

1 Guide for system selection

A lifting system can be configured by using the table (page 2) and the following steps:

1. # Lifting elements: How many lifting elements does the application require?

2. Max. system load: What is the maximum load that needs to be moved?



NOTE

- Take weight of table top and frame into account
- Load distribution even – don't overload the leg
 - Max. load lifting element 14xx: 1'500 N
 - Max. load lifting element 18xx: 2'500 N
- No shock loads allowed (pressure peaks)
- No tensile loads allowed
- Don't exceed max. allowed bending moments

3. Stroke length: What stroke length is required?

Selected configuration

a) Lifting element type: The following lifting element fits the selected configuration.
- Observe drawings and data sheets!



NOTE

- Following lifting element variants are available:
- Cylinder CX (CB, CD, CE, CG, CH, CI, ...)
 - Linear Units LX (LA, LD, LG, ...)
 - Table Legs TX (TA, TL, TM, TQ, TT, TU, ...)

b) Pump type: The following pump fits the selected configuration.
- Observe drawings and operating manual!

Operating data

i. Lifting speed with hand crank: If the hydraulic lifting system is configured with a hand crank, the system moves at the following lifting speed [mm per crank revolution].

ii. Lifting speed with motor PXD If the hydraulic lifting system is configured with a motor, the system moves by using the hand switch at the following lifting speed [mm per second].

2 System combinations table

# Lifting elements	Max. System load [kg] (lbs)	Stroke length [mm] (in)	Lifting element type	Pump type	Lifting speed with hand crank [mm/U] (in/R)	Lifting speed with motor PXD ② [mm/s] (in/s)
1	100 (220)	150 (5")	① 1415	PA 1815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PA 1820		
		300 (12")	① 1430	PA 1830		
		400 (16")	① 1440	PA 1840		
		500 (19.5")	① 1450	PA 1850		
		600 (23.5")	① 1460	PA 1860		
		700 (27.5")	① 1470	PA 1870		
2	300 (660)	150 (5")	① 1415	PA 2815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PA 2820		
		300 (12")	① 1430	PA 2830		
		400 (16")	① 1440	PA 2840		
		500 (19.5")	① 1450	PA 2850		
		600 (23.5")	① 1460	PA 2860		
		700 (27.5")	① 1470	PA 2870		
	500 (1100)	90 (3.5")	① 1815	PA 2815	3 (0.12")	9 (0.35")
		110 (4.5")	① 1815	PA 2820		
		180 (7")	① 1820	PA 2830		
		240 (9.5")	① 1830	PA 2840		
		300 (12")	① 1830	PA 2850		
		400 (16")	① 1840	PA 2866		
3	350 (770)	150 (5")	① 1415	PF 3815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PF 3820		
		300 (12")	① 1430	PF 3830		
		400 (16")	① 1440	PF 3840		
		500 (19.5")	① 1450	PF 3850		
		600 (23.5")	① 1460	PF 3860		
		700 (27.5")	① 1470	PF 3870		
	600 (1320)	110 (4.5")	① 1815	PF 3820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PF 3830		
		240 (9.5")	① 1830	PF 3840		
		300 (12")	① 1830	PF 3850		
		400 (16")	① 1840	PF 3866		
4	350 (770)	150 (5")	① 1415	PF 4815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PF 4820		
		300 (12")	① 1430	PF 4830		
		400 (16")	① 1440	PF 4840		
		500 (19.5")	① 1450	PF 4850		
		600 (23.5")	① 1460	PF 4860		
		700 (27.5")	① 1470	PF 4870		
	600 (1320)	110 (4.5")	① 1815	PF 4820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PF 4830		
		240 (9.5")	① 1830	PF 4840		
		300 (12")	① 1830	PF 4850		
		400 (16")	① 1840	PF 4866		
	800 (1760)	110 (4.5")	① 1815	PF 4418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PF 4430		
		240 (9.5")	① 1830	PF 4440		

① Cylinder, Linear Units or Table Legs (CB, CD, CE, ..., LA, LD, LG, ..., TA, TL, TM, ...)

② The motor PXD is connected to the control box Compact-3 (100V/230V) and ensures a safety distance margin of one crank revolution at the upper and lower end positions.

# Lifting elements	Max. System load [kg] (lbs)	Stroke length [mm] (in)	Lifting element type	Pump type	Lifting speed with hand crank [mm/U] (in/R)	Lifting speed with motor PXD ② [mm/s] (in/s)
5	350 (770)	150 (5")	① 1415	PB 5815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 5820		
		300 (12")	① 1430	PB 5830		
		400 (16")	① 1440	PB 5840		
		500 (19.5")	① 1450	PB 5850		
		600 (23.5")	① 1460	PB 5860		
		700 (27.5")	① 1470	PB 5870		
	600 (1320)	110 (4.5")	① 1815	PB 5820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 5830		
		240 (9.5")	① 1830	PB 5840		
		300 (12")	① 1830	PB 5850		
		400 (16")	① 1840	PB 5866		
	800 (1760)	110 (4.5")	① 1815	PB 5418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 5430		
		240 (9.5")	① 1830	PB 5440		
6	350 (770)	150 (5")	① 1415	PB 6815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 6820		
		300 (12")	① 1430	PB 6830		
		400 (16")	① 1440	PB 6840		
		500 (19.5")	① 1450	PB 6850		
		600 (23.5")	① 1460	PB 6860		
		700 (27.5")	① 1470	PB 6870		
	600 (1320)	110 (4.5")	① 1815	PB 6820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 6830		
		240 (9.5")	① 1830	PB 6840		
		300 (12")	① 1830	PB 6850		
		400 (16")	① 1840	PB 6866		
	800 (1760)	110 (4.5")	① 1815	PB 6418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 6430		
		240 (9.5")	① 1830	PB 6440		
7	350 (770)	150 (5")	① 1415	PB 7815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 7820		
		300 (12")	① 1430	PB 7830		
		400 (16")	① 1440	PB 7840		
		500 (19.5")	① 1450	PB 7850		
		600 (23.5")	① 1460	PB 7860		
		700 (27.5")	① 1470	PB 7870		
	600 (1320)	110 (4.5")	① 1815	PB 7820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 7830		
		240 (9.5")	① 1830	PB 7840		
		300 (12")	① 1830	PB 7850		
		400 (16")	① 1840	PB 7866		
	800 (1760)	110 (4.5")	① 1815	PB 7418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 7430		
		240 (9.5")	① 1830	PB 7440		

① Cylinder, Linear Units or Table Legs (CB, CD, CE, ..., LA, LD, LG, ..., TA, TL, TM, ...)

② The motor PXD is connected to the control box Compact-3 (100V/230V) and ensures a safety distance margin of one crank revolution at the upper and lower end positions.

# Lifting elements	Max. System load [kg] (lbs)	Stroke length [mm] (in)	Lifting element type	Pump type	Lifting speed with hand crank [mm/U] (in/R)	Lifting speed with motor PXD ② [mm/s] (in/s)
8	350 (770)	150 (5")	① 1415	PB 8815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 8820		
		300 (12")	① 1430	PB 8830		
		400 (16")	① 1440	PB 8840		
		500 (19.5")	① 1450	PB 8850		
		600 (23.5")	① 1460	PB 8860		
		700 (27.5")	① 1470	PB 8870		
	600 (1320)	110 (4.5")	① 1815	PB 8820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 8830		
		240 (9.5")	① 1830	PB 8840		
		300 (12")	① 1830	PB 8850		
		400 (16")	① 1840	PB 8866		
	800 (1760)	110 (4.5")	① 1815	PB 8418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 8430		
		240 (9.5")	① 1830	PB 8440		
9	350 (770)	150 (5")	① 1415	PB 9815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 9820		
		300 (12")	① 1430	PB 9830		
		400 (16")	① 1440	PB 9840		
		500 (19.5")	① 1450	PB 9850		
		600 (23.5")	① 1460	PB 9860		
		700 (27.5")	① 1470	PB 9870		
	600 (1320)	110 (4.5")	① 1815	PB 9820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 9830		
		240 (9.5")	① 1830	PB 9840		
		300 (12")	① 1830	PB 9850		
		400 (16")	① 1840	PB 9866		
	800 (1760)	110 (4.5")	① 1815	PB 9418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 9430		
		240 (9.5")	① 1830	PB 9440		
10	350 (770)	150 (5")	① 1415	PB 0815	5 (0.2")	15 (0.6")
		200 (8")	① 1420	PB 0820		
		300 (12")	① 1430	PB 0830		
		400 (16")	① 1440	PB 0840		
		500 (19.5")	① 1450	PB 0850		
		600 (23.5")	① 1460	PB 0860		
		700 (27.5")	① 1470	PB 0870		
	600 (1320)	110 (4.5")	① 1815	PB 0820	3 (0.12")	9 (0.35")
		180 (7")	① 1820	PB 0830		
		240 (9.5")	① 1830	PB 0840		
		300 (12")	① 1830	PB 0850		
		400 (16")	① 1840	PB 0866		
	800 (1760)	110 (4.5")	① 1815	PB 0418	1.8 (0.07")	5 (0.2")
		180 (7")	① 1820	PB 0430		
		240 (9.5")	① 1830	PB 0440		

① Cylinder, Linear Units or Table Legs (CB, CD, CE, ..., LA, LD, LG, ..., TA, TL, TM, ...)

② The motor PXD is connected to the control box Compact-3 (100V/230V) and ensures a safety distance margin of one crank revolution at the upper and lower end positions.

3 Retracting force

The hydraulic lifting system is a single-acting system. Therefore an external retracting force is always required to move the system downwards. The amount of retracting force required depends on the lifting element type, the number of lifting elements and the tubing length.

Calculation of the minimum required retracting force **per lifting element**:

Lifting element type	Minimum required retracting force	Additional retracting force (if cylinder is installed in a guiding)
Cylinder CX 14xx	3 kg + (1.5 kg x tubing length [m])	LX: +0.5 kg TA / TU: +1 kg TQ: +1 kg TT: +7 kg TL / TM: +7 kg
Cylinder CX 18xx	3.5 kg + (2.5 kg x tubing length [m])	
Cylinder CX 14xx V	43 kg + (1.5 kg x tubing length [m])	
Cylinder CX 18xx V	53.5 kg + (2.5 kg x tubing length [m])	

V = Tubing protection valve (Cylinder with integrated non-return valve)



NOTE

- Max. allowed tubing length 10m (Cylinder with protection valve V= max. allowed tubing length 4m)
- More retracting force necessary, if lifting elements are not built in frame parallel
- More retracting force necessary, if strong side forces and bending moments occur

4 Hand crank, control box and hand switch

Hand crank H	Control box & hand switch	
 113.00105	 Compact-3	 124.00223



NOTE for synchronized control boxes

- 2 control boxes = (2x max. allowed system load) x 70%
- 3 control boxes = (3x max. allowed system load) x 60%
- 4 control boxes = (4x max. allowed system load) x 50%

The first initial operation has to be done with half of the system load.