










PV modules comparison 2024

Manufacturer	Series	Product / performance guarantee (a)	Annual power loss (% / a)	Max. Power (Wp)	Power Output Tolerance	Efficiency (%)	Temp. coefficient (% / °C)	Cell type	Cell technology	Bifacial	Half-cut	Optimizers	Backsheet	Glass/Glass	Snow load (Pa)	Wind load (Pa)	Module dimensions (L x W x H)	Weight (kg)			
AIKO 	Black Hole	15 / 30	0.35	450	+ 3 %	23.0	- 0.29	n-Type	ABC	-	Halfcut	-	Black	-	5,400	2,400	1722 x 1134 x 30	20.5			
	Black Hole Dual Glass	25 / 30		445		22.8							✓	24.0							
EGING PV 	Star Series	12 / 25	0.53	390 – 410	+ 3 %	19.97 – 20.99	- 0.35	p-Type	PERC	-	Half-cut	-	White	-	5,400	2,400	1722 x 1134 x 30	20.2			
Jinko Solar 	Tiger Neo N-Type 54HL4	15 / 30	0.40	415 – 425	+ 3 %	21.25 – 21.76	- 0.30	n-Type	TopCon	-	Half-cut	-	White	-	5,400	2,400	1722 x 1134 x 30	22.0			
	Tiger Neo Rectangular 54HL4R			435 – 440		21.77 – 22.52							Black								
	Tiger Neo Rectangular 54HL4R Black	25 / 30		425 – 445		21.27 – 22.27	White		6,000				4,000		1762 x 1134 x 30						
	Tiger N-Type 60TR	15 / 30		370 – 380		21.25 – 21.54	- 0.34		Tailing Ribbon				White		5,400	2,400	1692 x 1029 x 30	19.0			
中來股份 	Niwa Black Series	25 / 30	0.40	410 – 435	+ 5 W	21.25 – 22.27	- 0.30	n-Type	TopCon	✓	Half-cut	-	Black	✓	5,400	2,400	1722 x 1134 x 30	24.5			
	Niwa Pro Series			420 – 440		21.51 – 22.53							Transparent								
	JW-HD-120N	15 / 30		390		21.38	- 0.31						White				1756 x 1039 x 30	23.0			
LONGI 	Hi-MO 5m LR5-54 HIH	12 / 25	0.55	400 – 420	+ 3 %	20.50 – 21.50	- 0.34	p-Type	PERC	-	Half-cut	-	White	-	5,400	2,400	1722 x 1134 x 30	20.8			
	Hi-MO X6 Explorer LR5-54 HTH	15 / 25		22.30		HPBC			Black												
	Hi-MO X6 Explorer LR5-54 HTB	25 / 25	435	22.00					- 0.29				White								
	Hi-MO X6 Scientist LR5-54 HTH			22.80																	
MEYER BURGER 	Meyer Burger Black	25 / 25	0.25	390 – 395	+ 5 W	21.20 – 21.50	- 0.259	n-Type	HJT	-	Half-cut	-	Black	-	5,400	2,400	1767 x 1041 x 35	19.7			
	Meyer Burger White			395 – 400		21.50 – 21.70							White						✓		
	Meyer Burger Glass	30 / 30		380 – 385		21.20 – 21.50							✓				Transparent		-	1722 x 1041 x 35	24.4
solar edge 	Smart Module	25 / 25	-	370 – 375	+ 5 W	19.80 – 20.07	- 0.364	n-Type	PERC	-	Halfcut	✓	White	-	5,400	2,400	1755 x 1038 x 40	22.0			
	Smart Module Black			370		20.31							Black								
solar fabrik 	Mono S4 Halfcut	15 / 25	-	405 – 415	+ 3 %	20.19 – 21.43	- 0.33	p-Type	PERC	-	Half-cut	-	White	-	5,400	2,400	1722 x 1134 x 30	21.2			
	Mono S4 Halfcut Black			405		20.74							Black				1722 x 1134 x 35	21.4			
	Mono S4 - Innovation Powerline N	30 / 30		425		21.80	- 0.30		Transparent				✓				1722 x 1134 x 30	23.4			
	Mono S4 - Trend Powerline N			440		22.02	- 0.30		White								24.1				
	Mono S5 - Installer Series N			315		21.69	Transparent		1650 x 880 x 30								18.5				
Trinasolar 	Vertex S (R) Black	15 / 25	0.55	415 – 420	+ 5 W	20.80 – 21.00	0.34	p-Type	PERC	-	Triple-cut-cells	-	Black	-	6,000	4,000	1762 x 1134 x 30	20.8			
	Vertex S (R)			420 – 425		21.00 – 21.30							White					21.8			
	Vertex S + (R)	25 / 30		430 – 445		21.50 – 22.50	- 0.3						n-Type					TopCon	✓	5,400	21.1
	Vertex S + (R) Bifazial			435		21.80	✓						Transparent					21			

