

DISPLACEMENT CYLINDERS - TWIN INDIRECT ACTING

PUMP LPM	CYLINDER TYPE										LOADED STATIC PRESSURE														-- MOTOR POWER REQUIRED --		
	30	40	50	57	63	70	80	90	27		29	31	33	35	37	39	41	43	45	47	49	51	53				
8	0.16	0.1	0.07	0.05														2kW									
15	0.32	0.2	0.12	0.1	0.08	0.07												2kW									
23	0.45	0.3	0.19	0.15	0.12	0.1	0.07					2kW							3kW								
35	0.7	0.45	0.28	0.22	0.18	0.15	0.11	0.09	-- SPEED OBTAINED (ms ⁻¹) --			3kW							4.4kW								
50	1	0.65	0.4	0.31	0.25	0.21	0.16	0.12				4.4kW								6kW							
75		0.98	0.6	0.48	0.38	0.32	0.24	0.19				6kW				7.7kW					9.5kW						
100			0.8	0.64	0.51	0.42	0.32	0.25		7.7kW					9.5kW						12kW						
125			1	0.8	0.64	0.53	0.4	0.32		9.5kW					12kW						16kW						
150				0.96	0.78	0.64	0.49	0.38			12kW					16kW					20kW						
180				1.15	0.93	0.76	0.59	0.46		12kW			16kW							20kW			24kW				
210					1.09	0.9	0.68	0.54			16kW					20kW					24kW			28kW			
250						1.07	0.82	0.64			20kW					24kW					28kW			33kW			
300							0.98	0.77		20kW	24kW					28kW					33kW			40kW			
320							1.05	0.83			24kW				28kW			33kW				40kW					
380								0.99			28kW				33kW			40kW				47kW					
440								1.14			33kW				40kW			47kW				60kW					
500											40kW					47kW					60kW						
650										47kW					60kW						77kW						
800										60kW						77kW											

Use the buckling graph to determine a suitable **cylinder type** to lift the car/sling & load. This graph will also dictate the **loaded static pressure**.

For Example:

The buckling graphs indicate that the most suitable cylinder is a **70** and the loaded static pressure is **31 bar**.

I want the lift to move at approximately **0.25 m/s**.

- (1) Locate the **cylinder type** first - **70**.
- (2) Move vertically down the column to the nearest speed shown to what is required, I want 0.25 m/s so the nearest available would be **0.21 m/s**.
- (3) The **pump** size is determined by moving horizontally left across the row to the far left column, which gives a **pump** size of **50 lpm**.
- (4) The motor size is determined by moving horizontally right across the row until you are vertically below the **loaded static pressure** of the lift - **31 bar**, which gives a **motor** size of **4.4kW**.

DISPLACEMENT CYLINDERS - TWIN INDIRECT ACTING

PUMP LPM	CYLINDER TYPE									LOADED STATIC PRESSURE															
	100	110	125	140	160	180	200	220		27	29	31	33	35	37	39	41	43	45	47	49	51	53		
8									-- SPEED OBTAINED (ms ⁻¹) --																
15																									
23																									
35	0.07																								
50	0.1	0.08																							
75	0.15	0.13	0.1	0.08																					
100	0.21	0.17	0.13	0.11																					
125	0.26	0.21	0.17	0.13	0.1																				
150	0.31	0.26	0.2	0.16	0.12	0.1																			
180	0.37	0.31	0.24	0.19	0.15	0.12	0.09																		
210	0.44	0.36	0.28	0.22	0.17	0.14	0.11	0.09																	
250	0.52	0.43	0.33	0.27	0.2	0.16	0.13	0.11																	
300	0.63	0.52	0.4	0.32	0.24	0.19	0.16	0.13																	
320	0.67	0.55	0.43	0.34	0.26	0.21	0.17	0.14																	
380	0.8	0.66	0.51	0.4	0.31	0.25	0.2	0.16																	
440	0.92	0.76	0.59	0.47	0.36	0.29	0.23	0.19																	
500	1.05	0.87	0.67	0.53	0.41	0.32	0.26	0.22																	
650		1.12	0.87	0.69	0.53	0.42	0.34	0.28																	
800			1.07	0.86	0.66	0.52	0.42	0.35																	

-- MOTOR POWER REQUIRED --

Use the buckling graph to determine a suitable **cylinder type** to lift the car/sling & load. This graph will also dictate the **loaded static pressure**.

For Example:

The buckling graphs indicate that the most suitable cylinder is a **200** and the loaded static pressure is **43 bar**.

I want the lift to move at approximately **0.3 m/s**.

- (1) Locate the **cylinder type** first - **200**.
- (2) Move vertically down the column to the nearest speed shown to what is required, I want 0.3 m/s so the nearest available would be **0.34 m/s**.
- (3) The **pump** size is determined by moving horizontally left across the row to the far left column, which gives a **pump** size of **650 lpm**.
- (4) The motor size is determined by moving horizontally right across the row until you are vertically below the **loaded static pressure** of the lift - **43 bar**, which gives a **motor** size of **77kW**.