



Product Data Sheet

Lexan® Thermoclear® SunXP Sheet Range

Introduction

Lexan® Thermoclear® SunXP sheet grades are members of the Lexan Thermoclear sheet range of high quality, multi-wall polycarbonate glazing sheets extruded from Lexan® resin.

Lexan Thermoclear SunXP sheet offers:

- Long-term weather resistance **backed by a 15 years warranty**
- Several rectangular and X-structure structures
- Both sides U.V. protected
- High impact strength
- Excellent light transmission
- Light weight, easy installation
- Outstanding thermal insulation properties

UV Resistance

The complete Lexan Thermoclear SunXP sheet range features a proprietary both sides surface treatment designed to protect the sheet against the degrading effects of ultra-violet radiation in natural sunlight. Both sides U.V. protected surfaces offers advantage in economically cutting the sheet in desired shapes, and installation mistakes are minimised since both sheet surfaces may be faced outwards.

Warranty

GE Plastics offers a Fifteen (15) Year Limited Warranty on Lexan Thermoclear SunXP sheet covering discoloration, loss of light transmission and loss of strength due to weathering. See warranty for exact details.

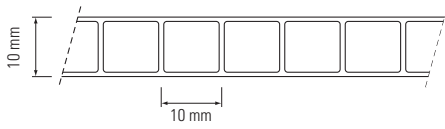
Product availability

Standard specifications are as follows:

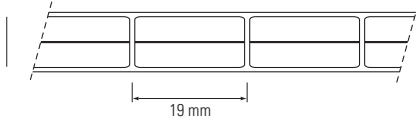
Lexan Thermoclear SunXP sheet	Standard sheet width (in mm)			
	980	1200	1250	2100
Product Code				
LT2XP10/2RS1.7			•	•
LT2XP10/3RS1.9				•
LT2XP10/3TS2.0			•	•
LT2XP10/3X2.0	•	•		•
LT2XP16/3TS2.8-2.7			•	•
LT2XP16/3X2.9	•	•		•
LT2XP20/5RS3.3	•		•	•
LT2XP20/5X3.2			•	•
LT2XP25/6RS3.5	•		•	•
LT2XP25/5X3.4			•	•
LT2XP32/5X3.8			•	•

Standard Lengths: 6000/7000 mm

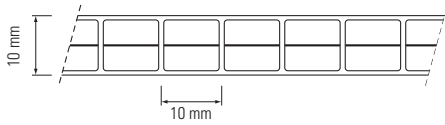




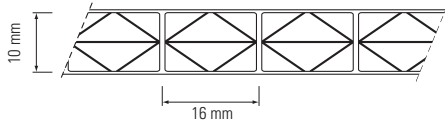
LT2XP10/2RS1.7



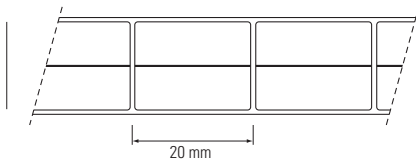
LT2XP10/3RS1.9



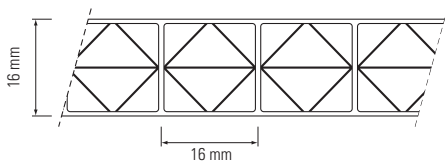
LT2XP10/3TS2.0



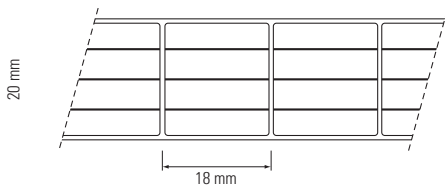
LT2XP10/3X2.0



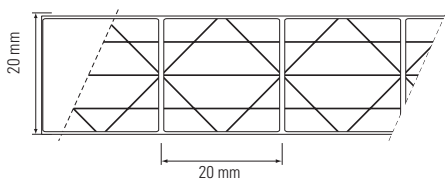
LT2XP16/3TS2.8 and 2.7



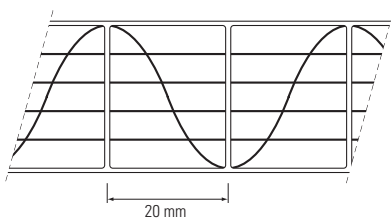
LT2XP16/3X2.9



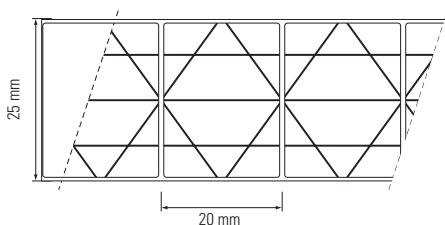
LT2XP20/5RS3.3



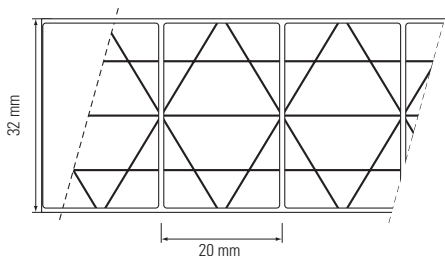
LT2XP20/5X3.2



LT2XP25/6RS3.5



LT2XP25/5X3.4



LT2XP32/5X3.8

Non-Standard Specifications

All GE Structured products multi-wall sheet products can be supplied by prior arrangement in non-standard widths, lengths and colours. Such arrangements may affect prices, warranty terms and/or other conditions of sale.

Typical properties

	Unit	LT2XP10 /2RS1.7	LT2XP10 /3RS1.9	LT2XP10 /3TS2.0	LT2XP10 /3X2.0	LT2XP16 /3TS2.8-2.7	LT2XP16 /3X2.9	LT2XP20 /5RS3.3	LT2XP20 /5X3.2	LT2XP25 /6RS3.5	LT2XP25 /5X3.4	LT2XP32 /5X3.8
Optical Properties												
Light Transmission												
Clear (112)	%	81	74	73	60	76	55	64	44	44	41	38
Bronze (515055)	%	35	36	35	n.a.	35	n.a.	n.a.	n.a.	23	n.a.	n.a.
Opal White (WH7A092X)	%	48	49	35	40	48	37	38	n.a.	24	n.a.	20
Solar Transmission												
Clear (112)	%	85	82	82	72	82	69	75	50	66	48	58
Bronze (515055)	%	55	56	55	n.a.	55	n.a.	n.a.	n.a.	49	n.a.	n.a.
Opal White (WH7A092X)	%	71	72	71	63	71	52	65	n.a.	50	n.a.	35
Shading Coefficient												
Clear (112)	%	0.98	0.94	0.94	0.82	0.94	0.79	0.86	0.57	0.76	0.55	0.66
Bronze (515055)	%	0.63	0.64	0.63	0.63	0.63	n.a.	n.a.	n.a.	0.56	n.a.	n.a.
Opal White (WH7A092X)	%	0.82	0.82	0.82	0.72	0.82	0.59	0.74	n.a.	0.57	n.a.	0.40
Physical properties												
Sound reduction values	dB	19	19	19	19	21	21	22	22	23	23	23
Thermal properties												
U- (or K-) value	W/m ² ·K	3.0	2.7	2.7	2.5	2.4	2.0	1.8	1.8	1.5	1.6	1.4

Light transmission

Transparent Lexan Thermoclear SunXP sheet have excellent light transmission, between 81 and 38%. However for buildings in hot climates or with south facing aspects, Lexan Thermoclear SunXP is available in translucent bronze and opal white. Lexan Thermoclear SunXP is essential opaque to all wavelengths below 385 nanometers. This usefull shielding property can prevent discoloration of sensitive materials placed under or behind.

Solar control

Bronze and opal white coloured Lexan Thermoclear SunXP sheet significantly reduces solar heat gain, cuts down the brightness of sunlight to a pleasant level, helping to maintain comfortable interior building temperatures.

Solar heat gain

The solar radiation reaching the sheet is reflected, absorbed and transmitted. The greatest proportion is transmitted and the total solar transmission (ST) is the sum of the direct transmission (DT) and the inwardly released part of the absorbed energy (A). Table outlines the overall Solar Control properties of Lexan Thermoclear SunXP sheet.

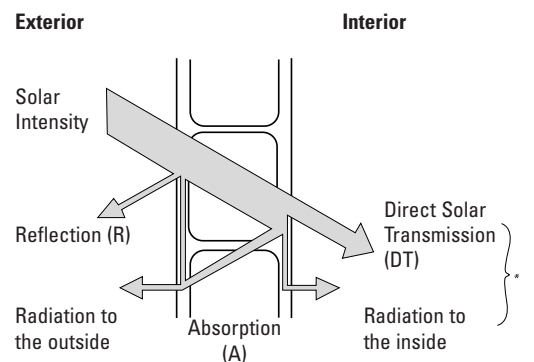
Thermal insulation

The multi-wall structure of Lexan Thermoclear SunXP sheet offers significant advantages where thermal insulation is a major consideration. The hollow form provides excellent insulation characteristics with heat losses significantly lower than mono-wall glazing materials.

Fire Test Performance

Lexan Thermoclear SunXP sheet has good fire behaviour characteristics, and receives high ratings in several major European fire performance tests. More detailed information is available from your local GE Structured Products Service Centre or authorised dealer.

Solar transmission



*Total solar transmission (ST)

Sound insulation

The sound insulation characteristics of a material are largely pre-determined by its stiffness, mass and physical construction. According to DIN 52210-75, the maximum obtainable sound transmission class for Lexan Thermoclear SunXP sheet is 23 dB.

Impact Strength

Lexan Thermoclear SunXP sheet has outstanding impact performance over a wide temperature range, -40°C to +120°C, and also after prolonged outdoor exposure.

Hail simulation

As a roofglazing material Lexan Thermoclear SunXP sheet is subjected to the extremes of weather; storms, hail stones, wind, snowfalls and ice formation. Under these conditions, the product is virtually unbreakable and is able to accommodate the subsequent temperature change to sunny conditions without breaking or buckling.

It should be noted that when glass and Acrylic are tested their failure characteristics are typical brittle, whilst Lexan Thermoclear SunXP shows a ductile deformation zone, e.g. small indentations.

GE Structured Products offers a Fifteen Year Warranty on Lexan Thermoclear SunXP sheet covering loss of strength or impact due to weathering.

General Guidelines

Storage

Lexan Thermoclear SunXP sheet should be stored and protected against atmospheric influences like sun, rain etc. Care should be exercised when handling and transporting Lexan Thermoclear SunXP sheet in order to prevent scratches on the panel surface and damage to the panel edges.

Cleaning

Large surfaces can be cleaned with a high pressure water and/or steam cleaner. Small surfaces can be cleaned with luke warm water, using a soft sponge and a solution of mild soap.

Chemical Resistance

Compatible Neoprene, EPT or EPDM rubbers with an approximate Shore Hardness of the A65 are recommended.

When using glazing compounds it is essential that the sealant system accepts a certain amount of movement to allow for thermal expansion, without loss of adhesion to the frame or sheet. Silicone sealants are generally recommended for use with Lexan Thermoclear SunXP sheet. It is strongly advised when using sealing compounds to check compatibility before use.

Sawing

Lexan Thermoclear SunXP sheet can be cut easily and accurately with standard workshop equipment. This includes common circular, hand and hacksaws.

Saw dust should be blown out of the channels using clean compressed air. Circular saw blades should be fine-toothed panel blades. When hand or power hacksaws are used, the sheet should be clamped to the worktable to avoid undesirable vibration.

Pre-installation Guidelines

Sealing recommendation

One of the most important aspects of installations is edge sealing, particularly the open-ended channels, since moisture build-up and dust contamination inside the channels can be a major problem. In close co-operation with the company Multifoil* an anti-dust impermeable tape and a anti-dust venting tape have been developed.

Both tapes are available from your local distributors' sales offices.

* Multifoil: Verl. Hoogravenseweg 63h, 3525 BB Utrecht, The Netherlands
Tel. +31 30 2896333, Fax. +31 30 2894545

General standard glazing conditions

Top end channels sealed with an impermeable tape. Bottom end channels sealed with a perforated filter tape. Additional 'U' profile covering perforated bottom tape, or distance holders between venting holes to facilitate condensation drainage.

Glazing-specific environment

Both channel ends sealed with impermeable tape.

Recommended for use in extremely dusty environments (sawmills, weldingstations, etc.).

Wet glazing systems

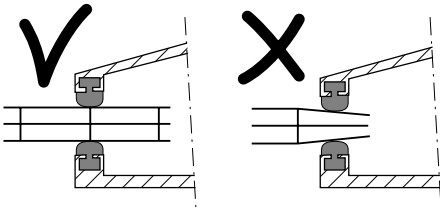
This type of installation system is mainly used in small domestic type applications, car ports, warehouses, conservatories and other glass replacement situations.

Dry glazing systems

The advantage of dry systems is that the rubber gaskets are 'snapped' into the glazing strips which then allow free movement of the sheet during expansion and contraction.

Sheet edge clamping conditions

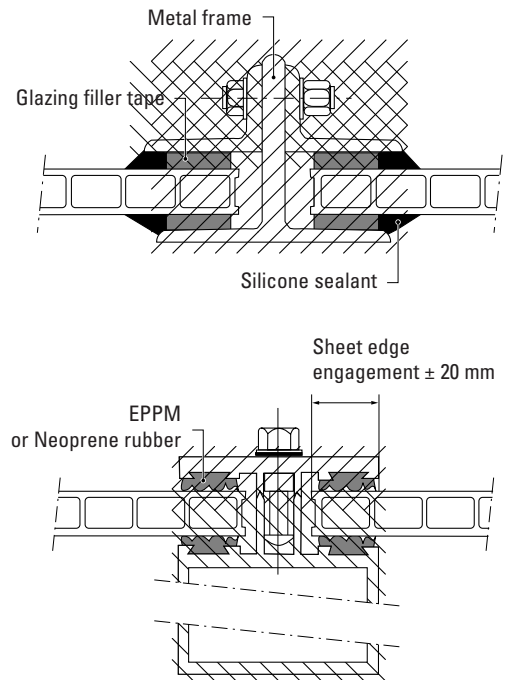
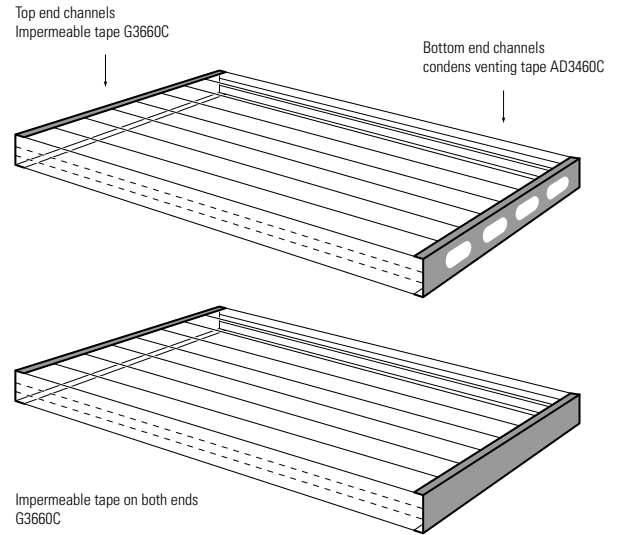
It is extremely important when installing Lexan Thermoclear SunXP sheet that the edges are correctly clamped. A cover plate, or glazing bead, with rubber gaskets or silicone sealant, hold the sheet in place and create a water-tight seal. In both cases there must be sufficient clearance to allow for thermal expansion of the sheet. It is also important that the edge of the sheet is engaged for a minimum of 20 mm into the glazing frame with at least one rib located in the clamping area.



Thermal expansion allowance

Since Lexan Thermoclear SunXP sheet has a greater linear thermal expansion coefficient than that of traditional glazing materials, care should be taken to allow for free expansion of the sheet to prevent bowing and internal thermal stress.

Thermal expansion allowance must be made for both the length and width of the Lexan Thermoclear SunXP sheet. In general, thermal expansion of the sheet is approximately 3 mm per linear metre.



Installation guidelines

Sheet thickness selection

Flat glazing systems sheet thickness

Four sides clamped

CTC distance glazing profiles. Shortest sheet side (a) in mm *

LT2XP10/2RS1.7	815	730	670	620	585	545	520
LT2XP10/3RS1.9	900	820	755	695	635	590	550
LT2XP10/3TS2.0	950	870	805	745	685	640	600
LT2XP10/3X2.0	980	910	850	810	770	740	720
LT2XP16/3TS2.8/7	1100	980	880	810	750	700	665
LT2XP16/3X2.9	1250	1220	1130	1080	1030	995	960
LT2XP20/5RS3.3	1200	1160	1070	980	920	860	810
LT2XP20/5X3.2	1250	1250	1250	1200	1150	1100	1050
LT2XP25/6RS3.5	1250	1250	1250	1250	1250	1150	1100
LT2XP25/5X3.4	1250	1250	1250	1250	1250	1200	1150
LT2XP32/5X3.8	1250	1250	1250	1250	1250	1250	1250
Loading in N/m ²	600	800	1000	1200	1400	1600	1800

* Ratio sheet width / sheet length 1>1.5

Two sides clamped, glazing bars parallel with rib structure

Sheet width (a) in mm

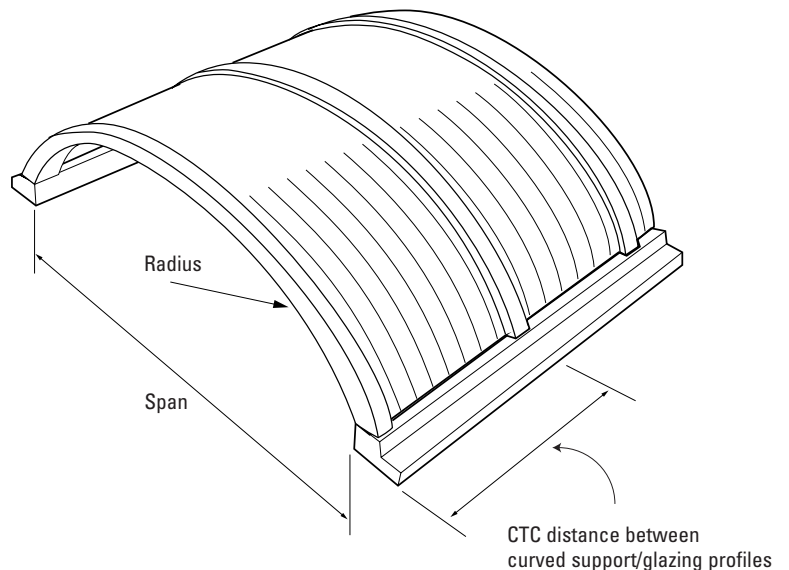
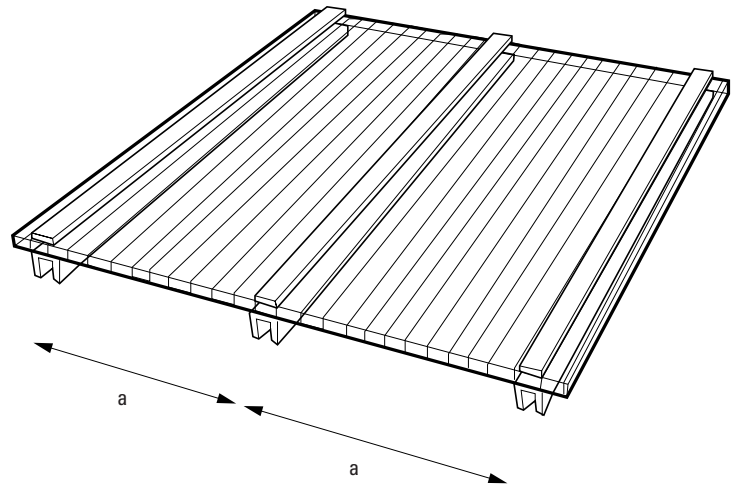
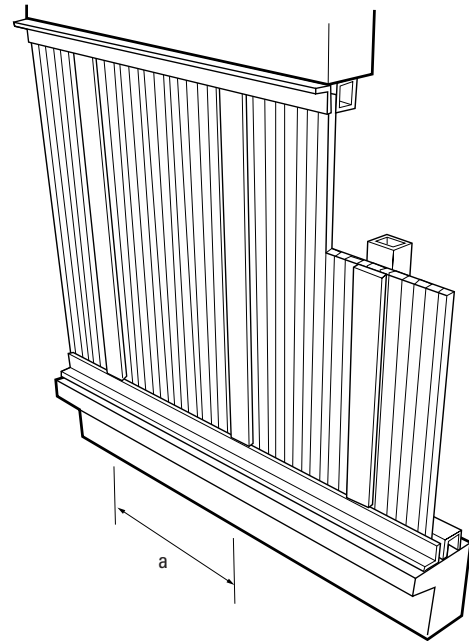
LT2XP10/2RS1.7	730	670	620	585	545	520	
LT2XP10/3RS1.9	800	730	675	625	575	540	510
LT2XP10/3TS2.0	890	810	750	700	665	610	585
LT2XP10/3X2.0	980	910	850	810	770	740	720
LT2XP16/3TS2.8/7	1100	980	880	810	750	700	665
LT2XP16/3X2.9	1450	1325	1240	1180	1130	1085	1050
LT2XP20/5RS3.3	1200	1160	1070	980	920	860	810
LT2XP20/5X3.2	1250	1250	1250	1200	1150	1100	1050
LT2XP25/6RS3.5	1250	1250	1250	1250	1250	1150	1100
LT2XP25/5X3.4	1250	1250	1250	1250	1250	1200	1150
LT2XP32/5X3.8	1250	1250	1250	1250	1250	1250	1250
Loading in N/m ²	600	800	1000	1200	1400	1600	1800

Curved glazing systems sheet thickness

The sheet length needs to be greater than the sheet width to facilitate curvature; in practice, a ratio of 1:2 or less is never contemplated because of the practicalities of installation geometry.

Minimum radius Lexan Thermoclear SunXP sheet (in metres)

LT2XP10/2RS1.7	1.75
LT2XP10/3RS1.9	1.75
LT2XP10/3TS2.0	1.75
LT2XP10/3X2.0	1.75
LT2XP16/3TS2.8/7	2.80
LT2XP16/3X2.9	3.50
LT2XP20/5X3.2	4.00
LT2XP20/5RS3.3	3.50
LT2XP25/5X3.4	5.00
LT2XP25/6RS3.5	4.35



Lexan Thermoclear SunXP sheet can be successfully cold-curved over curved support glazing profiles, to suit many glazing applications, e.g. domes, rooflights, etc. Providing the radius is not below the minimum recommended value, then the introduced stress by cold-curving will not have any adverse effect upon the mechanical performance of the sheet. Sheets must always be bent longitudinally, never across the width of the sheet.

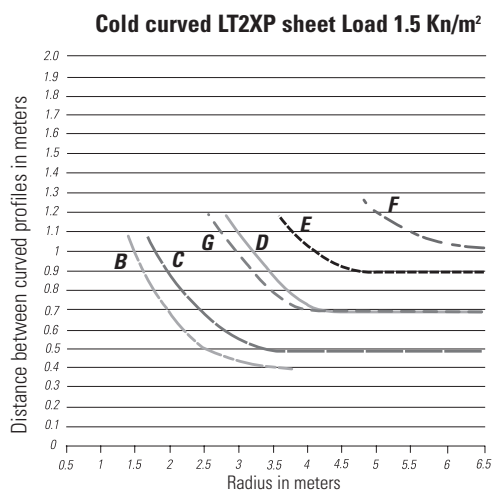
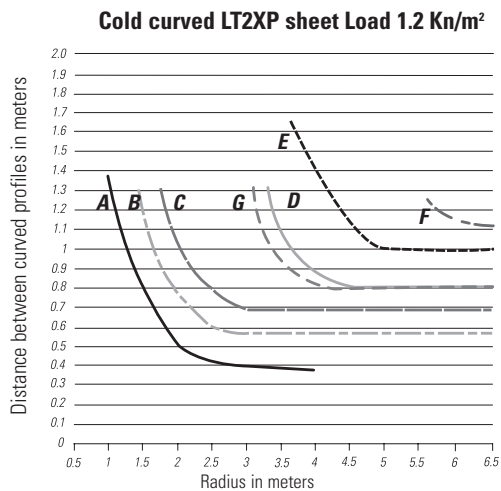
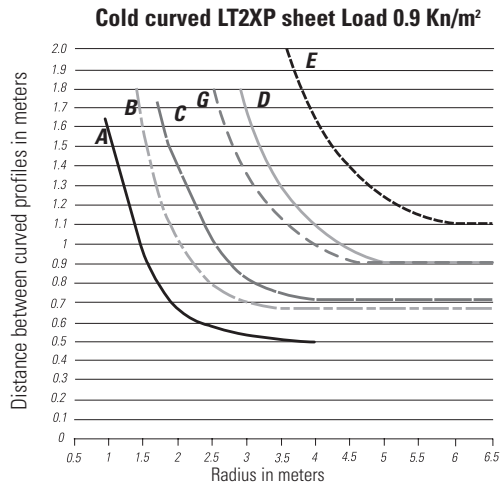
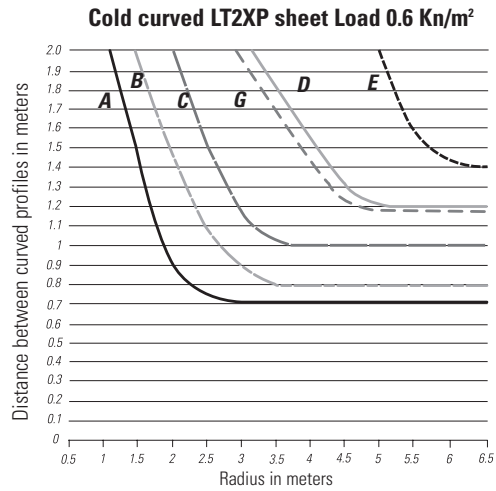
The loading characteristics given in the table below are based upon curved glazing applications clamped on all four edges. The table shows linear buckling load values, (calculated with a safety factor of 2.0) against installation radii for different sheet widths.

At a specified load the distance between the curved profiles can be found for different Lexan Thermoclear SunXP sheet thickness and radii.

Note: LT2XP32/5X3.8 only for flat glazing applications.

LT2XP25/6RS3.5 distance between curved profiles 1250 mm at all radii > 4375 mm until a load of 1500 N/m²

- LT2XP6/2RS (A)
- - - - - LT2XP8/2RS/3RS (B)
- LT2XP10/2RS (C)
- LT2XP16/3TS (D)
- - - - - LT2XP20/5RS (E)
- - - - - LT2XP16/3X (F)
- - - - - LT2XP10/3X (G)



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