



SANDHYAFLEX

ISO 9001:2015 certified company

DI Pipe Gasket as per IS: 5382/1985

TECHNICAL DATASHEET

SANDHYAFLEX Manufacturer of Quality gaskets like Push On Joint (Tyton), 'O' Rings for C.I.D. Joints & RCC Spun Pipes, M/J Gaskets, Flat Gaskets for Flanged Joints and various other custom made Rubber Gaskets. All Rubber Gaskets will bear ISI Certification Mark and conform to IS: 5382/1985 in Quality. We also possess WRAS Certificate and therefore you are assured that our Rubber Gaskets will never contaminate the flowing drinking water when coming in contact with them. We also manufacture Glass Separators, Rubber Inserts, Square Gaskets, Rubber Bushes, Rubber Cords, Oil Seals, Anti Vibration Rubber Pads etc.

Gaskets:

F. C. Gaskets

F.C. Gaskets are designed for Jiffy Collar Coupling and made out of NR, SBR, EPDM Polymers. Gaskets are available in all standard sizes from 80 mm to 1000 mm dia NB.

Flat Rubber Gaskets

Flat Rubber Gaskets (of 3/6mm dual thickness) are designed to make Flanged Joints and are made out of NR, SBR, EPDM Polymers. The thickness around sealing area is kept at 6 mm to account for possible machining irregularities on mating Flanges. Gaskets are available in all standard sizes from 80 mm to 1000 mm dia NB.

LRC Gaskets

LRC Gaskets are designed for use in Jiffy Socket Leak Repair Clamps and are specially designed to facilitate permanent repair of leakages in Socket / Spigot Joints in Pipes and Fittings. The Gaskets are normally made out of EPDM Polymer and can also be made out of other Polymers. Gaskets are available in all standard sizes from 80 mm to 1000 mm dia NB.

Modified J - II Gaskets

Modified J – II Gaskets are designed for Jiffy II M/J Fittings and are made out of EPDM Polymer. This Gasket used in pipe-fittings industries. Gaskets are available in all standard sizes from 80 mm to 300 mm dia NB.

Rubber Gasket for M.J Joints

These conical shaped M/J Rubber Gaskets are designed for use in Mechanical Joint pipe fittings and are manufactured out of EPDM Polymer. The Gaskets are interchangeable and are available in all standard sizes from 80 mm dia to 1000 mm dia NB.

Rubber Gasket for Push-on Joints (T-Joint)

Rubber Gaskets for Push on Joint (Tyton Gasket) are made out of NR, SBR, EPDM Polymer and are suitable for jointing Tyton Joint C.I. / D.I. Pipes. Gaskets are available in all standard sizes from 80 mm to 1000 mm dia NB.

Sealing O Rings

Rubber O Rings made out of NR, SBR, EPDM, . These Gaskets are used in C.I. 'D' Joints A.C. Pipes and RCC pressure pipes. Gaskets are available in all standard sizes from 80 mm to 2000 mm dia NB.

Di Pipe Gasket Advantages:

- Di pipe gaskets allow you to construct in RRJ fashion
- Eliminates the need for concrete thrust blocks.
- Speeds up commissioning (no need to wait for concrete curing).
- Streamlines materials sourcing and administration, ideal for weak soils where concrete blocks won't work.
- Offers 3 to 5 degrees of joint deflection.
- Provides maximum security for strategic mains with fully locked joints.
- Offers an allowable operating pressure (AOP) of 1.6MPa and an allowable site test pressure (ASTP) of 2.0MP. and a maximum allowable operating pressure (MAOP) of 1.92MPa.

SANDHYAFLEX® AN ISO 9001:2015 CERTIFIED COMPANY	DI PIPE GASKET AS PER IS 5382:2018 (For Ductile Iron Pipe – Tyton Joint)	DWG. NO. : SFL/DIPG/TD/01 REV. NO. : 00 DATE : 25.04.2024 UNIT : MM																																																														
	1. CROSS SECTION (IN PIPE JOINT) 	2. GASKET PROFILE 	DESCRIPTION : <ul style="list-style-type: none"> • Designed for Tyton Joint • Material: EPDM Rubber • Standard: IS 5382:2018 • Suitable for Potable Water, Sewerage and Drainage Applications • Color: Black 																																																													
3. 3D VIEW (ISOMETRIC) 	4. DIMENSIONS TABLE <table border="1"> <thead> <tr> <th rowspan="2">NOMINAL SIZE DN (mm)</th> <th colspan="6">DIMENSIONS (mm)</th> <th rowspan="2">APPLICABLE PIPE CLASS</th> </tr> <tr> <th>Ø A</th> <th>Ø B</th> <th>P</th> <th>W</th> <th>H</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>80</td> <td>98</td> <td>118</td> <td>75</td> <td>19</td> <td>17</td> <td>11</td> <td>K7 / K9 / K12</td> </tr> <tr> <td>100</td> <td>118</td> <td>138</td> <td>80</td> <td>20</td> <td>18</td> <td>12</td> <td>K7 / K9 / K12</td> </tr> <tr> <td>150</td> <td>170</td> <td>192</td> <td>85</td> <td>24</td> <td>21</td> <td>13</td> <td>K7 / K9 / K12</td> </tr> <tr> <td>200</td> <td>222</td> <td>244</td> <td>90</td> <td>26</td> <td>23</td> <td>14</td> <td>K7 / K9 / K12</td> </tr> <tr> <td>250</td> <td>274</td> <td>298</td> <td>95</td> <td>28</td> <td>25</td> <td>15</td> <td>K7 / K9 / K12</td> </tr> <tr> <td>300</td> <td>326</td> <td>352</td> <td>100</td> <td>30</td> <td>27</td> <td>16</td> <td>K7 / K9 / K12</td> </tr> </tbody> </table>	NOMINAL SIZE DN (mm)	DIMENSIONS (mm)						APPLICABLE PIPE CLASS	Ø A	Ø B	P	W	H	T	80	98	118	75	19	17	11	K7 / K9 / K12	100	118	138	80	20	18	12	K7 / K9 / K12	150	170	192	85	24	21	13	K7 / K9 / K12	200	222	244	90	26	23	14	K7 / K9 / K12	250	274	298	95	28	25	15	K7 / K9 / K12	300	326	352	100	30	27	16	K7 / K9 / K12	
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NOTES : <ul style="list-style-type: none"> • All dimensions are in millimeters. • Dimensions are indicative and subject to manufacturing tolerances. • Gasket shall conform to requirements of IS 5382:2018. • Other sizes can be manufactured as per customer requirement. 	TECHNICAL SPECIFICATION <table border="1"> <tr> <td>MATERIAL</td> <td>: EPDM RUBBER</td> </tr> <tr> <td>HARDNESS</td> <td>: 50 ± 5 IRHD</td> </tr> <tr> <td>TENSILE STRENGTH</td> <td>: ≥ 10 MPa</td> </tr> <tr> <td>ELONGATION AT BREAK</td> <td>: ≥ 300 %</td> </tr> <tr> <td>COMPRESSION SET (70°C, 24 HRS)</td> <td>: ≤ 25 %</td> </tr> <tr> <td>SERVICE TEMPERATURE</td> <td>: -10°C TO +50°C</td> </tr> </table>	MATERIAL	: EPDM RUBBER	HARDNESS	: 50 ± 5 IRHD	TENSILE STRENGTH	: ≥ 10 MPa	ELONGATION AT BREAK	: ≥ 300 %	COMPRESSION SET (70°C, 24 HRS)	: ≤ 25 %	SERVICE TEMPERATURE	: -10°C TO +50°C	FEATURES <ul style="list-style-type: none"> • Excellent sealing performance • Resistant to ageing, ozone and weather • High elasticity and recovery • Easy to install • Long service life 	MANUFACTURED BY: SANDHYAFLEX® SANDHYAFLEX INDIA PVT. LTD. 13, Samrat Industrial Area, Near Gokul Pulp, Khatraj Road, Kalol – 382721, Gujarat, India. www.sandhyaflex.com																																																	
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History of Fire Fighting Rubber Hose:

▪ 1800s – Early Pipe Joint Sealing Methods:

Natural materials such as hemp, jute, lead, and tar were used to seal cast iron pipe joints, providing basic leakage prevention.

▪ Late 1800s – Growth of Cast Iron Water Pipelines:

Expansion of municipal water supply systems increased the need for more reliable and watertight pipe joint sealing solutions.

▪ 1900s – Introduction of Rubber Sealing Rings:

Rubber gaskets began replacing traditional sealing materials, offering improved flexibility, water tightness, and easier installation.

▪ 1950s – Development of Synthetic Rubber Compounds:

Advancements in synthetic rubber materials such as EPDM and SBR enhanced durability, chemical resistance, and service life.

▪ 1960s – Adoption of Ductile Iron Pipes:

The introduction of ductile iron (DI) pipes created demand for specially designed rubber gaskets capable of accommodating joint movement and pressure variations.

▪ 1970s – Standardized Push-On Joint Technology:

Push-on and mechanical joint systems became widely adopted, utilizing precision-engineered rubber gaskets for secure and leak-proof connections.

▪ **1990s – Improved Manufacturing and Quality Standards:**

Advanced molding techniques and international standards improved gasket consistency, sealing performance, and reliability in water distribution networks.

▪ **2000s – Expansion of Water Infrastructure Projects:**

Rapid urbanization and infrastructure development increased the global demand for high-performance DI pipe gaskets in potable water, sewage, and industrial pipeline systems.

▪ **Modern Era:**









DI Pipe Gaskets are essential components of modern piping networks worldwide, ensuring leak-proof joints, flexibility, durability, and long-term performance. They play a critical role in water supply, wastewater management, irrigation, and industrial infrastructure projects, contributing to safe and efficient fluid transportation systems across the globe.

Materials :

The **DI Pipe Gasket** shall be manufactured using high-quality elastomeric rubber compounds such as **EPDM (Ethylene Propylene Diene Monomer)**, **SBR (Styrene Butadiene Rubber)**, **NBR (Nitrile Butadiene Rubber)**, **Natural Rubber**, or other approved materials specifically formulated to provide excellent elasticity, resilience, water tightness, and long-term sealing performance. The gasket material shall possess high resistance to compression set, aging, weathering, ozone, and a wide range of environmental conditions encountered in water supply and sewerage systems.

The gasket shall be precision molded to ensure uniform dimensions, proper fitment, and reliable sealing within ductile iron pipe joints. It shall be capable of accommodating joint deflection, vibration, thermal expansion, and minor pipe movements without loss of sealing integrity. For potable water applications, the gasket material shall be non-toxic and suitable for contact with drinking water.

RAW MATERIAL DETAILS – DI PIPE GASKET (IS 5382:2018)

SR. NO.	RAW MATERIAL	MATERIAL DESCRIPTION	SPECIFICATION / GRADE	SUPPLIER	ROLE IN GASKET	TYPICAL IMAGE	% BY WEIGHT
1	EPDM Rubber	Ethylene Propylene Diene Monomer Rubber	EPDM 50 ± 5 Shore A	ARLANXEO / ZEON / JSR	Base polymer providing elasticity, weather, ozone and chemical resistance		60 – 70%
2	Carbon Black	Reinforcing filler (N660 Grade)	IS 13360 / ASTM D1765 N660	PHOENIX / ORION	Provides reinforcement, improves tensile strength and abrasion resistance		25 – 35%
3	Process Oil	Naphthenic Oil	IS 6103 / ASTM D2140	NYNAS / SUNOCO	Acts as plasticizer, improves processability and flexibility		1 – 5%
4	Zinc Oxide	Zinc Oxide (Active Grade)	IS 13116 / ASTM D281	ZINC NATION / HAKUSUI	Activator for curing reaction		2 – 3%
5	Stearic Acid	Stearic Acid (Technical Grade)	IS 60 / ASTM D570	FINE ORGANICS / WILFARIN	Lubricant, process aid and activator		1 – 2%
6	Antioxidant	6PPD / TMQ	IS 11747 / ASTM D2660	SONGWON / BASF	Protects rubber from oxidative ageing		0.5 – 1.5%
7	Curing System	Sulphur	IS 4758 / ASTM D722	TATA CHEMICALS / SULPHUR MILL	Vulcanizing agent for crosslinking		1 – 2%
8	Accelerator	MBTS / CBS	IS 13360 / ASTM D2084	LANXESS / RUBAMIN	Accelerates curing reaction		0.5 – 1.0%
NOTES : <ul style="list-style-type: none"> All raw materials are RoHS compliant. All materials conform to relevant IS / ASTM standards. This formulation is typical and may vary slightly depending on performance requirements. 			PRODUCT : DI PIPE GASKET MATERIAL : EPDM RUBBER HARDNESS : 50 ± 5 Shore A STANDARD : IS 5382:2018				

The finished gasket shall provide durable, leak-proof performance under varying operating pressures and temperatures and shall conform to the applicable national and international standards governing ductile iron pipe joint sealing systems, including requirements for mechanical strength, elasticity, and long service life.

Compounds and its uses:

COMPOUNDS:	MAX SERVICE TEMPERATURE:		COMMON USES:
	Water & Sewer	Air	
EPDM	212°F	150°F	Vegetable Oil, Alcohols, Dilute Acids, Diluted Alkalis, MEK, Acetone, fresh water, sea water, storm water, sanitary sewage & reclaimed water
Nitrile	150°F	125°F	Fresh water, salt water, sanitary sewage, storm water, petroleum products, oils, fats, chemicals, greases
Neoprene	200°F	150°F	Fresh water, salt water, sanitary sewage, storm water, greases

FKM	212°F	300°F	Fresh water, salt water, storm water, aromatic hydrocarbons, fuels, acids, vegetable oils, petroleum products, and most chemicals and solvents
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Physical and Chemical Properties:

Sl. No.	Property Tested	Requirement as per IS 5382	Test Method	Test Result	Status
1	Visual Examination	Free from cracks, blisters, voids and defects	Visual	Satisfactory	Pass
2	Hardness (IRHD/Shore A)	50 ± 5	IS 3400 Part 2	52	Pass
3	Tensile Strength	≥ 10 MPa	IS 3400 Part 1	12.5 MPa	Pass
4	Elongation at Break	≥ 300%	IS 3400 Part 1	420%	Pass
5	Compression Set (70°C, 24 hrs)	≤ 25%	IS 3400 Part 10	18%	Pass
6	Accelerated Ageing – Tensile Strength Change	Within permissible limit	IS 3400 Part 4	-8%	Pass
7	Accelerated Ageing – Elongation Change	Within permissible limit	IS 3400 Part 4	-12%	Pass
8	Accelerated Ageing – Hardness Change	≤ +8 IRHD	IS 3400 Part 4	+4 IRHD	Pass
9	Water Absorption / Volume Change	Within permissible limit	IS 3400	3.2%	Pass
10	Ozone Resistance	No cracks visible	IS 3400 Part 20	No Cracks	Pass
11	Stress Relaxation	As specified	IS 5382	Conforms	Pass
12	Dimensional Tolerance	As per approved drawing	Vernier/Projector	Conforms	Pass

Property

Value

<i>Polymer Type</i>	EPDM
<i>Colour</i>	Black
<i>Specific Gravity</i>	1.15 ± 0.05
<i>Hardness</i>	50 ± 5 Shore A
<i>Service Temperature</i>	-10°C to +50°C
<i>Application</i>	DI Water Supply & Sewerage Pipelines

APPLICATIONS BY COUNTRIES :

India:

- Widely used in potable water supply pipelines, municipal water distribution networks, and sewerage systems.
- Commonly installed in ductile iron pipe networks for smart city projects, urban infrastructure, and rural water supply schemes.
- Extensively used in projects executed by municipal corporations, water boards, and government infrastructure agencies.
- Growing demand due to expansion of drinking water, sanitation, and wastewater management projects.

China:

- Extensively used in urban water transmission pipelines, municipal sewer systems, and industrial water networks.
- Widely adopted in large-scale infrastructure developments, smart city projects, and industrial zones.
- Strong demand driven by rapid urbanization and expansion of water management systems.

United States:

- Used in potable water distribution systems, wastewater treatment plants, and stormwater drainage networks.
- Commonly specified for municipal utilities, industrial water systems, and infrastructure rehabilitation projects.
- Preferred for long-term leak-proof performance and compliance with water utility standards.

Europe:

- Widely used in drinking water pipelines, wastewater systems, and municipal infrastructure projects.
- Preferred for applications requiring reliable sealing performance and environmental compliance.
- Strong demand from water authorities, utility providers, and sustainable infrastructure developments.

Middle East:

- Extensively used in desalination water distribution networks, municipal water supply systems, and wastewater projects.
- High demand due to large-scale infrastructure developments, smart cities, and water conservation initiatives.
- Commonly installed in pipelines serving industrial complexes, residential developments, and utility projects.

Africa:

- Used in urban and rural water supply schemes, sanitation projects, and municipal infrastructure development.
- Important for water transmission pipelines, irrigation systems, and wastewater networks.
- Growing adoption driven by increasing investments in water accessibility and public infrastructure.

Southeast Asia:

- Widely used in municipal water distribution systems, industrial water pipelines, and sewerage projects.
- Commonly installed in rapidly expanding urban centers and infrastructure development programs.
- Suitable for tropical climatic conditions with excellent resistance to moisture and environmental exposure.

Australia:

- Utilized in potable water supply networks, wastewater treatment systems, and irrigation infrastructure.
- Preferred for municipal utilities, mining operations, and industrial water management projects.
- Commonly specified for critical infrastructure requiring durable and leak-proof pipeline joints.

South America:

- Used in municipal water supply projects, sewerage systems, and industrial pipeline networks.
- Increasing demand due to infrastructure modernization and expansion of public utility services.
- Widely adopted in urban development and environmental improvement projects.

Get in touch:

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