



SANDHYAFLEX

ISO 9001:2015 certified company

Concrete End Hose Pipe

TECHNICAL DATASHEET

SANDHYAFLEX Concrete End Hose Pipe is a high-performance flexible rubber hose specifically designed for the efficient discharge and placement of concrete in pumping applications. Manufactured from premium-quality abrasion-resistant rubber compounds and reinforced with high-strength synthetic textile or steel wire reinforcement, these hoses are engineered to withstand the demanding conditions associated with concrete pumping operations.

Designed for use at the discharge end of concrete pump pipelines, Sandhyaflex Concrete End Hose Pipes provide excellent flexibility, superior wear resistance, and reliable performance under high-pressure operating conditions. The hoses are capable of handling concrete, mortar, grout, and other abrasive construction materials while ensuring smooth material flow and ease of handling on construction sites.

SANDHYAFLEX has established itself as a trusted manufacturer of high-quality industrial rubber products in India. Manufactured using advanced rubber compounding technology and carefully selected raw materials, these hoses deliver outstanding durability, safety, and long service life in demanding construction and infrastructure projects.

Overcoming Challenges, Delivering Excellence

Concrete pumping operations often encounter challenges such as severe abrasion, hose wear, pressure fluctuations, material blockages, difficult handling conditions, and frequent exposure to harsh construction environments. These factors can affect productivity, increase maintenance costs, and lead to equipment downtime.

Recognizing these challenges, SANDHYAFLEX developed its Concrete End Hose Pipe range using specially formulated abrasion-resistant rubber compounds combined with high-strength reinforcement layers. The hose is designed to withstand continuous exposure to abrasive concrete mixtures while maintaining flexibility, pressure resistance, and operational reliability.

By delivering a dependable and high-performance solution, SANDHYAFLEX Concrete End Hose Pipes have become a preferred choice for ready-mix concrete plants, construction contractors, infrastructure developers, bridge projects, tunneling operations, and large-scale civil engineering works where reliable concrete placement is essential.

Key Features

- Manufactured from premium-quality abrasion-resistant rubber compounds.
- Designed specifically for concrete pumping applications.
- Excellent resistance to abrasion and wear.
- High-pressure handling capability.
- Reinforced with high-strength textile or steel wire layers.
- Superior flexibility for easy handling and positioning.
- Smooth internal surface for efficient material flow.
- Resistant to impact and mechanical damage.
- Excellent weather and ozone resistance.
- Suitable for concrete, mortar, grout, and slurry applications.
- Reliable performance under continuous pumping conditions.
- Excellent dimensional stability.
- Easy installation and maintenance.
- Long service life under demanding construction environments.
- Available in various diameters, lengths, and pressure ratings.

Applications

- Ready-Mix Concrete Plants: Used for the discharge and placement of concrete during pumping operations.
- Building Construction Projects: Suitable for residential, commercial, and industrial concrete placement works.
- Infrastructure Development: Widely used in highways, bridges, flyovers, airports, and railway projects.
- High-Rise Construction: Enables efficient concrete pumping to elevated floors and difficult-to-access locations.
- Bridge Construction: Suitable for concrete placement in bridge decks, piers, foundations, and support structures.
- Tunnel Construction: Used for pumping concrete and shotcrete materials in tunneling operations.
- Dam and Water Retaining Structures: Applied in concrete placement for dams, reservoirs, and hydraulic structures.
- Industrial Construction: Suitable for factories, power plants, refineries, and large industrial facilities.
- Precast Concrete Manufacturing: Used for transferring concrete mixtures in production facilities.

- Mining and Underground Projects: Suitable for concrete and grout transfer in mining operations.
- Civil Engineering Projects: Widely used in infrastructure and heavy construction activities.
- Concrete Pumping Equipment: Compatible with trailer-mounted, truck-mounted, and stationary concrete pumps.
- Shotcrete Applications: Suitable for spraying concrete in slope stabilization and tunnel lining works.
- General Construction Applications: Ideal for any project requiring efficient and reliable concrete transfer.

History of Concrete End Hose Pipes

- Early 1900s – Concrete placement was primarily performed manually using buckets, chutes, and wheelbarrows.
- 1930s – The first mechanical concrete pumping systems were introduced, creating demand for durable material transfer hoses.
- 1950s – Rapid urbanization and infrastructure development increased the use of concrete pumps and flexible discharge hoses.
- 1960s – Advancements in rubber technology improved hose flexibility, durability, and pressure resistance.
- 1970s – Growth of high-rise construction and large infrastructure projects accelerated demand for specialized concrete hoses.
- 1980s – Reinforced rubber hose technology enhanced safety, wear resistance, and service life.
- 1990s – Improved manufacturing methods increased hose reliability and operational efficiency.
- 2000s – Expansion of global construction and infrastructure sectors drove widespread adoption of high-performance concrete pumping hoses.
- 2010s – Advanced abrasion-resistant compounds and reinforcement technologies significantly improved hose durability.
- 2020s – Concrete End Hose Pipes continue to play a critical role in modern construction, infrastructure, mining, and civil engineering projects worldwide, providing safe and efficient concrete placement solutions.

Materials:

The **Sandhyaflex Concrete End Hose Pipe** shall be manufactured using high-quality abrasion-resistant rubber compounds specifically formulated to withstand the severe wear, impact, and pressure conditions encountered during concrete pumping operations.

The hose shall consist of a premium-quality synthetic rubber inner tube designed to resist abrasion from concrete, mortar, grout, slurry, and other highly abrasive construction materials. The reinforcement layer shall be constructed from high-strength synthetic textile cords and/or steel wire reinforcement to provide excellent pressure resistance, dimensional stability, flexibility, and structural integrity under demanding operating conditions.

The outer cover shall be manufactured from weather-resistant and abrasion-resistant rubber compounds capable of providing protection against ozone, sunlight, moisture, rough handling, and harsh construction site environments.

The hose shall be manufactured using advanced mixing, extrusion, reinforcement, vulcanization, and finishing processes and shall be free from defects such as cracks, blisters, porosity, delamination, foreign inclusions, or surface irregularities that may adversely affect performance, safety, or service life.

The material shall possess excellent resistance to abrasion, mechanical wear, impact loading, weathering, ozone exposure, and normal construction operating conditions while maintaining flexibility and pressure-handling capability throughout its service life.

Manufactured from premium-quality rubber compounds and reinforced with high-strength materials, Sandhyaflex Concrete End Hose Pipes provide reliable performance, superior abrasion resistance, operational safety, and long service life for concrete pumping, infrastructure development, and heavy construction applications.

RAW MATERIALS OF CONCRETE END HOSE PIPE BY SANDHYAFLEX				
S. No.	Raw Material	Image	Typical Grade / Example	Function / Purpose
1	Inner Tube Rubber (High Abrasion Resistant)		<ul style="list-style-type: none"> NR/SBR Blend High Abrasion Resistant Compound Concrete Pumping Grade 	<ul style="list-style-type: none"> Provides excellent abrasion resistance Ensures smooth concrete flow Withstands high pressure & impact Extends service life
2	Reinforcement Layers (Textile / Steel Wire)		<ul style="list-style-type: none"> High Tensile Polyester Textile Steel Wire Reinforcement High Strength Synthetic Cord 	<ul style="list-style-type: none"> Provides high pressure strength Prevents expansion and bursting Ensures dimensional stability Enhances safety and durability
3	Outer Cover Rubber (Weather & Abrasion Resistant)		<ul style="list-style-type: none"> SBR / EPDM Blend Abrasion & Weather Resistant Ozone & UV Resistant Compound 	<ul style="list-style-type: none"> Protects against abrasion and wear Resistant to weather, ozone & UV Withstands rough handling Enhances hose life
4	Carbon Black		<ul style="list-style-type: none"> N330 / N550 / N660 High Structure Carbon Black Reinforcing Grade 	<ul style="list-style-type: none"> Improves tensile strength & durability Enhances abrasion resistance Improves mechanical properties Enhances aging resistance
5	Processing Oils		<ul style="list-style-type: none"> Paraffinic Oil Naphthenic Oil Aromatic Process Oil 	<ul style="list-style-type: none"> Improves workability & mixing Enhances flexibility Improves surface finish Assists in dispersion of fillers
6	Coupling/End Fittings (Integrated Ends)		<ul style="list-style-type: none"> Mild Steel / Carbon Steel Wear Resistant Steel Zinc Plated / Painted 	<ul style="list-style-type: none"> Provides secure connection Withstands high pressure Resists corrosion Ensures safe and leak-proof operation
7	Curing Agents		<ul style="list-style-type: none"> Sulphur Peroxide (If Applicable) Other Vulcanizing Systems 	<ul style="list-style-type: none"> Enables proper vulcanization Improves mechanical strength Enhances heat resistance Ensures dimensional stability
8	Activators		<ul style="list-style-type: none"> Zinc Oxide Stearic Acid Other Activators 	<ul style="list-style-type: none"> Activates curing process Improves dispersion Enhances physical properties Supports overall performance
9	Anti-Oxidants & Protectors		<ul style="list-style-type: none"> Anti-Oxidants Wax / Protective Agents Anti-Ozonants 	<ul style="list-style-type: none"> Improves aging & ozone resistance Protects from UV & heat Extends service life Enhances environmental resistance

MANUFACTURING PROCESS								
								
RAW MATERIALS SELECTION	MIXING & COMPOUNDING	EXTRUSION OF INNER TUBE	REINFORCEMENT BRAIDING	COVERING / EXTRUSION OF OUTER COVER	VULCANIZATION (CURING)	CUTTING TO LENGTH	TESTING & INSPECTION	FINISHED CONCRETE END HOSE PIPE
HIGH ABRASION RESISTANCE	HIGH PRESSURE STRENGTH	FLEXIBILITY & DURABILITY	SAFE & RELIABLE PERFORMANCE	COMPLIANT WITH STANDARDS	LONG SERVICE LIFE			

Components of a Concrete End Hose Pipe:

A concrete end hose pipe is composed of several key components designed to withstand the high pressures, abrasive materials, and challenging conditions encountered during concrete pumping operations. These components work together to ensure the hose's durability, flexibility, and safe performance. The main components of a concrete end hose pipe include:

Inner Tube:

The inner tube is the innermost layer of the hose, directly in contact with the concrete being pumped. It's made from a high-quality rubber compound or other abrasion-resistant material to withstand the abrasive nature of concrete. The inner tube prevents the concrete mixture from directly contacting the reinforcement layers, protecting them from wear and corrosion.

Reinforcement Layers:

The reinforcement layers are responsible for providing the hose with strength, flexibility, and the ability to withstand the high pressures generated by the concrete pumping process. These

layers are typically made of high-tensile steel wires or fabric cords. The layers are usually braided or wound in a spiral pattern to distribute stress evenly and prevent kinking or collapsing under pressure.

Wire or Fabric Mesh:

Some hoses have an additional layer of wire or fabric mesh between the inner tube and the outer cover. This layer further enhances the hose's strength and flexibility, helping it maintain its shape even under extreme conditions.

Outer Cover:

The outer cover is the protective layer that surrounds the reinforcement layers. It shields the hose from external factors such as physical damage, sunlight, weather, and chemicals. The outer cover is usually made from synthetic rubber, PVC, or polyurethane to provide resistance against abrasion and environmental conditions.

End Fittings:

The end fittings are crucial components that connect the concrete end hose pipe to the concrete pump's outlet and the nozzle or delivery point. These fittings are typically made of hardened steel to withstand the high pressures and secure the hose connections. They are designed to ensure a tight seal and prevent any leakage during the pumping process.

Flanges and Couplings:

Flanges are the circular discs located at the ends of the hose that attach to the end fittings. They have holes to align with bolts, allowing for secure attachment to the pump and delivery point. Couplings are similar but serve to connect two hoses together for extended reach when needed.

Anti-Kink Sleeves:

Some hoses may have anti-kink sleeves or coils placed along their length. These components help prevent the hose from bending excessively, which could lead to kinks or blockages that impede the concrete flow.

Identification Markings:

Many hoses come with identification markings, including information about their specifications, working pressure, manufacturer, and other important details. These markings help ensure proper usage and maintenance.

Each of these components plays a critical role in the overall performance, durability, and safety of a concrete end hose pipe during concrete pumping operations. Regular inspection, maintenance, and proper usage are essential to ensure the hose's reliability and to prevent any potential issues that could disrupt the concrete placement process.

Physical Technicalities:

S. No.	Property	Unit	Typical Value
1	Inner Tube	-	NR/SBR Abrasion Resistant Rubber
2	Outer Cover	-	Weather & Abrasion Resistant SBR/EPDM
3	Reinforcement	-	High Tensile Textile Cord
4	Internal Diameter	mm	75, 100, 125
5	Wall Thickness	mm	8 – 15
6	Hardness	Shore A	65 ± 5
7	Tensile Strength	MPa	≥ 12
8	Elongation at Break	%	≥ 350
9	Abrasion Loss	mm ³	≤ 100
10	Working Pressure	Bar	40 – 85
11	Burst Pressure	Bar	≥ 120
12	Temperature Range	°C	-30 to +80
13	Length Available	m	1 – 6
14	End Connections	-	Hardened Steel Concrete Couplings
15	Color	-	Black
16	Surface Finish	-	Wrapped / Cloth Impression

Maintenance and Care:

Maintaining **Sandhyaflex Concrete End Hose Pipes** is simple and helps ensure safe operation, maximum service life, and reliable concrete pumping performance:

- **Regular Inspection:** Periodically inspect the hose for cuts, cracks, excessive wear, bulging, deformation, exposed reinforcement, or coupling damage.
- **Keep Clean:** After use, thoroughly flush and clean the hose to remove residual concrete, mortar, grout, or slurry deposits that may cause blockages or internal wear.

- **Proper Storage:** Store in a cool, dry place away from direct sunlight, excessive heat, sharp objects, and heavy loads that may deform the hose.
- **Inspect Couplings and Connections:** Regularly check end fittings, clamps, and couplings for wear, looseness, corrosion, or damage.
- **Avoid Excessive Bending:** Do not bend the hose below its recommended minimum bend radius, as this may cause premature damage or flow restrictions.
- **Prevent Mechanical Damage:** Avoid dragging the hose over rough surfaces, sharp edges, or construction debris whenever possible.
- **Avoid Chemical Exposure:** Prevent prolonged contact with oils, solvents, acids, fuels, and chemicals that may deteriorate the rubber compound.
- **Monitor Operating Pressure:** Operate within the recommended pressure range and avoid sudden pressure surges that may reduce hose life.
- **Replace Worn Components:** Replace hoses showing excessive abrasion, cracking, reinforcement exposure, coupling failure, or loss of structural integrity.

Applications by Countries:

India

- Widely used in ready-mix concrete plants, high-rise buildings, metro rail projects, bridges, flyovers, and highway construction.
- Commonly installed on truck-mounted and stationary concrete pumps.
- Growing demand due to rapid urbanization and infrastructure development projects.

China

- Extensively used in large-scale infrastructure, railway networks, high-rise construction, and industrial projects.
- Preferred for heavy-duty concrete pumping applications in major construction developments.
- Widely adopted in urban infrastructure and transportation projects.

United States

- Commonly used in commercial buildings, highway construction, bridges, dams, and industrial facilities.
- Preferred for high-performance concrete pumping and material transfer operations.
- Widely utilized by construction contractors and ready-mix concrete suppliers.

Europe

- Used in transportation infrastructure, tunnels, bridges, residential developments, and industrial construction.
- Commonly specified for demanding concrete placement applications requiring durability and reliability.
- Strong demand due to strict construction quality and safety standards.

Middle East

- Extensively used in skyscrapers, airports, stadiums, oil & gas facilities, and mega infrastructure projects.
- Suitable for harsh climatic conditions and intensive construction activities.
- High demand driven by large-scale urban development programs.

Africa

- Applied in road construction, bridges, dams, public infrastructure, and commercial developments.
- Used in concrete pumping operations for expanding transportation and utility networks.
- Growing demand due to increasing investment in infrastructure projects.

Southeast Asia

- Widely used in residential towers, industrial facilities, transportation projects, and urban infrastructure developments.
- Growing demand from rapidly expanding construction and real estate sectors.

Australia

- Preferred for mining infrastructure, commercial construction, bridges, tunnels, and transportation projects.
- Commonly used in concrete pumping operations requiring high abrasion resistance and reliability.
- Suitable for demanding construction environments and heavy-duty applications.

The **Sandhyaflex Concrete End Hose Pipe** is trusted worldwide for efficient concrete placement, superior abrasion resistance, high-pressure performance, and dependable operation in demanding construction and infrastructure projects.

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