



Technical Data Sheet

INDUCRET®-VK4070-S

Art.-No. 5 50049

High Strength, free flow polyester anchoring grout - Standard Grade

Description:

INDUCRET-VK4070-S is a 2-component free flow polyester grout, consisting of a liquid resin and a powder activator component.

Primary Uses:

INDUCRET-VK4070-S is used on rock, concrete, brickwork and masonry for the permanent fixing of:

- starter bars and dowels
- foundation bolts
- ground anchors
- base plates for building systems
- rail and crane tracks.

Advantages:

- Versatile applications
- Fast setting
- High strength
- Primerless
- Developed to take vibrations when cured
- Can be applied to wet or damp substrates

Application Procedures:

Substrate Preparation

1. Using a rotary percussive drill, drill holes with the specified diameter and depth. If a diamond drill bit is used, ensure that the hole is not left smooth, it must be roughened.
2. After drilling, clean hole with appropriate sized INDU-Wire Brush and INDU-Air Pump or clean water. If water is used the hole may be left damp or full of water. Ensure that both water and sides of hole are clean and free of debris.

Mixing

3. Pour liquid resin component into a clean mixing vessel. While slowly stirring - slow speed mechanical mixer and appropriate mixing paddle - add the activator (powder) and continue to mix for 1 additional minute.

Application

4. Pour the mixed INDUCRET-VK4070-S into the hole, ensuring that no water or air is entrapped. For holes with small diameters, or if it is difficult to displace water, INDUCRET-VK4070-S can be injected using a standard sealant gun and extension hose. Place the tube to the bottom of the hole and begin injecting the mixture. Withdraw the tube slowly as the hole fills. Fill the hole to approx. 1/2 of its depth, depending upon application, and then insert fixing immediately into the hole, with a downward twisting action, displacing the mixture to the top of the hole, completely filling the annular space.
5. Bolt should be left undisturbed until the resin has set.

Cleaning & Equipment Maintenance

6. Clean tools immediately after use before the resin sets with INDU-Cleanser. Once the resin has set it can only be removed mechanically.

Typical Properties:

Hole sizes:

rebar anchor:

Nominal bolt dia (mm)	8	10	12	16	20	25	32	40
Required hole dia (mm)	10	14	16	20	25	32	40	50

Allthread stud:

Stud dia (mm)	8	10	12	16	20	24	30
Required hole dia (mm)	10	12	14	18	22	26	35

N.B. Hole diameters stated are nominal diameters when holes are drilled with the appropriate diameter drill bit to ISO 5468:1992.

Physical Properties Standard Grade:

Setting times:

Temperature (°C)	Pot Life (mins)	Initial Set (mins)	Service Time (hours)
-5	90	120	16
+10	50	75	4
+20	20	40	2
+30	10	20	1

INDUCRET®-VK4070-S

Typical ultimate physical properties

(Testing to BS 6319 cured for 7 days at +20° C)

Compressive strength:	105 MPa
Tensile strength:	13 MPa
Flexural strength:	34 MPa
Compressive modulus:	13 GPa
Density:	2.0 +/- 0.1

Load capacity data for all thread studs:

Stud Diameter d (mm)	Hole Depth h _o (mm)	Characteristic Load in 30MPa concrete N _{RR} (kN)	Recommended Load in 30MPa concrete N _{rec} (kN)
8	80	12.5	4.2
10	90	23.1	7.7
12	110	23.9	8
16	125	36.9	12.3
20	170	53.5	17.8
24	210	66.0	22.0

Load capacity calculations:

The following equations will assist the design engineer to obtain values related to the anchoring of reinforcement bars.

Equation for tensile load capacity (assumes $f_{cm} \geq 20\text{MPa}$)

$$\text{Tension: } N_{RK} = (h_{ef} - 50) / 2.5$$

Concrete capacity reduction factors:

Close edge, tension:

$$R_{f_{cN}} = 0.4 + [0.4 C / h_{ef}]$$

$$0.5 \leq [C / h_{ef}] \leq 1.5$$

Close edge, shear:

$$R_{f_{cV}} = 0.25 + [0.5 C / h_{ef}]$$

$$0.5 \leq [C / h_{ef}] \leq 1.5$$

Close spacing, tension:

$$R_{f_s} = 0.4 + [0.6 S / h_{ef}]$$

$$0.25 \leq [S / h_{ef}] \leq 1$$

h_{ef}	effective bond length (rebar) (mm)
C	close edge distance (mm)
S	anchor spacing (mm)
N_{RK}	anchor characteristic load, tension (kN)
N_{rec}	anchor recommended load (kN)
$R_{f_{cN}}$	close edge reduction factor, tension only
$R_{f_{cV}}$	close edge reduction factor, shear only
R_{f_s}	close spacing reduction factor, tension and shear

Notes:

Quoted values for N_{RK} are corrected to $f_{cm}=30$, according to the ETAG 'Metal Anchors for use in Concrete'. The equations for calculating the values of the (unfactored) characteristic loads N_{RK} and V_{RK} for reinforcing bar assume $f_{cm} \leq 30$. All load capacity equations and values assume adequate steel strength; all thread stud tests were carried out on grade 8.8 steel. Hole diameters for reinforcing bar assumes compliance to EN10080:1996 the use of bar with a high rib pattern could call for larger diameter holes, and tests may be required to determine the characteristic loads.

Packaging:

INDUCRET-VK4070-S is available in 2 packages:

- 5.5 kg pail (1.1 kg resin and 4.4 kg powder)
- 22 kg pail (4.4 kg resin and 17.6 kg powder)

Storage & Shelf Life:

12 months when stored at +5° - +20° C in original packaging in dry, frost-free conditions out of direct sunlight. Warmer temperatures may shorten shelf life.

Health & Safety:

INDUCRET-VK4070-S contains styrene which is classified as a hazardous material and it is flammable with a flash point of +32° C. Wear suitable protective clothing, eye/face protection and gloves, and ensure adequate ventilation. For further health and safety information, please refer to the valid Material Safety Data Sheet.