AS/NZS ISO 21987:2011 Ophthalmic optics - Mounted spectacle lenses (Abridged)

SINGLE VISION & MULTIFOCALS LENSES

Back vertex power			Tolerance				
			Each meridian	Tolerance on cylinder power			
				≥0.00 and ≤0.75	>0.75 and ≤4.00	>4.00 and ≤6.00	>6.00
D			D	D			
0.00	to	+/-3.00	+/-0.12	+/-0.12	+/-0.09	+/-0.12	+/-0.18
+/-3.25	to	+/-6.00	+/-0.12	+/-0.12	+/-0.12	+/-0.12	+/-0.18
+/-6.25	to	+/-9.00	+/-0.12	+/-0.12	+/-0.12	+/-0.18	+/-0.18
+/-9.25	to	+/-12.00	+/-0.18	+/-0.12	+/-0.12	+/-0.18	+/-0.25
+/-12.25	to	+/-20.00	+/-0.25	+/-0.18	+/-0.18	+/-0.25	+/-0.25
More than		+/-20.00	+/-0.25	+/-0.25	+/-0.25	+/-0.25	+/-0.37

AXIS

Cylinder power	Tolerance
D	(°)
≥0.125 and ≤0.25	+/-16
>0.25 and ≤0.50	+/-9
>0.50 and ≤0.75	+/-6
>0.75 and ≤1.50	+/-4
>1.50 and ≤2.50	+/-3
>2.50	+/-2

ADD POWER

Addition	≤4.00	>4.00
Tolerance	+/-0.12	+/-0.18

PROGRESSIVE & DEGRESSIVES LENSES

Back vertex power			Tolerance				
			Each meridian	Tolerance on cylinder power			
				≥0.00 and ≤0.75	>0.75 and ≤4.00	>4.00 and ≤6.00	>6.00
D			D	D			
0.00	to	+/-6.00	+/-0.12	+/-0.12	+/-0.18	+/-0.18	+/-0.25
+/-6.25	to	+/-9.00	+/-0.18	+/-0.18	+/-0.18	+/-0.18	+/-0.25
+/-9.25	to	+/-12.00	+/-0.18	+/-0.18	+/-0.18	+/-0.25	+/-0.25
+-/12.25	to	+/-20.00	+/-0.25	+/-0.18	+/-0.25	+/-0.25	+/-0.25
More than		+/-20.00	+/-0.37	+/-0.25	+/-0.25	+/-0.37	+/-0.37

AXIS

Cylinder power	Tolerance
D	(°)
≥0.125 and ≤0.25	+/-16
>0.25 and ≤0.50	+/-9
>0.50 and ≤0.75	+/-6
>0.75 and ≤1.50	+/-4
>1.50 and ≤2.50	+/-3
>2.50	+/-2

ADD POWER

Addition	≤4.00	>4.00
Tolerance	+/-0.12	+/-0.18

PRISM IMBALANCE

Highest absolute ordered component prism value	Tolerance on horizontal component (Relative to the ordered centration distance)	Tolerance of vertical component (Relative to the ordered centration distance)
≥0.00 to ≤2.00	For powers [a] ≥0.00 to ≤3.25D - 0.67Δ For powers [a] >3.25D the prismatic effect of 2.0 mm displacement	For powers [a] ≥0.00 to ≤5.00D - 0.50Δ For powers [a] >5.00D the prismatic effect of 1.0 mm displacement
>2.00 to ≤10.00	For powers [a] ≥0.00 to ≤3.25D - 1.00Δ For powers [a] >3.25D 0.33Δ + the prismatic effect of 2.0 mm displacement	For powers [a] ≥0.00 to ≤5.00D - 0.75Δ For powers [a] >5.00D 0.25Δ + the prismatic effect of 1.0 mm displacement
>10.00	For powers [a] ≥0.00 to ≤3.25D - 1.25Δ For powers [a] >3.25D 0.58Δ + the prismatic effect of 2.0 mm displacement	For powers [a] ≥0.00 to ≤5.00D - 1.00Δ For powers [a] >5.00D 0.50Δ + the prismatic effect of 1.0 mm displacement

a These tolerances are applied to the lowest absolute principal power of the pair of lenses.

SYMBOLS USED IN TABLE	
D	Diopters
(°)	Degrees
<	Less than
>	Greater than
≤	Equal to or less than
≥	Equal to or greater than
ET	Edge thickness
CT	Centre thickness

POSITIONING TOLERANCES

Multifocals

Vertical positions (heights) of segments
- Within +/-1.00 mm of that ordered
- Difference between mounted pair should not exceed 1.00 mm

Horizontal positions of segments
- Within +/-1.00 mm of ordered monocular centration points
- Difference between mounted pair should not exceed 1.00 mm

Segment tilt for straight top or curved top segments
- Should not exceed 2 degrees

Progressive power and degressive power lenses

Vertical positions (heights) of fitting point
- Within +/-1.00 mm of that ordered
- Difference between mounted pair should not exceed 1.00 mm

Horizontal positions of segments
- Within +/-1.00 mm of ordered monocular centration points

Alignment marking tilt
- Should not exceed 2 degrees from the horizontal

THICK

Material	Thickness		
	Plus ET	Minus CT	
Low index	0.80	2.00	Tolerance +/-0.3mm
Mid index	0.80	1.80	
Polycarbonate	0.80	1.30	
Hi index	0.80	1.50	

Thickness tolerance
- The thickness of the lens may be specified by the manufacturer or be agreed between the customer and the supplier.
- Thickness shall be measured at the reference point of the front surface and normal to this surface. It shall not deviate from the ordered or agreed value by more than ± 0,3 mm.