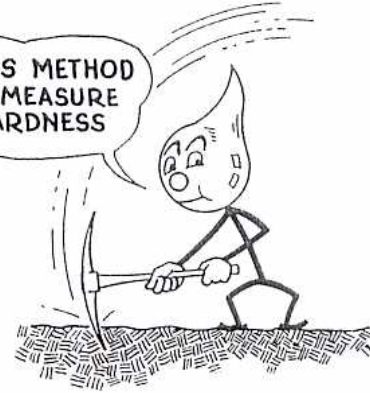


BY THIS METHOD
I CAN MEASURE
THE HARDNESS



WHAT IS PENETRATION?

Penetration, with respect to a lubricating grease, is the depth (in tenths of a millimeter) that a standard cone penetrates a sample of the grease under prescribed conditions of weight, time, and temperature.

WHY THE TEST?

Penetration is a measure of consistency of a grease to determine its plasticity.

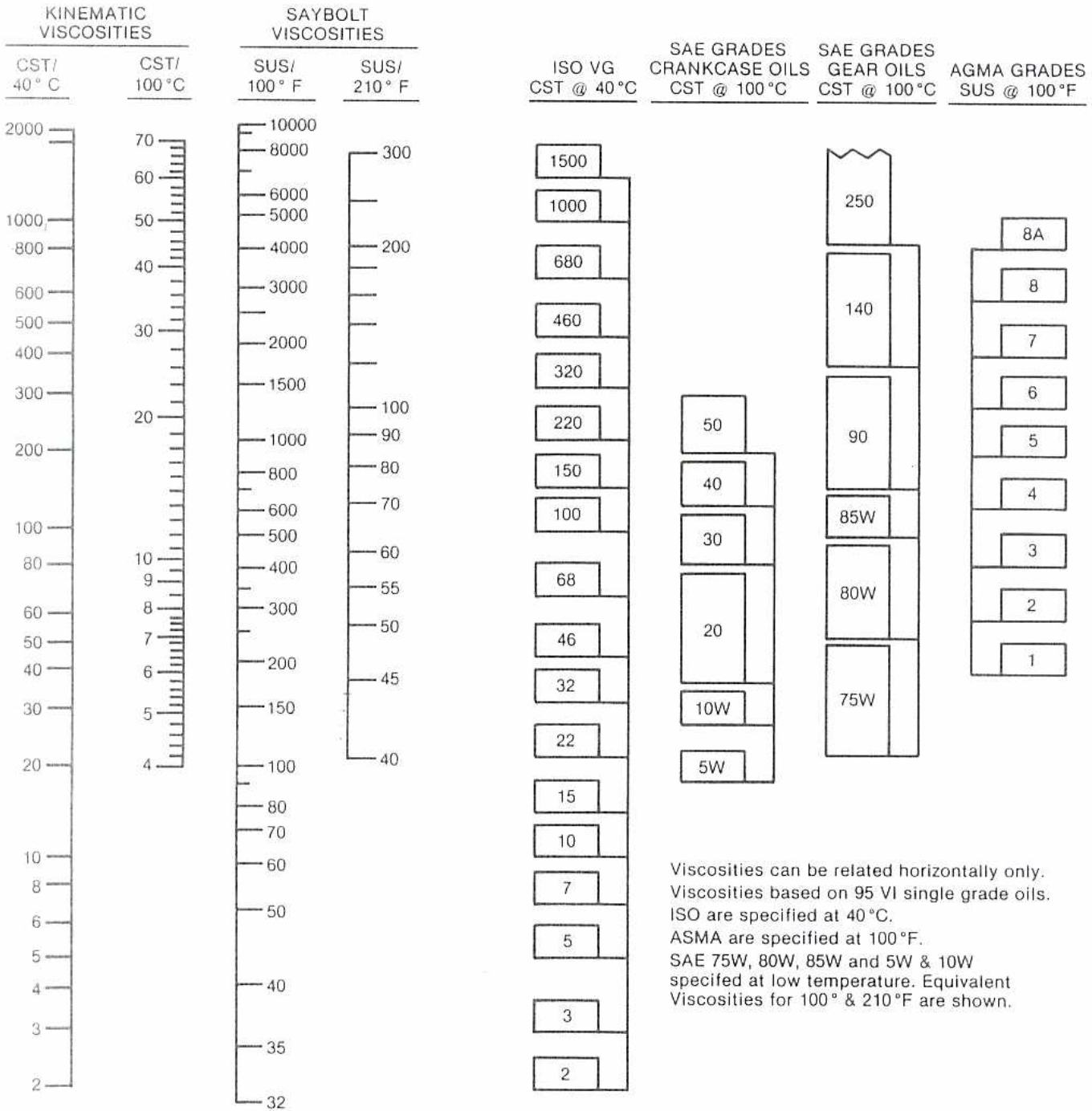
HOW TO DETERMINE PENETRATION

The grease is brought to a standard temperature in a container which is then placed directly below the cone tip. Release of the plunger permits the cone to drop into the grease. The depth of penetration in tenths of millimeters is read on the scale of the penetrometer.

TYPICAL PENETRATION RESULTS

NLGI Grade	ASTM Penetration
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

APPROXIMATE VISCOSITY EQUIVALENTS



Viscosities can be related horizontally only.
 Viscosities based on 95 VI single grade oils.
 ISO are specified at 40 °C.
 ASMA are specified at 100 °F.
 SAE 75W, 80W, 85W and 5W & 10W
 specified at low temperature. Equivalent
 Viscosities for 100 ° & 210 °F are shown.

ISO VISCOSITY GRADE CONVERSIONS

ISO VISCOSITY GRADE	MID-POINT KINEMATIC VISCOSITY	KINEMATIC VISCOSITY LIMITS cSt AT 40 °C (104 °F)		ASTM, SAYBOLT VISCOSITY NUMBER	SAYBOLT VISCOSITY SUS 100 °F (37.8 °C)	
		MIN.	MAX.		MIN.	MAX.
2	2.2	1.98	2.42	32	34.0	35.5
3	3.2	2.88	3.52	36	36.5	38.2
5	4.6	4.14	5.06	40	39.9	42.7
7	6.8	6.12	7.48	50	45.7	50.3
10	10	9.00	11.0	60	55.5	62.8
15	15	13.5	16.5	75	72	83
22	22	19.8	24.2	105	96	115
32	32	28.8	35.2	150	135	164
46	46	41.4	50.6	215	191	234
68	68	61.2	74.8	315	280	345
100	100	90.0	110	465	410	500
150	150	135	165	700	615	750
220	220	198	242	1000	900	1110
320	320	288	352	1500	1310	1600
460	460	414	506	2150	1880	2300
680	680	612	748	3150	2800	3400
1000	1000	900	1100	4650	4100	5000
1500	1500	1350	1650	7000	6100	7500