

PRODUCT GUIDE



STRUCTURAL REFURBISHMENT AND RESTORATION



For more than twenty years Clan have provided their clients with a complete service in the field of structural engineering and remedial works to both the public and private sectors. Contracts undertaken have been diverse, from tower blocks and listed buildings to water treatment works and local authority housing estates.

Success BUILT ON Innovation

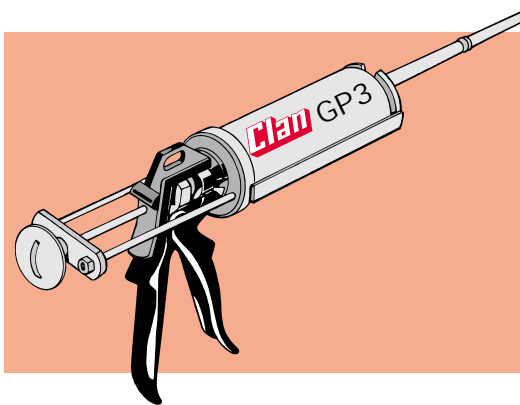
Since the early 1980's, Clan have been at the forefront of remedial cavity wall tie technology designing new remedial wall ties, the Kontrakt tie, lateral restraint systems, the Clanbolt, and the unique isolation process for treatment of corroding wall ties, the Clansleeve.

Over the years as we have been confronted with new problems within the refurbishment industry, we have introduced innovative solutions designed in conjunction with our structural engineers, with not just the specifier in mind, but also the contractor. A good product not only overcomes the structural problems but is simple to fix reducing operator error. All of our products are designed in accordance with the basic principles that Clan adhere to; a quick, simple and virtually unobtrusive repair.

In addition to our own range of structural fixings, Clan have brokered relationships with many European companies, exchanging ideas enabling us to introduce new methods of repair, such as Xypex crystalline waterproofing, high strength concrete repair materials and the latest carbon fibre technology for repairing structures.

Our range of services is continuing to grow with our sister company, Thin Joint Technology, which supplies tools, fixings and mortars for construction using thin jointed aerated blockwork. TJT also supply coloured render systems, external wall insulation systems and decorative plasters.

Clan resins and grouts provide a comprehensive range of cost effective high strength mortars to suit a wide range of applications



GP3 POLYESTER RESIN

Clan GP3 is a general purpose polyester resin, suitable for fixing wall ties, starter bars, studs, bolts and large screws in a wide range of substrates including brickwork, concrete masonry and stone. Where hollow base materials are encountered, Clan GP3 can be used in conjunction with our full range of diffusers.

Clan GP3 is a two part one shot chemical anchoring system based on polyester resin. It is applied in one single action to produce an extremely cost effective, tough, chemical resistant fixing. It is designed specifically for its rapid curing properties achieving high strengths in relatively short setting times.

TECHNICAL DATA

MIXING RATIO	10:1 by volume Supplied in 380ml cartridges	
Flexural Strength	(ASTM D790)	21N/mm ²
Compressive Strength	(ASTM D695)	78N/mm ²
Tensile Strength	(ASTM D638)	10N/mm ²
E Modulus		4570N/mm ²

TEMPERATURE °C	°F	GEL TIME (Minutes)	MINIMUM LOADING TIME (Minutes)
0	32	14	120
5	41	12	90
10	50	9	60
15	59	6	40
20	68	5	30
25	77	3	18

ANCHOR SIZE mm	HOLE DIAMETER mm	TENSION Kn Ultimate Pull Out
8	10	24
10	12	26
12	14	43
16	18	53
20	22	58

Tension figures quoted are tested in accordance with BS 5080 part 1 in 63N/mm² concrete blocks (300mm x 300mm x 300mm). In all cases for 16mm and 20mm anchors, failure of the concrete blocks was observed before the anchor was dislodged.

The ultimate pull out strength is varied by:

- 1 The strength of both the substrate and bar.
- 2 The length of the resin bond to bar.
- 3 Hole preparation.
- 4 Anchor separation.

Safety factors of between 2:1 and 4:1 should be considered, depending on the strength and nature of the substrate. Due to the inconsistent nature of hollow blocks and bricks, tension figures may vary. Site testing should be carried out, where necessary, to determine the particular suitability. In order to achieve maximum performance, the distance between the centres of the anchors should be a minimum of 2.5 x the embedment depth and 1.25 x the embedment depth for minimum edge distances.

STORAGE

Store in a dry area. Do not expose to sunlight. Store cartridges nozzle upwards.

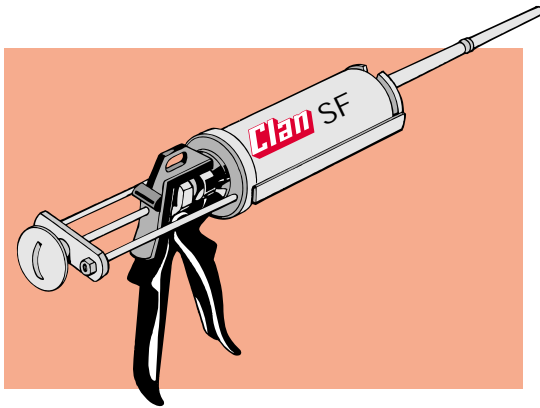
HEALTH AND SAFETY

Clan GP3 contains styrene and is flammable. Do not smoke and do not allow naked flames to come into contact with the material. Avoid breathing vapours. Wear suitable clothing such as gloves and overalls. On contact with skin, wash off immediately with plenty of soap and water.

IMPORTANT

This information is based on Clan Products own experience, research and testing and is believed to be reliable and accurate. However as Clan Products cannot know the varied applications of its products, no warranty as to the fitness or suitability of its products applies.

FOR SALES AND TECHNICAL ADVICE, PHONE: 0151 422 8000



SF STYRENE FREE RESIN

Clan SF is a styrene free polyester resin suitable for all general purpose fixing applications and is ideally suited for use in internal applications. Clan SF also has the benefit of fire resistance, thereby allowing use in high rise applications.

Clan SF is a unique high performance chemical anchoring system on an unsaturated polyester resin in methacrylate monomers. Clan SF has an extremely mild odour and has no occupational exposure limit assigned to it. This is a major advantage over other styrene based unsaturated polyester resins with regard to health and safety.

TECHNICAL DATA

MIXING RATIO	10:1 by volume Supplied in 380ml cartridges	
Flexural Strength	(ASTM D790)	13.64N/mm ²
Flexural Modulus		2588N/mm ²
Compressive Strength	(ASTM D695)	45.05N/mm ²
Tensile Strength	(ASTM D638)	10.60N/mm ²
E Modulus		10203N/mm ²

TEMPERATURE °C	TEMPERATURE °F	GEL TIME (Minutes)	MINIMUM LOADING TIME (Minutes)
0	32	11	60
5	41	9	50
10	50	8	40
15	59	6	35
20	68	5	30
25	77	3	35

ANCHOR SIZE mm	HOLE DIAMETER mm	TENSION Kn Ultimate Pull Out
8	10	24
10	12	26
12	14	43
16	18	53
20	22	58

Tension figures quoted are tested in accordance with BS 5080 part 1 in 63N/mm² concrete blocks (300mm x 300mm x 300mm). In all cases for 16mm and 20mm anchors, failure of the concrete blocks was observed before the anchor was dislodged.

The ultimate pull out strength is varied by:

- 1 The strength of both the substrate and bar.
- 2 The length of the resin bond to bar.
- 3 Hole preparation.
- 4 Anchor separation.

Safety factors of between 2:1 and 4:1 should be considered, depending on the strength and nature of the substrate. Due to the inconsistent nature of hollow blocks and bricks, tension figures may vary. Site testing should be carried out where necessary, to determine the particular suitability. In order to achieve maximum performance, the distance between the centres of the anchors should be a minimum of 2.5 x the embedment depth and 1.25 x the embedment depth for minimum edge distances.

STORAGE

Store in a dry area. Do not expose to sunlight. Store cartridges nozzle upwards.

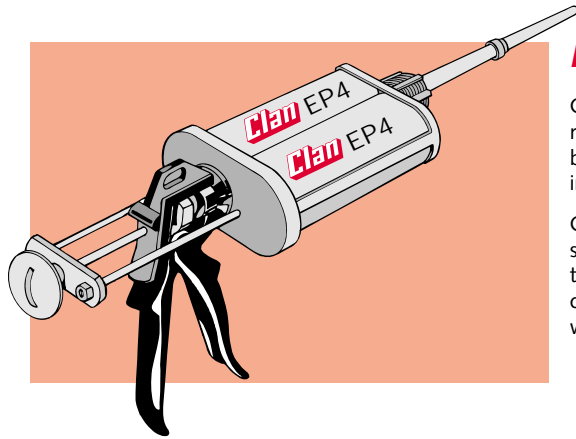
HEALTH AND SAFETY

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SEE PAGE 9 - 13 FOR WALL TIE SYSTEMS



EP4 EPOXY RESIN

Clan EP4 is a highly versatile general purpose epoxy resin, suitable for fixing wall ties, starter bars, studs, bolts and large screws in a wide range of substrates, including brickwork, concrete masonry and stone.

Clan EP4 is a one shot two part chemical anchoring system, based on solvent free epoxy resin. Clan EP4 is thixotropic and gives excellent adhesion to steel and concrete and due to its low shrinkage, is ideal for use where a higher performance fixing is required.

TECHNICAL DATA

MIXING RATIO	1:1 by volume Supplied in 400ml cartridges	
Flexural Strength	(ASTM D790)	32N/mm ²
Compressive Strength	(ASTM D695)	67N/mm ²
Tensile Strength	(ASTM D638)	15N/mm ²
E Modulus		3267N/mm ²

TEMPERATURE °C	°F	GEL TIME (Minutes)	MINIMUM LOADING TIME (Hours)
5	41	210	18
10	50	9	12
15	59	6	8
20	68	5	6
25	77	3	5

ANCHOR SIZE mm	HOLE DIAMETER mm	TENSION Kn Ultimate Pull Out
8	10	24
10	12	32
12	14	52
16	18	68
20	22	96

Tension figures quoted are tested in accordance with BS 5080 part 1 in 63N/mm² concrete. In all cases for 16mm and 20mm anchors, failure of the concrete blocks was observed before the anchor was dislodged.

The ultimate pull out strength is varied by:

- 1 The strength of both the substrate and bar.
- 2 The length of the resin bond to bar.
- 3 Hole preparation.
- 4 Anchor separation.

Safety factors of between 2:1 and 4:1 should be considered, depending on the strength and nature of the substrate. Due to the inconsistent nature of hollow blocks and bricks, tension figures may vary. Site testing should be carried out where necessary, to determine the particular suitability. In order to achieve maximum performance, the distance between the centres of the anchors should be a minimum of 2.5 x the embedment depth and 1.25 x the embedment depth for minimum edge distances.

STORAGE

Store in a dry area. Do not expose to sunlight. Store cartridges nozzle upwards.

HEALTH AND SAFETY

Clan EP4 is classed as an irritant and may cause sensitisation by repeated skin contact. Wear suitable protective clothing such as gloves and overalls. On contact with skin wash off immediately with plenty of soap and water.

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GT4 CEMENTITIOUS GROUT

Clan GT4 is a shrinkage compensated fibre reinforced grout, ideally suited for use in conjunction with stainless steel structural fixings and our range of crack control ties. It can be applied directly into masonry or concrete voids using a hand operated grout pump or refillable cartridge. It can also be used for grouting rigid joints between concrete elements.

Clan GT4 is a ready mixed powder composed of highly resistant cements, selected aggregates, special additives and synthetic fibres. Once mixed with water, Clan GT4 becomes a thixotropic mortar with a high flexural and compressive strength and high adhesion qualities to steel, concrete or masonry components.

TECHNICAL DATA

Supplied in 5Kg buckets Yield 3.8 Litres

DESCRIPTION

Clan GT4 cementitious grout is a dry packed blend of Portland Cement to BS 1200 and additives to provide water resistance, thixotropy, workability and colour.

JOINT WIDTHS

Normal 5mm - 15mm (25mm Maximum)

MATERIAL CLASSIFICATION

Class 1 mortar as defined in BS 5628

PERFORMANCE AT 20°C

Pot Life	45 Minutes	
Initial Set	2 Hours	
Compressive Strength	24 Hours	10N/mm ²
	7 days	7N/mm ²
	28 days	20N/mm ²
Bulk Density	1600 Kg/M ³	

CHLORIDE

Less than 0.002%. Complies with DoT specification 2061

SULPHATE

Less than 0.002%. Complies with DoT specification 2061

STORAGE

Store in a dry area. Do not expose to sunlight.

HEALTH AND SAFETY

Clan GT4 is classed as an irritant and may cause sensitisation by repeated skin contact. Wear suitable protective clothing such as gloves and overalls. On contact with skin, wash off immediately with plenty of soap and water.

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SEE PAGE 4 - 6 FOR CRACK CONTROL SYSTEMS



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