

Crown Universal Slab



H&V

Thermal and Acoustic Insulation of Process Vessels

Description

Crown Universal Slabs are a range of semi-rigid to rigid shot-free, non-combustible, unfaced glass mineral wool slabs. They can be supplied with a bright class 'O' facing and in a range of densities from 24 to 48 kg/m³.

Standards

The mineral wool of Crown Universal Slabs is non-combustible inorganic glass wool, defined as mineral wool in BS 3533 and is manufactured in accordance with BSI Quality Assurance Standard BS EN ISO 9001: 2000.

Thermal Conductivity

The thermal conductivity of the insulation varies with temperature, as shown in the table.

Fire Performance

The base glass mineral wool of Crown Universal Slab is non-combustible to

BS 476: Part 4: 1970 (1984) and Class 1 surface spread of flame to BS 476: Part 7: 1997. The glass mineral wool and foil facing comply with the Class 'O' requirements of the Building Regulations when tested to BS 476: Part 6: 1989 and Part 7: 1997.

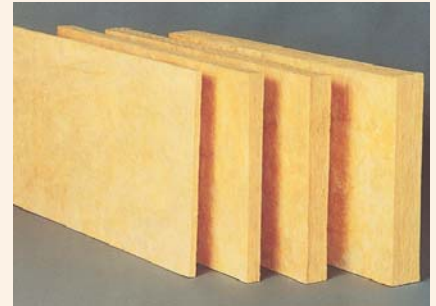
Permanence

The mineral wool of Crown Universal Slabs is odourless, rot proof, non-hygroscopic, does not sustain vermin and will not encourage the growth of fungi, mould or bacteria.

Operating Temperatures

Crown Universal Slabs can be used up to continuous operating temperatures of 230°C and down to cryogenic temperatures provided that a 100% vapour barrier is maintained.

The surface temperature of the facing should not exceed 80°C.



Form and Dimensions

The Product Data table shows form and dimensions for Crown Universal Slabs.

Handling and Storage

Crown Universal Slabs are supplied wrapped in polythene.

The Product Data table shows storage information for each thickness.

Product Data – Crown Universal Slab

Slab type	Thickness (mm)	Width (mm)	Length (mm)	Slabs per pack	Area per pack (m ²)	Density (kg/m ³)	Thermal conductivity (W/mK)	Thermal resistance (m ² K/W)
CS24	100	600/900	1200	8/5	5.76/5.40	24	0.033	3.03
	75	600/900	1200	10/7	7.20/7.56	24	0.033	2.27
	50	600/900	1200	16/10	11.52/10.80	24	0.033	1.52
CS32	100	600/900	1200	6/4	4.32/4.32	32	0.032	3.13
	75	600/900	1200	8/5	5.76/5.40	32	0.032	2.34
	50	600/900	1200	11/7	7.92/7.56	32	0.032	1.56
	40	600/900	1200	15/10	10.80/10.80	32	0.032	1.25
CS48	25	600/900	1200	25/15	18.00/16.20	32	0.032	0.78
	75	600/900	1200	6/4	4.32/4.32	48	0.030	2.50
	50	600/900	1200	8/5	5.76/5.40	48	0.030	1.67
	40	600/900	1200	10/7	7.20/7.56	48	0.030	1.33
	25	600/900	1200	15/10	10.80/10.80	48	0.030	0.83

All dimensions are nominal

Thermal conductivity – Crown Universal Slab

Mean temperature (°C)	Thermal conductivity (W/mK)		
	CS24	CS32	CS48
10	0.033	0.032	0.030
25	0.036	0.034	0.032
50	0.041	0.038	0.035
75	0.047	0.042	0.039
100	0.053	0.047	0.044
125	0.060	0.053	0.049

Note: Tested in accordance with BS 874: 1973 (1980).

Application

Crown Universal Slabs are used for the thermal and acoustic insulation of buildings, building services and industrial applications, but mostly for thermal insulation of process vessels. Under "vessels" can be included large and small rectangular, cylindrical and irregular pieces of equipment, high towers for chemical process plants, large storage tanks and spheres as well as boilers and steam turbines.

There are certain principles which must be observed. In selecting the most suitable product, the following criteria must be considered.

- Maximum service temperature
- Degree of insulation efficiency required
- Robustness of insulation necessary to support the applied finish and withstand the environment.

Generally, the higher the temperature, the higher the density required. However, it may be prudent to select a density of slab higher than that necessary for the temperature where a more robust insulant is required to support the covering and other loads which may at times be imposed, such as foot traffic on top of large tanks.

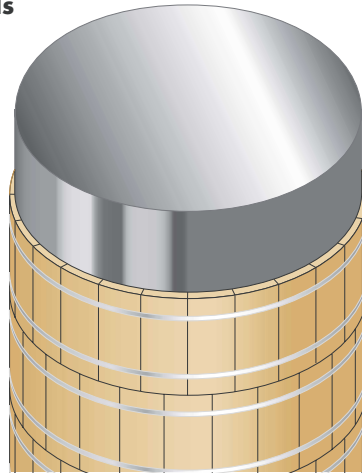
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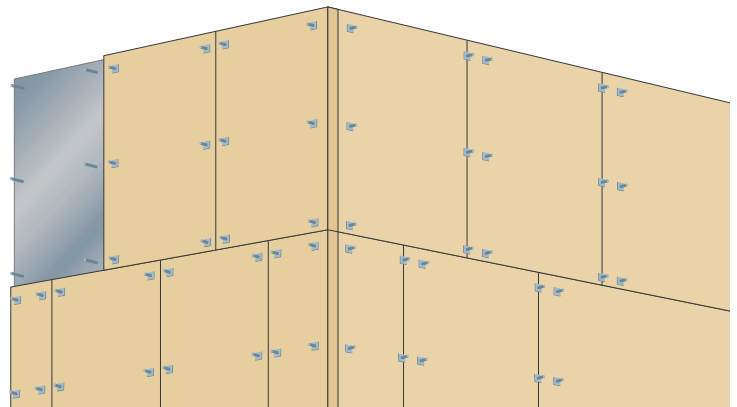


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Cylindrical vessels



Rectangular vessels



Installation

For weatherproofing, PIB sheeting may also be applied. For additional mechanical strength, metal sheeting should be used.

Cylindrical vessels

For cylindrical vessels up to 1120mm outside diameter, Knauf Insulation recommend that they should be insulated with Crown Universal Slabs having a density of not more than 24 kg/m³.

For cylindrical vessels between 1120mm and 3500mm in diameter, Knauf Insulation recommend Crown Universal Slabs having a density of not more than 32 kg/m³. These slabs are sufficiently flexible for this curvature.

For cylindrical vessels over 3500mm in diameter, Knauf Insulation recommend Crown Universal Slabs of any density.

The metal bands should not be over

tensioned so as to significantly reduce the thickness of the insulation. On vertical surfaces, circumferential support rings shall be fitted and spaced apart at distances which will provide adequate support according to the weight of the insulation. The support rings shall protrude from the vessel to a maximum distance of 10mm less than the thickness of the insulation. All joints must be well butted together and vertical joints on adjacent courses staggered. In multi-layer applications, all joints shall be

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