

## THEORETICAL CYLINDER PRESSURE / FORCE CHART

PISTON DIA	ROD DIA	PISTON AREA	ROD AREA	ANNULUS AREA	PUSHING FORCE ON PISTON AREA				PULLING FORCE ON ANNULUS AREA			
					100 BAR	150 BAR	200 BAR	250 BAR	100 BAR	150 BAR	200 BAR	250 BAR
					Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
mm	mm	cm <sup>2</sup>	cm <sup>2</sup>	cm <sup>2</sup>	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
40	20	12.6	3.1	9.5	1.26	1.89	2.52	3.15	0.95	1.43	1.90	2.38
	25		4.9	7.7	1.26	1.89	2.52	3.15	0.77	1.16	1.54	1.93
50	25	19.6	4.9	14.7	1.96	2.94	3.93	4.91	1.47	2.21	2.94	3.68
	30		7.1	12.5	1.96	2.94	3.93	4.91	1.25	1.87	2.50	3.13
63	30	31.2	7.1	24.1	3.12	4.68	6.24	7.80	2.41	3.62	4.82	6.03
	35		9.6	21.6	3.12	4.68	6.24	7.80	2.16	3.24	4.32	5.4
80	40	50.2	12.6	37.7	5.02	7.53	10.0	12.6	3.77	5.66	7.54	9.43
	50		19.6	30.6	5.02	7.53	10.0	12.6	3.06	4.59	6.12	7.65
100	50	78.5	19.6	58.9	7.85	11.18	15.7	19.6	5.89	8.84	11.8	14.7
	70		38.5	40.0	7.85	11.18	15.7	19.6	4.0	6.0	8.0	10.0
125	70	122.7	38.5	84.2	12.3	18.4	24.5	30.7	8.42	12.6	16.8	21.1
	90		63.6	59.1	12.3	18.4	24.5	30.7	5.91	8.87	11.8	14.8
140	70	153.9	38.5	115.4	15.4	23.1	30.8	38.5	11.5	17.3	23.1	28.9
	100		78.5	75.4	15.4	23.1	30.8	38.5	7.54	11.3	15.1	18.9
150	70	176.7	38.5	138.2	17.7	26.5	35.3	44.2	13.8	20.7	27.6	34.5
	100		78.5	98.2	17.1	26.5	35.3	44.2	9.82	14.7	19.6	24.6
160	80	201.1	50.3	150.8	20.1	30.2	40.2	50.3	15.1	22.6	30.2	37.7
	100		78.5	122.6	20.1	30.2	40.2	50.3	12.3	18.4	24.5	30.7
180	90	254.5	63.6	190.9	25.5	38.2	50.9	63.6	19.1	28.6	38.2	47.7
	125		122.7	131.8	25.5	38.2	50.9	63.6	13.2	19.8	26.4	33.0
200	100	314.2	78.5	235.7	31.4	47.1	62.8	78.8	23.6	35.4	47.1	58.9
	140		154.0	160.2	31.4	47.1	62.8	78.8	16.0	24.0	32.0	40.1
220	125	380.1	122.7	257.4	38.0	57.0	76.0	95.0	25.7	38.6	51.5	64.4
	140		154.0	226.1	38.0	57.0	76.0	95.0	22.6	33.9	45.2	56.5
250	125	490.9	122.7	367.3	49.1	73.6	98.2	123.0	36.7	55.1	73.5	91.8
	150		176.7	314.2	49.1	73.6	98.2	123.0	31.4	47.1	62.8	78.5
300	150	706.9	176.7	530.2	70.1	106.0	141.4	176.7	53.0	79.5	106.0	132.5
	180		254.5	452.4	70.7	106.0	141.4	176.7	45.2	67.9	90.5	113.1