



Fosroc Solutions for Sealants

www.fosroc.com





constructive solutions

The FOSROC brand stands synonymous with

■ innovation

■ quality

■ reliability

Company Profile

Since the company's beginnings over 80 years ago, Fosroc has developed into an international leader in delivering Constructive Solutions for projects across a broad range of market segments including transport, utilities, industrial and general buildings.

Fosroc's commitment to customer service and technical support is second to none. We work closely with architects, structural engineers, contractors and owners to best understand their requirements. Together we can develop a bespoke solution for a construction project, adding value and becoming more than just a materials supplier, but a solution provider.

Fosroc has an extensive network of offices and manufacturing locations across Europe, Middle East, India, North and South Asia, and is further represented in other regions across the world by distributor and licensee partners.

Selecting from the full portfolio of Fosroc products and services and integrating expert technical support, world class customer service and innovation, Fosroc goes beyond just product selling to ensure that we partner with our customers to deliver complete constructive solutions.

Fosroc's product range is as follows:-

- Admixtures
- Adhesives
- Protective Coatings
- Concrete Repairs
- Industrial Flooring
- Grouts & Anchors
- Joint Sealants
- Surface Treatments
- Grinding Aids
- Waterproofing



www.fosroc.com



Introduction

The costs for sealants account for a tiny proportion of the cost of a building project, yet their proper performance is vital to the integrity of every structure. Knowledge of joint design, and expertise in selection of suitable sealants from reliable sources is a must-have for today's designer.



The ideal sealant

The choice of the right sealant is not an easy one. The market continues to provide a huge range of sealants; MS-based, Polysulphide, Polyurethane, rubber bitumen. etc. The chemical composition of the sealant is of little interest and selection should be based on what the joint has to do. An ideal sealant would have the following properties when required of it:

- Stable in storage
- No need to mix
- Easy to apply
- Good primerless adhesion to faces of the joint
- No creep, slump or cold flow
- Minimal shrinkage once applied to the joint
- Zero bleeding or staining onto surrounding substrates
- Good cohesion: ability to accommodate movement without splitting
- Resistant to chemical spillage
- Compatible: no chemical reactions with materials in permanent contact
- Resistance to weathering and ageing
- Resistance to bacteriological attack
- Resistance to abrasion
- Paintable
- Retention of elasticity and other desirable physical properties
- No need for regular maintenance
- Repairable if the seal becomes damaged
- Compliant with relevant standards



There is no ONE sealant available with all of the above properties. To choose your ideal sealant you must decide the properties that are most critical for your specific application.



Selecting the right sealant

In choosing the right sealant, the following questions are more relevant than the chemical composition:

- What is the expected movement of the joint?
(Permit large movements, small movements, rapid cyclic movements, slow movements, a single irreversible movement or no movement at all)
- Movement Accommodation Factor (MAF) for a sealant needs to be considered. For large movements a high MAF is required but for rapid cyclic movements a low modulus is required
- What does the joint have to retain or keep out?
(Occasional rain, dust and dirt, moisture, wind, seawater, fresh drinking water, sewage, ...)
- What must the sealant withstand?
(Spillage of fuel oil, abrasion by traffic, bacterial attack, strong sunlight, noxious chemicals, vandalism, continual submersion, ...)
- Is the sealant fire resistant?
(Resists spread of flame.....)
- How will the sealant be applied to the joint?
(Poured hot, poured cold, worked with a trowel, applied by a gun, ...)
- How quickly will the sealant be expected to perform?
(After application,...)
- How long is the joint to last?
(5 years, 10 years, 20 years plus, ...)
- How accessible is the joint for maintenance purposes?
(Consider maintenance to the joints)



Answers to these questions can assemble criteria to determine the ideal sealant whose chemical composition will be of minor relevance.

Grades of sealants

- **Pouring grade sealants** - These sealants are designed exclusively for horizontal joints in floors and pavements.
- **Gun grade sealants** - These sealants are suitable for use in vertical and horizontal joints.

As a general rule, curing in two-part sealants is more rapid than one-part sealants. The use of two-part sealants is appropriate where rapid cure is essential, eg. structural joints subjected to early movement after sealing.



Classification of Fosroc sealants

The characteristics of sealants in Fosroc's manufactured range are summarized below. Establishing a general area of usage and appropriate method of application, narrows the choice of sealants for a specific case to a very few.

Suitable areas of usage	Representative Fosroc product	Chemical basis	Life in years	MAF
A. Gungrade, One part sealants				
Permanent immersion in clean and dirty water applications	Nitoseal MS600	Silyl terminated polyether	15-20+	25
Floor/pavement sealant suitable for sawn and perimeter joints	Nitoseal MS300	Silyl terminated polyether	5-15	25
Facade sealant for non staining applications	Nitoseal MS100	Silyl terminated polyether	15-20+	25/50*
Pre-cast panels, roof, expansion/control joints, window perimeters, steps and risers joints	Nitoseal PU40	Polyurethane	5-15+	25
General purpose sealant suitable for non-trafficked joints	Nitoseal MS60	Silyl terminated polyether	10-15	20
Fire protection of curtain walling, building façades and penetration seals	Flamex S	Silicone	15-20	50
Fire protection around doors and joints.	Flamex 1	Acrylic	5-10	10
For sealing joints in flashings, guttering and sheet slabs	Nitoseal MB175	Rubber bitumen	1-3	10
Fire protection in expansion and construction joints in floors, walls and ceilings	Flamex 2	Polysulphide	15-20	25
B. Two part sealants				
Suitable for joints in building and civil engineering structures	Thioflex 600 (gun grade)	Polysulphide	15-20+	25
Suitable for joints in building and civil engineering structures	Thioflex 600 (pouring grade)	Polysulphide	10-15	25
Suitable for use in sewage treatment works and sea walls, subject to tidal conditions	Nitoseal PU220 (pouring grade)	Pitch-Polyurethane	10-15	25
Suitable for use in sewage treatment works and sea walls, subject to tidal conditions	Nitoseal PU220PF	Polyurethane	10-15	20
For the sealing of joints in concrete roads, concrete runways and hardstandings	Colpor 200	Pitch-Polyurethane	5-15	25
For internal floor joints subject to heavy industrial use	Nitoseal PU280	Epoxy/Polyurethane	10-15	10
3 component :- For sealing horizontal cable slots in concrete and asphalt pavements	Nitoseal PE290	Polyester	15-20	5
C. Hot applied, One part sealants				
Hand applied putty for vertical or inclined joints in water retaining structures	Nitoseal MB150	Polymer Bitumen	10-15	10

* When primed



Estimation

As a general rule of thumb, calculate sealant as follows

$$\frac{\text{Joint width(mm)} \times \text{Sealant dept(mm)} \times \text{Joint length(m)}}{\text{Size of the Cartridge(ml)}}$$

Instruction to use

Surface Preparation

All surfaces should be dry clean and free from any form of contamination.

Bond breaking

In a butt joint the sealant should adhere to both opposite surfaces of the sealing slot but not to its base. The simplest way to prevent sealant adhering to the wrong surface is to run a length of debonding(Silicone) tape along the base of the slot. Typically the base of the slot is of concrete or filler

Priming (if required)

For most one part Fosroc sealants priming is not required. Instructions about priming can be found in the Fosroc data sheets. it is imperative to protect decorative substrates by taping either sides of the joint slots.

Application

Before pouring a sealant, the filler board should be checked for dryness. In the case of hot pouring sealants, wet filler board can generate vapour while in the case of cold pouring, it can reduce the adhesion to the walls of the joint. Wet filler board should be cut back and dry separator (such as polyethylene foam) inserted over it to leave the slot at the correct depth.

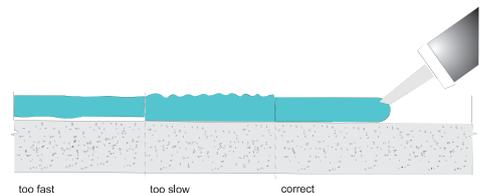


fig. 1

Gunning

The nozzle should be cut at about 45° to achieve maximum wetting of the sides of the slot to be sealed. Hold the gun at an angle to the slot as illustrated above, squeezing the trigger to expel sealant. Pull the nozzle steadily along the slot at the angle and in the direction illustrated. Try to make the sealant press against the sides of the slot without trapping air bubbles. On reaching the end of the slot, release pressure smartly by pressing the release catch.

The illustration(fig.1) shows the probable result of applying sealant at incorrect and correct speeds. In wide joints the sealants may have to be applied in several passes. In such cases the sealant should be consolidated by tooling after the final pass.

Tooling

Tooling a joint with wooden tool or metal spatula compacts the sealant, forcing it against the sides of the slot and removing air bubbles (see fig.2 & fig.3). It also creates a slightly concave surface, which reduces the internal stress induced by movement. Tooling also improves the appearance of the joint.

Draw the tool firmly along the surface of the sealant as illustrated. If it tends to adhere to the sealant, wet the tool, (not the sealant), with detergent solution. Avoid tooling if it would make the sealant too thin at its centre, allowing it to buckle as the sealant closes on a hot day.

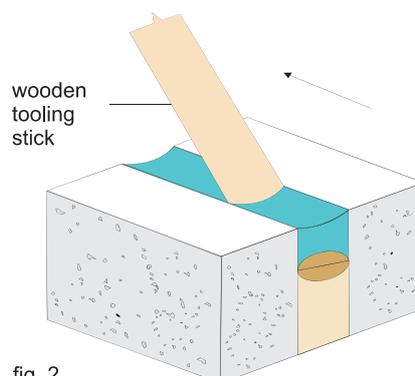


fig. 2

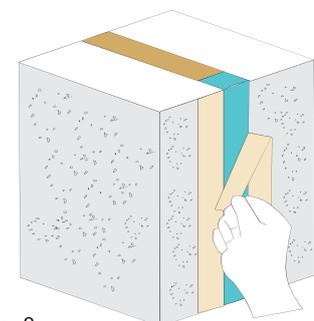
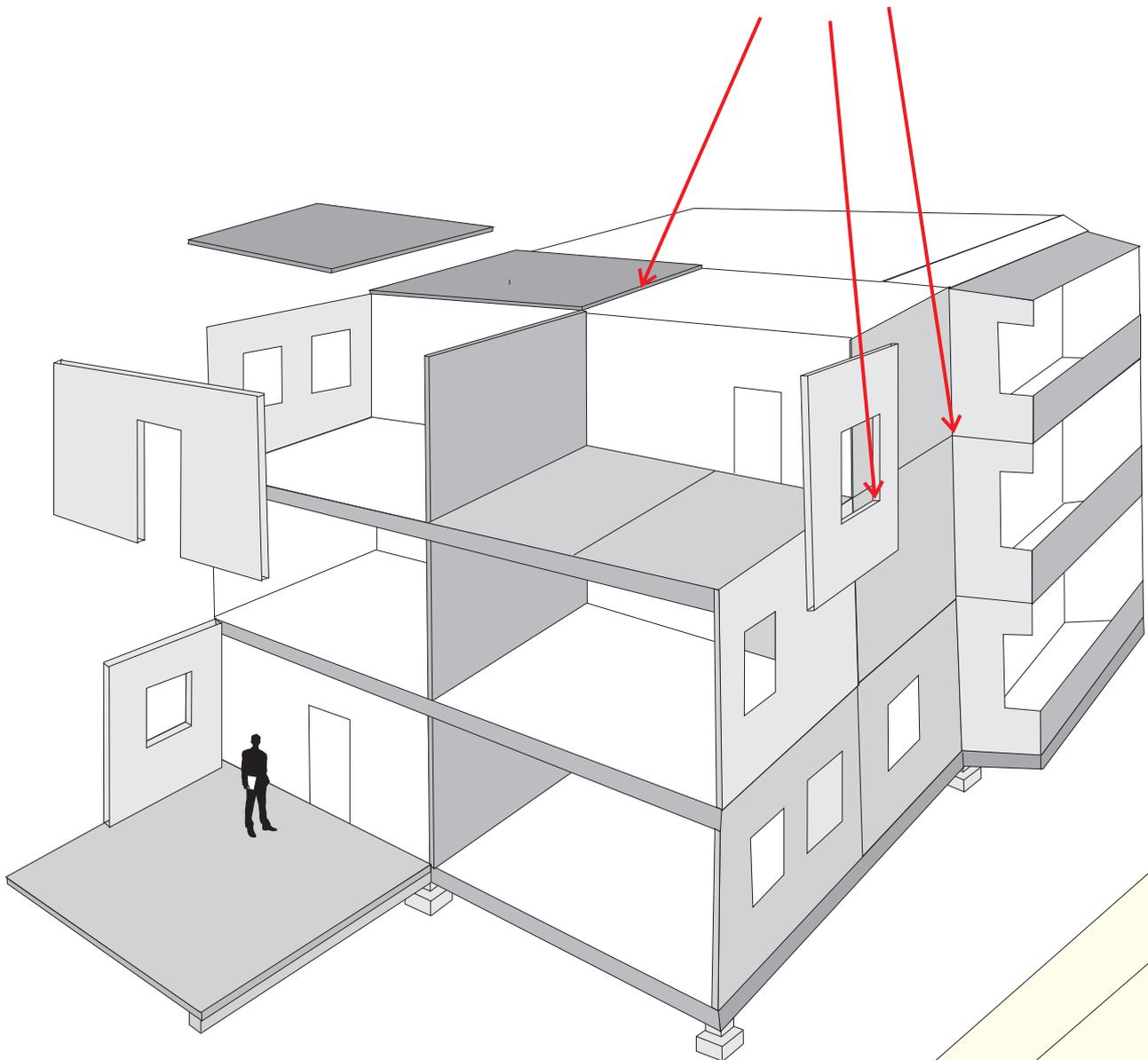


fig. 3

PRECAST SOLUTIONS

Products	Description	Typical uses / Properties	MAF*
Nitoseal PU40	One part polyurethane sealant	For sealing pre-cast panels, roof, expansion and control joints, window perimeters, steps, risers and other construction joints.	25%
Nitoseal MS100	One part, primer-less, non-staining, low modulus, facade sealant, formulated	For stain-free sealing of marble, granite and polished concrete.	50%

Precast joint sealants
Nitoseal PU40
or
Nitoseal MS100



BUILDING SOLUTIONS

Products	Description	Typical uses / Properties	MAF*
Nitoseal MS100	One part, primer-less, non-staining, low modulus, facade sealant, formulated	For stain-free sealing of marble, granite and polished concrete.	50%
Nitoseal PU40	One part polyurethane sealant	For sealing pre-cast panels, roof, expansion and control joints, window perimeters, steps, risers and other construction joints.	25%
Nitoseal MS60	One part, primer-less, non-staining, low modulus, facade sealant	For stain-free sealing of marble, granite and polished concrete.	20%
Nitoseal MS300	One part, tough, flexible, floor joint sealant	For sealing saw-cut joints and perimeter joints in internal floors, and external joints where abrasion resistance is required.	20%
Nitoseal MS600	One part, civil engineering sealant for immersed conditions, suitable	For sealing movement joints in potable water and sewage applications.	25%
Nitoseal PU280	A heavy duty, epoxy urethane joint sealant,	For sealing internal joints subject to heavy industrial traffic in factory and warehouse floors, including food factories and maintenance areas.	10%
Thioflex 600	Multi-component, gun and pouring grade, polysulphide sealant. General use in building and civil engineering structures	For sealing expansion and construction joints where a long, maintenance free service life is necessary.	25%

* Movement accommodation factor

High movement between light weight cladding

Nitoseal PU40
or
Nitoseal MS100

Swimming pool joints
Nitoseal MS600

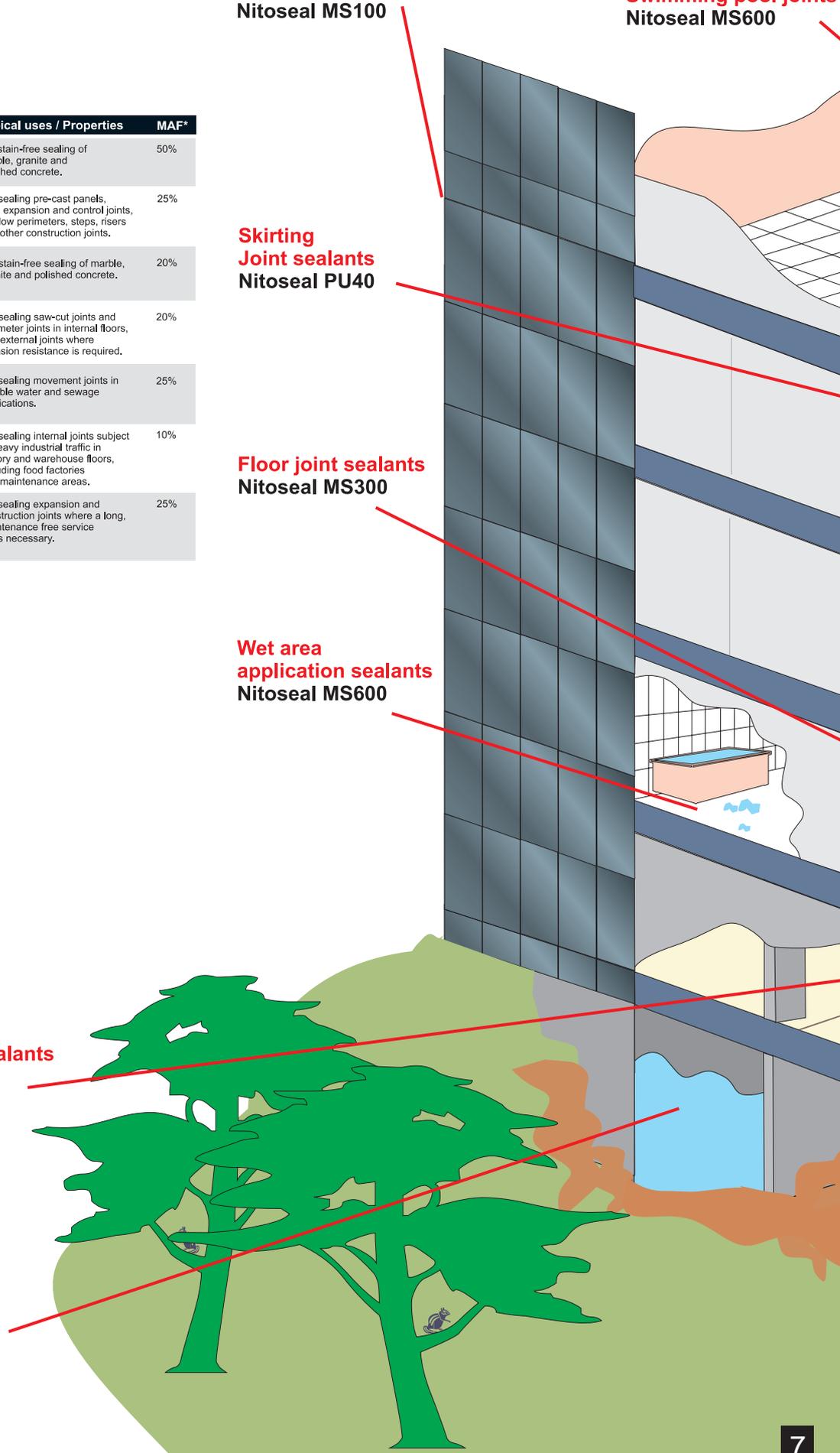
Skirting
Joint sealants
Nitoseal PU40

Floor joint sealants
Nitoseal MS300

Wet area
application sealants
Nitoseal MS600

Expansion joints sealants
Nitoseal MS300
or
Nitoseal PU280

Potable water tanks
Nitoseal MS600
or
Thioflex600

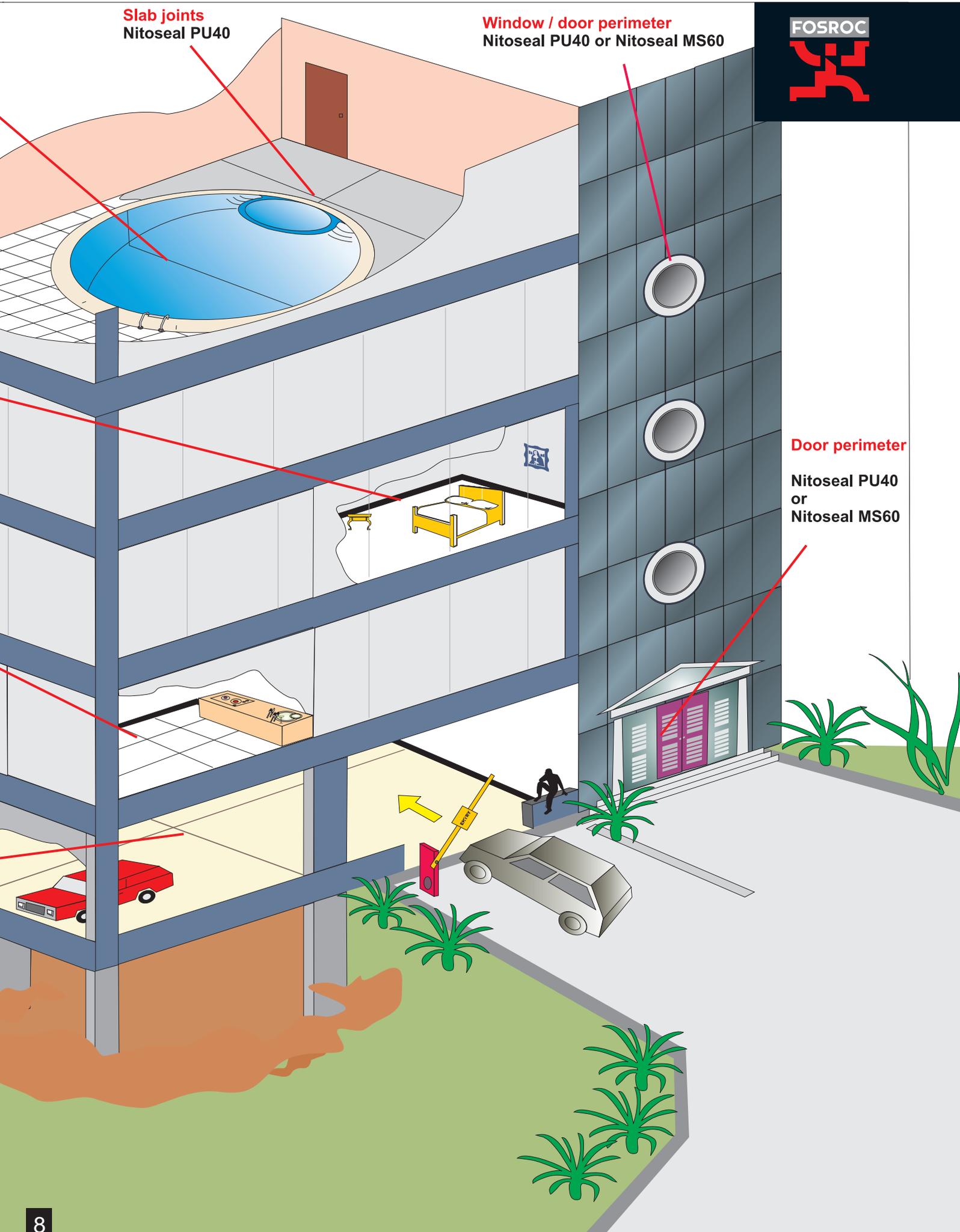


Slab joints
Nitoseal PU40

Window / door perimeter
Nitoseal PU40 or Nitoseal MS60



Door perimeter
Nitoseal PU40
or
Nitoseal MS60



INDUSTRIAL SOLUTIONS

FOSROC



Products	Description	Typical uses / Properties	MAF*
Nitoseal PU220	Pitch polyurethane, elastomeric joint sealant.	For use in sewage tanks, sea water intakes and petrochem storage tanks.	25%
Nitoseal PU220PF	Bio-degradation resistant sealant. Provide high quality seal.	For use in sewage tanks, sea water intakes and petrochem storage tanks.	20%
Nitoseal MS600	One part, civil engineering sealant	For sealing movement joints in potable water and sewage applications.	25%
Nitoseal MS300	One part, tough, flexible, floor joint sealant	For sealing saw-cut joints and perimeter joints in internal floors, and external joints where abrasion resistance is required.	25%
Flamex Fire Protection	Flexible intumescent sealants.	Used for structural joints to provide protection from fire. Under fire Flamex sealants intumesce, providing an insulating barrier to hot gases and flames.	10% 25% 50%
Nitoseal MB150	Hand applied polymer modified bitumen sealant.	For sealing vertical and inclined joints.	10%
Nitoseal MS60	One part, primer-less, non-staining, low modulus, facade sealant	For stain-free sealing of marble, granite and polished concrete.	20%

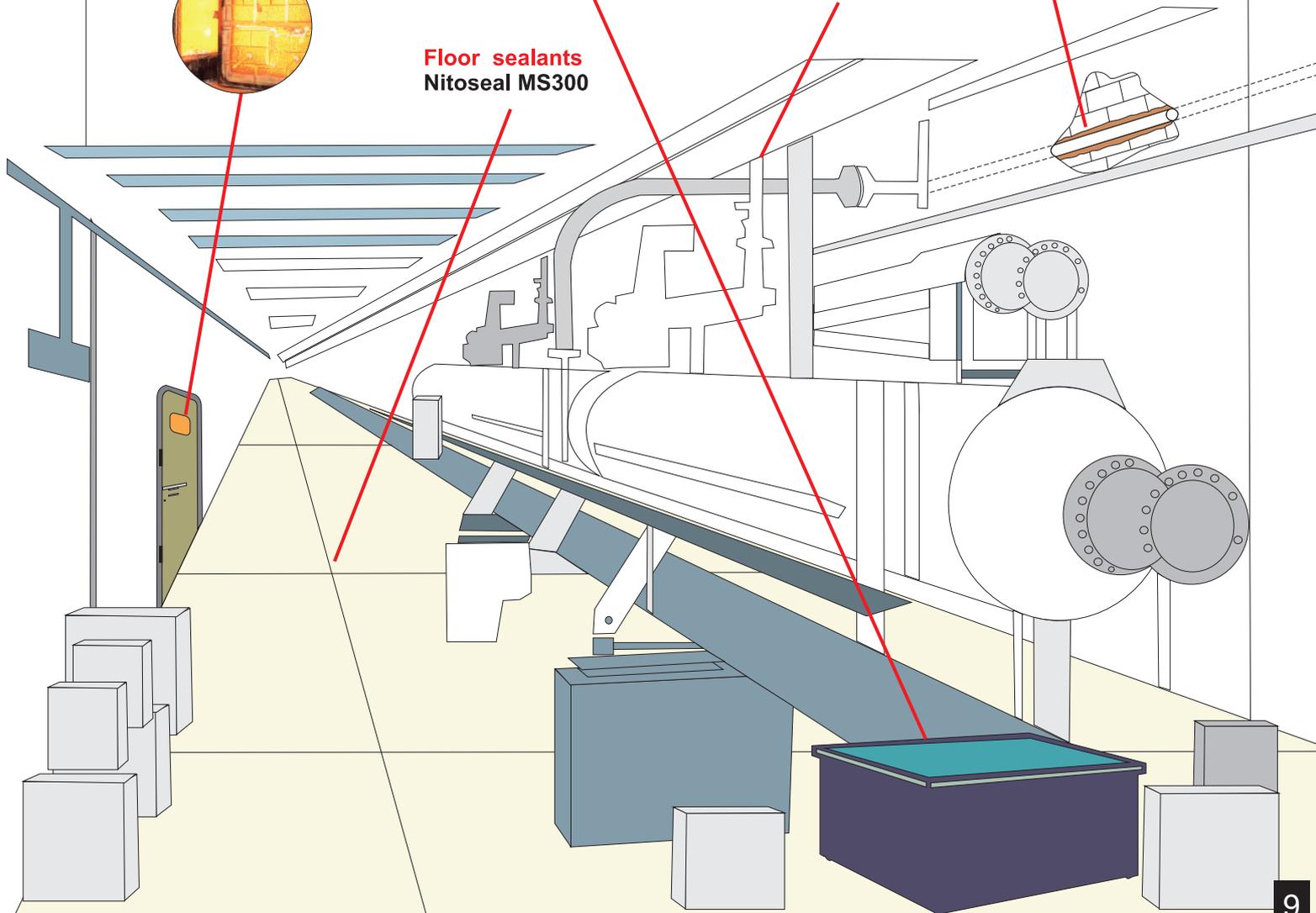
Concealed wall sealants
Nitoseal MS60

Dirty water sealants
Nitoseal PU220/Nitoseal PU220PF
or
Nitoseal MS600

Vertical/Inclined joint sealant
Nitoseal MB150

Fire protection sealants
Flamex

Floor sealants
Nitoseal MS300



HIGHWAYS, BRIDGES & ROADS

FOSROC



Products	Description	Typical uses / Properties	MAF*
Nitoseal MS300	One part, tough, flexible, floor joint sealant	For sealing saw-cut joints and perimeter joints in internal floors, and external joints where abrasion resistance is required.	20%
Nitoseal MB150	Hot poured rubber between horizontal joint sealant	For sealing movements & construction joints in concrete and asphalt surfaces	10%
Nitoseal MS600	One part, civil engineering sealant for immersed conditions, suitable	For sealing movement joints in potable water and sewage applications.	25%
Colpor 200	Cold applied, high performance, polyurethane pavement joint sealant.	For sealing and maintenance of joints in concrete pavements and hard standing. Excellent fuel resistance makes it particularly suitable for sealing areas where fuel and oil spillage might occur.	25%
Nitoseal PE290	Flexible polyester loop and lighting sealant.	For sealing horizontal cable slots in concrete and asphalt pavements, particularly traffic management schemes. Also suitable for bedding and sealing airport runway lighting units.	10%
Thioflex 600	Multi-component, gun and pouring grade, polysulphide sealant. General use in building and civil engineering structures	For sealing expansion and construction joints where a long, maintenance free service life is necessary.	25%

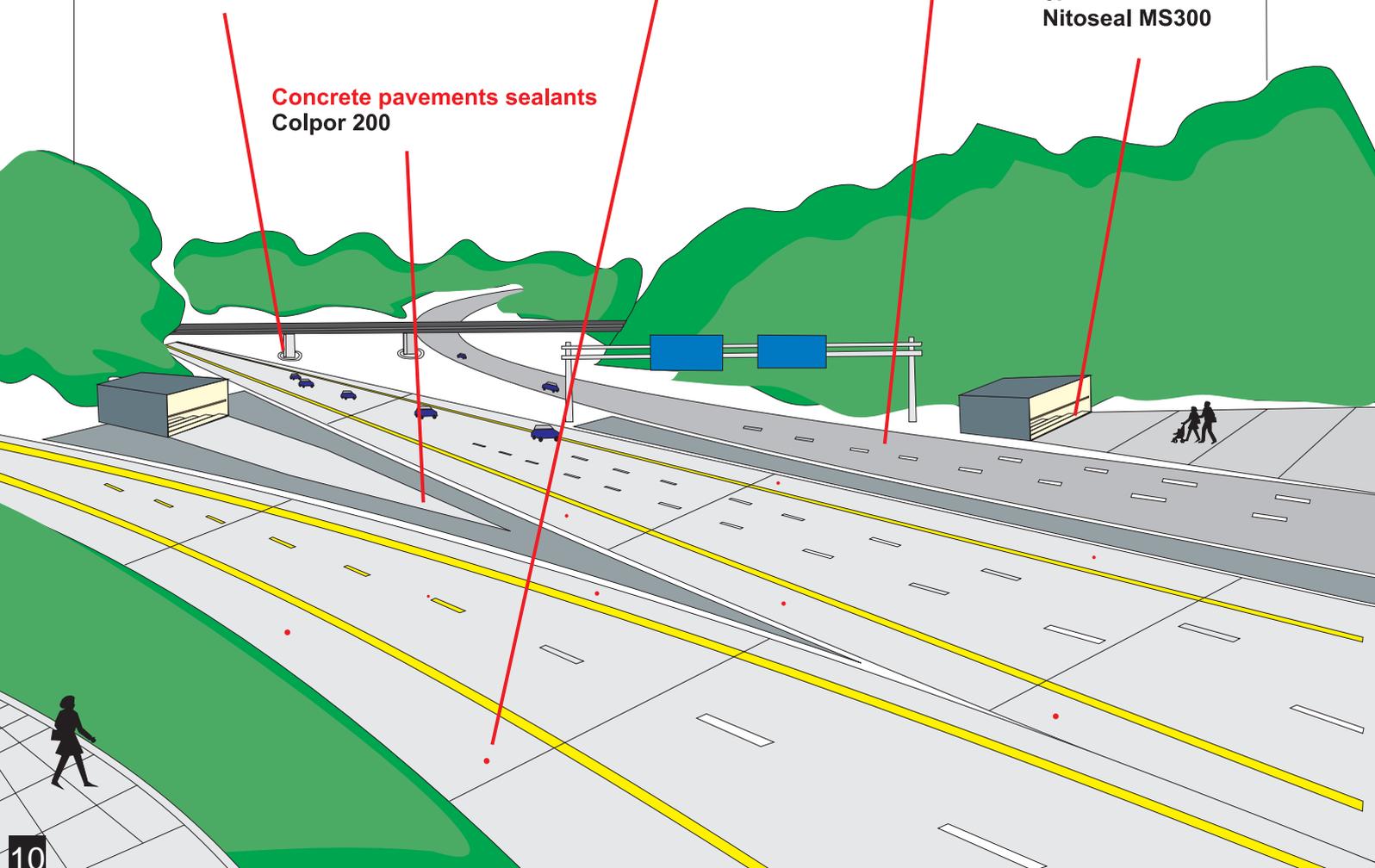
Asphalt road sealants
Nitoseal MB150
 or
Colpor 200

Edge light installation
Nitoseal PE290

Bridge stanchion sealants
Thioflex 600
 or
Nitoseal MS600

Staircase sealants
Thioflex 600
 or
Nitoseal MS300

Concrete pavements sealants
Colpor 200



AIRPORT SOLUTIONS

FOSROC



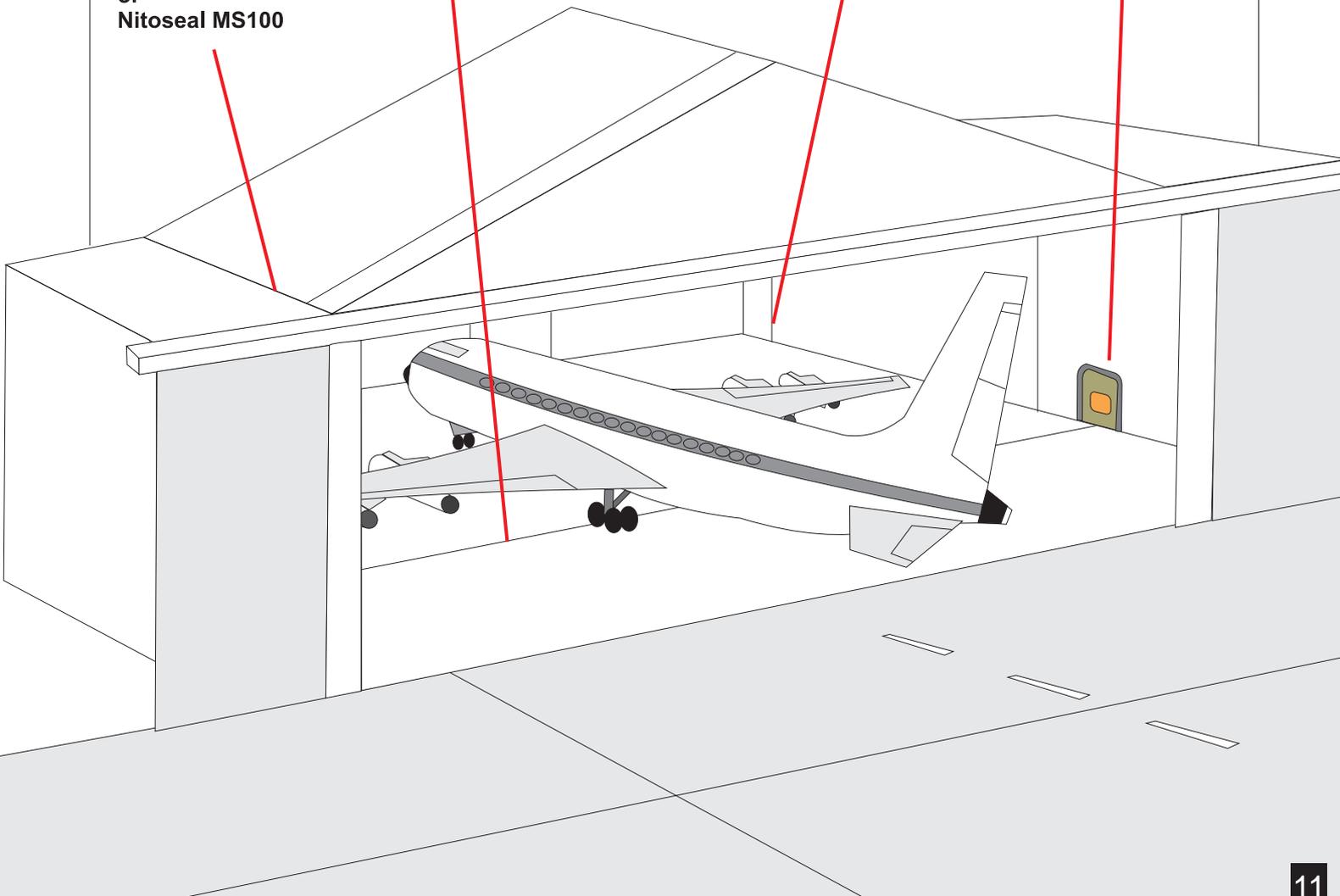
Products	Description	Typical uses / Properties	MAF*
Nitoseal MS60	One part, primer-less, non-staining, low modulus, facade sealant	For stain-free sealing of marble, granite and polished concrete.	20%
Nitoseal MS300	One part, tough, flexible, floor joint sealant	For sealing saw-cut joints and perimeter joints in internal floors, and external joints where abrasion resistance is required.	20%
Colpor 200	Cold applied, high performance, polyurethane pavement joint sealant.	For sealing and maintenance of joints in concrete pavements and hard standing. Excellent fuel resistance makes it particularly suitable for sealing areas where fuel and oil spillage might occur.	25%
Nitoseal MS100	One part, non-staining, low modulus, facade sealant, formulated	For stain-free sealing of marble, granite and polished concrete.	50%
Flamex Fire Protection	Flexible intumescent sealants.	Used for structural joints to provide protection from fire. Under fire Flamex sealants intumesce, providing an insulating barrier to hot gases and flames.	10% 25% 50%
Nitoseal MB175	Sealant for gutters, flashings and flat roofs	Used for flexible weather resistant sealing. Compatible with asphalt, bituminous and other roof finishes.	10%
Nitoseal PU40	One part polyurethane sealant	For sealing pre-cast panels, expansion and control joints, window perimeters, steps, risers and other construction joints.	25%

Apron sealants
Colpor 200
or
Nitoseal MS300

Internal wall joint sealants
Nitoseal MS60
or
Nitoseal PU40

Fire protection sealants
Flamex Range

Waterproof joint sealants
Nitoseal MB175
or
Nitoseal MS100



AIRPORT SOLUTIONS

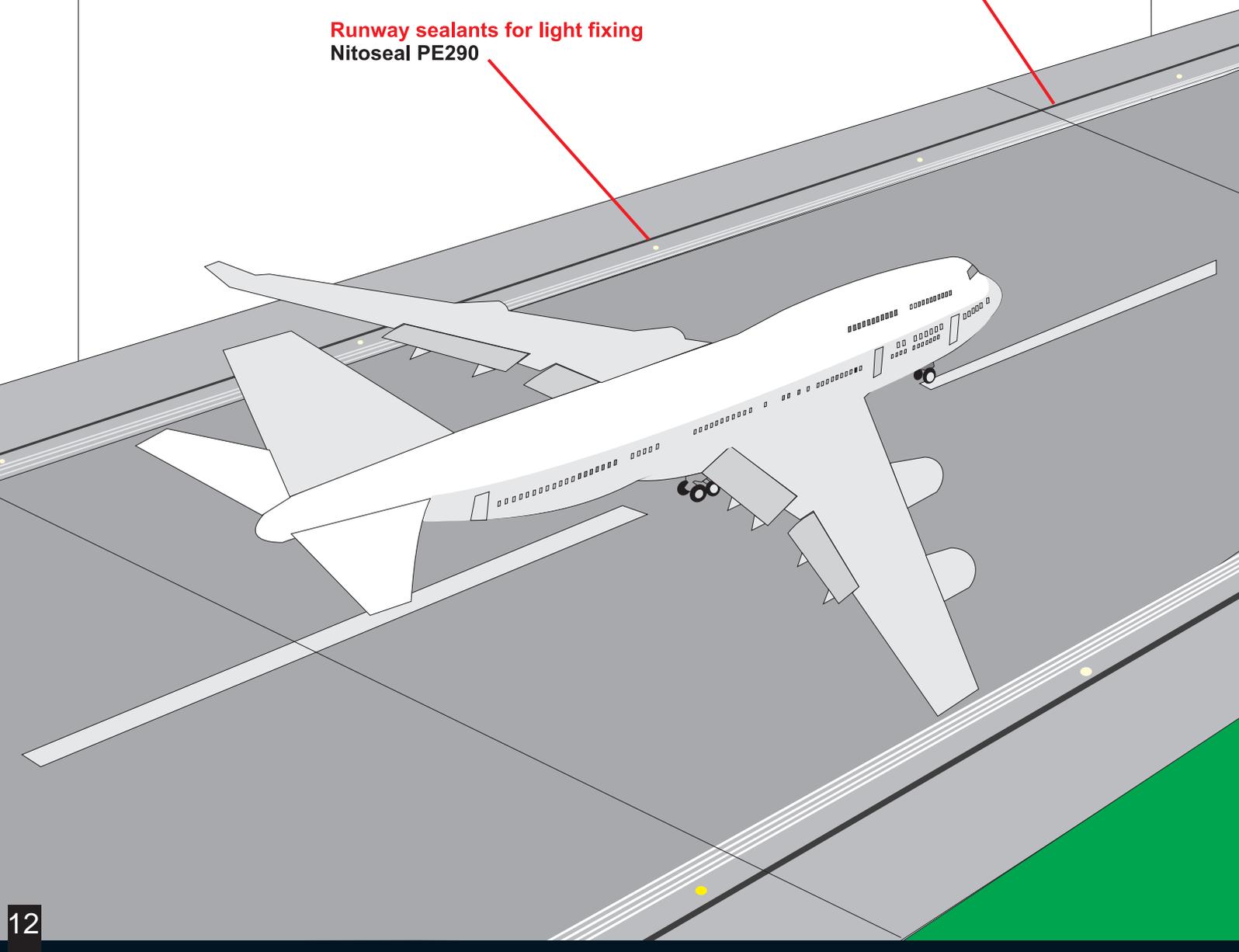
FOSROC



Products	Description	Typical uses / Properties	MAF*
Colpor 200	Cold applied, high performance, polyurethane pavement joint sealant.	For sealing and maintenance of joints in concrete pavements and hard standing. Excellent fuel resistance makes it particularly suitable for sealing areas where fuel and oil spillage might occur.	25%
Nitoseal PE290	Flexible polyester loop and lighting sealant.	For sealing horizontal cable slots in concrete and asphalt pavements, particularly traffic management schemes. Also suitable for bedding and sealing airport runway lighting units.	5%

Runway sealants
Colpor 200

Runway sealants for light fixing
Nitoseal PE290



WATER INDUSTRY

FOSROC



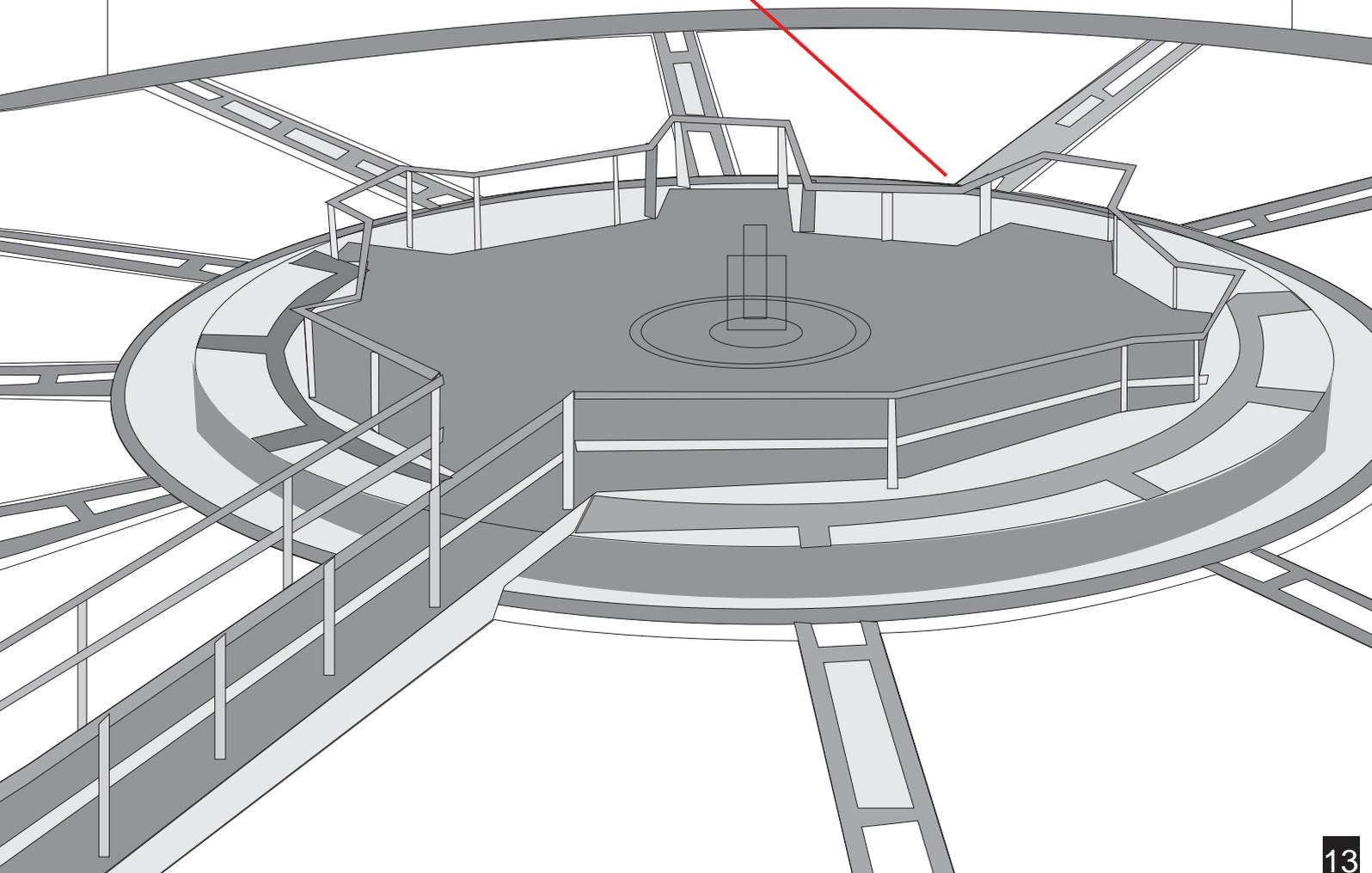
Products	Description	Typical uses / Properties	MAF*
Nitoseal MS600	One part, civil engineering sealant.	For sealing movement joints in potable water and sewage applications.	25%
Nitoseal PU220PF	Biodegradation resistant sealant. Provide high quality seal.	For use in sewage tanks, sea water intakes and petrochem storage tanks.	20%
Nitoseal PU220	Pitch polyurethane, elastomeric joint sealant.	For use in sewage tanks, sea water intakes and petrochem storage tanks.	25%

Dirty water sealants

Nitoseal MS600

Nitoseal PU220

Nitoseal PU220PF

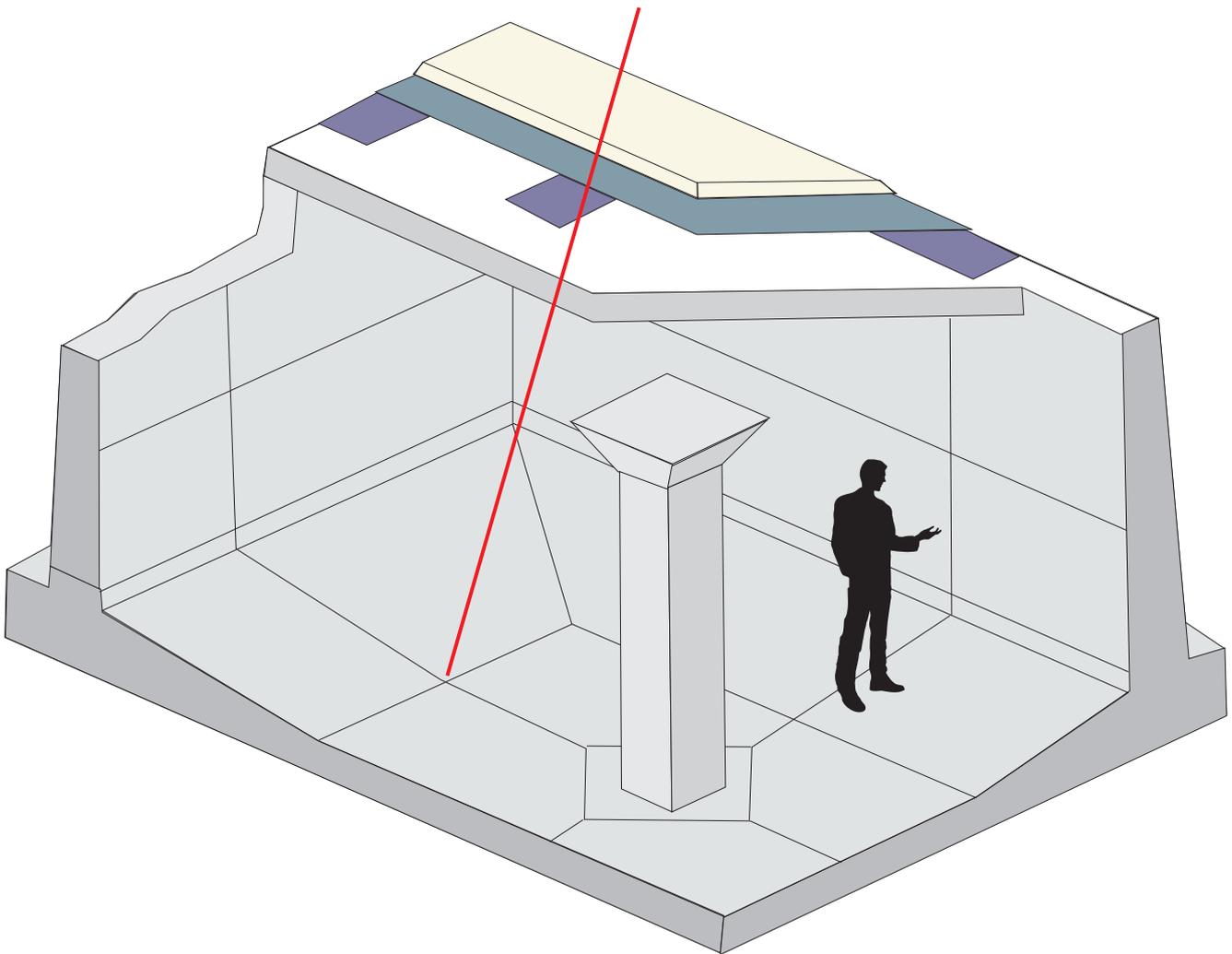


WATER INDUSTRY



Products	Description	Typical uses / Properties	MAF*
Nitoseal MS600	One part, civil engineering sealant	For sealing movement joints in potable water and sewage applications.	25%
Thioflex 600	Multi-component, gun and pouring grade, polysulphide sealant. General use in building and civil engineering structures	For sealing expansion and construction joints where a long, maintenance free service life is necessary.	25%

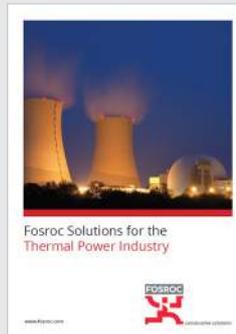
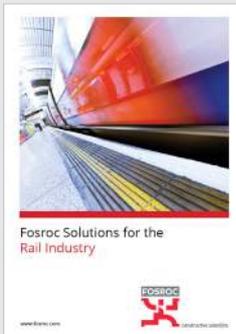
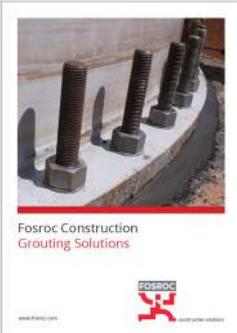
Potable water retaining structures
Nitoseal MS 600
or
Thioflex 600



Note: Names have been changed of the following Sealants

- Nitoseal HP40 = Nitoseal PU40
- Plastijoint = Nitoseal MB150
- Plastiseal = Nitoseal MB175
- Nitoseal 220 = Nitoseal PU220
- Nitoseal 220PF = Nitoseal PU220PF
- Nitoseal 280 = Nitoseal PU280
- Nitoseal 290 = Nitoseal PE290

Fosroc offers a full range of construction chemical solutions, helping to protect structures throughout the world. Please refer to our brochures, which include:



Details of your local Fosroc office can be found at www.fosroc.com

Important Note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it.



constructive solutions