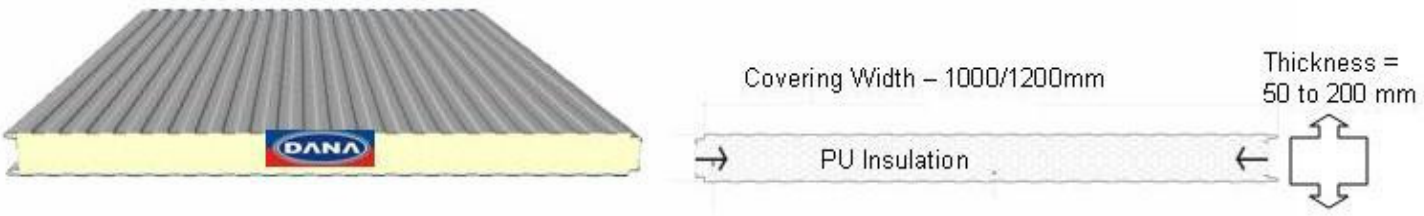
DANA COLD STORE PANELS

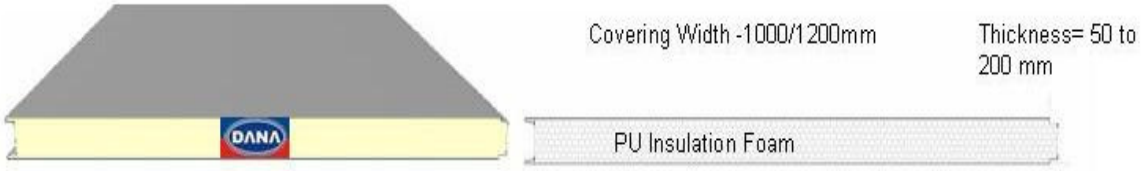
Product Data Sheet

Product Description : Dana Cold Store Panels are available as stand alone or as part of a complete system and accessories

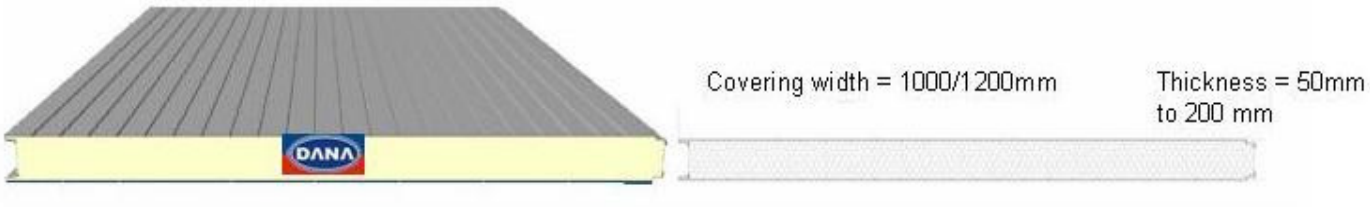


Cold store Panels can be designed in different patterns .

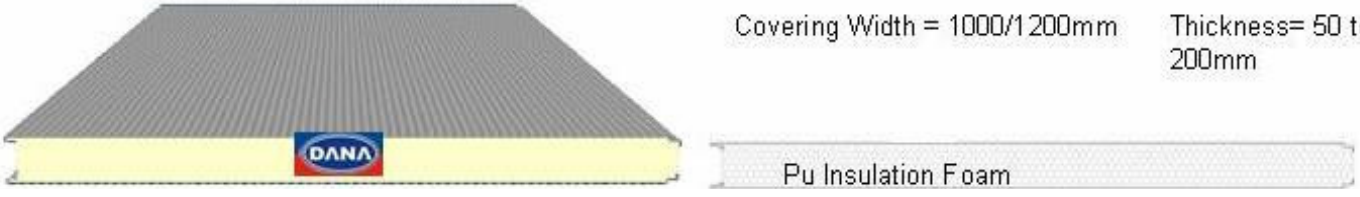
1. Flat Design



2. V - Rib Design

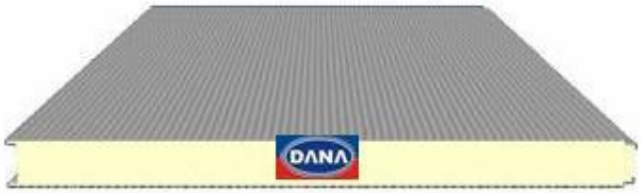


3. Micro Rib Design



Pu Insulation Foam

4. Micro Plus Rib Design



Covering Width =1000/1200mm

Thickness = 50 to 200 mm

PU Insulation Foam

5. Shallow Rib Design

Covering width is 10000/1200mm

Thickness =50 to 200mm

PU Insulation Foam

Insulation Foam for Cold Room Panels

1. PUR (Polyurethane) Insulation Foam : Mechanical Properties

Density	35-40Kg/m3 (as per BSEN 1602: 1997)
Tensile Stress	150 kpa (as per BSEN 1608: 1997)
Compression Resistance	100 kpa (as per ASTM C165 : 2000)
Shear Resistance	150 kpa (as per ASTM 271/ 271M)
Fire Property	B2/ B3 as per DIN 4102-1

B Insulation Capacity

K Value - Thermal Conductivity	0.022 W/ mK
Tolerance	+ /- 0.002

C Water Absorption of the foam after 24 hours: 1.0 % of Volume

D Closed Cell content > 94%

U Closed Cell content > 94%

E Overall Heat Transfer Coefficient (U) varies with the thickness of the panel

Polyurethane Panel U Value Chart				
Core Thickness in mm	40	50	75	100
Overall Heat Transfer Coefficient " U " Value				
W / M2 oC	0.525	0.420	0.290	0.210
KCAL / M2 h oC	0.451	0.361	0.247	0.181
BTU / F t2 h oF	0.092	0.074	0.050	0.037

2. PUR B2 - Polyurethane with Fire Classification B2

Properties : It is self extinguishing as it stops burning after heat source is removed .Also , it doesnot produce flaming droplets during fire . It will not fall of its structural framework if it is fixed with continuous mechanical fastener .

3. PIR - Poly Isocyanurate Foam Properties

Mechanical Properties

Density	40-45 Kg/m3 (as per BSEN 1602: 1997)
Tensile Stress	Greater than100 kpa (as per BSEN 1608: 1997)
Compression Resistance	Greater than 100 kpa (as per ASTM C165 : 2000)
Shear Resistance	>100 kpa (as per ASTM 271/ 271M)
Fire Property	B2/ B1 as per DIN 4102 - 1

B Overall Heat Transfer Coefficient " U ' Value - W/m2 K

Thickness In mm	35	40	50	60	75	100
Overall Heat Transfer Coefficient " U "	0.67	0.60	0.47	0.40	0.31	0.24

Length and Width Tolerance for PUR Panels - BSEN 13165 : 2008

Dimesnsions (in mm)	Tolerance (Plus Minus in mm)
<1000	5
1000 - 2000	7.5
2001 - 4000	10
> 4000	15

Thickness Tolerance for PUR Panels - BSEN 13165 : 2008

Dimesnsions (in mm)	Tolerance (Plus Minus in mm)
50 to 75	3 plus , 3 minus
>75	5 plus , 2 minus

Cladding Materials for Insulated Panels

1. Polyester Prepainted Galvanised Steel

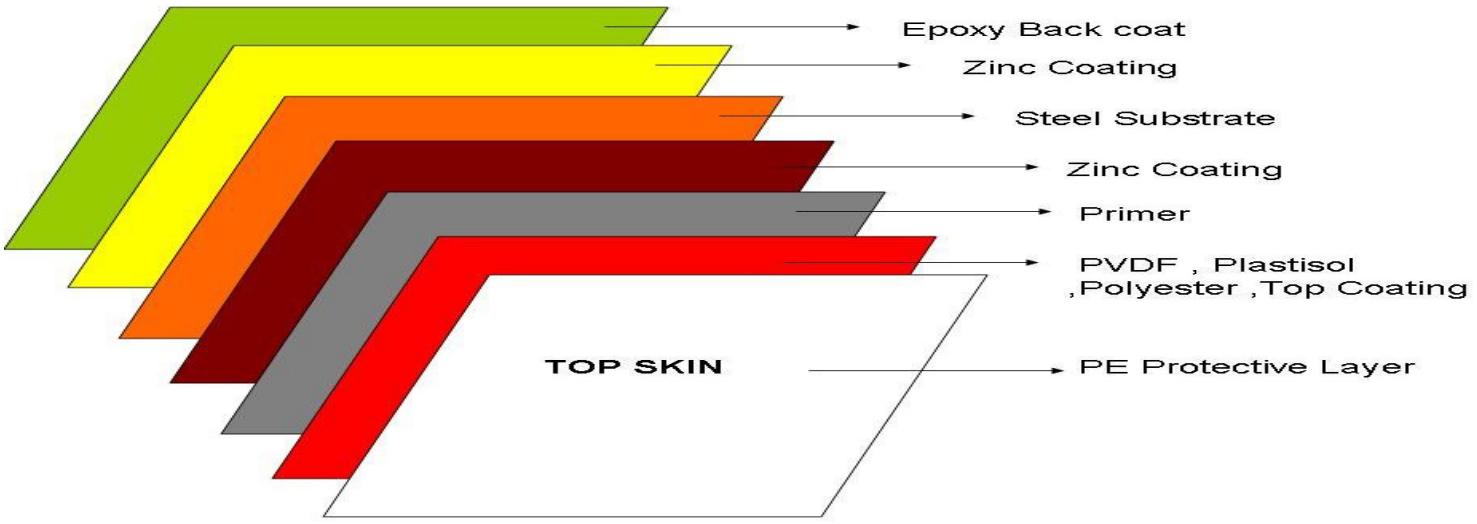
2. PVC (Plastisol) coated Galvanised Steel

3.Stainless Steel

4. Aluminium (Stuco embossed or pre-painted)

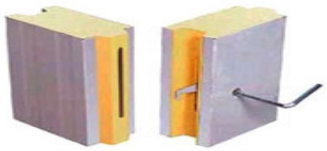
Note : Floor Panels are made to withstand uniformly distributed load of upto 2.5 tons per square meter

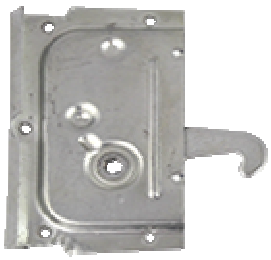
Structure of Sandwich Panels - Surface Coating Layers



Assembly

Cold Room panels are assembled using slip joint system which also easy assembly , tightness and strong insulation.Slip joint system is a unique system where panels slip into each other . It is a established tounge and groove method .Camlocks are also provided at each end which with steel hooks lock the cold room panels in each other .





Flooring

Medium , Dry and Light weight Operations : DANA always suggest insulated panels to be used for flooring for maintainig insultaion level.Marine Plywood is applied on top of panels as this protects panels against any damage.
Large , Heavy weight Operations : Concrete reinforcement over PU slabs with special application of polyethyloene sheets above and under the PU Slabs .
Aluminium Chequered Plate is also applied on top of mraine plywood which is on top of panel . Any special flooring can be provided on client request.

Ceiling

Ceiling panels are same as that of wall panels . For long spans of ceilings , main structure is required for ceiling suspension.Panels are strong enough to walk over them for maintenance operations.

Insulated Doors

Insulated doors are made from same PU panels in different thickness as per requirements.Different types of doors are manufactured . Main Types are :-

1. Hinged Door - Single leaf , double leaf , overlapping or flush

2.Sliding doors - Used for large door openings

3.Hydraulic self closing doors

4.Traffic swing type doors

Note : Doors upto 5.0 meters can be fitted for cold rooms .

Other Door Accessories

1. Stainless Steel hinges - double or triple as per requirement

2. Self release handle

3. Pressure Relief Port

4.Door Heater Wire

5. PVC Strip Curtains

6.Double glass view - Display thermal glass

7.Interior or exterior ramps as per customer requirements

Packing

1. Standard Packing : Insulated Panels of same size are stacked together in a bundle .

Panels are stacked according to their sizes . Same size panels are stacked together .

PU Board is placed on top of the first panel before it is stacked on wooden pellet.

Stack is finally covered by polyethylene sheets and is then wound by plastic strings and then a tape is applied on it .

Thickness Of Panel (in mm)	50	80	100	120	150	170	200
Number of Panels / Bundle	30	25	20	17	14	12	10

Panels are wrapped overy by polyethylene sheet and then stacked in wooden pellete.

Storage

1. Polyurethane panels shall be stored indoors for long storage periods .Donot expose panels to sun light and humidity for long periods of time during storage .

2.Place panels on flat levelled ground which shall bear the weight of panels and also weight of unloading equipment

3. Remove the polyethylene sheets wrap