dobson gaskets

RUBBER GASKET SELECTION GUIDE

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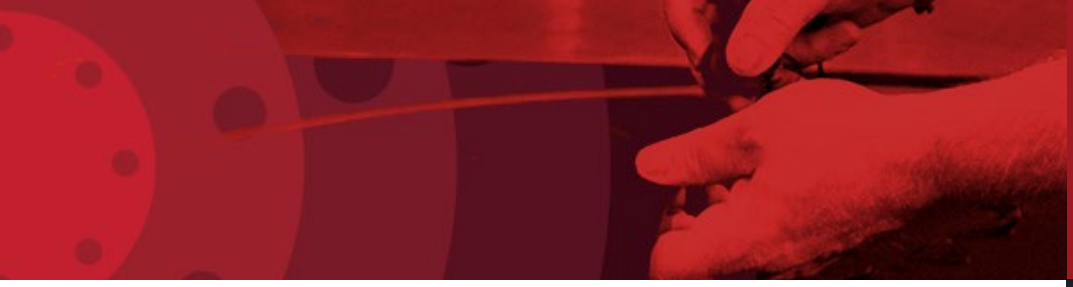


RUBBER GASKETS
AN OVERVIEW

A VERSATILE GASKET SOLUTION

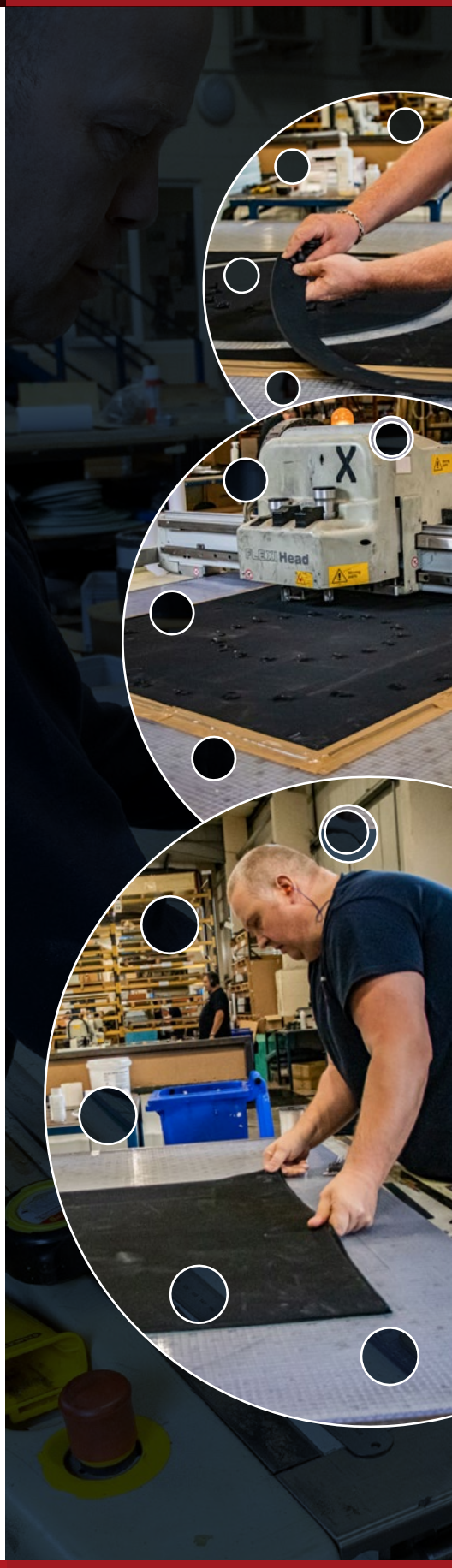
The term rubber gasket covers a extensive range of materials used for sealing applications involving water, chemicals, fuels and oils, to name but a few. For example, EPDM rubber gaskets have excellent water and abrasion resistance, making them ideal for external sealing applications.

Rubber gaskets are widely found in a multitude of everyday industrial and domestic applications. Most common uses for these gaskets include sealing substrates against leakage, environmental factors, vibration, temperature and pressure. Different rubber polymer material sheets are used to manufacture gaskets that remain stable under extreme cold or extreme heat, or withstand corrosive chemicals without losing integrity and flexibility.

WHY CHOOSE DOBSONS?

All gaskets produced by Dobsons are precision cut in-house using a range of modern material converting machinery, including knife tables, and CNC presses. We utilise both state-of-the-art and traditional production techniques, drawing on 60 years' experience in the manufacture of rubber gaskets to quickly turnaround large volumes while ensuring consistency and accuracy.

We offer clients a full turnkey service, including materials specification, CAD design, manufacture and worldwide distribution. Equally, we can produce single or multiple gaskets from clients' designs and templates. All gaskets are supplied to recognised national and international standards.



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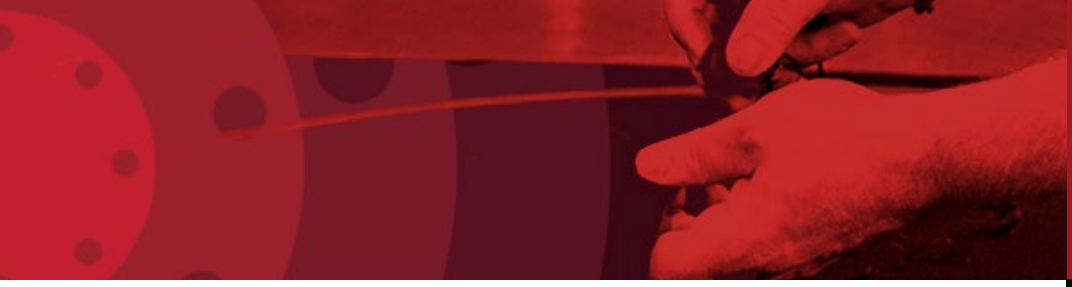
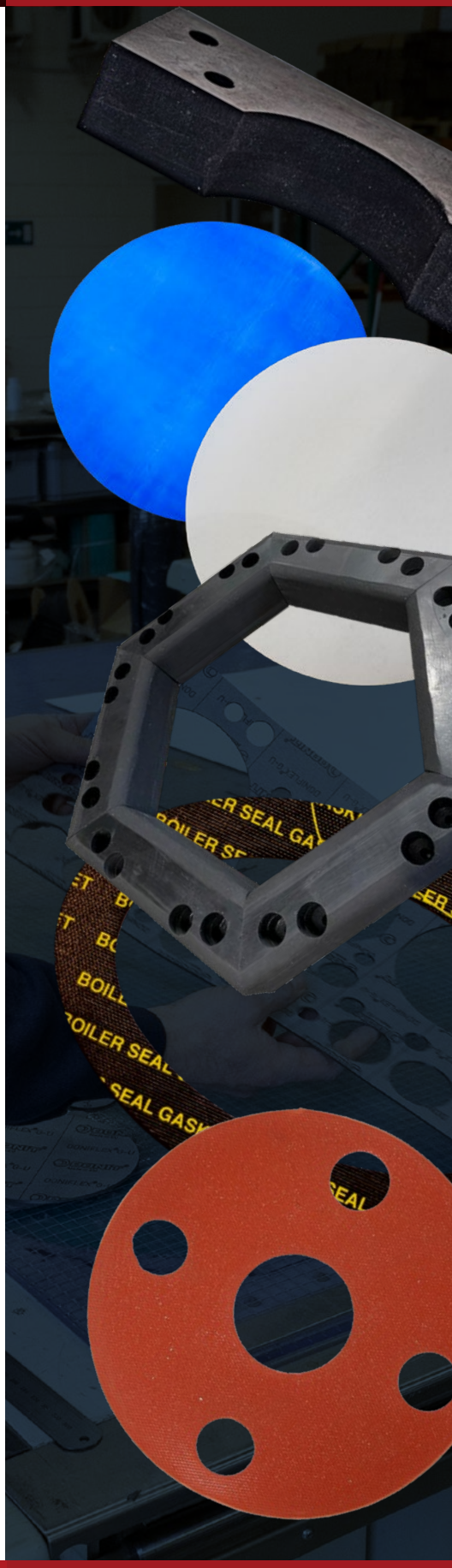


MAKING THE CORRECT RUBBER SELECTION

Understanding the characteristics of various rubber types is crucial when choosing the appropriate gasket material. First and foremost, it involves evaluating the specific operating conditions and intended application for the gasket, taking into consideration factors such as temperature and pressure requirements, as well as the material's resistance to solids, liquids, and gases.

TYPES OF RUBBER GASKET MATERIALS

- **Nitrile**: Suitable for applications with oils, fuels, and other petroleum-based fluids. Good resistance to compression set and abrasion.
- **Neoprene**: Exhibits good resistance to weathering, ozone, and moderate oil resistance. Suitable for outdoor applications.
- **EPDM**: Excellent weather resistance, ozone resistance, and good chemical compatibility. Often used for outdoor, automotive or food processing applications. More about EPDM Gaskets
- **Silicone**: Wide temperature range (-60°C to 230°C), excellent flexibility, and resistance to UV and ozone. Suitable for food-grade and high-temperature applications.
- **Viton**: Exceptional chemical resistance, high-temperature resistance, and suitable for applications with fuels, oils, and harsh chemicals.
- **Natural Rubber**: Good resilience, abrasion resistance, and elasticity. Not recommended for exposure to oils, fuels, or ozone.
- **SBR Rubber:** A cost-effective and versatile sealing solution, SBR (styrene-butadiene rubber) is often used in applications where moderate temperature and pressure conditions are involved.
- **Hypalon**: Completely ozone and UV resistant with excellent recovery and stability properties when used in harsh environmental conditions.
- **Butyl**: The blend of isobutylene and isoprene forms an impermeable seal often used in processing gases. It also has excellent thermal and anti-ageing properties.
- **Insertion**: Rubber and styrene-butadiene composite with a fabric reinforcement is used in many common sealing applications where water or mild chemicals are a factor.



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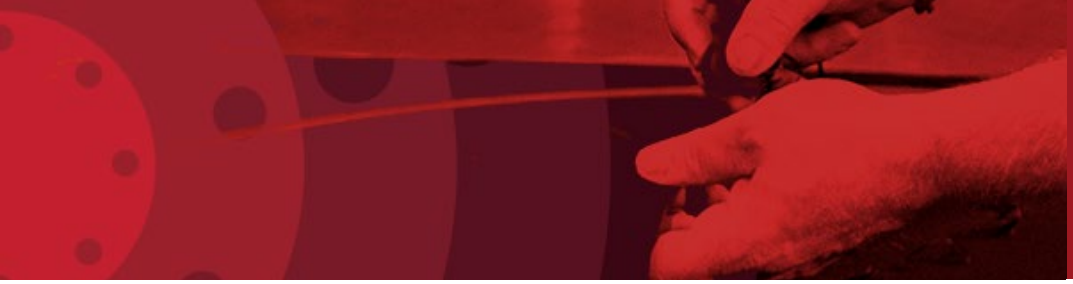

APPLICATION FACTORS

The choice of gasket material depends significantly on its intended use, which may encompass:

- **Food and Beverage:** For gaskets used in food and beverage processing, consider WRAS and FDA-compliant materials like EPDM or silicone. Metal-detectable materials can also be used. These contain ferrites in the compound that enable the detection of rubber fragments from seal abrasion or breakdown in food processing production lines.
- **Medical and Pharmaceutical:** When designing seals for devices in contact with humans, opt for USP Class VI elastomers and silicones.
- **High-Temperature Applications:** Select materials like silicone or Viton that can withstand elevated temperatures for high-temperature applications.
- **Chemical Resistance:** Choose gasket materials that provide resistance to specific chemicals encountered in your application.
- **Electrical Insulation:** Materials with a high dielectric strength, such as silicone, may be suitable for gaskets in electrical enclosures.
- **Sealing Performance:** Evaluate the material's ability to maintain a seal over time, considering factors like compression set and flexibility.

OPERATING CONDITIONS

The characteristics of typical sheet rubber polymers are designed to enhance material performance in specific conditions involving heat, moisture, and pressure. When selecting a rubber gasket material, take the following factors into account:

- **Temperature Range:** Consider the minimum and maximum temperatures the gasket will encounter during operation.
- **Pressure Range:** Determine the pressure levels the gasket needs to withstand.
- **Chemical Compatibility:** Identify the chemicals or fluids with which the gasket will interact and confirm the material's resistance to them.
- **Environmental Factors:** Assess the exposure to UV radiation, ozone, weathering, and other environmental conditions.

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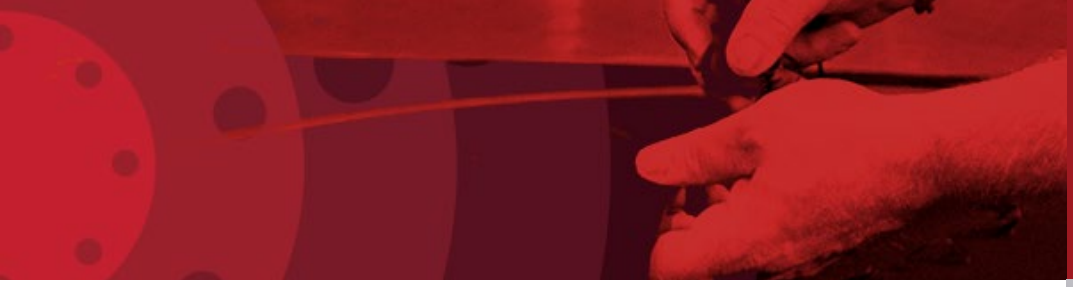

OPERATING CHARACTERISTICS

This simplified chart details some of the most common rubbers and rubber polymers and guidance to their characteristics in operation. It is always worth talking to our technical team for more information about specific materials and properties.

MATERIALS	TEMPERATURE RANGE	MAX PSI/BAR	PN RANGE
Butyl	min - 40 max 120 °C	10 bar	2.5/320
EPDM WRAS	min - 40 max 120 °C	10 bar	2.5/320
Natural (Pure Gum)	min -25 max 70 °C	10 bar	2.5/320
Neoprene	min -30 max 120 °C	10 bar	2.5/320
Neoprene - Cloth Inserted	min -30 max 120 °C	10 bar	2.5/320
Nitrile (NBR, Buna-N)	min -30 max 120 °C	10 bar	2.5/320
SBR (Red Rubber)	min -20 max 70 °C	10 bar	2.5/320
SBR - Cloth Inserted	min -20 max 70 °C	10 bar	2.5/320
Silicone	min -90 max 225 °C	10 bar	2.5/320
Viton	min -20 max 275 °C	10 bar	2.5/320
Boiler Seal	min -25 max 120 °C	12 bar	2.5/320
Prekev Rubberised Cloth	min -250 max 300 °C	35 bar	2.5/320
Hypalon	min -30 max 120 °C	10 bar	2.5/320

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- Compressors
- Pumps
- Valve and Pipe
- Food
- Pharmaceutical

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NEED ADVICE?

TALK TO A TECHNICIAN

Our highly experienced technicians can advise you on the best sheet materials and manufacturing processes for a wide range of gasket applications.

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