

Technological regulation № 13/1

**Invamat 670 fire retardant
with Invamat 606 sealant**



TU 20.30.11.120-003-37166468-2017



INVAMAT 670 FIRE RETARDANT WITH INVAMAT 606 SEALANT

Economical provision of fire safety of medium and large openings in walls and ceilings.

Applications

- For walls and ceilings
- Single cables and cable bundles
- Fire protection of mixed penetrations
- Sealing penetrations of air ducts

Advantages

- Can be applied with a brush or sprayer
- Good sound insulation
- Not permeable to smoke and gas
- Rapid application and economical use



SPECIFICATIONS:

Density, not less than	1,35 гp/cm ³
Appearance of INVAMAT 670	Light-gray highly viscous paste
Appearance of dried surface	Rough matte surface, tint is not standardized
Application temperature	from +5°C to + 40°C
Drying time:	
at + 20 °C and relative air humidity of 50%	2 days
At + 10°C and relative air humidity of 80%	7 days
Operating temperature	from – 40°C to + 60°C
Mass fraction of non-volatile fraction, wt. %, not less than	68%
Minimum thickness if the dry coating layer	0,7 mm
Consumption at layer thickness of 0,7 mm, kg/m ²	1,05 kg/sq.m.



Russian tests and certification are passed:

Serial production according to TU-20.30.11-120-003-37166468-2017, complies with GOST R 53295.



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APPLICATION MANUAL

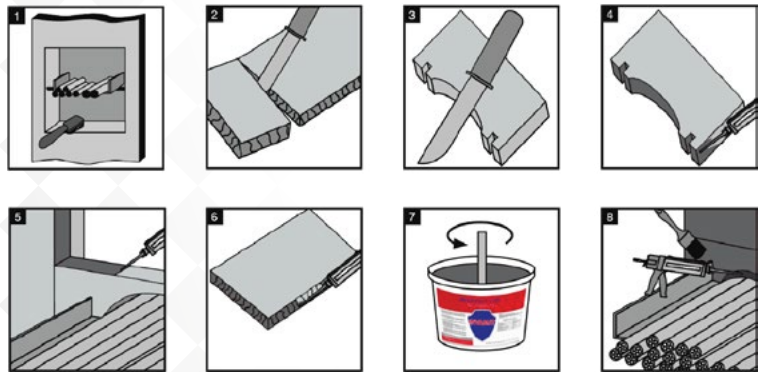
Application manual for enclosing structures from 80 mm

Clean the hole: the sides and surfaces must be firm, dry and free from dust, dirt, oil. Cut out blanks of the required size from incombustible cotton wool. Smear the ends of the blanks with INVAMAT 670 fireproof solution (the wet layer thickness is 1 mm). After applying INVAMAT 670 solution, install the blanks of mineral wool in the hole. For walls and ceilings with a thickness of more than 80 mm, install mineral wool of minimum permissible thickness according to a certified solution. Pass the cable in the middle of the blank. All cavities between the blank and the hole or the blank and the cable must be smeared with INVAMAT 670 solution. Before use, thoroughly mix INVAMAT 670 fireproof solution. Apply a smooth layer on the entire surface of the installed blank, as well as 200 mm from the edge of the sealing on the surface of the cable, with a brush, roller or sprayer. Let the layer dry, the total thickness of the wet layer is 0.7 mm. If using mineral wool in two layers, coat only one (external) side of each blank. After drying, the dry layer thickness should be at least 0.5 mm.

Application manual for enclosing structures from 200 mm

Universal cable penetrations, crossing of the air duct with enclosing structures:

Clean the hole: the sides and surfaces must be firm, dry and free from dust, dirt, oil. Cut out blanks of the required size from incombustible cotton wool. Smear the ends of the blanks with INVAMAT 606 fireproof sealant (the wet layer thickness is 1 mm). After applying INVAMAT 606 sealant, install the blanks of mineral wool in the hole. For walls and ceilings with a thickness of more than 200 mm, install mineral wool of minimum permissible thickness according to a certified solution (for ceilings, mineral wool should be flush with the top surface of the seal).



If the mineral wool blank enters the penetration too tightly, and INVAMAT 606 fireproof sealant remains on the penetration wall, proceed as follows. After installation of mineral wool, fill INVAMAT 606 fireproof sealant in the seam between the end of the penetration and mineral wool, taking into account that the flow rate per 1 running meter of the penetration of 200 mm thick should be 200 ml. Pass the cable in the middle of the blank. All cavities between the blank and the hole or the blank and the cable must be smeared with INVAMAT 606. Before use, thoroughly mix INVAMAT 670 fireproof solution. Apply a smooth layer on the entire surface of the installed blank, as well as 200 mm from the edge of the sealing on the surface of the cable (air duct), with a brush, roller or sprayer. Let the layer dry, then apply the second layer of the same thickness (the total thickness of the wet layer is 1.3 mm). Both layers shall dry for 2-3 hours. Coat only one side of each blank. After drying, the dry layer thickness should be at least 0.5 mm.

For metal cassette:

Clean the hole: the sides and surfaces must be firm, dry and free from dust, dirt, oil. Cut out blanks of the required size from incombustible cotton wool. Smear the ends of the blanks with INVAMAT 606 fireproof sealant (the wet layer thickness is 1 mm). For walls and ceilings with a thickness of more than 200 mm, install mineral wool of minimum permissible thickness according to a certified solution (for ceilings, mineral wool should be flush with the top surface of the seal). Pass the cable in the middle of the blank. All cavities between the blank and the hole or the blank and the cable must be smeared with INVAMAT 606. If the cassette protrudes beyond the dimensions of the wall, the protruding parts must be coated with a non-combustible cotton wool of the Rockwool type with a density of 100 kg/m³ and fixed with anchors. Before use, thoroughly mix INVAMAT 670 fireproof solution. Apply a smooth layer on the entire surface of the installed blanks and frames (if necessary), as well as 200 mm on the surface of the cable (air duct), with a brush, roller or sprayer.



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Let the layer dry for two hours, then apply the second layer of the same thickness (the total thickness of the wet layer is 1.3 mm). Both layers shall dry for 2-3 hours. Coat only one side of each blank. After drying, the dry layer thickness should be at least 0.5 mm.

Applications and fire resistance limit

INVAMAT 670 fire retardant is recommended for holes up to 1500x2000 mm. To provide tightness of the air duct connection, the planes of the flanges should be sealed with INVAMAT 606 fireproof sealants (or INVAMAT 670 for penetrations from 80 mm). Apply the sealant to the plane of the flange with a continuous layer. Flanges are tightened by bolt joints in such a way as not to leave gaps between them. Remove excess sealant after the flanges are tightened.

Node type	Fire resistance limit	Fireproof barrier thickness	Additional conditions
Universal cable penetration	180 IE	200 mm	-
Metal modular cassette with a cell of 100x100 mm, embedded in concrete	180 IE	200 mm	-
Air duct crossing with enclosing structures	180 IE	200 mm	Apply INVAMAT606 sealant with a continuous layer. Coating layer of incombustible mineral wool at least 40 mm.
Air duct crossing with enclosing structures	240 IE	200 mm	Apply INVAMAT606 sealant with a continuous layer. Coating layer of incombustible mineral wool at least 40 mm.
Universal cable penetration	240 IE	200 mm	-

Limit states for air duct testing:

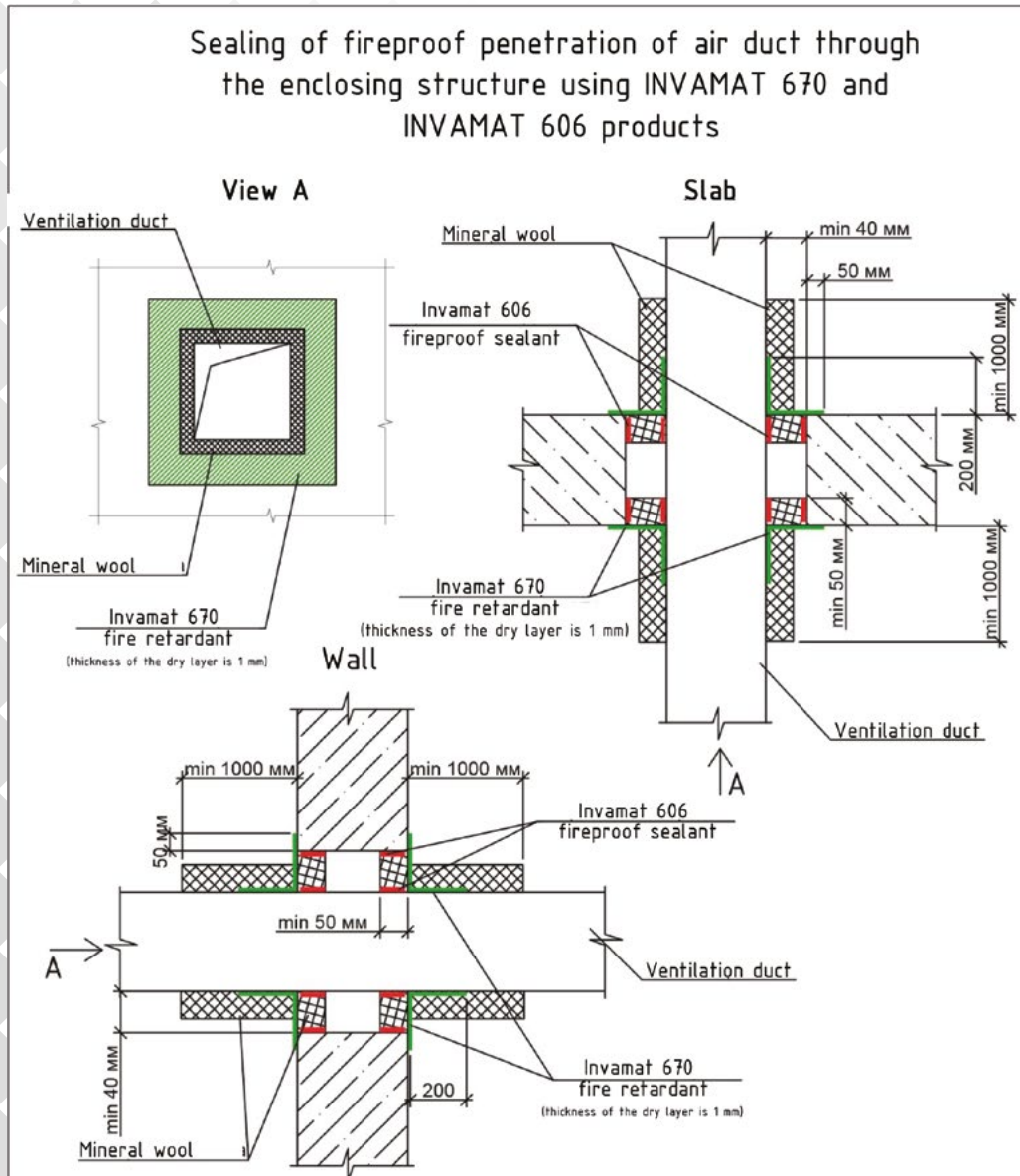
When testing the penetration of air ducts for fire resistance through the enclosing structure, the following limit states are distinguished:

- Loss of heat-insulating capacity (I) due to an increase in temperature on the unheated surface of the sealing material by more than 140 °C.
- Loss of the sealing material integrity (E) as a result of through cracks in the sealing material or openings through which combustion products and flames penetrate the unheated surface.
- Loss of heat-insulating capacity of air duct structures is characterized by an increase in temperature on average by more than 140 °C or locally more than 180 °C on the outside surfaces: air duct structures outside the heating zone at distances of 0.05 and 1.0 m from the enclosing structures of Technological furnaces (at least in four points of each section at specified distances); Regulation No.003/1 from the unheated side of the gap compaction nodes in points where the ducts pass through the furnace enclosures (at least four points).

Regardless of the initial temperature of the above surfaces, the local temperature should not exceed 220 °C at any points (including those where local heating is expected - joints, corners, heat-conducting inclusions).



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Note:

1. In order to ensure the required fire resistance limit of 3 hours in terms of I (achievement of the critical heating temperature of the product element), insulation of non-combustible mineral wool with a thickness of 40 mm is applied at a section 1000 mm long from the edge of the penetration.
2. The air duct mountings are not shown conditionally.
3. Incombustible mineral wool of Rockwool type with a density from 100 kg/m³ is used.

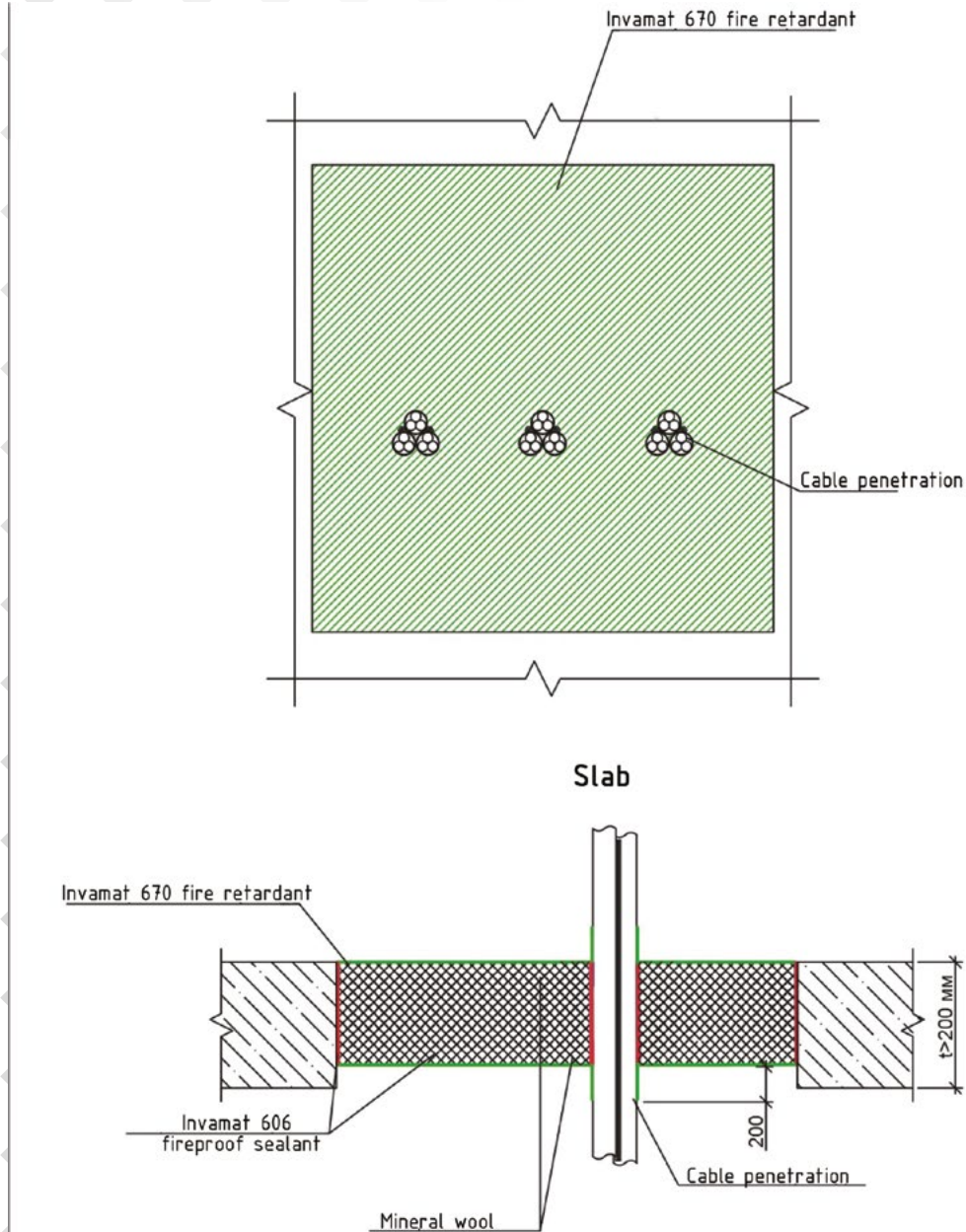
Fireproof chemistry					
изм.	кол.уч.	лист	№ док.	Подп.	Дата
Разраб.		Донских			
Проб.		Виноградов			

Application of INVAMAT 670 fire retardant with INVAMAT 606 fireproof sealant	Стадия	Лист	Листов
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Note:
 Imcombustible mineral wool with a density from 100 kg/m³ with a thickness of 50 mm (in total not less than 200 mm) is used.

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Разраб.		Донских			
Пров.		Виноградов			

Fireproof chemistry

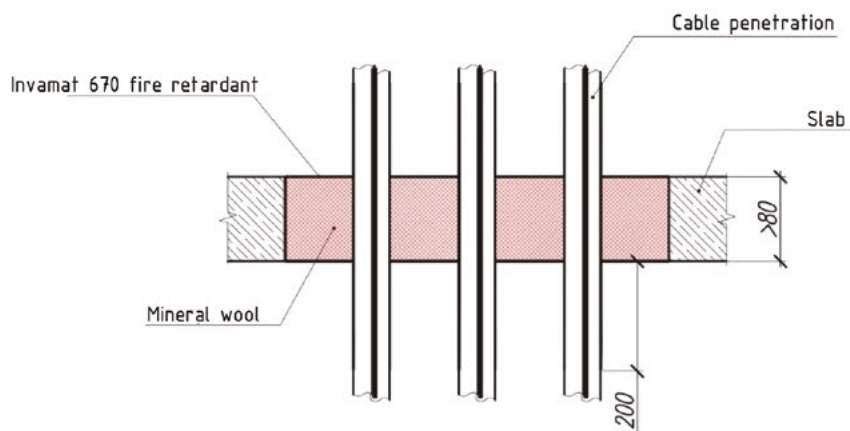
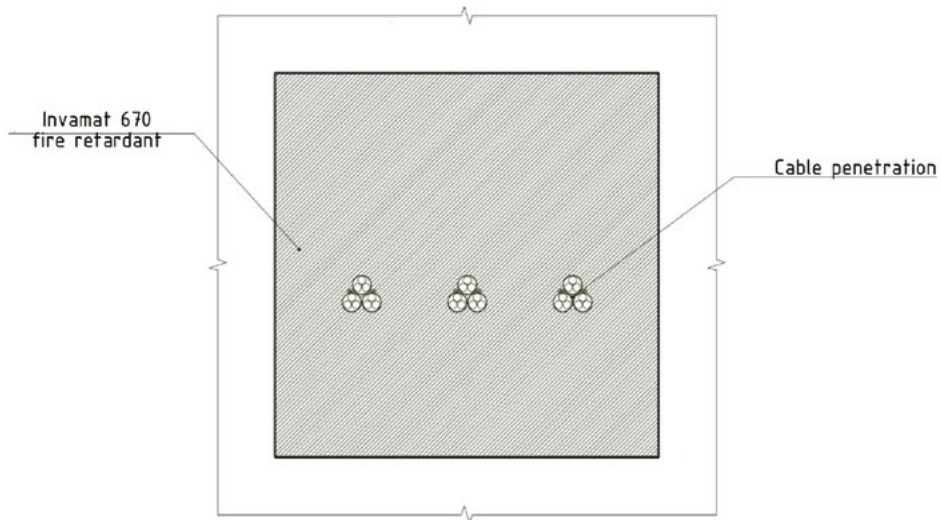
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Стадия	Лист	Листов
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INVAMAT 670 FIRE RETARDANT WITH INVAMAT 606 SEALANT



Note:
Imcombustible mineral wool with a density from 100 kg/m³.

Согласовано									
Взамен инв. №									
Подпись									
Инв. № подл.	Изм.	Кол. уч.	Лист	№ док.	Подпись	Дата			
	Разработал	Донских							
	Проверил	Виноградов					Стадия	Лист	Листов
	Н. контр.								
Fireproof chemistry									
Application of INVAMAT 670 fire retardant							INVAMAT		



SAFETY INSTRUCTIONS



Xn – Harmful to health

Observe the manufacturer's instructions.

- R 20 Harmful to health by inhalation.
- R 36/37/38 Irritating to eyes, respiratory system and skin.
- R 42/43 May cause sensitization by inhalation and skin contact.
- S 2 Keep out of the reach of children.
- S 23 Do not inhale vapor.
- S 51 Use only in well-ventilated areas.
- S 24/25 Avoid contact with eyes and skin.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 28 If foam contacts the skin, immediately wash it off with soap and water.
- S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- S 45 In case of accident or if you feel unwell, call a physician immediately (show this label if possible).

INVAMAT is not responsible for damages caused by the following circumstances:

- violation of the prescribed storage and transportation conditions;
- non-observance of instructions for use and installation data;
- misuse;