EN 1991-1-3:2003 (Eurocode 1): Actions on structures - Part 1-3: General actions - Snow loads
cl. 6.4 - SNOW LOADS on SNOWGUARDS

APAK energy

Measured holding force of a single **APAK 20.0** snowguard : **0.31** [kN]

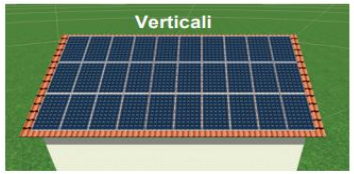
D: distance between snowguards' rows on the PV array surface (= module width for landscape/horizontal configurations, or module lenght for portrait/vertical configurations) : **1.76** [m]

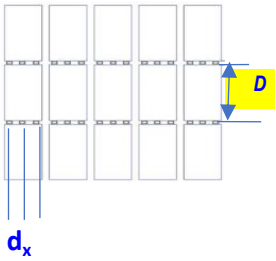
Number of **APAK 20.0** snowguards per linear meter of horizontal or landscape modules

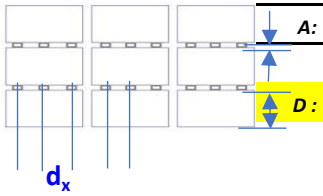
Snow height on the ground [cm]				Snow load		Roof pitch in degrees [°]																							
Fresh	*Settled*	*Old*	*Wet*	N/m²	kN/m²	5		10		15		20		25		30		35		40		45		50		55		60	
50	25	14	13	500	0.5	*0.08*	3	*0.15*	3	*0.22*	3	*0.28*	3	*0.34*	3	*0.38*	3	*0.41*	3	*0.43*	3	*0.44*	3	*0.43*	3	*0.41*	3	*0.38*	3
75	38	21	19	750	0.8	*0.11*	3	*0.23*	3	*0.33*	3	*0.42*	3	*0.51*	3	*0.57*	3	*0.62*	3	*0.65*	3	*0.66*	3	*0.65*	3	*0.62*	3	*0.57*	3
100	50	29	25	1000	1.0	*0.15*	3	*0.30*	3	*0.44*	3	*0.57*	3	*0.67*	3	*0.76*	3	*0.83*	3	*0.87*	3	*0.88*	3	*0.87*	3	*0.83*	3	*0.76*	3
125	63	36	31	1250	1.3	*0.19*	3	*0.38*	3	*0.55*	3	*0.71*	3	*0.84*	3	*0.95*	4	*1.03*	4	*1.08*	4	*1.10*	4	*1.08*	4	*1.03*	4	*0.95*	4
150	75	43	38	1500	1.5	*0.23*	3	*0.45*	3	*0.66*	3	*0.85*	3	*1.01*	4	*1.14*	4	*1.24*	5	*1.30*	5	*1.32*	5	*1.30*	5	*1.24*	5	*1.14*	4
175	88	50	44	1750	1.8	*0.27*	3	*0.53*	3	*0.77*	3	*0.99*	4	*1.18*	4	*1.33*	5	*1.45*	5	*1.52*	5	*1.54*	5	*1.52*	5	*1.45*	5	*1.33*	5
200	100	57	50	2000	2.0	*0.31*	3	*0.60*	3	*0.88*	3	*1.13*	4	*1.35*	5	*1.52*	5	*1.65*	6	*1.73*	6	*1.76*	6	*1.73*	6	*1.65*	6	*1.52*	5
225	113	64	56	2250	2.3	*0.34*	3	*0.68*	3	*0.99*	4	*1.27*	5	*1.52*	5	*1.71*	6	*1.86*	7	*1.95*	7	*1.98*	7	*1.95*	7	*1.86*	7	*1.71*	6
250	125	71	63	2500	2.5	*0.38*	3	*0.75*	3	*1.10*	4	*1.41*	5	*1.69*	6	*1.91*	7	*2.07*	7	*2.17*	7	*2.20*	NO	*2.17*	7	*2.07*	7	*1.91*	7
275	138	79	69	2750	2.8	*0.42*	3	*0.83*	3	*1.21*	4	*1.56*	6	*1.85*	6	*2.10*	7	*2.27*	NO	*2.38*	NO	*2.42*	NO	*2.38*	NO	*2.27*	NO	*2.10*	7
300	150	86	75	3000	3.0	*0.46*	3	*0.90*	3	*1.32*	5	*1.70*	6	*2.02*	7	*2.29*	NO	*2.48*	NO	*2.60*	NO	*2.64*	NO	*2.60*	NO	*2.48*	NO	*2.29*	NO
325	163	93	81	3250	3.3	*0.50*	3	*0.98*	4	*1.43*	5	*1.84*	6	*2.19*	NO	*2.48*	NO	*2.69*	NO	*2.82*	NO	*2.86*	NO	*2.82*	NO	*2.69*	NO	*2.48*	NO
350	175	100	88	3500	3.5	*0.53*	3	*1.05*	4	*1.54*	5	*1.98*	7	*2.36*	NO	*2.67*	NO	*2.89*	NO	*3.03*	NO	*3.08*	NO	*3.03*	NO	*2.89*	NO	*2.67*	NO
375	188	107	94	3750	3.8	*0.57*	3	*1.13*	4	*1.65*	6	*2.12*	7	*2.53*	NO	*2.86*	NO	*3.10*	NO	*3.25*	NO	*3.30*	NO	*3.25*	NO	*3.10*	NO	*2.86*	NO
400	200	114	100	4000	4.0	*0.61*	3	*1.20*	4	*1.76*	6	*2.26*	NO	*2.70*	NO	*3.05*	NO	*3.31*	NO	*3.47*	NO	*3.52*	NO	*3.47*	NO	*3.31*	NO	*3.05*	NO
425	213	121	106	4250	4.3	*0.65*	3	*1.28*	5	*1.87*	7	*2.40*	NO	*2.87*	NO	*3.24*	NO	*3.51*	NO	*3.68*	NO	*3.74*	NO	*3.68*	NO	*3.51*	NO	*3.24*	NO
450	225	129	113	4500	4.5	*0.69*	3	*1.35*	5	*1.98*	7	*2.55*	NO	*3.03*	NO	*3.43*	NO	*3.72*	NO	*3.90*	NO	*3.96*	NO	*3.90*	NO	*3.72*	NO	*3.43*	NO
475	238	136	119	4750	4.8	*0.73*	3	*1.43*	5	*2.09*	7	*2.69*	NO	*3.20*	NO	*3.62*	NO	*3.93*	NO	*4.12*	NO	*4.18*	NO	*4.12*	NO	*3.93*	NO	*3.62*	NO
500	250	143	125	5000	5.0	*0.76*	3	*1.50*	5	*2.20*	NO	*2.83*	NO	*3.37*	NO	*3.81*	NO	*4.13*	NO	*4.33*	NO	*4.40*	NO	*4.33*	NO	*4.13*	NO	*3.81*	NO
525	263	150	131	5250	5.3	*0.80*	3	*1.58*	6	*2.31*	NO	*2.97*	NO	*3.54*	NO	*4.00*	NO	*4.34*	NO	*4.55*	NO	*4.62*	NO	*4.55*	NO	*4.34*	NO	*4.00*	NO
550	275	157	138	5500	5.5	*0.84*	3	*1.66*	6	*2.42*	NO	*3.11*	NO	*3.71*	NO	*4.19*	NO	*4.55*	NO	*4.77*	NO	*4.84*	NO	*4.77*	NO	*4.55*	NO	*4.19*	NO
575	288	164	144	5750	5.8	*0.88*	3	*1.73*	6	*2.53*	NO	*3.25*	NO	*3.88*	NO	*4.38*	NO	*4.75*	NO	*4.98*	NO	*5.06*	NO	*4.98*	NO	*4.75*	NO	*4.38*	NO
600	300	171	150	6000	6.0	*0.92*	3	*1.81*	6	*2.64*	NO	*3.39*	NO	*4.04*	NO	*4.57*	NO	*4.96*	NO	*5.20*	NO	*5.28*	NO	*5.20*	NO	*4.96*	NO	*4.57*	NO
625	313	179	156	6250	6.3	*0.96*	4	*1.88*	7	*2.75*	NO	*3.54*	NO	*4.21*	NO	*4.76*	NO	*5.17*	NO	*5.42*	NO	*5.50*	NO	*5.42*	NO	*5.17*	NO	*4.76*	NO
650	325	186	163	6500	6.5	*0.99*	4	*1.96*	7	*2.86*	NO	*3.68*	NO	*4.38*	NO	*4.95*	NO	*5.38*	NO	*5.63*	NO	*5.72*	NO	*5.63*	NO	*5.38*	NO	*4.95*	NO
675	338	193	169	6750	6.8	*1.03*	4	*2.03*	7	*2.97*	NO	*3.82*	NO	*4.55*	NO	*5.14*	NO	*5.58*	NO	*5.85*	NO	*5.94*	NO	*5.85*	NO	*5.58*	NO	*5.14*	NO

Resulting snow load on snowguards in kN, depending on snow load in kN/m² and roof pitch, according to EN 1991-1-3, cl. 6.4

Color coding - n. of APAK snowguards per linear meter in the horizontal direction:	3	4	5	6	7	NO
Resulting distance d_x between snowguards [cm]:	*50.0*	*33.3*	*25.0*	*20.0*	*16.7*	Snowguards not effective







A:	*Distance between two adiacent PV modules' edges*	***20.0 mm***

INPUT: maximum distance in the horizontal plan between rows of snowguards or between the first row of hooks from top and the ridge

Disclaimer: the holding force of a single snowguard was evaluated as reported in the Test Report n. 24-125-A-REP1-rev1, dated 14/11/2024, issued by SUPSI PVlab. The test results relate only to the tested object(s), as detailed in the product identification pages of the test report. The sampling has been performed by the customer. SUPSI PVLab does not assume responsibility for the liability of any information, data and specifications provided by the applicant and used within the test report and in this calculation sheet.