

Beam-Balanced Pumping Units



Beam-Balanced Pumping Units

Main Specifications

		Model						
		B25D-67-36	B40D-89-48	B57D-76-48	B57D-109-54	B80D-133-54	B80D-119-64	
Basic parameters	Rated polished rod capacity, lbf	6,700	8,900	7,600	10,900	13,300	11,900	
	Designated stroke length, in	36	48	48	54	54	64	
	Running speed, rpm	20	20	20	20	20	20	
	Balance type	Beam balanced	Beam balanced	Beam balanced	Beam balanced	Beam balanced	Beam balanced	
	Crank direction	Clockwise or counterclockwise	Clockwise or counterclockwise	Clockwise or counterclockwise	Clockwise or counterclockwise	Clockwise or counterclockwise	Clockwise or counterclockwise	
Gear reducer	Rated torque, lbf.in	25,000	40,000	57,000	57,000	80,000	80,000	
	Model	25D	40D	57D	57D	80D	80D	
	Gear type	Double reduction, double helical, involute type						
	Gear ratio	32.85	32.18	31.73	31.73	31.747	31.747	
	Center range, in	16.54	17.72	19.685	19.685	21.65	21.65	
	Center height, in	11.811	12.2	13.386	13.386	13.78	13.78	
	Oil storage quantity, galUS	8	9	12	12	16	16	
	Lubricant	ISO VG 150 gear lubricant in winter, ISO VG 220 gear lubricant oil in summer						
	Sheave diameter, in	20	20	25	25	25	25	
	Sheave groove type	2B	3B	3B	3B	3B	3B	
	Balance assembly	Maximum ECB, [†] lbf	3,201	5,503	5,503	6,015	7,281	6,229
Weight of crank, lbm		96×2	211×2	211×2	211×2	211×2	213×2	
Crank pin bore position, in		Stroke 1	12.01	17.7165	17.7165	17.7165	17.7165	18.11
		Stroke 2	12.01	17.7165	17.7165	17.7165	17.7165	18.11
		Stroke 3	7.99	–	–	–	–	–
		Stroke 4	7.99	–	–	–	–	–
Distance between equalizer and center bearings, in		Stroke 1	26.65	45.28	45.28	45.28	45.28	41.93
		Stroke 2	32.68	58.27	58.27	58.27	58.27	54.92
		Stroke 3	26.65	–	–	–	–	–
		Stroke 4	32.68	–	–	–	–	–
Stroke length, in		Stroke 1	35.90	48.67	48.67	54.03	54.03	64.11
		Stroke 2	28.80	37.64	37.64	41.53	41.53	47.94
		Stroke 3	23.30	–	–	–	–	–
	Stroke 4	18.90	–	–	–	–	–	
Wireline	Type	16, 6×25F EIPS	22, 6×25F EIPS	22, 6×25F EIPS	22, 6×25F EIPS	22, 6×25F EIPS	22, 6×25F EIPS	
	Length, in	120	163.5	163.5	176	176	193	
Other	Structural unbalance, lbf	215	405	405	285	285	220	
	Overall dimensions length × width × height, in	TL base	–	–	–	–	–	220×87×155
WL base		148×75×120	209×82×142	211×82×142	223×87×151	223×87×151	220×87×155	

[†] Effective counterbalance

Beam-Balanced Pumping Units

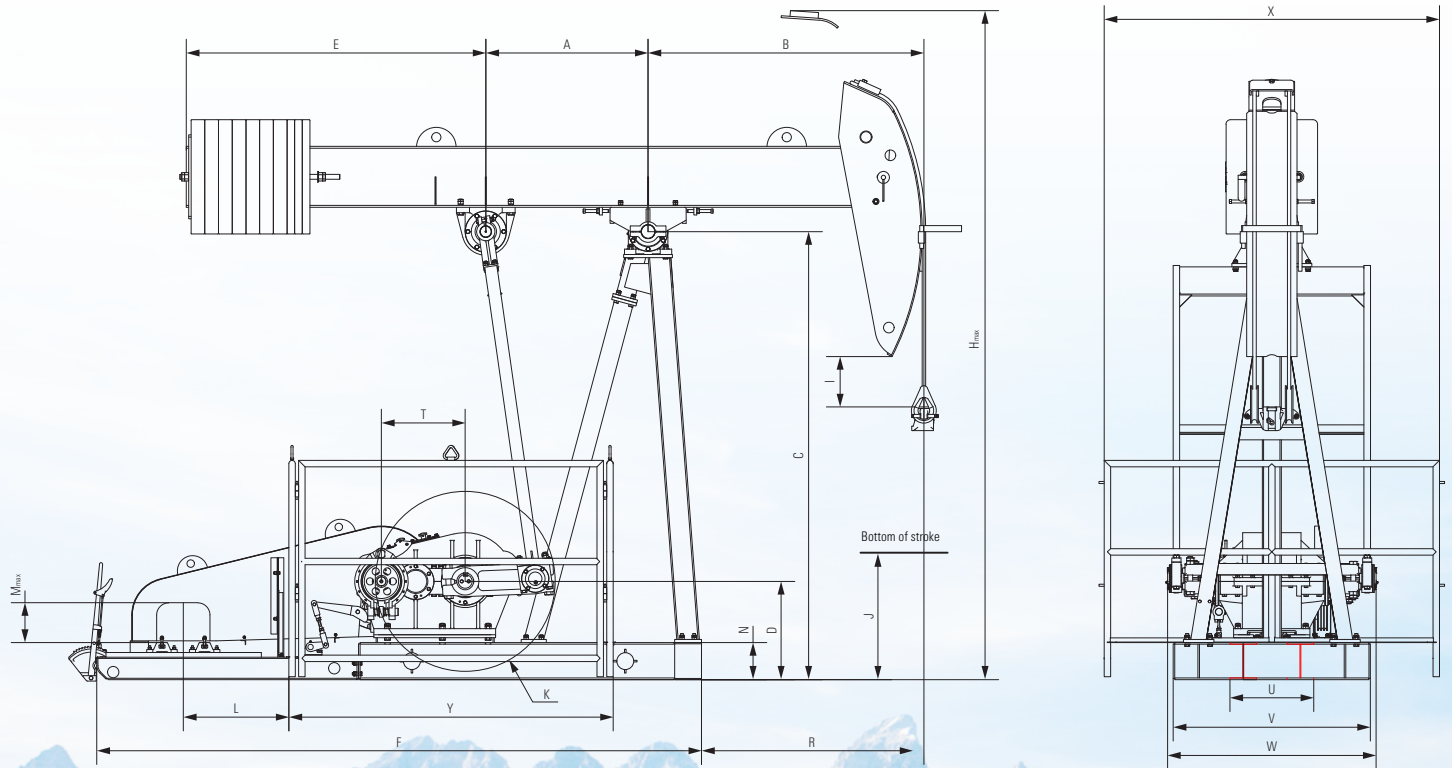
Dimensional Data

Model	A1	A2	B	C	D	E1	E2	F	H _{max}	I	J	K	L	M _{max}	N	R	T
B25D-67-36WL	26.65	32.68	38.26	93.39	28.18	53.27	47.24	115.75	129.37	12.20	40.55	16.51	20.63	17.95	7.87	32.01	16.54
B40D-89-48WL	45.28	58.27	60.43	108.66	33.86	79.33	66.34	160.52	157.48	12.80	40.55	22.74	26.23	18.94	7.87	48.23	17.72
B57D-76-48WL	45.28	58.27	60.43	108.66	33.86	79.33	66.34	162.52	157.48	12.80	40.55	22.74	26.23	18.94	7.87	48.23	19.69
B57D-109-54WL	45.28	58.27	66.93	115.75	36.22	72.83	59.84	162.60	169.41	13.39	41.73	22.74	30.50	20.83	9.60	53.15	19.69
B80D-133-54WL	45.28	58.27	66.93	115.75	36.22	72.83	59.84	162.60	169.41	13.39	41.73	22.74	30.50	20.83	9.60	53.15	21.65
B80D-119-64TL	41.93	54.92	71.26	115.75	25.39	77.36	64.37	156.22	175.67	12.99	32.80	23.23	28.86	10.24	9.61	57.48	21.65
B80D-119-64WL	41.93	54.92	71.26	115.75	25.39	77.36	64.37	162.60	175.67	12.99	32.80	23.23	30.50	20.83	9.61	57.48	21.65

Note: All dimensions stated in inches

Model	U	V	W	X	Y
B25D-67-36WL	15.75	55.12	43.31	74.61	65.28
B40D-89-48WL	16.34	61.81	51.50	81.89	83.80
B57D-76-48WL	16.34	61.81	51.50	81.89	83.80
B57D-109-54WL	21.65	61.97	51.50	86.61	85.05
B80D-133-54WL	21.65	61.97	53.86	86.61	85.05
B80D-119-64TL	19.67	47.09	53.86	86.61	85.05
B80D-119-64WL	19.67	61.97	53.86	86.61	85.05

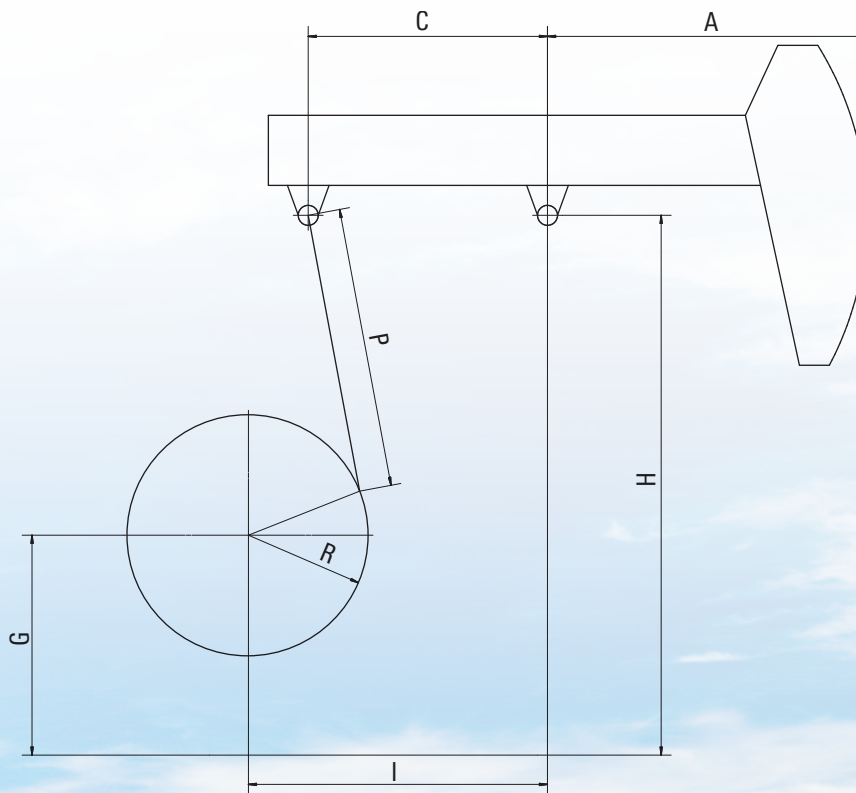
Note: All dimensions stated in inches



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API Geometry Dimensions and Torque Factors

Model	A, in	C1, in	C2, in	I, in	P, in	H, in	G, in	R1, in	R2, in	Structural Unbalance, lbf	Torque Factor at 90°, in			
											Stroke 1	Stroke 2	Stroke 3	Stroke 4
B25D-67-36	38.26	26.65	32.68	32.01	66.89	93.39	28.18	12.01	7.99	215	17.35	14.1	11.52	9.41
B40D-89-48	60.43	45.28	58.27	46.06	75.20	108.66	33.86	17.72	–	405	23.48	17.72	–	–
B57D-76-48	60.43	45.28	58.27	46.06	75.20	108.66	33.86	17.72	–	405	23.48	17.72	–	–
B57D-109-54	66.93	45.28	45.28	58.27	79.13	115.75	36.22	17.72	–	285	25.99	19.70	–	–
B80D-133-54	66.93	45.28	45.28	58.27	79.13	115.75	36.22	17.72	–	285	25.99	19.70	–	–
B80D-119-64	71.26	41.93	54.92	47.24	90.55	115.75	25.39	18.11	–	220	30.71	23.11	–	–



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Structural Data

Model	Polished Rod Capacity, lbf	Stroke Lengths, in				Wireline Hanger, in	Crank	Crank Pin Bearing	Equalizer Bearing	Center Bearing
		Stroke 1	Stroke 2	Stroke 3	Stroke 4					
B25D-67-36	6,700	35.90	28.80	23.3	18.9	5/8 × 6 centers	CA220	WAS180	EAS160	SAS130
B40D-89-48	8,900	48.67	37.64	–	–	7/8 × 9 centers	CA210	WAS170	EAS150	SAS120
B57D-76-48	7,600	48.67	37.64	–	–	7/8 × 9 centers	CA210	WAS170	EAS150	SAS120
B57D-109-54	10,900	54.03	41.53	–	–	7/8 × 9 centers	CA210	WAS170	EAS150	SAS120
B80D-133-54	13,300	54.03	41.53	–	–	7/8 × 9 centers	CA210	WAS170	EAS150	SAS120
B80D-119-64	11,900	64.11	47.94	–	–	7/8 × 9 centers	CA100	WAS170	EAS150	SAS120



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Counterbalance Data

		Model			
		B25D-67-36			
Stroke, in		36	23	29	19
Total ECB, [†] lbf	1 × 200	724	751	807	839
	2 × 200	1,128	1,155	1,211	1,243
	3 × 200	1,523	1,550	1,606	1,638
	1 × 300	927	954	1,013	1,045
	2 × 300	1,523	1,550	1,612	1,644
	3 × 300	2,101	2,128	2,193	2,225
	3 × 200 + 1 × 300	2,101	2,128	2,184	2,216
	3 × 200 + 2 × 300	2,660	2,687	2,743	2,775
	3 × 200 + 3 × 300	3,201	3,228	3,284	3,316

[†] Effective counterbalance

		Model	
		B40D-89-48 B57D-76-48	
Stroke, in		48	37
Total ECB, [†] lbf	1 × 250	1,154	1,352
	2 × 250	1,671	1,869
	3 × 250	2,179	2,377
	4 × 250	2,679	2,877
	5 × 250	3,171	3,369
	6 × 250	3,654	3,852
	7 × 250	4,129	4,327
	8 × 250	4,596	4,794
	9 × 250	5,054	5,252
	10 × 250	5,503	5,701

[†] Effective counterbalance

		Model					
		B57D-109-54		B80D-133-54		B80D-119-64	
Stroke, in		54	42	54	42	64	48
Total ECB, [†] lbf	1 × 460	1,290	1,454	1,290	1,454	1,156	1,320
	2 × 460	2,069	2,233	2,069	2,233	1,895	2,059
	3 × 460	2,823	2,987	2,823	2,987	2,611	2,775
	4 × 460	3,552	3,716	3,552	3,716	3,304	3,468
	5 × 460	4,257	4,421	4,257	4,421	3,973	4,137
	6 × 460	4,937	5,101	4,937	5,101	4,620	4,784
	7 × 460	—	—	5,592	5,756	5,243	5,407
	6 × 460 + 1 × 250	5,304	5,468	—	—	—	—
	6 × 460 + 2 × 250	5,663	5,827	—	—	—	—
	6 × 460 + 3 × 250	6,015	6,179	—	—	—	—
	7 × 460 + 1 × 250	—	—	5,945	6,109	5,579	5,743
	7 × 460 + 2 × 250	—	—	6,291	6,455	5,908	6,072
	7 × 460 + 3 × 250	—	—	6,629	6,793	6,229	6,393
	7 × 460 + 4 × 250	—	—	6,959	7,123	—	—
	7 × 460 + 5 × 250	—	—	7,281	7,445	—	—

[†] Effective counterbalance