Table 7.1-12. DECK-FITTING LOSS FACTORS, K_{Fa}, K_{Fb}, AND m, AND TYPICAL NUMBER OF DECK FITTINGS, N_F[a]

Fitting Type And Construction Details	Loss Factors			Typical Number Of Fittings, N_F
	K_{Fa} (lb-mole/yr)	K_{Fb} (lb-mole/(mph)^m-yr)	m (dimensionless)	
Access hatch (24-inch diameter well)				1
Bolted cover, gasketed[b]	1.6	0	0	
Unbolted cover, ungasketed	36[c]	5.9	1.2	
Unbolted cover, gasketed	31	5.2	1.3	
Fixed roof support column well[d]				N_C (Table 7.1-11)
Round pipe, ungasketed sliding cover	31			
Round pipe, gasketed sliding cover	25			
Round pipe, flexible fabric sleeve seal	10			
Built-up column, ungasketed sliding cover[c]	51			
Built-up column, gasketed sliding cover	33			
Unslotted guide-pole and well (8-inch diameter unslotted pole, 21-inch diameter well)				1
Ungasketed sliding cover[b]	31	150	1.4	
Ungasketed sliding cover w/pole	25	2.2	2.1	
sleeveGasketed sliding cover	25	13	2.2	
Gasketed sliding cover w/pole wiper	14	3.7	0.78	
Gasketed sliding cover w/pole sleeve	8.6	12	0.81	
Slotted guide-pole/sample well (8-inch diameter slotted pole, 21-inch diameter well)[e]				f
Ungasketed or gasketed sliding cover	43	270	1.4	
Ungasketed or gasketed sliding cover, with float[g]	31	36	2.0	
Gasketed sliding cover, with pole wiper	41	48	1.4	
Gasketed sliding cover, with pole sleeve	11	46	1.4	
Gasketed sliding cover, with pole sleeve and pole wiper	8.3	4.4	1.6	
Gasketed sliding cover, with float and pole wiper[g]	21	7.9	1.8	
Gasketed sliding cover, with float, pole sleeve, and pole wiper[h]	11	9.9	0.89	
Gauge-float well (automatic gauge)				1
Unbolted cover, ungasketed[b]	14[c]	5.4	1.1	
Unbolted cover, gasketed	4.3	17	0.38	
Bolted cover, gasketed	2.8	0	0	
Gauge-hatch/sample port				1
Weighted mechanical actuation, gasketed[b]	0.47	0.02	0.97	
Weighted mechanical actuation, ungasketed	2.3	0	0	
Slit fabric seal, 10% open area[c]	12			
Vacuum breaker				N_{yb} (Table 7.1-13)[j]
Weighted mechanical actuation, ungasketed	7.8	0.01	4.0	Deck drain (3-inch diameter)
Weighted mechanical actuation, gasketed[b]	6.2[c]	1.2	0.94	Open[b]
				90% closed
				1.5
				1.8
				0.21
				0.14
				1.7
				$1.1N_d$ (Table 7.1-13)
Stub drain (1-inch diameter)[k]	1.2			N_d (Table 7.1-15)
Deck leg (3-inch diameter)				N_l (Table 7.1-15), (Table 7.1-14)
Adjustable, internal floating deck[c]	7.9			
Adjustable, pontoon area - ungasketed[b]	2.0	0.37	0.91	
Adjustable, pontoon area - gasketed	1.3	0.08	0.65	
Adjustable, pontoon area - sock	1.2	0.14	0.65	
Adjustable, center area - ungasketed[b]	0.82	0.53	0.14	
Adjustable, center area - gasketed[m]	0.53	0.11	0.13	
Adjustable, center area - sock[m]	0.49	0.16	0.14	
Adjustable, double-deck roofs	0.82	0.53	0.14	
Fixed	0	0	0	

Fitting Type And Construction Details	Loss Factors			Typical Number Of Fittings, N_F
	K_{Fa} (lb-mole/yr)	K_{Fb} (lb-mole/(mph)^m-yr)	m (dimensionless)	
Rim vent[n]				1
Weighted mechanical actuation, ungasketed	0.68	1.8	1.0	
Weighted mechanical actuation, gasketed[b]	0.71	0.10	1.0	
Ladder well				1[d]
Sliding cover, ungasketed[c]	98			
Sliding cover, gasketed	56			

Note: The deck-fitting loss factors, K_{Fa}, K_{Fb}, and m, may only be used for wind speeds below 15 miles per hour.

[a] Reference 5, unless otherwise indicated.

[b] If no specific information is available, this value can be assumed to represent the most common or typical deck fitting currently in use for external and domed external floating roof tanks.

[c] If no specific information is available, this value can be assumed to represent the most common or typical deck fitting currently in use for internal floating roof tanks.

[d] Column wells and ladder wells are not typically used with self supported fixed roofs.

[e] References 16,19.

[f] A slotted guide-pole/sample well is an optional fitting and is not typically used.

[g] Tests were conducted with floats positioned with the float wiper at and 1 inch above the sliding cover. The user is cautioned against applying these factors to floats that are positioned with the wiper or top of the float below the sliding cover ("short floats"). The emission factor for such a float is expected to be between the factors for a guidepole without a float and with a float, depending upon the position of the float top and/or wiper within the guidepole.

[h] Tests were conducted with floats positioned with the float wiper at varying heights with respect to the sliding cover. This fitting configuration also includes a pole sleeve which restricts the airflow from the well vapor space into the slotted guidepole. Consequently, the float position within the guidepole (at, above, or below the sliding cover) is not expected to significantly affect emission levels for this fitting configuration, since the function of the pole sleeve is to restrict the flow of vapor from the vapor space below the deck into the guidepole.

[j] $N_{vb} = 1$ for internal floating roof tanks.

[k] Stub drains are not used on welded contact internal floating decks.

[m] These loss factors were derived using the results from pontoon-area deck legs with gaskets and socks.

[n] Rim vents are used only with mechanical-shoe primary seals.