FREE CALCULATOR

Oil viscosity chart: SAE grades and ISO VG

What engine oil grades like 15W-40 mean under SAE J300, the cold and hot limits for each grade, and the ISO VG grades used for hydraulic and industrial oils.

CHART

SAE J300 winter grades (low temperature)

WINTER GRADE	COLD CRANKING, MAX (CP AT °C)	PUMPING, MAX (CP AT °C)	VISCOSITY AT 100 °C, MI
0W	6,200 @-35 °C	60,000 @-40 °C	3.8
5W	6,600 @-30 °C	60,000 @-35 °C	3.8
10W	7,000 @-25 °C	60,000 @-30 °C	4.1
15W	7,000 @-20 °C	60,000 @-25 °C	5.6
20W	9,500 @-15 °C	60,000 @-20 °C	5.6
25W	13,000 @-10 °C	60,000 @-15 °C	9.3

CHART

SAE J300 hot grades (high temperature)

HOT GRADE	VISCOSITY AT 100 °C, MIN (CST)	VISCOSITY AT 100 °C, MAX (CST)	HTHS AT 150 °C, MIN (
8	4.0	under 6.1	1.70
12	5.0	under 7.1	2.0
16	6.1	under 8.2	2.3
20	6.9	under 9.3	2.6

HOT GRADE	VISCOSITY AT 100 °C, MIN (CST)	VISCOSITY AT 100 °C, MAX (CST)	HTHS AT 150 °C, MIN (C
30	9.3	under 12.5	2.9
40	12.5	under 16.3	3.5 or 3.7
50	16.3	under 21.9	3.7
60	21.9	under 26.1	3.7

SAE 40 HTHS: 3.5 cP for 0W-40, 5W-40 and 10W-40; 3.7 cP for 15W-40, 20W-40, 25W-40 and straight 40.

CHART

ISO VG grades (hydraulic and industrial oils)

ISO VG	MIDPOINT AT 40 °C (CST)	MINIMUM (CST)	MAXIMUM (CST)
VG 2	2	1.8	2.2
VG 3	3	2.7	3.3
VG 5	5	4.5	5.5
VG 7	7	6.3	7.7
VG 10	10	9	11
VG 15	15	13.5	16.5
VG 22	22	19.8	24.2
VG 32	32	28.8	35.2
VG 46	46	41.4	50.6
VG 68	68	61.2	74.8
VG 100	100	90	110
VG 150	150	135	165
VG 220	220	198	242
VG 320	320	288	352
VG 460	460	414	506

ISO VG	MIDPOINT AT 40 °C (CST)	MINIMUM (CST)	MAXIMUM (CST)
VG 680	680	612	748
VG 1000	1000	900	1100
VG 1500	1500	1350	1650

Free chart from fleetzap.com/tools/oil-viscosity-chart