

# CLASS C NON-SHRINK PRECISION GROUT

EXPANDS IN PLASTIC AND DRY STATE, HIGH STRENGTH

# 701

DURAGROUT

S T R U C T U R A L G R O U T I N G

LANKO

## DESCRIPTION:

Lanko 701 DuragROUT is a non-shrink high strength, dual expanding, Class C structural grout for use when high early and ultimate strengths are required. It is designed to undergo controlled expansion in the plastic state, and then be non-shrink in the hardened state. Lanko 701 DuragROUT has been designed to achieve high early strengths with low water addition levels.

## USES:

### Typical uses would be:

- Anchor bolts
- Underpinning walls
- Structural column grouting
- Under heavy machinery
- Cranerail and conveyor supports
- Bridge bearings
- Post tensioned concrete ducts
- Under precast panels
- Tank bases
- Also suitable for repairing minor flaws in concrete structures.

## FEATURES:

- Non-shrink: shrinkage compensated in both the plastic and hardened state.
- High compressive and flexural strengths.
- Extended working time.
- Versatile – can be used in dry pack, plastic and flowable consistencies.
- Good flow properties, even at low water addition levels.
- Low segregation of aggregate and fine particles at high water levels, ensuring uniform results
- Does not contain chloride accelerators or iron powders, so will not cause rusting or staining of surfaces and metal elements.
- Ready to use – just add water.
- Appearance similar to concrete when cured.
- Controlled expansion ensures positive contact and load transfer which is essential for structural grouting applications.
- Reaches in excess of 80% of final compressive strength in seven (7)

days enabling early operation of plant and equipment.

- Contains no iron which otherwise would result in staining and destruction of the grout.
- May be pumped, hand rodded, trowelled, rammed and flowed into intricate or other areas where normal grouting methods do not suffice. This makes application more effective and convenient.
- Low water requirements particularly in the plastic state results in high early strength and long term performance.

## TEST DATA:

### PROPERTIES

Appearance	Grey Powder
Expansion	0.18 – 0.5%
Initial Set* at 20°C :	2 hours
Final Set* at 20°C:	3 hours
Min Application Temp	5°C
Max Application Temp	35°C
Application Thickness:	10 – 100mm
* Measured at Plastic Consistency	

### COMPRESSIVE STRENGTH

Water Addition	MPa*
2.50	89
3.00	73
3.25	67
3.50	62
4.00	59

\* tested in accordance with AS/NZS 2350.11 after 28 days wet cure.



**FLOW CHARACTERISTICS**

Water Addition	Flow %	Category*
2.00	100	Dry pack
3.00	124	Normal
3.25	145	Normal
3.50	176	Normal
4.00	195	Normal
4.20	204	Plastic*
4.40	216	Plastic*
4.60	225	Plastic*
4.80	237	Flowable*
5.00	24 secs efflux	Fluid*

\* tested in accordance with ASTM C1107-02 on a mortar drop table and ASTM C939 flow cone test.

**SURFACE PREPARATION:**

- For all surfaces, loose contaminants and unsound concrete must be chipped away so that a reasonably rough, but strong sound surface is provided.
- All surfaces must be free from oil, grease and dust. This particularly applies to the underside of bedplates, bolts, pipes or other materials, which may have surface contact with the grout.
- Holes and depressions may be cleaned with compressed air to remove loose particles.
- The perimeter of any grouting area in a concrete substrate should be saw-cut a minimum of 10mm to provide a mechanical key for the grout.

**SURFACE PRIMING:**

- After cleaning, saturate the concrete surface with clean water for approximately 2 hours prior to applying Lanko 701 DuragROUT.
- For horizontal hole pours, fill the hole with a twisted rag, which can then be periodically wetted.
- Ensure that no freestanding water is present on surfaces of foundations or in bolt holes. Remove any free water

by use of compressed air or dry towels.

**MIXING INSTRUCTIONS:**

- Use as little water as is required in the mix for ease of placement. Water addition is recommended as set out below:

Mix Consistency*	Water Addition per 20KG bag
Dry Pack	2.0 - 2.4L
Normal	3.0 - 4.0L
Plastic	4.1 - 4.6L
Flowable	4.6 - 4.9L
Fluid	5.0 - 5.2L

\* tested in accordance with ASTM C1107-02 on a mortar drop table and ASTM C939 flow cone test.

- ASTM C1107 - 02 does not categorise grout flow consistencies between 100 and 200. However, for many applications, Lanko 701 DuragROUT may be mixed at water addition rates between 2L and 4L of water per 20kg bag.
- Adjustments to the mixing ratio may be required depending upon site conditions. Ideally, mixing water and substrate should be above the lower application temperature limit of 5°C and below 30°C to avoid problems with the set time of the mix. Small trial batches to ascertain the best working consistency for the operation are recommended.
- Mix with an electric drill and paddle or in a pan or revolving barrel type mixer. Do not mix by hand. Allow approximately 5 minutes mixing to achieve maximum results.
- Place 70% of the required amount of water into the mixing vessel and slowly add the powder while mixing. Gradually add the remainder of the water to achieve the desired consistency. Job placement conditions, including temperature and humidity, may lead to some adjustments in the amount of water addition.

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### PRE-APPLICATION:

- Holes intended for sealing may be either cylindrical or rhombic (dove tailed).
- The diameter of bore holes in which rebars or rods are to be sealed should be at least 20mm more than the diameter of the bar.
- The depth of the hole must not be less than 10 times the diameter of the bar or rod.

### APPLICATION TECHNIQUES:

- Lanko 701 DuragROUT grout should be placed within 45 minutes of mixing. During that time keep material in mixer well agitated. After this time discard any grout mix that shows signs of stiffening.
- Flowable Lanko 701 DuragROUT may be placed with low-pressure cement grouting equipment or may be hand rodded into restrained sections. High points must be adequately vented to allow entrapped air to escape.
- Plastic Lanko 701 DuragROUT mortar may be rodded into place or trowel handled where freedom of movement permits. Consistency can range from thick cream to smooth plastic.
- Do not vibrate Lanko 701 DuragROUT into position as this may cause segregation of the mix.
- Dry Pack Lanko 701 DuragROUT mortar must be firmly pressed or rammed into place. Consistency should allow pressuring into a firm hard ball without cracking.
- For sealing rebar or steel rods and bolts into bore holes, adhere to the following guidelines:
  - For vertical holes, position the bar in the hole, and then pour in the flowable Lanko 701 DuragROUT. Alternatively, fill the hole with Lanko 701 DuragROUT, then insert the rod or bolt into the wet mix, pushing in and pulling back several times to ensure sound bonding.
  - For horizontal holes, fill the hole with plastic consistency Lanko 701 DuragROUT, then insert the rod or bolt, pulling and pushing as above.

- Lanko 701 DuragROUT may be pumped for large grouting installations.
- All applications require curing. Use Lanko 740 Duracure, which can be brush or spray applied. Otherwise, cover the installed grout with wet hessian sheets or spray periodically with water.
- Placing Lanko 701 DuragROUT in unrestrained environments will result in lower final compressive and flexural strength.

### AGGREGATE EXTENSION:

- 10mm washed coarse aggregate may be added to Lanko 701 DuragROUT for pours over 100mm in depth.
- Add no more than 10kg of aggregate to each 20kg bag of Lanko 701 DuragROUT.
- After extending with gravel, do not place Lanko 701 DuragROUT in thicker sections than 200mm.

### RETURN TO SERVICE:

- The period of time required before bringing the grouted area into service depends upon the service load required. For high load installations, do not put the area into service for 3 - 7 days. The ambient temperature should be taken into account since cold weather delays hardening and hot weather accelerates hardening.

### COVERAGE/YIELD:

Water Addition per 20KG bag	Yield (L)	KG/m <sup>3</sup> (wet)	Bags per m <sup>3</sup>
2.0L	11.75L	1,870	85
3.0L	10.55L	2,180	95
4.0L	11.50L	2,090	87

\* Above numbers are approximate values only

### CLEAN-UP INSTRUCTIONS:

- Lanko 701 DuragROUT should be removed from tools and equipment immediately after use with clean water. Any cured material may be removed by mechanical means.

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### PRECAUTIONS:

- Ensure all surface preparation and priming instructions are followed precisely.
- Contact Lanko State offices for grouting application thicknesses exceeding 200mm.
- Do not retemper Lanko 701 DuragROUT with additional water.
- Like all cementitious mortars and concrete, Lanko 701 DuragROUT must be protected against rapid drying due to high temperatures and/or strong winds.
- Lanko 701 DuragROUT is not defined as a dangerous good by Australian Code for the Transport of Dangerous Goods by Road and Rail.

### PACKAGING:

Lanko 701 DuragROUT is available in 20kg moisture resistant multiwall bags.

### SHELF LIFE / STORAGE:

- Storage: must be stored in a cool, dry elevated place and protected from high humidity.
- Shelf Life: Up to 6 months in unopened bags, if stored as specified above

### SAFETY:

- Being cement based, Lanko 701 DuragROUT is alkali in nature, which can cause dermatitis. Thus, when using Lanko 701 DuragROUT, it is recommended that applicators wear PVC or similar gloves and safety goggles. If dust is generated, wear a suitable dust mask.
- For a full MSDS on this product, contact the Lanko Technical Advisory Line or visit [www.lanko.com.au](http://www.lanko.com.au).

### TECHNICAL SERVICE:

For application procedures or surface conditions not specified above, please contact the Lanko Technical Advisory Line on 1800 653 347 or visit our website on [www.lanko.com.au](http://www.lanko.com.au).

### DISCLAIMER:

*The use of this product is beyond the manufacturer's control, and liability is restricted to the replacement of material proven faulty. The manufacturer is not responsible for any loss or damage arising from incorrect usage. All workmanship must be carried out in accordance with Davco's specific instructions.*

*The information contained herein is to the best of our knowledge true and accurate. No warranty is implied or given as to its completeness or accuracy in describing the performance or suitability of the product for a particular application. Users are asked to check that the literature in their possession is the latest issue.*

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