

Registration Certificate

*This is to certify that
the Quality Management Systems of*

**ASSAN PANEL SANAYİ VE
TİCARET A.Ş.**

*have been assessed by AJA Registrars and registered
against the requirements of*

BS EN ISO 9001:2000

Certificate No. : AJA06/9946

Date of Original Registration : 10/02/2006

Date of Expiry : 07/02/2009

Date of Re-Registration : N/A



Reg. No. 059

Raymond Hinton *Timothy Dison*
Joint Chief Executives, AJA Registrars



*This certificate is issued in respect of the locations & scope of registration detailed in the Associated Registration Schedule.
This certificate is the property of AJA Registrars and must be returned on request.*

ASSAN PANEL

QUALITY POLICY

As a company produce sandwich panel and one layer trapeze, our aim is continuous leadership of the sector with the quality of our products and services without compromise. Our success we will provide by obeying all legal and regulative rules will belong to all of us.

Effective usage of our sources and meeting the requests and expectations of our partners by perceiving them in the best way are our basic approach.

As ASSAN PANEL, in a management understanding suitable with total quality philosophy, we have following objectives;

- Increase our customer's satisfaction,*
- Take into account all kind of suggestion and warning,*
- By learning from faults, improve our quality system continuously.*

With my wishes to share an successful and exciting future,

Hayal DEMİROLUK

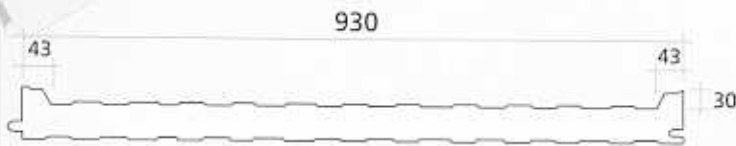
General Manager



SANDWICH PANELS



930 R2



Distributed Load Tables (All Load Values are kg/m²)

Prepainted Galvanized Steel		Spend (cm) PUR (mm)	Many Supports									
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		150	175	200	225	250	275	300	325	350	
0.50	0.40	30	209	167	135	110	91	75	63	55	48	
		40	300	239	195	157	132	108	94	78	67	
		50	433	346	280	230	192	158	136	115	97	
		60	547	441	359	297	248	207	173	149	128	
		70	670	546	448	371	313	262	223	189	161	

Net Coverage Width : 930 mm

Application : Wall Claddings

Metal Properties : a) Assan Aluminium product high condition,
AW 3000 Series Aluminium alloy

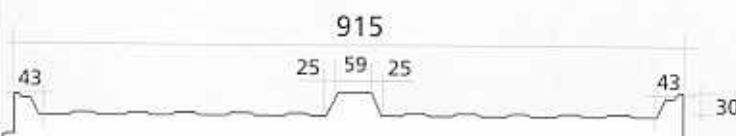
b) Prepainted Galvanized Steel

Insulation : Polyurethane

Product Plant : Istanbul



915 R3



Aluminium		Spend (cm) PUR (mm)	Many Supports									
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		150	175	200	225	250	275	300	325	350	
0.50	0.40	30	202	134	115	91	74	59	51	40	33	
		40	280	209	162	126	101	83	66	55	46	
		50	371	245	212	166	135	109	89	73	61	
		60	459	298	259	203	168	131	108	90	74	
		70	563	370	321	253	205	166	137	111	93	
0.70	0.50	30	276	205	158	123	98	78	64	53	44	
		40	410	306	236	183	147	117	96	79	67	
		50	537	400	308	239	191	153	125	104	88	
		60	671	502	381	298	237	197	154	129	109	
		70	814	607	468	364	291	233	190	158	133	

Prepainted Galvanized Steel		Spend (cm) PUR (mm)	Many Supports									
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		150	175	200	225	250	275	300	325	350	
0.50	0.40	30	251	201	162	132	110	92	77	67	56	
		40	353	283	230	186	157	129	111	94	81	
		50	488	390	316	259	217	279	153	130	111	
		60	624	498	404	327	279	229	194	162	141	
		70	772	616	500	408	343	285	242	204	177	

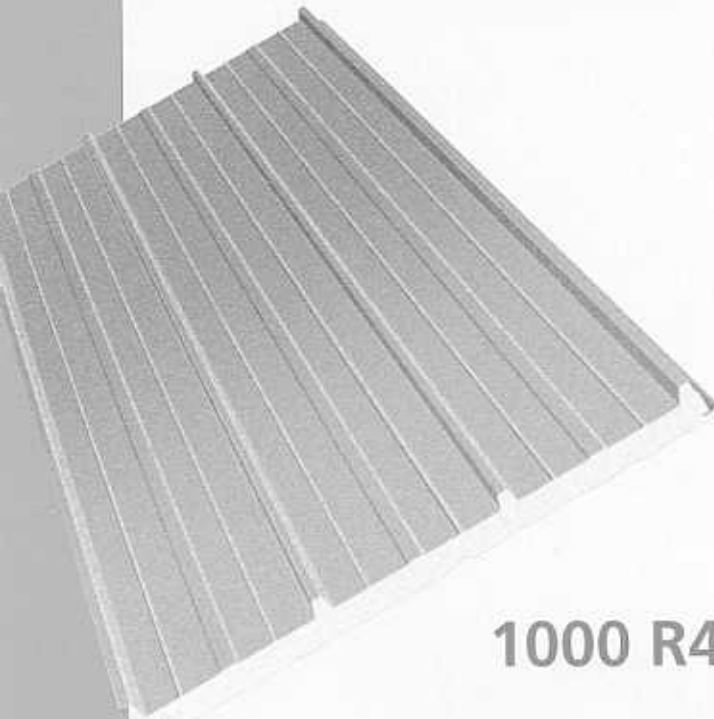
Net Coverage Width : 915 mm

Application : Roof - Wall Claddings

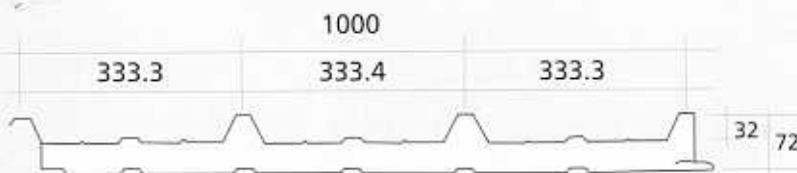
Metal Properties : a) Assan Aluminium product high condition,
AW 3000 Series Aluminium alloy

b) Prepainted Galvanized Steel

SANDWICH PANELS



1000 R4



Aluminium		Spend (cm)	Many Supports									
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		PUR (mm)	150	175	200	225	250	275	300	325	350
0.50	0.40	30	135	103	79	65	51	45	35	28	24	20
		40	182	139	116	95	79	65	54	42	37	32
		50	258	182	154	129	107	88	73	60	55	49
		60	312	234	195	164	137	119	97	76	71	64
		70	385	296	235	204	165	140	118	95	86	78
0.70	0.50	30	148	109	88	74	60	54	41	33	30	27
		40	195	145	126	101	87	75	60	49	44	40
		50	270	194	167	132	114	97	83	69	59	54
		60	324	241	209	175	147	128	106	88	78	72
		70	402	312	255	216	177	149	132	106	100	92

Prepainted Galvanized Steel		Spend (cm)	Many Supports									
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		PUR (mm)	150	175	200	225	250	275	300	325	350
0.50	0.40	30	197	154	127	109	92	82	67	53	50	45
		40	281	212	179	158	130	119	98	83	75	68
		50	355	281	232	210	171	149	129	110	98	90
		60	402	341	287	254	205	188	161	139	121	111
		70	476	405	322	296	245	216	188	152	133	122

Net Coverage Width : 1000 mm
Application : Roof Claddings
Metal Properties : a) Assan Aluminium product high condition, AW 3000 Series Aluminium alloy
 b) Prepainted Galvanized Steel
Insulation : Polyurethane
Product Plant : Iskenderun

Panel Joint Details

	<p>930 R2 915 R3 1000 R7</p>
	<p>1000 R7 K</p>
	<p>1000 R4</p>
	<p>1000 W</p>
	<p>900 C5</p>

Aluminium		Spend (cm) PUR (mm)	Many Supports								
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		150	175	200	225	250	275	300	325	350
0.50	0.40	26-60	408	304	234	182	145	116	92	70	55
		36-70	512	382	294	230	183	146	119	99	78
		46-80	632	471	364	283	225	180	147	122	102
		66-100	874	652	503	391	313	250	204	169	142
0.70	0.50	26-60	548	408	315	245	195	157	120	93	72
		36-70	621	463	357	278	221	178	144	117	91
		46-80	1062	792	610	475	379	303	247	205	170
		66-100	1096	816	631	490	391	314	256	213	179

Prepainted Galvanized Steel		Spend (cm) PUR (mm)	Many Supports								
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)		150	175	200	225	250	275	300	325	350
0.50	0.40	26-60	581	461	372	302	250	213	175	147	125
		36-70	731	581	469	379	314	268	234	207	175
		46-80	901	717	580	592	384	331	289	263	239
		66-100	1228	992	802	646	537	457	399	364	331

Net Coverage Width : 1000 mm

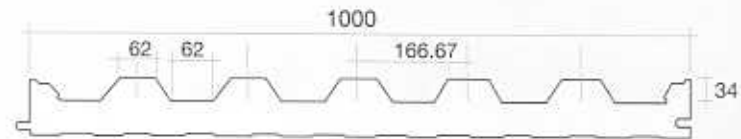
Application : Roof - Wall Claddings

Metal Properties : a) Assan Aluminium product high condition,
AW 3000 Series Aluminium alloy
b) Prepainted Galvanized Steel

Insulation : Polyurethane

Product Plant : Istanbul

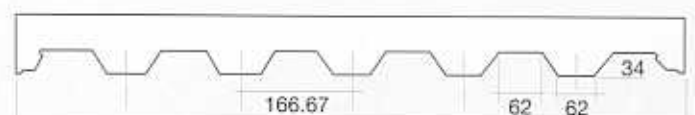
1000 R7



Prepainted Galvanized Steel		Many Supports				
External Surface	PUR (mm)	150	200	250	300	325
Craft Paper	0.50	258	140	89	62	-
	0.60	302	175	111	70	-
	0.70	364	209	134	93	66
	0.80	426	244	156	109	80

1000 R7 K Master Panel is used as low inclined roof cladding material. The inner surface of the sandwich panel is made of prepainted steel sheet, the outer surface is made of craft paper. After the sandwich panel application, the craft paper surface must overlook upwards, so that a membrane sheet can be applied on the sandwich panel.

1000 R7 K



Net Coverage Width : 1000 mm

Application : Roof Claddings

Metal Properties : Prepainted Galvanized Steel

Exterior Surface : Craft Paper

Insulation : Polyurethane

Product Plant : Istanbul

Prepainted Galvanized Steel		PUR (mm)	Spand (cm)	Many Supports			
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)			100	150	200	250
0.50	0.40	45	271	192	131	103	
		60	337	263	179	134	

1000 W Master Panel is widely preferred in wall claddings due to concealed screw details.

Net Coverage Width : 1000 mm
Application : Wall Claddings
Metal Properties : Prepainted Galvanized Steel
Insulation : Polyurethane
Product Plant : Istanbul / Iskenderun



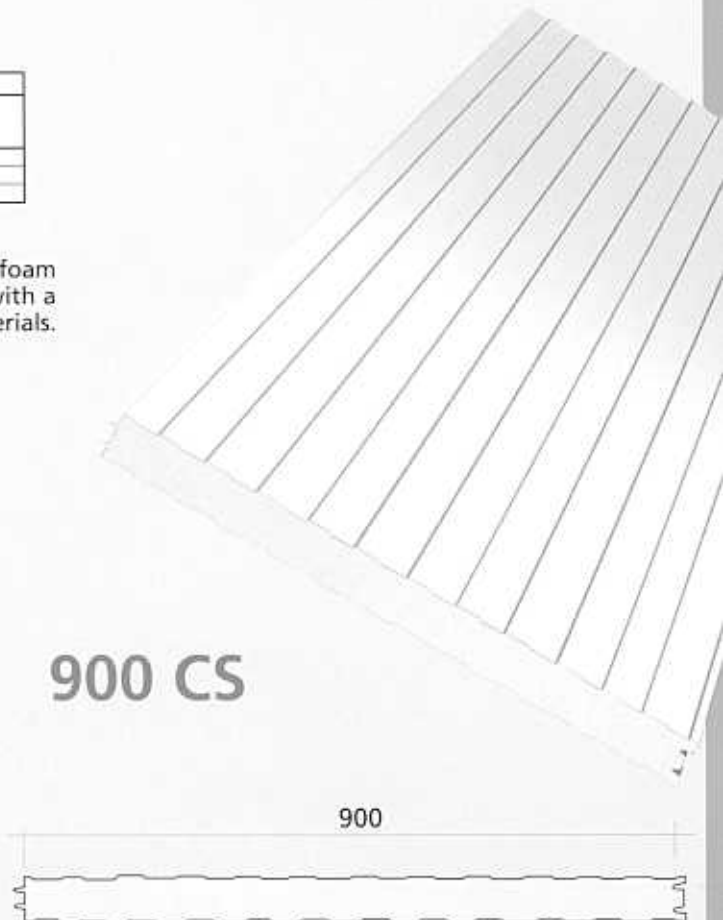
1000 W

1000

Prepainted Galvanized Steel		PUR (mm)	Spand (cm)	Many Supports			
Thickness of External Sheet (mm)	Thickness of Internal Sheet (mm)			100	150	200	250
0.50	0.50	80	400	320	245	145	
		100	449	360	275	165	
		150	520	425	330	200	

900 CS Master Panel is used as cold store cladding material. Since rigid foam is used as insulation material, it maintains an ideal heat insulation with a less sandwich panel thickness regarding to alternative insulation materials.

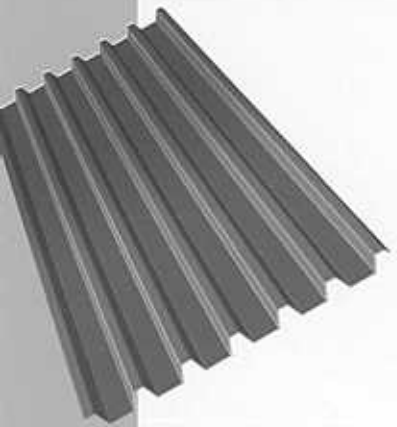
Net Coverage Width : 900 mm
Application : Cold Storage
Metal Properties : Prepainted Galvanized Steel
Insulation : Polyurethane
Product Plant : Istanbul / Iskenderun



900 CS

900

CORRUGATED SHEETS



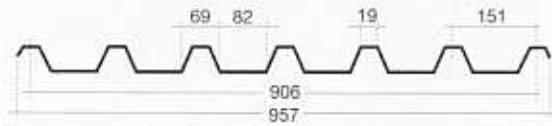
38/151

Sheet Thickness:
Min. 0.50 mm, max. 0.80 mm
GALV. or PPGS.
min. 0.40 mm, max. 0.80 mm ALU.

Sheet Length:
Min. 1000 mm, max. 12000 mm,

Net Coverage Width:
when 7 edges 906 mm,
when 6 edges 755 mm.
(Tolerance: ± 3 mm)

Application:
Roof & Wall Claddings



38 / 151	Spand (cm)			
	200	250	300	325
0.50	140	89	62	...
0.60	175	111	70	...
0.70	209	134	93	66
0.80	244	156	109	80



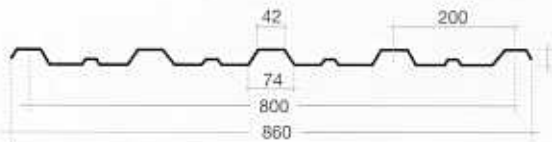
27/200

Sheet Thickness:
Min. 0.50 mm, max. 0.80 mm
GALV. veya PPGS.
min. 0.40 mm, max. 0.80 mm ALU.

Sheet Length:
Min. 1000 mm, max. 12000 mm,

Net Coverage Width:
when 5 edges 800 mm
when 6 edges 1000 mm
(Tolerance: ± 3 mm)

Application:
Roof & Wall Claddings



27 / 200	Spand (cm)					
	150	180	200	220	240	280
0.50	237	165	134	110	93	68
0.60	290	201	163	135	113	83
0.70	343	238	193	160	134	98
0.80	396	275	223	184	155	114



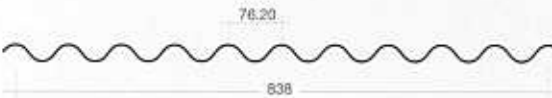
18/838

Sheet Thickness:
Min. 0.50 mm, max. 0.80 mm
GALV. veya PPGS.
min. 0.40 mm, max. 0.80 mm ALU.

Sheet Length:
Min. 1000 mm, max. 12000 mm,

Net Coverage Width:
838 mm (Tolerance: ± 3 mm)

Application:
Roof & Wall Claddings



18 / 838	Spand (cm)					
	150	180	200	220	240	280
0.50	154	107	87	72	60	44
0.60	200	139	113	93	78	57
0.70	231	161	130	108	90	66
0.80	262	182	148	122	102	75



50/207

Sheet Thickness:
Min. 0.50 mm, max. 0.80 mm
GALV., PPGS.
min. 0.40 mm, max. 0.80 mm ALU.

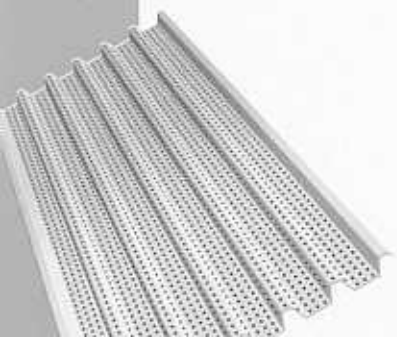
Sheet Length:
Min. 1000 mm, max. 12000 mm,

Net Coverage Width:
828 mm (Tolerance: ± 3 mm)

Application:
Roof & Wall Claddings.
Special product



50 / 207	Spand (cm)			
	200	250	300	350
0.50	195	125	78	49
0.60	217	139	87	66
0.70	260	166	105	77
0.80	303	194	122	88

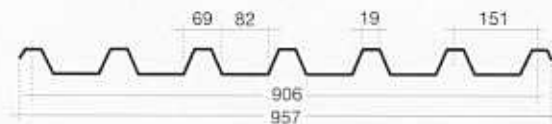


38/151 ACUSTICAL CORRUGATED SHEETS

Sheet Thickness:
Min. 0.50 mm, max. 0.80 mm
GALV. veya PPGS.
min. 0.40 mm, max. 0.80 mm ALU.

Sheet Length:
Min. 1000 mm, max. 12000 mm,

Net Coverage Width:
when 7 edges 906 mm,
when 6 edges 755 mm



Acoustical Corrugated Sheets with hole design can use acoustical resistance

Acoustical Corrugated Sheets can product all other forms

Polyurethane Insulated Sandwich Panels

Sandwich panels are roof and wall materials, with polyurethane insulation between upper and inner metallic corrugated sheets. Sandwich panels build up facades with water and thermal insulation including aesthetical view without using paint and plaster. Sandwich panels are used in prefabricated concrete and steel buildings such as industrial buildings, military buildings, social buildings, agricultural buildings, sport centers, worksite buildings, silos, hypermarkets, shopping centers, cold stores, markethouses

In ASSAN PANEL products, aluminium and prepainted galvanized steel are used. Aluminium is supplied from Assan Aluminium, prepainted galvanized steel is supplied by world-wide companies in this field. Colors of the panels can be chosen from RAL catalogues according to customer needs. Metal can be produced in any thickness according to the function and the loading capacities. Insulation thickness of polyurethane varies in accordance with the climate conditions and user needs.

Assan Panel is continuously expanding. It has encouraged innovation by introducing the latest technologies, products and applications which respect the environment, maintaining the constant aim of meeting customer needs.

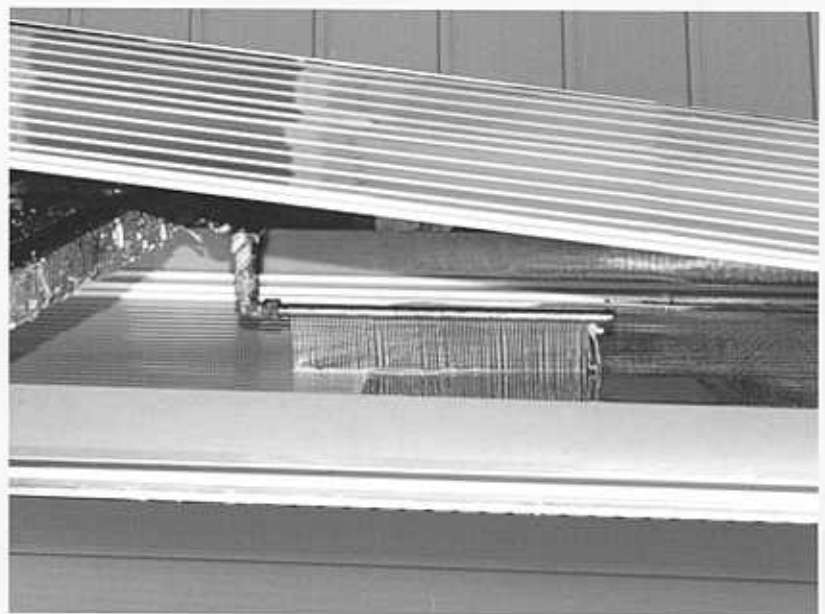


Polyurethane rigid foam

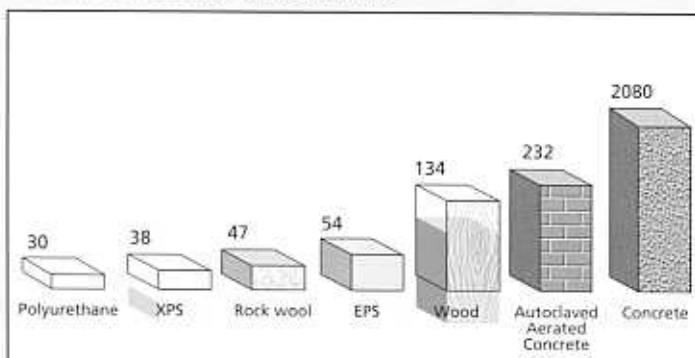
The polyurethane, which is used in sandwich panels, has the best thermal conductivity degree. Polyurethane, which is supplied from biggest suppliers around the world, does not absorb water and does not disintegrate. It also prevents bacteria and insects living.

Density (kg/m ³)	40 (±2)	EN 1602	DIN 53420
Thermal conductivity Coefficient λ (W/mK)	0,022	EN 12939	ASTM C518
Water absorption (168hours) (% volume)	2	EN ISO 354	ASTM E203
Fire Resistance	B2	EN 13501-1	DIN 4102
Closed cell percentage (%)	95	EN 14509	DIN 4590
Vapour diffusion resistance	30-100	EN 12086	DIN 53429
Mechanical strength (kPa)	100 - 400 (10 - 40 ton/m ²)	EN 1607	DIN 18159
Tensile strength (kg/m ²)	1,48	EN 1607	DIN 53292
Heat resistance (°C)	-200 / +110 °C		

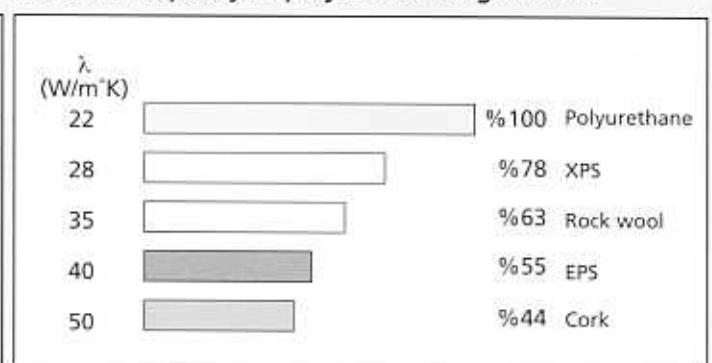
Polyurethane coefficient of heat transmission		
Panel Thickness	U Value (W/m ² K)	U Value (Kcal/m ² h °C)
40 mm	0,4973	0,4276
45 mm	0,4468	0,3841
50 mm	0,4056	0,3487
60 mm	0,3424	0,2945
80 mm	0,2611	0,2245
100 mm	0,2110	0,1815



Thicknesses of the different materials in case of identical heat insulation (mm)



Insulation capacity of polyurethane rigid foams



The Change of Acoustic Conductivity Loss Against Frequency (dB)

Polyurethane Thickness	Frequency (Hz)																		
	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000
50 mm	7.3	9.3	11.7	8.5	11.4	12.3	13.3	14.1	14.7	15.9	15.3	11.5	11.8	23.4	29.2	32.4	29.8	32.5	36.9
60 mm	8.1	22.1	14.2	14.5	13	13.9	13.8	14.6	15.3	16	15.3	13	18.3	24.2	29.2	32.5	29.8	32,5	36.9

The Change of Acoustic Absorption Coefficient Against Frequency (dB)

Polyurethane Thickness	Frequency (Hz)											
	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
50 mm	0.08	0.11	0.22	0.20	0.05	0.59	0.09	0.11	0.04	0.07	0.18	0.07

RAW MATERIAL PROPERTIES

Prepainted Galvanized Steel

ASSAN PANEL use prepainted galvanized steel supplied from world - famous suppliers, produced and conform to ECCA (European Coat Coil Association) norms.

Steel Quality	DX51 D+Z	EN 10327	DIN 17162/1&2	ASTM A653
Tensile Strength (N/mm ²)	500 (max)	EN 10327	DIN 17162/1&2	ASTM A653
Elongation (%)	22 (min)	EN 10327	DIN 17162/1&2	ASTM A653
Steel Grades (hot dip coated)	200-280 gr/m ²	EN 10327	DIN 17162/1&2	ASTM 653M
Paint Type	Polyester, PVdF, Plastisol, PVC, Polyurethane etc.			

PPGS Layers



- Top Coat (Polyester, Plastisol, PVdF, PVC, etc.)
- Primer Coat
- Galvanize (200 - 280 gr/m²)
- Steel Core
- Galvanize (200 - 280 gr/m²)
- Primer Coat

Paint Speciality

Paint	Scratch resistance (avr.)	Corrosion resistance (min)		Heat resistance
		Salt	Humidity	
Polyester	2800 gms	500hours	1000 hours	120 °C
PVdF	3000 gms	500 hours	1000 hours	120 °C
Plastisol	3500 gms	1000 hours	1000 hours	60 °C
PVC	3500 gms	1000 hours	1000 hours	60 °C
Polyurethane	>3500 gms	1000 hours	1000 hours	80 °C
Primer coat	2100 gms	-	1000 hours	120 °C

Aluminium

Aluminium is produced by Assan Aluminium regarding as international standarts (EN,ASTM, ISO)

Thickness	± 0,03 mm	EN 485 -4	ASTM B209
Alloy	AW 3000 Series	EN 573-3	ASTM B209
Temper	H 16 - H 26	EN 485 -2	ASTM B209
Yield Point Elongation	150 mpa	EN 485 -2	ASTM B209
Tensile Strength	175 mpa	EN 485 -2	ASTM B209
Elongation (%)	3 (min)	EN 485 -2	ASTM B209
Surface	Stocco Embossed and painted		

Chemical Composition of Aluminum used for sandwich panel production.

Limit	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr
Min (%)	---	---	---	0,30	0,20	---	---	---	---

Sandwich Panel Technical Properties

Product Code		930 R2	915 R3	1000 R4	1000 R7	1000 R7K	1000 W	900 CS
Exterior Surface	mm	0.50 - 0.60 - 0.70 Al 0.50 - 0.60 - 0.70 PPGS			Craft Paper		0.50 - 0.60 - 0.70 PPGS	
Interior Surface	mm	0.40 - 0.50 Al 0.40 - 0.50 PPGS			0.60 - 0.70 PPGS		0.40-0.50 PPGS	
Panel Thickness	mm	30 - 40 - 50 - 60 - 70			26-60 36-70 46-80 66-100		45 60	80 100 150
Net Cov. Width	mm	930	915	1000	1000	1000	1000	900
Min. Length	mm	3000 mm						
Max. Length	mm	Limited due to transportation						
Application		Roof/Wall		Roof	Roof/Wall	Roof	Wall	Cold Storage

Aluminium (Al), Prepainted Galvanized Steel (PPGS)

Tolerances (mm)

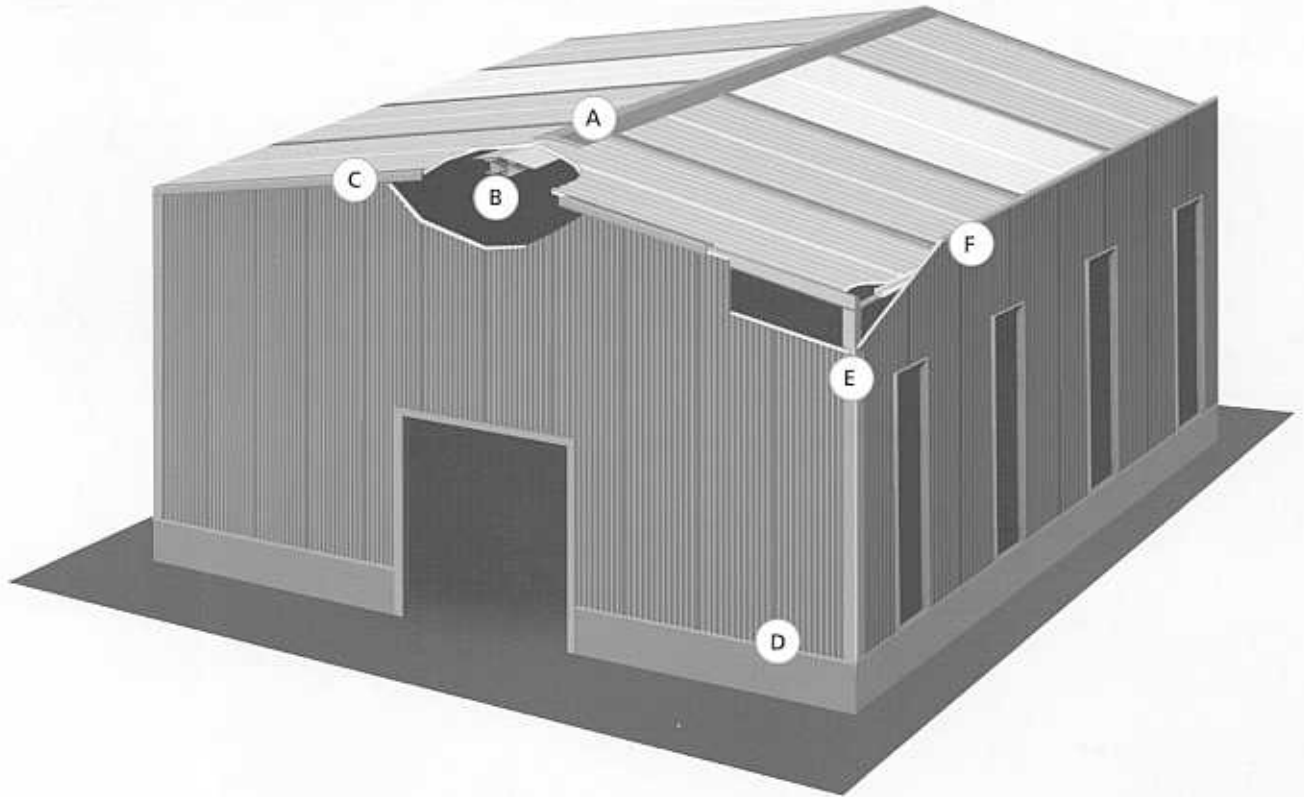
Panel Thickness	Length	Width	Rectangularity
± %4	± 5 mm	± 3 mm	± 3 mm

Standard Colors


Note: Colors can be seen different in print



FLASHINGS



<p>External Ridge Flashing (A)</p>	<p>External Ridge Flashing (A)</p>	<p>Internal Ridge Flashing (B)</p>
<p>Shed Ridge Flashing (C)</p>	<p>Sill Flashing (D)</p>	<p>End Wall Flashing (D)</p>
<p>Wall Addings Flashings</p>	<p>External and Internal Corner Flashing (E)</p>	<p>Coping Flashing (F)</p>