

V-speed designator	Description
V1	Critical engine failure recognition speed
V2	Takeoff safety speed. The speed at which the aircraft may safely become airborne with one engine inoperative
V2min	Minimum takeoff safety speed
V3	Flap retraction speed
V4	Steady initial climb speed. The all engines operating take-off climb speed used to the point where acceleration to flap retraction speed is initiated. Should be attained by a gross height of 400 feet
VA	Design manoeuvring speed. This is the speed above which it is unwise to make full application of any single flight control (or "pull to the stops") as it may generate a force greater than the aircraft's structural limitations
Vat	Indicated airspeed at threshold, which is equal to the stall speed VS0 multiplied by 1.3 or stall speed VS1g multiplied by 1.23 in the landing configuration at the maximum certificated landing mass. If both VS0 and VS1g are available, the higher resulting Vat shall be applied. Also called "approach speed"
VB	Design speed for maximum gust intensity
VC	Design cruise speed, used to show compliance with gust intensity loading
Vcef	See V1; generally used in documentation of military aircraft performance
VD	Design diving speed
VDF	Demonstrated flight diving speed
VEF	The speed at which the Critical engine is assumed to fail during takeoff
VF	Designed flap speed
VFC	Maximum speed for stability characteristics
VFE	Maximum flap extended speed
VFTO	Final takeoff speed
VH	Maximum speed in level flight at maximum continuous power
VLE	Maximum landing gear extended speed. This is the maximum speed at which it is safe to fly a retractable gear aircraft with the landing gear extended
VLO	Maximum landing gear operating speed. This is the maximum speed at which it is safe to extend or retract the landing gear on a retractable gear aircraft
VLOF	Lift-off speed
VMC	Minimum control speed with Critical engine inoperative
Vmca	Minimum control speed in the take-off configuration – the minimum calibrated airspeed at which the aircraft is directionally controllable in flight with a sudden Critical engine failure and takeoff power on the operative engine(s)
Vmcg	Minimum control speed on the ground – the minimum airspeed at which the

	aircraft is directionally controllable during acceleration along the runway with one engine inoperative, takeoff power on the operative engine(s), and with nose wheel steering assumed inoperative
Vmcl	Minimum control speed in the landing configuration with one engine inoperative
VMO	Maximum operating limit speed
VMU	Minimum unstick speed
VNE	Never exceed speed
VNO	Maximum structural cruising speed or maximum speed for normal operations
VO	Maximum operating manoeuvring speed
VR	Rotation speed. The speed at which the aircraft's nose wheel leaves the ground. Also see note on Vref below
Vrot	Used instead of VR (in discussions of the takeoff performance of military aircraft) to denote rotation speed in conjunction with the term Vref (refusal speed).
VRef	Landing reference speed or threshold crossing speed
VS	Stall speed or minimum steady flight speed for which the aircraft is still controllable
VS0	Stall speed or minimum flight speed in landing configuration
VS1	Stall speed or minimum steady flight speed for which the aircraft is still controllable in a specific configuration
VSR	Reference stall speed
VSR0	Reference stall speed in landing configuration
VSR1	Reference stall speed in a specific configuration
VSW	Speed at which the stall warning will occur
VX	Speed that will allow for best angle of climb
VY	Speed that will allow for the best rate of climb