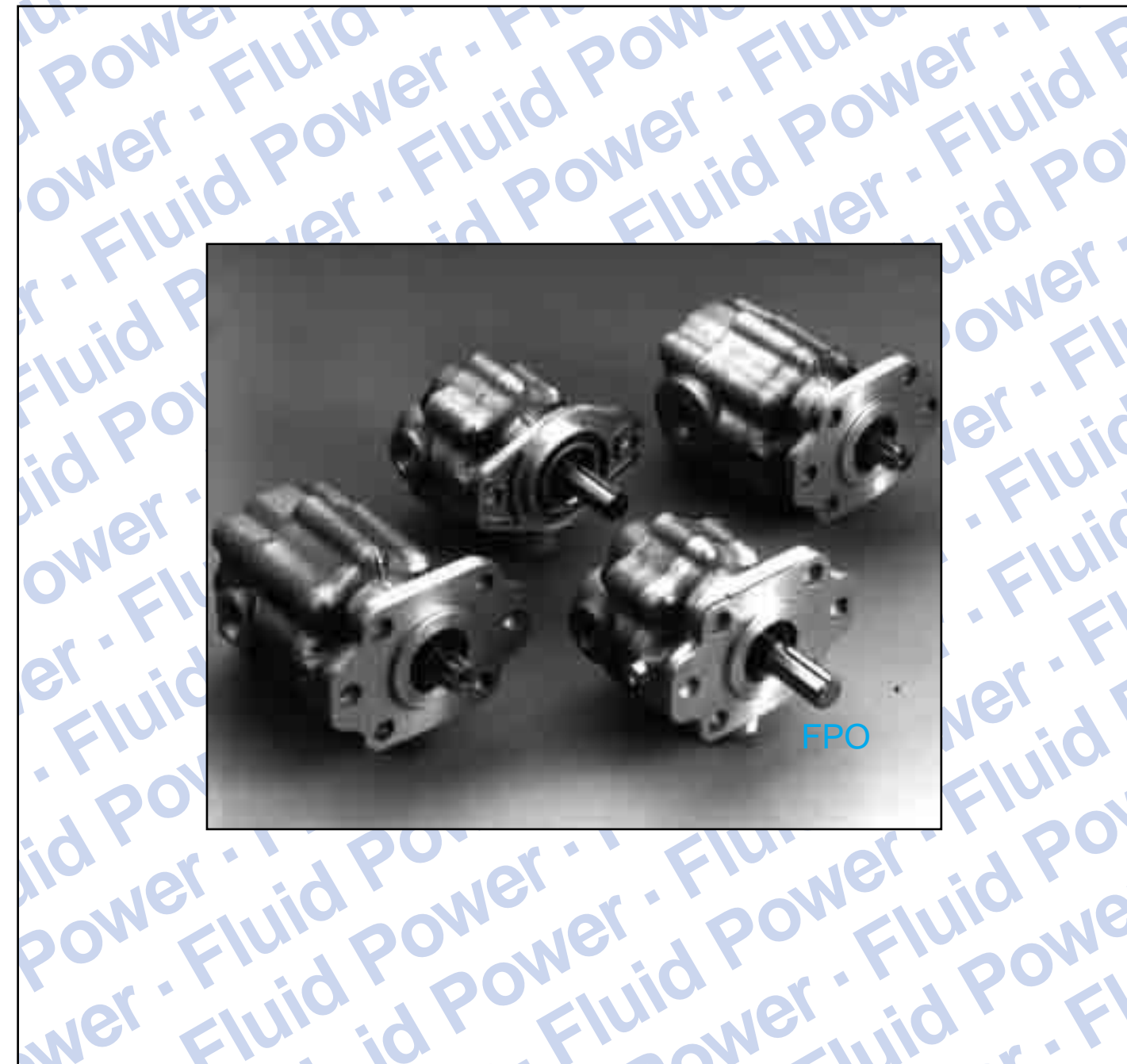


YB Series

Gear Pumps & Motors



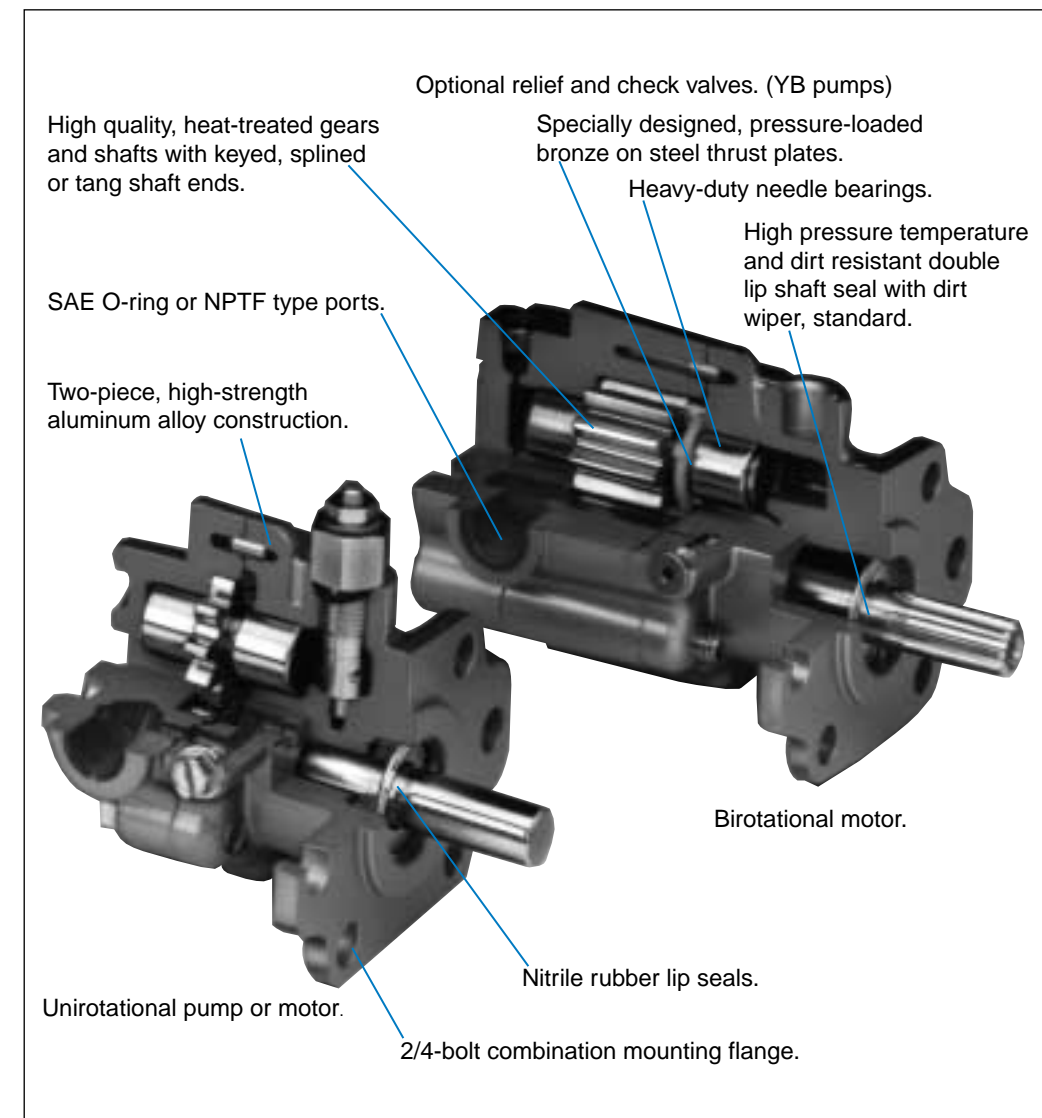
YB Series Gear Pumps and Motors

Features

The YB Series offers a complete range of compact and powerful hydraulic gear pumps and motors, in flows from 1 to 6 gallons (3,8 to 22,7 liters) They are ideal for applications where a lightweight pump or motor is required.

Included in the YB Series are hydraulic pumps, unidirectional hydraulic motors and birotational hydraulic motors.

Because of their compact size and low weight, YB Series hydraulic gear pumps and motors are often specified whenever space and weight are limitations. Typical applications include: lawn and turf equipment, fan drive systems, lift tables and small, off-highway machinery. Several typical circuits will be shown for reference.



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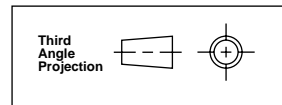
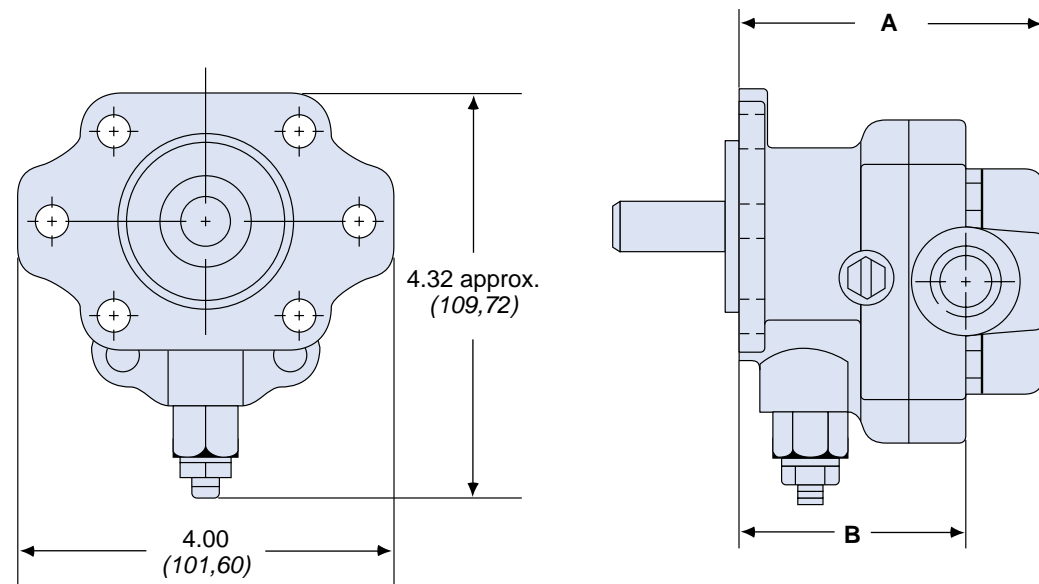
YB Series Gear Pumps and Motors

Pump or Motor Displacement Code	15YB	22YB	29YB	43YB	58YB	73YB
Theoretical displacement in ³ /rev (cm ³ /rev)	.146 (2,39)	.219 (3,59)	.293 (4,80)	.439 (7,20)	.586 (9,61)	.732 (12,00)
Gear Width in (mm)	.25 (6,4)	.37 (9,5)	.50 (12,7)	.75 (19,1)	1.00 (25,4)	1.25 (31,8)
Maximum continuous pressure psi (bar)	2500 (172)	2000 (138)	2000 (138)	2000 (138)	2000 (138)	2000 (138)
Pump-maximum speed (rpm)	4000	4000	4000	3500	3000	2500
Motor-maximum speed (rpm)	—	—	5000	5000	5000	5000

Model Number	15YB	22YB	29YB/M29YB	43YB/M43YB	58YB/M58YB	73YB/M73YB
"A" inches (mm)	3.25 (82,5)	3.38 (85,9)	3.50 (88,9)	3.75 (95,2)	4.00 (101,6)	4.25 (107,9)
"B" inches (mm)	2.42 (61,4)	2.55 (64,7)	2.61 (66,3)	2.86 (72,6)	3.11 (78,9)	3.36 (88,7)

Model Number	—	—	M29YB-B	M43YB-B	M58YB-B	M73YB-B
"A" inches (mm)	—	—	4.15 (105,41)	4.38 (111,25)	4.64 (117,86)	4.64 (117,86)
"B" inches (mm)	—	—	3.02 (76,71)	3.25 (82,55)	3.51 (89,15)	3.51 (89,15)

YB Pumps Dimensions

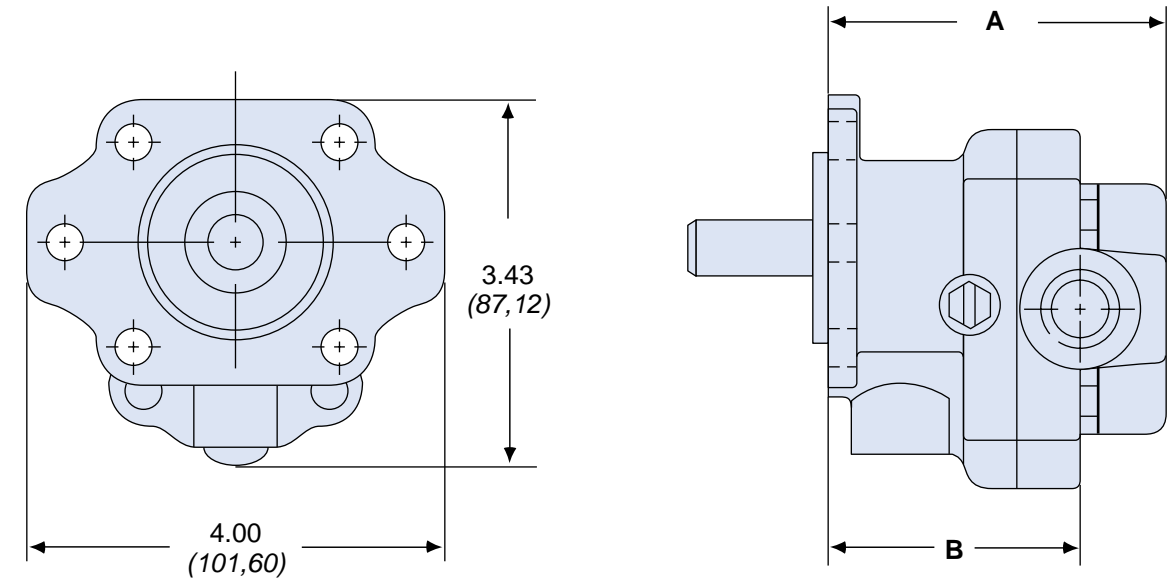


Dimensions shown: inches (mm)

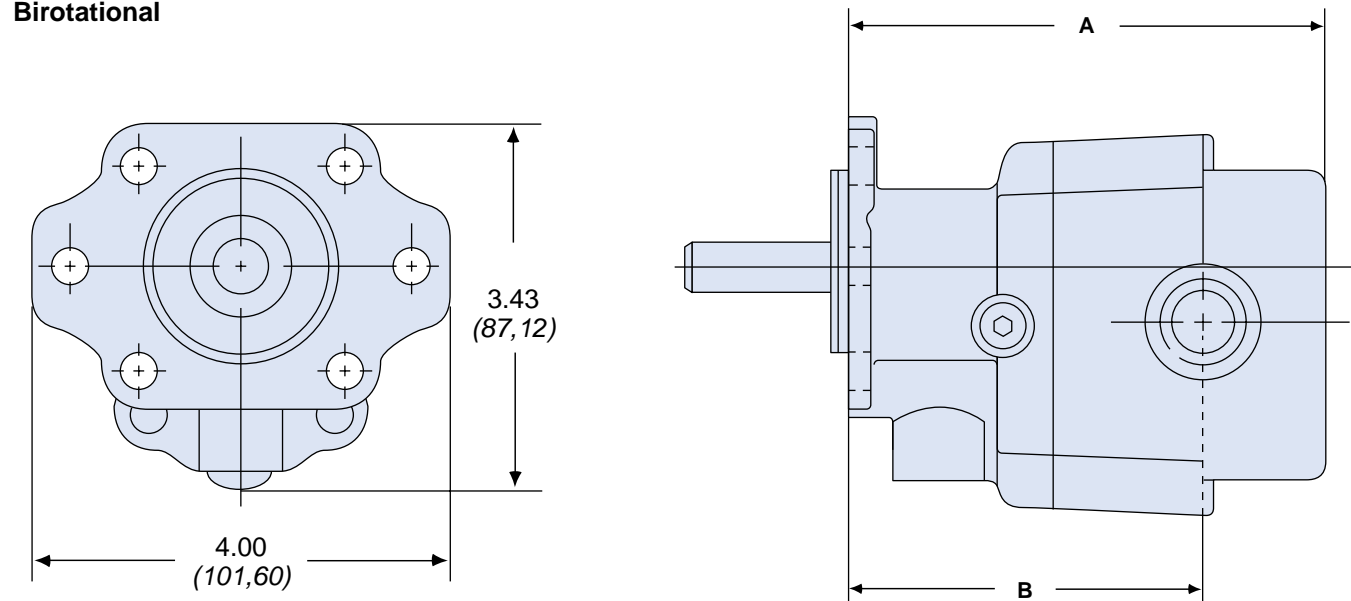
YB Series Gear Pumps and Motors

MYB Motors Dimensions

Unidirectional



Birotational



Dimensions shown: inches (mm)

YB Series Gear Pumps and Motors

YB Pumps		gpm (l/min)					
rpm	psi (bar)	15YB	22YB	29YB	43YB	58YB	73YB
1000	100 (7)	0.5 (1,9)	0.9 (3,4)	1.2 (4,5)	1.8 (6,8)	2.4 (9,1)	3.2 (12,1)
	500 (34)	0.5 (1,9)	0.9 (3,4)	1.2 (4,5)	1.8 (6,8)	2.3 (8,7)	3.1 (11,7)
	1000 (69)	0.5 (1,9)	0.8 (3,0)	1.1 (4,2)	1.7 (6,4)	2.2 (8,3)	3.0 (11,4)
	1500 (103)	0.4 (1,5)	0.7 (2,6)	1.0 (3,8)	1.6 (6,1)	2.1 (7,9)	2.9 (11,0)
	2000 (138)	0.4 (1,5)	0.7 (2,6)	1.0 (3,8)	1.6 (6,1)	2.0 (7,6)	2.8 (10,6)
	2500 (172)	0.4 (1,5)	—	—	—	—	—
1800	100 (7)	1.1 (4,2)	1.7 (6,4)	2.2 (8,3)	3.2 (12,1)	4.5 (17,0)	5.8 (22,0)
	500 (34)	1.1 (4,2)	1.7 (6,4)	2.2 (8,3)	3.2 (12,1)	4.4 (16,7)	5.7 (21,6)
	1000 (69)	1.0 (3,8)	1.6 (6,1)	2.1 (7,9)	3.1 (11,7)	4.3 (16,3)	5.6 (21,2)
	1500 (103)	0.9 (3,4)	1.5 (5,7)	2.0 (7,6)	3.0 (11,4)	4.2 (15,9)	5.5 (20,8)
	2000 (138)	0.9 (3,4)	1.5 (5,7)	2.0 (7,6)	3.0 (11,4)	4.1 (15,5)	5.4 (20,4)
	2500 (172)	0.9 (3,4)	—	—	—	—	—
3000	100 (7)	1.9 (7,2)	2.8 (10,6)	3.8 (14,4)	5.3 (20,1)	7.6 (28,8)	** 8.0 (30,3)
	500 (34)	1.9 (7,2)	2.8 (10,6)	3.8 (14,4)	5.3 (20,1)	7.5 (28,4)	** 7.9 (29,9)
	1000 (69)	1.8 (6,8)	2.7 (10,2)	3.7 (14,0)	5.2 (19,7)	7.4 (28,0)	** 7.8 (29,5)
	1500 (103)	1.7 (6,4)	2.6 (9,8)	3.6 (13,6)	5.1 (19,3)	7.3 (27,6)	** 7.7 (29,1)
	2000 (138)	1.7 (6,4)	2.6 (9,8)	3.6 (13,6)	5.1 (19,3)	7.2 (27,3)	** 7.6 (28,8)
	2500 (172)	1.7 (6,4)	—	—	—	—	—
4000	100 (7)	2.6 (9,8)	3.8 (14,4)	5.0 (18,9)	* 6.2 (23,5)	—	—
	500 (34)	2.6 (9,8)	3.8 (14,4)	5.0 (18,9)	* 6.2 (23,5)	—	—
	1000 (69)	2.5 (9,5)	3.7 (14,0)	4.9 (18,5)	* 6.1 (23,1)	—	—
	1500 (103)	2.4 (9,1)	3.6 (13,6)	4.8 (18,2)	* 6.0 (22,7)	—	—
	2000 (138)	2.4 (9,1)	3.6 (13,6)	4.8 (18,2)*	6.0 (22,7)	—	—
	2500 (172)	2.4 (9,1)	—	—	—	—	—
Input Horsepower hp (kW)							
rpm	psi (bar)	15YB	22YB	29YB	43YB	58YB	73YB
1000	100 (7)	0.1 (0,07)	0.2 (0,15)	0.2 (0,15)	0.3 (0,2)	0.4 (0,3)	0.9 (0,7)
	500 (34)	0.4 (0,3)	0.6 (0,5)	0.6 (0,5)	1.6 (1,2)	1.0 (0,8)	2.8 (2,1)
	1000 (69)	0.7 (0,5)	1.0 (0,8)	1.2 (0,9)	2.4 (1,8)	2.0 (1,5)	4.2 (3,1)
	1500 (103)	1.0 (0,8)	1.4 (1,0)	2.0 (1,5)	3.4 (2,5)	3.2 (2,4)	6.4 (4,8)
	2000 (138)	1.4 (1,0)	2.0 (1,5)	2.6 (1,9)	4.6 (3,4)	4.4 (3,3)	8.4 (6,3)
	2500 (172)	1.8 (1,3)	—	—	—	—	—
1800	100 (7)	0.1 (0,07)	0.2 (0,15)	0.2 (0,15)	0.5 (0,4)	0.8 (0,6)	1.1 (0,9)
	500 (34)	0.6 (0,5)	0.9 (0,7)	0.9 (0,7)	1.9 (1,4)	2.0 (1,5)	3.6 (2,7)
	1000 (69)	1.1 (0,9)	1.6 (1,2)	1.8 (1,3)	3.4 (2,5)	3.6 (2,7)	6.0 (4,5)
	1500 (103)	1.7 (1,3)	2.4 (1,8)	3.2 (2,4)	5.0 (3,7)	5.6 (4,2)	8.8 (6,6)
	2000 (138)	2.2 (1,6)	3.2 (2,4)	4.1 (3,1)	6.8 (5,1)	7.6 (5,7)	11.6 (8,7)
	2500 (172)	3.0 (2,2)	—	—	—	—	—
3000	100 (7)	0.2 (0,15)	0.4 (0,3)	0.4 (0,3)	0.7 (0,5)	1.2 (0,9)	** 1.2 (0,9)
	500 (34)	1.0 (0,8)	1.4 (1,0)	1.7 (1,3)	2.4 (1,8)	3.4 (2,5)	** 4.0 (3,0)
	1000 (69)	1.7 (1,3)	2.6 (1,9)	2.8 (2,1)	5.0 (3,7)	6.2 (4,6)	** 7.4 (5,5)
	1500 (103)	2.6 (1,9)	4.0 (3,0)	4.8 (3,6)	7.4 (5,5)	9.4 (7,0)	** 11.0 (8,2)
	2000 (138)	3.5 (2,6)	5.1 (3,8)	6.4 (4,8)	10.0 (7,5)	12.4 (9,3)	** 14.4 (10,7)
	2500 (172)	4.6 (3,4)	—	—	—	—	—
4000	100 (7)	0.2 (0,15)	0.4 (0,3)	0.4 (0,3)	* 0.8 (0,6)	—	—
	500 (34)	1.2 (0,9)	1.8 (1,3)	2.2 (1,6)	* 2.6 (1,9)	—	—
	1000 (69)	2.2 (1,6)	3.5 (2,6)	3.6 (2,7)	* 5.6 (4,2)	—	—
	1500 (103)	3.4 (2,5)	5.3 (4,0)	6.2 (4,6)	* 8.4 (6,3)	—	—
	2000 (138)	4.6 (3,4)	6.7 (5,0)	8.2 (6,1)	* 11.4 (8,5)	—	—
	2500 (172)	6.0 (4,5)	—	—	—	—	—

* Performance data rated at 3500 rpm
 ** Performance data rated at 2500 rpm

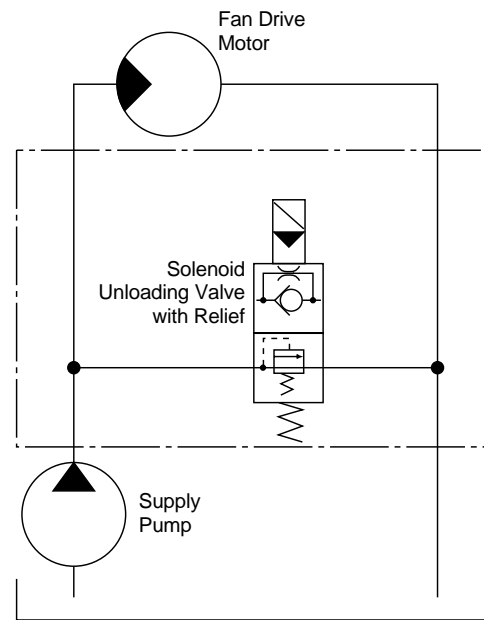
YB Series Gear Pumps and Motors

MYB Unidirectional Motors		Input Flow gpm (l/min)			
rpm	psi (bar)	M29YB	M43YB	M58YB	M73YB
2500	500 (34)	3.4 (12,9)	5.1 (19,3)	6.8 (25,7)	8.3 (31,4)
	1000 (69)	3.4 (12,9)	5.2 (19,7)	6.9 (26,1)	8.4 (31,8)
	1500 (103)	3.5 (13,2)	5.3 (20,1)	7.0 (26,5)	8.5 (32,2)
	2000 (138)	3.6 (13,6)	5.3 (20,1)	7.1 (26,9)	8.7 (32,9)
	2500 (172)	3.6 (13,6)	5.4 (20,4)	7.2 (27,3)	8.8 (33,3)
5000	500 (34)	6.6 (25,0)	10.2 (38,6)	13.6 (51,5)	16.4 (62,1)
	1000 (69)	6.6 (25,0)	10.2 (38,6)	13.6 (51,5)	16.6 (62,8)
	1500 (103)	6.7 (25,4)	10.3 (39,0)	13.7 (51,9)	16.7 (63,2)
	2000 (138)	6.8 (25,7)	10.4 (39,4)	13.8 (52,2)	16.9 (64,0)
	2500 (172)	6.8 (25,7)	10.5 (39,7)	13.9 (52,6)	17.1 (64,7)
Torque lb-in (daNm)					
rpm	psi (bar)	M29YB	M43YB	M58YB	M73YB
2500	500 (34)	17.5 (0,2)	26.0 (0,3)	33.0 (0,4)	49.5 (0,6)
	1000 (69)	36.0 (0,4)	54.5 (0,6)	77.0 (0,9)	97.0 (1,1)
	1500 (103)	55.0 (0,6)	89.0 (1,0)	120.0 (1,4)	152.0 (1,7)
	2000 (138)	73.5 (0,8)	117.0 (1,3)	160.0 (1,8)	202.5 (2,3)
	2500 (172)	91.0 (1,0)	149.0 (1,7)	200.0 (2,3)	252.0 (2,8)
5000	500 (34)	15.0 (0,2)	15.0 (0,2)	16.0 (0,2)	38.0 (0,4)
	1000 (69)	32.5 (0,4)	44.0 (0,5)	65.5 (0,7)	84.0 (0,9)
	1500 (103)	50.0 (0,6)	80.0 (0,9)	109.0 (1,2)	140.0 (1,6)
	2000 (138)	69.0 (0,8)	110.0 (1,2)	152.0 (1,7)	190.0 (2,1)
	2500 (172)	85.0 (1,0)	138.0 (1,6)	196.0 (2,2)	240.0 (2,7)
MYB Birotational Motors*					
		Input Flow gpm (l/min)			
rpm	psi (bar)	M29YB-B	M43YB-B	M58YB-B	M73YB-B
2500	500 (34)	3.3 (12,5)	4.7 (17,8)	6.4 (24,2)	8.1 (29,6)
	1000 (69)	3.3 (12,5)	4.8 (18,2)	6.5 (24,6)	8.1 (29,6)
	1500 (103)	3.3 (12,5)	4.9 (18,5)	6.6 (25,0)	8.2 (31,0)
	2000 (138)	3.4 (12,9)	4.9 (18,5)	6.7 (25,4)	8.3 (31,4)
	2500 (172)	3.4 (12,9)	5.0 (18,9)	6.9 (26,1)	8.4 (31,8)
	3000 (207)	3.5 (13,2)	5.2 (19,7)	7.3 (27,6)	8.5 (32,2)
5000	500 (34)	6.4 (24,2)	9.6 (36,3)	12.8 (48,4)	See Curves for Higher Speeds over 2500 RPM
	1000 (69)	6.5 (24,6)	9.7 (36,7)	12.8 (48,4)	
	1500 (103)	6.6 (25,0)	9.8 (37,1)	13.0 (49,2)	
	2000 (138)	6.6 (25,0)	9.8 (37,1)	13.3 (50,3)	
	2500 (172)	6.7 (25,4)	10.0 (37,8)	13.6 (51,5)	
	3000 (207)	6.8 (25,7)	10.3 (39,0)	14.0 (52,6)	
Torque lb-in (daNm)					
rpm	psi (bar)	M29YB-B	M43YB-B	M58YB-B	M73YB-B
2500	500 (34)	19.5 (0,2)	26.0 (0,3)	33.0 (0,4)	42.0 (4,7)
	1000 (69)	35.5 (0,4)	50.0 (0,6)	64.5 (0,7)	81.0 (9,2)
	1500 (103)	56.5 (0,6)	83.0 (0,9)	119.0 (1,3)	150.0 (16,9)
	2000 (138)	76.0 (0,9)	119.0 (1,3)	161.0 (1,8)	200.0 (22,6)
	2500 (172)	90.0 (1,0)	150.0 (1,7)	193.0 (2,2)	251.0 (2,8)
	3000 (207)	106.0 (1,2)	167.0 (1,9)	222.0 (2,5)	290.0 (3,3)
5000	500 (34)	15.0 (0,2)	18.5 (0,2)	22.0 (0,2)	See Curves for Higher Torques over 2500 RPM
	1000 (69)	31.0 (0,4)	46.0 (0,5)	55.0 (0,6)	
	1500 (103)	50.0 (0,6)	80.0 (0,9)	89.5 (1,0)	
	2000 (138)	68.0 (0,8)	113.0 (1,3)	138.0 (1,6)	
	2500 (172)	85.0 (1,0)	145.5 (1,6)	178.0 (2,0)	
	3000 (207)	98.0 (1,1)	156.0 (1,8)	207.0 (2,3)	

Test data at 175 SUS Hydraulic Oil @ 120° F (49° C). * Performance data rated at 2750 rpm. For higher speeds consult factory.
 * Birotational motors may be used as pumps. Maximum pressure as pump: 3000 psi (207 bar)

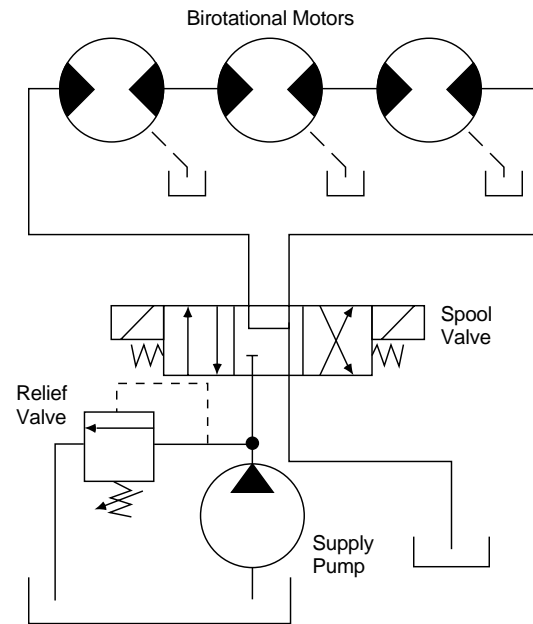
Typical Circuits and Applications

Typical Fan Drive Circuit

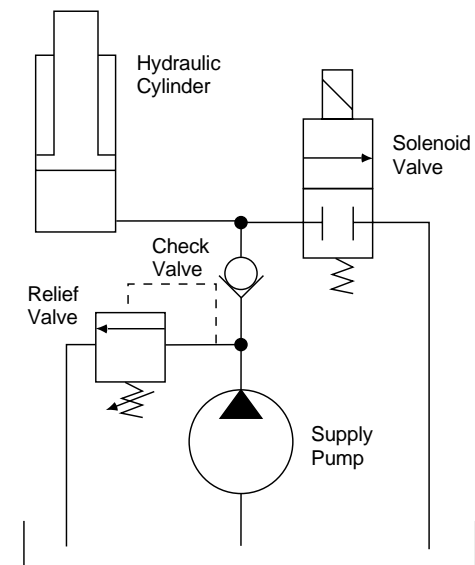


Series Circuit

This circuit, used with birotational motors, requires an external drain.

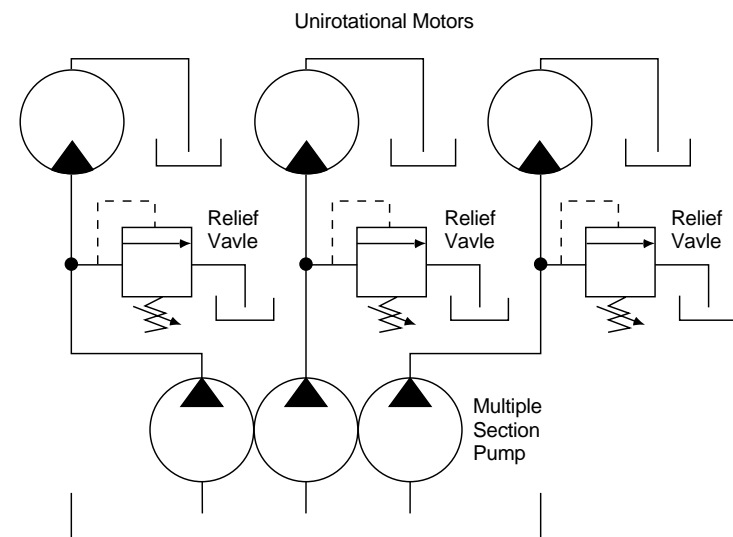


Typical Lift Table Circuit



Parallel Circuit

Unidirectional motors with an internal drain are used with this circuit.



Specifications

Model	Displacement in ³ /rev (cm ³ /rev)	Gear Width in. (mm)
15YB	.146 (2,39).25	(6,4)
22YB	.219 (3,59).37	(9,5)
29YB	.293 (4,80).50	(12,7)
43YB	.439 (7,20).75	(19,1)
58YB	.586 (9,61)1.00	(25,4)
73YB	.732 (12,00)1.25	(31,8)

Note: Theoretical pump delivery in gpm (*l/min*) is determined by multiplying displacement in³/rev (cm³/rev) by desired pump rpm and dividing by 231 (1000).

YB Series hydraulic gear pumps are ideally suited for applications where a lightweight, compact and sturdy unidirectional pump is required. Operating at continuous pressures to 2000 psi (138 bar) and speeds to 4000 rpm, YB Series pumps are available in six displacements from .15 to .73 in³/rev (2 to 12 cm³/rev).

YB pumps feature a pressure-balanced design for high volumetric and mechanical efficiencies. They have two-piece, high-strength aluminum alloy construction with heat-treated gears and shafts. Standard features include straight, keyed or tang shafts; heavy-duty needle bearings, double-lip nitrile rubber seals, and side SAE O-ring or NPTF type ports. A standard universal mounting flange adapts easily to 2/4-bolt "AA" configurations. Options include a 2-bolt "AA" mounting flange; end porting and mechanical, high-pressure or fluoroelastomer seals. Relief and/or outlet check valves are also optional.

Operating Pressures
15YB to 2500 psi (172 bar) continuous
22YB to 2000 psi (138 bar) continuous
29YB to 2000 psi (138 bar) continuous
43YB to 2000 psi (138 bar) continuous
58YB to 2000 psi (138 bar) continuous
73YB to 2000 psi (138 bar) continuous to 2500 psi (172 bar), intermittent
 See performance curves.

Recommended Operating Speeds
 To 4000 rpm.
 See performance curves.

Mounting
 2/4-bolt integral combination mount.
 SAE 2-bolt "AA", optional.

Shafts
 .562" (14,27 mm) diameter straight keyed shaft, tang shaft, standard.
 Other shafts available upon request.

Shaft Rotation
 Clockwise. (Right hand)
 Counterclockwise. (Left hand)
 (When viewed from shaft end)

Seals
 Nitrile rubber standard.
 Mechanical, high pressure, double lip or fluoroelastomer seals, optional.

Bearings
 Four heavy-duty needle type.
 Five with optional outboard bearing.

Porting
 SAE O-ring and NPTF side location, standard.
 End or combination location, optional.

Optional Valving
 * Internally drained relief valves (15YB – 29YB).
 Externally drained relief valves (43YB – 73YB).
 Outlet check valves (15YB – 29YB).

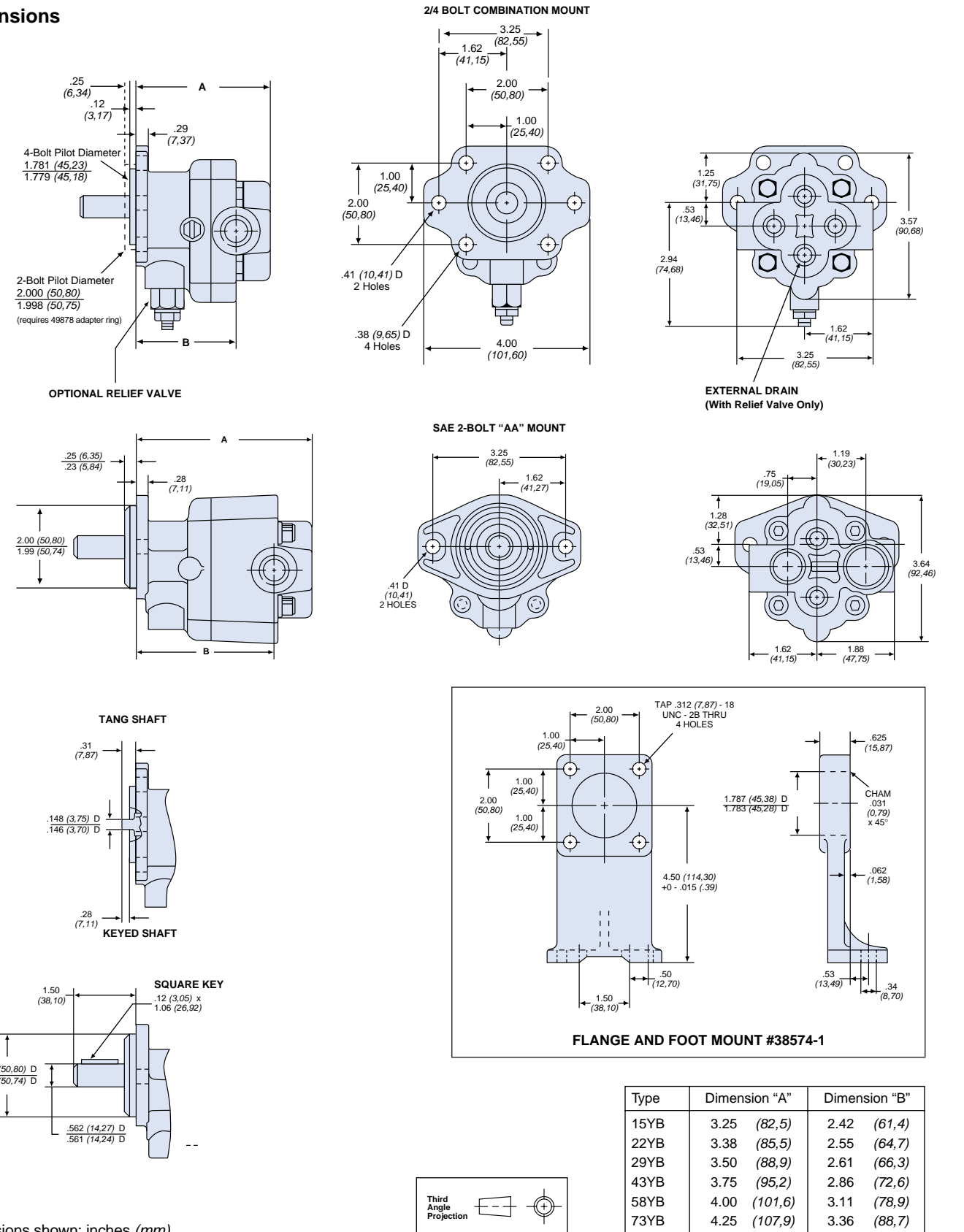
Optional Foot Mount See page 10 for dimensional information.

Weight 1.75 to 3 pounds. (0,8 to 1,3 kg.)

*Internally drained relief valve is an overload relief only. It should not be used to regulate system pressure.

YB Series Gear Pumps

Dimensions



Dimensions shown: inches (mm)

YB Series Gear Pumps

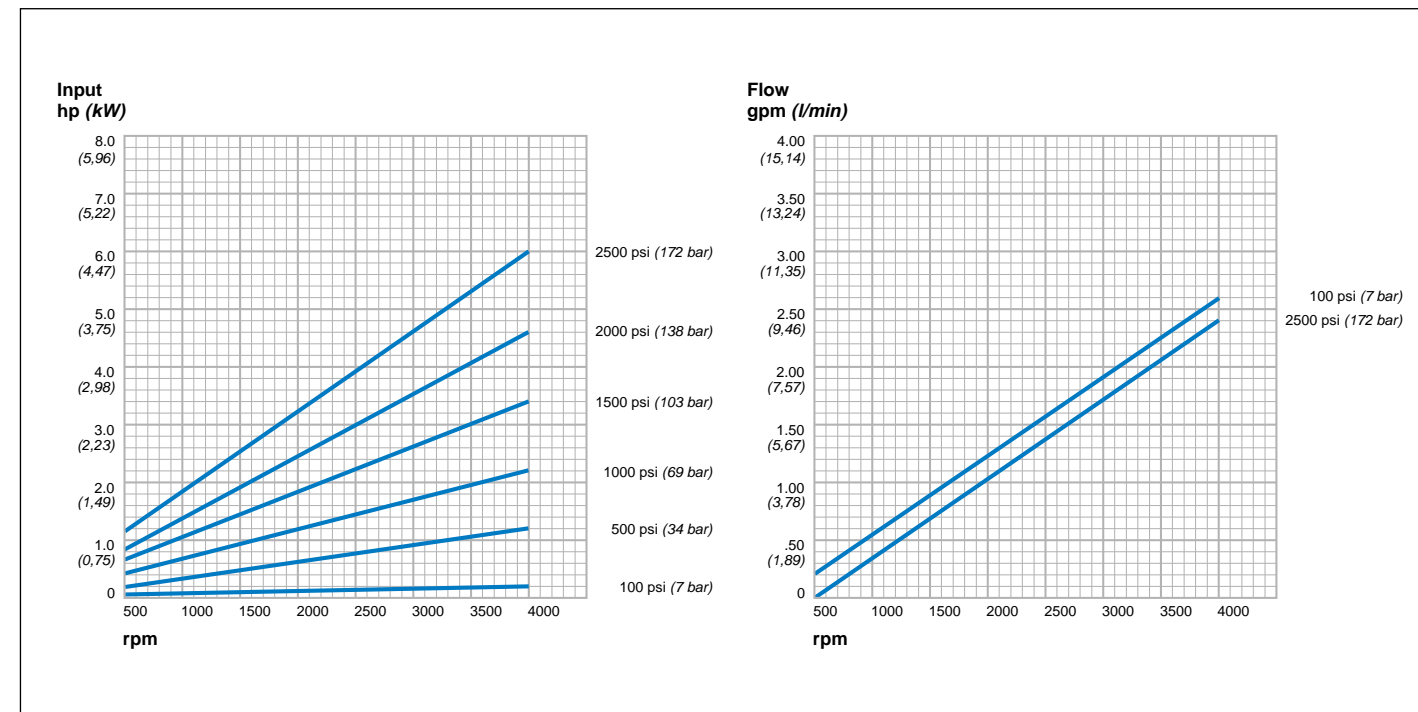
Filtration

Recommended filtration is 10 micron nominal, 25 micron absolute, for maximum service life. The filter should be installed in the return line. Make sure that the filter is properly sized for your system and cleaned on a regular basis.

If practical, the hydraulic system should include a warning device which signals when the filter is dirty, preventing the filter from going into a bypass condition. This will help ensure maximum component life and efficiency.

Model 15YB Typical Performance Data

Pressure	Flow							
	gpm		l/min		hp		kw	
100 psi (7 bar)	0.5	1.9	1.1	4.2	1.9	7.2	2.6	9.8
	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1
500 psi (34 bar)	0.5	1.9	1.1	4.2	1.9	7.2	2.6	9.8
	0.4	0.3	0.6	0.4	1.0	0.7	1.2	0.9
1000 psi (69 bar)	0.5	1.9	1.0	3.8	1.8	6.8	2.5	9.5
	0.7	0.5	1.1	0.8	1.7	1.3	2.2	1.6
1500 psi (103 bar)	0.4	1.5	0.9	3.4	1.7	6.4	2.4	9.1
	1.0	0.1	1.7	1.3	2.6	1.9	3.4	2.5
2000 psi (138 bar)	0.4	1.5	0.9	3.4	1.7	6.4	2.4	9.1
	1.4	1.0	2.2	1.6	3.5	2.6	4.6	3.4
2500 psi (172 bar)	0.4	1.5	0.9	3.4	1.7	6.4	2.4	9.1
	1.8	1.3	3.0	2.2	4.6	3.4	6.0	4.5
rpm	1000	1800	3000	4000				



YB Series Gear Pumps

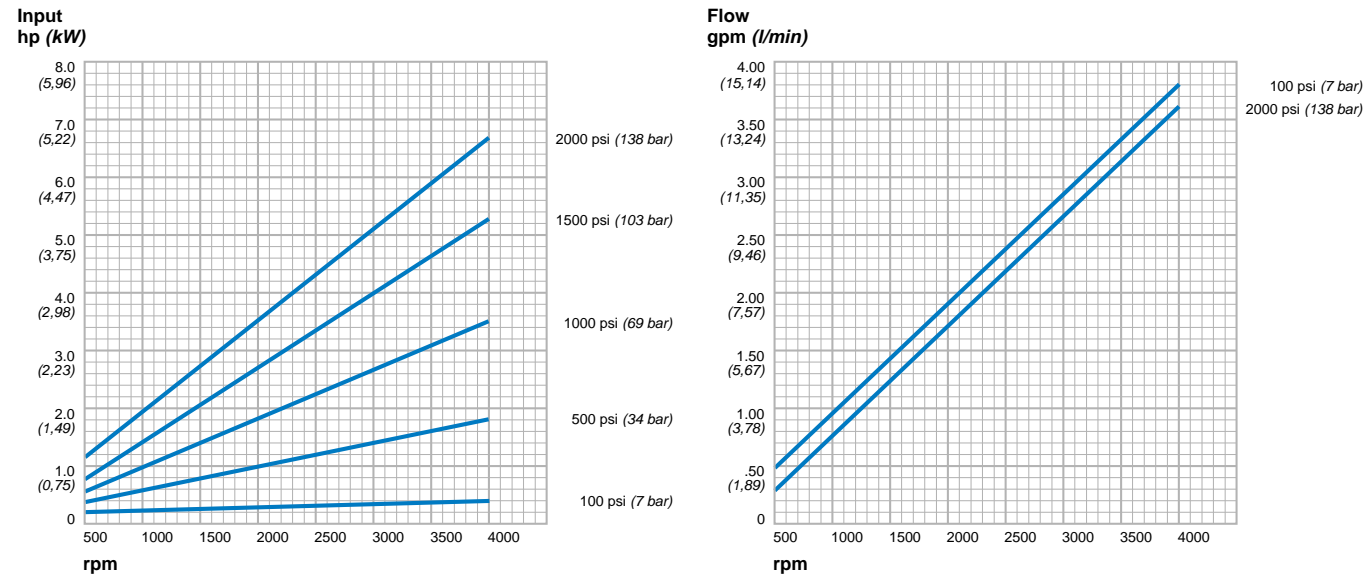
Reservoir

The reservoir provides hydraulic system oil storage, oil deaeration, and some heat dissipation. Reservoir construction should include at least one internal baffle, creating separate chambers for system return oil and pump inlet oil. This allows return oil to deaerate and contaminants to settle out. Surplus oil would then flow over baffle to pump inlet side. Oil cleanliness is especially important at startup.

Reservoirs are ideally sized so the volume of reservoir oil is not replaced more than twice per minute. Practical considerations of space and weight, however, sometimes make this difficult on mobile equipment and a heat exchanger may be required.

Model 22YB Typical Performance Data

Pressure	rpm				Flow		Input	
	1000	1800	3000	4000	gpm l/min	hp kW	gpm l/min	hp kW
100 psi (7 bar)	0.9	3.4	1.7	6.4	2.8	10.6	3.8	14.4
	0.2	0.1	0.2	0.1	0.4	0.3	0.4	0.3
500 psi (34 bar)	0.9	3.4	1.7	6.4	2.8	10.6	3.8	14.4
	0.6	0.4	0.9	0.7	1.4	1.0	1.8	1.3
1000 psi (69 bar)	0.8	3.0	1.6	6.1	2.7	10.2	3.7	14.0
	1.0	0.7	1.6	1.2	2.6	1.9	3.5	2.6
1500 psi (103 bar)	0.7	2.6	1.5	5.7	2.6	9.8	3.6	13.6
	1.4	1.0	2.4	1.8	4.0	3.0	5.3	4.0
2000 psi (138 bar)	0.7	2.6	1.5	5.7	2.6	9.8	3.6	13.6
	2.0	1.5	3.2	2.4	5.1	3.8	6.7	5.0
rpm	1000	1800	3000	4000				



YB Series Gear Pumps

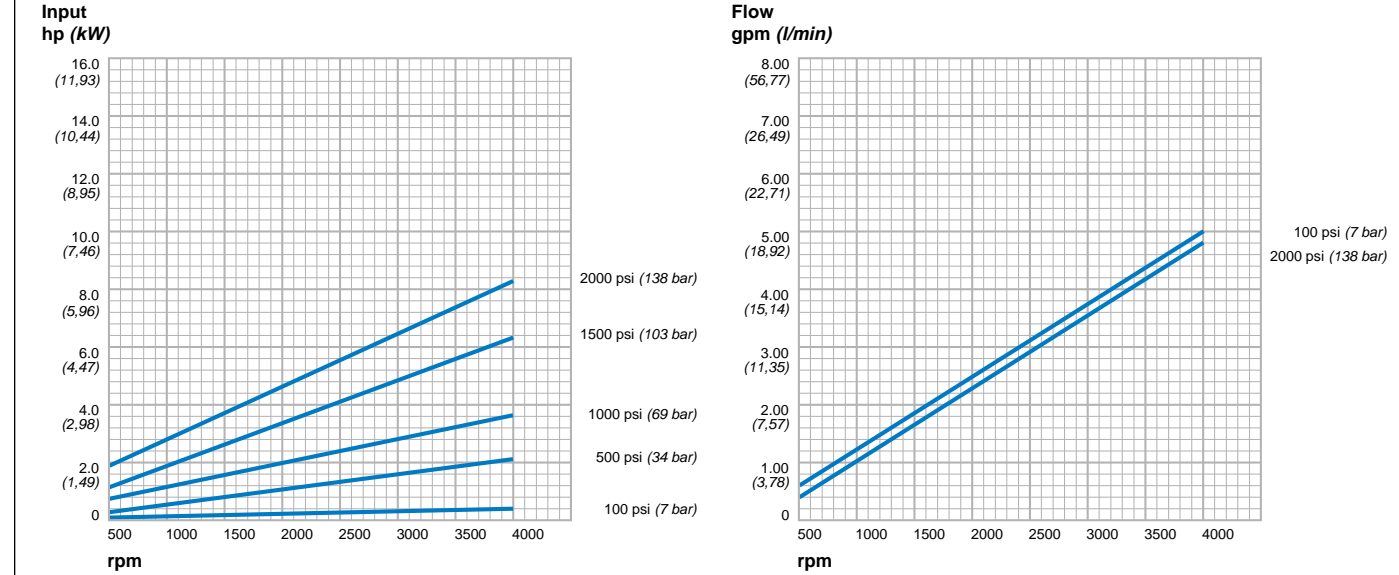
Operating Temperatures

Pumps with nitrile rubber seals should operate at system temperatures of 180°F (82,2°C) maximum. Nitrile rubber seals can tolerate intermittent pump operation periods to 200°F (93,3°C) without damage to the pump seals. However, system temperatures exceeding 225°F (107,2°C) will cause premature seal failure and result in external leakage.

Oil in a hydraulic system that is consistently overheated will break down, forming varnish on system components and destroying system sealing materials. Poor and erratic system operation is the usual result of an overheated system. If system temperatures are expected to consistently exceed 180°F (82,2°C), it will be necessary to place a heat exchanger in the system.

Model 29YB Typical Performance Data

Pressure	rpm				Flow		Input	
	1000	1800	3000	4000	gpm l/min	hp kW	gpm l/min	hp kW
100 psi (7 bar)	1.2	4.5	2.2	8.3	3.8	14.4	5.0	18.9
	0.2	0.1	0.2	0.1	0.4	0.3	0.4	0.3
500 psi (34 bar)	1.2	4.5	2.2	8.3	3.8	14.4	5.0	18.9
	0.6	0.4	0.9	0.7	1.7	1.3	2.2	1.6
1000 psi (69 bar)	1.1	4.2	2.1	7.9	3.7	14.0	4.9	18.5
	1.2	0.9	1.8	1.3	2.8	2.1	3.6	2.7
1500 psi (103 bar)	1.0	3.8	2.0	7.6	3.6	13.6	4.8	18.2
	2.0	1.5	3.2	2.4	4.8	3.6	6.2	4.6
2000 psi (138 bar)	1.0	3.8	2.0	7.6	3.6	13.6	4.8	18.2
	2.6	1.9	4.1	3.1	6.4	4.8	8.2	6.1
rpm	1000	1800	3000	4000				



YB Series Gear Pumps

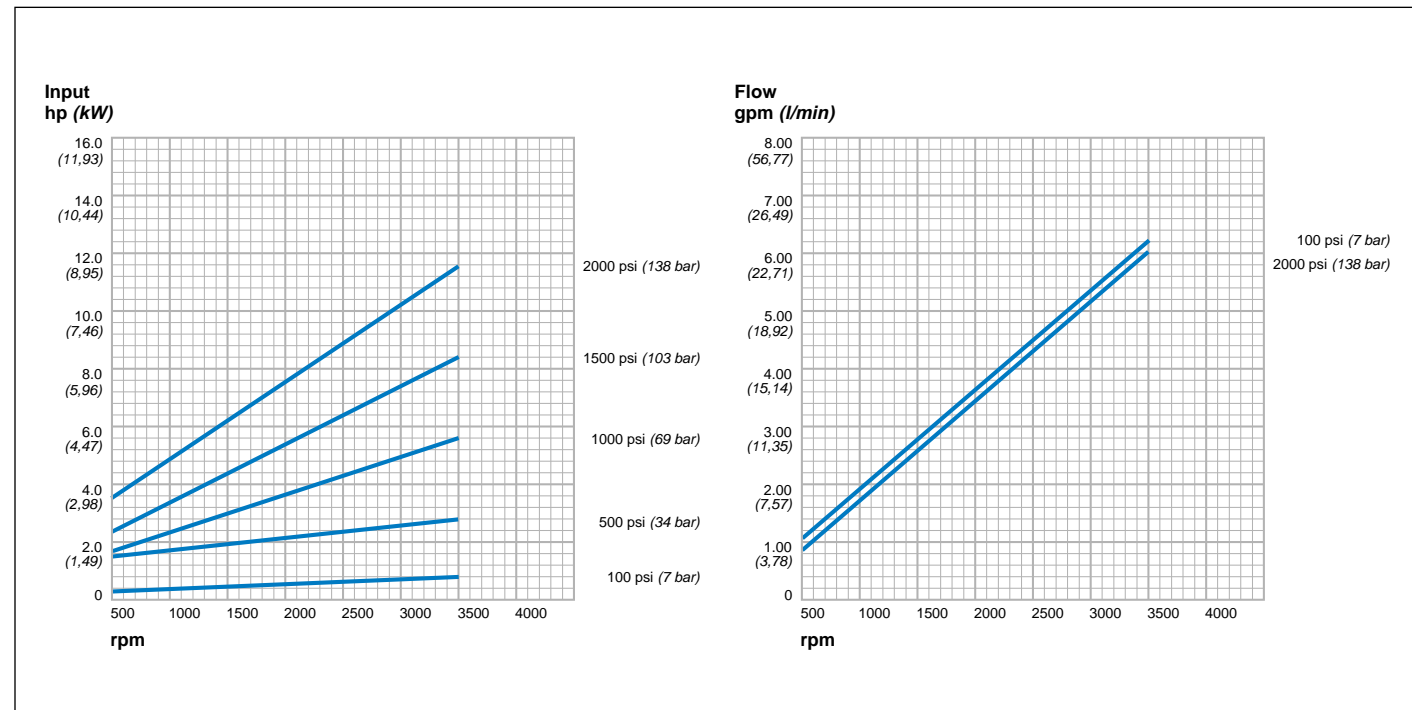
Drives

YB Series hydraulic pumps can be mounted in either direct or indirect drive configurations. The pump mount and drive should be designed to minimize axial and radial loads on the pump shaft. The preferred method is direct mounting using a flex coupler. The coupler may be omitted if .004" (0,1 mm) total indicator

reading is maintained between the pilot mounting diameter and the drive shaft powering the pump. For outboard bearings, consult QCC.

Model 43YB Typical Performance Data

Pressure	Flow				Input			
	gpm	l/min	gpm	l/min	hp	kw	hp	kw
100 psi (7 bar)	1.8	6,8	3.2	12,1	5.3	20,1	6.2	23,5
	0.3	0,2	0.5	0,4	0.7	0,5	0.8	0,6
500 psi (34 bar)	1.8	6,8	3.2	12,1	5.3	20,1	6.2	23,5
	1.6	1,2	1.9	1,4	2.4	1,8	2.6	1,9
1000 psi (69 bar)	1.7	6,4	3.1	11,7	5.2	19,7	6.1	23,1
	2.4	1,8	3.4	2,5	5.0	3,7	5.6	4,2
1500 psi (103 bar)	1.6	6,1	3.0	11,4	5.1	19,3	6.0	22,7
	3.4	2,5	5.0	3,7	7.4	5,5	8.4	6,3
2000 psi (138 bar)	1.6	6,1	3.0	11,4	5.1	19,3	6.0	22,7
	4.6	3,4	6.8	5,1	10.0	7,5	11.4	8,5
rpm	1000	1800	3000	3500				



YB Series Gear Pumps

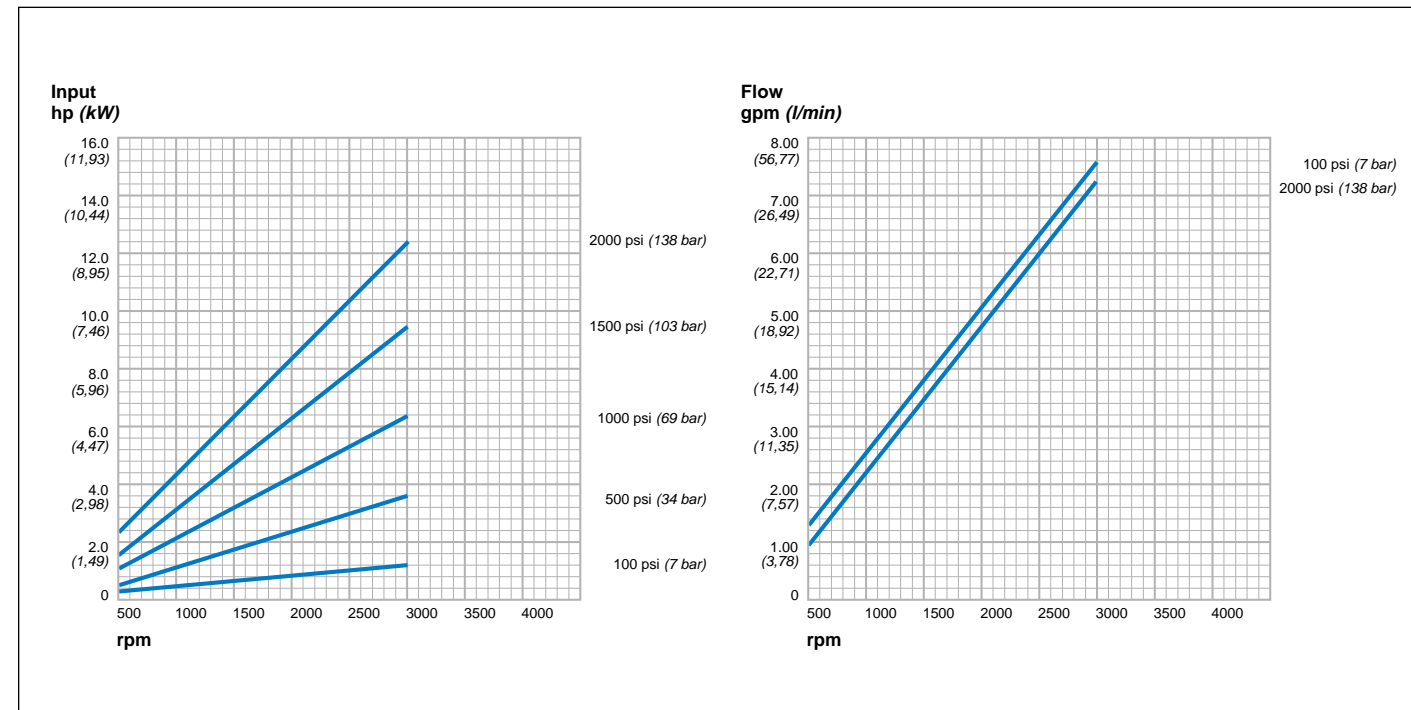
System Plumbing

The major objective in the specification of tubing and hose sizes is to limit maximum oil velocity. This results in quieter system operation, consistent operating temperature, and a reduction of heat through the elimination of pressure drops. To avoid pump cavitation, maximum inlet line flow should not exceed 10 feet per second (3,04 m/sec). Inlet vacuum should not exceed 5" (127 mm) Hg at the normal

operating temperature. Continuous operation at vacuums in excess of 5" (127 mm) Hg will cause premature unit failure. On cold starts, a vacuum of 10" (460 mm) Hg can be tolerated for short durations. Inlet vacuums higher than 10" (460 mm) Hg shorten pump life by creating heat and excessive pressure in the pump. Pump discharge lines should have flow velocities under 20 feet per second (6.10 m/sec).

Model 58YB Typical Performance Data

Pressure	Flow				Input			
	gpm	l/min	gpm	l/min	hp	kw	hp	kw
100 psi (7 bar)	2.4	9,1	4.5	17,0	7.6	28,8		
	0.4	0,3	0.8	0,6	1.2	0,9		
500 psi (34 bar)	2.3	8,7	4.4	16,7	7.5	28,4		
	1.0	0,7	2.0	1,5	3.4	2,5		
1000 psi (69 bar)	2.2	8,3	4.3	16,3	7.4	28,0		
	2.0	1,5	3.6	2,7	6.2	4,6		
1500 psi (103 bar)	2.1	7,9	4.2	15,9	7.3	27,6		
	3.2	2,4	5.6	4,2	9.4	7,0		
2000 psi (138 bar)	2.0	7,6	4.1	15,5	7.2	27,3		
	4.4	3,3	7.6	5,7	12.4	9,3		
rpm	1000	1800	3000					



YB Series Gear Pumps

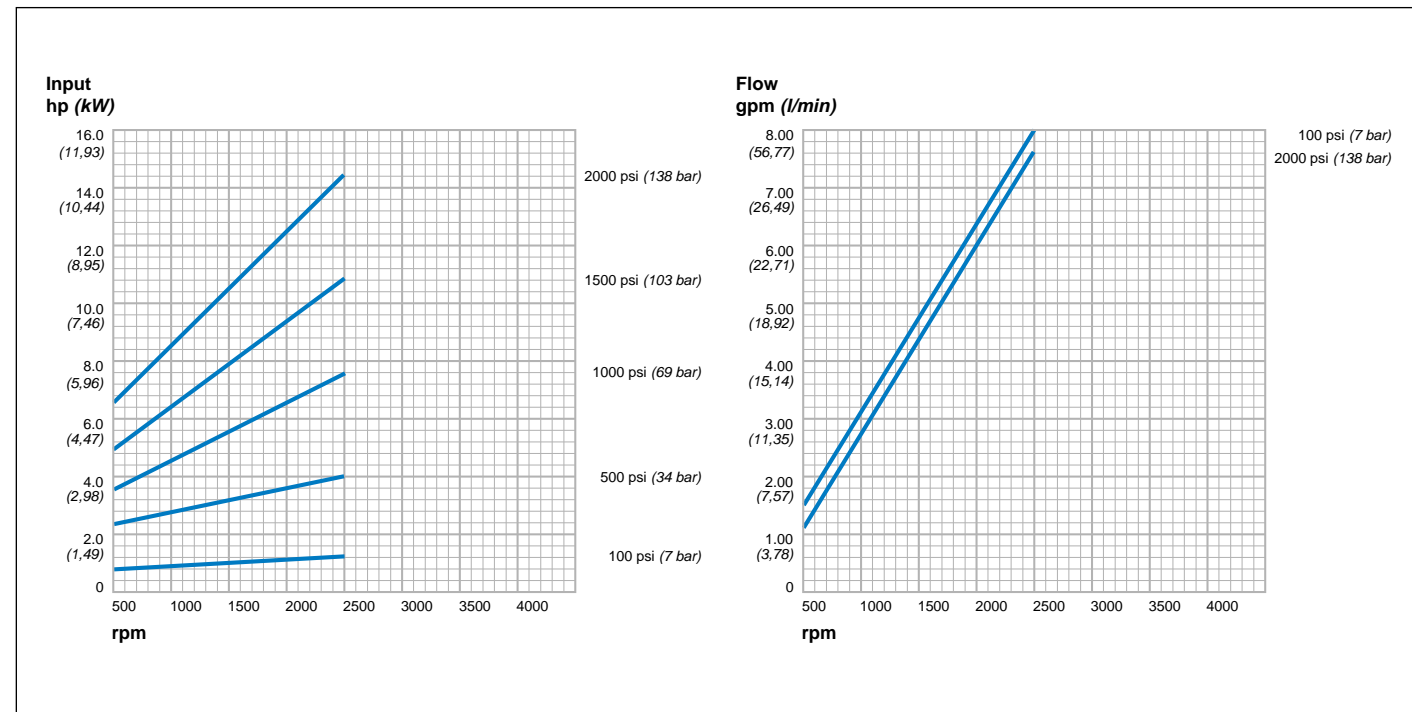
Cavitation

Cavitation problems can be the result of excessive air in the oil, high inlet vacuum, improper reservoir construction and placement, or operation exceeding rated operating speed. Hydraulic oil normally has some dissolved air. Air leaks on the pump inlet side, however, will raise the air content substantially. Since air is more compressible than oil, air bubbles will collapse (or implode) when

pressurized, causing severe stress on hydraulic system components. As the air content increases, resultant damage to the system also increases. High inlet vacuum, often caused by restrictions or improper reservoir configuration, is another source of cavitation. Operation of a pump at higher than rated speeds increases inlet vacuum and can result in cavitation as well.

Model 73YB Typical Performance Data

Pressure	Flow		Input	
	gpm	l/min	hp	kw
100 psi (7 bar)	3.2	12,1	5.8	22,0
	0.9	0,7	1.1	0,8
500 psi (34 bar)	3.1	11,7	5.7	21,6
	2.8	2,1	3.6	2,7
1000 psi (69 bar)	3.0	11,4	5.6	21,2
	4.2	3,1	6.0	4,5
1500 psi (103 bar)	2.9	11,0	5.5	20,8
	6.4	4,8	8.8	6,6
2000 psi (138 bar)	2.8	10,6	5.4	20,4
	8.4	6,3	11.6	8,7
rpm	1000	1800	2500	



YB Series Gear Pumps

Operating Speeds

A hydraulic pump's speed rating is determined by the ability of the pump to fill with oil without cavitating, with a given inlet pressure and oil viscosity. YB pumps have a maximum operating speed range of 3-4000 rpm, depending on pump displacement. This is based on operation at sea level using SAE oil with a viscosity of 130 SUS (32 cSt) at 120°F (48,8°C). Actual limits for each displacement can

be found in the pump performance curves. Minimum speed for the YB Series is 500 rpm. This is the normal minimum speed at which the pump will operate continuously at rated pressure.

Consult QCC for operation outside these limits.

Operating Pressure Ratings

YB Series pumps are designed to operate continuously at the rated pressures shown on Page 9. In most applications, this maximum pressure should be considered the maximum relief valve setting. Lower operating pressures will extend the life of the unit. Maximum operating pressures decrease in the higher displacement pumps.

MYB Series Unirotational Gear Motors

Specifications

Model	Displacement	in ³ /rev (cm ³ /rev)	Gear Width	in. (mm)
M29YB	.293	(4,80).50	(12,7)	
M43YB	.439	(7,20).75	(19,1)	
M58YB	.586	(9,61)1.00	(25,4)	
M73YB	.732	(12,0)1.25	(31,8)	

Note: Theoretical motor delivery in gpm (*l/min*) is determined by multiplying displacement-in³/rev (cm³/rev) by desired pump rpm and dividing by 231 (1000).

MYB **unirotational** gear motors provide economical performance at speeds to 5000 rpm and supply pressure to 2000 psi (138 bar). They are available in four displacements from .29 to .73 in³/rev (4,8 to 12,0 cm³/rev).

MYB motors have a pressure-balanced design for high volumetric and mechanical efficiencies. They have two-piece, high-strength aluminum alloy construction with heat-treated gears and shafts. Standard features include keyed shafts; heavy-duty needle bearings; nitrile rubber high-pressure seals and side SAE O-ring or NPTF type ports. A universal mounting flange adapts easily to 2/4-bolt "AA" configurations. Options include a 2-bolt "AA" mounting flange, end porting and mechanical or fluoroelastomer seals.

Operating Pressures **M29YB** to 2500 psi (172 bar) continuous
M43YB to 2500 psi (172 bar) continuous
M58YB to 2500 psi (172 bar) continuous
M73YB to 2500 psi (138 bar) continuous
 See performance curves.

Recommended Operating Speeds To 5000 rpm
 See performance curves.

Maximum Continuous Back Pressure 100 psi (6.9 bar), peaks to 250 (17 bar) with standard high pressure seal.
 Lower back pressure will extend seal life and improve efficiency.

Mounting 2/4-bolt integral combination mount.
 SAE 2-bolt "AA"

Shafts .563" (14,3 mm) diameter straight keyed shaft.
 Splined and other shafts available upon request.

Shaft Rotation Clockwise (Right Hand)
 Counterclockwise (Left Hand)
 (When viewed from shaft end)

Seals High pressure, double lip nitrile rubber, standard.
 Mechanical or fluoroelastomer seals, optional.

Bearings Four heavy-duty, needle type.
 Five with optional outboard bearing.

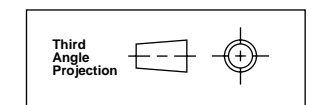
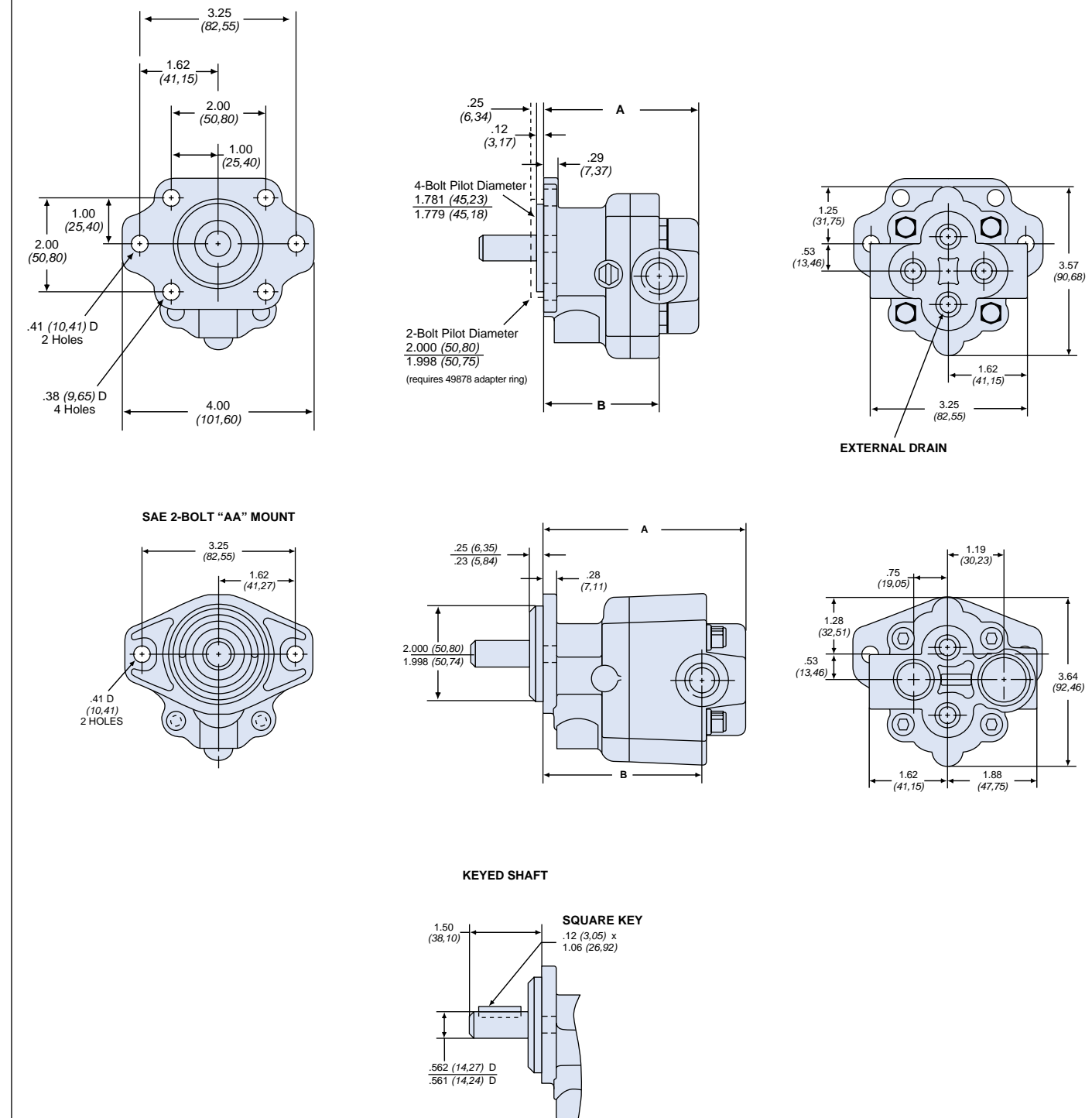
Porting SAE O-ring and NPTF side location, standard.
 End or combination location, optional.

Optional Foot Mount See page 10 for dimensional information.

Weight 1.75 to 3 pounds (0,8 to 1,3 kg).

MYB Series Unirotational Gear Motors

Dimensions



Type	Dimension "A"	Dimension "B"
M29YB	3.50 (88,9)	2.61 (66,3)
M43YB	3.75 (95,2)	2.86 (72,6)
M58YB	4.00 (101,6)	3.11 (78,9)
M73YB	4.25 (107,9)	3.36 (88,7)

Dimensions shown: inches (mm)

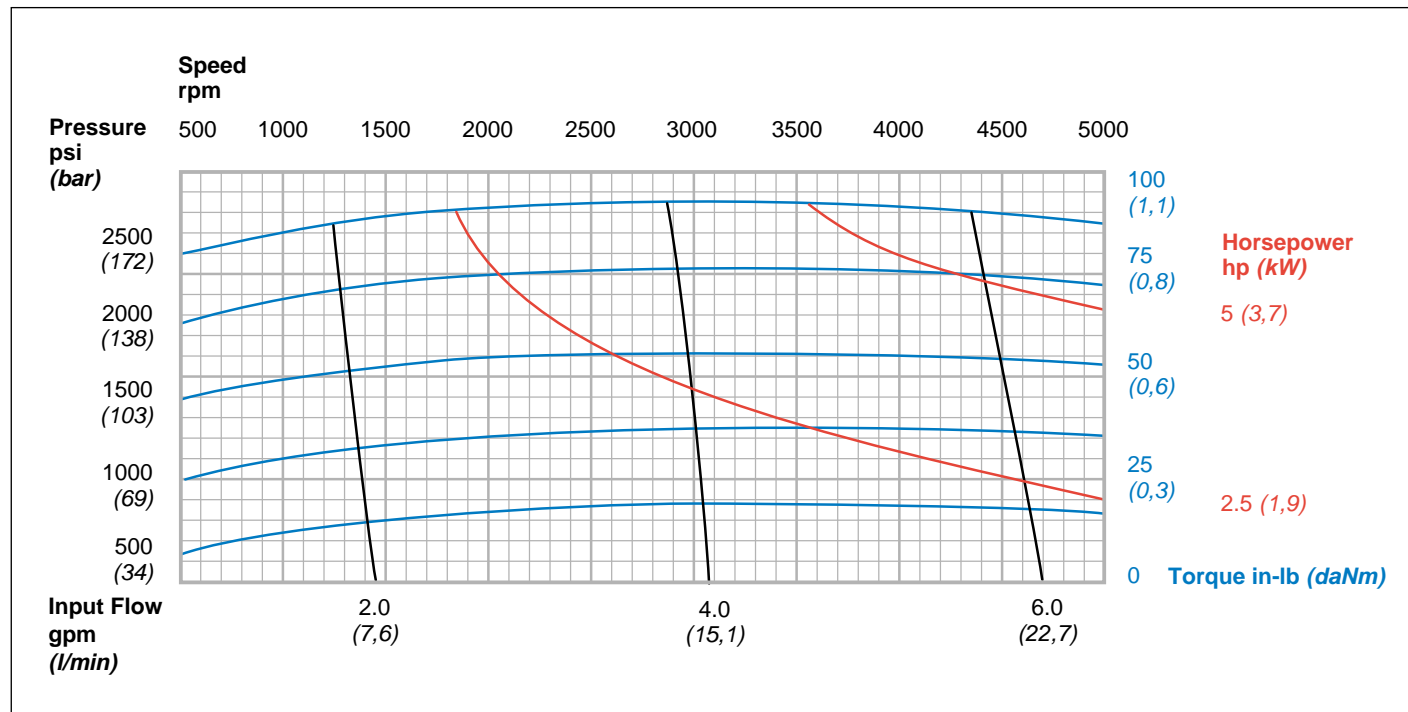
MYB Series Unirotational Gear Motors

Filtration

Recommended filtration is 10 micron nominal for maximum motor service life. Make sure that the filter is properly sized for the system and cleaned on a regular basis. If practical, the hydraulic system should include a warning device which signals when the filter element is dirty, preventing the filter from going into a bypass condition. This will help ensure maximum component life and efficiency.

Model M29YB Typical Performance Data

Pressure	Flow				Torque			
	gpm l/min	gpm l/min	gpm l/min	gpm l/min	lb-in daNm	lb-in daNm	lb-in daNm	lb-in daNm
500 psi (34 bar)	1.7	6.4	3.4	12.9	4.6	17.4	6.6	25.0
	12.5	0.1	17.5	0.2	18.0	0.2	15.0	0.2
1000 psi (69 bar)	1.7	6.4	3.4	12.9	4.7	17.8	6.6	25.0
	30.0	0.3	36.0	0.4	36.0	0.4	32.5	0.4
1500 psi (103 bar)	1.8	6.8	3.5	13.2	4.8	18.2	6.7	25.4
	50.0	0.6	55.0	0.6	54.0	0.6	50.0	0.6
2000 psi (138 bar)	1.8	6.8	3.6	13.6	4.8	18.2	6.8	25.7
	68.0	0.8	73.5	0.8	73.0	0.8	69.0	0.8
2500 psi (172 bar)	1.9	7.2	3.6	13.6	4.9	18.5	6.8	25.7
	85.0	1.0	91.0	1.0	90.0	1.0	85.0	1.0
rpm	1000	2500	3500	5000				



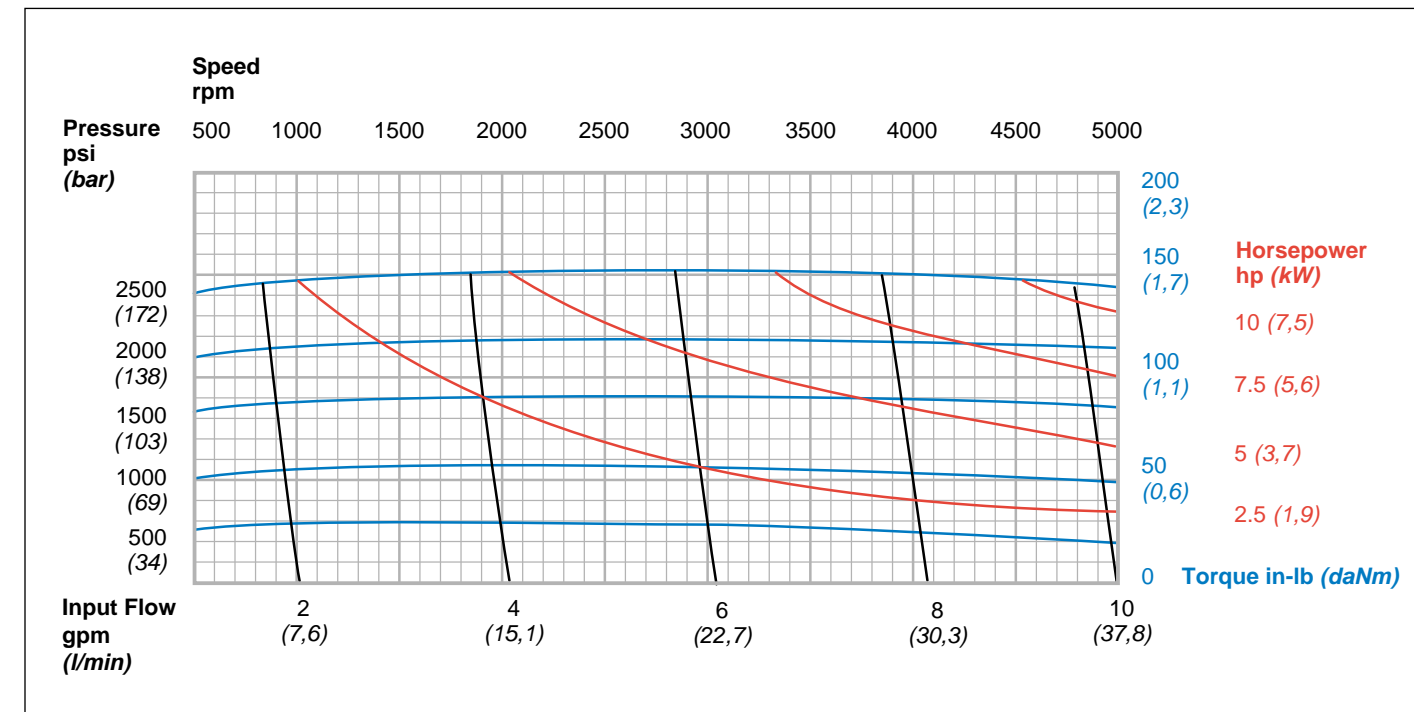
MYB Series Unirotational Gear Motors

Operating Temperatures

MYB motors with high pressure nitrile rubber shaft seal should normally operate at system temperatures of 180°F (82,2°C) maximum. Nitrile rubber seals can tolerate intermittent motor operation periods to 200°F (93,3°C) without damage to the seal material. However, system temperatures exceeding 225°F (107,2°C) will cause premature seal failure and result in external leakage.

Model M43YB Typical Performance Data

Pressure	Flow				Torque			
	gpm l/min	gpm l/min	gpm l/min	gpm l/min	lb-in daNm	lb-in daNm	lb-in daNm	lb-in daNm
500 psi (34 bar)	2.1	7.9	5.1	19.3	7.1	26.9	10.2	38.6
	25.5	0.3	26.0	0.3	23.5	0.3	15.0	0.2
1000 psi (69 bar)	2.2	8.3	5.2	19.7	7.1	26.9	10.2	38.6
	54.0	0.6	54.5	0.6	52.0	0.6	44.0	0.5
1500 psi (103 bar)	2.2	8.3	5.3	20.1	7.3	27.6	10.3	39.0
	87.0	1.0	89.0	1.0	86.0	1.0	80.0	0.9
2000 psi (138 bar)	2.3	8.7	5.3	20.1	7.3	27.6	10.4	39.4
	112.0	1.3	117.0	1.3	117.5	1.3	110.0	1.2
2500 psi (172 bar)	2.4	9.1	5.4	20.4	7.4	28.0	10.5	39.7
	145.0	1.6	149.5	1.7	146.0	1.6	138.0	1.6
rpm	1000	2500	3500	5000				



MYB Series Unirotational Gear Motors

Operating Temperatures continued

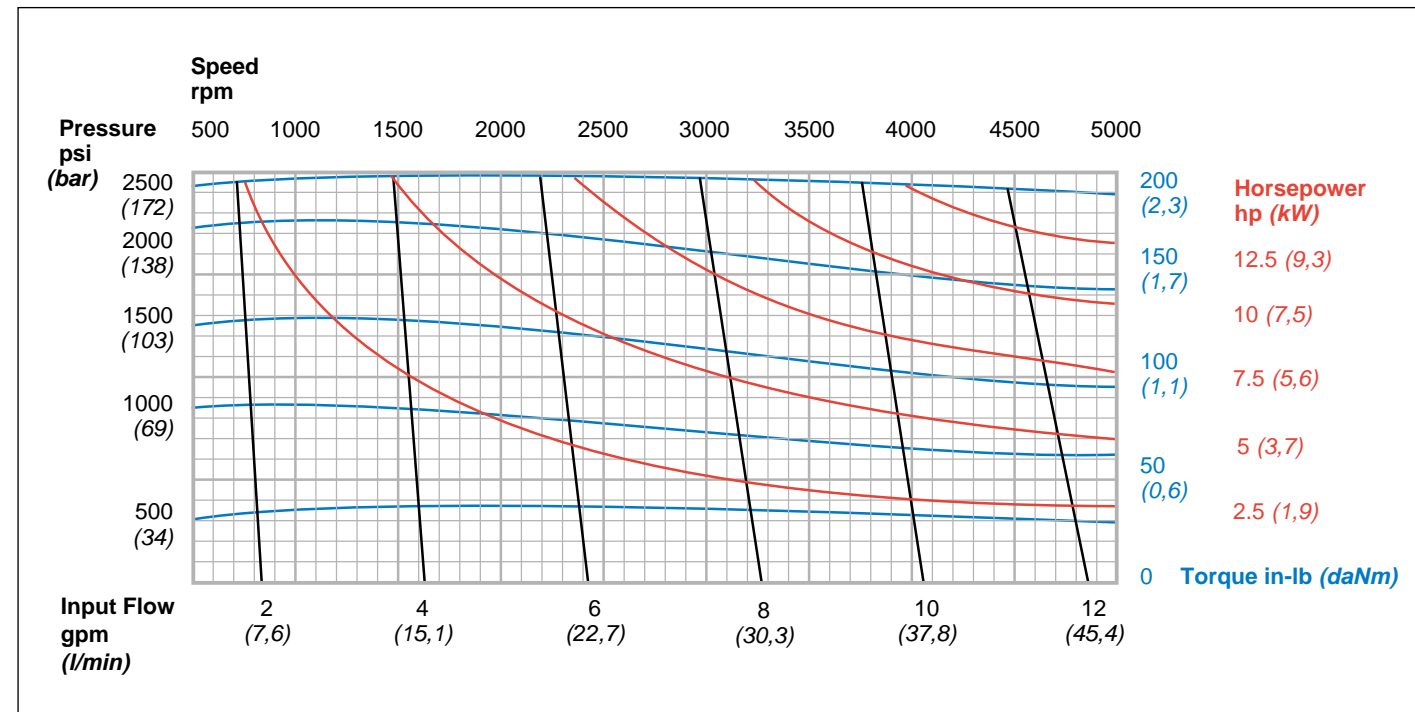
Oil in a hydraulic system that is consistently overheated will break down, forming varnish on system components, and destroying system sealing materials. Poor and erratic system operation is the usual result of an overheated system. If system temperatures are expected to consistently exceed 180°F (82,2°C), a heat exchanger placed in the return line may be necessary. An optional seal, the high

pressure fluoroelastomer shaft seal, provides higher temperature operation. It is also suitable for use with fluids not compatible with nitrile rubber seals.

Another optional seal, the mechanical or rotary shaft seal, is used in high pressure, high-speed applications. Mechanical seals also tolerate higher back pressures. Consult QCC for your special needs.

Model M58YB Typical Performance Data

Pressure	Flow			
	gpm lb-in	l/min daNm	Torque	
500 psi (34 bar)	2.9	11,0	6.8	25,7
	35.0	0,4	33.0	0,4
1000 psi (69 bar)	2.9	11,0	6.9	26,1
	75.5	0,8	77.0	0,8
1500 psi (103 bar)	2.9	11,0	7.0	26,5
	118.0	1,3	120.0	1,4
2000 psi (138 bar)	3.0	11,4	7.1	26,9
	157.5	1,8	160.0	1,8
2500 psi (172 bar)	3.0	11,4	7.2	27,3
	192.0	2,2	200.0	2,3
rpm	1000	2500	3500	5000



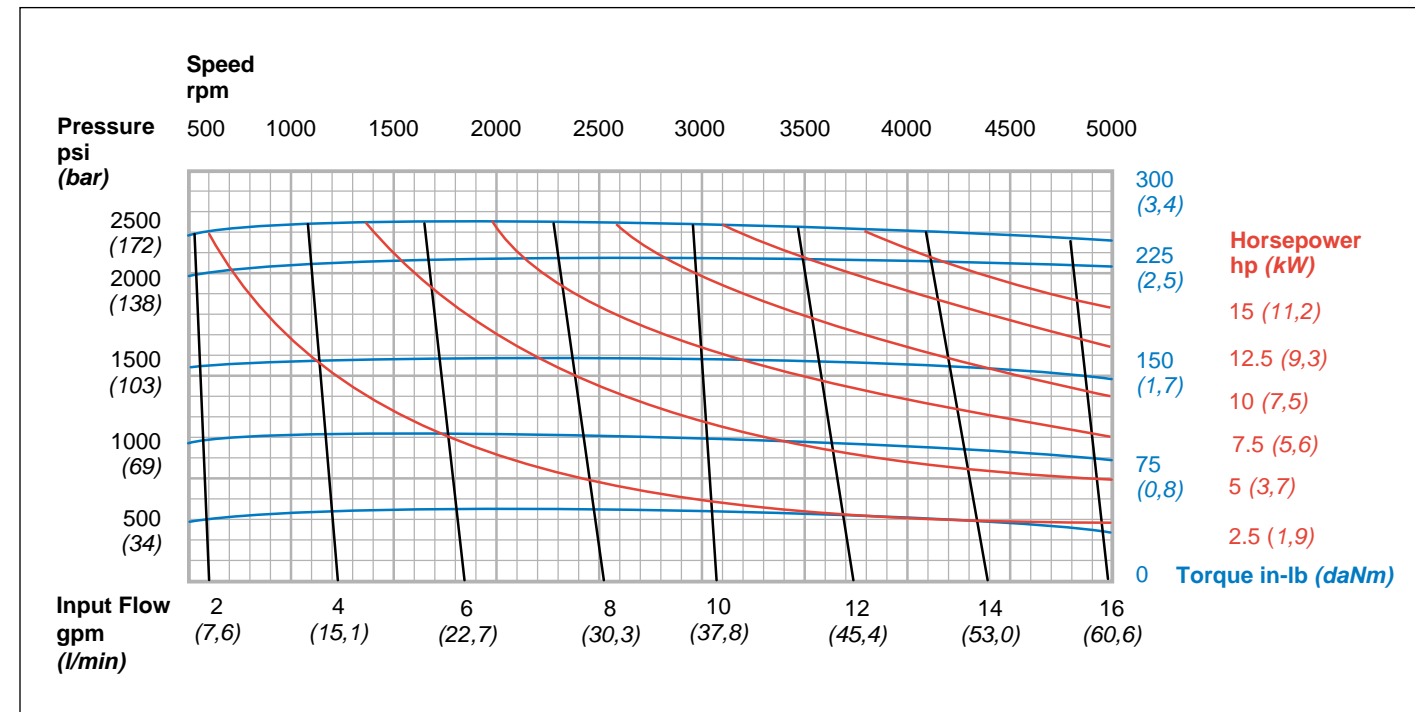
MYB Series Unirotational Gear Motors

Operating Speeds

MYB **unirotational** motors have a maximum operating speed range up to 5000 rpm, (based on operation at sea level using SAE oil with a viscosity of 130 SUS (32 cSt) at 120°F (48,8°C)). Actual limits for each displacement can be found in the motor performance curves. Minimum speed is 500 rpm. This is the normal minimum speed at which the motor will operate continuously at rated pressure. Consult QCC for operation outside these limits.

Model M73YB Typical Performance Data

Pressure	Flow			
	gpm lb-in	l/min daNm	Torque	
500 psi (34 bar)	3.6	13,6	8.3	31,4
	49.0	0,6	49.5	0,6
1000 psi (69 bar)	3.6	13,6	8.4	31,8
	99.0	1,1	97.0	1,1
1500 psi (103 bar)	3.7	14,0	8.5	32,2
	153.0	1,7	152.0	1,7
2000 psi (138 bar)	3.8	14,4	8.7	32,9
	203.0	2,3	202.5	2,3
2500 psi (172 bar)	4.0	15,1	8.8	33,3
	251.0	2,8	252.0	2,8
rpm	1000	2500	3500	5000



MYB Series Unirotational Gear Motors

Operating Pressure Ratings MYB **unirotational** motors are designed to operate continuously at the rated pressures shown on page 18. Maximum operating pressures decrease in higher displacement motors.

System Plumbing

Undersized or restricted return lines can cause excessive back pressure on the motor shaft seal. Excessively high back pressures can shorten shaft seal life and cause efficiency loss through heat buildup. To avoid back pressure, the return line should be sized such that flow does not exceed 100 psi (7 bar) or 150 psi (10 bar) intermittent for a motor with the standard high pressure seal. A motor with the optional high pressure mechanical seal can tolerate back pressure up to 200 psi (14 bar) and up to 300 psi (21 bar) intermittent.

All MYB **unirotational** motors are equipped with an internal drain, eliminating the need for an external drain line. If more than one motor is used on the same circuit, they should be connected in parallel.

Performance Curve Use

Performance curves shown for MYB **unirotational** motors combine 5 related variables: pressure, speed, input flow, output torque, and horsepower output. If any two variables are known or assumed, the others can be determined. Compare the curves for all models and select the one which provides the best performance at desired speed and torque.

Example: the application requires a motor producing 160 lb-in. (1,8 daNm) of torque at 2800 rpm. What are the values for psi (bar), gpm (l/min), and hp?

Find and mark the intersection of 2800 rpm and 160 lb-in. (3,4 daNm) on the curve; the value of the remaining variables can be found by interpolation. In this case they would be 2000 psi (138 bar), 8 gpm (30,3 l/min) and 7.5 hp. Examine the motor curves for each displacement and choose the motor most suitable for the desired application.

MYB Series Birotational Gear Motors

Specifications

Model	Displacement in ³ /rev (cm ³ /rev)	Gear Width in. (mm)
M29YB-B	.293 (4,80).50	(12,7)
M43YB-B	.439 (7,20).75	(19,1)
M58YB-B	.586 (9,61)1.00	(25,4)
M73YB-B	.732 (12,00)1.25	(31,8)

Note: Theoretical motor delivery in gpm (l/min) is determined by multiplying displacement in³/rev (cm³/rev) by desired pump rpm and dividing by 231 (1000).

MYB Series birotational gear motors have established a new standard of performance for hydraulic motors of their size. Highly efficient and durable, they provide consistent operation at speeds to 5000rpm and supply pressures to 3000 psi (207 bar). They are available in three displacements: .29, .43 and .58 in³/rev (4,8-7,2 and 9,6 cm³/rev).

Lightweight and compact, MYB motors have a new pressure-balanced design for high volumetric and mechanical efficiencies. They have two-piece, high-strength aluminum alloy construction with heat-treated gears and shafts. Standard features include splined or keyed shafts; heavy-duty needle bearings; temperature/contaminant-resistant double lip seal with dirt wiper for added protection; and rear or side SAE O-ring type ports. A universal mounting flange adapts easily to 2/4-bolt "AA" configurations. Internally drained models are available for use in parallel motor circuits. Externally drained models are also available for series circuits.

Operating Pressures **M29YB-B** to 3000 psi (207 bar) continuous
M43YB-B to 3000 psi (207 bar) continuous
M58YB-B to 3000 psi (207 bar) continuous
M73YB-B to 3000 psi (207 bar) continuous
 See performance curves.

Recommended Operating Speeds To 5000 rpm
 See performance curves.

Maximum Continuous Back Pressure 100 psi (7 bar), peaks to 250 psi (17 bar).
 Lower back pressure will extend seal life and improve efficiency.

Mounting 2/4-bolt integral combination mount.

Shafts .562" (14,27 mm) diameter straight keyed or 8-tooth splined shaft, standard.
 Other shafts available upon request.

Shaft Rotation Birotational.

Seals High pressure, temperature and dirt-resistant double-lip shaft seal with dirt wiper, standard.
 Mechanical or fluoroelastomer seals, optional.

Bearings Four heavy-duty needle type.
 Five with optional outboard bearing.

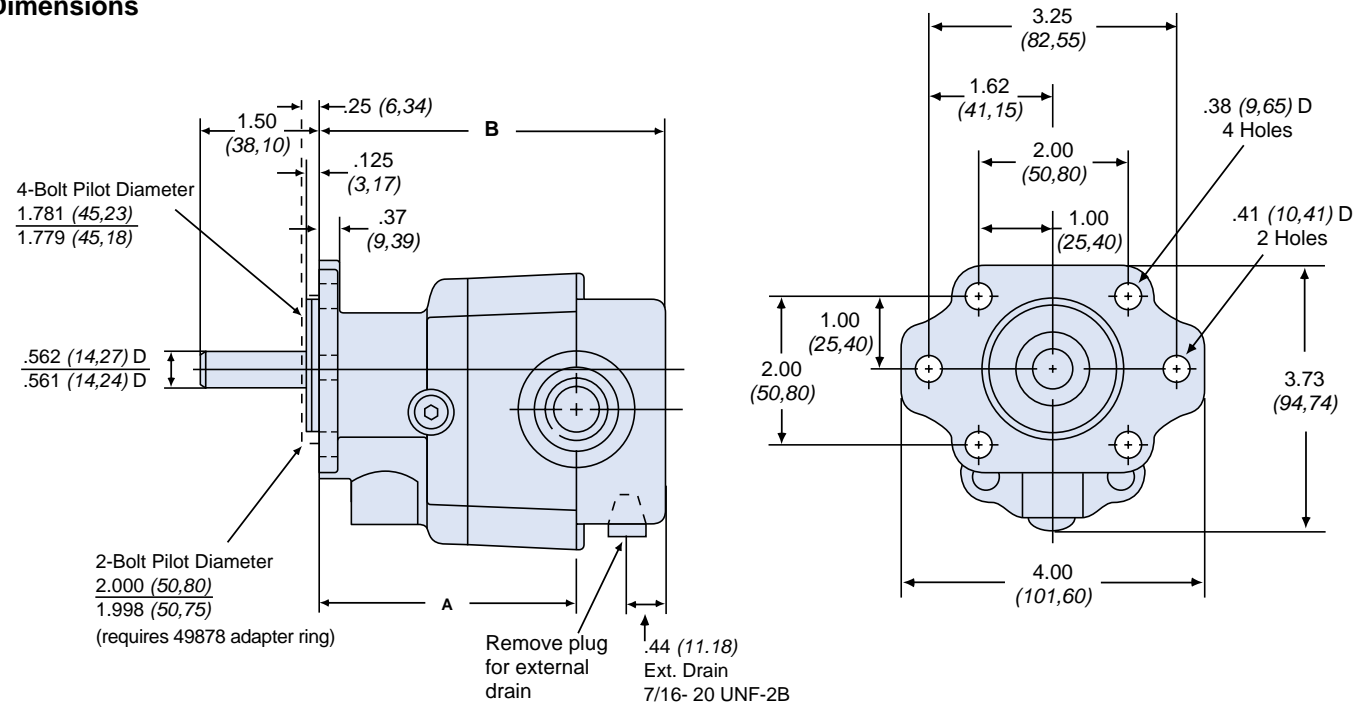
Porting SAE side or end location, standard.
 NPTF or combination location, optional.

Optional Foot Mount See page 10 for dimensional information.

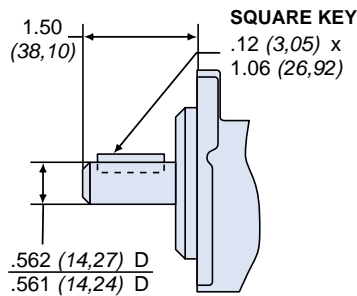
Weight 1.75 to 3 pounds. (0,8 to 1,3 kg.).

MYB Series Birotational Gear Motors

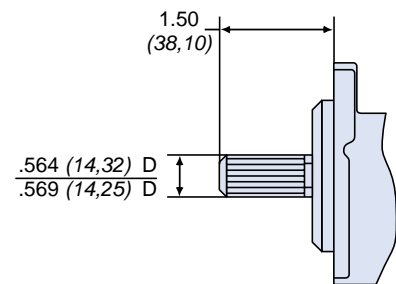
Dimensions



KEYED SHAFT

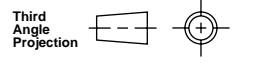


8-TOOTH SPLINE



8-Tooth Spline Data

Number of teeth	8
Pitch	16/32
Pressure angle	30°
Major Dia	.5624 / .5619
Minor Dia	.4210 / .4100
Eff Spline	1.03 / 1.00



Dimensions shown: inches (mm)

Type	Dimension "A"	Dimension "B"
M29YB-B	3.00 (76,2)	4.13 (104,9)
M43YB-B	3.25 (82,5)	4.38 (111,2)
M58YB-B	3.50 (88,9)	4.63 (117,6)
M73YB-B	3.50 (88,9)	4.63 (117,6)

MYB Series Birotational Gear Motors

Filtration

See motor filtration section on page 20.

Operating Temperatures

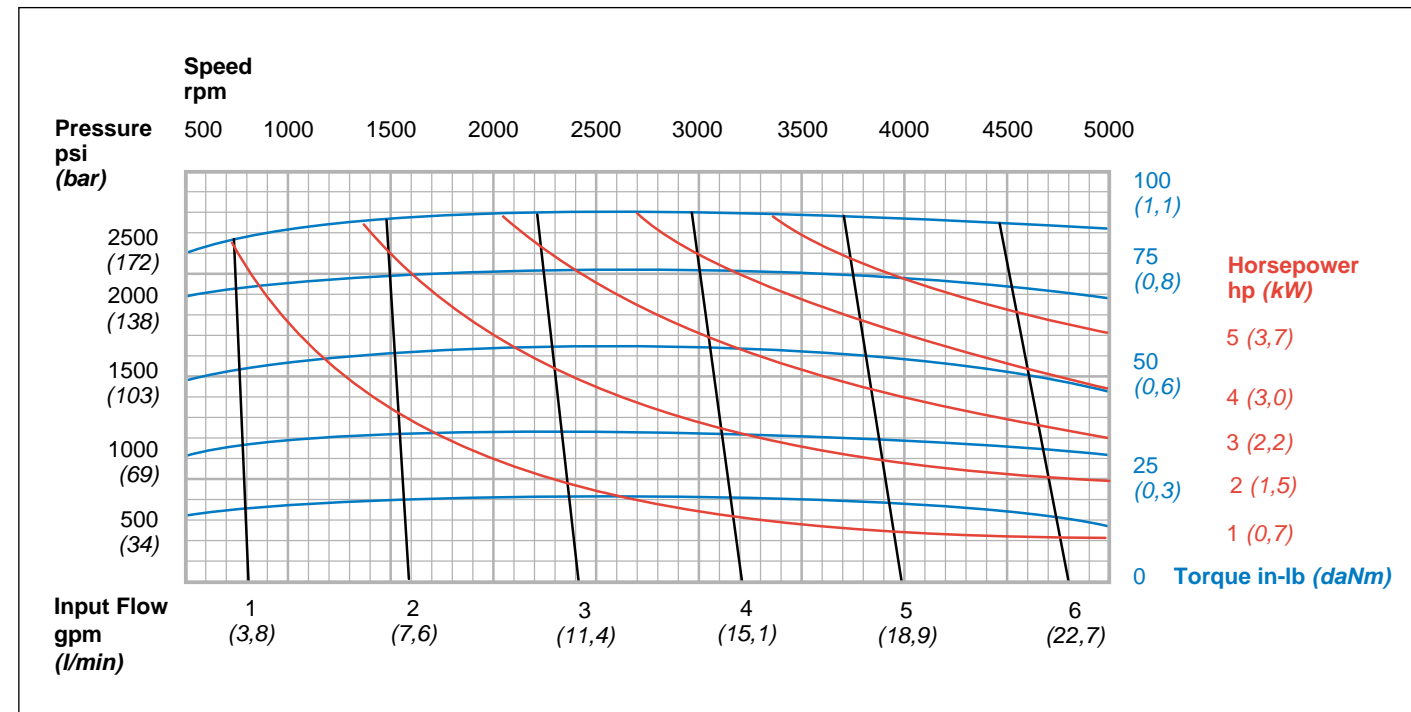
MYB **birotational** motors are equipped with a high pressure nitrile rubber temperature and dirt-resistant double-lip shaft seal with a built-in dirt wiper. Normal recommended operating temperature for nitrile rubber seals is 180°F (82,2°C), although they can tolerate intermittent motor operation periods to 200°F (93,3°C) without damage to the seal material.

System temperatures exceeding 225°F (107,2°C) will cause premature seal failure and result in external leakage.

An optional seal, the double lip, high pressure fluoroelastomer shaft seal provides higher temperature operation and can be used with fluids not compatible with nitrile rubber seals.

Model M29YB-B Typical Performance Data

Pressure	Flow Input							
	1.3	4.9	3.3	12.5	4.6	17.4	6.4	24.2
500 psi (34 bar)	19.0	0,2	19.5	0,2	16.0	0,2	15.0	0,2
1000 psi (69 bar)	1.3	4.9	3.3	12.5	4.6	17.4	6.5	24.6
1500 psi (103 bar)	34.5	0,4	35.5	0,4	34.0	0,4	31.0	0,4
2000 psi (138 bar)	1.4	5.3	3.3	12.5	4.6	17.4	6.6	25.0
2500 psi (172 bar)	55.0	0,6	56.5	0,6	54.5	0,6	50.0	0,6
3000 psi (207 bar)	1.4	5.3	3.4	12.9	4.7	17.8	6.6	25.0
	75.0	0,8	76.0	0,9	73.0	0,8	68.0	0,8
	1.4	5.3	3.4	12.9	4.8	17.8	6.7	25.4
	86.5	1,0	90.0	1,0	88.0	1,0	85.0	1,0
	1.5	5.7	3.5	13.2	4.9	18.9	6.8	25.7
	109.0	1,2	106.0	1,2	103.0	1,2	100.0	1,1
rpm	1000	2500	3500	5000				



MYB Series Birotational Gear Motors

Operating Speeds

MYB **birotational** motors have a maximum operating speed range up to 5000 rpm based on operation at sea level using SAE oil with a viscosity of 130 SUS (32 cSt) at 120°F (48,8°C). Actual limits for each displacement can be found in the motor performance curves. Minimum speed is 500 rpm. This is the normal minimum speed at which the motor will operate continuously at rated pressure.

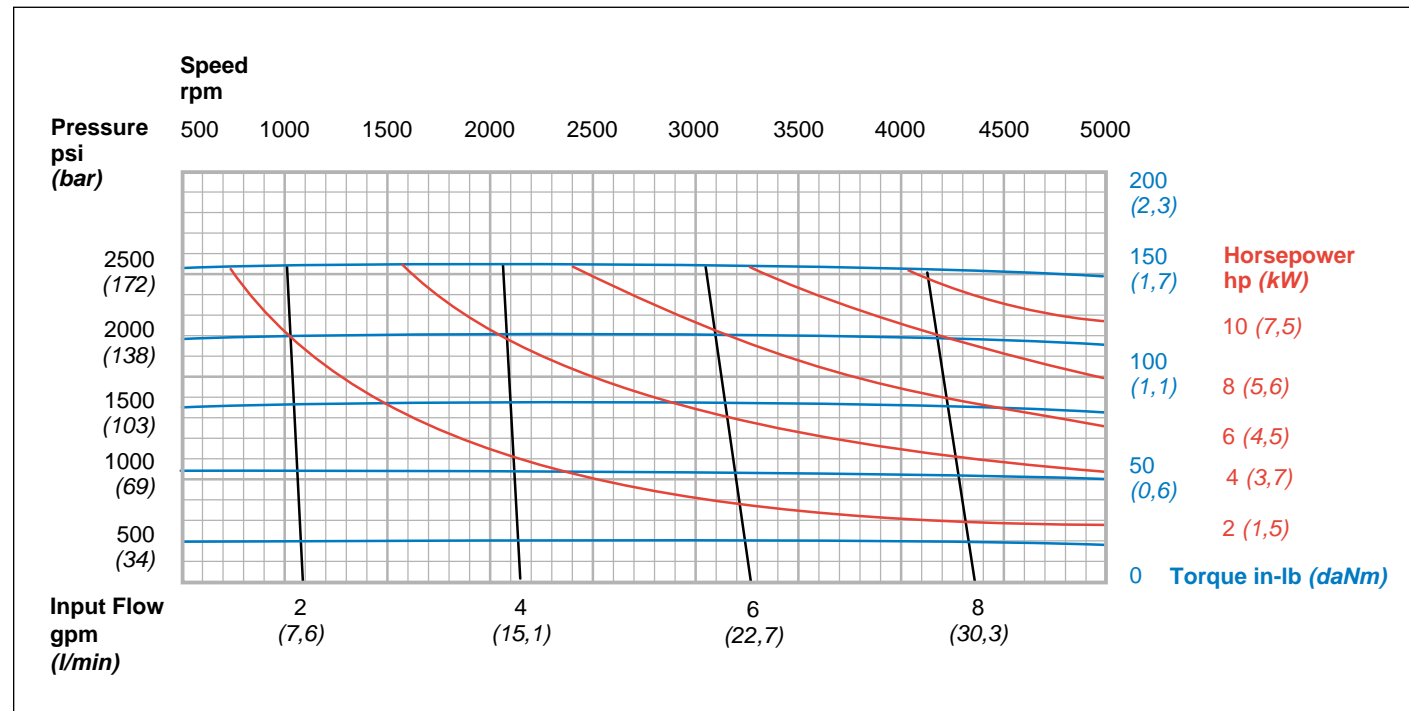
Consult QCC for operation outside these limits.

MYB **birotational** motors are designed to operate continuously at the rated pressures shown on page 25. Maximum operating pressures decrease in higher displacement motors.

Operating Pressure Ratings

Model M43YB-B Typical Performance Data

Pressure	Flow			
	gpm lb-in	l/min daNm	Torque	
500 psi (34 bar)	1.9	7,2	4.7	17,8
	20.5	0,2	19.0	0,2
1000 psi (69 bar)	1.9	7,2	4.8	18,2
	55.0	0,6	50.0	0,6
1500 psi (103 bar)	2.0	7,6	4.9	18,5
	89.0	1,0	83.0	0,9
2000 psi (138 bar)	2.0	7,6	4.9	18,5
	122.5	1,4	119.0	1,3
2500 psi (172 bar)	2.0	7,6	5.0	18,9
	154.0	1,7	150.0	1,7
3000 psi (207 bar)	2.1	7,9	5.2	19,7
	171.0	1,9	167.0	1,8
rpm	1000	2500	3500	5000



MYB Series Birotational Gear Motors

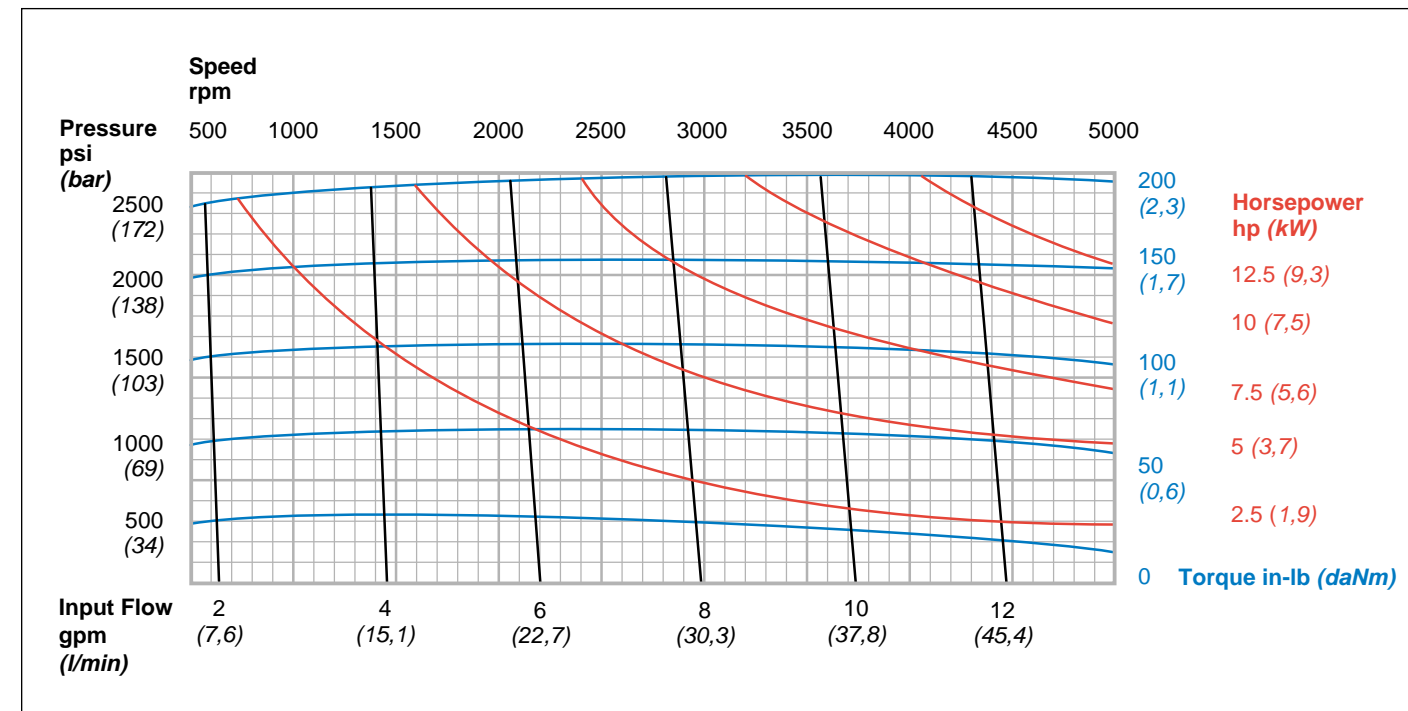
System Plumbing

To avoid excessive back pressure, the return line should be sized such that pressure does not exceed 100 psi (7 bar) or 150 psi (10 bar) intermittent for a motor with a standard high pressure seal. A motor with the optional high pressure mechanical seal can tolerate back pressures to 200 psi (14 bar) or 300 psi (21 bar) intermittent.

MYB **birotational** motors are equally suited for either parallel or series circuits. They are equipped with internal check valves, eliminating the need for external drain lines in parallel circuit applications. They are also available without internal check valves for series circuit applications, with external drain lines.

Model M58YB-B Typical Performance Data

Pressure	Flow			
	gpm lb-in	l/min daNm	Torque	
500 psi (34 bar)	2.6	9,8	6.4	24,2
	38.0	0,4	33.0	0,4
1000 psi (69 bar)	2.7	10,2	6.5	24,6
	86.5	1,0	64.5	0,7
1500 psi (103 bar)	2.7	10,2	6.6	25,0
	130.0	1,5	119.0	1,3
2000 psi (138 bar)	2.8	10,6	6.7	25,4
	172.5	1,9	161.0	1,8
2500 psi (172 bar)	2.8	10,6	6.9	26,1
	198.0	2,2	193.0	2,2
3000 psi (207 bar)	3.1	11,7	7.1	26,9
	229.0	2,6	222.0	2,5
rpm	1000	2500	3500	5000



MYB Series Birotational Gear Motors

Hydraulic Fluids

Hydraulic fluid performs three basic functions: it provides efficient transfer of power from the pump to the actuators; it provides lubrication and surface protection to the working parts;(the use of petroleum-based fluids with rust and oxidation inhibitors remains the principal choice for

most hydraulic systems) and it acts to transfer heat to maintain a consistent system temperature operating range.

The use of biodegradable fluids is permitted under certain operating conditions. Consult QCC Engineering.

Model M73YB-B Typical Performance Data

Pressure	Flow				Torque
	gpm	l/min	lb-in	daNm	
500 psi (34 bar)	3.2	12,1	8,1	30,7	11,3
	48	0,5	42	0,5	37
1000 psi (69 bar)	3.2	12,1	8,1	30,7	11,3
	109	1,2	81	0,9	80
1500 psi (103 bar)	3.3	12,5	8,2	31,4	11,4
	163	1,8	150	1,7	134
2000 psi (138 bar)	3.4	12,9	8,3	31,4	11,5
	218	2,5	200	2,3	184
2500 psi (172 bar)	3.5	13,2	8,4	31,8	11,6
	260	2,9	251	2,8	230
3000 psi (207 bar)	3.6	13,6	8,5	32,2	11,7
	297	3,4	290	3,3	271
rpm	1000	2500	3500	5000	

Consult Danfoss Engineering

MYB Series Birotational Gear Motors

Viscosity and Pour Point

Viscosity is the most important property of a hydraulic fluid. It measures how the fluid resists flow. Thick, dense oil has high viscosity; thin oil has low viscosity. Ideally, the fluid should have a viscosity of 100 – 800 SUS (21–173 cSt) at operating temperature, with 7500 SUS (1618 cSt) maximum viscosity for low temperature startup condition.

vary widely with temperature changes have a low viscosity index.

Because of the wide range of operating temperatures encountered, hydraulic pumps should use fluids with a high viscosity index.

Pour point is the lowest rated temperature at which a hydraulic fluid will flow. Because hydraulic pumps are often used on mobile equipment that may be exposed to very low outside temperatures, a low pour point is very important. Ideally, the fluid pour point should be at least 20°F (6,6°C) below the lowest expected outside temperature.

Viscosity Index measures how the viscosity of the hydraulic fluid changes with temperature. A high viscosity index indicates that the hydraulic fluid will have almost the same viscosity at high and low temperatures. Fluids with viscosities that

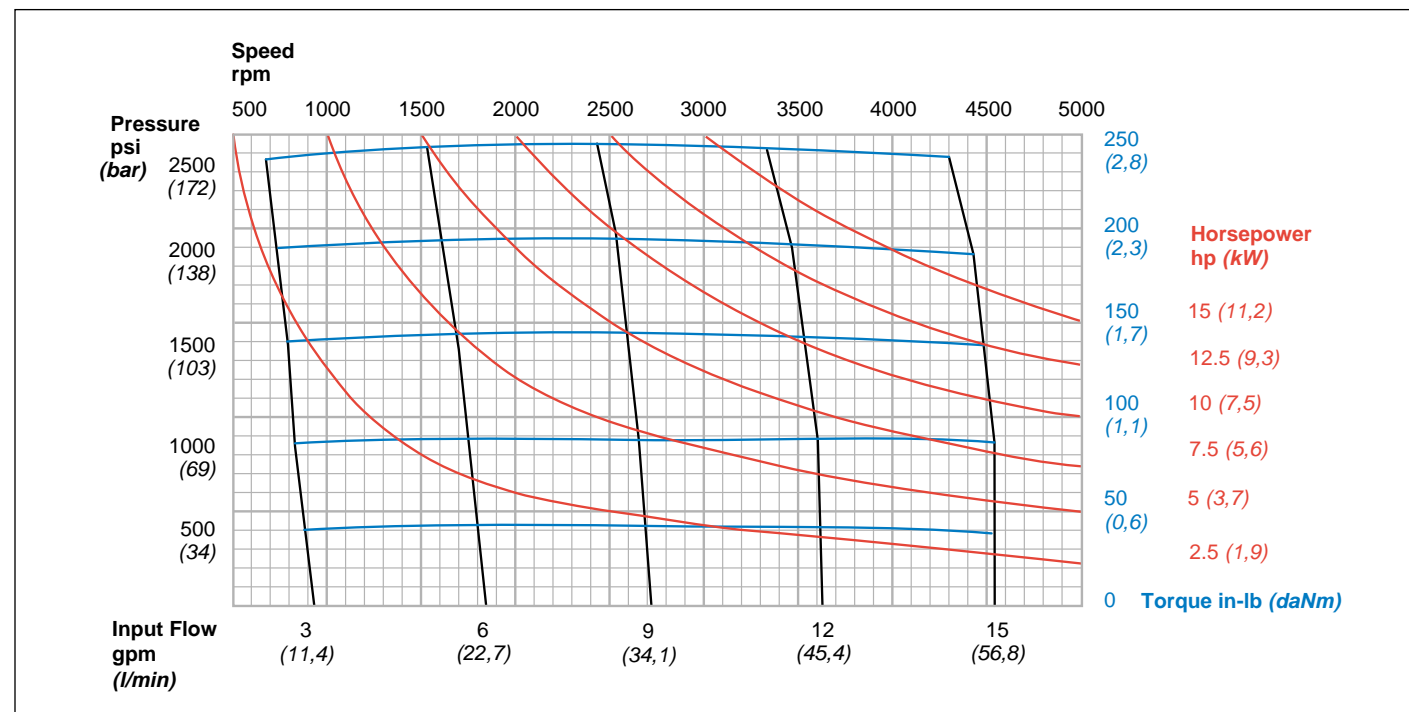
Stability Characteristics

Hydraulic fluid in everyday use is constantly stressed by temperature changes, high pressures, oxidation, and contamination. A hydraulic fluid with **good stability characteristics** will resist premature breakdown. At the same time, keeping the hydraulic fluid **clean** is probably the most essential aspect for ensuring the reliable performance of the system. Contamination is the leading cause of hydraulic system breakdowns. The system should always

be filtered and the element should be regularly cleaned or replaced. When the fluid needs replacing, be sure to use a good grade of new, clean fluid.

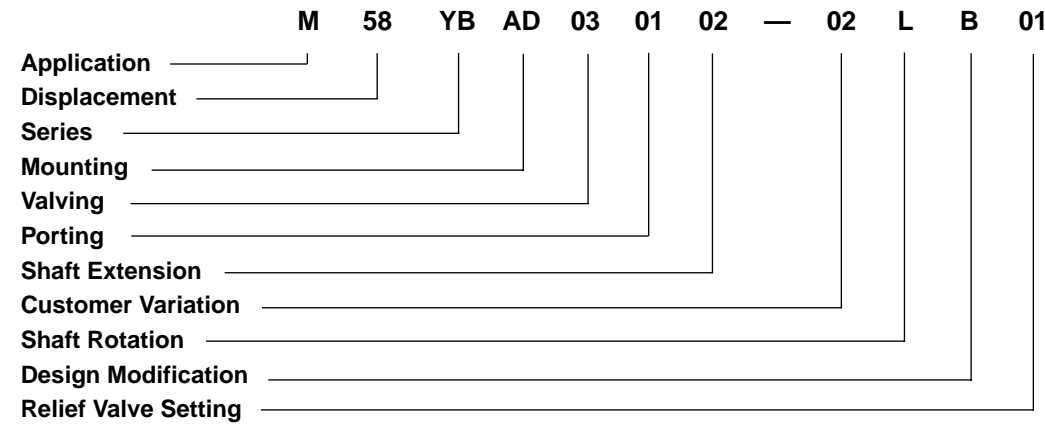
The hydraulic fluid must be **compatible** with Nitrile rubber sealing components. A good grade of hydraulic fluid will **contain additives** to help control wear, oxidation and foaming.

Please consult QCC before using any non-petroleum base or fire resistant fluids which may require special seal materials.



Order Code Analysis

For Pumps and Motors



1	Application
Omit	No letter indicates pump
M	Motor

2	Displacement			
YB Pump Code	MYB Unirotational Motor Code	MYB Birotational Motor Code	Displacement in ³ /rev (cm ³ /rev)	
15	—	—	.146	(2,39)
22	—	—	.219	(3,59)
29	29	29	.293	(4,80)
43	43	43	.439	(7,20)
58	58	58	.586	(9,61)
73	73	73	.732	(12,00)

3	Series

4	Mounting
AA	"AA" integral mounting, (2) .38 (9,5 mm) diameter holes on 3.25" (82,5 mm) centers with 2.00" (50,8 mm) pilot diameter
AD	2/4-Bolt integral combination mounting with 1.781" (45,24 mm) pilot diameter (Requires adapter ring for 2-Bolt use.)

5	Valving
YB Pumps & MYB Unirotational Motors	
00	No relief or check valve
02	Relief valve only (internal drain)
03	Relief valve (external drain 1/4" NPTF)
*05	Relief valve and check valve (internal drain)
MYB Birotational Motors	
12	Birotational check valve assembly

* Code 5 available only on 15, 22 and 29 YB pumps

Order Code Analysis

6	Porting
YB Pumps & MYB Unirotational Motors	
01	3/8" NPTF (inlet) tank; 3/8" NPTF (outlet) pressure; (side)
03	1/2" NPTF (inlet) tank; 3/8" NPTF (outlet) pressure; (side)
25	7/8" - 14 UNF - 2B SAE (inlet) tank; 3/4" - 16 UNF - 2B (outlet) pressure; (side)
MYB Birotational Motors	
12	3/4" - 16 UNF - 2B SAE (inlet) tank; 3/4" - 16 UNF - 2B (outlet) pressure; (side)
30	3/4" - 16 UNF - 2B SAE (inlet) tank; 3/4" - 16 UNF - 2B (outlet) pressure; (end)

Other port sizes and locations available on request.

7	Shaft Extension
YB Pumps	
02	Straight, keyed shaft, 1.50" (38 mm) extension with square keyslot, .12" (3 mm) x 1.06" (27 mm) long, .56" (14 mm) diameter
03	Tang shaft, .31" (7,9 mm) extension, .146/.148" x .28" (3,7 / 3,75 mm x 7 mm) long
MYB Unirotational Motors	
02	Straight, keyed shaft, 1.50" (38 mm) extension with square keyslot, .12" (3 mm) x 1.06" (27 mm) long, .56" (14 mm) diameter
MYB Birotational Motors	
02	Straight, keyed shaft, 1.50" (38 mm) extension with square keyslot, .12" (3 mm) x 1.06" (27 mm) long, .56" (14 mm) diameter
21	Splined shaft, 1.50" (38 mm) extension with 8 teeth, .562" (14 mm) major diameter

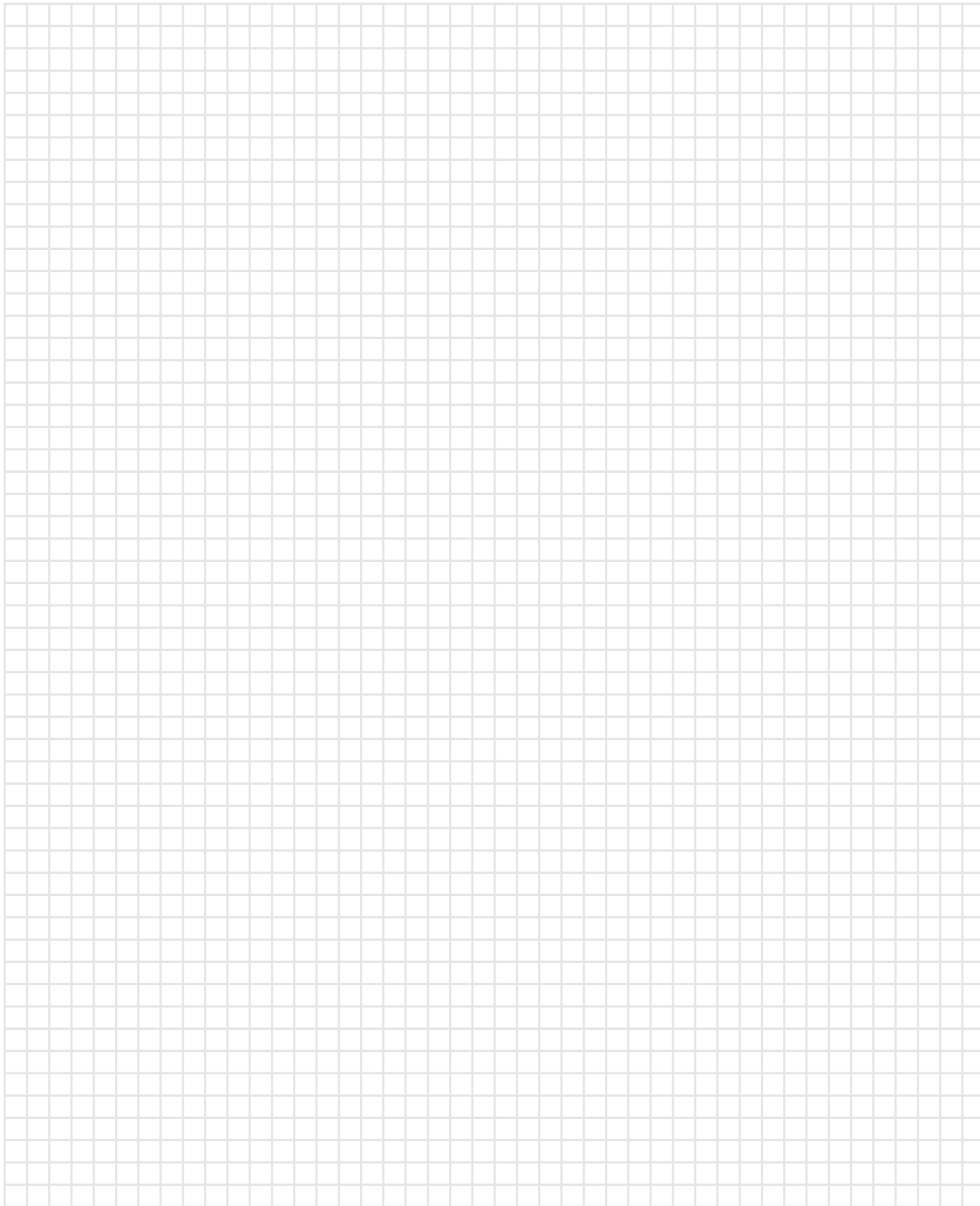
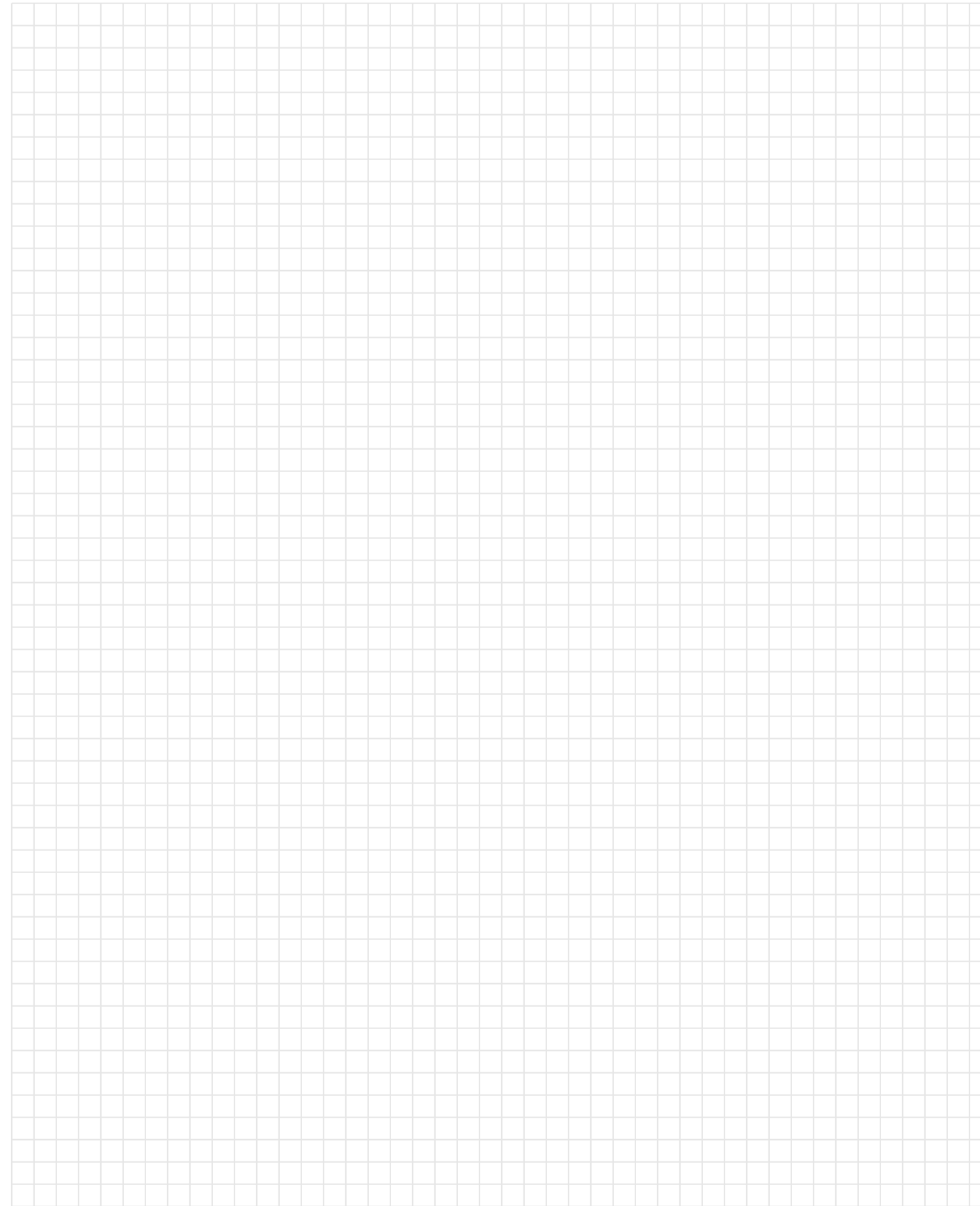
Other shafts available on request.

8	Customer Variation
02	Outboard bearing
05	Seal retainer washer
12	Nitrile rubber high pressure shaft seal
17	Outboard bearing and high pressure shaft seal
24	Mechanical shaft seal
25	Fluoroelastomer high pressure seal
29	Nitrile rubber high pressure shaft seal with dirt wiper

9	Shaft Rotation (viewed from shaft end)
YB Pumps & MYB Unirotational Motors	
L	Counterclockwise (Left hand)
R	Clockwise (Right hand)
MYB Birotational Motors	
B	Birotational

10	Design Modification
—	Consult Danfoss Engineering

11	Relief Valve Setting
Standard models with integral relief valve will be set at 2000 psi (138 bar). The code numbers represent valve settings multiplied by 1/100. Consult QCC for other settings and availability.	

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