Partnership. With Guarantee.

Theoretical pushing and pulling forces for double-acting cylinders [N]

Ø	Piston area [mm²]		1 bar		2 bar		3 bar		4 bar		5 bar	
	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull
10	78	66	7,8	6,5	15,6	13,2	23	19	31	26	39	33
12	113	85	11	8,5	23	17	34	25	45	34	56	42
16	201	173	20	17	40	35	60	52	80	69	100	86
20	314	264	31	26	63	53	94	79	126	106	157	132
25	491	412	49	41	98	82	147	124	196	165	245	206
32	804	691	80	69	161	138	241	207	322	276	402	345
40	1256	1056	125	105	251	211	376	316	502	422	628	528
50	1962	1649	196	165	393	330	588	494	785	660	981	824
63	3116	2802	311	280	623	560	934	840	1246	1120	1558	1401
80	5024	4533	502	453	1005	907	1507	1360	2010	1814	2512	2266
100	7850	7143	785	714	1570	1429	2355	2143	3140	2857	3925	3571
125	12266	11599	1226	1160	2453	2319	3679	3479	4906	4639	6133	5799
160	20096	18840	2009	1884	4019	3768	6028	5652	8038	7536	10048	9420
200	31400	30144	3140	3014	6280	6028	9420	9043	12560	12057	15700	15072

Ø	Piston area [mm²]		6 bar		7 bar		8 bar		9 bar		10 bar	
	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull
10	78	66	47	40	54	48	62	53	70	59	78	66
12	113	85	68	51	79	59	90	68	102	76	113	85
16	201	173	121	104	141	121	161	138	181	156	201	173
20	314	264	188	158	220	185	251	211	283	238	314	264
25	491	412	295	247	344	288	393	330	442	371	491	412
32	804	691	482	414	563	484	643	553	724	622	804	691
40	1256	1056	754	633	879	739	1005	844	1130	950	1256	1055
50	1962	1649	1178	990	1373	1154	1570	1320	1765	1484	1963	1650
63	3116	2802	1869	1680	2181	1961	2493	2240	2804	2521	3116	2800
80	5024	4533	3014	2722	3516	3173	4019	3629	4521	4079	5024	4536
100	7850	7143	4710	4286	5495	5000	6280	5715	7065	6428	7850	7143
125	12266	11599	7359	6959	8586	8119	9812	9279	11039	10439	14719	11559
160	20096	18840	12057	11304	14067	13188	16076	15072	18086	16956	20096	18840
200	31400	30144	18840	18086	21980	21100	25120	24115	28260	27129	31400	30144

Compressed air consumption for pneumatic cylinders [Nl/min]

The compressed air consumption q for pneumatic cylinders is determined using the following formula:

$$q = \frac{d^2 \times \pi}{4} \times H \times p \times a \times b$$

q = Compressed air consumption (1 bar abs and 20° C) [Nl/min]
d = Piston diameter [dm]
H = Stroke [dm]
p = Operating pressure [bar abs]
a = Working cycles per minute [1/min]
b = 1 for single-acting cylinders, 2 for double-acting cylinders

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