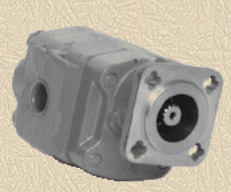
Hydropower Services B.V.

Series P20



- 6 TO 33 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings

Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)				
rpm	1	1-1/4	1-1/2	1-3/4	2
900	6.5	8	10	12	13.5
1200	9	11.5	14	16	18.5
1500	11.5	14.5	17.5	20.5	23.5
1800	14	18	21.5	25	29
2100	16.5	21	25	29.5	34
2400	19	24	29	34	39

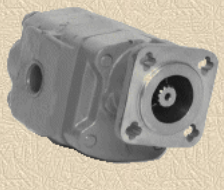
Series 25X

- 8.5 TO 53 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings

Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)						
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	8.5	10.5	13	15	17.5	20	22
1200	12	15	18	21	24	27	30
1500	15	19	23	27	31	35	39
1800	18	23	27.5	32.5	37.5	42	47
2100	21.5	27	32.5	38.5	44	49.5	55
2400	25	31	37	44	51	57	63.5

Series P30, P31



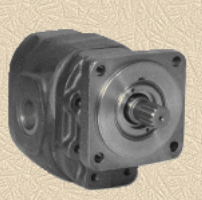
- 6 TO 33 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings

Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)				
rpm	1	1-1/4	1-1/2	1-3/4	2
900	6.5	8	10	12	13.5
1200	9	11.5	14	16	18.5
1500	11.5	14.5	17.5	20.5	23.5
1800	14	18	21.5	25	29
2100	16.5	21	25	29.5	34
2400	19	24	29	34	39

Series 37X

- 6 TO 75 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings

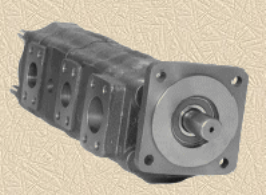


Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)							
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	3
600	4.5	6.5	8.5	10.5	12.5	14	16.5	20
1200	12.5	16.5	20	24	28	31.5	35.5	43
1800	20	26	31.5	37.5	43.5	49.5	55	66.5
2100	24	31	37.5	44.5	51	58	64.5	78
2400	28	36	43.5	51	59	67	74.5	90

Series P50, P51

- 6 TO 53 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings

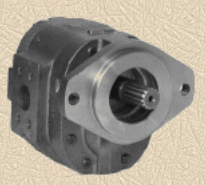


Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)						
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	8.5	10.5	13	15	17.5	20	22
1200	12	15	18	21	24	27	30
1500	15	19	23	27	31	35	39
1800	18	23	27.5	32.5	37.5	42	47
2100	21.5	27	32.5	38.5	44	49.5	55
2400	25	31	37	44	51	57	63.5

Series P75, P76

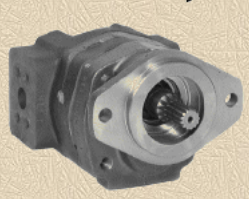
- 6 TO 100 gpm @ 2000 rpm
- Pressures to 2000 psi
- Speeds to 2000 rpm
- Choice of mountings



Flow (GPM) @ Pump RPM

Speed	Gear Width (inches)								
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3
600	6	9	11.5	13.5	16.6	18.5	21	23	28
1200	17	22	27	32	37.5	42	48	52.5	58
1500	22	29	35.5	41.5	48	54.5	61	67	74
1800	27.5	35.5	43.5	51	59	66	74	81.5	90
2100	33	42	51.5	60	69.5	78	87	96.5	106
2400	38	49	59.5	70	80	90	101	111	122

Series 330, 350, 365



- 6 TO 78 gpm @ 2000 rpm
- Pressures to 3500 psi
- Speeds to 3000 rpm
- Choice of mountings

Series 330

Pump Speed	Avg. Output (gpm) @ 3500 psi Gear Width (inches)				
rpm	1	1-1/4	1-1/2	1-3/4	2
900	6.0	8.0	10.0	12.0	13.5
1200	8.5	11.5	14.0	16.0	18.5
1500	11.0	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.5	34.0

2" data at 3000 psi

Series 350

Pump Speed	Avg. Output (gpm) @ 3500 psi Gear Width (inches)						
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	8.0	10.5	13.0	15.0	17.5	20.0	22.0
1200	11.5	15.0	18.0	21.0	24.0	27.0	30.0
1500	14.5	19.0	23.0	27.0	31.0	35.0	39.0
2100	21.0	27.0	32.5	38.5	44.0	49.5	55.0

2-1/2" data at 2500 psi
2" data at 3000 psi

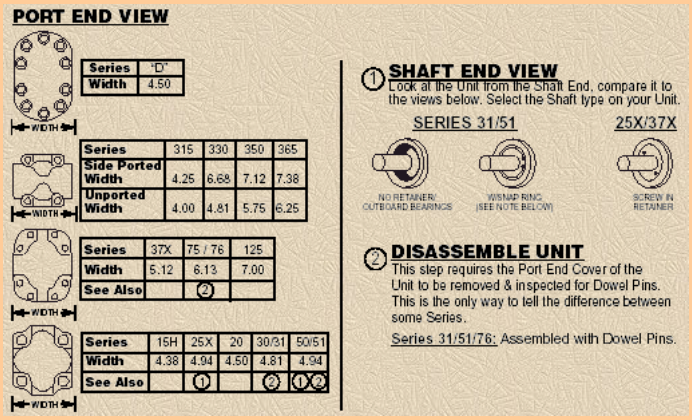
Series 365

Pump Speed	Avg. Output (gpm) @ 3500 psi Gear Width (inches)						
rpm	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	10.5	13.5	15.0	17.0	20.5	27.5	31.0
1200	15.5	20.0	24.5	29.0	33.5	38.0	43.0
1500	20.0	25.5	31.0	37.5	43.0	49.0	55.0
2100	29.0	37.5	45.5	54.0	62.0	70.0	78.0

2-1/2" data at 3000 psi

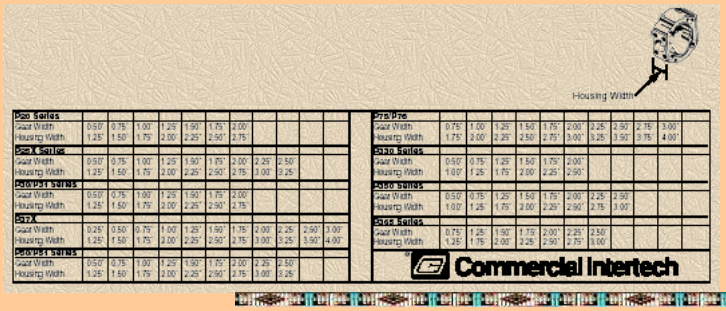
IDENTIFYING PUMPS & MOTORS
By the Shape and Size of the Port End Cover

1. Look at the Unit from the Port End, see which example it matches the closest. Include the Shape, Size, and most importantly the Bolt Pattern.
2. Measure the overall width of the Unit, then match the width to the chart beside the Port End you chose in step #1.
3. If there is not a "See Also" block on the chart you used, then you've identified the Unit. Otherwise move to step #4.
4. A Numbered Note marker will direct you to the next step or steps.



Identifying Commercial Gear Width Compared to Pump or Motor Housing Width

1. Measure the gear housing width (See Illustration).
2. Then match the housing width to the series of pump/motor you are using.
3. Check the chart for the nearest measurement (rounding up) to give you the proper gear width.



P20

General Information

Commercial's P20 gear pumps and motors are an ideal power for the truck industry. With 1/2" gears, it measures only 6" from mounting flange to the port end cover and weighs only 25 lbs.

The P20 can produce flows up to 2.96 cir @ 300 psi; output to 3.94 cir up to 2500 psi. Maximum speed is 2400 rpm. Motors and pumps can be bi-rotational.

A variety of drive shafts and mounting styles are offered to meet your needs. Standard features include rigid, one-piece drive shaft and gears and pressure balanced thrust plates which assure top efficiency.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/4	1-1/2	1-3/4	2
900	6.5	8.0	10.0	12.0	13.5
1200	9.0	11.5	14.0	16.0	18.5
1500	11.5	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.0	34.0

Motor Speed	Avg. Input/Output (gpm) @ 2000 psi 1" gear		1-1/2" gear		2" gear	
rpm	gpm	hp	gpm	hp	gpm	hp
800	9.0	7.0	13.0	11.0	17.0	14.5
1200	13.0	10.5	18.0	16.5	23.5	22.0
1600	16.4	14.0	23.0	22.0	30.5	29.0
2000	19.5	17.5	28.0	27.0	37.0	36.0

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

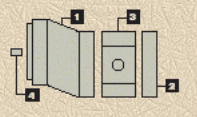
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 20 to designate the series and model. An example of an assembly code follows:

M20 SINGLE MOTOR

Assembly Code: **M 20A 942 BE YF15-30**

	Motor	M
	Series	20
	Model	A
1.	Shaft End Cover	942
2.	Port End Cover	BE
3.	Gear Housing	YF15
4.	Drive Shaft	30

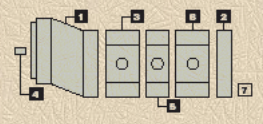


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 20 pump follows:

P20 MULTIPLE PUMP

Assembly Code: **P 20B 278 BY OM20-43 D UG10-1**



	Pump	P
	Series	20
	Model	B

1.	Shaft End Cover	278
2.	Port End Cover	BY
3.	Gear Housing	OM20
4.	Drive Shaft	43
5.	Bearing Cover	D
6.	Gear Housing	UG10
7.	Connecting Shaft	1

Variations

Series 20 units are available with gear sections ranging from 1/2" to 2" in 1/4" increments which provide displacements from .985 to 3.94 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 20 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits. This pump needs a drive shaft with a PL factor of 4500 or more to operate successfully.

25X

Reliability

Commercial's pumps and motors have always been the most reliable, most efficient in the world. They're cast from high tensile iron for strength, machined precisely for efficiency, and carefully assembled and tested to assure long service life.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in the tables below by the actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2
900	8.5	13.0	17.5	22.0
1500	15.0	23.0	31.0	39.0
1800	18.0	27.5	37.5	47.0
2100	21.5	32.5	44.0	55.0

Motor Speed	Avg. Input/Output (gpm) @ 2000 psi 1" gear		2" gear		2-1/2" gear	
rpm	gpm	hp	gpm	hp	gpm	hp
800	10.5	8.5	21.0	18.0	26.0	23.5
1200	15.5	13.0	30.5	27.5	37.5	36.0
1600	20.0	17.0	40.0	36.5	49.5	44.5
2000	25.0	21.0	49.0	44.5	61.5	54.5

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

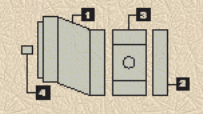
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 25X to designate the series and model. An example of an assembly code follows:

M25X SINGLE MOTOR

Assembly Code: **M 25X 942 BE 1T20 -25**

	Motor	M
	Series	25
	Model	X
1.	Shaft End Cover	942
2.	Port End Cover	BE
3.	Gear Housing	1T20
4.	Drive Shaft	25

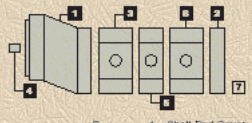


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section 25X pump follows:

P25X MULTIPLE PUMP

Assembly Code: **P 25X 397 BY RT15 -25 B RT15 -1**



	Pump	P
	Series	25
	Model	X

1.	Shaft End Cover	397
2.	Port End Cover	BY
3.	Gear Housing	RT15
4.	Drive Shaft	25
5.	Bearing Cover	B
6.	Gear Housing	RT15
7.	Connecting Shaft	1

Variations

25 X units are available with gear sections ranging from 1/2" to 2-1/2" in 1/4" increments which provide displacements from 1.275 to 6.375 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various 25X shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

P30

Reliability

Series 30 pumps and motors are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches)				
	1	1-1/4	1-1/2	1-3/4	2
900	6.5	8.0	10.0	12.0	13.5
1200	9.0	11.5	14.0	16.0	18.5
1500	11.5	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.0	34.0

Motor Speed rpm	Avg. Input/Output (gpm) @ 2000 psi 1" gear		1-1/2" gear		2" gear	
	gpm	hp	gpm	hp	gpm	hp
800	9.0	7.0	13.0	11.0	17.0	14.5
1200	13.0	10.5	18.0	16.5	23.5	22.0
1600	16.4	14.0	23.0	22.0	30.5	29.0
2000	19.5	17.5	28.0	27.0	37.0	36.0

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

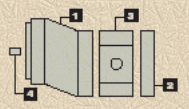
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 30 to designate the series and model. An example of an assembly code follows:

M30 SINGLE MOTOR

Assembly Code: **M 30A 942 BE YF15-30**

Motor	M
Series	30
Model	A
1. Shaft End Cover	942
2. Port End Cover	BE
3. Gear Housing	YF15
4. Drive Shaft	30

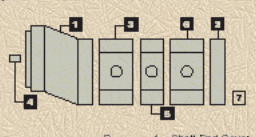


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 90 pump follows:

P30 MULTIPLE PUMP

Assembly Code: **P 30B 278 BY OM20-43 D UG10-1**



Pump	P
Series	30
Model	B
1. Shaft End Cover	278
2. Port End Cover	BY
3. Gear Housing	OM20
4. Drive Shaft	43
5. Bearing Cover	D
6. Gear Housing	UG10
7. Connecting Shaft	1

Variations

Series 30 units are available with gear sections ranging from 1/2" to 2" in 1/4" increments which provide displacements from .985 to 3.94 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 30 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

P31

Reliability

Series 31 and 30 pumps and motors are quite similar except that Series 31 units have steel alignment dowel pins which allow them to be rated for 500 psi higher pressure operation. Both are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches)				
	1	1-1/4	1-1/2	1-3/4	2
900	6.5	8.0	10.0	12.0	13.5
1200	9.0	11.5	14.0	16.0	18.5
1500	11.5	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.0	34.0

Motor Speed rpm	Avg. Input/Output (gpm) @ 2000 psi 1" gear		1-1/2" gear		2" gear	
	gpm	hp	gpm	hp	gpm	hp
800	9.0	8.5	13.0	13.0	17.0	17.5
1200	13.0	13.0	18.0	20.0	23.5	27.0
1600	16.0	17.5	23.0	25.0	30.5	35.0
2000	19.5	21.0	28.0	32.0	37.0	43.5

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

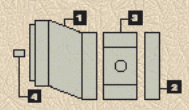
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 31 to designate the series and model. An example of an assembly code follows:

M31 SINGLE MOTOR

Assembly Code: **M 31A 942 BE YF15-30**

Motor	M
Series	31
Model	A
1. Shaft End Cover	942
2. Port End Cover	BE
3. Gear Housing	YF15
4. Drive Shaft	30

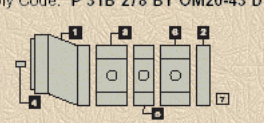


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 31 pump follows:

P31 MULTIPLE PUMP

Assembly Code: **P 31B 278 BY OM20-43 D UG10-1**



Pump	P
Series	31
Model	B
1. Shaft End Cover	278
2. Port End Cover	BY
3. Gear Housing	OM20
4. Drive Shaft	43
5. Bearing Cover	D
6. Gear Housing	UG10
7. Connecting Shaft	1

Variations

Series 31 units are available with gear sections ranging from 1/2" to 2" in 1/4" increments which provide displacements from .985 to 3.94 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 31 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

37X

Reliability

Commercial's pumps and motors have always been the most reliable, most efficient in the world. They're cast from high tensile iron for strength, machined precisely for efficiency, and carefully assembled and tested to assure long service life.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2
600	4.5	8.5	12.5	16.5
1200	12.5	20.0	28.0	35.5
1800	20.0	31.5	43.5	55.0
2100	24.0	37.5	51.0	64.5

Motor Speed rpm	Avg. Input/Output (gpm) @ 2000 psi 1" gear gpm	hp	2" gear gpm	hp	2-1/2" gear gpm	hp
600	10.5	7.0	20.0	15.5	24.5	20.0
1000	16.0	12.0	31.0	25.0	38.0	34.5
1400	21.0	16.5	41.0	35.0	51.0	47.5
1800	26.5	20.0	52.0	45.0	64.0	60.0

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

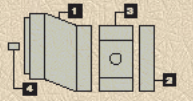
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 37X to designate the series and model. An example of an assembly code follows:

M37X SINGLE MOTOR

Assembly Code: **M 37X 942 BE 1T20 -25**

	Motor	M
	Series	37
	Model	X
1.	Shaft End Cover	942
2.	Port End Cover	BE
3.	Gear Housing	1T20
4.	Drive Shaft	25

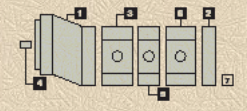


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 37X pump follows:

P37X MULTIPLE PUMP

Assembly Code: **P 37X 178BY VZ20-7 IL15-1**



	Pump	P
	Series	37
	Model	X
1.	Shaft End Cover	178
2.	Port End Cover	BY
3.	Gear Housing	VZ20
4.	Drive Shaft	7
5.	Bearing Cover	B
6.	Gear Housing	IL15
7.	Connecting Shaft	1

Variations

37X units are available with gear sections ranging from 1" to 2-1/2" in 1/4" increments. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various 37X shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 10000 means a maximum of 5" of gear can be operated at 2000 psi (2000 psi X 5" = 10000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-2"-1", 1"-1"-1"-1"-1", 1-1/2"-1-1/2"-2") to provide the output you need for several circuits.

P50

Reliability

Series 50 pumps and motors are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2
900	8.5	13.0	17.5	22.0
1200	12.0	18.0	24.0	30.0
1800	18.0	27.5	37.5	47.0
2100	21.5	32.5	44.0	55.0

Motor Speed rpm	Avg. Input/Output (gpm) @ 2000 psi 1" gear gpm	hp	2" gear gpm	hp	2-1/2" gear gpm	hp
800	10.5	8.5	21.0	18.0	25.0	23.5
1200	15.5	13.0	30.5	27.5	37.5	35.0
1600	20.0	17.0	40.0	35.5	49.5	44.5
2000	25.0	21.0	49.0	44.5	61.5	54.5

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

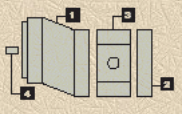
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 50 to designate the series and model. An example of an assembly code follows:

M50 SINGLE MOTOR

Assembly Code: **M 50A 942 BE YF15-7**

	Motor	M
	Series	50
	Model	A
1.	Shaft End Cover	942
2.	Port End Cover	BE
3.	Gear Housing	YF15
4.	Drive Shaft	7

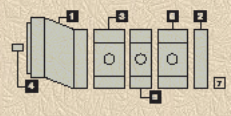


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 50 pump follows:

P50 MULTIPLE PUMP

Assembly Code: **P 50B 278 BY OM20-11 D UG10-1**



	Pump	P
	Series	50
	Model	B
1.	Shaft End Cover	278
2.	Port End Cover	BY
3.	Gear Housing	OM20
4.	Drive Shaft	11
5.	Bearing Cover	D
6.	Gear Housing	UG10
7.	Connecting Shaft	1

Variations

Series 50 units are available with gear sections ranging from 1/2" to 2-1/2" in 1/4" increments which provide displacements from 1.27 to 6.37 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 50 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

P51

Reliability

Series 51 and 50 pumps and motors are quite similar except that Series 51 units have steel alignment dowel pins which allow them to be rated for 500 psi higher pressure operation. Both are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2
900	8.5	13.0	17.5	22.0
1200	12.0	18.0	24.0	30.0
1800	18.0	27.5	37.5	47.0
2100	21.5	32.5	44.0	55.0

Motor Speed	Avg. Input/Output (gpm) @ 2000 psi 1" gear		2" gear		2-1/2" gear	
rpm	gpm	hp	gpm	hp	gpm	hp
800	10.5	10.5	21.0	23.0	26.0	29.5
1200	15.5	16.0	30.5	35.0	35.0	44.5
1600	20.0	21.0	40.0	46.0	49.5	58.5
2000	25.0	25.5	49.0	56.0	61.5	71.5

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

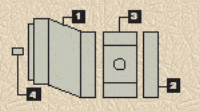
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 51 to designate the series and model. An example of an assembly code follows:

M51 SINGLE MOTOR

Assembly Code: **M 51A 942 BE YF15-7**

Motor	M
Series	51
Model	A
1. Shaft End Cover	942
2. Port End Cover	BE
3. Gear Housing	YF15
4. Drive Shaft	7

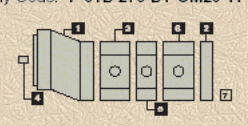


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 51 pump follows:

P51 MULTIPLE PUMP

Assembly Code: **P 51B 278 BY OM20-11 D UG10-1**

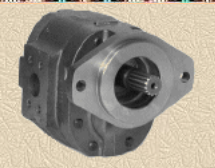


Pump	P
Series	51
Model	B
1. Shaft End Cover	278
2. Port End Cover	BY
3. Gear Housing	OM20
4. Drive Shaft	11
5. Bearing Cover	D
6. Gear Housing	UG10
7. Connecting Shaft	1

Variations

Series 51 units are available with gear sections ranging from 1/2" to 2-1/2" in 1/4" increments which provide displacements from 1.27 to 6.37 cu. in. per revolution. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 51 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.



P75

Reliability

Series 75 pumps and motors are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2
600	6.0	11.5	16.5	21.0
1200	17.0	27.0	37.5	48.0
1800	22.0	35.5	48.0	61.0
2100	33.0	51.5	69.5	87.0

Motor Speed	Avg. Input/Output (gpm) @ 2000 psi 1" gear		2" gear		2-1/2" gear	
rpm	gpm	hp	gpm	hp	gpm	hp
800	20.5	13.5	35.5	28.0	43.0	36.5
1200	27.5	19.5	49.5	42.0	60.5	54.0
1600	34.0	25.5	64.0	55.0	78.5	71.0
2000	41.5	30.0	78.0	67.5	96.5	87.0

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

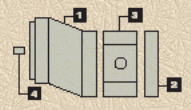
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 75 to designate the series and model. An example of an assembly code follows:

M75 SINGLE MOTOR

Assembly Code: **M 75A 942 BE YF15-7**

Motor	M
Series	75
Model	A
1. Shaft End Cover	942
2. Port End Cover	BE
3. Gear Housing	YF15
4. Drive Shaft	7

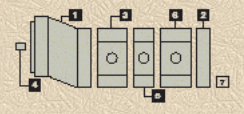


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 75 pump follows:

P75 MULTIPLE PUMP

Assembly Code: **P 75B 178 BI OK15-7 C OK12-1**



Pump	P
Series	75
Model	B
1. Shaft End Cover	178
2. Port End Cover	BI
3. Gear Housing	OK15
4. Drive Shaft	7
5. Bearing Cover	D
6. Gear Housing	OK12
7. Connecting Shaft	1

Variations

Series 75 units are available with gear sections ranging from 1/2" to 2-1/2" in 1/4" increments. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 75 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

P76

Reliability

Series 76 and 75 pumps and motors are quite similar except that Series 76 units have steel alignment dowel pins which allow them to be rated for 500 psi higher pressure operation. Both are cast from hi-tensile gray iron and offer a wide variety of drive shafts designed for high torque input/output. Unique pressure balanced thrust plates contribute to operating efficiencies of over 90%.

These units are designed for continuous operation in heavy-duty implement circuits. They're equally at home on lift trucks, auto wreckers and small dump body applications.

Call our Component sales team for quick application assistance and pump specifications.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

Pump Speed rpm	Avg. Output (gpm) @ 2000 psi Gear Width (inches) 1	1-1/2	2	2-1/2	3
600	6.0	11.5	16.5	21.0	26.0
1200	17.0	27.0	37.5	48.0	58.0
1500	22.0	35.5	48.0	61.0	74.0
2100	33.0	51.5	69.5	87.0	105.0

Motor Speed rpm	Avg. Input/Output (gpm) @ 2000 psi 1" gear gpm	hp	2" gear gpm	hp	2-1/2" gear gpm	hp
800	20.5	18.0	36.5	35.5	43.0	46.5
1200	27.5	26.5	49.5	54.5	60.5	69.5
1600	34.0	35.0	64.0	72.0	78.5	91.5
2000	41.5	43.0	78.0	89.0	95.5	111.0

How To Specify and Code

This catalog contains codes for our most popular models. Complete codes for all configurations are readily available upon request.

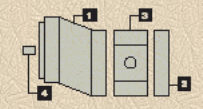
Single Units

Full assembly codes for single units combine shaft end cover, port end cover, gear housing and drive shaft codes. They are preceded by the letter P or M for pump or motor — and by 76 to designate the series and model. An example of an assembly code follows:

M75 SINGLE MOTOR

Assembly Code: **M 76A 942 BE YF15-7**

	Motor	M
	Series	76
	Model	A
1.	Shaft End Cover	942
2.	Port End Cover	BE
3.	Gear Housing	YF15
4.	Drive Shaft	7

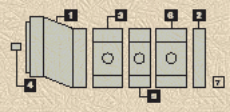


Multiple Units

Coding is the same as single units except that codes for added components must be included. Each gear unit added also requires code for a bearing carrier, the additional gear housing and connecting shaft. An example of an assembly code for a two-section Series 76 pump follows:

P76 MULTIPLE PUMP

Assembly Code: **P 76B 178 BI OK15-7 C OK12-1**



	Pump	P
	Series	76
	Model	B
1.	Shaft End Cover	178
2.	Port End Cover	BI
3.	Gear Housing	OK15
4.	Drive Shaft	7
5.	Bearing Cover	D
6.	Gear Housing	OK12
7.	Connecting Shaft	1

Variations

Series 76 units are available with gear sections ranging from 1/2" to 2-1/2" in 1/4" increments. Two or more gear sections can be assembled on one drive shaft to provide larger flows, supply other circuits or make smoother, more powerful motors.

When specifying multiple units you must consider the drive shaft's strength. This is called a PL factor in which P = operating pressure and L = sum of gear widths. The recommended PL factors for various Series 76 shafts are shown with the shaft codes and are offered as a guide to shaft selection. A PL of 8000 means a maximum of 4" of gear can be operated at 2000 psi (2000 psi X 4" = 8000) without overloading the shaft. The gear widths can be divided many ways, eg. (2"-1"-1", 1"-1"-1"-1", 1-1/2"-1-1/2"-1/2") to provide the output you need for several circuits.

330 350 365

General Information

Model 330, 350 and 365 pumps and motors are external spur gear, fixed displacement units designed for continuous operation at pressures up to 3500 psi. They combine a practical high pressure capability with the economy and durability of gear equipment.

High Efficiency

Advances in thrust plate designs and seal material contribute to pump volumetric efficiency as high as 95% of theoretical, even with fluid viscosity as low as 60 SUS. Longer gear journals present a large effective area to the sleeve bearings and provide excellent load distribution. Internal passages supply a constant flow of lubrication from the pump's inlet to all bearing surfaces. This ensures a film of clean, cool oil on all moving parts at all times. These features greatly extend service life.

Heavy-duty Construction

Housings are made from cast iron for durability and strength. Units are available in single and multiple assemblies.

The drive gears and shafts are machined from a one-piece forging to provide maximum strength. Gear teeth and journals are carburized and ground to a precision finish.

Cast-bronze thrust plates are pressure loaded and are designed to provide minimum clearance at the ends of the gears for outstanding efficiency.

Mountings

Standard SAE B 2- and 4- bolt (ANSI 101-2, 101-4) and SAE C 2- and 4- (ANSI 127-2, 127-4) flange mountings are available. Shaft end covers can have a single or twin shaft seal. A tapped drain hole is provided when twin seals are specified.

Rotation

Pumps can be assembled for either CCW or CW rotation. Motors are bi-directional.

Drives

Direct drives are recommended. Radial loads are permissible with an optional outboard bearing but are subject to approval by Commercial. Contact our sales representatives for details.

Optional Assemblies

For those applications where it is necessary to provide a braking effect to the drive unit, we offer built-in crossover relief protection. These motors save plumbing and simplify installations.

Performance Data

Performance data shown are the average results based on a series of laboratory tests of production units and are not necessarily representative of any one unit. Tests were run with the oil reservoir temperature at 120°F. Requests for more specific data should be directed to our sales representatives.

Performance data for pumps and motors having other gear widths can be approximated by multiplying values in tables below by actual gear width.

330

Pump Speed rpm	Avg. Output (gpm) @ 3500 psi Gear Width (inches) 1	1-1/4	1-1/2	1-3/4	2
900	6.0	8.0	10.0	12.0	13.5
1200	8.5	11.5	14.0	16.0	18.5
1500	11.0	14.5	17.5	20.5	23.5
2100	16.5	21.0	25.0	29.5	34.0

2" data at 3000 psi

Motor Speed rpm	Avg. Input/Output (gpm) @ 3500 psi 1" gear gpm	in-lbs	1-1/2" gear gpm	in-lbs	2" gear gpm	in-lbs
900	9.5	995	13.5	1495	17.5	1720
1200	12.5	995	17.5	1500	22.5	1725
1500	15.0	985	21.5	1495	28.0	1720
2100	20.0	925	29.5	1440	38.5	1670

2" data at 3000 psi

350

Pump Speed rpm	Avg. Output (gpm) @ 3500 psi Gear Width (inches) 1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	8.0	10.5	13.0	15.0	17.5	20.0	22.0
1200	11.5	15.0	18.0	21.0	24.0	27.0	30.0
1500	14.5	19.0	23.0	27.0	31.0	35.0	39.0
2100	21.0	27.0	32.5	38.5	44.0	49.5	55.0

2-1/2" data at 2500 psi
2" data at 3000 psi

Motor Speed rpm	Avg. Input/Output (gpm) @ 3500 psi 1" gear gpm	in-lbs	1-1/2" gear gpm	in-lbs	2" gear gpm	in-lbs	2-1/2" gear gpm	in-lbs
900	13.5	1240	18.5	1950	23.5	2260	28.5	2350
1200	17.0	1250	23.5	1960	30.0	2260	37.0	2360
1500	20.0	1240	28.5	1960	36.5	2230	45.0	2330
2100	26.5	1175	38.5	1840	50.0	2100	62.0	2180

2-1/2" data at 2500 psi
2" data at 3000 psi

365

Pump Speed rpm	Avg. Output (gpm) @ 3500 psi Gear Width (inches) 1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2
900	10.5	13.5	15.0	17.0	20.5	27.5	31.0
1200	15.5	20.0	24.5	29.0	33.5	38.0	43.0
1500	20.0	26.5	31.0	37.5	43.0	49.0	55.0
2100	29.0	37.5	45.5	54.0	62.0	70.0	78.0

2-1/2" data at 3000 psi

Motor Speed rpm	Avg. Input/Output (gpm) @ 3500 psi 1" gear gpm	in-lbs	1-1/2" gear gpm	in-lbs	2" gear gpm	in-lbs	2-1/2" gear gpm	in-lbs
900	18.4	1865	25.6	2860	32.9	3850	40.1	4125
1200	23.3	1845	32.9	2830	42.4	3810	52.0	4080
1500	28.2	1815	40.1	2780	52.0	3750	63.8	4020
2100	37.9	1755	54.4	2690	71.1	3610	87.5	3865

2-1/2" data at 3000 psi