,6	8,0	1,3	2,5
63b	63,1	65,1	-	-	-	-	-	-	-	7,0	81,8	7,0	1,3	2,5

a. Nominal dimensions corresponding to those given in ISO 1307
b. This nominal size only applies to type R2ATS

7.2. LENGTH AND BENDING RADIUS

Pipe diameter (mm)	Product length (m)	Minimum bending radius (mm)
5	≤20	90
6,3		10
8		115
10		130
12,5		180
16		200
19		240
25		300
31,5		420
38		500
51		630



IV. TECHNICAL RUBBER SPARE PART

IV.1. GROUP 1: SPARE PARTS & AUTOMOBILEAND MOTORBIKE

Products for the automotive and motorcycle industry are manufactured by **75 Rubber Company (Z175)** usually supplying for famous brands such as: Honda, Yamaha, Piaggio,...

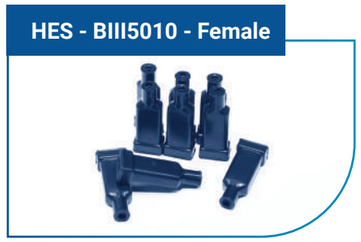
HES - BIII6010 - Female

HES - BIII5010 - Cover

HES - A720 - Stopper rubber

HES - AI5010 - Socket

HES - BIII5010 - Female



HES - A515 - Stopper rubber

HES RUBBER MATERIAL STANDARD

SYMBOL EXPLAINATION

A	I	50	10	c	(EPDM)
Type	Group	Center Material Hardness (Shore A)	Central strength (MPa)	Special requirements for materials	Material original name

SPECIAL SYMBOLS

No.	Symbol	Test characteristics		
1	a	Temperature resistant	70 hours under standard temperature conditions	
2	b	Compressible	Test at standard temperature and time	
3	c	Ozone resistant	Test under specified conditions	
4	d1	Oil resistance	ASTM No.1.Oil	70 hours of testing under standard temperature conditions
5	d3		IMR903.Oil	
6	e		Fuel oil C for testing	

4.1. CLASSIFICATION OF RUBBER MATERIALS

No.	Characteristic	Type	Group	Rubber base
	No oil resistant			
			II	IIR, CIIR, BIIIR
			III	NR, BR, SBR, IR
2	Grease resistant	B	I	CM, CSM
			II	NBR
			III	CR
3	Oil and heat resistant	C	I	FKM
			II	ACM, AEM
			III	CO, ECO
4	High temperature resistance	D	I	FVQM
			II	VQM

TESTING METHOD

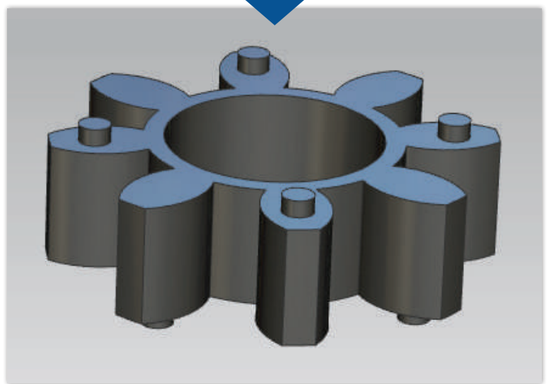
Determination of material hardness	TCVN 1593-1:2003 (ISO 7619-1:2010)
Determination of breaking strength and elongation at break, residual elongation	TCVN 4509:2013 (ISO 37:2011; ISO 1798:2008)
Determination of tear strength	TCVN 1597-1:2013 (ISO 34-1:2010)
Determination of material aging coefficient	TCVN 2229:2013 (ISO 188:2011)
Determination of resistance	TCVN 11020:2015 (ISO 2878:2011)
Determination of tensile strength and elongation	TCVN 1754:1986 (2008)

IV.2. GROUP 2: SHOCK ABSORBER & SHOCKPROOF SPARE PARTS

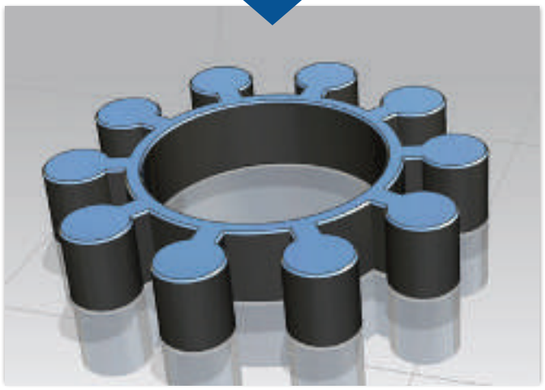
Railway damper oil bulb

Shock absorber

Canarium Ship fender



Apricot blossom shock absorber



RUBBER CHARACTERISTICS

Made from materials with high wear resistance, high elasticity, good compressive strength to help the product work in vibration conditions.

Often used in the transmission joints of engines, ship front, to reduce collisions between the ship's walls, or the ship's walls with the dock.

Rubber shock absorbers have good elasticity, high impact resistance, hardness from 70 Shore A - 85 Shore A.

Currently, the shock absorbers of company provide large quantity for the lime, stone crushing company,...

CHARACTERISTICS OF PRODUCT RUBBER MATERIAL

No.	Target name	Test method	Unit	Target level
I	**Original synthetic**			
1	Hardness	TCVN1595-1:2013	Shore A	$70^{\pm 5}$
2	Tensile strength	TCVN4509:2013	MPa	≥16
3	Elongation at break	TCVN4509:2013	%	≥250
4	Residual strain on compression at 70°C x22h	TCVN5320-1:2016	%	≤30
5	Elasticity	TCVN 53512:2000-4	%	≥46
II	**Rubber after aging at 70°C x 96h**			
1	Hardness change	TCVN1595-1:2013	Shore A	±10
2	Change in breaking tensile strength	TCVN4509:2013	%	±20
3	Change in elongation at break	TCVN4509:2013	%	-30÷0

IV.3. GROUP 3: DETAILS OF SEALS
HYDRAULIC PRESS OIL RESISTANT GASKET

Operation in hydraulic cylinders is as simple as pushing back – or up down – down up. The hydraulic rubber seal in that simple operation has the following purposes:

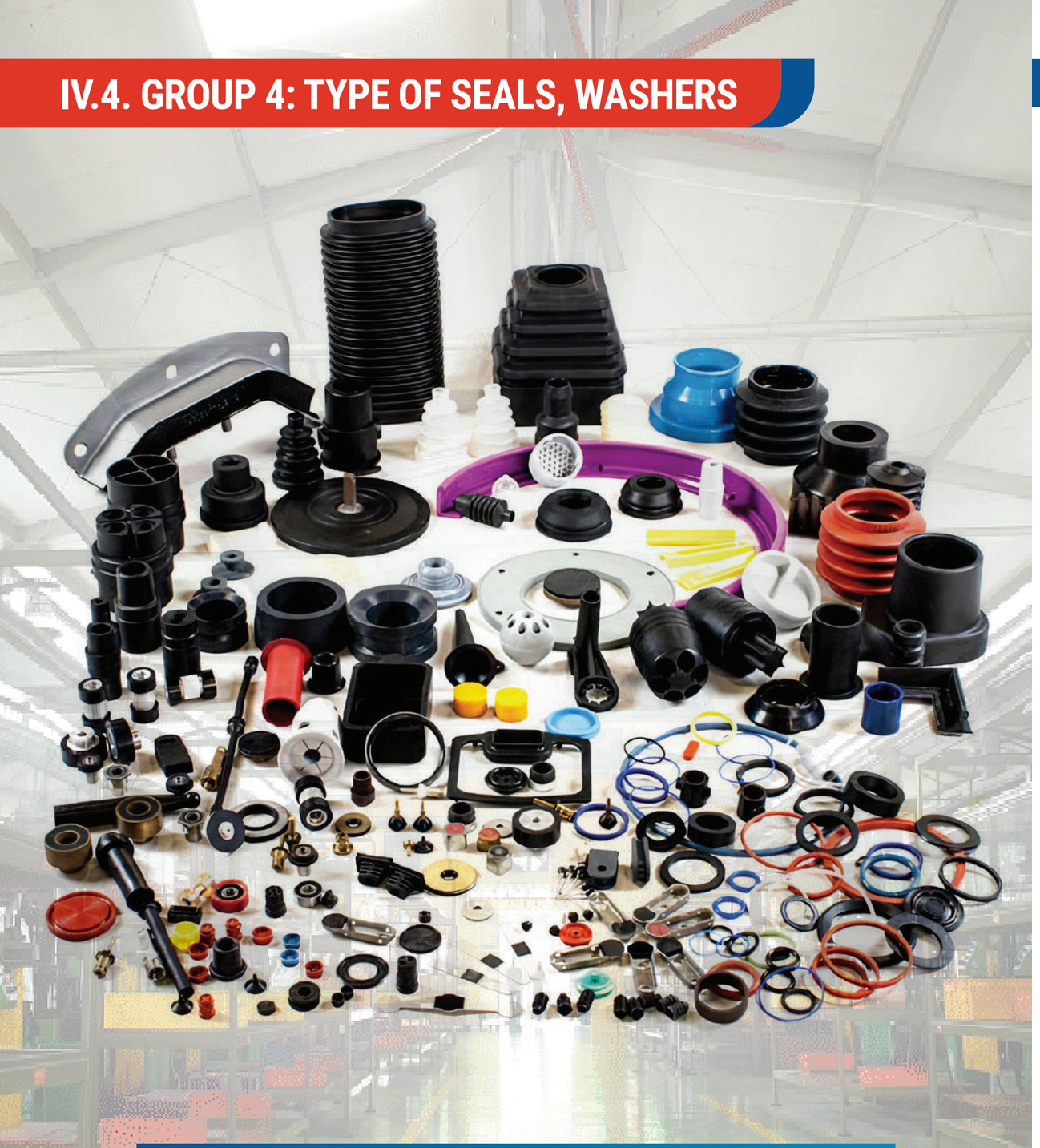
- **Preventing oil and water from flowing out of the hydraulic cylinder. Preventing dirt from entering the hydraulic cylinder.**
- **Generating pressure to generate work for the subse-quent operations of each type of hydraulic cylinder.**
- **Lubricating and sealing the cylinder shaft so that the working pro-cess of the hydraulic cylinder lasts for years.**

Therefore, the hydraulic cylinder rubber seal needs to ensure the following factors: oil resistant, good wear resistance, hardness is higher than sealing gasket and most hydraulic rubber seals have steel reinforce-ment on the inside to increase stiffness, spring. In some cases, the hydraulic cylinder rubber seal will need additional elements such as: High temperature resistant seal, chemical resistant...

SPECIFICATIONS

No.	Target name	Test method	Test conditions	Target level
Oil resistant rubber				
1	Determination of hardness	TCVN 1595-1:2013	Original material	70-85 Shore A
			After aging at 100ºC in 70 hours	+15 Shore A (compared to original)
2	Determination of breaking strength	TCVN 4509:2013	Original material	≥7-15MPa
			After aging at 100ºC in 70 hours	±30%
3	Determination of elongation at break	TCVN 4509:2013	Original material	≥120%
			After aging at 100ºC in 70 hours	≤-50%
4	Determination of compressive stress, compressive strain 25%	TCVN 5320-1:2016	After aging at 100ºC in 22 hours	≤50%
5	Determination of elasticity	TCVN 53512:2000-4	-	≥15

IV.4. GROUP 4: TYPE OF SEALS, WASHERS



The main task of these gaskets is to seal the product, so the rubber must have high elasticity, good compression resistance. Depending on the sealing environment to choose the right rubber: NR, NBR... Must be essential when sealing products working in greasy or oil vapor environment, so there is oil resistant rubber in single component.

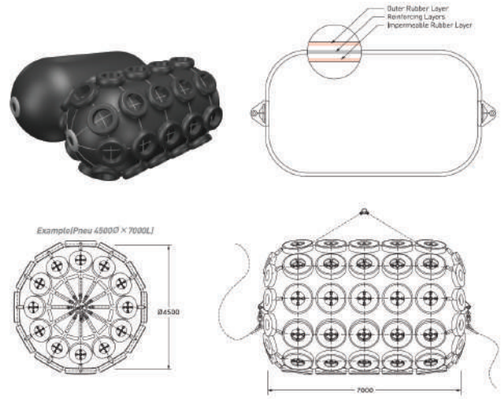
RUBBER TECHNICAL CHARACTERISTICS

Material	NBR Rubber, Silicone, EPDM, Neoprene			
Material hardness	40 Shore A – 80 Shore A			
Size	According to the product sample or customer's request			
Other technical requirements	High temperature resistance	Chemical resistant	Weather resistant	Abrasion resistance

V. SHIP FENDER

V.1. AIR FENDER

Air Fender is a type of Ship fender with good compression resistance and elasticity. The working principle of air fender, unlike other types of bumpers, which is to use the elasticity of rubber, but use the compressive and elastic properties of air. Therefore, the rate of absorption of impact and reaction energy is high.



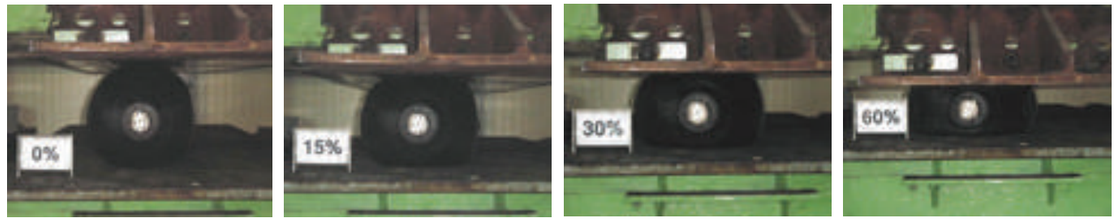
ADVANTAGES OF AIR FENDER

- Easy to install and repair
- Great absorbed energy
- Long life
- Low reaction
- Low cost
- Resistance to harsh environments
- Suitable size for anti-collision between oil tankers, processing ships
- Much lighter than other Ship fenders

2000x4000 air fenders for submarines

In addition, 75 Rubber Co., Ltd can produce according to customer requirements for colors for travel or military applications and meeting ISO 17357:2014 standards.

AIR FENDER COMPRESSION TEST



PRODUCT SPECIFICATIONS (ACCORDING TO ISO 17357:2014)

Size (mm)	Internal pressure 50kPa			Internal pressure 80kPa		
	Reaction R (kN)±10%	Energy sucking GEA (kJ)	Pressure at compression point 60% (kPa)	Reaction R (kN)±10%	Energy sucking GEA (kJ)	Pressure at compression point 60% (kPa)
500x1000L	64	6	132	85	8	174
600x1000L	74	8	126	98	11	166
700x1500L	137	17	135	180	24	177
1000x1500L	182	32	122	239	45	160
1000x2000L	257	45	132	338	63	174
1200x2000L	297	63	126	390	88	166
1350x2500L	427	102	130	561	142	170
1500x3000L	579	153	132	761	214	174
1700x3000L	639	191	128	840	267	168
2000x3500L	875	308	128	1150	430	168
2500x4000L	1381	663	137	1815	925	180
2500x5500L	2019	943	148	2653	1317	195
3300x4500L	1884	1175	130	2476	1640	171
3300x6500L	3015	1814	146	3961	2532	191

Unit: mm.

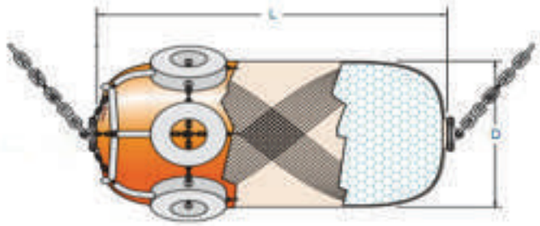
HYDRO-AIR SHIP FENDER (2X4)M INSTALLED AT CAM RANH MILITARY PORT

SPECIFICATIONS OF HYDRO-AIR SHIP FENDER

Size	1700x7200L		2000x6000L		2500x5500L		3300x6500L		2000x4000L	
DEF (%)	60	45	60	45	60	45	60	45	60	45
Percentage of water (%)	0,0	65,0	0,0	65,0	0,0	65,0	0,0	60,0	0,0	65
R (ton-f)	184,8	62,3	180,0	61,1	207,6	70,0	323,0	127,1	104	35,3
GEA (ton-m)	57,2	13,7	66,0	15,8	94,6	22,7	195,0	62,8	36,8	8 ,8

V.2. FOAM FENDER

Foam fender is a suitable Ship fender for most types of ships. The interior is filled with foam and covered with a layer of rubber that is resistant to marine and abrasion.



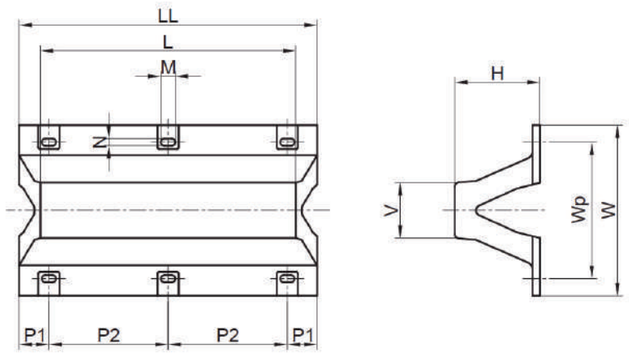
PRODUCT SPECIFICATIONS

Size	Standard value parameter		Volume (kg)
	R (kN)±10%	GEA (kJ)±10%	
300x1000L	45	3,1	11
500x1000L	75	8,7	41
600x1000L	107	15	55
700x1500L	156	25,5	85
1000x1500L	223	52	125
1000x2000L	257	45	170
1200x2000L	356	100	275
1500x3000L	668	234	570
1700x3000L	757	300	700
2000x3500L	1039	485	1100
2500x4000L	1485	866	1865
2500x5500L	1856	1082	2675
3000x5000L	2249	1574	3200
3300x6500L	3184	2452	3740

R: reaction at the compression point 60%; GEA: energy absorbed at compression point 60%. Some other non-standard sizes according to customer requirements

R: reaction (ton-f) | GEA: absorbed energy (ton-m) tolerance:±10%

V.3. LAMBDA SHIP FENDER



LAMBDA Ship fender is a newly designed Ship fender with 15% increased energy absorption and reduced back-lash compared to other Ship fenders of the same size and rubber type. With the right design, the compressive strength is increased and it is also easy to install and replace.

PRODUCT SPECIFICATIONS

Size / Characteristic		150H	200H	250H	300H	400H	500H	600H	800H	1000H	1000H
R1	R (ton-f)	16,5	21,0	27,0	33,0	43,5	54,0	64,5	87,0	108,0
	GEA (ton-m)	0,9	1,7	2,7	3,9	6,9	10,8	15,6	27,7	43,5
RH	R (ton-f)	12,0	17,0	21,0	25,0	33,0	42,0	50,0	66,0	83,0
	GEA (ton-m)	0,7	1,3	2,1	3,0	5,3	8,3	12,0	21,4	33,4
RM	R (ton-f)	11,0	14,0	18,0	22,0	29,0	36,0	43,0	58,0	72,0
	GEA (ton-m)	0,6	1,1	1,8	2,6	4,6	7,2	10,4	18,5	29,0
RL	R (ton-f)	9,0	12,0	15,0	17,0	23,0	29,0	35,0	46,0	58,0
	GEA (ton-m)	0,5	0,9	1,4	2,1	3,7	5,8	8,3	14,8	23,1

R1: Very high reaction.
RH: High reaction.
RM: Standard reaction.
RL: Low reac-tion.
R: reaction at compression point of 52.5%.
GEA: absorbed energy at the compression point of 52.5%.

COMPRESSION TEST

0%

15%

30%

52,5%

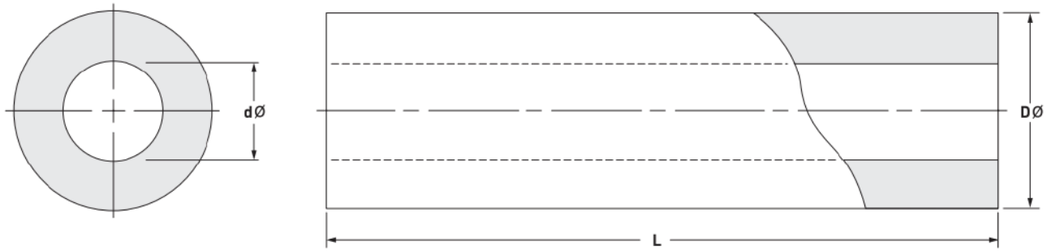
V.4. CYLINDER FENDER

Characteristics

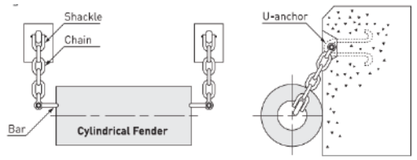
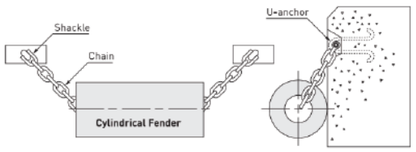
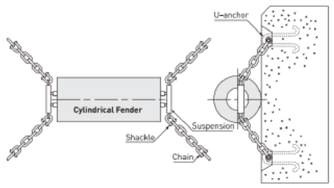
This is an Ship fender that has been used for a long time. And there are lots of choices in size and length. Anti-collision cylindrical Ship fender is easy to install and replace when necessary.

Advantages

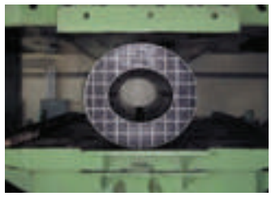
Widely applied on small and medium wharf, barges, ferries and all types of tugs.



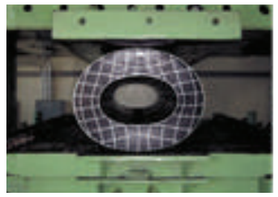
STANDARD SIZE

ØD (mm)	Ød (mm)	GEA (kJ)	R (kN)	Volume (kg/m)	Installation plan
100	50	0,8	43	7,2	
125	65	1,3	51	11,0	
150	75	1,8	65	16,3	
175	75	2,7	92	24,1	
200	100	3,3	86	29,0	
250	125	5,1	108	45,3	
300	150	7,4	129	65,2	
380	190	11,8	164	105	
400	200	13,1	172	116	
450	225	16,6	194	147	
500	250	28	275	181	
600	300	40	330	255	
800	400	72	440	453	
1000	500	112	550	707	
1200	600	162	660	1018	
1400	700	220	770	1386	
1400	800	208	649	1245	
1500	750	253	825	1591	
1600	800	288	880	1810	
1750	900	340	929	2124	
2000	1200	415	871	2414	
2400	1200	647	1321	4073	
2700	1300	818	1486	5154	

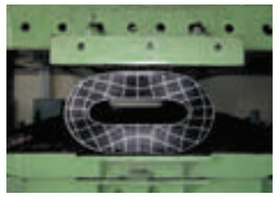
COMPRESSION TEST



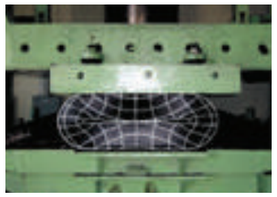
Deflection 0%



Deflection 15%



Deflection 30%

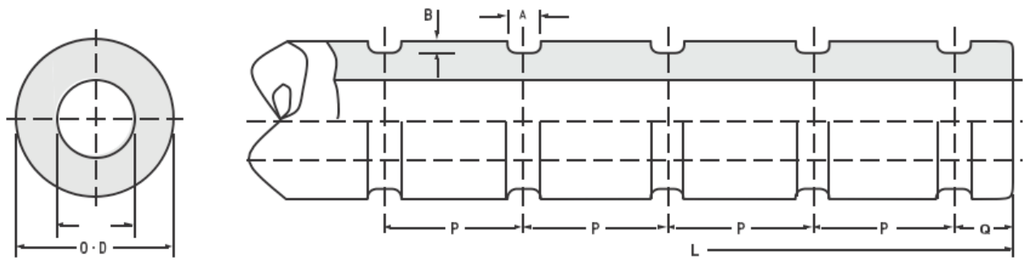


Deflection 50%

V.5. BC SHIP FENDER

The BC Ship fender does not affect the hull because of the low surface pressure and it can be adjusted to any shape because of the Ship fender's malleability.

BC SHIP FENDER USED FOR HULL

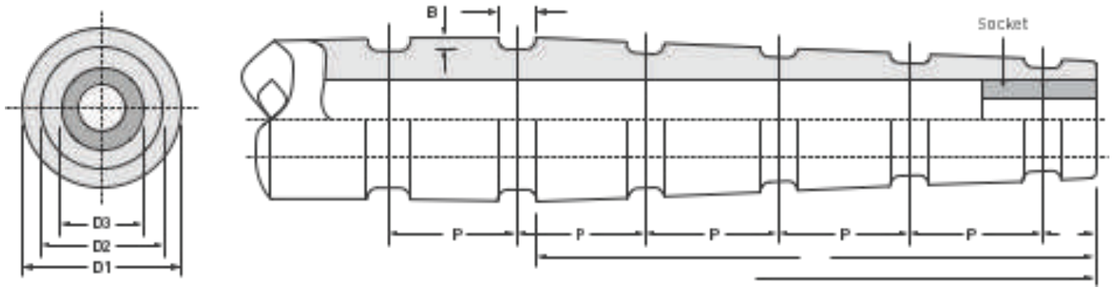


BC SHIP FENDER SIZE FOR HULL

Size	Ø50 x Ø100	Ø75 x Ø150	Ø100 x Ø200	Ø125 x Ø250	Ø150 x Ø300	Ø175 x Ø350	Ø200XØ400	Ø250 x Ø500	Ø300 x Ø600	Ø350 x Ø700
OD	100	150	200	250	300	350	400	500	600	700
ID	50	75	100	125	150	175	200	250	300	350
A	30	30	50	50	50	70	70	70	85	85
B	10	10	15	15	15	20	20	30	30	40
P	600~900	600~900	600~900	600~900	600~900	600~900	600~900	600~900	600~900	600~900
Q	100	100	150	150	200	200	200	250	250	300

Unit: mm.
Maximum length possible: 20m.

BC SHIP FENDER USED FOR BOW AND TAIL

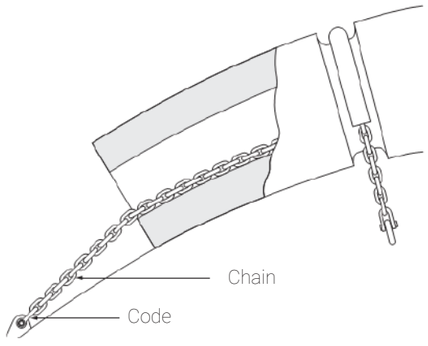


Size		Ø100 x Ø200	Ø125 x Ø250	Ø150 x Ø300	Ø175 x Ø350	Ø200 x Ø400	Ø250 x Ø500	Ø300 x Ø600	Ø350 x Ø700	Ø400 x Ø800
D1		200	250	300	350	400	500	600	700	800
D2		150	190	225	260	300	375	450	525	600
D3		100	125	150	175	200	250	300	350	400
A		50	50	50	70	70	70	85	85	85
B		15	15	15	20	20	30	30	40	40
P		600~900	600~900	600~900	600~900	600~900	600~900	600~900	600~900	600~900
Q		150	150	200	200	200	250	250	300	300
Socket	OD	-	-	-	-	202	252	303	354	404
	ID	-	-	-	-	100	100	150	150	150
	Length	-	-	-	-	300	350	400	400	400

INSTALLATION PLAN

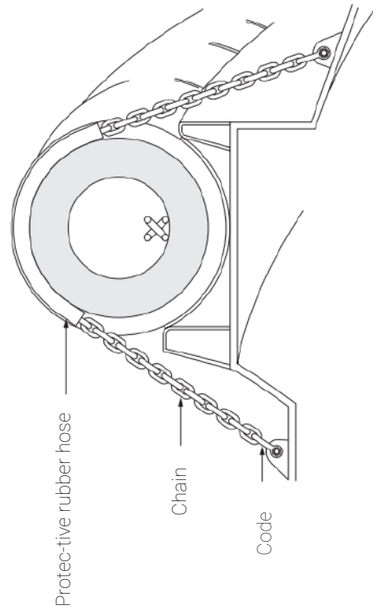
Real picture

Installation plan - side



Real picture

Installation option - internal groove



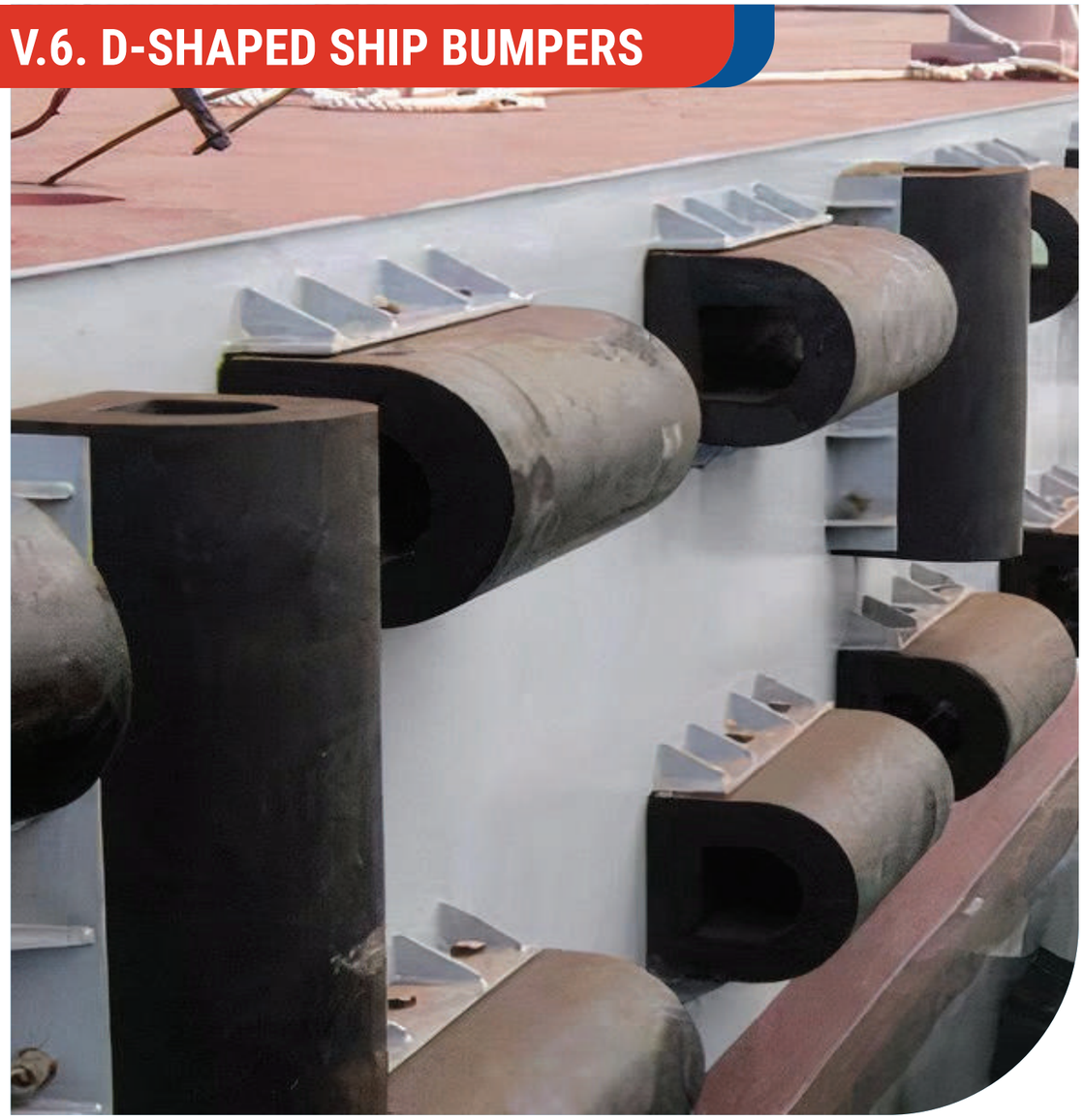
Ship fender size DEF (%)	Chain		Hanging ears	Nut
	Inner	Groove		
<ø600	ø16	ø16	SC-16	ø19
≥ø600	ø19	ø19	SC-20	ø22

Unit: mm.

OD	ø200	ø300	ø400	ø500	ø600	ø800
Allowable radius of curvature (R)	800	1200	1600	2000	2400	3200

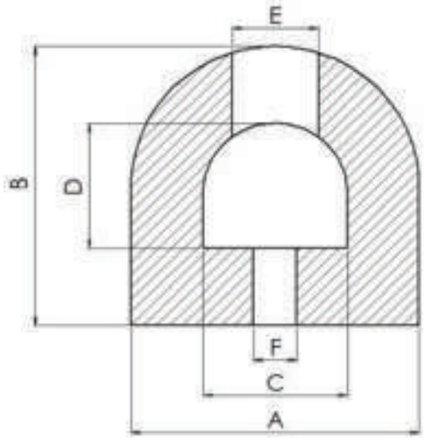
Unit: mm.

V.6. D-SHAPED SHIP BUMPERS



D-shaped ship bumpers are used in harbors creating a safe and aesthetic protection layer for the harbor. D-shaped bumpers are available in many different sizes, designed and manufactured according to feature, geography of the harbor, the weight of the ships, into the port.

With medium size and reaction, D-shaped ship bumpers are installed at berths with small ships in and out. Besides, D-shaped bumpers also use the side of the large ship to support the ship to dock. D-shaped bumpers may differ from side to side in the DD or DO model.



STANDARD SIZE OF DD-SHAPED SHIP BUMPERS

A	B	C	D	ØE	ØF	Flat bar	Size Bulông	Volume (kg/m)
80	70	45	30	30	15	30x5	M12	5
100	100	50	45	30	15	40x5	M12	9
125	125	60	60	40	20	50x6	M16	14
150	150	75	75	40	20	60x8	M16	19,5
200	150	100	80	50	25	80x10	M20	24
200	200	100	100	50	25	80x10	M20	34
250	200	125	100	60	30	90x12	M24	41
250	250	125	125	60	30	90x12	M24	53
300	300	150	150	60	30	110x12	M24	78
350	350	175	175	75	35	130x15	M30	103
380	380	190	190	75	35	140x15	M30	122
400	400	200	200	75	35	150x15	M30	136
500	500	250	250	90	40	180x20	M36	210

Unit: mm. Maximum length up to 20m.

SHIP FENDER SPECIFICATIONS

Size / Parameter		150H x Ø75	200H x Ø100	250H x Ø125	300H x Ø150	400H x Ø200	500H x Ø250	Bolt size
DD-Type	R (ton-f)	10,50	14,00	17,50	21,00	28,00	35,00	
	GEA (ton-m)	0,29	0,52	0,80	1,16	2,06	3,22	

Maximum length of 20m.
Parameter calculated for 1m of product.

V.7. W-SHAPED SHIP BUMPERS

This type of Ship fender is very suitable for impact protection in the bow and stern of the ship. In addition, the W Ship fender is very easy to install.

STANDARD SIZE					
A	B	C	D	E	Volume (kg/m)
320	200	100	180	280	51
400	250	110	220	350	81
480	300	135	265	420	120
500	360	125	265	390	156
500	450	90	250	420	180

Unit: mm.
Product length should not exceed 2m.

V.8. CSS (SUPPER SHIP FENDER)

CSS SIZE

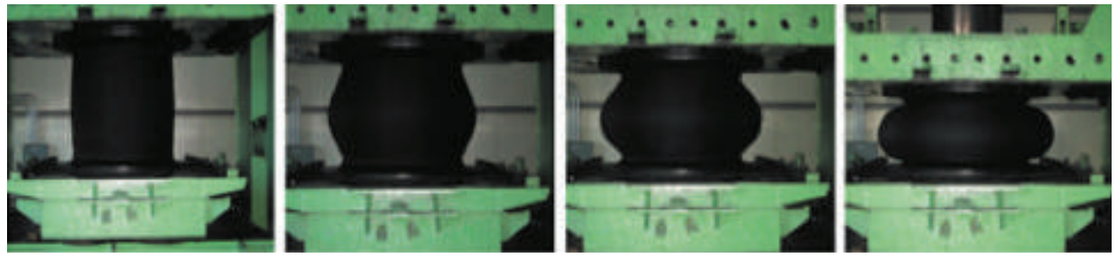
Type	H (mm)	øD (mm)	t (mm)	øPD (mm)	Bolt type (mm)	Weight (kN)	GEA (kJ)
CSS 400	400	650	16	550	4 x M24	56	10
CSS 500	500	650	16	550	4 x M24	87	19
CSS 600	600	780	20	660	4 x M30	126	33
CSS 800	800	1050	27	900	6 x M30	223	79
CSS 1000	1000	1230	32	1100	6 x M36	348	153
CSS 1150	1150	1440	37	1300	6 x M42	461	233
CSS 1250	1250	1600	40	1450	6 x M42	544	299
CSS 1450	1450	1820	42	1650	6 x M48	732	467

R: reaction (kN).
GEA: absorbed energy at the compression point of 52.5%.
Tolerance: ±10%.

There is a hollow cylinder body made of elastic material
The rubber is attached to the steel frame bracket.
The design gradually replaces the round cylindrical Ship fender.
CSS Ship fender has very good properties:

- **Ability of good anti-slip due to large diameter of edge**
- **Easy to install and maintain**
- **High E/R factor**
- **Big ship fenders have light panel texture with ability of good force dispersion**

CSS FENDER COMPRESSION TEST



0% ***15%*** ***30%*** ***52,5%***

TABLE OF TECHNICAL SPECIFICATION OF FENDER MATERIAL

No.	Target name	Test method	Test conditions	Regulation level
1	Hardness	TCVN 1595-1:2013	Original material	≤78 Shore A
			After aging at 70ºC x 96h	+6 Shore A (compared to the original)
2	Tensile strength	TCVN 4509:2013	Original material	≥16MPa
			After aging at 70ºC x 96h	≥12,8MPa
3	Break elongation	TCVN 4509:2013	Original material	≥400%
			After aging at 70ºC x 96h	≥320%
4	Residual strain after compression	TCVN 5320 - 1:2014	After aging at 70ºC x 22h	≤30%
5	Tear strength	TCVN 1597 - 1:2018		≥70kN/m
6	Abrasion resistance	TCVN 1594:1987	Acron Abrasion	≤1,5cm³
7	Specific weight	TCVN 4866:2007		1,2±0,1g/cm³
8	Sea water resistance	JIS K 6258	3% NaCl at 23°C x 24h	Hardness: ±10 Shore A Physical mechanics features: +10/-5%
9	Rubber - steel adhesion	TCVN 4867:2018		≥7N/mm

UNIT CONVERTION TABLE

Reaction unit		
	kN	ton-f
kN	1	0,102
ton-f (Ton Force)	9,81	1
Energy unit		
	kNm	ton-m
kNm	1	0,102
ton-m	9,81	1

VI. OIL CONTAINMENT RUBBER SHEET ON RIVERS & SEAS

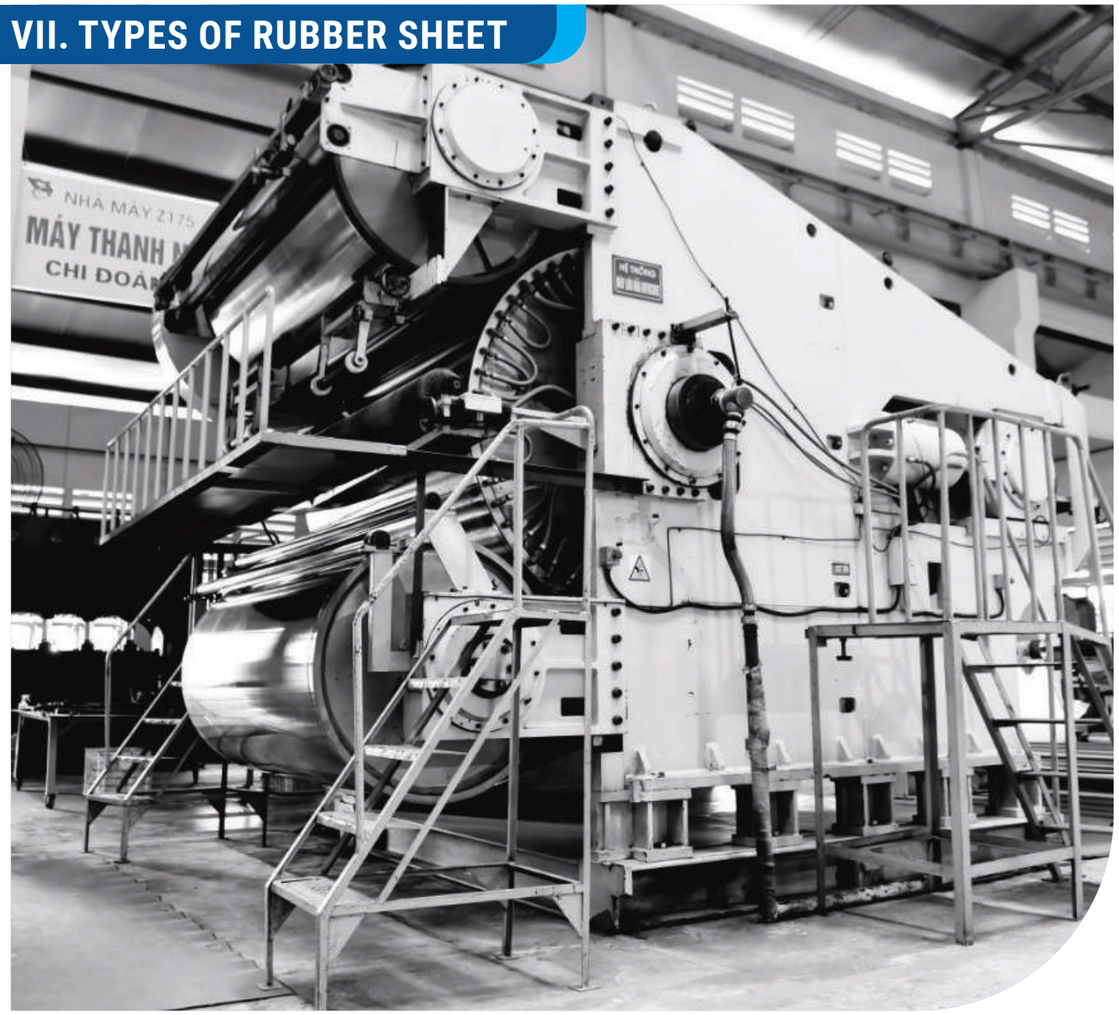
Oil spilling fins are being accepted at 75 Rubber One Member Co., Ltd

The oil sheet of 75 Rubber Co., Ltd are used in the waters of Alaska (USA)

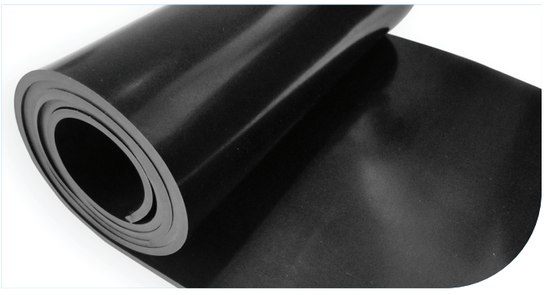
SCOPE OF USE

Oil sheets are used to respond to oil spills at sea and in rivers, bays and coastal seas. Crafted from Neoprene, Hypalon and associated accessories, according to advanced technology widely used internationally (USA, Denmark, Malaysia...), technical standards are complied with NF EN 22286 and NF G37103 ÷ 37129.

VII. TYPES OF RUBBER SHEET



Rotocure continuous vulcanizing machine system



Rubber sheet

SCOPE OF USE

Used to make soft dams to block water on rivers, lakes, making tanks, soft tanks for water, fuel, chemicals,... Manufactured according to NF EN 22286, NF G37103 ÷ 37129 and TQSA standards.

VIII. GROUT PACKER

APPLICATIONS

The product is used in the construction of Truss on the sea. Grout Packer is used for the construction of piles of Truss. Grout Packer products are used with the following principles:

Bearing compressive force of concrete from top to bottom of water concrete mix

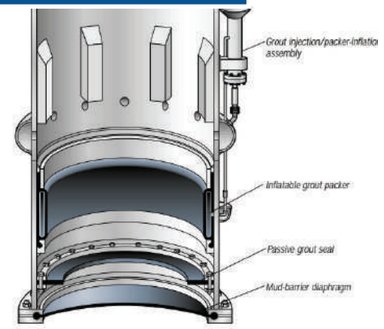
Block backflow of sludge and under the sea

TYPES

Seal Packer

Seal Packer with stop parts, includes 2 types is the inner stop part packer type and the outer stop part packer type

Inflatable Packer



Packer sealed by pneumatic pressure

IX. AIR TIRES AND SOLID TIRES (FOAM INSIDE)

PRODUCTION ACCORDING TO STANDARDS

TCVN 5559 - 1991, TCVN 5601 - 1991 on imported modern equipment.

PRODUCT SPECIFICATION

Air tires	Size 7.50 - 20	Size 8.25 - 20	Size 9.00 - 20	Size 10.00 -20	Size 11.00 - 20	Size 12.00 - 20
	Products are used for trucks, passenger cars, construction vehicles, and other special vehicles.					

Solid tires (Foam)	Size 6.00 -16	Size 6.50 - 20	Size 7.50 - 20	Size 9.00 - 20	Size 11.00 - 20	Size 12.00 - 20	Size 1350 x 380
	The product synchronizes the wheels, used for forklifts, construction vehi-cles, and vehicles operating in special conditions.						

X. LAB CAPACITY
75 RUBBER COMPANY

Meeting ISO/IEC 17025:2017

LIÊN HIỆP CÁC HỘI KHOA HỌC VÀ KỸ THUẬT VIỆT NAM
VĂN PHÒNG CÔNG NHẬN NĂNG LỰC ĐÁNH GIÁ SỰ PHÙ HỢP VỀ TIÊU CHUẨN CHẤT LƯỢNG

ilac-MRA AOSC

CHỨNG CHỈ CÔNG NHẬN

PHÒNG THÍ NGHIỆM CƠ LÝ
CÔNG TY TNHH MTV CAO SU 75
Địa chỉ: Tổ dân phố Z175, Xã Xuân Sơn, Thị Xã Sơn Tây,TP Hà Nội, Việt Nam
đã được đánh giá và phù hợp các yêu cầu của tiêu chuẩn

ISO/IEC 17025:2017

Lĩnh vực công nhận: Thử nghiệm Cơ
Mã số: VLAT-1.0326

Số: AOSC-1.0326.1
Ngày cấp: 05/11/2020
Giá trị đến: 04/11/2025

GIÁM ĐỐC

PGS.TS NGUYỄN THỊ KHÁNH TRÂM

Standard ISO 9001:2015

CERTIFICATE

75 RUBBER ONE MEMBER LIMITED LIABILITY COMPANY

JIS K 6369:2007

CERTIFICATE

75 RUBBER ONE MEMBER LIMITED LIABILITY COMPANY

TCVN ISO 9001:2015 / ISO 9001:2015

CERTIFICATE

75 RUBBER ONE MEMBER LIMITED LIABILITY COMPANY

JIS K 6322:2011

TEST CAPACITY

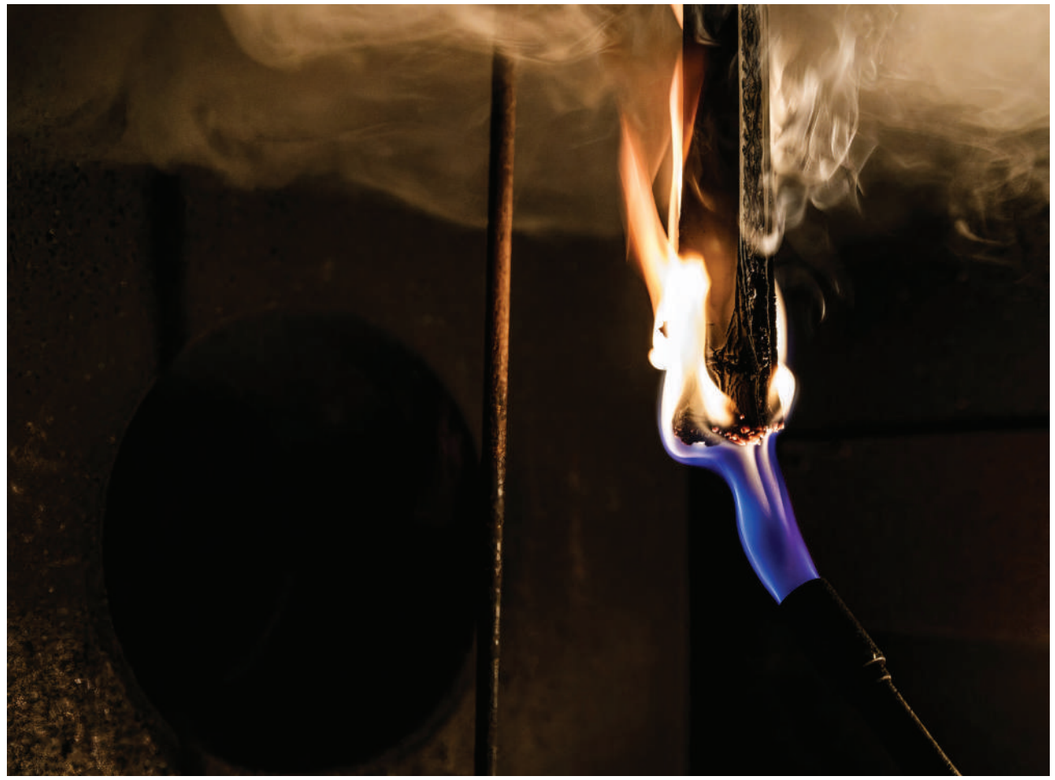
The Lab has a team of experienced testers. modern testing equipment, Guaranteeing ability to check input materials, semi finished products and product quality by standard.

Annually, the Laboratory will be evaluated capacity by the Ministry of National Defense compared with the regulations of the TC-DL-CL of Vietnam People's Army according to TCVN/QS 877: 2014.

In 2020, the laboratory was approved by AOSC Competency Accreditation Office to pass ISO/IEC 17025:2017.

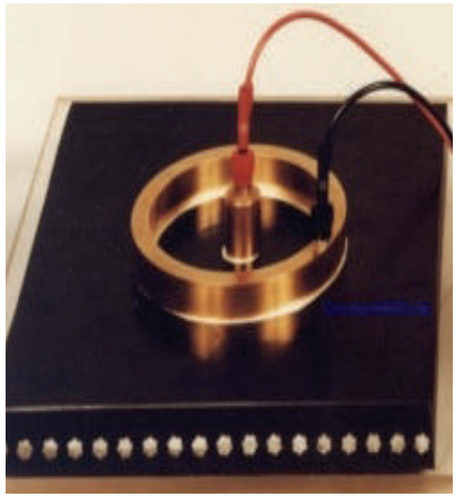
INSPECTION CAPACITY OF PRODUCTS

The Laboratory for testing input materials according to Manufacturer's standards



Fire resistance test according to ISO 340

Optical gauges (for measuring product dimensions) and measuring samples



Conductivity test according to ISO 284 standard

INSPECTION OF INPUT SUPPLIES, SEMI -FINISHED PRODUCTS

EKT-2000 WILL Machine

Measuring the vulcanization acceleration of rubber

EKTRON TS 2000

Check mechanical performance

Mooney Testing Machine

Check rubber viscosity

CHECK SEMI-FINISHED PRODUCTS

ZRZ1452 Machine

Check soft melt temperature

UN30 Machine

Check long life of rubber, products

APGI Machine

Rubber wear test

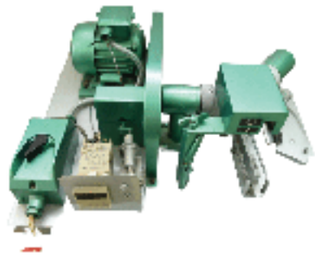
CHECK SEMI-FINISHED PRODUCTS AND PRODUCTS

CTHC Equipment

Check long life of rubber, products

EPGI Machine

Rubber elasticity test



Rubber heat-generating bend testing equipment

Acron Machine

Rubber wear test

Elasticity testing equipment

XI. OUR PARTNERS

EVN

HÒA PHÁT
HÒA HỢP CÙNG PHÁT TRIỂN

VINACOMIN

PETROVIETNAM

VICOSTONE
The Art of Quartz

COLAVI

NARIME

KHE CHAM TKV

THE VISSAI

XI MĂNG CHINFON
CHINFON CEMENT

THANG LONG
CEMENT

CỔ KHÍ MẠO KHÊ
1982

VICEM
THÁCH THỨC THỜI GIAN

THANH THANG GROUP

DUYEN HA CEMENT

VICEM HOÀNG THẠCH
VICEM HẠ LONG
VICEM BỈM SƠN
VICEM BÚT SƠN
VICEM TAM ĐIỆP
VICEM HOÀNG MAI
VICEM HÀ TIÊN
VICEM HẢI PHÒNG
VICEM SÔNG THAO

TANTHANG
CEMENT
Tạo khác biệt - Dựng niềm tin

CUBICO

XUAN THANH GROUP

XI MĂNG PORTLAND HỖN HỢP
CẨM PHẢ
SẢN XUẤT TẠI VIỆT NAM

HONDA

YAMAHA

LONG SON
CEMENT

FICO CEMENT
GẮN KẾT NHỮNG ƯỚC MƠ

NIPPON SEIKI

MẾ TRẦN BÌNH XUYÊN

FC
WIRING SYSTEM

HITACHI
Inspire the Next

DONGLAM
CEMENT

MARKETS

RUBBER COMPANY 75
Trao trọn niềm tin

CÔNG TY TNHH MTV CAO SU 75

CÔNG NGHIỆP QUỐC PHÒNG VIỆT NAM