Compression Lube Quantity Calculation

Estimated Quantity of Lubricant

A. Compressor cylinders pumping air or clean, dry, natural gas lubricant with mineral oil

- Quantity to cylinder bores, on either single stage or multi-stage compressors, is to be about one pint per 2,000,000 square feet of swept surface. The following formula may be used:

$$\text{Pts/Day} = \frac{\text{Bore (In.)} \times \text{stroke (In.)} \times \text{RPM}}{31800}$$

(Quantities may be picked off chart)

- Quantity to cylinder packing

On single stage compressors each packing feed is to receive a volume equal to that supplied to each bore feed, except when bore has only one feed, then packing feed is to receive a volume equal to one half the volume supplied to cylinder bore. The quantity of oil supplied to each packing is to be not less than one half a pint per day.

On multi-stage compressors the quantity of oil supplied to the second largest cylinder packing is determined the same as for a single stage compressor as outlined above, and the same quantity of oil is to be supplied to packing feeds on all cylinders on the compressor.

B. Compressor cylinders pumping air or clean, dry, natural gas lubricated with synthetic lubricant. The quantities of lubricant as determined in "A" to be increased by 50%.

C. If compressor is pumping wet or dirty gas, special lubrication may be required.

Compression Lube Quantity Calculation

Example: 14-1/2" and 11" and 9" and 5-1/4" x 15 410KVG
Pumping clean, dry, natural gas lubricated with mineral oil.

Cyl. Size	Disch Press	# Bore Feeds	# Packing Feeds
14-1/2	470 PSIG	1	1
11	511 PSIG	1	1
9	1500 PSIG	1	1
5-1/4	4200 PSIG	1	2

Estimated Quantity of Oil Required

14-1/2" Bore – $\frac{14.5 \times 15 \times 330}{31800}$ = 2.26 pts/day

11" Bore – $\frac{11 \times 15 \times 330}{31800}$ = 1.72 pts/day

9" Bore – $\frac{9 \times 15 \times 330}{31800}$ = 1.40 pts/day

5-1/4" Bore – $\frac{5.25 \times 15 \times 330}{31800}$ = 0.82 pts/day

Each packing point receives ½ quantity to second stage cylinder bore $\frac{1.72}{}$ = 0.86 pts/day

Oil Requirement Chart

TYPE / BORE	KVG KVS TVS JVG	SVG	KVR	SVS	TVS	KVT KVH	XVG
	0.47	0.45	0.51	0.57	0.49	0.48	0.40
3-1/2	0.55	0.53	0.60	0.67	0.57	0.56	0.46
4	0.62	0.60	0.68	0.76	0.66	0.64	0.53
4-1/2	0.70	0.68	0.77	0.86	0.74	0.73	0.59
5	0.78	0.76	0.86	0.95	0.82	0.81	0.66
5-1/2	0.86	0.83	0.94	1.05	0.90	0.89	0.73
6	0.93	0.91	1.03	1.14	0.98	0.97	0.79
6-1/2	1.01	0.98	1.11	1.24	1.07	1.05	0.86
7	1.09	1.06	1.20	1.33	1.15	1.13	0.93
7-1/2	1.17	1.13	1.28	1.43	1.23	1.21	0.99
8	1.25	1.21	1.36	1.52	1.31	1.29	1.06
8-1/2	1.33	1.28	1.45	1.62	1.39	1.37	1.13
9	1.40	1.36	1.54	1.71	1.48	1.45	1.19
9-1/2	1.18	1.44	1.63	1.81	1.56	1.53	1.26
10	1.56	1.51	1.71	1.90	1.64	1.61	1.32
10-1/2	1.64	1.59	1.80	2.00	1.72	1.69	1.39
11	1.72	1.66	1.88	2.09	1.850	1.77	1.45
11-1/2	1.79	1.74	1.97	2.19	1.89	1.85	1.52
12	1.87	1.81	2.05	2.28	1.97	1.93	1.58
12-1/2	1.95	1.89	2.14	2.38	2.05	2.01	1.65
13	2.03	1.96	2.22	2.47	2.13	2.09	1.72
13-1/2	1.95	1.89	2.14	2.38	2.05	2.01	1.65
14	2.18	2.11	2.39	2.66	2.30	2.25	1.85
14-1/2	2.26	2.19	2.48	2.76	2.38	2.34	1.92
15	2.34	2.27	2.57	2.85	2. 46	2.42	1.95
15-1/2	2.42	2.34	2.65	2.95	2.54	2.50	3.05
16	2.50	2.42	2.74	3.04	2.69	2.58	2.12
16-1/2	2.52	2.49	2.82	3.14	2.71	2.6	2.18
17-1/2	2.73	2.64	2.99	3.33	2.87	2.82	2.31
18	2.81	2.72	3.08	3.42	2.96	2.90	2.35
18-1/2	2.89	2.79	3.16	3.52	3.04	2.98	2.44
19	2.96	2.87	3.25	3.61	3.12	3.06	2.51
19-1/2	3.04	2.95	3.34	3.71	3.20	3.14	2.58
20	3.12	3.02	3.42	3.80	3.28	3.22	2.64
20-1/2	3.20	3.10	3.51	3.90	3.36	3.30	2.71
21	3.28	3.17	3.59	3.99	3.44	3.38	2.77
21-1/2	3.35	3.25	3.68	409	3.53	3.6	2.84
22	3.43	3.32	3.76	4.18	3.61	3.54	2.91
22-1/2	3.51	3.40	3.85	4.28	3.69	3.62	2.97
23	3.59	3.47	3.93	4.37	3.78	3.70	3.04
23-1/2	3.67	3.55	4.02	4.47	3.86	3.78	3.10
24	3.74	3.62	4.10	4.56	3.94	3.86	3.17
24-1/2	3.82	3.70	4.19	4.66	4.02	3.95	3.24
25	3.90	3.78	4.28	4.75	4.10	4.03	3.30
25-1/2	3.98	3.85	4.36	4.85	4.18	4.11	3.37
26	4.06	3.93	4.45	4.94	4.27	4.19	3.44
26-1/2	4.13	4.00	4.53	5.04	4.35	4.327	3.50
27	4.21	4.08	4.62	5.13	4.43	4.35	3.56
27-1/2	4.29	4.15	4.70	5.23	4.51	4.43	3.63
28	4.37	4.23	4.79	5.32	4.59	4.51	3.70
28-1/2	4.45	4.30	4.87	5.42	4.67	4.59	3.76
29	4.52	4.38	4.96	5.51	4.76	4.67	3.83
29-1/2	4.60	4.46	5.04	5.61	4.84	4.75	3.89
30	4.68	4.53	5.12	5.70	4.92	4.83	3.96